

GENUS *HESPERIS* L. IN THE FLORA OF LATVIA

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Two species of the genus *Hesperis* were recorded in Latvia – *H. matronalis* L. and *H. pycnotricha* Borbás et Degen. The aim of present study was to identify and clarify occurrence and distribution of *Hesperis* species in Latvia. For each species scientific nomenclature was compiled, morphological features were described, distribution in Latvia and worldwide was evaluated and geographical distribution maps in Latvia were compiled.

Key words: flora of Latvia, *Hesperis*, Cruciferae.

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INTRODUCTION

Genus *Hesperis* L. belongs to Cruciferae Juss. family, where are about 30 species worldwilde (Rollins 1993) and is distributed in Mediterranean region, Caucasus, Western Asia and Central Asia (Котоб 1979), from meridionale to temperate zone. Genus *Hesperis* is quite complex research object as an essential is kind of indumentum which is quite varied on lower stem leaves and flower pedicels. More complicated are species that occur in wet habitats (Дорофеев 2013). Genus type species is *H. matronalis* L. and it is variable biennial plant with flowers in colour from white to pale lilac or purple and is most sweetly perfumed on evenings and it is named after Hesperus, the evening star (Campbell-Culver 2014).

Last comprehensive analysis of the genus *Hesperis* was in the 1950s by A. Eleksis (1955) and therefore requires new genus systematic treatment to check if there are new taxa in genus

and what are their distributions in Latvia. The aim of the present study was to identify and clarify occurrence and distribution of *Hesperis* species in Latvia. Genus *Hesperis* analysis was performed to establish diversity of morphological features and distribution patterns in Latvia. The identification key for the species of genus *Hesperis* recorded in Latvia, scientific nomenclature and original distribution maps in Latvia were presented.

MATERIAL AND METHODS

The study of *Hesperis* was based on herbarium material investigation, literature survey and field studies. Herbarium material from several herbarium collections – the Laboratory of Botany, Institute of Biology, University of Latvia (LATV), the Herbarium of the Museum of Botany, University of Latvia (RIG), the Herbarium of Slītere National park (SVR), the Herbarium of the Latvia University of Agriculture (LLU), as well as private collections of botanists Alfrēds

Rasiņš (RAS), Austra Āboliņa (AB) and Kārlis Ādolfs Veinbergs (VEINB), were analyzed. In total 54 herbarium units were studied.

Species descriptions created based on the Latvian plant material. Descriptions of species consist of scientific nomenclature, description of habitats, distribution in Latvia and worldwide. Distribution maps were prepared using the square method, which is related to the geographical coordinates where one square is approximately 7.6 x 9.3 km (Табака и др. 1980). Localities in maps marked with symbol ○ - indicates herbarium data from end of 19th century till the beginning of the 20th century ● – indicates herbarium data from middle of 20th century to the nowadays.

Evaluation scale was used for species distribution accepted by the Laboratory of Botany Institute of Biology: very rare (1-10 points in the map), rare (11-30 points), rather rare (31-100 points), not rare (101-250 points), rather frequent (251-500 points), frequent (501-750 points), and very frequent (more than 751 points) (Fatare 1992). Point on the map indicates the presence of species in a square.

Regarding to nomenclature, authors for taxa are mentioned in accordance with R. K. Brummit and C. E. Powell (1992). Authors who are not included in this work are named, written unabridged. Literary sources cited in the original language and abbreviations correspond to the accepted standard (Mill 1993). For sources not included in this standard, abbreviations were formed using similar principles mentioned above. The literature cited are studies in which the taxon was mentioned for the first time in the Latvian flora, as well as Latvijas PSR flora (Eleksis 1955), Флора СССР (Бунш 1939) and Flora Europaea (Ball 1964, 1993).

RESULTS

Systematic treatment of the genus *Hesperis* indicated that two species were found in Latvia – *H. matronalis* and *H. pycnotricha* Borbás et Degen. *H. pycnotricha* for the first time

mentioned in Latvia in the present study. In the literature previously for the territory of Latvia this taxon is not mentioned. Herbarium material analysis confirms second taxon in genus *Hesperis* – *H. pycnotricha*

Diagnostic features of *Hesperis* in Latvia

Genus *Hesperis* unites biennial and perennial plants with racemose inflorescence. Sepals saccate basally, erect. Petals purple or white with distinctly separated claw. Stamens are simple. External nectarial glands are ring form, to the outside three lobed, internal glands absent. Ovary contains two carpels. Stigma deep bilobed. Fruit is a silique, cylindrical or slightly four-edged. Valves inflated, with a clear median vein. Seeds in one row. Leaves entire, with hairs or rarely glabrous.

