

Preface

Wetlands play important functions in the environment and therefore for many years they have focused attention of researchers of various disciplines, as well as the public and politicians. Wetlands are specific transitional habitats between the deep-aqueous and terrestrial ones. There are numerous definitions of wetlands (MITSCH, GOSSELINK 2000). In Poland, a definition introduced by Okruszko (1983) was adopted: "In terms of ecology and soil science a wetland is defined as a water-saturated area which determines the presence of hydrophilic vegetation and accumulation of organic soil formations. Wetlands are characterized by a positive balance of organic matter". In the framework of the international Ramsar Convention a very broad definition of wetlands was presented: "Wetlands are all aquatic and semi-aquatic ecosystems. The boundary separating coastal marshes from the open sea is a depth of 6 meters of water at low-tide". In the United States a precise definition of wetlands occurs: "A wetland is an area where the excess of water is the dominant factor determining the direction of soil-forming process and the type of plant and animal communities on its surface. It includes the transition (continuum) between the land system (terrestrial) and deep-aqueous (COWARDIN et al. 1979).

Wetlands are transitional areas between terrestrial ecosystems and typical aquatic ones. They are the intermediate phase between the surface and underground water retention, called transient retention. Consequently, they are the natural retention reservoirs affecting water relations of surrounding areas. The functional importance of wetlands, belonging to a group other than lakes, necessitates their careful consideration as an important link in water circulation.

By examining lake and peat sediments, stages of paleohydrological changes, natural history and economic changes within past human societies can be determined. Strong emphasis is put on the landscape-forming importance of wetlands and the role they play in the natural environment (ŁACHACZ 2004; GOTKIEWICZ et al., 2002).

The monograph comprises the papers on wetlands in existence in Poland. Polish wetlands are typical for the temperate zone of the Northern hemisphere. However, they are unique. The wetlands in Poland cover an area of 4 347 400 ha, which constitutes 14% of the geographical area of the country. The peatlands of an area greater than 1 hectare occupy 1 211 000 ha, which represents approximately 28% of all wetlands and about 4% of the area of Poland (DEMBEK et al. 2000). Generally, wetlands can be divided into peat and non-peat ones. In the Northern hemisphere, including Poland, peatlands are the most important type of wetlands and have focused the attention of researchers for years. In addition to peatlands, the wetlands include habitats which are water-saturated to an extent which determines the nature of biogeochemical processes. However, the accumulation of partly decomposed plant matter (peat) does not occur and therefore they are classified as non-peat wetlands. This is a very large and diversified group of habitats in which water-saturation state depends on the relief (geomorphology) (OKRUSZKO et al. 2001). This group includes small water bodies which, due to their small area (less than 1 ha) and depth, are not designed as lakes. Numerous wetlands occupy river valleys. These are mainly fens, oxbow lakes and mudlands, i.e. areas in which mud is accumulated – a specific organic soil formation consisting of amorphous humus mixed with fine mineral fraction. It accumulates as a result of sedimentary river activity with a relatively natural water regime (long-term flooding). In Poland valley fens have been largely drained and used as grasslands. This initiated humification and decomposition of organic matter termed a muck-forming process (OKRUSZKO, ILNICKI 2003).

In Polish climatic conditions, where rainfall is only slightly greater than evapotranspiration, wetlands occur in the depressions where water from surrounding areas accumulates. It is flowing water (reophilous wetland), usually oxygenated and therefore the accumulation of peat does not occur, or a thin layer of this formation, of thickness of not more than 30-40 cm, occurs. This excludes them from the peatlands.

In northern Poland, specific wetlands formed on drained lake bottoms occur. Their origin is related to artificial drainage of lakes, usually by pumping stations. Post lacustrine wetlands with gyttja deposits on the surface, which we define as gyttja lands, were formed as a result of these intense changes in water-saturation level. Gyttja lands are a phenomenon of nature and are important habitats of flora and fauna.

Another group are wetlands fed with discharged deep waters (soligenous wetlands). They are spring mires occupying usually small areas. They occur in the mountains, uplands and on plains.

On the basis of water in-flow, the wetlands can be divided into fluviogenous, topogenous and soligenous. A separate group are the wetlands fed with rainfall waters and are termed ombrogenous wetlands (OKRUSZKO 1983).

The monograph comprises the papers on the following topics:

- Fluviogenous wetlands occurring in river valleys (chapter I, II, III)

- Topogenous wetland – post-lacustrine and lake-side wetlands as well as small water bodies (chapter IV, V)
- Soligenous wetlands fed with spring waters (chapter VI, VII)
- Ombrogenous wetlands and forested peatlands (chapter VIII, IX, X)
- Wetlands in the agricultural landscape (chapter XI).

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