Best practices of grassland management in Greece and their evaluation

Vasilios P. Papanastasis and Yannis Kazoglou
Greece
EU definition of grasslands (2009):

*Grassland* means *arable land used for grass production* (sown or natural); ...it includes permanent pasture. *Permanent pasture* means land used to grow *grasses or other herbaceous forage* naturally (self-seeded) or through cultivation (sown) and that has not been included in the crop rotation of the holding for five years or longer.

EU definition of grasslands (2014):

*Permanent grassland and permanent pasture* (together referred to as "permanent grassland") ...may include other species such as *shrubs and/or trees* which can be grazed provided that the *grasses and other herbaceous forage* remain *predominant* as well as, where Member States so decide, *land which can be grazed and which forms part of established local practices* where *grasses and other herbaceous forage* are traditionally *not predominant* in grazing areas.

Grasslands in Greece:

- Grazing (pastoral) lands or rangelands (grasslands, phrygana, shrublands, open forests)
- Forest lands (predominantly)
- Communal (predominantly)
Rangelands in Greece

True grassland

Phrygana

True grassland

Phrygana
Rangelands in Greece
# Natura 2000 rangeland habitats in Greece

<table>
<thead>
<tr>
<th>Type</th>
<th>Number of habitats</th>
<th>Number of plant associations</th>
<th>Plant associations per habitat</th>
<th>Area covered (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grasslands</td>
<td>17</td>
<td>137</td>
<td>8</td>
<td>100,000</td>
</tr>
<tr>
<td>Phrygana</td>
<td>5</td>
<td>140</td>
<td>28</td>
<td>270,000</td>
</tr>
<tr>
<td>Shrublands</td>
<td>12</td>
<td>144</td>
<td>12</td>
<td>370,000</td>
</tr>
<tr>
<td>Open forests</td>
<td>17</td>
<td>110</td>
<td>7</td>
<td>390,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>51</strong></td>
<td><strong>531</strong></td>
<td><strong>10</strong></td>
<td><strong>1,130,000</strong></td>
</tr>
</tbody>
</table>

**Percentage of Natura 2000 rangeland habitats:** 38%

**Percentage of Natura 2000 rangelands:** 23%
Grassland management practices

Infrastructure

- Roads
- Troughs
- Huts
- Fences
- Rain reservoirs
- Shelters
Grassland management practices

Vegetation improvements: Control of undesirable range plants

Mechanical control

Chemical control

Prescribed fire

Biological control
Grassland management practices

Vegetation improvements: Introduction of desirable range plants

- Seeding
- Planting shrubs
- Planting trees
- Fertilization
Best practices in grasslands

Fertilization

End result: Improvement of forage quantity and quality
Best practices in grasslands
Prescribed burning

End result: Improvement of forage quality
Best practices in grasslands
Seeding herbaceous species (I)

End result: Improvement of forage quantity and quality
Best practices in grasslands
Seeding herbaceous species (II)

End result: Improvement of forage quantity and quality
Best practices in grasslands
Control of shrubs

End result: Improving forage and plant diversity
Best practices in grasslands

Planting fodder shrubs

End result: Providing forage in the summer period
Best practices in grasslands

Planting fodder trees

End result: Providing fodder and improving the landscape
Best practices in phrygana

Combination of methods

End result: Increased forage quantity and biodiversity
Best practices in shrublands

Prescribed burning

Dense shrubland

Prescribed burning

Seeding

Experimental plan

Open shrubland

End result: Increased liveweight gains
Best practices in shrublands

Fertilization

End result: Increased grass quantity and quality
Best practices in shrublands
Seeding wild burned shrublands

End result: Increased grass quantity and quality
Best practices in opening up forests

With thinning and seeding grasses

End result: Increase grass quantity and quality
Best practices in opening up forests

With grazing

End result: Reduction of fire risk
Best practices in grazing management

Grazing control
Autochthonous cattle of the Greek shorthorn breed (*brachyceros*) at Prespa, perfectly adapted to both dry and wet grasslands. They utilize any kind of forage and graze even in winter under ice/snow cover and freezing temperatures (they may eat twigs or brake the ice / dig in the snow) (Nuclei herds of this breed are raised in Lemos and Agios Achillios to preserve it from cross-breeding).
Best practices in grazing management

Management plan

Mavropetra of Evros
**Case study of Oiti and Kallidromo mountains**

- **LIFE + Nature Project: FOROPENFORESTS:** "Conservation of priority forests and forest openings in "Ethnikos Drymos Oitis" and “Oros Kallidromo” of Sterea Ellada

**Project objectives**
- Maintenance of forest openings
- Restoration of the temporary ponds
- Protection of the grasslands and temporary ponds from degradation
- Restoration of the *Juniperus foetidissima* forests
- Protection of the conifer forests from destructive wild fire.
- Ex situ conservation of the target habitats and plant species.
- Enhancement of the population of the five Annex I bird species.
- Enhancement and protection of the population of *Ursus arctos*.
- Active involvement of the stakeholders
- Legal protection of the project sites.

**Project actions**
- Restoration of traditional activities
Case study of Oiti and Kallidromo mountains

- Measuring biomass
- Measuring species composition
- Monitoring grazing
Case study of Oiti and Kallidromo mountains

- Controlled burning of *Juniperus nana*
- Shrub clearing & weed removal
- Rational grazing
Wet grasslands in Greece

Habitats: 8, Plant associations: 143, Plant associations/habitat: 18, Area covered: 45000 ha
Best practices in wet grasslands

Evros river’ delta
LIFE02 NAT/GR/8494: “Conservation of Priority Bird Species in Lake Mikri Prespa, Greece”

**Project objective:** Ensure and improve conservation status of Dalmatian Pelican and Pygmy Cormorant by restoring and managing their habitats

**Project actions:**
- Sluice reconstruction
- Wet meadow restoration
- Bird, water and *vegetation monitoring*
- Public awareness & wardening
- Operation of scientific committee
- Management plan
Case study of the Prespa National Park

Buffalo grazing

Summer and autumn cutting

Summer cutting followed by grazing
Case study of the Prespa National Park

Maintenance of wet meadows in the littoral zone of Agios Achillios island with continuous cattle grazing (between the dry grasslands and the reed beds)
1. All the practices applied have shown that grasslands have a great potential to be developed so that both their economic and environmental roles are accommodated.

2. The practices presented have clearly shown that livestock grazing is compatible with the environment provided that is applied in a scientifically sound way.

3. All the practices presented were carried out in the framework of specific projects financed by national or international sources suggesting that they were discontinued with the end of the projects.

4. Most of practices related with seeding or planting palatable range plants have failed because:
   - the areas where they were implemented were communally used by more than one shepherds making their grazing management difficult, or even impossible,
   - They were fragmentary, i.e. they were not combined with integrated grazing management
Conclusions

1. Grazing control is the primary “best” practice to be applied in communally grazed grasslands.

2. All grassland practices should be included in a long term grazing management plan of the area to be conserved.

3. Local people utilizing grasslands should be involved in both the preparation and implementation of the management plan.
Thank you for your attention!