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The distribution of the *Dryopteris dilatata* complex in Poland and in Slovakia

Halina PIĘKOŚ-MIRKOWA

1. INTRODUCTION

The *Dryopteris dilatata* complex is represented in Poland and in Slovakia by three species: two tetraploids (*Dryopteris carthusiana* [Vill.] H.P. Fuchs and *D. dilatata* [Hoffm.] A.Gray) and one diploid (*D. expansa* [C.Presl] Fraser-Jenkins et Jermy). Moreover, two hybrids, *D. x deweveri* (Jansen) Jansen et Wachter and *D. x ambroseae* Fraser-Jenkins et Jermy, have been hitherto recorded both from Poland and Slovakia.

This complex was the subject of particular interest in Poland (PIĘKOS and PASAKAS 1973, PIĘKOS 1974, 1975a,b, PIĘKOS-MIRKOWA 1979), whereas the until recently existing data from Slovakia proved to be fairly scarce (SCHIDLAY 1966, SIMON and VIDA 1966, PIĘKOS-MIRKOWA 1988).

The aim of this paper is to present the distribution of the *Dryopteris dilatata* complex in Poland and Slovakia, as well as to show the pattern of vertical distribution of this complex on the N-S transect from the Baltic Sea to the Pannonian Region.

Acknowledgements

I would like to express my gratitude to the curators of the Herbaria for loaning the materials. Thanks are due also to M. Sc. H. Kuciel who made the drawings.

2. MATERIAL AND METHODS

The studies on the distribution of the *Dryopteris dilatata* complex in Slovakia have based on the material collected by the author as well as on the herbarium material kept in the following institutions: BRA, PR, PRC, SAV, SLO (for acronyms see HOLMGREN et al. 1990).

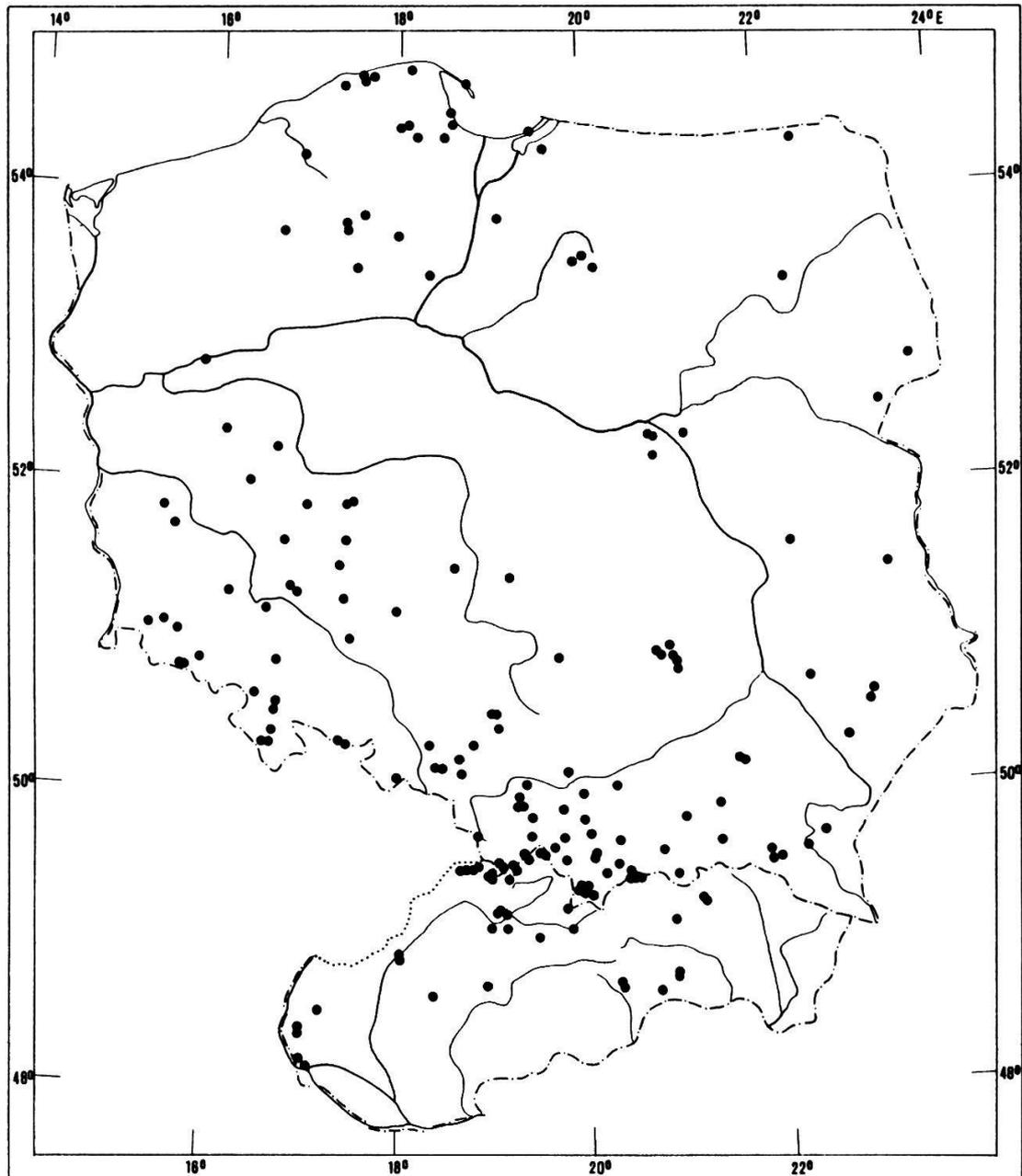


Fig. 1. Distribution of *Dryopteris dilatata* (Hoffm.) A.Gray in Poland and Slovakia.

