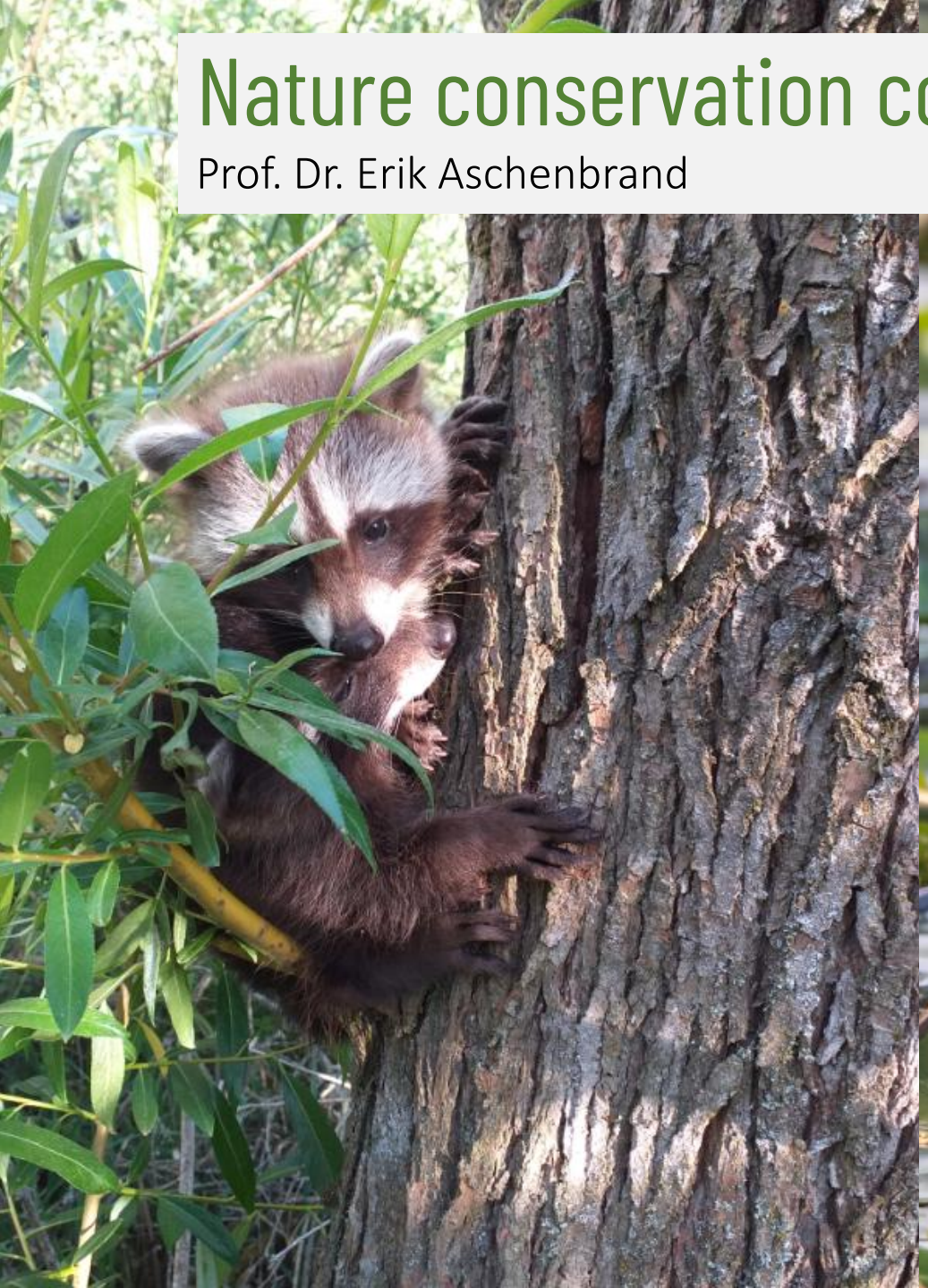
# Nature conservation concepts and protected area categories

Prof. Dr. Erik Aschenbrand



# A variety of (interconnected) approaches and objectives

Species conservation

Scenery: Early national Parks
→ Protection from exploitation

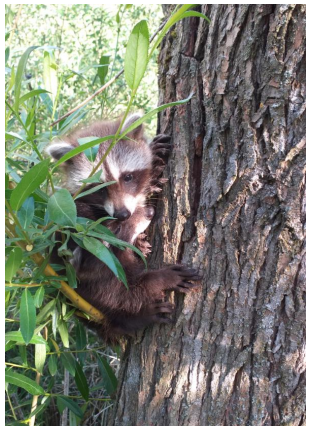
Cultural landscapes

Wilderness/Naturalness

Hands-off management

Resilience

Invasive species management



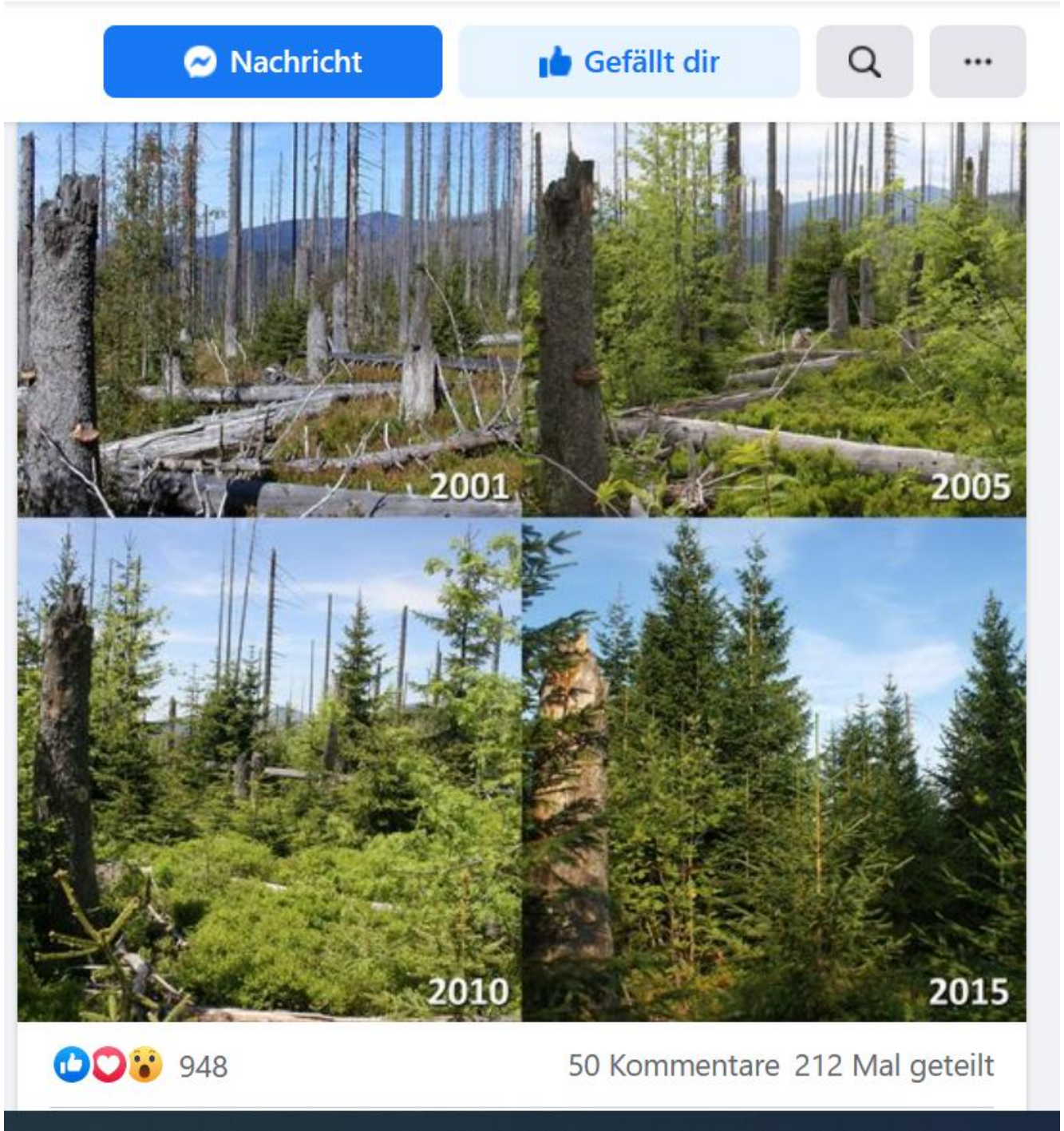
## Species conservation

- Dependance on natural processes/cultural landscapes?
- Secondary habitats/effectiveness of specific measures?
- Sensitivity to disturbance/Tourism?

Time series illustrating

**Hands-off management** in Bavarian Forest National Park

https://www.facebook.com/nationalpark.bayerischer.wald/photos/a.10150147542737901/10157775456617901/



**Leathery Moonwort** (Vierteilige Mondraute)
Botrichium multifidum
In Bavarian Forest National Park

# Invasive species management

Received: 30 April 2019 | Revised: 2 October 2019 | Accepted: 14 October 2019

DOI: 10.1111/ddi.13003

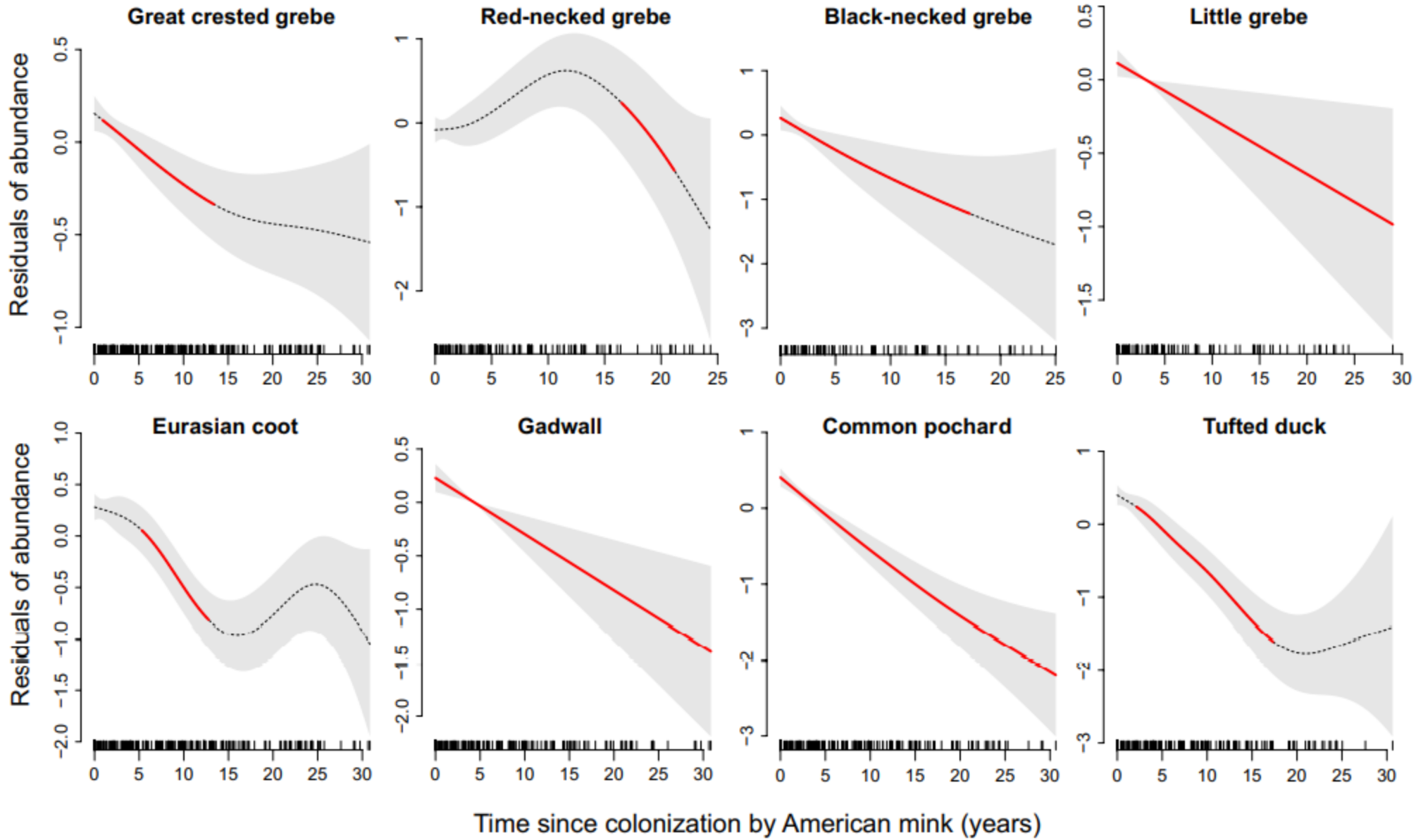
Check for updates

BIODIVERSITY RESEARCH

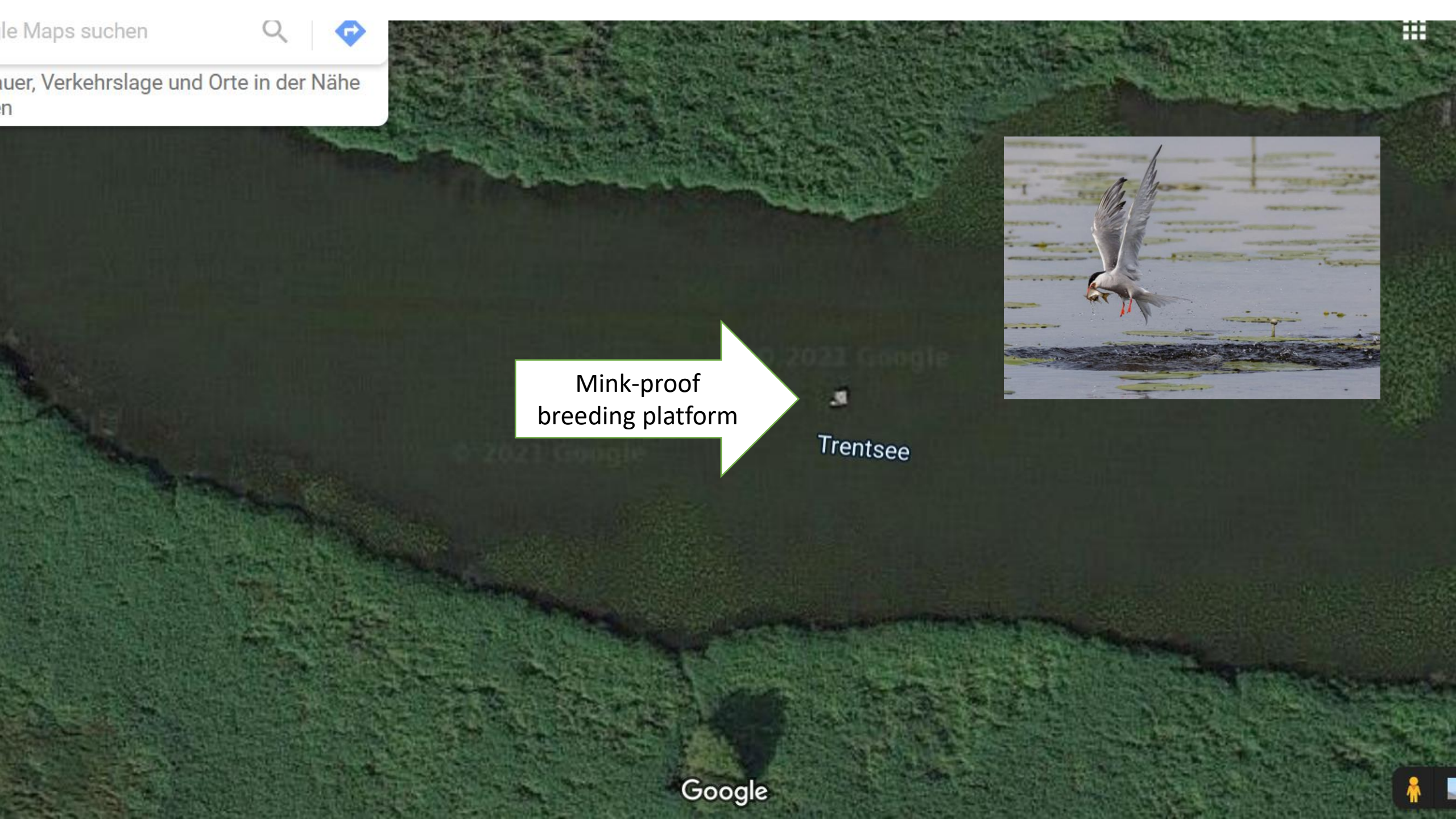
Diversity and Distributions WILEY

## The expansion wave of an invasive predator leaves declining waterbird populations behind

Marcin Brzeziński[1] | Michał Żmihorski[2] | Marek Nieoczym[3] | Piotr Wilniewczyc[4] | Andrzej Zalewski[2]


