APHIDS AND OTHER HEMIPTEROUS INSECTS | Vol. 16 (2010) 27–35

# Occurrence of aphids /Hemiptera, Aphidoidea/ on tree and shrubs in Cytadela Park in Poznań

BEATA BOROWIAK-SOBKOWIAK*, BARBARA WILKANIEC

Department of Entomology, University of Life Sciences in Poznań
Dąbrowskiego 159, 60-594 Poznań, Poland
*borowiak@up.poznan.pl

## Abstract

Research concerning species composition and degree of plant infestation by aphids in Cytadela Park in Poznań allowed one to confirm the presence of 67 aphid species. The most numerous species registered on 56 tree and shrub taxons were the following: *Aphis fabae* Scopoli, 1763 on *Eonymus europeus*, *Aphis sambuci* Linnaeus, 1758 on *Sambucus nigra*, *Brachycaudus divaricate* Shaposhnikov, 1956 on *Prunus cerasifera*, *Drepanosiphum platanoidis* (Schrank, 1801) on *Acer platanoides* and *Acer pseudoplatanus, Myzus cerasi* (Fabricius, 1775) on *Prunus serrulata* and *Anoecia corni* (Fabricius, 1775) on *Cornus sanquinea*. Aphid feeding decreased plants' decorative value, including rolling of leaves of Japanese cherry (*Prunus serrulata*) caused by *Myzus cerasi* or leaves of cherry plum (*Prunus cerasifera*) by *Brachycaudus divaricatae* or a weakening of rose blossoming due to *Macrosiphum rosae* feeding.

## Introduction

Park Cytadela covers the area of the previous Fort Winiary. Its construction started in 1829 on Wzgórze Winiarskie (POLAK *et al*., 1988). The Poznań fortress had been used by the army up till 1945, first by the Germans and then, between WWI and WWII, by the Polish, finally by the German invaders. Fort

Winiary was badly damaged during the taking of the city by the Russian troops in 1945. The trees were then destroyed, too.

Initially the greenery of Cytadela was connected to the place's military purpose (it served as an obstacle: plants with thorns; as a source of material, namely wood; for slope enforcement as a construction element and for camouflage). Fast – growing trees with few needs were planted, such as maples, chestnuts, elms, beeches, ash trees, oaks, black locusts and poplars, plus bushes such as desert thorn or hawthorn. As the area was subject to numerous transformations throughout the years, little remained in the park from previous planting. Some trees and bushes growing now on the fort's slopes are the successors of the originally planted ones. Among the oldest (about 100 years old) of tree specimens in the park one may see species of Norway maple, European pear, horse chestnut, white elm, pedunculate oak, European ash, sycamore maple, or black locust (Wrońska-Pilarek *et al.*, 2007). The latest inventory recorded 170 taxa of deciduous trees in the park. Even at the end of the 19th century Park Cytadela was used as a leisure area, however, the newest plants were introduced in 1960s. Nowadays the Park, which takes up 100 ha, provides the Poznań residents with a place for sport and leisure activities.

One of insect groups strictly connected with trees and bushes are aphids. Their feeding may impair growth and blooming, cause deformation of plant organs, which in turn decreases their decorative value. The aim of the study was to find out about the species composition of aphids infesting trees and bushes in Park Cytadela, Poznań, establishing the phenology of their occurrence in vegetation season and the level of plant infestation.

## Material and methods

The research was carried out for two growth seasons in the Cytadela Park in Poznan during 2006-2007. Aphids were collected in a decade-long intervals from May to October. For the purpose different plant organs up to 2 m high were searched (leaves, shoots, flowers and fruit). The collected aphids were kept in tubes with 75% alcohol. At the same time notes were made on the site concerning the place of aphid feeding on plant and the kind of damage which they caused. Also the degree of plant settling was determined, assessing it each time using a 5 – grade scale, in which the following indicators were used: 1 – no aphids, 2 – few aphids (single specimens), 3 average intensity (small colonies up to 30 specimens/colony), 4 – large intensity (numerous colonies up to 50 specimens/colony), 5 – very large intensity (aphids cover the surface of entire plant parts). The species of the collected insects were identified on the basis of hostplant species knowledge and with the use of identification keys (Heie, 1982; 1986; 1992; 1994; 1995). Research material is stored in the Department

of Entomology of the University of Life Science in Poznań. This paper is an extension and supplementation of the research results published previously and concerning the same site (BOROWIAK-SOBKOWIAK *et al*., 2009).

