

Dietmar Kraft

Modelling and evaluating climate-change-caused changes of land use in North-West-Germany

Project KRIM

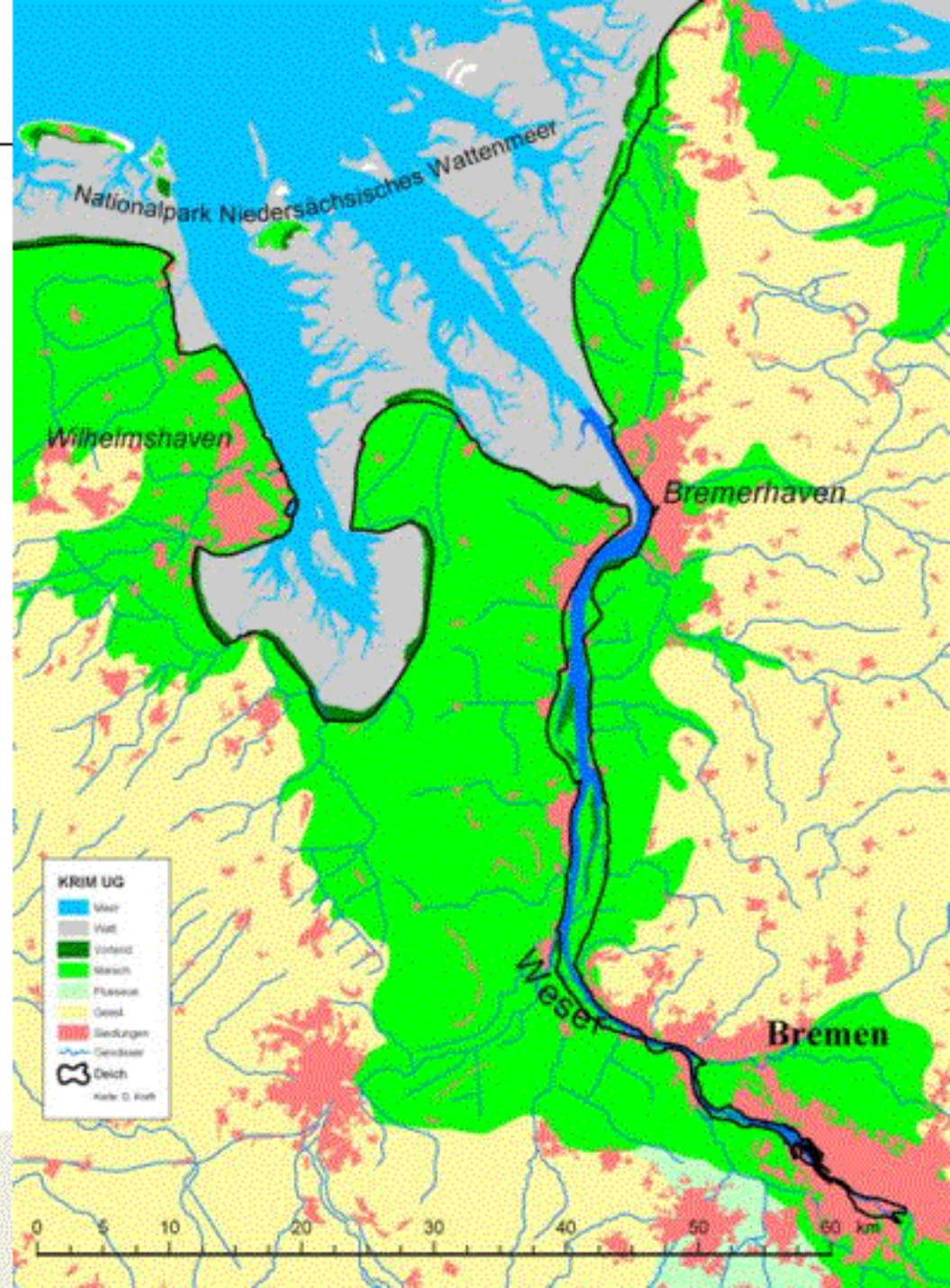
Climate Change and Preventive Risk and Coastal Protection Management

- Risk of sea level rise, storm surges and dike failure
 - Ecological impacts of climate change and their consequences
 - Needs and capabilities of targeted active or passive management
 - Assessment of the conflict potential
- ↳ Modelling land use changes

Investigation area

Marshes of the Weser estuary

- Plain topography
- High groundwater-level
- Tight System of ditches
- Grassland
- Dikes and protection systems
- Coastal zone: interaction sea and land



Soil-scientific land use model BONU

Methodology

- Rule-based
- Static, driven by scenarios
- Spatial explicit
- Modular

Examination level

- Type of Biotopes
- Soil characteristics
- Economic characteristics
- Elevation

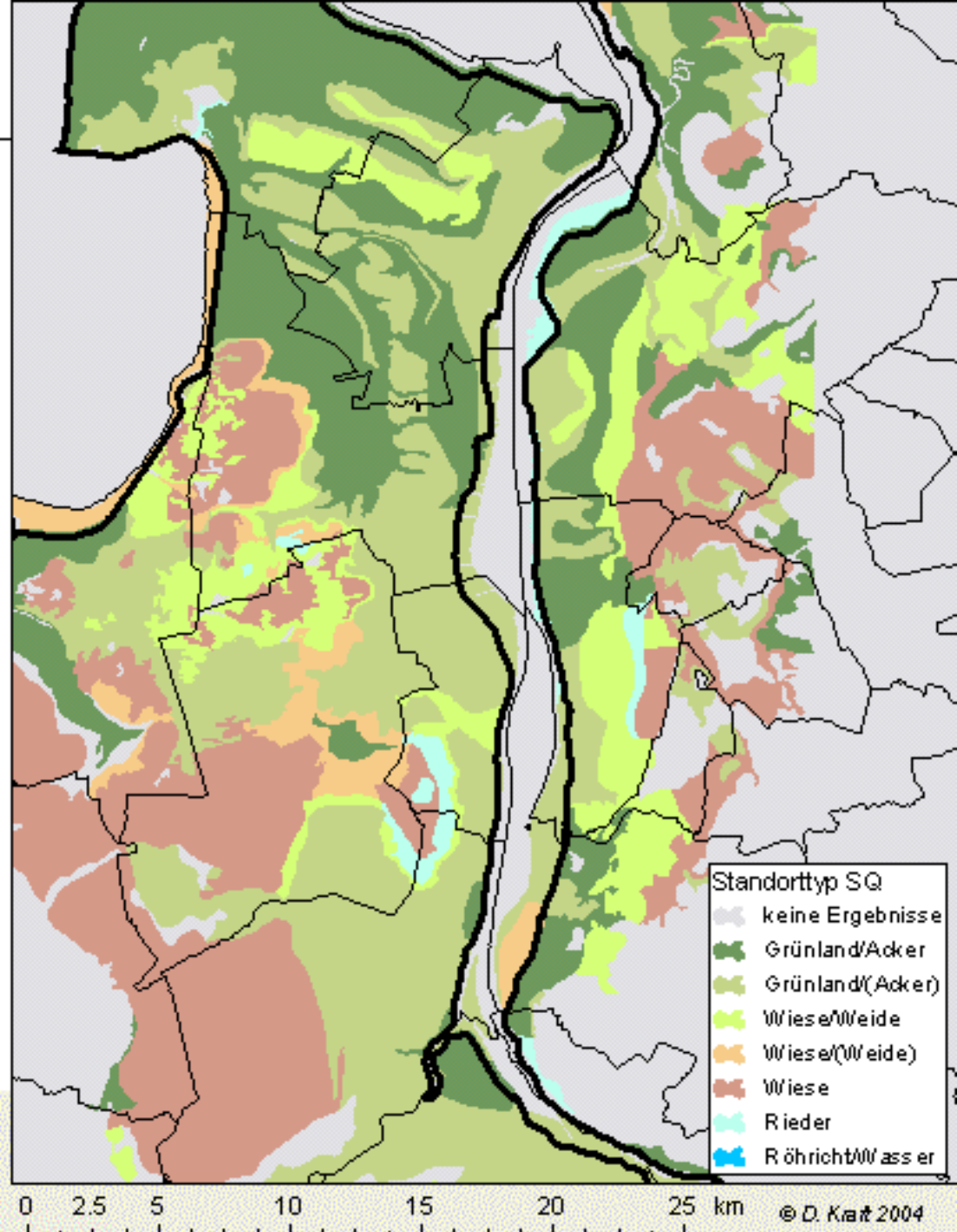
Data base

- General soil map 1: 50.000 (BÜK 50)
- Soil information system of Lower Saxony (NIBIS)
- Land use mappings: ATKIS, CLC, Biotoptypes

