2.5. SOILS IN THE VICINITY OF THE NA JAZACH LAKES

Bogumił Wicik

The surroundings of Na Jazach lakes are at present completely afforested. Up to the middle of the XX century, ground under cultivation covered a narrow strip of land 100–200 m wide, at the southern side of lakes Mielec and Gościąż, the flat area between lakes Mielec, Tobyłka, Brzózka, and Wierzchoń, and small patches by the Ruda riverhead.

On the glacifluvial terraces varigrained sands with gravels and small boulders are the soil substratum, and finegrained sands on dunes. Both types of sediments contain only 2–4% of particles smaller than 0.02 mm. Dune sands are devoid of $CaCO_3$. Carbonates as well as limestone and dolomite fragments are present in glacifluvial sands, usually beneath the groundwater table only from the depth of 2.5–4 m.

The majority of the area around lakes is covered by soils not influenced by the groundwater, well aerated, with hydrologic regime characterized by leaching. Morphological and chemical features indicate that these soils are of cambic arenosol type (podzolic order).

In general, the sequence of morphological horizons and their features are as follows:

0–4 cm. O – ectohumus mor/moder with Ofh horizon well developed, separated clearly from mineral substratum, overgrown with roots, light brown in colour, very acidic in reaction (pH KCl 3.0–3.2). Under a pine forest this horizon is 6–7 cm thick, and 100–200 yr old.

4–15 cm. AEes – ash-grey in colour, loose sand, single-grain structure, small amounts of roots, pH KCl from 3.3 to 4.2. Distinct transition to lower horizon. The horizons 0–15 cm contain 0.10–0.15% of Fe_2O_3 and 0.4–0.75% of Al_2O_3, soluble in boiling 10% HCl. Organic carbon content is 0.6–1.3%, 30–50% of it is connected with iron and aluminium. Humus (carbon) is soluble in 0.1M sodium pyrophosphate (Aleksandrowa 1960).

15–40 cm. B_{FeBr} – rust-coloured with fine grey-brown spots, loose sand with scarce usually branched roots. Gradual passing to the underlying horizon. It contains 0.20–0.26% of Fe_2O_3 and 0.1–0.6% of Al_2O_3 soluble in boiling 10% HCl. During the summer season strong drying reaches a depth of 40–45 cm.

40–75 cm. $B_{FeBr/c}$ – dark-beige in colour, loose sand with single roots, pH KCl 4.5–4.9. Indistinct lower limit.

From the depth of 75–90 cm the bedrock of loose sands are to be found with traces of the ancient layering preserved. They contain 0.14–0.17% of Fe_2O_3 and 0.2–0.5% of Al_2O_3 soluble in boiling 10% HCl. At the depth of 100–150 cm pH KCl reaches 4.8–5.2.

Locally, on sandy gravels or sands with boulders (residuum of glacial deposits), which occur in small patches, vertic cambisols are to be found.

In a group of hydrogenic soils, eutric histosols dominate. On the lakes borders, in the Ruda stream valley, and in bottoms of numerous depressions originated due to the ice melting and situated to the east of Lake Gościąż, eutric histosols of lowmoors occur. They are mostly overgrown by alderwoods. The upper parts of peat profiles to a depth of 1.5–2.0 m are usually strongly decomposed. They are neutral in reaction. The majority of eutric histosols contains 12–20% of ignition residue and 2–8% of $CaCO_3$.

2.6. VEGETATION OF THE GOSTYNIŃSKIE LAKE DISTRICT

Klemens Kępczyński† & Andrzej Noryśkiewicz

According to the geobotanical classification (Szafer 1972), the Płock Basin (Kondracki 1978) belongs to the Kujawy District of the region of Wielkopolska-Kujawy of the Great Valleys Belt of the Baltic Division.

The plant cover of the Płock Basin ranges from very dry to submerged habitats and lakes (Fig. 2.14).

The area is beyond the natural range of *Abies alba*, *Sorbus torminalis*, *Taxus baccata*, and *Tilia platyphyllos* and is within the so-called "Middle-Polish gap" of *Picea abies* distribution (Szafer 1972). Those species do not grow spontaneously in forests of the Płock Basin, while *Fagus sylvatica* and *Acer pseudoplatanus* are assumed to be beyond their closed range but are found in woods with varying frequency. Beech occurs only sporadically, whereas *Acer pseudoplatanus* is a natural constituent of all forest layers in riverside carrs and less frequently in mixed deciduous forests.

The most common forest component is *Pinus sylvestris*, growing both in pine and mixed forests and in deciduous forests, where it has been introduced. A frequent species in pine communities is *Betula pendula*, and somewhat less frequent is *Quercus robur*. *Q. petraea*, on the other hand, occurs more frequently in *Potentillo albae-Quercetum* (Załuski & Cyzman 1994).

The tree layer in deciduous forests, depending on the type of soil, is composed of *Tilia cordata, Quercus robur, Q. petraea, Carpinus betulus,* and *Acer platanoides*, and the understory consists mostly of *Corylus avellana, Euonymus verrucosus*, and *E. europaeus*. In riverside carrs the components of the tree layer are *Fraxinus excelsior, Ulmus minor, U. glabra, U. laevis, Acer pseudoplatanus, Populus alba, P. nigra, Salix alba, S. fragilis,* and *Alnus glutinosa*, and the shrub layer has *Sambucus nigra, Viburnum opulus,* and *Prunus padus*. In wet alderwoods *Alnus glutinosa* is dominant and the shrub layer is composed of *Salix cinerea, S. aurita*, and *S. pentandra.* Some shrub species such as *Frangula alnus* have a wide ecological scale and can be found both in pine forests and in various forms of wet deciduous forests.