

Research article[urn:lsid:zoobank.org:pub:DAB40723-C66E-4826-A8F7-A678AFABA1BC](https://zoobank.org/pub:DAB40723-C66E-4826-A8F7-A678AFABA1BC)**Scale insects (Hemiptera: Coccoomorpha)
in the entomological collection of the Zoology Research Group,
University of Silesia in Katowice (DZUS), Poland****Agnieszka Bugaj-Nawrocka^{1,*}, Łukasz Junkiert², Małgorzata Kalandyk-Kołodziejczyk³ & Karina Wieczorek⁴**^{1,2,3,4}*Faculty of Natural Sciences, Institute of Biology, Biotechnology and Environmental Protection,
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Abstract. Information about the scientific collections is made available more and more often. The digitisation of such resources allows us to verify their value and share these records with other scientists – and they are usually rich in taxa and unique in the world. Moreover, such information significantly enriches local and global knowledge about biodiversity. The digitisation of the resources of the Zoology Research Group, University of Silesia in Katowice (Poland) allowed presenting a substantial collection of scale insects (Hemiptera: Coccoomorpha). The collection counts 9369 slide-mounted specimens, about 200 alcohol-preserved samples, close to 2500 dry specimens stored in glass vials and 1319 amber inclusions representing 343 taxa (289 identified to species level), 158 genera and 36 families (29 extant and seven extinct). A significant part is the collection of an outstanding Polish coccidologist, Professor Jan Koteja. The geographical analysis of the scale insects collected shows mainly Eurasian areas, but there is also material from North America, South America, as well as Africa and New Zealand.

Keywords. Alpha taxonomy, biodiversity conservation, Coccoidea, Sternorrhyncha.

INTRODUCTION

There are many natural history collections, both private and in museums, and all of them are extremely important for the knowledge of biodiversity. Information about which specimens are in each collection is now more accessible than ever. Many natural history museums and other institutions curating scientific collections provide such information on websites as databases. They also publish articles from which we can learn a lot about the details of these collections (like, for example, those devoted to different groups of insects: Wijesekara & Wijesinghe 2003; Lampe et al. 2007; Notton 2007; González et al. 2013; Franquinho Aguiar & Carvalho 2016; Borowski & Singh 2017; Zaragoza-Caballero & Pérez-Hernández 2017; Caballero et al. 2020; Zahiri et al. 2021).

Scale insects (Hemiptera: Coccoomorpha) constitute the superfamily Coccoidea Handlirsch, 1903 within the infraorder Coccoomorpha Rübtsaamen, 1899 and suborder Sternorrhyncha Amyot & Serville, 1843 (Gullan & Cook 2007; Williams & Hodgson 2014). There are 55 families within scale insects, 35 extant (1213 genera and 8400 species) and 20 extinct (52 extinct genera and

86 species) (García Morales et al. 2016). It is a significant group of insects due to its economic impact worldwide – many species of these plant-feeding hemipterans are considered serious pests of agriculture, horticulture and forestry, and vectors of plant diseases (Gullan & Martin 2009; García Morales et al. 2016).

The collection in the Zoology Research Group, University of Silesia in Katowice is composed mainly of scale insect samples collected by such specialists as de Boer, Borchsenius, Danzig, Kalandyk-Kołodziejczyk, Kawecki, Koteja, Kerzhner, Kosztarab, Łagowska, Nur, Podsiadło, Simon and Żak-Ogaza, and is one of the largest and most important in Poland. Thanks to the project Digital Database of Entomological Specimens HEMIPTERON (CEBD HEMIPTERON), this collection has been already digitised, and the results of our work are presented here.

A major part of this scale insects collection belonged to Professor Jan Koteja – an outstanding Polish entomologist, who made extraordinary contributions to coccidology. He was born on the 17th of September 1932 in Siemianowice Śląskie, Poland. He graduated from the Faculty of Biology and Earth Sciences of the Jagiellonian University and worked at the University of Agri-

culture in Krakow until his retirement (Wegierek 2005). Inspired by Professor Zbigniew Kawecki and Doctor Barbara Żak-Ogaza, he became interested in coccoids. Professor Koteja conducted comprehensive research on scale insects, including faunistics, morphology, taxonomy, palaeontology, and phylogeny (Wegierek 2005; Dziedzicka & Podsiadło 2007), and is considered a pioneer of scale insect palaeontology (Wegierek 2005; Dziedzicka & Podsiadło 2007; Gullan 2008). As Gullan (2008) emphasised, the genius of his work was manifested in the combination of knowledge about extant scale insect species with a thorough understanding of fossils. As a result of enormous, careful work, he described extant and extinct taxa new to knowledge. All his species descriptions are detailed and precisely illustrated. He passed away on the 19th of August 2004 (Wegierek 2005; Dziedzicka & Podsiadło 2007). His research has had a significant influence on the development of coccidology. According to Professor Koteja's will, his collection of scale insects, including microscope slides, dry material, specimens preserved in alcohol, amber inclusions as well as his book collection was donated to the Faculty of Biology and Environmental Protection, Department of Zoology, University of Silesia in Katowice (DZUS), currently Zoology Research Group, Institute of Biology, Biotechnology and Environmental Protection, Faculty of Natural Sciences.

MATERIAL AND METHODS

Professor Koteja's donation is the richest part of the scale insects collection of the DZUS. However, in our collection are also deposited specimens collected by numerous international hemipterists as well as by specialists and students from the University of Silesia in Katowice.

Slide-mounted samples from Professor Koteja's collection were made according to his method (Koteja 1996):

1. Specimens were placed in 10% potassium hydroxide (KOH) or sodium hydroxide (NaOH) at room temperature for a varying period: from a few hours up to a few days. The solution was replaced with a new 10% KOH or 10% NaOH during maceration. In order to shorten the procedure to a few minutes, a solution can be heated in a water bath (the solution should not be boiled).
2. Specimens were placed on watch glass (in 10% KOH or NaOH, later in distilled water or 96% ethanol) and gently pressed to remove all body contents. To purify the specimens, they were placed in a saturated sodium carbonate solution and then transferred to acetic acid. The procedure can be repeated several times until the specimens were cleaned;
3. Specimens were transferred to a solution of 96% ethanol and acetic acid. The proportions of ethanol and acid were of little importance. A few drops of a saturated acid fuchsin solution in 96% ethanol and acetic acid

were added. Specimens were placed in this dye solution for half an hour to several hours;

4. Individuals were placed in 96% ethanol, then in 100% ethanol for several minutes. If the specimens were large and numerous, the procedure should be repeated;
5. Insects were transferred to clove oil or cedarwood oil, in which they should not be stored for more than a few days;
6. Single specimens with their ventral surface upwards were mounted in Canada balsam under a cover glass. The additional specimens in the collection were collected by carefully combing through the host plants, turf, and the surface layers of the soil by hand. Species identification of all specimens collected between 2005 and 2008 was confirmed by Professor Elżbieta Podsiadło (Warsaw University of Life Sciences – SGGW). The insects were preserved in 70% ethanol and mounted according to the method described by Williams & Kosztarab (1972) and further modified by Łagowska (1996). Minor changes were made following Kalandyk & Węgierek (2010):
 1. Specimens were placed in 10% potassium hydroxide (KOH) at room temperature for a varying period: from a single day up to two weeks (the time was longer in the case of individuals characterised by strongly sclerotised cuticula, e.g., some females of the family Coccidae);
 2. The body contents were teased out by gently pressing the specimens with a small wooden spatula (during the process, insects were kept in 10% KOH solution);
 3. Transparent specimens were transferred to distilled water for about 10 minutes;
 4. The insects were kept in glacial acetic acid for at least 2 hours (up to 12 hours);
 5. The specimens were stained in a dye solution for 1–2 hours (such a solution was obtained by adding enough acid fuchsin to the glacial acetic acid to make the solution dark pink);
 6. Individuals were transferred to 95% ethanol for 10 minutes, then to 99.9% ethanol for 5 minutes;
 7. Specimens were kept in clove oil for 1–2 hours (up to a few days);
 8. Single specimens with their ventral surface upwards were mounted in Canada balsam under a cover glass;
 9. The slides were placed in a drying oven at 37°C for about two weeks.

Identifications were carried out using a Nikon Eclipse E600. Slide-mounted samples were scanned using a Epson Perfection V850 Pro scanner with a resolution of 800 dpi and edited in PhotoScape X ver. 4.1.1. Pictures of amber inclusions were taken with a Nikon D750 and edited in Helicon Focus ver. 7.6.6.

The scale insects database was created in Microsoft Excel 2017® software and Microsoft Access 2017® software. The database has the following fields: unique

ID, collector, gathering method, identifier, sex or development stage of specimens, preparation type, number of individuals of a given record, geolocation data (locality, latitude, longitude, altitude and country ISO 3166 code), date of collection of the sample (yyyy-mm-dd), taxonomic information (family, genus, species, author of the species name – old and current names), associated botanical taxa (family, genus, species, author of the species name). All taxonomic changes (like synonymisation that have already been proposed) have been included. The database will be available at <http://www.hemipteron.us.edu.pl>.

A world map with the countries where the collected material comes from was created in Microsoft Excel 2019® software.

Labels of type specimen material

All data are rewritten as they appeared on the respective labels. Double slash (//) separates data on different la-

bels; a single slash (/) separates lines within each label; additional comments are placed in square brackets.

RESULTS AND DISCUSSION

The collection of coccoids at the Zoology Research Group, University of Silesia in Katowice (DZUS) in Poland preserves more than 13.300 curated specimens stored as 9369 slide-mounted specimens, about 200 alcohol-preserved samples, close to 2500 dry specimens in glass vials and 1319 amber inclusions. In total, all the samples mentioned above were identified as belonging to 343 taxa (289 identified to species level, 54 identified to genera level), 158 genera and 36 families (29 extant and seven extinct). Among the material found in amber inclusions, 474 specimens remain unidentified.

All slide-mounted samples are stored in wooden boxes in specially adapted cabinets (Fig. 1). The liquid voucher specimens are preserved in 70% ethanol (Fig. 2A–B), dry samples are stored in glass vials in wooden boxes



Fig. 1. Scale insects (Hemiptera: Cocomorpha) samples deposited in the Zoology Research Group, University of Silesia in Katowice (DZUS) collection. **A.** Specially adapted cabinets for wooden slide holders. **B.** A close-up on one of the shelves on which boxes with slides are systematically placed. **C.** Wooden slide holder with samples curated.



Fig. 2. Scale insects (Hemiptera: Coccoomorpha) samples deposited in the Zoology Research Group, University of Silesia in Katowice (DZUS) collection. **A–B.** Small containers with specimens preserved in 70% ethanol. **C.** Glass vials with dry samples. **D.** Example of stored amber inclusions.

(Fig. 2C), and amber inclusions are stored in foil bags with a description of the sample (Fig. 2D). The scanned specimens were additionally provided with a sticker with a unique ID, which allows them to be easily located in the database (Fig. 3).

Within slide-mounted specimens, 272 slides are represented by males (361 individuals), 7513 are represented by females (9612 individuals), 1334 represent larvae (5995 individuals), 63 represent prepupae (95 individuals), 58 represent pupae (96 individuals), and 41 represent eggs (906 individuals). In turn, among amber inclusions, 938 are represented by males (1282 individuals), 266 are represented by females (358 individuals), and 97 represent larvae (227 individuals). Professor Koteja identified all determined species from amber inclusions.

Table 1 (Appendix I) lists all identified taxa, sex or stage, host plants, and countries in which they were collected. Species known only from greenhouses are also marked. The material was collected over the years 1890–2019. It comes from many places across the world but is dominated by material from Europe and Asia

(Fig. 4). The highest diversity is represented by species of Coccidae Stephens, 1829 (23.6%) and Pseudococcidae Heymons, 1915 (23.6%), followed by Diaspididae Maskell, 1878 (14.3%) and Eriococcidae Cockerell, 1899 (11.4%). Only few species represent the remaining families (Fig. 5 – only extant families are shown). As males are collected much less frequently than females and larvae, figure 6 present the genera and species of male specimens in the collection. Males were recorded from 24 genera (31 species) of plants in 16 families. On the other hand, slide-mounted females were recorded from 168 genera (312 species) of host plants in 65 families. As many as 34.4% of the slide-mounted samples are specimens collected from grasses (Poaceae (R. Br.) Barnh.). The species of the genera *Festuca* L., *Agrostis* L., *Calamagrostis* Adans., *Poa* L., *Deschampsia* P. Beauv., *Brachypodium* L. and *Elymus* L. (all Poaceae) dominate among the grasses. In the second place, with a 20.7% share, are plants from the Cyperaceae Juss., where species of the genera *Carex* L. and *Eriophorum vaginatum* L. have been identified. The third place (11.5%) is

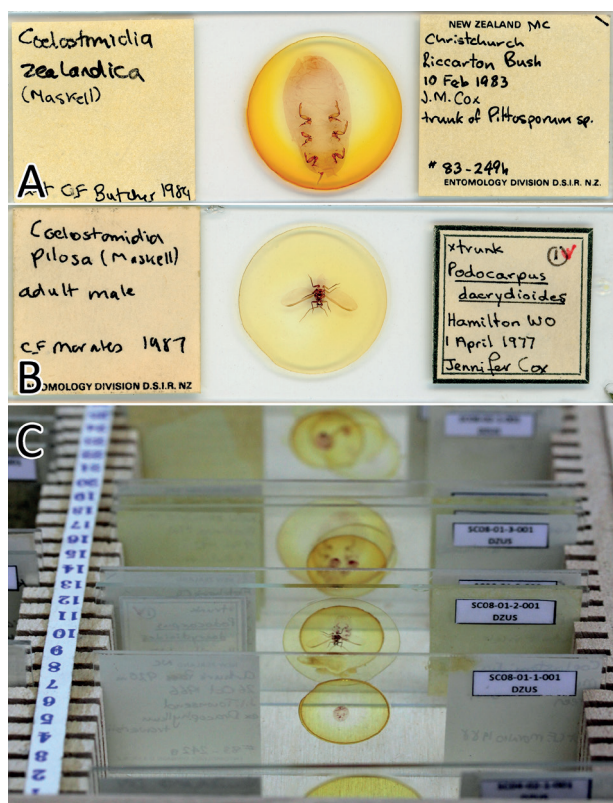


Fig. 3. Slides of curated scale insects (Hemiptera: Coccoomorpha) samples deposited in the Zoology Research Group, University of Silesia in Katowice (DZUS) collection. **A–B.** Examples of how slide-mounted samples are described – data about species, collection site, date, host plant and persons responsible for collection and identification. **C.** Arranging samples in the box – view from the unique ID label side.

taken by host plants from the Ericaceae Juss., where species from the genera *Arctostaphylos* Adanson, *Calluna* Salisb., *Dracophyllum* Labill., *Empetrum* L., *Erica* L., *Rhododendron* L. and *Vaccinium* L. were recorded. In turn, the species with the highest number of recorded host plants are *Trionymus perrisii* (Signoret, 1875) (42 plant species from 20 genera), *Kaweckia glyceriae* (Green, 1921) (37 plant species from 18 genera), *Parthenolecanium corni* (Bouché, 1844) (29 plant species from 24 genera), *Phenacoccus aceris* (Signoret, 1875) (29 plant species from 16 genera), *Lepidosaphes ulmi* (Linnaeus, 1758) (27 plant species from 20 genera), *Trionymus aberrans* Goux, 1938 (27 plant species from 16 genera), *Trionymus thulensis* Green, 1931 (22 plant species from 12 genera), *Anophococcus insignis* (Newstead, 1891) (21 plant species from 16 genera), *Anophococcus pseudinsignis* (Green, 1921) (19 plant species from 15 genera), *Phenacoccus phenacocoides* (Ben-Dov, 1994) (19 plant species from 15 genera), *Saccharicoccus isfarensis* (Borchsenius, 1949) (18 plant species from 12 genera), *Atrococcus cracens* Williams, 1962 (17 plant species from 12 genera), *Ceroputo pilosellae* Šulc, 1898 (15 plant species from 10 genera), *Heterococcus*

nudus (Green, 1926) (15 plant species from 13 genera), and *Lecanopsis formicarum* Newstead, 1893 (15 plant species from 9 genera).

