



EEA expert workshop Environmental effects of floods and flood protection measures

**Management and Integration of Flood,
water & nature protection legislation
– practical realities
– green versus grey infrastructure**

Case study on measures

Georg Rast, WWF Germany



Case study Elbe floodplains close to Vockerode

Life+Natur-project area

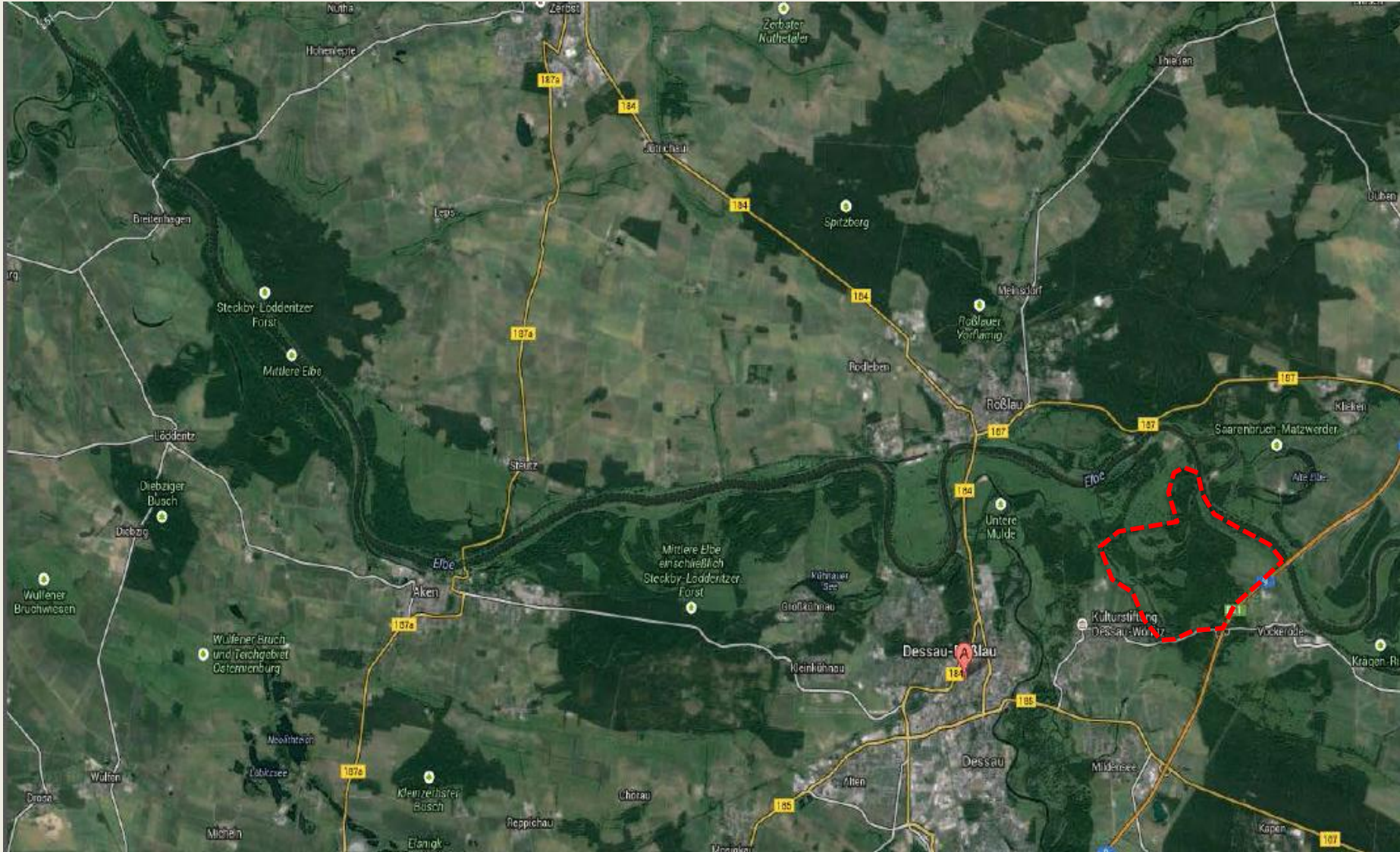
Within biosphere reserve
'Flusslandschaft Elbe'
(riverlandscape Elbe)

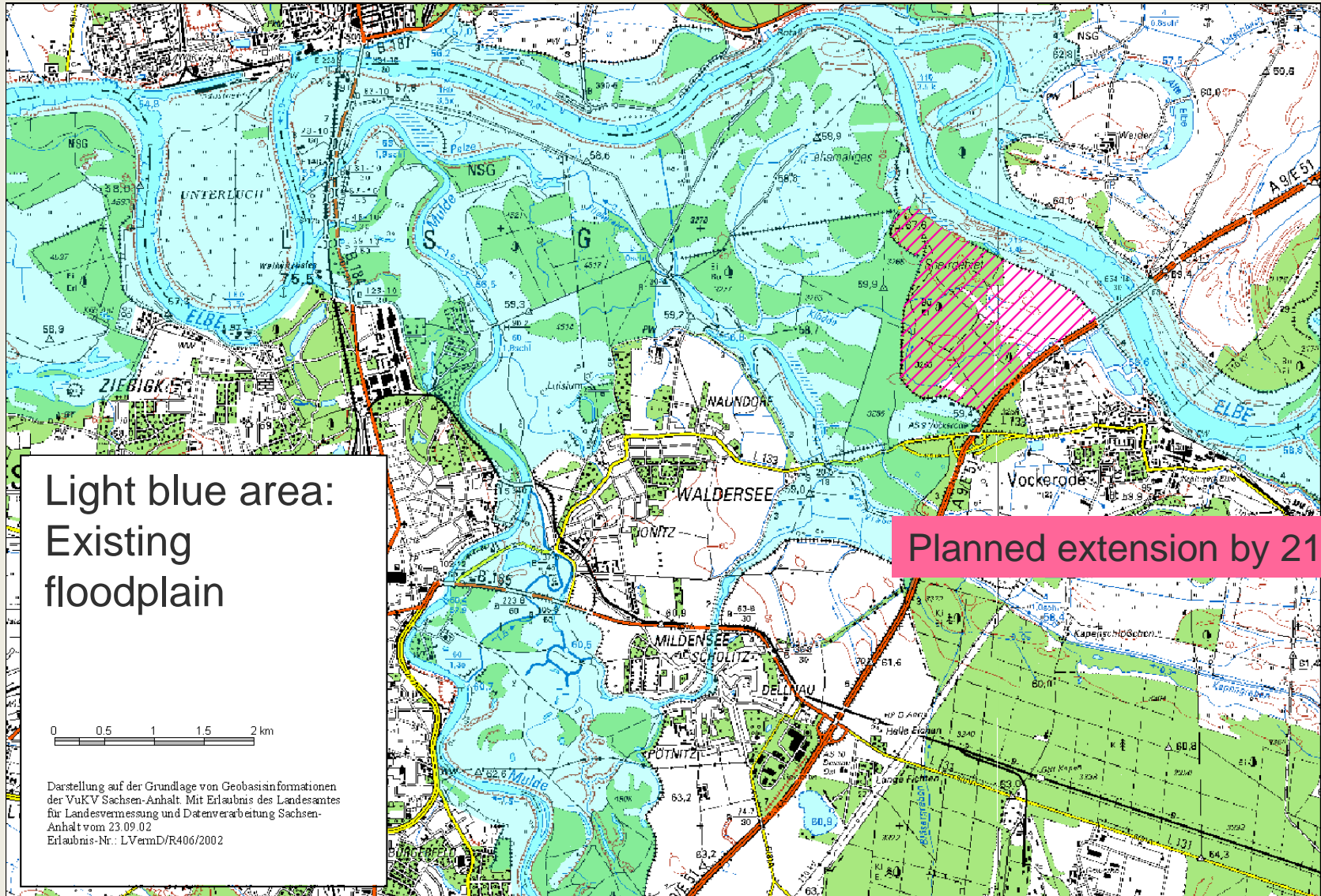
Red line: border of biosphere reserve
Green area: potential floodplain