Great crested grebe
Red-necked grebe
Black-necked grebe
Little grebe
Eurasian coot
Gadwall
Common pochard
Tufted duck
Residuals of abundance
Residuals of abundance
Time since colonization by American mink (years)


le Maps suchen
auer, Verkehrslage und Orte in der Nähe
en
© 2021 Google
Trentsee
© 2021 Google
Google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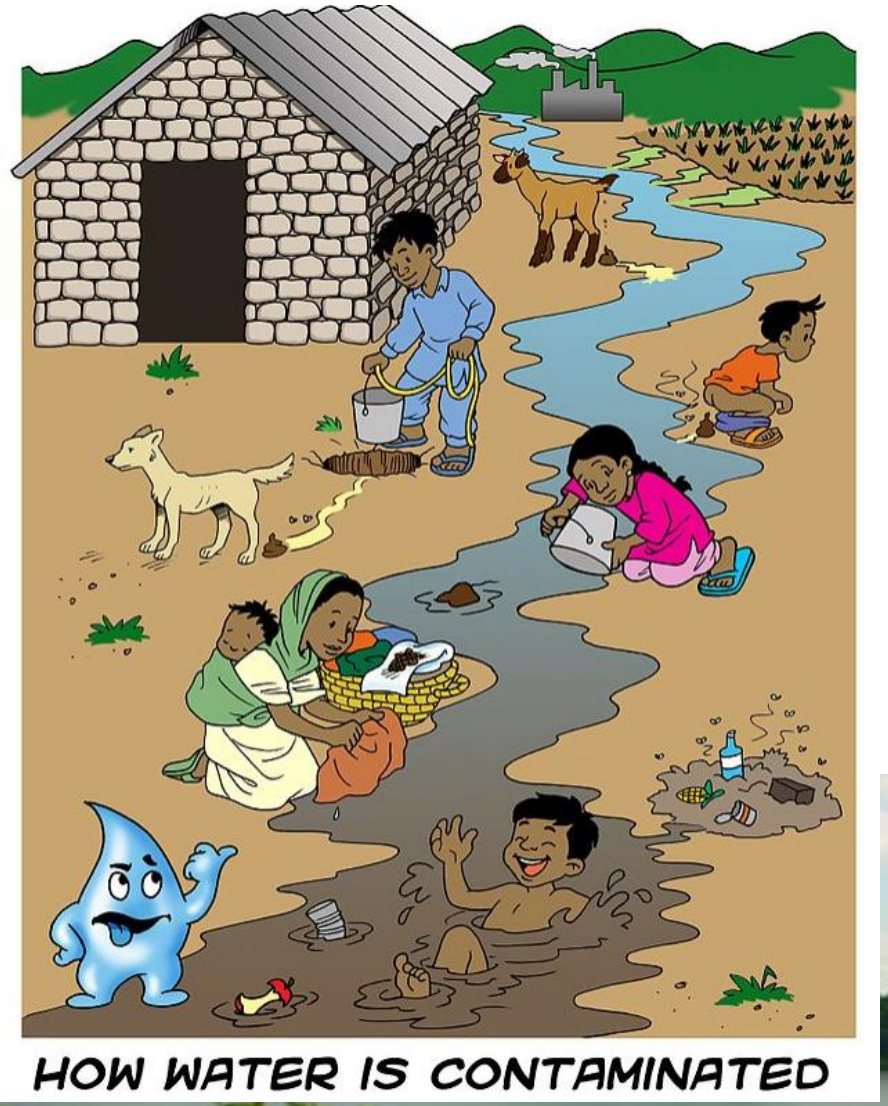
Mink-proof
breeding platform
Trentsee
Google




CAWST (2011): https://commons.wikimedia.org/wiki/File:South_Asia_Poster_03.jpg

# Managing for Resilience

Lake: clear water state

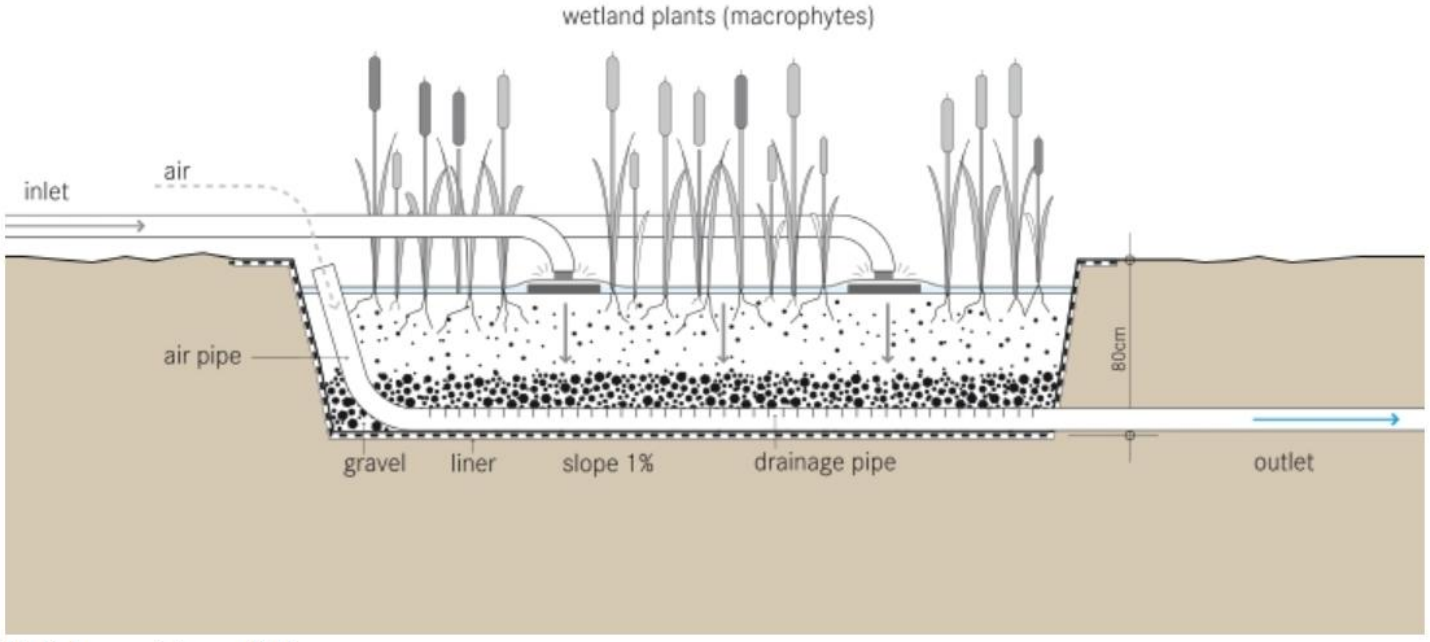
→ sewage or agricultural runoff

→ eutrophication: turbid water state

Riperian buffers

Managing for Resilience

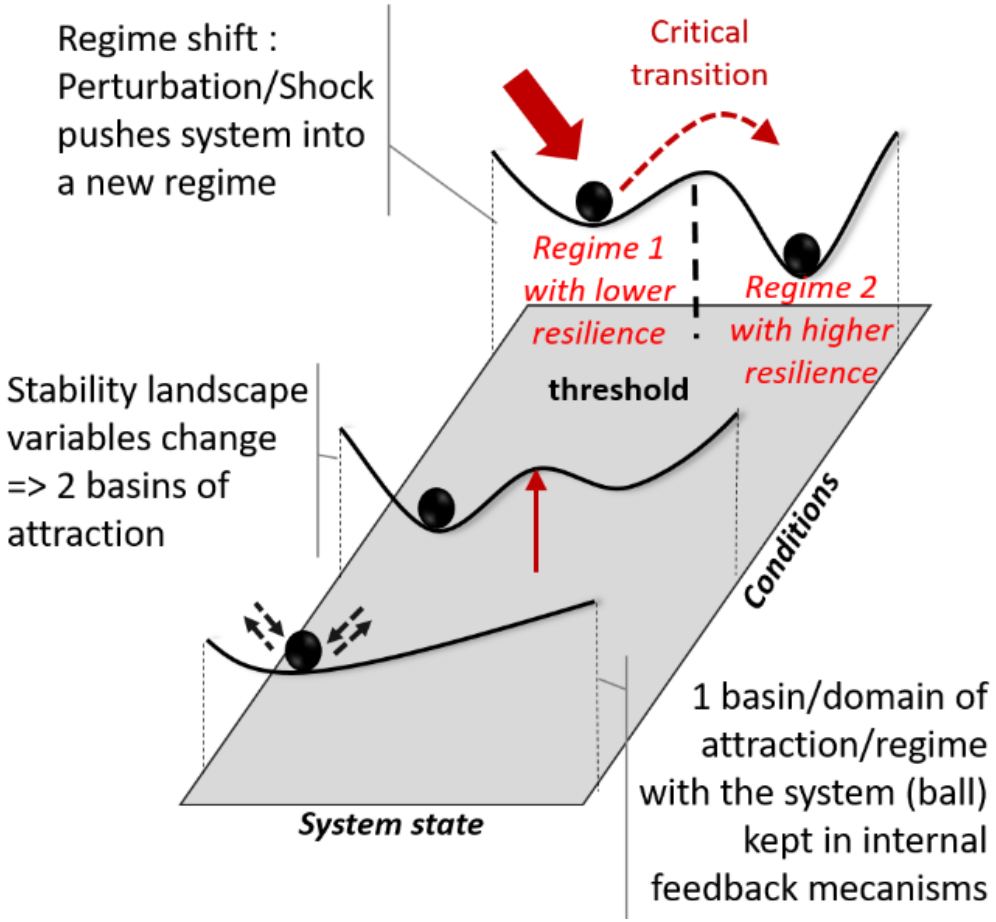
Natural or constructed wetlands




Tilley, E., Ulrich, L., Lüthi, C., Reymond, Ph., Zurbrügg, C. (2014): Schematic of the Vertical Subsurface Flow Constructed Wetland: Effluent flows through pipes on the subsurface of the ground through the root zone to the ground. Compendium of Sanitation Systems and Technologies. https://commons.wikimedia.org/wiki/File:Tilley_et_al_2014_Schematic_of_the_Vertical_Flow_Constructed_Wetland.jpg

Managing for Resilience → New emphasis in global change context → resilire: bouncing back after external shocks

**a) Ball and cup heuristic of Resilience**




**Resilience ←→ Stability ←→ Resistance**

**Resilience**: „The capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure and feedbacks, and therefore identity, that is, the capacity to change in order to maintain the same identity" (Folke et al. 2010)

**Resilience of *what* to *what*?**


Folke et al. (2010): Resilience Thinking: Integrating Resilience, Adaptability and Transformability. Ecology and Society. https://www.jstor.org/stable/pdf/26268226.pdf

Ollivier et al. (2018): Agroecological transitions:
What can sustainability transition frameworks teach us? An ontological and empirical analysis. Ecology and Society.
https://hal.inrae.fr/hal-02622145/document

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**Resilience ←** Not inherently good → Dictatorships can be resilient

**→ Sustainability** Overarching goal

Folke et al. (2010): Resilience Thinking: Integrating Resilience, Adaptability and Transformability. Ecology and Society. https://www.jstor.org/stable/pdf/26268226.pdf

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# The Trouble with Naturalness in Protected Area Management

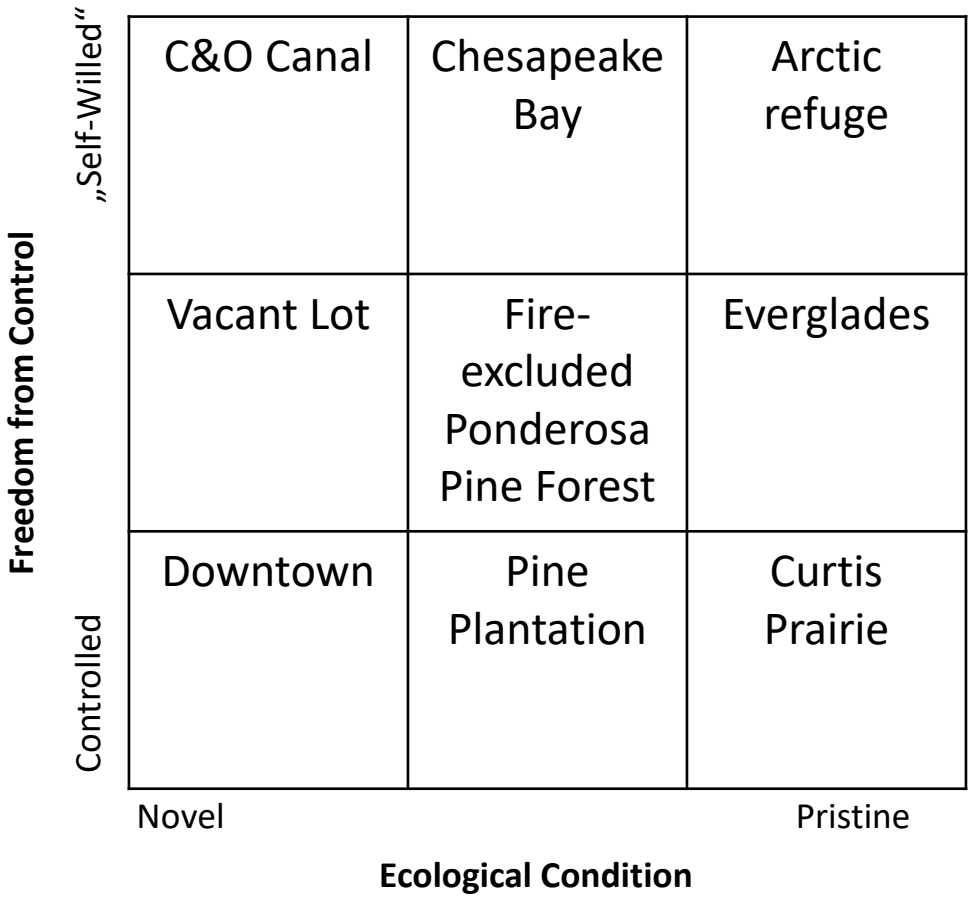


Figure from Aplet and Cole (2010, p.21):
„A conceptual model that arrays landscapes along two axes, from controlled to self-willed and from novel to pristine. The qualitites these axes represent are consistend with traditional definitions of naturalness. Their use clarifies the difference in meaning between freedom from intentional human control and maintenance of historical or undisturbed conditions“.

Aplet, G.H. & Cole, D.N. (2010): The Trouble with Naturalness: Rethinking Park and Wilderness Stewardship. In: Cole&Yung (Eds.): Beyond Naturalness. Washington.

# The Trouble with Naturalness in Protected Area Management

| Freedom from Control | Novel | | Pristine |
|---|---|---|---|
| „Self-Willed“ | C&O Canal | Chesapeake Bay | Arctic refuge |
| | Vacant Lot | Paul de Tornada Nature Reserve | Everglades |
| Controlled | Downtown | Pine Plantation | Curtis Prairie |

**Ecological Condition**

Novel – Pristine: scale of „Historical Fidelity“ – Historische Treue/Genauigkeit

Up – Paul de Tornada Nature Reserve (Portugal) © PATO
Left – Figure adapted from Aplet and Cole (2010, p.21):
„A conceptual model that arrays landscapes along two axes, from controlled to self-willed and from novel to pristine. The qualitites these axes represent are consistend with traditional definitions of naturalness. Their use clarifies the difference in meaning between freedom from intentional human control and maintenance of historical or undisturbed conditions“.

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# The Trouble with Naturalness in Protected Area Management

| Freedom from Control | Ecological Condition: Novel | | Ecological Condition: Inherited, threatened, valued |
|---|---|---|---|
| „Self-Willed“ | C&O Canal | Chesapeake Bay | Arctic refuge |
| | Vacant Lot | Paul de Tornada Nature Reserve | Everglades |
| Controlled | Downtown | Pine Plantation | Wetland Meadow |


**Restored wetland meadow in BR Spreewald**

Aplet, G.H. & Cole, D.N. (2010): The Trouble with Naturalness: Rethinking Park and Wilderness Stewardship. In: Cole&Yung (Eds.): Beyond Naturalness. Washington.