Type specimens deposited at the Zoology Research Group, University of Silesia in Katowice (DZUS)

The Zoology Research Group, University of Silesia in Katowice (DZUS) collection preserves 49 type specimens stored slide-mounted. Some of them have already been synonymised, but we mention them because they once formed the basis for describing a new taxon.

Family Coccidae Fallén, 1814

1. *Exaeretopus orientalis* Danzig, 1975

Exaeretopus orientalis Danzig, 1975a: Zoologicheskii Zhurnal 54: 137–138

Type material examined. • 4354 / *Exaeretopus orientalis* Danz. / ♀ type material / *Carex pediformis* / det. E. Danzig // 23.VII.1970 / 132-71 / Восм. Саан, / Аршан / leg. E. Данциг (DZUS). • 4355 / *Exaeretopus orientalis* Danz. / ♀ type material / *Carex pediformis* / det. E. Danzig // 23.VII.1970 / 132-71 / Востогный Саан / Аршан / leg. E. Данциг (DZUS). • 4356 / *Exaeretopus orientalis* Danzig / ♀ type material / *Carex pediformis* / det. E. Danzig // 23.VII.1970 / 132-71 / Востогный / Саан / Аршан / leg. E. Данциг (DZUS).

Type locality. Buryatia Aut. Oblast, Eastern Sayan, Tunkinsk Ridge, Arshan [Russian Federation]

Current status. Valid species.

Remarks. Holotype (by original designation) is in Saint Petersburg: Zoological Museum, Academy of Science, Russia. Specimens at DZUS collection labelled as “type material” are considered paratypes.

2. *Luzulaspis americana* Koteja & Howell, 1979

Luzulaspis americana Koteja & Howell, 1979: Annals of the Entomological Society of America 72: 334–342

Type material examined. • *Luzulaspis americana* / Koteja et Howell / ♀ / paratype / 10 // HHT-231-75 / On: Unident. Grass / Echols Co. Ga. / X-2-75 / Coll. R. Beshear (DZUS).

Type locality. Echols County, Georgia [United States of America]

Current status. Valid species.

Remarks. Holotype (by original designation) is in Washington: United States National Entomological Collection, U.S. National Museum of Natural History, District of Columbia, USA.

3. *Luzulaspis crassispina* Borchsenius, 1959

Luzulaspis crassispina Borchsenius, 1959: Entomologicheskoe Obozrenye 38: 164–175

Type material examined. • 1314 / *Luzulaspis crassispina* / Borchs. ♀ / paratyp / *Luzula* sp. / det. Borchs //

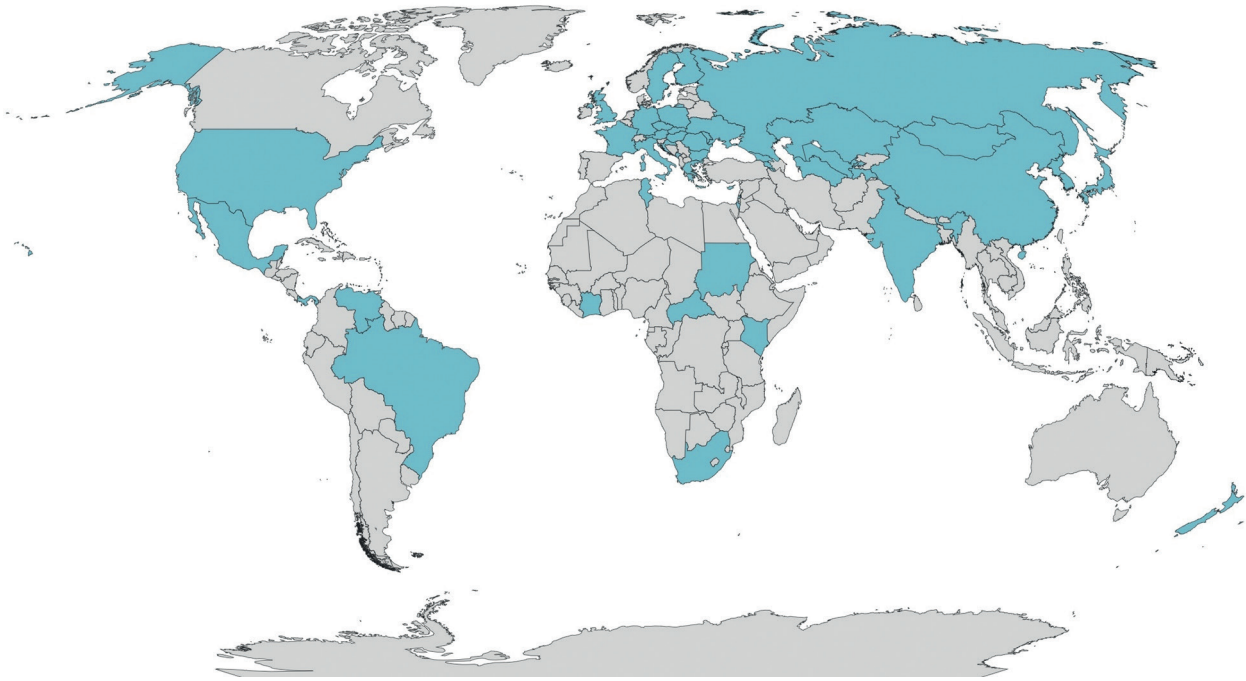


Fig. 4. World map showing the countries where the scale insects samples deposited in the Zoology Research Group, University of Silesia in Katowice (DZUS) collection come from.

18.5.1957 / Juńnań / Chiny / leg. Borchsenius (DZUS).
 • 1315 / *Luzulaspis / crassispina* / Borchs. ♀ / paratyp / *Luzula* sp. / det. Borchs. // 18.5.1957 / Juńnań / Chiny / leg. Borchsenius (DZUS).

Type locality. Yunnan Province, Kingtung [China]

Current status. Valid species.

Remarks. Holotype (by original designation) is in Beijing: Institute of Entomology, Academy of Sciences, China, and was designated from *Carex* sp.

4. *Luzulaspis kosztarabi* Koteja & Kozár, 1979

Luzulaspis kosztarabi Koteja & Kozár, 1979: Acta Zoologica Academiae Scientiarum Hungaricae 25: 121–125

Type material examined. • Tornanádaska / *Carex* / 1975.VIII.8. // *Luzulaspis / kosztarabi* / Koteja et Kozár / paratype / leg. M. Kosztrab / F. Kozar / 545 (DZUS).

Type locality. Tornanádaska [Hungary]

Current status. Valid species.

Remarks. Holotype (by original designation) is in Budapest: Hungarian Natural History Museum, Zoological Department, Hungary.

5. *Luzulaspis minima* Koteja & Howell, 1979

Luzulaspis minima Koteja & Howell, 1979: Annals of the Entomological Society of America 72: 334–342

Type material examined. • *Luzulaspis / minima* / Koteja et Howell / ♀ / paratypes // *Exaeratopus / On Carex* / Eagle Lake Mineral / King Tulare co. Calif. / 10, [illegible] / Aug. 28 1946 G.F.F. / Stanford University / Natural History Museum (DZUS).

Type locality. Tulare County, Eagle Lake, Mineral King, California [United States of America]

Current status. Valid species.

Remarks. Holotype (by original designation) is in Washington: United States National Entomological Collection, U.S. National Museum of Natural History, District of Columbia, USA.

6. *Luzulaspis nemorosa* Koteja, 1966

Luzulaspis nemorosa Koteja, 1966: Polskie Pismo Entomologiczne 36: 45–56

Type material examined. • 2587 / *Luzulaspis / nemorosa* / ♀ - before ovipos. / holotype / *Luzula nemorosa* / det. J. Koteja // 11.7.1962 / Przegorzały / Kraków / leg. J. Koteja (DZUS). • 2591 / *Luzulaspis / nemorosa* / ♀ - before ovipos. / paratype / *Luzula nemorosa* / det. J. Koteja // 22.7.1962 / Przegorzały / Kraków / leg. J. Koteja (DZUS). • 2593 / *Luzulaspis / nemorosa* / ♀ - before ovipos. / paratype / *Luzula nemorosa* / det. J. Koteja // 22.7.1962 / Przegorzały / Kraków / leg. J. Koteja (DZUS). • 2595 / *Luzulaspis / nemorosa* / ♀ - before ovipos. / paratype / *Luzula nemorosa* / det. J. Koteja // 22.7.1962 / Przegorzały / Kraków / leg. J. Koteja (DZUS). • 2596 / *Luzulaspis / nemorosa* / ♀ - before ovipos. / paratype / *Luzula nemorosa* / det. J. Koteja // 22.7.1962 / Przegorzały / Kraków / leg. J. Koteja (DZUS). • 215 / *Luzulaspis / nemorosa* / ♀ - young / paratype / *Luzula nemorosa* / det. J. Koteja // 22.7.1962 / Przegorzały / Kraków / leg. J. Koteja (DZUS).

Type locality. Przegorzały, Cracow [Poland]

Current status. Valid species.

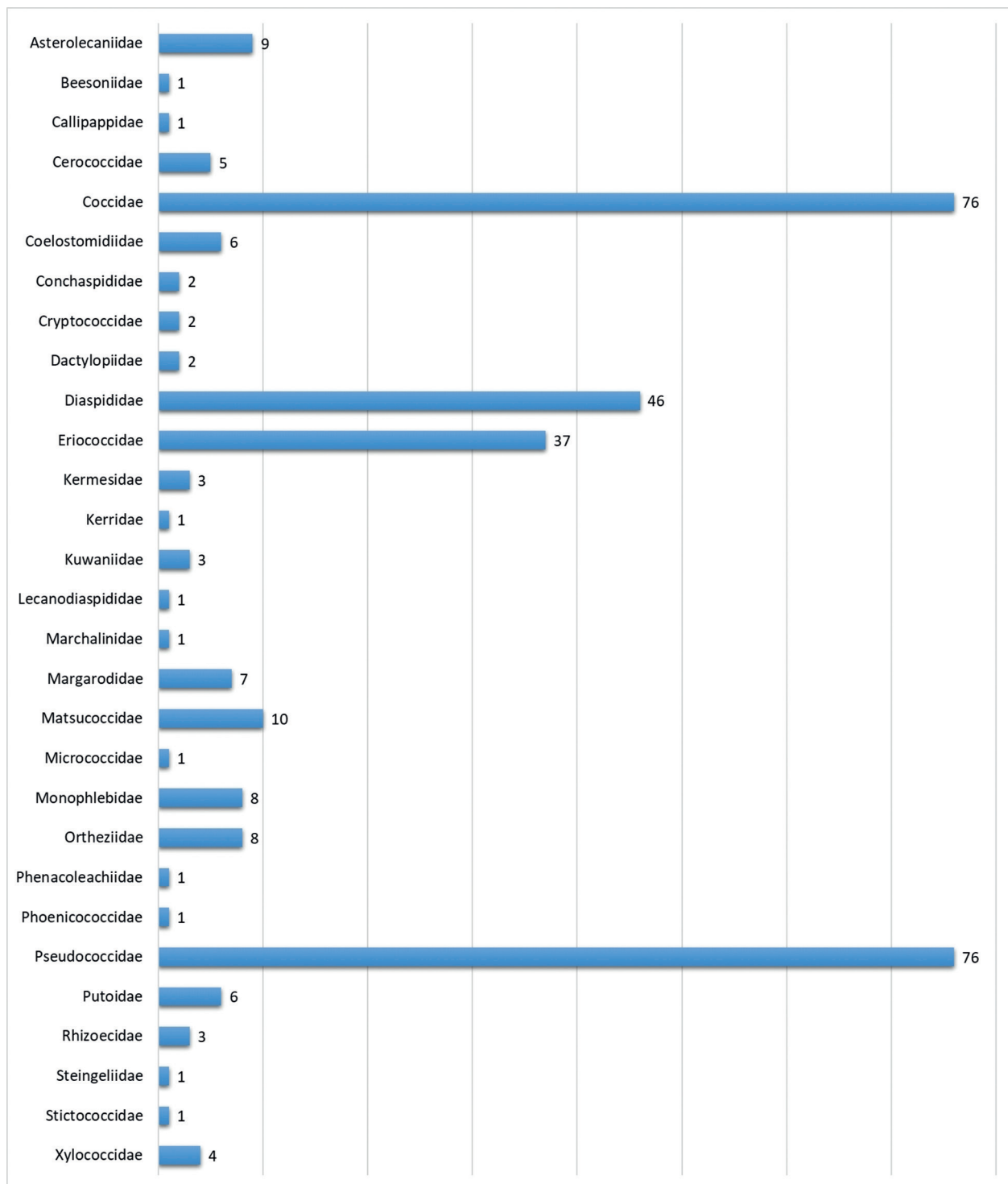


Fig. 5. Summary of the number of species representing a given family of scale insects in the Zoology Research Group, University of Silesia in Katowice (DZUS) collection.

7. *Luzulaspis pieninica* Koteja & Zak-Ogaza, 1966

Luzulaspis pieninica Koteja & Zak-Ogaza, 1966: Acta Zoologica Cracoviensia 11: 305–332

Type material examined. • 1240 / *Luzulaspis* / *pieninica* / ♀ - holotype / *Carex* / ornithopoda / det. B. Ogaza J. Koteja // 17.8.1965 / Cisowa Skala / pow. Nowy Targ / leg. B. Ogaza J. Koteja (DZUS). • 818 / *Luzulaspis* / *pieninica* / ♀ - paratype / *Carex* / ornithopoda / det. B. Ogaza J. Koteja // 8.10.1963 / Macelowa / Góra / p. Nowy Targ / leg. B. J. Koteja Ogaza (DZUS). • 1110 / *Luzulaspis* / *pieninica* / ♀ - paratype / *Carex* / ornithopoda / det. B. Ogaza J. Koteja // 30.7.1964 / Skalka między / Cisową i Oblazą / koło Nowej Białej / pow. Nowy Targ / leg. J. Koteja (DZUS). • 1217 / *Luzulaspis* / *pieninica* / ♀ - paratype / *Carex* / ornithopoda / det. B. Ogaza J. Koteja // 17.8.1965 / Cisowa Skala / pow. Nowy Targ / leg. B. Ogaza J. Koteja (DZUS). • 2263 / *Luzulaspis* / *pieninica* / ♀ - paratype / *Carex* / ornithopoda / det. B. Ogaza J. Koteja // 17.8.1965 / Cisowa Skala / pow. Nowy Targ / leg. B. Ogaza J. Koteja (DZUS). • 2264 / *Luzulaspis* / *pieninica* / ♀ - paratype / *Carex* / ornithopoda / det. B. Ogaza J. Koteja // 17.8.1965 / Cisowa Skala / pow. Nowy Targ / leg. B. Ogaza J. Koteja (DZUS). • 2265 / *Luzulaspis* / *pieninica* / ♀ - paratype / *Carex* / ornithopoda / det. B. Ogaza J. Koteja // 17.8.1965 / Cisowa Skala / pow. Nowy Targ / leg. B. Ogaza J. Koteja (DZUS).

Type locality. Cisowa Skala in the Nowy Targ Valley [Poland]

Current status. Synonym of *Luzulaspis grandis* Borchsenius, 1952 (synonymised by Danzig (1980)).

8. *Pulvinaria terrestris* Borchsenius, 1953

Pulvinaria terrestris Borchsenius, 1953: Entomologicheskoe Obozrenye 33: 281–290

Type material examined. • 1363 / *Pulvinaria* / *terrestris* / ♀ paratype / *Ulmus glabra* / det. Borchsenius // 13.6.1938 / Krym / okręg Jałtajski / leg. Kiričenko (DZUS). • 1364 / *Pulvinaria* / *terrestris* / ♀ paratype / *Ulmus glabra* / det. Borchsenius // 13.6.1938 / Krym / okręg Jałtajski / leg. Kiričenko (DZUS).

Type locality. Vagravar Megrinsk Ridge, Ayrum [Armenia]

Current status. Valid species.

Remarks. Syntypes (by original designation) are in Saint Petersburg: Zoological Museum, Academy of Science, Russia. Specimens at DZUS collection labelled as “paratype” are considered syntypes, because Borchsenius probably did not designate the Holotype.

