

ANDRZEJ ŚRODÓŃ

SILENE WAHLBERGELLA CHOWDHURI
AND *SILENE FURCATA* RAFIN
IN THE PLEISTOCENE OF POLAND

Silene wahlbergella Chowdhuri i *Silene furcata* Rafin
w plejstocenie Polski

ABSTRACT

The seeds of *Silene wahlbergella* and *S. furcata*, plants with circumboreal present-day occurrence, have been found within the fossil floras of the Vistulian (*S. wahlbergella*) and Saalian (*S. furcata*) age of glaciation.

INTRODUCTION

Studies on macroscopic remains of plants in three glacial flora localities (Fig. 1), have enabled the determination of a long list of species, components of periglacial tundra. The list, to which in the course of the investigations new items have been added, includes two species of the *Silene* genus, the first to be reported in the Pleistocene of Europe. In view of their present-day distribution this is worthy of attention.

DESCRIPTION

Silene wahlbergella Chowdhuri [= *Melandrium apetalum* (L.) Fenzl.]

Localities and age. Dobra near Limanowa, 32 550 ± 450 B. P. (GrN 5111), Denekamp Interstadial (Ś r o d ó Ń 1968); Sowliny near Limanowa, Middle Pleniglacial of the last glaciation.

The fossil material consists of 6 seeds (Fig. 2, Pl. I, 1—4) with the following dimensions:

Dobra (1 seed) — 2.8×2.6 mm; width of wing 0.8 mm.

Sowliny (5 seeds) — 2.4—2.8×2.1—2.6 mm; width of wing 0.6—0.8 mm.

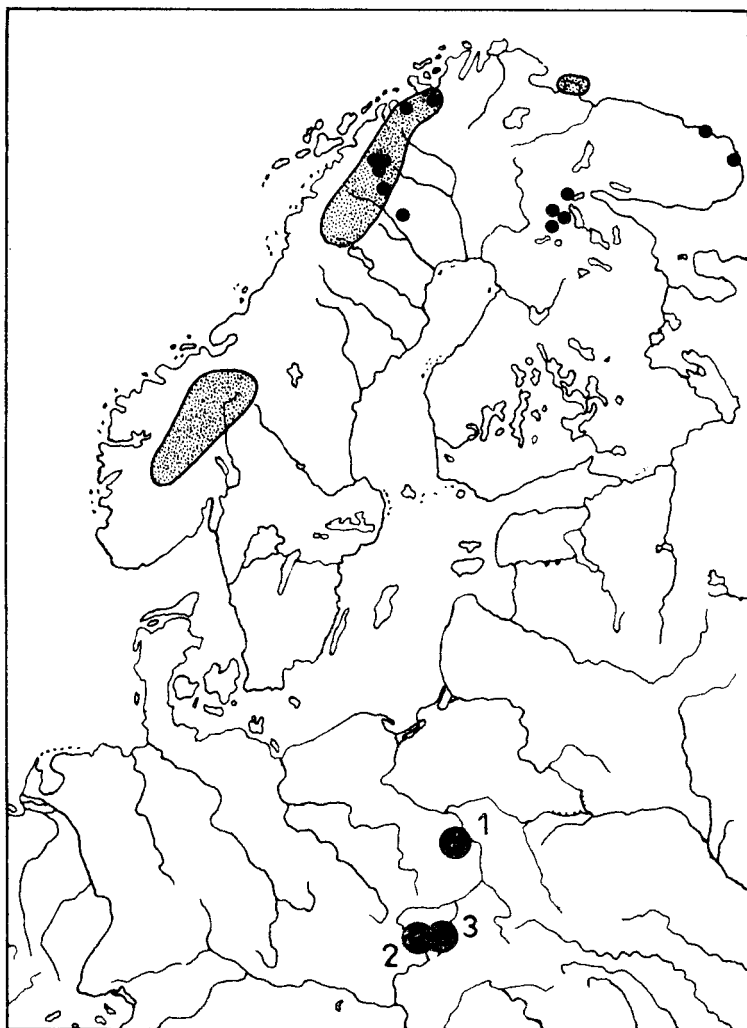


Fig. 1. Map showing the present distribution of *Silene wahlbergella* (stippled area) and *S. furcata* (black circles) in Scandinavia (Hultén 1950), and their Pleistocene localities in Poland. 1 — Góra Kalwaria; 2 — Dobra; 3 — Sowliny

Ryc. 1. Rozmieszczenie współczesne *Silene wahlbergella* (powierzchnie zakropkowane) i *S. furcata* (czarne punkty) w Skandynawii (Hultén 1950) i ich stanowiska plejstoceńskie w Polsce. 1 — Góra Kalwaria; 2 — Dobra; 3 — Sowliny

The seeds are distinguished by a swollen wing and marked folds upon the surface, running fan-wise to the hilum. The morphological structure of the seeds of this species is so typical that its identification is unquestionable. *S. wahlbergella* is an arctic-mountain plant of circumboreal occurrence: absent from the mountains of Central Europe, it occurs in Scandinavian mountains and in the area of Northern Siberia (Hultén 1950).