Total area: 370.000 ha
of which 50.000 ha N2000 area

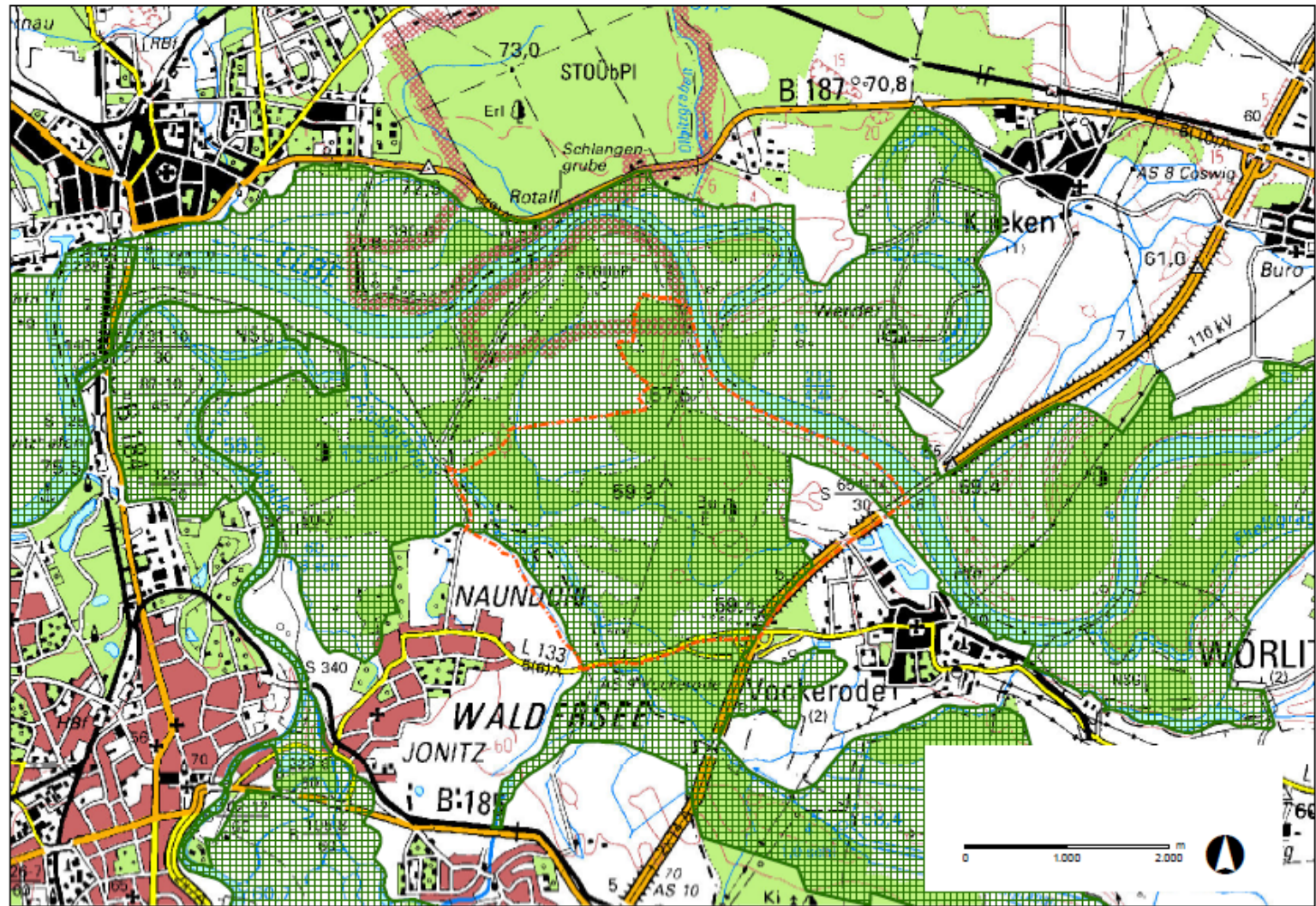
(planned reduction in area of biosphere
reserve to 225.000 ha)







Project area and N2000 coverage



Key biodiversity features



Active partners in the Life+-project

- WWF Germany (lead)
- Biosphere reserve Mittelelbe 
- State agency for flood protection and water management 
- Agency for cultural heritage DessauWörlitz 

Other main partners

- Farm cooperative Wörlitz
- County Wittenberg, commune Vockerode
- Agency for state property Sachsen-Anhalt

Duration: 2010 till 2018

Budget: 2,2 Millionen €

Shareholders:

50 % EU

37 % WWF

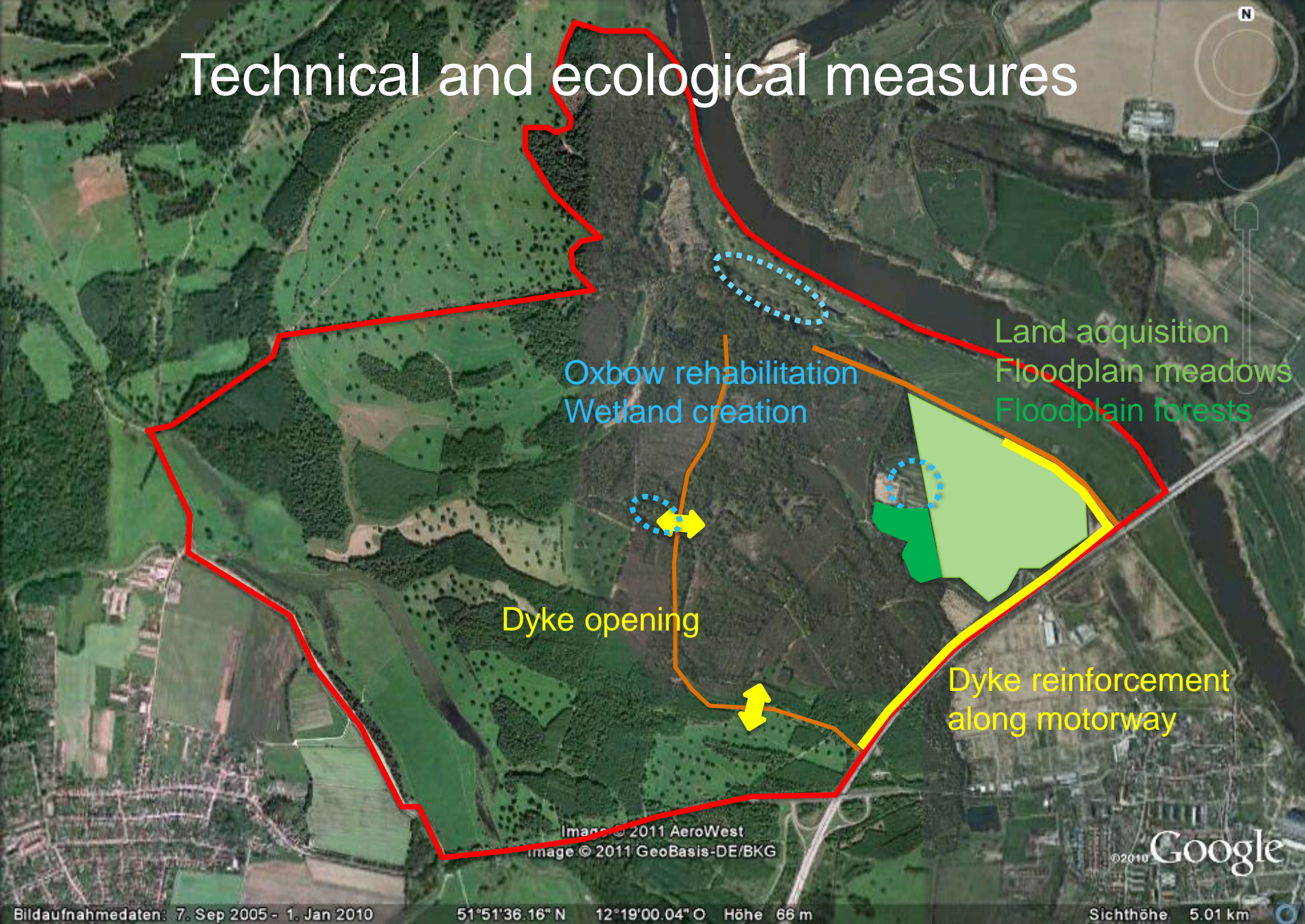
11 % Water mgt. agency (plus 5 mil € construction costs)

2 % Biosphere reserve.

(plus extra contribution by cultural heritage agency)

Staff: 1,2 manpower units in project office

Technical and ecological measures



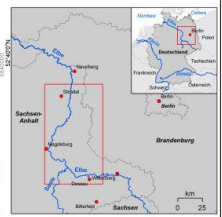
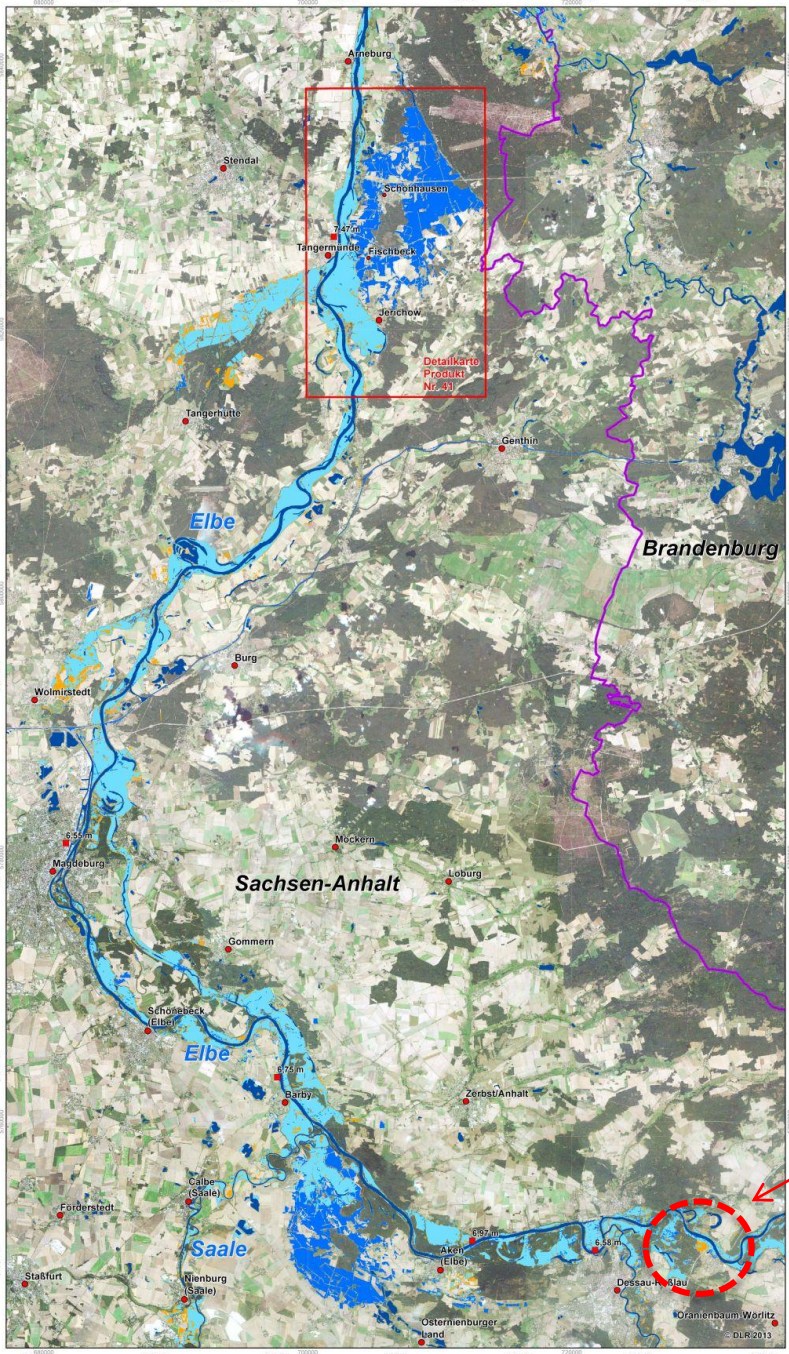
Flooding in 2002 (2013) of project area





