The integrated planning and ecosystem services of grasslands

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Nature conservation – a Flintstone’s approach
Drivers stimulating ecosystem succession

Grasslands

![Diagram of ecosystem succession over time with categories: Annual Plants, Perennial Plants and Grases, Shrubs, Softwood Trees - Pines, Hardwood Trees.]

- Annual Plants
- Perennial Plants and Grasses
- Shrubs
- Softwood Trees - Pines
- Hardwood Trees

- Time arrow moving from left to right.
How do we ensure conservation of disturbance patterns stimulating ecosystem succession?
We care about favourable conservation status of a Farmer...
Conservation status of grassland habitat types in the Baltic States

According to the HD Article 17 reporting data

<table>
<thead>
<tr>
<th>Grasslands at Boreal region</th>
<th>Habitat code</th>
<th>LT</th>
<th>LV</th>
<th>EE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fennoscandian lowland species-rich dry to mesic grasslands</td>
<td>6270</td>
<td>U1 - U1-</td>
<td>U1 U2- U1</td>
<td>U1 U1= U1-</td>
</tr>
<tr>
<td>Fennoscandian wooded meadows</td>
<td>6530</td>
<td>U2- U2- U2-</td>
<td>U2 U2- U2</td>
<td>U1 U1= U1-</td>
</tr>
<tr>
<td>Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels</td>
<td>6430</td>
<td>U1 U1= U1</td>
<td>FV FV FV</td>
<td>FV FV FV</td>
</tr>
<tr>
<td>Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)</td>
<td>6510</td>
<td>U1 U1= U1</td>
<td>U1 U2- U1</td>
<td>U1 FV FV FV</td>
</tr>
<tr>
<td>Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinia caerulea)</td>
<td>6410</td>
<td>U2- U2 U2</td>
<td>U2 U2- U2</td>
<td>FV FV FV</td>
</tr>
<tr>
<td>Northern boreal alluvial meadow</td>
<td>6450</td>
<td>U1 U1= U1</td>
<td>U2 U2- U2</td>
<td>U1 U1= U1-</td>
</tr>
<tr>
<td>Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* im)</td>
<td>6210</td>
<td>U1 U2 U2</td>
<td>U1 U2- U2</td>
<td>FV U1= U1-</td>
</tr>
<tr>
<td>in mountain areas (and submountain areas in Continental)</td>
<td>6230</td>
<td>U2- U2 U2</td>
<td>U2 U2- U2</td>
<td>n/a n/a n/a</td>
</tr>
<tr>
<td>Xeric sand calcareous grasslands</td>
<td>6120</td>
<td>U2- U2- U2-</td>
<td>U2 U2- U2</td>
<td>n/a n/a n/a</td>
</tr>
<tr>
<td>Nordic alvar and pre cambrian calcareous flatrocks</td>
<td>6280*</td>
<td>n/a n/a n/a</td>
<td>n/a n/a n/a</td>
<td>U1- U1- U1-</td>
</tr>
</tbody>
</table>

Source: European Topic Centre on Biological Diversity

(U2-) bad and deteriorating
(U2) bad
(U1-) Inadequate and deteriorating
(U1) Inadequate
(FV) Favourable
Grasslands of high nature value in the context of: farming intensification, dominating economies of scale, changes in the economy structure of the countries, abandonment of rural areas

High nature value grasslands became marginal

- Difficult to access and manage (slopes, wetlands);
- Low production (amount and quality of biomass);
- Requires different farming model from the mainstream;
- Simply – sufficient amount of much better areas for conventional farming;
Measures under Rural Development Plans currently remains a key precondition for maintaining “Farmer’s Favourable conservation status”; Management-based agri-environmental measures **lacks targeting** (both in terms of content and spatial coverage).

2012 (Lithuania): agri-environmental measures (red) ”overlapping” with Natura 2000 sites (green) by 1%
The Project aims to support **maintenance of biodiversity and ecosystem services** provided by **grasslands**, through encouraging **ecosystem based approach to planning and economically viable grassland management**. The project shall demonstrate opportunities for multifunctional use of grasslands as basis for sustainability of rural areas and stimulus for local economies.
VIVA GRASS INTEGRATED PLANNING TOOL

VIVA GRASS VIEWER
For all of us
To understand grasslands' ecosystem services and their spatial distribution

VIVA GRASS BIOENERGY
For farmers & planners
To support grassland management decisions related to bioenergy

VIVA GRASS PLANNER
For planners
To support grassland management decisions by prioritization of different ecosystem services

LIFE Viva Grass LIFE13 ENV/LT/000189
2018
www.vivagrass.eu
Categories of Ecosystem Services

Provisioning services

*Products directly used by people*

Food:
- Crops, wild plants, tea, honey etc.
- Reared and wild animals and their outputs

Materials:
- Timber, hey, fibbers, herbs for medicine etc.
- Genetic material

Energy:
- Biomass for energy

Regulating services

*Related to the way ecosystems regulate environmental media or processes*

Mediation of waste, toxics and other nuisances
- Filtration, accumulation

Mediation of flows
- Erosion control and water flow maintenance

Maintenance of nature processes
- Lifecycle and habitat maintenance;
- Water conditions, soil formation, climate control etc.