BONU

Suitability for farming

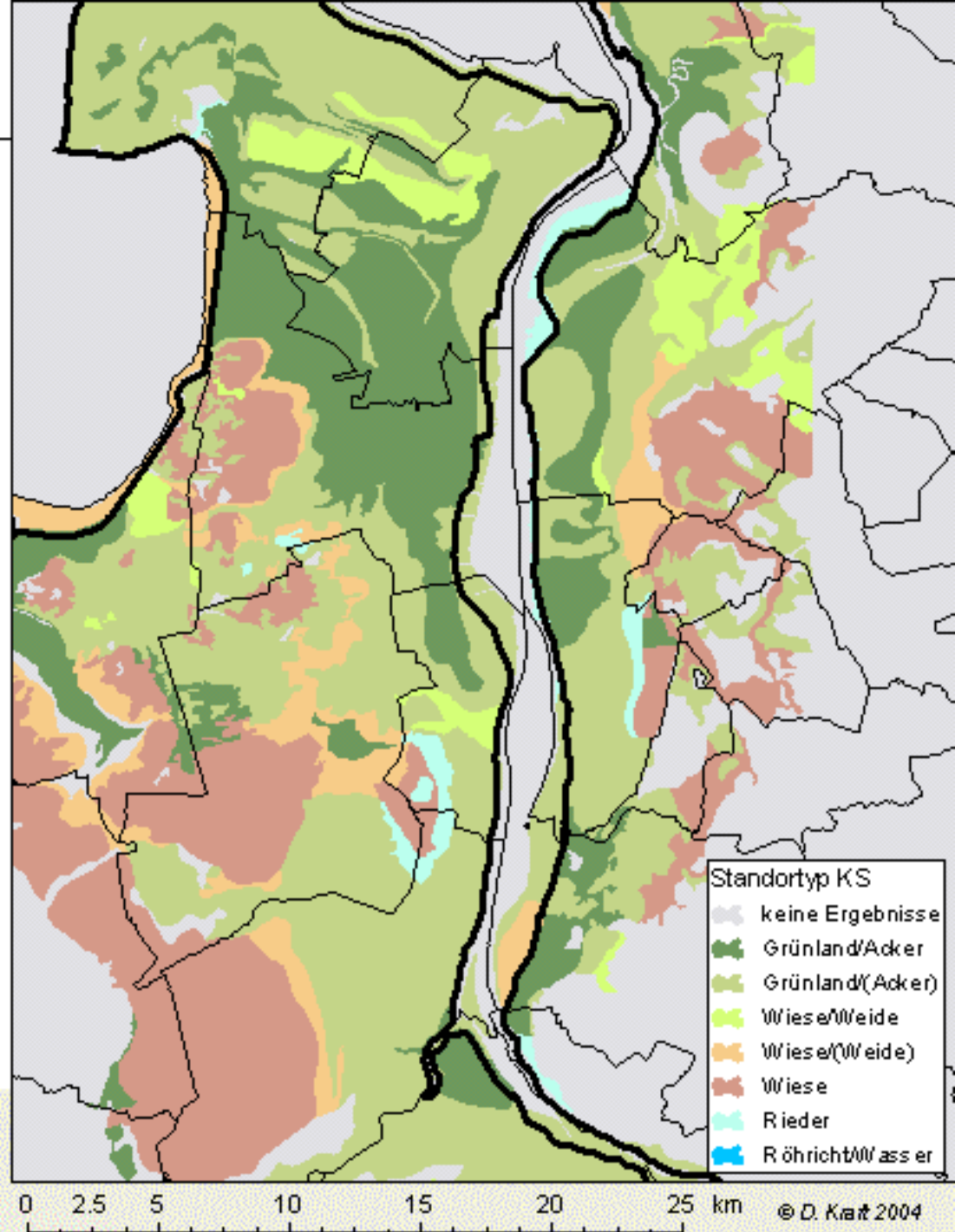
- Today's climate



BONU

Suitability for farming

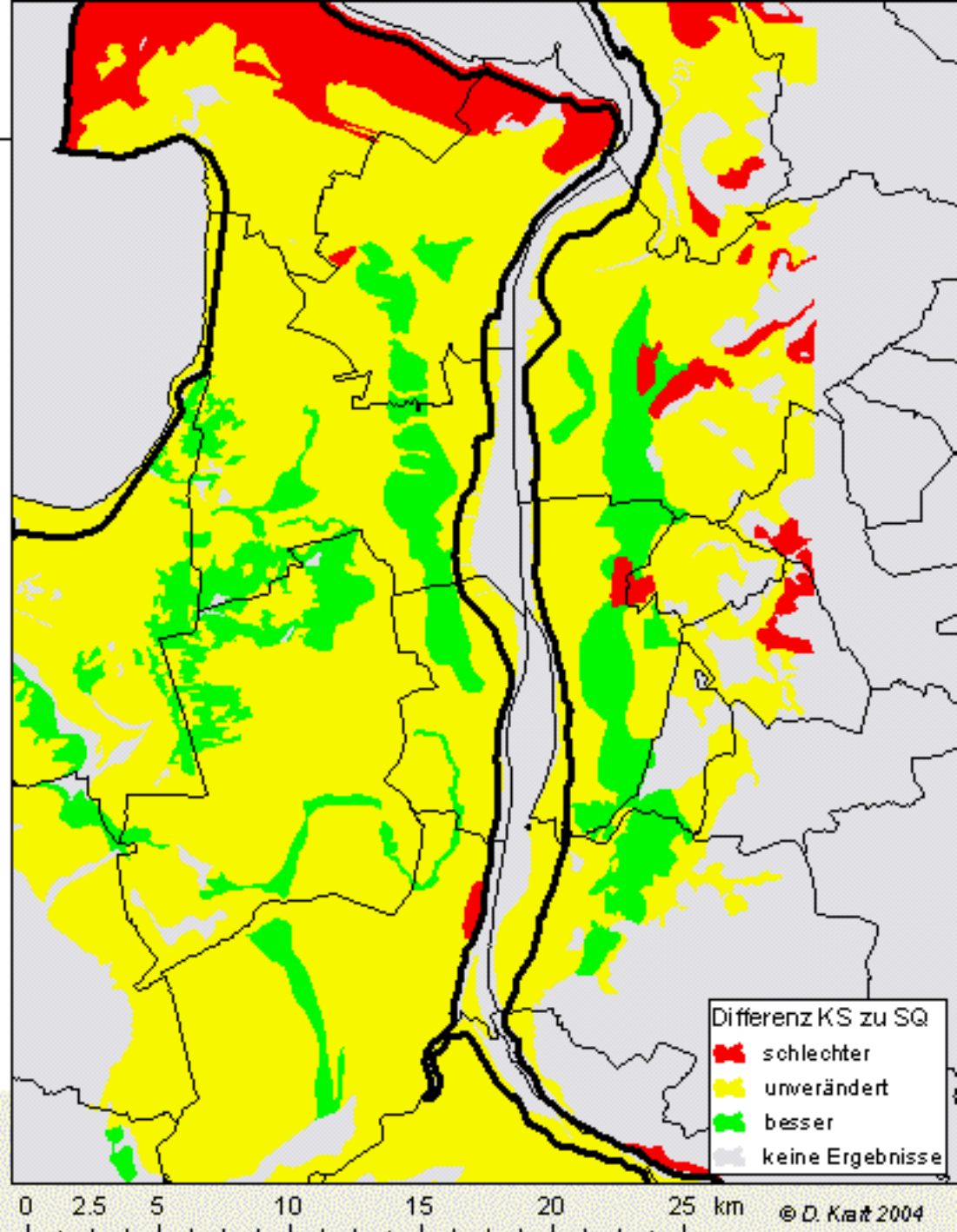
- Today's climate
- Future climate



BONU

Suitability for farming

