



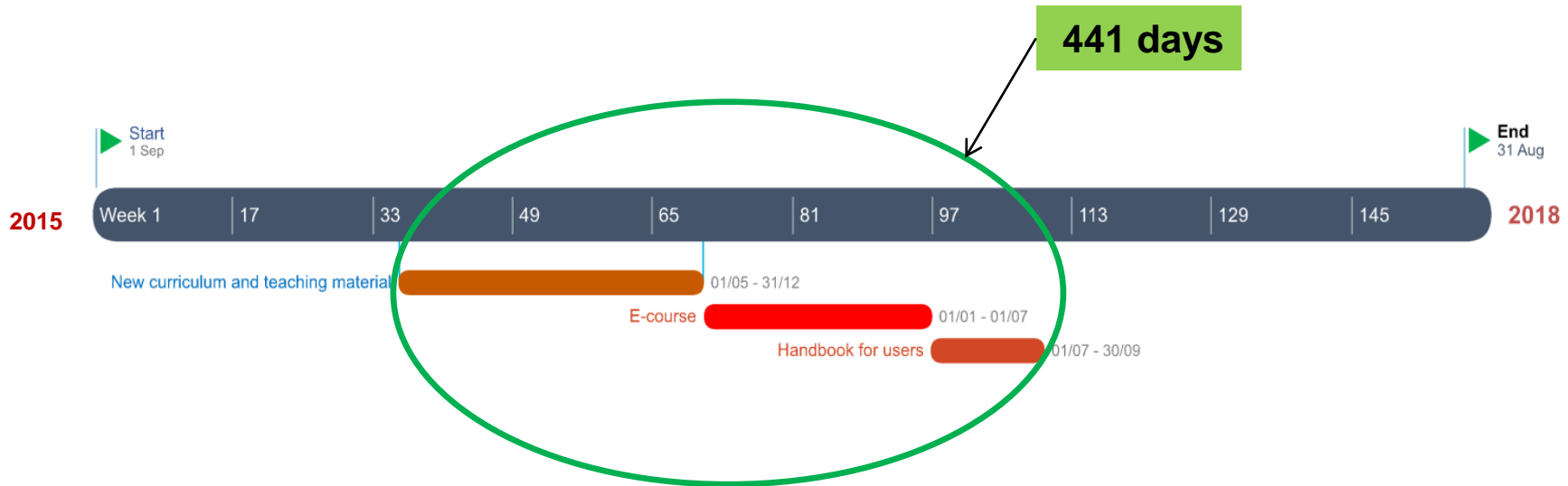
Project's results:

**New curriculum and e-course
“Sustainable forest management:
From theory to practice”**

Marta Curman, mag.ing.silv.



The “history” of activities



MAIN RESULTS:

1. New curriculum and teaching materials
2. E-learning course and e-learning platform (LMS)
3. Handbook for users



Methodology 1/2

Topics and learning outcomes for the target groups

- entrepreneur and their employees,
- forestry professionals and immature forestry professionals,
- nature conservationists,
- big and small private forest owners

ENTREPRENEURS

Target group



Topics of interest

- CHAIN SAW
- FOREST PRODUCTS MARKETING
- PROJECT MANAGEMENT
- LEGAL FRAMEWORK AND MULTIFUNCTIONALITY
- FUNDING OPPORTUNITIES
- NETWORKING
- ESTABLISHING OF SEED OBJECTES

FORESTRY PROFESSIONALS



- ADAPTIVE FOREST MANAGEMENT,
- CLIMATE CHANGES AND ITS CHALLENGES,
- WOOD MARKET,
- FOREST EXPLOITATION,
- SILVICULTURE,
- PESTS,
- FOREST PROTECTION,
- FUNDING OPPORTUNITIES

NATURE CONSERVATIONISTS



- PESTS AND PATHOGENS AS POTENTIAL THREATS,
- MANAGING CLIMATE CHANGE AND NATURAL HAZARDS,
- NETWORKING,
- SILVICULTURE,
- LEGISLATION,
- PROJECT MANAGEMENT
- FUNDING OPPORTUNITIES

PRIVATE FOREST OWNERS



- CHAIN SAW,
- SILVICULTURE,
- PESTS,
- NETWORKING,
- ASSOCIATION AND ADVISORY POSSIBILITY,
- FUNDING OPPORTUNITIES,
- ESTABLISHING OF SEED OBJECTES



Methodology 2/2

Development of the teaching material and uploading the materials on Moodle e-learning platform

Happy faces after we divided the tasks into four groups!



