

## Short note

## NEW RECORDS OF VASCULAR PLANT DISTRIBUTION IN THE POLISH PART OF THE LITHUANIAN LAKELAND, NORTH-EASTERN POLAND

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## Abstract

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 The paper presents new localities of 15 vascular plants recorded in the Polish part of the Lithuanian Lakeland, north-eastern Poland in 2017–2018, using the ATPOL cartogram method. *Crepis capillaris*, *Diploaxis tenuifolia*, *Eragrostis albensis*, *Matthiola longipetala*, *Oenothera fruticosa*, *Oenothera glazioviana* and *Rubus armeniacus* are listed as new species for the regional flora.

**Keywords:** alien species, biological recording, floristics, geographical distribution, vascular plants.

In many regions of Poland, distribution of vascular plants is insufficiently recognized due to a lack of intensive floristic studies (ZAJĄC & ZAJĄC, 2001, 2015). The Lithuanian Lakeland is a physical-geographical macroregion between Poland, Russia (Kaliningrad Oblast), Lithuania and Belarus. The Polish part of the Lithuanian Lakeland is situated in north-eastern Poland and covers about 3500 km<sup>2</sup>. It comprises four mesoregions, namely the Romincka Forest, the Eastern Suwałki Lakeland, the Western Suwałki Lakeland, and the Augustów Plain (KONDRACKI, 2002). It lies in a transitory temperate climate zone with some influence from the continental climate (GÓRNIAK, 2000), where the average annual air temperature is about 6.5°C and the average annual precipitation is 550–600 mm (LORENC, 2005).

Floristic studies in the Polish part of the Lithuanian Lakeland began in the first half of the 19<sup>th</sup> century (PLISZKO, 2015 and references therein). However, significant contributions to the vascular plant flora of the region were made in the second half of the

20<sup>th</sup> century (SOKOŁOWSKI, 1965, 1973, 1988a, 1988b; MAZUR et al., 1978). The flora of the Polish part of the Lithuanian Lakeland still attracts the interest among researchers (JABŁOŃSKA, 2005; PAWLIKOWSKI, 2008a, 2008b; PAWLIKOWSKI et al., 2011, 2013; PLISZKO, 2014, 2015, 2016, 2017a; WOŁKOWYCKI & PAWLIKOWSKI, 2016; WOŹNIAK-CHODACKA & PLISZKO, 2017b). In this paper, new records of vascular plant distribution in the Polish part of the Lithuanian Lakeland are presented, as an addition to the ATPOL database (ZAJĄC & ZAJĄC, 2001).

Field surveys were carried out in 2017–2018 by using the ATPOL cartogram method (ZAJĄC, 1978). Identification of plants followed RUTKOWSKI (2004). Taxonomic treatment of *Oenothera* L. followed ROSTAŃSKI et al. (2004, 2010). Nomenclature and geographical-historical status in the Polish flora followed MIREK et al. (2002), ROSTAŃSKI et al. (2010), and TOKARSKA-GUZIŁK et al. (2012). The geographical-historical status in the regional flora was based on own observations and in accordance with the work by

PYŹEK et al. (2004), ROSTAŃSKI et al. (2004, 2010) and TOKARSKA-GUZIŁK et al. (2012). Voucher specimens are deposited at the Herbarium of the Institute of Botany of the Jagiellonian University in Kraków (KRA).

The floristic list includes vascular plant species and their localities that were recorded within nine 10-km square units of the ATPOL cartogram grid for the first time (Fig. 1), compared to ZAJAŁ & ZAJAŁ (2001). The list is arranged alphabetically by the names of the species and includes names of localities with the ATPOL cartogram units, habitats and dates of recording. Moreover, the abundance of each species in the presented localities is also included. Special signs are explained in the list.

The list comprises 15 species of vascular plants that belong to seven families (i.e. Asteraceae, Brassicaceae, Caryophyllaceae, Convolvulaceae, Onagraceae, Poaceae and Rosaceae). There are three native species (i.e. *Crepis capillaris*, *Oenothera rubricaulis* and *Senecio sylvaticus*), 11 alien species (i.e. *Cuscuta campestris*, *Diplotaxis tenuifolia*, *Eragrostis albensis*, *Eragrostis minor*, *Matthiola longipetala*, *Oenothera fruticosa*, *Oenothera glazioviana*, *Oenothera paradoxa*, *Rubus armeniacus*, *Silene dichotoma* and *Sisymbrium loeselii*), and one species of uncertain geographical-historical status in the flora, namely *Oenothera casimiri*. Among alien species, *Eragrostis albensis*, *Eragrostis minor*, *Oeno-*

