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Alina Urbisz

**Occurrence of temporarily-introduced
alien plant species (ephemerophytes) in Poland –
scale and assessment of the phenomenon**



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NR 2897

Alina Urbisz

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Introduction

There is a rich literature on alien species (antropophytes) both in Poland and in other countries (e.g. KORNAŚ 1968, 1977, 1990; FALIŃSKI 1972, 1998; MIREK 1981a; CLEMENT, FOSTER 1994; REJMÁNEK 1995, 2000; WILLIAMSON 1996, 2002; WEBER 1997; SUDNIK-WÓJCIKOWSKA 1998; JACKOWIAK 1999; KOWARIK 1999, 2002; PYŠEK *et al.* 2002, 2004; PYŠEK 2003). The authors of these above-mentioned papers pay much attention to permanently-established plants and especially to the invasive species (their spread, biology and management). Monographic papers completed in Poland cover both the group of “oldcomers” – the archaeophytes (ZAJĄC A. 1979) and the plants which have arrived since the discovery of America – the kenophytes (TOKARSKA-GUZIŁ 2005).

Alien plant species which are not permanently established in a given area (the so-called diaphytes) are less often taken into consideration in botanical papers (TRZCIŃSKA-TACIK 1979). Mostly such papers are devoted to those ornamental and cultivated plants species which often escape from cultivation, the so-called ergasiophygophytes (e.g. WALTERS *et al.* 1984, 1986, 1989; CULLEN *et al.* 1995, 1997, 2000; PODBIELKOWSKI, SUDNIK-WÓJCIKOWSKA 2003). Basic information can be found in these publications, regarding their biology, habitat-related preferences and origin. However, the group of temporarily-introduced species (ephemerophytes) is the least known.

In 1987 the *Alphabetical List of Ephemerophytes of Poland* (ROSTAŃSKI, SOWA 1986–1987) was published covering more than 500 species which were then included in the publication entitled *Flowering plants and pteridophytes of Poland – a checklist* (MIREK *et al.* 2002). The authors of these works have treated this group of plants in relatively broad terms by assigning to it numerous species which escape from cultivation. It has also turned out that some species generally regarded as ephemerophytes have been observed to persist in their localities for relatively long period of time (from several up to more than ten years), tending sometimes to spread, suggesting that they should now be regarded as kenophytes.

The above observations lead to the conclusion that it is necessary to formulate a more precise definition of an ephemerophyte and to verify the existing data concerning the classification of species into this group of plants.

1. Aim of the study

The main goal of the work is the monographic study of the ephemerophytes of Poland and the assessment of their role in the contemporary flora. The following research tasks have been undertaken in order to achieve it:

- the precise definition of the term “ephemerophyte” and the setting of criteria for the attribution of a species to that group of plants,
- verifying and updating the list of the ephemerophytes of Poland,
- presenting the characteristic of the species assigned to this group (taxonomy, origin, manner of introduction, dynamics of appearance, habitats occupied),
- determining the relationship between the appearance of ephemerophytes and the economic development of Poland in different historical periods,
- identifying the species showing the strongest tendency to become established in Poland.

2. Definition of the term “ephemerophyte” and criteria for classifying a species into this group of plants

The term “ephemerophyte” can be considered from the point of view of both plant ecology and phytogeography. Used as an ecological term (STRZAŁKO 2006), ephemerophytes are the plants of a short life-cycle which can be divided into:

- ephemeroids – widespread mainly in dry zones (in deserts, grasslands) which, under certain unfavourable conditions, lose over-ground parts and survive that period in the form of rhizomes, tubers or bulbs;
- ephemerids – growing mainly in grasslands and deserts, and waiting out unfavourable weather conditions in the form of seeds which can quickly germinate under the favourable conditions and complete the whole development cycle.

In phytogeography the term “ephemerophyte” is used to distinguish species of alien origin which have occasionally been brought to, and appear temporarily in, the flora of a given country or area.

According to *Słownik z zakresu synantropizacji szaty roślinnej* [Dictionary of terms used in the field of the synanthropisation of vegetation cover] (SUDNIK-WÓJCIKOWSKA, KOŹNIEWSKA 1988) ephemerophytes are species of alien origin brought to a given area from far distances without conscious human participation, not established permanently and eliminated mainly by unfavourable climatic conditions.

In the present paper the following criteria have been used to assign species to the group of ephemerophytes:

- A species of alien origin (anthropophyte).
- A species is not permanently established in Poland (usually surviving for one season only; possibly longer as the result of the arrival of new diaspores or due to vegetative reproduction).
- It is brought from far distances (at least several hundreds of kilometers).
- It appears without conscious (intentional) human participation.

- It is not a species cultivated in Poland (it is practically impossible to confirm the arrival of such cultivars from far distances since they escape from cultivation more frequently than they are transported in).
- It appears in particular habitats where new diasporas of alien species are intensively supplied (railroads, river and sea ports, surroundings of grain elevators and flour mills, roadsides, warehouses, wastelands, etc.). Ephemero-phytes seldom occur in gardens, parks or city greens.

3. Position of ephemerophytes in the classification of synanthropic plants

First classifications of plants from the point of view of human activities began to appear at the beginning of the 20th century. The authors, when working them out, assumed such criteria of species division as origin, naturalisation status, time of arrival, introduction intentionality, human cultivation, way of dissemination, the distance made, types of habitats. The differences concern the number of the considered criteria, order of their use and the names of the distinguished groups of species. Ephemerophytes, as the plants temporarily introduced and not permanently established, were taken into consideration as early as in the first classifications of this type.

The author of the first of them was RIKLI (1903), who distinguished the following five groups of species among the plants of alien origin, and called them anthropochores: archaeophytes, colonophytes (currently epocophytes), neophytes (now agriophytes), escapers from cultivation (ergasiophygophytes) and ephemera (now ephemerophytes).

Pioneering research devoted to “adventitious” plant species was carried out at the beginning of 20th century by NAEGELI and THELLUNG in surroundings of the city of Zürich. Observing of the flora of this area and especially finding it possible for some introduced species to survive for a number of years, led the authors to attempt to specify terminology and to subdivide plants of alien origin into groups by taking their response to human activities into consideration. They paid special attention to the ways in which the species were introduced (intentionally or unintentionally). Plants which were not permanently established and which came into a given area without conscious human participation, were called ephemerophytes (NAEGELLI, THELLUNG 1905). Depending on the type of plant communities where the species were found, the group was divided into ruderal and segetal ephemerophytes. In further papers (THELLUNG 1915, 1918/1919; SCHEUERMANN 1948), more detailed divisions of ephemerophytes can be found concerning the particular goods with which their diaspores were brought (species brought with foreign cereals, seeds of oil plants, wool,

cotton, or ballast materials of ships) and with in respect to the type of transport by which they came (maritime and inland navigation, railway traffic, migration of national groups, war operations, etc.). Separate papers have been devoted to the adventitious species which were brought with particular kinds of goods, e.g. with wool (PROBST 1949; PYŠEK 2005). There also exist monograph papers containing lists of the species brought to the given area along with the given goods. They are above all the papers by German botanists from the region of Silesia (MEYER 1931, 1932, 1937; SCHALOW 1931, 1932, 1933, 1936) and Pomerania (HELM 1881; HOLZFUSS 1936, 1937, 1941; KLINGGRAEFF 1854; PREUSS 1910, 1928; SCHEUERMANN 1956). They often gave not only the area of appearance but also the type of habitat and the way of introducing them.

Individual classifications of synanthropic species have been proposed by SIMMONS (1910), DOMIN (1947) and JALAS (1955), who explicitly separated the species introduced intentionally (ergasiophytes, ergasiophygophytes, ergasiolypophytes) from those arriving spontaneously (ephemerophytes, archaeophytes, epocophytes, neophytes). KREH'S paper (1957) proposes the division of ephemerophytes into those which were recorded once only and those which have appeared from time to time and then disappeared. The detailed classification of synanthropic plants has also been presented by HOLUB and JIRÁSEK (1967). Intentionality of introduction was also in this case the main criterion of division of anthropophytes. They were divided into hemerophytes (introduced intentionally) and xenophytes (introduced unintentionally), whereby ephemerophytes have been included into the latter group. In the some contemporary publications ephemerophytes are often associated with the species being escapers from cultivation as the so-called *casual alien plants*, and the criterion of introduction intentionality was not considered there, at all (PYŠEK *et al.* 2004; RICHARDSON *et al.* 2000).

Polish botanists have also undertaken the classification of synanthropic plants based on their origin, time of arrival and the degree of establishment. SZULCZEWSKI (1931) divided the alien species in a simple way. He distinguished two groups of species: *przybysze* – (plants resistant to weather conditions which can become permanently established) and *przybłądy* (which are sensitive to climatic conditions and can survive for two years at most) which can be identified as ephemerophytes. The paper by KRAWIECOWA (1951) devoted to synanthropic flora of the city of Poznań constitutes a detailed work covering geographical-historical analysis of particular species. The author presents not only a number of terms and definitions regarding synanthropic plants, but, for the first time in Poland, she carried out the division of synanthropic plants based on THELLUNG'S classification (1915) which was later modified by KORNAŚ (1968, 1977) and TRZCIŃSKA-TACIK (1979). A different approach was proposed by KRAWIECOWA and ROSTAŃSKI (1972, 1976) who divided anthropophytes into archaeophytes and kenophytes, in which the latter were subdivided into agrestophytes (unintentionally introduced) and ergasiophytes (intentionally introduced). Each of these groups was sub-divided into two groups depending on

the degree of establishment of the species. Thus agrestophytes have been divided into agrestoepoecophytes (established) and agrestoephemerophytes (not established), and ergasiophytes have been divided into ergasioepoecophytes (established) and ergasioephemerophytes (not established). According to this approach, ephemero-phytes discussed hereunder would correspond to agrestoephemerophytes.

It can be noticed that the differences between particular classifications result above all from different order of the division criteria used and from different importance assigned to them by particular authors. However, in each case ephemero-phytes have been placed among the species which are not permanently established or have been brought occasionally.

Presently, according to the classification of synanthropic plants adopted in Poland (TRZCIŃSKA-TACIK 1979; KORNAŚ, MEDWECKA-KORNAŚ 2002) ephemero-phytes and ergasiophytes (species escaping from cultivation) constitute the joint group of not established species (diaphytes).

4. Species excluded from the present study

For the purpose of the present study it was necessary to create an original and up-to-date catalogue of ephemerophytes occurring in Poland. The status of each species recognized by different authors (ROSTAŃSKI, SOWA 1986–1987; MIREK *et al.* 2002; RUTKOWSKI 2004) as an ephemerophyte, has been critically assessed against the criteria which have been assumed in the present monograph (see Chapter 2). As the result of the analysis 134 taxa have been identified which, for various reasons, do not comply with the criteria for belonging to this group of plants (Appendix A). It has been proposed to change the status of 21 species and include them to permanently established, 84 species have been recognized as ergasiophygophytes since they are, or have been, cultivated within the territory of Poland, and the remaining 29 species are of an uncertain status or are considered to have been mistakenly recorded in Poland. Appendix A lists the excluded species in alphabetical order and the features which were decisive for excluding species from the group of ephemerophytes have been marked with a “+” mark.

The species recognized as permanently established include both those which have several records within the territory of Poland and ones recorded at one single place (*Alyssum argenteum*, *Saxifraga umbrosa* or *Tanacetum partheni-folium*).

The list of species presented below have been recognized by different authors as established within the flora of Poland. They are the following:

1. *Abutilon theophrasti* – it currently spreads as a weed within cultivations in Lower Silesia (DOMARADZKI *et al.* 2008);
2. *Aegilops cylindrica* – according to ŚWIEŚ and WRZESIEŃ (2002, 2003, 2004), this species can be recognized as a kenophyte because of its massive appearance and survival for a number of years in several habitats near Lublin;
3. *Alyssum argenteum* – the species was recorded on the wall of catholic cemetery in Wleń (SCHUBE 1909), where it has survived up to now and spreads on seminatural grasslands nearby *Diantho-Armerietum elongatae* (KWIATKOWSKI 2006);

4. *Arenaria leptoclados* – the taxon is considered by many authors to be a subspecies of *Arenaria serpyllifolia*, which has repeatedly been recorded in Lower Silesia (SZELĄG 2000; KWIATKOWSKI 2006; MAŁAJSKI – herbarium materials KRAM);
5. *Artemisia biennis* – the species is established in neighbourhood of Rzeszów (OKLEJEWICZ 1999, 2005, 2011);
6. *Azolla filiculoides* – survives and spreads within eutrophic reservoirs in Lower Silesia in the region of Wrocław and in the old riverbeds of Nysa Łużycka (SZCZEŚNIAK *et al.* 2009);
7. *Campanula rapunculus* – in last few years appearance of this species has been confirmed xerothermic and psammophilic grasslands in the valley of Bug river (CIOSEK, KRECHOWSKI 2005; CIOSEK – in print);
8. *Cardamine chelidonia* – the species has appeared in Karpacz since 1933; according to SCHALOW (1935) the seeds of this plant were brought by Italian road-workers; presently, it has also been recorded in the valley of Łomnica in seminatural habitats, where it is spreading (PENDER, KUSIAK 2003);
9. *Centaurea nigra* – formerly recorded in above ten localities situated mainly in the area of Pomerania and Silesia (FIEK 1881; ABROMEIT *et al.* 1903; SCHUBE 1903b); presently, it appears on peaty meadows and roadsides in neighbourhood of the village called Karwieńskie Błota, *leg. Nowak T.* 2008 (herbarium materials KTU);
10. *Chenopodium pumilio* – the species was recorded for the first time in 1974 on premises of the port of Gdańsk where it survives up to now (MISIEWICZ 1976; MISIEWICZ, KORCZYŃSKI 2003);
11. *Eragrostis pilosa* – up to 2005 the species was reported to spread on river alluvia in the valley of the Vistula and San (CEYNOWA-GIELDON 1973; SUDNIK-WÓJCIKOWSKA, GUZIK 1996; KUCHARCZYK 2001) and on anthropogenic habitats of Warszawa (SUDNIK-WÓJCIKOWSKA 1981; SUDNIK-WÓJCIKOWSKA, GUZIK 1996) and in Lublin area (ŚWIEŚ, WRZESIEŃ 2002, 2003, 2004); after verification of herbarium materials most specimens collected turned out to be *Eragrostis albensis* (SCHOLZ 1996; GUZIK, SUDNIK-WÓJCIKOWSKA 2005); however, massive appearance of *E. pilosa* was reported in 2007 in railways areas near Nowosielce (NOBIS M., NOBIS A. 2009) – the authors of this paper proposed that this species should be included in the kenophytes group;
12. *Erysimum diffusum* – has survived for several tens of years near Stalowa Wola and Tarnobrzeg (KRZACZEK T. 1971; KRZACZEK T., KRZACZEK W. 1982; KRAWCZYK 2003);
13. *Hordeum secalinum* – formerly in saline meadows in the area of Szczecin (RUTKOWSKI 2004); according to the works entitled *Rośliny Polskie* [The Polish Plants] (SZAFFER *et al.* 1986) and *Flora Europaea* (TUTIN *et al.* 1964–1986) it is a native species in the Polish flora;
14. *Lathyrus aphaca* – it has survived for several years on arable land in the southern part of Kraków (Kobierzyn); it has also been observed in the

crops of wheat oat and barley, as well as in the blends of those crops (NOBIS *et al.* 2011);

15. *Linaria spartea* – appears in the segetal habitats and in post-agricultural forests in Kotlina Zasiiecka (PENDER *et al.* 1977; ROSADZIŃSKI 2007);
16. *Melica altissima* – appears on loessial roadside slopes and in forest communities with participation of *Robinia pseudoacacia* near Sandomierz (URBISZ, PIERŚCIŃSKA 2009); the taxon recorded there is *Melica altissima* var. *atropurpurea* – a ornamental variety of this grass which is sometimes planted in gardens and that is why this species should be treated as an ergasiophygophyte which has now become a permanently established species – its spreading has been observed for above ten years now (GŁĄZEK 1997; URBISZ, PIERŚCIŃSKA 2009);
17. *Saxifraga umbrosa* – population of this species has existed since 1914 when it was recorded in Siedlęcín near Pilichowice, up to the present time (SCHUBE 1914; KWIATKOWSKI 2007);
18. *Senecio inaequidens* – this plant was observed to spread in last few years near Zgorzelec (KWIATKOWSKI 2011); the species is migrating into Poland from territory of Germany where it often occurs, especially along transport routes (RADKOWITSCH 1997, 2003; HEGER, BÖHMER 2005);
19. *Tanacetum parthenifolium* – this species has survived for above 100 years on the walls of Chojnik castle (Jelenia Góra – Sobieszów) and on the rocks surrounding the castle (SCHUBE 1901; observation – Urbisz Al., Urbisz A. 2009);
20. *Vallisneria spiralis* – since the first half of the nineties of 20th century it has occurred in precincts of Konin in the lakes into which warm water from “Konin” power station is discharged (GĄBKA 2002; MIREK *et al.* 2002; HUTOROWICZ 2006);
21. *Vulpia bromoides* – this species has been found to appear in *Filagini-Vulpium* community (related to *Vicio lathyroidis-Potentillion argenteae*), mainly in Lower Silesia (FREY *et al.* 2004) and considered by authors as a native one.

Another large group is constituted by the species omitted because of their cultivation. This group covers both cultivation plants introduced intentionally by man as cereals (*Hordeum zoecrithon*, *Triticum polonicum*, *T. turgidum*), melliferous plants (*Borago officinalis*, *Phacelia tanacetifolia*), fodder crops (*Cicer arietinum*, *Trifolium resupinatum*), herbs (*Mentha x gentilis*, *Trigonella caerulea*, *T. foenum-graecum*) and ornamental species (e.g. *Calendula officinalis*, *Datura tatula*, *Eranthis hyemalis*, *Nepeta mussini*, *Typha minima*). It should be noticed that some cultivated plants (e.g. the above mentioned *Alyssum argenteum*, *Campanula rapunculus* or *Melica altissima*) have become a permanent element of the flora of Poland in recent years.

The taxa whose status in the Polish flora is uncertain because of insufficient data, has also been omitted from this study. They are the following:

1. *Althaea hirsuta* – formerly recorded from the region of Ropa by Kotowicz (WALAS 1959) and Chmielów near Tarnobrzeg (ŚWIĘŚ, MAJKUT 2006), herbarium materials are unavailable; perhaps mentioned by mistake;
2. *Androsace elongata* – according to *Rośliny Polskie* [The Polish Plants] (SZAFFER *et al.* 1986) and *Flora Europaea* (TUTIN *et al.* 1964–1986) the species is established in Poland; however, there are no certain localities. According to MIREK *et al.* (2002) this species has been classified as ephemero-phyte; not established in Poland;
3. *Brassica elongata* subsp. *elongata* – it requires a critical taxonomic revision and the localities mentioned within the floras are given without assigning them to the adequate subspecies (MIREK 1978);
4. *Cerinth glabra* – reported from Olecko (Marggrabowa), as a species brought to a vegetable garden, *leg. Rehse* 1891 (ABROMEIT *et al.* 1903; GRODZIŃSKA 1963); however, it is not known if this species was correctly determined as there are no herbarium materials to carry out any revision; it is a mountain plant appearing in Slovak Tatra – Góry Choczańskie (DOSTAL 1989), however, there are no localities on territory of Poland (ZAJĄC A., ZAJĄC M. 2001); perhaps to be found;
5. *Corispermum hyssopifolium* – most specimens from the Polish territory determined as this species belong to *C. leptopterum* (PACYNA 1992);
6. *Galium ruthenicum* – the species comprises the range of variability of *G. verum* (KUCOWA 1967);
7. *Hesperis sylvestris* – formerly in the south of Poland reported from Czerna near Kraków (KULCZYŃSKI 1927), according to SZAFFER *et al.* (1986) it is a native species; probably mentioned by mistake, not established in Poland;
8. *Hypericum veronense* – the species reported from several localities under the name *Hypericum perforatum* f. *veronense* (SCHUBE 1909, 1912) or *var. veronense* (SZULCZEWSKI 1951);
9. *Linaria dalmatica* – the species treated as a subspecies within *Linaria genistifolia* (WOJEWODA 1963; CHATER *et al.* 1972; RUTKOWSKI 2004);
10. *Viola kitaibeliana* – the species similar to *V. arvensis* (ZABŁOCKI 1947). It requires a critical taxonomic revision. It may occur in Poland but it has not been distinguished yet.

The species have also been distinguished within the group of ephemero-phytes which were probably mistakenly recorded. They cover the following taxa:

1. *Agrostis castellana* – specimen material has not been precisely determined so far; the species to be found in Poland (RUTKOWSKI 2004);
2. *Amaranthus angustifolius* – the species has been reported from the Polish territory by mistake (FREY A. 1974; MIREK *et al.* 2002); a number of German botanists report it from territory of Poland; there is no herbarium material so these data cannot be verified;
3. *Amethystea visnaga* – probably incorrect genus name, species epithet probably refers to *Ammi visnaga*;

4. *Avena nuda* – the species mentioned in the flora of Silesia by SCHUBE in 1914; however without stating the concrete place of locality;
5. *Bromus* cf. *sitchensis* – according to MIREK *et al.* (2002) there is no certain determination of the materials;
6. *Chenopodium carinatum* – probably this species has not appeared on territory of Poland; the name referred to *Ch. pumilio* (MISIEWICZ 1976) and the author reported the species under the incorrect synonym;
7. *Daucus pusillus* – see comments to *Pseudorlaya pumila*;
8. *Echinochloa spinosa* – probably incorrect genus name, species epithet probably refers to *Echinophora spinosa* L.;
9. *Echinochloa spiralis* – probably, it has been recorded mistakenly (PACZYNA *et al.* 1999; PACZYNA 2005);
10. *Eragrostis aegyptiaca* – according to GUZIK and SUDNIK-WÓJCIKOWSKA (2005) appearance of this species in Poland is doubtful;
11. *Eragrostis caroliniana* – it has been recorded mistakenly (GUZIK, SUDNIK-WÓJCIKOWSKA 1994);
12. *Eragrostis pectinacea* – mistakenly recorded (GUZIK, SUDNIK-WÓJCIKOWSKA 2005);
13. *Hypericum japonicum* – probably, it has been recorded mistakenly (BOCK 1908);
14. *Malva excisa* – the species mistakenly described (CELKA Z. personal information);
15. *Oenothera compacta* – the species has not appeared on territory of Poland (ROSTAŃSKI K. personal information);
16. *Oenothera octolineata* – the species has not appeared on territory of Poland (ROSTAŃSKI K. personal information);
17. *Pseudorlaya pumila* [= *Daucus pumilus*] – the species was probably reported by mistake by Zanowa under the name *Daucus pusillus*; SUDNIK-WÓJCIKOWSKA reports it with question mark (?) because of the lack of herbarium materials (ZANOWA 1964; SUDNIK-WÓJCIKOWSKA 1987); perhaps none of the two species has ever appeared on territory of Poland.

Azolla mexicana and *Orlaya grandiflora* have also been omitted from the paper as there are no data concerning their appearance in Poland.

5. Material and methods

5.1. The boundaries of the research area

Territory of the Republic of Poland within its present borders has been taken as research area. In the consequence, on one hand, some regions have been omitted which used to be the parts of Polish state (Podole, Wołyń, the Lithuanian Duchy) while, on the other hand, new regions have been included which were situated outside of Polish territory for a long period of time (e.g. Silesia, Prussia, West Pomerania).

The present borders of Poland were fixed in 1945 in Potsdam and Yalta. Contemporarily, it occupies the surface of 312 679 km² and its borders are 3 511 km long. It borders on 7 countries, i.e. Germany, Slovakia, Czech Republic, Russia, Belorussia and Ukraine with its northern border running along the coast of Baltic Sea.

5.2. List of species

The alphabetical list of ephemerophytes of Poland has been based on the *Flowering Plants and Pteridophytes of Poland, a checklist* (MIREK *et al.* 2002) and attached to the main text as Appendix B. Detailed analysis based on the above mentioned criteria (see Chapter 2) has been carried out for each species classified as ephemerophyte. Source materials have been verified (from publications and herbarium) which contained the information on the status and occurrence of particular taxa in Poland. The list has been complemented with the species whose appearance has been found during recent years and which had not been taken into account in earlier papers (ROSTAŃSKI, SOWA 1986–1987; MIREK *et al.* 2002; RUTKOWSKI 2004). They are the following: *Atriplex glauca* (PREUSS 1928), *Centaurea orientalis* (ĆWIKLIŃSKI 1965), *Chloris barbata*,

Chloris truncata (DECKER 1912), *Cordylanthus maritimus*, *Sigesbeckia cordifolia*, *Verbascum lanatum* (GALERA 2003), *Orobancha lucorum* (HALAMSKI 2005, SZCZEŚNIAK 2010), *Phalaris angusta* (HOLZFUSS 1941), *Roemeria hybrida* (DECKER 1912; CZARNA 2005) and *Tragus racemosus* (URBISZ, WĘGRZYNEK 2007).

After verifying the available data, it has been found that the criteria assumed in the definition are complied with by 400 species, 60 of which require a critical taxonomic revision (they have been marked with asterisk “*” in Appendix B). Most of 134 species excluded from this study and which have been previously classified as ephemerophytes (see Chapter 4 and Appendix A) should be classified as ergasiophygophytes because they are or have been cultivated in Poland, while the remaining ones should be regarded as permanently established or as the species with uncertain status or erroneously reported.

5.3. Sources of data

Information on this group of species has been gathered from literature data, herbarium materials and own field research, in order to present the complete characteristic of the species brought temporarily to Poland.

5.3.1. Literature

The available works (covering the Polish territory within its present borders) have been reviewed where the lists of ephemerophyte localities are presented including releves taken in the plant communities participated by those species. A number of them were published before 1900 and were written in gothic letters in German or Latin languages (e.g. ELSNER 1837; SCHNEIDER 1837; SCHMIDT 1848; GERHARDT 1871). Only few works were devoted to the particular species, e.g. *Aegilops cylindrica* (LATOWSKI 1978), *Agastache urticifolia* (GUZIK, PACYNA 2003), *Azolla filiculoides* (SZCZEŚNIAK *et al.* 2009), *Dinebra retroflexa* (SOWA 1968a), *Melilotus indica* (TRZCIŃSKA-TACIK 1967) or genus, e.g. *Echinochloa* (PACYNA 2005) or *Eragrostis* (GUZIK, SUDNIK-WÓJCIKOWSKA 2005). Much data have been provided by the studies where the results were presented of research carried out in some specific habitats, such as sea ports (MISIEWICZ 1976), river ports (SZOTKOWSKI 1988) and railway areas (KORNAŚ *et al.* 1959; LATOWSKI 1972, 1977, 1981; ĆWIKLIŃSKI 1974; JANOWSKA 2002). Valuable information can also be found in monographic works on the floras of some larger cities and towns, such as: Poznań (KRAWIECOWA 1951; JACKOWIAK 1990, 1993), Gdańsk

(SCHWARZ 1967), Szczecin (ĆWIKLIŃSKI 1970), Zielona Góra (ĆWIKLIŃSKI 1971a), Kraków (TRZCIŃSKA-TACIK 1979), Warszawa (SUDNIK-WÓJCIKOWSKA 1987; SUDNIK-WÓJCIKOWSKA, GUZIK 1998) and Jaworzno (TOKARSKA-GUZIK 1999). Unfortunately, the authors of most of these works do not report the ways of bringing the species but only the locality and habitat of their appearance.

5.3.2. Herbarium materials

Most herbarium materials deposited within Polish herbaria and in some private collections have been verified. Unfortunately, in the case of prewar herbaria a part of materials has been destroyed or lost. It is especially the case with German botanists who carried out their research works in Silesia, Pomerania and Prussia, and deposited their herbarium materials, in Wrocław – Herbarium of Natural Museum of the University of Wrocław (WRSL), in Toruń – Herbarium of the Institute of Biology of Nicholas Copernicus University (TRN) or in Słupsk – Herbarium of the Institute of Biology and Environmental Protection (SLTC).

5.3.3. Unpublished data

In addition to data from the field studies forming part of the present investigation, some unpublished information has been considered which has been received from other botanists who have carried out field researches in different regions of Poland. It was carried out in the areas where the probability of ephemerophyte appearance was especially high, i.e. in some selected industrial areas, on wastelands, railway areas, around supermarkets and along newly-built roads, in sea and river ports and in the neighbourhood of grain elevators, mills, *etc.*

5.4. Collection of records and list of localities

The obtained information has been used for creating a computer database of ephemerophyte localities in Poland called “Efem-ATPOL”, which is compatible with the *Distribution Atlas of Vascular Plants in Poland* (ZAJĄC A., ZAJĄC M. 2001) and constitutes its supplement. The original database program called *Regionalny Atlas Roślin v.1.3* (RAR) created by Mr Józef Gajda of the Institute

of Informatics of Jagiellonian University has been used which enables maps of appearance of particular species in our country to be drawn up. Approximately 2 300 records of above 500 species have been collected in the database. The maps illustrating the distribution of some selected ephemerophytes and the concentration of localities of the distinguished groups and the species belonging to them in Poland, have been based on these data. They have been drawn up in 10×10 km cartogramme units, according to ATPOL methodology (ZAJĄC A. 1978). Appearance of a species has been marked with a black circle and the concentration of localities have been shown by means of circles whose size is proportional to the number of species appearing in the given research square.

The monograph also covers the detailed list of localities of the species classified as ephemerophytes (Appendix C). Particular species have been specified in the alphabetical order. Latin names have been taken from *Flowering plants and pteridophytes of Poland – a checklist* (MIREK *et al.* 2002). In the case of species which are not mentioned in that work, the names have been taken from *The International Plant Names Index* (www.ipni.org). Place of publication as well as the most important synonyms (encountered most frequently in literature and on herbarium labels) have been inserted for each taxon.

Localities have been described by means of the following data: symbol of cartogramme unit (10×10 km square), name of the place, author and year of publication, occurrence habitat, author and year of collection and herbarium symbol. The geographical names of places given in German language have been translated into Polish (ROSPOND 1951; BATTEK, SZCZEPANKIEWICZ-BATTEK 2007).

Acronyms for herbaria were given after MIREK *et al.* 1997:

GDMA – Department of Pharmaceutical Botany, Medical University of Gdańsk; **KRA** – Institute of Botany, Jagiellonian University; **KRAM** – W. Szafer Institute of Botany, Polish Academy of Sciences; **KTU** – Department of Plant Systematics, University of Silesia; **LBL** – Department of Systematics and Phytogeography, Institute of Botany, Maria Curie-Skłodowska University, Lublin; **MGS** – Upper Silesia Museum; **OPOL** – Museum of Opolian Silesia; **POZ** – Adam Mickiewicz University in Poznań; **SLTC** – Institute of Biology and Environment Protection, Pomeranian University in Słupsk; **SZUB** – Department of Botany, Szczecin University; **TRN** – Institute of Biology and Environment Protection, N. Copernicus University in Toruń; **WA** – Department of Plant Systematics and Geography, Institute of Botany, Warsaw University; **WRSL** – Museum of Natural History, University of Wrocław.

5.5. Selected of information on species

28 A synthesis of the characteristics of the ephemerophytes of Poland has been presented based largely on the data collected in this country. It covers their cur-

rently accepted Latin name, systematic classification (MIREK *et al.* 2002), introduction pathways (if known), area of their origin and the habitats in which they appear within their natural range. The types of habitats in which they have been observed in Poland are presented and also the number of their records from a series of defined historical periods (Appendix B).

In order to show the dependence between occurrence of ephemerophytes and the economic development of Poland and taking important historical events into consideration, 4 time periods have been distinguished in which the appearance of particular species was analyzed:

- before 1914 (outbreak of the first world war) – **I**,
- 1915–1945 (up to the end of the second world war) – **II**,
- 1945–1989 (up to the fall of communism in Poland) – **III**,
- after 1989 – **IV**.

Several introduction pathways into territory of our country have been distinguished:

- with exotic fruit (plants which came with hay and straw serving as a protection of citrus fruit from frost and mechanical damage) – **fru.**,
- with cereals (the species brought with cereals are considered to be those whose diaspores contaminated grain imported from Africa, Southern and Eastern Europe (mainly from the former Soviet Union), Asia and America – **cer.**,
- with oil plant seeds (diaspores of these species contaminated the imported seeds of flax, soya, peanuts, garden poppy) – **oil**,
- with wool (the species showing a zoochoric way of spreading whose diaspores are provided with the elements facilitating the adhesion of seeds or of the whole fragments of fruits) – **wool**,
- with ballast (soil, sand or water used for ballasting ships) – **bal.**,
- with fodder for animals and birdseed – **food**,
- in any other way (with cotton, metal ores, seedlings, seed materials, natural spread) – **oth.**

It should be stressed that a number of species may be brought in more than one of the above ways at the same time, whereby this type of data is unavailable for most species.

The origin and the habitats in which particular species occur in their natural range have been summarised on the basis of the available literature (*Flora Polska. Rośliny naczyniowe Polski i ziem ościennych*. [The Polish Flora. Vascular plants of Poland and adjoining territories] (1919–1980); MEUSEL 1943; TUTIN *et al.* 1964–1986; MEUSEL *et al.* 1965, 1978; JALAS and SUOMINEN eds. 1972, 1976, 1979, 1980, 1983, 1986, 1989, 1991, 1994; *Flora Polski. Rośliny naczyniowe*. [The Flora of Poland. Vascular plants.] (1985–1992); HULTÉN and FRIES 1986; SZAFFER *et al.* 1986; MEUSEL and JÄGER 1992; JALAS *et al.* eds. 1996, 1999; BLAMEY, GREY-WILSON 2004; RUTKOWSKI 2004; BOJŃANSKÝ, FARGAŠOVÁ 2007) and also selected databases which are available in the web. The most important ones are available on the web.

1. Den virtuella floran (<http://linnaeus.nrm.se/flora/>),
2. eFloras.org (<http://www.efloras.org/>),
3. Flora Europaea (<http://rbg-web2.rbge.org.uk/FE/fe.html>),
4. Plants For A Future (<http://www.pfaf.org/user/plantsearch.aspx>),
5. The Euro+Med PlantBase (<http://ww2.bgbm.org/EuroPlusMed/query.asp>).

The following areas of origin have been distinguished from which the species covered by the study came:

- Mediterranean region and Western Europe (**Medit.**),
- Asia (except for its southern part) and Eastern Europe (**Asia**),
- North or South America (**Amer.**),
- Africa (without its northern part), Australia and Southern Asia (**Tropic.**),
- Anthr. – the species known as a cultivated one (anthropogenic origin – **Anthr.**),

The habitats where ephemerophytes have been recorded in Poland, have been divided as follows:

- railway areas (**rail.**),
- dumping grounds, garbage dumps and rubbish heaps (**dump.**),
- surroundings of industrial plants (grain mills, oil mills) and wastelands (**ind.**),
- neighborhood of goods stores and market halls (**stor.**),
- ballast places (**bal.**),
- segetal habitats – fields, abandoned fields, fallow lands, gardens, pastures (**seg.**),
- other places – roadsides, botanic gardens, parks, water banks, lawns, surroundings of greenhouses (**oth.**).

6. Results

6.1. Systematic classification

The species regarded as ephemerophytes in Poland belong to 50 families and 215 genera. They are dominated by the representatives of families *Poaceae* (74) and *Asteraceae* (63) families. The proportion of plants belonging to *Fabaceae* (40), *Brassicaceae* (29), *Apiaceae* (15), *Boraginaceae* (15), *Caryophyllaceae* (15), *Chenopodiaceae* (14), *Scrophulariaceae* (12) and *Lamiaceae* (10) is also high (Fig. 1, Table 1). The above-mentioned families are also generally largely represented in the flora of Poland. It is however worthwhile to point out that the ephemerophytes include only a small number of representatives of *Cyperaceae* (5), *Rosaceae* (5) and *Ranunculaceae* (2) although many species which are indigenous to the flora of our country belong to those families. Among the ephemerophytes, species can also be encountered which belong to the families not represented in the native flora of Poland. They are the following: *Tetragonia tetragonoides* (*Aizoaceae*), *Ceratonia siliqua* (*Caesalpinaceae*), *Commelina coelestris* and *C. communis* (*Commelinaceae*), *Martynia proboscioidea* (*Martyniaceae*), *Citrus aurantium* (*Rutaceae*), *Tribulus terrestris* (*Zygophyllaceae*).

When analysing the percentages of the representatives of 12 most species-rich families in the flora of the permanently established plants in Poland, as compared to the flora of ephemerophytes (Table 2), higher share of species belonging to the families of *Poaceae*, *Asteraceae*, *Fabaceae*, *Brassicaceae* and *Apiaceae* can be found in this group, whereby the absolute absence of orchids (*Orchidaceae*) is another characteristic feature. Average number of species per genus within the 12 above-mentioned groups amounts to 1.94.

Genera with the highest participation of ephemerophytes are the following: *Bromus* (12 species), *Centaurea* (9 species), *Amaranthus*, *Medicago*, *Vicia* (8 species each), *Phalaris*, *Trifolium* (7 species each), *Crepis*, *Silene*, *Solanum* (6 species each) and *Chenopodium*, *Erodium*, *Potentilla*, *Rumex* and *Verbascum* (5 species each).

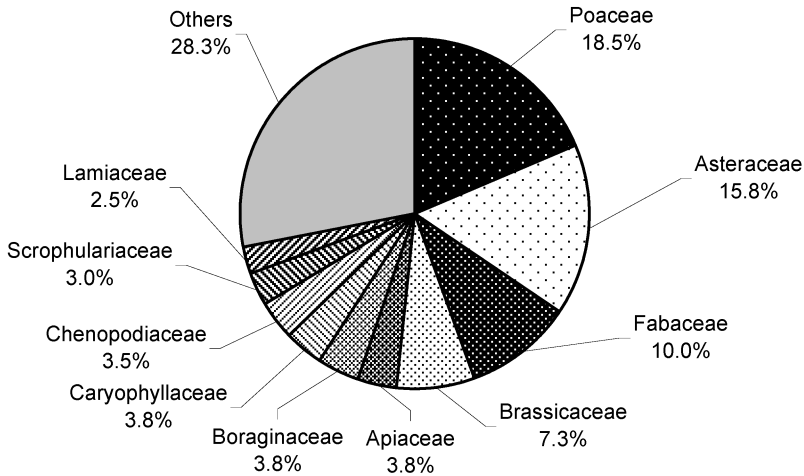


Fig. 1. Families with the highest shares of ephemerophyte species in the flora of Poland

The average number of species per genus is 1.86 which is similar to that of the two families that are richest in species, i.e. *Poaceae* (1.90) and *Asteraceae* (1.70). The highest value has been recorded for the following families: *Amaranthaceae* (8.00), *Rosaceae* (5.00), *Geraniaceae*, *Plantaginaceae*, *Polygonaceae* (4.00) and *Solanaceae* (3.50). Among 10 most largely represented families the highest number of species per genus has been found for *Fabaceae* family (2.86), and the lowest one has been found for *Lamiaceae* family (1.11).

Table 1. Number of ephemerophyte species of Poland within particular families

Family	Number of species	Number of genera	Species/genus
1	2	3	4
<i>Poaceae</i>	74	39	1.90
<i>Asteraceae</i>	63	37	1.70
<i>Fabaceae</i>	40	14	2.86
<i>Brassicaceae</i>	29	21	1.38
<i>Apiaceae</i>	15	11	1.36
<i>Boraginaceae</i>	15	8	1.88
<i>Caryophyllaceae</i>	15	7	2.14
<i>Chenopodiaceae</i>	14	7	2.00
<i>Scrophulariaceae</i>	12	5	2.40
<i>Lamiaceae</i>	10	9	1.11
<i>Amaranthaceae</i>	8	1	8.00
<i>Geraniaceae, Polygonaceae</i>	8	2	4.00
<i>Solanaceae</i>	7	2	3.50
<i>Malvaceae</i>	6	4	1.50
<i>Cyperaceae, Fumariaceae</i>	5	2	2.50
<i>Papaveraceae</i>	5	4	1.25
<i>Rosaceae</i>	5	1	5.00

cont. tab. 1

1	2	3	4
<i>Rubiaceae</i>	4	2	2.00
<i>Plantaginaceae</i>	4	1	4.00
<i>Cuscutaceae, Euphorbiaceae, Valerianaceae</i>	3	1	3.00
<i>Orobanchaceae, Resedaceae, Urticaceae</i>	3	2	1.50
<i>Asparagaceae, Campanulaceae, Commelinaceae, Hypericaceae, Portulacaceae</i>	2	1	2.00
<i>Ranunculaceae, Zygophyllaceae</i>	2	2	1.00
<i>Aizoaceae, Arecaceae, Aspleniaceae, Cannabaceae, Caesalpinniaceae, Cucurbitaceae, Hydrophyllaceae, Juncaceae, Lythraceae, Martyniaceae, Moraceae, Nyctaginaceae, Onagraceae, Oxalidaceae, Primulaceae, Rutaceae</i>	1	1	1.00
Total	400	215	1.86

Table 2. Ephemerophyte membership of the 12 families most frequently represented in Poland in terms of number of species and localities and a comparison with the percentage share of the permanently-established flora for the same families (KORNAŚ, MEDWECKA-KORNAŚ 2002)

Family	Number of ephemerophyte species	Number of ephemerophyte localities	Average number of localities per species	Percentage share	
				Ephemero-phytes	Established species
<i>Asteraceae</i>	63	337	5.35	15.7	12.1
<i>Poaceae</i>	74	403	5.45	18.5	7.3
<i>Rosaceae</i>	5	8	1.6	1.2	7.3
<i>Cyperaceae</i>	5	8	1.6	1.2	5.7
<i>Scrophulariaceae</i>	12	17	1.42	3.0	4.5
<i>Brassicaceae</i>	29	365	12.59	7.2	4.3
<i>Fabaceae</i>	40	148	3.7	10.0	4.4
<i>Caryophyllaceae</i>	15	35	2.33	3.7	4.6
<i>Lamiaceae</i>	10	60	6.0	2.5	3.5
<i>Apiaceae</i>	15	73	4.63	3.8	3.3
<i>Ranunculaceae</i>	2	10	5.0	0.5	3.4
<i>Orchidaceae</i>	0	0	0.0	0.0	2.2
Total	270	1 464	5.42	67.5	62.6

6.2. Number of localities

The number of localities for all 400 species classified as ephemerophytes amounts to 1 877, which means the average number of 4.7 for one species. Very rare plants prevail among ephemerophytes, i.e. above a half of the group (59%)

is constituted by species which have been recorded only once or twice (Fig. 2). Only 8 species have more than 30 localities, i.e. *Phalaris canariensis* (121) – Fig. 3, *Centaurea solstitialis* (66) – Fig. 4, *Sisymbrium orientale* (65) – Fig. 5, *Rapistrum rugosum* (42) – Fig. 6, *R. perenne* (38), *Sorghum halepense* (38) – Fig. 7, *Cynodon dactylon* (34) – Fig. 8, *Lepidium latifolium* (33).

Representatives of the families *Poaceae* (400), *Brassicaceae* (365) and *Asteraceae* (337) have been found to be the most abundant as far as the number of records (localities) is concerned of the species belonging to 12 families which are richest in species in the flora of Poland. Average number of records per species is also the highest for these three taxa and for *Lamiaceae* family, but especially *Brassicaceae* family is worth to be mentioned in this respect with the average number of 12.6 records per species, while this value amounts to 6 or approx. 5.5 records within *Lamiaceae*, *Asteraceae* and *Poaceae* families. Total number of records for all 12 above mentioned families (270 species) amounts to 1 464 (5.42 per species at an average).

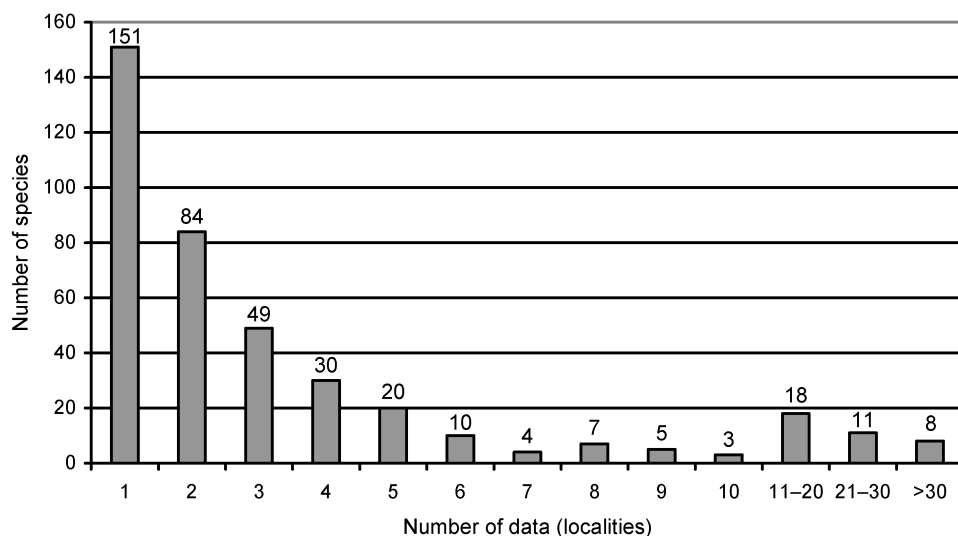


Fig. 2. Number of species depending on the number of data (localities)

6.3. Dynamics of occurrence

Large cities are the main places for ephemerophytes to appear. Most localities have been found in western and southern parts of Poland. The species classified to this group of plants have been frequently recorded especially in the area of big cities, like Warszawa, Kraków, Łódź, Słupsk, Poznań and Opole (Fig. 9).

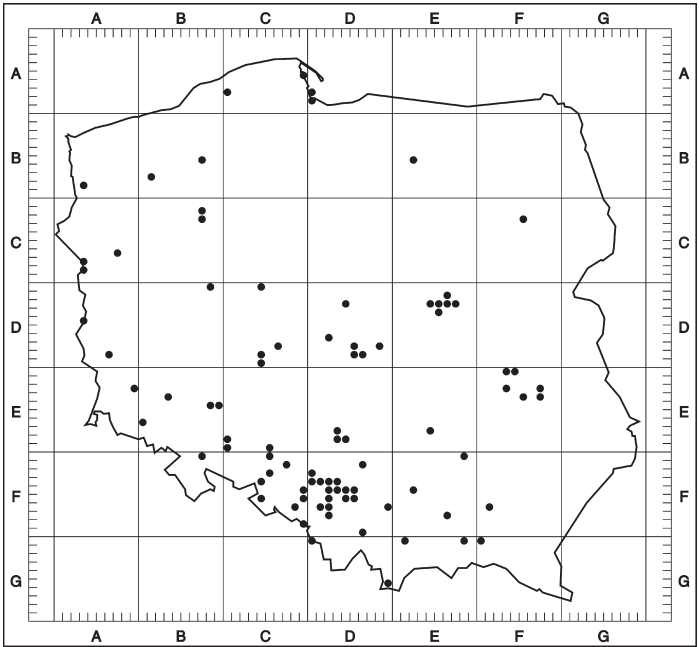


Fig. 3. *Phalaris canariensis*

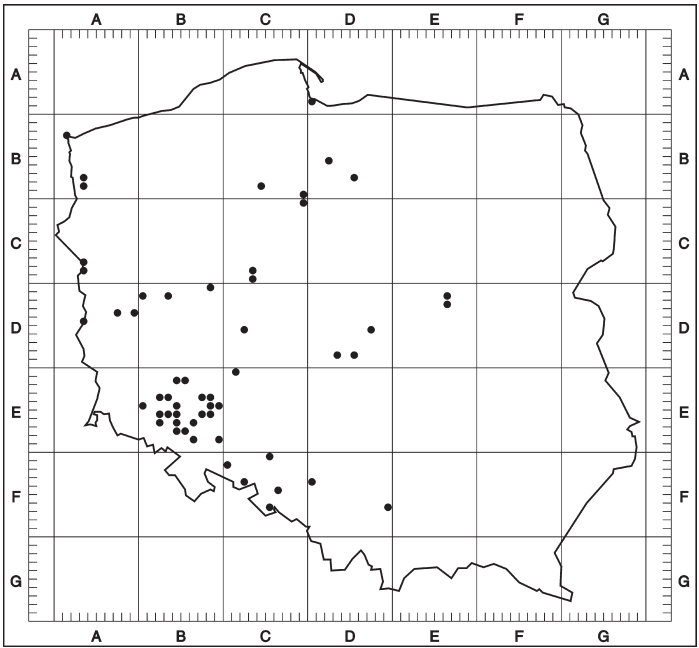


Fig. 4. *Centaurea solstitialis*

Fig. 3-4. Distribution of ephemerophytes with the largest number of localities in Poland

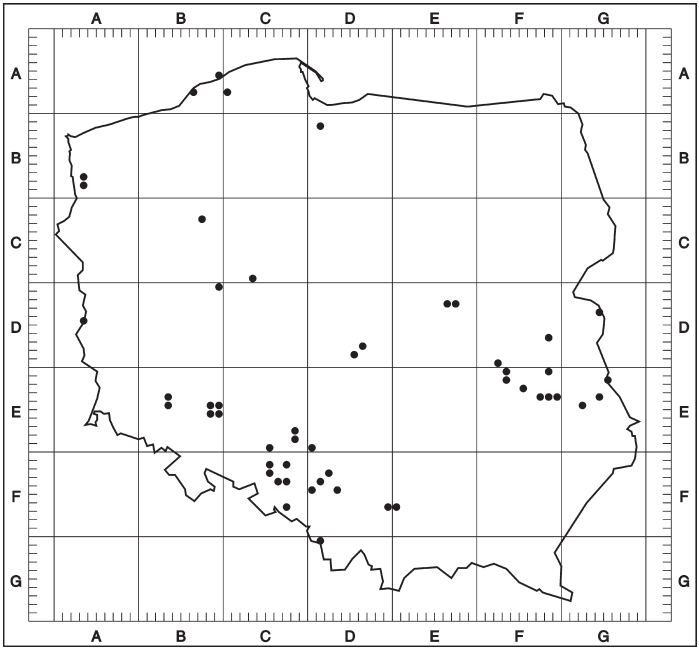


Fig. 5. *Sisymbrium orientale*

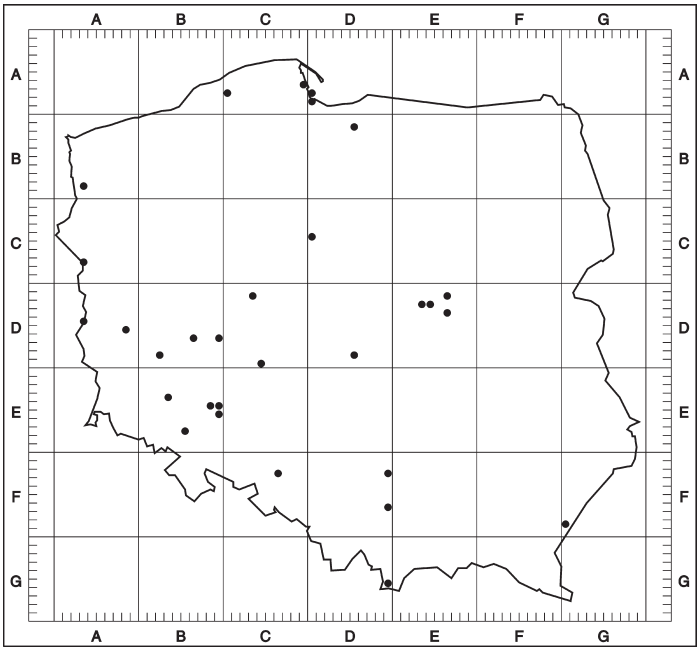


Fig. 6. *Rapistrum rugosum*

Fig. 5–6. Distribution of ephemerophytes with the largest number of localities in Poland

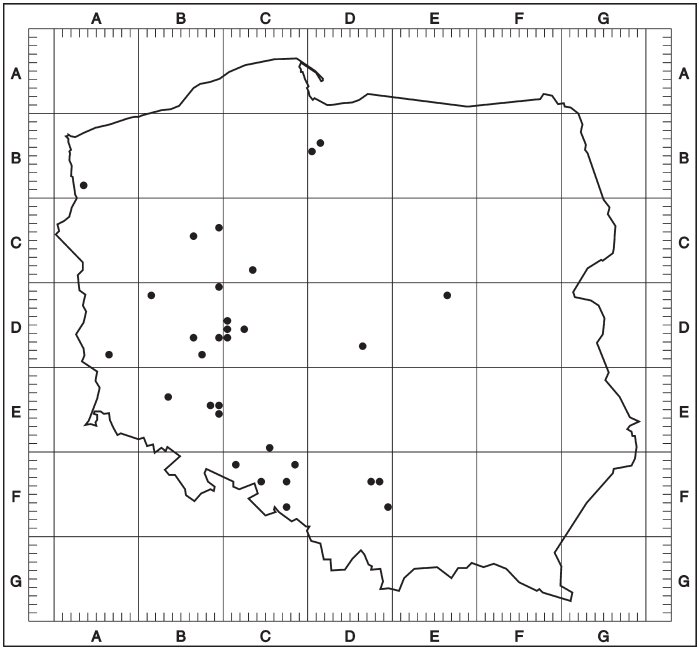


Fig. 7. *Sorghum halepense*

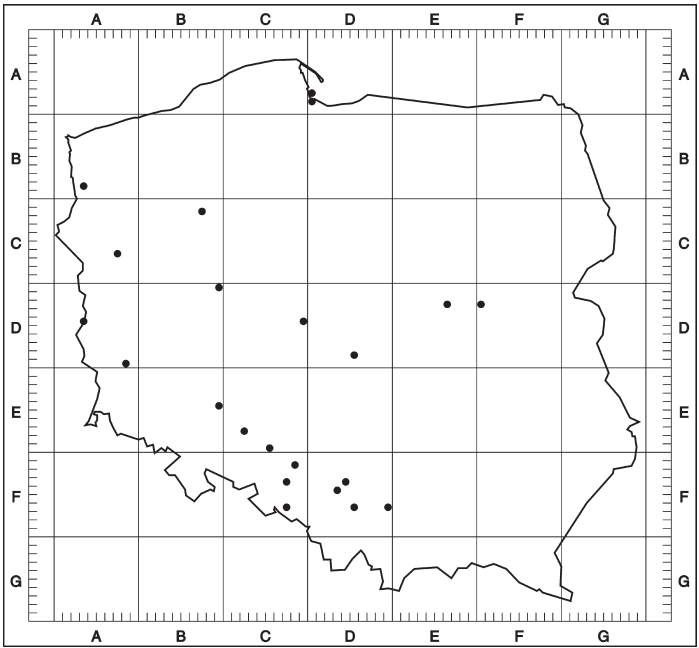


Fig. 8. *Cynodon dactylon*

Fig. 7–8. Distribution of ephemerophytes with the largest number of localities in Poland

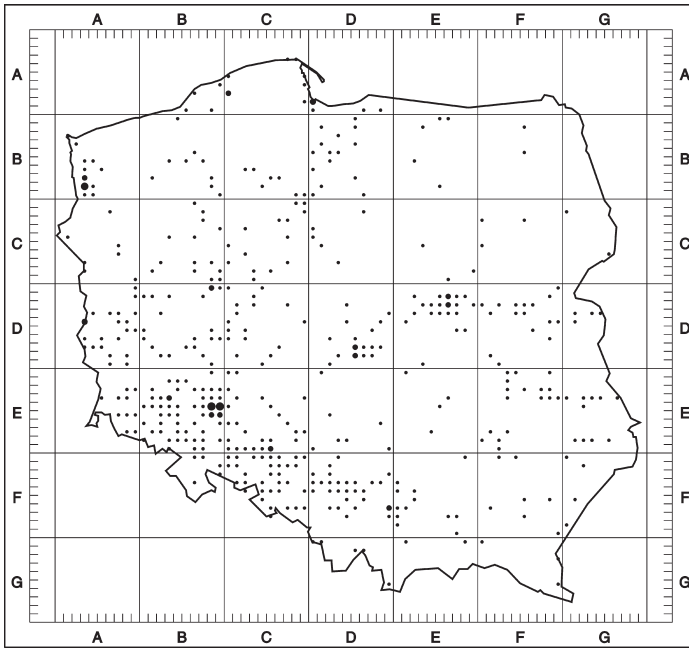


Fig. 9. Concentration of localities of 400 ephemerophyte species in Poland. The size of dots is in proportion to the number of the species occurring in each cartogramme unit (10 × 10 km square). The largest dot indicates 114 species per unit

When studying the appearance of ephemerophytes in the distinguished time periods, it has been found that most species were recorded in the period 1914–1945 (140) and the fewest of them were found during the last period (12) – Table 3. It can be seen that the changing political and economic situation, accompanied by the forms of human activities, is the cause of a higher probability of transferring diaspores of alien origin from one place to another. However, the species can also be encountered (20) which have been recorded during all the distinguished time periods such as: *Ambrosia trifida*, *Anthemis austriaca* (Fig. 10), *Bifora radians* (Fig. 11), *Brassica juncea*, *Centaurea solstitialis*, *Crepis setosa*, *Cynodon dactylon*, *Erysimum repandum* (Fig. 12), *Glaucium corniculatum*, *Heliotropium europaeum*, *Lepidium latifolium*, *L. perfoliatum* (Fig. 13), *Malcolmia maritima*, *Medicago polymorpha* (Fig. 14), *Myagrum perfoliatum*, *Phalaris canariensis*, *Rapistrum perenne*, *Rapistrum rugosum*, *Sideritis montana* (Fig. 15), *Solanum cornutum*. Among the mentioned species there are 8 from *Brassicaceae* and only 4 from *Asteraceae* and 2 from *Poaceae* which is the family richest in species. It results from the data presented in Table 3 that, in general, the number of species introduced temporarily into Poland has decreased since the beginning of 20th century.

Concentration of localities of ephemerophytes which were recorded only within one of the time periods distinguished are presented in Fig. 16–19. During the first period (up to 1914) ephemerophytes appeared most frequently in the

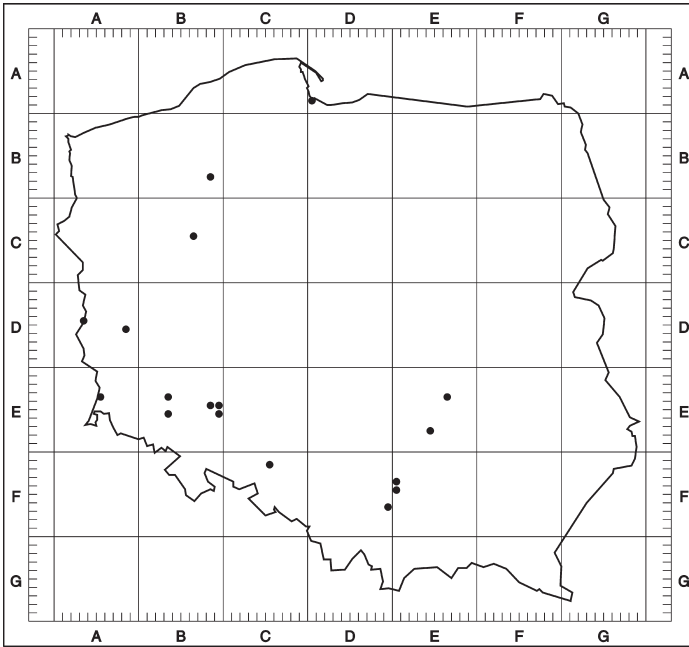


Fig. 12. *Erysimum repandum*

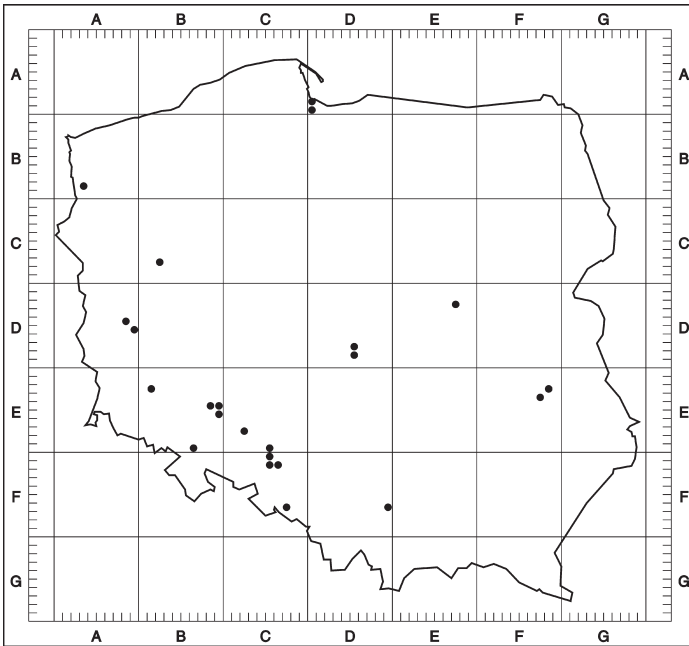


Fig. 13. *Lepidium perfoliatum*

Fig. 12–13. Distribution of some selected ephemerophyte species appearing during each of the four distinguished periods

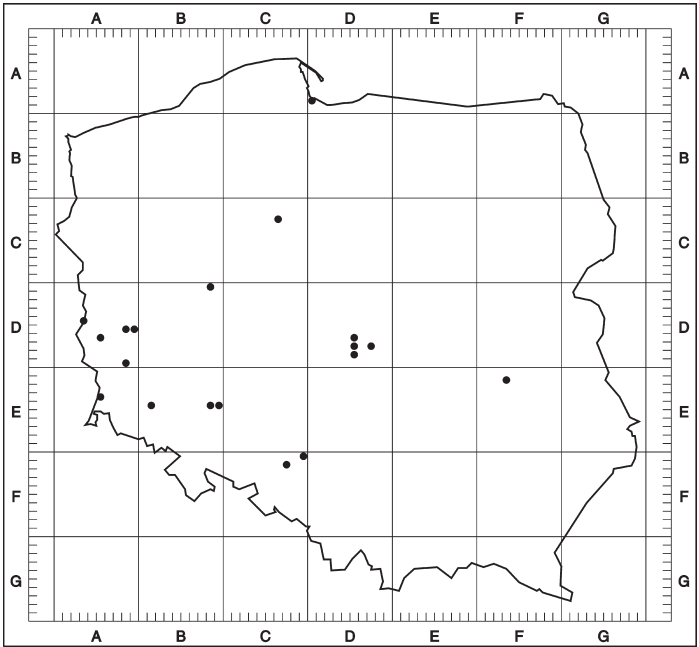


Fig. 14. *Medicago polymorpha*

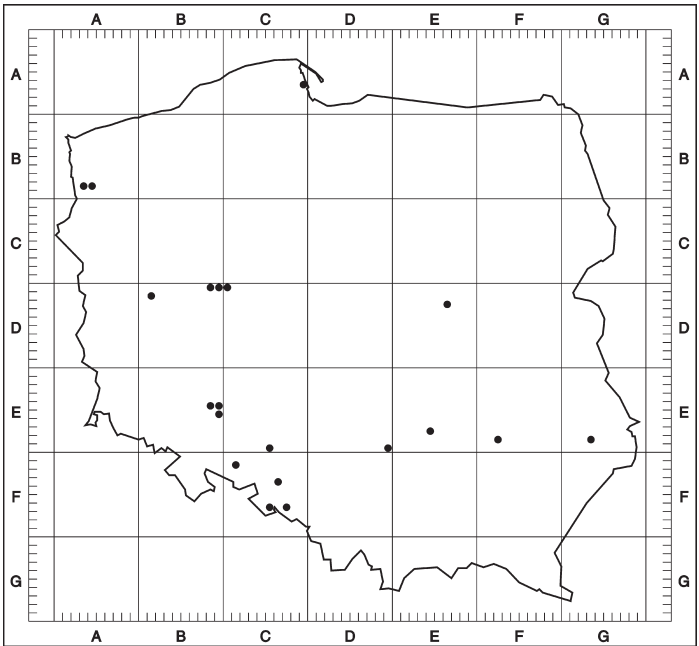


Fig. 15. *Sideritis montana*

Fig. 14–15. Distribution of some selected ephemerophyte species appearing during each of the four distinguished periods

lower course of the Vistula river (from Toruń up to its mouth) and along the valley of the Odra river in the area of Zielona Góra and Wrocław. Decisively, most species were found in Gdańsk (Fig. 16). During the second period (1915–1945) the localities of ephemerophytes are concentrated in Wrocław and Szczecin (Fig. 17), and during the third one (1946–1989) in Warszawa, Kraków and Łódź (Fig. 18). Since 1989 ephemerophytes have seldom been observed in southern and central Poland (Fig. 19). Every single locality of these species was situated in different cartogramme unit, so that their concentration is not obvious anywhere. The small number of species of ephemerophytes found during the last of the periods distinguished is probably connected with more severe goods transport regulations, the stabilisation of the political and economic situation and with the decreased intensity of floristic research.