# The Trouble with Naturalness in Protected Area Management

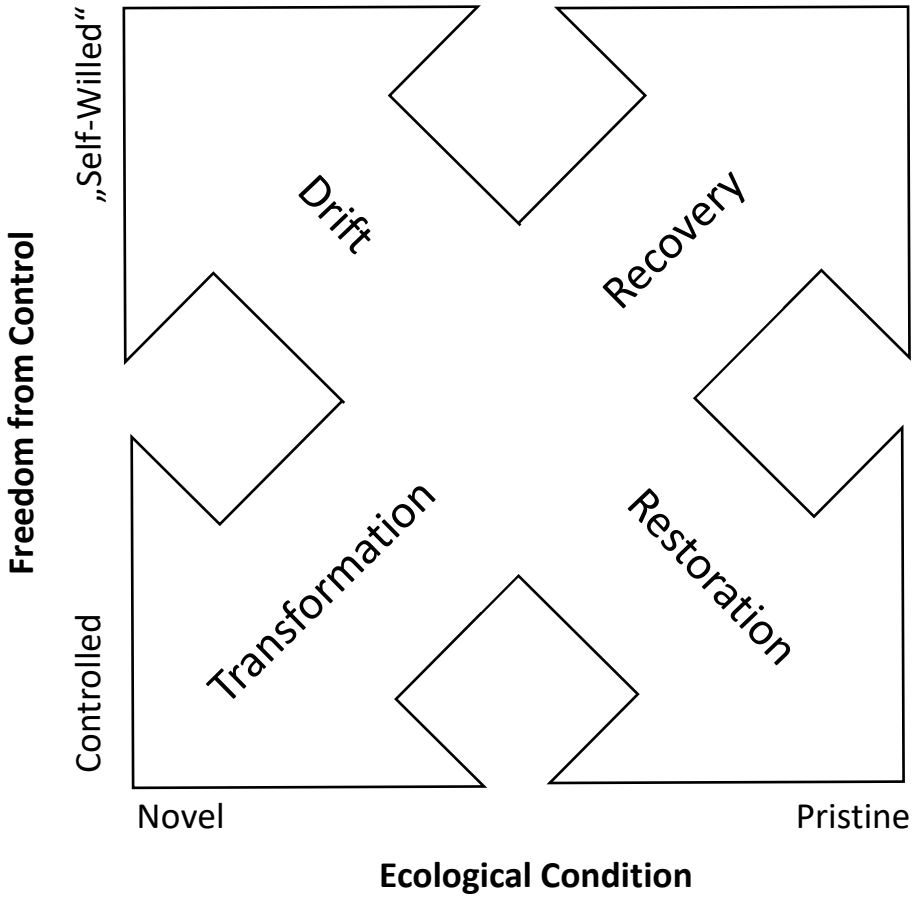


Figure from Aplet and Cole (2010, p.22):
„Like landscapes, stewardship options can be arrayed along two axes, from controlled to self-willed and from novel to pristine“.

Aplet, G.H. & Cole, D.N. (2010): The Trouble with Naturalness: Rethinking Park and Wilderness Stewardship. In: Cole&Yung (Eds.): Beyond Naturalness. Washington.

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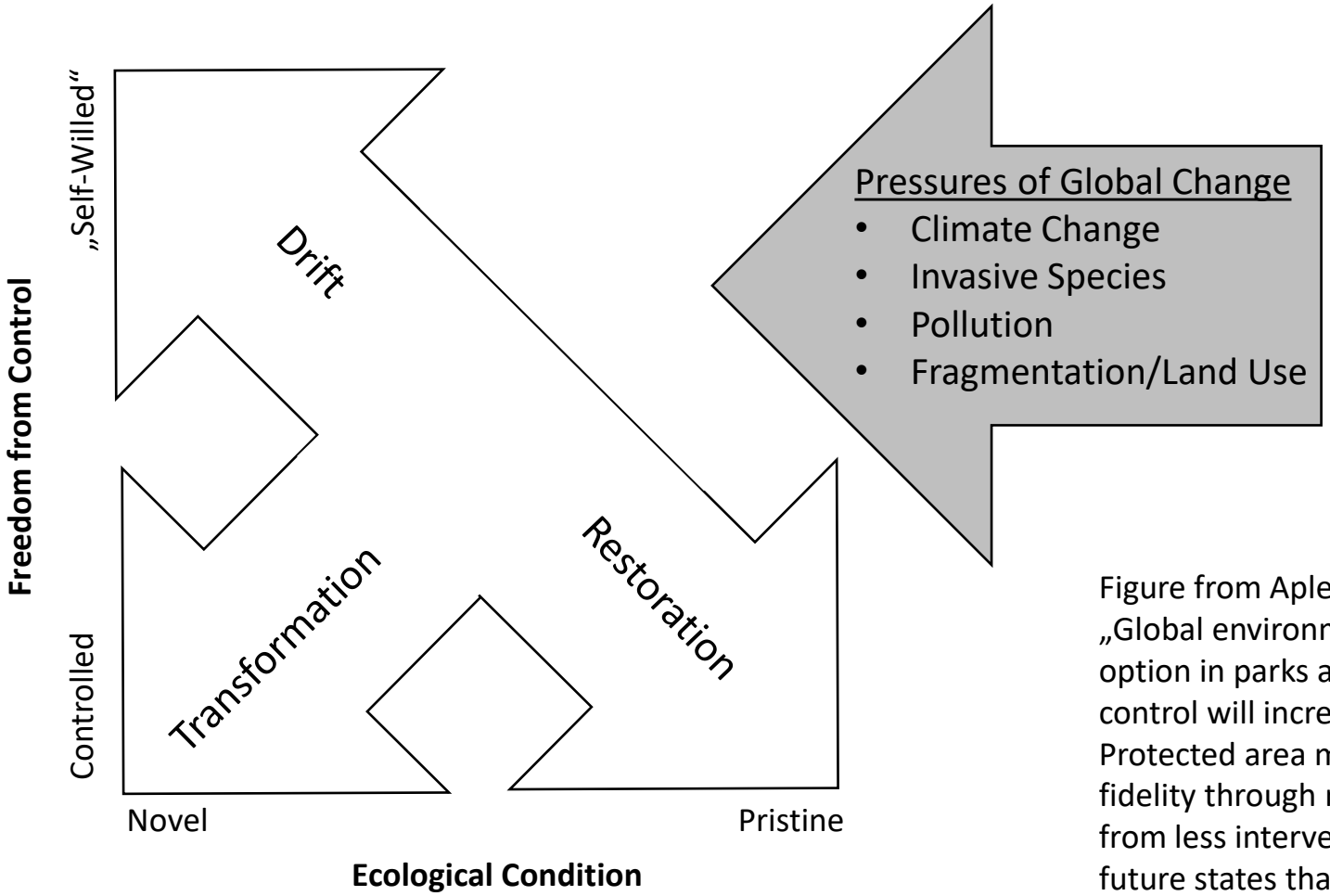
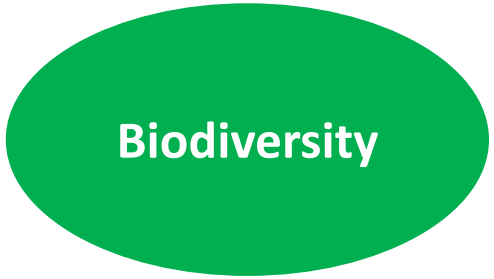


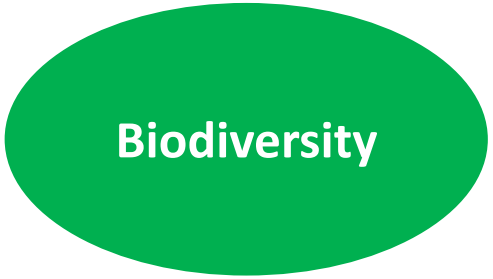

Figure from Aplet and Cole (2010, p. 24):
„Global environmental change precludes the ideal stewardship option in parks and wilderness: that release from human control will increase historical fidelity and pristineness. Protected area managers must choose to increase historical fidelity through restoration, accept the change that will result from less intervention and control, or transform ecosystems to future states that are not true to the past but will protect important values and be more resilient in the face of global change“.

Aplet, G.H. & Cole, D.N. (2010): The Trouble with Naturalness: Rethinking Park and Wilderness Stewardship. In: Cole&Yung (Eds.): Beyond Naturalness. Washington.


Biodiversity

**Genetics**
Variations between and among populations

**Species/Populations**




**Ecosystems/Communities**

**Landscapes/Regions**

„the whole package of genes, populations, species, and the cluster of interactions that they manifest“ (Daniel Janzen)
„the living resources of the planet“ (Paul Ehrlich)
„shorthand for all the richness of life“ (Reed Noss)
„you‘re talking about a subject that is literally as large as the world itself“ (Donald Falk)

All quotes from: Takacs, D. (1996, p. 51): The idea of Biodiversity. Philosophies of Paradise. John Hopkins University Press.

# Biodiversity

1986 – The term „Biodiversity“ was created to gain political influence

„It was easy to do: all you do is take the ‘logical‘ out of biological“ (Walter G. Rosen as cited in Takacs 1996, p. 37)

„To take the logical out of something that is supposed to be science is a bit of a contradiction in terms, right? And yet, of course, maybe thats why I get impatient with the Academy, because they‘re always so logical that there seems to be no room for emotion in there, no room for spirit“ (Walter G. Rosen as cited in Takacs 1996, p. 37)

(The term Biodiversity was used first by Walter G. Rosen in 1986 as a contraction of biological diversity while planning for a US „National Forum on Biodiversity“ for the US Academy of the Sciences.)

Takacs, D. (1996): The idea of Biodiversity. Philosophies of Paradise. John Hopkins University Press.

# Biodiversity

Biodiversity – boundary work:

creating a boundary object

<u>Scientific sphere</u>

Aim: Directing research and funding more towards Zoology, Botany, Ecology, Conservation Biology

<u>Political sphere</u>

Aim: Ensuring Biosciences‘ say in political decisionmaking where Biodiversity is concerned

Creating the boundary object was certainly more than a strategy to strengthen political Influence. This process is driven by the firm conviction to stop destruction of non-human life on Earth (Piechocki et al. 2003).

Takacs, D. (1996): The idea of Biodiversity. Philosophies of Paradise. John Hopkins University Press.

Piechocki, R./Eser, U./Potthast, T./Wierbinski, N./Ott, K. (2003): Vilmer Thesen zur Biodiversität.

# Definitions

David Ehrenfeld as quoted in Takacs 1996, p. 46:

„I dont have a definition of biodiversity. I‘ve tried very hard to stay away from formal definitions. When I deal with it in the journal [Conservation Biology, of which he was the founding editor] – and its one reason I don‘t much like the word – it obviously means to some people species diversity; other people expand that to include populations. To other people it means really genentic diversity, heterozygosity, allelic diversity, often within populations. To many people, it means variety of ecotypes or ecosystem types, landscape types. Obviously, it‘s all of those things. But mostly when I think of biodiversity, I think of plain, ordinary species diversity. And by the way, I don‘t really value it, value the term, as highly as some people do. I think it‘s one of those woderful catchwords like *sustainable development*, that, because it‘s vaguely defined, has a broad appeal“

Takacs, D. (1996): The idea of Biodiversity. Philosophies of Paradise. John Hopkins University Press.

# Categories of protected areas

## US

**Federal level**
National Park
National Preserve
National Wildlife Refuge
National Forest
National wild and scenic rivers system
…

**State level**
State Park
…

**County level**
County Park
County Preserve (e.g. Miesville Ravine Park Reserve)
…



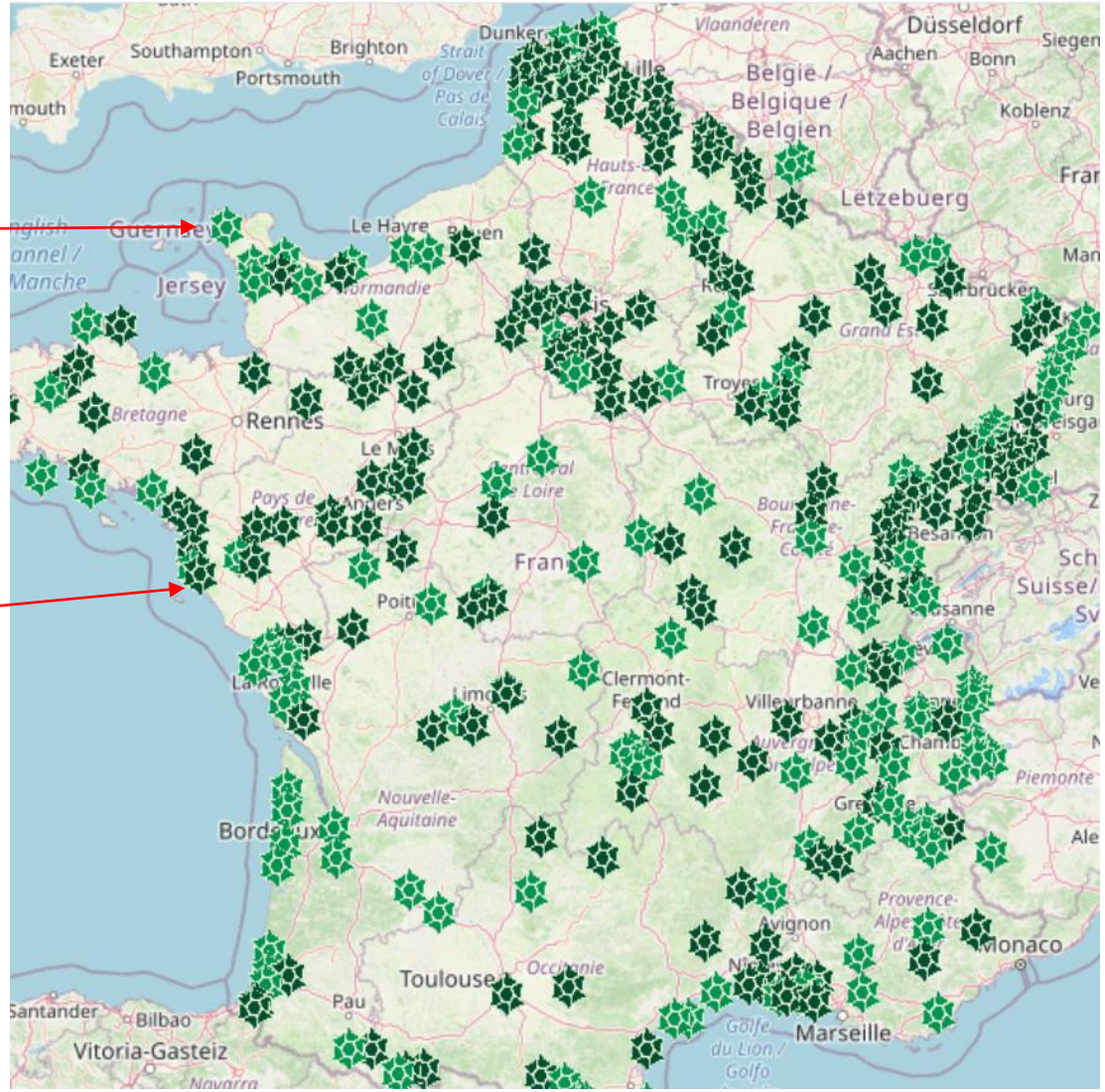
# France

**Federal level**
Parc National
Reserve Naturel National
…

353 RNN+RNR

**Regional level**
Reserve Naturel Regional
…

**Department/Community level**
Parc naturel regional
…



# Definition: What is a protected area?

A protected area is a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long term conservation of nature with associated ecosystem services and cultural values. (IUCN Definition 2008)

IUCN Protected area categories https://portals.iucn.org/library/sites/library/files/documents/PAG-021.pdf

**Ia Strict nature reserve:** Strictly protected for biodiversity and also possibly geological/ geomorphological features, where human visitation, use and impacts are controlled and limited to ensure protection of the conservation values

**Ib Wilderness area:** Usually large unmodified or slightly modified areas, retaining their natural character and influence, without permanent or significant human habitation, protected and managed to preserve their natural condition

**II National park:** Large natural or near-natural areas protecting large-scale ecological processes with characteristic species and ecosystems, which also have environmentally and culturally compatible spiritual, scientific, educational, recreational and visitor opportunities

**III Natural monument or feature:** Areas set aside to protect a specific natural monument, which can be a landform, sea mount, marine cavern, geological feature such as a cave, or a living feature such as an ancient grove

**IV Habitat/species management area:** Areas to protect particular species or habitats, where management reflects this priority. Many will need regular, active interventions to meet the needs of particular species or habitats, but this is not a requirement of the category

**V Protected landscape or seascape:** Where the interaction of people and nature over time has produced a distinct character with significant ecological, biological, cultural and scenic value: and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values

**VI Protected areas with sustainable use of natural resources:** Areas which conserve ecosystems, together with associated cultural values and traditional natural resource management systems. Generally large, mainly in a natural condition, with a proportion under sustainable natural resource management and where low-level non-industrial natural resource use compatible with nature conservation is seen as one of the main aims

# IUCN Categories

Classification of protected areas according to management objectives

75% rule: „The category should be based around the primary management objective(s), which should apply to at least three-quarters of the protected area – the 75 per cent rule" (Dudley 2008, p.2).

