Forestry in Slovenia and its contribution to Nature Conservation

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Structure of this presentation:

1. Slovenian forests and forestry... and on Pohorje area
2. Forest management planning system in Slovenia...
3. Information system of Slovenia forest Service...
4. Role of forestry at nature conservation
Basic Data about Slovenian forests

Growing stock
318 mio. m³ (269 m³/ha)

Yearly increment
7.8 mio m³ (6.6 m³/ha/year)

Forest area 1.167.254 ha
58 % of Slovenia
Natural diversity in Slovenia
Basic Data – Ownership structure

314,000 Forest Owners (2.8 ha/Owner)

State and local communities forests: 26%

Private Forests: 74%
Composition of Slovenian Forests

- coniferous: 47 %
- broad-leaves: 53 %

Present Vegetation:
- Beech: 31 %
- Spruce: 32 %
- Silver fir: 8 %
- Oaks: 7 %
- Other b.: 15 %
- Pine: 6 %
- Other con.: 1 %
Forests on Pohorje:

Pohorje - general data:

Total area: 84 000 ha
Total forest area: 60 000 ha

Potential forest vegetation: Beech forests 62%, Silver Fir f. 29%, Spruce f. 3%, other 6%.

Groundstone: non-carbonate tonalite, gneis, amphibolite

Average growing stock: 286 m³/ha
Average annual increment: 7,0 m³/ha
Forests on Pohorje – main processes:

1. Forest management practice in 19. and first part of 20\textsuperscript{th} century
   - changed tree species composition (spruce monocultures)

2. Unbalanced relationship between plant and wildlife part of forests

3. Aforestation and depopulation processes
Slovenian forestry – main partners:

State institutions:

- Ministry of Agriculture, Forest and Food
  (Forestry inspection operates within MAFF.)
- Slovenia Forest Service
- Fund of Agricultural Land and Forests
- Slovenian Forestry Institute
- Biotechnical faculty, Department of Forestry
- Secondary Forestry School

Forestry organisations:

- Forestry enterprises
- Agricultural and forestry chamber
- Association of forest owners – private forest owners
Slovenia Forest Service

- Central Unit
- 14 Regional Units
- 93 Local Units
- 409 Forest districts
- 10 State Game Reserves
- 740 employees
Slovenia Forest Service - organization

Organization of the Slovenian Forest Service
Main tasks of Slovenia Forest Service

- Informational support to forest management in Slovenia,
- Monitoring of forests,
- Forest management and game management planning,
- Elaboration of programmes for protection of forests,
- Elaboration of programmes of investment in forests,
- Cooperating in regional and state land use planning,
- Planning the maintenance of forest roads,
- Transfer of subsidies to forest owners,
- Popularisation of forests and forestry in public,
- Extension service to forest owners,
- Control of works in forests, financed by the State.
Fields of work in SFS - departments

- Forestry extension and public relations
- Forestry planning
- Silviculture and forest protection
- Forestry technique
- Wildlife and hunting
- Informatics
Main principles of forest management in Slovenia:

• CLOSE TO NATURE

• SUSTAINABLE

• MULTIFUNCTIONAL

Forest management is establishing an organic connection between economic activities in forests and nature conservation.
What supports previous concepts in forest management:

1 Hierarchical forest management planning system

2 Supportive and accurate informational system about forests

3 Integrated multifunctional planning – forest management, game management, nature conservation

4 Participation of all stakeholders in preparation of forest management plans
1. Forest management planning system:

1. The National Forest Program

2. Forest management plans of regional units (game management plans are integrated = (30,000 - 140,000 ha)

3. Forest management plans of forest management units (FMU) = (2,000 - 9,000 ha)

4. Silvicultural plans (mostly 20 - 100 ha)
Forest management regions and units:
FMU on Pohorje area

First year of forest management plans validity

LEGEND
- 1998 (24)
- 1999 (24)
- 2000 (22)
- 2001 (18)
- 2002 (19)
- 2003 (29)
- 2004 (25)
- 2005 (23)
- 2006 (24)
- 2007 (27)
Forest management units plans:

PROCEDURE

• 233 management unit plans adopted by the Ministry of agriculture, forestry and food (duration: 10 years)
• Guidelines from Institute for Nature Conservation, opinions of local communities, public discussions

CONTENT

• Forest Inventory
  – Permanent Sample Plots
  – Terrestrial forest stands inventory (DOF5)
• Management goals (for management classes) with
  – Guidelines and Measures
  – Possible cut and silviculture/protective measures
Information layers:

