

Distribution of *Alisma gramineum* (Alismataceae) in Poland

MACIEJ WAYDA

WAYDA, M. 1996. Distribution of *Alisma gramineum* (Alismataceae) in Poland. *Fragmenta Floristica et Geobotanica* 41(2): 809–813. Kraków. PL ISSN 0015–931x.

ABSTRACT: The distribution of *Alisma gramineum* Gmel. is described based on herbarium materials, literature and both published and unpublished data. Descriptions of terrestrial and aquatic forms have also been included as well as an evaluation of the species' endangerment in Poland.

KEY WORDS: *Alisma gramineum*, aquatic plant landform, rare species, distribution in Poland

M. Wayda, Department of Plant Taxonomy and Phytogeography, Institute of Botany, Jagiellonian University, ul. Lubicz 46, PL–31–512 Kraków, Poland

From material contained within the ATPOL database (Zajac 1978) it appears that *Alisma gramineum* Gmel. occurs in Poland at a dozen or so sites, mainly located in the north-eastern part of the country. After investigating materials from the biggest Polish herbaria and from old literature data, we managed to find several new sites. These findings change our evaluation of the range of the species in Poland.

Alisma gramineum (= *A. arcuatum* Michalet) like many other aquatic plants has two forms – aquatic and terrestrial. Because the terrestrial form can easily be mistaken for *Alisma lanceolatum* With., and because our literature lacks in description, I am including short descriptions of both forms.

The aquatic form (*Alisma arcuatum* fo. *graminifolium* Casp.) has entirely submerged leaves, arranged in a dense rosette. The leaf lamina is ensiform, sharp or truncate above. Inflorescence on elongated panicle. Flowers white. Flowering from VI to X.

The terrestrial form (*Alisma arcuatum*) has elliptic or ovate-lanceolate leaves arranged in a rosette. The leaf base is always cuneate. Inflorescence on short panicle. Flowers white. Flowering from VI to X.

Intermediate forms also occur with both aquatic and terrestrial leaf forms. The height of both forms varies from several to several dozen centimetres.

The hook-shaped stigma observed in flowers that are fully open is the most important diagnostic feature of *Alisma gramineum* in Poland (Rothmaler 1988). Identification of material without flowers is not reliable.

The general range of the investigated taxon (Meusel *et al.* 1965) indicates that *Alisma*

gramineum belongs to the circumboreal element. In Europe the western limit of the range is similar to those of other species of the Euro-Siberian element.

The method used in the "Atlas of the distribution of vascular plants in Poland (ATPOL)" (Zajac 1978) has been applied in the presentation of the data. The list starts with the north-west of Poland. Then sites are listed in lanes, from north to south. Each section starts with the big squares data, followed by small squares in numerical order. The site description includes the province (prov.) and the date of the source. Abbreviations of herbaria according to Mirek (1990).

The distribution of *Alisma gramineum* in Poland is shown on the map (Fig. 1). This is determined by the nature of the sites inhabited by the species. It occurs in swamps, shallow water zones and also in periodically flooded areas. Therefore, it is not surprising that the sites are concentrated in lake districts and the valleys of large rivers. Most of the data concerning its occurrence have been collected in the 19th and 20th centuries. In many cases the dates are from the distant past. In certain areas the sites have been confirmed by different botanists over a long period of time (e.g. Kłodno, Ełckie and Rajgrodzkie lakes or the area of Goczałkowice reservoir). This confirms the maintaining of local populations. The scattered location of populations and the increasing pollution levels in rivers and reservoirs can be a future threat.

The data presented below are probably incomplete. The lack of sites in Pojezierze Lubelskie (=Lublin lake district) and in the western part of Pojezierze Pomorskie (=Pomerania lake district) does not necessarily mean that the species does not occur there, but could reflect the fact that the region has been poorly investigated.

AB GRID SQUARE: PROV. SZCZECIN. **21** – Świnoujście (Müller 1911).

BB GRID SQUARE: PROV. KOSZALIN. **00** – Kołobrzeg (Müller 1911).

CA GRID SQUARE: PROV. GDAŃSK. **77** – Kartuzy, *lg. Scholz*, 1895 (TRN). **86** – Roszkowo (Abromeit *et al.* 1934); **87** – Jez. Sianowskie, *lg. H. Klinggraeff*, 1884 (TRN); **87** – Łapacice (Abromeit *et al.* 1934); **96** – Jez. Raduńskie (Abromeit *et al.* 1934); **96** – Borzystowska Huta (Abromeit *et al.* 1934); **97** – Jez. Kłodno, *lg. F. Krawiec* 1934 (POZ).