On the basis of revised herbarium specimens the point maps of distribution for *Dryopteris dilatata* and *D. expansa* were elaborated (Figs. 1 and 2). The data from literature could not be taken into account. The distribution of the *D. dilatata* complex in Poland has been investigated and presented previously (see PIEKOS-MIRKOWA 1979).

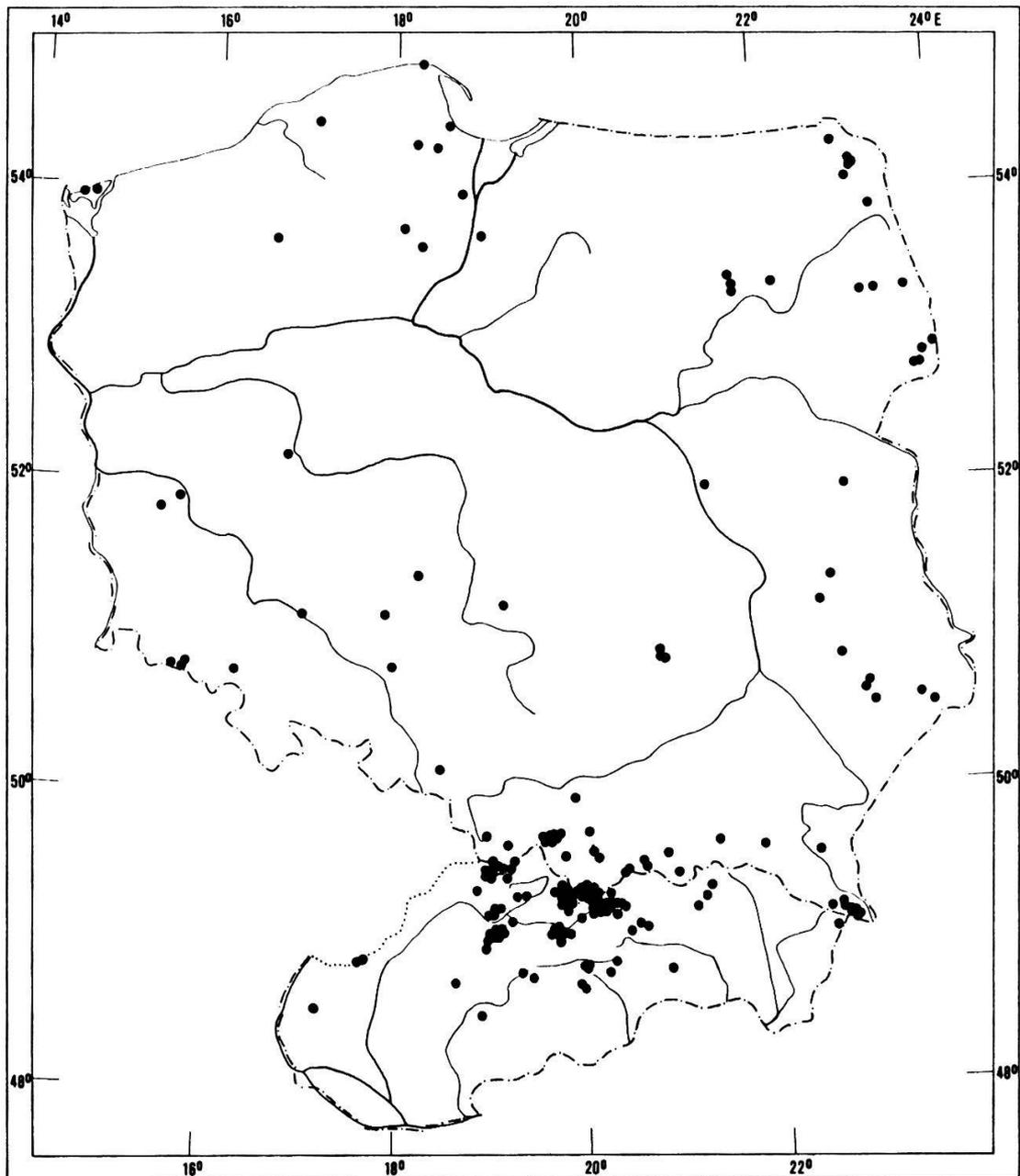


Fig. 2. Distribution of *Dryopteris expansa* (C.Presl) Fraser-Jenkins et Jermy in Poland and in Slovakia.

