



Tropentag, September 17-19, 2014, Prague, Czech Republic

“Bridging the gap between increasing knowledge and decreasing resources”

## Substrate Specification of Different Hydrogeomorphic Peatland Types in KwaZulu-Natal (ZA) with Focus on Cultivation and Restoration

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### Abstract

More than two third of the South African peatland resources are found on the Maputaland Coastal Plain in the province KwaZulu-Natal. Overall, there are about 22.500 ha of peatlands, varying from the size of less than 1 ha up to 8.800 ha. With their ecosystem functions they render precious services to local communities, especially the provision of freshwater, fertile ground and natural building material. However, peatlands in this region are menaced by a broad range of threats, mostly due to human activities, like inappropriate cultivation practices and the spread of eucalyptus plantations. As a consequence, the soils of the peatlands face degradation and the loss of their ecological functions.

As part of the AllWet-RES project (Alliance for Wetlands – Research and Restoration), the Humboldt-University Berlin covers the soil related research-objectives to find out more about the response of degraded peatland soils to possible rewetting measures and to develop recommendations on more sustainable cultivation practices.

According to their hydrogeomorphic setting, peatlands develop different characteristics. So far we selected three hydrogeomorphic peatland types (HGMT), namely “interdune depression”, “unchanneled valley-bottom” and “channeled valley-bottom”. Further, a distinction between nature-near and degraded sites was made as well. All together six sites were investigated. Each site was examined along 1–3 transects. In total 128 soil-profiles were cored. In doing so, a first characterisation of the substrates, their degree of decomposition, their stratigraphy and the soil structure were made. Further, typical soil profiles for each site were sampled to determine physical and chemical properties, such as bulk density, saturated hydraulic conductivity, water retention characteristics, hydrophobicity and C, N contents, in the laboratory. Especially the knowledge of the physical soil properties, which yield information on the water movement in the soil, is crucial for the development of recommendations on more sustainable land use and appropriate restoration measures. By the end of the project in 2015 the results should provide the pedological basis for the designing of restoration principles and wise use concepts for peatlands in Maputaland.

We would like to present and discuss intermediate results of our research.

**Keywords:** Peatlands, soil properties, South Africa