DA GRID SQUARE: PROV. ELBLĄG. **77** – Ujście; **78** – Nowa Pasłęka; **88** – Braniewo and Frombork; **91** – between Bystra and Wiślina; **93** – Stegna. PROV. GDAŃSK. **80** – Gdańsk (all records after Abromeit *et al.* 1934).

EA GRID SQUARE: PROV. SUWAŁKI. **99** – Jez. Rydzówka (Abromeit *et al.* 1934).

CB GRID SQUARE: PROV. GDAŃSK. **06** – Stężycza (Abromeit *et al.* 1934). PROV. BYDGOSZCZ. **88** – Lubochiń (Abromeit *et al.* 1934).

DB GRID SQUARE: PROV. ELBLĄG. **23** – Malbork; **43** – Orkusz; **44** – Jakubowo near Jez. Dzierżgońskie; **45** – Prabuty (all records after Abromeit *et al.* 1934); **52** – Jurki, *lg. H. Klinggraeff*, 1874 (TRN); **61** – Wiślin (Kępczyński & Załuski 1982); **63** – Jez. Klasztorne, *lg. H. Klinggraeff*, 1874 (TRN). PROV. TORUŃ. **82** – Grudziądz (Abromeit *et al.* 1934), **86** – Skarlin, *lg. Wójcikowska*, 1939 (POZ); **90** – lake above Robakowo and between Chełmno and Nowe Dobro (Abromeit *et al.* 1934). PROV. OLSZTYN. Dąbrówno, *lg. W. Oberlehrer & J. Caspary*, 1884 (TRN).

EB GRID SQUARE: PROV. OLSZTYN. **02** – Nowa Wieś Wielka; **05** – Lusiny; **09** – Jez. Silec; **26** – Koprzywnik; **37** – Jez. Kiersztanowskie; **42** – Jez. Tyrsko, Ługwałd and Gutkowo; **43** – Wadąg; **49** – Mikołajki; **52** Jez. –Tomaszkowo; **53** – Klewki; **77** – Świętajno (all records after Abromeit *et al.* 1934).

FB GRID SQUARE: PROV. SUWAŁKI. **01** – Jez. Świącayty, *lg. I. Dąmbska*, 1966 (POZ); **02** – Jez.

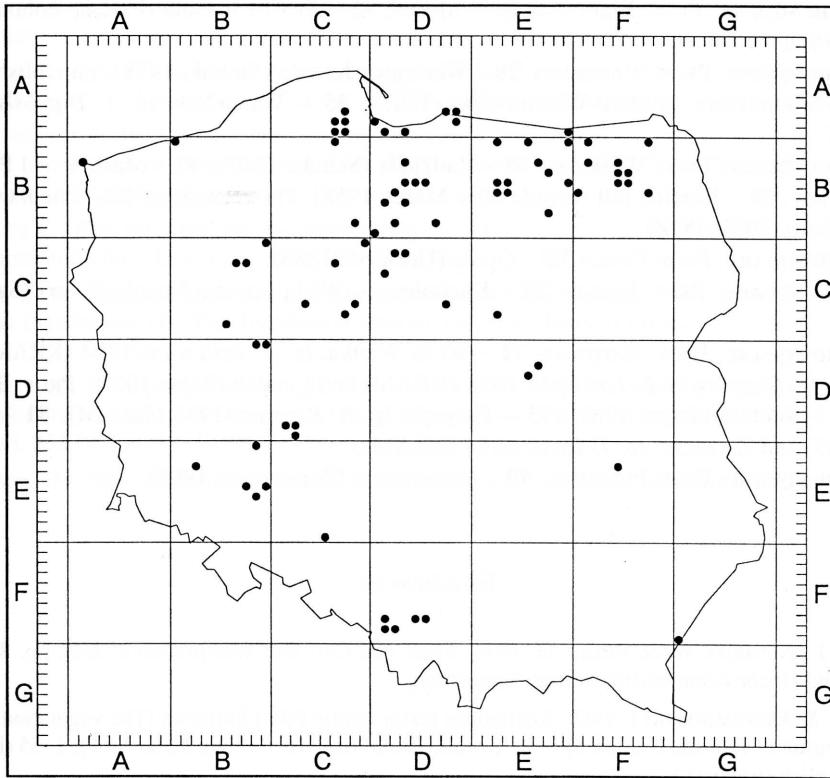


Fig. 1. Distribution map for *Alisma gramineum* Gmel. in Poland.