Family Diaspididae Targioni Tozzetti, 1868**9. *Odonaspis fistulata* Ferris, 1921**

Odonaspis fistulata Ferris, 1921: Stanford University Publications, Biological Sciences. Palo Alto 1: 61–132

Type material examined. • *Odonaspis* / *fistulata* Ferris / = *Circulaspis* / ♀ / Mtd. From / TYPE MAT / R.F. Wilkey

/ -'70 / Punta Pamilla, nr. San / José del Cabo, ‘Baja / California, MEXICO / July, 1919 / ex *Distichlis spicata* / Coll. GFFerris // VPI & SU Collection (DZUS).

Type locality. Baja California, Punta Palmilla, near San José del Cabo [Mexico]

Current status. Change of combination by Ferris in 1938 to *Circulaspis fistulata* (Ferris, 1921)

Remarks. Holotype (by original designation) is in The Bohart Museum of Entomology, University of California, California, USA. Specimen at DZUS collection labelled as “TYPE MAT” is considered paratype.

10. *Niveaspis fenestrata* Ferris, 1941

Niveaspis fenestrata Ferris, 1941: Atlas of the scale insects of North America. Series 3. Stanford University Press Palo Alto, California

Type material examined. • *Niveaspis* / *fenestrata* Ferris / ♀ / Mtd. From / TYPE MAT / R.F. Wilkey / -'70 / Tonila, Colima, / MEXICO – 1962 / ex *Bumelia* sp. / Coll. GFFerris MEX. #286 // VPI & SU Collection (DZUS).

Type locality. Colima, Tonila [Mexico]

Current status. Valid species.

Remarks. Syntypes (by original designation) are in The Bohart Museum of Entomology, University of California, California, USA. The specimen at DZUS collection labelled as “TYPE MAT” is considered syntype.

11. *Velataspis cornigera* Ferris, 1941

Velataspis cornigera Ferris, 1941: Atlas of the scale insects of North America. Series 3. Stanford University Press Palo Alto, California

Type material examined. • *Velataspis* / *cornigera* Ferris / ♀ / Mtd. From / TYPE MAT / R.F. Wilkey / -'70 / David, PANAMA / 1938 / ex unid. shrub / Coll. GFFerris PAN. #306 // VPI & SU Collection (DZUS).

Type locality. Chiriqui, David [Panama]

Current status. Valid species.

Remarks. Holotype (by original designation) is in The Bohart Museum of Entomology, University of California, California, USA. The specimen at DZUS collection labelled as “TYPE MAT” is considered paratype.

Family Eriococcidae Cockerell, 1899**12. *Acanthococcus sasae* Danzig, 1975**

Acanthococcus sasae Danzig, 1975b: Entomologicheskoe Obozrenye 54: 62–81

Type material examined. • Paratypus [red label] // 143=67 / *Acanthococcus* / *sasae* Danzig / *Sasa kurilensis* / o. Кунашир / Серноводск / 11.VI.67 г. Е. Данциг / 4459 (DZUS).

Type locality. Kunashir Island, Sernovodsk [Russian Federation]

Current status. Valid species.

Remarks. Holotype (by original designation) is in Saint Petersburg: Zoological Museum, Academy of Science, Russia.

13. *Rhizococcus palustris* Dziedzicka & Koteja, 1971

Rhizococcus palustris Dziedzicka & Koteja, 1971: Acta Zoologica Cracoviensia 16: 557–579

Type material examined. • 2582 / *Rhizococcus* / *palustris* / ♀ / holotype / ♀ / *Eriophorum* / *vaginatatum* / det. J. Koteja // 10.8.1963 / Puścizna W. / Piekielnik / pow. Nowy Targ / Poland / leg. E. Koteja (DZUS). • 736 / *Rhizococcus* / *palustris* / ♀ paratype / *Eriophorum* / *vaginatatum* / det. Koteja // 10.8.1963 / Puścizna W. / Piekielnik / pow. Nowy Targ / leg. E. Koteja (DZUS). • 737 / *Rhizococcus* / *palustris* / 11 paratype / *Eriophorum* / *vaginatatum* / det. J. Koteja // 10.8.1963 / Piekielnik / (ORAWA) / Torfowisko wys. / Puścizna Wielka / leg. J. Koteja (DZUS). • 759 / *Rhizococcus* / *palustris* / ♀ paratype / ♀ / *Eriophorum* / *vaginatatum* / det. J. Koteja // 10.8.1963 / Puścizna W. / Piekielnik / pow. Nowy Targ / leg. E. Koteja (DZUS). • 2580 / *Rhizococcus* / *palustris* / ♀ paratype / ♀ / *Eriophorum* / *vaginatatum* / det. Koteja // 10.8.1963 / Puścizna W. / Piekielnik / pow. Nowy Targ / leg. E. Koteja (DZUS). • 2583 / *Rhizococcus* / *palustris* / ♀ paratype / ♀ / *Eriophorum* / *vaginatatum* / det. Koteja // 10.8.1963 / Puścizna W. / Piekielnik / pow. Nowy Targ / leg. E. Koteja (DZUS). • 2585 / *Rhizococcus* / *palustris* / ♀ paratype / ♀ / *Eriophorum* / *vaginatatum* / det. J. Koteja // 10.8.1963 / Puścizna W. / Piekielnik / pow. Nowy Targ / leg. E. Koteja (DZUS). • 2586 / *Rhizococcus* / *palustris* / ♀ paratype / *Eriophorum* / *vaginatatum* / det. Koteja // 10.8.1963 / Puścizna W. / Piekielnik / pow. Nowy Targ / leg. E. Koteja (DZUS).

Type locality. Puścizna Wielka, Piekielnik, Nowy Targ [Poland]

Current status. Valid species.

Remarks. This species was described by Dziedzicka and Koteja (1971) as *Rhizococcus palustris* and was transferred to the genus *Acanthococcus* by Kosztarab and Kozár (1978) (as *Acanthococcus palustris*). Many species of the genus *Acanthococcus* were sometimes synonymised with *Eriococcus*; because of this Dziedzicka and Koteja (1985) replaced the synonymised name *Eriococcus palustris* with *Eriococcus podhalensis* as *nomen novum*. Miller and Gimpel (1996) proposed a new name, *Acanthococcus dziedzickae*, for the homonym *Acanthococcus palustris*. They did not notice that Dziedzicka and Koteja (1985) had already changed the name to *Eriococcus podhalensis*. In the Catalogue of the Eriococcidae by Miller and Gimpel (2000), this species was listed as *Eriococcus podhalensis*. However, Kozár (2009) proposed that the species *Rhizococcus palustris* should be considered as appropriate. Kozár et al. (2013) kept the name. Also, Łagowska and Golan (2020) list this species as *Rhizococcus palustris*.

Family Margarodidae Cockerell, 1899

14. *Neomargarodes chondrillae* Archangelskaya, 1935

Neomargarodes chondrillae Archangelskaya, 1935: The carmine-producing coccids (Margarodes) of Middle Asia and species of allied genus *Neomargarodes* (In Russian). Tashkent Publishing Committee of Sciences in Uzbek

Type material examined. • Paralectotypus / design. R. Jashenko [red label] // *Neomargarodes* / *chondrillae* / Arch / *Chondrilla brevirostris* / Мойынкум Акыр / Төбе, лески / 25.VI.31 М. Весыищев (DZUS).

Type locality. Akeer-Tube [Akyrtobe], near Turkestan-Siberian railway [Kazakhstan]

Current status. Valid species.

Remarks. Lectotype (by original designation) is in Saint Petersburg: Zoological Museum, Academy of Science, Russia. Lectotype and paralectotypes were designated by R. Jashenko based on the original material used by Archangelskaya in her first description of this species (personal communication).

Family Pseudococcidae Cockerell, 1905

15. *Mirococcus psammophilus* Koteja, 1971

Mirococcus psammophilus Koteja, 1971: Polskie Pismo Entomologiczne 41: 3–18

Type material examined. • 3224 / *Mirococcus* / *psammophilus* / ♀ holotype / *Festuca ovina* / det. J. Koteja // 4.8.1969 / 53 / Mikoszewo / distr. Nowy / Dwór Gdański / Poland / leg. J. Koteja (DZUS). • 3221 / *Mirococcus* *psam-* / *mophilus* / *Longicoccus* / *Trionymus aberr.* / ♀ / *Festuca ovina* / det. J. Koteja // 4.8.1969 / 53 / 54 / Mikoszewo / p. N Dwór Gdański / leg. J. Koteja (DZUS). • 3222 / *Mirococcus* / *psammophilus* / *Longicoccus* / ♀ paratype / *Festuca ovina* / det. J. Koteja // 4.8.1969 / 53 / Mikoszewo / p. N. Dwór / Gdański / leg. J. Koteja (DZUS). • 3281 / *Mirococcus* / *psammophilus* / *Longicoccus* / ♀ paratype / *Festuca ovina* / w p. liść. / det. J. Koteja // 10.8.1969 / 73 / Mikoszewo / p. Nowy Dwór / Gdański / leg. J. Koteja (DZUS). • 3282 / *Mirococcus* / *psammophilus* / *Longicoccus* / ♀ paratype / *Festuca ovina* / w p. liść. / det. J. Koteja // 10.8.1969 / 73 / Mikoszewo / pow. Nowy / Dwór Gdański / ski / leg. J. Koteja (DZUS). • 3283 / *Mirococcus* / *psammophilus* / *Longicoccus* / ♀ paratype / *Festuca ovina* / w p. liść. / det. J. Koteja // 10.8.1969 / 73 / Mikoszewo / p. Nowy Dwór / Gdański / leg. J. Koteja (DZUS). • 3284 / *Mirococcus* / *psammophilus* / *Longicoccus* / ♀ paratype / *Festuca ovina* / w p. liść. / det. J. Koteja // 10.8.1969 / 73 / Mikoszewo / p. Nowy Dwór / Gdański / leg. J. Koteja (DZUS). • 3285 / *Mirococcus* / *psammophilus* / *Longicoccus* / ♀ paratype / *Festuca ovina* / w p. liść / det. J. Koteja // 10.8.1969 / 73 / Mikoszewo / p. Nowy Dwór / Gdański / leg. J. Koteja (DZUS).

Type locality. Mikoszewo, Nowy Dwór Gdański [Poland]

Current status. Synonym of *Mirococcus clarus* Borchsenius, 1949 (synonymised by Danzig & Gavrilov-Zimin (2014)).

16. *Mirococcus festucae* Koteja, 1971

Mirococcus festucae Koteja, 1971: Polskie Pismo Entomologiczne 41: 3–18

Type material examined. • 1401 / *Mirococcus* / *festucae* / ♀ holotype / *Festuca pallens* / det. J. Koteja // 10.9.1966 / 3a / Pieskowa Skała / distr. Olkusz / leg. J. Koteja (DZUS). • 1404 / *Mirococcus* / *festucae* / ♀ paratype / *Longicoccus* / *Festuca pallens* / det. J. Koteja // 10.9.1966 / 3a / Pieskowa / Skała / pow. Olkusz / leg. J. Koteja (DZUS). • 1405 / *Mirococcus* / *festucae* / ♀ paratype / *Longicoccus* / *Festuca pallens* / det. J. Koteja // 10.9.1966 / 3a / Pieskowa Skała / pow. Olkusz / leg. J. Koteja (DZUS).

Type locality. Pieskowa Skała, Olkusz [Poland]

Current status. Valid species.

17. *Dysmicoccus pauper* Danzig, 1971

Dysmicoccus pauper Danzig, 1971: Entomologicheskoe Obozrenye 50: 366–391

Type material examined. • Paratypus [red label] // 194-61 / *Dysmicoccus* / *pauper* Danzig / Злак (корни) / Владивосток, Седанка, / Приморский край / 23.VII.61 г. Е. Данциг (DZUS).

Type locality. Vladivostok, Primor'ye Krai [Russian Federation]

Current status. Valid species.

Remarks. Holotype (by original designation) is in Saint Petersburg: Zoological Museum, Academy of Science, Russia.

18. *Dysmicoccus balticus* Koteja & Łagowska, 1986

Dysmicoccus balticus Koteja & Łagowska, 1986: Polskie Pismo Entomologiczne 56: 381–388

Type material examined. • 6681a / *Dysmicoccus* / paratype / ♀ przód ciała / *Deschampsia* / *flexuosa* / det. J. Koteja / B. Łagowska // 29.7.1969 17 / Mikoszewo / The Baltic Coast / Poland / leg. J. Koteja (DZUS). • 6681b / *Dysmicoccus* / paratype / ♀ śródtułów / *Deschampsia* / *flexuosa* / det. J. Koteja / B. Łagowska // 29.7.1969 17 / Mikoszewo / The Baltic Coast / Poland / leg. J. Koteja (DZUS). • 6681c / *Dysmicoccus* / paratype / ♀ koniec ciała / *Deschampsia* / *flexuosa* / det. J. Koteja / B. Łagowska // 29.7.1969 17 / Mikoszewo / The Baltic Coast / Poland / leg. J. Koteja (DZUS). • 6682 / *Dysmicoccus* / paratype / ♀ / *Deschampsia* / *flexuosa* / det. J. Koteja / B. Łagowska // 29.7.1969 17 / Mikoszewo / The Baltic Coast / Poland / leg. J. Koteja (DZUS). • 6683 / *Dysmicoccus* / paratype / ♀ / *Deschampsia* / *flexuosa* / det. J. Koteja / B. Łagowska // 29.7.1969 17 / Mikoszewo / The Baltic Coast / Poland / leg. J. Koteja (DZUS).

Type locality. Mikoszewo, Nowy Dwór Gdański [Poland]

Current status. Synonym of *Trionymus placatus* (Borchsenius, 1949) (synonymised by Danzig (1998)).

Family Putoidae Beardsley, 1969

19. *Puto orientalis* Danzig, 1978

Puto orientalis Danzig, 1978: Trudy Akademii Nauk SSR Zoologicheskogo Instituta. St. Petersburg 61: 124–132

Type material examined. • Paratypus [red label] // 67=70 / *Puto* / *orientalis* Danzig / *Schizandra chinensis* / ю. Приморье / Супутинский заповедник / скалы / 15.VII.69. 24 Е. Данциг / Материал весь (DZUS).

Type locality. Yakutia-Sakha AR, Khaptagay, Irkutsk [Russian Federation]

Current status. Valid species.

Remarks. Holotype (by original designation) is in Saint Petersburg: Zoological Museum, Academy of Science, Russia.

Acknowledgments. The scale insects material was digitised in the framework of the project no ND-RPSL.02.01.00-24-01DD/17: Digital Database of Entomological Specimens HEMIPTERON (CEBD HEMIPTERON), co-financing from the EU, Priority axis: II. Digital Silesia, Measure: 2.1. Support for the development of digital public services.

