Clearing communities in the Wielkopolska region (mid-western Poland) and a study of forest regeneration*

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Abstract

In the course of many years of investigations on the vegetation of deforested sites, 53 communities occurring in Wielkopolska (Great Poland) have been identified. They mostly consist of species which were found in the previously existing forest phytocenoses. Some clearing communities predominate in specific habitats.

Investigations have also been carried out on secondary succession from permanent study sites and previously cultivated areas in the habitats of Salici-Populetum, Galio sylvatici-Carpinetum and Leucobryo-Pinetum. The study results are presented in the form of tables and diagrams.

Introduction

Great Poland belongs to the regions of Poland which are characterized by a well-studied vegetation cover. Among the more comprehensive floristic works particularly the compilation of vascular plants occurring in Great Poland is particularly noteworthy (Szulczewski 1951), as well as works dealing with smaller territorial ranges (Żukowski 1961; Denisiuk 1964; Brzeg & Kordus-Dembowska 1987).

The characteristics of the forest communities of this region and a survey of the basic literature was presented by Wojterski T. et al. (1981). More recent surveys of the forests of selected reservations in Wielkopolska have been made by Brzeg (1988) and in the monograph of plant communities of the ravined valley of the Warta near Poznań.

Compared to the number of works referring to the focal floras or surveys of plant communities, there is a striking lack of publications dealing with vegetation succession on the permanent research sites, in spite of the fact that such studies have continued for many years (e.g. Balcerkiewicz et al. 1976–1982). There are also no published results concerning studies in Great Poland. Other studies aiming at the secondary succession of vegetation on previously cultivated areas and forest clearings were also carried out in different regions of Poland, e.g. by Markowski (1971, 1974, 1982), Ciosek (1975) and Faliński (1986). Similar investigation of vegetation succession have been carried out in other places, e.g. by Christensen and Peet (1984) on the North Carolina piedmont,

Wielkopolska, being a predominanting lowland agricultural landscape, is comparable with analogous areas in Middle Europa. The extensive character of phytosociological work in this study is extended with investigation on vegetation succession on experimental permanent plots.

In this paper, we present the results of our studies on clearing communities in different types of habitats all over Wielkopolska, including the rate of secondary succession on fertile and poor habitats. The investigation shows a general pattern of forest development.

The results of our study on forest and clear-cut vegetation in post cultivated areas can be used for forest management.

**General characteristics of the study area**

The natural borders of Wielkopolska consist of the valleys of the Oder and Obra rivers to the west, and the valleys of the middle Warta and the upper Noteć rivers to the east; the Toruń-Eberswald ice marginal valley lies to the north and the Kocie Mountains to the south (Fig. 1).

Pleistocene waters and the accumulated effects of glaciation have had the greatest influence on the varied relief of this land. Characteristic for this region is the latitudinal arrangement of ice-marginal valleys, terminal moraine hills and outwash plains formed during the last glaciation period. Only the southern part, where the Baltic glaciation did not reach, has older formations from the Mid-Polish glaciation period (Kondracki 1978). Wielkopolska has a distinct by lowland character. The mean elevation above sea level varies between 80 and 100 m (Bartkowski 1970) and to 50 m in the lower parts. Only 0.33% of the area lies above 200 m a.s.l.

The climate of Wielkopolska is typically variable, being the result of the interaction of oceanic and continental influences depending on the direction from which the air masses arrive. The mean annual temperature oscillates between 7.1 and 8.5 °C (Wiszniewski et al. 1949).

Another climatic feature is the comparatively