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Medicinal plants natural sites on xerothermic habitats of the Działy Grabowieckie

Zasobność naturalnych stanowisk roślin leczniczych na siedliskach kserotermicznych Działów Grabowieckich

INTRODUCTION

Xerothermic habitats are characterised with unique microclimatic conditions: high temperatures of soil and air, the great solarisation and low humidity. Usually these habitats are classified as wastelands: dry and sloppy hillsides of hummocks, river valleys and ravines, exposed to south and west. Areas coved with xerothermic vegetation are small but their biodiversity is considered as large; what is more, they are refuges of rare, endangered and in many cases medicinal plants. The main aim of this paper is to present medicinal plants' natural sites affluence in xerothermic habitats of the Działy Grabowieckie.

MATERIALS AND METHODS

The Działy Grabowieckie region is located in east part of the Lublin Plain. Its geological structure and very diverse lay of the land influence the number of xerothermic plants sites. Forty hillsides covered with xerothermic grassland and bushes were investigated. The sites of thermo- and heliophytes were presented on ATPOL 2x2 squares km 5 (Fig 1). On each site medicinal thermophytes were noted and their quantity was evaluated. Species belonging to *Festuco-Brometea*, *Trifolio-Geranietea sanguinei* and *Rhamno-Prunetea* classes were considered as thermophytes. Species supplying both conventional and country medicine with stuff were included. Terminology of plant species was given after Mirek et al. (3). Medicinal plants frequency of occurrence was evaluated according to scale by Celka (1) and the following classes were marked out: I – very rare species, existing on max 5% investigated sites, (1-2 sites), II - rare species existing on 5.1-25% investigated sites, (3-10 sites), III - frequent species, existing on 25.1-50% investigated sites, (11-20

sites), IV – very frequent species, existing on 50.1-75% investigated sites, (21-30 sites), and V – common species, existing on 75.1-100% investigated sites, (31-40 sites),

Abundance of population was evaluated according to average number of individual species present on each site: small population - less than 25 individual species per site (+), numerous population-26-100 individual species per site (++), large population – more than 100 individual species per site (+++). Conservation status of each species according to red book of Poland (6), red list of Lublin Voivodeship (2) and law protection (4) were added to species' list.

RESULTS

From among *Festuco-Brometea*, *Trifolio-Geranietea sanguinei* and *Rhamno-Prunetea* classes, 44 medicinal plants were noted (Table 1). Common and very frequent species account for more than half of all species, for example *Agrimonia eupatoria*, *Galium verum, Coronilla varia*, *Teucrium chamaedrys*. Most populations are numerous and very numerous. Some of species appear in small groups (few individual) but on numerous sites. *Agrimonia procera*, *Ononis spinosa*, *Asparagus officinalis*, *Achillea collina*, *Euphrasia stricta* and *Adonis vernalis* are rare on xerothermic habitats. Their population is also small, less than 25 individual species per site. Some frequently noted species, *Artemisia campestris* or *Filipendula vulgaris*, appear singly on sites. Only the species of abundant population, such as, *Galium verum*, *Prunus spinosa*, *Agrimonia eupatoria*, *Coronilla varia* occurred frequently and could be collected from natural sites. Moreover, colleting bushes thus reducing their growth, could be useful for xerothermic grassland conservation because larger insolation is helping to save heliophytes.

Table 1. Medicinal plants on xerothermic habitats of the Działy Grabowieckie

No	Species	Family	Phytosociological classification	Class of frequancy	Population abundance	Conservation status in Poland	Conservation status in Lublin Voivodeship	Law protection
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
1	*Achillea collina* BECKER ex RCHB.	*Asteraceae*	F-B	II	+			
2	*Achillea pannonica* SCHEELE	*Asteraceae*	F-B	IV	++			
3	*Adonis vernalis* L.	*Ranunculaceae*	F-B	II	+	V	VU	strict
4	*Agrimonia eupatoria* L.	*Rosaceae*	F-B	V	+++			
5	*Agrimonia procera* WALLR.	*Rosaceae*	T-G	I	+			
6	*Ajuga genevensis* L.	*Lamiaceae*	F-B	III	++			
7	*Allium oleraceum* L.	*Liliaceae*	F-B	IV	++			
8	*Anthyllis vulneraria* L.	*Fabaceae*	F-B	IV	++			
9	*Artemisia campestris* L.	*Asteraceae*	F-B	III	+			

