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**SPECIES UNDER SPECIAL CONSIDERATION  
IN THE LOWER SŁUPIA VALLEY  
(WESTERN POMERANIAN REGION)**

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**ABSTRACT.** Floristic records from the planned area of the protected landscape “The Lower Słupia Valley” (part of Western Pomerania) come from collected 76 rare and interesting vascular plant species. This paper presents localities of plants found in 2004-2006. The list of localities indicates only those sites which have not been published so far. For each taxon the number of ATPOL grid BA 69 was given.

**Key words:** The Pomeranian Region, plant distribution, rare and vulnerable species, ATPOL localities

### **Introduction**

In the obligatory Spatial Development Plan for the Pomeranian Province (Plan zagospodarowania... 2002) there was introduced an idea of protected areas in which the lower section of the river Słupia was proposed as the ecological corridor – the local tie between grounds covered with lakes and seaside-areas. In the Study of Conditions and Directions of the Spatial Plan for the commune Ustka (Studium uwarunkowań... 2002) and in the Study of Conditions and Directions of the Spatial Plan for the country-commune Słupsk (Studium uwarunkowań... 2004), the valley of the lower Słupia river was postulated to be protected in the form of the Area of Protected Landscape.

Main aim of the research was a documentation of the current state of vascular flora, including species under entire or partial law protection also rare and threatened taxa in the scale of the Pomeranian District and the whole country.

## Study of the area

The research was conducted on the area of the lower Słupia river valley whose borders in the south mark localities: Bydolino and Kolonia Starkowo, in the west – Charnowo and Wodnica, in the east – Kolonia Niestkowo and Grabno. The northern border determines the administrative border of the city Ustka (Fig. 1). According to geobotanical partition of the Pomeranian Region, grounds of the research belongs to the Central European Province, south Baltic Subprovince, the Pomeranian Division, the Land of the south Baltic sea-coast, Słupsk District, Darłowo and Sycewskie Subdistricts (**Matuszkiewicz** 1993). The area according to the physical-geographical partition is located on the Sławno Plain which is included into Koszalin-coast area (**Kondracki** 2000). Administratively it belongs to the commune Ustka and Słupsk and to the Forestry Inspectorate Ustka: the precincts Ustka (forestry: Orzechowo, Peplino, Redwanki and Starkowo) and the precincts Słupsk (forestry Machowino). The area occupies 26.92 km<sup>2</sup>, in this: 16.09 km<sup>2</sup> is covered by forests, 8.67 km<sup>2</sup> is agriculturally treated (the Słupsk Starosty, unpublished materials).

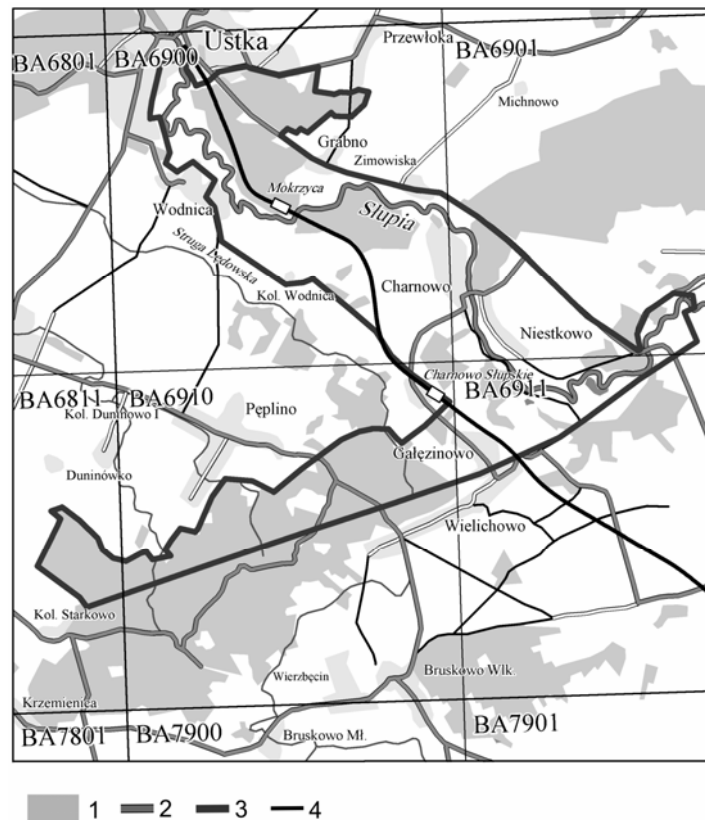


Fig. 1. Map of the investigated area: 1 – forests, 2 – roads, 3 – the border of protected landscape area “The Lower Słupia Valley”, 4 – railway, BA7901 – ATPOL square

