



## **Carbon balance of rewetted peatland forests in low mountain range areas, Germany**

Jan Paul Krüger (1), Markus Dotterweich (1), Christoph Kopf (2), Gebhard Schüller (2), and Jörg Scherzer (1)

(1) UDATA GmbH - Environment & Education, Neustadt an der Weinstraße, Germany, (2) Research Institute for Forest Ecology and Forestry Rheinland-Pfalz, Trippstadt, Germany

Peatland soils store a great proportion of the global soil carbon pool and are an important component of the global carbon cycle. Drainage of peatlands, for agricultural or forestry usage, leads to a loss of carbon from the soil to the atmosphere and the former carbon sink becomes a carbon source. Peatland rewetting has become a well applicable management tool to reduce the greenhouse gas emissions from peatland soils. However, the impact of rewetting on the carbon balance of drained peatland forest in low mountain range is rare. The aim of this project is to quantify the carbon balance of rewetted peatlands in the Hunsrück-Hochwald National Park. Worth protecting peatland's with forest called "Brücher" are characteristic of nature in the Hunsrück. Since the 19th century these peatlands have been drained by ditches for spruce forests. The survey of surface area of the peatlands is the first important part of the project. Furthermore, a peatland land register for the national park and adjacent areas will be developed. Based on peatland area and carbon stocks the carbon pools of different degradation stages of these peatland can be investigated. Furthermore, terrestrial laser scan data and geoelectrical measurements will be applied for estimating the carbon pool of the vegetation and the soil. This approach enables us to quantify the whole ecosystem carbon pool. A space-for-time substitution allows for a first estimation of the carbon balance of the rewetted peatlands in the Hunsrück-Hochwald National Park. The main aim of a comprehensive carbon balancing will be achieved based upon the peatland characteristics and upscaling of carbon stocks from peatlands with different restoration/degradation scenarios. Moreover, the obtained data will be used for a long-term carbon balance monitoring of the rewetted peatlands in this region.