Further figures (Fig. 20–23) illustrate the ways of introducing ephemerophytes in the distinguished historical periods. All time periods, except for the second one (1915–1945), are dominated by the plants brought with cereals. A significant share of plants brought with ballast soil (10%) is characteristic for the first period; in the period 1915–1945 most species were those brought with tropical fruit (24%) and oil seeds (10). The third period (1946–1989) shows a significant share of plants brought with wool (9%) while a large number of species brought in other manners (with seed material and seedlings) prevailed during the fourth period.

Table 3. Number of ephemerophyte species recorded during the distinguished periods of study (I – before 1914, II – 1915–1945, III – 1946–1989, IV – after 1989)

Period of study	Number of species recorded in the given period(s) only	Number of species recorded in at least one of the given periods
I	63	164
II	140	256
III	36	142
IV	12	60
I & II	28	346
I & III	20	242
I & IV	6	194
II & III	30	319
II & IV	6	281
III & IV	6	169
I, II & III	22	388
I, II & IV	4	364
I, III & IV	1	260
II, III & IV	6	337
I, II, III & IV	20	400

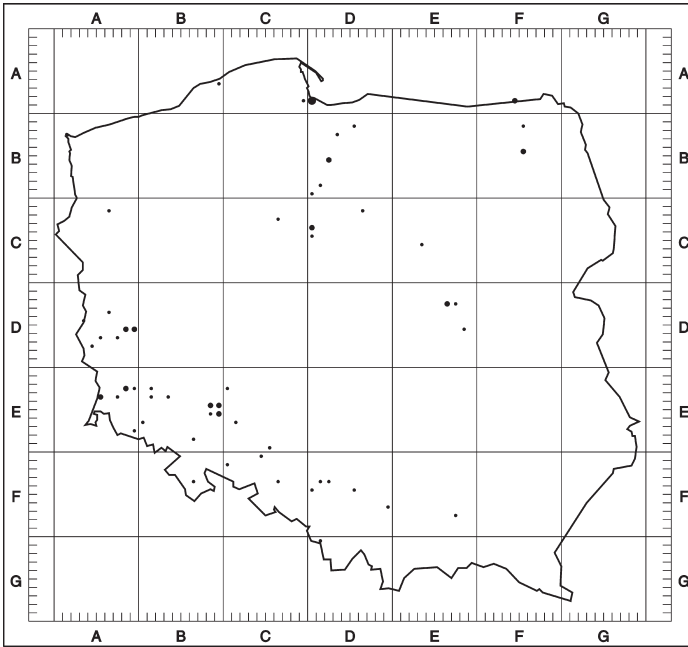


Fig. 16. Concentration of localities of 63 ephemerophyte species in the period before 1914. The size of dots is in proportion to the number of the species occurring in each cartogramme unit (10 × 10 km square). The largest dot indicates 14 species per unit

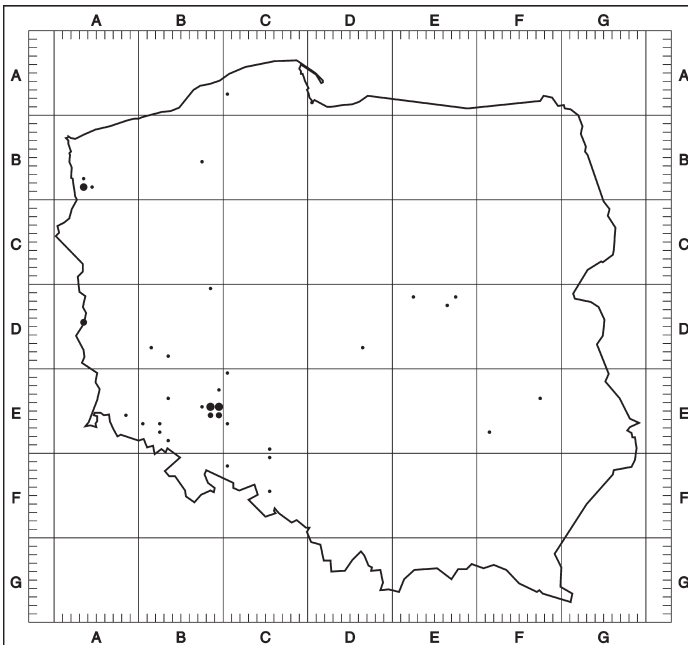


Fig. 17. Concentration of localities of 140 ephemerophyte species in the period 1915–1945. The size of dots is in proportion to the number of the species occurring in each cartogramme unit (10 × 10 km square). The largest dot indicates 54 species per unit

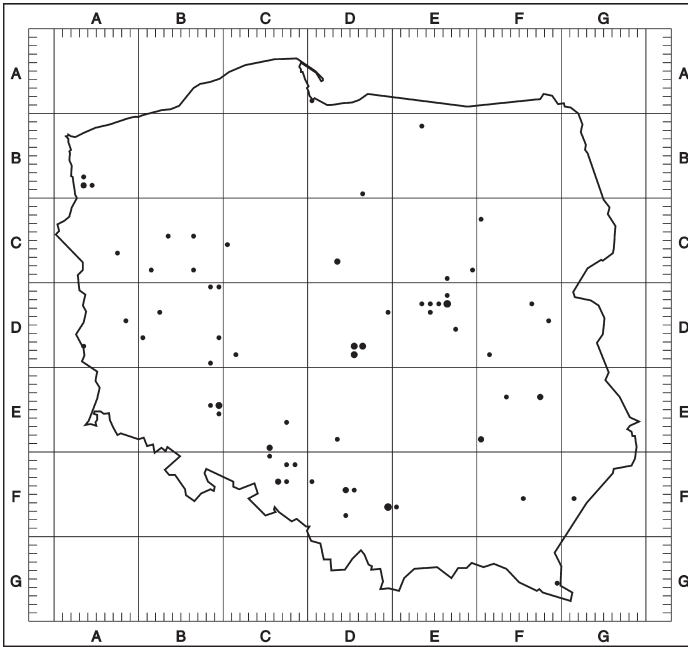


Fig. 18. Concentration of localities of 36 ephemerophyte species in the period 1946–1989. The size of dots is in proportion to the number of the species occurring in each cartogramme unit (10 × 10 km square). The largest dot indicates 5 species per unit

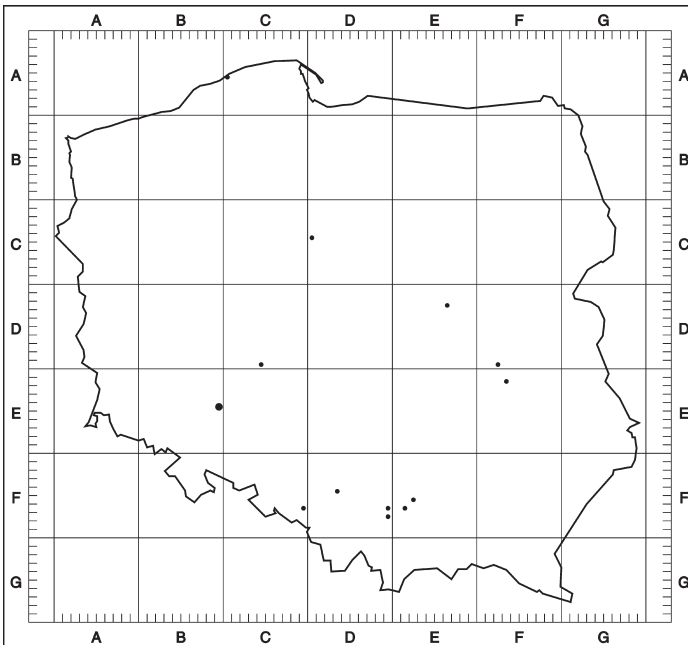


Fig. 19. Concentration of localities of 12 ephemerophyte species in the period after 1989. The size of dots is in proportion to the number of the species occurring in each cartogramme unit (10 × 10 km square). The largest dot indicates 3 species per unit

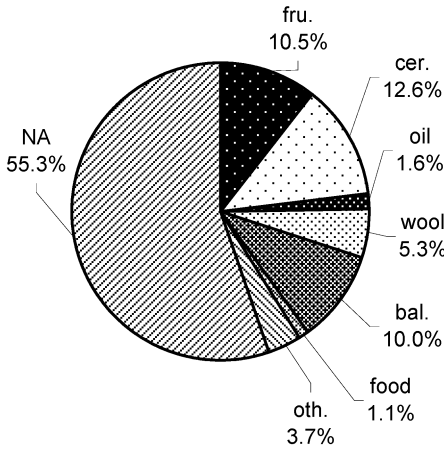


Fig. 20. Before 1914

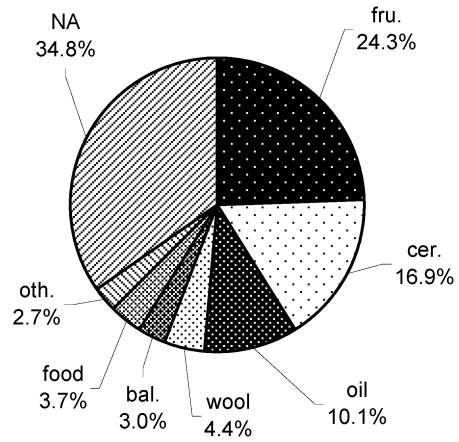


Fig. 21. 1915–1945

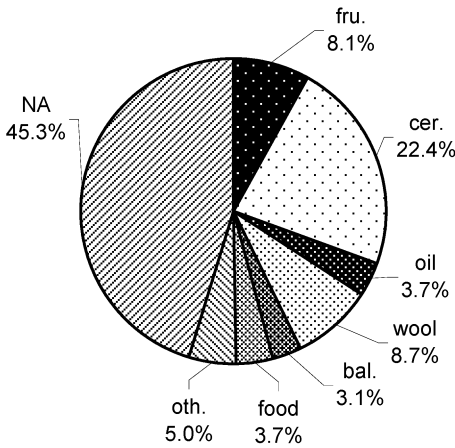


Fig. 22. 1946–1989

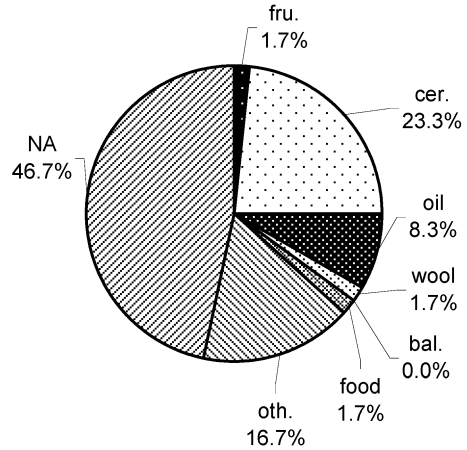


Fig. 23. After 1989

Fig. 20–23. Percentage share of the ways of introducing ephemerophytes in the distinguished periods (species brought with: **bal.** – ballast, **cer.** – cereals, **food** – with fodder for animals and birdseed, **fru.** – exotic fruit, **oil** – oil plant seeds, **oth.** – in any other way, wool – wool; **NA** – no data available)

6.4. Introduction pathways

The spectrum of ways of bringing ephemerophytes into Poland is shown in Fig. 24. Unfortunately, most authors have not given such information and that is why this type of data is unavailable for most species. Most of the remaining ones have been brought with exotic fruit (75 species) and with imported grain (60 species). There are also many plants which “arrived” with oil seeds (23 spe-

cies), wool (20 species), ballast soil (19 species) and the fodder for animals and birds (13 species). In some single cases ephemerophytes were brought with other goods such as iron ore (*Argemone mexiana*, *Bassia sedoides*), seed (*Coincya monensis*, *Coleostephus myconis*, *Linaria saxatilis*), seedlings (*Amsinckia calycina*, *Claytonia perfoliata*) and cotton (*Amaranthus palmeri*).

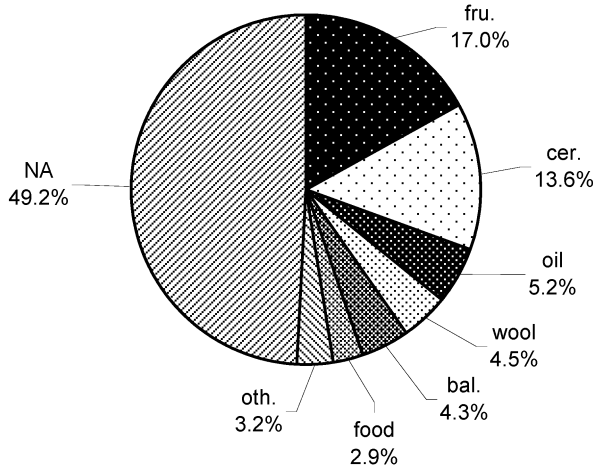


Fig. 24. Percentage share of ephemerophyte species brought in the given introduction pathways (species brought with: **bal.** – ballast, **cer.** – cereals, **food** – with fodder for animals and birdseed, **fru.** – exotic fruit, **oil** – oil plant seeds, **oth.** – in any other way, **wool** – wool; **NA** – no data available)

The concentration of ephemerophyte localities brought into Poland in different ways has been shown in Fig. 25–30. The species brought with exotic fruit (e.g. *Alopecurus utriculatus*, *Bifora testiculata*, *Briza minor*, *Bromus madritensis*, *Dasypyrum villosum*, *Medicago rigidula*, *Trifolium lappaceum*, etc.) have been recorded mainly in the area of Wrocław, as well as Szczecin and Gubin. They were first of all grasses and the species occurring on coastal wet meadows of Mediterranean region which is the region of origin of fruit protection material (SCHEUERMANN 1948; URBISZ 2009). They have been encountered in neighbourhood of railroads where the goods were loaded and unloaded (defined by German botanists as „Südfruchtgleis”) and in garbage dumps and wastelands near storage warehouses and market halls (SCHALOW 1932; SCHEUERMANN 1956). The plants which came with the imported cereal appeared most frequently in Wrocław, Szczecin, Gubin, Kraków, Warszawa and Opole. Most of these species are the weeds contaminating barley, oat and wheat grain (*Aegilops ligustica*, *Alkanna primuliflora*, *Anchusa azurea*, *Bifora radians*, *Centaurea melitensis*, *Glaucium corniculatum*, *Gypsophila pilosa*, *Panicum implicatum*, etc.). They were encountered both in loading and unloading places (railway area, sea and river ports) and on dumping grounds near grain mills, elevators or malt factories (MEYER 1937). Most of the species brought with oil seeds (*Amethystea coerulea*, *Carex amgunensis*, *Cyperus declinatus*, *Echinochloa*

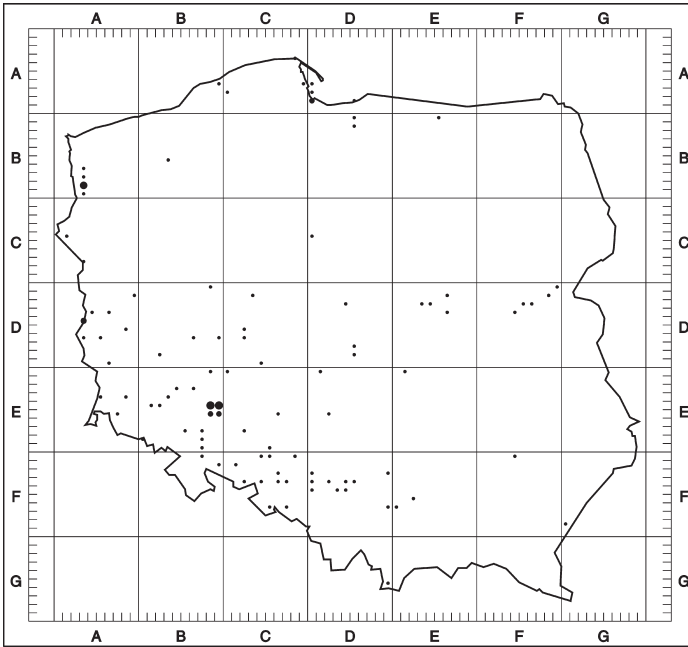


Fig. 25. Concentration of localities of 75 ephemerophyte species brought with exotic fruit. The size of dots is in proportion to the number of the species occurring in each cartogramme unit (10×10 km square). The largest dot indicates 49 species per unit

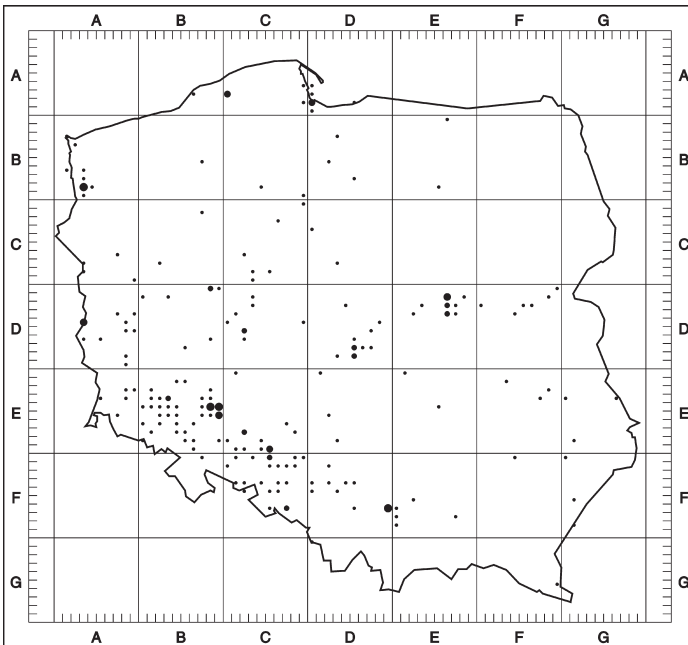


Fig. 26. Concentration of localities of 60 ephemerophyte species brought with cereals. The size of dots is in proportion to the number of the species occurring in each cartogramme unit (10×10 km square). The largest dot indicates 25 species per unit

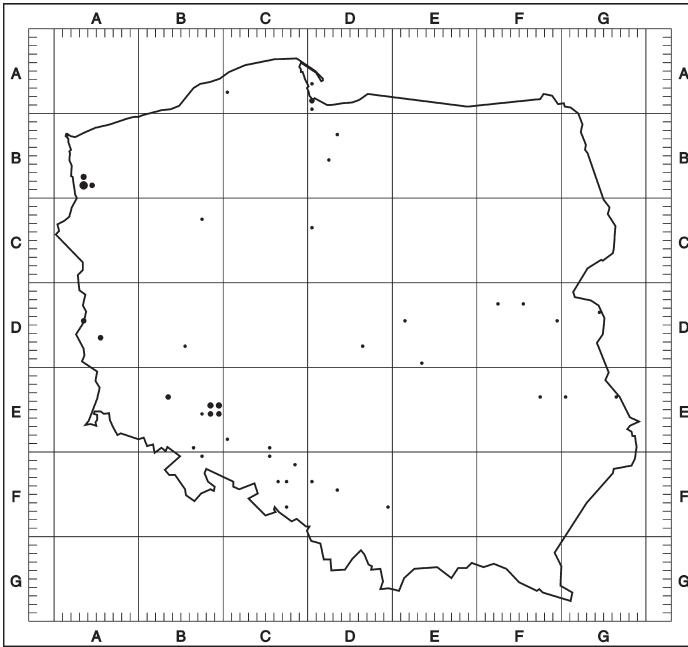


Fig. 27. Concentration of localities of 23 ephemerophyte species brought with oil plant seeds. The size of dots is in proportion to the number of the species occurring in each cartogramme unit (10 × 10 km square). The largest dot indicates 15 species per unit

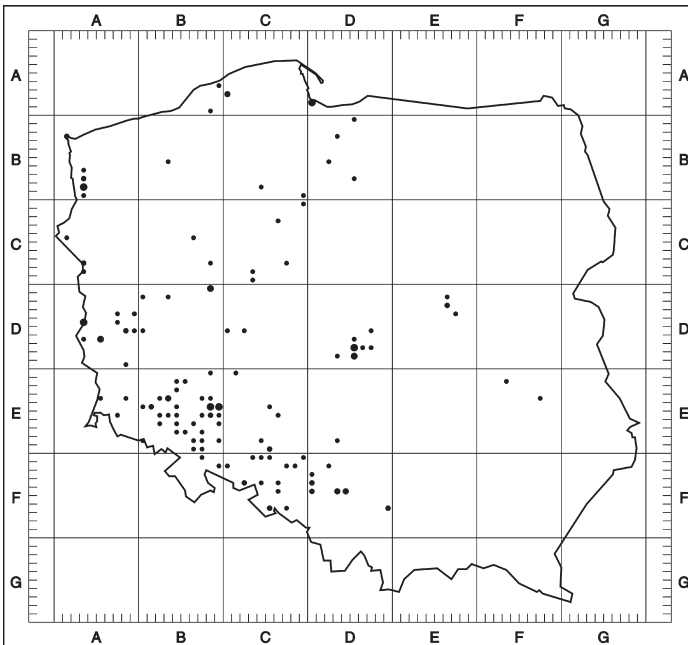


Fig. 28. Concentration of localities of 20 ephemerophyte species brought with wool. The size of dots is in proportion to the number of the species occurring in each cartogramme unit (10 × 10 km square). The largest dot indicates 7 species per unit

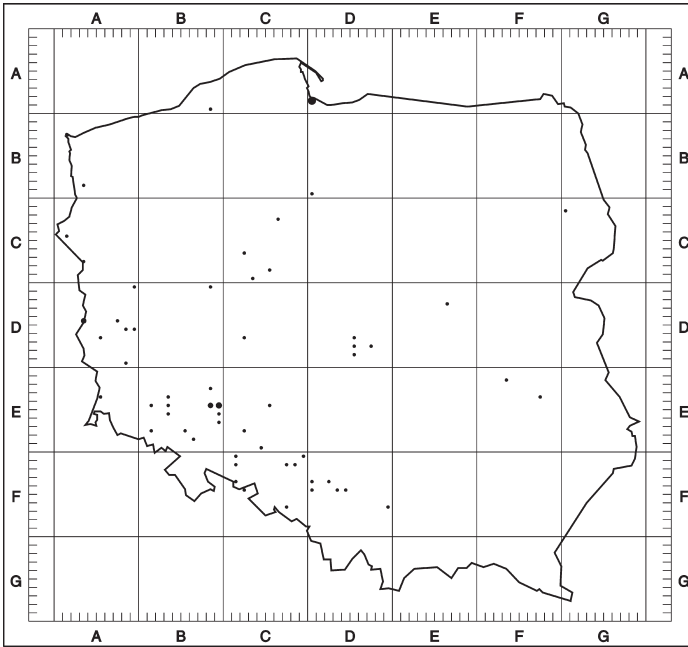


Fig. 29. Concentration of localities of 19 ephemeropterid species brought with ballast soil. The size of dots is in proportion to the number of the species occurring in each cartogramme unit (10 × 10 km square). The largest dot indicates 16 species per unit

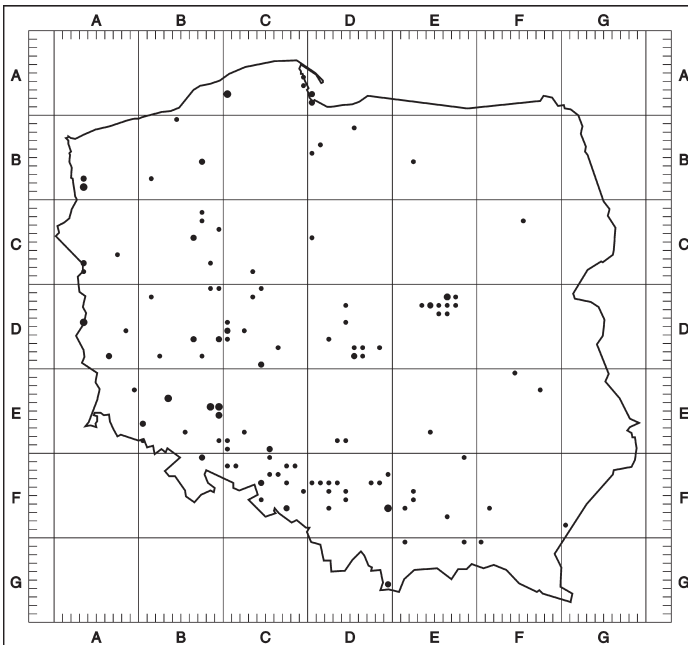


Fig. 30. Concentration of localities of 13 ephemeropterid species brought with fodder for animals and birdseed. The size of dots is in proportion to the number of the species occurring in each cartogramme unit (10 × 10 km square). The largest dot indicates 5 species per unit

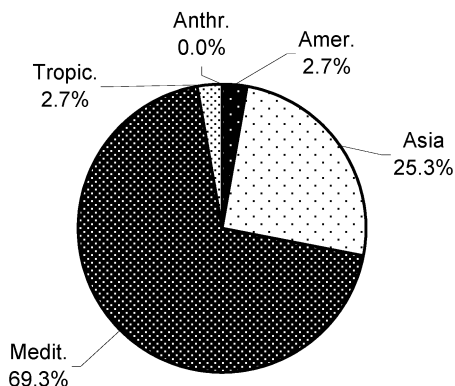


Fig. 31. Species brought with exotic fruit

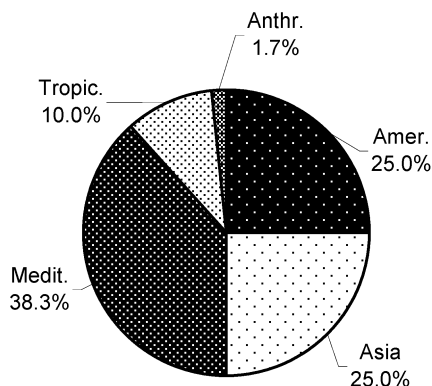


Fig. 32. Species brought with cereals

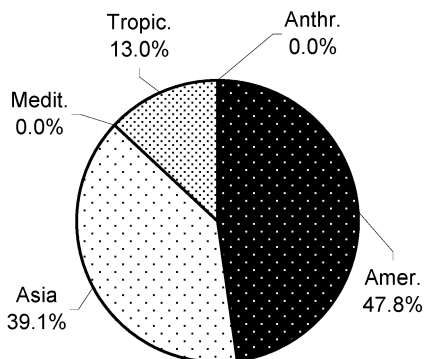


Fig. 33. Species brought with oil plant seeds

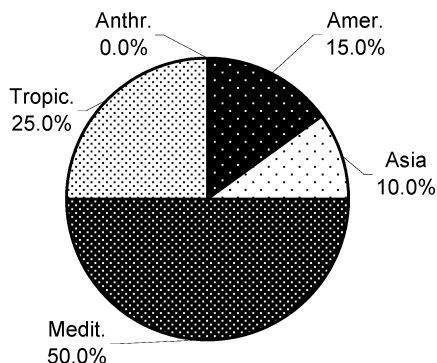


Fig. 34. Species brought with wool

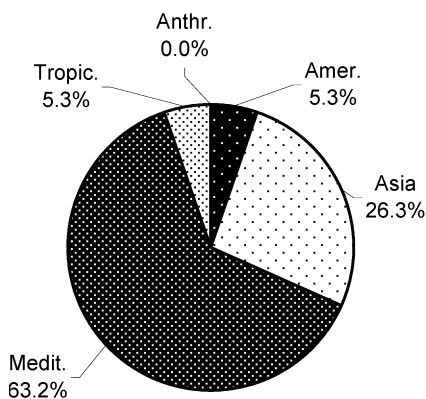


Fig. 35. Species brought with ballast soil

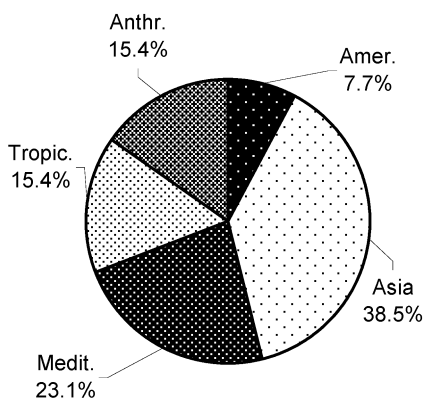


Fig. 36. Species brought with fodder and birdseed

Fig. 31–36. Origin of ephemerophytes depending on the ways of their introduction: **Amer.** – North or South America, **Anthr.** – anthropogenic origin, **Asia** – Asia (except for its southern part) and Eastern Europe, **Medit.** – Mediterranean region and Western Europe, **Tropic.** – Africa (without its northern part), Australia and Southern Asia

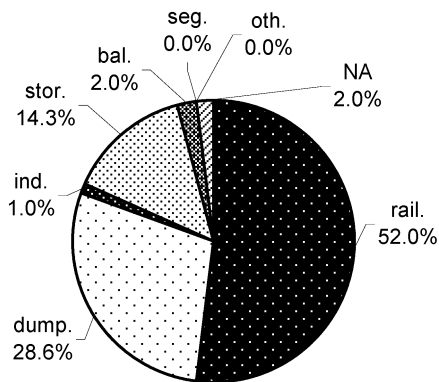


Fig. 37. Species brought with exotic fruit

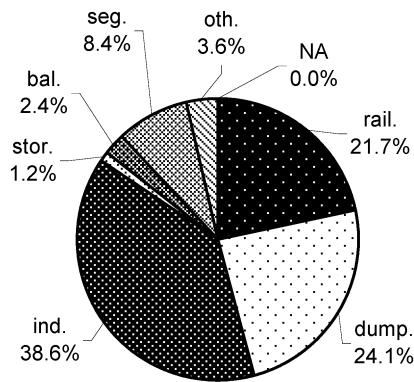


Fig. 38. Species brought with cereals

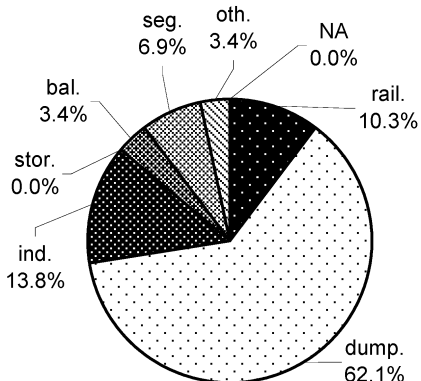


Fig. 39. Species brought with oil plant seeds

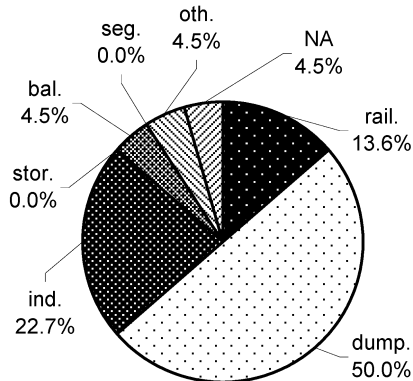


Fig. 40. Species brought with wool

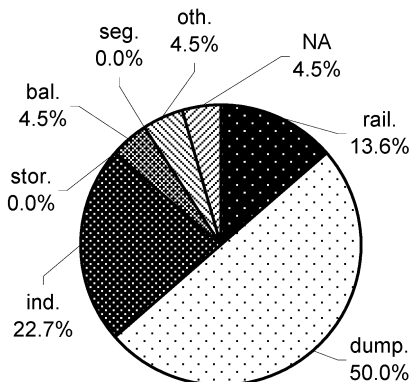


Fig. 41. Species brought with ballast soil

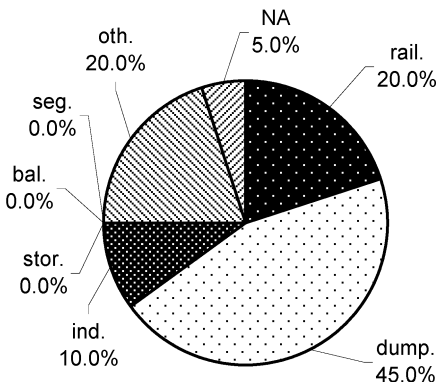


Fig. 42. Species brought with fodder and birdseed

Fig. 37–42. Habitats of occurrence of ephemerophytes depending on the ways of their introduction (**bal.** – ballast places, **dump.** – dumping grounds, **ind.** – surroundings of industrial plants and wastelands, **NA** – no data available, **oth.** – other habitats, **rail.** – railway areas, **seg.** – segetal habitats, **stor.** – neighbourhood of goods stores and market halls)

colona, *Eleusine indica*, *Rumex obovatus*, etc.) have been recorded in Szczecin, Wrocław and Gdańsk. They were encountered mainly in dumping grounds near oil mill in Szczecin and on railroads in loading and unloading area. The ephemerophytes which arrived with wool (i.a. *Cynosurus echinatus*, *Dinebra retroflexa*, *Erodium botrys*, *Polypogon monspeliensis*, *Schismus barbatus*, *Trifolium angustifolium*), were recorded mainly in Upper Silesia and in Łódź, Poznań, Gdańsk, Szczecin and Gubin, where they appeared most frequently near industrial plants or in neighbourhood of cattle markets. The species brought with ballast soil have been encountered with sand and ballast soil dumps, mainly in the sea port of Gdańsk and river port of Wrocław, while those brought with fodder for animals and birds (*Echinochloa esculenta*, *Guizotia abyssinica*, *Malva nicaeaensis*, *Phalaris canariensis*, *Sorghum halepense*) were found in Wrocław, Legnica, Szczecin, Gubin, Słupsk, Katowice and Warszawa.

Further diagrams (Fig. 31–36) illustrate the shares of plant groups of different origin, within the ephemerophytes of the determined way of introduction. Nearly all the distinguished groups are dominated by the species of Mediterranean origin. The species of American and Asian origin prevail only among the ephemerophytes brought with oil seeds (Fig. 33). They are mainly the weeds brought with Manchurian soya beans, flax from South America and peanuts from Africa (SCHEUERMANN 1956). Asian species prevail among the species brought with fodder for animals and birds (Fig. 36). The greatest domination of Mediterranean originated plants can be observed in case of the species brought with tropical fruit and ballast soil (Fig. 31 and 35).

Habitat differentiation in respect of the groups of ephemerophytes with the given ways of introduction, has been presented in Fig. 37–42. The species which arrived with exotic fruit appeared mainly in railway area (52%). The plants brought with cereals have been recorded most frequently (39%) near industrial plants (grain mills mainly) and those brought with ballast soil have been found in ballast soil dumps (50%). The remaining groups of ephemerophytes (brought with oil seeds, wool and fodder for animals and birds) have been dominated by the species occurring in dumping grounds, garbage dumps and rubbish heaps.

6.5. Origin

Most of species which have been brought to Poland unintentionally originate from Mediterranean region (185 species), Eastern Europe and Asia (131 species) and North or South America (61 species). The species from tropical and subtropical zone or the plants known only as cultivated ones, which are the result of man's activity, appear much more seldom (Fig. 43). As mentioned earlier, the prevailing political and economic situation is of decisive influence on

the appearance of ephemerophytes in a given area. Fig. 44 shows the spectrum of origin of the species which were recorded during the distinguished historical periods. The first and the second period was dominated by Mediterranean species, while the Asian and East-European ones dominated in the third and the American ones in the fourth period. During the world wars and in the interwar period the increased number of occasionally brought species was reported as well as a significant growth of the share of plants of American origin.

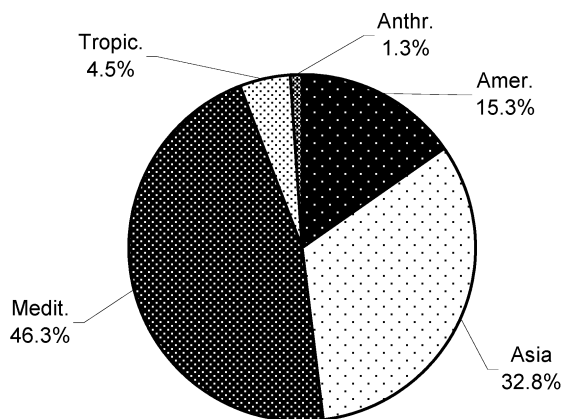


Fig. 43. Origin of ephemerophytes occurring in Poland: **Amer.** – North or South America, **Anthr.** – anthropogenic origin, **Asia** – Asia (except for its southern part) and Eastern Europe, **Medit.** – Mediterranean region and Western Europe, **Tropic.** – Africa (without its northern part), Australia and Southern Asia

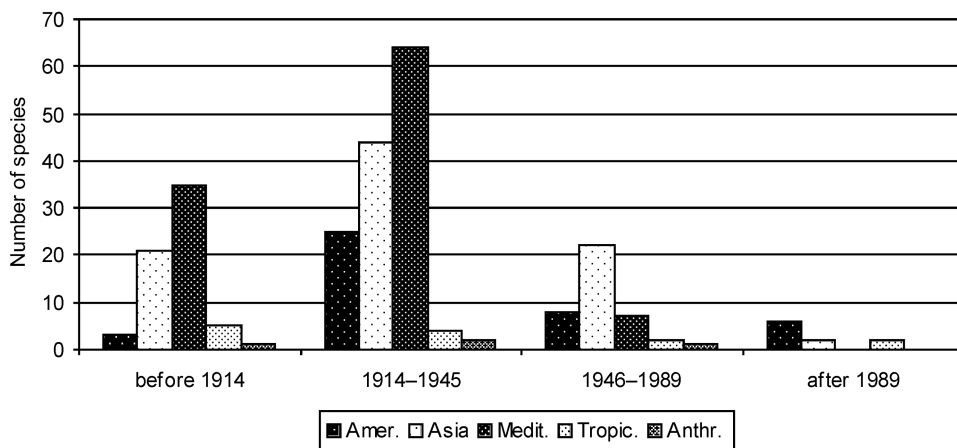


Fig. 44. Participation of ephemerophytes of different geographical origin recorded in Poland during the distinguished historical periods: **Amer.** – North or South America, **Anthr.** – anthropogenic origin, **Asia** – Asia (except for its southern part) and Eastern Europe, **Medit.** – Mediterranean region and Western Europe, **Tropic.** – Africa (without its northern part), Australia and Southern Asia

6.6. The habitats occupied by ephemerophytes

The species of alien origin which have come to a new area must often face climate and habitat conditions which are quite different from those prevailing within their natural range. When studying the habitat spectrum of ephemerophytes brought to Poland a preponderance of species from dry and open habitats has been found, for which sands, grasslands and prairies constitute the natural habitats of occurrence. Species from wet and shady places are decisively less numerous.

Ephemerophytes nearly always occur in artificial habitats created in the consequence of human activities (Fig. 45). Most species of this group have been recorded in railway areas, garbage dumps, dumping grounds, debris and in neighbourhood of warehouses and industrial plants. They sometimes appear in segetal habitats and, sporadically, even in the habitats of seminatural character (grasslands, sands, thickets, water banks).

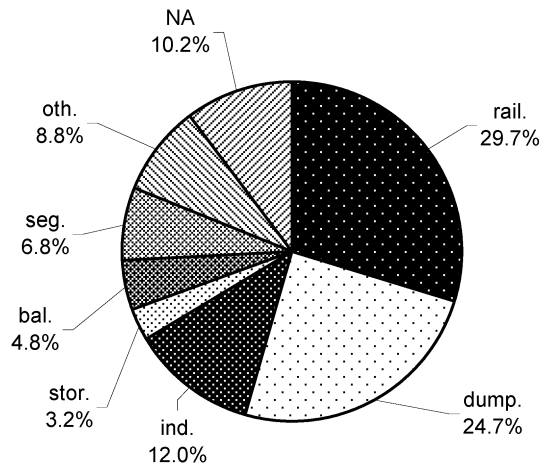


Fig. 45. Habitat preferences of ephemerophytes recorded in Poland (**bal.** – ballast places, **dump.** – dumping grounds, **ind.** – surroundings of industrial plants and wastelands, **NA** – no data available, **oth.** – others habitats, **rail.** – railway areas, **seg.** – segetal habitats, **stor.** – neighbourhood of goods stores and market halls)

7. Discussion

7.1. Reasons for distinguishing the group of ephemerophytes

Ephemerophytes are distinguished as a separate group of species in most classifications of synanthropic plants (RIKLI 1903; NAEGELI, THELLUNG 1905; SIMMONS 1910; DOMIN 1947; JALAS 1955; KREH 1957; KAMYSZEW 1959; HOLUB, JIRÁSEK 1967; SCHROEDER 1969; KRAWIECOWA, ROSTAŃSKI 1972; PONERT 1977; TRZCIŃSKA-TACIK 1979; KORNAŚ 1981). Presently, it has been proposed in some publications (mainly those concerning the invasive species) to simplify this division by combining ephemerophytes with ergasiophygophytes (escapers from cultivation) into one single group of plants, the so called *casual alien plants* (PYŠEK 1995; PYŠEK *et al.* 2004; MITIĆ *et al.* 2008). A practical approach prevails in the above works where the main criterion of division of anthropophytes is the degree of their establishment because it indicates the influence of those species on the native flora and the economic importance. The authors do not find it necessary to distinguish subgroups within the species of alien origin which are not permanently established in the given area. It is of low importance to them if the species have been brought from a far distance or originated from plants cultivated in the given area. The most important fact is that both ephemerophytes and ergasiophygophytes are of low economic importance, i.e. they threaten to neither the native flora nor man's activities, and may be removed easily, if necessary. Undoubtedly, simplification of synanthropic species classification is the advantage of such an approach as there is no need to consider the way of appearance of a species in the given area, which is often difficult to be explained. It is enough to have the knowledge that it is not a permanent element of the flora, so it is not of great importance in respect of both the nature and the human economy.

However, such an approach, despite its certain advantages, is not fully reasonable as the intentionality of introducing a species remains one of the most important criteria of synanthropic plant division in most classifications. In some cases it seems to be a too far reaching simplification to classify the group of

species which occasionally arrived from far distances and the plants escaping from cultivation whose diaspores often made several or several tens of meters, into one single group. The authors of most synanthropic plant classifications have noticed the fact that the plants introduced temporarily (ephemerophytes) sometimes differ significantly from those intentionally brought (mainly domesticated ones) which often escape from cultivation (ergasiophytes). Significant differences can be seen when studying the number of localities and habitats of appearance of the plants representing these two groups. Ephemerophytes usually have few localities (slightly more than ten) and are recorded in places where alien diaspores are likely to appear, e.g. in railway areas, ports, industrial plants and market halls. Frequency of appearance of the species escaping from cultivation (ergasiophytes) depends mainly on their popularity as ornamental plants, and the habitats where they appear are mainly the spaces adjacent to fences, houses roads, garbage dumps and segetal areas.

It should also be noticed that an ephemerophyte can be found, under some circumstances, to belong to any species. In many cases a native or established anthropophyte may be brought to another place, even not too distant one from its natural locality, where the prevailing habitat conditions are so much different that it cannot adapt to them and disappears soon. It appears then ephemerally, but on the scale of the country it certainly should not be classified as an ephemerophyte, because in such a case the general division into geographical-historical groups would not make any sense. Similar situation also occurs with ergasiophygophytes; most of them, apart from escaping from cultivation, may also be occasionally introduced in the given area, i.e. may appear ephemerally. Such species have not been recognized as typical ephemerophytes and have not been considered in this paper (see Appendix A).

It is difficult to explicitly assess if it is necessary to distinguish the group of ephemerophytes within not established species (diaphytes) as it depends on the aim of the study to be carried out. In the case of assessment of the economic significance of anthropophytes (degree of invasiveness, influence on the native flora), division of diaphytes into subgroups is of small importance because these species do not constitute any problem for human. However, when studying the routes of spread of species or their requirements in respect of habitats, such an approach is fully justified in many cases. Ephemerophytes differ from ergasiophytes in both introduction intentionality and the distance they made to arrive to the habitats where they appear. There are more arguments in favour of distinguishing them as a separate group than against.

Phenomenon of gradually substituting synanthropic plant classifications with divisions of anthropophytes in respect of degree of their invasiveness, which can be observed in the literature, is not advisable in many cases and constitute a significant simplification of the real situation. The species which have occasionally been brought to the given area constitute, despite their low economic importance, a specific well-distinguished group of plants whose appearance can be studied in different manners. Distinguishing the species which may

adapt to the new climatic conditions in the future and become a permanent element of the flora of Poland, is one of the results of such type of observation. Knowledge of the mechanisms of such a long-distance transfer of diaspores of ephemero-phytes would also enable to work out the methods of preventing the transfer of diaspores of such species.

7.2. Dynamics of the occurrence of ephemero-phytes and introduction pathways

Ephemero-phytes are the species whose appearance is mainly related with cultural historical and economic aspects. They do not play any important role in the flora because the time of their appearance is rather short. Contrary to them, the species escaping from cultivation can be encountered more frequently because of continual supply of new diaspores.

The following factors influence the dynamics of appearance of ephemero-phytes:

- specificity of the area they originate from and of the environment they have been transferred to (geographical location, climate, plant cover, political and economic situation),
- quantity and frequency of goods with which they were brought,
- conditions of their transport (probability of presence of alien species diaspores),
- improved processing methods which enable the unnecessary impurities of the imported products to be removed,
- kind of the means of transport,
- more effective monitoring of alien species, faster detection of their appearance,
- the use of herbicides,
- development of tourist industry,
- acts of war,
- intensity of botanical research.

Migration of different plant species took place as early as in ancient times. The most important role was played by merchant caravans at that time, through which numerous goods, mainly of Asian origin, (e.g. grain, its accompanying weeds, spices, seeds of fruit trees) were introduced, intentionally or not. First they reached the Mediterranean Sea and then moved to the North up to the area of Poland. Early medieval was the period when this phenomenon occurred on a larger scale. Unfortunately, there is no data from that period concerning the occurrence of species which do not permanently establish on the area which was new for them. When the period of great sea voyages began aimed at finding a new western route to India, there emerged the possibility to bring species to other continents over the oceans. In further centuries the number of diaspores

of different species increased due to the improvement of the means of transport. In 18th and 19th centuries many rivers were connected by means of numerous channels which enabled a quicker transport of goods. Development of railway lines, including Trans-Siberian railway which is the longest one and which was completed in 1916, was also a cause of species migration. The goods were transported mainly in open freight cars which increased the probability of bringing numerous species. Intensity of transporting different goods (mainly food) increased during both the world wars. It caused a significant growth of number of the brought species, especially those of American origin. In 20th century there occurs further development of international transport and increase of variety of the means of transport used. There also grew the number of imported seedlings or seeds of ornamental plant species originating from exotic countries or delivered by European suppliers. Probability is also growing for other species to be brought along with those goods. On the other hand, a number of plant protection stations and quarantine institutions are created at that time aimed at inspecting deliveries of the imported goods. After the second world war they worked in Poland in more significant sea ports and at border goods railway stations. The samples of raw and processed plant products (cereals, tobacco, dried fruit, etc.) and animal products (meat, processed meat products, skins, etc.) underwent a thorough inspection – GŁOWACIŃSKI *et al.* (2008). Monitoring and more restrictive regulations concerning the transport of different goods have led to a decrease of the number of the temporarily-introduced plant species during recent years.

It is not always possible to find the way in which a species came to the new area and that is why there is not such data for many of them. Different authors have attempted to answer the question of this type since as early as the beginning of 20th century, giving several different manners of bringing alien species. THELLUNG (1918/1919) distinguishes two groups among anthropophytes brought unintentionally by human, i.e. cultivation weeds which arrived with seed material or with live domesticated or ornamental plants, as well as the plants brought as a consequence of transport and trade, covering four subgroups depending on the goods with which they have been brought, (i.e.: **1** – with the imported grain or oil seeds, **2** – with wool and cotton, **3** – with ship ballast material, **4** – with other raw materials). JAUCH (1938) proposes this classification to be complemented and developed by suggesting the division of the fourth above mentioned groups of species into 3 subgroups (**1** – the species brought with oil seeds, **2** – with bird fodder, **3** – with exotic fruit). In his paper he placed the list of above 800 taxa brought to Germany and Switzerland with exotic fruit. BONTE (1930) gives above 100 species and PROBST (1933) reports above 300 species which arrived with grain. Then, MEYER (1937) mentions approx. 100 species brought with bird (canary) fodder, while in PROBST'S paper (1949) the list of above 1 600 alien plant species can be found which appear in Central Europe in places associated with wool transport. SCHEUERMANN (1948) proposes the species brought with wool to be separated from those brought with cotton, as both

these raw materials are exported from different countries. He also expresses doubts about the correctness of distinguishing some ways of bringing anthropophytes. They deal mainly with the group of species related to ship ballast. SCHEUERMANN (1948) finds pertinence of most species reckoned by other authors (LEHMANN 1895; PREUSS 1928) to this group, to be doubtful. Probably, diaspores of some of them reached ballast soil dumps from the places of loading different goods (i.e. exotic fruit and cereals). He also distinguishes a group of species brought with other goods or in an unknown manner.

Nowadays there appear not many publications devoted to the alien originated plant species which are introduced temporarily (CAYOUILLE *et al.* 1983; ROSTAŃSKI, SOWA 1986–1987; KEIL, LOOS 2002a, 2005a; URBISZ AL., URBISZ AN. 2003; URBISZ AL. 2007, 2009), which is the consequence of their low economic importance and the lower frequency of their appearance contemporarily. The lowest number of ephemerophytes was observed during last of the distinguished periods (since 1990). Most of the species belonging to this group were reported in the period 1914–1945, i.e. during war and interwar periods, which was connected with war operations and with more intensive transport of different goods. Similar dependences were also observed in other countries, e.g. in Norway (OUREN 1978).

The species belonging to ephemerophytes are very differentiated in respect of both historical period in which they were brought, and the frequency of their appearance. Some of them were brought in all the distinguished time periods, at least several times (*Anthemis austriaca*, *Crepis setosa*, *Cynodon dactylon*, *Glaucium corniculatum*, *Phalaris canariensis*). Other were recorded exclusively in one, two or three time periods.

When considering the origin of species temporarily brought to Poland, it has been found that nearly a half of these species (46%) originate from Mediterranean region and one third of them (33%) from East Europe and Asia (Fig. 43). Much less species have been recorded which originate from the western hemisphere (15%) or from the southern part of the eastern hemisphere (5%). It results from the presented data that the distance of the area from which the species was brought to Poland is of significant influence on probability of its appearance within the borders of our country. We can also notice explicit differences as far as the origin of species recorded in the considered historical periods is concerned (Fig. 44). While there were practically no plants of American origin in the first period which was dominated by Mediterranean species, their share grew significantly during the second period. However, the species originating from Asia and Eastern Europe prevailed in the third period while the fourth one was dominated by the species of American origin.

Not only the origin of species was changing during particular historical periods but also the ways of their introduction (Fig. 20–23). A significant share of the plants brought with ballast soil (10%) is characteristic for the period up to 1914. The number of diaspores of the species which arrived in this manner decreased significantly when ballast water started to be used in 20th century in-

stead of soil. Most ephemerophytes were recorded in the second time period (1915–1945) whereby the share of species brought with exotic fruit (24%) was especially high. During the post-war period (1946–1989), when Poland was strongly bound to the eastern part of Europe, a growth of share of the species brought with wool (9%) and with grain (22%) could be observed. As the political and economic situation of Poland changed in 1990, more and more species are brought in other ways (e.g. with seeds and seedlings of ornamental or cultivated plants).

Considering the origin of ephemerophytes brought in different ways (Fig. 31–36) attention should be paid to significant differences covering mainly the species which arrived with oil seeds (there are no Mediterranean species among them) and with fodder for animals and birds (most species from Asia and Eastern Europe). In the case of other introducing manners the species dominate which originate from Mediterranean region. Type of the imported goods is of decisive importance as far as its introduction in given area is concerned.

Thus, the following three main factors influencing the appearance of ephemerophytes can be noticed, i.e. specificity of the area of their origin, historical period in which they were brought, and the manner of their introduction. Hence ephemerophytes may be regarded as a group of plants whose occurrence is especially connected with the present political and economic situation. Dependences between appearance of ephemerophytes and historical and cultural periods have also been stressed by other authors (e.g. KEIL, LOOS 2005a).

7.3. Phenomenon of establishing alien species

Phenomenon of establishing anthropophytes in the areas where they had appeared never before, is one of the most interesting issues. Only few species of alien origin are able to adapt to different climate conditions and still lower number of them are considered to be invasive. A number of authors have studied particular stages of alien species spreading in the new area (e.g. THELLUNG 1918/1919; FALIŃSKI 1998; JACKOWIAK 1999).

Model (scheme) of spreading plants in new areas has been illustrated in Fig. 46. Their diaspores may be brought by natural factors (wind, water, animals) or by anthropogenic ones (tourism, transport), outside the borders of their natural range. In the case of man's activities their introduction may be of intentional or unintentional nature. The new range of a species is being shaped after the environmental barrier has been crossed due to which it becomes a permanent component of the determined flora.

THELLUNG (1918/1919) distinguished three degrees (stages) of an alien species establishing (excluding the species brought by man intentionally):

1. Ephemerophytes – occurring in the given area only temporarily and cannot produce sufficient quantity of seeds to spread and to be established permanently. Occurrence of such species in one place for a number of years can be explained by repeated supply of new seeds; therefore they are called apparently established or “pseudo-established”.
2. Epocophytes – plants appearing in the given area but exclusively in artificial habitats, with no possibility to win competition with the native flora. THELLUNG also classifies archaeophytes, i.e. cultivation weeds which were brought with man’s participation.

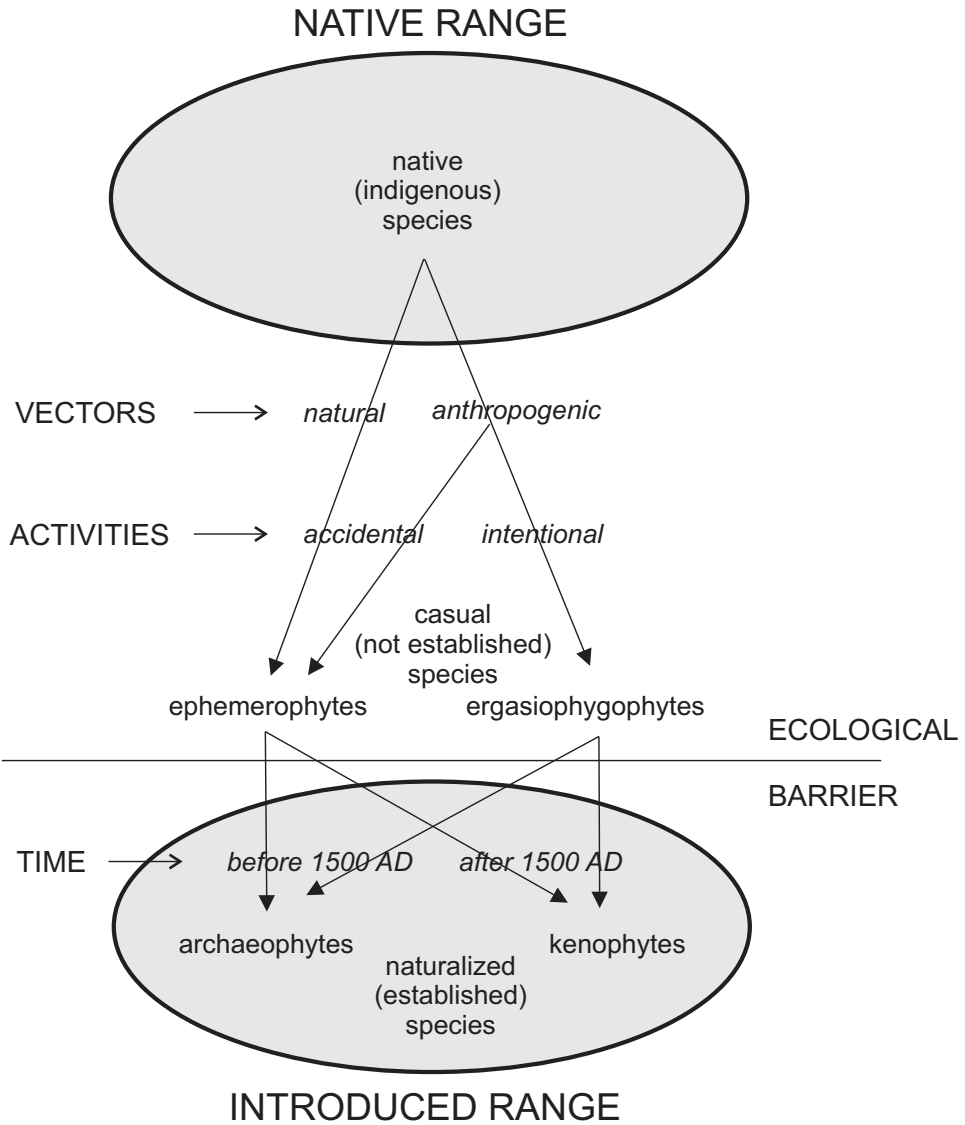


Fig. 46. Model of spreading of alien plant species in new areas

3. Neophytes – can be established in natural habitats and their further existence does not depend on man's activities. They sometimes displace the native species to become the dominating element of landscape.

Also in further classifications of synanthropic plants, regardless of the assumed division criteria, ephemerophytes have always been treated as the species which are not permanently established and which were introduced temporarily to the given area (without man's intentional participation).

Degree of establishment of a given species is often very difficult to be determined. This problem occurs not only in case of alien originated species but also the native ones. It results from the fact that the pertinence to the given geographical-historical group is reported most frequently for the area of the whole country, which is always a certain generalization of the real situation. For example ostrich fern (*Matteucia struthiopteris*) which is native in the south of Poland but it also has numerous anthropogenic localities in other parts of our country being permanently established in a number of them. Thus, it can happen that in a given area one species can be native, alien established and alien not established at the same time (KEIL, LOOS 2002a, 2005a). In order to get reliable data about the degree of establishment of a species, it is necessary to carry out observations of its localities for the period of several up to above ten years. It is still more difficult in the case of trees and shrubs which sometimes do not bear fruit or undergo vegetative reproduction for many years whereby their observations can last for several tens of years.

There are a number of factors which influence the ability of an alien species to get established in a new area. The most important ones cover the prevailing climate and habitat conditions, i.e. the more they are similar to those prevailing within the borders of the natural range of the species, the more probable it is that the species will become a permanent element of the flora. Human activities which may accelerate the establishing process for a given species, e.g. by protecting it in the period of unfavourable weather conditions (frosty winter), are also of importance. If a species is introduced by human frequently and in great quantities (cultivated and ornamental plants) there also exists a greater chance for some of its varieties (biotypes) to adapt better to the environmental conditions of the new area and the process of its establishment can follow more quickly than in the case of plants brought unintentionally. Such a situation occurs especially in case of decorative trees and shrubs which did not appear spontaneously as late as several tens of years ago, whereby their seedlings can be found in some regions of Poland in different habitats (e.g. *Juglans regia*, *Larix kaempferi*, *Populus x canadensis*, *Pseudotsuga menziesii*, *Symphoricarpos albus*). Similar regularities have also been observed in Germany (KEIL, LOOS 2002b, 2003, 2004, 2005b). Contrary to ergasiophygophytes, ephemerophytes, as the species introduced temporarily, are rather unlikely to adapt to the new conditions and they spread very seldom.

Despite the fact that ephemerophytes, by definition, are not a permanent element of the flora of a given area, they are differentiated in respect of their de-

gree of establishment. In order to finally decide if a given species can be classified into the group of kenophytes, long-term research covering its biology and habitat requirements is necessary to be carried out. These species gain the status of permanently established ones when they survive in one place for several tens of years and produce seeds which are able to germinate.

Some species (e.g. *Chloris barbata*, *Chloris truncata*, *Dactyloctenium aegyptium*, *Ficus carica*, *Sorghum bicolor*) are definitely not able to survive winter in our climate so their appearance is limited to just one vegetation season.

Others can sometimes survive a mild winter and survive several vegetation seasons in one place, provided that habitat conditions are very favourable in the given year, e.g. *Cynodon dactylon* (GÓRSKI 1999) or *Juncus planifolius* (WITOSŁAWSKI 1996). Presence of a species in the given habitat often depends on some continual man's activity, whereby any change in the environment conditions can make it disappear. It is especially the case for perennial plants which undergo vegetative reproduction, e.g. (*Cynodon dactylon*).

Vallisneria spiralis is another example of the species which can survive in the places where man's activities has led to a change in the natural habitat conditions. The plant appeared in early nineties of the 20th century and now it spreads in artificially warmed lakes in the precincts of Konin in Kujawy Lakeland (GĄBKA 2002; HUTOROWICZ 2006; HUTOROWICZ *et al.* 2006). It is controversial if this species should be reckoned to be a kenophyte. It is not known whether it could survive in the lakes if water temperature were several degrees lower. Its introduction manner is also unknown. *Vallisneria spiralis* is a plant cultivated by aquarists. Populations of this plant appearing in the lakes of Konin may originate from this source. If so, such a species should be regarded rather as ergasiophyphyte which survives due to favourable conditions created by man.