Cultural services

*Related to the cultural or spiritual needs of people*

Physical and intellectual interactions
- Recreation
- Educational and scientific value
- Landscape, cultural heritage

Spiritual, symbolic interactions
- Symbols and traditions
- Existence and bequest value
Grassland classes & mapping units

- **Land quality**
  - Low land quality
  - Medium land quality
  - High land quality
  - Organic soils

- **Slope**
  - Plain relief
  - Gentle slope
  - Steep slope

- **Management intensity**
  - Cultivated grassland
  - Permanent grassland
  - Semi-natural grassland

- 36 possible grassland classes
- Additional 10 arable land classes

MAPPING UNIT!!!!!!
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Example: Assessment of grasslands for expansion of green network in Saaremaa, Estonia (LIFE Viva Grass project)

Assessment of grassland within existing GN

Assessment of grassland outside of existing GN
Green Network DMS: concept, aims

1. Guide planners into the adoption of GN in rural municipality General Plan

2. Stress the role of grasslands in GN (delivery of ES, conservation status)

3. Conflict detection

4. Scenario-based
Module 2  Scenario builder – Scenario 1: Bare minimum

› Grasslands in the Habitats Bundle

- Pollination and seed dispersal
- Maintaining habitats
- Global climate regulation
- Herbs for medicine
- Control of erosion rates
- Chemical condition of fresh waters
- Bio-remediation
- Filtration/storage/accumulation
- Soil fertility
- Fodder
- Biomass based energy sources
- Reared animals and their outputs
- Cultivated crops
Module 2  Scenario builder – Scenario 2: Medium ecological coherence

› Grasslands in the **Habits Bundle**
› Grasslands intersect **protected species areas**

Pollination and seed dispersal
Maintaining habitats
Global climate regulation
Herbs for medicine
Control of erosion rates
Chemical condition of fresh waters
Bio-remediation
Filtration/storage/accumulation
Soil fertility
Fodder
Biomass based energy sources
Reared animals and their outputs
Cultivated crops
Module 2

Scenario builder – Scenario 3: High ecological coherence

- Grasslands in the **Habitats Bundle**
- Grasslands intersect **protected species areas**
- Grasslands in **Soils bundle**

**Pollination and seed dispersal**

**Maintaining habitats**

**Global climate regulation**

**Herbs for medicine**

**Control of erosion rates**

**Chemical condition of fresh waters**

**Bio-remediation**

**Filtration/storage/accumulation**

**Soil fertility**

- **Fodder**
- **Biomass based energy sources**
- **Reared animals and their outputs**
- **Cultivated crops**
Setting priorities for grassland management in the protected areas

Choosing priority criteria:
• Species number and importance;
• Conservation status of the area;
• Ecosystem services (e.g. potential for tourism);
• Infrastructure availability;
• Management frequency needs;
• Risk of abonnement;
• Area importance to local community;
• Economic viability preconditions
• ...
Prioritization and manual work with the Tool
Attempt to recover pastoralism tradition in Lithuania
Why pastoralism is an important for nature conservation?
Brief history of pastoralism in Lithuania
• System of communal villages in Lithuania since XVI century
• Land reform since 1922 turned most (except Southern part of the country) of communal villages into separate farmsteads;
• 1950-1990 – Soviet Union, shepherds were used in some cases at the collective farms within big fenced areas;
• Since 2004 Lithuania becomes EU member, change of farming system leads to dramatic decrease of small scale and subsistence farming. Pastoralism tradition vanishes very rapidly
PROJECT LIFE-IP PAF-NATURALIT “OPTIMIZING THE MANAGEMENT OF NATURA2000 NETWORK IN LITHUANIA”

• Revive pastoralism practice to maintain open habitats and promote cultural heritage;
• Perform pilot practices
• Seek for integration of pastoralism into current farming system (e.g. special support mechanism in RDP);

Work process is just in beginning phase...
Challenges we face

- Pastoralism tradition in Lithuania is nearly gone;
- Subsistence farming being major precondition for pastoralism is marginal;
- Pastoralist as such is not considered to be a high profile profession;
- Animal grazing in forest is prohibited;
Opportunities
• Animal grazing with Sheppard allows access to “difficult” (for conventional machinery) areas;
• Pastoralism tradition may be valuable component for cultural landscape, opportunities for tourism;
• Sheppard helps preventing animal collision with large carnivorous (mainly wolf).