Phytophysiognomy differentiation as related to soil in the Pantanal, Brazil

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The "Nhecolandia" subregion in the southern Pantanal, Mato Grosso do Sul state, Brazil, is a mosaic of vegetation communities of diversified aspects, comprising water and flooded grassland (campos limpos), savanna - like vegetation (cerrado), savanna forest (cerradao) and semideciduous forest formations, interpersed with a complex system of small lakes, "baias" or "salinas" (brackish to salty water ponds). In this habitat, derived from sandy Quaternary sediments of the river Taquari alluvial fan, in the Nhumirim farm (4,100 ha), Embrapa , soil profiles were sampled and analysed for nutrients (Ca, Mg, K, Na, P), organic carbon and particle size; the plants were identified along transects of distinctive communities. Two major factors influence the vegetation: the soil water table, related to the small topographic relief (< 4 meters), and the nutrient contents. To the water flooding regime is related the ocurrence of two plant physionomies: the herbaceous and the arboreous. The herbaceous is seasonally flooded grassland and the arboreous is the in the higher lying strips of not flooded lands (called "cordilheiras" by the local people). Along of topographic transect from low to higher grounds there is an increase in vegetation densification and heights. The vegetation goes in sequence: grassland - grassland with shrubs and trees (campo sujo and campo cerrado) - savanna like vegetation (cerrado) - savanna forest (cerradao) - forest. There is also a trend of a nutrient increase in this direction. This characteristic influences the floristic composition to a great extent, especially the dynamic of species ocupation and settlement. Some of the species may be of great significance as environmental indicators. In the arboreous vegetation the *Scheelea phalerata* (acuri-palm) is the principal indicator of soil nutrients, since it is strongly dominant in the semideciduous forest and it is almost absent in the cerrado and cerradao, which have very low (<1 $cmol_c\ kg^{-1}$) exchangeable cations. It is very common to see many seedlings of acuri-palm in the cerradao but not the adult plant. In the major part of the grassland area the soil is also very poor. In this occurs *Axonopus purpusii* (mimoso-grass), *Andropogon bicornis* (rabo-de-burro-grass), *Andropogon hypogynus* (rabo-de-lobo-grass) and others, and the *Elyonurus muticus* (carona-grass) where the water cover is less pronounced. In the habitats somewhat protected against the direct water flux (salinas and other flooded areas with higher vegetation in the borders), richer in nutrients, of *Vernonia scabra* (assa-peixe) and clusters of *Copernicia alba* (caranda-palm) are common. This palm is well known as an indicator of sodium rich soils.

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