Jemieliste, *lg. T. Wiśniewski* (WA); **21** – Niegocin (Abromeit *et al.* 1934); **24** – between Sajzy and Połom (Zajac, 1990 – unpublished); **34** – between Rydzew, Sajzy and Stradny (Myszkowska, 1983 – unpublished), and Sajzy (Zajac 1990 – unpublished); **35** – Jez. Heleckie (Środa, 1981 – unpublished), **44** – Ełk, *lg. D. Danow*, 1896 (TRN) and Zajac, 1990 – unpublished), **45** – Jez. Ełckie (Szyba) (Abromeit *et al.* 1934); **50** – S bank of Jez. Śniardwy (Polakowski *et al.* 1979); **57** – Czarna Wieś above Rajgród (Sokołowski *et al.* 1971 – unpublished), Jez. Rajgrodzkie (Abromeit *et al.* 1934) and in Jez. Dręstwo in Woźna Wieś, *lg. A. Sokołowski* 1971 (BIL).

BC GRID SQUARE: PROV. PIŁA. **09** – Paruski Las (Abromeit *et al.* 1934); **26** – Jez. Kopcze I, *lg. J. Dziedzic*, 1963 (POZ); **27** – Jez. Kopcze II (Dziedzic & Asztemborski 1964), Jez. Proboszczowskie, *lg. J. Dziedzic*, 1964 (POZ) and Jez. Kociołek, *lg. J. Dziedzic*, 1964 (POZ), **85** – Buszewo (Szulczewski 1951).

CC GRID SQUARE: PROV. BYDGOSZCZ. **26** – Bydgoszcz (Pfuhl 1896); **63** – Rogowo (Kępczyński 1978 – unpublished); **68** – Innowrocław (Pfuhl 1896); **77** – Strzelno (Pfuhl 1896). PROV. TORUŃ. **09** – Grabówka (Abromeit *et al.* 1934).

DC GRID SQUARE: PROV. TORUŃ. **12** – Mlewo; **13** – Pluskowęsy; **31** – Toruń (all records after Abromeit *et al.* 1934). PROV. PŁOCK. **67** – Susk (Załuski, 1986 – unpublished).

EC GRID SQUARE: PROV. CIECHANÓW. **72** – Sochocin (Rostafiński 1872).

BD GRID SQUARE: PROV. POZNAŃ. **08** – Poznań-Świerczewo, *lg. F. Krawiec* 1934 (POZ) and Dąbrowa near Poznań, *lg. F. Krawiec*, 1933 (POZ); **09** – Swarzędz (Szulczewski 1951).

CD GRID SQUARE: PROV. WROCŁAW. **81** – Milicz; **82** – Prosne Robota (Próżna Robota); **92** – Godnowa (Schube 1903).

ED GRID SQUARE: PROV. WARSZAWA. **26** – Warszawa-Jelonki (Sudnik, 1978 – unpublished) and Warszawa-Śródmieście (Sudnik-Wójcikowska 1987); **35** – Walendów, *Ig. I. Dąmbska*, 1964 (POZ).

BE GRID SQUARE: PROV. WROCŁAW. **08** – Radziądz (Schube 1903); **47** – Maślice and Pilczyce; **49** – Wrocław; **58** – Klecina (all records after Marek 1958). PROV. LEGNICA. **22** – Niedźwiedzice, *Ig. I. Dąmbska*, 1963 (POZ).

CE GRID SQUARE: PROV. OPOLE. **95** – Opole (Uechtritz 1885).

FE GRID SQUARE: PROV. LUBLIN. **24** – Kazimierz n. Wisłą (on the Vistula River) (Szteinbok 1910).

DF GRID SQUARE: PROV. KATOWICE. **71** – Wisła Wielka, *Ig. A. Jasiewicz*, 1954 (KRAM); **82** – Burzej, *Ig. M. Ciaciura & E. Sowiński*, 1954 (KRAM) and Landek (Zajac 1989). PROV. BIELSKO-BIAŁA. **74** – Skidzin (Zajac 1989); **75** – Przyręb, *Ig. R. Rozmus*, 1958 (KRAM); **81** – Gołysz (Zajac 1989) and Zarzecze, *Ig. T. Tacik*, 1954 (KRAM).

GF GRID SQUARE: PROV. PRZEMYŚL. **90** – Bakończyce (Zapałowicz 1906).