1. Leaves and lower part of stem with unbranched hairs, flowers pedicels with branched hairs 1. *H. matronalis*.

- Leaves, lower part of stem and flowers pedicels with branched hairs 2. *H. pycnotricha*.

1. *Hesperis matronalis* L.

Hesperis matronalis L. 1753, Sp. Pl.: 663; Berg, 1874, Korrb. Naturf.-Ver. Riga, 20: 103; H. Бунш, 1939, Фл. СССР, 8: 244; Eleksis, 1955, Latv. PSR Fl. 2: 363.

H. matronalis subsp. *matronalis* P. W. Ball, 1964, Fl. Europ. 1: 276; P. W. Ball, 1993, Fl. Europ. ed. 2, 1: 337.

Habitat. Roadsides, railway embankments, river shores, weed-laden sites, waste dumps, dunes, parks.

Distribution in Latvia. Alien species. Rather rare. Cultivated ornamental plant. Runs in the wild. Mostly distributed in Western Latvia and Central Latvia (Fig. 1).

General distribution. Mediterranean region, Caucasus, Western Asia, in submeridionale zone. Alien species in North America.

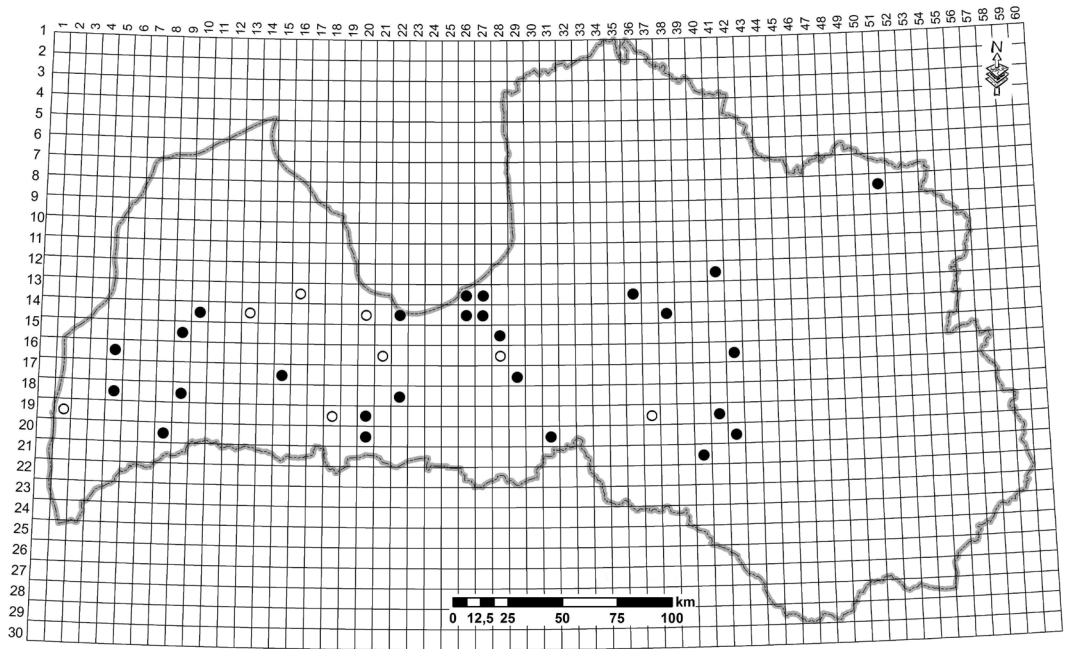


Fig. 1. Distribution of *Hesperis matronalis* in Latvia. ○ herbarium data from end of 19th century till the beginning of the 20th century, ● herbarium data from middle of 20th century to the nowadays.