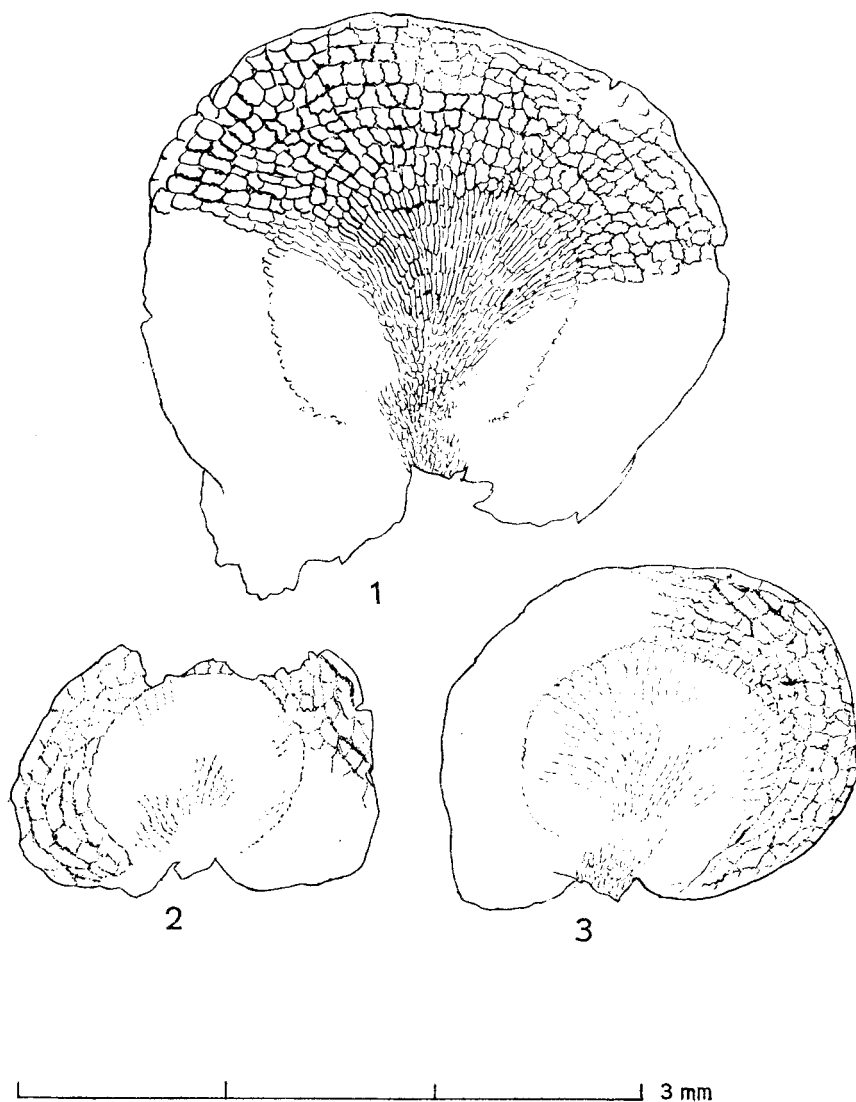


Fig. 2. 1 — seed of *Silene wahlbergella* from Dobra. 2—3 — two seeds of *Silene furcata* from Góra Kalwaria (drawn by M. Łańcucka-Środoniowa)

Ryc. 2. 1 — nasienie *Silene wahlbergella* z Dobrej; 2—3 — dwa nasiona *Silene furcata* z Góry Kalwarii (rys. M. Łańcucka-Środoniowa)

Silene furcata Rafin [= *Melandrium furcatum* (Raf.) Hadač]

Locality and age. Góra Kalwaria near Warszawa, Saalian (Karaszewski 1952).

The fossil material consists of two seeds (Fig. 2, Pl. I, 5—6) with the

following dimensions: 2.1×1.7 , and 1.8×1.3 mm. The width of the wing in both seeds amounts to 0.4 mm. The seeds are narrowly winged, in their middle part with folds on the surface less pronounced than in *S. wahlbergella*. A plant with circumboreal occurrence, its localities are in Northern Scandinavia and Arctic Asia, while it is absent in Central Europe (Hultén 1950).