Aegilops cylindrica also belongs to the species which establishment status in Poland is controversial (ŚWIĘŚ, WRZESIEŃ 2002–2004). It shows a different degree of establishment in our country, i.e. it is considered to be a permanently established species in precincts of Lublin, while it is regarded as an ephemerophyte in the remaining regions of Poland (Fig. 47). According to the above mentioned authors this species can be reckoned a kenophyte because it abounds and survives in several localities for a number of years. However, establishment stability of this grass should be questioned, as it appears in railway areas only and does not spread in any other habitats.

There is a similar situation in the case of *Erysimum diffusum* – a species which was recorded for the first time by STEIN in 1881 in Szczakowa, and then also reported by KOZŁOWSKA (1923) from the precincts of Miechów where it appeared on limestone slopes and rocks. It could be the evidence that it is a native species for flora of Poland. Presently, it has nearly 30 localities within the whole country (Fig. 48) and the observations of its localities in the area of Stalowa Wola and Tarnobrzeg (KRZACZEK, KRZACZEK 1982; KRAWCZYK 2003) indicate that it has survived in this area for several tens of years. For this reason

the species should be considered to be a permanent element of our flora, despite the fact that the status of its localities in Poland remains unexplained.

We can also encounter other species which have survived for several tens of years in one place without showing any tendency to spread. *Tanacetum parthenifolium* which has occurred in the ruins of Chojnik castle since 1900 (*leg. Urbisz Al., Urbisz A.* 2009) or *Alyssum argenteum* which has been observed in one place since 1908 (KWIATKOWSKI 2006), can be mentioned as an example in this respect. Similar behaviour can be observed in case of *Chenopodium pumilio* (MISIEWICZ, KORCZYŃSKI 2003), which has survived in the area of the port of Gdańsk since 1974 (MISIEWICZ 1976) – Fig. 49.

Cardamine chelidonia is an example of a plant for which the arguments in favour of including in kenophytes are much more convincing. This species has been classified as ephemerophyte (MIREK *et al.* 2002), despite the fact that it has survived in precincts of Karpacz since at least 1933 in the habitats of both anthropogenic and seminatural character (PENDER, KUSIAK 2003). Authors of the above mentioned publication propose it to be included in kenophytes which seems fully justified as they have observed its spreading in the adjacent area.

Campanula rapunculus is another species which can be recognized as an established one within the flora of Poland. The species has been recorded in a number of localities in the territory of the country (Fig. 50). Most of them are historical records from the area of Silesia and Pomerania where, according to most authors, it was cultivated and seldom escaped from cultivation (ABROMEIT *et al.* 1903; DECKER 1912; FIEK 1881; GERHARDT 1885; KOTOWICZ 1874; LIBBERT 1935; SCHUBE 1905; WIMMER 1841). Contemporary floristic researches indicate this species to appear and to spread in seminatural habitats of the eastern part of Poland (CIOSEK, KRECHOWSKI 2005) and in precincts of Szczecin (*leg. Konopska K.* 2010 and *Startek B.* 2009, 2010 SZUB). Status of this species has been doubtful so far. Most of the scattered localities of the species have been treated as anthropogenic ones (MIREK *et al.* 2002). In recent years *Campanula rapunculus* has been found to appear on xerothermic and psammophilic grasslands in the valley of Bug river. According to CIOSEK, KRECHOWSKI (2005) localities of this species in this region are not sure to be of anthropogenic origin (the species has not been found in cultivation and there is no historical data).

They may be the natural localities situated on the western border of the range. Location of the species in the valley of Bug river and appearance in the habitats similar to those prevailing within the borders of its natural range, would indicate the possibility that this plant is spreading from South-Eastern Europe along the river valley (CIOSEK, KRECHOWSKI 2005; CIOSEK in print). This species has also been recorded in seminatural habitats in precincts of Szczecin (*Konopska K.* and *Startek B.* – personal information). However, it is much more difficult to determine its status in this region because it used to be cultivated in this place and may have survived as a relic of former garden cultures. It may be evidenced by the locality of Mielecin which has probably survived since 1935 when it was recorded by LIBBERT (1935).

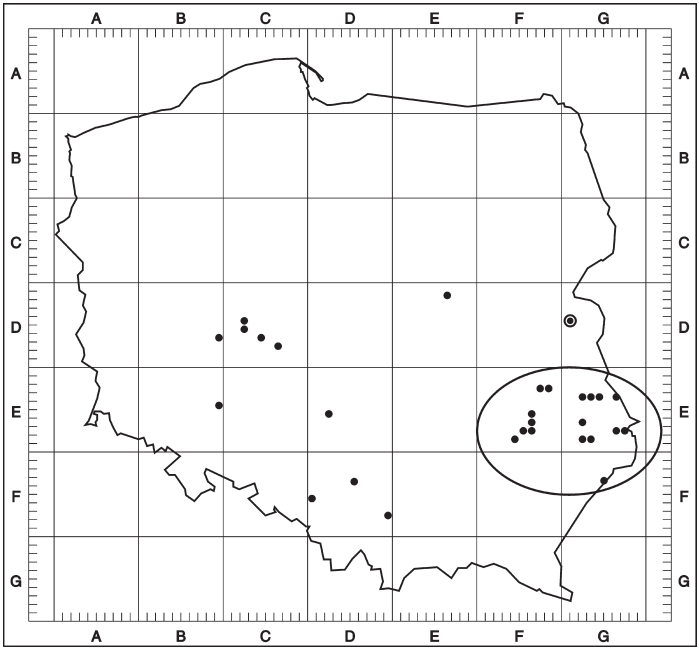


Fig. 47. *Aegilops cylindrica*

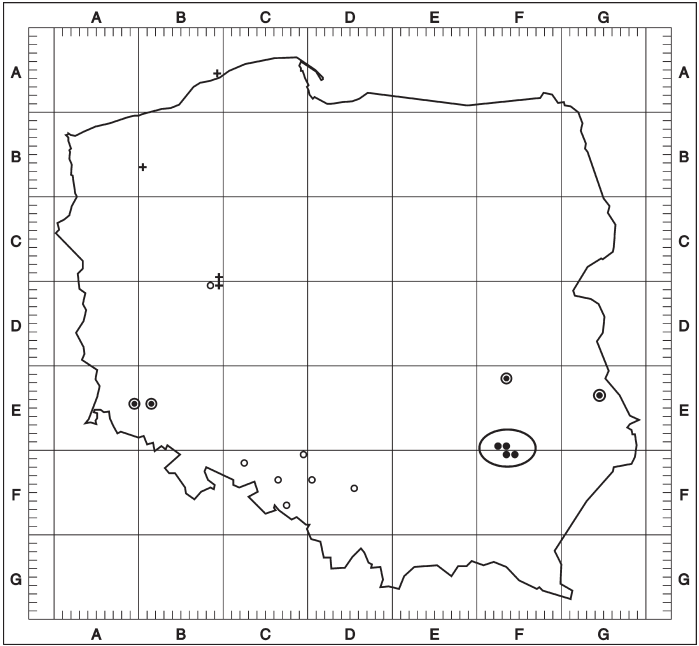


Fig. 48. *Erysimum diffusum*

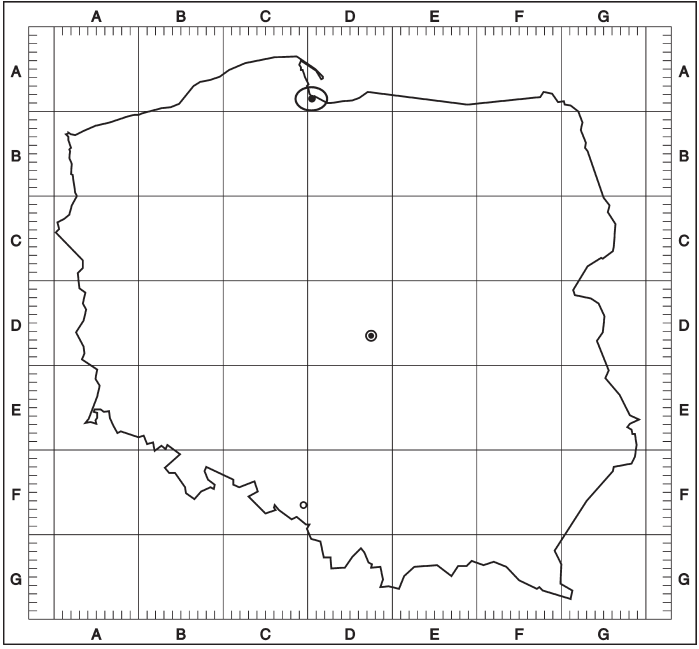


Fig. 49. *Chenopodium pumilio*

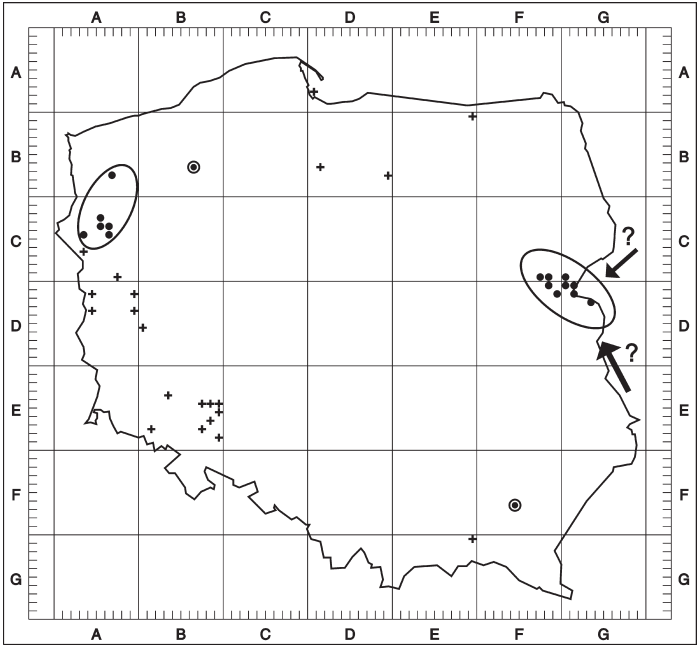


Fig. 50. *Campanula rapunculcus*

It can be seen that there exists a group of species for which it is very difficult to determine the degree of establishment stability. They usually survive in one place for a longer period of time (several tens of years) but do not show any tendency to increase their range. It would be justified to give them a separate name, e.g. **establishing species**, **potentially established species** or **prekenophytes**.

It cannot be foreseen if the above mentioned species will start spreading after a certain period of time and increase their secondary range. However, we know that it has happened in a number of cases and some plants which were not to be found in Poland in any habitats outside cultivation, have even gained the status of invasive species (e.g. *Echinocystis lobata*, *Heracleum sosnowskyi* or *Parthenocissus inserta*).

←
Fig. 47–50. Distribution of some selected species which had the status of ephemerophytes until recently, and now their establishing can be observed in different regions of Poland

Explanations:

- — locality on which species is probably established
- ⊙ — status of locality uncertain
- — ephemeric locality
- +
- +
- ⊖ — locality recorded before 1945
- — local range limit
- ? — probable direction of spread
- ↙

8. Summary of results

The updated list of ephemerophytes of Poland covers 400 species belonging to 215 genera and 50 families.

Most ephemerophytes belong to the following families: *Poaceae* (74 species), *Asteraceae* (63 species), *Fabaceae* (40 species) and *Brassicaceae* (29 species). The genera which are the richest in species are *Bromus* (12 species) and *Centaurea* (9 species).

The number of records of ephemerophytes of Poland is 1 877, which makes the average of 4.7 per species. Most of them concerned the representatives of *Poaceae* (403), *Brassicaceae* (365) and *Asteraceae* (337).

The highest concentration of ephemerophyte localities has been recorded in places of loading and unloading goods within premises of sea ports (Gdańsk, Szczecin), river ports (Wrocław, Opole, Gliwice) around textile factories (Łódź) and in surroundings of grain mills and elevators.

It has been found that most ephemerophytes were brought during the period 1914–1945 (256 species) which was connected not only with war operations the developing railway transport and inland navigation, but also with high intensity of floristic research carried out by German botanists in the area of Silesia and Pomerania. The lowest number of ephemerophytes was recorded in the period since 1989 (60 species).

During the own field research the appearance of several very rare species was recorded which have temporarily brought, inter alia *Claytonia perfoliata* and *Dactyloctenium aegyptium*, and, several years earlier – *Cenchrus ciliaris*, *Echinochloa colonum*, *Eleusine indica* and *Tragus racemosus*.

Most ephemerophytes have been brought with exotic fruit (75), imported grain (60), oil seeds (23), wool (20) and with fodder for animals and birds (13). Maps of appearance concentration have been presented for the above groups.

More than 46% of the species classified into this group are the ones brought from Mediterranean region and South Europe, 33% from Asia and East Europe, 15% from North or South America, 5% from Africa and Australia and 1% are the species of anthropogenic origin.

Most of them occur in open habitats on dry and sandy soils within their natural range.

In Poland most ephemerophytes have been recorded in railway areas, garbage dumps and in neighbourhood of industrial plants and wastelands.

In I (before 1914), III (1946–1989) and IV (after 1989) of the distinguished time periods there prevailed plants brought with cereals; in the II (1915–1945) period most of them were the plants brought with exotic fruit. Significant share of plants brought with ballast soil was characteristic for the I period (10%); in case of the II period a high share was recorded for the species brought with oil seeds (10%); in the III period – plants which were brought with wool (9%); the IV period covered the species brought in other ways (mainly with seed material and seedlings).

In I and II period there prevailed the species of Mediterranean origin, the III period was dominated by Asian species while the IV period – by the ones of American origin.

The species brought with exotic fruit appeared mainly in Wrocław, Szczecin, Gubin in railway areas, dumping grounds and in neighbourhood of warehouses and market halls. Most of them were of Mediterranean origin.

Localities of the plants which arrived with the imported grain are concentrated in Wrocław, Szczecin, Gubin, Kraków, Warszawa and Opole, most frequently in neighbourhood of grain mills, dumping grounds and railway areas. The share of the species of American origin in this group of ephemerophytes is significant (25%).

Most species brought with oil seeds have been recorded in Szczecin, Wrocław and Gdańsk. They appeared prevailingly in garbage dumps and near oil mill; they are mainly the plants of American or Asian origin.

Ephemerophytes which arrived with wool originate mainly from Mediterranean region; they have been recorded most frequently in urbanized areas Upper Silesia and in Łódź, Poznań, Szczecin, Gdańsk and Gubin on dumping grounds and near industrial plants.

The species brought with ballast soil have been encountered most frequently in the sea port of Gdańsk and in the river port of Wrocław, as well as on ballast sand and soil dumps – most of them originate from the region of Mediterranean Sea.

Most species brought with fodder for animals and birdseed have been found in garbage dumps in Wrocław, Legnica, Szczecin, Gubin, Słupsk, Katowice and Warszawa. The origin of these species is very differentiated.

9. Conclusions

1. It is justified to distinguish ephemerophytes as a separate group of synanthropic plants, because they show difference from ergasiophygophytes in the intentionality of introduction, distance from which they have arrived, and habitats where they appear.
2. Systematic affiliation of ephemerophytes is similar to that of the native species of Polish flora. Representatives of “exotic” families appear very rarely.
3. The closer to border of Poland and floristically richer the area is from where the given species arrived, the higher is the probability of its introduction; most ephemerophytes originate from Southern Europe or Western Asia.
4. Historical events resulting in a change in social and economic situation have a significant influence on the appearance of species temporarily brought.
5. Most localities of ephemerophytes have been recorded in western and southern part of Poland where the density of railway lines is the highest, mainly in large port cities formerly situated within the borders of Germany (Wrocław, Szczecin, Gdańsk).
6. The habitats where ephemerophytes appear are strictly related to the way of their introduction.
7. Appearance of the species classified to this group is limited nowadays, mainly in the consequence of more restrictive regulations concerning the quality and the manner of importing goods, which limit the possibility of their occasional introduction.
8. It results from many years of observations of the phenomenon of establishing the species introduced temporarily, that approx. 5% of them have a chance to adapt to the new habitat conditions.

Appendices

Appendix A

Species excluded from this study

No	Species name	Probably established	Ornamental or cultivated	Uncertain status in the Polish flora	Reported erroneously or no data available
1	2	3	4	5	6
1.	<i>Abutilon theophrasti</i> MEDIC	+	+?		
2.	<i>Acaena macrostemon</i> HOOK. f.		+		
3.	<i>Achillea tomentosa</i> L.		+		
4.	<i>Adiantum capillus-veneris</i> L.		+		
5.	<i>Adonis annua</i> L.		+		
6.	<i>Aegilops cylindrica</i> HOST.	+			
7.	<i>Agrostis castellanana</i> BOISS. & REUT.				+
8.	<i>Althaea hirsuta</i> L.			+	+?
9.	<i>Alyssum argenteum</i> ALL.	+			
10.	<i>Amaranthus angustifolius</i> LAM.			+?	+
11.	<i>Amaranthus caudatus</i> L.		+		
12.	<i>Amethystea visnaga</i> (L.) LAM.				+
13.	<i>Androsace elongata</i> L.			+	
14.	<i>Arenaria leptoclados</i> GUSS.	+			
15.	<i>Artemisia biennis</i> WILLD.	+			
16.	<i>Asperula orientalis</i> BOISS. & HOHEN.		+		
17.	<i>Aster laevigatus</i> LAM.	+?	+		
18.	<i>Aster laevis</i> L. = <i>A x versicolor</i> WILLD.	+?	+		
19.	<i>Astilbe davidii</i> A. HENRY		+		
20.	<i>Avena nuda</i> L. emend. MANSF.				+
21.	<i>Azolla filiculoides</i> LAM.	+			

1	2	3	4	5	6
22.	<i>Azolla mexicana</i> C. PRESL.				+
23.	<i>Barbarea verna</i> (MILL.) ASCH.		+		
24.	<i>Borago officinalis</i> L.		+		
25.	<i>Brassica elongata</i> EHRH. subsp. <i>elongata</i>			+	
26.	<i>Bromus cf. sitchensis</i> TRIN.			+?	+
27.	<i>Bulbine frutescens</i> WILLD.		+		
28.	<i>Calandrinia pilosiuscula</i> DC.		+		
29.	<i>Calendula officinalis</i> L.		+		
30.	<i>Campanula rapunculus</i> L.	+	+		
31.	<i>Cardamine chelidonia</i> L.	+			
32.	<i>Centaurea nigra</i> L.	+		+	
33.	<i>Cephalaria grandiflora</i> L.		+		
34.	<i>Cerinthe glabra</i> MILL.			+	
35.	<i>Cerinthe major</i> L.		+		
36.	<i>Cheiranthus cheiri</i> L.		+		
37.	<i>Chenopodium capitatum</i> (L.) ASCH.		+		
38.	<i>Chenopodium carinatum</i> R. BR.				+
39.	<i>Chenopodium foliosum</i> ASCH.		+		
40.	<i>Chenopodium pumilio</i> R. BR.	+			
41.	<i>Chrysanthemum coronarium</i> L.		+		
42.	<i>Chrysanthemum marshalii</i> ASCH.		+		
43.	<i>Cicer arietinum</i> L.		+		
44.	<i>Cichorium endivia</i> L. ssp. <i>endivia</i>		+		
45.	<i>Citrullus lanatus</i> (THUNB.) MANSF		+		
46.	<i>Collomia grandiflora</i> DOUGLAS		+		
47.	<i>Coreopsis angustifolia</i> AITON		+		
48.	<i>Corispermum hyssopifolium</i> L.			+	
49.	<i>Cucumis melo</i> L.		+		
50.	<i>Cyperus alternifolius</i> L.		+		
51.	<i>Datura tatula</i> L.		+		
52.	<i>Daucus pusillus</i> MICHX.				+
53.	<i>Digitalis lanata</i> EHRH.		+		
54.	<i>Digitalis lutea</i> L.		+		
55.	<i>Dipsacus sativus</i> (L.) HONCK.		+		
56.	<i>Echinochloa spinosa</i> L.				+
57.	<i>Echinochloa spiralis</i> VASINGER				+
58.	<i>Eragrostis aegyptiaca</i> (WILLD.) LINK				+
59.	<i>Eragrostis caroliniana</i> (SPRENG.) SCRIBN.				+
60.	<i>Eragrostis pectinacea</i> (MICHX.) NESS				+
61.	<i>Eragrostis pilosa</i> (L.) P. BEAUV.	+			

1	2	3	4	5	6
62.	<i>Eranthis hyemalis</i> (L.) SALISB.		+		
63.	<i>Eruca vesicaria</i> (L.) CAV.		+		
64.	<i>Erysimum diffusum</i> EHRH.	+			
65.	<i>Eschscholtzia californica</i> CHAM.		+		
66.	<i>Galium ruthenicum</i> WILLD.	+?		+	
67.	<i>Geranium ibericum</i> CAV.		+		
68.	<i>Gilia achilleifolia</i> BENTH.		+		
69.	<i>Gypsophila elegans</i> M. BIEB.		+		
70.	<i>Helichrysum bracteatum</i> (VENT.) ANDREWS		+		
71.	<i>Hesperis sylvestris</i> CRANTZ	+?		+	+?
72.	<i>Hesperis tristis</i> L.		+		
73.	<i>Hordeum secalinum</i> SCHREB.	+			
74.	<i>Hordeum zoecrithon</i> L.		+		
75.	<i>Hypericum japonicum</i> THUNB.				+
76.	<i>Hypericum veronense</i> SCHRANK			+	
77.	<i>Isatis tinctoria</i> L.		+		
78.	<i>Lathyrus aphaca</i> L.	+			
79.	<i>Lavatera trimestris</i> L.		+		
80.	<i>Leucoium aestivum</i> L.		+		
81.	<i>Lilium candidum</i> L.		+		
82.	<i>Lilium lancifolium</i> THUNB.		+		
83.	<i>Limonium vulgare</i> MILL.		+		
84.	<i>Linaria dalmatica</i> L. MILL.			+	
85.	<i>Linaria incarnata</i> (VENT.) SPRENG.		+		
86.	<i>Linaria purpurea</i> (L.) MILL.		+		
87.	<i>Linaria spartea</i> (L.) WILLD.	+			
88.	<i>Lonicera morrowii</i> A. GRAY		+		
89.	<i>Lycium chinense</i> MILL. var. <i>ovatum</i> (VEILL.) C.K. SCHNEID.		+		
90.	<i>Malva excisa</i> RCH.				+
91.	<i>Malva mauritiana</i> L.		+		
92.	<i>Matthiola varia</i> DC.		+		
93.	<i>Melica altissima</i> L.	+	+		
94.	<i>Mentha x gentilis</i> L.		+		
95.	<i>Merremia sibirica</i> (L.) HALLIER f.		+		
96.	<i>Narcissus radiiflorus</i> AUCT.		+		
97.	<i>Nepeta grandiflora</i> M. BIEB.		+		
98.	<i>Nepeta mussini</i> SPRENG. ex HENCKEL		+		
99.	<i>Nicandra physalodes</i> (L.) GAERTN.		+		

1	2	3	4	5	6
100.	<i>Oenothera compacta</i> HUDZIOK				+
101.	<i>Oenothera octolineata</i> HUDZIOK				+
102.	<i>Oenothera perennis</i> L.		+		
103.	<i>Oenothera tetragona</i> ROTH.		+		
104.	<i>Orlaya grandiflora</i> (L.) HOFFM.				+
105.	<i>Ornithogalum montanum</i> CIRILLO		+		
106.	<i>Ornithogalum pyrenaicum</i> L.		+		
107.	<i>Phacelia tanacetifolia</i> BENTH.		+		
108.	<i>Physalis ixocarpa</i> BROT. ex HORNEM.		+		
109.	<i>Phyteuma nigrum</i> F.W. SCHMIDT		+		
110.	<i>Polygonum orientale</i> L.		+		
111.	<i>Pseudorlaya pumila</i> (L.) GRANDE				+
112.	<i>Rubia tinctorum</i> L.		+		
113.	<i>Rudbeckia hirta</i> L.		+		
114.	<i>Rumex patientia</i> L.		+		
115.	<i>Rumex rugosus</i> CAMPD.		+		
116.	<i>Salvia viridis</i> L.		+		
117.	<i>Sanguisorba dodecandra</i> L.		+		
118.	<i>Saxifraga umbrosa</i> L.	+			
119.	<i>Scrophularia vernalis</i> L.		+		
120.	<i>Senecio inaequidens</i> DC.	+			
121.	<i>Tanacetum parthenifolium</i> (WILLD.) SCH. BIP.	+			
122.	<i>Tradescantia erecta</i> CAV.		+		
123.	<i>Tragopogon porrifolius</i> L.		+		
124.	<i>Trifolium resupinatum</i> L. var. majus BOISS.		+		
125.	<i>Trigonella caerulea</i> (L.) SER. in DC.		+		
126.	<i>Trigonella foenum-graecum</i> L.		+		
127.	<i>Triticum polonicum</i> L.		+		
128.	<i>Triticum turgidum</i> L.		+		
129.	<i>Typha minima</i> HOPPE		+		
130.	<i>Valisneria spiralis</i> L.	+			
131.	<i>Verbesina encelioides</i> (CAV.) BENTH. & HOOK. f. ex A. GRAY		+		
132.	<i>Viola cyanea</i> ČELAK		+		
133.	<i>Viola kitaibeliana</i> ROEM. & SCHULT.			+	+?
134.	<i>Vulpia bromoides</i> (L.) S.F. GRAY	+			

(Cross mark "+" has been put at the features which were decisive for excluding species from the group of ephemeroxytes, ? – uncertain data).

Appendix B

Characteristics of ephemerophytes of Poland

Species name	Families		First record	Introduction pathways	Places of occurrence	Origin	Natural habitat
	before 1914	1915-1945					
1	2	3	7	8	9	10	11
<i>Achillea micrantha</i> WILLD.	Ast.	2	(1930)	–	dry, stony places	Russia S	grasslands, sands
<i>Acroptilon repens</i> (L.) DC.	Ast.	4	1964 (1966)	–	rail.	Asia W, C	meadows, steppes, grasslands, shrubs
<i>Aegilops ligustica</i> ASCH. & GRAEBN.	Poac.	3	(1937)	with cereals	garb.d.	Medit.	anthr.
<i>Agastache urticifolia</i> (BENTH.) KUNTZE	Lam.	1	2002 (2003)	with soil for recultivation	settling pond	North America	damp slopes, mountain valleys
<i>Alcea rugosa</i> ALEF.	Malv.	1	1968 (1971)	–	–	Russia S, Ukraine	dry, open areas
<i>Alkanna primuliflora</i> GRISEB.	Bor.	4	1902 (1903)	with bosnian cereals	garb.d.	Europe SE	rocky slopes
<i>Alopecurus utricularius</i> (L.) SOL.	Poac.	2	1935 (1936)	with exotic fruit	rail., garb.d.	Medit.	light soils, sands
<i>Alyssum linifolium</i> STEPHAN ex WILLD.	Bras.	1	(1896)	–	rail.	Medit.	shrubs, steppes
<i>Amaranthus boucheonii</i> THELL.	Amar.	3	1969 (1974)	–	rail., roads, wast.	North America S, South America N	dry, sandy dunes
<i>Amaranthus californicus</i> (MOQ.) S. WATSON	Amar.	1	(1931)	–	rubb.h.	North America	damp places, pool and river margins

1	2	3	4	5	6	7	8	9	10	11
<i>Amaranthus deflexus</i> L.	<i>Amar.</i>		3	1	1929	–		rail., rubb.h.	South America	sands, dunes
<i>Amaranthus dinteri</i> SCHINZ.	<i>Amar.</i>	1			1877 (1956)	–		rubb.h.	Africa S	savannas, sands
<i>Amaranthus gracilis</i> DESF. ex POIR.	<i>Amar.</i>	1	1	1	1931 (1933)	–		garb.d.	North America S	anthr.
<i>Amaranthus melancholicus</i> L.	<i>Amar.</i>	1			1877 (1880)	–		garb.d.	Asia S, E	coastal areas to 800 m a.s.l.
<i>Amaranthus palmeri</i> S. WATSON	<i>Amar.</i>		9		1959	with cotton		rail.	North America S, W	valleys, deserts
<i>Amaranthus standleyanus</i> PARODI ex COVAS	<i>Amar.</i>	1			(1932)	–		rubb.h.	South America S	anthr.
<i>Ambrosia trifida</i> L.	<i>Ast.</i>	1	7	7	1928	with cereals		rail., garb.d., near mills and elevators	North America	pool and river margins
<i>Amethystea coerulea</i> L.	<i>Lam.</i>	3			(1937)	with oil plant seeds		garb.d.	Asia C	rocks, steppes, slopes
<i>Ammi majus</i> L.	<i>Apiac.</i>	3	2	2	1872 (1874)	with cereals		near mills	Medit.	sands, rocks
<i>Ammi visnaga</i> (L.) LAM	<i>Apiac.</i>		1		(1987)	–		rail., wast.	Medit.	heavy soils
<i>Amsinckia calycina</i> (MORIS) CHATER	<i>Bor.</i>			2	1997 (2001)	with seedlings		near greenhouse	South America S	dry, sunny slopes
<i>Amsinckia lycopsioides</i> (LEHM.) LEMN. ex FISCH. & C.A. MEY	<i>Bor.</i>		1		1960 (1964)	with american cereals		field	South America, North America S	desert areas
<i>Amsinckia menziesii</i> (LEHN.) A. NELSON & J.F. MACBR	<i>Bor.</i>	1			(1931)	–		garb.d.	North America	sands, pool and river margins, deserts
<i>Anacyclus clavatus</i> (DESF.) PERS.	<i>Ast.</i>	4			1930 (1931)	with exotic fruit		rail., near exotic fruit store	Medit.	coastal rocks

<i>Anacyclus officinarum</i> HAYNE	Ast.	1		1936 (1937)	with cereals	near mill	Medit.	coastal rocks
<i>Anacyclus radiatus</i> LOISEL.	Ast.	1	2	1893 (1903)	with cereals	garb.d., near mill in river port	Medit.	sandy and stony places
<i>Anacyclus valentinus</i> L.	Ast.	3		1929 (1930)	with cereals	garb.d., near mill in river port	Medit.	dry meadows
<i>Anagallis tenella</i> (L.) MURRAY	Prim.	1		1824	–	–	Europe S, W	damp meadows, wellheads
<i>Anchusa azurea</i> MILL.	Bor.	2	1	(1936)	with cereals	near mills	Medit.	sands, loams
<i>Anchusa orientalis</i> (L.) RCHB. f.	Bor.	1		(1932)	–	rail. (station)	Europe S, E, Asia	dry slopes, steppes,
<i>Andryala integrifolia</i> L.	Ast.	1		1931 (1932)	with exotic fruit	rail. (station)	Medit.	sandy and stony places
<i>Anoda cristata</i> (L.) SCHLTR.	Malv.	1	1	1939 (1941)	with cereals, oil plant seeds and birdseed	rubh.h., near mills	South America, North America S	sands, deserts, grasslands
<i>Anoda triangularis</i> DC.	Malv.	2		1930 (1931)	–	garb.d.	South America, North America S	ditches, shrubs
<i>Anthemis altissima</i> L.	Ast.	3		1930 (1931)	with exotic fruit	rail., near exotic fruit store	Asia W, Europe S	anthr.
<i>Anthemis austriaca</i> JACQ.	Ast.	3	4	1928 (1929)	with cereals and exotic fruit	rail., near mills, garb.d.	Asia W, Europe S	anthr.
<i>Arabis pendula</i> L.	Bras.	1		1900 (1903)	–	rubh.h.	Asia, Europe E	shrubs, pool and river margins
<i>Arachis hypogaea</i> L.	Fab.	2		1931 (1932)	–	rubh.h.	South America	anthr.

1	2	3	4	5	6	7	8	9	10	11
<i>Argemone mexicana</i> L.	<i>Pap.</i>		1	1		1939 (1956)	with iron ore	garb.d.	South America, North America S	dry soils, rocks
<i>Artemisia maritima</i> L.	<i>Ast.</i>	3		1		1882 (1903)	with ballast soil	ballast places, garb.d.	Europe, Asia C	saline soils, saline river margins
<i>Artemisia siversiana</i> EHRH. ex WILLD.	<i>Ast.</i>			16		1958 (1960)	–	rail., rubb.h.	Eurasia	steppes, open forests, shrubs
<i>Artemisia tournefortiana</i> RCHB.	<i>Ast.</i>	1	1	2		1898	–	rubb.h., near mills	Asia	hills, steppes, open forests
<i>Artemisia verlotiorum</i> LAMOTTE	<i>Ast.</i>	2	6	1		1935 (1937)	with oil plant seeds	rail., garb.d.	China	sandy pool and river margins
<i>Asparagus acutifolius</i> L.	<i>Asp.</i>	1				(1928)	–	roads.	Medit.	dry places, shrubs, on limestone
<i>Asparagus tenuifolius</i> LAM.	<i>Asp.</i>	2	2			(1931)	–	garb.d., rubb.h.	Medit.	forests, shrubs
<i>Asperula arvensis</i> L.	<i>Rub.</i>	9	8	4		(1837)	with cereals and ballast	fields, gardens, ballast soil dumps	Asia S, W, Africa N	steppes
<i>Asteriscus aquaticus</i> (L.) LESS.	<i>Ast.</i>	1				1936 (1937)	with cereals	garb.d. in river port	Medit.	damp meadows, sands
<i>Astragalus boëiticus</i> L.	<i>Fab.</i>	1	1			1897 (1898)	–	fields, garb.d. in river port	Medit.	sands
<i>Atriplex glauca</i> L.	<i>Chen.</i>	1				1864 (1928)	with ballast	–	Medit.	deserts, saline soils
* <i>Atriplex heterosperma</i> BUNGE.	<i>Chen.</i>			8		1972 (1983)	–	rail., roads.	Russia S, Ukraine	anthr.
<i>Avena barbata</i> POTT ex LINK	<i>Poac.</i>	3				1930 (1931)	with exotic fruit	rail. (goods station)	Asia W	dry meadows
<i>Avena brevis</i> ROTH	<i>Poac.</i>	1	1	1		(1904)	–	fields	Medit.	dry meadows

<i>Avena sterilis</i> L.	<i>Poac.</i>	1	2	2	(1910)	–	rail., near market hall	Medit.	dry meadows
<i>Axyris amaranthoides</i> L.	<i>Chen.</i>	3			1929 (1936)	with cereals	rubh.h., near mill	Asia C	steppes, grasslands, sands, meadows
* <i>Bassia hyssopifolia</i> (PALL.) VOLKENS	<i>Chen.</i>	1			1931 (1932)	–	rail. (goods station)	Europe	saline soils
* <i>Bassia sedoides</i> (PALL.) ASCH.	<i>Chen.</i>		1		1967	with iron ore	wast. in port	Europe E	saline soils
<i>Beta maritima</i> L.	<i>Chen.</i>	1	2		1829	with exotic fruit and ballast	ballast places, rail.	Europe S, W	sandy and stony saline places
<i>Bidens pilosa</i> L.	<i>Ast.</i>	1	2		(1912)	with wool and oil plant seeds	rubh.h.	South America?	damp places
<i>Bifora radians</i> M. BIEB.	<i>Apiac.</i>	2	4	3	1885 (1886)	with cereals and exotic fruit	rail., garb.d. near mills	Asia W, Europe S, E	anthr.
<i>Bifora testiculata</i> (L.) ROTH	<i>Apiac.</i>		1		(1933)	with exotic fruit	rail. (station)	Medit.	anthr.
<i>Brachypodium distachyon</i> (L.) P. BEAUV.	<i>Poac.</i>		3		(1931)	with exotic fruit	rail., garb.d., rubh.h.	Medit.	dry sandy and stony places
* <i>Brassica juncea</i> (L.) CZERN.	<i>Bras.</i>	4	15	9	1846 (1903)	with cereals and oil plant seeds	garb.d., rail., wast.	Asia C	anthr.
<i>Briza minor</i> L.	<i>Poac.</i>	1	1	1	(1873)	with exotic fruit	near market hall	Medit.	damp habitats
* <i>Bromus arvensis</i> L. subsp. <i>segetalis</i> H. SCHOLZ	<i>Poac.</i>	1	1		(1940)	–	rail.	Europe C	corny weed
* <i>Bromus brachystachyus</i> HORNING	<i>Poac.</i>		1		(1928)	–	ballast places	Asia S, W	grassy places
* <i>Bromus brazieriformis</i> FISCH. & C.A. MEX.	<i>Poac.</i>	4			1881 (1940)	–	garb.d.	Asia S, W	grassy places
* <i>Bromus grossus</i> DESF. ex DC.	<i>Poac.</i>	5			1873 (1940)	–	–	Belgium	wheat weed

1	2	3	4	5	6	7	8	9	10	11
<i>Bromus intermedius</i> GUSS.	<i>Poac.</i>	1				1901 (1937)	–	–	Medit.	dry meadows, sands
<i>Bromus lanceolatus</i> ROTH	<i>Poac.</i>	2	2	1		(1908)	with wool	rail., garb.d., rubb.h.	Medit.	grassy places, forest margins
<i>Bromus lepidus</i> HOLMB.	<i>Poac.</i>		2			(1933)	–	rubb.h., garb.d.	Europe	grasslands
* <i>Bromus madriensis</i> L.	<i>Poac.</i>	6	1			1927 (1931)	with exotic fruit	rail., near market halls, garb.d.	Medit.	dry sands, grassy places
* <i>Bromus rigidus</i> ROTH.	<i>Poac.</i>	1	4	1		(1904)	with exotic fruit	rail., rubb.h., garb.d.	Medit.	sandy banks
* <i>Bromus rubens</i> L.	<i>Poac.</i>	1				1930 (1931)	–	rubb.h.	Medit.	dry slopes
* <i>Bromus scoparius</i> L.	<i>Poac.</i>	1				(1933)	with cereals	rail.	Medit.	anthr.
* <i>Bromus willdenowii</i> KUNTH	<i>Poac.</i>		3	2		(1984)	–	rail., garb.d., roads.	South America	anthr.
<i>Bunium bulbocastanum</i> L.	<i>Apiac.</i>	1	1	1		(1908)	–	field	Europe S, W	calcareous grasslands, slopes
<i>Bupleurium fontanesii</i> GUSS. ex CARUEL	<i>Apiac.</i>	3				1927 (1937)	–	rail., near market hall	Medit.	dry, sunny places
<i>Bupleurium lancifolium</i> HORNEM.	<i>Apiac.</i>	1	3			1866 (1898)	with cereals and exotic fruit	ballast places, garb.d., rubb.h.	Medit.	dry, sunny places
<i>Calamintha sylvatica</i> BROMF.	<i>Lam.</i>	1		1		(1872)	–	–	Medit.	dry, grassy places
* <i>Camelina microcarpa</i> ANDRZ. subsp. <i>microcarpa</i>	<i>Bras.</i>	2	1	10		1850? (1850)	–	rail.	Europe	anthr.
* <i>Camelina rumelica</i> VELEN.	<i>Bras.</i>		2			1965 (1976)	–	rail., garb.d.	Europe E, S, W Asia	grasslands
<i>Carduus hamulosus</i> EHRH.	<i>Ast.</i>	1				1878 (1879)	–	–	Europe E	steppes, meadows
<i>Carduus macrocephalus</i> DESF.	<i>Ast.</i>		4			1930 (1931)	–	garb.d.	Medit.	grasslands, meadows

<i>Carduus pycnocephalus</i> L.	Ast.	1	1		1931 (1932)	with exotic fruit and ballast soil	near exotic fruit store, ballast heaps	Medit.	shrubs, steppes, deserts
<i>Carduus tenuiflorus</i> CURTIS	Ast.	1			1863 (1903)	with ballast soil	ballast soil dumps in port	Medit.	dry, sunny habitats
* <i>Carex amgunensis</i> F. SCHMIDT	Cyp.	1	1		1936 (1937)	with soya	rail. (goods station)	Russia E	pine forests, dry stony slopes
* <i>Carex vulpinoidea</i> MICHX.	Cyp.	1	1		(1937)	–	–	North America	pool and river margins, wet meadows
<i>Carthamus lanatus</i> L.	Ast.	2	2		1929 (1937)	with oil plant seeds	garb.d.	Eurasia	sunny, stony slopes
<i>Catapodium rigidum</i> (L.) C.E. HUBB.	Poac.	1	3		(1910)	with exotic fruit	near exotic fruit store, rail., wast.	Medit.	dry places, sands
<i>Cenchrus ciliaris</i> L.	Poac.			1	1999 (2001)	–	rail.	Africa, Asia S, W	sands, deserts, shrubs, open forests
<i>Centaurea calcitrapa</i> L.	Ast.	8	2	4	1828 (1903)	with clover, lucerne and wool	rail., fields, garb.d.	Medit.	dry forests, grasslands, sands
<i>Centaurea diluta</i> ARTON	Ast.	6			(1932)	–	rubh.h., garb.d.	Medit. W	anthr.
<i>Centaurea melitensis</i> L.	Ast.	2			1928 (1929)	with cereals	near mills	Medit.	dry, stony places
<i>Centaurea orientalis</i> L.	Ast.		1		(1965)	–	sunny slope	Europe E, S	grasslands
* <i>Centaurea ovina</i> PALL. ex WILLD.	Ast.		3		1968 (1971)	–	rail.	Europe SE	stony places
<i>Centaurea solstitialis</i> L.	Ast.	42	14	9	1824 (1832)	with cereals, wool and ballast soil	fields, rail., wast. near mills, rubh.h.	Medit.	dry, stony and rocky habitats
<i>Centaurea tenuiflora</i> DC.	Ast.	1			(1881)	–	rail.	Europe SE	open slopes
<i>Centaurea transalpina</i> SCHLEICH. ex DC.	Ast.	4	1		(1932)	–	rail.	Europe S	meadows in the Alps

1	2	3	4	5	6	7	8	9	10	11
<i>Centaurea trichocephala</i> M. BIEB. ex WILLD.	<i>Ast.</i>	1				(1897)	–	rail.	Europe SE	meadows, glades
<i>Ceratocephala testiculata</i> (CRANTZ) ROTH.	<i>Ran.</i>	1	1			(1927)	–	–	Europe C, E, Asia W	dry slopes, deserts
<i>Ceratonia siliqua</i> L.	<i>Caes.</i>	2	2			1931 (1932)	–	rubb.h.	Medit.	dry, rocky places, forest margins, shrubs
<i>Ceterach officinarum</i> DC.	<i>Aspl.</i>	1	1			(1940)	–	on wall	Europe, Asia S, W	calcareous rocks
<i>Chamaecytisus glaber</i> (L.f.) ROTHM.	<i>Fab.</i>	1	1			(1912)	–	rail.	Europe SE	stony slopes, forest margins, shrubs
<i>Chamaemelum mixtum</i> (L.) ALL.	<i>Ast.</i>	3	3			1865 (1937)	with exotic fruit and serradella	fields	Medit.	sands
<i>Chenopodium ambrosioides</i> L.	<i>Chen.</i>	3	3	1		1933 (1937)	with wool	garb.d., rubb.h.	South America, North America S	sands
<i>Chenopodium berlandieri</i> MOQ.	<i>Chen.</i>	2	2			1930 (1933)	with cereals	rail.	North America	open swampy plains
<i>Chenopodium giganteum</i> D. DON	<i>Chen.</i>			1		1970 (1971)	with tobacco seeds	wast. near greenhouse	India N	anthr.
<i>Chenopodium hircinum</i> SCHRAD.	<i>Chen.</i>	5	5			1930 (1931)	with cereals and oil plant seeds	garb.d., rubb.h.	South America	dry hills, sands
<i>Chenopodium pratericola</i> RYDB.	<i>Chen.</i>	5	5			1928 (1929)	with cereals?	garb.d.	North America	river margins, sands
<i>Chloris barbata</i> Sw.	<i>Poac.</i>	1	1			(1912)	–	–	? tropics and subtropics	coastal areas
<i>Chloris truncata</i> R. BR.	<i>Poac.</i>	1	1			(1912)	–	–	Australia	grasslands, open forests
<i>Chloris virgata</i> Sw.	<i>Poac.</i>	1	2			(1912)	with wool and oil plant seeds	rubb.h., garb.d.	tropics and subtropics	stony slopes, steppes, sands

<i>Chorispora tenella</i> (PALL.) DC.	<i>Bras.</i>	1	2	1	1895 (1896)	with cereals	rail.	Europe S, E, Asia	steppes, deserts
<i>Cichorium endivia</i> L. subsp. <i>divaricatum</i> (SCHOUSB.) P.D. SELL	<i>Ast.</i>	3			1929 (1930)	with exotic fruit	rub.h., garb.d.	Medit.	coastal rocks and sands
<i>Citrullus colocynthis</i> (L.) SCHRAD.	<i>Cuc.</i>		2		(1970)	–	garb.d.	Africa, Asia	deserts, stony and sandy slopes
<i>Citrus aurantium</i> L.	<i>Rut.</i>	2			(1932)	–	wast. in port, rub.h.	Asia S	anthr.
<i>Claytonia linearis</i> DOUGLAS	<i>Port.</i>		3		1987 (1991)	–	fields, meadows	North America	damp habitats, forests, meadows, grasslands
<i>Claytonia perfoliata</i> DONN ex WILLD.	<i>Port.</i>	1	2	2	(1919)	with seedlings	nursery gardens, arranged greens	North America	sandy soils, river margins
<i>Cochlearia danica</i> L.	<i>Bras.</i>	1			1870 (1967)	–	ballast places	Europe S, W	sandy and gravelly pool and river margins
<i>Cochlearia officinalis</i> L.	<i>Bras.</i>	1			1881	–	ballast places	Europe N, W	pool and river margins
<i>Coincya monensis</i> (L.) GREUTER & BURDET	<i>Bras.</i>	2	3		1867	with lucerne	ballast places	Europe S, W	sandy coastal areas
<i>Coleostephus myconis</i> (L.) RCHB.	<i>Ast.</i>	2		2	1890 (1903)	with serradella and clover	fields, rail.	Medit.	sands
<i>Commelina coelestis</i> WILLD.	<i>Com.</i>	1			1932 (1933)	–	fields	North America S	anthr.
<i>Commelina communis</i> L.	<i>Com.</i>	3	3		1936 (1937)	with oil plant seeds	rub.h., gardens, fields	Asia E	shady grassy places
<i>Conopodium majus</i> (GOUAN) LORET	<i>Apiac.</i>	1			(1908)	–	near sluice	Europe W	forests, grasslands
<i>Consolida orientalis</i> (J. GAY) SCHRÖDINGER	<i>Ran.</i>	1	1	7	1878 (1879)	with cereals	wast. near mills	Medit.	dry, stony slopes
<i>Conyza bonariensis</i> (L.) CRONQUIST	<i>Ast.</i>	1			1931 (1932)	with oil plant seeds?	rail.	North America S	anthr.

1	2	3	4	5	6	7	8	9	10	11
<i>Cordylanthus maritimus</i> Nutt.	<i>Orob.</i>			1	1994 (2003)	–		botanical garden	North America W	saline pool and river margins
<i>Corispermum nitidum</i> Kt. ex SCHULT	<i>Chen.</i>			1	1967 (1969)	–		–	Europe E, C	sandy steppes
<i>Coronilla scorpiooides</i> (L.) W.D.J. KOCH	<i>Fab.</i>	3			1932 (1933)	with exotic fruit		rubh.h., near exotic fruit store and market hall	Medit.	dry, open habitats, hills
<i>Coronopus didymus</i> (L.) Sm.	<i>Bras.</i>	4	1	3	1882 (1912)	with cereals and ballast soil		gardens, wast. in ports, rail.	South America	sands
<i>Corydalis claviculata</i> (L.) DC.	<i>Fum.</i>	1			1825	with ballast soil		ballast soil dump	Europe W	shady places, on limestone
<i>Cotula anthemoides</i> L.	<i>Ast.</i>	1			1872 (1912)	–		Nysa river bank	Africa S, Asia SW	anthr.
* <i>Crepis foetida</i> L.	<i>Ast.</i>	3	1		(1911)	–		–	Europe S	open rocky places
* <i>Crepis neglecta</i> L.	<i>Ast.</i>	1			(1876)	–		–	Medit.	anthr.
* <i>Crepis nicaeensis</i> BALB.	<i>Ast.</i>	7	3		(1881)	–		rail., gardens	Medit.	meadows
* <i>Crepis sancta</i> (L.) BABC. subsp. <i>nemausensis</i> (GOUAN) BABC.	<i>Ast.</i>	1			1931 (1932)	with exotic fruit		rail.	Medit.	shrubs, steppes, deserts
* <i>Crepis setosa</i> HALLER f.	<i>Ast.</i>	13	3	2	1882	–		fields, rail.	Europe C, S	anthr.
* <i>Crepis vesicaria</i> L. subsp. <i>haenseleri</i> (BOISS. ex DC.) P.D. SELL	<i>Ast.</i>	1			1942 (1956)	with exotic fruit		rail.	Europe S, W	calcareous soils
<i>Crupina vulgaris</i> CASS.	<i>Ast.</i>	1			1891 (1903)	with cereals		rail. near mill	Europe S	stony slopes, sands, steppes
* <i>Cuscuta australis</i> R. BR.	<i>Cus.</i>			2	(1956)	–		–	Australia, Asia, Europe S	Polygonum parasite
<i>Cuscuta gronovii</i> WILLD. ex SCHULT. in ROEM. & SCHULT.	<i>Cus.</i>	4	1	2	(1903)	–		gardens	North America	damp soils, meadows, ditches, pool and river margins

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<i>Cuscuta suaveolens</i> SER.	<i>Cus.</i>	1	1		(1878)	–	fields	South America	forests with <i>Pinus ponderosa</i> , lucerne parasite
<i>Cymbalaria pilosa</i> (JACO.) L.H. BAILEY	<i>Scr.</i>	1	1		(1936)	–	on wall	Italy	shady rocks, walls
<i>Cynodon dactylon</i> (L.) PERS.	<i>Poac.</i>	3	8	17	6	with cereals and grass seeds	rail., garb.d., roads.	tropics Eurasia, Africa S	sands, shrubs, steppes, deserts
<i>Cynoglossum microglochm</i> BENTH.	<i>Bor.</i>	2			(1925)	–	roads., lawn	Asia C, Himalayas	shady rocks, walls
<i>Cynosurus echinatus</i> L.	<i>Poac.</i>	27	2		1926	with exotic fruit and wool	rail., rubb.h., garb.d.	Medit.	dry rocky and stony places, cliffs
<i>Cyperus congestus</i> VAHL	<i>Cyp.</i>	3			1928	with wool?	roads.	Africa S	wet plains, river margins
<i>Cyperus declinatus</i> MOENCH	<i>Cyp.</i>	1			1939	with oil plant seeds	garb.d.	South America, North America	swamps, pool and river margins
<i>Cyperus houghtonii</i> TORR.	<i>Cyp.</i>	1	1		1931 (1932)	with american cereals	wast. in river port	North America	pool and river margins, sands, forests with <i>Pinus banksiana</i>
<i>Dactyloctenium aegyptium</i> (L.) P. BEAUV.	<i>Poac.</i>	1	2	1	1899 (1900)	–	garb.d., roads.	tropics Africa, Asia S	sandy soils
<i>Dasyphyrum villosum</i> (L.) CANDARGY	<i>Poac.</i>	4			1930 (1931)	with exotic fruit	rail., near exotic fruit store	Europe S, Asia W	dry sands, grasslands
<i>Daucus aureus</i> DESF.	<i>Apiac.</i>	1			1931 (1932)	with exotic fruit	near exotic fruit store	Medit.	anthr.
<i>Digitalis ferruginea</i> L.	<i>Scr.</i>	1			(1927)	–	–	Europe S, E, Asia W	forests, shrubs, meadows, rocky slopes
<i>Digitalis laevigata</i> WALDST. & KIT	<i>Scr.</i>	1		1	(1995)	–	–	Europe SE	forests, shrubs
<i>Dimorphotheca pluvialis</i> (L.) MOENCH	<i>Ast.</i>	1	2		(1937)	–	–	Africa S	dry grasslands, sands
<i>Dinebra retroflexa</i> (VAHL) PANZ.	<i>Poac.</i>	1		1	1961 (1968)	with wool	rubb.h.	Africa, Asia S	dry open habitats

1	2	3	4	5	6	7	8	9	10	11
<i>Diptotaxis eruroides</i> (L.) DC.	<i>Bras.</i>		1	2		1931 (1932)	with exotic fruit?	rail.	Medit.	anthr.
<i>Dorycnium pentaphyllum</i> Scop. subsp. pentaphyllum	<i>Fab.</i>		1			1935 (1936)	–	industrial heap	Medit. W	steppes, open forests, shrubs
<i>Draba muralis</i> L.	<i>Bras.</i>		1	1		(1906)	–	–	Europe, Asia W, Africa N,W	calcareous rocks
<i>Dracocephalum moldavicum</i> L.	<i>Lam.</i>		4	4	1	1883 (1902)	with cereals	garb.d., near mills	Asia, Europe E	dry hills, calcareous rocks, stony river margins
<i>Dracocephalum parviflorum</i> NUTT.	<i>Lam.</i>		1	1		1929 (1936)	with cereals	near mills	North America	dry, rocky calcareous soils
<i>Dracocephalum thymiflorum</i> L.	<i>Lam.</i>		12	4	7	1873 (1903)	–	rail.	Asia, Europe E	sandy soils
<i>Echinochloa colona</i> (L.) LINK	<i>Poac.</i>		5	1		(1930)	with oil plant seeds	rail., garb.d.	Asia S	anthr.
<i>Echinochloa esculenta</i> (A. BRAUN) H. SCHOLZ	<i>Poac.</i>				4	1993 (1997)	with birdseed	wast., river banks	tropics, Asia, Africa	anthr.
<i>Echinochloa frumentacea</i> LINK	<i>Poac.</i>		3			(1936)	with birdseed	garb.d.	tropics, Asia, Africa, Australia	anthr.
<i>Echinochloa microstachya</i> (WIEGAND) RYDB.	<i>Poac.</i>			1		(1999)	–	roads. (drained ditch)	North America	damp, open forests, pool and river margins
<i>Echinophora spinosa</i> L.	<i>Apiac.</i>		1			1871 (1898)	with ballast soil	ballast places	Medit.	coastal sands
<i>Echium plantagineum</i> L.	<i>Bor.</i>		4	1	1	1866 (1912)	–	gardens, near market hall	Europe S, W	coastal sands
<i>Eleusine indica</i> (L.) GAERTN.	<i>Poac.</i>		1		1	1931 (1941)	with oil plant seeds and wool	roads., garb.d.	tropics, Africa, Asia S	anthr.

