

## THE LAKE DISTRICTS

The Lake Districts include the whole north — north-western part of Poland within the maximum extent of the Vistulian glaciation, except the coastal regions directly influenced by the Baltic sea. These are areas of young hilly morainic relief with a rich and diverse hydrological system composed of lakes formed in the moraine basins and subglacial channels and a young superimposed pattern of rivers. The surface of lakes makes 2.3% of the whole land area, with a maximum of nearly 20% in the Masurian Great Lakes District. In the early Holocene the area of lakes was bigger by at least 2/3. The landscapes of moraine hills, moraine plains and outwash plains with all the diversity of glacial relief are dominant in this part of Poland, besides the landscapes of rivervalleys with terraces, dunes and floodplains.

The climatic differentiation of the lake district belt results from the marine influences stronger in the western part and decreasing from the north southwards, and boreo-continental influences decreasing from the east westwards. In this connection, the western districts are habitats of many atlantic (s.l.) and subatlantic plants or even plant communities (e.g. *Periclymeno-Quercetum*) that disappear eastwards, and in the eastern districts the contribution of boreal and continental (s.l.) species increase towards north-east. Also, the distribution limits of many plants including important trees run through the areas of lake districts. The most characteristic forest communities of north-western lake districts are Pomeranian beechwoods, forming several different associations depending on substratum. They reach by single stands the western part of Olsztyn district. The mixed deciduous woodlands (*Tilio-Carpinetum*) regain their importance on till soils of eastern Lake Districts. The mixed pine forests, common on light soils contain, besides oaks, also some contribution of *Acer pseudoplatanus* and *Tilia cordata*. On the other hand the typical feature of forests in the eastern part is the high and increasing participation of very expansive spruce. The outwash soils in the whole area is the domain of pine forests, forming various associations.

Very rich and differentiated is the vegetation of lakes and mires. The oligotrophic lakes with *Lobelia Dortmanna* are one of most interesting, relict type of aquatic vegetation, being restricted mostly to the lakes on the ridge of Pomeranian front moraine.

The main subdivision into the palaeoecological type regions follows the climatic and vegetational differentiation mentioned above (Fig. 1). 6 type have been distinguished:

P-q: Lubuskie Lake District — the area of warmest and mildest climate, reached from the west by vineyards cultivation.

P-r: Poznań—Gniezno—Kujawy Lake Districts — drier and slightly more continental climate, most part of region beyond the *Fagus* distribution limit, frequent fertile soils, especially in western part (czernozem), drastically changed by man (lowering of ground water level).

P-s: West Pomeranian Lake Districts include the belt of front-moraines, with eleva-

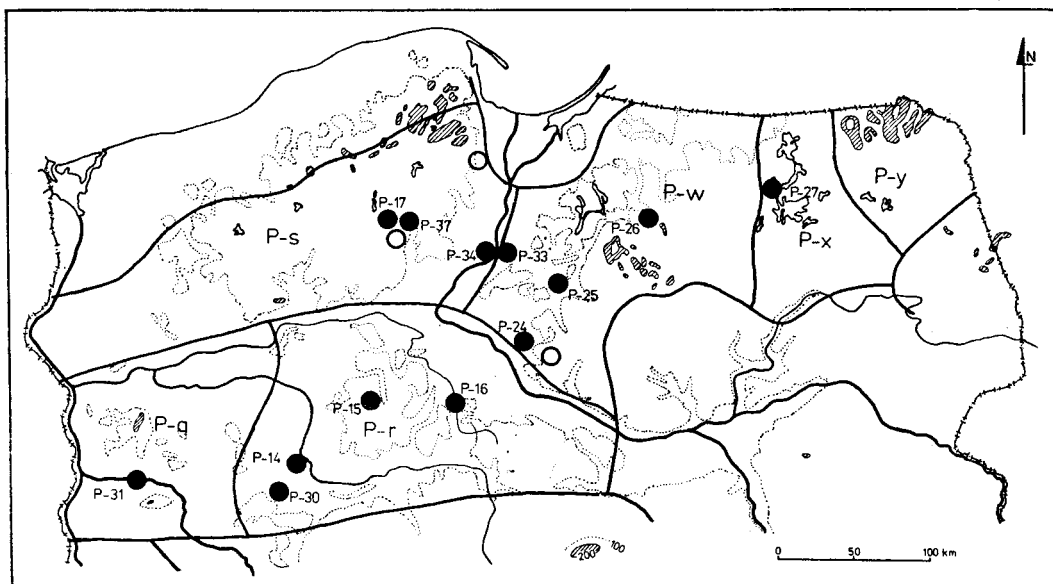


Fig. 1. The subdivision of the Lake Districts into the type regions. Black dots — reference sites, open dots — complementary sites

tions over 300 m a.s.l., the most humid climate, the vegetation with atlantic features, common beechwoods on tills, and very poor pine forests on outwash plains.

P-w: Dobrzyń—Olsztyn Lake Districts — a typical intermediate area with crossing atlantic and boreal influences (*Fagus* distribution limit).

P-x: Masurian Great Lakes District, belonging to the Northern Division in the geobotanical scheme, with distinct boreo-continental influences, numerous stands of arctic and boreal relicts, and expansive spruce.

P-y: Suwałki-Augustów Lake Districts — the most continental part of lake districts, with very deep channel lakes (Lake Hańcza with maximum depth of 108 m is the deepest lake of European Lowlands), and numerous small dystrophic lakes; differentiated conifer forests with abundant spruce, on both — outwash sands and peat soils; very rich mires and lake vegetation; one of the best forested areas of Poland with the natural vegetation still preserved. Unfortunately, the most contrasting marginal regions of lake districts P-q and P-y have no reference sites studied within IGCP Project 158.

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