Ryc. 1. Mapa terenu badań: 1 – tereny leśne, 2 – drogi, 3 – granica Obszaru Chronionego Krajobrazu „Dolina Dolnej Słupii”, 4 – linia kolejowa, BA7901 – kwadrat ATPOL

## Material and methods

The field floristic research was carried out in years 2004-2006 and consisted in registering species of vascular plants. To choose interesting species of vascular plants there were taken into consideration above all : occurrence on the folia of species legally protected in Poland (Rozporządzenie... 2004), occurrence on “The red list of vascular plants threatened in Poland” (Zarzycki and Szelağ 1995), degree of their dissemination and the threat, finding the image in the position of the species on “The red lists of flora of the Western Pomeranian and Gdańsk Regions” (Żukowski and Jackowiak 1995, Markowski and Buliński 2004) and rare species in the scale of the whole region.

The list of species contains only those species which localities have not been published so far and the list is introduced in alphabetical order. The nomenclature of taxa was accepted according to Mirek et al. (2002). The nomenclature of botanical variations and forms is in accordance with work by Seneta and Dolatowski (2000). The basic information on every species contains: name of locality, the category of threat and code number of the square in the net of “Atlas of distribution of vascular plants in Poland” (cf. Zajac 2001).

In the list, there were used distinctions and shortenings. In categories of threats in the Western Pomeranian region: V – means exposed species, R – rare species what make them potentially under threat, I – species under undefined threat (according to Żukowski and Jackowiak 1995). According to Markowski and Buliński (2004) it was assumed that VU means species under undefined threat (mildly threatened), NT – near threat and DD species of unknown threat on the Gdańsk Pomeranian region. Also it was appointed: !! – species under total protection, ! – species partly protected, N – North, S – South, W – West, E – East.

## The list of species

- Acer pseudoplatanus* ‘Atropurpureum’ – 1 site: BA 6910 – Gałęzinowo, the evangelical cemetery.
- Achillea ptarmica* L. – 2 sites: BA 6910 – Gałęzinowo, 0.5 km on E; BA 6911 – Bydli-no, bend of the river Słupia. On wet meadows.
- Adoxa moschatelina* L. – 3 sites: BA 6900 – Kolonia Wodnica, over the Lędowska Stream; BA 6910 – Gajki, bank of the intra-forest little lake (Forestry Peplino, division 307 g); BA 9611 – Wielichowo, bank of anonymous stream on N.
- Anemone ranunculoides* L. – 3 sites: BA 6900 – Grabno, beech forest (Forestry Orzechowo, division 271 a), 0.5 km on W; BA 6901 – Charnowo, slopes of the Krzywinka river valley (Forestry Peplino, division 290 b); BA 6911 – Gałęzinowo, the evangelical cemetery.
- Aquilegia vulgaris* L. – 1 site: BA 6911 – Gałęzinowo, the evangelical cemetery.
- Armeria maritima* (Mill.) Willd. subsp. *elongata* (Hoffm.) Bonnier – 1 site: BA 6911 – Niestkowo, the early-mediaeval settlement.
- Batrachium aquatile* (L.) Dumort. – 1 site: BA 6910 – Gajki, the intra-forest little lake (Forestry Peplino, division 308 b).
- Bromus secalinus* L. – V, NT; 2 sites: BA 6911 – Wielichowo; BA 6911 – Bydli-no.