* <i>Elymus athericus</i> (LINK.) KERGUÉLEN	Poac.	3	1	(1956)	–	–	? Medit.	damp, saline soils
<i>Elymus canadensis</i> L.	Poac.		1	(1959)	–	roads.	North America	dry, gravelly and rocky places, sands, open forests
<i>Eragrostis ciliaris</i> (ALL.) F.T. HUBB.	Poac.	3	1	1918	with cereals	rail.	Eurasia, Africa	rocky places, river margins
<i>Eragrostis mexicana</i> (HORNEM.) LINK	Poac.	3		(1933)	–	garb.d.	South America, North America	sands
<i>Eragrostis virescens</i> J. PRESL. & C. PRESL.	Poac.	3		(1936)	with oil plant seeds	garb.d.	South America, North America	sands, loams
<i>Eriochloa villosa</i> (THUNB.) KUNTH	Poac.	1		1939 (1956)	with oil plant seeds	garb.d. near oil mill	Asia E	river margins, damp meadows
<i>Erodium botrys</i> (CAV.) WILLD.	Ger.		2	1967 (1969)	with wool	garb.d.	Medit.	dry grassy, rocky and stony places
<i>Erodium laciniatum</i> (CAV.) WILLD.	Ger.	1		1937 (1938)	–	rubh.h.	Medit.	coastal sands
<i>Erodium malacoides</i> (L.) L'HER	Ger.	5		1929 (1930)	with exotic fruit	rail., near exotic fruit store, rubb.h.	Medit.	dry open habitats
<i>Erodium moschatum</i> (L.) L'HER	Ger.	4		1865 (1898)	with wool	ballast places	Medit.	coastal rocky places
<i>Erodium stephanianum</i> WILLD.	Ger.	1		1932 (1933)	–	rail. in port	Asia	dry slopes, sandy river margins
<i>Erucastrum nasturtifolium</i> (POIR) O.E. SCHULZ	Bras.	1	7	(1925)	–	rail.	Europe S, W	rocky slopes
<i>Erysimum crepidifolium</i> RCHB.	Bras.	4	1	1866 (1898)	–	ballast places	Europe C, S	dry slopes, rocks
<i>Erysimum repandum</i> L.	Bras.	11	5	1843 (1881)	–	rail., garb.d.	Europe C, S	dry sandy and stony places
<i>Euclidium syriacum</i> (L.) W.T. AITON	Bras.	2		1884 (1889)	–	ballast place, rail.	Europe E, Asia S, W	grasslands

1	2	3	4	5	6	7	8	9	10	11
<i>Euphorbia seguierana</i> NECK.	<i>Euph.</i>	1	1	1	1843 (1881)	–	–	rail.	Europe, Asia W	grasslands
<i>Euphorbia taurinensis</i> ALL.	<i>Euph.</i>		2	1	1957	–	–	rail.	Medit.	dry
* <i>Euphorbia volynica</i> BESSER ex SZAFER, KULCZ. & PAWL.	<i>Euph.</i>	1			1909 (1924)	–	–	Vistula bank	Europe E, S	damp meadows, pool and river margins
<i>Ficus carica</i> L.	<i>Mor.</i>	2			(1928)	–	–	rub.h.	Medit., Asia S, W	damp rocky places, river margins
<i>Fumaria capreolata</i> L.	<i>Fum.</i>	12	1	1	(1837)	–	–	gardens, ballast places	Medit.	anthr.
<i>Fumaria densiflora</i> DC.	<i>Fum.</i>	4			1845 (1928)	–	–	ballast places	Eurasia N, W	anthr.
<i>Fumaria muralis</i> SOND. ex W.D.J. KOCH.	<i>Fum.</i>		1	1	1926 (1927)	–	–	fields, rail.	Europe W, Africa N	anthr.
<i>Fumaria parviflora</i> LAM.	<i>Fum.</i>	3			1865	–	–	–	Medit.	anthr.
<i>Galeopsis segetum</i> NECK.	<i>Lam.</i>		1	1	(1931)	–	–	rail.	Europe S, W	meadows
<i>Galium humifusum</i> M. BIEB.	<i>Rub.</i>		1		1928 (1929)	–	–	rail.	Europe E, S	damp shrubs
<i>Galium parisiense</i> L.	<i>Rub.</i>	1			(1903)	with wool	–	–	Europe S, W	dry open habitats
* <i>Galium verrucosum</i> HUDD.	<i>Rub.</i>		1	1	(1932)	with exotic fruit	–	rail., garb.d.	Europe S	open habitats
<i>Gastrium ventricosum</i> (GOUAN) SCHINZ & THELL.	<i>Poac.</i>	2			(1931)	with exotic fruit	–	rail., near exotic fruit store	Medit.	coastal calcareous grasslands
<i>Gaudinia fragilis</i> (L.) P. BEAUV.	<i>Poac.</i>	1	3		(1909)	with exotic fruit	–	rail., near exotic fruit store	Medit.	damp grassy places
* <i>Genista anglica</i> L.	<i>Fab.</i>	1		1	1889 (1937)	–	–	rail.	Europe W	damp meadows, moorlands
<i>Geranium lucidum</i> L.	<i>Ger.</i>	1			1913 (1925)	–	–	–	Europe, Asia S, W, Africa N	calcareous rocks

* <i>Geranium rotundifolium</i> L.	<i>Ger.</i>	2	2	(1837)	with exotic fruit	roads.	Europe, Asia S, W Africa N	damp, shady places, rocks
<i>Geranium wilfordii</i> MAXIM.	<i>Ger.</i>		1	1968 (1973)	–	rail.	Asia E	damp meadows, shrubs
<i>Glaucium comiculatum</i> (L.) RUDOLPH	<i>Pap.</i>	4	8 9 2	(1873)	with cereals	rail., wast., gardens, garb.d.	Medit.	coastal habitats, steppes, shrubs
<i>Glaucium flavum</i> CRANTZ	<i>Pap.</i>	3	3	(1818)	with ballast soil	rail., ballast places	Medit.	coastal habitats, sands, gravels, stony places
<i>Glycyrrhiza echinata</i> L.	<i>Fab.</i>		2	(1963)	–	rail.	Europe S, E, Asia S, W	swamps, river margins
<i>Glycyrrhiza glabra</i> L.	<i>Fab.</i>		1	1964 (1987)	–	ruins in botanical garden	Asia W, Medit.	ditches, shrubs, coastal sands
<i>Guizotia abyssinica</i> (L.F.) CASS.	<i>Ast.</i>		16 1	(1927)	with birdseed	rub.h., garb.d., rail.	Africa E (Ethiopia)	deserts
<i>Gypsophila pilosa</i> HUDSON	<i>Car.</i>		2	(1998)	with cereals	near mills	Africa N, Asia S, W	shrubs, steppes
<i>Gypsophila viscosa</i> MURRAY	<i>Car.</i>		1	(1934)	–	–	Asia W	sandy and stony places
<i>Hainardia cylindrica</i> (WILLD.) GREUTER	<i>Poac.</i>		1	(1956)	–	garb.d.	Medit.	damp, saline, gypsum soils
<i>Hedynois cretica</i> (L.) DUM. COURS.	<i>Ast.</i>		4	1930	–	in port near mill, rail., near market hall	Medit.	dry, sandy habitats
<i>Hedynois monspeliensis</i> WILLD.	<i>Ast.</i>		1	(1935)	with exotic fruit	near market hall	?Medit.	dry places
<i>Helenium autumnale</i> L.	<i>Ast.</i>		1	1934 (1935)	–	garb.d.	North America E	damp meadows, mixed forests, swamps
<i>Heliotropium europaeum</i> L.	<i>Bor.</i>	2	3 1 1	(1824)	–	botanical gardens, garb.d., ballast places	Medit.	sands

1	2	3	4	5	6	7	8	9	10	11
* <i>Heracleum pubescens</i> (HOFFM.) M. BIEB.	<i>Apiac.</i>	2				1891 (1898)	–	roads. (ditch), thickets	Ukraine, Crimea	damp, shady places
* <i>Herniaria incana</i> LAM.	<i>Car.</i>		2			(1953)	–	rail., dry grasslands	Eurasia	shrubs, dry sandy and stony places
* <i>Herniaria polygama</i> J. GAY	<i>Car.</i>		2			(1953)	–	sunny sandy places	Europe E	steppes, grasslands
<i>Hippocrepis comosa</i> L.	<i>Fab.</i>	1	1			1874 (1878)	–	Oder bank, near mill	Europe S, E	calcareous hills, rocks, grasslands, steppes, stony slopes, open forests
<i>Hirschfeldia adpressa</i> MOENCH	<i>Bras.</i>	5	1	6		1878 (1879)	with cereals	rail., near mills	Medit.	anthr.
<i>Hordeum bulbosum</i> L.	<i>Poac.</i>	1				(1903)	–	garb.d.	Medit.	dry grasslands
<i>Hordeum marinum</i> HUDS.	<i>Poac.</i>	1	2	2		(1928)	–	rail., garb.d., ballast places	Medit., Asia S, W	coastal damp habitats
<i>Humulus scandens</i> (LOUR.) MERR.	<i>Can.</i>		6			(1928)	–	rubb.h.	Asia E	forest edges, river margins
<i>Hyoscyamus albus</i> L.	<i>Sol.</i>	1				1864 (1903)	–	ballast place	Medit.	stony places, dry waste-lands, walls
* <i>Hypericum gymnanthum</i> ENGELM. et A. GRAY	<i>Hyp.</i>	1				1884 (1968)	–	–	North America	peat bog
* <i>Hypericum mutilum</i> L.	<i>Hyp.</i>	1				1885 (1968)	–	–	North America	swamps
<i>Juncus planifolius</i> R. BR.	<i>Jun.</i>		1	1		1987 (1993)	–	roads.	South America, New Zealand, Australia	swamps, pool and river margins
<i>Lactuca perennis</i> L.	<i>Ast.</i>	1				1906	–	–	Europe S	rocky, dry places
<i>Lactuca saligna</i> L.	<i>Ast.</i>	2	1			1866 (1903)	–	–	Asia E	grassy places
<i>Lactuca virosa</i> L.	<i>Ast.</i>	6	1	12		(1840)	–	rubb.h., rail., near buildings	Medit.	coastal grassy places

<i>Lappula deflexa</i> (WAHLENB.) GARCKE	<i>Bor.</i>	1			(1885)	–	–	Europe	mountains
<i>Lappula heteracantha</i> (Ledeb.) GÜRKE	<i>Bor.</i>	1			1884 (1963)	–	–	Europe E	dry, stony slopes, steppes
<i>Lappula patula</i> (LEHM.) ASCH.	<i>Bor.</i>	1	1		1884 (1903)	with ballast soil?	ballast place, rail.	Europe E, Asia W	steppes, stony hills
<i>Lathyrus cicera</i> L.	<i>Fab.</i>	1	1		1935 (1936)	with cereals	garb.d. near mill	Medit., Asia S, W	grasslands, shrubs
<i>Lathyrus inconspicuus</i> L.	<i>Fab.</i>	1	1		1939 (1956)	–	rubh.h.	Medit., Asia S, W	shrubs, rocks
<i>Lathyrus ochrus</i> (L.) DC.	<i>Fab.</i>	1	1		1935 (1936)	with cereals	garb.d. near mill	Medit.	dry places
<i>Lathyrus sativus</i> L.	<i>Fab.</i>	1	1		1893 (1898)	–	botanical garden	Medit., Asia S	anthr.
<i>Legousia hybrida</i> (L.) DELARBRE	<i>Cam.</i>	1	1		(1917)	with exotic fruit	near market hall	Medit.	anthr.
<i>Legousia speculum-veneris</i> (L.) CHAIX	<i>Cam.</i>	5	3	3	(1776–77)	with cereals	rail., fields, gardens	Medit.	open forests, shrubs, stony slopes
<i>Lepidium heterophyllum</i> BENTH.	<i>Bras.</i>	2			1931 (1932)	with grass seeds	lawns	Europe S, W	dry, open, grassy habitats
<i>Lepidium latifolium</i> L.	<i>Bras.</i>	3	1	22	7	1886 (1898)	rail., garb.d., roads.	Medit., Asia S, W	damp, shady habitats, pool and river margins, saline soils
<i>Lepidium perfoliatum</i> L.	<i>Bras.</i>	6	5	16	1	(1881)	rail., wast.	Europe E, Asia	dry, sandy places
<i>Linaria chalepensis</i> (L.) MULL.	<i>Scr.</i>	1	1		(1936)	with exotic fruit	near market hall	Medit., Asia S, W	dry habitats, pine forests
<i>Linaria saxatilis</i> (L.) CHAZ.	<i>Scr.</i>	2			1864	with serradella	sandy fields	Spain and Portugal	dry sandy and stony places
<i>Linaria simplex</i> (WILLD.) DC.	<i>Scr.</i>	1	1		1889	with ballast soil?	wast. in port	Medit., Asia S, W	shrubs, steppes

1	2	3	4	5	6	7	8	9	10	11
<i>Lolium rigidum</i> GAUDIN	<i>Poac.</i>		4			(1932)	with exotic fruit	rail., near exotic fruit store	Medit., Asia S, W	shrubs, steppes, deserts
<i>Lolium subulatum</i> Vis.	<i>Poac.</i>	2	2			(1932)	with exotic fruit	rail., near market hall	Medit.	anthr.
<i>Lythrum junceum</i> BANKS & SOL.	<i>Lythr.</i>	3	3			(1927)	with exotic fruit?	rubb.h., rail.	Medit.	damp habitats, pool and river margins, wet meadows
<i>Malcolmia maritima</i> (L.) R. BR.	<i>Bras.</i>	2	3	1	1	1895 (1903)	–	rail., garb.d., roads.	Europe S, E	coastal sands, rocks
<i>Malva nicaeensis</i> ALL.	<i>Malv.</i>	2	2			1934 (1937)	with cattle fodder	garb.d.	Medit.	fertile soils
<i>Malva parviflora</i> L.	<i>Malv.</i>	4	4	1		1929	with exotic fruit	garb.d.	Medit.	fertile soils
<i>Malvastrum peruvianum</i> (L.) A. GRAY	<i>Malv.</i>	1	1			(1941)	with oil plant seeds	garb.d.	South America	anthr.
<i>Marrubium peregrinum</i> L.	<i>Lam.</i>		2	2		1963 (1968)	–	wast.	Europe C, E, S	dry, open habitats
<i>Martynia proboscidea</i> GLOXIN	<i>Mart.</i>	1	1			(1919)	–	beet field	USA	river margins
<i>Medicago aculeata</i> GAERTN.	<i>Fab.</i>	1	1			1931 (1932)	with exotic fruit	rail.	Medit.	rocky, grassy and sandy places
<i>Medicago arabica</i> (L.) HUDS.	<i>Fab.</i>	7	5	3		1879 (1880)	with wool, cereals and exotic fruit	wast., rail., garb.d., ballast places, near mill	Medit.	damp slopes, pool and river margins, rocky places, pine forests
* <i>Medicago caerulea</i> LESS. ex LEDEB	<i>Fab.</i>			1		(1998)	–	rail.	Russia E, S, Kazakhstan	anthr.
<i>Medicago intertexta</i> MILL.	<i>Fab.</i>	1	1			1864 (1881)	–	–	Europe S, Africa N	damp habitats

<i>Medicago polymorpha</i> L.	<i>Fab.</i>	11	7	1	1827 (1928)	with cereals, wool and ballast soil	rail., rubb.h., garb.d., near mill, ballast place	Medit.	dry slopes, rocky and grassy places
<i>Medicago praecox</i> DC.	<i>Fab.</i>			1	1929 (1930)	–	rubb.h.	Europe S, E, Asia W	grassy places, pine forests
<i>Medicago rigidula</i> (L.) ALL.	<i>Fab.</i>		2	1	1930 (1931)	with exotic fruit	rail., garb.d., rubb.h.	Medit.	grassy places
<i>Medicago scutellata</i> (L.) MILL.	<i>Fab.</i>	2	2		(1885)	with exotic fruit	rail.	Europe E	forests, steppes
* <i>Melampyrum barbatum</i> WALDST. & KIT. ex WILLD.	<i>Scr.</i>	1	1		1857 (1881)	–	field, rail., roads.	Europe C, E	grasslands, steppes
<i>Melilotus indicus</i> (L.) ALL.	<i>Fab.</i>	18	3		1926	with exotic fruit and cereals	rail., rubb.h., garb.d.	Medit., Asia S, W	damp sands
<i>Melilotus messanensis</i> (L.) ALL.	<i>Fab.</i>		3		1931 (1932)	with exotic fruit	rail., garb.d.	Medit.	damp habitats, saline soils
<i>Melilotus sulcatus</i> DESF.	<i>Fab.</i>		6		1930 (1931)	with exotic fruit and cereals	rail., near exotic fruit store	Medit.	dry, stony, sandy soils, open forests
<i>Minuartia hybrida</i> (VILL.) SCHISCHK.	<i>Car.</i>	10		1	(1843)	–	sandy fallow, botanical garden	Medit., Asia S, W	dry, stony, sandy and rocky places
<i>Mirabilis hirsuta</i> (PURSH) MACMILL.	<i>Nyct.</i>		1		(1937)	–	in river port	North America	dry hills, prairies
<i>Moenchia erecta</i> (L.) GAERTN.	<i>Car.</i>	1			(1881)	–	–	Europe S, W	dry grasslands, hills, steppes, sands
<i>Moenchia mantica</i> (L.) BARTL.	<i>Car.</i>	2	2		(1809)	–	garb.d., in river port	Europe S, E	grassy places
<i>Myagrum perfoliatum</i> L.	<i>Bras.</i>	1	3	2	1901 (1935)	with exotic fruit and cereals	rail., near mills	Europe S, Asia W	anthr.

1	2	3	4	5	6	7	8	9	10	11
<i>Neslia apiculata</i> FISCH., C.A. MEY. & AVÉ-LALL.	<i>Bras.</i>		1	1		(2006)	with cereals	near mill	Medit., Asia W, C	grassy places
<i>Nonea lutea</i> (DESR.) DC.	<i>Bor.</i>	1	1	1		1877 (1878)	–	rubb.h. near botanical garden	Europe S, E, Asia W	stony slopes, steppes, oak forests
<i>Nonea rosea</i> (M. BIEB.) LINK	<i>Bor.</i>		1	1		1934 (1935)	–	potato field	Caucasus	anthr.
<i>Oenothera indecora</i> CAMBESS.	<i>Onag.</i>		1	1		1939 (1956)	with oil plant seeds	rubb.h.	South America	sands
<i>Ornithopus compressus</i> L.	<i>Fab.</i>	1	1	1		1878 (1898)	with exotic fruit and serradella	rail.	Medit.	rocky slopes, grassy places, open pine forests
<i>Orobanchae hederae</i> DUBY	<i>Orob.</i>	1				1902 (1903)	–	in garden	Europe C, S, W	<i>Hedera</i> parasite
<i>Orobanchae lucorum</i> A. BRAUN	<i>Orob.</i>			2		1997 (2005)	–	botanical gardens	Europe C	<i>Berberis</i> and <i>Crataegus</i> parasite
<i>Oxalis tetraphylla</i> CAV.	<i>Oxal.</i>		3			(1928)	–	rubb.h.	North America S	anthr.
<i>Panicum dichotomiflorum</i> MICHX.	<i>Poac.</i>		2	1		(1931)	–	garb.d., rail.	South America, North America	prairies
<i>Panicum implicatum</i> SCRIBN. ex BRITTON	<i>Poac.</i>			1		1984 (1988)	with cereals	sandy wast.	North America?	sands, dry meadows
<i>Papaver hybridum</i> L.	<i>Pap.</i>		1	1		(1935)	with exotic fruit	near exotic fruit store	Medit., Asia S, W	dry slopes
<i>Parapholis incurva</i> (L.) C.E. HUBB.	<i>Poac.</i>		1	1		(1933)	with exotic fruit	rail.	Medit., Asia S, W	damp coastal habitats, saline streams
<i>Parietaria lusitanica</i> L.	<i>Urt.</i>	1				1881	with ballast soil	ballast soil dump	Medit.	shady rocks, stony places, steppes
<i>Parthenium hysterophorus</i> L.	<i>Ast.</i>		1	1		1938 (1956)	–	rubb.h.	South America, Mexico	shrubs, open forests

<i>Paspalum racemosum</i> LAM.	Poac.	1		1929 (1937)	with cereals	garb.d.	South America W	anthr.
* <i>Petrorhagia velutina</i> (Guss.) P.W. BALL & HEYWOOD	Car.	1		1942 (1956)	with exotic fruit	rail.	Europe S	dry open forests, shrubs
<i>Placelia congesta</i> HOOK	Hyd.	1		(1934)	with cereals	roads. near mill	North America	prairies, meadows, forest margins
<i>Phalaris angusta</i> NEES.	Poac.	1		(1941)	–	rubh.h.	South America, USA	damp meadows, prairies
<i>Phalaris brachystachys</i> LINK	Poac.	2		(1932)	with exotic fruit	rail., near exotic fruit store	Medit.	anthr.
<i>Phalaris canariensis</i> L.	Poac.	7	17 68 29	(1908)	with birdseed	garb.d., rail., wast., roads.	Medit.	dry, open habitats
<i>Phalaris coerulescens</i> DESF.	Poac.	3		(1931)	with exotic fruit	rail., near market hall	Medit.	pool and river margins, wet meadows
<i>Phalaris minor</i> RETZ.	Poac.	3		(1931)	with exotic fruit	rail., near exotic fruit store	Medit., Asia W	shrubs, steppes, deserts
<i>Phalaris paradoxa</i> L.	Poac.	5	2	(1931)	with exotic fruit	rail., rubb.h., garb.d.	Medit.	anthr.
<i>Phalaris truncata</i> Guss. ex BERTOL.	Poac.	1		(1931)	with exotic fruit	rail.	Medit.	damp places
<i>Pitheum arenarium</i> L.	Poac.	2	1	1871 (1940)	–	wast. in ports, roads.	Europe W, S	sands
<i>Pitheum subulatum</i> (SAVY) ASCH. & GRAEBN.	Poac.	1		1935 (1936)	with exotic fruit	near market hall	Europe S, Asia W	dry, grassy and stony places, forest margins
<i>Phoenix dactylifera</i> L.	Arec.	2	1	(1932)	with exotic fruit	garb.d.	Africa N, Asia S, W	damp habitats
<i>Pholurus pannonicus</i> (HOST) TRIN.	Poac.	1		(1931)	–	rail.	Europe S, Asia W	saline soils

1	2	3	4	5	6	7	8	9	10	11
<i>Picris sprengerana</i> (L.) POIR.	Ast.		2			1929 (1937)	-	rubh., garb.d.	Medit.	stony slopes
<i>Plantago afra</i> L.	Plant.	1				(1931)	with exotic fruit	rail.	Africa C, N, Asia S, W, Europe S, E	dry, grassy places
* <i>Plantago altissima</i> L.	Plant.	3				1832 (1926)	-	Vistula bank	Europe C, E, S	damp meadows and sands
<i>Plantago lagopus</i> L.	Plant.	3				1929	with exotic fruit	rail., near market hall	Medit.	grassy and rocky places, coastal sands, open forests
<i>Plantago patagonica</i> JACQ.	Plant.	2				(1936)	-	field, garden	South America S, North America	grasslands, open forests
<i>Podospermum laciniatum</i> (L.) DC.	Ast.	1	1	1		(1837)	-	rail.	Medit., Asia W	grassy slopes, rocks, shrubs
<i>Polycarpon tetraphyllum</i> (L.) L.F.	Car.	4				(1837)	-	fields	Medit.	dry, rocky, gravelly places, dunes
* <i>Polygonum arenarium</i> WALDST. & KIT	Polyg.	1	1			(1895)	-	rubh., garb.d.	Europe E, S	sands
* <i>Polygonum bungeanum</i> TURCZ	Polyg.	2				1934 (1936)	with oil plant seeds	garb.d.	Asia E	sands, valleys
* <i>Polygonum patulum</i> M. BIEB.	Polyg.	7	2			(1931)	with birdseed	rubh., garb.d.	Europe C, E, S	dry sands
<i>Polygonum monspeliensis</i> (L.) DESE.	Poac.	4	8	2		1858	with exotic fruit, wool and ballast soil	rail., garb.d.	Medit., Asia S, W	damp habitats
<i>Polygonum viridis</i> (GOUAN) BREISTR.	Poac.		1			(1932)	with exotic fruit	-	Europe S	damp places
* <i>Potentilla bijurca</i> L.	Ros.	1	1	2		1925 (1930)	with fodder	rail.	Europe E, S	steppes, dry sands

* <i>Potentilla chrysantha</i> TREVIR	Ros.	1			(1903)		–	–	Europe E, S	forest edges meadows
* <i>Potentilla conferta</i> BUNGE	Ros.		1	2	(1930)		–	rail.	Ural Mountains S	mountain meadows
* <i>Potentilla multifida</i> L.	Ros.		1		1922 (1987)		–	–	Fennoskandia, Europe mountains	forest edges meadows, ravines, river margins
* <i>Potentilla pennsylvanica</i> L.	Ros.		2		1923 (1930)		with fodder	rail.	North America	prairies, grassy slopes
<i>Rapistrum perenne</i> (L.) ALL.	Bras.	1	4	21 12	1868 (1881)		–	rail., garb.d., wast.	Europe E	steppes
<i>Rapistrum rugosum</i> (L.) ALL.	Bras.	9	10	22 1	1868 (1881)		with cereals, exotic fruit, birdseed and fodder	rail., garb.d., rubb.h.	Medit.	anthr.
<i>Reseda alba</i> L.	Res.	8	4		(1851)		–	rubb.h.	Medit.	dry, sandy and rocky places
<i>Reseda inodora</i> RCHB.	Res.	1			1947 (1987)		–	–	Europe SE	dry open habitats, steppes
<i>Rhagadiolus stellatus</i> (L.) GAERTN.	Asl.		4		1930 (1931)		with cereals and exotic fruit	market hall, wast. in river port	Medit.	stony slopes
<i>Roemeria hybrida</i> (L.) DC.	Pap.	1		1	1850 (1912)		–	rail.	Medit., Asia W	dry, stony slopes, shrubs, steppes, deserts
<i>Rostraria cristata</i> (L.) TZVELEV	Poac.		3		(1931)		with exotic fruit	rail., near market hall	Medit., Asia S, W	stony places
<i>Rostraria hispida</i> (SAVI) DOGAN	Poac.		1		(1935)		–	rail.	Medit.	grasslands
* <i>Rumex bucephalophorus</i> L.	Polyg.	1	3		1866 (1912)		with exotic fruit	rail.	Medit.	sandy and rocky coastal habitats
* <i>Rumex obovatus</i> DANSER	Polyg.		1		1939 (1956)		with oil plant seeds	garb.d.	Argentina, Paraguay	coastal habitats
* <i>Rumex pulcher</i> L.	Polyg.		2		1933 (1934)		with exotic fruit	rail.	Medit.	damp places

1	2	3	4	5	6	7	8	9	10	11
* <i>Rumex stenophyllus</i> LEDEB.	<i>Polyg.</i>			3		1959 (1960)	–	rubh.h.	Europe C, E	damp saline soils
* <i>Rumex trianguivalvis</i> (DANSER) RECH. f.	<i>Polyg.</i>	3	6	1		1931 (1936)	with cereals and wool	rail., wast., near mills	North America	meadows, sands, gravels
<i>Salsola collina</i> PALL.	<i>Chen.</i>		1	20	1	1926 (1960)	–	rail.	Asia, Europe E	sands
<i>Salsola soda</i> L.	<i>Chen.</i>				1	(1995)	–	rail.	Medit.	coastal sands, saline soils
<i>Schismus barbatus</i> (L.) THELL.	<i>Poac.</i>			1		1965 (1968)	with wool	garb.d.	Medit., Asia S, W	shrubs, steppes, deserts
<i>Scolymus hispanicus</i> L.	<i>Ast.</i>	3				1932 (1933)	–	rail., near mill	Medit.	sandy soils
<i>Scorzonera cana</i> (C.A. MEY.) O. HOFFM.	<i>Ast.</i>	1	1			1882 (1972)	–	rail.	Eurasia	saline soils, dry meadows, rocky places
* <i>Scutellaria minor</i> HUDS.	<i>Lam.</i>			1		(1951)	–	in lakeside	Europe S, W	damp places
<i>Senecio nebrodensis</i> L.	<i>Ast.</i>	1				1887 (1888)	–	by the garden wall	Europe W, S, Africa N	rocky places
<i>Sesamooides canescens</i> (L.) KUNTZE	<i>Res.</i>	1				(1912)	–	–	? Medit. W	sandy pool and river margins
<i>Seseli hippomarathrum</i> L.	<i>Apiac.</i>	1				(1881)	–	dry slope near forest glade	Europe C, E	grasslands, steppes
<i>Setaria faberi</i> HERRM.	<i>Poac.</i>		6	3		(1978)	with cereals and oil plant seeds	rail., wast. near elevators	Asia E	mountain slopes
<i>Sideritis montana</i> L.	<i>Lam.</i>	1	3	16	1	1893 (1894)	–	rail.	Medit., Asia W	stony slopes, sands, shrubs
<i>Sigesbeckia cordifolia</i> KUNTH.	<i>Ast.</i>				2	(2003)	–	botanical garden	South America	anthr.
<i>Silene conoidea</i> L.	<i>Car.</i>		2			(1998)	with cereals and clover	near mill, field	Medit., Asia	shrubs, steppes
<i>Silene eserei</i> BAUMG.	<i>Car.</i>	1				(1908)	–	–	Europe E, S	anthr.
<i>Silene liniticola</i> C.C. GMEL.	<i>Car.</i>	1				(1909)	–	–	Italy	flax cultivation

<i>Silene scabriflora</i> BROT.	<i>Car.</i>	1			1860 (1912)	–	in serradella	Europe S, W	grasslands, shrubs
<i>Silene trinervia</i> SEBAST. & MAURI	<i>Car.</i>	1			1930 (1937)	–	garb.d.	Balkans	sands
<i>Silene viscosa</i> (L.) PERS	<i>Car.</i>	1			1921 (1987)	–	rail.	Europe C, E	sands, steppes
<i>Simsia foetida</i> (CAV.) S.F. BLAKE	<i>Ast.</i>	1			1938 (1956)	–	rubh.h.	South America N, North America S	anthr.
<i>Sisymbrium austriacum</i> JACQ.	<i>Bras.</i>	1	4		1932 (1937)	–	rail., cattle market	Europe C, S, W	rocks, stony places
* <i>Sisymbrium irio</i> L.	<i>Bras.</i>	1	8		1906 (1907)	–	rail., roads.	Medit.	rocky slopes
* <i>Sisymbrium orientale</i> L.	<i>Bras.</i>	5	12	48	(1873)	–	rail., wast., near mills, roads.	Europe S, Asia W	anthr.
<i>Solanum cornutum</i> LAM.	<i>Sol.</i>	2	3	2	1895 (1903)	–	garb.d., roads., rail.	North America S	dry, sandy places
* <i>Solanum melanocerasum</i> ALL.	<i>Sol.</i>			2	1961 (1979)	–	garb.d. wast.	?	anthr.
<i>Solanum sarrachoides</i> SENDTN.	<i>Sol.</i>	2	1		(1933)	with exotic fruit	rail., garb.d.	South America	anthr.
<i>Solanum sisymbriifolium</i> LAM.	<i>Sol.</i>	2	3		1932 (1933)	with cereals and oil plant seeds	rail., garb.d. near oil mill and near elevators	South America	anthr.
<i>Solanum sodomaicum</i> L.	<i>Sol.</i>	1			1932 (1933)	–	garb.d.	Africa S	coastal sands, stony places
<i>Solanum triflorum</i> NUTT.	<i>Sol.</i>	2			1930 (1937)	with cereals and oil plant seeds	rubh.h., meadow	South America, North America	prairies
<i>Sorghum bicolor</i> (L.) MOENCH	<i>Poac.</i>	2	4		(1937)	with wool and birdseed	rail., rubb.h.	tropical Africa	anthr.
<i>Sorghum halepense</i> (L.) PERS.	<i>Poac.</i>	8	23	7	(1931)	with birdseed	rail., garb.d.	Eurasia	dry, open habitats

1	2	3	4	5	6	7	8	9	10	11
<i>Spilanthes oleraceus</i> JACQ.	Ast.	1				1886	–	rail.	anthr.?	anthr.
<i>Sporobolus cryptandrus</i> (TORR.) A. GRAY	Poac.			1		(1996)	–	rail.	South America, North America	sandy soils, grassy places
<i>Symphytum asperum</i> LEPECH.	Bor.	2				1927	with cattle fodder	near mill	Asia W	anthr.
<i>Tetragonia tetragonoides</i> (PALL.) KUNTZE	Aiz.	2				(1931)	with cereals	rubb.h.	Australia, New Zealand	sandy and stony beaches
<i>Thlaspi alliaceum</i> L.	Bras.	1	1			(1927)	–	botanical garden	Africa N, E, Asia W, Europe S, E	anthr.
* <i>Torilis arvensis</i> (HUDS) LINK	Apiac.	1	1			(1837)	–	near exotic fruit store	Europe S, E Africa, Asia W	dry, stony places
<i>Torilis nodosa</i> (L.) GAERTN.	Apiac.	3				1928 (1936)	with cereals and exotic fruit	near exotic fruit store, garb.d.	Medit, Asia W	shrubs, open forests
<i>Tragopogon hybridus</i> L.	Ast.	1				1932 (1933)	–	in river port	Medit.	grassy, stony places
<i>Tragus racemosus</i> L.	Poac.			1		2005 (2007)	–	sandy roads.	Europe S, E, Asia, Africa	dry sands
<i>Tribulus terrestris</i> L.	Zyg.	1				1866 (1898)	with oil plant seeds and ballast soil	ballast soil dumps in port	Europe S, E, Asia, Africa, Australia	dry open habitats, sandy banks
<i>Trifolium alexandrinum</i> L.	Fab.	2				1879 (1881)	–	rail.	Medit.	anthr.
<i>Trifolium angustifolium</i> L.	Fab.		2			1965 (1968)	with wool	garb.d.	Medit.	dry meadows, grasslands, open forests, shrubs
<i>Trifolium echinatum</i> M. BIEB. subsp. <i>constantinopolitanum</i> (SER.) GIBELLI & BELLI	Fab.	1				1934 (1935)	with exotic fruit	rail.	Europe S, E, Asia W	grassy, damp habitats

<i>Trifolium glomeratum</i> L.	<i>Fab.</i>	1		1934	–	–	rail.	Medit.	dry, grassy places
<i>Trifolium lappaceum</i> L.	<i>Fab.</i>	3		1934 (1935)	with exotic fruit	–	rail., near market hall	Medit.	grasslands, dry slopes, hills, sands
<i>Trifolium stellatum</i> L.	<i>Fab.</i>	1		1929 (1930)	with exotic fruit	–	rail.	Medit.	rocky, stony places
<i>Trifolium tomentosum</i> L.	<i>Fab.</i>	1		1937 (1938)	–	–	–	Medit.	dry, grassy places
<i>Turgenia latifolia</i> (L.) HOFFM.	<i>Apiac.</i>	2	5	(1881)	with cereals	–	rail., near mills	Medit., Asia	stony slopes
<i>Urtica cannabina</i> L.	<i>Urt.</i>		1	3 (1978)	–	–	rail.	Europe, Asia C, W	grasslands, sands, pool and river margins
<i>Urtica pilulifera</i> L.	<i>Urt.</i>	3	1	(1881)	–	–	garden, wast. in port, rail.	Medit., Asia S	anthr.
<i>Valerianella carinata</i> LOISEL.	<i>Valer.</i>	9	1	(1898)	–	–	rail., walls	Medit.?	rocks
<i>Valerianella coronata</i> (L.) DC.	<i>Valer.</i>	1	1	1893 (1932)	–	–	rail.	Eurasia	dry grassy, stony slopes, rocks, steppes
<i>Valerianella eriocarpa</i> DESV.	<i>Valer.</i>	2		(1932)	with exotic fruit	–	rail., near exotic fruit store	Medit., Asia W	calcareous rocks
<i>Ventenata dubia</i> (LEERS) COSS.	<i>Poac.</i>	2	3	(1809)	–	–	rail.	Europe S, Asia, Africa	rocky slopes
* <i>Verbascum chaixii</i> VILL. subsp. orientale HAYEK	<i>Scr.</i>	1	2	(1840)	–	–	rail.	Europe E, S	rocks, grasslands
<i>Verbascum lanatum</i> SCHRAD.	<i>Scr.</i>		1	(2003)	–	–	botanical garden	Europe E, S	mountain forests
* <i>Verbascum olympicum</i> BOISS.	<i>Scr.</i>	1		(1906)	–	–	–	Asia W	dry, stony slopes
<i>Verbascum sinuatum</i> L.	<i>Scr.</i>	1		(1931)	–	–	garb.d.	Europe S	rocky slopes, shrubs
<i>Verbascum virgatum</i> STOKES	<i>Scr.</i>	2		1939 (1941)	–	–	garb.d.	Europe W	anthr.
<i>Vicia articulata</i> HORNEM.	<i>Fab.</i>	3	2	1874 (1898)	–	–	rail.	Medit.	pine forests, calcareous rocks, shrubs, meadows

1	2	3	4	5	6	7	8	9	10	11
<i>Vicia benghalensis</i> L.	<i>Fab.</i>		2			1935 (1936)	–	wast. in river port	Europe W, S, Africa N	stony places
<i>Vicia bithynica</i> (L.) L.	<i>Fab.</i>	1	1			1844 (1928)	with exotic fruit and ballast soil	ballast places	Medit.	dry shrubs?
<i>Vicia ervilia</i> (L.) Willd.	<i>Fab.</i>	1	1	1		1934 (1935)	with cereals	fields	Medit.	stony slopes
<i>Vicia lutea</i> L.	<i>Fab.</i>	8	4			(1924)	–	rail.	Medit.	sandy coastal places, meadows, forests, shrubs
<i>Vicia melanops</i> Sibth. & Sm.	<i>Fab.</i>	1	1			(1932)	with clover seeds	field	Europe W, S, Asia W	grassy places, shrubs
<i>Vicia narbonensis</i> L.	<i>Fab.</i>	1	1			1885 (1886)	–	lawn	Medit., Asia W	shrubs, steppes, deserts
<i>Vicia tenuissima</i> (M. Bieb.) Schinz & Thell.	<i>Fab.</i>	2				1885 (1898)	with ballast soil	ballast places	Medit.	dry, grassy places, open pine forests
<i>Voluntaria lippii</i> (L.) Maire	<i>Ast.</i>		1			(1937)	with cereals	river port near mill	Africa N, Asia W	deserts, shrubs, steppes
<i>Vulpia ciliata</i> Dumort.	<i>Poac.</i>	2				(1932)	with exotic fruit	rail., near exotic fruit store	Medit., Asia W	dry sandy places
<i>Vulpia geniculata</i> (L.) Link.	<i>Poac.</i>	1				1929 (1937)	with exotic fruit	garb.d.	Europe S, Africa N	coastal sands, shrubs
* <i>Xanthium macrocarpum</i> DC.	<i>Ast.</i>		1			(1951)	–	–	North America?	pool and river margins
<i>Zygophyllum fabago</i> L.	<i>Zyg.</i>	1	2			(1873)	–	slopes, river port	Medit.	dry rocky and sandy places

First record – date of the first record; the date of the first publication has been given in brackets while the date of the first record or herbarium collection has been given without brackets.

Places of occurrence: rail. – railways, garb.d. – garbage dumps, rubbish heap, roads. – roadsides, wast. – wastelands.

Origin – the area of native range of species: **Medit.** – Mediterranean region, **C** – central, **E** – east, **N** – north, **S** – south, **W** – west.

Natural habitat – natural habitats of the species occurrence: **anthr.** – the species in known from the habitats converted by human only (ruderal or segetal ones).

Explanations:

(*) the species which requires a critical taxonomic revision

(?) uncertain data

(-) no data

Fam. – families:

Aiz. – Alizaceae, **Amar.** – Amaranthaceae, **Apiac.** – Apiaceae, **Arec.** – Arecaceae, **Asp.** – Asparagaceae, **Aspl.** – Asplenaceae, **Ast.** – Asteraceae, **Bor.** – Boraginaceae, **Bras.** – Brassicaceae, **Cam.** – Campanulaceae, **Can.** – Cannabaceae, **Car.** – Caryophyllaceae, **Caes.** – Caesalpiniaceae, **Com.** – Commelinaceae, **Cuc.** – Cucurbitaceae, **Cus.** – Cuscutaceae, **Cyp.** – Cyperaceae, **Euph.** – Euphorbiaceae, **Fab.** – Fabaceae, **Fum.** – Fumariaceae, **Ger.** – Geraniaceae, **Hyp.** – Hypericaceae, **Jun.** – Juncaceae, **Lam.** – Lamiaceae, **Lythr.** – Lythraceae, **Mab.** – Malvaceae, **Mart.** – Martyniaceae, **Mor.** – Moraceae, **Nyct.** – Nyctaginaceae, **Onag.** – Onagraceae, **Orob.** – Orobanchaceae, **Oxal.** – Oxalidaceae, **Pap.** – Papaveraceae, **Plant.** – Plantaginaceae, **Poac.** – Poaceae, **Polyg.** – Polygonaceae, **Port.** – Portulacaceae, **Prim.** – Primulaceae, **Ran.** – Ranunculaceae, **Res.** – Resedaceae, **Ros.** – Rosaceae, **Rub.** – Rubiaceae, **Rut.** – Rutaceae, **Ser.** – Scrophulariaceae, **Sol.** – Solanaceae, **Urt.** – Urticaceae, **Valer.** – Valerianaceae, **Zyg.** – Zygophyllaceae.

Appendix C

List of localities of ephemerophytes recorded in Poland

Explanations (see Chapter 5.4)

Achillea micrantha WILLD., *Tract. de Achilleis*: 33. (1789) non *A. micrantha* WILLD. *Sp. Pl.* 3(3) 2196. (1804)

Synonyms: *Achillea gerberi* WILLD.

ED 17 – Warszawa Targówek (KOBENDZA 1930; DĄBROWSKA 1982), stony dry places, *leg. Kobendza R.* 1923.

ED 12 – Miszory (KOBENDZA 1930; DĄBROWSKA 1982), in the area of Kampinos Forest, *leg. Kobendza R.* 1924 (WA).

The species also cited by Trzebiński (1930) from the precincts of Puławy (KOBENDZA 1930).

Acroptilon repens (L.) DC., *Prodr.* 6: 663 (1838)

Synonyms: *Rhaponticum repens* (L.) HIDALGO, *Centaurea repens* L.

AB 83 – Szczecin (ĆWIKLIŃSKI 1971b), port area, on cinder surface close to store houses, *leg. Ćwikliński E.* 1970. The species has been observed since 1967.

AC 67 – Gorzów Wielkopolski (MISIEWICZ 1970), close to a tannery and at railroad near the bridge on Ulga Channel, *leg. Misiewicz J.* 1968.

DD 39 – Łowicz (SOWA 1966), central railway station, railway tracks, *leg. Sowa R.* 1964.

FD 48 – Międzyrzec Podlaski (ĆWIKLIŃSKI 1984–1985), on inter-track space.

Aegilops ligustica ASCH. & GRAEB., *Bull. Soc. Bot. France* 11: 164 (1864)

AD 43 – Gubin (LADEMANN 1937), dumping ground.

BE 48 – Wrocław (MEYER 1937), near the mill.

BE 49 – Wrocław Sołtysowice, dumping ground, *leg. Schalow E.* 1939 (WRSL).

Agastache urticifolia (BENTH.) KUNTZE, *Revis. Gen. Pl.* 2: 511 (1891)

DF 79 – Kraków (GUZIK, PACYNA 2003), settling pond “Jugowice” of Krakowskie Zakłady Sodo-
we, *leg. Guzik J., Pacyna A.* 2002.

Alcea rugosa ALEF., *Oesterr. Bot. Z.* 12: 254 (1862)

CE 67 – Kluczbork (SENDEK 1971).

Alkanna primuliflora GRISEB., *Spicil. Fl. Rumel.* 2: 89 (1844)

AE 28 – Bolesławiec (SCHUBE 1903a), dumping ground, *leg. Fiek E.* 1902 (WRSL).

BE 21 – Goliszów near Chojnów (SCHUBE 1904b), in the area of zoological garden.

BE 31 – Wojciechów near Chojnów (SCHUBE 1903b).

BE 49 – Wrocław (SCHUBE 1905), close to timberyard, *leg. Eitner* 1904 (WRSL).

Alopecurus utriculatus (L.) SOL., *Russell, Nat. Hist. Aleppo.* 2: 243 (1794)

AB 83 – Szczecin (SCHEUERMANN 1956), dumping ground at Tama Pomorzańska Street.

BE 48 – Wrocław (MEYER 1935), western goods station.

Alyssum linifolium STEPHAN EX WILLD., *Sp. Pl.* 3(1): 467 (1800)

ED 27 – Warszawa Praga (CYBULSKI 1896, 1897), goods station (WA).

Amaranthus bouchonii THELL., *Le Monde des Plantes* 27: 4 (1926)

Synonyms: *Amaranthus powellii* S. WATSON.

- BC 81** – Międzychód (FREY A. 1974; STENGL-REJTAR 1992), railway station embankment, *leg. Frey A. 1969* (private herbarium).
ED 26 – Warszawa Okęcie (SUDNIK-WÓJCIKOWSKA, GUZIK 1998), wasteland near warehouses, *Binka K.* (personal information).
FF 55 – Medynia Łańcucka (STENGL-REJTAR A. 1992), roadside.

***Amaranthus californicus* (MOQ.) S. WATSON, *Bot. California* 2: 42 (1880)**

- BE 59** – Wrocław Wojszyce (SCHALOW 1931), heap of rubble.

***Amaranthus deflexus* L., *Mantissa Alt.* 295 (1771)**

- BD 08** – Poznań Łazarz (ŻUKOWSKI 1960b; FREY A. 1974), railroad embankment, *leg. Krawiec F. 1929* (POZ).
BE 48 – Wrocław (SCHALOW 1932; FREY A. 1974), heap of rubble at Braniborska Street.
BE 59 – Wrocław Rakowiec (SCHALOW 1934), close to “Grossmarkthalle” market hall (MEYER 1935).
DD 76 – Łódź (WITOSŁAWSKI 1991), neglected lawn at POW Street, *leg. Witostawski P. 1990* (LOD).

***Amaranthus dinteri* SCHINZ., *Mém. Herb. Boiss.* 20: 15 (1900)**

- AD 59** – Zielona Góra (SCHUBE 1914; AELLEN 1956; AELLEN 1964; FREY A. 1974).

***Amaranthus gracilis* DESF. EX POIR., *Tabl. École Bot.* 43 (1804)**

- BA 69** – Ustka (HOLZFUSS 1933), heap of rubble.
DD 85 – Łódź Lublinek (WITOSŁAWSKI 1996), dumping ground at sewage treatment plant, *leg. Witostawski P. 1990* (LOD).

***Amaranthus melancholicus* L., *Sp. Pl.* 2: 989 (1753)**

- AD 59** – Zielona Góra (UECHTRITZ 1880), heap of rubble, *leg. Hellwig 1877*.

***Amaranthus palmeri* S. WATSON, *Proc. Amer. Acad.* 12: 274 (1877).**

- BC 46** – Czarnków (LATOWSKI 1977), on shunt tracks at goods station, *leg. Latowski K. 1975* (POZ).
BD 69 – Gostyń (LATOWSKI 1981), along team tracks, *leg. Latowski K. 1977* (POZ).
BE 49 – Wrocław Sołtysowice (FREY A. 1974), *leg. Rostański K. 1959* (WRSL).
CC 50 – Wągrowiec (LATOWSKI 1977), trackway at railway station, *leg. Latowski K. 1975* (POZ).
CD 81 – Krotoszyn (LATOWSKI 1981), at siding trackway, *leg. Latowski K. 1977* (POZ).
DB 96 – Nowe Miasto Lubawskie (OLESIŃSKI, KORNIK 1980), *leg. Olesiński L. 1964* (OUP).
DD 75 – Łódź Karolew, goods station, *leg. Sowa R. 1959, rev. Frey A. 1973* (LOD).
DD 76 – Łódź Doły (FREY A. 1974), debris, *leg. Sowa R. 1960, rev. Frey A. 1971* (LOD).
EB 13 – Lidzbark Warmiński (OLESIŃSKI, KORNIK 1980).

***Amaranthus standleyanus* PARODI EX COVAS, *Darwiniana* 5: 339 (1941)**

Synonyms: *Amaranthus vulgatissimus* auct. SPEG.

- BE 59** – Wrocław Rakowiec (SCHALOW 1932), heap of rubble.

***Ambrosia trifida* L., *Sp. Pl.* 987 (1753)**

Synonyms: *Ambrosia trifida* L. var. *integrifolia* (MÜHL. ex WILLD.) TORR. & GRAY.

- AB 61** – Świnoujście (HOLZFUSS 1937).
AB 83 – Szczecin (HOLZFUSS 1937), at Tama Pomorzańska Street in the mill yard, observed from 1900 up to 1926; dumping ground at Gdańska Street (SCHEUERMANN 1956), *leg. Wangrin G. 1939*.
AB 84 – Dąbie near Szczecin (HOLZFUSS 1927; CELIŃSKI 1964), trackway.

- AD 43** – Gubin (LADEMANN 1937), garbage dump, *leg. Lademann* 1933.
BE 49 – Wrocław (ROSTAŃSKI K. 1961), garbage dump, Krzywoustego Street, *leg. Rostański K.* 1959 (WRSL).
CA 69 – Gdynia, port area, *leg. Misiewicz J.* 1978 (KRAM).
CA 70 – Słupsk (BANNIER 1929; HOLZFUSS 1936), garbage dump near Kaufmann & Sommerfeld Mill, *leg. Otte* 1929.
CE 92 – Góra near Niemodlin (MEYER 1933), near the mill.
CE 95 – Opole (MICHALAK 1968), area of river port, goods yard close to grain elevator.
DF 35 – Dąbrowa Górnicza Strzemieszyce (SENDEK 1981, 1984), railway areas.
DF 69 – Kraków (GUZIK 2006), wastelands in the neighbourhood of grain processing plant (in the eighties).
ED 16 – Warszawa Białołęka (SUDNIK-WÓJCIKOWSKA, GUZIK 1998), siding at the mill.
EE 45 – Skarżysko-Kamienna (MACIEJCAK 1988), railway embankment.
EF 77 – Tarnów (FREY, ZAJAC U., ZAJAC A. 1969), railway embankment near railway station.
GE 81 – Bodaczów (ŚWIĘŚ, WRZESIEŃ 2002), railway tracks.

***Amethystea coerulea* L., *Sp. Pl.* 1: 21 (1753)**

- AB 73** – Szczecin Żelechowa (HOLZFUSS 1937), dumping ground.
AB 83 – Szczecin (HOLZFUSS 1936), dumping ground at Tama Pomorzańska Street in 1935 and 1936 (SCHEUERMANN 1956); dumping ground at Tama Pomorzańska Street, *leg. Wangrin G.* 1939.

***Ammi majus* L., *Sp. Pl.* 243 (1753)**

Synonyms: *Ammi glaucifolium* L.

- AD 43** – Gubin (LADEMANN 1937), garbage dump, in 1929 and 1936.
BE 59 – Wrocław Wojszyce (SCHUBE 1930).
BE 96 – near Dzierżoniów (UECHTRITZ 1874), *leg. Schumann* 1872.
DF 30 – Gliwice, *leg. Dziażko* 1901 (OPOL).
DF 69 – Kraków (GUZIK 2006), wastelands in the neighbourhood of grain processing plant.
DG 00 – Cieszyn Bobrek (FIEK 1887; SCHUBE 1903b).
ED 16 – Warszawa Białołęka (SUDNIK-WÓJCIKOWSKA, GUZIK 1998), siding at the mill.

***Ammi visnaga* (L.) LAM., *Fl. Fr.* 3: 462 (1778)**

Synonyms: *Daucus visnaga* L.

- ED 26** – Warszawa (SUDNIK-WÓJCIKOWSKA 1981), wasteland near “Western Warsaw” railway station.

***Amsinckia calycina* (MORIS) CHATER, *Bot. Jour. Linn. Soc.* 64: 380 (1971)**

Synonyms: *Lithospermum calycinum* MORIS, *Amsinckia angustifolia* LEHM.

- CA 50** – Retowo near Smołdzino (CZARNA *et al.* 2001), farmland (among beets).
CD 94 – Janów Przygodzki (CZARNA *et al.* 2001), household garden on uncovered soil and at the fence near the greenhouse.

***Amsinckia lycopsioides* (LEMN.) LEMN. EX FISCH. & C.A. MEY, *Del. Sem. Horto Hamburg.* 1831: 3 (1831)**

- FG 59** – Stuposiany (JASIEWICZ 1964), barley field on the slope of Kosowiec (Bieszczady), *leg. Jasiewicz A.* 1960 (KRAM).

***Amsinckia menziesii* (LEMN.) A. NELSON & J.F. MACBR, *Bot. Gaz.* 61: 36 (1916)**

- BE 49** – Wrocław Różanka (SCHALOW 1931), garbage dump, *leg. Schalow E.* 1930 (WRSL).

***Anacyclus clavatus* (DESF.) PERS., Syn. Pl. 2: 465 (1807)**

Synonyms: *Anacyclus pubescens* REICHENBACH, *Anthemis clavata* L., *Anthemis tomentosa* GOUAN, *Chamaemelum tomentosum* ALLIONI.

BE 48 – Wrocław (MEYER 1931), western railway station, trackway, leg. Meyer K. 1930 (WRSL).

BE 49 – Wrocław (MEYER 1936), close to “Grossmarkthalle” market hall, leg. Meyer K. 1935 (WRSL).

BE 49 – Wrocław (SCHALOW 1932), yard close to exotic fruit store at Tęczowa Street, leg. Schalow E. 1931 (WRSL).

BE 59 – Wrocław Brochów (SCHALOW 1932), eastern goods station, leg. Meyer K. 1931.

***Anacyclus officinarum* HAYNE, Getreue Darstell. Gew. 9: t. 46 (1825)**

Synonyms: *Anacyclus pyretrum* (L.) LINK

BE 48 – Wrocław (MEYER 1937), near the mill, river port.

***Anacyclus radiatus* LOISEL., Fl. Gall. 582 (1807)**

AB 83 – Szczecin (HOLZFUSS 1937), dumping ground at Gdańska Street.

BE 48 – Wrocław (MEYER 1937), near the mill, river port.

DC 30 – Toruń (ABROMEIT *et al.* 1903), close to the “Treposz” Mill, leg. Scholz 1893.

***Anacyclus valentinus* L., Sp. Pl. 892 (1753)**

BE 48 – Wrocław (MEYER 1937), area of river port, leg. Meyer K. 1936 (WRSL).

BE 49 – Wrocław Różanka (SCHALOW 1931), heap of rubble, leg. Schalow E. 1930 (WRSL).

BE 59 – Wrocław Wojszyce (SCHUBE 1930), heap of rubble, leg. Schalow E. 1929, det. Scheuermann (WRSL).

***Anagallis tenella* (L.) MURRAY, Mant. Pl. Altera 335 (1771)**

ED 26 – Warszawa Mokotów (ROSTAFIŃSKI 1873).

***Anchusa azurea* MILL., Gard. Dict. (8)9 (1768)**

AB 83 – Szczecin (SCHEUERMANN 1956), dumping ground at Gdańska Street.

BE 60 – Jelenia Góra (SCHALOW 1936), lawn, leg. Kruber 1935.

EF 60 – Kraków (GUZIK 2006), wastelands in the neighbourhood of grain processing plant.

***Anchusa orientalis* (L.) RCHB. F., Ic. Fl. Germ. 18: 63 (1858)**

Synonyms: *Lycopsis orientalis* L., *Anchusa arvensis* (L.) M. B. subsp. *orientalis* (L.) NORDH.

BE 48 – Wrocław (MEYER 1932), western goods station.

***Andryala integrifolia* L., Sp. Pl. 808 (1753)**

Synonyms: *Andryala sinuata* L.

BE 48 – Wrocław (MEYER 1932), western goods station. The species classified as *Andryala integrifolia* L. subsp. *tenuifolia*.

***Anoda cristata* (L.) SCHLTR., Linnaea 11: 210 (1837)**

AB 83 – Szczecin (HOLZFUSS 1941; SCHEUERMANN 1956), garbage dumps in 1939 and 1940, the species classified as *A. cristata* var. *digitata*, det. Prof. Ulbrich.

DF 69 – Kraków (GUZIK 2006), wastelands in the neighbourhood of grain processing plant.

***Anoda triangularis* DC., Prodr. 1: 459 (1824).**

BE 48 – Wrocław (SCHALOW 1931), garbage dump at the “Körnerwiese”, leg. Schalow E. 1930 (WRSL).

BE 49 – Wrocław Sołtysowice, garbage dump, leg. Schalow E. 1939 (WRSL).

***Anthemis altissima* L., Sp. Pl. 893 (1753)**

Synonyms: *Cota altissima* (L.) J. GAY.

BE 48 – Wrocław (MEYER 1931), western goods station, leg. Meyer K. and Schalow E. 1930 (WRSL).

BE 49 – Wrocław Biskupin, heap of rubble, leg. Schalow E. 1935 (WRSL).

BE 49 – Wrocław (SCHALOW 1932), yard close to exotic fruit store at Tęczowa Street, leg. Schalow E. 1931 (WRSL).

***Anthemis austriaca* JACQ., Fl. Austr. 5: 22 (1778)**

Synonyms: *Anthemis cotiformis* VELEN.

AB 83 – Szczecin (MISIEWICZ 1976), port-coal wharf, leg. Misiewicz J. 1975.

BE 49 – Wrocław (MEYER 1935), close to “Grossmarkthalle” market hall, leg. Meyer K. 1934 (WRSL).

BE 49 – Wrocław Sołtysowice, garbage dump at Sołtysowicka Street, leg. Schalow E. 1939 (WRSL).

CA 69 – Gdynia (SCHWARZ 1967), wastelands in the port area, leg. Schwarz Z. 1962 (GDMA).

CE 95 – Opole (SCHUBE 1929), eastern railway station, leg. Schubert 1928 and 1929 (WRSL).

CF 08 – Fosowskie near Strzelece Opolskie (MICHALAK 1976), railway station.

CF 37 – Kędzierzyn-Koźle (SCHUBE 1929), railway station, leg. Schubert 1928 (WRSL).

DA 80 – Gdańsk (SCHWARZ 1967), wastelands in the port area, leg. Schwarz Z. 1962 (GDMA).

DA 80 – Gdańsk Wrzeszcz (SCHWARZ 1967), sports field leg. Schwarz Z. 1957; at the fence of market place, leg. Schwarz Z. 1962 (GDMA).

DA 80 – Gdańsk (MISIEWICZ 1976), port-cereal wharf, leg. Misiewicz J. 1975.

DD 24 – Krośniewice, high road ditch, leg. Gmerek A., det. Siciński J.T. 1990 (LOD).

DD 75 – Łódź, Szczecińska Street, farmland, leg. Przystawska H. 1972 (LOD).

DE 01 – Chojne, roadside, leg. Marglewska M., det. Siciński J.T. 1992 (LOD).

DE 52 – Niwiska Dolne near Działoszyn, leg. Olaczek R. 1967 (LOD).

DF 69 – Kraków, Dajwór Street, trackway, leg. Kirschner A. 1882 (KRAM).

DF 69 – Kraków, lock weir on Vistula, leg. Kirschner A. 1891 (KRAM).

DF 69 – Kraków Grzegórzki, Vistula bank close to railway bridge, leg. Żmuda A. 1908 (KRAM).

ED 16 – Warszawa Białołęka (SUDNIK-WÓJCIKOWSKA, GUZIK 1998), railway siding close to a mill.

ED 36 – Warszawa Piaseczno Iwiczna (SUDNIK-WÓJCIKOWSKA, GUZIK 1998).

EE 01 – Inowłódź, abandoned field, leg. Mazurkiewicz U. 1993, det. Sowa R. (LOD).

FD 09 – Fronolów (GŁOWACKI 1975), railway station.

FD 18 – Niemojki near Łosice (GŁOWACKI 1975), railway embankment.

FD 25 – Siedlce (GŁOWACKI 1975), along railway tracks.

FD 26 – Krzymosze (GŁOWACKI 1975), railway station.

FD 34 – Żelków Kolonia (GŁOWACKI 1975), sandy roadside.

FF 04 – Stalowa-Wola Południe (KULPA 1964), railway embankment near railway station, leg. Kulpa W. 1954.

***Arabis pendula* L., Sp. Pl. 665 (1753)**

AE 35 – Zgorzelec (SCHUBE 1903b).

***Arachis hypogaea* L., Sp. Pl. 2: 741 (1753)**

BE 49 – Wrocław Biskupin (SCHALOW 1932), garbage dump.

BE 58 – Wrocław (SCHALOW 1932), Wzgórze Skarbowców – “Kinderzobten”, garbage dump.

***Argemone mexicana* L., Sp. Pl. 1: 508 (1753)**

AB 83 – Szczecin (SCHEUERMANN 1956), dumping ground at Gdańska Street.

CF 36 – Kędzierzyn Koźle (SZOTKOWSKI 1988), river port, at iron ore depot close to scales, leg. Szotkowski P. 1966 (KRA).

***Artemisia maritima* L., Sp. Pl. 846 (1753)**

- CC 93 – Gniezno, leg. Cybichowski 1880 (POZ).
DA 80 – Gdańsk Westerplatte (ABROMEIT *et al.* 1903), ballast soil bingstead in the port, leg. Bethke 1882.
DA 80 – Gdańsk Westerplatte (PREUSS 1910), ballast soil bingstead in the port, leg. Preuss H. 1904, 1907 (TRN).
GC 10 – Białystok (ŻUKOWSKI, PIASZYK 1971), trackway, leg. Bańkowski Cz. 1956.

***Artemisia siversiana* EHRH EX WILLD., Sp. Pl. 3: 1845 (1803)**

- AB 83 – Szczecin (ĆWIKLIŃSKI 1974), railway areas in the port, leg. Ćwikliński E. 1965 (POZ).
AB 84 – Szczecin Dąbie (ĆWIKLIŃSKI 1970), trackway.
AD 48 – Przylep (ĆWIKLIŃSKI 1972), on cinder close to railroad, 1 km from the station.
BD 60 – Nowa Sól (ĆWIKLIŃSKI 1972), trackway.
BE 48 – Wrocław (ROSTAŃSKI K. 1960), “Popowice” river port.
BE 49 – Wrocław (ROSTAŃSKI K. 1960), heap of rubble at Olsztyńska and Krzywoustego Street, leg. Rostański K. 1958 (WRSL, OPOL).
BE 49 – Wrocław Nadodrże (ROSTAŃSKI K. 1960), trackway, leg. Rostański K. 1958 (TRN, WRSL).
BE 59 – Wrocław Brochów (ROSTAŃSKI K. 1960), leg. Rostański K. 1958 (WRSL).
CE 95 – Opole (MICHALAK 1968), rubbish heap in the river port,
CF 05 – Grudzice (MICHALAK 1973), dumping ground.
CF 17 – Strzelce Opolskie (MICHALAK 1976), wastelands close to limestone processing plant.
DD 75 – Łódź Bałuty, Ogrodowa Street, leg. Sowa R. 1961 (LOD).
DD 75 – Łódź Karolew (SOWA 1965), goods station, close to carriage washstand, leg. Sowa R. 1961 (LOD).
DD 76 – Łódź (SOWA 1965), close to the storehouse of Cotton Processing Plant (formerly Marchlewskiego Street), leg. Sowa R. 1958 (LOD).
DD 85 – Łódź Rokicie (SOWA 1965), wasteland at Cieszyńska Street, near the mill, leg. Sowa R. 1961 (LOD).
DF 45 – Jaworzno-Szczakowa (ROSTAŃSKI, SENDEK 1982), heap of rubble, leg. Rostański K. 1978 (KTU).

***Artemisia tournefortiana* RCHB., Iconogr. Bot. Exot. 6, t. 5 (1827)**

- AB 83 – Szczecin (ŻUKOWSKI, PIASZYK 1971), dumping ground, in 1898.
CA 70 – Słupsk (BANNIER 1929), garbage dump close to “Kaufmann & Sommerfeld Mill”, leg. Ote 1929.
FE 13 – Puławy (FIJAŁKOWSKI 1978, 1994), railway embankment.
GC 10 – Białystok (ŻUKOWSKI, PIASZYK 1971), ruderal places in the park close to Medical Academy buildings, leg. Mądalski J. 1953.

***Artemisia verlotiorum* LAMOTTE, Compt.-Rend. Assoc. Fr. Avancem. Sci. 5 (Clerm.-Ferr.) 513 (1877)**

- AB 83 – Szczecin (HOLZFUSS 1937; SCHEUERMANN 1956), dumping ground at Tama Pomorzańska Street.
BC 27 – Piła (ŻUKOWSKI, PIASZYK 1971), railway station, in 1939 (herbarium materials observed by Żukowski in Greifswald).
FE 13 – Puławy (FIJAŁKOWSKI 1978, 1994), railway embankment.
FD 22 – Grodziszczce Mazowieckie (ĆWIKLIŃSKI 1984–1985), trackway.
FD 22 – Skrudą (ĆWIKLIŃSKI 1984–1985), cottage adjacent area.
FD 25 – Borki Siedleckie (ĆWIKLIŃSKI 1984–1985), trackway.
FD 49 – Szachy (ĆWIKLIŃSKI 1984–1985).
GD 34 – Terespol (ĆWIKLIŃSKI 1984–1985), torowisko.
GE 36 – Dorohusk (WRZESIEN 2007), intertrack space.

***Asparagus acutifolius* L., *Sp. Pl.* 1: 314 (1753)**

BE 49 – Wrocław (SCHUBE 1928), at Gajowa Street, *leg. Schalow E.* 1927.

***Asparagus tenuifolius* LAM., *Encycl. Méth. Bot.* 1: 294 (1783)**

BE 48 – Wrocław (SCHALOW 1931), garbage dump.

BE 49 – Wrocław Biskupin (SCHALOW 1931), garbage dump.

FE 28 – Łagiewniki near Lublin (FIJAŁKOWSKI 1954), in loessial ravine.

FE 73 – Opoka near Kraśnik (FIJAŁKOWSKI 1954), on limestone slope.

***Asperula arvensis* L., *Sp. Pl.* 103 (1753)**

AB 83 – Szczecin (SCHEUERMANN 1956), dumping ground at Gdańska Street, observed from 1936 up to 1939 and 1942, *leg. Wangrin G.*

AD 43 – Gubin (DECKER 1912).

AD 43 – Gubin (LADEMANN 1937), roadside.

BE 28 – between Rościszawice Lubnów and Wołów (WIMMER 1832, 1841); Rościszawice, *leg. Krause* 1852 (WRSL).

BE 33 – Legnica (SCHUBE 1903b), “Wilhelmsplatz”.

BE 43 – Snowidza near Jawor, cultivated field, *leg. Strauch* 1936 (WRSL).

BE 48 – Wrocław, western goods station, *leg. Schalow E.* 1939 (WRSL).

BE 49 – Wrocław Biskupin (SCHALOW 1931).

BE 53 – Luboradz near Jawor, heap of rubble, *leg. Strauch* 1936 (WRSL).

BE 59 – Wrocław Wojszyce (SCHALOW 1931), *leg. Schalow E.* 1930 (WRSL).

BE 71 – Miedzianka near Wojcieszów (ELSNER 1837).

BE 86 – Dzierżonów (ENGLER 1870), brought as a weed in the garden, *leg. Schumann.*

CC 62 – Janówiec (SZULCZEWSKI 1951).

CC 85 – Trzemeszno (RITSCHL 1850).

CD 62 – Koźmin (SZULCZEWSKI 1951).

CD 62 – Staniew near Krotoszyn (SZULCZEWSKI 1951).

CE 72 – Żłobizna near Brzeg (SCHALOW 1932), garbage dump, *leg. Schalow E.* 1931 (WRSL).

CF 31 – Głuchołazy (SCHUBE 1899, 1903b), *leg. Buchs* 1898 (WRSL).

CF 42 – near Trzebina (KRAWIECOWA *et al.* 1964), cultivated field.

DA 80 – Gdańsk-Westerplatte (KLINGGRAEFF 1866; ABROMEIT *et al.* 1898), ballast heaps, *leg. Helm* 1881; near Martwa Wisła *leg. Helm* 1868.

DF 32 – Bytom (SCHUBE 1903a), *leg. Tischbierek* 1902.

***Asteriscus aquaticus* (L.) LESS., *Syn. Gen. Comp.* 210 (1832)**

Synonyms: *Bupthalmum aquaticum* L., *A. citriodorus* HELDR. & HALÁCSY.

BE 48 – Wrocław (MEYER 1937), river port, in 1936.

***Astragalus boëticus* L., *Sp. Pl.* 2: 758 (1753)**

Synonyms: *Astragalus baëticus* L.

BE 48 – Wrocław (MEYER 1936), river port, dumping ground, *leg. Schalow E.* 1935 (WRSL).

FA 84 – Gołdap (ABROMEIT *et al.* 1898), on vegetable field, *leg. Schultz* 1897.

***Atriplex glauca* L., *Sp. Pl.* 2: 1493 (1763)**

Synonyms: *Obione glauca* MOQ.

DA 80 – Gdańsk-Westerplatte (PREUSS 1928), *leg. Klinsmann E.F.* 1864.

***Atriplex heterosperma* BUNGE., *Beitr. Fl. Russl.* 272–273 (1852)**

ED 23 – Bramki Ukazowe (NOWAK 1983), *leg. Nowak K.* 1972

ED 24 – Błonie near Pruszków, Gołaszew, Józefów (NOWAK 1983).

ED 25 – Ożarów Mazowiecki, Piastów Wolica (NOWAK 1983), *leg. Nowak K.* 1972.

ED 34 – Brwinów-Milanówek (NOWAK 1983), *leg. Andrearczyk 1963 (WA) cor. Nowak K. 1973 ex A. patulum.*

FD 81 – Dębówka (NOWAK 1983)

The species reported by the author to appear on trackways, railway embankments, roadsides and near fences.

***Avena barbata* POTT EX LINK IN SCHRAEDER, *Jour. für die Bot.* 1799(2): 315 (1800)**

AB 83 – Szczecin (SCHEUERMANN 1956), trackway, western goods station, *leg. Wangrin G. 1942.*

BE 48 – Wrocław (MEYER 1931), trackway, western goods station.

BE 49 – Wrocław (SCHALOW 1933), yard close to exotic fruit store at Tęczowa Street.

***Avena brevis* ROTH, *Bot. Abh.* 42 (1787)**

AB 83 – Szwedzki Młyn near Szczecin Zdroje (MÜLLER 1911).

CF 68 – between Lubomia and Syrynia (TRZCIŃSKA-TACIK 1975), on potato field near the earth-work.

***Avena sterilis* L., *Sp. Pl.* ed. 2, 118 (1762)**

BE 48 – Wrocław (MEYER 1931), trackway, western goods station.

BE 49 – Wrocław (MEYER 1935), close to “Grossmarkthalle” market hall.

DA 80 – Gdańsk Wisłoujście (PREUSS 1910; SCHWARZ 1967).

GE 82 – Zamość (ŚWIEŚ, WRZESIEŃ 2004), the railway track margin near railway station.