Andrej Breznikar from SFS presents curriculum on climate changes



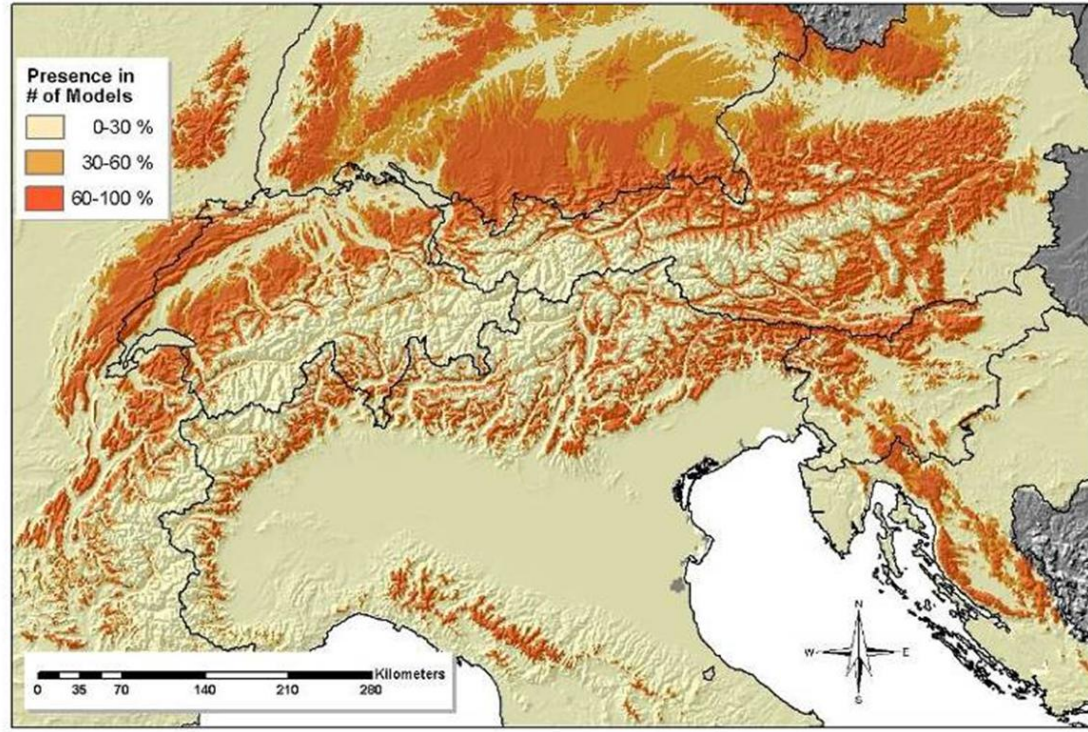
About the e-course “Sustainable forest management: From theory to practice”

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Changes in tree species composition - BEECH:

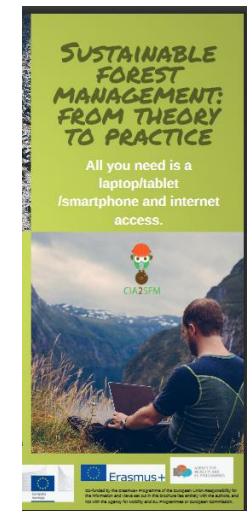
Fagus sylvatica

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1)

, forum,



Modeling of climate envelopes (spatial distribution models of plant/animal species). Authors: WSL - Niklaus E. Zimmermann, Eliane S. Meier, Signe Normand, Cirk Schmatz, Peter B. Pearman & Achilleas Psomas, Project MANFRED – Management strategies to adapt Alpine Space forests to climate change risks, project No. 9-2-3D, European territorial cooperation "Alpine Space", 2009 - 2012

E-course – a look inside



<http://e-learning.irmo.hr/>

LOGIN PAGE

IRMO English (en) You are not logged in

IRMO
Institut za razvoj i međunarodne odnose
Institute for Development and International Relations

[Home](#) » [Log in to the site](#)

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Is this your first time here?