Dudley, N. (Editor) (2008): Guidelines for applying Protected Area Management Categories. https://portals.iucn.org/library/sites/library/files/documents/PAG-021.pdf (access: 2020/09/21)

**Some important facts about the legal organisation of german large PAs**

National categories of PAs

**Federal nature conservation act: spatial categories**
(legal definition of protected area categories)

Chapter 4
Protection of special parts of Nature and Landscape
...
**§23 Nature conservation areas**
§24 Nationalparks, National Nature Monuments
§25 Biosphere Reserves
**§26 Landscape protection areas**
§27 Nature Parks
§28 Nature monuments
§29 Protected parts of landscapes
§30 Protected Biotopes

Authorities

**16 German States:**

**Supreme nature conservation authority**
(ministry)

**Upper nature conservation authority**
(mostly special nature conservation agencies)

**Lower nature conservation agency**
(mostly regional district administrations)

**→ §23 & §26 are constitutive for the legal definition of §24, §25 and §27**

https://www.gesetze-im-internet.de/bnatschg_2009/BJNR254210009.html#BJNR254210009BJNG001100000

**Some important facts about the legal organisation of gerr**

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**§ 24 National Parks, National Monuments of Nature**

National parks are legally binding, uniformly designated areas to be protected which

1. are extensive, largely unfragmented and of special character,
2. fulfil the **requirements of a nature conservation area in a greater part of their area,** and
3. are, in a predominant part of their area, in a condition not or only slightly influenced by man or are capable of developing or being developed into a condition which ensures the most undisturbed possible course of natural processes in their natural dynamics.

(2) The objective of national parks shall be to ensure, in a major part of their area, the most undisturbed possible course of natural processes in their natural dynamics. 2 To the extent permitted by the purpose of protection, national parks shall also serve the scientific observation of the environment, natural history education and the experience of nature by the population.
(3) National parks shall be protected in the same way as nature reserves, taking into account their special conservation purpose and the exceptions required by their large size and settlement.

→ **§23 & §26 are constitutive for the legal definition of §24, §25 and §27**

https://www.gesetze-im-internet.de/bnatschg_2009/BJNR254210009.html#BJNR254210009BJNG001100000

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→ **§23 & §26 are constitutive for the legal definition of §24,**

**§ 25 Biosphere reserves**

(1) Biosphere reserves are areas that are to be protected and developed in a uniform manner and which
1. are large-scale and characteristic of certain types of landscape,
2. fulfil the requirements of a nature conservation area in substantial parts of their area, and in most other respects of a landscape conservation area,
3. serve primarily to conserve, develop or restore a landscape characterised by traditional diverse use and the diversity of species and biotopes which has historically grown therein, including wild and formerly cultivated forms of economically used or exploitable animal and plant species, and
4. serve as examples for the development and testing of economic practices that are particularly protective of natural resources.

(2) Biosphere reserves also serve, insofar as their protective purpose permits, research and observation of nature and the landscape, as well as education for sustainable development.

(3) Biosphere reserves are to be developed via core zones, buffer zones and development zones, taking into account the exceptions required by their large size and settlement, and are to be protected in the same way as nature conservation areas or landscape conservation areas.

(4) Biosphere reserves may also be designated as biosphere areas or biosphere regions.

https://www.gesetze-im-internet.de/bnatschg_2009/BJNR254210009.html#BJNR254210009BJNG00110000

# Nature Conservation Areas
(german: Naturschutzgebiete)

- 12/2017: 8.833 NSG
- Average size: 297 ha
- 60% smaller than 50 ha → not sufficiently buffered

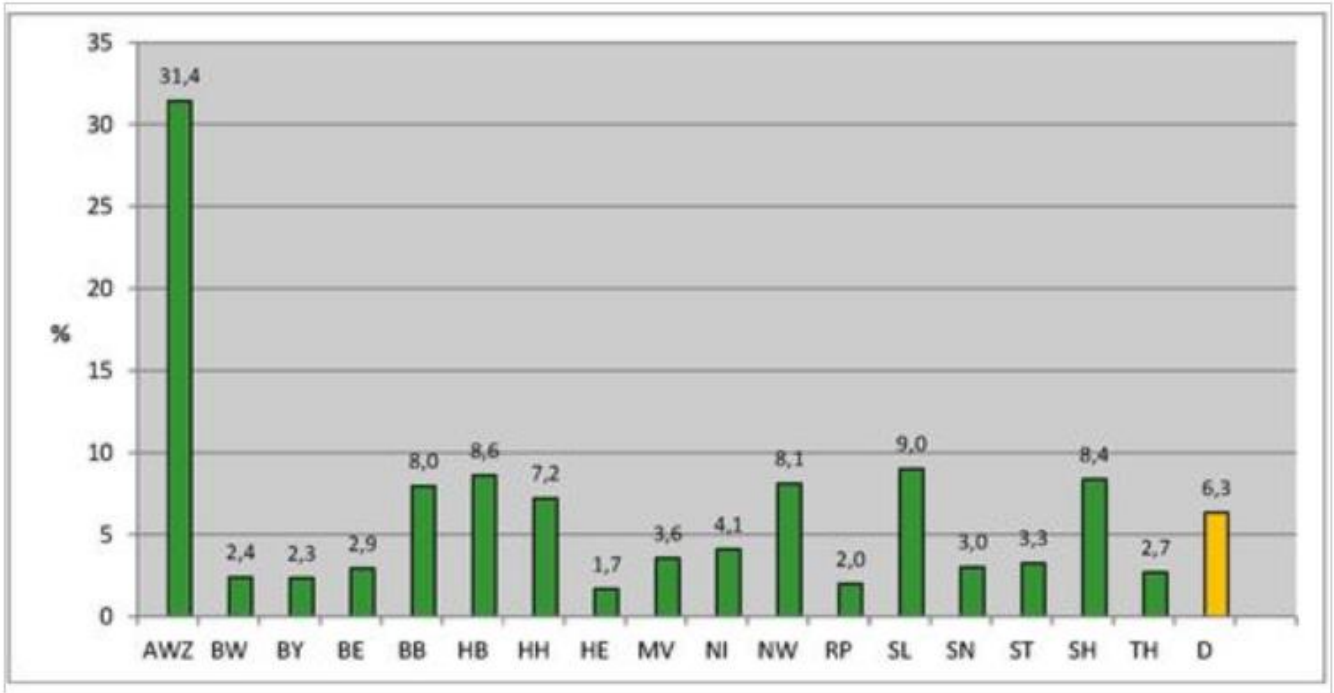


Abb. 1: Flächenanteil der Naturschutzgebiete in der AWZ, den Bundesländern und in Deutschland, Stand: 31.12.2017


https://www.bfn.de/fileadmin/BfN/gebietsschutz/Dokumente/nsg2019_barrierefrei.pdf

# Nature Conservation Areas
## (german: Naturschutzgebiete)

“According to § 23 para. 1 BNatSchG, nature conservation areas (NSG) are "legally binding areas in which special protection of nature and landscape in their entirety or in individual parts is required

- for the conservation, development or restoration of biotopes or communities of certain wild animal and plant species,
- for reasons of science, natural history or regional history, or
- because of their rarity, special character or outstanding beauty”(BfN 2021).

Translated with www.DeepL.com/Translator (free version)

BfN (2021): Naturschutzgebiete. https://www.bfn.de/themen/gebietsschutz-grossschutzgebiete/naturschutzgebiete.html


https://www.bfn.de/fileadmin/BfN/gebietsschutz/Dokumente/nsg2019_barrierefrei.pdf

# Nature Conservation Areas
## (german: Naturschutzgebiete)

“They are usually designated by the higher nature conservation authorities at the regional councils, occasionally also by the supreme and lower nature conservation authorities of the Länder by decree or ordinance.
From a spatial planning perspective, nature conservation in these areas has a priority function. **Alongside the national parks, they form important areas for the conservation of biodiversity in Germany” (BfN 2021).**

Translated with www.DeepL.com/Translator (free version)

BfN (2021): Naturschutzgebiete. https://www.bfn.de/themen/gebietsschutz-grossschutzgebiete/naturschutzgebiete.html


https://www.bfn.de/fileadmin/BfN/gebietsschutz/Dokumente/nsg2019_barrierefrei.pdf

# Landscape Conservation Areas
(german: Landscahftsschutzgebiete)

- 12/2017: 8.788 LSG
- Main objective: maintain *character* of landscape

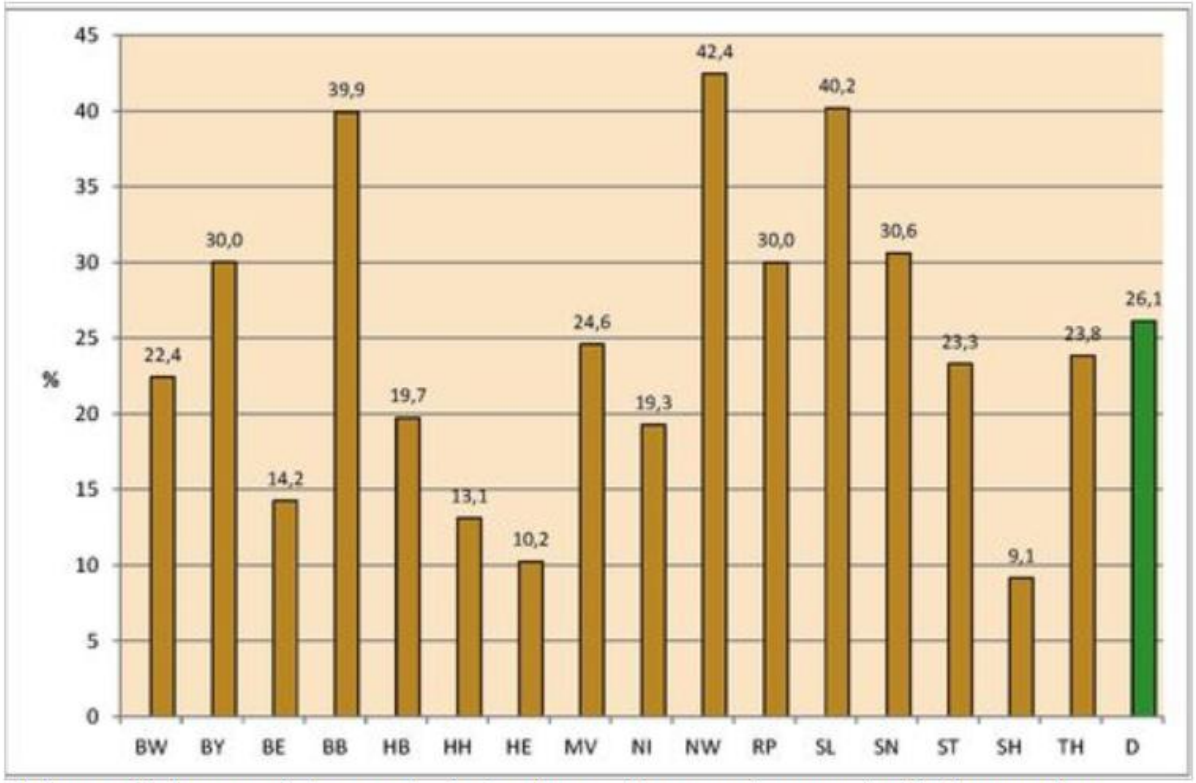


Abb. 1: Flächenanteil der Landschaftsschutzgebiete in den Bundesländern und in Deutschland, Stand: 31.12.2017


https://www.bfn.de/fileadmin/BfN/gebietsschutz/Dokumente/lsg2019barrierefrei.pdf

# Landscape Conservation Areas
## (german: Landscahftsschutzgebiete)

“The designation as a landscape conservation area can be for

- ecological ("preservation, development or restoration of the performance and functionality of the natural balance or the regenerative capacity and sustainable usability of the natural assets") or
- aesthetic reasons ("diversity, uniqueness and beauty of the landscape") or
- due to the cultural-historical significance (if historical developments have shaped the landscape) or
- for recreational purposes (cf. § 26 para. 1 BNatSchG).

Not all three conservation purposes must be fulfilled at the same time, but at least one must be fulfilled.

Landscape protection areas are usually designated by ordinance of the nature conservation authorities” (BfN 2021).

Translated with www.DeepL.com/Translator (free version)

BfN (2021): Landschaftsschutzgebiete. https://www.bfn.de/themen/gebietsschutz-grossschutzgebiete/landschaftsschutzgebiete.html


https://www.bfn.de/fileadmin/BfN/gebietsschutz/Dokumente/lsg2019barrierefrei.pdf

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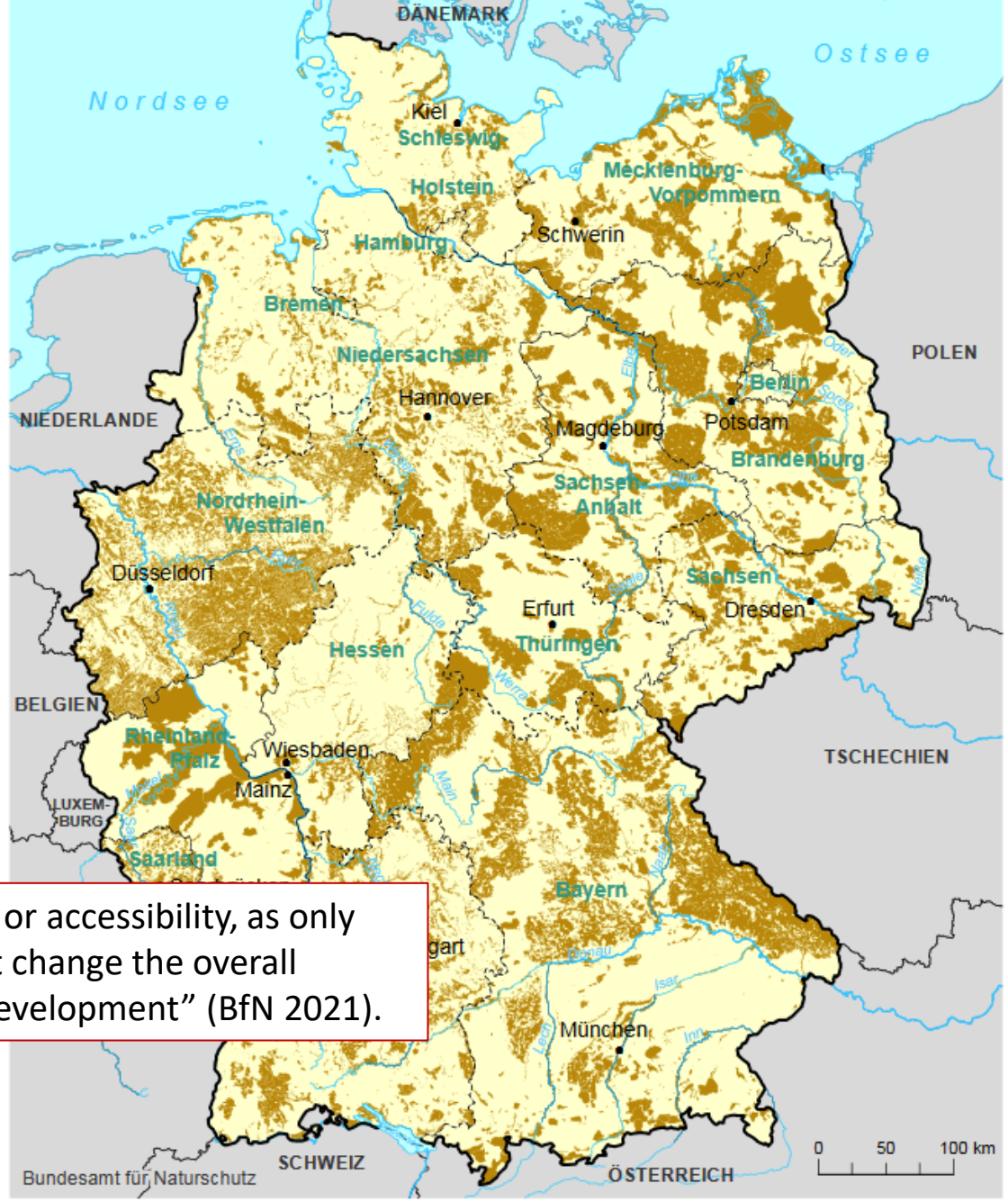
- for recreational purposes (cf. § 26 para. 1 BNatSchG).

