



# Conservation in cultivated landscapes.

Experiences from the Biosphere Reserve Rhön, Germany

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Folie Nr. 1



## Topics

1. Introduction
2. The concept of Biosphere reserves
3. The Biosphere reserve 'Rhön' – a low mountain range in Germany
4. Conservation by land use? Project examples from Rhön
5. Outlook: integrative conservation strategies and Biosphere reserves – an global option?!

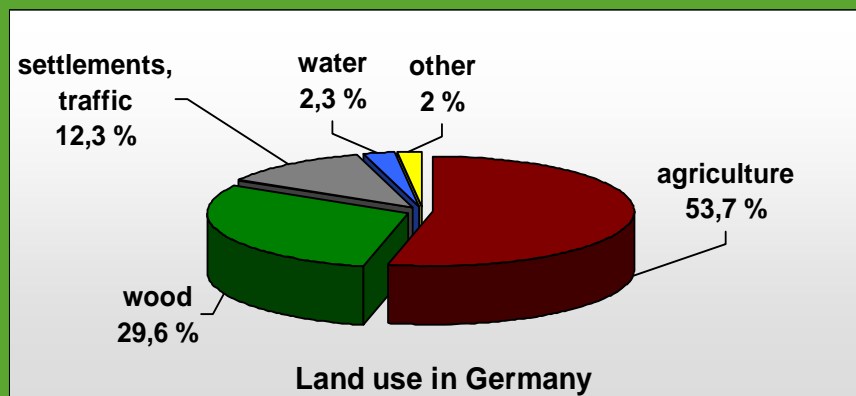
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Folie Nr. 2



## Deforestation in Germany

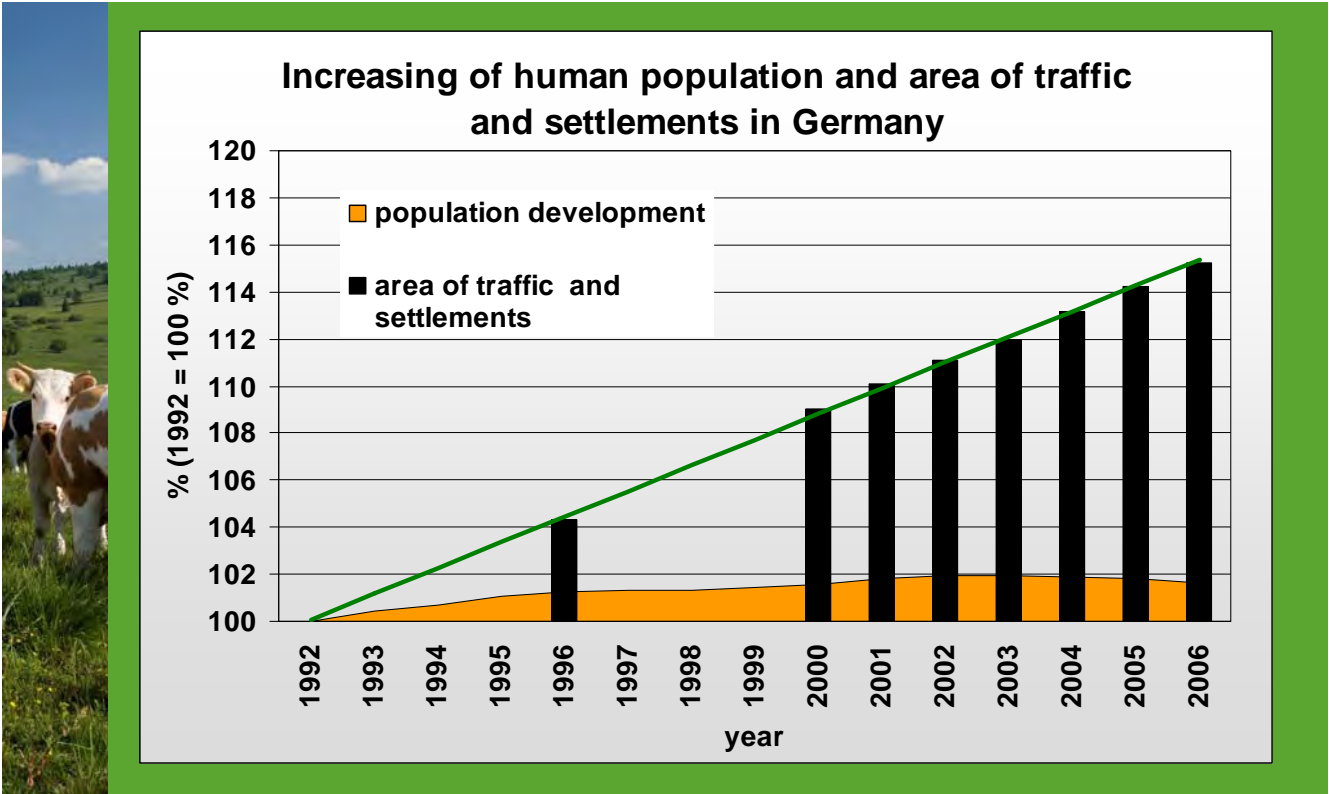
- natural landscape: nearly 100 % covered by forests ... but probably influenced by large megaherbivores
- today: 30 % forests, heavily altered by forestry
- main periods:
  - since 8.000 y B.P.: rural use (farming, woodland pasture)
  - since 2.000 y B.P: growing gaps, caused by forest clearing and woodland pasture – heaths, grassland, arable land
  - temporarily reforestation
  - since 500 y B.P. largest extent of forest devastation
  - since 18th century modern forestry – loss of ecotones, plantation of spruces (*Picea abies*)