10	*Asparagus officinalis* L.	*Liliaceae*	F-B	II	+			
11	*Asperula tinctoria* L.	*Rubiaceae*	F-B	III	++	V	VU	
12	*Astragalus glycyphyllos* L.	*Fabaceae*	T-G	V	+			
13	*Betonica officinalis* L.	*Lamiaceae*	F-B	III	+++			
14	*Clematis recta* L.	*Ranunculaceae*	T-G	III	+		VU	strict
15	*Clinopodium vulgare* L.	*Lamiaceae*	T-G	IV	++			
16	*Coronilla varia* L.	*Fabaceae*	T-G	V	+++			
17	*Crataegus monogyna* JACQ.	*Rosaceae*	R-P	V	++			
18	*Eryngium planum* L.	*Apiaceae*	F-B	II	++			
19	*Euphrasia stricta* D. WOLFF ex J. F. LEHM.	*Scrophulariaceae*	F-B	II	+++			
20	*Filipendula vulgaris* MOENCH	*Rosaceae*	F-B	IV	+			
21	*Fragaria viridis* DUCHESNE	*Rosaceae*	T-G	II	++			
22	*Frangula alnus* MILL.	*Rhamnaceae*	R-P	IV	++			partial
23	*Galium verum* L.	*Rubiaceae*	F-B	V	+++			
24	*Geranium sanguineum* L.	*Geraniaceae*	T-G	II	+++			
25	*Hypericum perforatum* L.	*Hypericaceae*	F-B	V	++			
26	*Ononis spinosa* L	*Fabaceae*	F-B	I	+			partial
27	*Pimpinella saxifraga* L.	*Apiaceae*	F-B	IV	++			
28	*Plantago media* L.	*Plantaginaceae*	F-B	IV	++			
29	*Polygala amara* L.	*Polygalaceae*	F-B	I	+		CR	
30	*Primula veris* L.	*Primulaceae*	F-B	IV	++			partial
31	*Prunella grandiflora* (L.) SCHOLLER	*Lamiaceae*	F-B	III	+++			
32	*Prunus spinosa* L.	Rosaceae	R-P	V	+++			
33	*Pyrus communis* L.	*Rosaceae*	R-P	V	++			
34	*Rhamnus catharticus* L.	*Rhamnaceae*	R-P	III	++			
35	*Rosa canina* L	*Rosaceae*	R-P	V	++			
36	*Rosa gallica* L.	*Rosaceae*	R-P	II	++	V	CR	strict
37	*Rosa rubiginosa* L.	*Rosaceae*	R-P	III	++			strict
38	*Rubus caesius* L.	*Rosaceae*	R-P	V	++			
39	*Scabiosa ochroleuca* L.	*Dipsacaceae*	F-B	IV	+++			
40	*Scorzonera purpurea* L.	*Asteraceae*	F-B	I	+	V	EN	
41	*Stachys recta* L.	*Lamiaceae*	F-B	IV	+++			
42	*Teucrium chamaedrys* L.	*Lamiaceae*	F-B	V	+++			
43	*Thymus pulegioides* L.	*Lamiaceae*	F-B	IV	++			
44	*Viburnum opulus* L.	*Caprifoliaceae*	R-P	III	++			strict

Explanations: phytosociological classification: F-B – *Festuco-Brometea*, T-G – *Trifolio-Geranietea sanguinei*, R-P – *Rhamno-Prunetea*; classes of frequency: I – very rare species, existing on max 5% investigated sites, (1-2 sites), II - rare species, existing on 5,1-25% investigated sites, (3-10 sites), III - frequent species, existing on 25,1-50% investigated sites, (11-20 sites), IV – very frequent species, existing on 50,1-75% investigated sites, (21-30 sites), and V – common species, existing on 75.1-100% investigated sites, (31-40 sites); population abundance: small population, less than 25 individuals per site (+), numerous population 26-100 individuals per site (++), large population – more than 100 individuals per site (+++); conservation status in Poland: V – vulnerable, conservation status in Lublin Voivodeship: CR – critically endangered EN – endangered, VU – vulnerable