- Callitriche verna* (L.) Lönnr. – 2 sites: BA 6910 – Gajki (Forestry Peplino, division 312 h), BA 6910 – Charnowo – 0.5 km from railway station (Forestry Peplino, division 290 d); intra-forest little lakes.
- Campanula latifolia* L. – 1 site: BA 6900 – Zimowiska, wayside of road, approx. 0.5 km on E.
- Campanula patula* L. – 2 sites: BA 6911 – Bydlino, at flood grounds of the Słupia river, 1 km on E; BA 6901 – Niestkowo, the early-mediaeval settlement.
- Carex arenaria* L. – !; 1 site: BA 6900 – Wodnica, on sand grass, 0.5 km on S.
- Carex flacca* L. – NT; 1 site: BA 6910 – Gałęzinowo, valley of the Kozinka river (Forestry Machowino, division 514 Ac).
- Carex oederi* Retz. – 1 site: BA 6910 – Charnowo, over the anonymous inflow of the river Krzywinka, 0.5 km on E from railway station (Forestry Peplino, division 290 d).
- Chenopodium bonus-henricus* L. – R, NT; 1 site: BA 6900 – Grabno, wayside of road.
- Chrysanthemum segetum* L. – 1 site: BA 6910 – Niestkowo, cultivation of oat.
- Circaea alpina* L. – 1 site: BA 6910 – Gałęzinowo, valley of the Kozinka river (Forestry Machowino, division 514 Ai).
- Comarum palustre* L. – 1 site: BA 6910 – Gałęzinowo, wet meadows behind the old brick-yard, 1 km on NE.
- Convallaria majalis* L. – !; 3 sites: BA 6901 – Kolonia Niestkowo, lowland-beech forest (Forestry Redwanki, division 269 j); BA 6910 – Charnowo, at the bridge on the Słupia river; BA 6911 – Gałęzinowo, the evangelical cemetery.
- Corydalis intermedia* (L.) Mérat – R; 2 sites: BA 6901 – Kolonia Niestkowo, lowland beech forest (Forestry Redwanki, division 269 j); BA 6910 – Gałęzinowo, valley of the Kozinka river (Forestry Machowino, division 514 Ap).
- Crepis paludosa* (L.) Moench – 1 site: BA 6910 – Gałęzinowo, valley of the Kozinka river (Forestry Machowino, division 514 Ac).
- Dactylorhiza fuchsii* (Druce) Soó – VU, !!; 1 site: BA 6910 – Gajki, wayside of road to the rocket launcher in former military unit (Forestry Peplino, division 308 c).
- Dianthus deltooides* L. – !; 1 site: BA 6911 – Niestkowo, the early-mediaeval settlement.
- Digitaria ischaemum* (Scherb.) H.L. Mühl – 1 site: BA 6900 – Charnowo, on the verge of young pine forest at the closed dumping ground.
- Dryopteris cristata* (L.) A. Gray – V, NT; 1 site: BA 6910 – Gałęzinowo – valley of the Krzywinka river (Forestry Machowino, division 514 Ac).
- Epipactis helleborine* (L.) Crantz – !!; 1 site: BA 6910 – Charnowo, 0.5 km from the train-station (Forestry Peplino, division 290 d); beech forest.
- Euonymus europaea* L. – 3 sites: BA 6901 – Charnowo, edge of the closed gravel-pit, 1 km on N; BA 6910 – Wielichowo, thicket behind the old brick-yard, 1 km on NE; BA 6911 – Bydlino, the intra-field a forestation, 1.5 km on W.
- Filago minima* (Sm.) Pers. – 1 site: BA 6911 – Niestkowo, the early-mediaeval settlement.
- Frangula alnus* Mill. – !; 1 site: BA 6900 – forestry 1 km on N from the village, at the old railway viaduct (Forestry Redwanki, division 287 l).
- Galanthus nivalis* L. – I, DD, !!; 1 site: BA 6910 – Gałęzinowo, the evangelical cemetery.
- Galium odoratum* (L.) Scop. – !; 3 sites: BA 6901 – Kolonia Niestkowo (Forestry Redwanki, division 269 j); BA 6910 – Gajki (Forestry Peplino, division 308 c); BA 6911 – Gałęzinowo, valley of the Kozinka river (Forestry Machowino, division 514 Ap); in beech forests.