## Consequences:

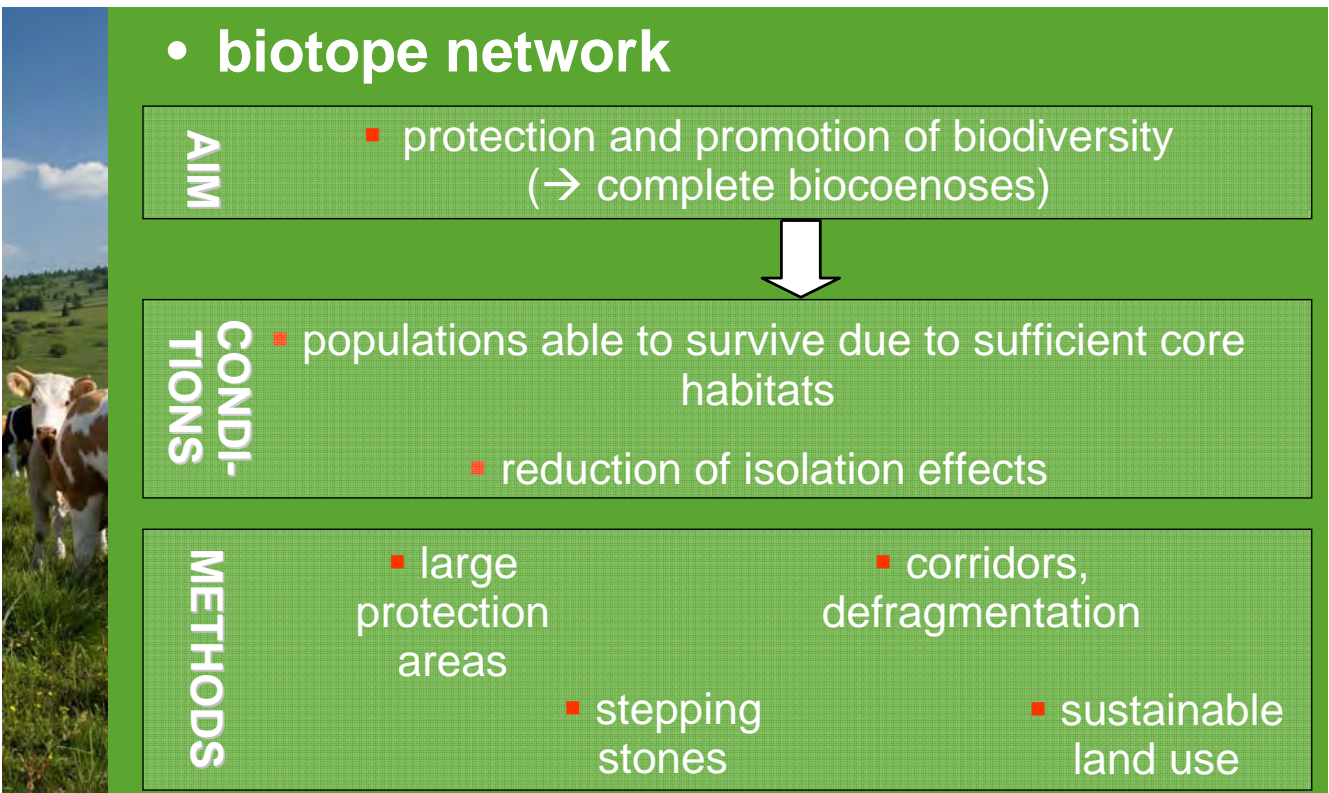
- habitat loss and fragmentation
  - no wilderness, but cultured landscape
  - nature conservation is permanently in compete with claims of utilization
- we need segregative and integrative conservation strategies

# 1. Nature conservation in Europe



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# 1. Introduction



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# Aims and functions

- promoting solutions to reconcile conservation of biodiversity with its sustainable use
- ‘living laboratories’ for demonstrating integrated management of land, water and biodiversity
- three main functions:

**CONSERVATION**  
of biodiversity  
(ecosystems, species,  
genes)

**DEVELOPMENT**  
Association of  
environment with  
development

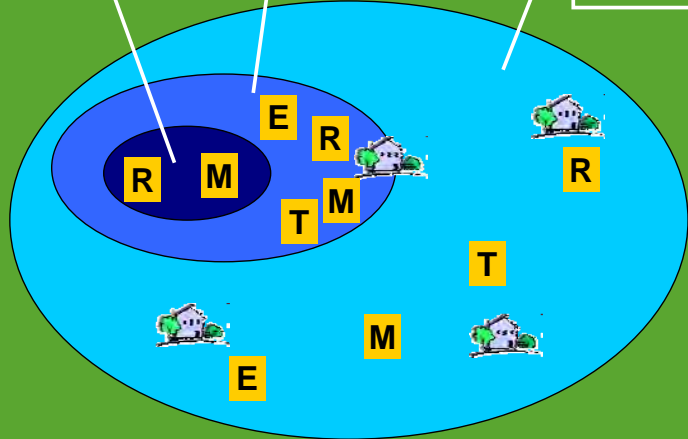
**LOGISTIC SUPPORT**  
International network  
for research and  
monitoring



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# Biosphere reserve zonation



Human settlements

- R** Researching
- M** Monitoring
- E** Education/training
- T** Tourism/recreation, utilization

Core area ≥ 3 %, Buffer Zone ≥ 10 %, together ≥ 20 %

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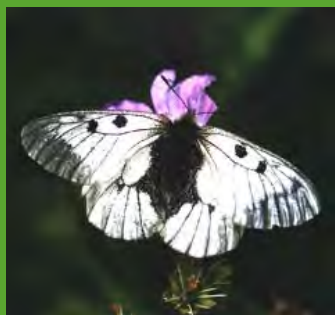
#### 4. Conservation by land use? Project examples from Rhön



### (i) Concept of target species

#### selection of species set:

- endangered, but realistic chance of survival
- easy to be identified
- complex habitat demand (→ 'take-on effect')
- „attractive“



## (i) Concept of target species

### methodological approach:

- quantification of requirements for biotope networks, specific for habitat types and their structures
- analysis of the grade of endangering
- minimum viable population (MVP) → area requirements
- metapopulations
- modelling of different scenarios



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## (ii) Target species Wildcat (*Felis silvestris*)

- Rhön is one cross point of Wildcat populations within Germany, part of the European Green Belt and may be a part within a Transeuropean wild animal net
- populations isolated by roads, settlements and land use
- measurements within Rhön wildcat project:
  - monitoring of occurrences and endangering factors
  - creation of corridors in poorly structured farmland
  - enhancement of forest habitats
  - green bridges for large wild animals crossing motorways



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## (iii) Renaturation of river ecosystems

promoting momentum of their own

improving the continuity of rivers and streams for water organisms

pilot project for the renaturation of rivers and streams

Biotope network for biocoenoses of rivers and streams and their floodplains by revitalisation

→ protection of the nationally important natural heritage and contribution to precautionary flood protection

replacing non-native shrubs and trees along the shorelines

Environmental education on the natural dynamics of water bodies

optimising land use in the river valleys for nature conservation

revitalising biotopes of springs



## (iv) Low intensity grazing

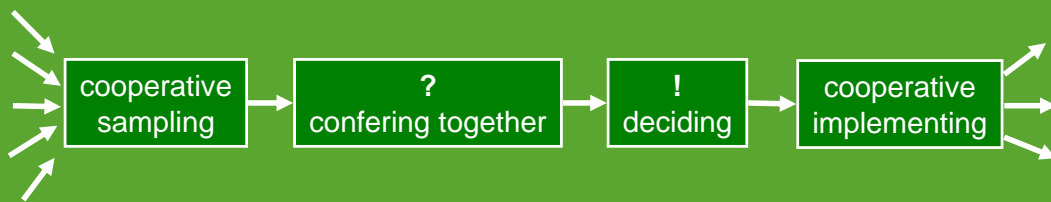
- **problem:** giving-up cultivation of grassland in a large scale
- **project aims:**
  - testing of different forms of low-intensity farming in a large scale
  - analysis of socio-economic and nature conservation factors  
→ obtaining basic data for the future
  - win-win strategy will become reality, added value for agriculture and nature conservation





## Integrative conservation strategies and biosphere reserves – a global option?!

- sustainability of use as a main target (sustainable also for biodiversity!)
- need of cooperative planning processes with land use authorities and land owners:
  - identify individual needs of ecology and economy
  - search compromises
  - actor modeling can help so solve conflicts
- establishing win-win situations with regional development



## Integrative conservation strategies and biosphere reserves – a global option?!

- diversification of aims of conservation, e.g.:
    - ‘classic’ species protection
    - adaptation to climate change
    - contributions to climate protection (ecosystems as CO<sub>2</sub>-sinks)
    - conservation of traditional rural land use and developing modern systems (e.g. agroforestry)
- **multifunctional landscapes**





# Integrative conservation strategies and biosphere reserves – a global option?!

- borders of integration:
  - processes and species of old succession stages (e.g. deadwood)
  - special types of landscape dynamics (e.g. running waters and floodplains)
  - ...
- conservation has to act within large areas (e.g. wildcat → traffic network needs to be completed by a wildlife net)
- biosphere reserves are able to realize such model landscapes of sustainability
- ... and to monitor bio-/ecodiversity as an early-warning system



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# Integrative conservation strategies and biosphere reserves – a global option?!

- similarities between semi-open pasture landscapes in Germany and Serengeti: grassland, trees, megaherbivores



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**Thank you  
for your  
attention!**