Not all three conservation purposes must be fulfilled at the same time, but at least one must be fulfilled” (BfN 2021).

“Most landscape conservation areas contain hardly any restrictions on use or accessibility, as only the overall character of the area is to be preserved. Therefore, actions that change the overall character of the area are prohibited; this applies in particular to building development” (BfN 2021).




https://www.bfn.de/fileadmin/BfN/gebietsschutz/Dokumente/lsg2019barrierefrei.pdf

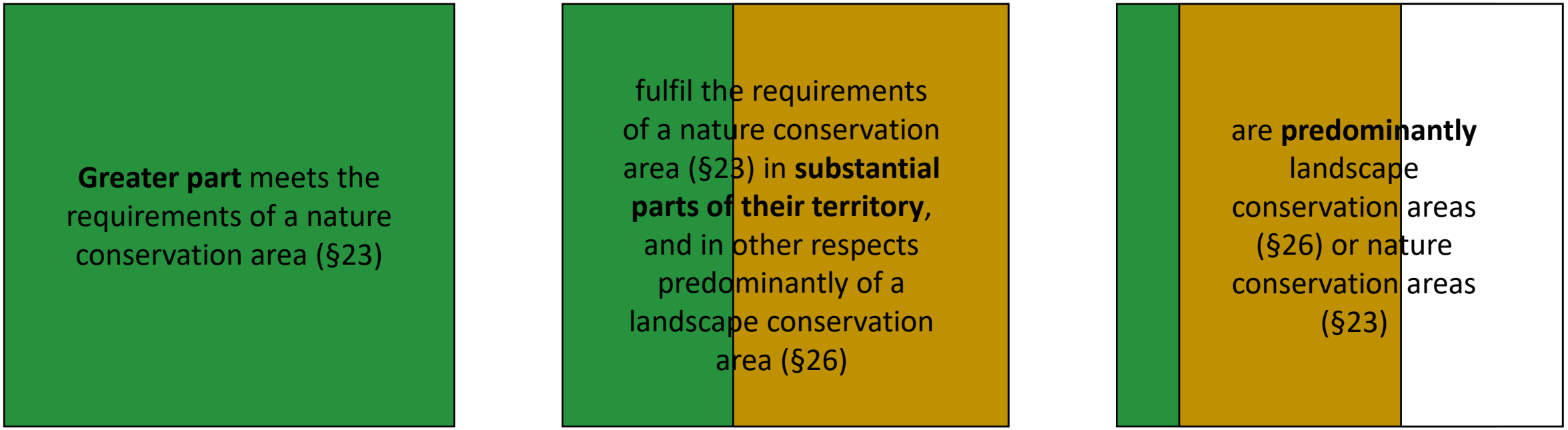
Translated with www.DeepL.com/Translator (free version)

BfN (2021): Landschaftsschutzgebiete. https://www.bfn.de/themen/gebietsschutz-grossschutzgebiete/landschaftsschutzgebiete.html

§24 Nationalpark

§25 Biosphere Reserve

§27 Naturepark



# EU Nature Policy

# Treaties

- Ramsar
- UNESCO MAB
- UNESCO World Heritage
- Cites
- Berne Convention
- Convention on Biological Diversity

→treaties: states legally bind themselves but no direct legal effect

Content needs to be transferred into national law

International – between nations

---

Supranational – above nations

supranational law → EU N2000

**Directives**: need to be transfered in national law (sanctions otherwise)

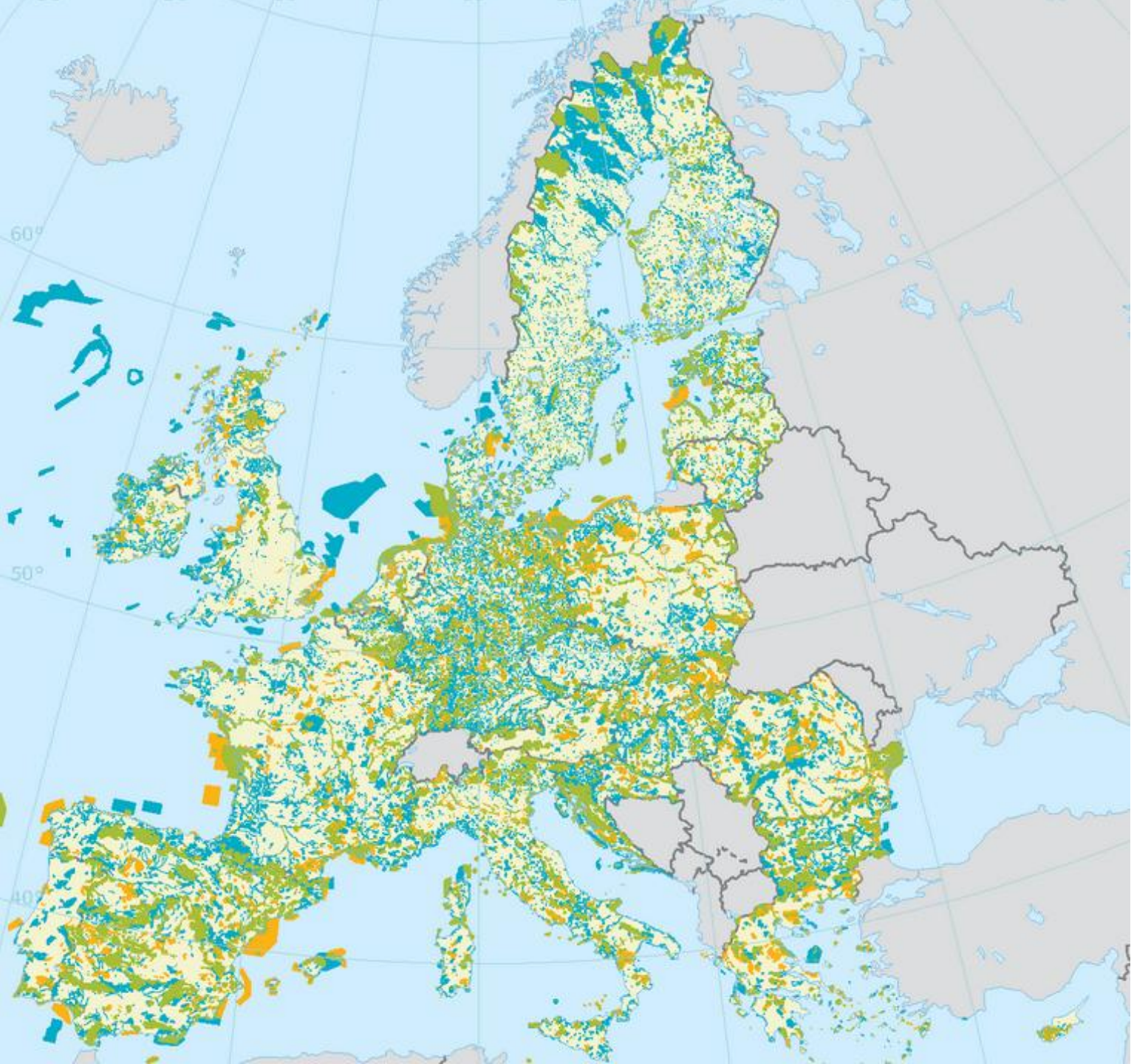
**Regulations**: immediately enforcable in all member states

# EU - Natura 2000

- Birds **directive**
- Habitats **directive**

# Natura 2000 Network

- Covering 18% of EU land area
- And 8% of EU marine territory
- Over 27.000 sites (EU Commission 2016)




European Environment Agency (2016): Birds and Habitats Directives. Protected Areas in Europe. https://www.eea.europa.eu/data-and-maps/figures/natura-2000

# EU Birds directive

1979: Bird directive picks up guiding idea of 1971 Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat

2009: New directive on the conservation of wild birds

# EU Birds directive

Article 4

The species mentioned in Annex I shall be the subject of special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution.

In this connection, account shall be taken of:

(a)species in danger of extinction;

(b)species vulnerable to specific changes in their habitat;

(c)species considered rare because of small populations or restricted local distribution;

(d)other species requiring particular attention for reasons of the specific nature of their habitat.

Member States shall classify in particular the most suitable territories in number and size as special protection areas for the conservation of these species in the geographical sea and land area where this Directive applies.

# EU Birds directive

- Selection of sites only according to ornithological criteria/no weighting with other criteria → **Important Bird Areas (IBA) as technical reference**

BirdLife INTERNATIONAL | Partnership for nature and people

## Global IBA Criteria

**A1. Globally threatened species**

**Criterion**: The site is known or thought regularly to hold significant numbers of a globally threatened species.

**Notes**: The site qualifies if it is known, estimated or thought to hold a population of a species categorized by the IUCN Red List as Critically Endangered, Endangered or Vulnerable. Specific thresholds are set for species within each of the threat categories that need to be exceeded at a particular IBA. The list of globally threatened species is maintained and updated annually for IUCN by BirdLife International (www.birdlife.org/datazone/species).

**A2. Restricted-range species**

**Criterion**: The site is known or thought to hold a significant population of at least two range-restricted species.

**Notes**: Restricted-range bird species are those having a global range size less than or equal to 50,000 km2. 'Significant population': it is recommended that site-level populations of at least two restricted-range species should be equal to or exceed 1% of their global population. This criterion can be applied to species both within their breeding and non-breeding ranges.

**A3. Biome-restricted species**

**Criterion**: The site is known or thought to hold a significant component of the group of species whose distributions are largely or wholly confined to one biome-realm

http://datazone.birdlife.org/site/ibacritglob

# NGOs


NABU


BUND
FRIENDS OF THE EARTH GERMANY


BirdLife
INTERNATIONAL
Partnership for
nature and people


The Nature
Conservancy


WWF


FAUNA & FLORA
INTERNATIONAL


SIERRA
CLUB

# EU Birds directive

Black Tern (*Chlidonias niger*): Annex I EU Birds Directive

SPA Untere Havel Sachsen Anhalt / Schollener See

Ramsar Untere Havel und Gülper See

Biosphere Reserve Middle Elbe

Black tern. Picture: Jürgen Borris

# EU Birds directive

Black Tern: Annex I EU Birds Directive

SPA Untere Havel Sachsen Anhalt / Schollener See

Ramsar Untere Havel und Gülper See

Biosphere Reserve Middle Elbe

Black tern. Picture: Jürgen Borris

# EU Birds directive

Whiskered Tern (Chlidonias hybridus): Annex I EU Birds Directive

SPA Untere Havel Sachsen Anhalt / Schollener See

Ramsar Untere Havel und Gülper See

Biosphere Reserve Middle Elbe

Weißbartseeschwalbe. Picture: Jürgen Borris

# EU Birds directive

Osprey (*Pandion haliaetus*) : Annex I EU Birds Directive

SPA Untere Havel Sachsen Anhalt / Schollener See

Ramsar Untere Havel und Gülper See

Biosphere Reserve Middle Elbe

Osprey. Picture: Jürgen Borris

# EU Birds directive

- Once a SPA is in place it is subject to Habitats Directive regulations (e.g. regarding projects/activities)

# EU Habitats directive

Article 6

1. For special areas of conservation, Member States shall establish the necessary conservation measures involving, if need be, appropriate management plans specifically designed for the sites or integrated into other development plans, and appropriate statutory, administrative or contractual measures which correspond to the ecological requirements of the natural habitat types in Annex I and the species in Annex II present on the sites.

→ Management plans, definition of management objectives

# EU Habitats directive

→ Management plans, definition of management objectives → lots of detailed publicly available information

| **Lebensraumtyp / Art** | | **Vorkommen im / Relevanz für NSG Kalktuffgelände am Tegeler Fließ** |
|---|---|---|
| 3260 | Fließgewässer mit flutender Wasservegetation | X |
| 6120* | Trockene, kalkreiche Sandrasen (Blauschillergrasra-sen) | X |
| 6210 | Halbtrockenrasen sandig-lehmiger basenreicher Böden | |
| 6410 | Pfeifengraswiesen | X |
| 6430 | Feuchte Hochstaudenfluren | X |
| 6510 | Magere Flachland-Mähwiesen | X |
| 7220* | Kalktuffquellen | X |
| 7230 | Kalkreiche Niedermoore | X |
| 9190 | Alte bodensaure Eichenwälder auf Sandebenen | |
| 91E0* | Erlen-Eschen- und Weichholzauenwälder | X |
| **Arten nach Anhang I FFH- Richtlinie** | | |
| Biber *(Castor fiber)* | | (X) |
| Fischotter *(Lutra lutra)* | | X |

| **Arten nach Anhang I Vogelschutz-Richtlinie** | |
|---|---|
| Eisvogel *(Alcedo atthis)* | X |
| Rohrweihe *(Circus aeruginosus)* | |
| Wachtelkönig *(Crex crex)* | |
| Kleinspecht *(Dendrocopos minor)* | X |
| Mittelspecht *(Dendrocopus medius)* | |
| Schwarzspecht *(Dryocopus martius)* | |
| Kranich *(Grus grus)* | |
| Neuntöter *(Lanius collurio)* | X |
| Schlagschwirl *(Locustella fluviatilis)* | |
| Heidelerche *(Lullula arborea)* | |
| Schwarzmilan *(Milvus migrans)* | |

# EU Habitats directive

→ Management plans, definition of management objectives → lots of detailed publicly available information

| Lebensraumtyp / Art | | Vorkommen im / Relevanz für Kalktuffgelände am Tegeler Fl | |
|---|---|---|---|
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| 6430 | Feuchte Hochstaudenfluren | X | X |
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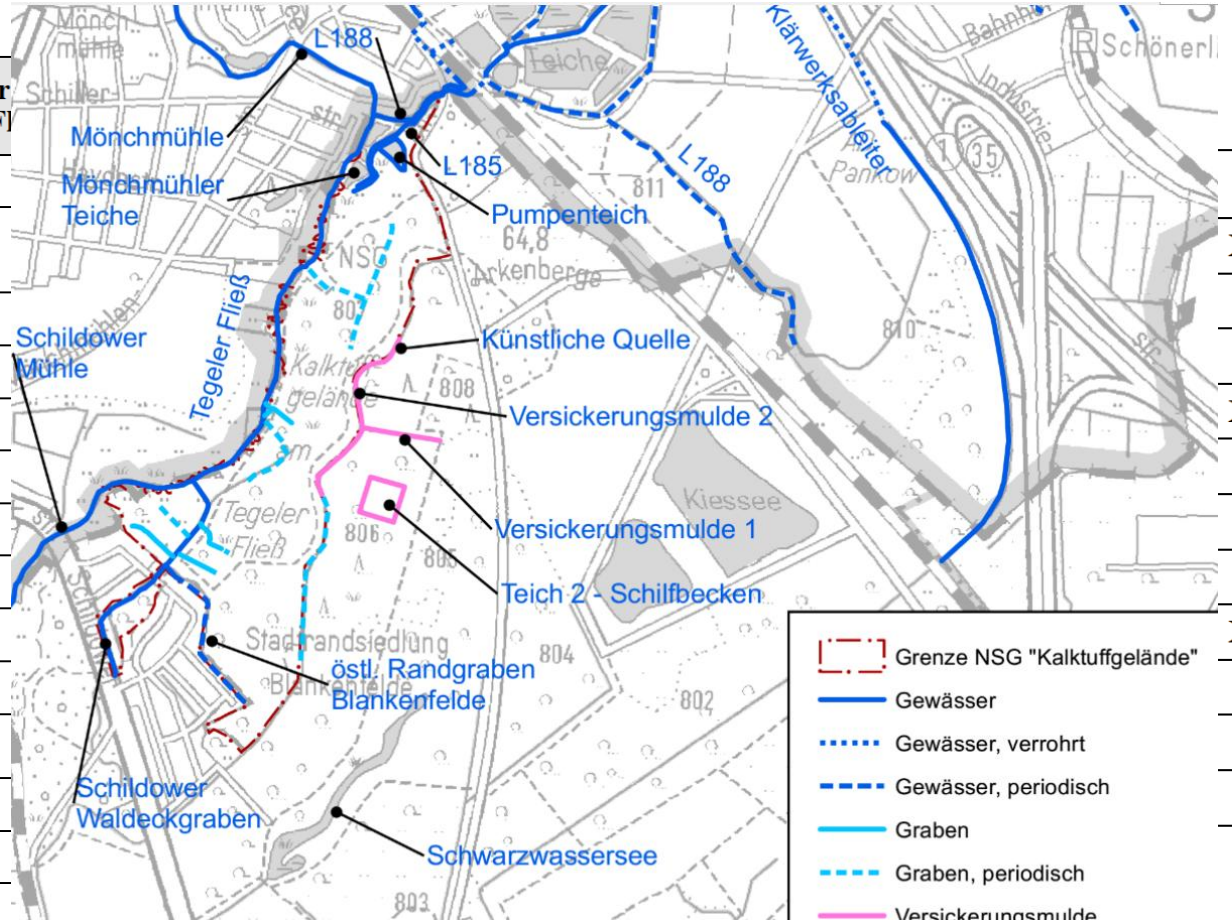
| Biber *(Castor fiber)* | | (X) | |
| Fischotter *(Lutra lutra)* | | X | |



# EU Habitats directive

Article 6

2. Member States shall take appropriate steps to avoid, in the special areas of conservation, the deterioration of natural habitats and the habitats of species as well as disturbance of the species for which the areas have been designated, in so far as such disturbance could be significant in relation to the objectives of this Directive.