## Results

As a result of studies carried out in Cytadela Park, Poznań, in 2006 – 2007, 67 aphid species were reported from 56 plant species (Tabs. 1, 2). The aphids belonged to two families: Aphididae and Adelgidae. The Aphididae family was represented by 8 subfamilies: (Aphidinae, Chaitophorinae, Lachninae, Myzocallidinae, Pemphiginae, Phyllaphidinae and Thelaxinae).

In the season 2006 there were 59 aphid taxa collected, while in 2007 there were 34 of them. In both study years the following species were observed the longest in the season: *A. fabae, A. sambuci, D. platanoidis, Eucallipterus tiliae* (Linnaeus, 1758)*, Liosomaphis berberidis* (Kaltenbach, 1843)*, Macrosiphum rosae* (Linnaeus, 1758), or *M. cerasi* (Tab. 1). On the other hand, the species of the *Chaitophorus* sp. genus, numerous in the spring and summer of 2006, were not observed in the next season. Among the species caught in 2007 five were not reported in 2006, namely: *Gilleteella cooleyi* (Gilette, 1907) on *Pseudotsuga menziesii*, *Glyphina betulae* (Linnaeus, 1758) and *Monaphis antennata* (Kaltenbach, 1843) on *Betula pendula*, *Pineus pini* (Macquart, 1819) on *Pinus mugo* and *Tuberculatus querceus* (Kaltenbach, 1843) on *Quercus robur* (Tab. 1). In the season of 2006 a high level of infestation (4 and 5 in the five – degree scale) was reported for 28 aphid species, while in the season of 2007 only 14 (Tab. 2). In both study years 8 aphid species infested trees numerously, namely: *A. sambuci* on *Sambucus nigra*, *Aphis spiraephaga* F. P. Müller, 1961 on *Spirea salicifolia*, *B. divaricatae* on *Prunus cerasifera, D. platanoidis* and *Periphyllus testudinaceus* (Fernie, 1852) on *Acer platanoides, Lachnus roboris* (Linnaeus, 1758) on *Quercus robur, M. rosae* on *Rosa canina* and *M. cerasi* on *Prunus serrulata*. This proves numerous and stable occurrence of those taxa in Park Cytadela.

A numerous occurrence of aphids on trees and bushes was observed in two periods of the season: spring and autumn. The samples collected in May and June as well as September and October were characterized by high species richness. The most species were collected in the second ten – day period of May 2007 (23 species). On the other hand, the fewest species were found in summer. Most collected species were single – host ones.

Numerous infestation of trees and bushes by some aphid species resulted in decreasing the plants' decorative value. Those were deformations, leaf curling, discoloration, weaker blooming or drying of whole plants. Such damage was observed for example on *Prunus cerasifera. Brachycaudus divaricatae*, which infested the bushes, caused leaf curling and rolling, and consequently the drying of mainly top parts of the organs. Serious damage to leaves, stems

and flowers was observed on *Rosa canina* and *R. rugosa* as a result of *Macrosiphum rosae* infestation, while strong leaf curling and weaker blooming was due to the infestation by *Myzus cerasi* on *Prunus serrulata* or *Aphis spiraephaga* on *Spirea salicifolia.*

Table 1. Aphid species infesting trees and shrubs in Cytadela Park, Poznań 2006 and 2007

