Forest management approach in Natura 2000 sites

Dragos MIHAI
National Forest Administration - ROMSILVA
ROMANIA

Natura 2000 management workshop
22 - 23 September, 2014 - Budapest, Hungary
At the beginning of the 19th century, the forest management was focused to ensure the sustainable wood production. This century represent also the transition from "timber production" to forestry as a scientific discipline.

During the 20th century, nature protection start to be taken into consideration within the forest management plans and strategies.

Sweden was the first European country to declare, in 1908, the establishment of the first 9 national parks.

Silvicultural systems for forest management, promoting natural regeneration and maintaining natural forest type, were developed or improved (shelterwood system, group selection, single tree selection etc.)

Ecological and social forests’ functions were developed as a concept and included into the forest management planning principles.
IUCN Protected areas category types

According IUCN, 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 classify protected areas according to their management objectives:

I-a Strict Nature Reserve *(Scientific reserve)* - strictly protected areas;

I-b Wilderness Area - usually large unmodified or slightly modified areas, retaining their natural character and influence, *without permanent or significant human habitation*;

II National Park - large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area.*

III Natural Monument or Feature - are set aside to protect a specific natural monument, which can be a landform, sea mount, submarine cavern, geological feature such as a cave or even a living feature such as an ancient grove.
IUCN Protected areas category types

**IV Habitat/Species Management Area (Nature reserve)** - aim to protect particular species or habitats and management reflects this priority. Many Category IV protected areas will need regular, active interventions to address the requirements of particular species or to maintain habitats.

**V Protected Landscape/ Seascape (Natural park)** - A protected area where the interaction of people and nature over time has produced an area of 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 area with sustainable use of natural resources (Biosphere reserve)** - conserve ecosystems and habitats together with associated cultural values and traditional natural resource management systems. They are generally large, with most of the area in a natural condition, where a proportion is under sustainable natural resource management and where low-level non-industrial use of natural resources compatible with nature conservation is seen as one of the main aims of the area.
Habitat Directive

Objective:
- The aim of this Directive shall be to contribute towards ensuring bio-diversity through the conservation of natural habitats and of wild fauna and flora in the European territory of the Member States.
- Measures taken pursuant to this Directive shall be designed to maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora of Community interest.
- Measures taken pursuant to this Directive shall take account of economic, social and cultural requirements and regional and local characteristics.

Definitions:
- **site** - means a geographically defined area whose extent is clearly delineated.
- **Conservation** - means a series of measures required to maintain or restore the natural habitats and the populations of species of wild fauna and flora at a favourable status.
CASE STUDIES *Ursus arctos* L.

*Ursus arctos* L. – Brown bear in Bucegi Natural Park and Natura 2000 site

- **Order**: Carnivora
- **Family**: Ursidae
- **Genus**: Ursus

Number of brown bears in Romania:
Approx. : 6000 exemplares
CASE STUDIES Ursus arctos L.

Ursus arctos L. – Brown bear in Bucegi Natural Park and Natura 2000 site

LARGE PROTECTED AREAS IN ROMÂNIA

Legend
- National Parks
- National Parks managed by NFA Romsilva
- Nature Park
- Nature Parks managed by NFA Romsilva
- Danube Delta Biosphere Reserve
**CASE STUDIES** *Ursus arctos* L.

**Ursus arctos L.** – Brown bear in Bucegi Natural Park and Natura 2000 site

- **Bucegi Natural Park**: 32,663 ha, of which 21,358 ha forested. Very important for its richness of flora (more than 3,000 plant species, out of which 1,183 superior plants)

- **Bucegi Natura 2000 site** – ROSCI0013 (38.787 ha)

The Romanian most visited PA – around 1 million visitors/year. Touristic infrastructure well developed

- For Romanian territory, for good ecological conditions, the optimum number of bears it is considered to be 1 bear per 1000 ha.

- For Bucegi Nature park area, the optimum number of bears should be 24

- The real number of bears in Bucegi Park area is 124!