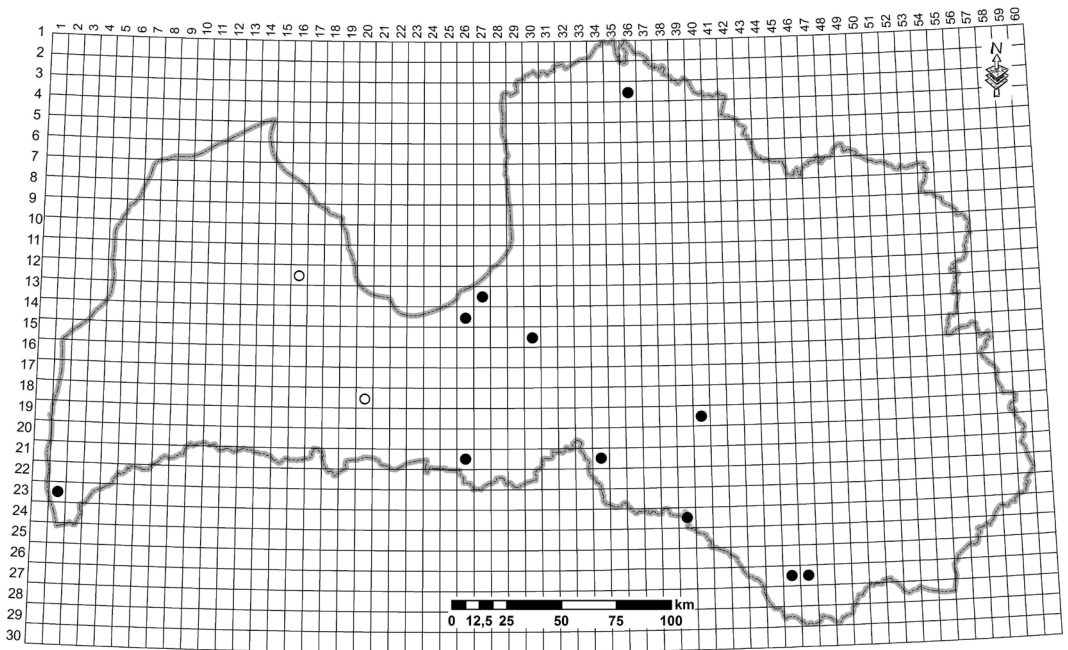


Fig. 2. Distribution of *Hesperis pycnotricha* in Latvia. ○ herbarium data from end of 19th century till the beginning of the 20th century, ● herbarium data from middle of 20th century to the nowadays.

2. *Hesperis pycnotricha* Borbás et Degen

Hesperis pycnotricha Borbás et Degen, 1902, Magyar Bot. Lapok, 1: 269; P. W. Ball, 1964, Fl. Europ. 1: 276; P. W. Ball, 1993, Fl. Europ. ed. 2, 1: 337.

Habitat. Roadsides, railway embankments, river shores, waste dumps.

Distribution in Latvia. Alien species. Rare. Cultivated ornamental plant. Runs in the wild. Mostly distributed in Central Latvia (Fig. 2).

General distribution. Central Europe, Balkan Peninsula, Western Asia, meridionale to temperate zone.

DISCUSSION

The first record of genus *Hesperis* in Latvia is from the end of the 19th century. C. Berg (1874) mentioned *H. matronalis*, found in wild park at Pedvāle (Pedwahlen) and also K. R. Kupffer (1899) found *H. matronalis* in parks and cemeteries. E. Lehmann (1895) noted that *H. matronalis* runs wild. *H. matronalis* in Latvia is cultivated as an ornamental plant (Ašmanis 1923). *H. matronalis* is characterized by leaves and lower part of stem with unbranched hairs, flowers pedicels with branched hairs. The distribution of *H. matronalis* covers Mediterranean region, Caucasus, Western Asia and Central Asia, in submeridionale zone. *H. matronalis* as escaped from gardens is widely spread over large parts of Europe, Asia, North America and also to New Zealand (Hulten & Fries 1986). *H. matronalis* occurs on damp or shaded habitats and frequent has escaped from cultivation throughout most of Europe (Ball, 1964). In Lithuania (Gudžinskas 1999) and Estonia (Kukk 1999) *H. matronalis* is mentioned as alien species and is cultivated in gardens. In Latvia distribution of *H. matronalis* is rather rare and it occurs in anthropogenic habitats like on roadsides, railway embankments, river shores, weed-laden sites, waste dumps, dunes and parks. Also in Latvia it can be mentioned as alien species.

Species *H. pycnotricha* so far is not mentioned in the flora of Latvia. Species recognized and established by genus *Hesperis* systematic treatment. First herbarium material is from 1895 which is collected by K. R. Kupffer (RIG). *H. pycnotricha* is characterized by leaves, lower part of stem and flowers pedicels with branched hairs. The distribution of *H. pycnotricha* covers Central Europe, Balkan Peninsula, Western Asia, from meridionale to temperate zone. In Latvia distribution of *H. pycnotricha* is rare and it is alien species. *H. pycnotricha* is mentioned also in Lithuania as alien species and is cultivated in gardens (Gudžinskas 1999) and in Romania where it is introduced with the culture becoming naturalized (Costache 2011). Similar to *H. matronalis* also *H. pycnotricha* in Latvia is established in anthropogenic habitats like roadsides, railway embankments, waste dumps and river shores.

CONCLUSIONS

Two species of *Hesperis* recorded in Latvia – *H. matronalis* L. and *H. pycnotricha* Borbás et Degen. Both *Hesperis* species are naturalized and mostly found in anthropogenic habitats.

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