Challenges of the Natura 2000 management in mountains with a special focus on forest habitat types

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The management of mountain forest habitat types in Natura 2000 sites: experience and case studies from the Continental Biogeographical region

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Overview

- Introduction
- Pre-conditions
- Case studies
- Ecosystem services

Introduction

- Around 23% of all EU forests are located within Natura 2000 sites;
- Mountains are „an ecological backbone of European nature and wilderness”
- Mountain areas are inhabited by ar. 17% of EU population
- Average density is ar. 50 persons/km2

Pre-conditions

- Remote areas – difficult to log – easy to poach and steal wood
- Marginal areas – poor economy (poverty) - lower population
- Low productive land – small scale, extensive farming – livelihoods depending on non productive values
- Landscape is important – tourism industry

Pre-conditions for management

- Bark beetle infestations,
- Water regime maintenance and restoration
- Harmonizing plans, setting conservation objectives and for the implementation of conservation measures between different regimes of protection
- Changing climate
- Fluctuation of habitats
- .....

Zoom in to several management issues

Non-intervention management

- Wilderness Quality Index maps of EEA, the highest values of wilderness quality in Europe may be found in the **Alpine** and Boreal biogeographical regions.
- Normally used for the best-preserved and primary natural habitats, also useful for habitat restoration
- Must always be considered on a site specific, case-by-case basis
- Important: involve all stakeholders, sufficient size and zonation, presence of invasive species, legal provisions, forseeing potential conflicts, promotion of socio-economic benefits

Non-intervention management case study

- According to the Bulgarian guidelines for sustainable management of forests in Natura 2000 sites, **10 per cent of forest habitats should be strictly protected with any human interventions prohibited**.
- In 2016 the Ministry of Agriculture and Food officially designated 109,000 ha of state-owned woodland as old-growth forests excluded from active use. This is ar 7% of forest habitats in Natura 2000 network in BG.
- Practice?

Non-intervention management case study

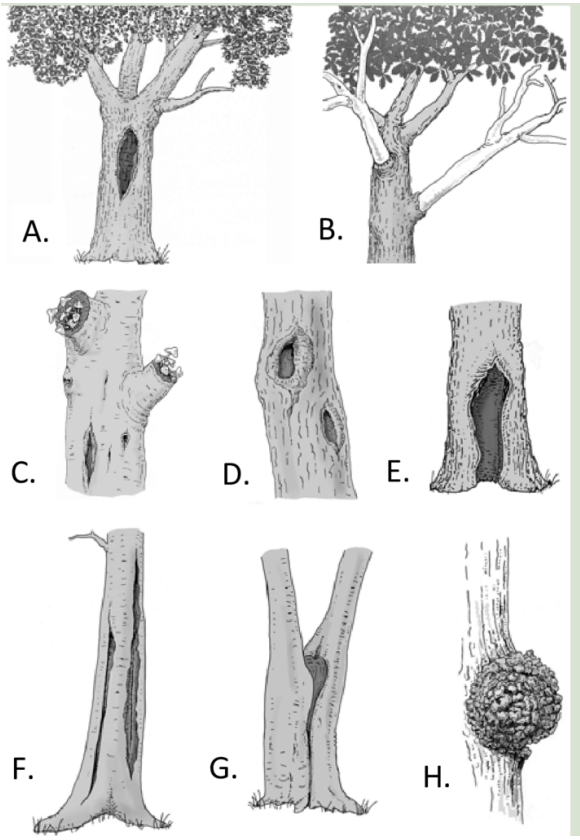
- Gorce PLB120001, Ostoja Gorczanska PLH120018, within which: Gorce National Park; almost **5 000** hectares of 7 030 hectares of the national park applies non-intervention management
- **3 600** hectares are formally designed as “strictly protected as continuous core zone” + **1 000** hectares are under non-intervention management without a formal “strict protection” status.
- Beneficial for 9130 Asperulo-Fagetum beech forests, The Three-toed Woodpecker (Picoides tridactylus), the Capercaillie (Tetrao urogallus), the Pygmy Owl (Glaucidium passerinum), The Golden Eagle (Aquilla chrysatetos), the Lynx (Lynx lynx) and the Brown Bear (Ursus arctos)
- Bark bettle outbreaks are treated as natural, reasons for „deep fluctuation” of the forest habitats. In the 1997–2011 period only 52% of spruce trees survived.