→ non-deterioration obligation

# EU Habitats directive

Article 6

3. Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.

→ Regulation of plans and projects in N2000 Sites

# EU Habitats directive

Article 6

4. If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.

→ Compensation aiming at coherence of N2000, need to inform Commission.

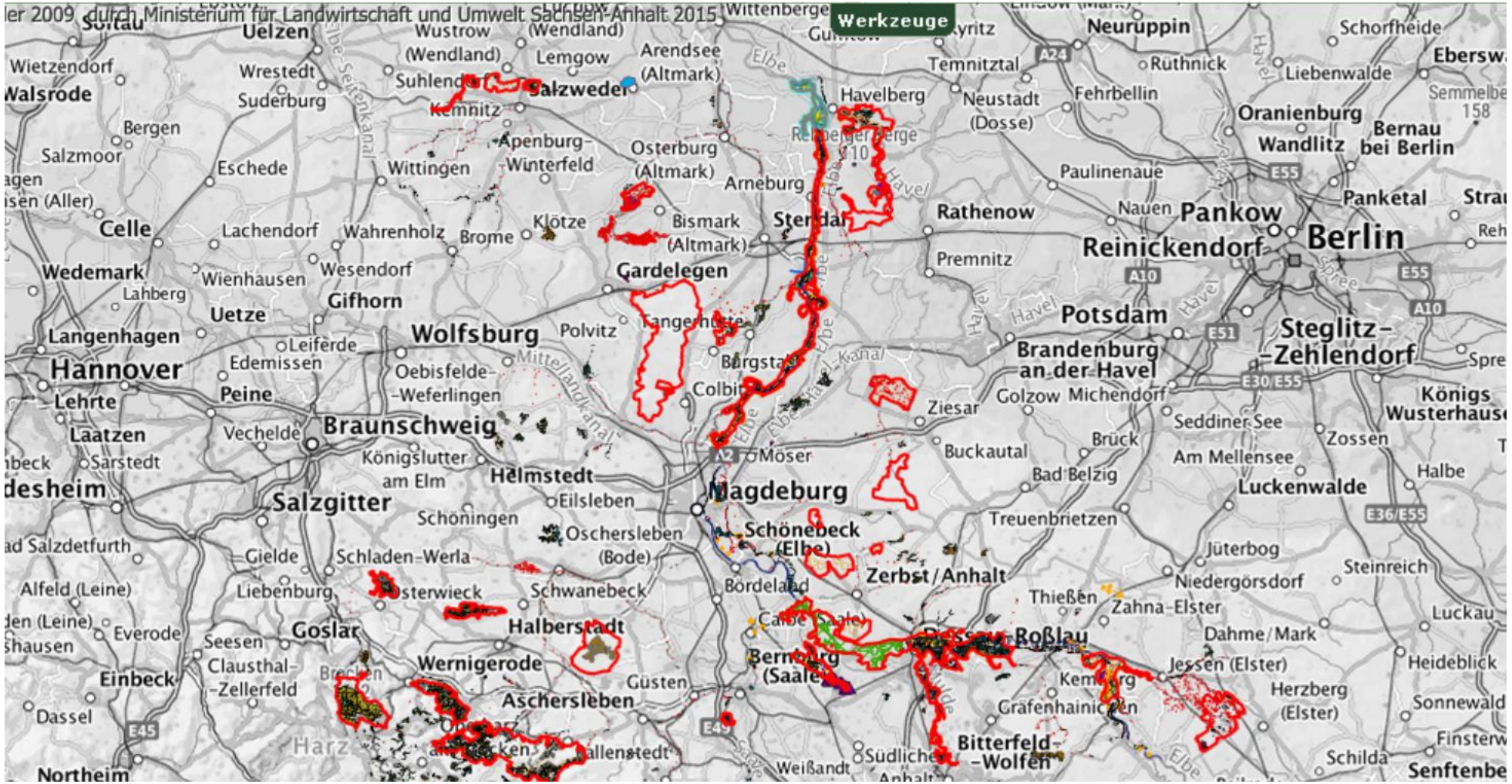
# EU Habitats directive

Article 6

Still 4. Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to **human health or public safety, to beneficial consequences of primary importance for the environment** or, further to an opinion from the Commission, to other imperative reasons of overriding public interest

→ Compensation aiming at coherence of N2000, need to inform Commission.

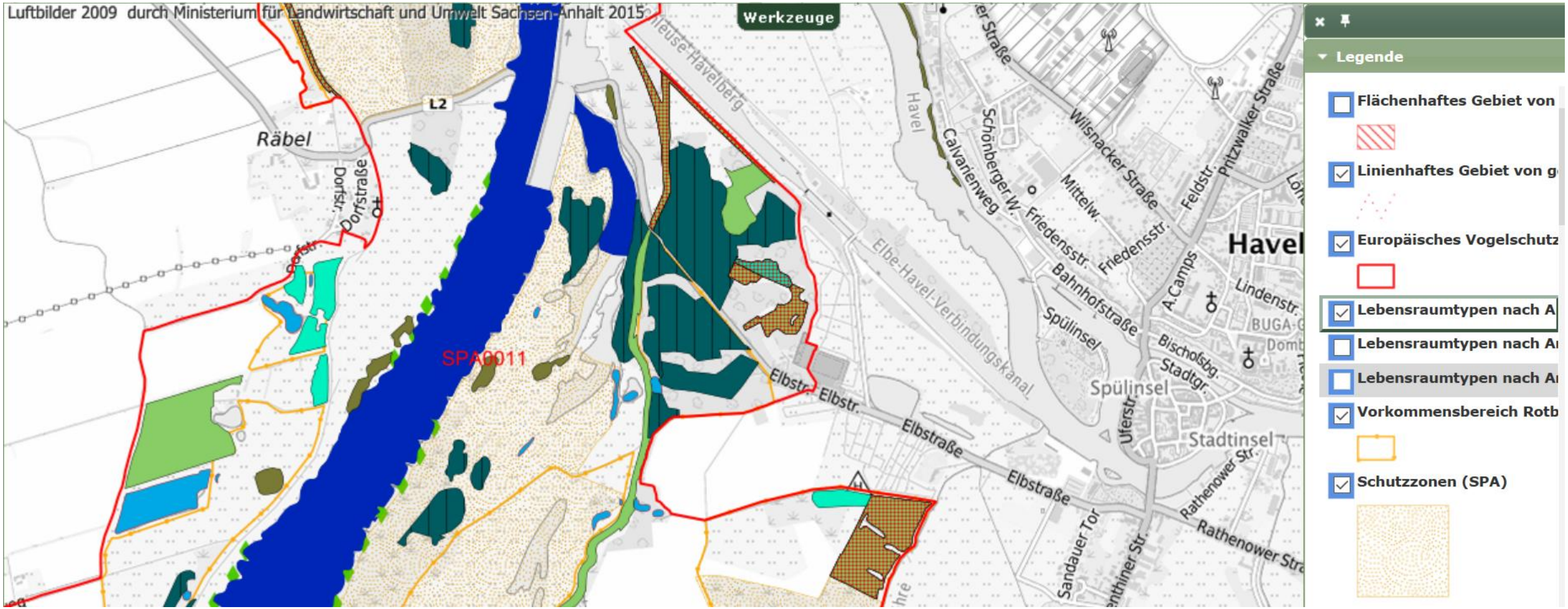
# Natura 2000 in BR Middle Elbe




- Most of the states N2000 sites in BR
- BR administration is not responsible authority for N2000 assessment
- Gives opinion in assessment process

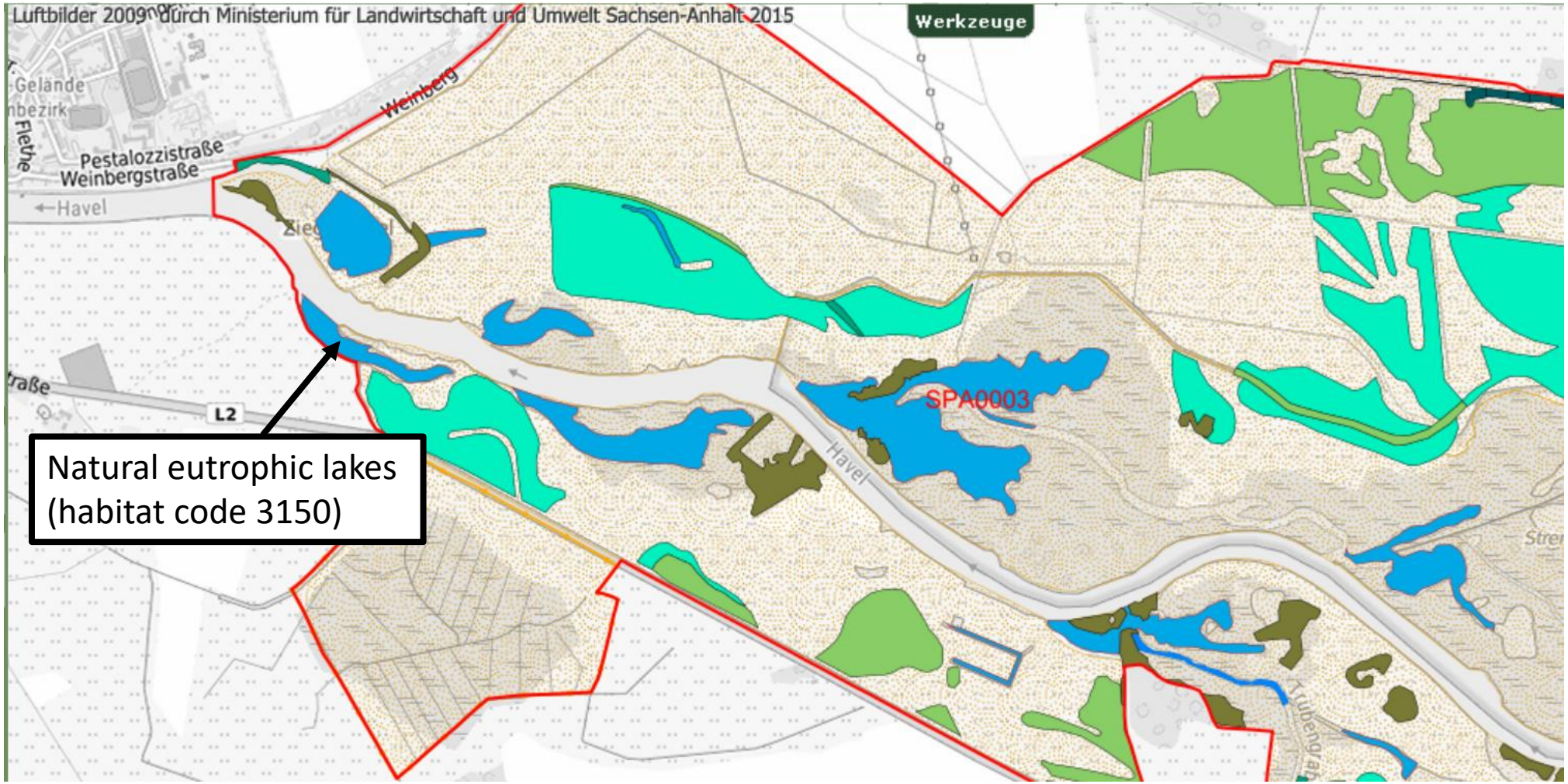
Natura 2000 Information System Ministry for the Environment, Agriculture and Energy of the State Sachsen-Anhalt (2020): interactive map. https://lvwa.themenbrowser.de/UMN_LVWA/php/geoclient.php?name=natura2000bestand

# Natura 2000 at Elbe river near Havelberg



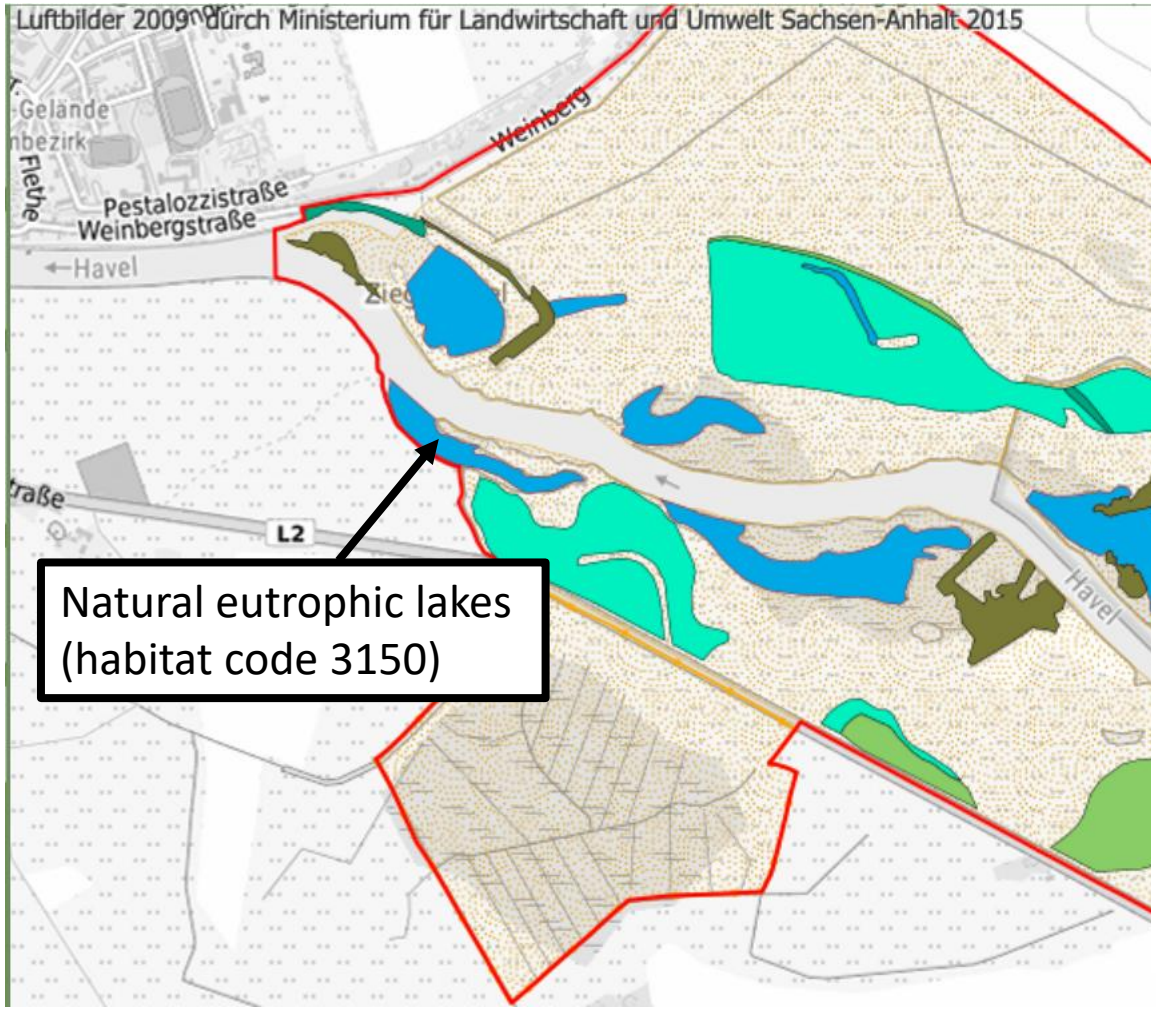

Natura 2000 Information System Ministry for the Environment, Agriculture and Energy of the State Sachsen-Anhalt (2020): interactive map. https://lvwa.themenbrowser.de/UMN_LVWA/php/geoclient.php?name=natura2000bestand

# Natura 2000 and river restoration




Natura 2000 Information System Ministry for the Environment, Agriculture and Energy of the State Sachsen-Anhalt (2020): interactive map. https://lvwa.themenbrowser.de/UMN_LVWA/php/geoclient.php?name=natura2000bestand

# Natura 2000 and river restoration




NATURA 2000 Code: 3150

**Definition:**

"Natural eutrophic lakes and ponds including their shoreline vegetation with floating and submerged aquatic vegetation; e.g. with duckweed communities (Lemnetea), pondweed communities (Potamogetonetea pectinati), Water-soldier (Stratiotes aloides) or Bladderworts (Utricularia ssp.).
The European Commission has clarified that - depending on the definition of the term 'natural' - this habitat type may be primary or secondary (e.g. ponds) if its occurrences are subject to (semi-) natural development.
Non-environmental standing waters and hypertrophic waters are not to be included. Ox-bows as well as partial ox-bows with no throughflow are to be included (even if artificially created)".
Federal Agency for Nature Conservation (2020). Natura 2000 code 3150. https://www.bfn.de/en/lrt/natura-2000-code-3150.html

Natura 2000 Information System Ministry for the Environment, Agriculture and Energy of the State Sachsen-Anhalt (2020): interactive map. https://lvwa.themenbrowser.de/UMN_LVWA/php/geoclient.php?name=natura2000bestand

# EU Habitats directive

## Annex I

Natural Habitat Types of community interest whose conservation requires the designation of special areas of conservation.

