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Pathways of Nutrient Loading and Impacts of Spatio-Temporal Variation of Plant Populations in Mizoro-Ga-Ike, a Pond with Floating-Mat Bog

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Nutrient loading is serious threat to the preservation of biodiversity of wetlands such as peatlands. Mizoro-ga-ike pond in Kyoto city is one of the natural monuments of Japan bearing temperate floating mat and diverse plant communities. The pond had experienced eutrophication by sewage and tap-water drainage in 1960-70s. Although the inflows of nutrient rich water had been lessened after 1980s, the water source area of the pond catchment decreased to 30 % because of road and drainage construction. In this paper, pathways of nutrient load and impacts on plant diversity in Mizoro-ga-ike pond at present conditions were investigated based on field surveys and measurement of water qualities at sites in the pond and at two inflow sites. The pond has two mouths of inflows. One of them involves leaked water from a water purification plant of the city. The other is a surface flow from the catchment forest collected by a ditch. Results of nutrient analyses showed that the tap water contributes high loadings of nitrogen compounds, potassium, chlorate, calcium and sulfate, and suggested that reed and wild rice in the open water area of the pond modified the high loadings of nutrients except for chlorate. In the presentation we demonstrates the important role of spatio-temporal variations in the plant communities for regulating and maintaining heterogeneity in water chemistry.