- Hedera helix* L. – !; 3 sites: BA 6910 – Gajki, at the rocket launcher in the former military unit (forestry Peplino, division 308 c); BA 6910 – Gałęzinowo, the evangelical cemetery; BA 6911 – Bydlino, flourishing and fruitful specimens on two *Quercus robur* at the old school.
- Helichrysum arenarium* (L.) Moench. – !; 3 sites: BA 6900 – Kolonia Wodnica, on the *Koelerio-Corynephoretea* patches 0.5 km on S; BA 6901 – Niestkowo, fallows on E; BA 6911 – Gałęzinowo, the closed excavation of sand 1 km on SE.
- Hepatica nobilis* Schreb. – !!; 2 sites: BA 6910 – Charnowo, at the railway viaduct (Forestry Redwanki, division 287 l); BA 6911 – Gałęzinowo, valley of the Kozinka river (Forestry Machowino, division 514 Ai).
- Hottonia palustris* L. – 2 sites: BA 6910 – Gajki, intra-forest little lake (Forestry Peplino, division 312 h); BA 6911 – Wielichowo, ditch behind the old brick-yard, 1 km on NE.
- Hypericum humifusum* L. – R, NT; 1 site: BA 6900 – Mokrzyca, in depression.
- Hypericum tetrapterum* Fr. – 1 site: BA 6910 – Gajki, wayside of forest road 0.5 km on W (Forestry Peplino, division 232 a).
- Juncus tenuis* Willd. – 1 site: BA 6911 – Wielichowo, field-ruts 0.5 km on N from the village.
- Lathyrus montanus* Bernh. – 1 site: BA 6910 – Gajki, wayside of road (Forestry Peplino, division 308 c).
- Lathyrus vernus* (L.) Bernh. – 1 site: BA 6910 – Gałęzinowo, valley of the Kozinka river (Forestry Machowino, division 514 Ai).
- Lonicera periclymenum* L. – VU, !!; 2 sites: BA 6900 – Mokrzyca, 1 km on S from the railway station (Forestry Orzechowo, division 284 f); BA 6901 – Kolonia Niestkowo (Forestry Redwanki, division 269 j).
- Luzula multiflora* (Retz.) L. – 1 site: BA 6910 – Charnowo, 0.5 km from the railway station (Forestry Peplino, division 290 d).
- Malva alcea* L. – 1 site: BA 6911 – Niestkowo, the early-mediaeval settlement.
- Medicago minima* (L.) L. – VU; 1 site: BA 6900 – Wodnica, on sand grass, 0.5 km on S.
- Melampyrum sylvaticum* L. – 1 site: BA 6910 – Charnowo, at the railway viaduct (Forestry Redwanki, division 287 l).
- Mentha longifolia* (L.) L. – 1 site: BA 6910 – Wielichowo, thicket behind the old brick-yard, 1 km on NE.
- Monotropa hypopitys* L. – 1 site: BA 6901 – Kolonia Niestkowo, 1 km on W (Forestry Redwanki, division 269 j); in beech forest.
- Myosotis stricta* Link. ex Roem. & Schult. – 2 sites: BA 6910 – Gałęzinowo, the sandy fallow land 0.5 km on E; BA 6911 – Niestkowo, cultivation of rye.
- Myosurus minimus* L. – 1 site: BA 6900 – Charnowo, wet stubble field after cultivation of rye, 0.5 km on W, behind the old creamery.
- Nepeta cataria* L. – VU; 1 site: BA 6910 – track way, railway station in Charnowo.
- Omphalodes scorpioides* (Haenke) Schrank – 1 site: BA 6910 – Wielichowo, wet meadows behind the old brick-yard, 1 km on NE.
- Ononis spinosa* L. – !; 1 site: BA 6911 – Charnowo, wayside of road, approx. 1 km on N.
- Ornithopus perpusillus* L. – 1 site: BA 6911 – Bydlino, the sandy wayside of field road, approx. 1 km on W.
- Phyteuma spicatum* L. – 2 sites: BA 6901 – Charnowo, slopes of the Krzywinka river valley (Forestry Peplino, division 290 b); BA 6911 – Gałęzinowo, valley of the Kozinka river (Forestry Machowino, division 514 Ap).