1:130.000

Flooding in 2013



Legende

- Wald
- Siedlung
- Ackerfläche
- Niwe / Wälderschatten

Bevölkerung

- Stadt
- Grenze
- Bundeslandergrenze

Hydrologie

- Pegel
- Normaler Flussverlauf DLM200

Veränderungsanalyse
 Beobachtete Veränderungen der Wasserausdehnung zwischen dem 09. und 12. Juni 2013:

- Unveränderte Wasserfläche (09. und 12. Juni 2013)
- Zunahme der Wasserfläche
- Zurückweichende Wasserfläche

Interpretation

Die Hochwassersituation entlang der Elbe bleibt weiterhin angespannt. Die Karte zeigt die Veränderung der Wasserfläche der Elbe im Bereich Dessau / Arneburg zwischen dem 09. und 12. Juni 2013. Die dargestellten Wassermassen wurden aus einer TerraSAR-X-Szene vom 09. Juni (Aufnahmezweckpunkt: 19 01 MEZ) und 12. Juni 2013 (Aufnahmezweckpunkt: 07 25 MEZ), abgedeckt. Beide TerraSAR-X-Szenen haben eine räumliche Auflösung von 8,25 Metern (RapidEye Daten (Aufnahmezweckpunkt 2013) mit einer räumlichen Auflösung von 5 Metern dienen als Hintergrundbild).

Für den Bereich eines Dammbuchs bei Fischbeck wurde eine separate Detailkarte (Produkt Nr. 41) erstellt. Die Karte zeigt die Zunahme im südlichen Bereich der Karte zeigt den Dammbuch von Klein Roserburg vom 09. Juni 2013. Die in der Karte dargestellten Pegelstände wurden zum Aufnahmezweckpunkt der TerraSAR-X-Szene vom 12. Juni erfasst.

Bitte beachten Sie, dass die Flusssituation in städtischen Gebieten, unter Vegetationsbedeckung sowie in Bereichen mit starkem Gefälle aufgrund der Radargometrie möglicherweise nicht vollständig erfasst wird.

Kartographische Information

Projektion: UTM Zone 32N, Datum: WGS 1984
 Geographische Projektion: Lat/Lon (DMS), Datum: WGS 84
 Maßstab: 1:130.000 für DIN A1

Datenquellen

- RapidEye (5m) © RapidEye www.rapideye.com
- TerraSAR-X (8,25m) © 2013 German Aerospace Center, 2013 Astrium Services / Intertec GmbH
- Wassermasse © DLR 2013
- Vektordaten © GeoBasis-DE/BKG 2008-2011 © OpenStreetMap/Mitwirkende 2013

Rahmenbedingungen

Die im Rahmen dieser Kartierung erstellten Produkte sind nach unserer besten Fähigkeit und bestem Kenntnisstand realisiert worden. Alle geographischen Informationen unterliegen Einschränkungen hinsichtlich des Maßstabes, der Auflösung, des Aufnahmegerätes und der Interpretation der Ausgangsdaten. Die den Produzenten wird keinerlei Haftung für die Genauigkeit der Nutzung übernommen. Die Kartierungsergebnisse werden regelmäßig aktualisiert. Bitte besuchen Sie unsere Website (http://www.zki.dlr.de), um die aktuellste Version dieses Produktes zu erhalten.

Erstellungsdatum: 12. Juni 2013
 Aktualisierungsdatum: 13. Juni 2013
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 zki@dlr.de
 http://www.zki.dlr.de



Project area

Restoration of floodplain meadows



45 ha
5 ha as habitat type
3-years process
plus many years with special management