DISCUSSION

S. wahlbergella, absent today in Central Europe, has an occurrence similar to that of *Koenigia islandica*, several times reported in Central Europe in the sediments of the last glaciation (Danielsen 1970), among others in Poland (Koperowa 1962). Danielsen (l. c.) writing about the significance of the fossil localities of *Koenigia islandica* expressed the view that also other „Scandinavian mountain species without present affinity southwards might have a migration history similar to that of *Koenigia*”. The discovery of *S. wahlbergella* within the composition of glacial flora in two localities in the Carpathians corroborates this assumption, while the fact that *S. furcata* has been found at Góra Kalwaria in Saalian glaciation sediments seems to suggest that migration from the south to areas liberated from the ice cover had also played a vital rôle in the older Pleistocene in European area.

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STRESZCZENIE

SILENE WAHLBERGELLA CHOWDHURI I SILENE FURCATA RAFIN
W PLEJSTOCENIE POLSKI

W trakcie studiów nad szczątkami makroskopowymi roślin ze stanowisk flor glacialnych (ryc. 1) wieku zlodowacenia środkowopolskiego (Góra Kalwaria koło Warszawy) i ostatniego (Dobra i Sowliny koło Limanowej) stwierdzono nasiona dwóch gatunków rodzaju *Silene*, a mianowicie *S. wahlbergella* Chowdhuri i *S. furcata* Rafin (ryc. 2, tabl. I).

W Dobrej i w Sowlinach występuje *S. wahlbergella*, roślina o rozmieszczeniu cyrkumborealnym, rosnąca w górach Skandynawii i na obszarze północnej Syberii. Z Góry Kalwarii pochodzą nasiona *S. furcata*, rośliny również o rozmieszczeniu cyrkumborealnym ze stanowiskami w północnej części Półwyspu Skandynawskiego i w arktycznej Azji. Oba gatunki nie rosną na obszarze Europy Środkowej.

Odkrycie *S. wahlbergella* i *S. furcata* w plejstocenie Polski potwierdza przypuszczenie Daniela (1970), wypowiedziane na podstawie stanowisk kopalnych *Koenigia islandica* w Europie Środkowej, o kierunku migracji roślin z południa na uwalniane od pokrywy lodowej obszary Skandynawii.

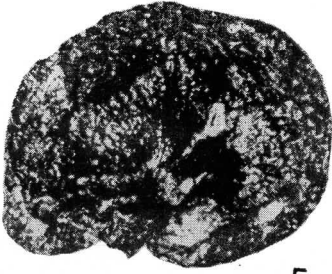
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Plate I

1. Seed of *Silene wahlbergella* from Dobra, × 21
- 2—2a. Seed of *S. wahlbergella* (both-sides) from Sowliny, × 21
- 3—4. Two seeds of *S. wahlbergella* from Sowliny, × 21
- 5—6. Two seeds of *Silene furcata* from Góra Kalwaria, × 21

Tablica I

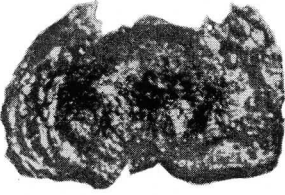
1. Nasienie *Silene wahlbergella* z Dobrej, × 21
- 2—2a. Nasienie *S. wahlbergella* (obie strony) z Sowlin, × 21
- 3—4. Dwa nasiona *S. wahlbergella* z Sowlin, × 21
- 5—6. Dwa nasiona *Silene furcata* z Góry Kalwarii, × 21



5



1



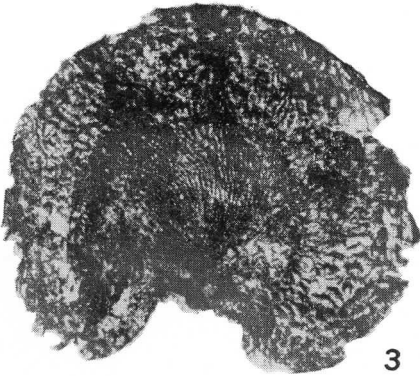
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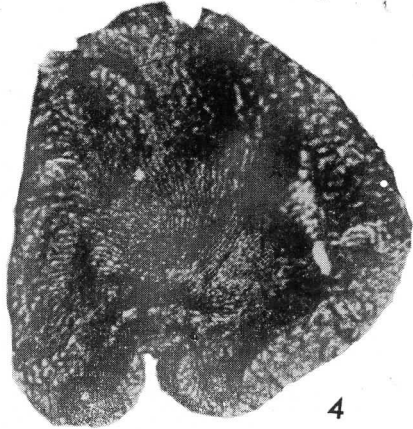
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2 a



3



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