Abstract: The study of groundwaters was carried out in two different forest ecosystems of Słowiński National Park: Vaccinio uliginosi-Betuletum pubescentis and Empetro nigri-Pinetum in the period of 2002–2005. Differences were found in the position of the groundwater table and in the concentrations of nitrogen and phosphorus compounds in the investigated forest associations. In the Vaccinio uliginosi-Betuletum pubescentis association the groundwater table was found on average at a depth of -73.3 cm, while in Empetro nigri-Pinetum at -90.2 cm. No statistically significant effect of precipitation on the position of the groundwater table was found in this study. Statistical calculations (U Mann-Whitney test) for groundwaters in the analyzed forest associations showed statistically significant differences in the dynamics of concentrations of total nitrogen (T-N), organic nitrogen (Norg.), nitrate nitrogen (N-NO₃), total phosphorus (T-P), organic phosphorus (Porg.) and the level of groundwaters.