GE 83 – Zamość (ŚWIEŚ, WRZESIEŃ 2004), the railway track margin, under a viaduct at Peowia-ków Street.

***Axyris amaranthoides* L., *Sp. Pl.* 979 (1753)**

AB 83 – Szczecin (HOLZFUSS 1936; SCHEUERMANN 1956), dumping ground at Tama Pomorzańska Street.

BE 49 – Wrocław (SCHALOW 1937), river port.

CA 70 – Słupsk (HOLZFUSS 1936), at lumberyard near “Kaufmann & Sommerfeld Mill”.

***Bassia hyssopifolia* (PALL.) VOLKENS, *Revis. Gen. Pl.* 2: 547 (1891)**

BE 48 – Wrocław (MEYER 1932), western goods station.

***Bassia sedoides* (PALL) ASCH., *Beitr. Fl. Aethiop.* 187 (1867)**

CF 36 – Kędzierzyn Koźle (SZOTKOWSKI 1988), iron ore depot in the city port, *leg. Szotkowski P. 1966 (OPOL).*

***Beta maritima* L., *Sp. Pl.*, ed. 2. 1: 322 (1762)**

BE 48 – Wrocław (SCHALOW 1935), western goods station, *leg. Meyer K. and Schalow E. 1934 (WRSL).*

BE 49 – Wrocław (MEYER 1935), close to “Grossmarkthalle” market hall, *leg. Meyer K. 1934 (WRSL).*

DA 80 – Gdańsk Westerplatte (HELM 1881; SCHWARZ 1967), ballast heaps, *leg. Klinsmann 1828.*

***Bidens pilosa* L., *Sp. Pl.* 832 (1753)**

AB 83 – Szczecin (SCHEUERMANN 1956), dumping ground at Gdańska Street, in 1938 and 1939. The author gives the species under the name of *B. pilosus* L. and synonyme *B. leucanthus* POEPP. On the same place *B. pilosus* L. var. *bipinnatus* f. *odoratus* (CAV.) SHERFF was also found in 1938.

AD 65 – Nowiniec near Lubsko (DECKER 1912).

BE 96 – Bielawa (MEYER 1933), near spinning mill.

***Bifora radians* M. BIEB., *Fl. Taur.-Cauc.* 3: 233 (1819)**

- AB 83** – Szczecin (HOLZFUSS 1936, 1937), dumping ground at Gdańska Street and Tama Pomorzańska Street.
AB 93 – Szczecin Siadło Dolne (HOLZFUSS 1937), single plants on the cultivated field.
BE 48 – Wrocław (MEYER 1937), river port, near mill.
BE 48 – Wrocław (MEYER 1933), western goods station.
CD 52 – Jarocin (CZARNA 2005), trackway near railway station.
CE 95 – Opole Zakrzów (MICHALAK 1968), river port, *leg. Bialucha* 1942 (OPOL).
CE 95 – Opole (MICHALAK 1968), eastern railway station.
DF 32 – Chorzów (UECHTRITZ 1886), “Huta Królewska”, *leg. Jungck* 1885; on the same place, *leg. Działko* 1898 (OPOL).
DF 69 – Kraków (GUZIK 2006), wastelands in the neighbourhood of grain processing plant.
ED 16 – Warszawa Białołęka (SUDNIK-WÓJCIKOWSKA, GUZIK 1998), railway siding close to a mill.
ED 36 – Warszawa Piaseczno-Iwiczna (SUDNIK-WÓJCIKOWSKA, GUZIK 1998), railway siding close to a mill.

***Bifora testiculata* (L.) ROTH., *Enum.* 1(1): 888 (1827)**

- BE 48** – Wrocław (MEYER 1933), western railway station.

***Brachypodium distachyon* (L.) P. BEAUV., *Agrost.* 101, 155 (1812)**

- AB 83** – Szczecin (HOLZFUSS 1941), dumping ground at Gdańska Street.
BE 48 – Wrocław (MEYER 1931; MEYER 1933), trackway, western goods station.
BD 08 – Poznań Łazarz (SZULCZEWSKI 1931 after Klimczak), garbage dump, in 1929.

***Brassica juncea* (L.) CZERN., *Consp. Pl. Charc.* 8 (1859)**

- AB 21** – Świnoujście (HOLZFUSS 1937).
AB 83 – Szczecin (HOLZFUSS 1937), dumping ground at Gdańska Street and Tama Pomorzańska Street.
BD 75 – Chróścina near Góra (SCHALOW 1932), *leg. Schalow E.* 1931 (WRSL).
BE 33 – Legnica (ANIOL-KWIATKOWSKA 1974), railway areas.
BE 48 – Wrocław (MEYER 1931; SCHALOW 1932), western railway station, *leg. Schalow E.* 1930 (WRSL).
BE 48 – Wrocław (SCHALOW 1932), garbage dump at Braniborska Street, *leg. Schalow E.* 1932 (WRSL).
BE 49 – Wrocław Biskupin (SCHALOW 1933), garbage dump, *leg. Schalow E.* 1932 (WRSL).
BE 49 – Wrocław (SCHALOW 1934), river port, *leg. Schalow E.* 1933 (WRSL).
BE 49 – Wrocław Sołtysowice, *leg. Schalow E.* 1939 (WRSL).
BE 49 – Wrocław (ROSTAŃSKI K. 1960), close to Grunwaldzki Bridge, *leg. Rostański K.* 1955 (WRSL).
BE 57 – Kąty Wrocławskie (SCHALOW 1935), rape field, *leg. Schoepke* 1934 (WRSL).
BE 59 – Wrocław Wojszyce (SCHALOW 1931), dumping ground, *leg. Schalow E.* 1927 (WRSL).
BE 59 – Wrocław Rakowice (SCHALOW 1932), garbage dump, *leg. Schalow E.* 1931 (WRSL).
BF 07 – Ząbkowice Śląskie (SCHUBE 1927), railway embankment, *leg. Buchs* 1926 (WRSL).
CA 70 – Słupsk (MISIEWICZ 1977), river port (SLTC).
CE 80 – Żeleźnik near Strzelin (SCHALOW 1933), cow dung storage yard, *leg. Schalow E.* 1932 (WRSL).
CE 95 – Opole (MICHALAK 1981b), wastelands in the river port.
CF 05 – Groszowice (MICHALAK 1971b), debris at cement mill close to railroad.
CF 18 – Strzelce Opolskie (MICHALAK 1981b), wasteland.
CF 36 – Kędzierzyn Koźle (SCHALOW 1932), railway areas in the river port, *leg. Schubert* 1931 (WRSL).
CF 67 – Racibórz (MICHALAK 1976), wasteland near goods station.
DA 80 – Gdańsk Westerplatte (PREUSS 1928), *leg. Klinsmann* 1846.

- DA 90 – Gdańsk Pruszcz (SCHWARZ 1967), dumping ground, *leg. Schwarz Z.* 1962 (GDMA).
 DB 23 – Malbork (ABROMEIT *et al.* 1903), railway station, *leg. Schultz R.* 1888.
 DB 52 – Korzeniewo (ABROMEIT *et al.* 1903), *leg. Scholz* 1895.
 DC 30 – Toruń (ABROMEIT *et al.* 1903), Vistula bank, *leg. Scholz* 1894.
 DF 30 – Pyskowice (MICHALAK, SENDEK 1974–1975), along railway tracks.
 FE 37 – Lublin (FIAŁKOWSKI 1978), railway embankment.
 GE 30 – Łysołaje (WRZESIEŃ, ŚWIEŚ 2006), the railway track margin.

***Briza minor* L., *Sp. Pl.* 70 (1753)**

- BE 49 – Wrocław (MEYER 1936), close to “Grossmarkthalle” market hall.
 CD 62 – Koźmin near Krotoszyn (SZULCZEWSKI 1951), according to herbarium materials checked by Szulczewski in “Zielnik Wielkopolski”.
 ED 16 – Białoleka near Warszawa (ROSTAFIŃSKI 1873), *leg. Kamiński*.

***Bromus arvensis* L. subsp. *segetalis* H. SCHOLZ, *Willdenowia* 6: 145 (1970)**

Synonyms: *Bromus billotii* F.W. SCHULTZ., *B. secalinus subsp. billotii* (F.W. SCHULTZ) ASCHERSON & GRAEBNER.

- BC 99 – Dziewicza Góra near Poznań (KRAWIECOWA 1951; SZULCZEWSKI 1951), close to forester’s lodge.
 DB 60 – between Twarda Góra and Milewo (ABROMEIT *et al.* 1940), railway embankment, *leg. Neuhoff* 1913.

***Bromus brachystachys* HORNUNG, *Flora Regensb.* 16: 417 (1833)**

- DA 80 – Gdańsk (PREUSS 1928), ballast heaps.

***Bromus briziformis* FISCH. & C.A. MEX., *Ind. Sem. Horti Petrop.* 3: 30 (1837)**

- AE 28 – Bolesławiec (SCHUBE 1906), near mine.
 BE 60 – Jelenia Góra Strupice (SCHUBE 1906), Bóbr River bank.
 DB 15 – Elbląg (ABROMEIT *et al.* 1940), cemetery, *leg. Kalmuß* 1881.
 DC 30 – Toruń (ABROMEIT *et al.* 1940), dumping ground, *leg. Frölich* 1883.

***Bromus grossus* DESF. EX DC. IN LAM. & DC., *Fl. Fr.* ed. 3, 3: 68 (1805)**

Synonyms: *Bromus secalinus* var. *multiflorus* (SM.) ASCH. f. *grossus*.

- DC 16 – Jastrzębie near Brodnica (ABROMEIT *et al.* 1940).
 DC 40 – Toruń Rudak (ABROMEIT *et al.* 1940).
 FA 84 – Gołdap (ABROMEIT *et al.* 1940).
 FB 15 – Olecko (ABROMEIT *et al.* 1940).
 FB 45 – Ełk (ABROMEIT *et al.* 1940).

***Bromus intermedius* GUSS., *Fl. Sic. Prod.* 1: 114 (1827)**

- AB 21 – Świnoujście (HOLZFUSS 1937), *leg. Ruthe* 1901.

***Bromus lanceolatus* ROTH, *Catalecta Bot.* 1: 18 (1797)**

Synonyms: *Bromus macrostachys* DESF.

- AD 43 – Gubin (LADEMANN 1937), garbage dump, observed in 1929.
 BE 48 – Wrocław (MEYER 1931; SCHALOW 1931), western goods station.
 CC 26 – Bydgoszcz (BOCK 1908), “Prinzental”.
 CC 77 – Strzelno (BOCK 1908).
 DD 85 – Łódź Rokicie (SOWA 1968b), garbage dump, *leg. Sowa R.* 1965 (LOD).

***Bromus lepidus* HOLMB., *Bot. Not.* 1924: 326 (1924)**

- BE 49 – Wrocław Biskupin (SCHALOW 1933), garbage dumps and heaps of rubble.
 BE 58 – Wrocław (SCHALOW 1933), garbage dump, Wzgórze Skarbowców – “Kinderzobten”.

***Bromus madritensis* L., Cent. Pl. 1: 5 (1755)**

- AB 83 – Szczecin (SCHEUERMANN 1956), trackway in 1942.
BE 48 – Wrocław (MEYER 1931), western goods station.
BE 49 – Wrocław (MEYER 1935), close to “Grossmarkthalle” market hall.
BE 49 – Wrocław (SCHALOW 1932), yard close to exotic fruit store at Tęczowa Street.
BE 59 – Wrocław (MEYER 1931), eastern goods station.
DF 44 – Sosnowiec Śródula (SOWA, WÓJCIK-CHROBOK 1969), wastelands and garbage dumps near “Sosnowieckie Zakłady Przemysłu Wełnianego” (Textile Plant) in 1967.
EB 05 – Lusiny naer Bartoszyce (ABROMEIT *et al.* 1940), in the garden, *leg. Tischler F.* 1927.

***Bromus rigidus* ROTH., Bot. Mag. 4(10): 21 (1790)**

Synonyms: *Bromus maximus* DESF.

- AB 83 – Szczecin (SCHEUERMANN 1956), dumping ground at Gdańska Street, observed in 1942.
AD 43 – Gubin (LADEMANN 1937), dumping ground, *leg. Lademann, det. Pilger.*
AE 35 – Zgorzelec (SCHUBE 1904b), *leg. Banitz.*
BE 48 – Wrocław (MEYER 1931), western goods station.
BE 49 – Wrocław (SCHALOW 1932), yard close to exotic fruit store at Tęczowa Street.
FE 92 – Wielowieś (ŚWIEŚ, MAJKUT 2006), trackway.

***Bromus rubens* L., Cent. Pl. 1: 5 (1755)**

- BE 49 – Wrocław Biskupin (MEYER 1930), heap of rubble.

***Bromus scoparius* L. Cent. Pl. 1: 6 (1755)**

- BE 48 – Wrocław (MEYER 1931), western goods station.

***Bromus willdenowii* KUNTH, Révis. Gram. 134 (1829)**

The taxon requires a critical review.

- AB 83 – Szczecin (HOLZFUSS 1937; MIREK 1982–1984), dumping ground at Gdańska Street and Tama Pomorzańska Street in 1935. The species classified as *Bromus unioloides* HUMB. & KUNTH.
BE 49 – Wrocław (KRAWIECOWA, ROSTAŃSKI 1976; MIREK 1982–1984), heap of rubble.
DA 80 – Gdańsk Westerplatte (SCHWARZ 1967; MIREK 1982–1984), N. Port, *leg. Schwarz Z.* 1962.
FE 27 – Lublin, Majdan Tatarski (ŚWIEŚ, WRZESIEŃ 2004), railway track margin, a sandy surface.
FF 16 – Ulanów (NOBIS A. 2008), roadside near the bridge on the San River, *leg. Nobis A.* 2004 (KRA).

***Bunium bulbocastanum* L., Sp. Pl. 243 (1753)**

Synonyms: *Carum bulbocastanum* (L.) W.D.J. KOCH.

- BC 98 – Radojewo (SZULCZEWSKI 1951 according to “Zielnik Wielkopolski”).
BF 36 – Nowy Waliszów near Bystrzyca Kłodzka (SCHALOW 1931), cultivated field.
CC 47 – Złotniki Kujawskie near Inowrocław (BOCK 1908).

***Bupleurum fontanesii* GUSS. EX CARUEL IN PARL., Fl. Ital. 8: 417 (1889)**

Synonyms: *Bupleurum odontites* L.

- AD 43 – Gubin (LADEMANN 1937), garbage dump, *leg. Behr, det. Mattfeld* 1929.
BE 48 – Wrocław (MEYER 1931), western goods station, *leg. Meyer K.* 1930.
BE 49 – Wrocław (MEYER 1936), close to “Grossmarkthalle” market hall.

***Bupleurum lancifolium* HORNEM., Hort. Hafn. 267 (1813)**

Synonyms: *Bupleurum protractum* HOFFMANS. & LINK.

- 116 AB 83 – Szczecin (SCHEUERMANN 1956), garbage dump, *leg. Wangrin G.* 1940.

- BE 49** – Wrocław (MEYER 1937), river port.
BE 59 – Wrocław Rakowiec (SCHALOW 1932), heap of rubble.
DA 80 – Gdańsk Westerplatte (ABROMEIT *et al.* 1898; SCHWARZ 1967), ballast heaps, *leg. Bail* 1866, 1868 (TRN).

***Calamintha sylvatica* BROMF., *Phytologist* 2: 49 (1845)**

Synonyms: *Calamintha officinalis* MOENCH.

The species reported generally from the region of:

- ? – Dukla (KNAPP 1872)
 ? – Poznań (SZULCZEWSKI 1951).

***Camelina microcarpa* ANDRZ. subsp. *microcarpa*, *Syst. Nat.* 2: 517 (1821)**

The taxon requires a critical review. The list of localities covers only the herbarium data revised by prof. Zbigniew Mirek.

- CB 62** – Człuchów (MIREK 1981b), near railway station, *leg. Żukowski W.* 1962 (POZ).
CE 34 – Ślizów near Syców (MIREK 1981b), *leg.?* (WRSL).
DC 51 – Ciechocinek (MIREK 1981b), *leg.?* (KRAM).
DD 77 – Gałków (MIREK 1981b), railway station, *leg. Sowa R.* 1964 (LOD).
DE 68 – Polichno (MIREK 1981b), *leg. Longkerner M.* 1969 (LOD).
DF 03 – Woźniki near Lubliniec (MIREK 1981b), *leg. Fiek E.* 1885 (WRSL).
FC 50 – Józefowo (MIREK 1981b), *leg. Gałązka J.* 1961 (LOD).
FE 03 – Puławy (MIREK 1981b), *leg.?* 1951 (LBL).
FE 08 – Lubartów (MIREK 1981b), *leg.?* (LBL).
FE 27 – Lublin (MIREK 1981b), railway station, *leg. Fijałkowski D.* 1959 (LBL).
FE 28 – Lublin Ponikwoda (MIREK 1981b), *leg. Karo F.* 1883 (LBL).
FE 37 – Lublin Wrotków (MIREK 1981b), *leg. Koporska H.* 1925 (LBL).
GD 31 – Biała Podlaska (MIREK 1981b), railway station, *leg. Fijałkowski D.* 1964 (LBL).

***Camelina rumelica* VELEN., *Sitz.-Ber. Böhm. Ges. Wiss.* 1887: 448 (1887)**

The taxon requires a critical review.

- BC 43** – between Krzyż and Drawski Młyn near Piła (LATOWSKI 1981; MIREK 1981b), by the rail-track, *leg. Latowski K.* 1978 (POZ).
DF 69 – Kraków Zakrzówek (MIREK, TRZCIŃSKA-TACIK 1976; MIREK 1981b), on the city garbage dump, *leg. Trzczińska-Tacik H.* 1963 (KRA).

***Carduus hamulosus* EHRH., *Beitr. Naturk.* 7: 166 (1792)**

- BE 49** – Wrocław Psie Pole (UECHTRITZ 1879), *leg. Uechtritz* 1878.

***Carduus macrocephalus* DESF., *Fl. Atl.* 2: 245 (1799)**

- BE 49** – Wrocław Biskupin (SCHALOW 1931), garbage dump, *leg. Meyer K.* 1930.
BE 49 – Wrocław (SCHALOW 1936), *leg. Haertel*.
BE 49 – Wrocław Kowale (SCHALOW 1932), garbage dump.
BE 49 – Wrocław Karłowice (SCHALOW 1932) garbage dump, *leg. Droth* 1931.

***Carduus pycnocephalus* L., *Sp. Pl.* ed. 2, 1151 (1763)**

- BE 49** – Wrocław (SCHALOW 1932), yard close to exotic fruit store at Tęczowa Street.
DA 80 – Gdańsk Westerplatte (KLINGGRÄFF 1866), ballast heaps in the port.

***Carduus tenuiflorus* CURTIS, *Fl. Lond.* 2(6): 55 (1793)**

- DA 80** – Gdańsk Westerplatte (ABROMEIT *et al.* 1903), ballast heaps, observed in 1832; *leg. Helm* 1863, 1881; *leg. Baenitz* 1873 (TRN).

***Carex amgunensis* F. SCHMIDT PETROP.**, *Mém. Acad. Sci. Pétersb. ser. 7*, **12(2)**: 69 (1868)

BE 33 – Legnica (SCHALOW 1937), *leg. Weimann* 1936.

***Carex vulpinoidea* MICHX.**, *Fl. Bor. Amer. 2*: 169 (1803)

AC 16 – Szczecin Zaborsko (HOLZFUSS 1937), collected by Winkelmann by the end of nineties of the 19th century.

***Carthamus lanatus* L.**, *Sp. Pl.* 830 (1753)

AD 43 – Gubin (LADEMANN 1937), garbage dump, observed in 1929.

BE 33 – Legnica (SCHALOW 1938), garbage dump at Koskowicka Street, *leg. Thielscher* 1937.

***Catapodium rigidum* (L.) C.E. HUBB.**, *Fl. Bedfordshire* 437 (1953)

Synonyms: *Scleropoa rigida* (L.) GRISEB., *Dasmazeria rigida* (L.) TUTIN.

AB 83 – Szczecin (SCHEUERMANN 1956), trackways close to goods station, *leg. Wangrin G.* 1942.

BE 48 – Wrocław (MEYER 1931, 1933), western goods station.

BE 49 – Wrocław (SCHALOW 1932), yard close to exotic fruit store at Tęczowa Street.

DA 80 – Gdańsk (PREUSS 1907; SCHWARZ 1967), wastelands in the port.

***Cenchrus ciliaris* L.**, *Mant. Pl. Altera* 302 (1771)

CF 69 – Rybnik Piaski (FREY, URBISZ 2001), railway embankment, *leg. Kuklińska J.* 1999 (KTU).

***Centaurea calcitrapa* L.**, *Sp. Pl.* 917 (1753)

AB 21 – Świnoujście (HOLZFUSS 1937), garbage dump, *leg. Schmidt* 1810.

AC 73 – Kostrzyń (DECKER 1912), “Sonnenburger Chaussee” in 1900.

AD 47 – Czerwieńsk near Leśniów Wielki (FIEK, SCHUBE 1891; DECKER 1912), *leg. Lüddecke* 1882.

BA 98 – Łętowo near Sławno (HOLZFUSS 1937), clover field.

BD 08 – Poznań (RITSCHL 1850), near “Brama Berlińska” (Berlin Gate).

BE 49 – Wrocław, river port, *leg. Meyer K.* 1936, *leg. Schalow E.* 1938, 1939 (WRSL).

BE 69 – Żórawina (FIEK, SCHUBE 1894), *leg. Ziesché* 1893 (WRSL, TRN).

CE 45 – Buczek near Rychtal (SCHUBE 1909), *leg. Burda* 1908 (WRSL).

CF 18 – Strzelce Opolskie (MICHALAK 1981b), railway areas, *leg. Michalak S.* 1974.

DA 80 – Gdańsk Westerplatte (ABROMEIT *et al.* 1903), brought repeatedly, *leg. Klinsmann* 1828, 1863; *leg. Helm* 1861, 1881 (TRN).

DF 30 – Gliwice, railway embankment, *leg. Działko* 1898 (OPOL).

DF 44 – Sosnowiec Śróduła (SOWA, WÓJCIK-CHROBOK 1969), wastelands and garbage dumps near “Sosnowieckie Zakłady Przemysłu Wełnianego” (Textile Plant) in 1967.

DF 69 – Kraków Dąbie (KORNAŚ, LEŚNIEWSKA, SKRZYWANEK 1959), pasture close to trackway, *leg. Kornaś* 1955.

FE 37 – Lublin (FIAŁKOWSKI 1978), railway station.

***Centaurea diluta* AITON**, *Hort. Kew. 3*: 261 (1789)

AD 43 – Gubin (LADEMANN 1937), garbage dump.

BE 33 – Legnica (SCHALOW 1933), heap of rubble at Koskowicka Street, *leg. Weimann* 1932.

BE 48 – Wrocław (MEYER 1937), river port, *leg. Schalow E.* 1936 (WRSL); heap of rubble at “Körnerwiese”, *leg. Schalow E.* 1936 (WRSL).

BE 49 – Wrocław Biskupin (SCHALOW 1933), heap of rubble, *leg. Schalow E.* 1932 (WRSL).

BE 49 – Wrocław Sołtysowice, garbage dump, *leg. Schalow E.* 1939 (WRSL).

BE 59 – Wrocław Rakowiec (SCHALOW 1932) heap of rubble, *leg. Schalow E.*, *det. Scheuermann* 1931 (WRSL).

***Centaurea melitensis* L., Sp. Pl. 917 (1753)**

CA 70 – Słupsk (BANNIER 1929; HOLZFUSS 1936), dumping ground near “Kaufmann & Sommerfeld Mill”, *leg. Otte* 1928 (SLTC).

CF 45 – Karchów near Pawłowiczki (SCHUBE 1930), *leg. Schubert* 1929 (WRSL).

***Centaurea orientalis* L., Sp. Pl. 913 (1753)**

AB 73 – Szczecin (ĆWIKLIŃSKI 1965), sunny slope at Warcisława Street, *leg. Ćwikliński E.* 1958 (LOD).

***Centaurea ovina* PALL. EX WILLD., Sp. Pl. 3: 2292 (1803)**

A variable species, it has a number of subspecies. It requires a critical taxonomic revision.

CF 18 – Strzelce Opolskie (SZOTKOWSKI 1971), railway areas.

CF 36 – Kędzierzyn Koźle (SZOTKOWSKI 1988), river port, at iron ore depot close to scales.

DF 30 – Gliwice (SZOTKOWSKI 1988), river port, railway areas.

***Centaurea solstitialis* L., Sp. Pl. 917 (1753)**

AB 21 – Świnoujście (HOLZFUSS 1937).

AB 73 – Szczecin Niemierzyn (HOLZFUSS 1937).

AB 83 – Szczecin Zdroje (HOLZFUSS 1937), slope close to “Zduńska Grota”.

AB 83 – Szczecin (SCHEUERMANN 1956), goods station, *leg. Wangrin G.* 1942.

AC 73 – Kostrzyn (DECKER 1912), railway areas, *leg. Steltzner* 1860.

AC 83 – Górzycyca (DECKER 1912).

AD 37 – Krosno Odrzańskie (DECKER 1912), suburbs of the city at the road towards Sycowice.

AD 39 – Sulechów “Miettenberge“ (DECKER 1912), *leg. Riese* 1866

AD 43 – Gubin (LADEMANN 1937), observed in 1933.

BD 08 – Poznań (RITSCHL 1850; KRAWIECOWA 1951; JACKOWIAK 1993) “Fort Wojciecha”.

BD 10 – Myszęcin near Świebodzin (DECKER 1912), lucerne field, *leg. Jablonski* 1862.

BD 13 – Nowy Tomyśl (KRAWIECOWA 1951), information given by the author from Szulczewski's manuscript.

BE 14 – Siedlce near Ścinawa (FIEK 1881).

BE 15 – Ścinawa (MEYER 1933), goods station, *leg. Pfeiffer* 1932 (WRSL).

BE 32 – Legnica Przybków (GERHARDT 1885), lucerne field.

BE 33 – Pątnów Legnicki (GERHARDT 1885).

BE 33 – Kaczawa near Legnica (SCHUBE 1914), *leg. Knappe* 1913.

BE 33 – Legnica, goods station, *leg. Weimaan* 1936 (WRSL).

BE 37 – Brzeg Dolny (SCHUBE 1930), Oder dam, *leg. Neumann W.* 1929 (WRSL).

BE 38 – Raków Wielki (WIMMER 1832), abandoned field.

BE 40 – Wysocko (FIEK 1881).

BE 44 – Mierczyce (GERHARDT 1885), lucerne field.

BE 48 – Wrocław Osobowice (FIEK 1881), *leg. Engler A.* 1860 (WRSL) and 1861.

BE 49 – Wrocław Różanka (UECHTRITZ 1879, FIEK 1881), Oder dam, *leg. Speer* 1878 (WRSL).

BE 49 – Wrocław “Kępa Mieszkańska” (FIEK 1881).

BE 49 – Wrocław Kleczków (FIEK 1881).

BE 49 – Wrocław (UECHTRITZ 1880), lawn at Traugutta Street.

BE 52 – Klönice (FIEK 1881; SCHUBE 1903).

BE 53 – Paszowice near Jawor (FIEK 1881, SCHUBE 1903).

BE 53 – Jawor (SCHUBE 1903), lucerne field, *leg. Schmidt* 1902 (WRSL).

BE 54 – Bartoszówek near Strzegom (FIEK 1881), lucerne field, *leg. Schwarzer* 1857 (WRSL).

BE 57 – Kąty Wrocławskie (SCHALOW 1933), near mill, *leg. Schoepke* 1932.

BE 58 – Wrocław Partyńce (SCHUBE 1914), close to a tannery, *leg. Ruthe* 1910 (WRSL).

BE 59 – Wrocław Krzyki, *leg. Winterstain* 1912 (WRSL).

- BE 62 – Gorzanowice near Bolków (FIEK 1881).
 BE 64 – Modlecin Suchowola near Dobromierz, *leg.*? 1874 (WRSL).
 BE 66 – Tworzyjanów (FIEK 1881), *leg. Schoepke* 1879.
 BE 74 – Świebodzice (GERHARDT 1885), railway station.
 BE 75 – Świdnica “Költtschenberg” (FIEK 1881), *leg. Rupp* 1877.
 BE 75 – Świdnica (SCHUBE 1899), garbage dump, *leg. Schöpke* 1898.
 BE 86 – between Uciechów and Jaworze near Dzierżoniów (FIEK 1881), lucerne field, *leg. Schuman* 1872 (WRSL).
 BE 89 – Strzelin (HILSE 1860), *leg. Hilse* (WRSL).
 CB 84 – Wałdówko near Sępólno, *leg. Hempel* 1892 (POZ).
 CB 99 – Świecie (ABROMEIT *et al.* 1903), farmyard, *leg. Hellwig* 1882.
 CC 09 – Grubno near Chełmno (ABROMEIT *et al.* 1903), lucerne field, in 1878.
 CC 93 – Gniezno (KRAWIEWOWA 1951), *leg. Herschenz* 1883 (POZ).
 CD 52 – Jarocin (CZARNA 2005), trackway near railway station.
 CE 01 – Wierzowice Małe near Góra (SCHALOW 1933), *leg. Wiedlich* 1932 (WRSL).
 CE 95 – Opole (MICHALAK 1965, 1981b), railway areas.
 CF 03 – Niemodlin (MICHALAK 1981b).
 CF 05 – Opole (MICHALAK 1970), debris at Kościuszki Street, *leg. Bialucha* 1936 (OPOL).
 CF 10 – Goświnowice near Nysa (FIEK 1881).
 CF 32 – Prudnik, lucerne field, *leg.*? 1935 (WRSL).
 CF 32 – Moszczanka near Prudnik (MEYER 1936), lucerne field.
 CF 46 – Pawłowiczki near Kędzierzyn Koźle (GRABOWSKI 1843) cultivated field, *leg. Mettetal* 1837.
 CF 65 – Kietrz (SCHUBE 1927), lucerne field, *leg. Kaul* 1926 (WRSL).
 DA 80 – Gdańsk (SCHWARZ 1967), ballast soil bingstead in the port, *leg. Lützw* 1892 (TRN).
 DA 80 – Gdańsk (MISIEWICZ 1976), wastelands in the port area, *leg. Misiewicz J.* 1975.
 DB 52 – Kwidzyń (ABROMEIT *et al.* 1903).
 DB 75 – Gulb near Susz (ABROMEIT *et al.* 1903).
 DD 57 – Bratoszewice, lucerne field, *leg. Sowa R.* 1959 (LOD).
 DD 85 – Łódź Rokicie (SOWA 1968b), heap of rubble, *leg. Sowa R.* 1965 (LOD).
 DF 30 – Gliwice Łabędy (KABATH 1846), observed in 1835.
 DF 69 – Kraków (GUZIK 2006), wastelands in the neighbourhood of grain processing plant.
 ED 16 – Warszawa Białoleka (SUDNIK-WÓJCIKOWSKA, GUZIK 1998), siding at the mill.
 ED 26 – Warszawa (CYBULSKI 1895).
 FE 13 – Puławy (FIJAŁKOWSKI 1978), railway areas.

***Centaurea tenuiflora* DC., Prodr. 6: 584 (1838)**

Synonyms: *Centaurea ovina* sensu BIEB. non PALLAS EX WILLD.

DF 45 – Szczakowa (STEIN 1881), railway station, observed in 1880.

***Centaurea transalpina* SCHLEICH. EX DC., Prodr. 6: 571 (1838)**

Synonyms: *Centaurea dubia* SUTER non S.G. GMELIN, *C. nigrescens* WILLD. subsp. *transalpina* (DC.) NYMAN.

AB 83 – Szczecin (ĆWIKLIŃSKI 1965), trackway close to goods station, *leg. Ćwikliński E.* 1959 (LOD).

BE 48 – Wrocław (MEYER 1932), western goods station.

BE 49 – Wrocław (MEYER 1935), close to “Grossmarkthalle” market hall.

CF 65 – Ludmierzyce near Głubczyce (MEYER 1932), *leg. Klimke* 1931.

CF 75 – Pilszcz near Głubczyce (MEYER 1932), *leg. Klimke* 1931.

***Centaurea trichocephala* M. BIEB. EX WILLD., Sp. Pl. 3: 2286 (1803)**

ED 26 – Warszawa Praga (CYBULSKI 1897), railway station, *leg. Cybulski H.* (WA).

***Ceratocephala testiculata* (CRANTZ) ROTH., *Enum.* 1: 1014 (1827)**

FE 71 – Stodoly near Opatów (PACZOSKI 1927 according to Piotrowski)

***Ceratonia siliqua* L., *Sp. Pl.* 2: 1026. 1753**

AB 83 – Szczecin (SCHEUERMANN 1956), dumping ground at Gdańska Street, a single seedling in 1938 and 1939.

BE 58 – Wrocław (SCHALOW 1932), heap of rubble at Wzgórze Skarbowców (Kinderzobten).

***Ceterach officinarum* DC., *Anleit. Selbststud. Bot.* 578 (1804)**

Synonyms: *Asplenium ceterach* L.

DB 81 – Grudziądz (ABROMEIT *et al.* 1940), on fortification walls of the town.

***Chamaecytisus glaber* (L.F.) ROTHM., *Feddes Repert. Spec. Nov. Regni Veg.* 53: 143 (1944)**

Synonyms: *Cytisus elongatus* W. ET K.

AD 75 – between Budziechów and Jasień near Lubsko (DECKER 1912), railway areas.

BE 97 – Wzgórze Joniec near Niemcza (SCHALOW 1932).

***Chamaemelum mixtum* (L.) ALL., *Fl. Pedem.* 185 (1785)**

Synonyms: *Anthemis mixta* L., *A. nobile* (L.) ALL., *Ormenis mixta* (L.) DUMORT.

AB 73 – Szczecin Osów (HOLZFUSS 1937), cultivated field.

AB 83 – Szczecin (HOLZFUSS 1937), dumping ground at Gdańska Street.

AD 19 – Świebodzin (DECKER 1912), serradella field, observed in 1866.

AD 36 – Krosno Odrzańskie (DECKER 1912), serradella field, observed in 1860.

AD 96 – Szczepanów near Żary (DECKER 1912).

BE 48 – Wrocław (SCHALOW 1938), western goods station.

***Chenopodium ambrosioides* L., *Sp. Pl.* 219 (1753)**

According to (ROSTAŃSKI, SOWA 1986–1987) the species was formerly cultivated (medicinal plant); no more cultivated presently.

AB 83 – Szczecin (SCHEUERMANN 1956), garbage dump at Gdańska Street, *leg. Wangrin G.* 1939.

AD 43 – Gubin (LADEMANN 1937), garbage dump.

CA 70 – Słupsk (HOLZFUSS 1936), garbage dump.

ED 26 – Warszawa (SUDNIK-WÓJCIKOWSKA 1987), heap of rubble, *leg. Kobendza R.* 1949 (WA).

***Chenopodium berlandieri* MOQ., *Chenop. Monogr. Enum.* 23 (1840)**

AD 43 – Gubin (LADEMANN 1937), at cattle market, *leg. Behr* 1930.

BE 48 – Wrocław Popowice (MEYER 1933), railway areas, *leg. Meyer K. and Schalow E.* 1930 (WRSL).

***Chenopodium giganteum* D. DON, *Prodr. Fl. Nepal.* 75 (1825)**

Synonyms: *Chenopodium amaranticolor* COSTE ET REY.

In some South European countries cultivated as a vegetable.

EF 60 – Kraków Czyżyny (TRZCIŃSKA-TACIK 1971), soil bingstead near the greenhouse of the “Krakowskie Zakłady Tytoniowe”, *leg. Trzcńska-Tacik H.* 1970 (KRA).

***Chenopodium hircinum* SCHRAD., *Ind. Sem. Hort. Gotting.* 2 (1833)**

AB 83 – Szczecin (HOLZFUSS 1937), garbage dumps at Gdańska Street and Tama Pomorzańska Street.

AD 43 – Gubin (LADEMANN 1937), garbage dump near a pasture.

BE 49 – Wrocław Biskupin (SCHALOW 1931), garbage dump.

BE 49 – Wrocław Sołtysowice, dumping ground, *leg. Schalow E.* 1939 (WRSL).
BE 49 – Wrocław, heap of rubble at Międzyrzecka Street, *leg. Schalow E.* 1939 (WRSL).

***Chenopodium pratericola* RYDB., *Bull. Torrey Bot. Club* 39: 310 (1912)**

AB 83 – Szczecin (HOLZFUSS 1937; SCHEUERMANN 1956), dumping ground at Gdańska Street.
AD 43 – Gubin (LADEMANN 1937), pasture, *leg. Behr* 1929.
BE 48 – Wrocław (SCHUBE 1929), river port.
BE 48 – Wrocław Popowice (MEYER 1931).
BE 59 – Wrocław (MEYER 1931), central railway station, trackway.

***Chloris barbata* SW., *Fl. Ind. Occid.* 200 (1797)**

AD 65 – Lubsko (DECKER 1912)

***Chloris truncata* R. BR., *Prodr. Fl. Nov. Holland.* 186 (1810)**

AD 65 – Lubsko (DECKER 1912)

***Chloris virgata* SW., *Fl. Ind. Occid.* 203 (1797)**

AB 83 – Szczecin (SCHEUERMANN 1956), dumping ground at Tama Pomorzańska Street, *leg. Wangrin G.* 1939.
AD 65 – Lubsko (DECKER 1912).
BE 49 – Wrocław (SCHALOW 1934), heaps of rubble.

***Chorispora tenella* (PALL.) DC., *Reg. Veg. Syst. Nat.* 2: 435 (1821)**

BE 48 – Wrocław (SCHALOW 1934), river port.
BE 59 – Wrocław (MEYER 1935), central railway station.
ED 16 – Warszawa Białoleka (SUDNIK-WÓJCIKOWSKA, GUZIK 1998), siding at the mill.
ED 26 – Warszawa (CYBULSKI 1895; SUDNIK-WÓJCIKOWSKA 1987), railway areas.

***Cichorium endivia* L. subsp. *divaricatum* (SCHOUSB.) P.D. SELL, *Bot. Jour. Linn. Soc.* 71: 240 (1976)**

Synonyms: *Cichorium divaricatum* SCHOUSBOE, *Cichorium pumilum* JACQ.

AB 83 – Szczecin (SCHEUERMANN 1956), dumping ground at Gdańska Street.
BE 59 – Wrocław Wojszyce (SCHALOW 1931).
BE 48 – Wrocław (MEYER 1937) dumping ground.

***Citrullus colocynthis* (L.) SCHRAD., *Linnaea* 12 (1838)**

DD 85 – Łódź Lublinek (WITOSŁAWSKI 1996), landfill for sediments from mechanical sewage treatment plant, *leg. Witostawski P.* 1995 (LOD).
EC 96 – Wieliszew (SOWA, SAPIŃSKA 1970), dumping ground and sandy forest outskirts.

***Citrus aurantium* L., *Sp. Pl.* 782 (1753)**

BE 49 – Wrocław (MEYER 1932), a seedling in the city port.
The species reported generally from Szczecin (SCHEUERMANN 1956), dumping ground.

***Claytonia linearis* DOUGLAS, *Fl. Bor.-Amer.* 1: 224, t. 71 (1832)**

Synonyms: *Montia linearis* (DOUGL.) GREEN.

EC 89 – Wyszaków (CIOSEK 2001), on the left side of Bug river between road-bridge and railway-bridge. The plant grows in the lobes of psammophilae grasslands from *Sedo-Scleranthetea* class in *Diantho-Armerietum* community, *leg. Ciosek M.T.* 2001.
ED 57 – Czachówek (BIŃKA 1991), in corn fields, on meadows, pastures, close to railway line Góra Kalwaria – Czachówek, on the soils of the enhanced level of ground waters.
FD 26 – Krzymosze near Siedlce, damp meadow, *leg. Bińska K.* 2002 (KRA).

***Claytonia perfoliata* DONN EX WILLD., *Sp. Pl.*, ed. 4, **1(2)**: 1186 (1798)**

Synonyms: *Montia perfoliata* (DON EX WILLD.) HOWEL.

AB 83 – Szczecin (ĆWIKLIŃSKI 1970), as a weed in Central Cemetery, *leg. Ćwikliński E.* 1964.

BD 17 – area of Wielkopolska National Park (MIELCARSKI, SZULC 1962), 30 m from the shore of Góreckie Lake, near a walking path along the lake.

BD 58 – Lubin near Krzywín (CZARNA 2009), in coniferae nursery garden at monastery.

BE 49 – Wrocław Karłowice (SCHUBE 1919), near forest.

DF 42 – Katowice Osiedle Tysiąclecia, greens arranged in the neighbourhood of “Auchan” hypermarket at Reńców Street, *leg. Urbisz An., Urbisz Al.* 2007 (KTU, KRA).

***Cochlearia danica* L., *Sp. Pl.* 647 (1753)**

DA 80 – Gdańsk Westerplatte (SCHWARZ 1967), ballast heaps, *leg. Voelcker* 1870 (TRN).

***Cochlearia officinalis* L., *Sp. Pl.* 2: 647 (1753)**

DA 80 – Gdańsk Westerplatte (SCHWARZ 1967), ballast soil bingstead in the port, *leg. Helm* 1881 (TRN).

***Coincya monensis* (L.) GREUTER & BURDET, *Willdenowia* **13(1)**: 87 (1983)**

Synonyms: *Brassiciella erucastrum* (L.) O.E. SCHULZ., *Rhynchosynapis cheiranthos* (VILL) DANDY.

AD 58 – near Zielona Góra (KRAWIECOWA 1951).

CE 00 – near Milicz (KRAWIECOWA 1951).

DA 80 – Westerplatte port, ballast heaps, *leg. Klatt* 1867 (TRN).

DA 80 – Gdańsk port, *leg. Klinggraeff C. sen.* 1872 (TRN).

DA 80 – Gdańsk Przeróbka (SCHWARZ 1967), ballast soil bingstead in the port.

***Coleostephus myconis* (L.) RCHB. FIL., *Icon. Fl. Germ.* **16**: 49 (1853)**

Synonyms: *Chrysanthemum myconis* L., *Pyrethrum myconis* (L.) MOENCH.

AD 96 – Żary (DECKER 1912), serradella field, *leg. Starke*.

CB 99 – Luskówko near Świecie (ABROMEIT *et al.* 1903) *leg. Grütter* 1890.

GE 85 – Frankamionka near Hrubieszów (ŚWIĘS, WRZESIEŃ 2002), between railway tracks.

GE 85 – Koniuchy between Werbkowice and Miączyn (ŚWIĘS, WRZESIEŃ 2002).

***Commelina coelestis* WILLD., *Enum. Pl.* **1**: 69 (1809)**

BD 71 – Skidniów near Głogów (SCHALOW 1933), on potato field.

***Commelina communis* L., *Sp. Pl.* 40 (1753)**

AB 73 – Szczecin Gołęcino (HOLZFUSS 1936), on potato field and in the garden.

AB 73 – Szczecin Żelechowa (HOLZFUSS 1936), waste dump an oil mill.

AB 83 – Szczecin (HOLZFUSS 1936), dumping ground at Tama Pomorzańska Street.

ED 41 – between Skierniewice and Bolimów (HAUSBRANDT, DALKIEWICZ 1958), on rye stubble field.

DD 76 – Łódź (WITOSŁAWSKI 1996), wall gap at Kilińskiego Street; heap of rubble at Abramowskiego Street, *leg. Witostawski P.* 1989 (LOD).

ED 93 – Pobiedna near Nowe Miasto (SOWA 1968b), a weed in household gardens, *leg. Sowa R.* 1966 (LOD).

***Conopodium majus* (GOUAN) LORET, *Fl. Montpell.* ed. 2, 214 (1886)**

Synonyms: *Conopodium denudatum* W.D. J. KOCH.

CC 26 – Bydgoszcz (BOCK 1908), close to sluice.

***Consolida orientalis* (J. GAY) SCHRÖDINGER, *Abb. Zool.-Bot. Ges. Wien.* 4(5): 25 (1909)**

BD 68 – Gostyń (CZARNA 2009).

BE 49 – Wrocław Psie Pole (UECHTRITZ 1879; SCHUBE 1903)

CD 23 – Kołaczkowo (CZARNA 2009).

CD 31 – Solec near Krzykosy (CZARNA 2009).

CD 40 – Książ Wielkopolski (CZARNA 2009).

CD 40 – Wieszczyń near Dolsk (CZARNA 2009).

DF 69 – Kraków (GUZIK 2006), wastelands in the neighbourhood of grain processing plant.

ED 16 – Warszawa Białołęka (SUDNIK-WÓJCIKOWSKA, GUZIK 1998), siding at the mill.

ED 36 – Warszawa Piaseczno-Iwiczna (SUDNIK-WÓJCIKOWSKA, GUZIK 1998), siding at the mill.

***Conyza bonariensis* (L.) CRONQUIST, *Bull. Torrey Bot. Club* 70: 632 (1943)**

Synonyms: *Erigeron bonariensis* L.

BE 48 – Wrocław (MEYER 1932), western goods station, leg. Meyer K. and Schalow E. 1931 (WRSL).

***Cordylanthus maritimus* NUTT. EX BENTH., *Prodr.* 10: 598 (1846)**

BE 49 – Wrocław (GALERA 2003), spreading spontaneously in Botanical Garden, leg. Galera H. 1994.

***Corispermum nitidum* KIT. EX SCHULT, *Österr. Fl.*, ed. 2, 1: 7 (1814)**

It requires a critical taxonomic revision.

DC 73 – Włocławek (ADAMKIEWICZ 1969; PACYNA 1992).

***Coronilla scorpioides* (L.) W.D.J. KOCH, *Syn. Fl. Germ.*, 188 (1837)**

AB 83 – Szczecin (SCHEUERMANN 1956), dumping ground at Gdańska Street in 1940; trackway close to goods station, in 1942.

BE 49 – Wrocław (SCHALOW 1933), yard close to exotic fruit store at Tęczowa Street.

BE 49 – Wrocław (MEYER 1936), close to “Grossmarkthalle” market hall.

***Coronopus didymus* (L.) SM., *Fl. Brit.* 2: 691 (1800)**

Synonyms: *Senebiera didyma* (L.) PERS.

AD 65 – Lubsko (DECKER 1912), “Dankes Fabrik Warnstorf” in 1882.

CE 94 – Wawelno (CIACIURA 1967), in the garden, leg. Ciaciura M. 1963.

CF 01 – Chróścina Nyska near Gródków (MICHALAK 1976), railway station.

DA 80 – Gdańsk Westerplatte (ABROMEIT *et al.* 1903), leg. Klinsmann 1825, leg. Klinsmann 1855 (TRN); near “Gęsia Karczma” – Gdańsk Żabianka, leg. Lützow 1896 (TRN).

DA 80 – Gdańsk Przeróbka (SCHWARZ 1967), gardens, leg. Lützow 1897–1899 (TRN).

DA 80 – Gdańsk (MISIEWICZ 1976), port: Oliwskie, Waryńskiego and Zbożowe Embankments, in 1975.

ED 26 – Warszawa (KOBENDZA 1930), scrub between Młociny and Buraków, leg. Kobendza R. 1924 (WA).

? – the species reported generally from Szczecin (HOLZFUSS 1937).

***Corydalis claviculata* (L.) DC., *Fl. Franc.*, 3–4: 638 (1805)**

DA 80 – Gdańsk Westerplatte (ABROMEIT *et al.* 1898; SCHWARZ 1967), ballast heaps, leg. Klinsmann 1825 (TRN).

***Cotula anthemoides* L., *Sp. Pl.* 891 (1753)**

Synonyms: *Cotula dichrocephala* SCHULTZ – BIP.

124 **AD 43** – Gubin (DECKER 1912; LADEMANN 1937), on Nysa River.

***Crepis foetida* L.S. STR., *Sp. Pl.* 807 (1753)**

- AB 73 – Szczecin Goćław (HOLZFUSS 1937).
AB 84 – Dąbie near Szczecin (MÜLLER 1911).
AB 93 – Podjuchy near Szczecin (MÜLLER 1911).
AB 94 – Klęskowo near Szczecin (MÜLLER 1911).

***Crepis neglecta* L., *Mantissa* 107 (1767)**

Synonyms: *Crepis cernua* TEN.

The taxon requires a critical review.

- BE 86 – Jaźwina near Dzierżoniów (UECHTRITZ 1876) *leg. Kabath* 1874 (WRSL).

***Crepis nicaeensis* BALB., *Syn. Pl.* 2(2): 376 (1807).**

- AE 38 – Kraszowice near Świdnica (FIEK 1881).
BE 49 – Wrocław (FIEK 1881), *leg. Kabath* 1860.
BE 75 – Świdnica (FIEK 1881).
BE 93 – Sokołowsko near Wałbrzych Mieroszów (FIEK 1881).
CB 99 – Świecie (ABROMEIT *et al.* 1903), railway embankment.
CC 08 – Luskówko (ABROMEIT *et al.* 1903), lawn, *leg. Grütter* 1888.
CF 01 – Chróścina Nyska (MICHALAK 1981b), railway areas, *leg. Michalak S.* 1979.
DA 98 – Trąbki near Braniewo (ABROMEIT *et al.* 1903), in the garden, *leg. Seydler* 1884.
FE 28 – Turka near Lublin (FIAŁKOWSKI 1960).
FE 27 – Lublin Rury (FIAŁKOWSKI 1960).

***Crepis sancta* (L.) BABC. subsp. *nemausensis* (GOUAN) BABC., *Univ. Calif. Publ. Bot.* 403 (1941)**

Synonyms: *Lagoseris neumausensis* (GOUAN) BABC.

- BE 48 – Wrocław (MEYER 1932), western goods station, *det. Scheuermann R.*

***Crepis setosa* HALLER f., *Arch. Bot. (Roemer)* 1(2): 1 (1797)**

Synonyms: *Barkhausia setosa* DC.

- AB 83 – Szczecin Pomorzany (MÜLLER 1898; HOLZFUSS 1937), *leg. Winkelmann* 1891.
BE 48 – Wrocław (MEYER 1932), western goods station, *leg. Meyer K.* 1931 (WRSL).
BE 49 – Wrocław (MEYER 1936), close to “Grossmarkthalle” market hall, *leg. Meyer K.* 1935 (WRSL).
BE 48 – Wrocław Osobowice (SCHALOW 1936), heap of rubble, *leg. Schalow E.* 1935 (WRSL).
BE 72 – Marciszów (KWIATKOWSKI 2007), trackway.
CF 05 – Opole (SCHUBE 1903), w 1884.
CF 06 – Tarnów Opolski (MICHALAK 1981b) *leg. Michalak S.* 1970.
CF 10 – Goświnowice near Nysa (SCHUBE 1903).
CF 15 – Gogolin (FIEK 1881), close to lime kiln, *leg.? 1871* (WRSL).
CF 16 – Kamień Śląski (FIEK 1881), serradella field, *leg. Krockner* 1804.
CF 16 – Gogolin (UECHTRITZ 1882), a field close to lime kiln, *leg. Działko* 1900 (OPOL).
CF 16 – Kamionek, marl heaps southwards of the village, *leg. Michalak S.* 1968 (OPOL).
CF 18 – Strzelce Opolskie (GERHARDT 1885).
CF 25 – Krapkowice Otmęt (FIEK 1881).
DB 43 – Polaszki near Sztum (ABROMEIT *et al.* 1903), clover field, *C.J. v Klinggräff* 1866.
DC 30 – Toruń Nowe Bielany (ABROMEIT *et al.* 1903), meadow, *leg. Frölich* 1883.
DG 15 – Jeleśnia, *leg. Król* 1909 (KRAM).
DG 16 – Zawoja, *leg. Zapalowicz H.* 1906 (KRAM).
FE 57 – Bychawa (FIAŁKOWSKI 1994, 1995), railway embankment.
FF 99 – Kruhel Mały near Przemyśl, *leg. Kotula B.* 1876 (KRAM).

GE 52 – Krasnystaw (Fijałkowski 1994, 1995), railway embankment.
GF 12 – Długi Kąt-Nowiny (Świeś, Wrzesień 2002), railway embankment.

***Crepis vesicaria* L. subsp. *haenseleri* (Boiss. ex DC.) P.D. Sell., *Bot. Jour. Linn. Soc.* 71: 254 (1976)**

Synonyms: *Barkhausia haenseleri* Boiss. ex DC., *Crepis taraxacifolia* Thuill.

AB 83 – Szczecin (Scheuermann 1956), goods station, leg. Wangrin G. 1942.

***Crupina vulgaris* Cass., *Dict. Sci. Nat.* 12: 68 (1817)**

DC 30 – Toruń (Abromeit *et al.* 1903), railway embankment near mill, leg. Fröhlich 1891 (TRN).

***Cuscuta australis* R. Br., *Prodr. Fl. Nov. Holl.*: 491 (1810)**

BD 98 – Sierakowo near Rawicz (Golenia, Bayerowa 1956; Tacik 1963).

FE 33 – Szczekarków near Puławy (Golenia, Bayerowa 1956; Tacik 1963).

***Cuscuta gronovii* Willd. ex Schult. in Roem. & Schult., *Syst. Veg.*, ed. 15, 6: 205 (1820)**

Brought along with the American species of asters.

AD 98 – Prószków (Schube 1903), in seminary garden.

BC 06 – Wałcz (Abromeit *et al.* 1903), *Salix purpurea* parasite.

BC 17 – Koszyce near Piła (Abromeit *et al.* 1903).

BE 48 – Wrocław (Galera, Sudnik-Wójcikowska 2004), a weed in Botanical Garden.

DC 51 – Ciechocinek (Abromeit *et al.* 1903), *Aster sp.* parasite.

DF 69 – Kraków (Kornaś 1949–1950), temporarily as a weed in Botanical Garden, *Aster longifolius* and *Epilobium hirsutum* parasite, leg. Kornaś J. 1946 (KRA).

ED 26 – Warszawa (Sober 1963; Zanova 1964; Galera, Sudnik-Wójcikowska 2004), temporarily as a weed in Botanical Garden, leg. Zanova M. 1962 (WA).

***Cuscuta suaveolens* Ser., *Ann. Sci. Phys. Nat. Agric. Industr.* 3: 519 (1840)**

BE 42 – Żarek near Jawor (Uechtritz 1878), lucerne field, leg. Scholtz 1877. The species classified as *Cuscuta racemosa* Mart. var. *chiliana* Engelm.

CF 22 – Ścinawa Mała, *Salvia splendens* parasite, leg. Meyer K. 1940 (WRSL).

***Cymbalaria pilosa* (Jacq.) L.H. Bailey, *Gentes Herb.* 1: 136 (1923)**

Synonyms: *Linaria pilosa* (Jacq.) DC.

BE 60 – Jelenia Góra Konradowo (Schalow 1936), revetments in Rakownica valley in the area of Mała Poczta, leg. Schalow E. 1935 (WRSL).

***Cynodon dactylon* (L.) Pers., *Syn. Pl.* 1: 85 (1805)**

AB 83 – Szczecin (Holzfuss 1941; Scheuerman 1956), dumping ground at Gdańska Street, leg. Wangrin G. 1938 and 1939.

AC 67 – Gorzów Wielkopolski (Misiewicz 1970, 1981; Górski 1999), near railway bridge, leg. Misiewicz J. 1967 (SLTC), near the Kłodawka river at Składowa Street, leg. Misiewicz J. 1968 (SLTC), by the side of the Warta river, leg. Janusz K. 1977 (SLTC).

AD 43 – Gubin (Lademann 1937), at cattle market.

AD 43 – Gubin (Górski 1999), school yard, leg. Wołoszyn D. 1977 (POZ).

AD 98 – Zielona Góra (Górski 1999), Wrocławska Street, roadside, leg. Ćwikliński E. 1967 (private herbarium).

BC 17 – Piła (Żukowski 1960a), trackway, leg. Żukowski W. 1959 (POZ).

BD 09 – Poznań Franowo (Żukowski 1971).

BD 09 – Poznań Górczyn (Górski 1999), on scarp near Poznań-Górczyn railway station, Zgoda Street, ca 150 m to west of Węglowa Street, leg. et det. Górski P. 1998 (POZ).

- BE 49 – Wrocław Psie Pole (SCHUBE 1929), Raclawicka Street.
 BE 49 – Wrocław Ołtaszyn and Wojszyce (SCHUBE 1930), *leg. Schalow* 1929.
 BE 49 – Wrocław (SCHUBE 1930), Olszewskiego Street, *leg. Meyer* 1929.
 BE 49 – Wrocław Rakowiec (SCHALOW 1931), garbage dump.
 BE 49 – Wrocław Leśnica (SCHALOW 1933), Braniborska Street, roadside.
 BE 49 – Wrocław, in city port (SCHALOW 1934, 1936; MEYER 1936).
 BE 49 – Wrocław Southern Park (ROSTAŃSKI K. 1960), meadow.
 CD 49 – Turek, between narrow-gauge railway tracks, *leg. Adamiak H.* 1973 (POZ).
 CE 72 – Brzeg (MICHALAK 1976), near railway station.
 CE 95 – Opole (MICHALAK 1973), between the tracks in the east railway station, *leg. Sendek A.* 1970 (KRA).
 CF 18 – Strzelce Opolskie (MICHALAK 1976), railway station.
 CF 37 – Kędzierzyn-Koźle, trackway near railway station, *leg. Worecka-Sokół M., det. Urbisz Al.* 2000 (KTU).
 CF 67 – Racibórz (UECHTRITZ 1862).
 DA 70 – Gdynia (MISIEWICZ 1976), port: Indyjskie Embankment, railway tracks, *leg. Misiewicz J.* 1974 (SLTC).
 DA 80 – Gdańsk Westerplatte (ASCHERSON, GRAEBNER 1898).
 DD 85 – Łódź Lublinek, dumping ground at sewage treatment plant, *leg. Witostawski P.* 1989 (LOD).
 DF 34 – Sosnowiec-Stary (SOWA, WÓJCIK-CHROBOK 1969), goods station, near the unloading sidings.
 DF 43 – Sosnowiec (SENDEK 1973).
 DF 65 – Libiąż, wasteland near railway station, *leg. Gabryel M.* 2009, *det. Urbisz Al.* 2009 (KTU).
 DF 69 – Kraków, psammophilous grassland, *leg. Kołodziej L.* 1970. The species classified as *Digitaria sanguinalis*, *det. Fagasiewicz L.* 1996 (LOD).
 DF 69 – Kraków (GUZIK 2006), lawns.
 DF 69 – Kraków Ugorek brought as a weed in the garden, *leg. Stuglik E., det. Fagasiewicz* 1970 (LOD).
 ED 26 – Warszawa (GÓRSKI 1999), *leg. Muszyński J.* 1907 (WA).
 FD 20 – Mińsk Mazowiecki (ĆWIKLIŃSKI, BARTNIK 1990; GÓRSKI 1999), Kolejowa Street, near railway station building. The same locality observed *Ćwikliński E.* in 1998 (private herbarium).

***Cynoglossum microglochin* BENTH., Ill. Bot. Himal. Mts. 305 (1833–1840)**

- BE 59 – Wrocław (SCHUBE 1925), Żegiestowska Street.
 BE 29 – Trzebnica (SCHUBE 1925), lawn, *leg. Eitner*.

***Cynosurus echinatus* L., Sp. Pl. 72 (1753)**

- AB 83 – Szczecin Zdroje (HOLZFUSS 1937, 1939, 1941), heap of rubble.
 AB 93 – Binówko near Szczecin (HOLZFUSS 1939).
 AD 43 – Gubin (LADEMANN 1937), meadow, garbage dump.
 BB 53 – Połczyn Zdrój (HOLZFUSS 1937).
 BA 69 – Grabno near Sławno (HOLZFUSS 1937).
 BE 08 – Żmigród (SCHALOW 1932), on the edge of a meadow, brought with flax seeds.
 BE 24 – Redlice near Ścinawa (SCHALOW 1932), *leg. Pfeiffer*.
 BE 33 – Legnica (SCHALOW 1931), *leg. Weimann* 1930.
 BE 48 – Wrocław (SCHALOW 1931; MEYER 1931, 1932, 1933), western goods station, in 1930.
 BE 49 – Wrocław (SCHALOW 1932), yard close to exotic fruit store at Tęczowa Street.
 BE 49 – Wrocław Różanka (SCHALOW 1931), heap of rubble, in 1930.
 BE 49 – Wrocław Biskupin (SCHALOW 1931).
 BE 49 – Wrocław Rakowiec (SCHALOW 1934).

- BE 58** – Wrocław (SCHALOW 1931), garbage dump, Wzgórze Skarbowców – “Kinderzobten”.
BE 77 – Sobótka near Wrocław, *leg. Wlast P.* 1938 (KRAM).
BE 97 – Przerzeczyn Zdrój (SCHALOW 1932).
BF 07 – Ząbkowice Śląskie, *leg. Tiegel H.* 1931 (KRAM).
BF 19 – Ligota Wielka near Koźle (SCHUBE 1930).
CA 70 – Słupsk (MISIEWICZ 1978), heaps of rubble, in 1939.
CE 56 – Wołczyn (SCHALOW 1932).
CE 95 – Opole (SCHALOW 1931), eastern railway station.
CF 04 – Przysiecz “Przyschetz” (SCHALOW 1931).
CF 36 – Więszyce near Koźle (SCHALOW 1932).
CF 65 – Rogożany near Kietrz (SCHALOW 1932).
CF 67 – Racibórz (SCHALOW 1933), cultivated field near Łęczczok Reserve.
DB 05 – Elbląg (ABROMEIT *et al.* 1940), goods station, *leg. Preuss H.* 1926.
DD 75 – Łódź Rokicie (SOWA 1962) railway areas, *leg. Sowa R.* 1961 (LOD).
DF 20 – Karchowice or Karchów? (Karchwitz) (SCHUBE 1930), in 1929.
DF 40 – Gliwice (SCHALOW 1932), in 1931.

***Cyperus congestus* VAHL, *Enum. Pl.* 2: 358 (1805)**

- BD 08** – Poznań Wilda (KRAWIECOWA 1951), *leg. Krawiec* 1928.
BD 08 – Poznań (SZULCZEWSKI 1931; KRAWIECOWA 1951; JACKOWIAK 1993) on Warta river; Potwo-
 rowskiego Street, *leg. Krawiec F.* 1929 (POZ); Górczyn, ruderal space behind Lazarus
 church, *leg. Krawiec F.* (POZ).

***Cyperus declinatus* MOENCH, *Methodus* 317 (1794)**

Synonyms: *Cyperus vegatus* WILLD., *Cyperus monandus* ROTH.

- AB 83** – Szczecin (SCHEUERMANN 1956), dumping ground at Tama Pomorzańska Street, *leg.*
Wangrin G. 1939.