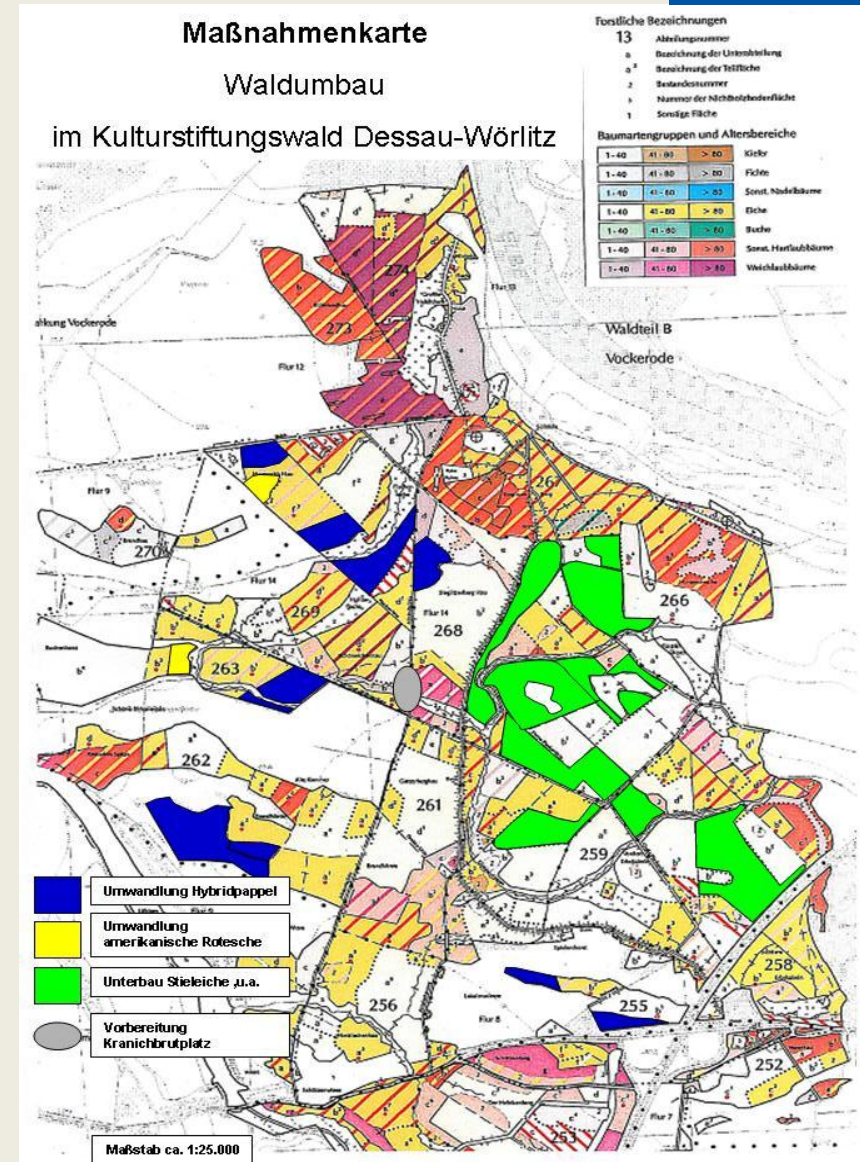


130 ha of managed forest under new flooding regime
On 32 ha adaptation measures planned



Heritage foundation DessauWörlitz

- Change of hybrid poplars
- Elimination of green ash (*Fraxinus pennsylvanica*)
- support of hardwood stands (e.g. British oak – quercus robur, wild apple/pear)
- selective harvest of flood sensitive tree species

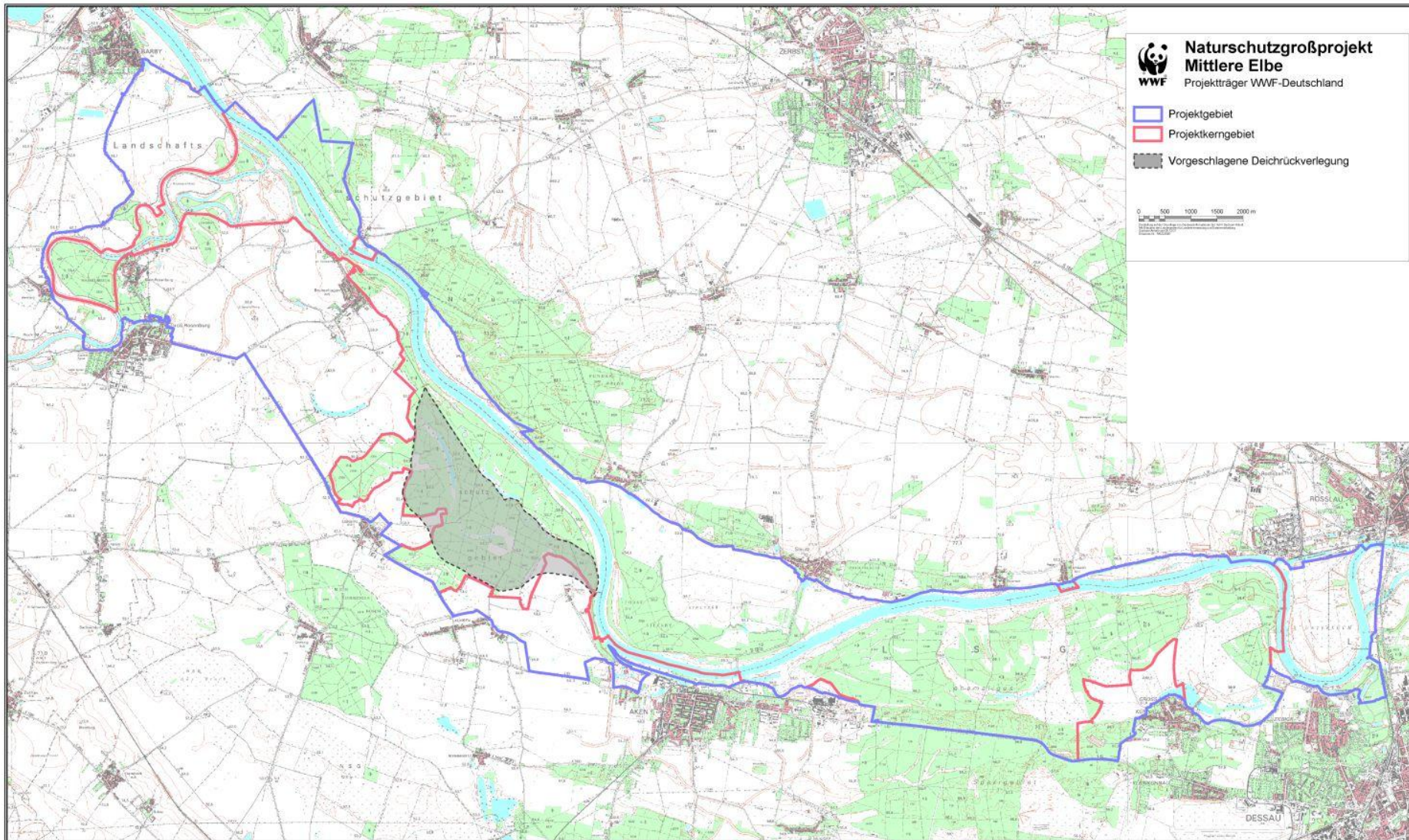


- Improved resilience of the floodplain ecosystem
- Reduced risk of flooding though quantitatively very limited as stand alone
- WFD objectives almost not relevant/touched
- Improved ecosystem services:
 - Flood retention
 - Water purification
 - Positive effects on micro climate
 - Carbon sequestration (forests and meadows)
 - Amenities (tourism, local-regional...)
 - Reduced maintenance for water management

