



Weed Control within the tracks of Deutsche Bahn AG - status quo and future prospects

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In Germany the Use of Herbicides on Railway Tracks is forbidden in general



National Plant Protection Act:

- the **use of Pesticides** on Areas not used for agriculture, horticulture or forestry is **forbidden**
- this Definition includes Traffic Areas like **Railway Tracks** e. g.
- **Exceptions are possible**, if no reasonable measures are available and the environment will not be affected in a negative way

Registration of Plant Protection Products:

- The Registration Process of Herbicide Products for Railway Use includes special Demands due to the Construction of the Railway Track

The Application of Herbicides in Railway Tracks underlies different Aspects



Legal Frame and Product Registration

General Permission by the National Railway Administration

DB Directives and Guidelines

Protected Areas (incl. further Demands/ Permissions)

Application of Herbicides in Railway Tracks in terms of „Good Practice in Plant Protection“

Operative Demands like Time Schedules, Track Construction, ...

Contracts with qualified Service Providers

... other Conditions like Rain, Wind, ...

The General Permission of the National Railway Administration take environmental demands of the Federal States into account (length: approx. 9,659 km)

Water Protection Zone I (~ 35 km)

- in general Railway Tracks are located outside the Zone I (Size: 10x10 m); in single Cases a Contact in the surroundings of Zone I may be possible.
- ban of Herbicide Use in these Areas

Water Protection Zone II (~ 293 km)

- the use of Herbicides is forbidden very frequently
- in single Cases applying for a permission depending on the regulations of the federal states

Water Protection other Zones (~ 5,622 km)

- different Regulations concerning the Use of Herbicides
- in single Cases applying for a permission depending on the regulations of the federal states

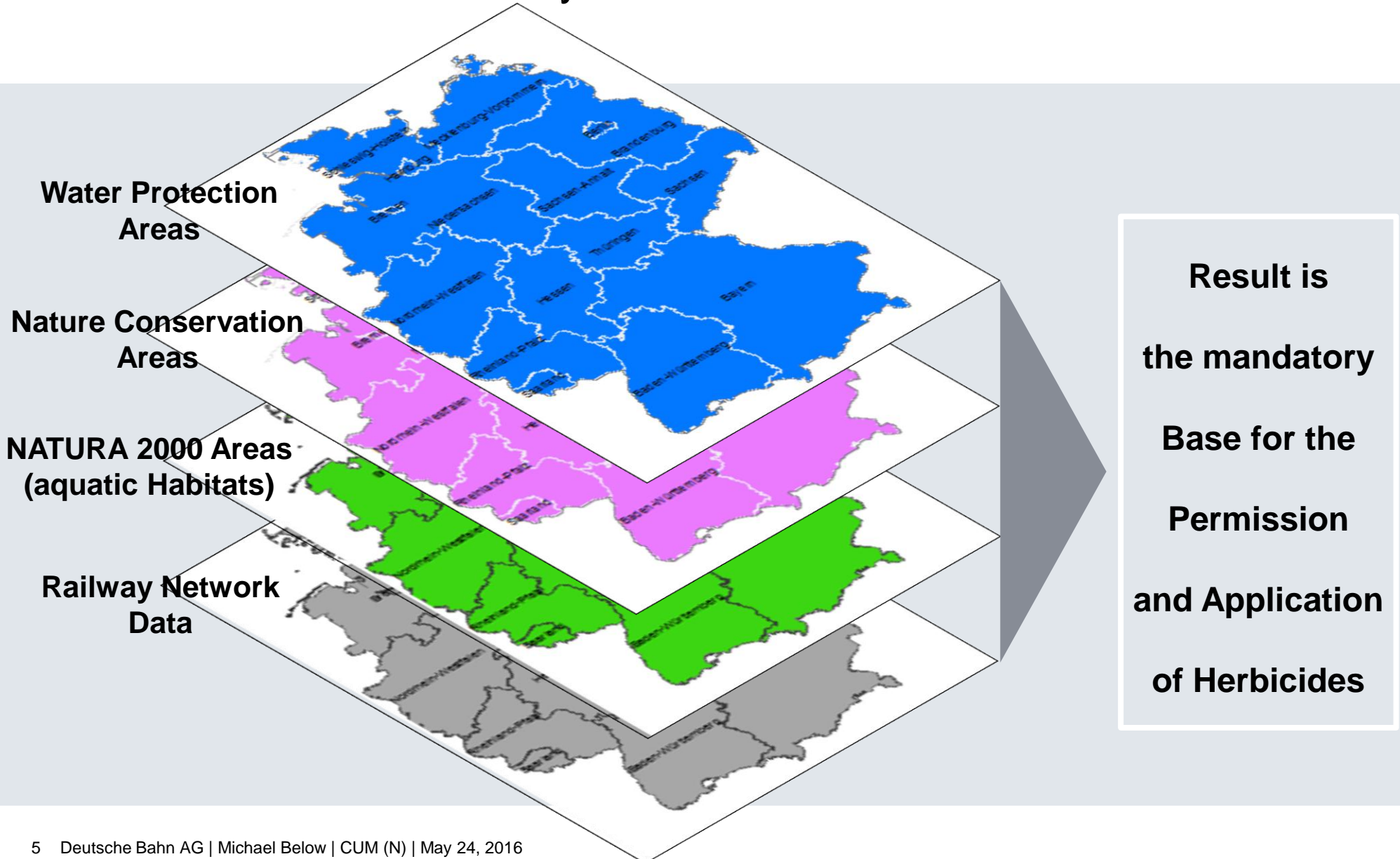
Nature Conservation (~ 1,238 km)