***Cyperus houghtonii* TORR., *Ann. Lyceum Nat. Hist. New York* 3: 277 (1836)**

- BE 49** – Wrocław (MEYER 1932; SCHALOW 1932), in city port. In 1958–1959 it was confirmed to
 appear in this place by Rostański (1960). The author states this species to have survived in
 this place since Meyer’s times, *leg. Rostański K.* 1958 (WRSL).

***Dactyloctenium aegyptium* (L.) P. BEAUV., *Agrost. 72, Expl. Pl.* 10 (1812)**

- AD 65** – Lubsko (DECKER 1912), field outskirts, close to buildings.
BE 49 – Wrocław (SCHALOW 1933), garbage dump, Braniborska Street.
BE 49 – Wrocław Biskupin (SCHALOW 1933).
DF 43 – Katowice, roadside near “Rondo”, *leg. Urbisz Al.* 2006 (KTU).

***Dasypyrum villosum* (L.) CANDARGY, *Arch. Biol. Vég. (Athènes)* 1: 35, 62 (1901)**

Synonyms: *Haynaldia villosa* (L.) SCHUR.

- AD 43** – Gubin (LADEMANN 1937).
BE 48 – Wrocław (MEYER 1931, 1933), western goods station.
BE 49 – Wrocław (MEYER 1935), close to “Grossmarkthalle” market hall.
BE 49 – Wrocław (SCHALOW 1932), yard close to exotic fruit store at Tęczowa Street.

***Daucus aureus* DESF., *Fl. Atl.* 1: 242 (1798)**

- BE 49** – Wrocław (SCHALOW 1932), yard close to exotic fruit store at Tęczowa Street.

***Digitalis ferruginea* L., *Sp. Pl.* 622 (1753)**

- BE 72** – Domanów near Bolków (SCHUBE 1927), observed in this place for 15 years, *leg. Kruber*
 1927 (WRSL). From the region of Bolków, reported by Schalow in 1932 (WRSL).

***Digitalis laevigata* WALDST. & KIT**, *Pl. Rar. Hung.* 2: 171 (1803–1804)

FE 23 – near Kazimierz Dolny (FIALKOWSKI 1994, 1995), ruderal habitat.

***Dimorphotheca pluvialis* (L.) MOENCH**, *Methodus Plantas Horti Botanici et Agri Marburgensis* (1794)

AB 84 – Kijewo (CELIŃSKI 1964).

AB 94 – Płonie (CELIŃSKI 1964).

AD 43 – Gubin (LADEMANN 1937), observed in 1932.

***Dinebra retroflexa* (VAHL) PANZ.**, *Ideen Rev. Gräser* 20 (1813); *Denkschr. Königl. Akad. Wiss. München* 4: 270 (1814)

DD 76 – Łódź Widzew (SOWA 1968a), heap of industrial wastes on premises of “Zakłady Przemysłu Bawełnianego” (Cotton Processing Plant), *leg. Sowa R.* 1961 (LOD).

***Diplotaxis eruroides* (L.) DC.**, *Reg. Veg. Syst. Nat.* 2: 631 (1821)

BE 26 – Piotroniowice (GŁOWACKI 1973), trackway.

BE 48 – Wrocław (MEYER 1932, SCHALOW 1932), western goods station.

CF 11 – Nysa (MICHALAK 1981b), intertrack space near railway station.

Dorycnium pentaphyllum* SCOP. subsp. *pentaphyllum, *Fl. Carniol.*, ed. 2. 2: 87 (1772)

Synonyms: *Dorycnium suffruticosum* VILL.

BE 83 – Kuźnice Świdnickie near Wałbrzych (SCHALOW 1936), heap area, *leg. Titz* 1935 (WRSL).

***Draba muralis* L.**, *Sp. Pl.* 642 (1753)

AD 59 – Zielona Góra (SCHUBE 1906).

The species reported from Mysłowice without precisely specified locality (SYCHOWA 1985).

***Dracocephalum moldavicum* L.**, *Bull. Acad. Belg.* 391 (1837)

Synonyms: *Dracocephalum moldavica* L., *Sp. Pl.* 595 (1753).

AD 43 – Gubin (LADEMANN 1937), garbage dump.

AD 43 – Gubin (DECKER 1912), it is not known if on territory of Poland within its present borders.

AD 88 – Jabłonów near Żagań (SCHUBE 1902), in cemetery, *leg. Matzker* 1901.

BE 47 – Skalka near Kąty Wrocławskie (SCHALOW 1932), close to a mill, *leg. Schoepke* 1931.

BE 58 – Wrocław (SCHUBE 1917), in the thicket near sandpit south-west of Klecin, *leg. Grüning*.

CA 70 – Słupsk (HOLZFUSS 1933; OTTE 1933), roadside near “Kaufmann & Sommerfeld Mill”.

CE 91 – Grodków (MICHALAK 1981b), dumping ground.

DA 80 – Gdańsk Oliwa, *leg. Lützow* 1890, 1892; *leg. Runge* 1900 (TRN).

DA 80 – Gdańsk (ABROMEIT *et al.* 1903), “Wisłoujście” port, *leg. Eggert* 1883 (TRN).

***Dracocephalum parviflorum* NUTT.**, *Gen. N. Amer. Pl.* 2: 35 (1818)

CA 70 – Słupsk (HOLZFUSS 1936, 1937), dumping ground close to “Kaufmann & Sommerfeld Mill”, *leg. Otte* 1929.

EF 80 – Brzezowa Gaj near Dobczyce, meadow, *leg., det. Zajac A.* 1971 (private herbarium).

***Dracocephalum thymiflorum* L.**, *Sp. Pl.* 596 (1753)

AB 21 – Świnoujście (HOLZFUSS 1937), close to artillery unit, *leg. Ruthe* 1890.

AE 35 – Zgorzelec (FIEK, SCHUBE 1890), close to ferry-boat.

BA 95 – Sianów (HOLZFUSS 1937).

BE 49 – Wrocław (SCHALOW 1934), in city port.

CB 63 – Chojnice (ABROMEIT *et al.* 1903), railway embankment.

- CB 75** – Tuchola (ABROMEIT *et al.* 1903) abandoned field, *leg. Grütter* 1886 (TRN).
CB 76 – Nowy Sumin (ABROMEIT *et al.* 1903), railway embankment.
CB 98 – Parlin (ABROMEIT *et al.* 1903), *leg. Grütter* 1891.
CC 08 – Luszkowo near Świecie (ABROMEIT *et al.* 1903), clover field, *leg. Grütter* 1888 (TRN).
CF 05 – Opole (MICHALAK 1981b), railway areas near railway station.
DA 84 – Mierzeja Wiślana, light railroad embankment, *leg. Preuss H.* 1905 (TRN).
DA 96 – Tolkmicko near Elbląg (ABROMEIT *et al.* 1903).
DB 42 – Ryjewo near Świecie (ABROMEIT *et al.* 1903), railway embankment.
DB 52 – Kwidzyn (ABROMEIT *et al.* 1903), abandoned field near sugar-mill, *leg. Scholz* 1898 (TRN).
DB 57 – Górki near Kwidzyn (ABROMEIT *et al.* 1903), railway embankment, *leg. Büнау* 1897 (TRN).
DC 30 – Toruń, Jakubskie Przedmieście (REJEWSKI, CEYNOWA 1968), garbage dump, *leg. Rejewski* 1965 (TRN).
ED 24 – Płochcin Zdroje near Warszawa (NOWAK 1983), railway embankment, *leg. Andrearczyk* 1963 (WA).
ED 26 – Warszawa (GAJL, KOBENDZA 1932; SUDNIK-WÓJCIKOWSKA 1987), *leg. Juraszkówna* 1918; *leg. Kobendza R.* 1921, 1922 (WA).
FD 24 – Siedlce Piaski (GŁOWACKI 1975), railway embankment close to the bridge on Muchawka River.
FE 28 – Turka near Lublin (KOPORSKA 1929), roadside, (LBL).
GC 65 – Białowieża (SOKOŁOWSKI 1970), railway embankment.
GD 34 – Terespol (ĆWIKLIŃSKI 1984–1985), railway embankment.
GD 41 – Biała Podlaska (ĆWIKLIŃSKI 1984–1985), railway embankment.

***Echinochloa colona* (L.) LINK, Hort. Berol. 2: 209 (1833)**

- AB 83** – Szczecin (HOLZFUSS 1936, 1941; SCHEUERMANN 1956), garbage dump near the oil mill, *leg. Wangrin G.* 1931 and 1939.
BE 48 – Wrocław (MEYER 1932; PACYNA 2005), western goods station.
BE 49 – Wrocław Kowale (SCHALOW 1932; PACYNA 2005), garbage dump.
BE 58 – Wrocław (SCHUBE 1930; PACYNA 2005), garbage dump, Wzgórze Skarbowców – “Kinderzobten”.
BE 59 – Wrocław Rakowiec (SCHALOW 1932; PACYNA 2005), garbage dump.
CF 37 – Kędzierzyn-Koźle (URBISZ AL. 2005; PACYNA 2005), between railway tracks in the river port, *leg. Urbisz Al.* 2000 (KTU).

***Echinochloa esculenta* (A. BRAUN) H. SCHOLZ, Taxon 41(3): 523 (1992)**

Synonyms: *Panicum esculentum* A. BRAUN.

- EF 52** – Nowe Brzesko (PACYNA, GUZIK 1997; PACYNA 2005), in 1993.
EF 61 – Kraków Branice, in the Vistula river (PACYNA, GUZIK 1997; PACYNA 2005), on gravelly-sandy deposits on convex riverside (point bars) and between groynes, *leg. Guzik J.* and *Pacyna A.* 1993 (KRA, KRAM).
EF 61 – Kraków Wolica (PACYNA, GUZIK 1997; PACYNA 2005).
EF 61 – Koźlica Igołomska (PACYNA, GUZIK 1997; PACYNA 2005).

***Echinochloa frumentacea* LINK, Hort. Berol. 1: 204 (1827)**

Synonyms: *Panicum frumentaceum* ROXB.

- AB 73** – Szczecin (HOLZFUSS 1937), near the Żelechowa oil mill, in 1913. The species was determined as *Panicum crus-galli* L. var *edule* (Hitchcock).
AB 83 – Szczecin (HOLZFUSS 1936, 1937), dumping ground at Gdańska Street, in 1925; *leg. Wangrin G.* 1939 (SCHEUERMANN 1956). The species was determined as *Panicum crus-galli* L. var *edule* (Hitchcock).

? – the species reported generally from Szczecin (HOLZFUSS 1937), “Reihenwerder Hafen”. Probably the species was misdetermined (PACYNA, GUZIK 1997; PACYNA 2005), this date concened *Echinochloa esculenta* (A. BRAUN) H. SCHOLZ.

***Echinochloa microstachya* (WIEGAND) RYDB., *Brittonia* 1: 82 (1931)**

DF 74 – Nazieleńce near Brzeszcze (PACYNA *et al.* 1999, PACYNA 2005), a roadside drained ditch, *leg. Żarnowiec J.* 1978 (KTU).

***Echinophora spinosa* L., *Sp. Pl.* 239 (1753)**

DA 80 – Gdańsk Westerplatte (SCHWARZ 1967), N. Port, *leg. Bail* 1876–1878 (TRN).

***Echium plantagineum* L., *Mantissa Alt.* 202 (1771)**

Synonyms: *Echium lycopsis* L. pro parte, *Echium maritimum* WILLD.

AD 34 – Rybaki near Świebodzin (DECKER 1912), serradella field, in 1866.

AD 56 – Dachów near Bobrowice (DECKER 1912), in the garden.

AD 86 – Siodło near Jankowa Żagańska (FIEK 1881).

AD 96 – Szczepanów near Żary (DECKER 1912), serradella field.

BE 49 – Wrocław, close to “Grossmarkthalle” market hall, *leg. Meyer K.* 1936 (WRSL).

BE 49 – Wrocław Swojczyce, in the garden, *leg. Rostański K.* 2006 (KTU).

***Eleusine indica* (L.) GAERTN., *De fructibus et seminibus plantarum* 1 (1788)**

AB 83 – Szczecin (HOLZFUSS 1941), garbage dump, on the verge of a field where willows are cultivated at Tama Pomorzańska Street in 1931; (SCHEUERMANN 1956), garbage dump near the oil mill in 1939.

DF 43 – Katowice (URBISZ AL., URBISZ A. 2003), Reńców Street, roadside near the supermarket “Auchan”, *leg. Urbisz Al.* 2001 (KTU).

***Elymus athericus* (LINK.) KERGUÉLEN, *Lejeunia* 110: 57 (1983)**

Synonyms: *Elytrygia pungens* (PERS.) TUTIN, *Agropyron litorale* (HOST) DUM.

The species recognized as established on the coast and rare in Poland (HANSEN 1959; SCHWARZ 1961, 1967). Not confirmed presently. Recognized as an ephemerophyte (MIREK *et al.* 2002; MIZIANTY *et al.* 2001; RUTKOWSKI 2007) because of the lack of contemporary localities.

DA 80 – Gdańsk Westerplatte (HANSEN 1956), *leg., det. Baenitz* 1872 (Herb. Bot. Inst. Greifswald). The species was reported under the name of *Triticum repens* var. *pseudo-acutum* (HANSEN 1956; MIZIANTY *et al.* 2001); Gdańsk Westerplatte (HANSEN 1956), *leg., det. Baenitz* 1876 (Herb. Bot. Inst. Greifswald i Hamburg). The species was reported under the name of *Triticum junceum* x *repens* var. *subrepens* f. *glaucescens* (HANSEN 1956; MIZIANTY *et al.* 2001); Gdańsk Westerplatte (HANSEN 1956), *leg., det. Baenitz* 1885 (Herb. Bot. Inst. d. landwirtschaftl. Hochschule Kopenhagen). The species was reported under the name of *Triticum junceum* x *repens* var. *subrepens* f. *glaucescens* (HANSEN 1956; MIZIANTY *et al.* 2001).

DA 80 – Gdańsk Wisłoujście (HANSEN 1959; SCHWARZ 1967), *leg. Schwarz Z.* 1960 (GDMA).

***Elymus canadensis* L., *Sp. Pl.* 83 (1753)**

BD 08 – Poznań (ŻUKOWSKI 1959), close to Collegium Maius, *leg. Piotrowska H.* 1957, *leg. Żukowski W.* 1958 (POZ).

***Eragrostis cilianensis* (ALL.) F.T. HUBB., *Philippine Jour. Sci. (Bot.)* 8: 159 (1913)**

AB 83 – Szczecin (SCHEUERMANN 1956; GUZIK, SUDNIK-WÓJCIKOWSKA 2005), *leg. Wangrin G.* 1941.

BE 49 – Wrocław (MEYER 1931; GUZIK, SUDNIK-WÓJCIKOWSKA 2005), river port.

CD 40 – Książ Wielki (LATOWSKI, CZARNA 1996; GUZIK, SUDNIK-WÓJCIKOWSKA 2005), railway station.

ED 32 – Teresin near Szymanów (GUZIK, SUDNIK-WÓJCIKOWSKA 2005), railway yard at Szymanów, *leg. Guzik J.* 1984 (KTU).

EF 70 – Kraków Podgórze (GUZIK, SUDNIK-WÓJCIKOWSKA 2005), railway area, *leg. Otruba J.* 1918 sub *E. minor*, *rev. Sudnik-Wójcikowska B.* (KRA).

***Eragrostis mexicana* (HORNEM.) LINK, Hort. Berol. 1: 190 (1827)**

AB 83 – Szczecin (SCHEUERMANN 1956; GUZIK, SUDNIK-WÓJCIKOWSKA 2005), waste dump an oil mill, *leg. Wangrin G.* 1939.

AD 43 – Gubin (LADEMANN 1937; GUZIK, SUDNIK-WÓJCIKOWSKA 2005), garbage dump.

BE 59 – Wrocław Wojszyce (SCHALOW 1933; GUZIK, SUDNIK-WÓJCIKOWSKA 2005), garbage dump, *leg. Schalow E.* 1932.

***Eragrostis virescens* J. PRESL. & C. PRESL., Reliq. Haenk. 1: 276 (1830)**

AB 83 – Szczecin (SCHEUERMANN 1956; GUZIK, SUDNIK-WÓJCIKOWSKA 2005), waste dump an oil mill, *leg. Wangrin G.* 1939.

BE 48 – Wrocław (SCHALOW 1936; GUZIK, SUDNIK-WÓJCIKOWSKA 2005), waste dump near “Kornerwiese”.

BE 58 – Wrocław Oporów (SCHALOW 1938; GUZIK, SUDNIK-WÓJCIKOWSKA 2005), dumping ground.

***Eriochloa villosa* (THUNB.) KUNTH, Révis. Gram. 1: 30 (1829)**

AB 83 – Szczecin (SCHEUERMANN 1956), waste dump an oil mill, *leg. Wangrin G.* 1939.

***Erodium botrys* (CAV.) BERTOL., Amoen. 35 (1819)**

DE 83 – Częstochowa (PIASECKI 1999), rubble heap on Warta River, *leg. Piasecki W.* 1981 (LOD).

DF 44 – Sosnowiec Śródula (SOWA, WÓJCIK-CHROBOK 1969), wastelands and garbage dumps near Sosnowieckie Zakłady Przemysłu Wełnianego (Textile Plant) in 1967.

***Erodium laciniatum* (CAV.) WILLD., Sp. Pl. 3: 633 (1800)**

BB 57 – Szczecinek (HOLZFUSS 1938), dumping ground.

***Erodium malacoides* (L.) L'HÉR., W. Aiton, Hort. Kew. 2: 415 (1789)**

AB 83 – Szczecin (SCHEUERMANN 1956), railway areas.

BE 48 – Wrocław (MEYER 1931), western goods station, *leg. Meyer K.* 1930 (WRSL).

BE 49 – Wrocław (MEYER 1935), close to “Grossmarkthalle” market hall, *leg. Meyer K.* 1934 (WRSL).

BE 49 – Wrocław (SCHALOW 1932), yard close to exotic fruit store at Tęczowa Street, *leg. Schalow E.* 1931 (WRSL).

BE 59 – Wrocław Wojszyce (SCHUBE 1930), heap of rubble, *leg. Schalow E.* 1929 (WRSL).

***Erodium moschatum* (L.) L'HÉR., W. Aiton, Hort. Kew. 2: 414 (1789)**

AD 65 – Lubsko (DECKER 1912).

DA 80 – Gdańsk Zaspą (ABROMEIT *et al.* 1898), ballast heaps, *leg. Bail* 1865 (TRN); Westerplatte, ballast heaps, *leg. Helm* 1881.

DB 23 – Malbork (ABROMEIT *et al.* 1898), *leg. Klinggräff* 1848.

***Erodium stephanianum* WILLD., Sp. Pl. 3: 625 (1800)**

BE 48 – Wrocław Popowice (MEYER 1933), western goods station in port.

***Erucastrum nasturtiifolium* (POIR) O.E. SCHULZ, Bot. Jahrb. 54 Beibl. 119: 56 (1916)**

Synonyms: *Erucastrum obtusangulatum* (SCHLEICHER) RCHB.

AB 83 – Szczecin Zdroje (HOLZFUSS 1937).

AC 67 – Gorzów Wielkopolski (WOŁK, ŻUKOWSKI 1959), railway station.

BD 09 – Poznań Franowo (ŻUKOWSKI 1959), goods station.

CC 19 – Popowo Biskupie, wheat field, leg. Urban W., det. Fagasiewicz L. 1976 (LOD).

CE 31 – Dąbrowa near Oleśnica (SYCHOWA 1985).

CE 39 – Wieluń, abandoned field, leg. Gronkowska, det. Fagasiewicz L. 1976 (LOD).

DF 46 – Żurada near Olkusz (WIKA 1989), a weed in clover cultivation.

DF 63 – Tychy (SENDEK, WIKA 1978–1979), trackway.

***Erysimum crepidifolium* RCH., Pl. Crit. 1: 8 (1823)**

BE 49 – Wrocław (UECHTRITZ 1879; FIEK 1881; SCHUBE 1903), Grunwaldzki Park near zoological garden, leg. Ziesché L. 1878 (WRSL).

BE 60 – Strupice near Jelenia Góra (SCHUBE 1906), leg. Kruber 1905 (WRSL).

CC 83 – Gniezno (SZULCZEWSKI 1951), leg. Cybichowski 1860 (POZ).

DA 80 – Gdańsk Przeróbka (KLINGGRAEFF 1866), ballast heaps; Gdańsk “Gęsia Karczma” (ABROMEIT *et al.* 1898), leg. Bail 1866.

EE 74 – Kielce (MACIEJCZAK 1988), clayey-sandy shoulder of Sandomierska Street.

***Erysimum repandum* L., Demonstr. Pl. 17 (1753)**

AD 43 – Gubin (LADEMANN 1937), garbage dump, leg. Behr 1929.

AD 58 – Zielona Góra (SCHUBE 1913), “Grüner Weg”, leg. Schmidt 1912 (WRSL).

AE 35 – Zgorzelec (SCHUBE 1903), Kolejowa Street, in 1889.

BB 78 – Okonek near Szczecinek (ŻUKOWSKI 1960a), debris of a burnt factory close to the station.

BC 46 – Czarnków (BOCK 1908; SZULCZEWSKI 1951).

BE 33 – Legnica (SCHUBE 1903b), “Gänsebruch”, leg. Tiegert 1892 (WRSL).

BE 48 – Wrocław, in city port, leg. Schube Th. 1928 (WRSL).

BE 49 – Wrocław (FIEK 1881), “Posener Bahn” close to railway bridge, leg. Engler 1869.

BE 49 – Wrocław (SCHUBE 1905), walking path near St. Catherine church, leg. Heinzmann 1904 (WRSL).

BE 53 – Jawor, leg. Streuch 1935 (WRSL).

BE 59 – Wrocław Ołtaszyn (FIEK 1881), leg. Siegert 1843.

BE 59 – Wrocław Brochów (SCHUBE 1905).

CF 15 – Gogolin (MICHALAK 1981b), intertrack space near railway station.

DA 80 – Letnica near Gdańsk (SCHWARZ 1961), dumping ground.

DF 60 – Kraków Wesola (KNAPP 1872; RACIBORSKI 1884; TRZCIŃSKA-TACIK 1979).

EE 36 – Szydłówek, cultivated field, leg. Kaznowski 1932 (POZ).

EE 36 – Lipienice near Jastrząb, railway embankment, leg. Nobis M. 2007 (KRA).

EE 74 – Kielce (MACIEJCZAK 1988), oat cultivation near Morcinka Street.

EF 30 – Szczepanowice near Słomniki (KORNAŚ 1953–1954), railway embankment.

EF 40 – Szczepanowice, trackway, leg. Medwecka-Kornaś A., Kornaś J. 1950 (KRA).

The species reported generally from the region of Przemyśl (ZAPAŁOWICZ 1913), Busko (DZIUBAŁTOWSKI 1916) and Warszawa (CYBULSKI 1896)

***Euclidium syriacum* (L.) W.T. AITON, Hort. Kew. ed. 2, 4: 74 (1812)**

Synonyms: *Soria syriaca* DESV.

DA 80 – Gdańsk (ABROMEIT *et al.* 1889), ballast soil bingstead in the port, leg. Liützow 1884, 1885 (TRN).

ED 26 – Warszawa (CYBULSKI 1895, 1896), railway areas.

***Euphorbia seguierana* NECK., Acta Akad. Theod.-Pal. 2: 493 (1770)**

Synonyms: *Euphorbia gerardiana* JACQ.

CF 36 – Kędzierzyn Koźle (SZOTKOWSKI 1988), railway areas, river port.

DG 01 – between Ustroń and Cieszyn (FIEK 1881), leg. Wetschky 1843.

***Euphorbia taurinensis* ALL., Fl. Pedem. 1: 287 (1785)**

Synonyms: *Euphorbia graeca* BOISS. ET SPRUNN.

BE 49 – Wrocław Psie Pole (ROSTAŃSKI K. 1992), leg. Rostański K. 1959.

FG 29 – Brzegi Dolne near Ustrzyki Dolne (ROSTAŃSKI K. 1992), trackway, leg. Olesiński L. 1957.

***Euphorbia vollhynica* BESSER EX SZAFER, KULCZ. & PAWŁ, Fl. Polska 2: 107 (1921)**

DF 69 – Kraków Pychowice, on Vistula River, leg. Żmuda 1909 (KRAM).

***Ficus carica* L., Sp. Pl. 1059 (1753)**

AB 83 – Szczecin (SCHEUERMANN 1956), dumping ground at Gdańska Street.

BE 49 – Wrocław (SCHUBE 1928), Gajowa Street, leg. Schalow E. 1926 (WRSL).

***Fumaria capreolata* L., Sp. Pl. 701 (1753)**

AE 28 – Bolesławiec (SCHUBE 1903b), abandoned garden, leg. Limpricht? (WRSL).

AE 78 – Szklarska Poręba, leg. Winkler 1878 (WRSL).

AE 78 – Piechowice (SCHUBE 1903).

AE 79 – Jelenia Góra Sobieszów (SCHUBE 1903b), leg. Schulz 1894 (TRN), leg. Fiek E. 1900 (WRSL).

AE 79 – Jelenia Góra Cieplice Śląskie Zdrój (WIMMER 1832; ZAJĄC E.U. 1974a), leg. Cybichowski 1852 (POZ); leg. Uechtritz 1854, 1871 (WRSL); leg. Grosse 1888 (WRSL); at health resort promenade, leg. Działko 1898 (OPOL); leg. Bail? (TRN).

AE 79 – Jagniątków near Jelenia Góra (SCHUBE 1903b).

AE 79 – Podgórzyn (ZAJĄC E.U. 1974a), cultivated field, leg. Wiącek Z. 1963 (WRSL).

AD 43 – Gubin (LADEMANN 1937), in 1929.

BA 69 – Ustka (MÜLLER 1898), ballast soil bingstead in the port.

BE 45 – between Złotoryja and Jawor (GERHARDT 1885).

BE 48 – Wrocław, leg. Behnsch 1900 (WRSL).

BE 60 – Pruszków (SCHUBE 1903b; ZAJĄC E.U. 1974a), gardens, leg. Richter 1889, 1890 (WRSL).

CF 15 – Rogów Opolski (SCHUBE 1903b), leg. Stein 1864 (WRSL).

DA 80 – Gdańsk Westerplatte (ABROMEIT *et al.* 1898), in 1865.

***Fumaria densiflora* DC., Cat. Pl. Horti Monsp. 113 (1813)**

AD 58 – Zielona Góra (SCHUBE 1903b), leg. Hellwig 1881.

BA 69 – Ustka (MÜLLER 1898; HOLZFUSS 1937), ballast soil bingstead in the port.

DA 80 – Gdańsk (ABROMEIT *et al.* 1898), “Port Północny”, leg. Boruss Th. 1847 (TRN); ballast heaps (PREUSS 1928), leg. Klinsmann 1845;

***Fumaria muralis* SOND. EX W.D.J. KOCH., Syn. Fl. Germ. ed. 2, 1017 (1845)**

BE 46 – Środa Śląska (ZAJĄC E.U. 1974a), potato field, leg. Kotschky 1926 (WRO). The species was originally determined as *F. vaillantii det. Zajac E.U.* 1972.

FF 02 – Wielowieś near Sandomierz (ŚWIĘS, MAJKUT 2006), railway areas.

***Fumaria parviflora* LAM., Encycl. Méth. Bot. 2: 567 (1788)**

DA 80 – Gdańsk Westerplatte (PREUSS 1910).

134 DA 80 – Gdańsk “Lalby” (ZAJĄC E.U. 1974a), leg. Bail 1865 (TRN).

? – the species reported generally from the region of Tarnów (GRZEGORZEK 1868).
Revision is impossible because of the lack of herbarium materials (KORNAŚ *et al.* 1996).

***Galeopsis segetum* NECK., *Hist. & Commentat. Acad. Elect. Sci. Theod.-Palat.* 2: 474 (1770)**

Synonyms: *Galeopsis ochroleuca* LAM.

AE 07 – Świętoszów near Żagań, sandy roadside, military area, *leg. Bena* W. 2009 (private herbarium).

BE 48 – Wrocław (MEYER 1931), western goods station.

***Galium humifusum* M. BIEB., *Fl. Taur.-Cauc.* 1: 104 (1808)**

Synonyms: *Asperula humifusa* (M. BIEB) BESSER.

CE 95 – Opole (SCHUBE 1929; MEYER 1932), eastern railway station, *leg. Schubert* 1928 (WRSL).

***Galium parisiense* L., *Sp. Pl.* 108 (1753)**

BD 50 – between Lipiny and Pyrnik (SCHUBE 1903b).

***Galium verrucosum* HUDS., *Philos. Trans. Roy. Soc. London* 56: 251 (1767)**

Synonyms: *Galium saccharatum* ALL.

BB 88 – Jastrowie (ŻUKOWSKI 1960a), garbage dump in the eastern outskirts of the town, *leg. Żukowski* W. 1957 (POZ).

BE 48 – Wrocław (MEYER 1932; SCHALOW 1932), western goods station.

***Gastridium ventricosum* (GOUAN) SCHINZ & THELL., *Viert. Naturf. Ges. Zürich* 58: 39 (1913)**

BE 48 – Wrocław (MEYER 1931, 1933), western goods station.

BE 49 – Wrocław (SCHALOW 1932), yard close to exotic fruit store at Tęczowa Street.

***Gaudinia fragilis* (L.) P. BEAUV., *Agrost.* 95, 164 (1812)**

AB 83 – Szczecin (SCHEUERMANN 1956), goods station, *leg. Wangrin* G. 1942.

BE 48 – Wrocław (MEYER 1931), western goods station.

BE 49 – Wrocław (SCHALOW 1932), yard close to exotic fruit store at Tęczowa Street.

CE 00 – Postolin near Milicz (SCHUBE 1909).

***Genista anglica* L., *Sp. Pl.* 710 (1753)**

BB 55 – Barwice near Połczyn Zdrój (HOLZFUSS 1937), thicket near peatbog *leg. Buchholz* 1913.

CE 84 – Chróścice (MICHALAK 1981b), railway areas.

***Geranium lucidum* L., *Sp. Pl.* 682 (1753)**

AE 37 – Czarna near Bolesławiec (SCHUBE 1925), *leg. Heinzmann* 1913 (WRSL).

***Geranium rotundifolium* L., *Sp. Pl.* 683 (1753)**

The species can be mistaken for *G. dissectum* so the localities are not certain as there are no herbarium materials which would enable the identification.

AE 29 – between Bożejowice and Łaziska near Bolesławiec (SCHNEIDER 1837).

BD 08 – Poznań (KRAWIECOWA 1951), Świerczewskiego (Bukowska) Street, roadside, *leg. Krawiecowa* A. 1947.

BE 30 – Grodziec (SCHNEIDER 1837).

DD 75 – Łódź Brus (MOWSZOWICZ 1960), roadside, *leg. Grzyb* (LOD).

***Geranium wilfordii* MAXIM., Bull. Acad. Imp. Sci. Saint. Petersbourg. 26: 453 (1880)**

FC 20 – Ostrołęka (ROSTAŃSKI, TOKARSKI 1973), close to railway station at Słowackiego Street, leg. Rostański K. 1968 (WRSL), leg. Rostański K. 1972 (KTU).

***Glaucium corniculatum* (L.) RUDOLPH, Fl. Jen. Pl. 13 (1781)**

AB 21 – Świnoujście (HOLZFUSS 1937), brought as a weed in cultivation, leg. Ruthe 1894.

AB 32 – Przytor near Świnoujście (HOLZFUSS 1937), roadside.

AB 83 – Szczecin (SCHEUERMANN 1956), dumping ground at Gdańska Street.

AC 99 – Międzyrzecz (DECKER 1912), in the garden.

AD 43 – Gubin (LADEMANN 1937), wasteland at cattle market, leg. Behr 1930.

BE 48 – Wrocław (SCHALOW 1932), western goods station.

BE 48 – Wrocław Popowice (MEYER 1931), railway areas.

BE 49 – Wrocław (MEYER 1937), wastelands in river port close to a mill.

BE 49 – Wrocław Sołtysowice, heap of rubble, leg. Schalow E. 1942 (WRSL).

BE 59 – Wrocław Rakowiec (SCHALOW 1933), garbage dump.

CD 52 – Jarocin (CZARNA 2005), trackway.

CE 95 – Opole Zakrzów (MICHALAK 1971a, b), wasteland in river port.

DD 48 – Chruslin near Warszawa (NOWAK 1983), railway embankment, leg. Nowak K. 1974 (WA).

DD 75 – Łódź Kaliska, railway station, between railway tracks, leg. Witostawski P. 1980 (LOD).

DD 76 – Łódź Rokicie (SOWA 1962), Cieszyńska Street, near mill, leg. Sowa R. 1961 (LOD).

DE 83 – Częstochowa (MICHALAK, SENDEK 1974–1975), at railway station near engine house.

DF 69 – Kraków Płaszów (KORNAŚ, LEŚNIEWSKA, SKRZYWANEK 1959), goods station, in 1956.

ED 16 – Warszawa Białoleka (SUDNIK-WÓJCIKOWSKA, GUZIK 1998), siding at the mill.

ED 18 – Okuniew near Warszawa (ROSTAFIŃSKI 1873), collected by Jastrzębski a number of years ago – the precise date of collection is unavailable.

ED 23 – Bramki Ukazowe near Warszawa (NOWAK 1983), railway areas, leg. Nowak K. 1972 (WA).

ED 26 – Warszawa (CYBULSKI 1895), railway areas, leg. Cybulski? (WA).

GE 36 – Wólka Okopska (WRZESIEŃ 2007), between railway tracks.

GF 81 – Medyka near Przemyśl (TRZCIŃSKA-TACIK 1967), near the space for loading and unloading iron ore, leg. Trzcńska-Tacik H. 1964 (KRA).

***Glaucium flavum* CRANTZ, Stirp. Austr. 2: 133 (1763)**

AD 09 – Jordanowo near Świebodzin (DECKER 1912), in the garden.

BE 75 – Świdnica (FIEK 1887), “Texas”.

CF 11 – Nysa (MICHALAK 1981b), railway areas, leg. Michalak S. 1972.

CF 67 – Racibórz (MICHALAK 1976), railway station, between railway tracks.

DA 80 – Gdańsk Westerplatte (HAGEN 1818; KLINGGRAEFF C.J. 1854; ABROMEIT *et al.* 1898). The species was reported repeatedly in different years on premises of the sea port where it appeared mainly on ballast soil dump.

DD 65 – Łódź Hellenówek, debris, leg. Sowa R. 1961 (LOD), determination is uncertain as herbarium specimen is incomplete.

***Glycyrrhiza echinata* L., Sp. Pl. 741 (1753)**

FE 37 – Lublin (FIAŁKOWSKI 1978).

FE 37 – Wrotków near Lublin (FIAŁKOWSKI 1963), railway embankment.

***Glycyrrhiza glabra* L., Sp. Pl. 742 (1753)**

ED 26 – Warszawa (ZANOWA 1964; SUDNIK-WÓJCIKOWSKA 1987), on ruins in Botanical Garden.

***Guizotia abyssinica* (L.F.) CASS., *Dict. Sci. Nat.* **59**: 248 (1829)**

The species is cultivated in some countries as food for birds.

AB 73 – Szczecin Żelechowa (HOLZFUSS 1937).

AB 83 – Szczecin (HOLZFUSS 1937), dumping grounds at Gdańska Street and Tama Pomorzańska Street.

AD 43 – Gubin (LADEMANN 1937), meadow, *leg. Behr* 1929.

BB 04 – Koszalin (HOLZFUSS 1937).

BB 57 – Szczecinek (HOLZFUSS 1937).

BE 33 – Piekary Wielkie near Legnica (SCHUBE 1927), close to railway station.

BE 33 – Legnica (SCHALOW 1932), *leg. Weimann* 1931.

BE 48 – Wrocław (SCHALOW 1932), Braniborska Street, garbage dump.

BE 49 – Wrocław (SCHUBE 1927), Krzywoustego Street, Borkowska Street and Tarnogajska Street, garbage dumps.

BE 60 – Jelenia Góra (SCHUBE 1930).

BE 80 – Kowary (SCHUBE 1930).

BE 89 – Strzelin (SCHALOW 1932), heap of rubble near stone pit.

BF 07 – Ząbkowice Śląskie (SCHUBE 1930), garbage dump, *leg. Buchs* 1929.

CA 70 – Słupsk (HOLZFUSS 1937), *leg. Otte* 1928.

CE 72 – Żłobizna near Brzeg (SCHALOW 1932), garbage dump.

CF 10 – Rochów Nyski or Skorochów near Nysa (SCHALOW 1931).

CF 67 – Racibórz (MICHALAK 1976), garbage dump.

***Gypsophila pilosa* HUDSON, *Philos. Trans. Roy. Soc. Lond.* **56**: 252 (1767)**

DF 69 – Kraków (GUZIK 2006), wastelands in the neighbourhood of grain processing plant.

ED 16 – Warszawa Białotańska (SUDNIK-WÓJCIKOWSKA, GUZIK 1998), siding at the mill.

***Gypsophila viscosa* MURRAY, *Comm. Gotting.* **9**(3) (1783)**

BE 47 – Gałów near Środa Śląska (SCHALOW 1934).

***Hainardia cylindrica* (WILLD.) GREUTER, *Boissiera* **13**: 177 (1967)**

Synonyms: *Lepturus cylindricus* (WILLD.) TRIN., *Monerma cylindrica* (WILLD.) COSS & DURIEN.

AB 83 – Szczecin (SCHEUERMANN 1956), municipal garbage dump. The species was determined on the basis of Wangrin's drawing.

***Hedypnois cretica* (L.) DUM. COURS., *Bot. Cult.* **2**: 339 (1802)**

Synonyms: *Hedypnois rhagadioloides* (L.) F.W. SCHMIDT emend. SPRENG.

The taxon is very variable in respect of morphology, even within one single population. That is why it has been described under several names (SELL 1976).

BE 48 – Wrocław (MEYER 1937), river port, near mill.

BE 48 – Wrocław, western goods station, *leg. Meyer K. and Schalow E.* (WRSL).

BE 49 – Wrocław (MEYER 1935), close to "Grossmarkthalle" market hall.

CF 10 – Rochow Nyski or Skorochów near Nysa (MEYER 1931).

***Hedypnois monspeliensis* WILLD., *Sp. Pl.*, ed. 4 **3**(3): 1616 (1803)**

Synonym: *Hedypnois rhagadioloides* subsp. *monspeliensis* (WILLD.) NYMAN.

Treated as a subspecies within *Hedypnois cretica*. (LONCHAMP 1999: *Index Synonymique de la Flore de France*).

BE 49 – Wrocław (MEYER 1935), close to "Grossmarkthalle" market hall, *leg. Meyer K.* 1934 (WRSL). The species was determined as *Hedypnois cretica* (L.) WILLD. var. *gracilis* BOISS.

***Helenium autumnale* L., Sp. Pl. 2: 886 (1753)**

Synonyms: *Helenium grandiflorum* NUTT.

CF 05 – Wójtowa Wieś near Gliwice (SCHALOW 1934), garbage dump, leg. Czmok 1933.

***Heliotropium europaeum* L., Sp. Pl. 130 (1753)**

AB 83 – Szczecin (HOLZFUSS 1936, 1937), dumping ground at Gdańska Street.

BD 08 – Poznań (GALERA 2003), temporarily as a weed in Botanical Garden.

BE 59 – Wrocław Krzyki (SCHALOW 1937), dumping ground, leg. Thielscher.

DA 80 – Gdańsk Westerplatte (ABROMEIT *et al.* 1903), ballast soil bingstead in the port, leg. Bail 1864; Wiśloujście leg. Helm 1880.

DF 69 – Kraków (KORNAŚ 1949–1950), temporarily as a weed in Botanical Garden.

ED 26 – Warszawa (SZUBERT 1824; GALERA, SUDNIK-WÓJCIKOWSKA 2004), temporarily as a weed in Botanical Garden.

CC 93 – Gniezno (SZULCZEWSKI 1951 according to “Zielnik Wielkopolski”).

***Heracleum pubescens* (HOFFM.) M. BIEB., Fl. Taur.-Cauc. 3: 225 (1819)**

Synonyms: *Sphondylium pubescens* HOFFM.

BE 58 – Tynec Mały near Wrocław (SCHUBE 1911), coppice (thicket in the field).

DB 52 – Nowy Dwór near Kwidzyn (ABROMEIT *et al.* 1898), roadside ditch, leg. Scholz 1891.

***Herniaria incana* LAM., Encycl. Méth. Bot. 3: 124 (1789)**

In spite of appearance of this species in habitats which are similar to those where the species appears within its natural range, it is regarded in Poland as temporarily brought (HLAVÁČEK, PYŠEK 1992).

FE 80 – near Opatów (JAGIEŁŁO 1992), dry grasslands.

BD 09 – Poznań Franowo (JACKOWIAK 1993), footworn place near the rails, leg. Żukowski W. 1960 (POZ). The species was mistakenly given as *H. hirsuta* (ŻUKOWSKI 1971), rev. Jackowiak B. 1986.

***Herniaria polygama* J. GAY, Rev. Bot. 2: 371 (1847)**

FE 80 – near Opatów (JAGIEŁŁO 1992), sunny sandy places.

***Hippocrepis comosa* L., Sp. Pl. 744 (1753)**

CA 70 – Słupsk (HOLZFUSS 1937), garbage dump near Kaufmann & Sommerfeld Mill, leg. Otte 1933.

CF 05 – Boguszyce (UECHTRITZ 1878), Oder bank, leg. Ule 1874.

***Hirschfeldia adpressa* MOENCH, Methodus: 264 (1794)**

Synonyms: *Hirschfeldia incana* (L.) LAGR. – FOSS., *Erucastrum incanum* (L.) W.D. J. KOCH., *Sinapis incana* L.

AB 83 – Szczecin (HOLZFUSS 1941), dumping ground at Tama Pomorzańska Street.

BB 57 – Szczecinek (ŻUKOWSKI 1960b), railway station, leg. Żukowski W. 1957 (POZ).

BD 08 – Poznań (HELLWIG 1879; SZULCZEWSKI 1951; JACKOWIAK 1993).

BD 09 – Poznań Franowo (ŻUKOWSKI 1959), railway station.

BE 49 – Wrocław (UECHTRITZ 1879; FIEK 1881), river port, leg. Uechtritz R. 1878.

BE 49 – Wrocław Różanka (FIEK 1881), Oder dam.

BE 59 – Wrocław Rakowiec (SCHUBE 1903).

BE 66 – Kąty Wrocławskie Borzygniew (UECHTRITZ 1885; SCHUBE 1903), in 1884.

CD 13 – Węgierki near Września (SZULCZEWSKI 1951).

DF 69 – Kraków (GUZIK 2006), wastelands in the neighbourhood of grain processing plant.

ED 16 – Warszawa Białoleka (SUDNIK-WÓJCIKOWSKA, GUZIK 1998), siding at the mill.

ED 36 – Warszawa Piaseczno-Iwiczna (SUDNIK-WÓJCIKOWSKA, GUZIK 1998).

***Hordeum bulbosum* L., Cent. Pl. 2: 8 (1756)**

AE 35 – Zgorzelec (SCHUBE 1903), garbage dump.

***Hordeum marinum* HUDS., Fl. Angl. ed. 2, 1: 57 (1778)**

Synonyms: *Hordeum maritimum* STOKES.

AB 83 – Szczecin (SCHEUERMANN 1956), dumping ground at Gdańska Street, leg. Wangrin G. 1938.

BE 48 – Wrocław (MEYER 1931, 1933, 1936), western goods station (Olf Koepeke & Co. trackway).

DA 80 – Gdańsk Westerplatte (PREUSS 1928), ballast heaps, leg. Klinsmann 1832 i 1847.

DD 75 – Łódź Rokicie (SOWA 1965, 1968b), rubble and waste material dump, between Pabiańska and Obywatelska Street, leg. Sowa R. 1961, 1965 (LOD).

DF 34 – Sosnowiec Śródula (SOWA, WÓJCIK-CHROBOK 1969), wastelands and garbage dumps near Sosnowieckie Zakłady Przemysłu Wełnianego (Textile Plant), in 1967.

***Humulus scandens* (LOUR.) MERR., Trans. Amer. Philos. Soc., nov. ser., 24: 138 (1935)**

Synonyms: *Humulus japonicus* SIEBOLD & ZUCC.

AD 43 – Gubin (LADEMANN 1937), railway embankment.

BE 48 – Wrocław, waste dump near “Kornerwiese”, leg. Schalow E. 1931 (WRSL).

BE 49 – Wrocław Biskupin (SCHALOW 1931), heap of rubble, leg. Meyer K. 1930 (WRSL).

BE 49 – Wrocław, Międzyrzeczka Street, heap of rubble, leg. Schalow E. 1939 (WRSL).

BE 59 – Wrocław Ołtaszyn (SCHUBE 1928), heap of rubble, leg. Schalow E. 1927 (WRSL).

BD 83 – Serby Stare (SCHUBE 1928), heap of rubble, leg. Schalow E. 1927 (WRSL).

***Hyoscyamus albus* L., Sp. Pl. 180 (1753)**

DA 80 – Gdańsk Westerplatte (ABROMEIT *et al.* 1903), ballast heaps, leg. Bail 1864.

***Hypericum gymnanthum* ENGELM. ET A. GRAY, Boston J. Nat. Hist. 5: 212 (1847)**

The species reported generally from the region of Poznań (ROBSON 1968).

***Hypericum mutilum* L., Sp. Pl. 2: 787 (1753)**

The species reported generally from the region of Poznań (ROBSON 1968; SZULCZEWSKI 1951).

***Juncus planifolius* R. BR., Prodr. Fl. Nov. Holl. 259 (1810)**

DD 76 – Łódź (WITOSŁAWSKI 1996), roadside along Kopcińskiego Street close to crossroad with Pomorska Street, leg. Witosławski P. 1987 (LOD). The species subsisted up to the end of 90-ties when the locality was destroyed during pavement construction (own personal inf. from Witosławski P.).

***Lactuca perennis* L., Sp. Pl. 796 (1753)**

ED 58 – Czersk near Warszawa (TACIK 1972), leg.? 1906 (KRAM).

***Lactuca saligna* L., Sp. Pl. 796 (1753)**

CF 16 – Gogolin (GERHARDT 1885).

CF 68 – Pietrzykowice (SCHALOW 1932), near cool mine, leg. Kotschy 1931.

DA 80 – Gdańsk Westerplatte and Wisłoujście (ABROMEIT *et al.* 1903), leg. Helm 1866, leg. Lützow C. 1892 (TRN).

***Lactuca virosa* L., Sp. Pl. 795 (1753)**

- AB 83 – Szczecin Zdroje (CELIŃSKI 1964), railway areas, leg. Celiński F. 1961 (POZ).
AB 84 – between Dąbie and Zdroje near Szczecin (CELIŃSKI 1964), railway track, leg. Celiński F. 1961 (POZ).
AB 93 – Szczecin Podjuchy (CELIŃSKI 1964), leg. Celiński F. 1961 (POZ), species determination is uncertain.
AB 94 – Kołowo near Szczecin (CELIŃSKI 1964).
AD 65 – Lubsko, railway embankment, leg. Lisowski S. 1961 (POZ).
BC 89 – Murowana Goślina (LATOWSKI 1977), railway track.
BD 08 – Poznań (RITSCHL 1850 according to Holzschuher), roadside at Magazynowa Street; the author puts a question mark at this species.
BD 09 – Poznań Franowo (RUDNICKA 1963), railway track, leg. Żukowski W. 1963 (POZ).
BD 09 – Swarzędz (LATOWSKI 1977), between railway tracks
BD 11 – Zbąszynek (LATOWSKI 1977), railway areas.
BE 58 – Lubomierz (MEYER 1936), debris at protestant cemetery, Buchs 1935 (WRSL).
BE 75 – Świdnica (WIMMER 1841), suburbs of the city.
CD 00 – Paczkowo (LATOWSKI 1977), dispatch loading platform.
CD 04 – Witkowo (LATOWSKI 1977), shunting area.
CD 21 – Środa Wielkopolska (LATOWSKI 1977), railway siding, leg. Latowski K. 1976 (POZ).
CE 85 – Brynica near Kup (FIEK 1881), leg. Schube Th. 1880 (WRSL)
CE 93 – Lewin Brzeski (WIMMER 1841), leg. Werneck.
CF 34 – Głogówek (UECHTRITZ 1880), in seminary garden, leg. Richter E. 1879 (WRSL).
DA 80 – Gdańsk Westerplatte and Wislouiście (ABROMEIT *et al.* 1903), leg. Klatt 1889.

***Lappula deflexa* (WAHLENB.) GARCKE, Fl. Nord-Mittel-Deutschl. ed. 6, 275 (1863)**

Synonyms: *Echinospermum deflexum* (WAHLENB.) LEHM.

BE 33 – Legnica (GERHARDT 1885).

Localities given by Fiek (1881) were situated on the present territory of Czech Republic.

***Lappula heteracantha* (LEDEB.) GÜRKE, Nat. Pflanzenfam. 3a: 107 (1893)**

Synonyms: *Lappula sguarrosa* subsp. *heteracantha* (LEDEB.) CHATER.

EC 53 – Ciechanów near Warszawa (PANCER-KOTEJOWA 1963), leg. Majchrowski W. 1884 (WA).

***Lappula patula* (LEHM.) ASCH., Nat. Pflanzenfam. 3a: 107 (1893)**

Synonyms: *Lappula marginata* (BIEB.) GÜRCKE.

BE 48 – Wrocław (SCHALOW 1932), western goods station.

DA 80 – Gdańsk Westerplatte (ABROMEIT *et al.* 1903), ballast soil bingstead in the port, leg. Lützow C. 1884.

***Lathyrus cicera* L., Sp. Pl. 730 (1753)**

BE 48 – Wrocław (MEYER 1936), river port, dumping ground near mill, leg. Schalow E. 1935.

***Lathyrus inconspicuus* L., Sp. Pl. 730 (1753)**

AB 83 – Szczecin (SCHEUERMANN 1956), dumping ground at Gdańska Street, in 1939.

***Lathyrus ochrus* (L.) DC., Fl. Fr. ed. 3, 4: 578 (1805)**

BE 48 – Wrocław (MEYER 1936), river port, dumping ground near mill, leg. Schalow E. 1935.

***Lathyrus sativus* L., Sp. Pl. 730 (1753)**

CA 89 – Gdańsk Oliwa, Botanical Garden, leg. Lützow 1893 (TRN).

***Legousia hybrida* (L.) DELARBRE, *Fl. Auvergne* ed. 2, 47 (1800)**

Synonyms: *Specularia hybrida* (L.) A. DC.

BE 49 – Wrocław (MEYER 1936), close to “Grossmarkthalle” market hall.

***Legousia speculum-veneris* (L.) CHAIX, *Villars, Hist. pl. Dauphiné* 1: 338 (1786)**

Synonyms: *Specularia speculum-veneris* (L.) A. DC.

AD 63 – Brody (DECKER 1912), in the garden, *leg. Clemen* 1860.

BE 48 – Wrocław (MEYER 1935), western goods station.

BE 75 – Boleścín near Świdnica (MATTUSCHKA 1776).

BE 85 – Burkatów (FIEK 1881).

CA 70 – Słupsk (OTTE 1933), within corn field; (HOLZFUSS 1936, 1937), close to corn house, *leg. Otte* 1931; brought as a weed in the garden, *leg. Otte* 1934 (SLTC).

CA 89 – Gdańsk Oliwa, cultivated field, *leg. Litzow C.* 1879 (TRN).

DF 69 – Kraków (GUZIK 2006), wastelands in the neighbourhood of grain processing plant.

EB 85 – Szymanki near Szczytno (ABROMEIT et al. 1903), within corn field, *leg. Karlewski* 1886.

ED 16 – Warszawa Białoleka (SUDNIK-WÓJCIKOWSKA, GUZIK 1998), siding at the mill.

ED 36 – Warszawa Piaseczno Iwiczna (SUDNIK-WÓJCIKOWSKA, GUZIK 1998), siding at the mill.

***Lepidium heterophyllum* BENTH., *Cat. Pl. Pyr. Bas.-Languedoc.* 95 (1826)**

BE 60 – Jelenia Góra “Kavalierberg” (SCHALOW 1932), lawn.

CE 00 – Milicz (SCHALOW 1933), lawn in the park, *leg. Schoepke* 1932 (WRSL).

***Lepidium latifolium* L., *Sp. Pl.* 644 (1753)**

AB 22 – Świnoujście (MÜLLER 1904; LEICK 1926), base of the quay reinforcing the mouth of Świna river.

AB 83 – Szczecin, nitrophile space at the fence in the yard at Piesza Street, *leg. Ziarnek M.* 2002 (POZ).

BE 13 – Lubin (ANIOL-KWIATKOWSKA 1974), Kolejowa Street.

BE 29 – Otmuchów (FIEK 1881; SCHUBE 1903b), “Schloßberg”.

BE 49 – Wrocław (ROSTAŃSKI K. 1960), dumping ground at Krzywoustego Street.

BD 08 – Poznań Górczyn (URBAŃSKI 1958), goods station, *leg. Żukowski W.* 1963 (POZ); railway station, *leg. Żukowski W.* 1970 (POZ).

BD 09 – Poznań Franowo (ŻUKOWSKI 1959), railway station, *leg. Żukowski W.* 1958 (POZ).

CC 93 – Gniezno (LATOWSKI 1977), border of railroad at freight forwarding place, *leg. Latowski K.* 1975 (POZ).

CD 27 – Konin (LATOWSKI 1977), behind cemetery in Morzysław, *leg. Adamiak H.* 1973 (POZ).

CE 95 – Opole (MICHALAK 1973), at railroad leading to the river port near Budowlanych Street.

CF 05 – Opole, debris near central railway station, *leg. Michalak S.* 1963 (OPOL); *leg. Michalak S.* 1970 (KRA).

CF 05 – Nowa Wieś Królewska near Opole (MICHALAK 1968, 1970), railway embankment and garbage dump.

CF 05 – Grudzice (MICHALAK 1973), garbage dump.

CF 11 – Nysa (MICHALAK 1976), garbage dump.

CF 36 – Kędzierzyn Koźle (MICHALAK 1973), between railway tracks.

DA 80 – Gdańsk Westerplatte (ABROMEIT et al. 1898), *leg. Bail* 1886; *leg. Plog* 1867, *leg. Klinggraeff sen.* 1868, *leg. Conwentz* 1871.

DD 76 – Łódź (SOWA 1967), debris near Narutowicza Street, *leg. Sowa R.* 1963 (LOD).

DD 76 – Łódź, Pomorska Street, devastated park, *leg. Sowa R.* 1996 (LOD).

DD 76 – Łódź, Telefoniczna Street, thicket on a former cemetery, *leg. Witosławski P.* 1985 (LOD).

DE 83 – Częstochowa Stradom (PIASECKI 1999), railway embankment, *leg. Piasecki W.* 1973 (LOD).

- DF 32** – Bytom (SENDEK 1973), railway station.
DF 35 – Dąbrowa Górnicza Strzemieszyce Południowe (SENDEK 1984), railway areas, *leg. Sendek A. 1974, det. Latowski K. (KTU, KRA).*
DF 35 – Dąbrowa Górnicza-Strzemieszyce Wielkie, at the fence at Narutowicza Street, *leg. Wąsowicz P. 2005 (KTU).*
DF 35 – Dąbrowa Górnicza-Strzemieszyce (NOWAK 1997), railway areas, *leg. Nowak T. 1993, det. Latowski K. 2004 (KTU).*
DF 42 – Katowice, roadside, *leg. Chmura D. 1992, det. Latowski K. 2004 (KTU).*
DF 42 – Katowice Ligota, on railway overbridge, *leg. Rostański K. 1988, det. Latowski K. 2004 (KTU).*
ED 15 – Łomianki near Warszawy (KOBENDZA 1950).
ED 16 – Warszawa (WRÓBLEWSKA 1964), railway embankment near Stalingradzka (Jagiellońska) Street, *leg. Wróblewska D. 1962 (WA).*
EF 70 – Bieżanów near Wieliczka, *leg. Krupa? (KRA).*
FD 20 – Mińsk Mazowiecki (ĆWIKLIŃSKI 1984–1985), railway station.
FD 25 – Siedlce (GŁOWACKI 1984), garbage dump close to overbridge and fence adjacent space in Dzielnica Fabryczna (Factory Quarter).
FE 28 – Lublin Majdan Tatarski (ŚWIĘS, WRZESIEŃ 2003), railway station.
GC 10 – Białystok (WOŁKOWYCKI 1999), Hetmańska Street and Popiełuszki Street, roadsides.

Lepidium perfoliatum L., Sp. Pl. 643 (1753).

- AB 83** – Szczecin Kiełpinica – at present Łękno (HOLZFUSS 1937), close to a windmill, observed in 1901.
AD 48 – Czerwieńsk (ĆWIKLIŃSKI 1972), railway track.
AD 59 – Zielona Góra (ĆWIKLIŃSKI 1972), railway siding.
BC 72 – Międzychód Letnisko (LATOWSKI 1977), railway siding close to store houses, *leg. Latowski K. 1975 (POZ).*
BE 21 – Chojnów (SCHUBE 1904), railway station, *leg. Schikora 1886 (WRSL).*
BE 48 – Wrocław Popowice, heap of rubble, *leg. Meyer K. 1931 (WRSL).*
BE 48 – Wrocław, city port, *leg. Meyer K. 1939 (WRSL).*
BE 49 – Wrocław Nadodrże (FIEK 1881), wasteland near railway station, *leg. Preiser 1877 (WRSL).*
BE 49 – Wrocław Biskupin (SCHALOW 1931), *leg. Schalow 1930 (WRSL).*
BE 59 – Wrocław Krzyki, heap of rubble, *leg. Tchielscher 1938 (WRSL).*
BE 96 – Dzierżonów (SCHUBE 1903b, 1904a), *leg. Schumann 1876 (WRSL).*
CE 72 – Brzeg (SCHUBE 1903), *leg. Nietzsche 1876 (WRSL).*
CE 95 – Czarnowąsy near Opole (SERWATKA 1965), wasteland on a pool close to buildings.
CE 95 – Opole (MICHALAK 1968, 1970), debris in river port close to grain elevator, *leg. Michalak 1965 (OPOL).* The locality was kept up to 1966; wastelands in the port (SZOTKOWSKI 1988).
CF 05 – Opole (MEYER 1932), eastern railway station, *leg. Schubert 1927.*
CF 15 – Gogolin (MICHALAK 1981b), (OPOL)
CF 16 – Kamień Śląski (MICHALAK 1976), railway areas.
CF 67 – Racibórz (MICHALAK 1976), railway areas.
DA 80 – Gdańsk (SCHWARZ 1967), wasteland in the port, *leg. Schwarz Z. 1962 (GDMA).*
DA 90 – Gdańsk Olszynka (SCHWARZ 1967), Motława River bank, *leg. Bieradzka 1962 (GDMA).*
DD 75 – Łódź Karolew (SOWA 1962), near freight-waggon wash unit, *leg. Sowa R. 1961 (LOD).*
DD 85 – Łódź Rokicie (SOWA 1962), debris close to Janina Street, *leg. Sowa R. 1961 (LOD).*
DF 69 – Kraków Bonarka (ŚWIEBODA 1969), dumping ground close to Gwardii Ludowej Street.
ED 27 – Warszawa (CYBULSKI 1895), railway areas.
FE 37 – Lublin (FIJAŁKOWSKI 1960), railway station.
FE 28 – Lublin Zadębie (ŚWIĘS, WRZESIEŃ 2003), railway track embankment.

Linaria chalepensis (L.) MILL., Gard. Dict. ed. 8, 12 (1768)

- 142** **BE 49** – Wrocław (MEYER 1936), close to “Grossmarkthalle” market hall, *leg. Meyer K. 1935 (WRSL).*

Linaria saxatilis (L.) CHAZ., *Dict. Jard., Suppl.* 2: 39 (1790)

BE 33 – Legnica (FIEK 1881).

DF 31 – Zabrze (UECHTRITZ 1865), abandoned sandy field, *leg. Nagel* 1864.

Linaria simplex (WILLD.) DC., *Fl. Fr.* ed. 3, 3: 588 (1805)

DA 80 – Gdańsk Westerplatte (SCHWARZ 1967), *leg. Lange* 1889.

Lolium rigidum GAUDIN, *Agrost. Helv.* 1: 334 (1811)

AB 83 – Szczecin (SCHEUERMANN 1956), goods station, *leg. Wangrin G.* 1943.

AD 43 – Gubin (LADEMANN 1937).

BE 48 – Wrocław Wojszyce (SCHALOW 1932), Braniborska Street, garbage dump.

BE 49 – Wrocław (SCHALOW 1933), yard close to exotic fruit store at Tęczowa Street.

Lolium subulatum VIS., *Fl. Dalm.* 1: 90 (1842)

Synonyms: *Lolium loliaceum* (BORY ET CHAMB.) HAND. MAZZ.

BE 48 – Wrocław (MEYER 1932, 1933; SCHALOW 1932), western goods station.

BE 49 – Wrocław (MEYER 1935), close to “Grossmarkthalle” market hall.

Lythrum junceum BANKS & SOL., *Nat. Hist. Aleppo* ed. 2, 2: 253 (1794)

Synonyms: *Lythrum meonanthum* LINK.

AD 43 – Gubin (LADEMANN 1937), heap of rubble.

BE 48 – Wrocław (MEYER 1936), goods station, (Olf Koepeke & Co. railway track).

BE 59 – Wrocław (SCHUBE 1927), Borowska Street, heap of rubble.

Malcolmia maritima (L.) R. BR., *Hortus Kew.*, ed. 2, 4: 121 (1812)

AB 83 – Szczecin (SCHEUERMANN 1956), dumping ground at Gdańska Street *leg. Wangrin G.* 1936 and 1939; Bazarowa Street, in 1938.

AE 58 – near Lubomierz (SCHALOW 1934).

BE 84 – Dziećmorowice near Wałbrzych (SCHUBE 1903).

CF 00 – Sarby near Strzelin (SCHUBE 1903), in 1895.

DA 80 – Brzeźno (PREUSS 1928).

FD 20 – Mińsk Mazowiecki (ĆWIKLIŃSKI, BARTNIK 1990).

GE 32 – Rejowiec (WRZESIEŃ 2007), between railway tracks near railway station.

Malva nicaeensis ALL., *Fl. Pedem.* 2: 40 (1785)

AD 43 – Gubin (LADEMANN 1937), garbage dump.

AD 64 – Jasienica Gubińska (LADEMANN 1937).

Malva parviflora L., *Demonstr. Pl.* 18 (1753)

AB 73 – Szczecin (HOLZFUSS 1941), garbage dump.

BE 58 – Wrocław (SCHUBE 1930), Wzgórze Skarbowców “Kinderzobten”.

BE 59 – Wrocław Wojszyce (SCHUBE 1930), *leg. Schalow* 1929.

BE 59 – Wrocław Rakowiec (SCHALOW 1935), garbage dump.