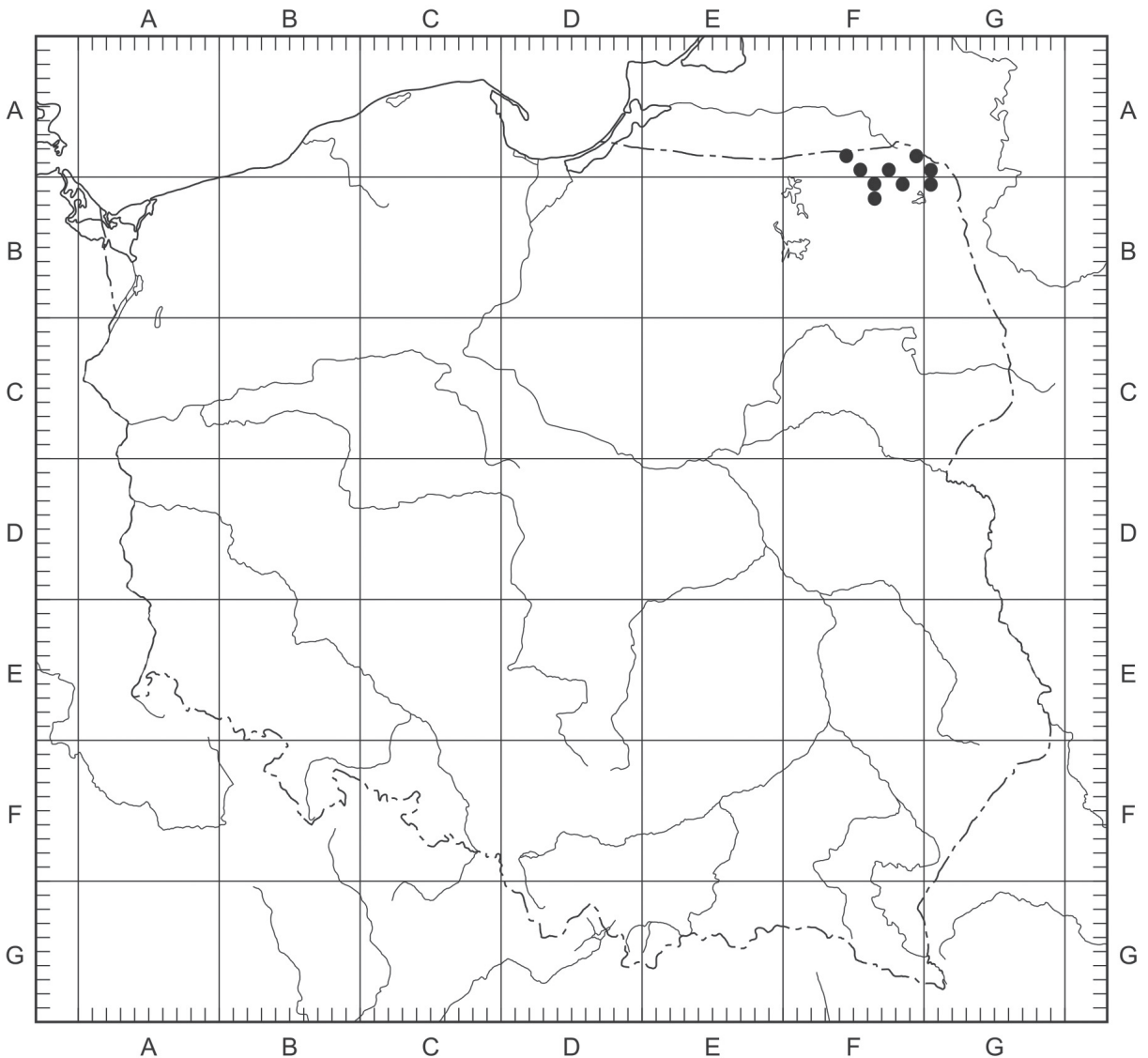


Fig. 1. Study area (black dots) within the ATPOL cartogram grid

*thera paradoxa*, *Rubus armeniacus* and *Sisymbrium loeselii* should be treated as established alien species in the regional flora. Moreover, some currently casual alien species such as *Diplotaxis tenuifolia* and *Oenothera glazioviana* may become established in the future as evidenced in other regions of the country (ZAJĄC & ZAJĄC, 2001, 2015; TOKARSKA-GUZIŁK et al., 2012). Similarly, *Matthiola longipetala* and *Oenothera fruticosa*, which are ornamental plants in Poland (RUTKOWSKI, 2004; ROSTAŃSKI et al., 2010), have a potential to be naturalized (RANDALL, 2017 and references therein).

Comparing to previously published data (ZAJĄC & ZAJĄC, 2001; PLISZKO 2014, 2015, 2016, 2017a), *Crepis capillaris*, *Diplotaxis tenuifolia*, *Eragrostis albensis*, *Matthiola longipetala*, *Oenothera fruticosa*, *Oenothera glazioviana* and *Rubus armeniacus* are new species for the flora of the Polish part of the Lithuanian Lakeland. Moreover, *Crepis capillaris*, *Diplotaxis tenuifolia*, *Oenothera glazioviana*, *Rubus armeniacus* and *Silene dichotoma* are also new for the flora of the Western Suwałki Lakeland (PLISZKO, 2014, 2015, 2016, 2017a). Compared to MALIŃSKI (2000), ZAJĄC & ZAJĄC (2001, 2015), MICHAŁEWSKA & NOBIS (2005), WOŹNIAK-CHODACKA & PLISZKO (2017a), WRÓBEL & NOBIS (2017), new localities of *Diplotaxis tenuifolia*, *Eragrostis albensis*, *Oenothera paradoxa* and *Rubus armeniacus* presented in this paper are currently the north-easternmost points of their occurrence in the country. Furthermore, it should be pointed out that *Senecio sylvaticus* was included in the Red List of Vascular Plants of the Western Suwałki Lakeland as a critically endangered species (PLISZKO, 2017b), and the new locality in Śmieciuchówka is the third known locality of this species in the region (PLISZKO, 2014; PLISZKO, 2017a).