| Aphid species | Occurrence in season | | Occurrence of aphids on trees and shrubs in season (decade/month) | |
|---|---|---|---|---|
| | 2006 | 2007 | 2006 | 2007 |
| *Adelges laricis* Vall. | x | x | III/V, I/VI, II/IX | I-II/V |
| *Adelges* sp. | x | x | II-III/V | I/V |
| *Amphorophora idaei* (Börn.) | x | | III/VI | |
| *Amphorophora rubi* (Kalt.) | x | | III/V | |
| *Anoecia corni* (F.) | x | | I/VIII, II-III/IX, I/X | |
| *Aphis corniella* H.R.L. | x | | I-III/X | |
| *Aphis craccivora* (F.) | x | | I/VI | |
| *Aphis fabae* Scop. | x | x | I-II/V, I/VI, II-III/X | I-II/V, I/VI, II-III/X |
| *Aphis idaei* V.D.Goot | x | | I/IX | |
| *Aphis nasturtii* Kalt. | x | | III/VI | |
| *Aphis pomi* De Geer | x | x | III/VI, III/VII | I-II/V, III/VIII |
| *Aphis sambuci* L. | x | x | III/V, I-III/VI, III/VII, I/VIII, I-III/IX, I-III/X | I-III/V |
| *Aphis spiraephaga* F.P.M. | x | x | II/V | I-II/V, I/VII |
| *Betulaphis quadriculata* Kalt. | | x | | II/V |
| *Brachycaudus cardui* L. | x | | II-III/V, I/VI | |
| *Brachycaudus divaricatae* Shap. | x | x | II-III/V | I-II/V |
| *Brachycaudus helichrysi* (Kalt.) | x | x | I-II/VI | I-II/V |
| *Brachycaudus spiraeae* Börn. | | x | | I/VII |
| *Callipterinella calliptera* (Htg.) | x | x | I/IX | II/V |
| *Callipterinella tuberculata* (Heyd.) | | x | | I/VII |
| *Capitophorus elaeagni* (del Gu.) | x | | III/IX, I-III/X | |
| *Cavariella theobaldi* Gill. et Bragg | x | x | I/VI | II/V |
| *Chaetosiphon tetrarhodus* Walk. | x | | III/V | |
| *Chaitophorus leucomelas* Koch | x | | II-III/VI, I/VII | |
| *Chaitophorus nassonovi* Mordv. | x | | I/VIII | |
| *Chaitophorus niger* Mordv. | x | | I/VI | |
| *Chaitophorus populeti* Panz. | x | | I/V, I-III/VI, III/VII | |
| *Chaitophorus populialbae* B.d.F. | x | | I/IX | |
| *Chaitophorus salicti* Schr. | x | | III/VII | |
| *Chaitophorus salijaponicus* Ess.&Kuw. | x | | II-III/V, I/VI | |
| *Chaitophorus tremulae* Koch | x | | III/V | |
| *Cinara kochiana* Börn. | x | | II-III,X | |
| *Cinara pectinatae* Nördl. | x | | I/VI | |
| *Cinara pinea* Mordv. | x | x | II-III/V, I/VI | I-II/V |
| *Clethrobius comes* Walk. | x | | III/VI | |
| *Drepanosiphum acerinum* (Walk.) | x | | I/V | |
| *Drepanosiphum platanoidis* (Schrk.) | x | x | I-III/V, III/VI, I/VII, III/IX, III/X | I-II/V, I/VII, III/VIII |
| *Dreyfusia piceae* (Ratz.) | x | | III/V | |
| *Dysaphis crataegi* Kalt. | x | x | II/IX | I/V |
| *Eucallipterus tiliae* (L.) | x | x | I-III/V, III/VIII, I-II/IX, I/X | I/V, I/VII |
| *Euceraphis betulae* (Koch) | x | x | I-II/V | I-II/V |
| *Gilletteella cooleyi* (Gill.) | | x | | I-III/V, I/VII, III/VIII |
| *Glyphina betulae* L. | | x | | II/V |
| *Lachnus roboris* L. | x | x | III/VI, I-III/VII, I-III/VIII | I-II/V |
| *Liosomaphis berberidis* Kalt. | x | x | I-III/V, II/IX, I/X | I-II/V, I/VII |
| *Macrosiphum funestum* Macch. | x | | I, III/X | |
| *Macrosiphum rosae* (L.) | x | x | II-III/V, III/VI, I/VII, I-III/VIII, I-II/IX, I-III/X | I-II/V, I/VII, III/VIII |
| *Melanaphis pyraria* (Pass.) | x | | II/VI | |
| *Metopolophium dirhodum* (Walk.) | x | x | I/V, II/X | I/VII |