REFERENCES

- Archangelskaya AD (1935) The carmine-producing coccids (Margarodes) of Middle Asia and species of allied genus *Neomargarodes* (In Russian). Tashkent Publishing Committee of Sciences in Uzbek, Tashkent
- Beardsley JW (1969) A new fossil scale insect (Homoptera: Coccoidea) from Canadian amber. *Psyche* 76 (3): 270–279
- Borchsenius NS (1949) Insects Homoptera. Suborders mealybugs and scales (Coccoidea). Family mealybugs (Pseudococcidae). Vol. VII. Fauna SSSR. Zoologicheskii Institut Akademii Nauk SSSR. N.S. 38: 1–382
- Borchsenius NS (1952) New genera and species of soft scales of the family Coccidae (=Lecaniidae) of the USSR fauna and adjacent countries (Insecta, Homoptera, Coccoidea). *Trudy Zoologicheskogo Instituta Akademii Nauk SSSR* 12: 269–316
- Borchsenius NS (1953) New genera and species of scale insects of the family Coccidae (Homoptera, Coccoidea). *Entomologicheskoe Obozrenye* 33: 281–290
- Borchsenius NS (1959) Notes on the Coccoidea of China. VI. Descriptions of some new genera and species of Eriococcidae and Coccidae (Homoptera, Coccoidea) – scientific results of the Chinese-Soviet expeditions of 1955–1957 to south-western China. *Entomologicheskoe Obozrenye* 38: 164–175
- Borowski J, Singh S (2017) Bostrichidae and Ptinidae: Ptininae (Insecta: Coleoptera) type collection at National Forest Insect Collection, Forest Research Institute, Dehradun (India). *World Scientific News* 66: 193–224
- Caballero A, Ramos-Portilla AA, Rueda-Ramírez D, Vergara-Navarro EV, Serna F (2020) The scale insect (Hemiptera: Cocomorpha) collection of the entomological museum

- “Universidad Nacional Agronomía Bogotá”, and its impact on Colombian coccidology. *Bonn zoological Bulletin* 69 (2): 165–183
- Cockerell TDA (1899) Rhynchota, Hemiptera – Homoptera. [Aleurodidae and Coccidae]. *Biologia Centrali-Americana* 2: 1–37
- Danzig EM (1971) New and little-known species of mealybugs (Homoptera, Coccoidea, Pseudococcidae) from the Far East of USSR. *Entomologicheskoe Obozrenye* 50: 366–391
- Danzig EM (1975a) Three new species of soft scales (Homoptera, Coccoidea, Coccidae) from southern Siberia and the Far East. *Zoologicheskii Zhurnal* 54: 137–138
- Danzig EM (1975b) New species of the genus *Acanthococcus* Sign. (Homoptera, Coccoidea, Eriococcidae) from the Far East of USSR. *Entomologicheskoe Obozrenye* 54: 62–81
- Danzig EM (1978) New species of mealybugs (Homoptera, Coccoidea) from Siberia and the Far East. Pp. 124–132 in: *New Species of Animals* 61. Trudy Akademii Nauk SSR Zoologicheskogo Instituta. St. Petersburg
- Danzig EM (1980) Coccoids of the Far East USSR (Homoptera, Coccinea) with phylogenetic analysis of scale insects fauna of the world. (In Russian). Nauka, Leningrad, Russia [Also available in English translation from 1986. Oxonian Press Pvt. Ltd, New Delhi]
- Danzig EM (1998) *Kiritshenkella* and related genera of mealybugs from Russia and neighbouring countries (Homoptera: Coccinea: Pseudococcidae). *Zoosystematica Rossica* 7: 153–161
- Danzig EM, Gavrilov-Zimin IA (2014) Mealybugs of *Mirococcus* Borchsenius, 1947 genus group (Homoptera, Coccinea: Pseudococcidae). *Entomological Review* 94 (2): 231–244
- Dziedzicka A, Koteja J (1971) A revision of the species of the genus *Rhizococcus* Signoret (Homoptera, Coccoidea) occurring in Poland. *Acta Zoologica Cracoviensia* 16: 557–579
- Dziedzicka A, Koteja J (1985) *Eriococcus podhalensis* nom. n. for *Eriococcus palustris* (Dziedzicka & Koteja). (In Polish). [In:] Kawecki Z, *Catalogus faunae Poloniae*
- Dziedzicka A, Podsiadło E (2007) Pamięci Prof. dr hab. Jana Koteji (1932–2004). *Wiadomości Entomologiczne* 26 (2): 115–120
- Fallén CF (1814) Specimen novam Hemiptera disponendi methodum exhibens. Litteris Berlingianis, Lundae
- Ferris GF (1921) Report upon a collection of Coccidae from Lower California. Stanford University Publications, Biological Sciences. Palo Alto 1: 61–132
- Ferris GF (1938) Atlas of the scale insects of North America. Series 2. Stanford University Press Palo Alto, California
- Ferris GF (1941) Atlas of the scale insects of North America. Series 3. Stanford University Press Palo Alto, California
- Franquinho Aguiar AM, Carvalho JA (2016) A catalogue of the surviving insect collection of the old Funchal Seminary Museum of Natural History. *Boletim do Museu Municipal do Funchal LXVI* (346): 41–95
- García Morales M, Denno BD, Miller DR, Miller GL, Ben-Dov Y, Hardy NB (2016) ScaleNet: A literature-based model of scale insect biology and systematics. Database
- González JM, Domagała P, Czaderna R, Wanat M (2013) The Giant Butterfly-moths of the Natural History Museum of Wrocław University, Poland, with comments about Friedrich Wilhelm Niepelt and his insect collection (Lepidoptera: Castniidae). *Genus* 24 (3–4): 275–290
- Gullan PJ (2008) Jan Koteja – an extraordinary evolutionary and revolutionary coccidologist. Proceedings of the XI International Symposium on Scale Insect Studies, Oeiras, Portugal, 24–27 September 2007. ISA Press Lisbon, Portugal
- Gullan PJ, Cook LG (2007) Phylogeny and higher classification of the scale insects (Hemiptera: Sternorrhyncha: Coccoidea). *Zootaxa* 1668: 413–425
- Gullan PJ, Martin JH (2009) Sternorrhyncha (jumping plant-lice, whiteflies, aphids, and scale insects). *Encyclopedia of Insects*. Elsevier San Diego: 957–967
- Heymons R (1915) Sechsfüssler, Insekten (Hexapoda, Insecta). Pp. 36–326 in: Strassen O (ed.) *Brehms Tierleben. Allgemeine Kunde des Tierreichs*. 2. Die Vielfüssler, Insekten und Spinnenkerfe. Bibliographisches Institut, Leipzig und Wien
- Kalandyk M, Węgierek P (2010) Scale insects (Hemiptera, Sternorrhyncha, Coccoidea) of selected plant communities in the eastern part of Garb Tarnogórski. *Annals of the Upper Silesian Museum in Bytom* 19: 1–116
- Kosztarab M, Kozár F (1978) Pajzstetvek-Coccoidea. *Magyarország Állatvilága* 17 (22): 1–192
- Koteja J (1966) *Luzulaspis nemorosa* sp. n. (Homoptera, Coccoidea, Coccidae). *Polskie Pismo Entomologiczne* 36: 45–56
- Koteja J (1971) Two new species of *Mirococcus* Borchsenius (Homoptera, Coccoidea, Pseudococcidae). *Polskie Pismo Entomologiczne* 41: 3–18
- Koteja J (1996) Jak rozpoznawać czerwce. [In] Boczek J. (ed.) *Diagnostyka szkodników roślin i ich wrogów naturalnych II*. Wydawnictwo SGGW, Warsaw: 139–231
- Koteja J, Howell JO (1979) *Luzulaspis* Cockerell (Homoptera: Coccidae) in North America. *Annals of the Entomological Society of America* 72: 334–342
- Koteja J, Kozár F (1979) *Luzulaspis kosztarabi* sp. n. from Hungary (Homoptera: Coccidae). *Acta Zoologica Academiae Scientiarum Hungaricae* 25: 121–125
- Koteja J, Łagowska B (1986) *Dysmicoccus balticus* sp. n. (Homoptera, Coccinea, Pseudococcidae). *Polskie Pismo Entomologiczne* 56: 381–388
- Koteja J, Zak-Ogaza B (1966) Investigations on scale insects (Homoptera, Coccoidea) of the Pieniny Klippen Belt. *Acta Zoologica Cracoviensia* 11: 305–332
- Kozár F (2009) Zoogeographical analysis and status of knowledge of the Eriococcidae (Hemiptera), with a World list of species. *Bollettino di Zoologia agraria e di Bachicoltura*. Ser. II, 41 (2): 87–121
- Kozár F, Kaydan MB, Konczné Benedicty Z, Szita É (2013) Acanthococcidae and Related Families of the Palaearctic Region. Hungarian Academy of Sciences Budapest, Hungary
- Lampe K-H, Rohwedder D, Schmidt C (2007) African Coleoptera Type Specimens collected by Thomas Wagner in the collection of the ZFMK. *Bonn zoological Bulletin* 55 (2): 163–178
- Łagowska B (1996) *Pulvinaria* Targioni-Tozzetti (Homoptera, Coccidae) in Poland. Wydawnictwo Akademii Rolniczej Lublin, Poland
- Łagowska B, Golan K (2020) An updated annotated checklist of scale insects (Hemiptera, Sternorrhyncha, Cocomorpha) of Poland. *ZooKeys* 918: 65–81
- Miller DR, Gimpel ME (1996) Nomenclatural changes in the Eriococcidae (Homoptera: Coccoidea). *Proceedings of the Entomological Society of Washington* 98: 597–606.
- Miller DR, Gimpel ME (2000) A Systematic Catalogue of the Eriococcidae (Felt Scales) (Hemiptera: Coccoidea) of the World. Intercept Ltd., Andover, U.K.
- Morrison H (1928). A classification of the higher groups and genera of the coccid family Margarodidae. *USDA Technical Bulletin*, 52. United States Department of Agriculture, Washington DC, USA
- Notton DG (2007) A catalogue of types of the smaller taxa of Proctotrupeoidea (Hymenoptera) in the Muséum national

- d'Histoire naturelle, Paris, with notes on the history of the insect collection of L. A. G. Bosc d'Antic. *Zoosystema* 29 (3): 457–470
- Targioni Tozzetti A (1868) Introduzione alla seconda memoria per gli studi sulle cocciniglie, e catalogo dei generi e delle specie della famiglia dei coccidi. *Atti della Società italiana di scienze naturali* 11: 721–738
- Wegierek P (2005) Prof. dr hab. Jan Koteja. Obituary. *Polish Journal of Entomology* 74 (3): 187–204
- Wijesekara A, Wijesinghe DP (2003) History of insect collection and a review of insect diversity in Sri Lanka. *Ceylon Journal of Science (Biological Sciences)* 31: 43–59
- Williams DJ, Hodgson CJ (2014) The case for using the infraorder Coccomorpha above the superfamily Coccoidea for the scale insects (Hemiptera: Sternorrhyncha). *Zootaxa* 3869 (3): 348–350
- Williams ML, Kosztarab MP (1972) Morphology and systematics of the Coccidae of Virginia with notes on their biology (Homoptera: Coccoidea). *Research Division Bulletin, Virginia Polytechnic Institute and State University, Blacksburg, Virginia*
- Zahiri R, Tarmann G, Efetov KA, Rajaei H, Fatahi M, Seidel M, Jaenicke B, Dalsgaard T, Sikora M, Husemann M (2021) An illustrated catalogue of the type specimens of Lepidoptera (Insecta) housed in the Zoological Museum Hamburg (ZMH): Part I. superfamilies Hepialoidea, Cossioidea, and Zygaenoidea. *Evolutionary Systematics* 5: 39–70
- Zaragoza-Caballero S, Pérez-Hernández CX (2017) An annotated catalogue of the Coleoptera types deposited in the National Insect Collection (CNIN) of the National Autonomous University of Mexico. *Zootaxa* 4288 (1): 1–128

APPENDIX I

Table 1. List of scale insect species in the Zoology Research Group, University of Silesia in Katowice (DZUS) collection, including distribution and host plants. Abbreviations: [Sex/stage:] F = female; M = male; L = larva; P = pupa or prepupa; E = egg; [Preparation type:] S = slide; D = dry; L = liquid; I = amber inclusion. *Specimens collected in Poland only in greenhouses.

Species	Sex/stage					Geographic distribution	Host plant	Preparation type			
	F	M	L	P	E			S	D	L	I
Arnoldidae Koteja, 2008 †											
<i>Arnoldus</i> sp.						Poland					x
Asterolecaniidae Cockerell, 1896											
<i>Asterodiaspis japonica</i> (Cockerell, 1900)	x					China					x
<i>Asterodiaspis quercicola</i> (Bouche, 1851)	x		x			Poland	<i>Quercus robur</i>	x			
<i>Asterodiaspis variolosa</i> (Ratzeburg, 1870)	x		x			Poland	<i>Quercus robur</i> <i>Quercus</i> sp.	x	x	x	
<i>Asterodiaspis</i> sp.	x		x			Poland	<i>Quercus palustris</i> <i>Quercus robur</i> <i>Quercus</i> sp.	x	x		
* <i>Asterolecanium epidendri</i> (Bouché, 1844)	x					Poland					x
<i>Asterolecanium</i> sp.	x					Poland	<i>Quercus</i> sp.	x			
<i>Mycetococcus ehrhorni</i> (Cockerell, 1895)	x					USA	<i>Quercus</i> sp.	x			
<i>Planchonia arabis</i> Signoret, 1877	x					Italy, Poland	<i>Origanum vulgare</i> <i>Achillea millefolium</i> <i>Thymus</i> sp.	x	x	x	
<i>Pollinia pollini</i> (Costa, 1857)	x					Russian Federation	<i>Olea europaea</i>	x			
Beesoniidae Ferris, 1950											
<i>Beesonia napiformis</i> (Kuwana, 1914)	x		x			Japan	<i>Quercus glauca</i>	x			
Callipappidae MacGillivray, 1921											
<i>Platycoelostoma compressum</i> (Maskell, 1892)	x					New Zealand	<i>Libocedrus bidwillii</i>	x			
Cerococcidae Balachovsky, 1942											
<i>Antecerococcus intermedius</i> (Balachowsky, 1930)	x					–		x	x		

Species	Sex/stage					Geographic distribution	Host plant	Preparation type			
	F	M	L	P	E			S	D	L	I
<i>Eriopeltis</i> sp.	x	x	x			Poland	<i>Agropyropsis lolium</i> <i>Agrostis capillaris</i> <i>Agrostis</i> sp. <i>Brachypodium pinnatum</i> <i>Brachypodium sylvaticum</i> <i>Brachypodium</i> sp. <i>Calamagrostis epigejos</i> <i>Carex</i> sp. <i>Deschampsia flexuosa</i> <i>Deschampsia</i> sp. <i>Festuca ovina</i> <i>Festuca rubra</i> <i>Festuca</i> sp. <i>Phleum pratense</i> <i>Poa nemoralis</i> <i>Poa stiriaca</i> <i>Poa</i> sp.	x	x		
* <i>Eucalymnatus tessellatus</i> (Signoret, 1873)	x					Poland	<i>Brosinum</i> sp. <i>Crescentia</i> sp. <i>Hura</i> sp. <i>Laurus</i> sp. <i>Malpighia glabra</i>	x	x		x
<i>Eulecanium ciliatum</i> (Douglas, 1891)	x	x	x	x		Poland	<i>Alnus incana</i> <i>Fagus sylvatica</i> <i>Populus x canadensis</i> <i>Quercus petraea</i> <i>Quercus</i> sp.	x	x		
<i>Eulecanium douglasi</i> (Šulc, 1895)	x		x			Poland	<i>Ribes</i> sp.	x	x		
<i>Eulecanium franconicum</i> (Lindinger, 1908)	x		x			Poland	<i>Calluna vulgaris</i>	x	x		
<i>Eulecanium sericeum</i> (Lindinger, 1906)	x		x			Poland	<i>Abies alba</i>	x	x		
<i>Eulecanium tiliae</i> (Linnaeus, 1758)	x	x	x			Poland	<i>Crataegus</i> sp. <i>Acer pseudoplatanus</i> <i>Carpinus betulus</i> <i>Prunus domestica</i> <i>Prunus</i> sp. <i>Quercus robur</i> <i>Ribes</i> sp. <i>Rosa</i> sp. <i>Tilia platyphyllos</i> <i>Tilia</i> sp.	x	x		
<i>Eulecanium</i> sp.	x		x			Poland	<i>Acer pseudoplatanus</i> <i>Aesculus hippocastanum</i> <i>Calluna vulgaris</i> <i>Carpinus betulus</i> <i>Corylus avellana</i> <i>Empetrum nigrum</i> <i>Myrica gale</i> <i>Salix repens</i> subsp. <i>arenaria</i> <i>Salix</i> sp. <i>Tilia cordata</i> <i>Vaccinium myrtillus</i> <i>Vaccinium uliginosum</i>	x	x		
<i>Exaeretopus agropyri</i> (Hadzibejli, 1960)	x		x			Georgia	<i>Elymus repens</i>	x			
<i>Exaeretopus orientalis</i> Danzig, 1975	x					Russian Federation	<i>Carex pediformis</i>	x			
<i>Filippia follicularis</i> (Targioni Tozzetti, 1867)	x					Croatia	<i>Olea europaea</i> <i>Pistacia terebinthus</i>	x			

