Introduction

The areas with the lowest resistance to pressure on the environment are hydrogenic landscapes. They are defined as valleys and depressions with organic soil formations covering in that came into being as a result of flooding waters proceeding or high level of ground water and mineral soil formations brought by waters and deposited as a result of chemical or mechanical processes. In their evolution they can function in phase of accumulation while the formations that build them up are continued, in phase of balance or in phase of diminution while the declining of formations mentioned above is still continued (Okruszko, 1992; Stepaniuk, 1998).

Human economic activity causes continuous decrease in hydrogenic areas in which accumulation process is active. The worst situation concerns hydrogenic areas built from organic formations that are peatbogs and gyttja.

The lowering of ground water level and elimination of flooding the most of peatbogs as a result of various effects, the restraint of bog process that is changing from accumulation phase into diminution.

In this paper presents the results of analysis of alterations in the great peatbog area as Gródek-Michałowo Basin in aspect of transformation of selected components of landscape is discussed.

Study area

Gródek-Michałowo Basin is located in south-eastern section of the Białystok Upland. For the sake of its distinction, it can be successfully created as microregion. This is a big thaw depression from Middle Polish Glaciation period. Genetically it exemplifies a huge melt-out hollow from Middle Polish Glacial within peatbogs thick complex developed. With the area of almost 60 km² it is one of the bigger Polish peatbogs. It is the remnant of the lake complex and the layers of gyttja, silts and marls are the evidences for that. Through the evolution changes of hydrologic regime, three types of peatbogs were developed. The largest area is occupied by low peatbogs arisen as a result of supply with Supraśl river waters and tributaries. High and transitory paetbogs,
mainly located in central and southern part of the basin, occupy only a few per cent of the area. Characteristic elements among the latest mentioned are two medium-sized oligotrophic lakes with characteristic vegetations.

![Fig. 1. Location of the Gródek - Michałowo Basin](image)

**Material and methods**

Material used to transformation analysis came from two sources:
- archival cartography materials and documentary studies carried out between 1930 and 1999;
- comprehensive field work conducted between 1996 and 1999.

In order to see the changes that have taken place in hydrogenic landscapes of the basin, special attention was paid to three issues:
- quantity and quality alternations of water conditions;
- degree of degradations of soil and formations building the basin;
- character and directions of transformation of natural vegetation and land use.

**Results investigations**

All carried out let capture some essential relationships:
- between intensity and character of land use of peatbogs and technical development and extent of land improvement of hydrogenic areas;
- between manner of land use of peatbogs and their genetic type;
Photo 1, 2. Typical basins landscape
• between intensity and manner of drainages of peatbogs and ground water level on the upland;
• between changes of water conditions and degree of peat soil degradation;
• between changes of water conditions and direction of succession of vegetation communities.

This paper gives only fragmentary results gained during the researches. The main attention was paid to show the cartography changes of such elements as: hydrogenic soils, real vegetation, land use, hydrographic and road network.

References


Fig. 2. Hydrological network in 1930
Fig. 3. Hydrological network in 1982

Fig. 4. Types, subtypes and genesis of hydrogenic soils
Fig. 5. Types of peatbogs.
Fig. 6a. Changes of land use in 1930-1957 (description on page 296.)
Fig. 6b. Changes of land use in 1982-1990 (description on page 296.)
List of signs on Fig. 6a, b.