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(Negative) Impacts of Intensive Agriculture in the Neighborhood of the National Park Lower Oder Valley

Jana Chmieleski (1) and Frank Herrmann (2)

(1) Eberswalde University for Sustainable Development, Eberswalde, Landscape conservation, Eberswalde, Germany (jchmieleski@hnee.de), (2) Beuth Hochschule für Technik Berlin, University of Applied Science, Berlin

National Parks are areas of special interest with regard to biodiversity, development of wilderness but also water quality as well as socio-economic functions as education and recreation. Agricultural use is restricted to small parts of the area. But which problems arise from intensive agriculture directly outside of the National Park area? Referred to as water pollution and nutrient leaching trough groundwater pathways, shifting of nutrients via soil erosion there are a lot of problems arising and are increasing due to intensification of land use, for instance for bioenergy crops (maize). How this can be quali- and quantified?

The German National Park Lower Oder Valley protects the floodplain and the riparian zone of the river Oder as well as old deciduous forest on the mineral plateau. The shape is elongated and narrow. The edge with non-protected is large. In the Northern part are industrial areas. Large areas more and more are used for bioenergy crops. This results in high nitrate and phosphorous concentrations in soil and interflow/groundwater. Often this water is gathered in drainage canals which end up in natural small waterways. Outside the National Park the waterways often are drains but inside the Park area they are (semi-)natural. These waterways are of high interest with redarding to nature conservation aspects – since they are in (very) good structural conditions (Water Frame Work evaluation). How to deal with this discrepancy? In order to quali- and quantify nutrient concentration and transport as well as to detect the change of vegetation and habitats in the whole National Park we set up an environmental observatory by installing transect measurements as well as point measurements.