- the Use of Glyphosate Products (Leaf Herbicide) is forbidden
- in single Cases applying for a permission depending on the regulations of the federal states

FFH Areas (~ 2,471 km)

- within aquatic Habitats the Use of Flazasulfurone and Flumioxazine (Soil Herbicides) have to be checked individually

The GIS-Data Set of protected Areas are processed via intersection with the Railway Network Data each Year



The Spraying Train is used for Herbicide Application on approx. 46,000 Kilometers of the DB Network



Facts about Spraying Train/ Herbicide Application:

- Treatment of tracks in use only (once a year):
 - ~ 46,000 km by Train
 - ~ 10,000 km by Two-Way-Vehicle
- Max. Speed of
 - Train: 40 km/ h → ~ 200 km a day
 - Two-Way-Vehicle: 15 km/ h → 15 km a day



Control Unit/ Cockpit of Spraying Train incl.

- Monitor with GPS-Localization of Spraying Train in relation to protected areas
- Manual Operation of Spraying System supported by IR-Sensor for Gravel Bed

In the last 10 Years the total Amount of Herbicides used is in the range of 80,000 kg per Year

Herbicides used in 2015

	Track Length [km]	Track Area [ha]	Total Amount [Liter resp. kg]	l/ km resp. kg/ km	l/ ha resp. kg/ ha
Herbicides ¹⁾, total	57,480	29,826	82,900	1.44	2.78
Glyphosate			77,535	1.35	2.60
Flumioxazine			3,318	0.06	0.11
Flazasulfurone			549	0.01	0.02
Nufilm P ²⁾	13,992	7,804	1,499	0.11	0.19

¹⁾ Used Products: Tender GB Ultra, Glyphos Sypreme, Purgarol, Round Up Power Flexx (Switzerland), Chikara, Nozomi

²⁾ adhesion promoter

Primary Developments of the near Future will focus on the Reduction of Herbicide amount applied – because non-chemical methods will not be available soon

Roadmap

Status Quo:
GPS-Localization of Spraying Trains
in Relation to Protect Areas (incl.
manual Documentation of applied
Herbicides)

2016:
GPS based automatic
Documentation of
applied Herbicides

2017 (planned):
Start of a Project with other German
Railways evaluating different Weed
Control Measures

2020 (planned):
Automatic Weed Detection
triggers Herbicide Application



Questions? At all Times - contact:

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Many Thanks for Your Attention