EF 60 – Kraków Płaszów (TRZCIŃSKA-TACIK 1979), dumping ground near Przewóz Street.

Malvastrum peruvianum (L.) A. GRAY, C. Wilkes, *U.S. Expl. Exped., Phan.* 15: 146 (1854)

AB 73 – Szczecin (HOLZFUSS 1941), dumping ground at Tama Pomorzańska Street, *leg. Blom C.*

Marrubium peregrinum L., *Sp. Pl.* 582 (1753)

AD 73 – Zasieki near Lubsko, ruderal habitat, *leg. Koziol E., det. Pender K.* 1972 (TRN).

CE 95 – Opole (MICHALAK 1968), wasteland close to Niemodlińska Street.

FE 13 – Puławy (FIJAŁKOWSKI 1994, 1995), railway station.

FE 37 – Lublin (FIJAŁKOWSKI 1994, 1995), railway station.

Martynia proboscidea GLOXIN., *Observationes Botanicae*: 14 (1777)

CE 60 – Marszowice near Wrocław (SCHUBE 1919), beet cultivation.

Medicago aculeata GAERTN., *Fruct. Sem. Pl.* 2: 349 (1791)

BE 48 – Wrocław (MEYER 1932), western goods station, *leg. Meyer K.* 1931 (WRSL).

Medicago arabica (L.) HUDS., *Fl. Angl.* 288 (1762)

AB 63 – Szczecin Police (HOLZFUSS 1937), *leg. Rusch.*

AB 73 – Szczecin Żelechowa (HOLZFUSS 1937).

AD 58 – Zielona Góra (UECHTRITZ 1880), at riding school and on railroad close to goods shipment space at S. Batorego Street, *leg. Hellwig Th.* 1879.

AD 58 – Olszynka near Zielona Góra (SCHUBE 1903), wastelands at textile factory, *leg. Hellwig Th.* 1903.

AD 65 – Lubsko (DECKER 1912), garbage dump, *leg. Bradtke.*

AE 38 – Świdnica Kraszowice (FIEK 1881).

AE 57 – Gryfów Śląski, clover cultivation, *leg. Fiek E.* 1899 (WRSL).

BE 41 – Jerzmanowice Zdrój near Złotoryja (SCHUBE 1914), railway station, *leg. Knappe* 1913.

BE 80 – Kowary (MEYER 1936), wastelands at carpet factory.

BE 48 – Wrocław (MEYER 1936, 1937), river port, wastelands close to a mill, *leg. Schalow E.* 1935.

CF 32 – Prudnik (MICHALAK 1976), wastelands and garbage dumps near “Zakłady Włókiennicze” (Textile Plant), *leg. Michalak* 1973.

CF 34 – Głogówek (SCHUBE 1930), in the garden, *leg. Urban* 1929 (WRSL).

DA 80 – Gdańsk Westerplatte (ABROMEIT *et al.* 1889), ballast heaps, *leg. Helm* 1881,

DD 75 – Łódź Zdrowie (SOWA 1962), wastelands close to Botanical Garden, *leg. Sowa R.* 1961 (LOD).

DD 85 – Łódź Rokicie (SOWA 1962), garbage dump near railway track, *leg. Sowa R.* 1961 (LOD).

Medicago caerulea LESS. EX LEDEB., *Fl. Ross.* 1: 526 (1843)

Synonyms: *Medicago sativa* L. subsp. *caerulea* (LESS. EX. LEDEB.) SCHMALH., *Fl. Sred. Już. Ross.* 1: 226 (1895).

FD 92 – Dęblin (GŁOWACKI 1998), railway station.

Medicago intertexta (L.) MILL., *Gard. Dict.* ed. 8, no. 4 (1768)

Synonyms: *Medicago polymorpha* var. *intertexta* L.

BF 36 – Bystrzyca Kłodzka (FIEK 1881), suburbs of the city, *leg. Tappert* 1864.

Medicago polymorpha L., *Sp. Pl.* 779 (1753)

Synonyms: *Medicago denticulata* WILLD., *Medicago hispida* GAERTN.

AD 43 – Gubin (LADEMANN 1937), garbage dump, *leg. Lademann* 1932.

AD 58 – Zielona Góra (UECHTRITZ 1880; SCHUBE 1903), garbage dump near riding school at S. Batorego Street, *leg. Hellwig Th.* 1879 (WRSL).

AD 58 – Zielona Góra Olszynka (SCHUBE 1904)

AD 58 – Zielona Góra (SCHALOW 1932), railway embankment, *leg. Schmidt* 1931.

AD 58 – Zielona Góra, railway embankment near S. Batorego Street, *leg. Schmidt* 1909 (WRSL).

AD 59 – Zielona Góra, garbage dump at Jagodowa Street, *leg. Hellwig Th.* 1892 (WRSL).

AD 65 – Lubsko (DECKER 1912), yard of a factory.

AD 98 – Prószków (SCHUBE 1925), *leg. Scheuermann* 1923 (WRSL).

AE 35 – Zgorzelec (FIEK 1881), *leg. Bänitz* 1861.

- AE 35** – Zgorzelec (SCHUBE 1903), wasteland at textile factory, in 1886.
BD 08 – Poznań (SZULCZEWSKI 1951; JACKOWIAK 1993) near Urbanów, *leg. Pfuhl F.* 1883.
BE 41 – Jerzmanowice Zdrój near Złotoryja (SCHUBE 1914), railway station, *leg. Knappe* 1913 (WRSL).
BE 48 – Wrocław (MEYER 1931), western goods station, *leg. Schalow E.* and Meyer K. 1930–1932 (WRSL).
BE 48 – Wrocław (MEYER 1936), river port, wastelands close to a mill, *leg. Schalow E.* 1935 and 1936 (WRSL).
BE 48 – Wrocław (MEYER 1936), exotic fruit loading and unloading yard, *leg. Meyer K.* 1935 (WRSL).
BE 48 – Wrocław (MEYER 1933), western goods station, in 1932. The species was classified as a *Medicago polymorpha* var. *confinis* (KÖCH) BURN.
BE 49 – Wrocław (UECHTRITZ 1878; FIEK 1881).
CC 26 – Bydgoszcz Fordon (BOCK 1908).
CF 09 – Zawadzkie (MICHALAK 1981b), garbage dump, *leg. Michalak S.* 1973.
CF 17 – Strzelce Opolskie (MICHALAK 1981b), *leg. Michalak S.* 1974.
DA 80 – Gdańsk Westerplatte (PREUSS 1928), ballast heaps, *leg. Klinsmann* 1827.
DD 75 – Łódź Zdrowie (SOWA 1962), wastelands close to Botanical Garden, *leg. Sowa R.* 1961 (LOD).
DD 85 – Łódź Rokicie (SOWA 1962), garbage dump, near railway track, *leg. Sowa R.* 1961 (LOD).
DD 85 – Łódź Rokicie (SOWA 1968b), wool waste dump close to Jasień river near railroad, *leg. Sowa R.* 1965 (LOD).
DD 75 – Srebrna (SOWA 1971), rubble and waste material dump, *leg. Sowa R.* 1964 (LOD).
DD 65 – Zgierz (SOWA 1971), heap of rubbles near Łąkowa Street, Piątkowska Street and Nowotki Street, *leg. Sowa* 1965 (LOD).
DD 85 – Łódź Rokicie, Janiny Street, roadside, *leg. Sowa R.* 1967 (LOD).
DD 77 – Łódź, dumping ground near Nowosolna Street, *leg. Witostawski P.* 2000 (LOD).
FE 13 – Puławy (FIJAŁKOWSKI 1978), railway areas.
 The species reported generally from Wrocław (UECHTRITZ 1879), *leg. Uechtritz R.* 1878 (WRSL).

***Medicago praecox* DC., *Cat. Pl. Horti. Monsp.* 123 (1813)**

- BE 58** – Wrocław (SCHUBE 1930), Wzgórze Skarbowców “Kinderzobten”, heap of rubble, *Meyer K.* 1929 (WRSL).

***Medicago rigidula* (L.) ALL., *Fl. Pedem.* 1: 316 (1785)**

- BE 48** – Wrocław (SCHALOW 1931; MEYER 1932), western goods station, *leg. Meyer K.* 1931 (WRSL).
BE 49 – Wrocław (MEYER 1936), city port, heap of rubble, *leg. Schalow E.* 1935 (WRSL).
DD 85 – Łódź Rokicie garbage dump, *leg. Sowa R., det. Jehlik V.* 1962 (LOD).

***Medicago scutellata* (L.) MILL., *The Gardeners Dictionary* 1768.**

Synonyms: *Medicago scutellata* ALL.

- BE 42** – Żarek (GERHARDT 1885), at present Lake Słup.
BE 48 – Wrocław (MEYER 1931), western goods station, *leg. Meyer K.* 1930 (WRSL).
BE 49 – Wrocław, city port, *leg. Schalow E.* 1938 (WRSL).
DF 30 – Gliwice, railway embankment, *leg. Dziatko* 1898 (OPOL).

***Melampyrum barbatum* WALDST. & KIT. EX WILLD., *Sp. Pl.* 3: 198 (1800)**

- BE 49** – Wrocław Psie Pole (FIEK 1881), *leg. Uechtritz* 1857.
DF 56 – between Młoszowa and Dulowa (JASIEWICZ, KORNAŚ 1958; JASIEWICZ 1963), southern slope of Kraków – Katowice highway near Dulowa railway station and on a wheat field. The species recognized as belonging to epocophytes (KORNAŚ 1968).

***Melilotus indicus* (L.) ALL., *Fl. Pedem.* 1: 308 (1785)**

Synonyms: *Melilotus parviflora* DESF.

- AB 73 – Szczecin Gołęcino (HOLZFUSS 1937), heap of rubble.
AB 73 – Szczecin Żelechowa (HOLZFUSS 1937), heap of rubble.
AB 83 – Szczecin (HOLZFUSS 1937), dumping ground at Gdańska Street and Tama Pomorzańska Street.
AB 83 – Szczecin (ĆWIKLIŃSKI 1970), garbage dump close to Inż. Wendy Street.
AD 43 – Gubin (LADEMANN 1937), on meadow, *det. Scheuermann R.*
BE 49 – Wrocław (SCHUBE 1927), near Krzywoustego Street, *leg. Schalow E.* 1926 (WRSL).
BE 58 – Wrocław (SCHUBE 1930), Wzgórze Skarbowców “Kinderzobten”, *leg. Meyer K.* 1929 (WRSL).
CF 05 – Opole (SCHUBE 1930), railway station, *leg. Schubert* 1929.
BE 59 – Wrocław Rakowiec (SCHALOW 1933), heap of rubble, *leg. Schalow E.* 1932 (WRSL).
CA 70 – Słupsk (HOLZFUSS 1936), wasteland close to Kaufmann & Sommerfeld Mill.
DF 69 – Kraków Prądnik Czerwony (TRZCIŃSKA-TACIK H. 1979), dumping ground near 29 Listopada Street, *leg. Trzcńska-Tacik H.* 1968.
BE 33 – Legnica (SCHALOW 1935), railway station “Kobyliner Bahnhof” *leg. Weimann* 1932 (WRSL).
BE 33 – Legnica, heap of rubble at Koskowicka Street, *leg. Weimann* 1933 (WRSL).
BE 48 – Wrocław, heap of rubble near “Körnerwiese”, *leg. Schalow E.* 1930 (WRSL).
BE 48 – Wrocław (MEYER 1933), western goods station, *leg. Meyer K.* 1931, 1932 (WRSL).
BE 49 – Wrocław Biskupin, heap of rubble, *leg. Schalow E.* 1934 (WRSL).
BE 49 – Wrocław, city port, *leg. Meyer K.* 1934; *leg. Schalow E.* 1939, 1940 (WRSL).
BE 49 – Wrocław Sołtysowice, *leg. Schalow E.* 1939 (WRSL).
BE 49 – Wrocław, heap of rubble at Międzyrzecka Street, *leg. Schalow E.* 1939 (WRSL).
BE 59 – Wrocław Wojszyce, heap of rubble, *leg. Schalow E.* 1936 (WRSL).
EF 52 – Proszowice (TRZCIŃSKA-TACIK 1967), Szreniawa Valley *leg. Trzcńska-Tacik H., Tacik T.* 1966 (KRA).
EF 60 – Kraków Płaszów (TRZCIŃSKA-TACIK 1967), dumping ground close to Przewóz Street, *leg. Trzcńska-Tacik H.* 1966 (KRA).

***Melilotus messanensis* (L.) ALL., *Flora Pedemontana* 1 (1785)**

Synonyms: *Melilotus siculus* (TURRA) A.K. JACKS.

- AD 43 – Gubin (LADEMANN 1937), dumping ground, *leg. Lademann* 1932, *det. Scheuermann.*
BE 48 – Wrocław (SCHALOW 1932), western goods station, *leg. Meyer K.* 1931 (WRSL); (MEYER 1936), railway track (Olf Koepeke & Co).
BE 48 – Wrocław Osobowice (SCHALOW 1932), railway areas.

***Melilotus sulcatus* DESF., *Fl. Atl.* 2: 193 (1799)**

- AB 83 – Szczecin (SCHEUERMANN 1956), goods station.
AD 43 – Gubin (LADEMANN 1937), *leg. Lademann* 1932.
BE 48 – Wrocław (MEYER 1931), western railway station, *leg. Meyer K.* 1930 (WRSL).
BE 48 – Wrocław (MEYER 1936), city port, near mill, *leg. Schalow E.* 1935.
BE 48 – Wrocław (MEYER 1935), close to “Grossmarkthalle” market hall.
BE 59 – Wrocław Brochów (SCHALOW 1932), eastern railway station, *leg. Meyer K.* 1931 (WRSL).

***Minuartia hybrida* (VILL.) SCHISCHK. IN KOMAROV, *Fl. URSS* 6: 488 (1936)**

Synonyms: *Alsine tenuifolia* (L.) HIERN, non NEES EX C.F.P. MART.

- AB 54 – Stepnica (MÜLLER 1898).
AB 65 – Goleniów (MÜLLER 1898).
AE 28 – Bolesławiec (WIMMER 1841).

- BC 99** – Poznań Umultowo (RITSCHL 1850), in freshly cut-over area (the species reported by Ritschl with a question mark).
BD 76 – Czernina Górna near Góra (WIMMER 1841).
BE 24 – Prochowice near Legnica (GERHARDT 1852).
BE 49 – Wrocław (SCHUBE 1903; GALERA 2003), brought as a weed in the Botanical Garden.
BE 27 – Rościśławice (WIMMER 1841).
CE 01 – Milicz (WIMMER 1841).
CF 16 – Kamień Śląski (WIMMER 1841; GRABOWSKI 1843), abandoned field, *leg. Grabowski*.

***Mirabilis hirsuta* (Pursh) MAC MILL, *Metasp. Minn. Vall.* 217 (1892)**

- BE 49** – Wrocław (SCHALOW 1937), city port.

***Moenchia erecta* (L.) GAERTN., *Fl. Wetter.* 1: 219 (1799)**

- CE 20** – Tarnowiec near Trzebnica (FIEK 1881).

***Moenchia mantica* (L.) BARTL., *Cat. Sem. Horti Gotting.* 5 (1839)**

Synonyms: *Cerastium manticum* W. ET K.

- AD 43** – Gubin (LADEMANN 1937), garbage dump, in 1929.
BE 49 – Wrocław (MEYER 1936), city port, *leg. Schalow E.* 1935.
DF 69 – Kraków (BESSER 1809), ruderal habitat, (RACIBORSKI 1884; TRZCIŃSKA-TACIK 1979).
DF 69 – near Bronowice Wielkie (BERDAU 1859), stony, dry hummocks.

***Myagrum perfoliatum* L., *Sp. Pl.* 640 (1753)**

- BE 48** – Wrocław (MEYER 1936), close to “Grossmarkthalle” market hall.
CD 52 – Jarocin (CZARNA 2005), between railway tracks near railway station.
CE 72 – Brzeg (MICHALAK 1981b).
CE 95 – Opole (MICHALAK 1968), river port and eastern railway station, *leg. Bialucha* 1942, *det. Schalow* 1942 (OPOL).
CE 95 – Opole Dzielnicza Kwiatów “Flowers Quarter” (MICHALAK 1970), *leg. Bialucha* 1942 (OPOL).
CE 95 – Opole (MICHALAK 1968), goods station.
CF 05 – Opole (MICHALAK 1970), central railway station.
DA 85 – Przebrno (MÜLLER 1935; SCHWARZ 1967), on gravel heap close to wharf.
DF 35 – Dąbrowa Górnicza Strzemieszycze Południowe (SENDEK 1984), railway track near railway station, *leg. Sendek A.* 1975 (KRA).
DF 40 – Gliwice, field close to Wrocławska Street, *leg. Działko* 1901 (OPOL).
DF 69 – Kraków (GUZIK 2006), wastelands in the neighbourhood of grain processing plant.
ED 16 – Warszawa Białoleka (SUDNIK-WÓJCIKOWSKA, GUZIK 1998), siding at the mill.
ED 36 – Warszawa Piaseczno-Iwiczna (SUDNIK-WÓJCIKOWSKA, GUZIK 1998), siding at the mill.

***Neslia apiculata* FISCH., C.A. MEY. & AVÉ-LALL., *Index Seminum* [St. Petersburg] 8: 68 (1841)**

Synonyms: *Neslia paniculata* (L.) DESV., subsp. *thracica* (VELEN) BORNM.

- DF 69** – Kraków (GUZIK 2006), wastelands in the neighbourhood of grain processing plant.

***Nonea lutea* (DESR.) DC., *Prodromus* 10 (1846)**

Synonyms: *N. uctea* RCHB.

- BE 49** – Wrocław (UECHTRITZ 1878), heaps of rubble naer Botanical Garden, *leg. Vogt L., det. Limpricht* 1977 (WRSL).
DF 69 – Kraków (KORNAŚ 1953–1954), fresh pavement of roundabout at Mogilska Street.

***Nonea rosea* (M. BIEB.) LINK, Enum. Hort. Berol. Alt. 1: 167 (1821)**

BE 60 – Jelenia Góra Strupice (SCHALOW 1935), on potato field near Grace Church, *leg. Schölzel* 1934. According to the author this species may be an “escaper” from the neighbouring cemetery?

***Oenothera indecora* CAMB., Fl. Bras. Mend. 2: 268 (1830)**

Synonyms: *Oenothera argentinæ* LEVEILLE ET THELL.

AB 83 – Szczecin (SCHEUERMANN 1956), dumping ground at Tama Pomorzańska Street, in 1939.

***Ornithopus compressus* L., Sp. Pl. 744 (1753)**

BE 48 – Wrocław (MEYER 1932), western goods station.

CA 38 – Miosroszyno near Puck (ABROMEIT *et al.* 1898), *leg. Treichel* 1878.

***Orobanche hederæ* DUBY, Bot. Gall. 1: 350 (1828)**

CF 04 – Prószków (SCHUBE 1903), “Akademischen Garten”.

***Orobanche lucorum* A. BRAUN, Ann. Gew. Regensb. 5: 500 (1830)**

BE 49 – Wrocław (SZCZEŚNIAK 2010), spontaneously in Botanical Garden, *leg. Szczęśniak E.* 2006 (WRO).

ED 26 – Warszawa (HALAMSKI 2005), spontaneously in Botanical Garden, *leg. Halamski A.* 1997.

***Oxalis tetraphylla* CAV., Icon. Descr. 3: 19 (1795)**

AE 58 – Lubomierz (SCHALOW 1934), heap of rubble.

BE 49 – Wrocław Psie Pole (SCHALOW 1934).

BE 58 – Wrocław (SCHUBE 1928), Wzgórze Skarbowów “Kinderzobten”.

***Panicum dichotomiflorum* MICHX., Fl. Bor. Amer. 1: 48 (1803)**

BE 49 – Wrocław Biskupin (SCHALOW 1938), garbage dump, *det. Schwallen I. R.*

BE 58 – Wrocław (SCHALOW 1931), Wzgórze Skarbowców “Kinderzobten”, garbage dump.

DF 40 – Gliwice Port, railroad close to port basins, *leg. Urbisz Al.* 2005, *det V. Jehlik* (KTU).

***Panicum implicatum* SCRIBN. EX BRITTON, III. Fl. U.S. Canad. 3: 498 (1898)**

Synonyms: *Panicum lanuginosum* ELL.

GF 51 – Nowa Grobla near Lubaczów (TRZCIŃSKA-TACIK 1988), sandy area between wooded bank of Lubaczówka river and a rye field, *leg. Trzcńska-Tacik H.* 1984 (KRA).

***Papaver hybridum* L., Sp. Pl. 506 (1753)**

BE 49 – Wrocław (SCHALOW 1935), yard close to tropical fruit store at Tęczowa Street.

***Parapholis incurva* (L.) C.E. HUBB., Blumea, Suppl. 3: 14 (1946)**

Synonyms: *Lepturus incurvatus* TRIN., *Pholiurus incurvatus* A.S. HITCHC.

BE 48 – Wrocław (MEYER 1932, 1933; SCHALOW 1933), western goods station, *leg. Meyer K.* 1931 (WRSL).

***Parietaria lusitanica* L., Sp. Pl. 1052 (1753)**

DA 80 – Gdańsk Westerplatte (HELM 1881; SCHWARZ 1967), ballast heaps.

***Parthenium hysterophorus* L., Sp. Pl. 2: 988 (1753)**

AB 83 – Szczecin (SCHEUERMANN 1956), dumping ground at Gdańska Street, *leg. Wangrin G.* 1938 and 1939.

***Paspalum racemosum* LAM., *Trans. Amer. Philos. Soc.* ser. 2, **5**: 145 (1835)**

Synonyms: *Panicum racemosum* SPR.

AD 43 – Gubin (LADEMANN 1937), garbage dump.

***Petrorhagia velutina* (GUSS.) P.W. BALL EX HEYWOOD, *Bull. Brit. Mus. (Nat. Hist.)*, Bot. **3**: 166 (1964)**

Synonyms: *Tunica velutina* (GUSS) FISCH. ET MEY.

AB 83 – Szczecin (SCHEUERMANN 1956), goods station, *leg. Wangrin G.* 1942.

***Phacelia congesta* HOOK, *Bot. Mag.* **62**: 3452 (1835)**

BE 47 – Skalka near Kąty Wrocławskie (SCHALOW 1934), roadside close to a mill, *leg. Schoepke* 1933.

***Phalaris angusta* NESS., *Fl. Bras. Enum. Pl.* **2(1)**: 391 (1829)**

AB 83 – Szczecin (HOLZFUSS 1941), dumping ground at Gdańska Street.

***Phalaris brachystachys* LINK, *Neues Jour. Bot.* **1(3)**: 134 (1806)**

BE 49 – Wrocław (MEYER 1933), western railway station.

BE 49 – Wrocław (SCHALOW 1932), yard close to tropical fruit store at Tęczowa Street.

***Phalaris canariensis* L., *Sp. Pl.* 54 (1753)**

AB 83 – Szczecin (ĆWIKLIŃSKI 1970), dumping ground at Tama Pomorzańska Street.

AB 83 – Szczecin Nowy Świat Świerczewo (ĆWIKLIŃSKI 1970), garbage dump.

AC 67 – Gorzów Wielkopolski (MISIEWICZ 1981), dumping ground at Śląska Street, *leg. Misiewicz* 1968.

AC 73 – Goryń near Kostrzyn (DECKER 1912), garbage dump.

AC 83 – Tama Górzycza (DECKER 1912).

AD 43 – Gubin (LADEMANN 1937), garbage dump.

AD 86 – Żary (LADEMANN 1937), garbage dump.

AE 29 – Bolesławiec (KWIATKOWSKI 2007), ruderal habitat.

AE 29 – Łaziska near Bolesławiec (KWIATKOWSKI 2007), ruderal habitat, probably escaping from cultivated.

BB 57 – Szczecinek (HOLZFUSS 1938), heap of rubble.

BB 57 – Szczecinek (ŻUKOWSKI 1960a), dumping ground at Mickiewicza Street.

BB 71 – Drawsko Pomorskie (HOLZFUSS 1938).

BC 27 – Piła (ŻUKOWSKI 1960a), railway station.

BC 17 – Piła (BOCK 1908), garbage dump.

BD 08 – Poznań Jeżyce (SZULCZEWSKI 1951), garbage dump.

BD 08 – Poznań Przepadek (KRAWIECOWA 1951), garbage dump, *leg. Krawiec* 1948.

BE 33 – Legnica (MEYER 1932).

BE 48 – Wrocław (MEYER 1931), western goods station.

BE 48 – Wrocław Osobowice (MEYER 1931), railway areas.

BE 49 – Wrocław (MEYER 1935), close to “Grossmarkthalle” market hall.

BE 49 – Wrocław (SCHALOW 1932), yard close to tropical fruit store at Tęczowa Street.

BE 48 – Wrocław (ROSTAŃSKI K. 1961), dumping ground at Długa Street.

BE 49 – Wrocław Nadodrze (MEYER 1931), railway areas.

BE 60 – Jelenia Góra (SCHUBE 1914), garbage dump.

BF 07 – Ząbkowice Śląskie (SCHUBE 1914), wastelands close to a mill.

CA 59 – Rzucewo near Gdańsk (SCHWARZ 1961), abandoned field.

CA 70 – Słupsk (BANNIER 1929), dumping grounds.

CA 70 – Słupsk (MISIEWICZ 1978), dumping ground at Bałtycka Street.

CD 04 – Witkowo near Gniezno (ŻUKOWSKI 1963), garbage dump near railway station, *leg.*

Żukowski W. 1961 (POZ).

- CD 76** – Kalisz, Polna Street, roadside, *leg. Kitt T.* 1980 (LOD).
- CB 84** – Ostrów Wielkopolski, Poznańska Street, *leg. Wika S.* 1973 (KTU).
- CD 94** – Ostrów Wielkopolski Nowa Krępa (WIKI 1975), sand mining excavation.
- CD 94** – Ostrów Wielkopolski (WIKI 1975), wastelands near Poznańska Street.
- CE 80** – Łojowice near Strzelin (SCHALOW 1934), a weed in flax cultivation.
- CE 90** – Wawrzyszów near Strzelin (SCHALOW 1934).
- CE 95** – Opole (SCHUBE 1929), near a plant producing lime (“kalkwerke”) *leg. Schubert* 1928.
- CE 95** – Opole, Oleska Street, *leg. Białucha* 1934; eastern railway station, *leg. Białucha* 1939 (OPOL).
- CE 95** – Półwieś (MICHALAK 1968), garbage dump.
- CE 95** – Opole Zakrzów (MICHALAK 1968), wastelands, river port.
- CE 95** – Opole, Sebastian’s Square (MICHALAK 1968).
- CE 95** – Opole (SZOTKOWSKI 1988), wasteland in river port close to grain elevator.
- CF 05** – Nowa Wieś Królewska (MICHALAK 1968), garbage dump.
- CF 17** – Strzelce Opolskie (MICHALAK 1976), dumping ground.
- CF 25** – Krapkowice (MICHALAK 1976), dumping ground.
- CF 34** – Głogówek (SZOTKOWSKI 1987), dumping ground, *leg. Szotkowski P.* 1974 (KTU).
- CF 49** – Sośnicowice, roadside, *leg. Migas H.* 2009 (KTU).
- CF 54** – Głubczyce (MICHALAK 1976).
- CF 68** – Rydułtowy (BERNACKI *et al.* 1994), dumping ground, *leg. Urbisz An.* 1994 (KTU).
- CF 69** – Rybnik Boguszowice, dumping ground, *leg. Urbisz An.* 1994 (KTU).
- CF 89** – Żabków near Skrzyszów (BERNACKI *et al.* 1994)
- CF 89** – Gólkowice near Godów (BERNACKI *et al.* 1994), wet meadow, *leg. Prudel K.* 1987 (KTU).
- DA 70** – Sopot, in the garden, *leg. Lützow* 1936 (TRN).
- DA 80** – Gdańsk, Stare Szkoty (SCHWARZ 1961), garbage dump.
- DA 80** – Gdańsk Wisłoujście (PREUSS 1910).
- DA 80** – Westerplatte, ballast heaps, *leg. Helm* 1881, *leg. Klinggraeff C.* 1866 (TRN).
- DA 80** – Gdańsk Ostrów (MISIEWICZ 1976), garbage dump.
- DD 24** – Krośnice near Kutno (SOWA 1967), debris on the road side near light railway track, *leg. Sowa R.* (LOD).
- DD 62** – Poddebice (SOWA 1967), small garbage dump close to excavations where limestone quarry used to be exploited, *leg. Sowa R.* 1965 (LOD).
- DD 75** – Łódź Zdrowie, garbage dumps close to Botanical Garden, *leg. Sowa R.* 1961 (LOD).
- DD 75** – Srebrna near Łódź, heap of rubble, *leg. Sowa R.* 1960 (LOD).
- DD 75** – Łódź Polesie (SOWA 1962), garbage dumps close to Botanical Garden, *leg. Sowa R.* 1961 (LOD).
- DD 75** – Łódź Żubardź (SOWA 1962), debris between Drewnowska Street and Lutomińska Street, *leg. Sowa R.* 1959 (LOD).
- DD 75** – Łódź Hellenówek (SOWA 1962), dumping ground, *leg. Sowa R.* 1960 (LOD).
- DD 78** – Brzeziny (SOWA 1968b), garbage dump on the edge of a pool near the Mroga river, *leg. Sowa R.* 1966 (LOD).
- DD 85** – Pabianice (SOWA 1967), old heap of rubble near 7 Listopada Street, *leg. Sowa R.* 1965 (LOD).
- DD 85** – Łódź Rokicie (SOWA 1962), rubble heap and dumping ground near railway track, *leg. Sowa R.* 1961 (LOD).
- DD 86** – Łódź Chojny (SOWA 1962), debris near railway track, *leg. Sowa R.* 1960 (LOD).
- DE 83** – Częstochowa Ostatni Grosz (PIASECKI 1999), debris, *leg. Piasecki W.* 1973 (LOD).
- DE 84** – Częstochowa Złota Góra (PIASECKI 1999), rubble heap in the quarry, *leg. Piasecki W.* 1973 (LOD).
- DF 16** – Zawiercie, dumping ground, *leg. Piedo A.* 1994 (KTU).
- DF 21** – Łubie Górne (TOKARSKA-GUZIK 1997), a weed in cultivation, *leg. Buchta B., Jędrzejko K.* 1973 (KTU).

- DF 30** – Gliwice (SZOTKOWSKI 1988), river port, railway areas.
- DF 30** – Pyskowice (MICHALAK, SENDEK 1974–1975).
- DF 31** – Zabrze Maciejów (TOKARSKA-GUZIŁ 1997), wastelands close to Srebrna Street, *leg. Sendek A. 1972 (KRA)*; second specimen collected by *Rostański K. 1973 (KTU)*.
- DF 32** – Bytom (KOBIEŃSKI 1974), dumping ground, *leg. Bętkowski 1956 (MGS)*.
- DF 32** – Bytom Chruszczów (TOKARSKA-GUZIŁ 1997), abandoned field near Godulska Street, *leg. Sendek A. 1974 (KTU)*.
- DF 32** – Bytom Łagiewniki (TOKARSKA-GUZIŁ 1997), dumping ground, *leg. Sendek A. 1974 (KTU)*.
- DF 32** – Bytom Rozbark (TOKARSKA-GUZIŁ 1997), dumping ground, *leg. Homel J. 1983 (KTU)*.
- DF 32** – Chorzów Stary (TOKARSKA-GUZIŁ 1997), debris close to Główna Street, *leg. Sendek A. 1976 (KTU)*.
- DF 33** – Siemianowice Śląskie, brought as a weed in the garden, *leg. Sendek A. 1966 (KRA)*.
- DF 33** – Siemianowice Michałkowice (TOKARSKA-GUZIŁ 1997), *leg. Sendek A. 1976 (KTU)*.
- DF 34** – Będzin (TOKARSKA-GUZIŁ 1997), abandoned field, *leg. Sendek A. 1973 (KTU)*.
- DF 42** – Katowice, Panewnik Stary (TOKARSKA-GUZIŁ 1997), *leg. Boldys M. 1977 (KTU)*.
- DF 42** – Katowice, Mieszka I Street, roadside, *leg. Urbisz Al. 2010 (KTU)*.
- DF 42** – Ruda Śląska: Kochłowice, Tunkla Street, *leg. Michalska M. 2003 (KTU)*.
- DF 43** – Katowice, center, roadside, *leg. Sendek A. 1972 (KTU)*.
- DF 43** – Katowice, roadside near “Rondo”, *leg. Urbisz Al. 2006 (KTU)*.
- DF 44** – Sosnowiec Niwka (SOWA, WÓCIK-CHROBOK 1969), garbage dump.
- DF 45** – Jaworzno Szczakowa-Gródek (TOKARSKA-GUZIŁ 1997), dumping ground, *leg. Tokarska-Guzik B. 1989 (KTU)*.
- DF 45** – Jaworzno Ciężkowice, dumping ground, *leg. Rostański A. 1996 (KTU)*.
- DF 54** – Jaworzno Szczakowa (TOKARSKA-GUZIŁ 1999), dumping ground.
- DF 55** – Jaworzno-Jeziorki (TOKARSKA-GUZIŁ 1997), dumping ground, *leg. Tokarska-Guzik B. 1989 (KTU)*.
- DF 61** – Podlesie near Suszec (TOKARSKA-GUZIŁ 1997), roadside, *leg. Szendera W. 1987 (KTU)*.
- DF 62** – Tychy (Sendek, Wika 1978–1979), dumping ground close to Katowicka Street, *leg. Wika S. (KTU)*.
- DF 69** – Kraków Stare Miasto (TRZCIŃSKA-TACIK 1979), near Reformacka Street.
- DF 69** – Kraków Prądnik Czerwony (TRZCIŃSKA-TACIK 1979), dumping ground at 29 Listopada Street.
- DF 69** – Kraków Zakrzówek (TRZCIŃSKA-TACIK 1979), dumping ground at Kobierzyńska Street.
- DF 69** – Kraków Zwierzyniec (TRZCIŃSKA-TACIK 1979), dumping ground at Prince Józef Street.
- DF 72** – Pszczyzna (TOKARSKA-GUZIŁ 1997), *leg. Tokarska-Guzik B. 1996 (KTU)*.
- DF 96** – Mucharz near Jaszczurowa, roadside, *leg. Stebel A.M., Stebel A. 1994 (KTU)*.
- DG 00** – Cieszyn, Stawowa Street, roadside, *leg. Mróz R. 1998 (KTU)*.
- DG 59** – Zakopane (MIREK, PIĘKOŚ-MIREK 1987), on a rubble-covered square near a block of flats between Sienkiewicza Street and Jagiellońska Street.
- ED 16** – Warszawa Pelcowizna (WRÓBLEWSKA 1964), debris close to Vistula river.
- ED 24** – Płochocin Ożarów Mazowiecki (NOWAK 1983), *leg. Andrearczyk 1963 (WA)*.
- ED 25** – Babice near Warszawa (NOWAK 1983).
- ED 27** – Warszawa Siekierki (WRÓBLEWSKA 1964), Daktyłowa Street, roadside.
- ED 35** – Michałowice Wieś near Warszawa (NOWAK 1983).
- EE 74** – Kielce (MACIEJZAK 1988), neglected lawn at Rewolucji Październikowej Street.
- EF 08** – Staszów, at the road to Opatów, *leg.? 1973 (KRA)*.
- EF 42** – between Ostrowiec and Kadzice (Proszowice Plateau), *leg. Towpasz K. 1996 (KRA)*.
- EF 76** – Mościce (WAYDA 1996), small numbers on wasteland near Zakłady Azotowe.
- EG 01** – Dobra, on Łososina river (Beskid Wyspowy), *leg. Towpasz K. 1967 (KRA)*.
- EG 08** – Gorlice (ZAJĄC E.U, MAKOWIEC 1992), wastelands.
- FC 25** – Siedlce (GŁOWACKI 1984), garbage dump.
- FE 04** – Puławy Kępa, *leg. Olaczek R. 1960 (LOD)*.

- FE 23** – Kazimierz Dolny (FIJAŁKOWSKI 1994, 1995), ruderal habitats.
FE 27 – Lublin, Przemysłowa Street, garbage dump, *leg. Fijałkowski D.* 1962 (KRA).
FE 35 – Bełżyca (FIJAŁKOWSKI 1994, 1995), ruderal habitats.
FF 61 – Ropczyce (Pogórze Strzyżowskie), *leg. Towpasz K.* 1976 (KRA).
FG 00 – Dębowiec near Jasło, embankment dam, *leg. Pykosz M.* 1949 (LOD).

***Phalaris coerulescens* DESF., *Fl. Atl.* 1: 56 (1798)**

- AD 43** – Gubin (LADEMANN 1937), garbage dump.
BE 48 – Wrocław (MEYER 1931), western goods station.
BE 49 – Wrocław (MEYER 1933, 1935), close to “Grossmarkthalle” market hall.

***Phalaris minor* RETZ., *Obs. Bot.* 3: 8 (1783)**

- BE 48** – Wrocław (MEYER 1931), western goods station.
BE 49 – Wrocław (SCHALOW 1932), yard close to tropical fruit store at Tęczowa Street.
BE 49 – Wrocław (MEYER 1933, 1935), close to “Grossmarkthalle” market hall.

***Phalaris paradoxa* L., *Sp. Pl.* ed. 2, 1665 (1763)**

- AB 83** – Szczecin (SCHEUERMANN 1956), goods station, in 1942.
BE 33 – Legnica (SCHALOW 1933, 1934), Koskowicka Street, heap of rubble, *leg. Weimann* 1932; (Schalow 1934), goods station, *leg. Thielscher* 1933.
BE 48 – Wrocław (MEYER 1931, 1933, 1936), western goods station (Olf Koepeke & Co. railway track)
BE 49 – Wrocław (SCHALOW 1932), yard close to tropical fruit store at Tęczowa Street.
BE 49 – Wrocław (SCHALOW 1934), heap of rubble.
DD 75 – Łódź Rokicie (SOWA 1968b), rubble and waste material dump, *leg. Sowa R., det. Jehlik V.* 1965 (LOD). The species classified as *Phalaris paradoxa* var. *praemorsa*.
DF 34 – Sosnowiec-Środula (SOWA, WÓJCIK-CHROBOK 1969), wastelands and garbage dumps near Sosnowieckie Zakłady Przemysłu Welnianego (Textile Plant) in 1967.

***Phalaris truncata* GUSS. EX BERTOL., *Fl. Ital.* 2: 777 (1836)**

- BE 48** – Wrocław (MEYER 1931), western goods station.

***Phleum arenarium* L., *Sp. Pl.* 60 (1753)**

- AB 21** – Świnoujście (ZIARNEK, FREY 2000), at Uzdrowskowa Street, *leg. Ziarnek K.* 1998 *det. Frey L.*
DA 80 – Gdańsk Składy, port areas, *leg. Conwentz* 1871 (TRN).
DA 80 – Gdańsk Westerplatte (ABROMEIT *et al.* 1898; PREUSS 1910), *leg. Baenitz* 1873, wasteland in port, *leg. Baenitz* 1876 (TRN).

***Phleum subulatum* (SAVI) ASCH. & GRAEBN., *Syn. Mitteleur. Fl.* 2(1): 154 (1899)**

- BE 48** – Wrocław (MEYER 1936), close to “Grossmarkthalle” market hall.

***Phoenix dactylifera* L., *Sp. Pl.* 1188 (1753)**

- AB 83** – Szczecin (HOLZFUSS 1941; SCHEUERMANN 1956), dumping ground at Gdańska Street and Tama Pomorzańska Street (seedlings).
BE 49 – Wrocław (MEYER 1932), river port (seedling).
DD 85 – Łódź Lublinek (WITOSŁAWSKI 1996), a seedling on landfill for sediments from mechanical sewage treatment plant.

***Pholiurus pannonicus* (HOST) TRIN., *Fund. Agrost.* 132 (1820)**

Synonyms: *Lepturus pannonicus* (HOST) KUNTH.

- BE 48** – Wrocław (MEYER 1931), western goods station *det. Scheuermann* with the remark that the species can easily be mistaken for *Lepturus incurvatus* which is similar.

***Picris sprengeryana* (L.) POIR., *Encycl. Méth. Bot.* 5: 310 (1804)**

AD 43 – Gubin (LADEMANN 1937), garbage dump, *leg. Behr* 1929, *det. Pax*.

BE 33 – Legnica, debris near embankment close to Nepomucen Bridge, *leg. Friedrich J.* 1942 (WRSL).

***Plantago afra* L., *Sp. Pl.* ed. 2, 168 (1762)**

BE 48 – Wrocław (MEYER 1931), western goods station.

***Plantago altissima* L., *Sp. Pl.* ed. 2, 164 (1762)**

Synonyms: *Plantago lanceolata* subsp. *altissima* (L.) SIMK.

DA 80 – Gdańsk (ABROMEIT *et al.* 1926), Vistula bank, *leg. Klatt* 1832.

DB 52 – Kwidzyn (ABROMEIT *et al.* 1926), *leg. Büнау* 1893.

FB 45 – Ełk (ABROMEIT *et al.* 1926), *leg. Sanio C.* 1871 (TRN).

***Plantago lagopus* L., *Sp. Pl.* 114 (1753).**

AD 43 – Gubin (LADEMANN 1937).

BE 48 – Wrocław (MEYER 1932), western goods station.

BE 49 – Wrocław (MEYER 1935), close to “Grossmarkthalle” market hall.

***Plantago patagonica* JACQ., *Icon. Pl. Rar.* 2: 9, t. 306 (1786–1793)**

The species reported by Meyer 1936 as *P. patagonica* var. *aristata* A. GRAY.

BE 47 – Gałów near Wrocław (MEYER 1936), in red cabbage field.

BE 60 – Jelenia Góra (MEYER 1936), in the garden.

***Podospermum laciniatum* (L.) DC., *Fl. Franç.* 3, 4: 62 (1805)**

Synonyms: *Scorzonera laciniata* L.

AE 39 – Raciborowice (SCHNEIDER 1837).

CE 95 – Opole (SCHUBE 1929), railway areas.

FE 27 – Lublin (FIJAŁKOWSKI 1994; RUTKOWSKI 2004).

***Polycarpon tetraphyllum* (L.) L., *Syst. Nat.* ed. 10, 2: 881 (1759)**

BE 48 – Wrocław Mikołajów (WIMMER 1841), vegetable field.

BE 48 – Wrocław, *leg. Engler* 1869 (WRSL).

BE 59 – Wrocław Gaj (UECHTRITZ 1879), on stubble field.

CE 61 – Olawa (WIMMER 1841), vegetable field.

***Polygonum arenarium* WALDST. & KIT, *Pl. Rar. Hung.* 1: 69 (1801)**

BE 49 – Wrocław Kowale (SCHALOW 1931), garbage dump, *leg. Schalow E.* 1930

ED 27 – Warszawa Praga (CYBULSKI 1895), rubble heaps on the bank of the Vistula river near the park in Praga district.

***Polygonum bungeanum* TURCZ, *Bull. Soc. Imp. Naturalistes Moscou* 77 (1840)**

AB 73 – Szczecin Gołęcino (HOLZFUSS 1936).

AB 84 – Szczecin (HOLZFUSS 1936; SCHEUERMANN 1956), dumping ground at Tama Pomorzańska Street.

***Polygonum patulum* M. BIEB., *Fl. Taur.-Cauc.* 1: 304 (1808)**

A critical taxon from *Avicularia* section. Occasionally introduced along with food for birds on garbage dumps and on landfill for mill wastes.

AB 73 – Szczecin Gołęcino (HOLZFUSS 1937).

AD 43 – Gubin (LADEMANN 1937), garbage dump, in 1929.

BE 49 – Wrocław Biskupin (SCHALOW 1932), heap of rubble.

- BE 49** – Wrocław Różanka (SCHALOW 1931).
BE 49 – Wrocław (MAREK 1958), left bank of Stara Odra between the bridges Karłowicki and Szczytnicki.
BE 58 – Wrocław (SCHALOW 1931), waste dump near “Kornerwiese”.
BE 59 – Wrocław Wojszyce (SCHALOW 1931).
BE 59 – Wrocław Rakowiec (SCHALOW 1932), heap of rubble.
DD 44 – Błonie (MAŁAŁSKI 1954).

***Polypogon monspeliensis* (L.) DESF., *Fl. Atlant.* 1: 67 (1798)**

- AB 83** – Szczecin (SCHEUERMANN 1956), goods station, *leg. Wangrin G.* 1942.
AC 41 – Szczecin Żelechowa (HOLZFUSS 1937), *leg. Wellman* 1865.
AD 43 – Gubin (LADEMANN 1937), garbage dump, in 1929.
BE 33 – Legnica (SCHALOW 1933), garbage dump at Koskowicka Street, *leg. Weimann* 1932; (SCHALOW 1934), goods station, *leg. Thielscher* 1933.
BE 48 – Wrocław (MEYER 1931, 1933), western goods station (Olf Koepeke & Co. railway track).
BE 49 – Wrocław (MEYER 1934), close to “Grossmarkthalle” market hall.
BE 49 – Wrocław (SCHALOW 1933), garbage dump at Braniborska Street.
BE 49 – Wrocław (SCHALOW 1932), a yard at citrus fruit shop at Niemcewicza Street.
DA 80 – Gdańsk and Westerplatte (KLINGGRÄFF 1866; ABROMEIT 1940), ballast heaps, *leg. Helm* 1861, *leg. Klinggräff* 1861 (TRN).
DD 75 – Łódź Rokicie (SOWA 1962, 1968b), debris and garbage dump, *leg. Sowa R.* 1961, 1965 (LOD).
DF 40 – Gliwice (SCHUBE 1903b), wet meadow, 1883.
DF 43 – Sosnowiec-Śródula (SOWA, WÓJCIK-CHROBOK 1969), wastelands and garbage dumps near Sosnowieckie Zakłady Przemysłu Wełnianego (Textile Plant) in 1967.

***Polypogon viridis* (GOUAN) BREISTR., *Bull. Soc. Bot. France* 110: 56 (1966)**

- BE 59** – Wrocław Wojszyce (SCHALOW 1932).

***Potentilla bifurca* L., *Sp. Pl.* 497 (1753)**

Synonyms: *Potentilla orientalis* JUZ.

- ED 17** – Warszawa Targówek (KOBENDZA 1930), amongst stones in compact dry places close to railway area, *leg. Kobendza R.* 1925, 1927 (WA).
GB 51 – Kamienna Nowa near Dąbrowa Białostocka (KORNIK 1986–1987), debris near railway areas.
GC 11 – Białystok (SOKOŁOWSKI 1995), railway embankment, 12 km to east from station.
GC 82 – Czeremcha (WOŁKOWYCKI 2000), railway station.

***Potentilla chrysantha* TREVIR, *Ind. Sem. Horto. Wratisl.* 5 (1818)**

- BE 80** – Kowary (SCHUBE 1903b), in 1895.

***Potentilla conferta* BUNGE IN LEDEB, *Fl. Altaica* 2: 240 (1830)**

The species reported from Warsaw (KOBENDZA 1930; SUDNIK-WÓJCIKOWSKA 1987), *leg. Kobendza* 1926 (WA). The author reported the species to appear in its *P. sibirica* variety T. WOLF. var. *pectinata* TH. WOLF.

- CF 11** – Nysa (MICHALAK 1976), railway areas.
CF 32 – Prudnik (KRAWIECOWA *et al.* 1964), railway areas.

***Potentilla multifida* L., *Sp. Pl.* 496 (1753).**

- ? – the species reported from Warsaw (SUDNIK-WÓJCIKOWSKA 1987), *leg. Kobendza R.* 1922 (WA).

***Potentilla pensylvanica* L., *Mantissa* 76 (1767)**

Synonyms: *Potentilla strigosa* PALL. EX LEDEB.

ED 12 – between Sianno and Lasocin (KOBENDZA 1930), valleys between dunes in deforested areas of Kampinos Forest, *leg. Kobendza R.* 1923 (WA).

ED 17 – Warszawa Targówek (KOBENDZA 1930), railway area, among stones in compact dry places, *leg. Kobendza R.* 1921, 1923 (WA). The author reported the species to appear in its variety called *Potentilla sibirica* T. WOLF. var. *germina* TH. WOLF.

***Rapistrum perenne* (L.) ALL., *Fl. Pedem.* 1: 258 (1785)**

Synonyms: *Rapistrum diffusum* ALL.

AB 83 – Szczecin Zdroje (HOLZFUSS 1937), near Szwedzki Młyn.

AB 83 – Szczecin (ĆWIKLIŃSKI 1970), Kolumba Street.

BE 48 – Wrocław (MEYER 1933), western goods station, *leg. Meyer K.* 1932 (WRSL).

BE 48 – Wrocław (ROSTAŃSKI K. 1961), Popowice River Port, *leg. Rostański K.* 1959 (WRSL).

CA 69 – Gdynia (SCHWARZ 1967), dumping ground..

CD 94 – Przygodzice (WIKI 1975), railroad embankment between overbridge and railway station in Janków Przygodzki.

CE 95 – Opole (SCHUBE 1928), eastern goods station, *leg. Schubert* 1927.

CF 05 – Opole (SCHALOW 1932), central railway station.

CF 05 – Groszowice (MICHALAK 1968), rubble heap near goods station.

CF 06 – Tarnów Opolski (MICHALAK 1981b), railway areas.

CF 11 – Nysa (MICHALAK 1976), railway areas.

CF 37 – Kędzierzyn Koźle (MICHALAK 1972, 1981a), railway areas.

CF 67 – Racibórz (MICHALAK 1976), railway areas.

DA 70 – Sopot (SCHWARZ 1961), on the beach, *leg. Schwarz Z.* 1957 (GDMA); railway embankment, *leg. Schwarz Z.* 1955 (GDMA).

DA 80 – Gdańsk (SCHWARZ 1961), dumping ground, *leg. Schwarz Z.* 1951; (SCHWARZ 1967), wastelands in the port area, *leg. Schwarz Z.* 1962 (GDMA).

DC 30 – Toruń (ABROMEIT *et al.* 1898), near railway station, *leg. Scholz* 1893.

DD 76 – Łódź (WITOSŁAWSKI 1996), Łucji Street and Rokicińska Street, close to railway track.

DD 76 – Łódź Widzew, railway station, between railway tracks, *leg. Witostawski P.* 1990 (LOD).

DE 84 – Częstochowa (PIASECKI 1999), garbage dump at Wojska Polskiego Street (Ostatni Grosz Quarter).

DF 30 – Gliwice (MICHALAK, SENDEK 1974–1975), river port, wastelands.

DF 37 – Zarzecze near Wolbrom (WIKI 1984), railway track.

DF 38 – Wolbrom (WIKI 1984), side track close to loading ramp at the station.

DF 40 – Chorzów (MICHALAK, SENDEK 1974–1975).

DF 43 – Katowice Bogucice (SENDEK 1973), between railway tracks, *leg. Sendek A.* 1971 (KRA).

DF 43 – Mysłowice and Sosnowiec Jęzor (SENDEK 1984), railway areas.

DF 44 – Sosnowiec cultivated field, *leg. Polok A.* 1963 (KRA).

DF 62 – Tychy (SENDEK, WIKI 1978–1979), railway track.

FD 22 – Mrozy near Siedlce (ĆWIKLIŃSKI 1984–1985), near railway station.

FE 13 – Puławy (FIJAŁKOWSKI 1994, 1995), ruderal habitat.

FE 14 – Pożóg (FIJAŁKOWSKI 1994, 1995), ruderal habitat.

FE 35 – Bełżyce (FIJAŁKOWSKI 1994, 1995), ruderal habitat.

FE 38 – Majdan Tatarski (ŚWIĘS, WRZESIEŃ 2003), wasteland near railway tracks.

FE 43 – Opole Lubelskie (FIJAŁKOWSKI 1994, 1995), ruderal habitat.

FE 65 – Kraśnik (FIJAŁKOWSKI 1994, 1995), ruderal habitat.

GE 23 – Sawin (FIJAŁKOWSKI 1994, 1995), ruderal habitat.

GE 32 – Rejowiec (FIJAŁKOWSKI 1994, 1995), ruderal habitat.

GE 34 – Chełm (FIJAŁKOWSKI 1994, 1995), ruderal habitat.

? – the species reported from Warszawa (CYBULSKI 1895, 1896), ruderal habitats.

***Rapistrum rugosum* (L.) ALL., *Fl. Pedem.* 1: 257 (1785)**

- AB 83** – Szczecin (HOLZFUSS 1937; SCHEUERMANN 1956), dumping ground at Gdańska Street; (SCHEUERMANN 1956), goods station, near the space for loading and unloading exotic fruit, *leg. Wangrin G.* 1942 and 1943.
- AC 73** – Kostrzyń (DECKER 1912), garbage dump, in 1894.
- AD 43** – Gubin (LADEMANN 1937), garbage dump.
- AD 58** – Zielona Góra (SCHUBE 1902; ĆWIKLIŃSKI 1971a), Jedności Street “Berliner Heerstrasse”, *leg. Hellwig* 1901.
- BD 66** – Leszno (LATOWSKI 1981), goods station.
- BD 69** – Gostyń, railway siding close railway station, *leg. Latowski K.* 1977 (POZ).
- BD 82** – Żukowice near Zielona Góra (UECHTRITZ 1886).
- BE 33** – Legnica, goods station, *leg. Weimann* 1935 (WRSL).
- BE 41** – Kopacz (MAŁAŁSKI *et al.* 1967)
- BE 42** – Rzymówka (KWIATKOWSKI 2007).
- BE 48** – Wrocław (MEYER 1931, 1933), western goods station, *leg. Meyer K.* 1931; *leg. Schalow E.* 1935 (WRSL).
- BE 48** – Wrocław (MEYER 1935), close to “Grossmarkthalle” market hall, *leg. Meyer K.* 1934 (WRSL).
- BE 49** – Wrocław Szczytniki (UECHTRITZ 1882).
- BE 49** – Wrocław Biskupin (SCHALOW 1932), garbage dump, *leg. Schalow E.* 1931 (WRSL).
- BE 49** – Wrocław Kowale (SCHALOW 1932), *leg. Schalow* 1931 (WRSL)
- BE 59** – Wrocław Rakowiec (SCHALOW 1932), heap of rubble, *leg. Schalow E.* 1931 (WRSL).
- BE 59** – Wrocław Wojszyce, heap of rubble, *leg. Meyer K.* 1930 (WRSL).
- BE 75** – Świdnica (FIEK 1881), *leg. Rupp* 1868 (WRSL).
- BE 75** – Świdnica (SCHUBE 1903b).
- CA 69** – Gdynia Grabówek (SCHWARZ 1961), railway embankment, *leg. Schwarz Z.* 1956 (GDMA).
- CA 70** – Słupsk (OTTE 1933), wasteland near engine house, *leg. Otte* 1932 (SLTC); on gravel heap close to wharf, *leg. Otte* 1938 (SLTC).
- CD 13** – Węgierki near Września (SZULCZEWSKI 1951).
- CD 94** – Przygodzice (WIKI 1975), railroad embankment between overbridge and railway station in Janków Przygodzki.
- CF 26** – Zdżieszowice near Krapkowice (MICHALAK 1976), goods station, between railway tracks.
- DA 70** – Sopot (SCHWARZ 1961), goods station, in 1955.
- DA 80** – Gdańsk Oliwa, *leg. Lützow* 1892 (TRN).
- DA 80** – Gdańsk (ABROMEIT *et al.* 1898), between Gdańsk and Gdańsk Składy, *leg. Eggert* 1884 (TRN).
- DA 80** – Gdańsk (SCHWARZ 1961), on ruins, port areas.
- DA 80** – Gdańsk Wrzeszcz (SCHWARZ 1967), on ruins at Dębinki Street, in 1962.
- DB 15** – Elbląg (SCHWARZ 1961), ruins, in 1954.
- DC 40** – Toruń (ABROMEIT *et al.* 1898), close to railway station, *leg. Scholz* 1893.
- DD 85** – Łódź Rokicie (SOWA 1962), rubble heap at Janiny Street, *leg. Sowa R.* 1961 (LOD).
- DF 29** – Uniejów Kolonia, railway track, *leg. Bogdański M.* 1987 (KRA).
- DF 29** – Tunel near Miechów, trackway near control station, *leg. Bogdański M.* 1989 (KRA).
- DF 69** – Kraków (GUZIK 2006), in surroundings of grain processing plant.
- DG 59** – Zakopane (MIREK, PIEKOŚ-MIREK 1987), railway station.
- ED 16** – Warszawa Białoleka (SUDNIK-WÓJCIKOWSKA, GUZIK 1998), railway siding close to a mill.
- ED 23** – Bramki Ukazowe near Warszawa (NOWAK 1983), railway areas, *leg. Nowak K.* 1972 (WA).
- ED 23** – Dębówka near Warszawa (NOWAK 1983), railway areas, *leg. Nowak K.* 1972 (WA).
- ED 24** – Błonie near Warszawa (NOWAK 1983), railway areas, *leg. Nowak K.* 1972 (WA).
- ED 36** – Warszawa Piaseczno-Iwiczna (SUDNIK-WÓJCIKOWSKA, GUZIK 1998), railway siding close to a mill.
- GF 80** – Żurawica near Przemyśl, railway track near goods station, *leg. Latowski K.* 1978 (POZ).

***Reseda alba* L., Sp. Pl. 449 (1753)**

- AB 83 – Szczecin (SCHEUERMANN 1956), dumping ground at Gdańska Street, in 1939.
AD 43 – Brzezina near Gubin (DECKER 1912), at cemetery.
AD 43 – Gubin (LADEMANN 1937).
AD 58 – Zielona Góra (SCHUBE 1905, 1913), near brick-yard.
AD 65 – Lubsko (DECKER 1912), heap of rubble.
AD 86 – Żary (DECKER 1912).
BB 99 – Stare Dzierżąno near Złotów (ABROMEIT *et al.* 1898).
BC 98 – Poznań Jeżyce (SZULCZEWSKI 1931; KRAWIECOWA 1951; JACKOWIAK 1993), *leg. Ritschl* 1851.
BE 49 – Wrocław (MEYER 1935), close to “Grossmarkthalle” market hall.
BE 49 – Wrocław (ROSTAŃSKI K. 1960), heap of rubble at Olsztyńska Street.
CA 37 – Zarnowiec near Puck (ABROMEIT *et al.* 1898), court park.
CE 79 – Bogacice near Oleśnica (SCHUBE 1912).

***Reseda inodora* RCHB., Icon. Fl. Germ. 2: 22 (1838)**

The species reported from Warszawa (ZANOWA 1964; SUDNIK-WÓJCIKOWSKA 1987), ruderal habitats, *leg. Kobendza R.* 1947 (WA).

***Rhagodiolus stellatus* (L.) GAERTN., Fruct. Sem. Pl. 2: 354 (1791)**

Synonyms: *Rhagodiolus edulis* GAERTNER.

- BE 48 – Wrocław (MEYER 1931), western goods station.
BE 48 – Wrocław (MEYER 1937), river port, wasteland close to a mill.
BE 49 – Wrocław (MEYER 1936), close to “Grossmarkthalle” market hall.
BE 59 – Wrocław Wojszyce (MEYER 1931), garbage dump.

***Roemeria hybrida* (L.) DC., Reg. Veg. Syst. Nat. 2: 92 (1821)**

- BC 90 – Bobrowice near Międzyrzecze (DECKER 1912), near Bobrowickie Lake.
CD 52 – Jarocin (CZARNA 2005), between railway track, near railway station.

***Rostraria cristata* (L.) TZVELEV, Novosti Sist. Vyssh. Rast. 7: 47 (1971)**

Synonyms: *Koeleria phleoides* (VILL) PERS., *Lophochloa cristata* (L.) HYL., *Trisetum cristatum* (L.) POTZT.

- AB 83 – Szczecin (SCHEUERMANN 1956), goods station, *leg. Wangrin G.* 1942.
BE 48 – Wrocław (MEYER 1931, 1933), western goods station; (MEYER 1936), Olf Koenig & Co. railway track, in 1935.
BE 49 – Wrocław (MEYER 1936), close to “Grossmarkthalle” market hall.

***Rostraria hispida* (SAVI) DOĞAN, Notes Roy. Bot. Gard. Edinburgh 40(3): 509 (1983)**

Synonyms: *Koeleria hispida* (SAVI) DC., *Lophochloa hispida* (SAVI) JONSELL.

- BE 48 – Wrocław (MEYER 1935), western goods station, in 1933 and 1934.

***Rumex bucephalophorus* L., Sp. Pl. 336 (1753)**

A variable species, it has a number of subspecies. It requires a critical taxonomic revision.

- AB 83 – Szczecin (SCHEUERMANN 1956), goods station, *leg. Wangrin G.* 1942.
AD 34 – Rybaki near Świebodzin (DECKER 1912), in serradella field, 1866.
BE 48 – Wrocław (MEYER 1932), western goods station.
BE 49 – Wrocław (SCHALOW 1932), yard close to tropical fruit store at Tęczowa Street.

***Rumex obovatus* DANSER, *Nederl. Kruidk. Arch.* 1920: 241 (1921)**

AB 84 – Szczecin (SCHEUERMANN 1956), dumping ground at Tama Pomorzańska Street.

***Rumex pulcher* L., *Sp. Pl.* 336 (1753)**

A variable species, it has a number of subspecies. It requires a critical taxonomic revision.

AB 83 – Szczecin (SCHEUERMANN 1956), goods station, *leg. Wangrin G.* 1943.

BE 49 – Wrocław (SCHALOW 1934), yard close to tropical fruit store at Tęczowa Street.

***Rumex stenophyllus* LEDEB., *Fl. Altaica* 2: 58 (1830)**

BE 49 – Wrocław (ROSTAŃSKI K. 1960), Podwale Street, on ruins, in 1955; Śłodowa Street, on ruins, in 1956 and 1957; Krzywoustego Street, garbage dump, in 1959, *leg. Rostański K.* 1955 (WRSL)

CF 37 – Kędzierzyn Koźle (MICHALAK 1981a), at the wall of the store building near goods station.

DA 80 – Gdańsk Podwale Jagiellońskie (SCHWARZ 1967), at the fence.

***Rumex triangulivalvis* (DANSER) RECH. F., *Repert. Spec. Nov. Regni Veg.* 40: 297 (1936)**

Synonyms: *Rumex salicifolius* WEINM.

BD 08 – Poznań (JACKOWIAK 1993), near elementary school at Kościuszki Street, *leg. Urbański* 1958 (POZ).

BE 49 – Wrocław (SCHALOW 1934), river port; Wrocław (ROSTAŃSKI K. 1961), river port, close to storage building, *leg. Rostański K.* 1959 (WRSL).

BE 59 – Wrocław (MEYER 1935), central railway station.

CA 70 – Słupsk (HOLZFUSS 1936), garbage dump near “Kaufmann & Sommerfeld Mill”, *leg. Holzfuss E.* 1931.

CE 84 – Dobrzeń Wielki (MICHALAK 1981b), debris.

