

NEW LOCALITY OF *WOLFFIA ARRHIZA* (L.) HORKEL EX WIMM.
IN “METEORYT MORASKO” NATURE RESERVE IN POZNAŃ

SŁAWOMIR JANYSZEK, MIECZYŚLAW GRZELAK

S. Janyszek, Department of Botany, August Cieszkowski Agricultural University,
Wojska Polskiego 71c, 60-625 Poznań, Poland, e-mail: sjan@au.poznan.pl

M. Grzelak, Department of Grassland Production, August Cieszkowski Agricultural University,
Wojska Polskiego 38/42, 60-627 Poznań, Poland, e-mail: grzelak@au.poznan.pl

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ABSTRACT. A new locality of *Wolffia arrhiza* (L.) Horkel ex Wimm. was found in the pond in the meteorite crater in the nature reserve “Meteoryt Morasko”, near the northern boundary of Poznań (Poland). The population covers almost 100% of the surface of the pond, forming simultaneously a path of plant association: *Wolffietum arrhizae*. There is an evidence, that the population emerged during the last 10 years.

KEY WORDS: *Wolffia arrhiza*, “Meteoryt Morasko” nature reserve

INTRODUCTION

The rootless duckweed *Wolffia arrhiza* (L.) Horkel ex Wimm., known as one of the smallest flowering plants of the World (KRASKA 1978), is also one of rarest species of duckweed in Poland. Sites of this species are dispersed in Polish lowlands, with especially high concentration in northern Małopolska. Less numerous sites are present also in Wielkopolska, Kujawy and lower Silesia (Atlas... 2001). In the vicinity of Poznań, the species is relatively frequent – noted from about 20 sites (STANIEWSKA-ZĄTEK 1972).

The “Meteoryt Morasko” (Morasko Meteorite) nature reserve is an object situated at the northern boundary of Poznań. It is known as a site of interesting geological and astronomical phenomenon – a set of craters, formed by an impact of iron meteorite (HURNIK and HURNIK 2005). Besides the craters, the reserve protects well preserved paths of oak-hornbeam forests *Galio sylvatici-Carpinetum*, and the landscape of the Góra Moraska (Moraska Hill) – one of the highest culmination of terrain in the vicinity of Poznań. There are available relatively many floristic data from the described terrain. It was the focus of two detailed floristical studies (JANYSZEK 1996, JANYSZEK 2006).

DESCRIPTION OF THE SITE

In years 2005-2006, we observed a strong population of *Wolffia arrhiza* growing in a pond, filling the greatest of the meteorite craters in northern part of the reserve (Fig. 1). The species had not been indicated in the reserve previously. During two years of the observations, the rootless duckweed formed very dense population,

covering almost 100% of the water surface. Because of dominancy of *W. arrhiza* in the formed phytocenose, it can be classified to the association *Wolffietum arrhizae* (Bennema et al. 1943) Miyawaki et J. Tx. 1960 (acc. to BRZEG and WOJTERSKA 2001). The floristic composition of the observed phytocenose is illustrated by the following phytosociological relevé:

Date: 2.09.2006, locality: southern part of the pond, in a contact with a shore.

Area: 20 m², depth of the water: 0.1-0.3 m, density of duckweed layer: 100%, density of elodeids beneath the surface: 25%.

Wolffia arrhiza 5.5., *Lemna minor* +, *Spirodela polyrrhiza* +.2, *Ceratophyllum submersum* 2b.1., *Carex paniculata* +.2, *Scutellaria galericulata* r.

It is noteworthy, that the occurrence of *W. arrhiza* and the association *Wolffietum arrhizae* in the described site were independently observed and documented in 2006 by another researcher (ZAWADA 2007).

DISCUSSION

Wolffia arrhiza was not indicated during previous floristical research conducted in the reserve 10 years earlier (JANYSZEK 1996). The site, recently covered by *W. arrhiza*, was previously overgrown by the paths of *Lemno-Spirodeletum polyrrhizae*. The way of migration of *W. arrhiza* is easy to explain by epizoochory. Small plants are often transported from site to site by migrating waterfowl, and the nearest known sites of this species are situated in a relatively short distance (Atlas... 2001). On the contrary, the reason of substitution of previous phytocenoses of *Lemno-Spirodeletum* by the recently existing *Wolffietum* remains unknown, especially regard-

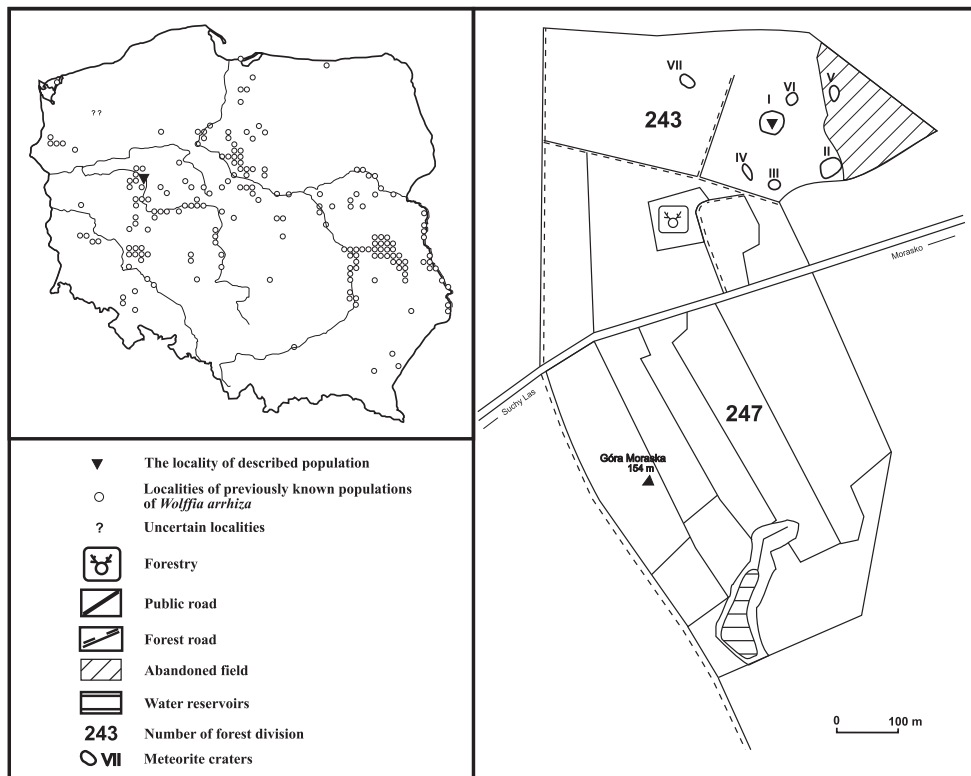


FIG. 1. Locality of the described site of *Wolffia arrhiza* in the "Meteoryt Morasko" nature reserve. The map of the species distribution in Poland according to Zajęc and Zajęc (Atlas... 2001)

ing to almost identical environmental requirements of the species from both phytocenoses (ELLENBERG et AL. 1992). The only difference is the requirement for the type of climate. *Wolffia arrhiza* prefers sites with a more continental climate, than *Spirodela polyrrhiza* and *Lemna minor*, which grow more effectively in suboceanic climatic conditions. Thus, one of the factors, hypothetically explaining the observed change of species, can be an impact of repeating summer droughts, observed in the last 10 years.

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