Species	Sex/stage					Geographic distribution	Host plant	Preparation type			
	F	M	L	P	E			S	D	L	I
<i>Lecanopsis formicarum</i> Newstead, 1893	x	x	x	x		Poland	<i>Agrostis capillaris</i> <i>Agrostis</i> sp. <i>Brachypodium pinnatum</i> <i>Bromus inermis</i> <i>Dactylis glomerata</i> <i>Deschampsia</i> sp. <i>Elymus repens</i> <i>Elymus</i> sp. <i>Festuca ovina</i> <i>Festuca pratensis</i> <i>Festuca rubra</i> <i>Festuca</i> sp. <i>Koeleria glauca</i> <i>Phleum pratense</i> <i>Phleum</i> sp.	x	x		
<i>Lecanopsis subterranea</i> (Gomez-Menor Ortega, 1948)			x			Hungary, Poland	<i>Festuca</i> sp. <i>Poa compressa</i>	x			
<i>Lecanopsis</i> sp.	x		x			Poland	<i>Anthoxanthum odoratum</i> <i>Briza media</i> <i>Festuca ovina</i> <i>Festuca rubra</i> <i>Phleum phleoides</i> <i>Poa compressa</i>	x			
<i>Lichtensia viburni</i> (Signoret, 1873)	x		x			Poland, Slovakia, Ukraine	<i>Ficus benjamina</i> <i>Hedera helix</i> <i>Olea europaea</i> <i>Pistacia terebinthus</i>	x	x		
<i>Luzulaspis americana</i> Koteja & Howell, 1979	x					USA		x			
<i>Luzulaspis bisetosa</i> Borchsenius, 1952	x	x	x			Russian Federation	<i>Carex callitrichos</i> <i>Carex humilis</i> subsp. <i>nana</i> <i>Carex</i> sp.	x	x		
<i>Luzulaspis crassispina</i> Borchsenius, 1959	x					China	<i>Luzula</i> sp.	x	x		
<i>Luzulaspis dactylis</i> Green, 1928	x		x			Italy, Poland	<i>Carex</i> sp.	x	x		
<i>Luzulaspis erianthi</i> Řehaček, 1954	x		x			Cyprus	<i>Saccharum ravennae</i>	x	x		
<i>Luzulaspis frontalis</i> Green, 1928	x	x	x	x		Germany, Great Britain, Poland	<i>Carex brizoides</i> <i>Carex remota</i> <i>Elymus</i> sp. <i>Festuca ovina</i> <i>Luzula luzuloides</i>	x	x		
<i>Luzulaspis grandis</i> Borchsenius, 1952	x		x			Czech Republic, Poland, Russian Federation	<i>Carex ornithopoda</i> <i>Carex</i> sp.	x	x	x	
<i>Luzulaspis kosztarabi</i> Koteja & Kozár, 1979	x					Hungary	<i>Carex</i> sp.	x			
<i>Luzulaspis luzulae</i> (Dufour, 1864)	x	x	x	x	x	Great Britain, Poland, Russian Federation,	<i>Carex brizoides</i> <i>Carex</i> sp. <i>Luzula campestris</i> <i>Luzula capitata</i> <i>Luzula multiflora</i> <i>Luzula pilosa</i> <i>Luzula</i> sp. <i>Pinus</i> sp.	x	x		
<i>Luzulaspis minima</i> Koteja & Howell, 1979	x					USA	<i>Carex</i> sp.	x			

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	F	M	L	P	E			S	D	L	I
<i>Luzulaspis nemorosa</i> Koteja, 1966	x	x	x	x	x	Bulgaria, Czech Republic, Great Britain, Poland	<i>Luzula campestris</i> <i>Luzula luzuloides</i>	x	x		
<i>Luzulaspis scotica</i> Green, 1926	x		x	x		Poland, Romania, Russian Federation	<i>Carex nigra</i> <i>Carex</i> sp. <i>Eriophorum vaginatum</i>	x	x		
<i>Luzulaspis</i> sp.	x	x	x			Poland	<i>Carex</i> sp. <i>Luzula campestris</i> <i>Luzula luzuloides</i> <i>Luzula nemorosa</i> <i>Luzula pilosa</i> <i>Luzula</i> sp.			x	
<i>Nemolecanium graniforme</i> (Wunn, 1921)	x					Poland	<i>Abies alba</i>			x	
<i>Palaeolecanium bituberculatum</i> (Signoret, 1873)	x					Poland, Republic of Moldova	<i>Crateagus</i> sp. <i>Cocophagus palaeolecani</i>			x	
<i>Parafairmairia bipartita</i> (Signoret, 1874)	x	x	x	x		Kenya, Poland, Russian Federation	<i>Agrostis capillaris</i> <i>Agrostis</i> sp. <i>Carex brizoides</i> <i>Carex</i> sp. <i>Festuca</i> sp.	x	x		
<i>Parafairmairia gracilis</i> Green, 1916	x	x	x	x		Czech Republic, Germany, Great Britain, Poland, Russian Federation	<i>Carex brizoides</i> <i>Carex digitata</i> <i>Carex ornithopoda</i> <i>Carex</i> sp. <i>Carex sylvatica</i> <i>Eriophorum vaginatum</i>	x	x		
<i>Parafairmairia</i> sp.	x					Poland	<i>Carex brizoides</i>	x			
* <i>Parasaissetia nigra</i> (Nietner, 1861)	x					Poland					x
<i>Parthenolecanium corni</i> (Nuzzaci, 1969)	x	x	x	x	x	Poland	<i>Betula</i> sp. <i>Calluna vulgaris</i> <i>Carpinus betulus</i> <i>Cornus mas</i> <i>Corylus avellana</i> <i>Crataegus</i> sp. <i>Empetrum nigrum</i> <i>Euonymus europaeus</i> <i>Fraxinus</i> sp. <i>Genista</i> sp. <i>Helianthemum nummularium</i> <i>Luzula pilosa</i> <i>Luzula</i> sp. <i>Myrica gale</i> <i>Populus x canadensis</i> <i>Prunus domestica</i> <i>Prunus spinosa</i> <i>Prunus</i> sp. <i>Quercus</i> sp. <i>Rhamnus cathartica</i> <i>Ribes aureum</i> <i>Ribes</i> sp. <i>Rosa</i> sp. <i>Rubus</i> sp. <i>Sarothamnus scoparius</i> <i>Sorbus aucuparia</i> <i>Tilia platyphyllos</i> <i>Tilia</i> sp. <i>Vaccinium</i> sp.	x	x		x

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	F	M	L	P	E			S	D	L	I
<i>Parthenolecanium fletcheri</i> (Cockerell, 1893)	x					Poland		x			
* <i>Parthenolecanium perlatum</i> (Cockerell, 1898)						Poland	<i>Taxus</i> sp.	x			
<i>Parthenolecanium pomeranicum</i> (Kawecki, 1954)	x					Poland		x			
<i>Parthenolecanium rufulum</i> (Cockerell, 1903)	x		x			Poland	<i>Prunus</i> sp. <i>Quercus robur</i> <i>Quercus</i> sp. <i>Rubus</i> sp. <i>Vaccinium</i> sp.	x	x		
<i>Parthenolecanium</i> sp.	x		x			Poland	<i>Empetrum nigrum</i> <i>Vaccinium myrtillus</i>	x		x	
<i>Phyllostroma myrtilli</i> (Kaltenbach, 1874)	x	x	x			Poland	<i>Erica carnea</i> <i>Vaccinium myrtillus</i> <i>Vaccinium</i> sp.	x	x		
<i>Physokermes hemicryphus</i> (Dalman, 1826)	x					Poland			x		
<i>Physokermes piceae</i> (Schrank, 1801)			x			Poland	<i>Picea abies</i>	x	x		
<i>Poaspis intermedia</i> (Goux, 1939)	x		x			Hungary	<i>Dactylis glomerata</i>	x			
<i>Poaspis jahandiezi</i> (Balachowsky, 1932)	x					–		x			
<i>Poaspis kondarensis</i> (Borchsenius, 1952)	x					Tajikistan		x	x		
<i>Protopulvinaria pyriformis</i> Cockerell, 1894	x					Italy, USA	<i>Fatsia japonica</i>	x		x	
<i>Psilococcus ruber</i> Borchsenius, 1952	x	x	x	x		Poland, Republic of Korea	<i>Carex arenaria</i> <i>Carex brizoides</i> <i>Carex hirta</i> <i>Carex</i> sp.	x			
* <i>Pulvinaria floccifera</i> (Westwood, 1870)	x					Croatia, Poland, Russian Federation	<i>Camellia</i> L. <i>Cactus</i> sp.	x	x		
<i>Pulvinaria psidii</i> Maskell, 1893	x					USA	<i>Gossypium</i> sp.	x			
<i>Pulvinaria salicicola</i> Borchsenius, 1953	x		x			Poland	<i>Alnus</i> sp. <i>Betula pendula</i> <i>Carpinus betulus</i> <i>Corylus avellana</i> <i>Crataegus</i> sp. <i>Euonymus europaeus</i> <i>Prunus</i> sp. <i>Ribes aureum</i> <i>Ribes uva-crispa</i> <i>Ribes</i> sp. <i>Salix</i> sp. <i>Sorbus aucuparia</i>	x			
<i>Pulvinaria terrestris</i> Borchsenius, 1953	x					Poland, Ukraine	<i>Ulmus glabra</i>	x	x		
<i>Pulvinaria vitis</i> (Linnaeus, 1758)	x		x			Azerbaijan, Poland, Russian Federation	<i>Cydonia</i> sp. <i>Populus</i> sp. <i>Ribes uva-crispa</i>	x	x		

Species	Sex/stage					Geographic distribution	Host plant	Preparation type			
	F	M	L	P	E			S	D	L	I
<i>Pulvinaria</i> sp.	x	x	x			Poland	<i>Alnus glutinosa</i> <i>Alnus incana</i> <i>Betula pubescens</i> <i>Crataegus</i> sp. <i>Euonymus europaeus</i> <i>Populus tremula</i> <i>Populus x canadensis</i> <i>Prunus</i> sp. <i>Ribes aureum</i> <i>Ribes uva-crispa</i> <i>Salix repens</i> subsp. <i>arenaria</i> <i>Salix</i> sp. <i>Sorbus aucuparia</i>	x	x		
<i>Rhizopulvinaria artemisiae</i> (Signoret, 1873)	x					Czech Republic, Poland, Ukraine	<i>Dianthus</i> sp.	x	x		
<i>Rhodococcus spiraeae</i> (Borchsenius, 1949)	x					Armenia				x	
* <i>Saissetia coffeae</i> (Walker, 1852)	x					Greece, Poland	<i>Asparagus</i> sp. <i>Chlorophytum</i> sp. <i>Coffea arabica</i> <i>Evonymus</i> sp. <i>Dracaena</i> sp. <i>Pistacia lentiscus</i>	x	x		x
* <i>Saissetia oleae</i> (Gómez-Menor Ortega, 1955)	x					Poland	<i>Buxus sempervirens</i> <i>Calluna vulgaris</i> <i>Calluna</i> sp. <i>Cycas</i> sp. <i>Hibiscus syriacus</i> <i>Laurus nobilis</i> <i>Muhlenbekia</i> sp. <i>Nerium oleander</i> <i>Olea laurifolia</i> <i>Pistacia lentiscus</i> <i>Sideroxylon lycioides</i>	x	x		x
<i>Scythia craniumequinum</i> Kiritchenko, 1938	x					Kazakhstan, Ukraine	<i>Festuca</i> sp. <i>Leymus angustus</i> <i>Stipa capillata</i>	x	x		
<i>Scythia festuceti</i> (Šulc, 1941)	x					Russian Federation	<i>Festuca</i> sp.			x	
<i>Sphaerolecanium prunastri</i> (Boyer de Fonscolombe, 1834)	x		x			Greece, Poland	<i>Prunus spinosa</i>	x	x		
<i>Stotzia maxima</i> (Borchsenius, 1957)	x		x			Turkmenistan	<i>Ephedra</i> sp.	x	x		
<i>Toumeyella pini</i> (King, 1901)	x					USA	<i>Pinus</i> sp.	x			
<i>Vittacoccus longicornis</i> (Green, 1916)	x	x	x			Czech Republic, Poland	<i>Carex brizoides</i> <i>Carex</i> sp.	x	x		
unknown species		x	x			Poland					x
Coelostomidiidae Morrison, 1928											
<i>Coelostomidia montana</i> Green, 1929			x			New Zealand	<i>Dracophyllum traversii</i>	x			
<i>Coelostomidia pilosa</i> (Maskell, 1891)		x	x			New Zealand	<i>Dacrycarpus dacrydioides</i>	x			
<i>Coelostomidia zealandica</i> (Maskell, 1880)	x	x				New Zealand	<i>Muhlenbekia</i> sp. <i>Pittosporum</i> sp.	x			
<i>Ultracoelostoma assimile</i> (Maskell, 1890)	x					New Zealand	<i>Nothofagus solandri</i>	x			
<i>Ultracoelostoma brittini</i> Morales, 1991		x				New Zealand	<i>Nothofagus solandri</i>	x			
<i>Ultracoelostoma dracophylli</i> Morales, 1991		x				New Zealand	<i>Dracophyllum</i> sp.	x			

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	F	M	L	P	E			S	D	L	I
unknown species		x				Poland					x
Conchaspidae Green, 1896											
<i>Conchaspis angraeci</i> Cockerell, 1893	x					Venezuela	<i>Acalypha wilkesiana</i>	x			
<i>Conchaspis lata</i> Hempel, 1937	x		x			Venezuela		x			
Cryptococcidae Kosztarab, 1968											
<i>Cryptococcus fagisuga</i> (Douglas, 1886)	x					Poland	<i>Fagus sylvatica</i>	x	x	x	
<i>Pseudohermes fraxini</i> (Kaltenbach, 1860)	x	x	x	x		Poland	<i>Fraxinus excelsior</i>	x	x	x	
Dactylopiidae Signoret, 1875											
<i>Dactylopius confusus</i> (Cockerell, 1893)	x					USA	<i>Opuntia</i> sp.	x			
<i>Dactylopius opuntiae</i> (Cockerell, 1896)	x		x			USA	<i>Opuntia</i> sp.	x			
<i>Dactylopius</i> sp.	x					---		x			
Diaspididae Targioni-Tozzetti, 1868											
* <i>Aonidia lauri</i> (Bouche, 1833)	x		x			Croatia, Poland	<i>Laurus nobilis</i> <i>Laurus</i> sp.	x	x	x	
<i>Aonidiella aurantii</i> (Maskell, 1879)	x					Greece	<i>Elaeagnus pungens</i>	x			
<i>Aonidomytilus crookiae</i> (Ferris, 1954)	x					USA	<i>Hypericum</i> sp.	x			
* <i>Aspidiotus nerii</i> (Bouche, 1833)	x					Croatia, Greece, Poland	<i>Agave americana</i> <i>Aloe arborescens</i> <i>Asparagus densiflorus</i> <i>Brugmansia arborea</i> <i>Chamaerops humilis</i> <i>Citrus</i> sp. <i>Euonymus japonicus</i> <i>Grevillea robusta</i> <i>Howea forsteriana</i> <i>Kentia</i> sp. <i>Nerium oleander</i>	x	x	x	
<i>Aspidiotus</i> sp.	x					Russian Federation				x	
<i>Aulacaspis rosae</i> (Bouché, 1833)	x					Poland	<i>Rosa</i> sp. <i>Rubus</i> sp.	x	x		
<i>Carulaspis juniperi</i> (Bouché, 1851)	x					Poland	<i>Cryptomeria japonica</i> <i>Juniperus communis</i> <i>Sequoia sempervirens</i>	x	x		
<i>Chionaspis salicis</i> (Linnaeus, 1758)	x	x	x			Poland	<i>Alnus incana</i> <i>Alnus</i> sp. <i>Fraxinus excelsior</i> <i>Populus tremula</i> <i>Rhamnus cathartica</i> <i>Salix caprea</i> <i>Salix repens</i> <i>Salix</i> sp. <i>Sorbus aucuparia</i> <i>Vaccinium myrtillus</i>	x	x		
<i>Chionaspis</i> sp.	x					Finland		x			
<i>Circulaspis fistulata</i> (Ferris, 1921)	x					Mexico	<i>Distichlis spicata</i>	x			
<i>Comstockaspis perniciosus</i> (Comstock, 1881)	x					New Zealand	<i>Pyrus</i> sp.	x			
<i>Diaspidiotus bavaricus</i> (Lindinger, 1912)	x					Poland	<i>Calluna vulgaris</i> <i>Empetrum nigrum</i>	x	x		