DD 75 – Łódź (SOWA 1965), wastelands close to Botanical Garden, *leg. Sowa R.* 1961 (LOD).

DF 12 – Miasteczko Śląskie (ROSTAŃSKI, SENDEK 1982–1984), debris near railway station.

DF 43 – Katowice (SENDEK 1973), central railway station, *leg. Sendek A.* 1969 (KRA).

ED 37 – Warszawa Powsin (SUDNIK-WÓCİKOWSKA, GUZIK 1998, GALERA 2003), wastelands in Botanical Garden, *leg. Galera H.* 1994.

***Salsola collina* PALL., *Illustr.* 34. t. 26. (1803)**

AC 67 – Gorzów Wielkopolski (MISIEWICZ 1970; BARADZIEJ 1972), dumping ground at Śląska Street.

BC 76 – Szamotuły, railway station, between crossties of railway track, *leg. Latowski K.* 1970 (POZ).

BD 08 – Poznań Dębina (JACKOWIAK 1993), *leg. Krawiec F.* 1926 (POZ).

BD 08 – Poznań Garbary (ŻUKOWSKI 1960b), at the wall close to storage building of the port on Warta river, on the side of railway station, *leg. Żukowski W.* 1958 (POZ), near the bridge Marchlewski, *leg. Żukowski W.* 1966 (POZ).

BD 66 – Leszno, goods station, *leg. Latowski K.* 1975 (POZ).

BE 59 – Wrocław Krzyki (ROSTAŃSKI K. 1960, BARADZIEJ 1972), railway track, *leg. Rostański K.* 1958 (WRSL).

CC 32 – Kcynia (LATOWSKI 1977), railway track, *leg. Latowski K.* 1975 (POZ).

CC 70 – Skoki (LATOWSKI 1977), trackway near control station, *leg. Latowski K.* 1975 (POZ).

CC 70 – Sława Wielkopolska, goods station, *leg. Latowski K.* 1975 (POZ). The autor reported the species with question mark (?)

CC 93 – Gniezno (LATOWSKI 1977), railway track near railway station, *leg. Latowski K.* 1975 (POZ).

- CD 85** – Ociąż near Ostrów Wielkopolski (WIKI 1975), railway station.
CE 36 – Dorohusk near Chełm (BARADZIEJ 1972), *leg. Fijałkowski D.* 1963 (LBL).
EC 81 – Łochów (GŁOWACKI 1990), railway track.
ED 26 – Warszawa (SUDNIK-WÓJCIKOWSKA, GUZIK 1998), railroad in Gdańsk and East stations (personal inf. Głowacki Z.)
ED 29 – Wrzosów near Chrośła (GŁOWACKI 1984), railway station.
FD 25 – Siedlce (ĆWIKLIŃSKI 1984–1985), railway station.
FD 31 – Ceglów (ĆWIKLIŃSKI 1984–1985), railway station.
FD 35 – Helenów (GŁOWACKI 1984), railway areas.
FD 48 – Międzyrzec Podlaski (ĆWIKLIŃSKI 1984–1985), railway station.
FE 23 – Kazimierz Dolny (BARADZIEJ 1972), *leg. Fijałkowski D.* 1959 (LBL).
GD 33 – Terespol Małaszewicze (ĆWIKLIŃSKI 1984–1985), between railway track.
GD 34 – Kobyłany near Terespol (FIJAŁKOWSKI 1964; BARADZIEJ 1972), railway station, *leg. Fijałkowski D.* 1963 (LBL).
GD 41 – Biała-Podlaska (ĆWIKLIŃSKI 1984–1985), railway station.

***Salsola soda* L., Sp. Pl. 1: 223 (1753)**

- FE 13** – Puławy (FIJAŁKOWSKI 1995), railway track.

Schismus barbatus (L.) THELL., Bull. Herb. Boissier 2, 7: 391 (1907)

- DD 75** – Łódź Rokicie (SOWA 1968b), rubble and waste material dump, *leg. Sowa R.* 1965 (LOD).

***Scolymus hispanicus* L., Sp. Pl. 2: 813 (1753)**

- AB 83** – Szczecin (SCHEUERMANN 1956), dumping ground at Gdańska Street, *leg. Wangrin G.* 1939.
BE 48 – Wrocław (MEYER 1933), western goods station.
BE 48 – Wrocław (MEYER 1937), city port, near mill.

***Scorzonera cana* (C.A. MEY.) O. HOFFM., Natürl. Pflanzenfam. 4(5): 365 (1893)**

Synonyms: *Podospermum canum* C.A. MEYER, *Podospermum jacquinianum* KOCH.

- CF 05** – Opole (SCHUBE 1929), eastern goods station, *leg. Schubert* 1928 (WRSL).
FF 75 – Chyrów (PIEKOŚ 1972), railway embankment, *leg. Kotula* 1882 (KRAM).

***Scutellaria minor* HUDS., Fl. Angl. 232 (1762)**

- BD 32** – Wolsztyn, near Lake Święte (SZULCZEWSKI 1951).

***Senecio nebrodensis* L., Sp. Pl. ed. 2, 1217 (1763)**

- AE 79** – Sobieszów near Jelenia Góra (FIEK 1888), at the garden wall.

***Sesamoides canescens* (L.) KUNTZE, Revis. Gen. Pl. 1: 39 (1891)**

- AD 67** – Nowogród Bobrzański (DECKER 1912)

***Seseli hippomorathrum* JACQ., Enum. Stirp. Vindob. 52, 224 (1762)**

Synonyms: *Seseli hippomorathrum* L.

The species given by FIEK (1881b) from “Königsberg: Kransdorf”. A single specimen was found on a dry slope near a forest glade (H.W. REICHARDT 1856). The same locality is also mentioned by SCHUBE (1903b). However, he gives this species with a question mark, probably because of the problems of defining the

locality on the map of Silesia. There are several places called Königsberg (near which the locality was found), that are quite distant from one another. Presently, some of them are situated outside Poland (Czech Republic) and that is why there are doubts regarding the appearance of the species on territory of our country. Revision is impossible because of the lack of herbarium materials. But it results from the information on this species given in the Flora of Poland (KOCZWARA 1960 following REICHARDT 1856) that the plant appeared in Nowy Browiniec near Prudnik. German name for the village Nowy Browiniec sounds “Kranzdorf” and not “Kransdorf” as stated by Fiek and Schube, so a mistake could have been made in the translation of the village name.

***Setaria faberi* R.A.W. HERRM., *Beitr. Biol. Pflanzen* 51 (1910)**

Synonyms: *S. autumnalis* OHWI, *S. macrocarpa* LUCZNIK.

- BA 76** – Darłowo (JEHLIK, MISIEWICZ 1982), at grain elevators, grain offal dumps, *leg. Jelik V. and Misiewicz E.* 1980.
- CA 69** – Gdynia Port (JEHLIK, MISIEWICZ 1982), Indyjska Street near railway track, *leg. Rostański K.* 1974 (KTU); between railway tracks, *leg. Misiewicz E.* 1975 (SLTC).
- CE 95** – Opole (JEHLIK, MISIEWICZ 1982), wastelands after sand and gravel stockyard, *leg. Szotkowski P.* 1969 (KRAM).
- CF 36** – Koźle Port (JEHLIK, MISIEWICZ 1982), at grain elevator, *leg., det. Jehlik V.* 1980 (KRAM).
- DD 85** – Łódź Lublinek, dumping ground at sewage treatment plant, *leg. Witostawski P.* 1995 (LOD).
- ED 26** – Warszawa Wschodnia (SUDNIK-WÓJCIKOWSKA 1998), railway track.
- EE 45** – Skarżysko-Kamienna (MACIEJCAK 1988), railway areas near station.
- EF 60** – Kraków (GUZIK 2006), close to “Wieczysta Mill”.

***Sideritis montana* L., *Sp. Pl.* 575 (1753)**

- AB 83** – Szczecin (SCHEUERMANN 1956), goods station.
- AB 84** – Szczecin between Zdroje and Dąbie (ĆWIKLIŃSKI 1970), railway embankment.
- BE 48** – Wrocław “Świebodzki” station (SCHALOW 1932; MEYER 1933), railway tracks, *leg. Schalow E.* 1931 (WRSL).
- BE 49** – Wrocław (SCHALOW 1931), eastern goods station, *leg. Meyer K.* 1930 (WRSL).
- BE 49** – Wrocław (ROSTAŃSKI K. 1960), “Świebodzki” and “Nadodrze” railway stations.
- BE 59** – Wrocław Krzyki (ROSTAŃSKI K. 1960), railway track.
- BD 08** – Poznań Górczyn (URBAŃSKI 1958), railway track.
- BD 09** – Poznań Franowo, railway station, *leg. Żukowski W.* 1960 (POZ).
- BD 11** – Zbąszynek (LATOWSKI 1981), turf-covered intertrack space of the goods station, *leg. Latowski K.* 1977 (POZ).
- CA 69** – Gdynia Chylonia (SCHWARZ 1967), railway embankment, *leg. Schwarz Z.* 1956 (GDMA).
- CD 00** – Paczków (LATOWSKI 1977), railway track, *leg. Latowski K.* 1976 (POZ).
- CE 95** – Opole (MICHALAK 1981b).
- CF 11** – Nysa (MICHALAK 1976).
- CF 36** – Kędzierzyn-Koźle (SZOTKOWSKI 1988), river port, *leg. Szotkowski P.* 1970 (KRA).
- CF 65** – Kietrz (MICHALAK 1976), railway station.
- CF 67** – Racibórz (MICHALAK 1976), railway station.
- DE 99** – Kraków Krowodrza (TRZCIŃSKA-TACIK 1971), railway track near Prądnicka Street, *leg. Trzcńska-Tacik H.* 1963 (KRA).
- ED 26** – Warszawa (CYBULSKI 1894, 1895; SUDNIK-WÓJCIKOWSKA 1987), railway areas, *leg. Cybulski* 1895 (WA, KRA).
- EE 74** – Kielce (MACIEJCAK 1988), Krakowska Street, in a neglected garden close to railroad.

FE 82 – Dwikozy near Sandomierz (KORNAŚ 1953–1954), railway track, *leg. Dobrzańska J.* 1949 (KRAM).

GE 83 – Zamość (ŚWIĘŚ, WRZESIEŃ 2002), under the viaduct in Peowiaków Street.

***Sigesbeckia cordifolia* KUNTH., *Nov. Gen. Sp.* [H.B.K.] 4: 283. 1820**

BE 49 – Wrocław (GALERA 2003), spontaneously in Botanical Garden.

DF 69 – Kraków (GALERA 2003), spontaneously in Botanical Garden.

***Silene conoidea* L., *Sp. Pl.* 418 (1753)**

DC 73 – brought within the cultivation of Persian clover near Włocławek (RUTKOWSKI 2004), *leg. Załuski T.* in the nineties of the 20th century.

DF 69 – Kraków (GUZIK 2006), wastelands in the neighbourhood of grain processing plant.

***Silene cserei* BAUMG., *Enum. Strip. Transs.* 3: 345 (1816)**

DF 40 – Gliwice (SCHUBE 1908; CZMOK 1926).

***Silne linicola* C.C. GMEL., *Fl. Bad.* 4: 304 (1826)**

A weed in flax cultivation. Presently, it is probably extinct in Europe (CHATER *et al.* 1964).

AD 58 – Zielona Góra (SCHUBE 1909), *leg. Schmidt* 1908.

***Silene scabriflora* BROT., *Fl. Lusit.* 2: 184 (1805)**

AD 36 – Kamień near Krosno Odrzańskie (DECKER 1912), a weed in serradella cultivation, in 1860.

***Silene trinervia* SEBAST. & MAURI, *Fl. Rom.* 152 (1818)**

Synonyms: *Silene gallinyi* REICHENB.

AD 43 – Gubin (LADEMANN 1937), garbage dump.

***Silene viscosa* (L.) PERS, *Syn. Pl.* 1: 497 (1805)**

Synonyms: *Melandrium viscosum* (L.) ČELAK.

ED 26 – Warszawa (SUDNIK-WÓJCIKOWSKA 1987), railway areas, *leg. Kobendza R.* 1921 (WA).

***Simsia foetida* (CAV.) S.F. BLAKE, *Proc. Amer. Acad. Arts* 49: 385 (1913)**

AB 83 – Szczecin (SCHEUERMANN 1956), dumping ground at Gdańska Street, *leg. Wangrin G.* 1938 and 1939.

***Sisymbrium austriacum* JACQ., *Fl. Austriac.* 3: 35 (1775)**

Synonyms: *Sisymbrium pyrenaicum* (L.) VILL. subsp. *austriacum* (JACQ.) SCHINZ & THELL.

AD 43 – Gubin (LADEMANN 1937), at cattle market.

CE 93 – Lewin Brzeski (MICHALAK 1981b).

CF 17 – Strzelce Opolskie (MICHALAK 1981b).

DD 87 – Gałkówek (SOWA 1968b), railway station, *leg. Sowa R.* 1964 (LOD).

DD 92 – Zduńska Wola (SOWA 1968b), railway siding close to goods station, *leg. Sowa R.* 1964, *det. Maǳalski J.* 1966 (LOD).

***Sisymbrium irio* L., *Sp. Pl.* 2: 659 (1753)**

BE 49 – Wrocław (SCHUBE 1907), near the dam on the Odra river at Grodzka Street, *leg. Heinzmann* 1906.

CE 95 – Opole (MICHALAK 1968b), intertrack space near train checkpoint at eastern station.

CF 11 – Nysa (MICHALAK 1976), goods station.

- DA 80 – Gdańsk Oliwa, in the garden, *leg. Litzow C.* 1893 (TRN).
 DF 33 – Będzin Żychcice (SENDEK 1984), a weed in clover cultivation, *leg. Sendek A.* 1976 (KRA).
 ED 15 – Mościska near Warszawa (NOWAK 1983), roadside, *leg. Nowak K.* 1971 (WA).
 ED 25 – Ursus (NOWAK 1983), roadside, *leg. Nowak K.* 1971 (WA).
 FD 35 – Borki-Kosy (GŁOWACKI 1975), railway embankment.
 ED 35 – Kanie near Warszawa (NOWAK 1983), roadside, *leg. Nowak K.* 1971 (WA).

***Sisymbrium orientale* L., Cent. Pl. II. 24 (1756)**

Synonyms: *Sisymbrium columnae* JACQ.

- AB 73 – Szczecin Żelechowa (HOLZFUSS 1937), waste dump an oil mill.
 AB 83 – Szczecin (SCHEUERMANN 1956).
 AB 83 – Szczecin (MISIEWICZ 1976), sea port – “Nabrzeże Rumuńskie”, intertrack space.
 AD 43 – Gubin (LADEMANN 1937), at cattle market and by railway ramp in the period 1928–1933 and on the yard of monastic school in 1931 and 1932.
 AD 59 – Zielona Góra (SCHUBE 1916), wasteland near brick-yard, close to a brick-yard, *leg. Schmidt* 1915.
 BA 59 – Ustka (KRAUZE 1934; HOLZFUSS 1937), wastelands in the sea port.
 BA 76 – Darłowo (MISIEWICZ 1976), wasteland in river port close to grain elevator.
 BC 27 – Piła (ŻUKOWSKI 1960a), railway station.
 BD 09 – Poznań Franowo (ŻUKOWSKI 1960b), railway station.
 BE 33 – Legnica (MEYER 1932), the “Północny” railway station, *leg. Weimann.*
 BE 43 – between Gniewomierz and Nowy Dwór (SCHUBE 1903b).
 BE 48 – Wrocław (FIEK 1881), near Holy Trinity Hospital.
 BE 48 – Wrocław (SCHUBE 1925), the “Popowice” port.
 BE 48 – Wrocław (MEYER 1931), weastern goods station.
 BE 49 – Wrocław (SCHUBE 1912), “Kürassierkaserne”, *leg. Richters* 1911.
 BE 49 – Wrocław (SCHALOW 1934), city port.
 BE 49 – Wrocław (ROSTAŃSKI K. 1960), dumping ground at Krzywoustego Street, *leg. Rostański K.* 1958 (WRSL).
 BE 58 – Wrocław Krzyki (SCHUBE 1913), *leg. Tischler* 1912.
 BE 59 – Wrocław (SCHALOW 1932), near the South Park.
 CA 70 – Słupsk (HOLZFUSS 1937), *leg. Otte* 1935.
 CA 70 – Słupsk (MISIEWICZ 1977), close to a mill, *leg. Holzfuss* 1931; in the garden, *leg. Otte* 1934.
 CC 93 – Gniezno (LATOWSKI 1981), wastelands close to carriage washstand.
 CE 78 – Olesno Śląskie, railway track, close to a mill, *leg. Sendek A.* 1967 (KRA).
 CE 88 – Radawka near Olesno (CIACIURA 1971), railway embankment.
 CE 95 – Opole (MICHALAK 1968), at railway station near engine house.
 CF 15 – Podolszynie near Krapkowice (CIACIURA 1973), railway embankment.
 CF 17 – Strzelce Opolskie (MICHALAK 1976), railway areas.
 CF 25 – Stebłów near Krapkowice (CIACIURA 1973), railway track.
 CF 37 – Dąbrowa near Kędzierzyn Koźle (SZOTKOWSKI 1967).
 CF 36 – Kędzierzyn Koźle (SZOTKOWSKI 1988), wasteland in the river port, *leg. Szotkowski P.* 1967 (KRA); *leg. Szotkowski P.* 1969, 1970 (OPOL).
 CF 67 – Racibórz (MICHALAK 1976), railway areas.
 DB 11 – Tczew (SCHWARZ 1961), railway station.
 DD 76 – Łódź Widzew (SOWA 1962), at siding trackway, *leg. Sowa R.* 1961 (LOD).
 DD 85 – Łódź Rokicie (SOWA 1962), rubble heap and garbage dump near railway track, *leg. Sowa R.* 1961 (LOD).
 DE 90 – Lubliniec (MICHALAK, SENDEK 1974–1975), at goods station near engine house.
 DF 22 – Tarnowskie Góry (KOBIEŃSKI 1974), railway areas.
 DF 31 – Poremba near Zabrze (CIACIURA 1971), railway track.

- DF 31 – Zabrze Biskupice (CIACIURA 1971), roadside.
 DF 31 – Zabrze Mikulczyce (CIACIURA 1971), on a coal dump.
 DF 31 – Zabrze (CIACIURA 1971), close to tram railroad in the northern part of the town.
 DF 40 – Gliwice (SCHUBE 1930), *leg. Schubert* 1929.
 DF 43 – Sosnowiec (SENDEK 1973), railway station, siding trackway, *leg. Sendek A.* 1971 (KRA).
 DF 69 – Kraków (KORNAŚ, LEŚNIEWSKA, SKRZYWANEK 1959), “Kraków Główny” goods station; garbage dumps.
 DG 01 – Kozakowice Zdrój (CIACIURA 1971), roadside.
 ED 26 – Warszawa (WRÓBLEWSKA 1964), railway embankment near “Wileński” station.
 ED 26 – Warszawa (WRÓBLEWSKA 1964), debris close to Czerniakowska Street.
 ED 26 – Warszawa (SUDNIK-WÓJCIKOWSKA 1987), wastelands between “Lasek na Kole” and Military Cemetery.
 ED 27 – Warszawa Grochów (ŻUKOWSKI 1960a), construction site at Wiatraczna Street.
 EF 60 – Kraków Nowa Huta-Pleszów (TRZCIŃSKA-TACIK 1979), on heaps of sludge and ash of “Huta Lenin”, *leg. Trzcinińska-Tacik H.* 1975 (KRA).
 FE 03 – Gołęb near Puławy (FIJAŁKOWSKI 1962), railway areas.
 FE 08 – Lubartów (FIJAŁKOWSKI 1962), railway areas.
 FE 13 – Puławy (FIJAŁKOWSKI 1978), on wasteland near Zakłady Azotowe.
 FE 25 – Sadurki near Lublin (FIJAŁKOWSKI 1964), railway track.
 FE 37 – Lublin (FIJAŁKOWSKI 1960), railway track.
 FE 37 – Zemborzyce, Stasin and Wrotków near Lublin (FIJAŁKOWSKI 1963), railway tracks.
 FE 38 – Świdnik (FIJAŁKOWSKI 1964), railway track.
 FE 39 – Mełgiew near Minkowice (FIJAŁKOWSKI 1963), railway areas.
 FD 68 – Bedlno near Radzyń Podlaski (FIJAŁKOWSKI 1964), railway track.
 FD 92 – Borowina near Dęblin (FIJAŁKOWSKI 1962), railway areas.
 GD 34 – Kobylany near Terespol (FIJAŁKOWSKI 1964), railway station.
 GE 15 – Uhrusk near Chełm (FIJAŁKOWSKI 1963), railway areas.
 GE 34 – Chełm (FIJAŁKOWSKI 1960), railway track.
 GE 42 – Rejowiec (FIJAŁKOWSKI 1960), railway track.
 ? – the species reported generally from Warszawa and precincts (ROSTAŃSKI 1873; ŁAPCZYŃSKI 1882, 1890; CYBULSKI 1895, 1896).

***Solanum cornutum* LAM., *Tabl. Encycl. Méth. Bot.* 2: 25 (1794)**

Synonyms: *Solanum rostratum* DUNAL.

- AB 83 – Szczecin (SCHEUERMANN 1956), dumping ground, *leg. Wangrin G.* 1940.
 BC 27 – Piła (LATOWSKI 1981), at siding trackway.
 BD 82 – Głogów (SCHUBE 1903), Oder bank, in 1895.
 BE 58 – Wrocław (ROSTAŃSKI K. 1960), leveled debris at Grabiszyńska Street (corner with Prosta Street), *leg. Rostański K.* 1957 (WRSL).
 BE 74 – Świebodzice (SCHALOW 1936)
 CE 40 – Pietrzykowice near Wrocław (SCHUBE 1903), in 1895.
 CF 36 – Koźle (SCHUBE 1927), river port, *leg. Schubert* 1926 (WRSL).
 DA 60 – Gdynia (MISIEWICZ 1976), coal wharf, railroads and garbage dumps at coal stockyard.
 DD 86 – Łódź, Królewska Street (WITOSŁAWSKI 2006), roadside, *leg. Witostawski P.* 2002, *det. Jehlik V.* 2005 (KTU).
 DD 86 – Łódź, Strażacka Street, roadside, *leg. Witostawski P.* 1998 (LOD).

***Solanum melanocerasum* ALL., *Auct. Syn. Stirp. Horti Taur.* 12 (1773)**

Critical taxon. It is disputable if it can be contained within the range of variability of *S. nigrum* L. ssp. *nigrum* (TRZCIŃSKA-TACIK 1979).

- DF 69 – Kraków Zakrzówek (TRZCIŃSKA-TACIK 1979), dumping ground close to Kobierzyńska Street, *leg. Trzcinińska-Tacik H.* 1961 (KRA).
 DF 69 – Kraków Grzegórzki (TRZCIŃSKA-TACIK 1979), ruderal habitat.

***Solanum sarrachoides* SENDTN. *Fl. Bras. (Martius)* 10: 18 (1846)**

Synonyms: *Solanum justi-schmidtii* E.H.L. KRAUSE.

AB 83 – Szczecin (HOLZFUSS 1937), Tama Pomorzańska Street; (ĆWIKLIŃSKI 1970), garbage pit in the port, in 1964.

BE 48 – Wrocław (MEYER 1933), western goods station.

***Solanum sisymbriifolium* LAM., *Tabl. Encycl. Méth. Bot.* 2: 25 (1794)**

AB 83 – Szczecin (SCHEUERMANN 1956), waste dump an oil mill, in 1932.

AB 83 – Szczecin (MISIEWICZ 1976), grain elevator, *leg. Misiewicz J.* 1975.

BE 49 – Wrocław (SCHALOW 1933), garbage dump at Braniborska Street.

DA 60 – Gdynia (MISIEWICZ 1976), port-coal wharf, between railroads, *leg. Misiewicz J.* 1974.

DA 80 – Gdańsk (MISIEWICZ 1976), between railroads in the port area.

***Solanum sodomaeum* L., *Sp. Pl.* 187 (1753)**

BE 58 – Wrocław (SCHALOW 1933), heap of rubble at Wzgórze Skarbowców “Kinderzobten”, *leg. Schalow 1932, det. Prof. Mattfeld.*

***Solanum triflorum* NUTT., *Gen. N. Amer. Pl.* 1: 128 (1818)**

AD 43 – Gubin (LADEMANN 1937), on meadow, in 1930.

AB 83 – Szczecin (SCHEUERMANN 1956), dumping ground at Gdańska Street, *leg. Wangrin G.* 1939.

***Sorghum bicolor* (L.) MOENCH., *Meth.* 207 (1794)**

Synonyms: *Sorghum vulgare* PERS.

AB 83 – Szczecin (HOLZFUSS 1936, 1937), dumping ground, in 1934. The species classified as *Andropogon sorghum* BROT. subsp. *A. sascharatum* KUNTH.; heap of rubble at Grudzińskiego Street, in 1934 classified as *Andropogon sorghum* BROT. subsp. *cernuus* ROXB.

BC 46 – Czarnków (LATOWSKI 1977), railway track.

BC 78 – Oborniki Wielkopolskie (LATOWSKI 1977), railway areas.

CD 50 – Borek (LATOWSKI 1981), along team tracks.

Reported from Kraków (GUZIK 2002, 2006) where it appeared at several railway stations in the eighties of the 20th century.

***Sorghum halepense* (L.) PERS., *Syn. Pl.* 1: (1805)**

Synonyms: *Andropogon halepensis* (L.) BROT.

AB 83 – Szczecin (HOLZFUSS 1937), dumping grounds in 1934, 1935 and 1936.

AB 83 – Szczecin (HOLZFUSS 1937) *leg. Kruse* 1930.

AB 83 – Szczecin (SCHEUERMANN 1956), dumping ground at Gdańska Street, *leg. Wangrin G.* 1938 and 1939.

AD 86 – Żary (DECKER 1937).

BC 27 – Piła, single specimens along railroad close to potato processing plant, *leg. Latowski K.* 1975 (POZ).

BC 39 – Chodzież (LATOWSKI 1977), at railway station near engine house, *leg. Latowski K.* 1975 (POZ).

BC 46 – Czarnków (LATOWSKI 1977), wastelands close to loading ramp.

BD 09 – Swarzędz (LATOWSKI 1977), railway track.

BD 11 – Zbąszynek (LATOWSKI 1977), goods station, railway track, *leg. Latowski K.* 1976 (POZ).

BD 66 – Leszno (LATOWSKI 1981), goods station.

BD 69 – Gostyń (LATOWSKI 1981), along team tracks.

BD 87 – Bojanowo (LATOWSKI 1981), at siding trackway.

BE 33 – Legnica (SCHALOW 1933), dumping ground at Koskowicka Street (Koischwitzter Strasse) *leg. Weimann* 1932.

- BE 48** – Wrocław Fabryczna (SZCZEŚNIAK 2004), “Kosmonautów” housing estate, close to zoological shop.
- BE 49** – Wrocław Biskupin (SCHALOW 1931), garbage dump.
- BE 49** – Wrocław Rakowiec (SCHALOW 1932, 1935), garbage dump. The species classified as *Andropogon halepensis f. muticus*.
- BE 49** – Wrocław (SZCZEŚNIAK 2004), “Świebodzki” station.
- CC 83** – Gniezno (LATOWSKI 1977), railway tracks, leg. Latowski K. 1975 (POZ).
- CD 40** – Książ Wielkopolski (CZARNA 2006).
- CD 50** – Borek (LATOWSKI 1981), goods station.
- CD 52** – Jarocin (CZARNA 2005), railway station.
- CD 60** – Szelejewo (LATOWSKI 1981), at siding trackway.
- CE 95** – Opole (MICHALAK 1973), eastern railway station.
- CE 95** – Opole (SZOTKOWSKI 1988), river port, wastelands after gravel and sand stockyard in 1969 and around grain elevator, leg. Szotkowski P. 1971 (KRA).
- CF 11** – Nysa (MICHALAK 1979), railway station, between railway tracks.
- CF 18** – Strzelce Opolskie (MICHALAK 1976), between railway tracks.
- CF 34** – Raclawice Śląskie, railway areas, leg. Szotkowski P. 1982 (KTU).
- CF 37** – Kędzierzyn-Koźle (MICHALAK 1973), goods station, at siding trackway.
- CF 67** – Racibórz (MICHALAK 1976), railway areas.
- DB 31** – Pelplin (BULIŃSKI 1994), railway areas.
- DB 40** – Morzeszczyn (BULIŃSKI 1994), railway areas.
- DD 76** – Łódź Karolew (SOWA 1965), close to carriage washstand, leg. Sowa R. 1960/61 (LOD).
- DF 37** – Jaroszewiec (WIKA 1984), railway station, between railway tracks.
- DF 38** – Wolbrom (WIKA 1984), railway station, between railway tracks.
- EB 52** – Olsztyn Kortowo, a weed in cultivation, leg. Kornaś J. 1958 (KRA).
- ED 16** – Warszawa Białoleka (SUDNIK-WÓJCIKOWSKA, GUZIK 1998), railway siding close to a mill.

***Spilanthes oleraceus* JACQ., Syst. nat. ed. 12, 2: 534 (1767)**

Synonyms: *Acmella oleracea* (L.) R.K. JANSEN.

DA 80 – Gdańsk (SCHWARZ 1967), railway embankment, leg. Lange 1886.

***Sporobolus cryptandrus* (TORR.) A. GRAY., Manual 576 (1848)**

DC 40 – Brzoza Toruńska (RUTKOWSKI 1996) sandy railway embankment and roadside near the station, leg. Rutkowski L. 1995 (TRN).

***Symphytum asperum* LEPECH., Nova Acta Acad. Sci. Petrop. 14: 442 (1805)**

BE 89 – Strzelin (SCHUBE 1928; SCHALOW 1932), leg. Schalow 1927.

CA 70 – Słupsk (HOLZFUSS 1936), close to a mill.

***Tetragonia tetragonioides* (PALL.) KUNTZE, Revis. Gen. 1: 264 (1891)**

Synonyms: *Tetragonia expansa* MURRAY.

AB 83 – Szczecin (SCHEUERMANN 1956), dumping ground at Gdańska Street.

BE 49 – Wrocław Biskupin (SCHALOW 1931), heap of rubble.

***Thlaspi alliaceum* L., Sp. Pl. 2: 641. 1753**

DF 69 – Kraków (KULCZYŃSKI 1927; TRZCIŃSKA-TACIK 1979), spontaneously in Botanical Garden.

FF 90 – Jasło (TOWPASZ 1987), ruderal habitat, leg. Szot A. 1982 (KRA).

***Torilis arvensis* (HUDS) LINK, Enum. Hort. Berol. Alt. 1: 265 (1821)**

The taxon requires a critical review.

AB 83 – Szczecin (HOLZFUSS 1937), leg. Utpadel 1873 and 1879. The species classified as *Torilis arvensis* (MOENCH) THELL. subsp. *divaricata* THELL.

BE 49 – Wrocław (SCHALOW 1932), yard close to exotic fruit store at Tęczowa Street. The species classified as *Torilis arvensis* subsp. *heterophylla*.

***Torilis nodosa* (L.) GAERTN., *Fruct. Sem. Pl.* 1: 82 (1788)**

BE 49 – Wrocław (SCHALOW 1932), yard close to exotic fruit store at Tęczowa Street.

BE 49 – Wrocław (MEYER 1936), close to “Grossmarkthalle” market hall.

CA 70 – Słupsk (HOLZFUSS 1936, 1937), garbage dump.

***Tragopogon hybridus* L., *Sp. Pl.* 789 (1753)**

Synonyms: *Tragopogon glaber* (L.) BENTH. ET HOOK. f.

BE 49 – Wrocław (MEYER 1933, 1935, 1936, 1937), river port.

***Tragus racemosus* (L.) ALL., *Fl. Pedem.* 2: 241 (1785)**

DF 43 – Sosnowiec (URBISZ, WĘGRZYNEK 2007), heap of sand close to hypermarket at Baczyńskiego Street, leg. Węgrzynek B., det. Urbisz Al. 2005 (KTU).

***Tribulus terrestris* L., *Sp. Pl.* 1: 387 (1753)**

DA 80 – Gdańsk Składy (ABROMEIT *et al.* 1898), ballast soil bingstead in the port, leg. Bail 1866 and 1880.

***Trifolium alexandrinum* L., *Cent. Pl.* 1: 25 (1755)**

CF 34 – Raclawice Śląskie (UECHTRITZ 1880; FIEK 1881), railway embankment, leg. Sintenis 1879.

CF 44 – Głubczyce (FIEK 1881), railway embankment.

***Trifolium angustifolium* L., *Sp. Pl.* 769 (1753)**

DD 85 – Łódź Rokicie (SOWA 1968b), rubble and waste material dump, leg. Sowa R. 1965, det. Mowszowicz J. (LOD).

DF 44 – Sosnowiec-Środula (SOWA, WÓJCIK-CHROBOK 1969), wastelands and garbage dumps near Sosnowieckie Zakłady Przemysłu Wełnianego (Textile Plant) in 1967.

***Trifolium echinatum* M. BIEB. subsp. *constantinopolitanum* (SER.) GIBELLI & BELLI, *Fl. Taur.-Caucas.* 2: 216 (1808)**

Synonyms: *Trifolium constantinopolitanum* SER. IN. DC.

BE 48 – Wrocław (MEYER 1935), western goods station.

***Trifolium glomeratum* L., *Sp. Pl.* 770 (1753)**

BE 48 – Wrocław (MEYER 1935), western goods station.

***Trifolium lappaceum* L., *Sp. Pl.* 768 (1753)**

AB 83 – Szczecin (SCHEUERMANN 1956), goods station, in 1942.

BE 48 – Wrocław (MEYER 1935), western goods station.

BE 49 – Wrocław (MEYER 1935), close to “Grossmarkthalle” market hall.

***Trifolium stellatum* L., *Sp. Pl.* 769 (1753)**

CE 95 – Opole (SCHUBE 1930), eastern goods station, leg. Schubert 1929.

***Trifolium tomentosum* L., *Sp. Pl.* 771 (1753)**

BB 57 – Szczecinek (HOLZFUSS 1938), in 1937.

***Turgenia latifolia* (L.) HOFFM., *Gen. Umb.* 59 (1814)**

Synonyms: *Caucalis latifolia* L.

166 **AE 35** – Zgorzelec (SCHUBE 1903b), near brewery, in 1893.

- BE 49** – Wrocław (FIEK 1881), garbage dump.
CE 67 – Kluczbork (SENDEK 1973), railway siding close to a mill.
CE 78 – Oleśno Śląskie (SENDEK 1973), between railway tracks.
CF 17 – Strzelce Opolskie (MICHALAK 1981b).
CF 67 – Racibórz (MICHALAK 1976), between railway tracks.
EB 06 – Korsze (OLESIŃSKI, KORNIAK 1980).

***Urtica cannabina* L., Sp. Pl. 984 (1753)**

- FE 13** – Puławy (FIJAŁKOWSKI 1994, 1995), ruderal habitat.
FE 37 – Lublin (FIJAŁKOWSKI 1978), railway station.
GE 32 – Rejewiec (FIJAŁKOWSKI 1994, 1995), ruderal habitat.
GE 77 – Hrubieszów (FIJAŁKOWSKI 1994, 1995), ruderal habitat.

***Urtica pilulifera* L., Sp. Pl. 983 (1753)**

- BE 33** – Legnica (GERHARDT 1885), a weed in the garden.
CF 10 – Otmuchów, *leg. Schrebel* 1898 (OPOL).
DA 80 – Gdańsk Westerplatte (SCHWARZ 1967), wastelands in the port, *leg. Helm* 1881.
GE 34 – Chełm (FIJAŁKOWSKI 1994, 1995), railway track.

***Valerianella carinata* LOISEL., Not. Pl. Fr. 149 (1810)**

- AE 59** – Gródek Wleński (UECHTRITZ 1883; SCHUBE 1903b).
AE 78 – Górzyniec near Zielona Góra (SCHUBE 1901, 1903b).
AE 78 – Szklarska Poręba (SCHUBE 1903b).
AE 79 – Jelenia Góra Sobieszów, (SCHUBE 1903b), Chojnik castle “Kynast”.
BE 83 – Wałbrzych (SCHUBE 1903a).
BE 97 – Niemcza (SCHUBE 1903b).
BF 06 – Srebrna Góra (SCHUBE 1903b, 1905), fortress “Donjon”.
CC 27 – between Ostromecko and Pień near Chełmno (ABROMEIT *et al.* 1898), *leg. Rosenbohm* 1881.
DC 30 – Toruń (ABROMEIT *et al.* 1898), “Jakubskie Przedmieście”, *leg. Körnicke*; wall of “Katharienthor” *leg. Abromeit* 1882; *leg. Frölich* 1884.
GE 33 – Kolonia Rudka (WRZESIEŃ 2007), railway areas.

***Valerianella coronata* (L.) DC. in LAM. & DC., Fl. Fr. ed. 3, 4: 241 (1805)**

- BE 48** – Wrocław (SCHALOW 1932), western goods station, *leg. Meyer K.* 1931.
DA 80 – Gdańsk Oliwa (SCHWARZ 1967), *leg. Lüttow C.* 1893, *rev. Rostański K.* 1964 (TRN).

***Valerianella eriocarpa* DESV., Jour. Bot. Rédigé 2: 314 (1809)**

Cultivated for salad in different parts of Europe.

- BE 48** – Wrocław (MEYER 1932), western goods station, *leg. Meyer K.* 1931.
BE 49 – Wrocław (SCHALOW 1932; MEYER 1932), yard close to tropical fruit store at Tęczowa Street.

***Ventenata dubia* (LEERS) COSS., Ann. Sci. Nat., Bot. sér. 4, 4: 252 (1855)**

Synonyms: *Avena tenuis* MOENCH.

- CF 18** – Strzelce Opolskie (MICHALAK 1981b), railway areas, *leg. Michalak S.* 1977.
DF 69 – Kraków in the neighbourhood of Łobzów (BESSER 1809; FREY, PASZKO 1998), probably the species was misdetermined (FREY, PASZKO 1998)
ED 26 – Warszawa, between Mokotów and Sielec (ROSTAFIŃSKI 1872), probably the species was misdetermined (FREY, PASZKO 1998).
EF 97 – Ciężkowice near Tarnów (FREY, PASZKO 1998), dry places at the fences, *leg. Gustawicz B.?* (KRA).
FD 56 – Świdry near Łuków (FREY, PASZKO 1998), *leg. Głowacki Z.* 1977.

***Verbascum chaixii* VILL. subsp. *orientale* HAYEK, *Prosp. Hist. Pl. Dauphiné* 22 (1779)**

Synonyms: *Verbascum orientale* BIEB.

AB 21 – Świnoujście (SCHMIDT 1848).

BB 46 – Lubogoszcz (TYSZKIEWICZ 1970), rubble heap close to cultivated field, *leg. Tyszkiewicz* 1965.

BE 49 – Wrocław Nadodrze (ROSTAŃSKI K. 1960), river port, railway areas, *leg. Rostański K.* 1958 (WRSL).

***Verbascum lanatum* SCHRAD., *Monogr. Verbasci* 2: 28 (1823)**

ED 37 – Warszawa Powsin (GALERA 2003), Botanical Garden, *leg. Galera H.* 1994.

***Verbascum olympicum* BOISS, *Diagn. Pl. Orient.* 1, 4: 54 (1844)**

DF 32 – Bytom (SCHUBE 1906), “Parkenlagen”, *leg. Tischbierek* 1905.

***Verbascum sinuatum* L., *Sp. Pl.* 178 (1753)**

BE 48 – Wrocław (SCHALOW 1931), waste dump near “Kornerwiese”.

***Verbascum virgatum* STOKES, *Bot. Arr. Brit. Pl.*, ed. 2. 1: 227–229 (1787)**

Synonyms: *Verbascum virgatum* WITH.

AB 83 – Szczecin (SCHEUERMANN 1956), dumping ground at Gdańska Street.

AB 83 – Szczecin (HOLZFUSS 1941), dumping ground at Tama Pomorzańska Street.

***Vicia articulata* HORNEM., *Enum. Pl. Hort. Haun.* 41 (1807)**

Synonyms: *Vicia monanthos* (L.) DESF., non RETZ.

AD 86 – Żary (DECKER 1912), fortress.

BE 28 – Oborniki Śląskie (FIEK 1881), *leg. Kabath*.

CE 84 – Dobrzeń Wielki (MICHALAK 1981a), railway station, *leg. Michalak* 1973.

CF 17 – Strzelce Opolskie (MICHALAK 1981a), railway station, *leg. Michalak* 1974.

DB 35 – Dzierżgoń near Elbląg (ABROMEIT *et al.* 1898), *leg. Schultz* 1874.

***Vicia benghalensis* L., *Sp. Pl.* 736 (1753)**

BE 48 – Wrocław (MEYER 1936), river port, *leg. Schalow E.* 1935, *leg. Meyer K.* 1936 (WRSL).

BE 48 – Wrocław, Grabiszyńska Street, *leg. Meyer K.* 1937 (WRSL).

***Vicia bithynica* (L.) L., *Syst. Nat.* ed. 10, 2: 1166 (1759)**

AD 43 – Gubin (LADEMANN 1937), *leg. Lademann* 1932 and 1933.

DA 80 – Gdańsk Westerplatte (PREUSS 1928), ballast heaps, *leg. Klinsmann* 1844 (TRN).

***Vicia ervilia* (L.) WILLD., *Sp. Pl.* 3: 1103 (1802)**

BE 42 – Sichów near Jawor (SCHALOW 1935), a weed in cultivated field, *leg. Strauch* 1934.

GF 00 – between Szozdy and Terespol (KULPA 1964), stubble field, *leg. Kulpa* 1959.

***Vicia lutea* L., *Sp. Pl.* 736 (1753)**

AB 53 – Stepniczka near Szczecin (SCHEUERMANN 1956) in 1939.

AB 73 – Szczecin Warszewo (SCHEUERMANN 1956) in 1939.

AB 83 – Szczecin (SCHEUERMANN 1956), dumping ground at Gdańska Street.

AB 93 – Siadło Dolne near Szczecin (HOLZFUSS 1937), lawn near the Natural Science Museum, *leg. Holzfuss* 1935.

AB 94 – Klęskowo near Szczecin (SCHEUERMANN 1956).

AC 57 – Gorzów Wielkopolski (MISIEWICZ 1981), roadside at municipal cemetery at Żwirowa Street, *leg. Misiewicz J.* 1968.

- BE 48** – Wrocław (MEYER 1935), western goods station.
BE 48 – Wrocław (MEYER 1936), river port, *leg. Schalow E.* 1935.
BE 58 – Wrocław Krzyki (ROSTAŃSKI K. 1961), railway track, *leg. Rostański K.* 1958 (WRSL).
DD 75 – Łódź Helenówek (SOWA 1962), railway embankment, *leg. Sowa R.* 1960 (LOD).
DD 87 – Łódź Olechów (SOWA 1962), railway station, *leg. Sowa R.* 1962 (LOD).
FF 58 – Chodaczów (NOWIŃSKI 1924).

***Vicia melanops* SIBTH. & SM., *Fl. Graec. Prodr.* 2: 72 (1813)**

- BE 62** – Pogwizdów near Bolków (SCHALOW 1932), a weed in clover cultivation, *leg. Strauch* 1931.

***Vicia narbonensis* L., *Sp. Pl.* 737 (1753)**

- AB 93** – Siadło Dolne near Szczecin (HOLZFUSS 1937), lawn near the Natural Science Museum, *leg. Holzfuss* 1922.
BE 39 – Psary near Wrocław (UECHTRITZ 1886), *leg. Preiser* 1885.

***Vicia tenuissima* (M. BIEB.) SCHINZ & THELL., *Viert. Naturf. Ges. Zürich* 58: 70 (1913)**

Synonyms: *Vicia gracilis* LOISEL., BANKS & non SOLANDER, *Ervum gracile* DC.

- DA 80** – Gdańsk (ABROMEIT *et al.* 1898), North Port, ballast heaps, *leg. Helm* 1885.
DB 90 – Gdańsk Wisłoujście (ABROMEIT *et al.* 1898), ballast heaps, *leg. Helm* 1885.

***Volutaria lippii* (L.) MAIRE, *Cat. Pl. Maroc.* 3: 817 (1934)**

Synonyms: *Centaurea lippii* L.

- BE 48** – Wrocław (MEYER 1937), river port, near mill, *leg. Meyer K.* 1936 (WRSL).

***Vulpia ciliata* DUMORT., *Obs. Gram. Belg.* 100 (1824)**

- AB 83** – Szczecin (SCHEUERMANN 1956; FREY *et al.* 2004), goods station, *leg. Wangrin G.* 1942.
BE 49 – Wrocław (SCHALOW 1932; FREY *et al.* 2004), yard close to exotic fruit store at Tęczowa Street.

***Vulpia geniculata* (L.) LINK., *Hort. Berol.* 1: 148 (1827)**

- AD 43** – Gubin (LADEMANN 1937), garbage dump, in 1929.

***Xanthium macrocarpum* DC., *Fl. Franc.*, ed. 3. 6: 356 (1815)**

The taxon requires a critical review.

- BC 86** – Gałowo near Szamotuły (SZULCZEWSKI 1951 according to “Zielnik Wielkopolski”).

***Zygophyllum fabago* L., *Sp. Pl.* 1: 385. 1753.**

- BE 49** – Wrocław (MEYER 1932; SCHALOW 1932), river port.
FE 92 – Sandomierz (ROSTAFIŃSKI 1873) steep slope on Vistula River, *leg. Czapurzyński K.* 1870 (KRA); *leg. Strzelecka M.* 1913 (KRA), *leg. Błaszczuk Z.* 1934 (KRA).

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Main databases

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- The Global Invasive Species Database is managed by the Invasive Species Specialist Group (ISSG) of the IUCN Species Survival Commission: <http://www.issg.org/database/welcome/eFloras.org>, <http://www.eFloras.org/index.aspx>

Występowanie roślin przejściowo zawlekanych (efemerofitów) w Polsce – skala i ocena zjawiska

Streszczenie

Głównym celem pracy jest monograficzne opracowanie efemerofitów Polski oraz przedstawienie ich roli we współczesnej florze. W niniejszym opracowaniu przyjęto następujące kryteria przynależności gatunku do grupy efemerofitów: jest to gatunek obcego pochodzenia (antropofit), niezadomowiony trwale na terenie Polski, zawlekany ze znacznych odległości (z reguły z terenów odległych o co najmniej kilkaset kilometrów), pojawił się bez świadomego (celowego) udziału człowieka, nie jest uprawiany w Polsce, występuje na specyficznych siedliskach o znacznym dopływie diaspory gatunków obcego pochodzenia.

Jako teren badań przyjęto obszar Rzeczypospolitej Polskiej we współczesnych granicach administracyjnych. Weryfikacja poszczególnych taksonów zaliczonych przez różnych autorów (MIREK i in. 2002; ROSTAŃSKI, SOWA 1986–1987; RUTKOWSKI 2004) do efemerofitów pozwoliła na wyróżnienie 133 gatunków, które z różnych powodów nie spełniają przyjętych w opracowaniu kryteriów przynależności do tej grupy roślin (Załącznik A). Alfabetyczny wykaz efemerofitów Polski sporządzono zgodnie z *Krytyczną listą roślin naczyniowych Polski* (MIREK i in. 2002). Listę uzupełniono o gatunki, których występowanie stwierdzono w ostatnich latach, oraz gatunki nieuwzględnione we wcześniejszych pracach (MIREK i in. 2002; ROSTAŃSKI, SOWA 1986–1987; RUTKOWSKI 2004). W celu przedstawienia pełnej charakterystyki gatunków przejściowo zawlekanych na teren Polski zebrano informacje dotyczące tej grupy gatunków na podstawie danych literaturowych, materiałów zielnikowych oraz własnych badań terenowych. Biorąc pod uwagę zgromadzone w ten sposób dane, zaprezentowano syntetyczną charakterystykę efemerofitów Polski, obejmującą ich aktualnie obowiązującą nazwę łacińską, przynależność systematyczną (MIREK i in. 2002), sposoby zawlekania (o ile są znane), obszar, z którego pochodzą, oraz siedliska występowania w granicach ich naturalnego zasięgu. Omówiono również typy siedlisk, na których obserwowano je w Polsce, oraz liczbę ich notowań w wyróżnionych okresach historycznych (Załącznik B). Uzyskane informacje posłużyły do utworzenia komputerowej bazy danych stanowisk efemerofitów w Polsce „Efem-ATPOL”, która jest kompatybilna z *Atlasem rozmieszczenia roślin naczyniowych w Polsce* (ZAJĄC A., ZAJĄC M., red., 2001) i stanowi jego uzupełnienie. Mapy obrazujące rozmieszczenie wybranych efemerofitów oraz koncentrację ich stanowisk w Polsce w jednostkach kartogramu 10 × 10 km sporządzono według metodyki ATPOL (ZAJĄC 1978). W pracy podano również szczegółowy wykaz stanowisk dla gatunków uznanych za efemerofity (Załącznik C). Stanowiska opisano, podając kolejno: symbol jednostki kartogramu (10 × 10 km), miejscowość, autora i rok publikacji, siedliska wy-

stępowania, autora i rok zbioru oraz symbol zielnika. Nazwy miejscowości podane w języku niemieckim zostały przetłumaczone na język polski (BATTEK, SZCZEPANKIEWICZ-BATTEK 2007; ROSPOND 1951).

Aktualny wykaz efemerofitów Polski liczy 400 gatunków, należących do 215 rodzajów i 50 rodzin. Najbogatsze w efemerofity rodziny to: *Poaceae* (74 gat.), *Asteraceae* (63 gat.), *Fabaceae* (40 gat.) oraz *Brassicaceae* (29 gat.). Najbogatsze w gatunki rodzaje to *Bromus* (12 gat.) i *Centaurea* (9 gat.). Liczba notowań efemerofitów Polski wynosi 1 877, średnio 4,7 na jeden gatunek. Najwięcej było ich u przedstawicieli *Poaceae* (403), *Brassicaceae* (365) i *Asteraceae* (337).

Największe zagęszczenie stanowisk efemerofitów odnotowano w miejscach przeładunku towarów na terenach portów morskich (Gdańsk, Szczecin), rzecznych (Wrocław, Opole, Gliwice), wokół zakładów włókienniczych (Łódź) oraz w otoczeniu młynów i elewatorów zbożowych.

Stwierdzono, że najwięcej efemerofitów zostało zawleczonych w latach 1914–1945 (256 gat.), co było związane nie tylko z działaniami wojennymi, rozwijającym się transportem kolejowym i żegluga śródlądową, lecz również z dużą intensywnością badań florystycznych, prowadzanych wówczas przez botaników niemieckich na terenach Śląska i Pomorza. Najmniejszą liczbę efemerofitów zaobserwowano po 1989 roku (60 gat.).

W trakcie własnych badań terenowych odnotowano występowanie kilku bardzo rzadkich, przejściowo zawleczonych gatunków, między innymi *Claytonia perfoliata* i *Dactyloctenium aegyptium*, a kilka lat wcześniej: *Cenchrus ciliaris*, *Echinochloa coloum*, *Eleusine indica*, *Tragus racemosus*.

Najwięcej efemerofitów zostało zawleczonych z owocami południowymi (75 gat.), importowanym zbożem (60), nasionami roślin oleistych (23), wełną (20), ziemią balastową (19) oraz karmą dla ptaków i paszą dla zwierząt (13). Dla gatunków zaliczonych do powyższych grup przedstawiono mapy koncentracji występowania ich stanowisk w Polsce.

Gatunki zaliczone do tej grupy roślin w 46% zostały zawleczone z obszaru śródziemnomorskiego i Europy Południowej, w 33% z Azji i Europy Wschodniej, w 15% z Ameryki Północnej lub Południowej, w 5% z Afryki i Australii oraz w 1% mają pochodzenie antropogeniczne.

Większość z nich w obrębie swego naturalnego zasięgu występuje na siedliskach otwartych oraz glebach suchych i piaszczystych. Na terenie Polski najwięcej efemerofitów odnotowano na terenach kolejowych, wysypiskach odpadów i w sąsiedztwie zakładów przemysłowych.

Na podstawie uzyskanych wyników sformułowano następujące wnioski:

1. Wyróżnianie efemerofitów jako odrębnej grupy roślin synantropijnych jest uzasadnione, różnią się one bowiem od ergazjofitów intencjonalnością wprowadzenia, odległością, z której przybyły, oraz siedliskami, na których występują.
2. Przynależność systematyczna efemerofitów oraz gatunków rodzimych dla flory Polski jest podobna. Przedstawiciele rodzin „egzotycznych” pojawiają się bardzo rzadko.
3. Im bogatszy florystycznie oraz położony bliżej granic Polski jest obszar, z którego przybył dany gatunek, tym większe jest prawdopodobieństwo jego zawleczenia – najwięcej efemerofitów pochodzi z południowej Europy lub zachodniej Azji.
4. Na występowanie gatunków przejściowo zawlekanych bardzo istotny wpływ mają również wydarzenia historyczne, w wyniku których zmianie ulega sytuacja społeczna i gospodarcza.

5. Najwięcej stanowisk efemerofitów odnotowano w zachodniej i południowej części Polski, gdzie zagęszczenie linii kolejowych jest największe – głównie w dużych miastach portowych położonych dawniej w granicach Niemiec (Wrocław, Szczecin, Gdańsk).
6. Siedliska, na których występują efemerofity, są ściśle związane ze sposobami ich zawlekania.
7. Pojawianie się gatunków zaliczanych do tej grupy jest współcześnie ograniczone głównie w wyniku bardziej restrykcyjnych przepisów, dotyczących jakości i sposobu importu sprowadzanych towarów, które ograniczają możliwość ich przypadkowego zawleczenia.
8. Z wieloletnich obserwacji dotyczących zjawiska zadamawiania się gatunków przejściowo zawlekanych wynika, że szanse na przystosowanie się do nowych warunków siedliskowych ma około 5% z nich.

Das Vorkommen von vorläufig eingeschleppten Pflanzen (Ephemerophyten, Adventivpflanzen) in Polen – der Umfang und die Beurteilung von der Erscheinung

Z u s a m m e n f a s s u n g

Das Hauptziel der vorliegenden Monografie ist, das Vorkommen von Ephemerophyten in Polen und deren Rolle in der heutigen Flora darzustellen. Die Verfasserin hat dabei folgende Kriterien der Angehörigkeit der Gattung zu Ephemerophyten angenommen: es ist eine fremde Gattung (Anthropophyt), die auf dem polnischen Gebiet nie beständig heimisch geworden ist, aus sehr entfernten Gebieten (meistens mindestens einige hunderte Kilometer) eingeschleppt wurde, ohne bewusstes (absichtliches) Eingreifen des Menschen erschien, in Polen nicht angebaut wird und in spezifischen Biotopen vorkommt, in denen ein bedeutender Zufuhr von fremden Gattungsdiasporen beobachtet wird.

Die Forschungen wurden auf dem Gebiet der Republik Polen innerhalb deren heutigen administrativen Grenzen durchgeführt. Die Verifizierung von den einzelnen Taxa, die von verschiedenen Autoren (MIREK u.a. 2002; ROSTAŃSKI, SOWA 1986–1987; RUTKOWSKI 2004) zu Ephemerophyten gezählt wurden, ließ zwischen 133 Gattungen unterscheiden, welche aus mehreren Gründen die in der Monografie angenommenen Kriterien der Klassifizierung nicht erfüllen (Anlage A). Alphabetisches Verzeichnis von polnischen Ephemerophyten wurde in Anlehnung an *Kritische Liste der Gefäßpflanzen Polens* (MIREK u.a. 2002) angefertigt. Die Liste wurde mit den Gattungen ergänzt, deren Vorkommen in den letzten Jahren festgestellt und in den früheren Publikationen (MIREK u.a. 2002; ROSTAŃSKI, SOWA 1986–1987; RUTKOWSKI 2004) nicht berücksichtigt wurde. Zwecks voller Beschreibung der auf das Gebiet Polens vorläufig eingeschleppten Pflanzengattungen bediente sich die Verfasserin der Fachliteratur, der Herbarien und ihrer eigenen Feldforschungen. Aufgrund der gesammelten Daten stellt sie eine synthetische Charakteristik von polnischen Ephemerophyten dar, welche ihren aktuellen lateinischen Namen, systematische Angehörigkeit (MIREK u.a. 2002), Einschleppungswege (falls die bekannt sind), Herkunftsgebiet und Biotope in den Grenzen ihrer natürlichen Reichweite umfasst. Sie nennt die Biotoptypen, auf denen Adventivpflanzen in Polen beobachtet wurden und die Anzahl von deren Aufzeichnungen in bestimmten historischen Perioden (Anlage B). Aufgrund der eingeholten Informationen wurde eine Computerdatenbasis von Ephemerophytenstandorten in Polen angefertigt – „Efem-ATPOL“ – welche mit dem *Atlas von der Gefäßpflanzenverteilung in Polen* (ZAJAC A., ZAJAC M. Red. 2001) kompatibel ist und seine Ergänzung darstellt. Die die Verteilung von ausgewählten Ephemerophyten und die Konzentration von deren Standorten in Polen darstellenden Karten wurden mit Hilfe der ATPOL – Methodik (ZAJAC 1978) in Kartogrammseinheiten 10 × 10 km ausgefertigt. Die Monografie beinhaltet auch ein ausführliches Verzeich-

nis von den Standorten der für Ephemerophyten anerkannten Gattungen (Anlage C). Diese Standorten wurden folgendermaßen beschrieben: Symbol von der Kartogrammeinheit (10 × 10 km), Ortschaft, Autor und Erscheinungsjahr von der Publikation, Biotope in denen sie vorkommen, Autor und Entstehungsjahr von der Sammlung und Symbol des Herbariums. Deutsche Ortschaftnamen wurden ins Polnische übersetzt (BATTEK, SZCZEPANKIEWICZ-BATTEK 2007; ROSPOND 1951).

Das aktuelle Verzeichnis von polnischen Ephemerophyten zählt 400 Gattungen, die zu 215 Arten und 50 Familien gehören. Die an Ephemerophyten reichen Familien sind: *Poaceae* (74 Gattungen), *Asteraceae* (63 Gattungen), *Fabaceae* (40 Gattungen) und *Brassicaceae* (29 Gattungen). Zu den an Gattungen reichen Arten gehören: *Bromus* (12 Gattungen) und *Centaurea* (9 Gattungen). In Polen wurden 1877 Ephemerophyten, durchschnittlich 4,7 pro Gattung, aufgezeichnet. Die meisten von ihnen wurden bei den Vertretern von *Poaceae* (403), *Brassicaceae* (365) und *Asteraceae* (337) festgestellt.

Die meisten Standorten von Ephemerophyten wurden an den Stellen beobachtet, wo Waren umgeladen wurden, nämlich in Seehäfen (Danzig, Stettin), Flusshäfen (Breslau, Oppeln, Gleiwitz), rundum Textilbetriebe (Lodz) und in der Nähe von Mühlen und Getreidespeichern.

Es wurde nachgewiesen, dass die meisten Ephemerophyten (256 Gattungen) in den Jahren 1914–1945 eingeschleppt wurden, und das nicht nur wegen der Kriegshandlungen, des Schienenverkehrs und der Binnenfahrt, sondern auch infolge der damals von deutschen Botanikern auf dem Gebiet Schlesiens und Pommerns durchgeführten intensiven floristischen Forschungen. Die wenigsten Ephemerophyten (60 Gattungen) wurden nach 1989 festgestellt.

In Folge eigener Feldforschungen wurde das Vorkommen von einigen sehr seltenen, vorläufig eingeschleppten Gattungen u. a. *Claytonia perfoliata* und *Dactyloctenium aegyptium*, und vor einigen Jahren noch: *Cenchrus ciliaris*, *Echinochloa*, *Eleusine indica*, *Tragus racemosus* nachgewiesen.

Die meisten Ephemerophyten wurden mit Südfrüchten (75 Gattungen), importiertem Getreide (60 Gattungen), Ölpflanzensamen (23 Gattungen), Wolle (20 Gattungen), Ballastboden (19 Gattungen), Futter für Vögel und andere Tiere (13 Gattungen) eingeschleppt. Für die zu oben genannten Gattungen gezählten Gruppen wurden Karten mit deren Konzentrationsdichte in Polen fertig gestellt.

Die zu der Pflanzengruppe gehörenden Gattungen wurden in 46% aus Mittelmeergebieten und Südeuropa, in 33% aus Asien und Osteuropa, in 15% aus Nord- oder Südamerika, in 5% aus Afrika und Australien eingeschleppt; 1% ist von anthropogener Herkunft.

In ihrer natürlichen Reichweite kommen Ephemerophyten in offenen Biotopen und auf trockenen und sandigen Böden vor. Die meisten von ihnen gibt es in Polen auf Eisenbahngebieten, Müllkippen und in der Nachbarschaft von Industriebetrieben.

Aufgrund der Forschungsergebnisse ist die Verfasserin zu folgenden Schlussfolgerungen gekommen:

1. Es ist ganz begründet, Ephemerophyten als eine besondere Gruppe von synanthropischen Pflanzen zu unterscheiden, denn diese unterscheiden sich von Ergasiofiofityten durch zielgerichtete Einführung, Ferne aus der sie angekommen sind und Biotopen, in denen sie auftreten.
2. Die Ephemerophyten und die in Polen einheimischen Gattungen haben ähnliche systematische Angehörigkeit. Die Vertreter von „exotischen“ Familien kommen sehr selten vor.

3. Je floristisch reicher das näher der polnischen Grenzen gelegene Herkunftsgebiet von einer Gattung ist, desto wahrscheinlicher ist es, dass diese Gattung eingeschleppt wird – die meisten Ephemerophyten stammen aus Südeuropa oder Westasien.
4. Das Vorkommen von vorläufig eingeschleppten Gattungen wird von historischen Geschehnissen und infolgedessen von der sich verändernden sozialen und wirtschaftlichen Lage sehr beeinflusst.
5. Die meisten Standorten von Ephemerophyten wurden im westlichen und südlichen Teil Polens festgestellt, wo es das dichteste Eisenbahnliniennetz gibt – und das hauptsächlich in großen, früher in Grenzen Deutschlands gelegenen Hafenstädten (Breslau, Stettin, Danzig).
6. Die Biotope, in denen Ephemerophyten vorkommen, sind mit der Art und Weise, auf welche sie eingeschleppt werden, eng verbunden.
7. Das Auftreten von genannten Gattungen ist heutzutage vor allem durch restriktivere Vorschriften über die Qualität und Einfuhrweg von importierten Waren begrenzt, so dass diese Pflanzen nur sehr zufällig eingeschleppt werden können.
8. Aus langjährigen Forschungen über das Heimischwerden von überläufig eingeschleppten Pflanzengattungen geht hervor, dass lediglich etwa 5% von ihnen die Möglichkeit hat, sich an neue Biotopverhältnisse anzupassen.

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