- Today's climate
- Future's climate
- Difference

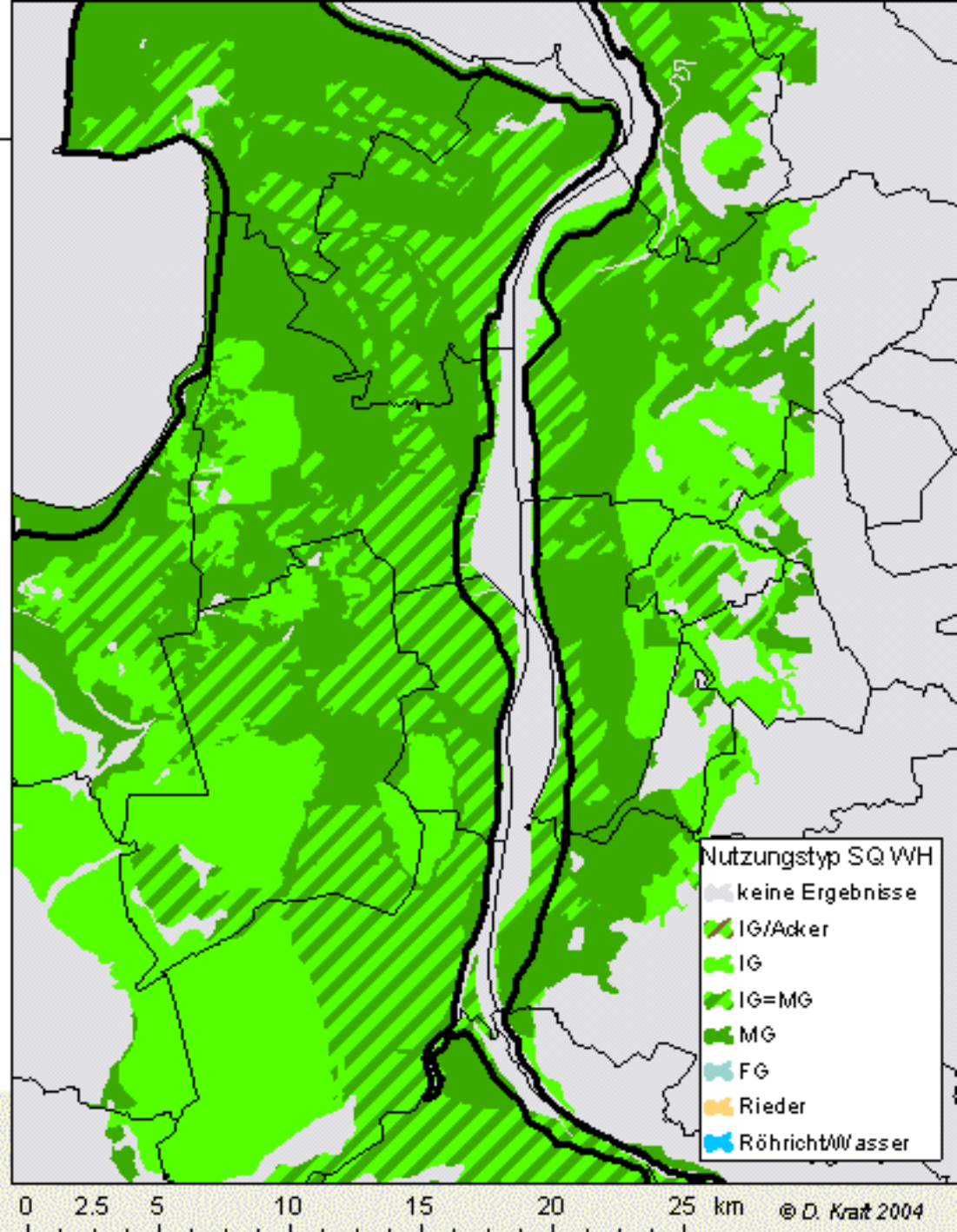


BONU

Land use:

Farming like today

- Today's climate

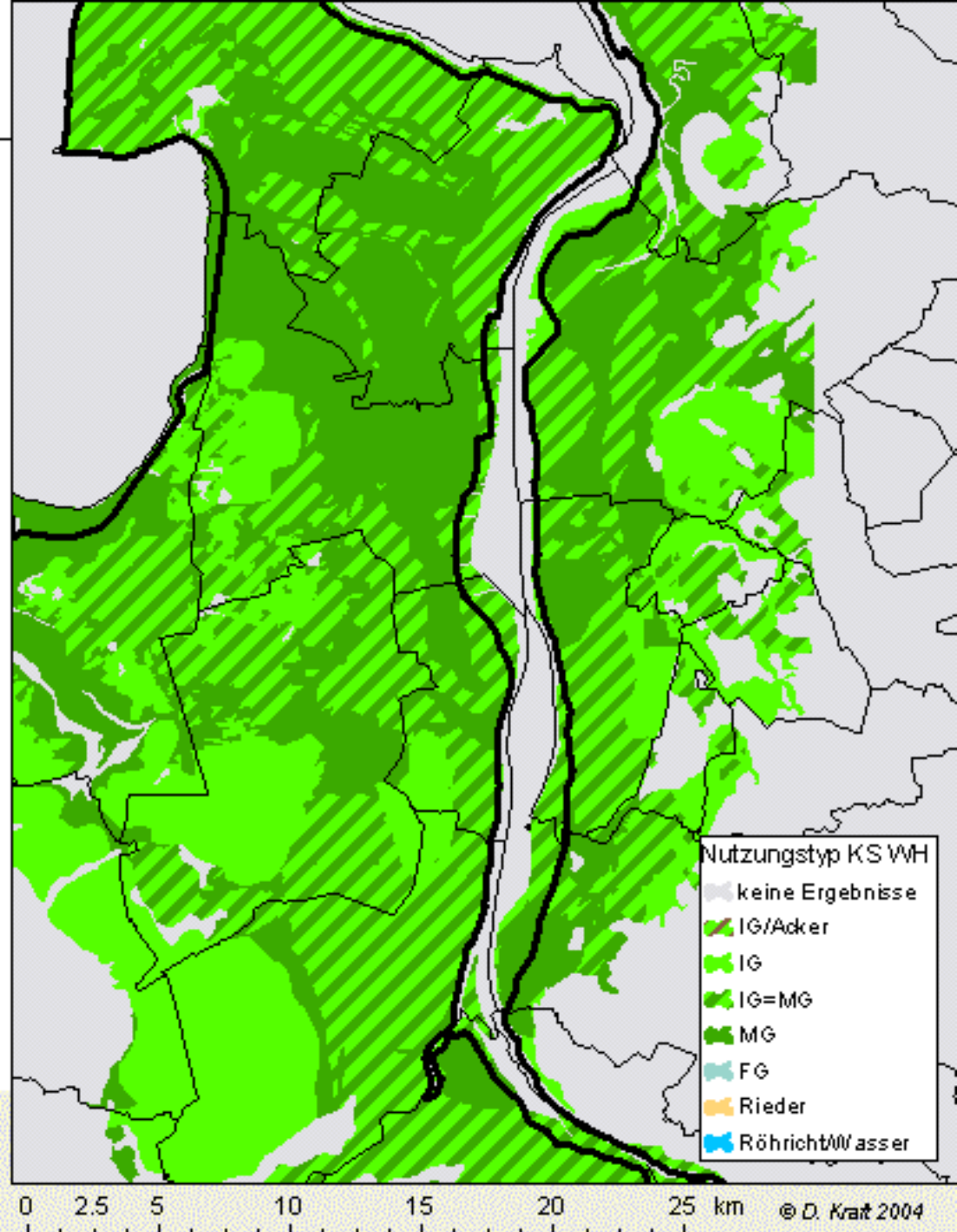


BONU

Land use:

Farming like today

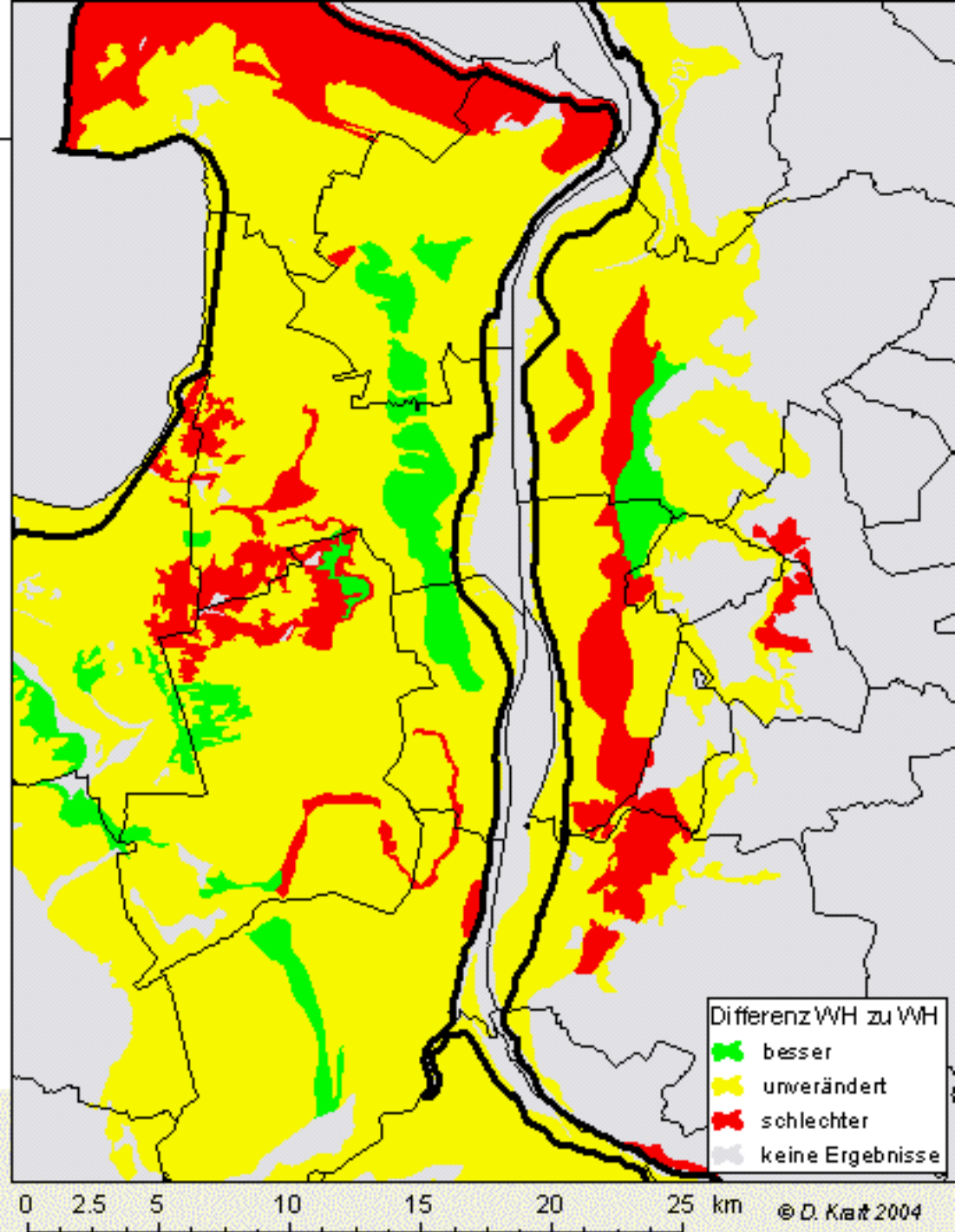
- Today's climate
- Future climate



BONU

Land use:
Farming like today

- Today's climate
- Future climate
- Difference

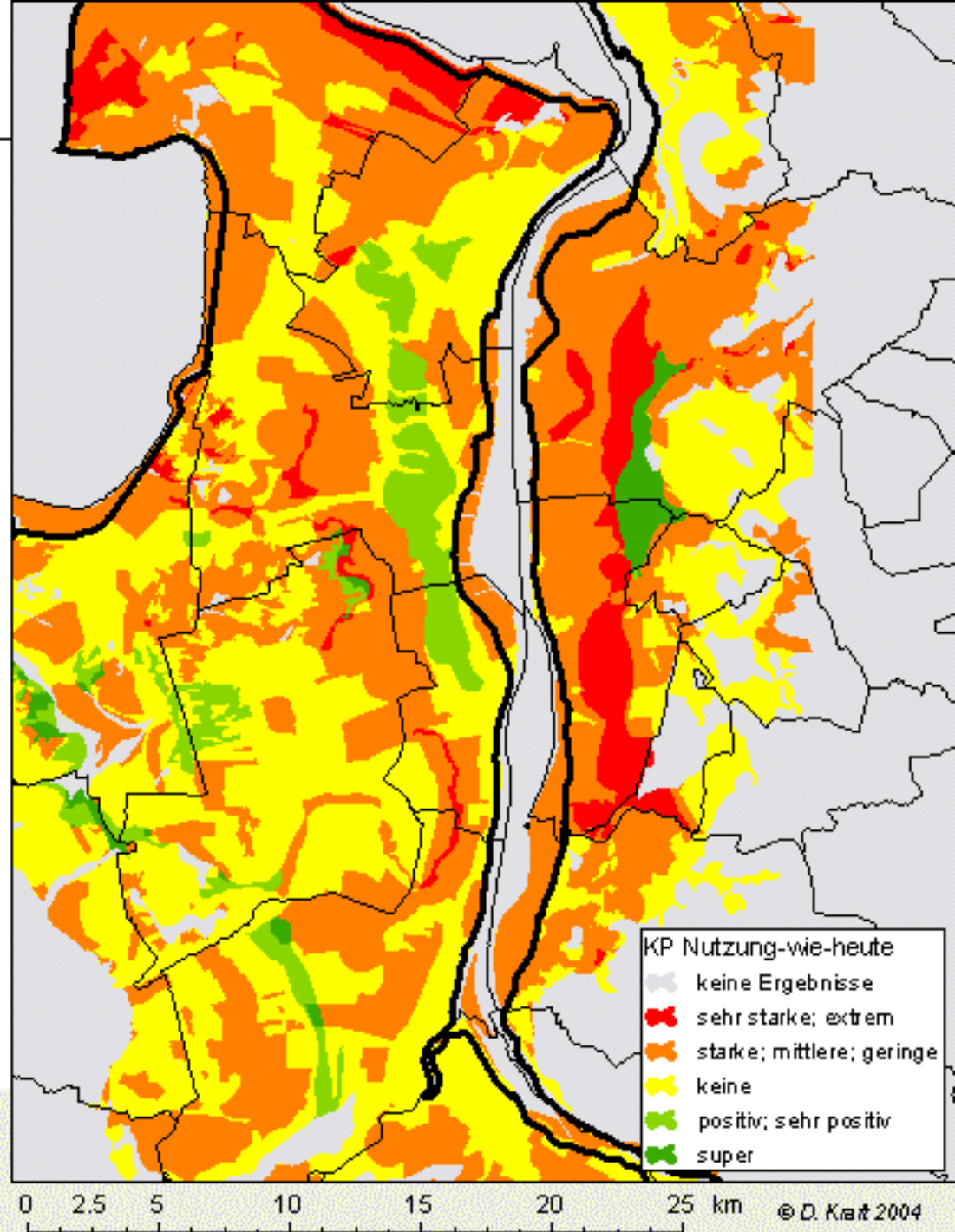


BONU

Land use:

Farming like today

- Today's climate
- Future climate
- Difference
- Conflicts in future

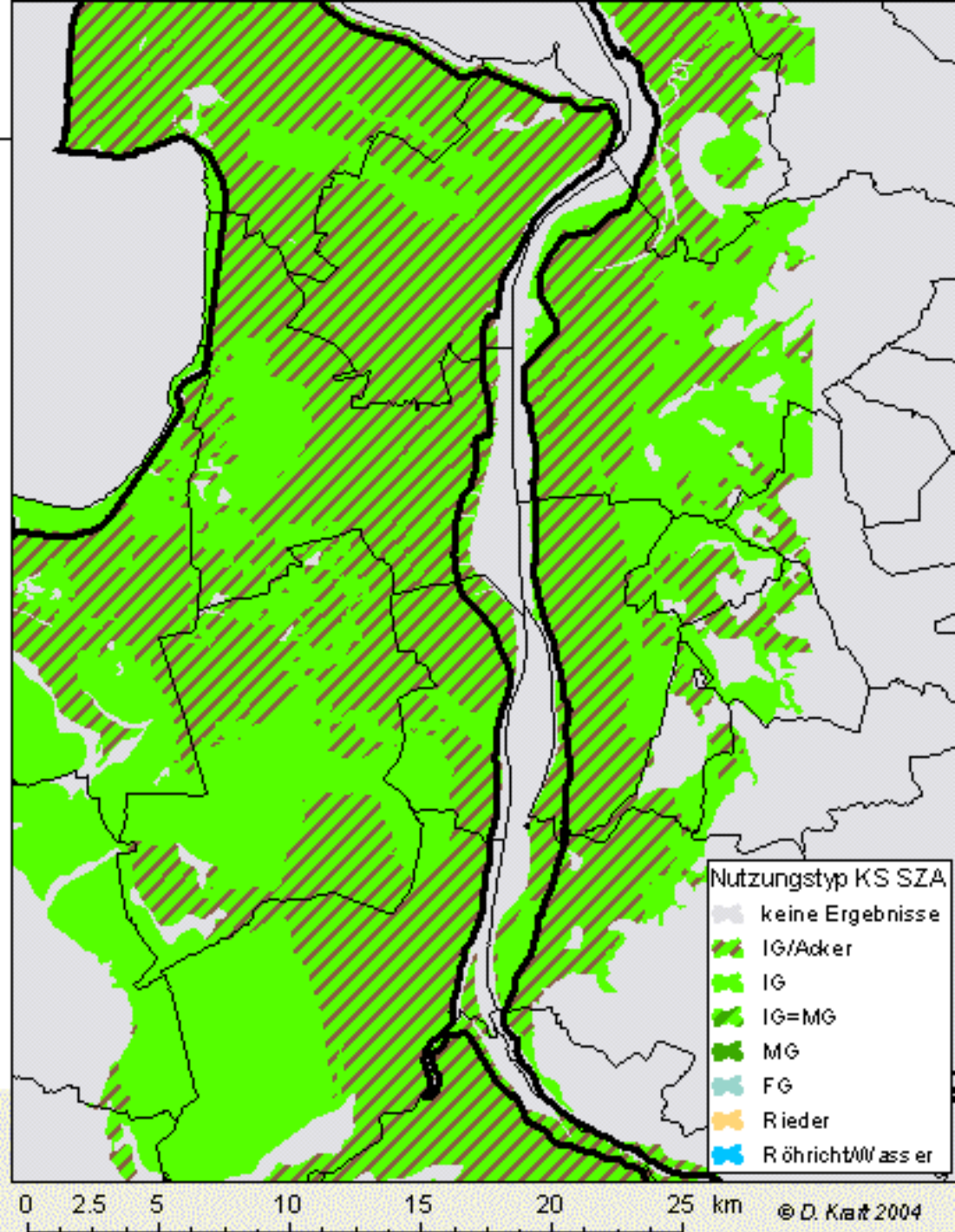


BONU

Land use:

Intensive farming

- Today's climate
- Future climate

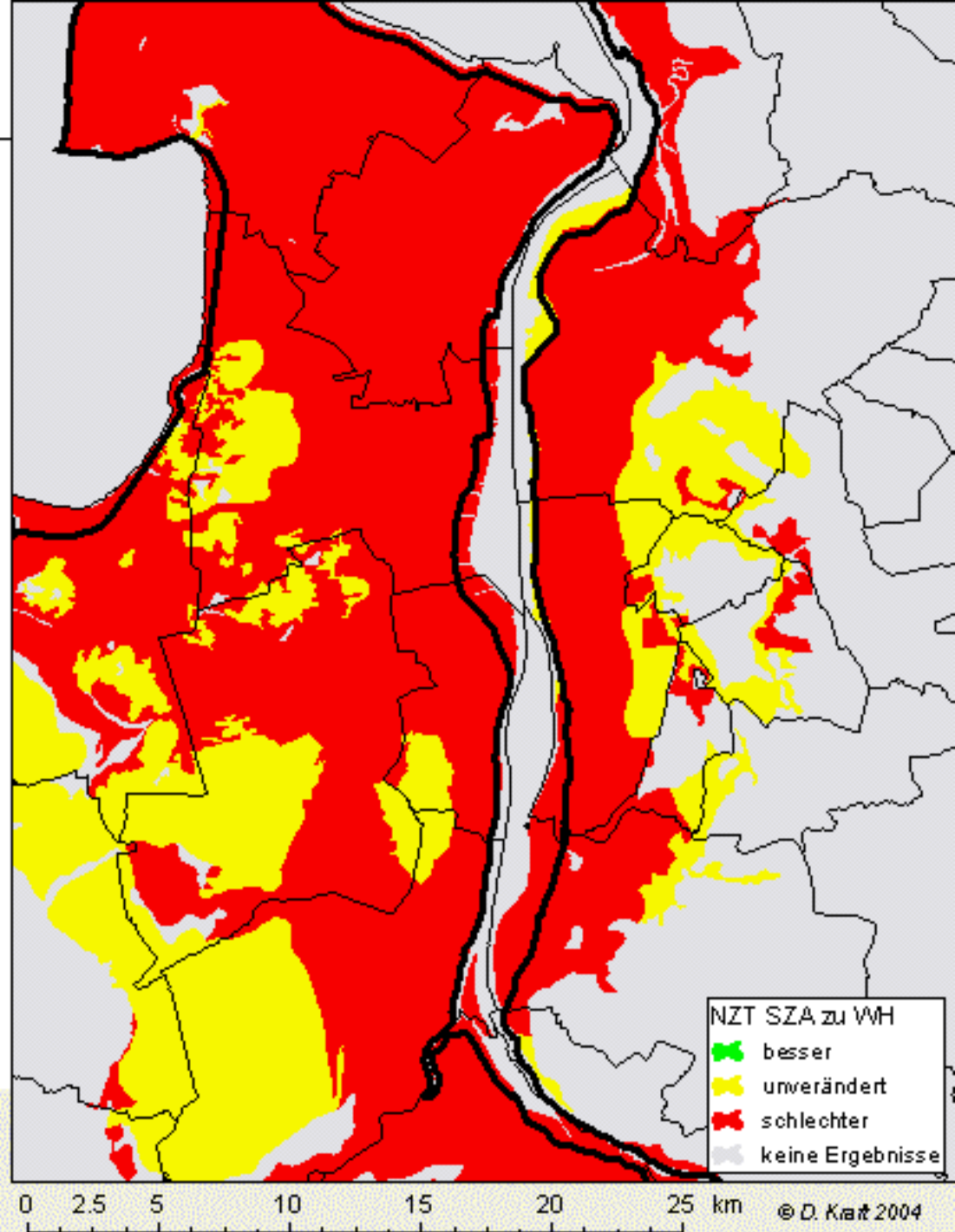


BONU

Land use:

Intensive farming

- Today's climate
- Future climate
- Differences

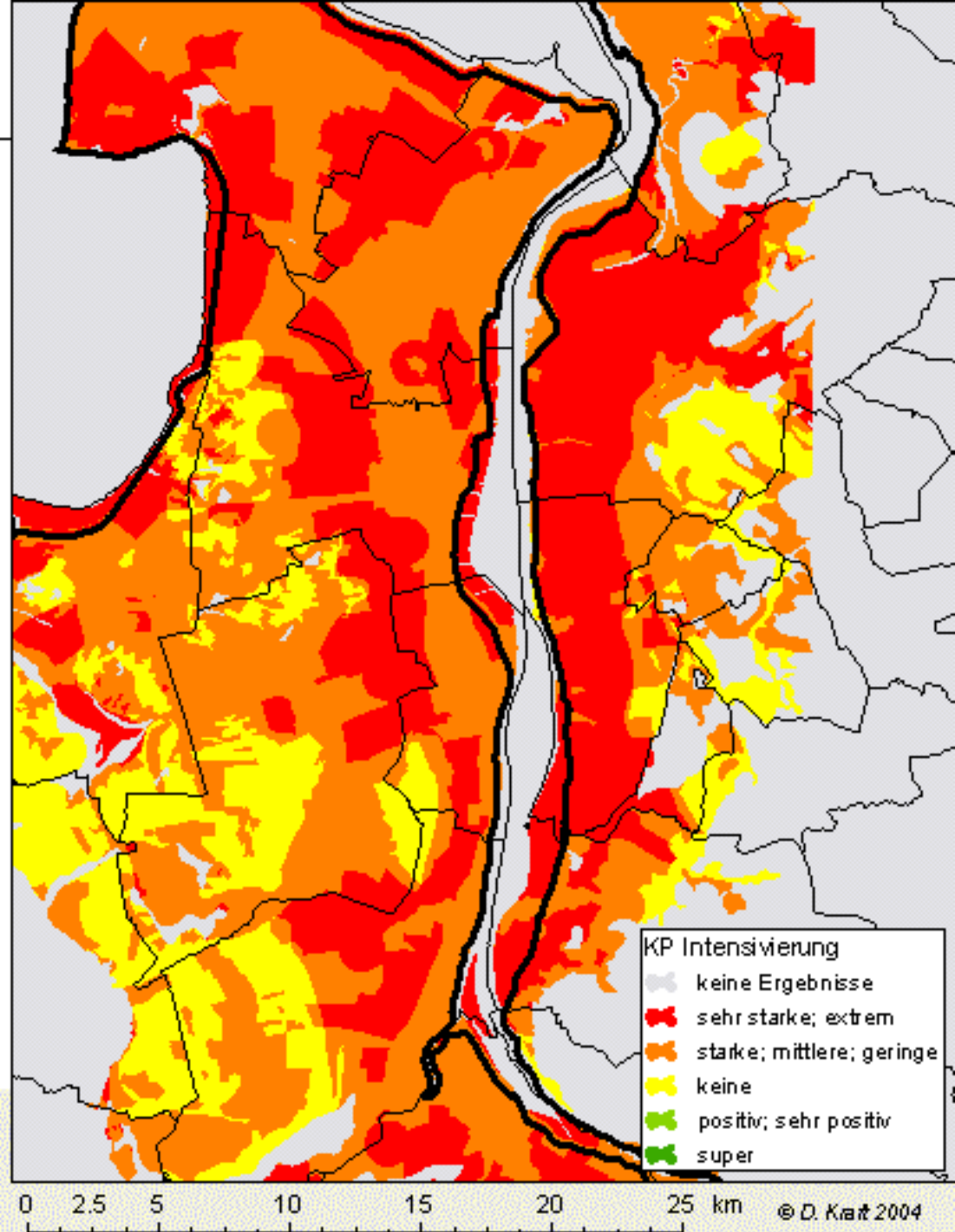


BONU

Land use:

Intensive farming

- Today's climate
- Future climate
- Differences
- Conflicts

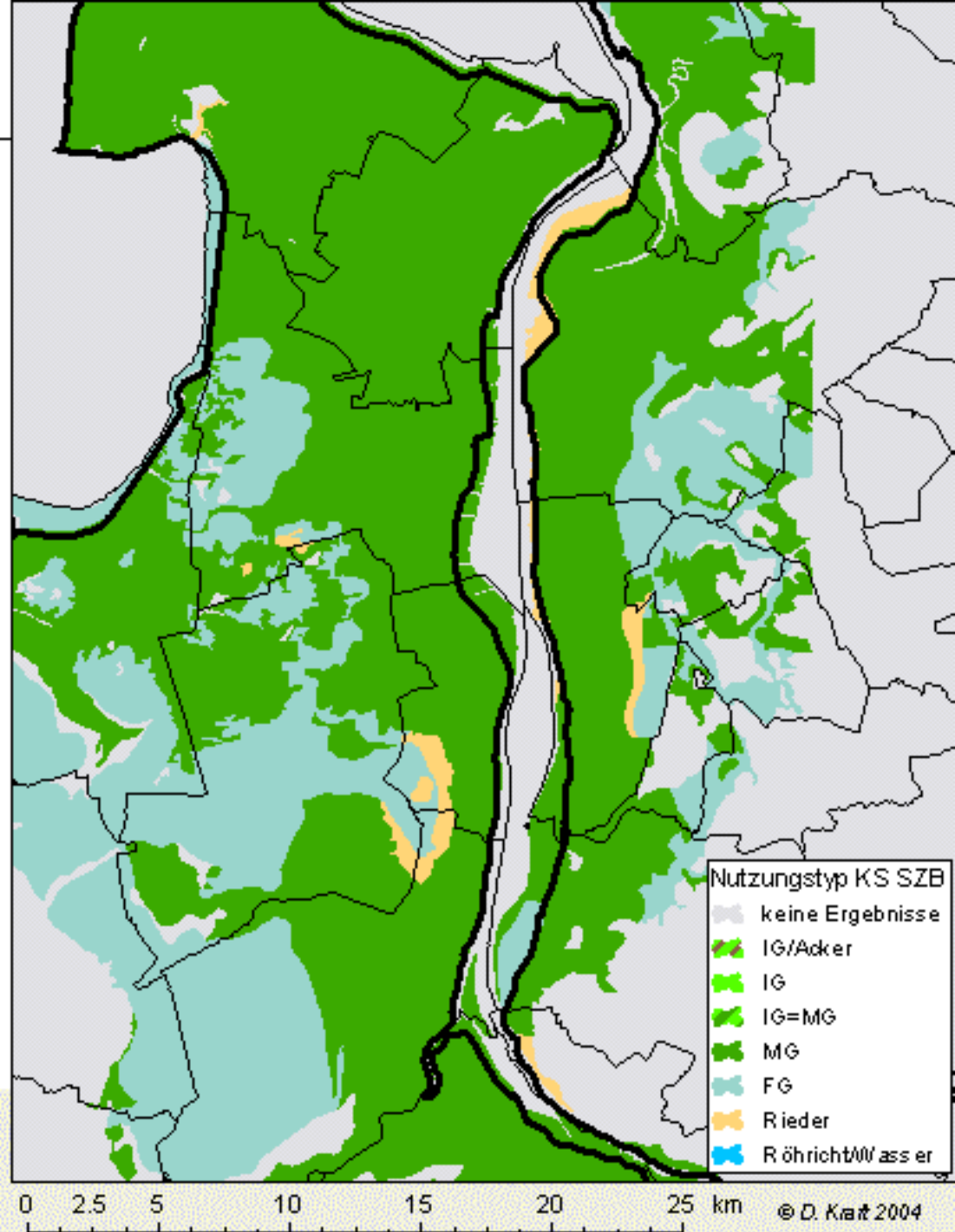


BONU

Land use:

Extensive farming

- Today's climate
- Future climate

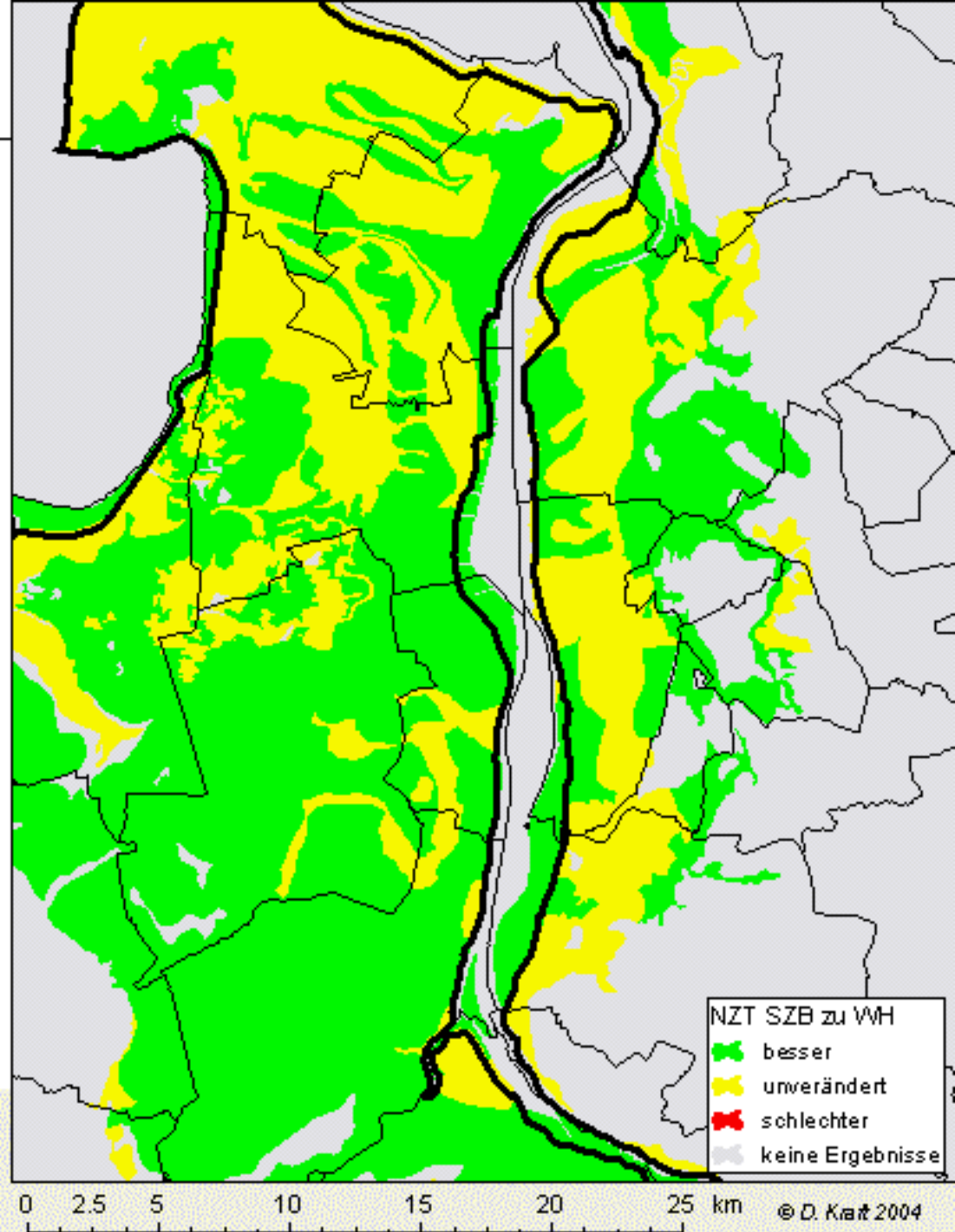


BONU

Land use:

Extensive farming

- Today's climate
- Future climate
- Differences

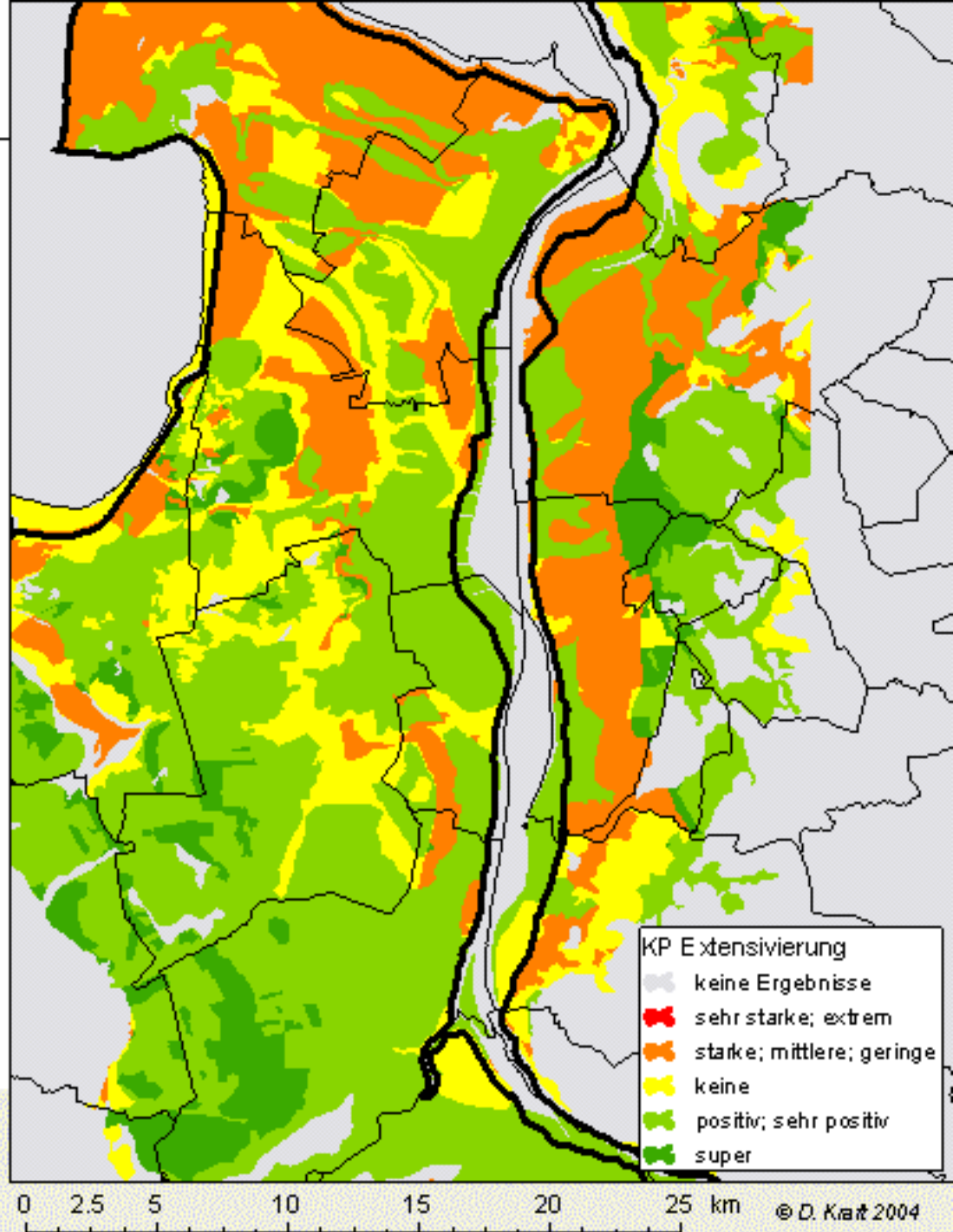


BONU

Land use:

Extensive farming

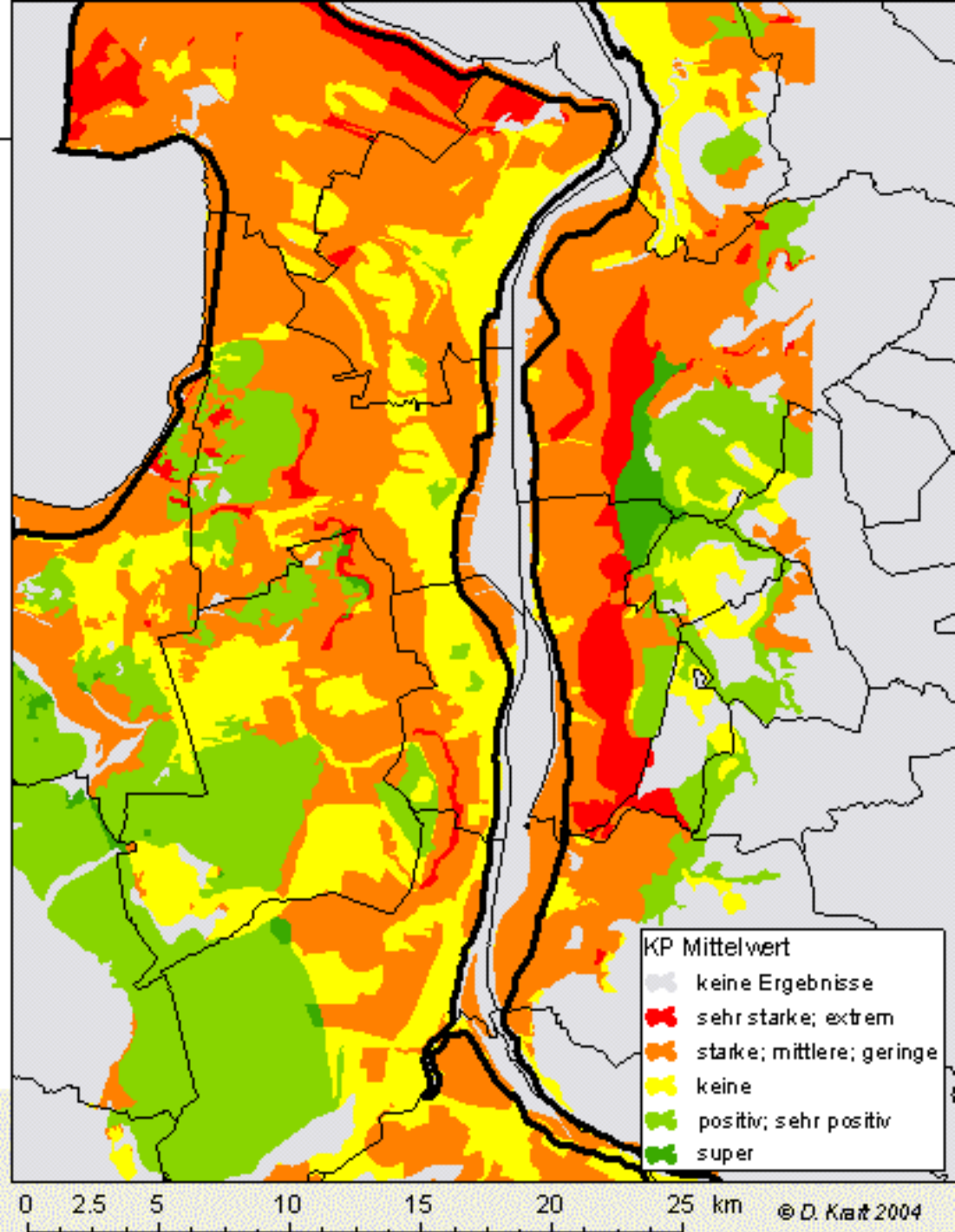
- Today's climate
- Future climate
- Differences
- Conflicts