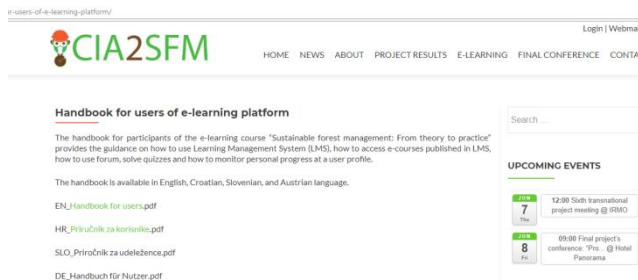
For full access to this site, you first need to create an account.

You are not logged in.
[Home](#)



How to login?

1. Access the project web page CIA2SFM <http://www.cia2sfm.org/> >
2. **Project results>**
3. Handbook for users of e-learning platform (EN, HR, DE, SLO)



Handbook for participants of the e-learning course
"Sustainable forest management: From theory to practice"

Content	
Introduction	2
Main page	2
Authentication	2
Entering a course	4
Navigation	5
Student Profile	6
User report	8
Assignments	9
Forum	9
How to enter a forum?	10
Reviewing - taking a quiz	12

The purpose:

- to provide guidance how to use Learning Management System LMS,
- how to access e-courses,
- how to use forum, solve quizzes and
- how to monitor personal progress at a user profile.

Content of the e-course

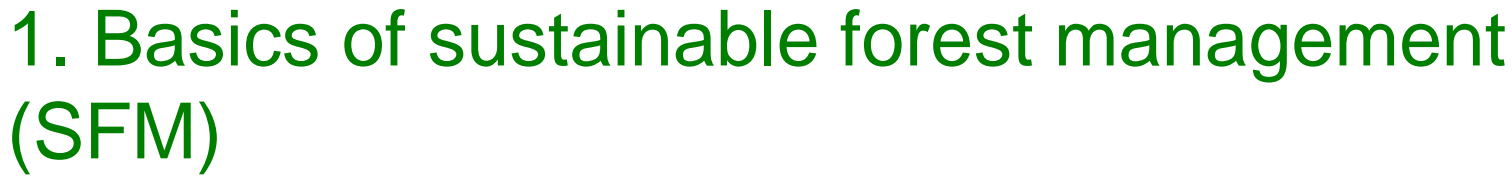
Four main sections:

- 1. Basics of sustainable forest management (SFM)**
- 2. Technical aspects of SFM**
- 3. Organization of SFM**
- 4. Adaptation of SFM to the climatically changing environment**

NAVIGACIJA

Naslovnica

- Moja naslovnica
- ▶ Stranice na razini sustava
- ▼ Trenutačni e-kolegij
 - ▼ **SFM: From theory to practice**
 - ▶ Sudionici
 - ▶ Značke
 - ▶ Introduction
 - ▶ Section 1. Basics of sustainable forest management...
 - ▶ 1.1. Biogeochemistry
 - ▶ 1.2. From seed to seedling
 - ▶ 1.3. Silviculture
 - ▶ 1.4. The choice of tree species
 - ▶ 1.5. Forest protection
 - ▼ 1.6. Biotic disturbances and damages
 - Insects
 - Gypsy Moth ID (Outsmart App)
 - Cross-border War on Bark Beetles
 - Fungi
 - Wildlife
 - Disturbances of EU forests caused by biotic agents
 - Forest pests
 - Quiz - Insects
 - Quiz on fungi and wildlife
 - ▶ Section 2. Technical aspects of SFM
 - ▶ 2.1. Exploitation of forests
 - ▶ 2.2. Soil protection and erosion - Forest road and...
 - ▶ 2.3. Chain saw and technology
 - ▶ Section 3. Organization of SFM
 - ▶ 3.1. Organization of private forest owners and man...
 - ▶ 3.2. Project Management for EU Funded Projects
 - ▶ 3.3. Legal matters
 - ▶ Section 4. Adaptation of SFM to the climatically c...
 - ▶ 4.1. Climate change and its challenges for fores...
 - ▶ 4.2. Adaptive forest management strategies as a re...
 - ▶ 4.3. Wood market and wood biomass in the climatica...
 - ▶ 4.4. Communication, participation and networking ...
 - ▶ 4.5. Ice break Case Study



INTRODUCTION: In order to maintain forest ecological, economic and social benefits, forest management has to be understood. For a healthy forest, a balanced and undisturbed nutrient cycle and healthy soil are essential. This provides a wide range of specific knowledge.