Non-intervention management case study

- German Biodiversity Strategy: “By the year 2020, throughout 2% of Germany’s territory, Mother Nature is once again able to develop undisturbed in accordance with hear own laws, and areas of wilderness are able to evolve”.

Deadwood

- “the dead tree is more alive than the living tree”
- creating habitat for other organisms
- a cradle for new generation of forests,
- magazine for water and all kinds of biogenic substances
- crucial features for “structure and function” of the forest
- What is: 1-10 m3/hectare
- What would be ideal: varies, 30–40 m3/hectare for mixed montane forests
- microhabitats



Deadwood case study

- Ostoja Przemyska (PLH1800012) and Góry Slonne (PLH180013) **-** after about 20 years of non-intervention management, the amount has doubled (ca 60m3/ ha)
- a lot of Red List species, some having there their last localities within the entire Poland (relicts of primeval forests: Tachyusida gracilis, Ampedusmelanurus, Peltis grossa, Lacon lepidopterus, Eurythyrea austriaca, Sternodea baudii, Euplectus frivaldszkyi and others), and the biggest Polish populations of the following Natura 2000 listed insect species: Cucujus cinnaberinus, Rhysodes sulcatus, Boros schneideri and moss Buxbaumia viridis.

Deadwood case study

- Uroczyska Puszczy Drawskiej PLH320046 big beech forest 9130 complex ca 1 000 km2 from which 744 km2 is Natura 2000 Site; 40 ha of nature reserve Radecin (Heilige Hale) almost without active management during the last ca 100 years
- the non-intervention approach was expanded to ca 300 ha of beech forests in the national park in 2000
- Visible difference of biodiversity in the NR and around. Over 80% of the local population of **Hermit Beetle (Osmoderma eremite) hosted on 0,05% of the local oak-beech forest area. Many Red List species** Stenagostus rombeus, Platycis cosnardi, Triplax elongata and Kiklioacalles navieresi. extremely important hotspot also for rare and endangered species of epiphytic mosses, lichens and fungi. Some species have the only regional (north-western Polish) localities there.
- 30 m3/hectare of deadwood was accumulated
- The local conservation status of the habitat Asperulo-Fagetum beech forests (9130) was assessed as perfect, with all structures and functions typical for beech forest present.

Light forests

- Sparse stands of trees so sunshine penetrates the forest down to the ground level over large parts of the day. As a result there is a well-developed grass and herb layer
- Light forests may be formed by natural dynamics (e.g. river dynamics, pest outbreaks, grazing of ungulates), abiotic conditions (e.g. Steep slopes, surplus or lack of water, local late frosts) and human influences.
- Two important traditional land use practices that maintain light forests are coppicing and forest grazing.