- Plantago intermedia* Gilib. – 3 sites: BA 6901 – Charnowo, unsurfaced road along the Słupia river; BA 6910 – Gajki, earth embankment in the former military unit (Forestry Peplino, division 308 c); BA 6911 – Bydlino, edge of fallow in the bend of the Słupia river – very numerous!
- Platanthera bifolia* (L.) Rich. – V, VU, !!; 2 sites: BA 6901 – Charnowo, edge part of valley of the Krzywinka river (Forestry Peplino, division 290 b); BA 6910 – Gałęzinowo, the evangelical cemetery (in great numbers!).
- Polypodium vulgare* L. – !!; 1 site: BA 6911 – Gałęzinowo, valley of the Kozinka river (Forestry Machowino, division 514 Ap).
- Pyrola media* Sw. – V, VU; 1 site: BA 6910 – Gajki, wayside of road to rocket launcher in the former military unit (Forestry Peplino, division 308 c).
- Pyrola rotundifolia* L. – V, VU; 1 site: BA 6910 – Gajki, wayside of road to rocket launcher in the former military unit (Forestry Peplino, division 308 c).
- Rhannus cathartica* L. – 1 site: BA 6910 – Gałęzinowo, the evangelical cemetery.
- Ribes nigrum* L. – !; 2 sites: BA 6910 – Gałęzinowo; BA 6911 – Bydlino, bend of the Słupia river.
- Rumex sanguineus* L. – 1 site: BA 6910 – Charnowo, 0.5 km from the railway station (Forestry Peplino, division 290 d).
- Sambucus racemosa* L. – 1 site: BA 6910 – Gałęzinowo, valley of the Kozinka river (Forestry Machowino, division 514 Ai).
- Scabiosa columbaria* L. – 1 site: BA 6911 – Niestkowo, the early-mediaeval settlement.
- Scrophularia umbrosa* Dumort. – 1 site: BA 6910 – Gałęzinowo, valley of the Kozinka river (Forestry Machowino, division 514 Ak).
- Spergula morisonii* Boreau – 2 sites: BA 6900 – Kolonia Wodnica, on sand grass, approx. 1 km on W from the village; BA 6901 – Niestkowo, sandy fallow land, 0.5 km on S.
- Spirodela polyrhiza* (L.) Schleid. – 1 site: BA 6901 – Charnowo, oxbow of the Słupia river, 0.3 m on E from bridge on the river.
- Succisa pratensis* Moench – 1 site: BA 6911 – Niestkowo, the early-mediaeval settlement.
- Thalictrum flavum* L. – NT; 1 site: BA 6911 – Gałęzinowo, valley of the Kozinka river (Forestry Machowino, division 514 Ai).
- Thuja plicata* (Donn) D. Don – 1 site: BA 6910 – Gałęzinowo, the evangelical cemetery.
- Viburnum opulus* L. – !; 2 sites: BA 6910 – Charnowo, at the viaduct; BA 6910 – Gałęzinowo, thicket behind the old brick-yard, 1 km on E.
- Vicia lathyroides* L. – 1 site: BA 6911 – Niestkowo, the early-mediaeval settlement.
- Vicia sylvatica* L. – 1 site: BA 6910 – Gałęzinowo, valley of the Kozinka river (Forestry Machowino, division 514 Ap).
- Vicia tetrasperma* (L.) Schreb. – 1 site: BA 6900 – Grabno, cultivation of rye, 0.5 km on SW.
- Vinca minor* L. – !; 1 site: BA 6910 – Gałęzinowo, the evangelical cemetery.
- Viscum album* L. subsp. *album* – 1 site: BA 6900 – Kolonia Wodnica, on white willows (in great numbers), 0.5 km on S.