| | | | | |
|---|---|---|---|---|
| *Myzocallis coryli* (Goetze) | x | | II/V | |
| *Myzus cerasi* (F.) | x | x | I-III/V, I-III/VI, II-III/VII, I-III/VIII, III/IX, II/X | I-III/V, I/VII |
| *Myzus persicae* (Sulz.) | x | x | II/IX | I-II/V |
| *Panaphis juglandis* (Goetze) | x | | I-III/VI, II/VII, I/VIII | |
| *Pemphigus spyrothecae (*Pass.) | x | | I-III/IX, I-II/X | |
| *Periphyllus aceris* (L.) | x | | II/IX, I,III/X | |
| *Periphyllus testudinaceus* (Fern.) | x | x | I-III/V, II/VI, I/VII, I-III/IX, I-II/X | I-III/V |
| *Phyllaphis fagi* L. | x | | II-III/VI | |
| *Pineus pini* (Macq.) | | x | | |
| *Rhopalomyzus lonicerae* (Mordv.) | x | x | II/V, III/X | II/V |
| *Rhopalosiphum padi* (L.) | x | | II/IX | |
| *Telaxes dryophila* Schr. | x | | I/VI | |
| *Tinocallis platani* (Kalt.) | x | x | I-III/V, I-II/VI | II/V |
| *Trichosiphonaphis corticis* Aizenb. | x | | III/X | |
| *Tuberculoides annulatus* (Htg.) | x | x | I-III/V | I/V, I/VII |
| *Tuberculoides borealis* (Krzywiec) | x | x | II/VI | I/VII |
| *Tuberculatus quercus* Kalt. | | x | | I/VII |

Table 2. List of trees and shrubs infested by aphids and degree scale of plant infestation

| **Aphid species** | **Plant species** | **Scale of plant infestation degree** | |
|---|---|---|---|
| | | **2006** | **2007** |
| *Adelges laricis* Vall. | *Picea abies* | II | II |
| *Adelges laricis* Vall. | *Larix decidua* | III | II |
| *Adelges laricis* Vall. | *Larix kaempferi* | III | |
| *Amphorophora idaei* (Börn.) | *Rubus* sp. | III | |
| *Amphorophora rubi* (Kalt.) | *Rubus plicatus* | II | |
| *Anoecia corni* (F.) | *Cornus sanquinea* | II, III, **IV** | |
| *Aphis corniella* H.R.L. | *Cornus sanquinea* | II - III | |
| *Aphis craccivora* (F.) | *Robinia pseudoacacia* | II | |
| *Aphis fabae* Scop. | *Euonymus europeus* | III - **IV** | |
| *Aphis fabae* Scop. | *Philadelphus coronarius* | III | |
| *Aphis idaei* V.D.Goot | *Rubus idaeus* | II | |
| *Aphis nasturtii* Kalt. | *Rhamnus cathartica* | III | |
| *Aphis pomi* De Geer | *Crataegus monogyna* | III - **IV** | |
| *Aphis pomi* De Geer | *Malus* sp. | | III |
| *Aphis pomi* De Geer | *Chaenomeles japonica* | | II - III |
| *Aphis pomi* De Geer | *Pyrus pyraster* | | III |
| *Aphis pomi* De Geer | *Pyracantha coccinea* | | III |
| *Aphis sambuci* L. | *Sambucus nigra* | II - **V** | **IV** |
| *Aphis spiraephaga* F.P.M. | *Spirea salicifolia* | **IV** | II, **IV** |
| *Betulaphis quadriculata* Kalt. | *Betula pendula* | | II - **IV** |
| *Brachycaudus cardui* L. | *Prunus spinosa* | II, **IV, V** | II |
| *Brachycaudus divaricatae* Shap. | *Prunus cerasifera* | **IV, V** | **IV, V** |
| *Brachycaudus helichrysi* (Kalt.) | *Prunus cerasifera* | III, **IV** | III |
| *Brachycaudus helichrysi* (Kalt.) | *Prunus insititia* | | **IV** |
| *Brachycaudus spiraeae* Börn. | *Spirea salicifolia* | | II |
| *Callipterinella calliptera* (Htg.) | *Betula pendula* | III | III |
| *Callipterinella tuberculata* (Heyd.) | *Betula pendula* | | II |
| *Capitophorus elaeagni* (del Gu.) | *Elaeagnus angustifolia* | II | III |
| *Cavariella theobaldi* Gill. Et Bragg | *Salix purpurea* | II | |
| *Cavariella theobaldi* Gill. Et Bragg | *Salix alba* | III | |
| *Chaetosiphon tetrarhodus* Walk. | *Rosa rugosa* | III | **V** |
| *Chaitophorus leucomelas* Koch | *Populus nigra* | II, **IV** | |