Light forests case study

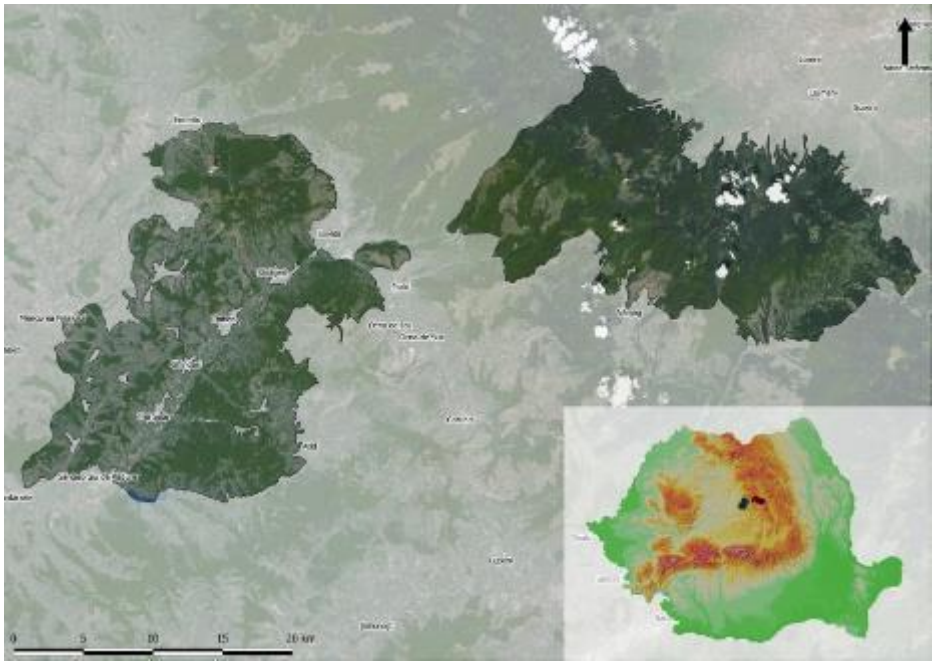
- Bükk National Park, Hungary. Solitary trees Turkish Oaks (Quercus cerris) and Sessile Oaks (Quercus petraea). These grassland patches are sustained by grazing by Hungarian Grey Cattle.
- The combination of old trees and grazing animals favour the bird Hoopoe (Upupa epops). The habitat is preferred by grassland species too, such as the Suslik (Spermophilus citellus), several species of scarab beetles (Scarabaeidae) feeding on dung, the larvae of which serves as prey of rare species of rove beetles (Staphylinidae).

Connectivity

- This is reflected in Article 10 of the Habitats Directive, provisioning that Member States shall endeavour to **improve the ecological coherence** of Natura 2000 by maintaining, and where appropriate developing, features of the landscape which are of major importance ecological coherence for wild fauna and flora.

Connectivity case study

- corridor of large carnivores between Continental and Alpine SCIs in Romania SCI Dealurile Târnavei Mici–Biches (ROSCI0297 continental) connection to SCI Călimani-Gurghiu (ROSCI0019, Alpine) in development of a popular resort, Sovata.
- Milvus group (NGO) asked for the most crucial movement corridors to be excluded from the Resettlement Plans, based on telemetry monitoring of a brown bear. Planned urban area was adjusted to the wildlife corridors.



Hydropower

- The Romanian NGO Natura 2000 Coalition has won a final lawsuit against the Ministry of Environment, Water and Forests for develompent of 4 small hydropower projects on the rivers Sucu-Olteana and Bistra Marului in the Tarcu Mountains (2015)
- In Romania, **small hydropower projects will be excluded from EU funding until 2020**.
- Romanian authorities also promised to **assign 'no-go' areas for areas protected from small hydropower development**. Authorities temporarily suspended existing hydropower construction permits as well, and created a joint working group of government and civil society to develop criteria for integrating 'no-go' areas into legislation and improving construction and operation conditions for hydropower outside those designated areas.
- New guidelines on hydropower development in Natura 2000 from EC coming soon.

Climate change effects

- Changes in productivity of timber, but also by possible losses due to **abiotic and biotic disturbance events**, particularly in coniferous stands in Carpathians.
- Increasing respiration rates -> **decrease in carbon sink strength**
- Increasing disturbances such as bark beetle infestations, windthrow and fire will have a strong **negative impact on protective functions of forests**, especially in densely populated mountain areas.
- **Plant species diversity** affected by upward shifts of subalpine forest and shrubland communities, for example the Pinus mugo belt in the Alps.