**Consequences:**

- Conflicts with local communities and with the tourists;

- Each year several causalities (injured people, sometimes deadly)

- Park staff accused that do not take adequate measures
According the law in Bucegi Natural Park hunting of Brown bear is not allowed, so in order to solve the conflicts, only applicable solution is to remove from park area some bears (after obtain of legal approval) 

 Until the legal approval, park staff has to guard the tourists in order to avoid accidents.

 In order to manage this, park administration purchase adequate equipment to capture the bears (tranquilizer shot-gun, trap cage, vehicle to transport the cage) ant trained its staff in this regard.

 Almost every year some bears are removed from the park area (20 bears in 2009)

 Capture and transportation of one bear cost around 2.000 Euro

 Other problems: park need approval to release the bears in the new location.

 Results: if the bear continue to create problems in the new location, it can be shoot!
CASE STUDY: Paeonia peregrina L. ssp. romanica Mill

Order : Saxifragales
Family : Paeoniaceae
Genus : Paeonia
CASE STUDY: *Paeonia peregrina* L. ssp.romanica Mill

Endemic specie for Dobrogea region and few areas of South-East Romania
Being under protection before 1940 by Romanian legislation.
Not included in Habitat Directive, Annex II b, species list
CASE STUDY: Paeonia peregrina L. ssp.romanica Mill

Location: Comana Natural Park and Comana Natura 2000 site – ROSCI 0043

Natural reserve Padina Tatarului – 231.44 ha (according internal zoning of the park - full protection area). Reason for establishment of the protected area is to preserve the peony.
Ecological requirements:

- Peony is a plant of Balkan origin, which grows spontaneously in wooded lowlands (the edge of oak forests, in areas with shrubs or glades - that can allow enough sunlight).
- Sun Exposure - Full Sun / Partial shade
- Aspect - South-facing or East-facing or West-facing
- Exposure - Sheltered
- Soil Type - Normal or Sandy or Clay
- Soil pH - Neutral or Alkaline or Acid
- Soil Moisture - Average (moist, but well-drained)

Short description: a herbaceous plant, perennial, straight, erect stems 50-80 cm long, unbranched. Flowers are solitary, large, hermaphroditic, consisting of 5-6 sepals and 7-11 petals (5-7 cm long) bright red color. It blooms end of May

All plant (except petals) is toxic!
CASE STUDY: Paeonia peregrina L. ssp.romanica Mill

Problems:
- A much more number of peony exemplars can be find outside the full protection area! (in the buffer zone, in forest managed area)

Why ? - Given the fact that for decades has established non-intervention (applied more or less) and that eight years ago was established Comana Natural Park and its management structure, that oversees carefully that everybody to respect the legislation, forest canopy began to close and block sunlight to get through to peonies.

Challenges:
- To slide the full protection area in the surfaces with peonies?
- Or
- To change the rules (management system)?
CASE STUDY: *Paeonia peregrina* L. ssp.*romanica* Mill
CASE STUDY: *Paeonia peregrina* L. *ssp.romanica* Mill.

Species of Comunitary importance, with similar sunlight needs:

- **Pulsatilla pratensis** Mill. *ssp. hungarica* Soo
  - habitat: oak forest groves or glades (clearings)

- **Agrimonia pilosa** Ledeb
  - habitat: forest glades

- **Cypripedium calceolus** L.
  - Habitat: oak forest groves/glades, in the hill areas
CASE STUDIES 91Y0 habitat – ROSCI0224 Scrovistea

Coordonates of the site : N 44° 42’ 51” E 26° 3’ 46”
Surface : 3.391 ha
Altitude : min – 86, max – 133, average – 118
Bigeographical region : Continental
Habitat types:
- 3150 Natural eutrophic lakes with Magnopotamion or Hydrocharition (4%)
- 3160 Natural dystrophic lakes and ponds (4%)
- 91Y0 Dacian oak & hornbeam forests (55%)
- 91E0 Alluvial forests with Alnus glutinosa and Fraxinus excelsior (1%)
- 91F0 Riparian mixed forests of Quercus robur, Ulmus laevis and Ulmus minor, Fraxinus excelsior or Fraxinus angustifolia, along the great rivers (5%)
CASE STUDIES 91Y0 habitat – ROSCI0224 Scrovistea
CASE STUDIES 91Y0 habitat – ROSCI0224 Scrovistea