3. RESULTS AND DISCUSSION

The three species of the *Dryopteris dilatata* complex differ distinctly in their distribution, vertical ranges, as well as in ecological requirements. Among them *D. carthusiana* is the most common species. It is spread throughout the whole Poland and Slovakia occurring both in the lowlands and in the mountains up to the lower montane zone, rarely at a higher altitude reaching up to 1300 m a.s.l. in Poland and a little higher in Slovakia (Fig. 3). It has a wide ecological scale growing on various soils and in numerous forest communities in deciduous, mixed and coniferous woods. It grows also in fen and carr vegetation. It tolerates much wetter habitats than *D. dilatata* and *D. expansa*. *D. dilatata* is encountered rarer than *D. carthusiana*. It occurs in the lowlands in various forest communities and more commonly in the mountains in beech woods and coniferous forests of the lower and upper montane belts, reaching up to an altitude of 1420 m in the Polish Tatra and 1700 m in Slovakia (Figs. 1 and 3). *D. expansa* is considered a mountain species (Fig. 2 and 3). It is one of the most common ferns in the Carpathians. It appears rather sparsely in the lowlands in scattered localities with an aggregation of mountain species and is associated with *Picea abies* occurrence. In the mountains it is one of the most common ferns occurring throughout a wide range of altitudes and habitats. It is especially frequent between 700 m and 1500 m a.s.l. (Fig. 3). It is a component of beech-fir forest in the lower mon-

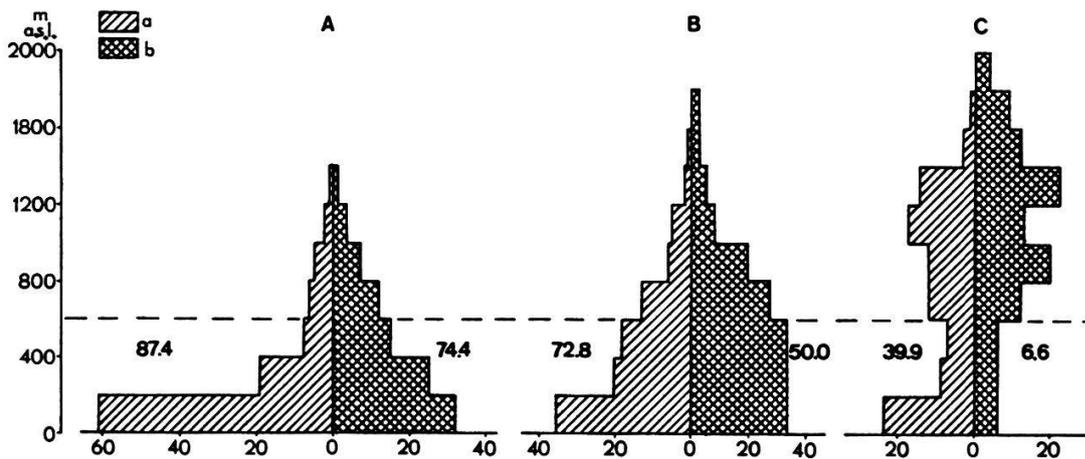


Fig. 3. Vertical distribution of *Dryopteris carthusiana* (A), *D. dilatata* (B), and *D. expansa* (C) in Poland (a) and in Slovakia (b).

Vertical axis = altitude in m a.s.l., horizontal axis = number of localities in percent.

tane belt and of spruce forest in the upper montane belt, as well as of *Pinus mugo* shrubs above the timberline, reaching up to 2098 m a.s.l. in the Tatras. When the species of *Dryopteris* grow together they easily hybridize providing much difficulties for the field separation and identification of taxa. Of the two hybrids which occur in both countries, *D. ambroseae* Fraser-Jenkins et Jermy [= *D. dilatata* (Hoffm.) A. Gray x *D. expansa* (C.Presl) Fraser-Jenkins et Jermy] is a rather common hybrid. It has been found in numerous localities in the lower and upper montane belts in both countries. It can occur in the absence of one parent. Sometimes it forms big groups of numerous plants growing nearby.

D. x deweveri (Jansen) Jansen et Wachter [= *D. carthusiana* (Vill.) H.P. Fuchs x *D. dilatata* (Hoffm.) A.Gray] is scattered throughout the whole area occurring in forest communities in which both parents grow abundantly nearby (PIEKOS-MIRKOWA 1979, SCHIDLAY 1966).

SUMMARY

The *Dryopteris dilatata* complex in Poland and in Slovakia consists of three species: *Dryopteris carthusiana* (Vill.) H.P. Fuchs, *D. dilatata* (Hoffm.) A.Gray and *D. expansa* (C.Presl) Fraser-Jenkins et Jermy, as well as of two hybrids: *D. x deweveri* (Jansen) Jansen et Wachter, and *D. x ambroseae* Fraser-Jenkins et Jermy.

The detailed studies carried out on herbarium material and in the field, revealed for each species a pattern of distribution and vertical range and the ecological requirements of the particular species. On the basis of verified herbarium material point maps of distribution (Figs. 1 and 2) and diagrams of altitudinal ranges (Fig. 3) in Poland and in Slovakia have been elaborated.

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