| | | | |
|---|---|---|---|
| *Chaitophorus leucomelas* Koch | *Populus alba* | III | |
| *Chaitophorus nassonovi* Mordv. | *Prunus serrulata* | II | |
| *Chaitophorus niger* Mordv. | *Populus alba* | II | |
| *Chaitophorus populeti* Panz. | *Populus alba* | II - **IV** | |
| *Chaitophorus populialbae* B.d.F. | *Populus alba* | III | |
| *Chaitophorus salicti* Schr. | *Populus alba* | III | |
| *Chaitophorus salijaponicus* Ess.&Kuw. | *Salix alba* | III, **IV** | |
| *Chaitophorus tremulae* Koch | *Populus tremula* | III | |
| *Cinara kochiana* Börn. | *Larix kaempferi* | III | |
| *Cinara pectinatae* Nördl. | *Abies koreana* | II | |
| *Cinara pinea* Mordv. | *Pinus mugo* | II, III | |
| *Clethrobius comes* Walk. | *Alnus glutinosa* | **IV** | II |
| *Drepanosiphum acerinum* (Walk) | *Acer pseudoplatanus* | **IV** | |
| *Drepanosiphum platanoidis* (Schrk.) | *Acer pseudoplatanus* | III, **IV** | **IV** |
| *Drepanosiphum platanoidis* (Schrk.) | *Acer platanoides* | II - **IV** | II - **IV** |
| *Dreyfusia piceae* (Ratz.) | *Abies koreana* | II | |
| *Dysaphis crataegi* Kalt. | *Crataegus monogyna* | II | III |
| *Eucallipterus tiliae* (L.) | *Tilia platyphyllos* | I - III | II |
| *Euceraphis betulae* (Koch) | *Betula pendula* | III, **IV** | II |
| *Gilletteella cooleyi* (Gill.) | *Pseudotsuga menziesii* | | II - III |
| *Glyphina betulae* L. | *Betula pendula* | | III |
| *Lachnus roboris* L. | *Quercus robur* | III, **IV** | II, **IV** |
| *Liosomaphis berberidis* Kalt. | *Berberis Thunbergii* | II - **IV** | II, III |
| *Liosomaphis berberidis* Kalt. | *Berberis vulgaris* | II,III | II, III |
| *Macrosiphum funestum* Macch. | *Rubus plicatus* | II | |
| *Macrosiphum rosae* (L.) | *Rosa rugosa* | II - **IV** | |
| *Macrosiphum rosae* (L.) | *Rosa canina* | II - **IV** | II - **IV** |
| *Melanaphis pyraria* (Pass.) | *Pyrus pyraster* | **IV** | |
| *Metopolophium dirhodum* (Walk.) | *Rosa rugosa* | III | II |
| *Metopolophium dirhodum* (Walk.) | *Rosa canina* | II | |
| *Monaphis antennata* (Kalt.) | *Betula pendula* | | II |
| *Myzocallis coryli* (Goetze) | *Corylus avellana* | III | |
| *Myzus cerasi* (F.) | *Cerasus avium* | II - **IV** | III |
| *Myzus cerasi* (F.) | *Prunus cerasus* | II | |
| *Myzus cerasi* (F.) | *Prunus serrulata* | II, **IV, V** | **IV** |
| *Myzus persicae* (Sulz.) | *Prunus padus* | II | |
| *Myzus persicae* (Sulz.) | *Lycium barbarum* | | III, II |
| *Panaphis juglandis* (Goetze) | *Juglans regia* | II, III | |
| *Pemphigus spyrothecae (*Pass.) | *Populus nigra* | II, III | |
| *Periphyllus aceris* (L.) | *Acer platanoides* | II, III | |
| *Periphyllus testudinaceus* (Fern.) | *Acer pseudoplatanus* | II - **IV** | III |
| *Periphyllus testudinaceus* (Fern.) | *Acer platanoides* | II - **IV** | **IV,** III |
| *Periphyllus testudinaceus* (Fern.) | *Acer campestre* | III, II | II |
| *Periphyllus testudinaceus* (Fern.) | *Aesculus hippocastanum* | II | |
| *Periphyllus testudinaceus* (Fern.) | *Acer tataricum* | II, III | |
| *Periphyllus testudinaceus* (Fern.) | *Acer negundo* | **IV** | II |
| *Phyllaphis fagi* L. | *Fagus silvatica* | II | |
| *Pineus pini* (Macq.) | *Pinus mugo* | | **IV** |
| *Rhopalomyzus lonicerae* (Mordv.) | *Lonicera tatarica* | II, III | III |
| *Rhopalosiphum padi* (L.) | *Prunus padus* | II | |
| *Sacchiphantes abietis* (L.) | *Abies koreana* | II | |
| *Telaxes dryophila* Schr. | *Quercus robur* | II | |
| *Tinocallis platani* (Kalt.) | *Ulmus laevis* | II - **IV** | II |
| *Tinocallis platani* (Kalt.) | *Ulmus minor* | III, II | |