Habitats

- Natura2000 habitats in germany: https://www.bfn.de/en/activities/natura-2000/habitat-types-and-species/natura-2000-habitats-in-germany.html

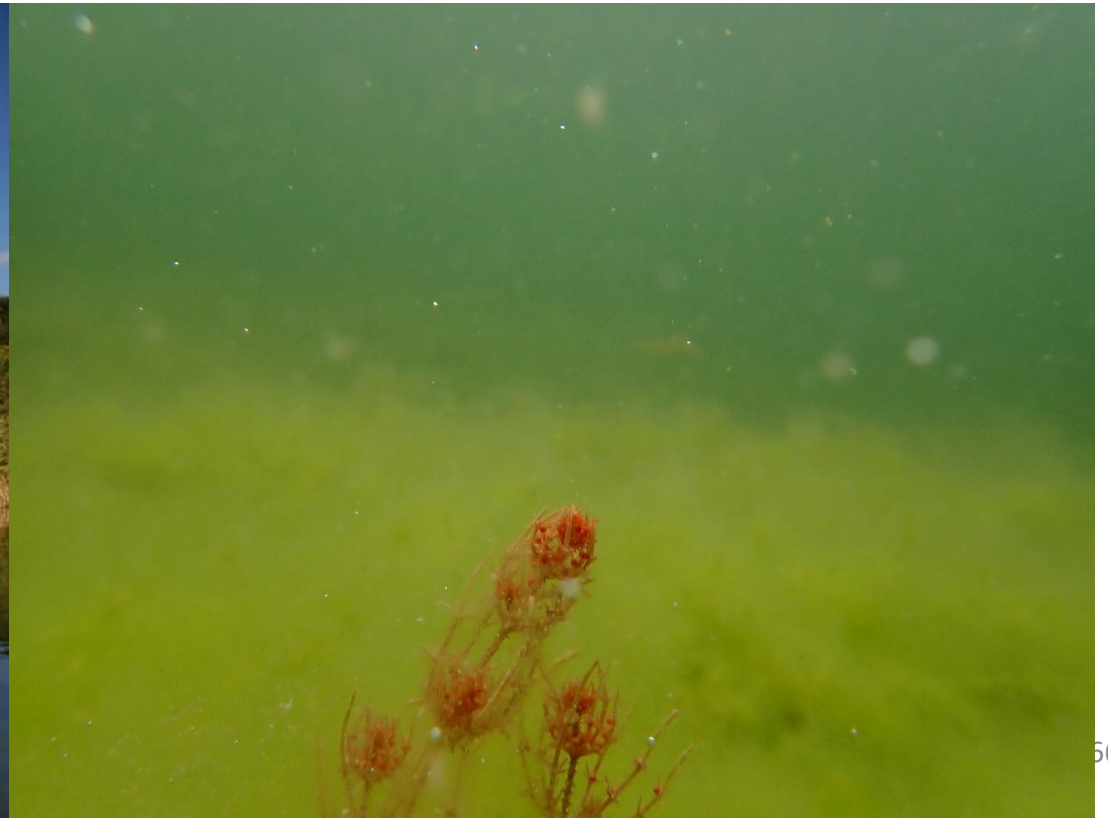
- https://lvwa.themenbrowser.de/UMN_LVWA/php/geoclient.php?name=natura2000bestand

# EU Habitats directive

**Habitat code 3140:**
**Hard oligo-mesotrophic waters with benthic vegetation of Chara spp**
**https://eunis.eea.europa.eu/habitats/10066**

## Annex I

Natural Habitat Types of community interest whose conservation requires the designation of special areas of conservation.



# EU Habitats directive

## Annex II

Animal and plant species of community interest whose conservation requires the designation of special areas of conservation (SAC).

“core areas of their habitat are designated as sites of Community importance (SCIs) and included in the Natura 2000 network. These sites must be managed in accordance with the ecological needs of the species” (European Commission 2020).

Beaver, Otter, Lynx, Wolf, Brown Bear, Wisent,…

Rosalia alpina

European Comission (2020): The habitats directive. https://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm

# EU Habitats directive

annex II species: fire bellied toad

Source: IUCN Redlist: https://www.iucnredlist.org/species/2865/9489517

POPULATION TREND

Decreasing

NUMBER OF MATURE INDIVIDUALS

Population in detail

HABITAT AND ECOLOGY

Forest, Grassland, Wetlands (inland), Artificial/Terrestrial, Artificial/Aquatic & Marine

GEOGRAPHIC RANGE


IUCN (International Union for Conservation of Nature), Conservation International & NatureServe. 2009. Bombina bombina. The IUC Species. Version 2020-1

# EU Habitats directive

## Annex III

Criteria for selecting sites (SCI) and designating (SAC)

STAGE 1 : Assessment at national level of the relative importance of sites for each natural habitat type in Annex I and each species in Annex II (including priority natural habitat types and priority species)

STAGE 2 : Assessment of the Community importance of the sites included on the national lists

# Annexes IV and V: species protection not just inside Natura2000 sites but everywhere

# EU Habitats directive

## Annex IV

Animal and plant species of community interest in need of strict protection

## Wolf, Beaver, …

Biosphärenreservat Mittelelbe (2018): Der Elbebiber. So können wir gut mit ihm leben. https://www.mittelelbe.com/mittelelbe/upload/1_reservat/2_referenzstelle_biber/Der-Elbebiber_web.pdf (access: 2020/10/13)

**Annex V**
Animal and Plant species of community interest whose **taking in the wild** and exploitation may be subject to **management measures**

Example:
Graellsia Isabellae
(spanish moon moth)


Current status in the french alps
https://www.researchgate.net/publication/338897714_Actias_isabellae_Graells_1849_dans_les_Alpes_francaises_espece_patrimoniale_ou_invasive_Lepidoptera_Saturniidae_-_Revue_Francaise_d'Entomologie_Generale_1_4_253-274

Didier Descouens (2011): Graellsia isabellae. Musee de toulouse. Source: https://upload.wikimedia.org/wikipedia/commons/8/80/Graellsia_isabellae_MHNT_male_dos.jpg

# EU Habitats directive

**Annex V**
Animal and Plant species of community interest whose taking in the wild and exploitation may be subject to management measures

Freshwater pearl mussel

Joel Berglund (2007): freshwater pearl mussel. https://commons.wikimedia.org/wiki/File:Group_of_Margaritifera_margaritifera.jpg

Inflamation, infection


Arnica

Medpex Versandapotheke 2020: Arnica https://www.medpex.de/arnica-montana-d-200-globuli-p11280379?ai=350&gclid=EAIaIQobChMIr5fa4d2w6gIVSrDtCh0o7wlnEAYYASABEgJMRvD_BwE

Thomas Mathis (2005): Arnica Montana. https://commons.wikimedia.org/wiki/File:Nardetum_Bestand.JPG

# EU Habitats directive

## Annex VI

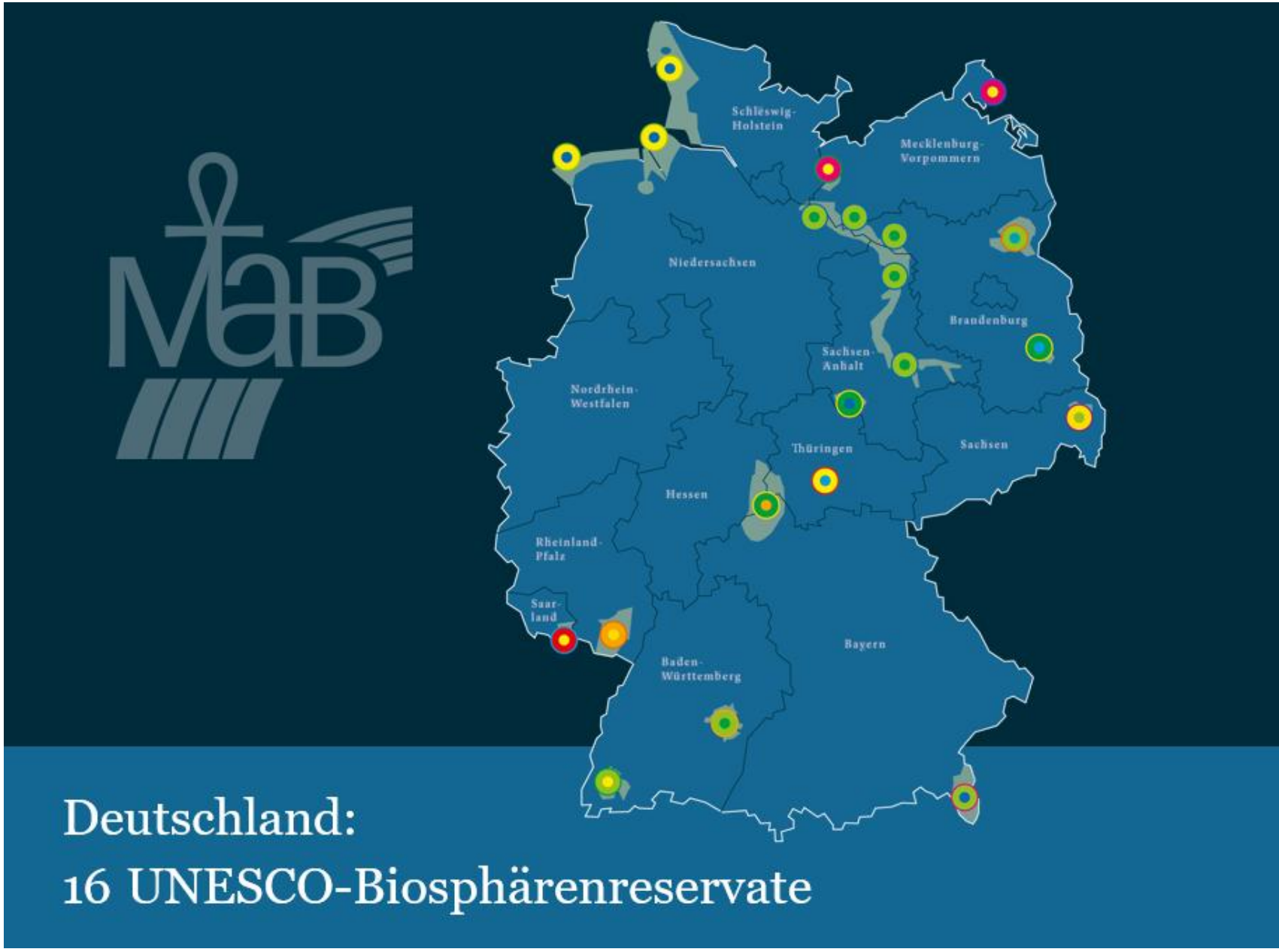
Prohibited methods and means of capture and killing and modes of transport

e.g. no fishing with poison or explosives

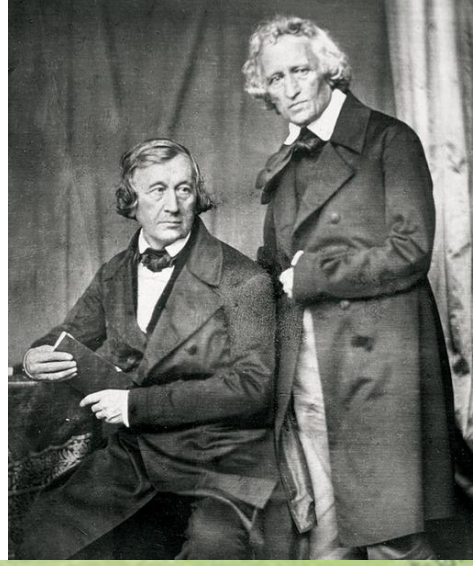
Barbasco?

# UNESCO

"Building peace in the minds of men and women"


MaB
Schleswig-
Holstein
Mecklenburg-
Vorpommern
Niedersachsen
Brandenburg
Sachsen-
Anhalt
Nordrhein-
Westfalen
Thüringen
Sachsen
Hessen
Rheinland-
Pfalz
Saar-
land
Bayern
Baden-
Württemberg
Deutschland:
16 UNESCO-Biosphärenreservate


Grimm Heimat
NORDHESSEN
NATURPARK REINHARDSWALD

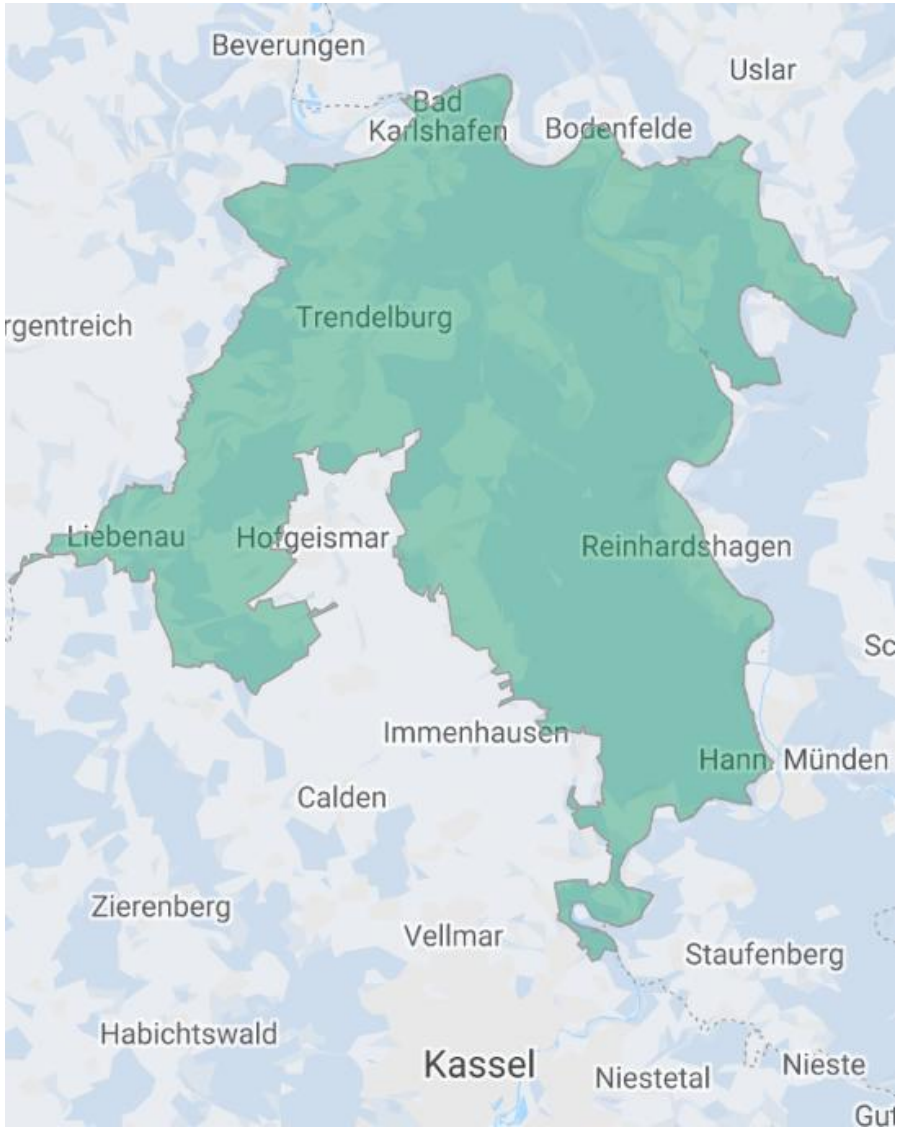


# Local go-NGO: example Reinhardswald Nature Park

- Organisation form: association (≠ authority)
- Board: chief district administrator and mayors of member communities and cities
- Managing director and 7 staff
- Funding by state and member communities

