

## SOME FLOWERING PLANTS OF THE POLISH TATRA MOUNTAINS

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South of the Vistula River from Krakow, the old capital of Poland, the land rises in a series of folded hills of sedimentary rock. Near Zakopane, about 80 km south, the limestone ridges are higher and tilted, exposing occasional bluffs. Finally, at the Slovakian border, igneous rocks intrude, yielding glaciated mountains rising to a maximum height of 2600 m above sea level. About 15% of the high-montane area of the region lies within Poland and is designated as the Tatra National Park (Tatrzański Park Narodowy). This article outlines some observations during a visit in early August 1996.

Below 1000 m the land is extensively farmed, but significant areas of broadleaf forest remain, originally dominated by oak and beech but modified by selective felling. At higher altitudes coniferous species predominate (*Pinus nigra*), with dwarf pine (*P. mugo*) appearing at about 1250 m, merging into scrub willow at about 1500 m. Mountain ash (*Sorbus* sp.) is also scattered at these altitudes. The scrub merges into the fellfield at about 1800 m, terminating in rock at 2300 m. Apart from possibly one small area in a sheltered north-facing hollow, no snow was observed during the visit.

The high valleys in the Park contain meadows which appear ungrazed and contain a rich variety of herbs. Bellflowers and knapweeds were prominent. It was interesting seeing in their native habitat garden flowers such as the pink gladiolus (*Gladiolus imbricatus*) and the large astrantia (*Astrantia major*). Spectacular was a stemless thistle (*Carlina acaulis*), with the tongue-twisting name of Dziewiecsil bezłodygowy, which has a flower up to 80 mm in diameter and is the subject of decorative motifs in the region. The immature plant that was seen is sketched. Particularly attractive was the burdock, *Arctium tomentosum*, with its scarlet florets protruding above its hooked bracts. Colour was never far away: wild thyme (*Thymus serpyllum*) hugged damp rocks, a magenta lousewort (*Pedicularis palustris*?) grew beside the formed (and slabbed) track near a saddle at 1500 m, and tiny gems such as the deep blue alpine toadflax (*Linaria alpina*) were common.

One orchid was widespread, the fragrant orchid (*Gymnadenia conopsea*), which was found in damp grassland from 1000 m, as well as in a stunted form in the fellfield as high as 2000 m. However, this latter plant might have been the vanilla orchid (*Nigritella rubra*), or a hybrid with it.

One flower offered a puzzle. At first sight, it looked like the willow gentian (*Gentiana asclepiadea*). Growing at 1500 m in an open bank, the plants were about 300 mm high, with some purple flowers at the tip, typical of the genus, but the lower ones had opened out with five recurved petals. It was eventually identified as an uncommon member of the Gentian family, *Swertia perennis*.

Perhaps the botanical highlight was seeing the Sarotka alpejska (the edelweiss of the Swiss Alps) (*Leontopodium alpinum*), with one immature specimen on a limestone ridge at 1400 m and a group of flowering plants on a rocky face, secure from predation, near a gondola station at about the same elevation.

The following is a provisional (and indicative) list of the flowering plants identified, and excludes some commoner and other less conspicuous plants:

**Caryophyllaceae**

*Melandrium rubrum, Silene dioica, S. vulgaris*

**Ranunculaceae**

*Aconitum firmum, Caltha palustris, Ranunculus aconitifolius, R. alpestris*

**Crassulaceae**

*Sedum acre*

**Geraniaceae**

*Geranium phaeum, G. pratense*

**Saxifragaceae**

*Saxifraga caesia?*

**Rosaceae**

*Dryas octopetala*

**Gentianaceae**

*Swertia perennis*

**Onagraceae**

*Epilobium hirsutum*

**Umbelliferae**

*Astrantia bavarica, A. major*

**Labiatae**

*Thymus serpyllum*

**Scrophulariaceae**

*Digitalis grandiflora, Euphrasia picta?, Pedicularis palustris*

**Campanulaceae**

*Campanula alpina, C. glomerata, C. polymorpha, C. rapunculoides, C. rotundifolia, Phyteuma orbiculare*

**Dipsacaceae**

*Knautia arvensis*

**Compositae**

*Arctium tomentosum*, *Carlina acaulis*, *Centaurea scabiosa*, *Doronicum austriacum*, *Leontopodium alpinum*, *Senecio fuchsii*

**Iridaceae**

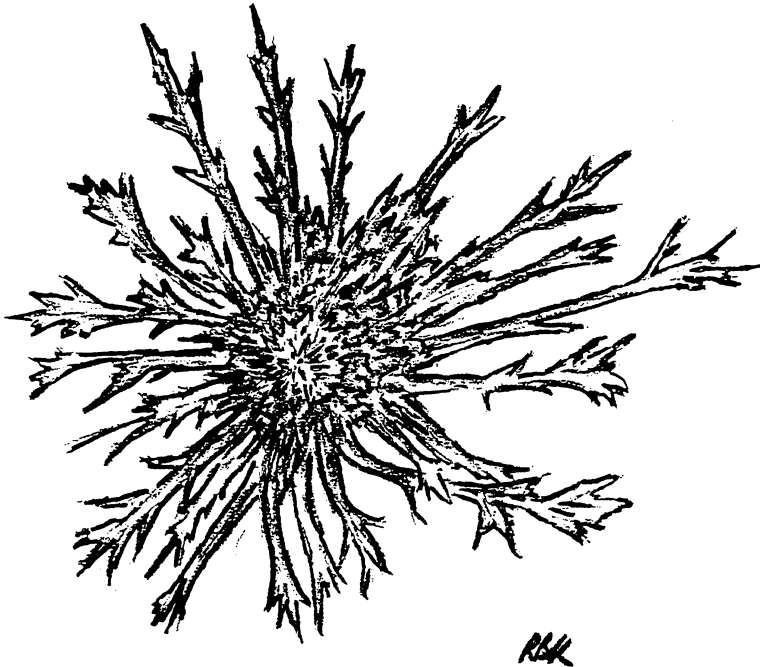
*Gladiolus imbricatus*

**Orchidaceae**

*Gymnadenia conopea*, *Nigritella rubra?*

**REFERENCE**

Radwanska-Paryska, Z. 1992. *Rosliny tatrzańskie*. Wyd. Szkol. Pedagog. Warszawa



Juvenile *Carlina acaulis*