| | | | |
|---|---|---|---|
| *Trichosiphonaphis corticis* Aizenb. | *Lonicera tatarica* | III | |
| *Tuberculoides annulatus* (Htg.) | *Quercus robur* | II, **IV** | II |
| *Tuberculoides annulatus* (Htg.) | *Quercus rubra* | II | II |
| *Tuberculoides borealis* (Krzywiec) | *Quercus robur* | II | **IV** |
| *Tuberculatus quercus* Kalt. | *Quercus robur* | | II |

## Discusion

Studies on aphids occurring on trees and bushes in Park Cytadela in Poznań continued the research conducted by the Chair of Entomology in urban greenery for many years (Wilkaniec, 2001; 2004; Borowiak-Sobkowiak *et al*., 2009). In Poland similar topics were addressed by Cichocka & Goszczyński (1991), Jaśkiewicz (1995, 1997) and Osiadacz & Wieczorek (2003, 2005).

As results from the study, the trees and bushes of Park Cytadela were infested by rich aphidofauna, represented by 67 species. Aphids were found on 56 various species of trees and bushes. The aphidofauna species composition is poorer than in the Botanical Garden in Poznań, where as many as 107 species were found. The difference may be explained with a higher species richness of plants in the Botanical Garden (c. 8000 species) (Wilkaniec, 2004). When comparing the species composition of aphids of the Botanical Garden and Park Cytadela, as many as 34 common species were found. Those were the species connected with maple (*Drepanosiphum aceris* Koch, 1855*, D. platanoidis, Periphyllus aceris* (Linnaeus, 1758)*, P. testudinaceus*). On the other hand *P. acericola* (Walker, 1848) or *P. obscurus* Mamontova, 1955 were not found on maples. In her study Wilkaniec lists 4 species connected with birch trees (*Callipterinella calliptera* (Hartig, 1841)*, Callipterinella tuberculata* (Heyden, 1837)*, Euceraphis betulae* (Koch, 1855) and *M. antennata*). In our study, apart from the above species, also *Betulaphis quadriculata* (Kaltenbach, 1843) and *Glyphina betulae* were found on birch trees. Also a few species of the *Aphis* sp. genus occurring in the Botanical Garden were found in Park Cytadela. One has to highlight the fact that in the Botanical Garden aphids settled also many foreign plant species. No differences in the aphid settlement of native and foreign tree species belonging to the same botanical genus were found. This testifies to aphids' large adaptation possibilities.

Similarly to selected parks of Bytom (Osiadacz & Wieczorek, 2003), tree taxa most frequently recorded from Cytadela Park include species of the genera: *Acer* spp.*, Fagus* spp.*, Salix* spp. and *Tilia* spp. Aphid species connected to them and belonging to the Drepanosiphidae family, such as *D. plataniodis, Phyllaphis fagi* (Linnaeus, 1767)*, E. tiliae*, were recorded both at Park Cytadela and Bytom parks. Our study confirms the occurrence of three of five species occurring on *Rosa* in a park in Lublin (Jaśkiewicz, 1995). Those included: *M. rosae, Chaetosiphon tetrarhodus* (Walker, 1849) and *Metopolophium dirhodum* (Walker, 1848).

## References

BOROWIAK-SOBKOWIAK B., WILKANIEC B., WILKANIEC A., PIEKARSKA-BONIECKA H., TRZCIŃSKI P. 2009. Stopień zasiedlenia dendroflory Parku Cytadela w Poznaniu przez mszyce. Progress in Plant Protection 49(1):91-94.