REFERENCES

- ABROMEIT J., NEUHOFF W. & VOGEL G. 1934. Flora von Ost- und Westpreussen. 2(4), pp. 829–986. Gräfe und Unzer Kommissionsverlag, Königsberg.
- DZIEDZIC J. & ASZTEMBORSKI J. 1969. Roślinność jezior okolic Piły i Śmiłowa [The vegetation of lakes in the region of Piła and Śmiłowo]. – Pr. Komis. Biol. Pozn. Tow. Przyj. Nauk **34**(1): 1–55 (in Polish with English summary).
- KĘPCZYŃSKI K. & RUTKOWSKI L. 1982. Rośliny naczyniowe okolic Kwidzyna [Gefässpflanzen der Umgebung von Kwidzyń]. – Acta Univ. Nicol. Copernici Biologia **24**: 65–105 (in Polish with German summary).
- MAREK S. 1958. O kilku rzadszych roślinach z terenu Wrocławia [De nonnullis plantis quae oppido Vratislaviae rariae sunt]. – Fragn. Flor. Geobot. **4**(1): 121–123 (in Polish with Latin summary).
- MEUSEL H., JÄGER E. & WEINERT E. 1965. Vergleichende Chorologie der Zentraleuropäischen Flora. **1** (Karten), pp. 259–421. Gustav Fischer Verlag, Jena.
- MIREK Z. 1990. Polish herbaria. – Polish Bot. Stud. Guidb. Ser. **2**: 1–73
- MÜLLER W. 1911. Flora von Pommern. 3 Aufl. viii + 376 pp. Johs. Burmeisters, Stettin.
- PFUHL F. 1896. Die bisher in der Provinz Posen nachgewiesen Gefässpflanzen. – Zeitschr. Bot. Abt. Naturw. Ver. Prov. Posen **3**: 1–70.
- POLAKOWSKI B., JUTRZENKA-TRZEBIATOWSKI T., DĄBEK J., KORNIĄK T. & PIETRASZEWSKI W. 1979. Zarys stosunków geobotanicznych Mazurskiego Parku Krajobrazowego, Cz. III. Stosunki florystyczne [Geobotanical relationships in the Mazurian Landscape Park, P. III Floristic problems]. – Zesz. Nauk. Akad. Roln.-Techn. w Olsztynie **6**: 1–13 (in Polish with English summary).
- ROSTAFIŃSKI J. 1872. Florae Poloniae prodromus. – Verh. Zool. Bot. Ges. Wien **22**: 3–128.
- ROTHMALER W. 1988. Exkursionsflora für Gebiete der DDR und BDR. 7 Aufl. **4** (Kritischer Band). 811 pp. Volk und Wissen Volkseigener Verlag, Berlin.
- SCHUBE TH. 1903. Die Verbreitung der Gefässpflanzen in Schlesien. 361 pp. R. Nischkowsky, Breslau.
- SUDNIK-WÓJCIKOWSKA B. 1987. Flora miasta Warszawy i jej przemiany w ciągu XIX i XX wieku. Część II. Dokumentacja [“Flora of the town of Warsaw and its changes during the 19th and 20th

- centuries. Part II. Records"]. 435 pp. Uniwersytet Warszawski (in Polish with English and German summaries).
- SZTEINBOK K. 1910. Flora okolic Kazimierza nad Wisłą ["Flora of the vicinity of Kazimierz on the Vistula River"]. – Spraw. Kom. Fizyogr. PAU **44**: 1–42 (in Polish).
- SZULCZEWSKI J. W. 1951. Wykaz roślin naczyniowych w Wielkopolsce dotąd stwierdzonych [Vascular plants in the flora of Great Poland]. – Pr. Komis. Biol. Pozn. Tow. Pozn. Nauk **12**(6): 1–128 (in Polish with English summary).
- UECHTRITZ R. 1886. Resultate der Durchforschung der schleisischen Phanerogamenflora im Jahre 1885. – Jahresber. Schles. Ges. Vaterl. Cult. **63**: 216–276.
- ZAJĄC A. 1978. Założenia metodyczne «Atlasu rozmieszczenia roślin naczyniowych w Polsce» ["Methodical foundations of «The distribution atlas of vascular plants in Poland»"]. – Wiad. Bot. **22**(3): 145–155 (in Polish).
- ZAJĄC M. 1989. Flora południowej części Kotliny Oświęcimskiej i Pogórza Śląskiego [De herbis, quae in Vallis Oswencinensis et Montium Silesiacorum parte meridionali iveniuntur]. – Zesz. Nauk. Uniw. Jagiell. **952** Pr. Bot. **19**: 1–199 (in Polish with English summary).
- ZAPĄŁOWICZ H. 1906. Conspectus florum Galiciae criticus. viii + 296 pp. Akademia Umiejętności, Kraków.