The geographical-historical status of some *Oenothera* species in Europe is an unresolved issue because of the lack of data on their origin (ROSTAŃSKI et al., 2004, 2010). Many *Oenothera* species are results of spontaneous interspecific hybridization, for example, *O. casimiri*, a putative hybrid between *O. biennis* and *O. rubricaulis* (ROSTAŃSKI et al., 2004). Interestingly, in Lithuania, *O. casimiri* is treated as an alien species (GUDŽINSKAS, 2018) with regard to the concept proposed by PYŠEK et al. (2004). In this paper, considering that *O. rubricaulis* is a native species in

Poland (ROSTAŃSKI et al., 2010) and the origin (native geographical range) of *O. biennis* has not been clarified so far (ROSTAŃSKI et al., 2004), we decided to treat *O. casimiri* as a species of uncertain status in the flora of the Polish part of the Lithuanian Lakeland.

### Floristic list

Explanations of special signs:

\* – an established alien species; \*\* – a casual alien species; ? – a species of uncertain status in the flora; ! – a species new to the flora of the Polish part of the Lithuanian Lakeland; a1 – a very low abundance (1–10 individuals); a2 – a low abundance (11–50 individuals); a3 – a moderate abundance (51–100 individuals); a4 – a high abundance (101–150 individuals); a5 – a very high abundance (more than 150 individuals).

! *Crepis capillaris* (L.) Wallr. (Asteraceae) – Filipów Pierwszy (FB06), arable field with alfalfa, 22 July 2018, a5.

\* *Cuscuta campestris* Yunck. (Convolvulaceae) – Marlinowo (FA95), arable field with legume mixture, 12 August 2018, a3.

\*\* ! *Diplotaxis tenuifolia* (L.) D.C. (Brassicaceae) – Garbas Pierwszy (FB06), roadside verge, 22 September 2018, a1.

\* ! *Eragrostis albensis* H. Scholz (Poaceae) – Suwałki (FB08), pavements in the north and central parts of the town, 4 and 9 August 2018, a2.

\* *Eragrostis minor* Host (Poaceae) – Bakalarzewo (FB16), roadside verge, 7 August 2018, a2; Gołdap (FA84), pavement, 8 August 2018, a3.

\*\* ! *Matthiola longipetala* (Vent.) DC. (Brassicaceae) – Suwałki (FB08), construction site, Suwałki, 4 August 2018, a1.

? *Oenothera casimiri* Rostański (Onagraceae) – Suwałki (FB08), disused sand and gravel quarry, 19 July 2017, a2.

\*\* ! *Oenothera fruticosa* L. (Onagraceae) – Suwałki (FB08), dry roadside ditch, 29 July 2017, a1.

\*\* ! *Oenothera glazioviana* Micheli (Onagraceae) – Dąbrowskie Osada (FB16), roadside verge, 31 July 2018, a1.

\* *Oenothera paradoxa* Hudziok (Onagraceae) – Budzisko (FA89), ruderal ground, 22 July 2017, a1; Suwałki (FB08), abandoned field, 29 July 2017, a2.

*Oenothera rubricaulis* Kleb. (Onagraceae) – Smolany (GA90), roadside verge, 22 July 2017, a2; Żubrówka (GB00), roadside verge, 22 July 2017, a2.

\* *Rubus armeniacus* Focke (Rosaceae) – Dąbrowskie (FB16), forest plantation, 31 July 2018, a2.

*Senecio sylvaticus* L. (Asteraceae) – Śmieciuchówka (FA97), roadside verge, 26 July 2018, a1.

\* *Silene dichotoma* Ehrh. (Caryophyllaceae) – Garbas Pierwszy (FB06), arable field with grass-legume mixture, 30 July 2018, a2; Filipów Pierwszy (FB06), arable field with grass-legume mixture, 2 August 2018, a5.

\* *Sisymbrium loeselii* L. (Brassicaceae) – Baka-larzewo (FB16), roadside verge, 7 August 2018, a1.

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## NAUJOS INDUOČIŲ AUGALŲ RADAVIETĖS SŪDUVOS AUKŠTUMOJE, ŠIAURĖS RYTŲ LENKIJOJE

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### Santrauka

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metodą. *Crepis capillaris*, *Diplo-taxis tenuifolia*, *Eragrostis albensis*, *Matthiola longipetala*, *Oenothera fruticosa*, *Oenothera glazioviana* ir *Rubus armeniacus* yra naujos regioninės floros rūšys.