Forest District Snagov; Production Unit - II Snagov, Compartment  68 A

Management plans designed in :

- 1979 (surface 13,0 ha, age 20 years, Stand composition goal: 6St 2Ca 1Te1DT,
  Work proposals – clearings, rotation age - 140 years)
- 1992 (surface 12,0 ha, age 35 years, Stand composition goal: 4St 4Te 2Dt,
  Work proposals – conservative cuttings, rotation age - 120 years)
- 2000 (surface 12,3 ha, age 40 years, Stand composition goal: 4Te 3Ca 2DT 1Fr,
  Work proposals – Thinning, rotation age - 80 years)
- 2010 (surface 12,6 ha, age 50 years, Stand composition goal: 5Te 3Ca 2DT,
  Work proposals – Thinning, rotation age - 80 years)

- St – Quercus robur L. (Oak)
- Ca – Carpinus betulus L. (Hornbeam)
- Te – Tilia cordata Mill. (Lime)
- Fr – Fraxinus excelsior L. (Ash)
- DT – Different hardwood species
## CASE STUDIES 91Y0 habitat – ROSCI0224 Scrovistea

### Forest District Snagov; Production Unit - II Snagov, Compartment 68 A

<table>
<thead>
<tr>
<th>Stand Composition</th>
<th>Age (years)</th>
<th>Diameter (cm)</th>
<th>Height (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 Ca 5 Ca 4 Ca 4 Ca</td>
<td>20 35 40 50</td>
<td>6 12 18 20</td>
<td>8 12 16 18</td>
</tr>
<tr>
<td>3 St 2 St</td>
<td>20 35</td>
<td>8 12</td>
<td>8 12</td>
</tr>
<tr>
<td>1 Te 2 Te 4 Te 4 Te</td>
<td>20 35 40 50</td>
<td>10 16 24 28</td>
<td>9 15 18 22</td>
</tr>
<tr>
<td>1 DT 1 DT 2 DT 2 DT</td>
<td>20 35 40 50</td>
<td>8 12 18 22</td>
<td>8 12 17 20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tree Density (%/100)</th>
<th>Volum/ha (m³/ha)</th>
<th>C. Vol (m³)</th>
<th>Harv. Vol (m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 1 1 0,90</td>
<td>71 141 224 255</td>
<td>2750</td>
<td>190 173</td>
</tr>
<tr>
<td>0,5 0,5 0,4 0,35</td>
<td>31 58 73 78</td>
<td>895</td>
<td>100 93</td>
</tr>
<tr>
<td>0,3 0,2</td>
<td>24 27</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>0,1 0,2 0,4 0,35</td>
<td>10 44 110 132</td>
<td>1348</td>
<td>62 80</td>
</tr>
<tr>
<td>0,1 0,1 0,2 0,20</td>
<td>6 12 41 45</td>
<td>507</td>
<td>24</td>
</tr>
</tbody>
</table>
Mission for the forest managers

Many organizations are trying (by forests) to monitor or to find solutions to the following aspects:

- Biodiversity protection
- Rural development
- Renewable energy
- Carbon dioxide sequestration (Kyoto Protocol)
- Climate change and adaptation
- Air pollution mitigation
- Recreational activities
Ministerial Conferences on the Protection of Forests in Europe

- Strasbourg 1990
- Helsinki 1993
- Lisbon 1998
- Vienna 2003
- Warsaw 2007
- Oslo 2011

The ministers responsible for forests in Europe have developed common principles, criteria and guidelines for sustainable forest management.
During the second Ministerial Conference on the Protection of Forests in Europe - Helsinki 1993, was adopted the definition for Sustainable Forest Management (SFM):

**SFM means the stewardship and use of forests and forest lands in such a way, and a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfill, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels, and that does not cause damage to other ecosystems.**
Forests’ functions and values

- Economic
- Ecologic
- Social
CONCLUSIONS

Forest should provide
- Timber
- Non timber forest products
- Preserving biodiversity
- Various public services

Forestry should
- operate under financial efficiency

New tools and policies should be developed and promoted to be able to talk in the future about SFM
THANK YOU