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<i>Diaspidiotus ostreaeformis</i> (Curtis, 1843)	x					Poland, Republic of Moldova	<i>Alnus incana</i> <i>Alnus</i> sp. <i>Betula pendula</i> <i>Betula</i> sp. <i>Malus</i> sp. <i>Pinus</i> sp. <i>Populus tremula</i> <i>Tilia cordata</i>	x	x		
<i>Diaspidiotus prunorum</i> (Laing, 1931)	x					Armenia				x	
<i>Diaspidiotus zonatus</i> (Frauenfeld, 1868)	x					Poland	<i>Betula</i> sp. <i>Calluna</i> sp. <i>Salix caprea</i> <i>Salix</i> sp.	x	x		
<i>Diaspidiotus</i> sp.	x					Poland	<i>Quercus</i> sp.	x			
* <i>Diaspis boisduvalii</i> Signoret, 1869	x					Poland	<i>Cattleya</i> sp. <i>Phoenix canariensis</i>				x
* <i>Diaspis bromeliae</i> (Kerner, 1778)	x					Poland	<i>Butia capitata</i>				x
<i>Dynaspidiotus abietis</i> (Schrank, 1776)	x		x			Poland	<i>Abies alba</i> <i>Picea abies</i> <i>Picea</i> sp. <i>Pinus sylvestris</i> <i>Pinus</i> sp.	x	x		
<i>Dynaspidiotus</i> sp.	x					Poland	<i>Abies alba</i> <i>Pinus sylvestris</i>	x			
* <i>Furchadaspis zamiae</i> (Morgan, 1890)	x					Poland	<i>Chrysomyphelus ficus</i>				x
* <i>Hemiberlesia cyanophylli</i> (Signoret, 1869)	x					Poland	<i>Butia capitata</i> <i>Cordyline indivisa</i> <i>Ruscus aculeatus</i>		x	x	
* <i>Hemiberlesia palmae</i> (Cockerell, 1893)	x					Poland	<i>Chamaerops humilis</i>				x
* <i>Hemiberlesia rapax</i> (Comstock, 1881)	x					Poland	<i>Acacia mearnsii</i> <i>Acacia paradoxa</i> <i>Aucuba japonica</i> <i>Calluna vulgaris</i> <i>Calluna</i> sp. <i>Ceratonia siliqua</i> <i>Euonymus japonicus</i> <i>Myrtus communis</i> <i>Rhododendron</i> sp.	x	x	x	
* <i>Hemiberlesia</i> sp.	x					Poland			x	x	
* <i>Howardia biclavis</i> (Comstock, 1883)	x					Poland	<i>Bauhinia tomentosa</i> <i>Ficus bengalensis</i> <i>Ficus ulmifolia</i> <i>Lasia spinosa</i> <i>Opuntia ficus-indica</i> <i>Petiveria alliacea</i> <i>Strelitzia</i> sp.	x	x	x	
<i>Lepidosaphes beckii</i> (Newman, 1869)	x					Poland		x			
<i>Lepidosaphes conchiformis</i> (Gmelin, 1790)	x					Hungary		x			
<i>Lepidosaphes newsteadi</i> (Šulc, 1895)	x					Poland	<i>Pinus sylvestris</i>	x	x		

Species	Sex/stage					Geographic distribution	Host plant	Preparation type			
	F	M	L	P	E			S	D	L	I
* <i>Lepidosaphes ulmi</i> (Linnaeus, 1758)	x	x	x			Greece, Montenegro, Poland	<i>Betula pendula</i> <i>Betula</i> sp. <i>Calluna vulgaris</i> <i>Cerrationia siliqua</i> <i>Corylus avellana</i> <i>Crataegus laevigata</i> <i>Crataegus</i> sp. <i>Empetrum nigrum</i> <i>Malus</i> sp. <i>Myrica gale</i> <i>Pinus sylvestris</i> <i>Populus tremula</i> <i>Prunus spinosa</i> <i>Quercus petraea</i> <i>Quercus robur</i> <i>Quercus</i> sp. <i>Rhamnus cathartica</i> <i>Rhododendron tomentosum</i> <i>Rubus ideus</i> <i>Rubus</i> sp. <i>Salix</i> sp. <i>Sorbus aucuparia</i> <i>Spartium junceum</i> <i>Syringa vulgaris</i> <i>Tilia cordata</i> <i>Vaccinium myrtillus</i> <i>Vaccinium vitis-idaea</i> <i>Vaccinium</i> sp.	x	x		
<i>Lepidosaphes</i> sp.	x				x	Poland	<i>Abies alba</i> <i>Betula</i> sp. <i>Calluna vulgaris</i> <i>Corylus avellana</i> <i>Crataegus</i> sp. <i>Tilia platyphyllos</i>	x	x		
<i>Leucaspis lowi</i> (Colvee, 1882)	x		x			Croatia, Hun- gary, Poland	<i>Pinus mugo</i> <i>Pinus nigra</i> <i>Pinus sylvestris</i> <i>Pinus</i> sp.	x	x		
<i>Leucaspis pini</i> (Hartig, 1839)	x		x			Poland	<i>Pinus nigra</i> <i>Pinus sylvestris</i> <i>Pinus</i> sp.	x	x		
<i>Leucaspis pusilla</i> (Löw, 1883)			x				<i>Pinus pinea</i> <i>Pinus</i> sp.	x			
<i>Leucaspis</i> sp.	x					Poland	<i>Pinus sylvestris</i> <i>Pinus</i> sp.	x			
<i>Melanaspis obscura</i> (Comstock, 1881)	x					USA	<i>Quercus virginiana</i> <i>Quercus</i> sp.	x			
<i>Niveaspis fenestrata</i> Ferris, 1941	x					Mexico	<i>Sideroxylon</i> sp.	x			
<i>Parlatoria parlatoriae</i> (Šulc, 1895)	x					Poland	<i>Picea abies</i>	x			
* <i>Parlatoria pergandii</i> Comstock, 1881	x					Poland	<i>Diffenbachia</i> sp.				x
<i>Parlatoria proteus</i> (Curtis, 1843)	x					Poland					x
* <i>Pinnaspis aspidistrae</i> (Signoret, 1869)	x					Poland	<i>Nephrolepis exaltata</i> <i>Nephrolepis</i> sp.				x
<i>Prodiaspis tamaricicola</i> (Balachowsky, 1953)	x					---		x			
* <i>Pseudaulacaspis pentagona</i> (Targioni Tozzetti, 1886)	x					Poland	<i>Salix</i> sp.	x			

Species	Sex/stage					Geographic distribution	Host plant	Preparation type			
	F	M	L	P	E			S	D	L	I
<i>Rhizaspidiotus canariensis</i> (Lindinger, 1911)	x					Poland	<i>Aster amellus</i>	x			
<i>Targionia vitis</i> (Signoret, 1876)	x					Croatia	<i>Quercus ilex</i>	x			
<i>Velataspis cornigera</i> Ferris, 1941	x					Panama		x			
unknown species		x				Poland					x
Eriococcidae Cockerell, 1899											
<i>Acanthococcus aceris</i> (Signoret, 1875)	x		x			Poland	<i>Acer campestre</i> <i>Acer platanoides</i> <i>Acer pseudoplatanus</i> <i>Acer</i> sp.	x	x	x	
<i>Acanthococcus azaleae</i> (Comstock, 1881)	x					USA	<i>Rhododendron</i> sp.	x			
<i>Acanthococcus crispus</i> (Boyer de Fonscolombe, 1834)						Greece		x			
<i>Acanthococcus salicis</i> (Borchsenius, 1938)						Poland		x			
<i>Acanthococcus sasae</i> Danzig, 1975	x						<i>Sasa kurilensis</i>	x			
<i>Acanthococcus ulmarius</i> Danzig, 1975	x					Korea (Democratic People's Republic of)	<i>Ulmus</i> sp.	x			
<i>Acanthococcus</i> sp.	x	x	x			Poland	<i>Acer platanoides</i> <i>Achillea millefolium</i> <i>Brachypodium pinnatum</i> <i>Briza media</i> <i>Calluna vulgaris</i> <i>Dianthus carthusianorum</i> <i>Erica</i> sp. <i>Fragaria vesca</i> <i>Galium verum</i> <i>Leontodon</i> sp. <i>Picea abies</i> <i>Potentilla</i> sp. <i>Trifolium</i> sp. <i>Vaccinium myrtillus</i> <i>Vaccinium vitis-idaea</i>	x	x		
<i>Anophococcus agropyri</i> (Borchsenius, 1949)	x					Poland	<i>Elymus repens</i> <i>Elymus</i> sp. <i>Festuca</i> sp. <i>Holcus</i> sp.	x	x	x	
<i>Anophococcus confusus</i> (Danzig, 1962)	x					Poland		x			
<i>Anophococcus formicicola</i> (Newstead, 1897)	x					Croatia, Hungary	<i>Cynodon dactylon</i>	x			
<i>Anophococcus herbaceus</i> (Danzig, 1962)	x					Poland, Russian Federation	<i>Agrostis capillaris</i> <i>Agrostis</i> sp. <i>Brachypodium pinnatum</i> <i>Calamagrostis arundinacea</i> <i>Calamagrostis epigejos</i> <i>Calamagrostis villosa</i> <i>Carex brizoides</i> <i>Carex</i> sp. <i>Eriophorum vaginatum</i> <i>Festuca ovina</i> <i>Koeleria glauca</i> <i>Luzula campestris</i> <i>Luzula luzuloides</i>	x	x		
<i>Anophococcus inermis</i> (Green, 1915)	x					Poland	<i>Calamagrostis epigejos</i> <i>Calamagrostis</i> sp. <i>Festuca ovina</i> <i>Festuca pratensis</i>	x	x		

Species	Sex/stage					Geographic distribution	Host plant	Preparation type			
	F	M	L	P	E			S	D	L	I
<i>Anophococcus insignis</i> (Newstead, 1891)	x		x			Hungary, Poland	<i>Agrostis capillaris</i> <i>Agrostis</i> sp. <i>Agrostis stolonifera</i> <i>Anthoxanthum odoratum</i> <i>Brachypodium pinnatum</i> <i>Bromus</i> sp. <i>Calamagrostis epigejos</i> <i>Calamagrostis</i> sp. <i>Carex brizoides</i> <i>Dactylis glomerata</i> <i>Elymus repens</i> <i>Festuca ovina</i> <i>Festuca</i> sp. <i>Koeleria glauca</i> <i>Luzula campestris</i> <i>Luzula</i> sp. <i>Molinia caerulea</i> <i>Nardus stricta</i> <i>Phalaris arundinacea</i> <i>Potentilla erecta</i> <i>Rubus</i> sp.	x	x		
<i>Anophococcus pseudinsignis</i> (Green, 1921)	x	x	x			Poland	<i>Agrostis capillaris</i> <i>Ammophila arenaria</i> <i>Anthoxanthum odoratum</i> <i>Calamagrostis arundinacea</i> <i>Calamagrostis epigejos</i> <i>Calamagrostis</i> sp. <i>Carex</i> sp. <i>Dactylis glomerata lobata</i> <i>Deschampsia flexuosa</i> <i>Elymus repens</i> <i>Festuca ovina</i> <i>Festuca</i> sp. <i>Luzula campestris</i> <i>Luzula luzuloides</i> <i>Molinia caerulea</i> <i>Phalaris arundinacea</i> <i>Phragmites australis</i> <i>Poa pratensis</i> <i>Taraxacum officinale</i>	x	x		
<i>Anophococcus</i> sp.	x					Poland		x			
<i>Balticococcus spinosus</i> Koteja, 1988			x			Poland					x
<i>Eriococcus buxi</i> (Boyer de Fonscolombe, 1834)	x					Georgia		x			
<i>Eriococcus podhalensis</i> Dziedzicka & Koteja, 1985	x		x			Poland	<i>Eriophorum vaginatum</i>	x			
<i>Eriococcus williamsi</i> Danzig, 1987	x					Russian Federation		x			
<i>Gedanicooccus gracilis</i> Koteja, 1988			x			Poland					x
<i>Gossyparia salicicola</i> Borchsenius, 1949	x					Tajikistan		x			
<i>Gossyparia spuria</i> (Modeer, 1778)	x	x	x	x		Poland, Republic of Moldova	<i>Ulmus</i> sp.	x	x	x	
<i>Greenisca brachypodii</i> Borchsenius & Danzig, 1966	x					Poland	<i>Brachypodium pinnatum</i> <i>Brachypodium</i> sp. <i>Calamagrostis</i> sp.	x	x		
<i>Greenisca gouxi</i> (Balachowsky, 1954)	x					Poland	<i>Brachypodium pinnatum</i>	x	x		
<i>Greenisca</i> sp.	x					Poland	<i>Brachypodium pinnatum</i>	x	x		

Species	Sex/stage					Geographic distribution	Host plant	Preparation type				
	F	M	L	P	E			S	D	L	I	
<i>Kaweckia glyceriae</i> (Green, 1921)	x		x			Poland	<i>Agrostis capillaris</i> <i>Agrostis stolonifera</i> <i>Agrostis</i> sp. <i>Alopecurus pratensis</i> <i>Alopecurus</i> sp. <i>Anthoxanthum odoratum</i> <i>Brachypodium pinnatum</i> <i>Brachypodium</i> sp. <i>Briza media</i> <i>Bromus inermis</i> <i>Bromus secalinus</i> <i>Calamagrostis</i> sp. <i>Corynephorus canescens</i> <i>Corynephorus</i> sp. <i>Dactylis glomerata</i> <i>Dactylis</i> sp. <i>Deschampsia caespitosa</i> <i>Deschampsia flexuosa</i> <i>Deschampsia</i> sp. <i>Elymus repens</i> <i>Elymus</i> sp. <i>Festuca ovina</i> <i>Festuca pratensis</i> <i>Festuca rubra</i> <i>Festuca</i> sp. <i>Holcus lanatus</i> <i>Holcus</i> sp. <i>Koeleria glauca</i> <i>Luzula</i> sp. <i>Nardus stricta</i> <i>Phleum phleoides</i> <i>Phleum pratense</i> <i>Phleum</i> sp. <i>Poa compressa</i> <i>Poa pratensis</i> <i>Poa trivialis</i> <i>Poa</i> sp.	x	x			
<i>Kuenowicoccus</i> sp.		x				Poland						x
<i>Kuwanina parva</i> (Maskell, 1897)	x	x	x			Japan	<i>Prunus</i> sp.	x				
<i>Neokaweckia laeticoris</i> (Tereznikova, 1965)	x					Poland	<i>Agrostis capillaris</i>	x	x			
<i>Neokaweckia rubra</i> (Matesova, 1960)	x					Poland	<i>Agrostis capillaris</i> <i>Corynephorus canescens</i>	x				
<i>Ovaticoccus agavium</i> (Douglas, 1888)	x					Italy	<i>Furcraea selloa</i>	x				
<i>Rhizococcus baldonensis</i> (Rasina, 1966)	x					Russian Federation		x				
<i>Rhizococcus cantium</i> (Williams, 1985)	x					Poland	<i>Agrostis capillaris</i>	x				
<i>Rhizococcus devoniensis</i> Green, 1896	x		x			Poland	<i>Erica tetralix</i> <i>Vaccinium myrtillus</i> <i>Vaccinium vitis-idaea</i>	x	x			
<i>Rhizococcus greeni</i> (Newstead, 1898)	x					Poland	<i>Agrostis capillaris</i> <i>Briza media</i> <i>Calamagrostis</i> sp. <i>Carex brizoides</i> <i>Corynephorus canescens</i> <i>Festuca ovina</i> <i>Melica uniflora</i> <i>Plantago lanceolata</i> <i>Poa nemoralis</i>	x	x			
<i>Rhizococcus munroi</i> (Boratynski, 1962)	x					Poland	<i>Calluna vulgaris</i> <i>Vaccinium</i> sp.	x	x			