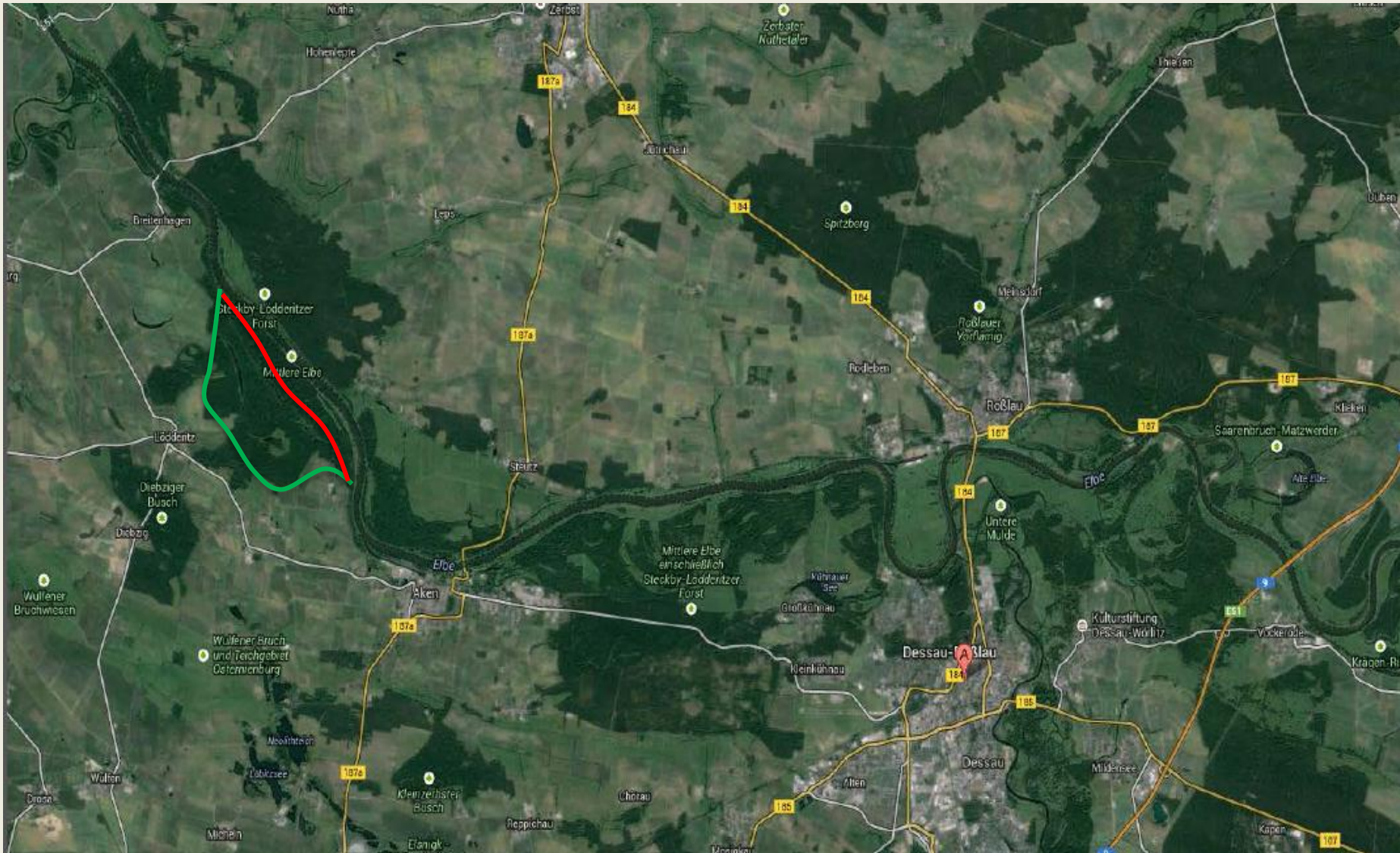
- Scaling-up in area means 10's of thousand hectares to create significant effect on design of **grey** flood defence structures (heightening of dykes, retention basins)
 - Only feasible with new land use approach together with landowners and farmers (e.g. no cash crop but biomass utilization for energy or material utilization for insulation?)
 - Plus compensation to farmers for improved ecosystem services



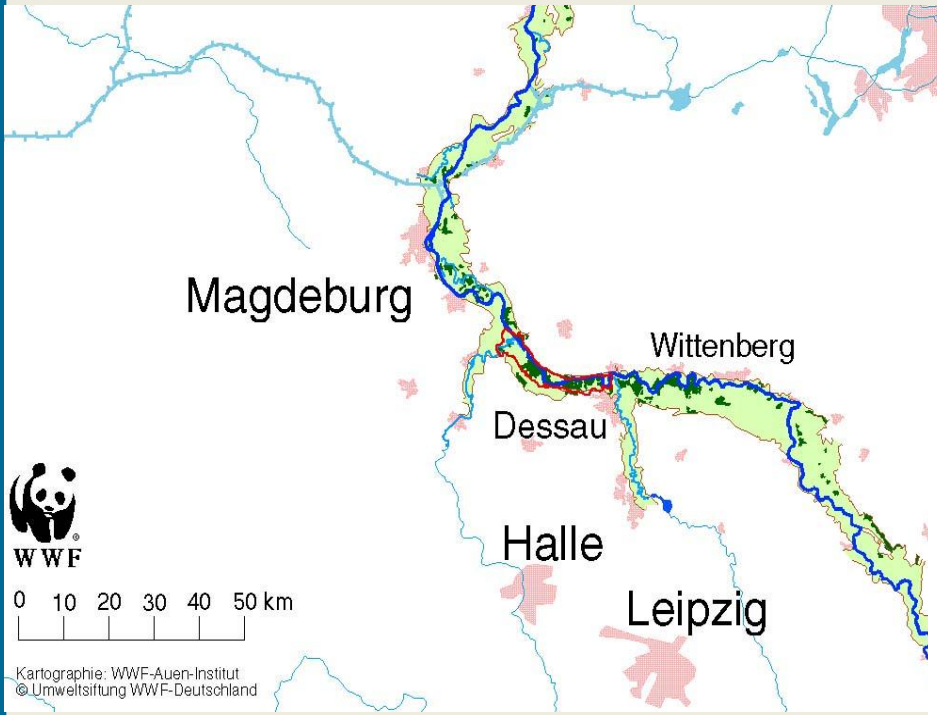
Case study “Dyke relocation at Lödderitz/Elbe”