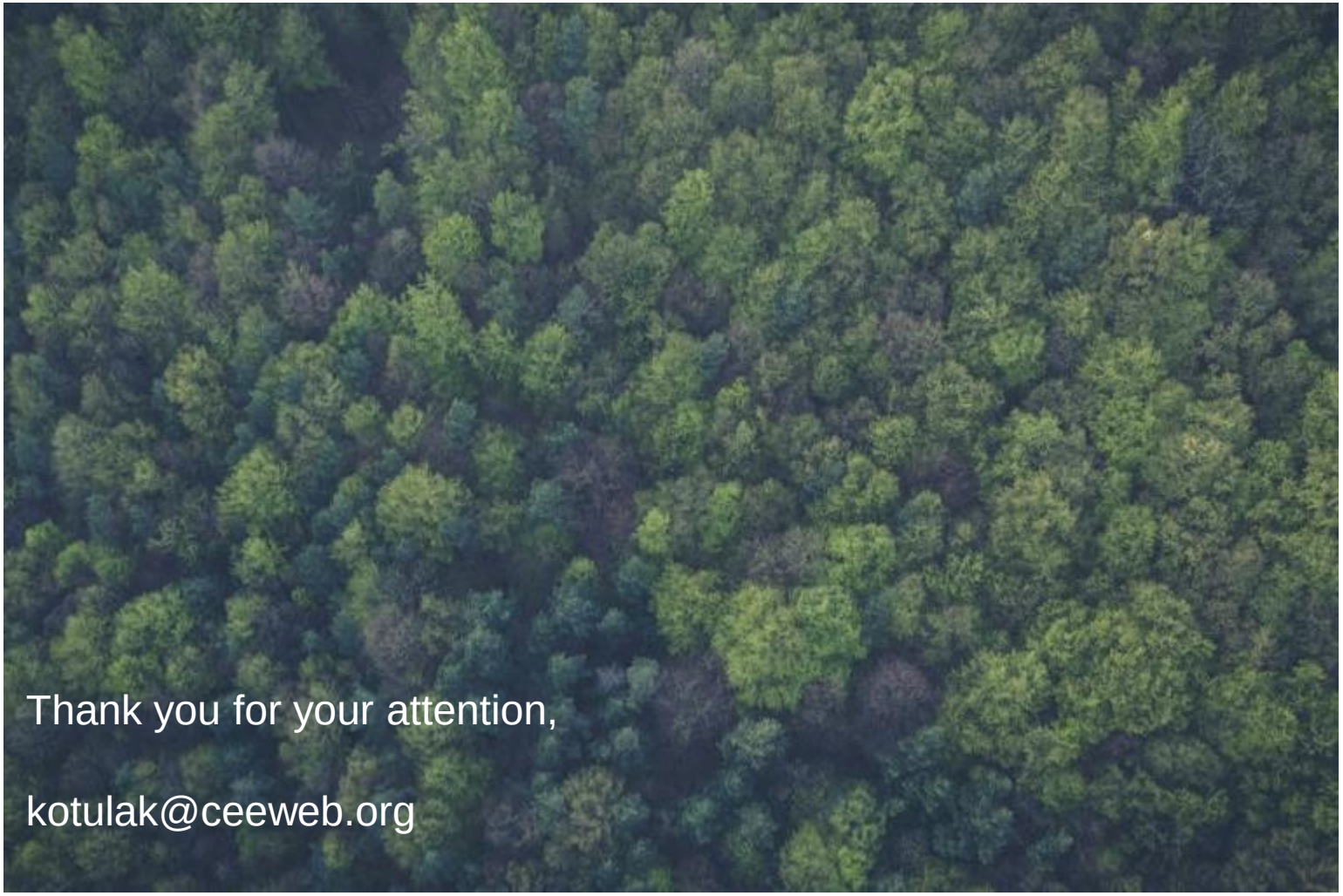
Ecosystem Services

- Wood and non-wood products: e.g. biomass based energy
- Climate regulation: e.g. C-sequestration
- Pollution control, air quality regulation
- Soil protection and formation: e.g. erosion control
- Nutrients cycling
- Biodiversity protection
- Water regulation, storage and supply
- Disturbance regulation
- Recreation
- Spiritual and eashetic value
- High diversity of culture

Ecosystem Services – what can you do

- Biophysical mapping and assessment of forest ecosystem services – baseline stock and fluxes;
- Changes in the provision of forest ecosystem services resulting from forest dynamics, policy and management options, climatic changes and forest disturbances;
- Economic valuation of forest ecosystem services: current status and future (policy) scenarios;
- Environmental and economic accounting

management regimes should be regionally adapted for better supporting multiple ecosystem services in the future


Thank you for your attention,
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Sources

- http://www.biodiversa.org/661/download