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**Artikel:** Zum Standort von Magnocaricion-Gesellschaften in der Schweiz (Caricetum elatae, Caricetum paniculatae, Caricetum ripariae, Caricetum vesicariae) = Site conditions of Magnocaricion associations in Switzerland (Caricetum elatae, Caricetum paniculatae, Caricetum ripariae, Caricetum vesicariae)

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der Fall ist. Aus diesem Grund wird empfohlen, diese Grosseggenbestände zu einem *Magnocaricetum* zusammenzufassen. Falls trotzdem eine Unterteilung vorgenommen werden soll, so ist diese nach der dominierenden *Carex*-Art vorzunehmen.

## SUMMARY

In the present study particular interest is focused on the site conditions of *Magnocaricion* associations which are dominated by *Carex elata*, *Carex paradoxa*, *Carex paniculata* and *Carex riparia*. The associations are: *Caricetum elatae typicum*; *Caricetum elatae comaretosum*, typical variant; *Caricetum elatae comaretosum*, *Carex paradoxa*-variant; *Caricetum paniculatae*; *Caricetum ripariae*; *Caricetum vesicariae*.

Most of the study sites are situated in Kanton Zürich. Further sites are at the border of the lake of the Reuss (Kanton Aargau), at the southern border of the lake of Neuenburg, and in the Jura.

The phytosociological relevés of the study sites were grouped, first, according to the characteristic and differential species and second, by multivariate analysis.

During the vegetation periods from 1986 to 1988 the ground-water table was monthly measured and water samples were chemically analysed (pH, electrical conductivity, ortho-PO<sub>4</sub>, P-tot, NO<sub>3</sub>, NH<sub>4</sub>, Na, K, Ca, Mg). Soil samples were taken in autumn and chemical analyses were carried out for C<sub>org</sub>, pH, ortho-PO<sub>4</sub>, P-tot, NO<sub>3</sub>, NH<sub>4</sub>, Na, K, Ca, Mg. Furthermore, the above- and belowground tissue nutrient concentrations (N-tot, P-tot, C<sub>org</sub>, K, Na, Ca, Mg, Mn, Fe, Cu) of the *Carex* species and their biomass were investigated. The exponential mean temperatures were measured.

A principal component analysis was carried out using the data of the site conditions. Their relation to the vegetation groups was investigated by discriminant and variant analyses.

The study sites show differences in the electrical conductivity and the phosphorus concentrations of the water, the total nitrogen and the organic carbon concentrations and the V-value of the soil. (All studied soils belong to the "Anmoor"-soils.) These differences do not clearly correlate to the vegetation groups.

The vegetation groups formed by multivariate analyses are better differentiated than the vegetation groups formed by characteristic species. In both cases the S-value of the soil is one of the most discriminant factors. Moreover the Mg-concentrations of the soil and the electrical conductivity of the water also play a differential role.

However, the occurrence of these *Magnocaricion* associations at a certain site is not explained by these factors. The uptake of nitrogen and phosphorus by the plants seems to be more important. This is influenced by the periodically high water levels and floodings. The uptake of phosphorus depends on the solubility in the soil, which is related to the water regime. The nitrogen uptake depends on the ability of the plants to use ammonium instead of nitrate. If the plants use only nitrate, the water flow is important. The nitrogen and phosphorus uptake cannot be demonstrated by the water and soil data, but can be seen by the nitrogen and phosphorus concentrations of the plants. *Carex paniculata* has higher average nitrogen and phosphorus concentrations and *Carex riparia* higher average phosphorus concentrations than *Carex elata* and *Carex paradoxa*. For these four *Carex* species the uptake of nitrogen and phosphorus in relation to the water regime is discussed.

The present study demonstrates that the nutrient concentrations of the *Carex* species as well as the site conditions of the studied associations do not differ significantly. Therefore it is proposed to categorise these six associations as one - *Magnocaricetum* - with the possible further sub-division of the dominating *Carex* species.