Project area dyke relocation at Lödderitz

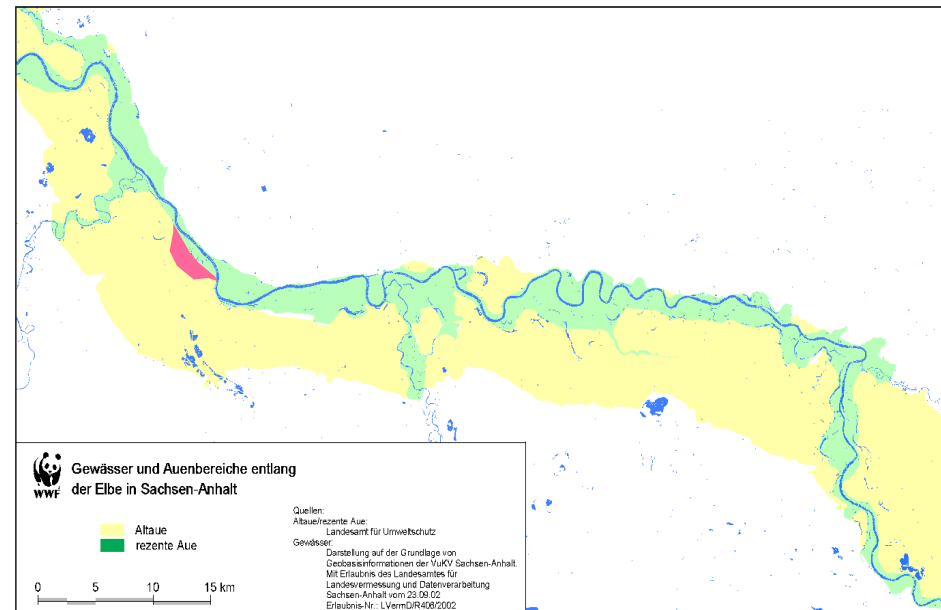


Status of floodplains, case study Lössderitz



Status report on floodplains BfN 2009
In general:
Natural vegetation only remnant
(50 % grassland, 25 % arable land,
13 % forests
1 % natural floodplain forest)

green= active floodplain
Yellow= former floodplain (protected
from flooding by dykes)
red= relocation area



Renaturierung von Auenwäldern



Case study Life+Nature Elbe floodplains at Vockerode



Existing dyke

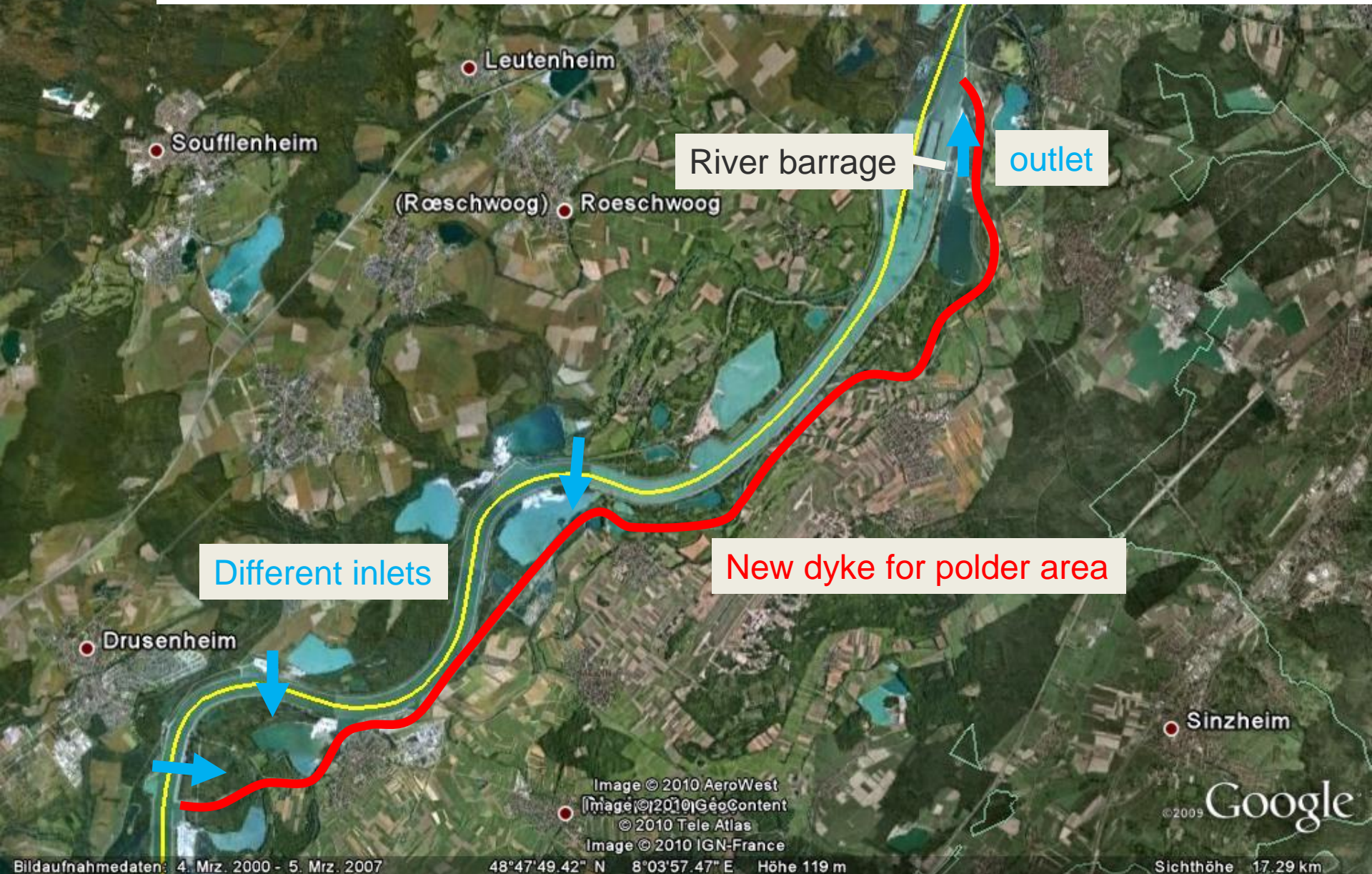


New dyke












Rhine river barrage Iffezheim: controlled retention basin with 'ecological flooding' at normal flood stages




Case study – Floodway Rees – 2014 WwN-award



Working with Nature (WwN) Recognition & Award




The PIANC Working with Nature Philosophy supports a new way of thinking in developing and realizing navigation infrastructure projects. The fully integrated approach maximizes opportunities and reduces frustration to both project proponents and all involved parties.

Whilst doing things in a different order, WwN projects:

- ✓ understand the environment before project design begins.
- ✓ work with natural processes.
- ✓ deliver a net gain for the environment, and use stakeholder engagement to identify win-win situations.

If you carry out such an environmental ambitious and sustainable navigation infrastructure project, you may be eligible for a certificate of recognition as part of PIANC's Working with Nature initiative. Projects receiving a certificate to be mentioned in the PIANC press release and announced on PIANC website and newsletter.



