

Landesbetrieb Wald und Holz Nordrhein-Westfalen





Biodiversity and carbon sequestration in forests along a management intensity gradient

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Study areas

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Background and project aims

Forests are considered to be of great importance both in terms of their **carbon sequestration capacity** and **biodiversity**. However, the concrete **management effects** of these factors are still insufficiently understood.

For each forest stand, a **Forest Management Index** (ForMI, according to Kahl and Bauhus, 2014) is calculated and the effects on carbon storage capacity and biodiversity are related to it.

"Nature Forest Cells" and "Wilderness Developement Areas" serve as a natural reference for forests with the least possible influence of forestry.

The aim is to demonstrate pathways of forestry use that strengthen carbon sequestration and biodiversity at the same time.

Kahl and Bauhus (2014): An index of forest management intensity based on assessment of harvested tree volume, tree species composition and dead wood origin, Nature Conservation, 7: 15-27

In a total of **four project areas**, representing the four most commen forest types in North Rhine-Westphalia, **50 plots each** were established, spanning the **greatest possible management gradient**.













Cross window trap



Soil sampling in the Egge foothills





Carbon stocks in deadwood divided according to fractions and plot category. A Kernmünsterland, B Egge Vorberge

Atrichum undulatum © A. Jagel



Humus mapping © Klose

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40

100 m²

per

richness

Species

20





Species richness of understory vegetation at skid trails and control plots, Egge Vorberge and Arnsberger Wald © T. Schlager

Forestry faces the major challenge of managing stable forest systems under changing climatic conditions. Their stability depends essentially on maintaining the biodiversity of the systems. To which extent this can also be accompanied by an increase in carbon sequestration in the soils needs to be further investigated.