## Summary

The paper presents sites of 76 species of vascular plants, among them 15 species under law protection and 15 rare and threatened vascular plants on the Western Pomeranian. To the last group belong taxa threatened with extinction (V): *Bromus secalinus*, *Dryopteris cristata*, *Platanthera bifolia*, *Pyrola media*, *Pyrola rotundifolia*, rare species (R): *Chenopodium bonus-henricus*, *Corydalis intermedia* and *Hypericum humifusum* also under undefined threat (I): *Galanthus nivalis* (**Żukowski** and **Jackowiak** 1995). *Dactylorhiza fuchsii* and *Dryopteris cristata* have been classified in the all – Polish “red list” in category (V) – at risk of extinction (**Zarzycki** and **Szeląg** 1992). On the folia of threatened species on the Gdańsk Pomeranian Region have been placed taxa threatened with extinction (VU) – *Dactylorhiza fuchsii*, *Lonicera periclymenum*, *Medicago minima*, *Nepeta cataria*, *Platanthera bifolia*, *Pyrola media* and *Pyrola rotundifolia* also those nearly threatened (NT) – *Bromus secalinus*, *Carex flacca*, *Chenopodium bonus-henricus*, *Dryopteris cristata*, *Hypericum humifusum*, and *Thalictrum flavum* (**Markowski** and **Buliński** 2004). The list includes also species which have not been numbered on lists of endangered species so far but which are considered on The Western Pomeranian Region as rare: *Achillea ptarmica*, *Chrysanthemum segetum*, *Lathyrus montanus*, and *Vicia tetrasperma* (**Fukarek** 1992, **Warcholińska** 1994).

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## GATUNKI SZCZEGÓLNEJ TROSKI W DOLINIE DOLNEJ SŁUPI (POMORZE ZACHODNIE)

### S t r e s z c z e n i e

Celem badań była dokumentacja aktualnego stanu flory naczyniowej Obszaru Chronionego Krajobrazu Dolina Dolnej Słupi. Dokonując wyboru gatunków interesujących roślin naczyniowych, wzięto pod uwagę przede wszystkim: występowanie na liście gatunków prawnie chronionych w Polsce (Rozporządzenie... 2004) i na „Czerwonej liście roślin naczyniowych zagrożonych w Polsce” (Zarzycki i Szelaż 1995), stopień ich rozpowszechnienia i zagrożenia, znajdujący odzwierciedlenie w umieszczeniu gatunku na „czerwonych listach flory Pomorza Zachodniego i Pomorza Gdańskiego” (Żukowski i Jackowiak 1995, Markowski i Buliński 2004) oraz rzadkie w skali regionu. Badania florystyczne prowadzono w latach 2004-2006.

W pracy podano stanowiska 76 gatunków roślin naczyniowych, w tym 15 chronionych prawem oraz 15 rzadkich, narażonych i zagrożonych. Do ostatniej grupy należą taksony zagrożone wyginięciem (V): *Bromus secalinus*, *Dryopteris cristata*, *Platanthera bifolia*, *Pyrola media*, *Pyrola rotundifolia*, rzadkie (R): *Chenopodium bonus-henricus*, *Corydalis intermedia* i *Hypericum humifusum* oraz o nieustalonym zagrożeniu (I): *Galanthus nivalis* (Żukowski i Jackowiak 1995). *Dactylorhiza fuchsii* i *Dryopteris cristata* zostały umieszczone na ogólnopolskiej „czerwonej liście” w kategorii (V) – narażonych na wyginięcie (Zarzycki i Szelaż 1992). Na liście gatunków zagrożonych Pomorza Gdańskiego znalazły się taksony narażone na wyginięcie (VU) – *Dactylorhiza fuchsii*, *Lonicera periclymenum*, *Medicago minima*, *Nepeta cataria*, *Platanthera bifolia*, *Pyrola media* i *Pyrola rotundifolia*, bliskie zagrożenia (NT) – *Bromus secalinus*, *Carex flacca*, *Chenopodium bonus-henricus*, *Dryopteris cristata*, *Hypericum humifusum* i *Thalictrum flavum* oraz gatunek o nieznanym stopniu zagrożenia (DD) – *Galanthus nivalis* (Markowski i Buliński 2004). Wykaz obejmuje również gatunki nie ujmowane dotychczas na listach roślin zagrożonych, ale uznawane na Pomorzu Zachodnim za rzadkie: *Achillea ptarmica*, *Chrysanthemum segetum*, *Lathyrus montanus* i *Vicia tetrasperma* (Fukarek 1992, Warcholińska 1994).

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