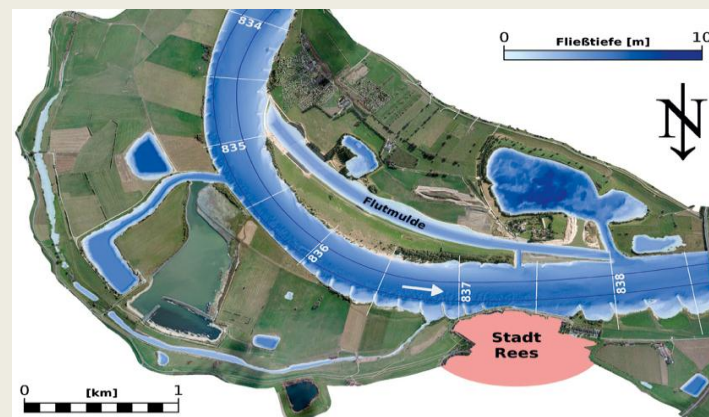
The WwN Award
All consented navigation infrastructure projects which receive a certificate will automatically be considered as a possible winner of PIANC's new Working with Nature Award. The award is granted every 4 years at PIANC International World Congress.

Your Benefit
Participating in the WwN initiative will provide you with an opportunity to establish a network of contacts with like-minded individuals working on similarly innovative projects. With your WwN certified project you have the extraordinary chance to promote your organization as being part of a contemporary and profitable way of project design and development.

How to Submit A Project

Please enter the Working with Nature Database and submit your project using the online template provided.
<http://www.workingwithnature.pianc.org/>

New to WwN ?
What in detail is Working-with Nature? More information and the basic position paper are given at PIANC's Working-with-Nature web site.
Read more at <http://www.pianc.org/workingwithnature.php>.



Quellen: PIANC, WSA Duisburg



Case study Rhine-Waal branch near Nijmegen



Source: Hr. B. Boekhoven (RWS, NL)

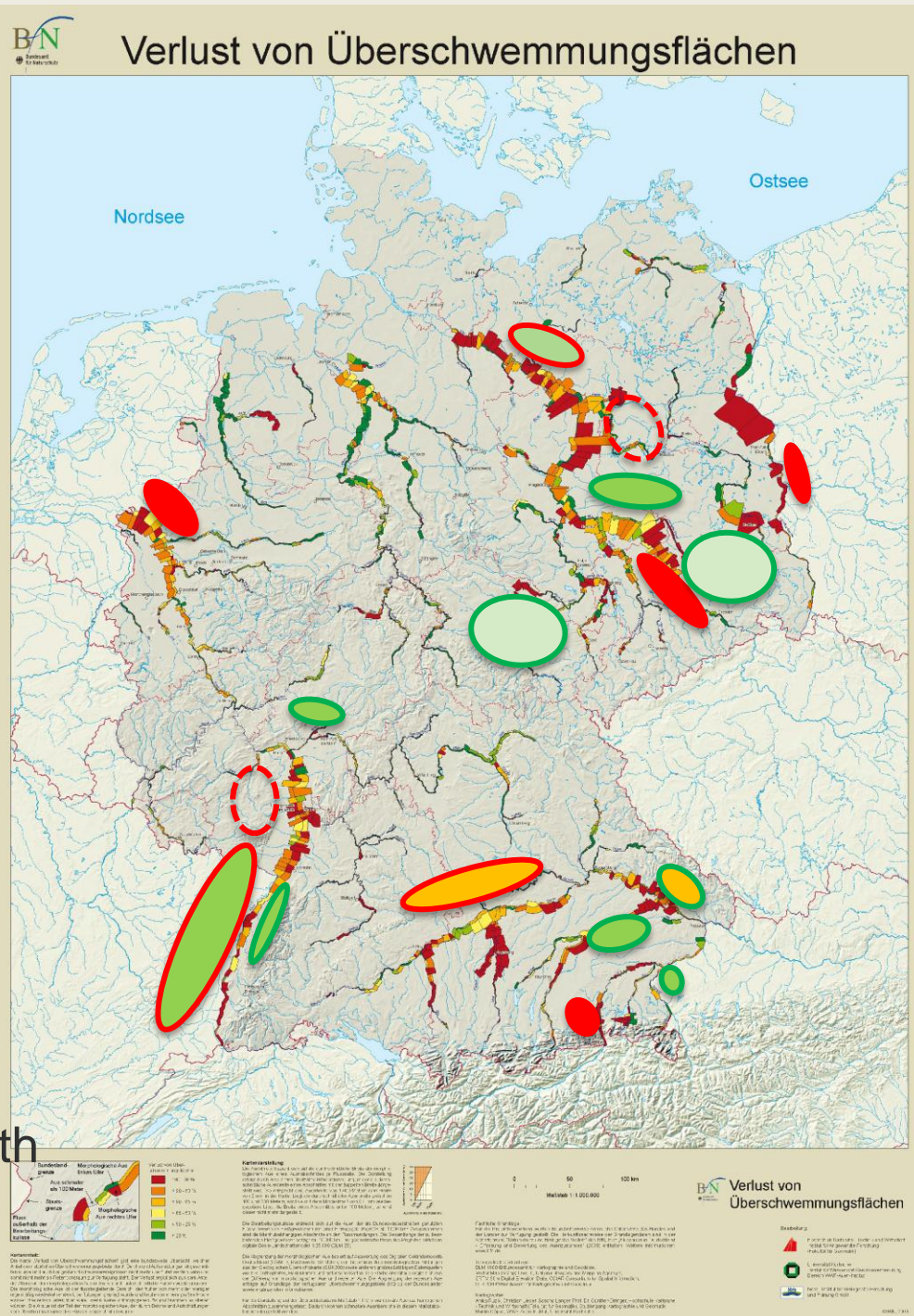


PoM NFPP (20 years perspective)

Regional focus areas for controlled and uncontrolled retention

Preliminary qualitative assessment (Georg Rast):

-  uncontrolled retention: high potential for synergy with WFD, BHD, Biodivstrategy
-  Controlled retention: Low potential for synergy with WFD, BHD, Biodivstrategy





Lessons learned

- Time scale
 - Decades not 6 years cycle period of EU directives
- Strategy
 - Cooperation of public sectors
 - Catchment approach (hydrological efficiency)
 - Ecoregion approach (functional connectivity for BHD and WFD)
 - Spatial planning and securement of potential areas
 - ESS approach in Cost-benefit at long term
 - Respect socio-economic effects in rural areas
- Compensation schemes for land users, 15 to 20 years perspective required > CAP?



Vision:
Existing and new/extended floodplains/retention areas
get a positive image