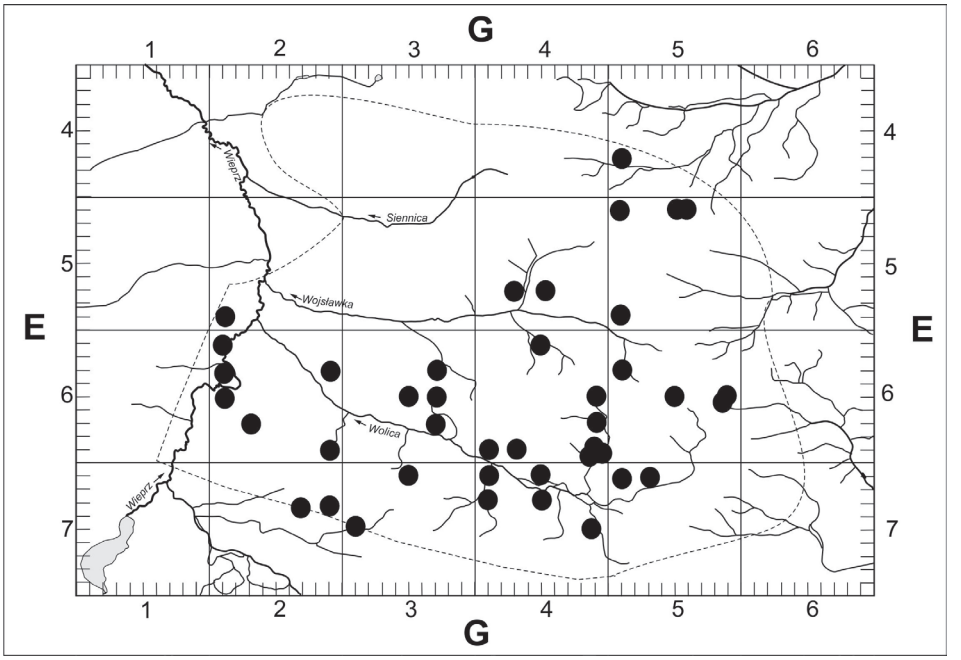

Fig. 1. Localization of investigated sites according to ATPOL 2x2 squares km

SUMMARY

The Działy Grabowieckie localised in east part of the Lublin Plain are characterised with diverse lay of the land that influenced the quantity of xerothermic vegetation sites. Microclimate of these habitats is very specific, high temperature and large solarisation that is why they considered as refuges for medicinal plants. The main aim of this paper is to describe natural-site abundance of medicinal plants on xerothermic habitats of the Działy Grabowieckie. Forty hillsides with xerothermic grassland and bushes were investigated. On each site thermophiles medicinal plants were noted and their quantity was evaluated. On the described area 44 medicinal species from *Festuco-Brometea, Trifolio-Geranietea sanguinei* and *Rhamno-Prunetea* classes were observed. More than half of species taken under consideration were common and very frequent, noted on more than 20 sites, for example *Agrimonia eupatoria*, *Galium verum*, *Coronilla varia*, *Teucrium chamaedrys*. Most species populations were numerous or large. *Agrimonia procera*, *Ononis spinosa*, *Asparagus officinalis*, *Achillea collina*, *Euphrasia stricta* i *Adonis vernalis* were rare on the Działy Grabowieckie's xerothermic habitat. Quantities of their population were also small, less than 25 individuals per site.

Keywords: xerophilous herbs, medicinal plants populations, south-east Poland

STRESZCZENIE

Działy Grabowieckie położone są we wschodniej części wyżyny Lubelskiej i cechują się urozmaiconą rzeźba, która wpłynęła na obecność na tym terenie licznych stanowisk roślinności kserotermicznej. Siedliska te o szczególnych warunkach mikroklimatycznych, wysokich temperaturach i dużym nasłonecznieniu, są ostoją wielu roślin leczniczych. Celem niniejszej pracy jest przedstawienie zasobności naturalnych stanowisk roślin leczniczych występujących na siedliskach kserotermicznych na obszarze Działów Grabowieckich. Badaniami objęto 40 zboczy z murawową i zaroślową roślinnością ciepłolubną. Na każdym stanowisku spisywano ciepłolubne gatunki roślin leczniczych oraz szacowano ich liczebność. Na wszystkich zboczach odnotowano blisko 50 gatunków roślin leczniczych z klas *Festuco-Brometea, Trifolio-Geranietea sanguinei* i *Rhamno-Prunetea*. Ponad połowa z nich to gatunki pospolite i bardzo częste, występujące na ponad 20 stanowiskach, m.in. *Agrimonia eupatoria*, *Galium verum*, *Coronilla varia*, *Teucrium chamaedrys*. Populacje większości z nich są dość liczne, lub bardzo liczne. Rzadko na siedliskach kserotermicznych omawianego terenu występują m.in. *Agrimonia procera*, *Ononis spinosa*, *Asparagus officinalis*, *Achillea collina*, *Euphrasia stricta* i *Adonis vernalis*. Liczebność populacji tych gatunków jest również mała, poniżej 25 osobników na poszczególnych stanowiskach.

Słowa kluczowe: zioła kserofilne, populacje roślin leczniczych, pd.-wsch. Polska

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