- forest compartments (54,525)
- forest stands (302,473)
- forest functions
- permanent sample plots (102,445)
- forest roads
Permanent sample plots:

- Geo-referenced
- Sample plot of two subplots (500 m², 200 m²)
- A Grid of 102,000 PSP

Growing stock and increment
- structure by diameter
- structure by tree species

Wood quality and wood damages
Deadwood
Example of PSP grids in FMU Ravne:
Forest roads
Integrated multifunctional planning:

- Forest management plans for regional units are common forest and wildlife management plans.
Integrated multifunctional planning:

- Forest management unit plans are also management plans for forest areas of Natura 2000

Natura 2000 sites capture as much as 35% of the total surface of Slovenia and as many as 50% of all Slovenian forests.
Evaluation of forest functions:

- **ecological**: the protection of forest plots and stands, hydrological, biotopic and climatic functions

- **social**: protective function - protection of facilities, recreational, tourist, educational, research, hygiene-health functions, the function of protecting the natural heritage, the function of protecting the cultural heritage defence and aesthetic functions

- **productive**: timber production, exploiting other forest resources and game management
Evaluation of forest functions:

- **1st degree**: function determines method of forest management
- **2nd degree**: function significantly affects forest management
- **3rd degree**: function partly affects the forest management
Functions and system of subsidies:

- If ecological and social functions significantly affect forest management, subsidies are increased by 10% (2\(^{nd}\) degree).

- If they determine forest management method, subsidies are increased by 20% (1\(^{st}\) degree).
Function units:

- whole forest area in Slovenia
- function unit codes
  - 1st code-letter – degree of ecological function
  - 2nd code-letter – degree of social function
  - 3rd code-letter – degree of productive function
- mapped in Slovenia in the year 2000
- part of a forest management plan
- function map scale is 1 : 25.000
(2) Forest functions
Function units:
Categories of forests in forest management plans:

1. Multipurpose forests
2. Forests with special purpose (management is allowed)
3. Forests with special purpose (management is not allowed) (= Forest reserves)
4. Protective forests

Forest reserves and protective forests are integral part of forest management plans
Forest reserves and protective forests:

- With a regulation, the government of the Republic of Slovenia has protected protective forests (about 9% of forests) and forest reserves (about 0.9% of forests)

Forest reserves and protective forests:

LEGENDA
- **Gozdni rezervati** - Forest reserves
- **Varovalni gozdovi** - Protective forests
- **Ostali gozdovi** - Other forests

Sirotovne podlage 2002
Slovenia Forest Service 2005
Forest reserves and protective forests on Pohorje:
**Forest reserves on Pohorje (15):**

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Forest Management classes...

... are the main tool for guidance of forest management

**FMC groups forests with:**

- uniform site conditions,
- uniform tree species mixture and stand structure development trends
- uniform forest management objective
Forest management unit plan

Management goals

Stand conditions

Forest Management classes

- Present status
- Development trends
- Silviculture goals
- Guidelines
- Measures

Silvicultural plan
(realization of planned measures)
Forest reserves are described on a level of forest management class:

FMC: Forests with special purpose (forest management measures are not permitted)

- Site description
- Growing stock and increment
- Tree species composition
- Dead trees
- Developmental stages and structure of stands
- Development of growing stock
- Development of tree species mixture

Silvicultural objectives, guidelines and measures are not described because human interference is not permitted.

All observations have to be recorded in forest reserve chronicle.
Forest reserves are also described on a single forest reserve level:

Forest reserve Štatenberško borovje
Description of forest management class “Pohorje bogs” in FMU Osankarica (forest category “Protective forests”)

**Forest area:** 148 ha

**Plant communities:**
- Bazzanio Piceetum sphagnetosum 46%
- Oxycocco–Sphagnetosum mughetosum 15%
- Oxycocco–Sphagnetosum piceetosum 37%
- Other 2%

**Growing stock** 164 m³/ha

**Increment** 4.4 m³/ha/year

**Development stages:** young growth 0.3%, pole wood 17%, optimum phase 11%, stands under rejuvenation 2%, mixed stage 30%, shrubs 40%

**Tree species mixture:** spruce 99%, pine 0.1%

**Long term silvicultural objective:** Management is adapted to protective and biotopical function, some parts are excluded from management

**Planned measures:** selective thinning in protective belt of bogs, ensure continuous cover with vegetation, measures to support protective and biotopical function, change of purpose is not allowed, older trees should be left to natural development, only natural rejuvenation, respect of quiet zones for wildlife
Description of single forest in subcomp.: 59 C
(forest management class “Pohorje bogs” in FMU Osankarica)