Species	Sex/stage					Geographic distribution	Host plant	Preparation type			
	F	M	L	P	E			S	D	L	I
<i>Rhizococcus</i> sp.	x					Poland	<i>Brachypodium pinnatum</i> <i>Carex digitata</i> <i>Carex</i> sp. <i>Dactylis glomerata</i> <i>Festuca ovina</i> <i>Luzula campestris</i> <i>Luzula luzuloides</i> <i>Rosa</i> sp.		x		
unknown species	x	x	x			Poland					x
Electrococcidae Koteja, 2000 †											
<i>Turonicoccus beardsleyi</i> Koteja, 2000		x				Poland					x
<i>Turonicoccus grimaldii</i> Koteja, 2000		x				Poland					x
Grimaldiellidae Koteja, 2000 †											
<i>Grimaldiella resinophila</i> Koteja, 2000		x				Poland					x
<i>Grimaldiella</i> sp.		x				Poland					x
Inkaidae Koteja, 1989 †											
unknown species		x				Poland					x
Kermesidae Signoret, 1875											
<i>Kermes quercus</i> (Linnaeus, 1758)	x		x			Poland	<i>Quercus</i> sp.	x	x	x	
<i>Kermes</i> sp.	x		x			Poland	<i>Quercus</i> sp.	x	x		
<i>Nidularia pulvinata</i> (Planchon, 1864)	x		x		x	France, Italy	<i>Quercus ilex</i>	x		x	
unknown species		x				Poland					x
Kerridae Lindinger, 1937											
<i>Kerria lacca</i> (Varshney, 1977)	x		x			Georgia, India	<i>Ficus carica</i>	x			
Kuwaniidae MacGillivray, 1921											
<i>Hoffeinsia</i> sp.			x			Poland					x
<i>Kuwania pasaniae</i> Borchsenius, 1960	x					China	<i>Quercus</i> sp.	x			
<i>Neosteingelia texana</i> Morrison, 1927	x		x			USA	<i>Carya ovata</i> <i>Carya</i> sp.	x			
Labiococcidae Koteja, 2000 †											
<i>Labiococcus</i> sp.			x			Poland					x
<i>Solicoccus</i> sp.		x				Poland					x
Lecanodiaspididae Targioni Tozzetti, 1869											
<i>Cosmococcus albizziae</i> Borchsenius, 1960	x					China		x			
Lithuanicoccidae Koteja, 2008 †											
<i>Lithuanicoccus damzeni</i> Koteja, 2008		x				Poland					x
<i>Lithuanicoccus kosmowskae</i> Koteja, 2008		x				Poland					x
<i>Lithuanicoccus</i> sp.		x				Poland					x
Marchalinidae Morrison, 1927											
<i>Marchalina hellenica</i> (Gennadius, 1883)	x		x			Greece	<i>Pinus</i> sp.	x			
Margarodidae Cockerell, 1899											
<i>Neomargarodes aristidae</i> Borchsenius, 1949	x					Uzbekistan		x			
<i>Neomargarodes chondrillae</i> Archangelskaya, 1935	x					Kazakhstan	<i>Chondrilla brevirostris</i>	x			
<i>Neomargarodes erythrocephalus</i> Green, 1914	x					Sudan			x		

Species	Sex/stage					Geographic distribution	Host plant	Preparation type			
	F	M	L	P	E			S	D	L	I
<i>Porphyrophora crithmi</i> (Goux, 1938)		x				France		x	x		
<i>Porphyrophora polonica</i> (Linnaeus, 1758)	x	x	x			Mongolia, Poland	<i>Caragana microphylla</i> <i>Potentilla bifurca</i> <i>Scleranthus perennis</i>	x	x	x	
<i>Porphyrophora sophorae</i> (Archangelskaya, 1935)	x					Kazakhstan	<i>Sophora</i> sp.		x		
<i>Porphyrophora violaceae</i> Matesova & Jashenko, 1988	x					Kazakhstan			x		
unknown species		x				Kazakhstan, Poland			x		x
Matsucoccidae Morrison, 1927											
<i>Matsucoccus electrinus</i> Koteja, 1984		x				Poland					x
<i>Matsucoccus gigas</i> (?)		x				Poland					x
<i>Matsucoccus josephi</i> Bodenheimer & Harpaz, 1955	x					Israel	<i>Pinus halepensis</i>		x		
<i>Matsucoccus larssoni</i> Koteja, 1984	x	x				Poland					x
<i>Matsucoccus pini</i> (Green, 1925)						Germany, Poland	<i>Calluna</i> sp. <i>Picea abies</i> <i>Pinus sylvestris</i>	x	x		
<i>Matsucoccus pinnatus</i> (Germar & Berendt, 1856)		x				Poland					x
<i>Matsucoccus saxonicus</i> Koteja, 1986		x				Poland					x
<i>Matsucoccus sinensis</i> Chen, 1937	x	x				China	<i>Pinus massoniana</i> <i>Pinus thunbergii</i>	x			
<i>Matsucoccus yunnansonsaus</i> Young & Hu, 1980	x					China	<i>Pinus yunnanensis</i>	x			
<i>Matsucoccus</i> sp.	x	x	x			Poland					x
unknown species	x	x				Poland					x
Micrococcidae Silvestri, 1939											
<i>Micrococcus bodenheimeri</i> Bytinskii-Salz, 1961	x					Cyprus		x	x		
Monophlebidae Signoret, 1875											
<i>Drosicha corpulenta</i> (Kuwana, 1902)	x					Russian Federation	<i>Fraxinus</i> sp.	x			
<i>Drosicha stebbingii</i> (Stebbing, 1902)	x	x	x			China, India	<i>Vachellia nilotica</i>	x			
<i>Drosicha turkestanica</i> Archangelskaya, 1931			x			Kazakhstan	<i>Eleagnus</i> sp. <i>Populus</i> sp.	x	x		
<i>Eophlebus</i> sp.		x				Poland					x
<i>Gigantococcus maximus</i> (Newstead, 1914)	x					Ivory Coast				x	
<i>Icerya purchasi</i> (Maskell, 1879)	x		x			Greece, Montenegro, Tunisia	<i>Pittosporum tobira</i> <i>Spartium junceum</i>	x	x		
<i>Jersicoccus</i> sp.		x				Poland					x
<i>Palaeophlebus</i> sp.		x				Poland					x
unknown species	x	x	x			Poland, Sudan			x		x
Ortheziidae Green, 1896											
<i>Arctorthezia cataphracta</i> (Olafsen, 1772)	x					Poland, Russian Federation		x			
<i>Arctorthezia</i> sp.	x		x			Poland					x

Species	Sex/stage					Geographic distribution	Host plant	Preparation type			
	F	M	L	P	E			S	D	L	I
<i>Newsteadia floccosa</i> (De Geer, 1778)	x	x	x			Poland	<i>Achillea millefolium</i> <i>Vaccinium myrtillus</i>	x	x		
<i>Newsteadia</i> sp.	x	x				Poland					x
<i>Orthezia urticae</i> (Linnaeus, 1758)	x	x	x	x		Croatia, Poland, Russian Federation	<i>Artemisia</i> sp. <i>Urtica dioica</i>	x	x		
<i>Orthezia</i> sp.		x				Mexico, Poland	<i>Citrus</i> sp.	x			x
<i>Ortheziola vej dovskyi</i> (Šulc, 1895)	x		x			Poland		x	x		
<i>Protorthezia aurea</i> Koteja, 1987		x				Poland					x
unknown species	x	x	x			Poland					x
Phenacoleachiidae Cockerell, 1899											
<i>Phenacoleachia zealandica</i> (Maskell, 1891)	x	x				New Zealand	<i>Nothofagus fusca</i>	x			
Phoenicococcidae Stickney, 1934											
<i>Phoenicococcus marlatti</i> (Cockerell, 1899)	x		x			USA	<i>Phoenix dactylifera</i>	x			
Pityococcidae McKenzie, 1942											
<i>Cancerococcus apterus</i> Koteja, 1988		x				Poland					x
<i>Cancerococcus</i> sp.	x	x	x			Poland					x
<i>Pityococcus moniliformalis</i> Vea & Grimaldi, 2015		x				Poland					x
<i>Pityococcus</i> sp.	x	x	x			Poland					x
Pseudococcidae Cockerell, 1905											
<i>Antonina crawi</i> Cockerell, 1900	x		x			Russian Federation	<i>Bambusa</i> sp.	x	x		
<i>Antonina graminis</i> (Maskell, 1897)	x					Venezuela		x			
<i>Antonina pretiosa</i> Ferris, 1953	x					USA	<i>Bambusa</i> sp.	x			
<i>Antoninella</i> sp.	x					Ukraine	<i>Agropyron</i> sp.		x		
<i>Atrococcus cracens</i> Williams, 1962	x		x			Poland	<i>Festuca</i> sp. <i>Galium verum</i> <i>Glechoma hederacea</i> <i>Hieracium pilosella</i> <i>Hieracium</i> sp. <i>Leontodon hispidus</i> <i>Leontodon</i> sp. <i>Melampyrum pratense</i> <i>Plantago media</i> <i>Potentilla</i> sp. <i>Taraxacum officinale</i> <i>Taraxacum</i> sp. <i>Trifolium pratense</i> <i>Trifolium</i> sp. <i>Veronica chamaedrys</i> <i>Veronica</i> sp. <i>Vicia</i> sp.	x	x		
<i>Atrococcus paludinus</i> (Green, 1921)	x					Poland	<i>Rubus</i> sp.	x			
<i>Atrococcus</i> sp.	x					Hungary		x			
<i>Balanococcus boratynskii</i> Williams, 1962	x		x			Poland	<i>Agrostis capillaris</i> <i>Deschampsia caespitosa</i> <i>Festuca ovina</i>	x	x		
<i>Balanococcus singularis</i> (Schmutterer, 1952)	x					Poland	<i>Festuca ovina</i> <i>Poa pratensis</i>		x		

Species	Sex/stage					Geographic distribution	Host plant	Preparation type			
	F	M	L	P	E			S	D	L	I
<i>Boreococcus ingricus</i> Danzig, 1960	x	x	x			Poland	<i>Carex</i> sp.	x	x		
<i>Brevennia pulveraria</i> (Newstead, 1892)	x		x			Poland	<i>Agrostis capillaris</i> <i>Agrostis gigantea</i> <i>Agrostis</i> sp. <i>Festuca ovina</i> <i>Poa pratensis</i>	x	x		
<i>Ceroputo pilosellae</i> Šulc, 1898	x		x			Greece, Poland, Slovakia	<i>Carex</i> sp. <i>Fragaria</i> sp. <i>Fragaria vesca</i> <i>Hieracium pilosella</i> <i>Hieracium</i> sp. <i>Leontodon</i> sp. <i>Phleum</i> sp. <i>Plantago lanceolata</i> <i>Plantago media</i> <i>Poa</i> sp. <i>Rubus</i> sp. <i>Taraxacum officinale</i> <i>Thymus capitatus</i> <i>Thymus pulegioides</i> <i>Thymus</i> sp.	x	x	x	
<i>Chaetococcus bambusae</i> (Maskell, 1893)	x		x			China	<i>Bambusa multiplex</i> <i>Bambusa</i> sp. <i>Phyllostachys</i> sp.	x			
<i>Chaetococcus sulcii</i> (Green, 1934)	x		x			Poland	<i>Festuca ovina</i> <i>Festuca pallens</i>	x	x		
<i>Coccura comari</i> (Kunow, 1880)	x		x			Poland	<i>Rubus</i> sp.	x			
<i>Coccura convexa</i> Borchsenius, 1949	x					Mongolia	<i>Artemisia</i> sp.	x			
<i>Coccura suwakoensis</i> (Kuwana & Toyoda, 1915)	x					China, Russian Federation	<i>Persica</i> sp. <i>Rubus</i> sp.	x			
<i>Dysmicoccus angustifrons</i> (Hall, 1926)	x					Poland	<i>Hieracium pilosellae</i>	x			
<i>Dysmicoccus</i> sp.	x					Poland	<i>Hieracium pilosellae</i>	x			
<i>Dysmicoccus walkeri</i> (Newstead, 1891)	x		x			Poland	<i>Agrostis capillaris</i> <i>Calamagrostis arundinacea</i> <i>Calamagrostis epigejos</i> <i>Festuca rubra</i> <i>Holcus lanatus</i> <i>Molinia caerulea</i>	x			
<i>Dysmicoccus wistariae</i> (Green, 1923)	x					Poland	<i>Taxus cuspidata</i>	x			
<i>Ferrisia virgata</i> (Cockerell, 1893)	x					USA	<i>Gleditsia</i> sp. <i>Robinia pseudacacia</i>	x			
<i>Fonscolombia abdita</i> (Borchsenius, 1949)	x					Poland	<i>Brachypodium pinnatum</i> <i>Brachypodium</i> sp. <i>Bromus</i> sp. <i>Corynephorus canescens</i> <i>Festuca ovina</i> <i>Holcus lanatus</i> <i>Phleum phleoides</i> <i>Phleum pratense</i>	x			
<i>Fonscolombia europaea</i> (Newstead, 1897)	x		x			Poland	<i>Festuca ovina</i> <i>Festuca pallens</i> <i>Koeleria</i> sp. <i>Poa compressa</i>	x			
<i>Fonscolombia phenacocoides</i> (Kiritchenko, 1932)	x					Poland	<i>Corynephorus canescens</i>	x			

Species	Sex/stage					Geographic distribution	Host plant	Preparation type			
	F	M	L	P	E			S	D	L	I
<i>Fonscolombia tomlinii</i> (Newstead, 1892)	x					Poland	<i>Agrostis capillaris</i> <i>Festuca ovina</i> <i>Poa compressa</i>	x			
<i>Heliococcus bohemicus</i> (Sulc, 1912)	x		x			Poland	<i>Fagus sylvatica</i> <i>Festuca</i> sp. <i>Melampyrum</i> sp. <i>Pinus sylvestris</i> <i>Populus tremula</i> <i>Quercus robur</i> <i>Quercus</i> sp. <i>Vaccinium myrtillus</i>	x	x		
<i>Heliococcus destructor</i> Borchsenius, 1941	x					Poland	<i>Dianthus</i> sp. <i>Thymus</i> sp.	x	x		
<i>Heliococcus sulcii</i> Goux, 1934	x					Poland	<i>Hieracium</i> sp.	x			
<i>Heliococcus</i> sp.	x		x			Poland	<i>Corynephorus canescens</i> <i>Thymus</i> sp.	x	x		
<i>Heterococcus nudus</i> (Green, 1926)	x		x			Hungary, Poland	<i>Agropyron</i> sp. <i>Agrostis capillaris</i> <i>Briza media</i> <i>Briza</i> sp. <i>Bromus</i> sp. <i>Corynephorus canescens</i> <i>Danthonia decumbens</i> <i>Deschampsia caespitosa</i> <i>Elymus repens</i> <i>Festuca cinerea</i> <i>Festuca ovina</i> <i>Holcus lanatus</i> <i>Phleum pratense</i> <i>Picea abies</i> <i>Poa compressa</i> <i>Poa pratensis</i> <i>Setaria viridis</i>	x	x		
<i>Heterococcus</i> sp.	x					Poland	<i>Agrostis capillaris</i>	x	x		
<i>Kiritshenkella lianae</i> Koteja, 1988	x					Poland	<i>Carex nigra</i>	x			
<i>Lacombia dactyloni</i> (Bodenheimer, 1943)	x		x			Malta		x			
<i>Metadenopus festucae</i> Šulc, 1933	x		x			Poland	<i>Brachypodium</i> sp. <i>Deschampsia caespitosa</i> <i>Deschampsia</i> sp. <i>Festuca ovina</i> <i>Festuca</i> sp. <i>Poa pratensis</i> <i>Poa</i> sp.	x	x		
<i>Mirococcopsis subterranea</i> (Newstead, 1893)	x		x			Poland	<i>Dactylis glomerata</i> <i>Festuca ovina</i> <i>Festuca pallens</i> <i>Poa compressa</i>	x	x		
<i>Mirococcus clarus</i> (Borchsenius, 1949)	x					Poland	<i>Brachypodium pinnatum</i> <i>Corynephorus canescens</i> <i>Festuca ovina</i>	x			
<i>Mirococcus festucae</i> Koteja, 1971	x					Poland	<i>Festuca pallens</i>	x			
* <i>Nipaecoccus nipae</i> (Maskell, 1893)	x					Poland	<i>Carludovica palmata</i> <i>Chamaedorea elegans</i> <i>Hedyscepe canterburyana</i> <i>Howea forsteriana</i> <i>Livistona chinensis</i> <i>Rhapis excelsa</i>	x		x	
<i>Paraputo angustus</i> (Ezzat & McConnell, 1956)	x					Russian Federation	<i>Bambusa</i> sp.	x			