CICHOCKA E., GOSZCZYŃSKI W. 1991. Mszyce zasiedlające drzewa przyuliczne w Warszawie. [In:] Mszyce – ich bionomia, szkodliwość i wrogowie naturalni. PAN, Warszawa: 9-18.

HEIE O. E. 1982. The Aphidoidea (Hemiptera) of Fennoscandia and Dermark. II. Fauna ent. scand. 11, 1-176.

HEIE O. E. 1986. The Aphidoidea (Hemiptera) of Fennoscandia and Dermark. III. Fauna ent. scand. 17, 1-314.

HEIE O. E. 1992. The Aphidoidea (Hemiptera) of Fennoscandia and Dermark. IV. Fauna ent. scand. 25, 1-189.

HEIE O. E. 1994. The Aphidoidea (Hemiptera) of Fennoscandia and Dermark. V. Fauna ent. scand. 28, 1-239.

HEIE O. E. 1995. The Aphidoidea (Hemiptera) of Fennoscandia and Dermark. VI. Fauna ent. scand. 31, 1-217.

JAŚKIEWICZ B. 1995. Zespół gatunków mszyc żerujących na krzewach *Rosa rugosa* Thunb. w parku akademickim w Lublinie. Ann. Univ. Mariae Curie-Skłodowska III, 19: 159-171.

JAŚKIEWICZ B. 1997. Skład gatunkowy i dynamika pojawu mszyc na wybranych krzewach ozdobnych w latach 1973-1993. Wydawnictwo AR w Lublinie, Rozprawy Nauk. 183, 1-93.

OSIADACZ B., WIECZOREK K. 2003. Mszyce (Hemiptera: Aphidoidea) wybranych parków Bytomia. Acta entomologica silesiana. 11(1-2):39-46.

POLAK B., JAKUBIAK T. A., KAROLCZAK Z., PIECHOWIAK P., PILARCZYK Z., REZLER M. 1988. Poznańskie Fortyfikacje. Wyd. Poznańskie, Poznań, 301p.

WIECZOREK K., OSIADACZ B. 2005. Mszyce dendrofilne (Hemiptera, Aphidoidea) urządzonej zieleni miejskiej Katowic – część I parku im. T. Kościuszki. Acta entomologica silesiana, 12-13: 155-160.

WILKANIEC B. 2001. Afidofauna Ogrodu Dendrologicznego w Poznaniu. [In:] P. Indykiewicz, T. Barczak, G. Kaczorowski (eds.) Bioróżnorodność i ekologia populacji zwierzęcych w środowiskach zurbanizowanych. NICE, Bydgoszcz: 32-37.

WILKANIEC B. 2004. Afidofauna Ogrodu Botanicznego w Poznaniu. [In:] P. Indykiewicz, T. Barczak (eds.) Fauna miast Europy Środkowej 21. wieku. LOGO, Bydgoszcz: 167-177.

WROŃSKA-PILAREK D., GORNOWICZ R., GAŁĄZKA S., JANYSZEK S., MALIŃSKI T., MIZERA T., WILKANIEC A. 2007. Waloryzacja przyrodnicza parku Cytadela. Poznań (typescript).

## Występowanie mszyc /Hemiptera, Aphidoidea/ na drzewach i krzewach w parku Cytadela w Poznaniu


### Streszczenie

Badania dotyczące składu gatunkowego i stopnia zasiedlenia roślin przez mszyce w Parku Cytadela w Poznaniu, pozwoliły stwierdzić występowanie 67 gatunków mszyc. Najliczniejszymi gatunkami stwierdzonymi na 56 taksonach drzew i krzewów były: *Aphis fabae* na *Eonymus europeus*, *Aphis sambuci* na *Sambucus nigra*, *Brachycaudus divaricate* na *Prunus cerasifera*, *Drepanosiphum platanoidis* na *Acer platanoides* i *Acer pseudoplatanus, Myzus cerasi* na *Prunus serrulata* i *Anoecia corni* na *Cornus sanquinea*.

Żerowanie mszyc wpływało na znaczne obniżenie walorów dekoracyjnych roślin. Przykładem może być skędzierzawienie liści wiśni piłkowanej powodowane przez *Myzus cerasi*, czy ałyczy przez *Brachycaudus divaricatae* lub osłabienie kwitnienia róży przez żerowanie *Macrosiphum rosae*.