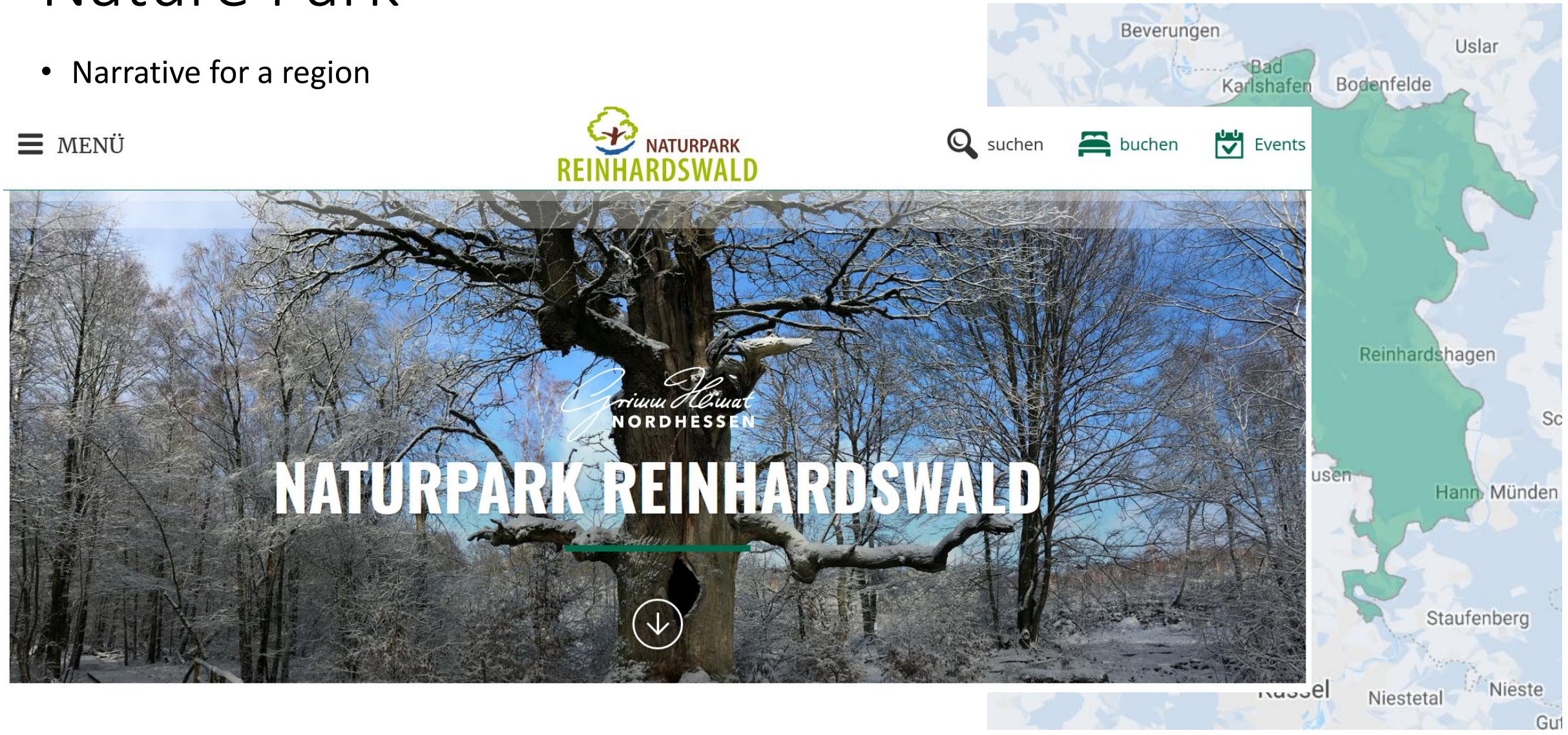
Functions:

- „Narrative“ for a region
- Projects
- Sustainable tourism
- No legal authority (permission or agreement-regulation procedures)



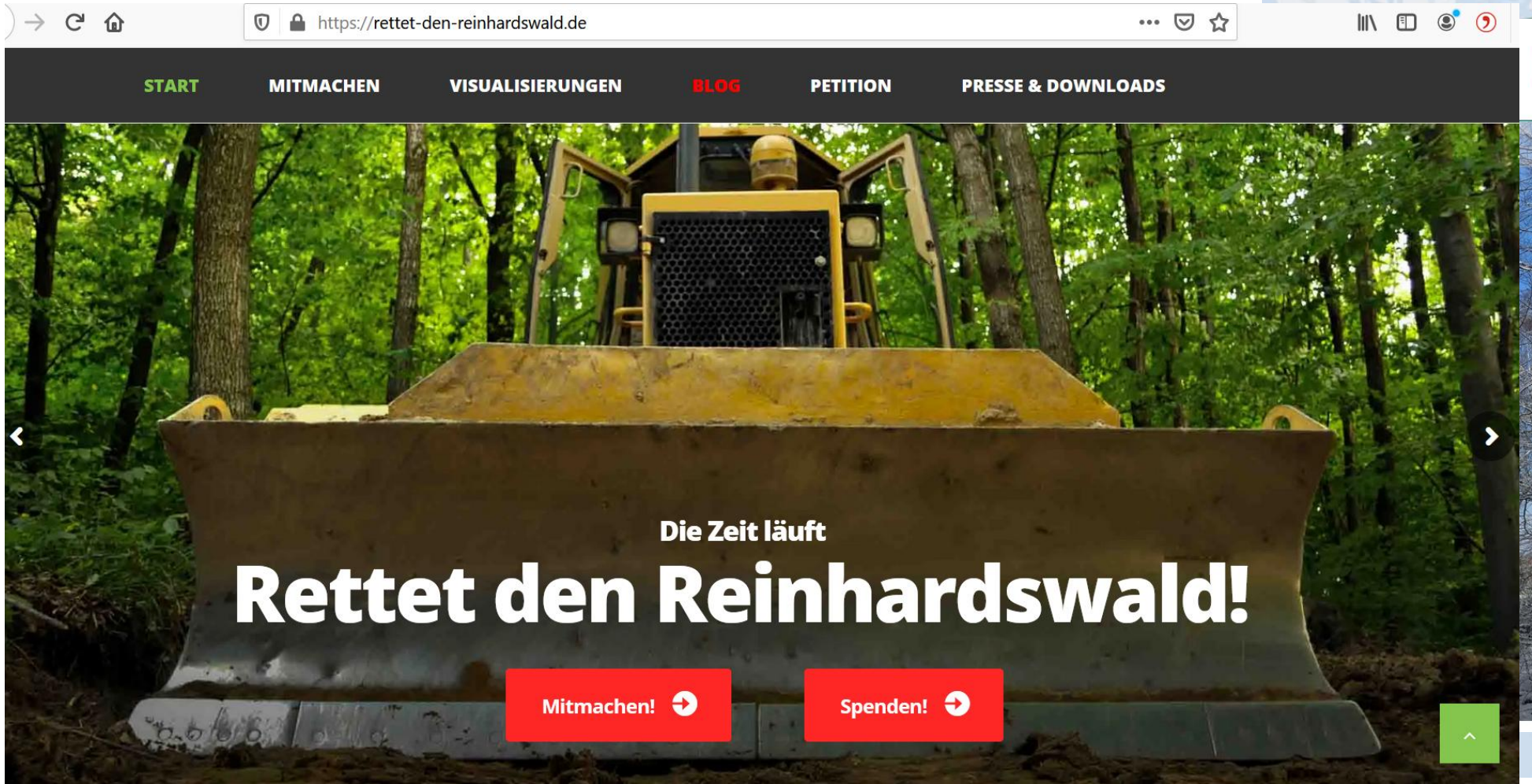
# Local go-NGO: example Reinhardswald Nature Park

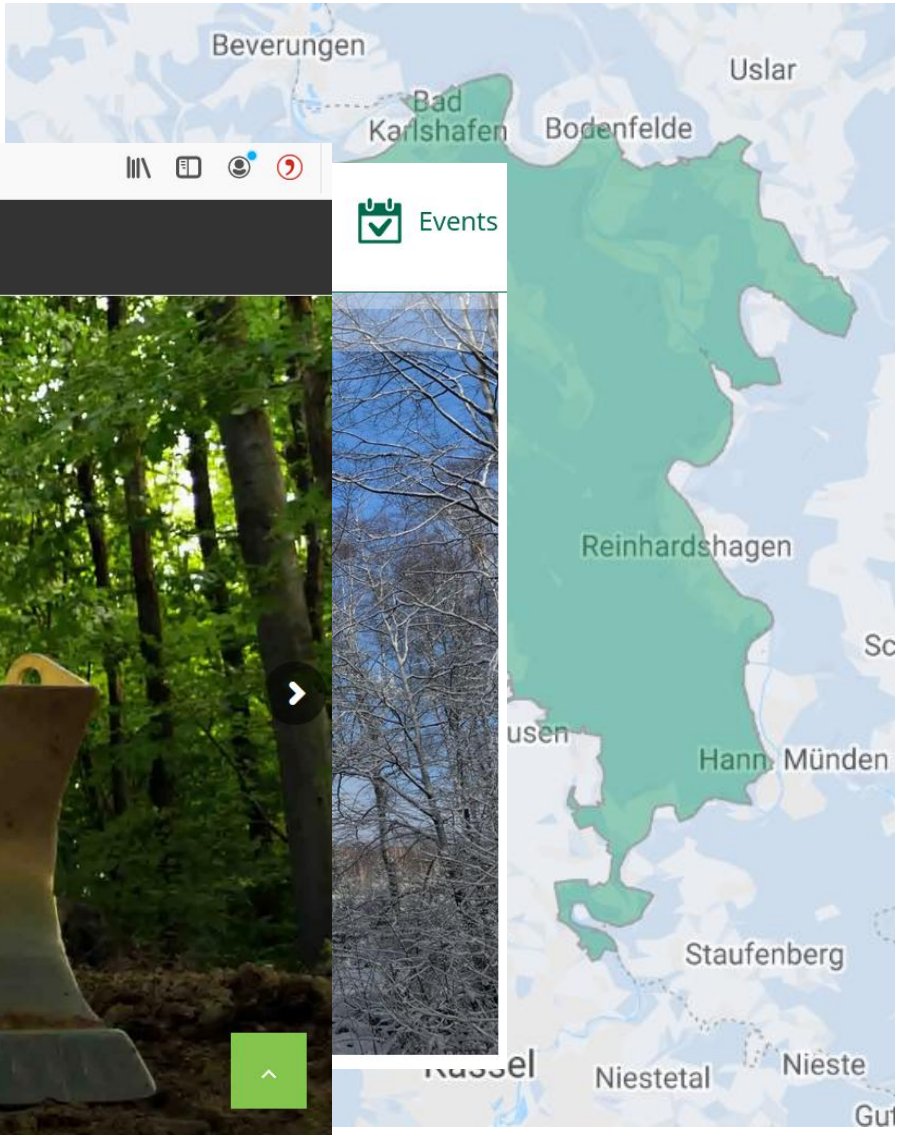
- Narrative for a region



# Local go-NGO: example Reinhardswald Nature Park

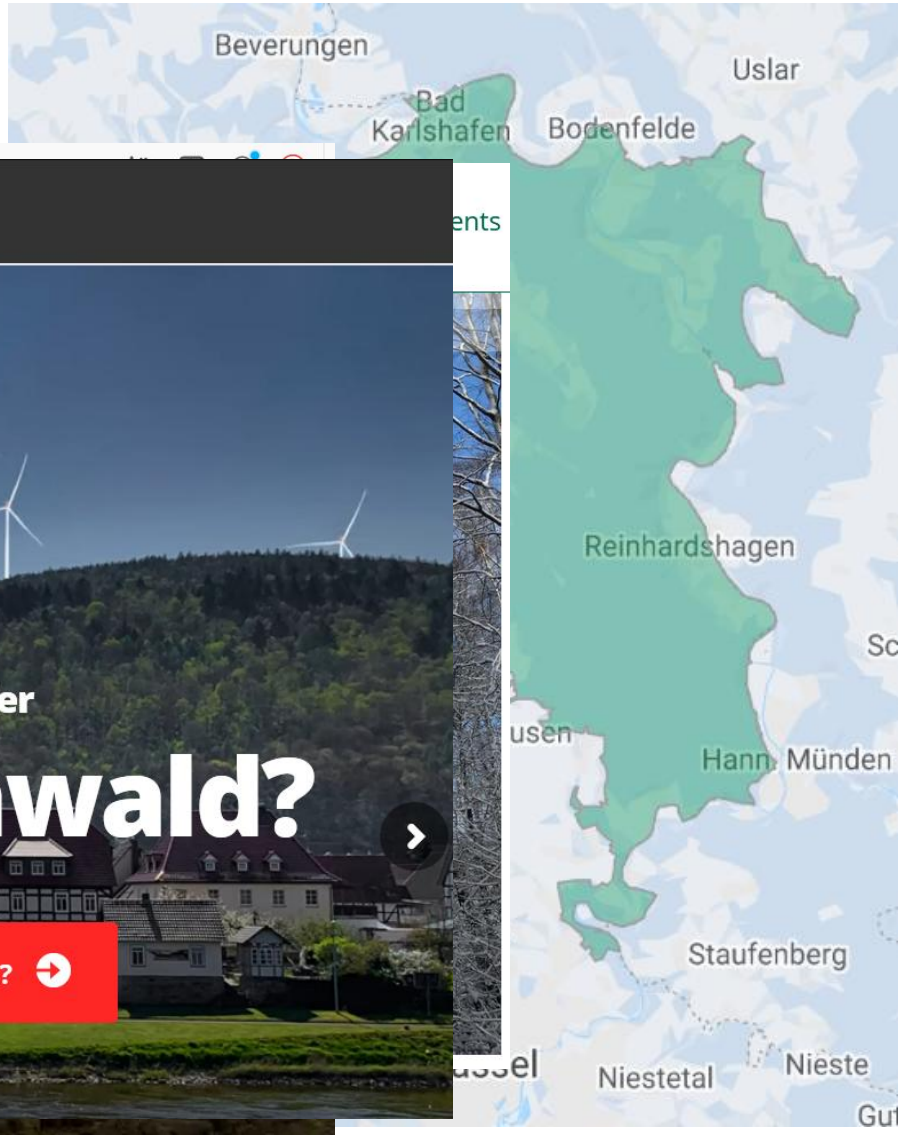
- Narrative for a region



# Local go-NGO: example Reinhardswald Nature Park

- Narrative for a region

**Policy driving BioDiv loss** (e.g. excessive water extraction, harmful subsidies, infrastructure development)

**Broadscale policy targeting drivers of BioDiv loss** (e.g. legislation on wastewater treatment)

## Drivers of Biodiversity loss in Rivers (Haase et al 2025)

- Landuse change
- Pollution
- Direct exploitation of resources
- Invasive species
- Climate change

# River Biodiversity

Geographical Scale

## River Restoration Actions:

- restoring longitudinal connectivity by removing barriers or creating fishways
- restoring natural riverbanks and reconnecting river and floodplain (removing revetments and ripraps)
- Changing channel morphology (re-meandering, re-connecting oxbows that have been artificially cut off)
- Enlarging floodplains by relocating flood protection dams
- Enhancing floodplain habitats (initiating floodplain-forests or other vegetation)
- Adding habitat structures such as wood or boulders

Haase et al. (2025): Successes and failures of conservation actions to halt global river biodiversity loss. https://www.nature.com/articles/s44358-024-00012-x

# Conclusion

Different concepts of nature conservation
→ Different traditions
→ Conflicting objectives and trade-offs are common
→ No simple solutions to biodiversity conservation
→ Scale misfit between drivers of biodiversity loss and conservation approach/PA define chances and limitations

Different forms of PA
→ Different implications and chances for regional development
→ Local acceptance/participation is of major importance
→ Concept has to „fit“ local conditions? NP Donauauen as counter example! maybe more: intriguing narrative has to construct it fitting locally