Species	Sex/stage					Geographic distribution	Host plant	Preparation type						
	F	M	L	P	E			S	D	L	I			
<i>Paraputo pauper</i> (Danzig, 1971)	x					Russian Federation					x			
<i>Peliococcopsis parvicararia</i> (Goux, 1937)	x					Poland	<i>Corynephorus canescens</i>					x		
<i>Peliococcus calluneti</i> (Lindinger, 1912)	x	x	x			Poland	<i>Calluna vulgaris</i> <i>Empetrum nigrum</i> <i>Erica tetralix</i> <i>Pinus</i> sp. <i>Vaccinium myrtillus</i> <i>Vaccinium uliginosum</i>	x			x			
<i>Pelionella balteata</i> (Green, 1928)	x		x			Poland	<i>Anthoxanthum odoratum</i> <i>Calamagrostis</i> sp. <i>Danthonia decumbens</i> <i>Festuca pratensis</i> <i>Festuca</i> sp. <i>Melica</i> sp.					x		
<i>Pelionella manifacta</i> (Borchsenius, 1949)	x		x			Poland						x		
<i>Phenacoccus aceris</i> (Signoret, 1875)	x		x		x	Poland	<i>Acer platanoides</i> <i>Acer</i> sp. <i>Aesculus hippocastanum</i> <i>Alnus glutinosa</i> <i>Alnus incana</i> <i>Alnus</i> sp. <i>Betula pendula</i> <i>Betula</i> sp. <i>Carpinus betulus</i> <i>Carpinus</i> sp. <i>Corylus avellana</i> <i>Crataegus</i> sp. <i>Fraxinus excelsior</i> <i>Malus domestica</i> <i>Malus</i> sp. <i>Padus avium</i> <i>Padus</i> sp. <i>Poa</i> sp. <i>Prunus domestica</i> <i>Prunus</i> sp. <i>Quercus robur</i> <i>Quercus</i> sp. <i>Ribes aureum</i> <i>Ribes uva-crispa</i> grossularia <i>Ribes</i> sp. <i>Sorbus aucuparia</i> <i>Tilia cordata</i> <i>Tilia platyphyllos</i> <i>Tilia</i> sp.	x				x	x	
<i>Phenacoccus dearnessi</i> King, 1901	x					USA	<i>Crataegus</i> sp.					x		
<i>Phenacoccus gossypii</i> Townsend & Cockerell, 1898	x					USA	<i>Plectranthus parviflorus</i>					x		
<i>Phenacoccus hordei</i> (Lindeman, 1886)	x		x			Poland	<i>Agrostis capillaris</i> <i>Anthoxanthum odoratum</i> <i>Brachypodium</i> sp. <i>Festuca ovina</i> <i>Koeleria glauca</i> <i>Leontodon</i> sp. <i>Phleum phleoides</i> <i>Poa cenisia</i>	x			x			
<i>Phenacoccus interruptus</i> Green, 1923	x		x			Poland	<i>Agrostis capillaris</i>	x			x			

Species	Sex/stage					Geographic distribution	Host plant	Preparation type			
	F	M	L	P	E			S	D	L	I
<i>Phenacoccus phenacoccoides</i> (Kiritschenko, 1932)	x		x			Poland	<i>Agrostis capillaris</i> <i>Agrostis</i> sp. <i>Alopecurus pratensis</i> <i>Apera</i> sp. <i>Brachypodium pinnatum</i> <i>Briza media</i> <i>Bromus erectus</i> <i>Calamagrostis</i> sp. <i>Corynephorus canescens</i> <i>Corynephorus</i> sp. <i>Dactylis</i> sp. <i>Elymus</i> sp. <i>Festuca ovina</i> <i>Holcus lanatus</i> <i>Koeleria glauca</i> <i>Koeleria</i> sp. <i>Phleum phleoides</i> <i>Poa compressa</i> <i>Poa</i> sp.	x			
<i>Phenacoccus piceae</i> (Löw, 1883)	x		x			Poland	<i>Festuca</i> sp. <i>Picea abies</i> <i>Picea</i> sp.	x	x		
<i>Phenacoccus pumilus</i> Kiritschenko, 1936	x					Slovakia	<i>Convolvulus arvensis</i>	x			
<i>Phenacoccus</i> sp.	x					Poland	<i>Acer platanoides</i> <i>Acer</i> sp. <i>Aesculus hippocastanum</i> <i>Agrostis</i> sp. <i>Alnus incana</i> <i>Calamagrostis</i> sp. <i>Carpinus betulus</i> <i>Corylus avellana</i> <i>Corylus</i> sp. <i>Corynephorus canescens</i> <i>Crateagus</i> sp. <i>Elymus</i> sp. <i>Koeleria</i> sp. <i>Prunus domestica</i> <i>Prunus</i> sp. <i>Ribes</i> sp.	x		x	
* <i>Planococcus citri</i> (Risso, 1813)	x		x			Poland	<i>Brosimum utile</i> <i>Citrus medica</i> <i>Coffea arabica</i> <i>Duranta erecta</i> <i>Lasia spinosa</i>	x	x		
<i>Planococcus vovae</i> (Nasonov, 1909)	x					Poland	<i>Juniperus communis</i> <i>Juniperus</i> sp.	x	x		
<i>Pseudococcus longispinus</i> (Targioni Tozzetti, 1867)	x		x			Poland	<i>Chamaedorea oblongata</i> <i>Crassula arborescens</i> <i>Crassula muscosa</i> <i>Opuntia microdasys</i> <i>Ricinus</i> sp. <i>Vachellia horrida</i> <i>Vitis voigneriana</i> <i>Vitis</i> sp.	x	x	x	

Species	Sex/stage					Geographic distribution	Host plant	Preparation type			
	F	M	L	P	E			S	D	L	I
<i>*Pseudococcus maritimus</i> Ehrhorn, 1900	x		x			Poland	<i>Aloe</i> sp. <i>Calluna vulgaris</i> <i>Coffea arabica</i> <i>Ficus elastica</i> <i>Haemanthus</i> sp. <i>Duranta erecta</i> <i>Muhlenbekia</i> sp. <i>Opuntia</i> sp. <i>Umbellularia californica</i>	x	x	x	
<i>Pseudococcus</i> sp.	x		x			Poland	<i>Aloe</i> sp. <i>Calamagrostis</i> sp. <i>Fagus silvatica</i> <i>Holcus lanatus</i> <i>Leontodon</i> sp. <i>Picea abies</i> <i>Taraxacum</i> sp. <i>Thymus</i> sp.	x	x		
<i>Rhodania occulta</i> Schmutterer, 1952	x		x			Poland	<i>Agrostis</i> sp. <i>Festuca</i> sp.	x			
<i>Rhodania porifera</i> Goux, 1935	x	x	x			Poland	<i>Festuca ovina</i> <i>Festuca pallens</i> <i>Koeleria</i> sp.	x		x	
<i>Rhodania</i> sp.	x					Poland	<i>Festuca pallens</i> <i>Festuca</i> sp.	x	x		
<i>Saccharicoccus isfarensis</i> (Borchsenius, 1949)	x	x	x	x		Hungary, Poland	<i>Agrostis capillaris</i> <i>Agrostis</i> sp. <i>Agrostis stolonifera</i> <i>Anthoxanthum odoratum</i> <i>Arrhenatherum</i> sp. <i>Brachypodium pinnatum</i> <i>Calamagrostis epigejos</i> <i>Dactylis</i> sp. <i>Elymus repens</i> <i>Festuca ovina</i> <i>Festuca rubra</i> <i>Festuca</i> sp. <i>Holcus mollis</i> <i>Nardus stricta</i> <i>Phleum phleoides</i> <i>Phleum</i> sp. <i>Poa compressa</i> <i>Poa pratensis</i>	x	x		
<i>Saccharicoccus</i> sp.	x					Poland	<i>Agrostis capillaris</i> <i>Festuca ovina</i> <i>Festuca pallens</i>	x	x		
<i>Trabutina crassispinosa</i> Borchsenius, 1941	x					Russian Federation	<i>Tamarix</i> sp.	x			

Species	Sex/stage					Geographic distribution	Host plant	Preparation type			
	F	M	L	P	E			S	D	L	I
<i>Trionymus aberrans</i> (Goux, 1941)	x	x				Austria, Hungary, Montenegro, Poland	<i>Agrostis capillaris</i> <i>Agrostis</i> sp. <i>Agrostis stolonifera</i> <i>Ammophila arenaria</i> <i>Anthoxanthum odoratum</i> <i>Brachypodium pinnatum</i> <i>Briza media</i> <i>Bromus inermis</i> <i>Bromus</i> sp. <i>Calamagrostis epigejos</i> <i>Corynephorus canescens</i> <i>Corynephorus</i> sp. <i>Deschampsia caespitosa</i> <i>Deschampsia</i> sp. <i>Elymus repens</i> <i>Festuca ovina</i> <i>Festuca pratensis</i> <i>Festuca rubra</i> <i>Festuca</i> sp. <i>Holcus lanatus</i> <i>Holcus mollis</i> <i>Nardus stricta</i> <i>Phleum pratense</i> <i>Phleum</i> sp. <i>Poa compressa</i> <i>Poa pratensis</i> <i>Stipa capillata</i>	x	x		
<i>Trionymus caricis</i> McConnell, 1941	x					USA	<i>Chasmanthium ornithorrhynchum</i>	x			
<i>Trionymus hamberdi</i> (Borchsenius, 1949)	x		x			Hungary, Poland	<i>Agrostis capillaris</i> <i>Agrostis</i> sp. <i>Anthoxanthum odoratum</i> <i>Calamagrostis</i> sp. <i>Corynephorus canescens</i> <i>Corynephorus</i> sp. <i>Festuca ovina</i> <i>Holcus lanatus</i> <i>Koeleria glauca</i> <i>Poa</i> sp.	x	x		
<i>Trionymus multisetiger</i> (Borchsenius, 1949)	x					Republic of Korea	<i>Dendranthema</i> sp.	x			
<i>Trionymus newsteadi</i> (Green, 1917)	x					Poland	<i>Fagus silvatica</i> <i>Quercus</i> sp.	x	x		

Species	Sex/stage					Geographic distribution	Host plant	Preparation type			
	F	M	L	P	E			S	D	L	I
<i>Trionymus perrisii</i> (Goux, 1941)	x		x			Austria, Hungary, Italy, Poland, Russian Federation, Slovakia	<i>Agrostis canina</i> <i>Agrostis capillaris</i> <i>Agrostis stolonifera</i> <i>Agrostis</i> sp. <i>Anthoxanthum odoratum</i> <i>Arrhenatherum elatius</i> <i>Arrhenatherum</i> sp. <i>Bambusa</i> sp. <i>Brachypodium pinnatum</i> <i>Bromus erectus</i> <i>Bromus inermis</i> <i>Calamagrostis epigejos</i> <i>Calamagrostis varia</i> <i>Calamagrostis</i> sp. <i>Corynephorus canescens</i> <i>Corynephorus</i> sp. <i>Dactylis glomerata</i> <i>Dactylis</i> sp. <i>Danthonia decumbens</i> <i>Deschampsia caespitosa</i> <i>Deschampsia flexuosa</i> <i>Deschampsia</i> sp. <i>Elymus caninus</i> <i>Elymus repens</i> <i>Festuca ovina</i> <i>Festuca pratensis</i> <i>Festuca rubra</i> <i>Festuca</i> sp. <i>Holcus lanatus</i> <i>Holcus mollis</i> <i>Koeleria glauca</i> <i>Koeleria</i> sp. <i>Leontodon</i> sp. <i>Lolium perenne</i> <i>Nardus stricta</i> <i>Phleum phleoides</i> <i>Phleum pratense</i> <i>Phleum</i> sp. <i>Poa annua</i> <i>Poa compressa</i> <i>Poa pratensis</i> <i>Poa</i> sp.	x	x		
<i>Trionymus placatus</i> (Borchsenius, 1949)	x					Poland	<i>Deschampsia flexuosa</i>	x			
<i>Trionymus radicum</i> (Newstead, 1895)	x		x			Poland	<i>Agrostis capillaris</i> <i>Agrostis</i> sp. <i>Festuca ovina</i> <i>Festuca rubra</i> <i>Festuca</i> sp. <i>Holcus mollis</i> <i>Phleum pratense</i> <i>Poa compressa</i>	x	x		

Species	Sex/stage					Geographic distribution	Host plant	Preparation type			
	F	M	L	P	E			S	D	L	I
<i>Trionymus thulensis</i> Green, 1931	x		x			Hungary, Poland	<i>Agrostis canina</i> <i>Agrostis capillaris</i> <i>Agrostis stolonifera</i> <i>Agrostis</i> sp. <i>Alnus</i> sp. <i>Anthoxanthum odoratum</i> <i>Brachypodium</i> sp. <i>Calamagrostis epigejos</i> <i>Carex</i> sp. <i>Deschampsia caespitosa</i> <i>Deschampsia flexuosa</i> <i>Elymus repens</i> <i>Elymus</i> sp. <i>Festuca ovina</i> <i>Festuca rubra</i> <i>Festuca</i> sp. <i>Holcus lanatus</i> <i>Holcus mollis</i> <i>Phleum pratense</i> <i>Phleum</i> sp. <i>Poa cenisia</i> <i>Poa</i> sp.	x	x		
<i>Trionymus</i> sp.	x		x			Poland	<i>Agrostis capillaris</i> <i>Agrostis gigantea</i> <i>Agrostis</i> sp. <i>Agrostis stolonifera</i> <i>Anthoxanthum odoratum</i> <i>Calamagrostis arundinacea</i> <i>Calamagrostis epigejos</i> <i>Deschampsia caespitosa</i> <i>Elymus repens</i> <i>Festuca ovina</i> <i>Festuca pallens</i> <i>Festuca rubra</i> <i>Festuca</i> sp. <i>Hierochloë odorata</i> <i>Holcus lanatus</i> <i>Phleum pratense</i> <i>Poa compressa</i> <i>Poa pratensis</i> <i>Poa stiriaca</i> <i>Poa</i> sp.	x	x		
<i>Volvicoccus volvifer</i> (Goux, 1945)	x					Hungary, Poland	<i>Stipa capillata</i>	x			
unknown species	x	x	x			Poland		x			x
Putoidae Beardsley, 1969											
<i>Puto arctostaphyli</i> Ferris, 1950	x		x			USA	<i>Arctostaphylos</i> sp.	x			
<i>Puto caucasicus</i> Hadzibejli, 1956	x					Russian Federation		x			
<i>Puto mexicanus</i> (Cockerell, 1893)	x	x	x	x		Mexico	<i>Aloe</i> sp.	x	x		
<i>Puto orientalis</i> Danzig, 1978	x					Russian Federation	<i>Schisandra chinensis</i>	x			
<i>Puto pricei</i> McKenzie, 1960	x					USA		x			
<i>Puto superbus</i> (Leonardi, 1907)	x	x	x			Croatia, Poland	<i>Arrhenatherum elatius</i>	x			
<i>Puto</i> sp.		x	x			Poland					x

Species	Sex/stage					Geographic distribution	Host plant	Preparation type			
	F	M	L	P	E			S	D	L	I
unknown species	x	x	x			Poland					x
Rhizoecidae Williams, 1969											
<i>Rhizoecus dianthi</i> Green, 1926	x					Poland	<i>Acacia</i> sp. <i>Syzygium paniculatum</i>	x			
<i>Rhizoecus vitis</i> Borchsenius, 1949	x					Russian Federation	<i>Vitis</i> sp.	x			
<i>Ripersiella halophila</i> (Hardy, 1868)	x					Poland		x			
Serafinidae Koteja, 2008 †											
<i>Serafinus</i> sp.		x				Poland					x
Steingeliidae Morrison, 1927											
<i>Steingelia gorodetskia</i> Nasonov, 1908	x	x	x	x		Poland	<i>Luzula luzuloides</i>	x	x		
unknown species		x				Poland					x
Stictococcidae Lindinger, 1913											
<i>Stictococcus intermedius</i> Newstead, 1917		x				Central African Republic		x			
Xylococcidae Pergande, 1898											
<i>Xylococcus betulae</i> (Pergande in Hubbard & Pergande, 1898)			x			USA		x			
<i>Xylococcus filiferus</i> Lôw, 1882	x		x			Poland	<i>Tilia</i> sp.	x	x		
<i>Xylococcus japonicus</i> (Oguma, 1926)		x		x		Japan		x			
<i>Xylococcus</i> sp.	x	x	x	x		Japan		x			
unknown species						Poland					x
unknown family											
<i>Holticocus</i> sp.	x					Poland					x