BONU

Conflicts

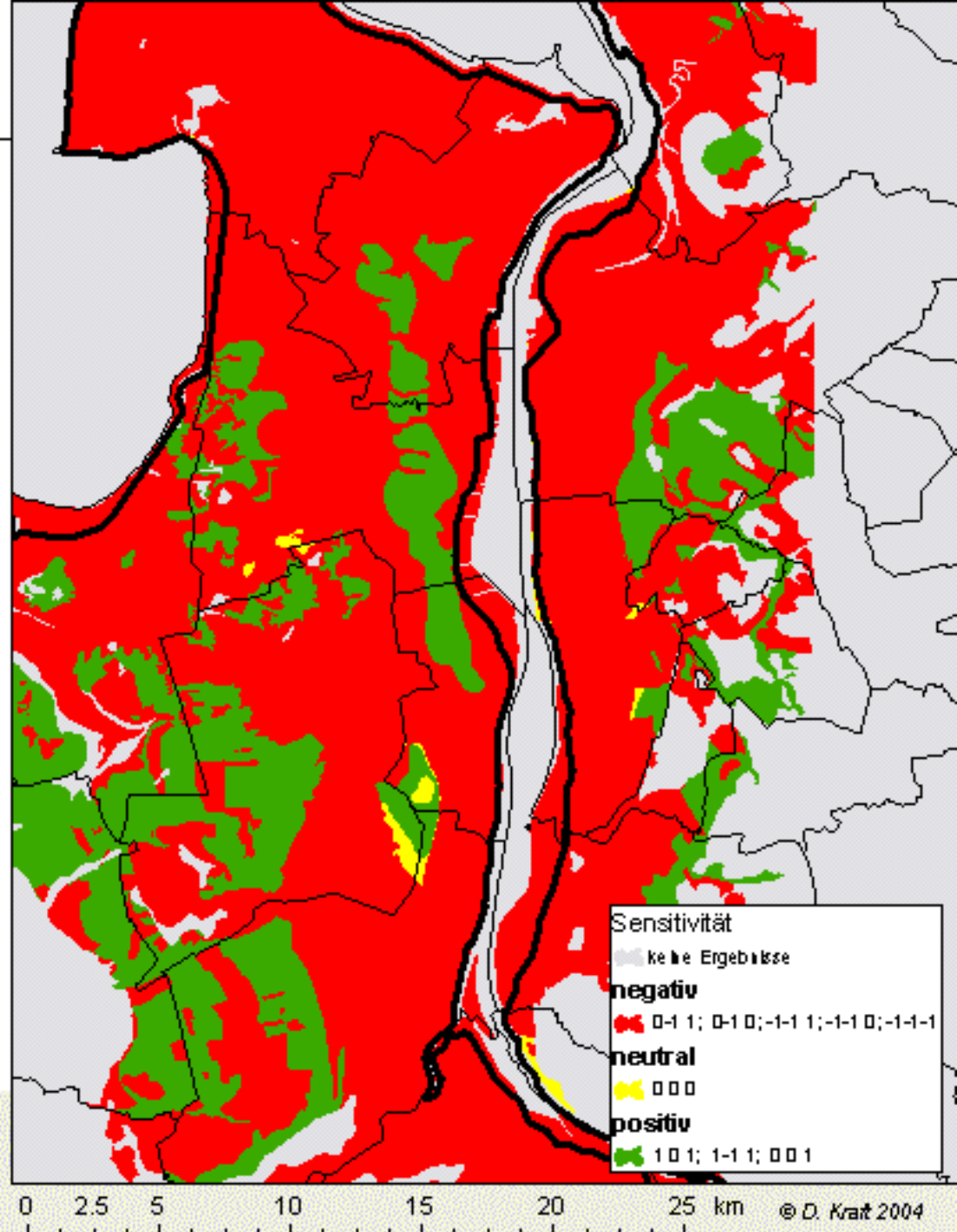
- Average



BONU

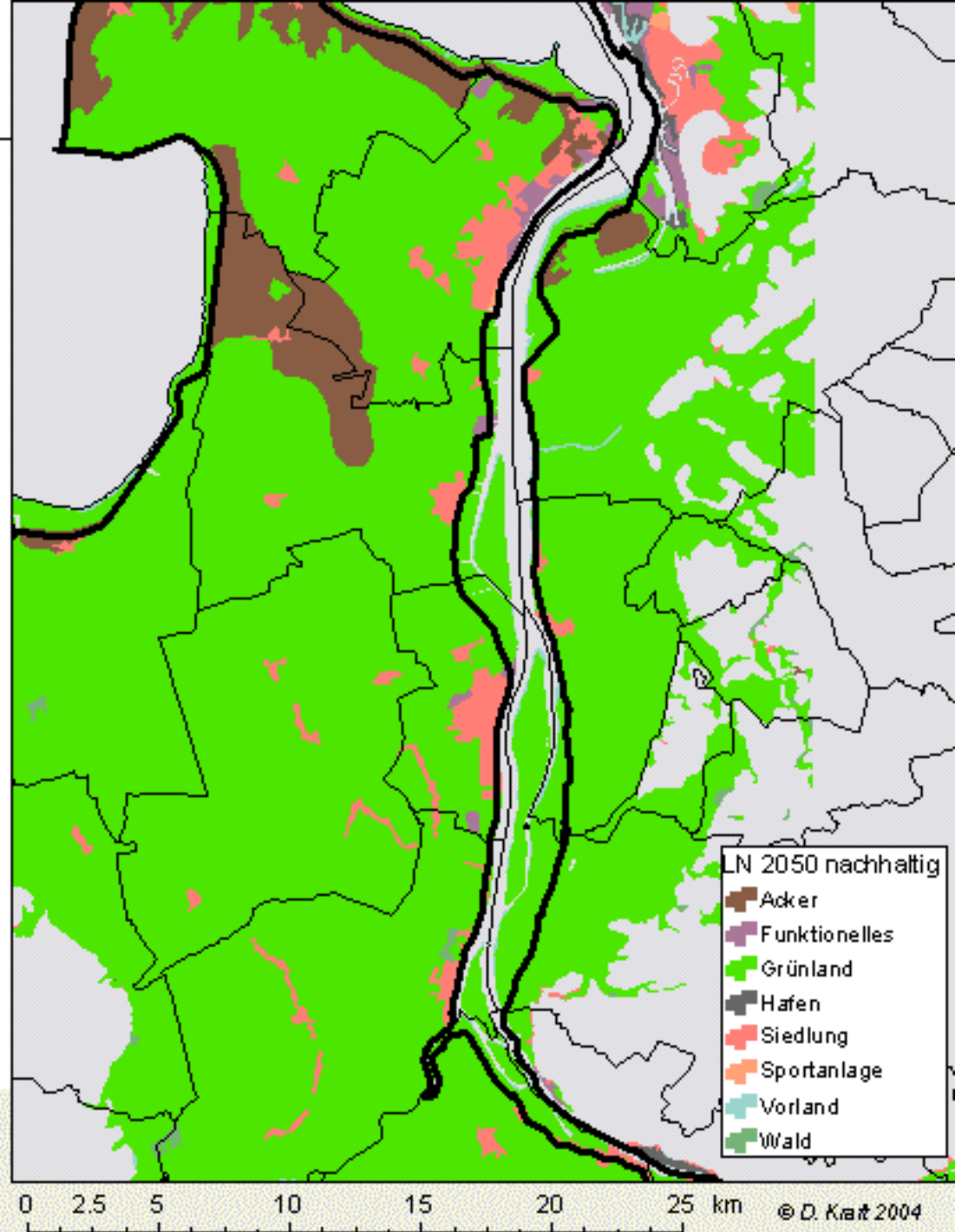
Conflicts

- Average
- Number
- ↪ Sensitivity

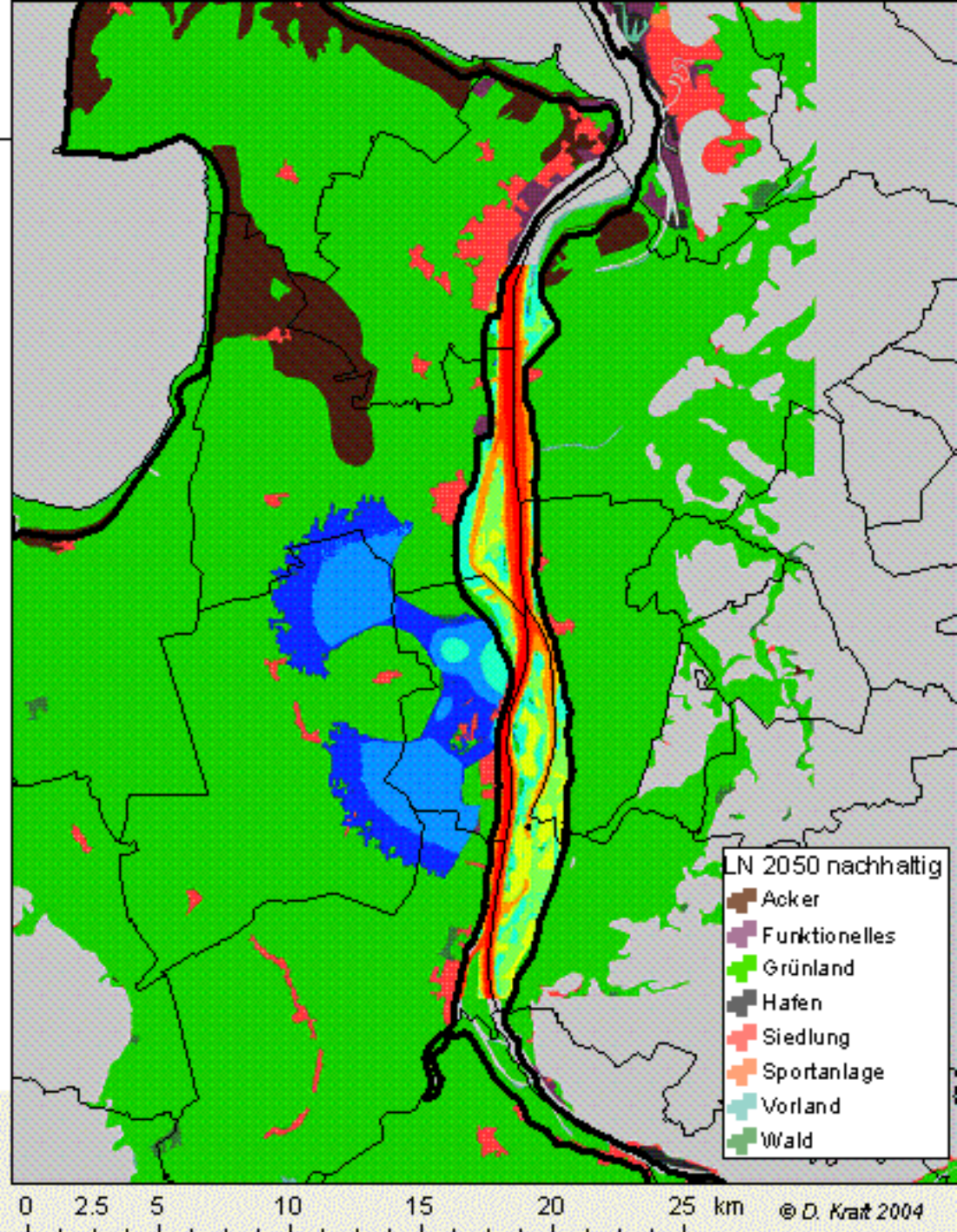


Prospect

- Total land use



- Total land use
- Damage calculation



Thank you!

Involved organizations (KRIM)

- Integration: Bioconsult Bremen,
- Coastal protection: Franzius-Institut Hannover
- Hydro- and morphodynamics: GKSS
- Perception: FZ Jülich
- Economies: University of Bremen FB 7
- political-administrative system: University of Bremen artec
- Ecology and GIS: University of Bremen FB 2