EDUCATIONAL OBJECTIVE: The objective is to teach the ecological principles in forestry (biogeochemistry, forest ecology) and to educate about the core forest practices (silviculture, protection). The goal is to improve knowledge and skills for private forest owners to forestry professionals.

CONTENT: This section includes several individuals with a strong interest in forestry but no formal training.

Content overview (chapters):

1.1. Biogeochemistry

1.2. From seed to seedling

1.3. Silviculture

1.4. The choice of tree species

1.5. Forest protection

1.6. Biotic disturbances and damages

☐

2. Technical aspects of SFM



✚ Section 2. T Machinery for safe work in the forest

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Sustainable forest management: From theory to practice

Naslovnica ▶ CIA2SFM ▶ SFM: From theory to practice ▶ 2.3. Chain saw and technology ▶ Practical work in the forest

SADRŽAJ

- 1 Personal safety equipment
- 2 Chain saw and tools
- 3 Chainsaw handling
- 4 Working position and handling
- 5 Cutting a tree**
 - 5.1 Felling big trees
 - 5.2 Felling small trees / thinning a forest stand
 - 5.3 Removing branches

NAVIGACIJA

Naslovnica

- Moja naslovnica
- Stranice na razini sustava

Trenutačni e-kolegij

SFM: From theory to practice

- Sudionici
- Značke
- Introduction
- Section 1. Basics of sustainable forest management...
- 1.1. Biogeochemistry
- 1.2. From seed to seedling

Practical work in the forest

5 Cutting a tree

The organization of work includes:

- set up warning signals,
- place tools,
- defining the direction of felling,
- making sure that escape paths are available,
- appropriate cutting technique,
- retreat when the tree is falling.





3. Organization of SFM

Sustainable forest management: From theory to practice

Naslovnica ► CIA2SFM ► SFM: From theory to practice ► 3.1. Organization of private forest owners and man... ► Take the money and run?

SADRŽAJ

1 What can a small-scale private forest owner do?



2 Seven questions for owners of small forests



NAVIGACIJA



Naslovnica

Moja naslovnica

Stranice na razini sustava

Trenutačni e-kolegij

SFM: From theory to practice

Sudionici

Značke

Introduction

Section 1. Basics of sustainable forest management...

1.1. Biogeochemistry

1.2. From seed to seedling

1.3. Silviculture

1.4. The choice of tree species

1.5. Forest protection

1.6. Biotic disturbances and damages

Section 2. Technical aspects of SFM

2.1. Exploitation of forests

2.2. Soil protection and erosion - Forest road and...

2.3. Chain saw and technology

Section 3. Organization of SFM

3.1. Organization of private forest owners and man...

Take the money and run?

Cooperation possibilities for small-scale forest o...

Management of small scale private forests

Quiz - evaluating a forest in Austria

Quiz - organization of private forest owners and m...

3.2. Project Management for EU Funded Projects

3.3. Legal matters

Section 4. Adaptation of SFM to the climatically c...

4.1. Climate change and its challenges for fores...

Take the money and run?

2 Seven questions for owners of small forests

Question

Answer

Do I know my forest?

Important questions are

- property borders
- area of forest property
- accessibility of forest
- rights of neighbors
- forest characteristics (tree species, site conditions, forest age)

What is the purpose of owning a forest?

Possible products from a forest are

- timber production
- fuelwood production
- recreation
- family tradition
- financial reserve

What is the value of a forest?

The standing stock of the forest and the area of surface are marketed separately. The value of 1 m² of forest ground is roughly 2 EUR or 20000 EUR / ha. However, a forest can be sold only once, but wood production is a continuous process.

A rough estimate of the financial value of a forest:

- value of wood: 65 EUR / m³
- harvesting costs: 25 EUR / m³
- revenue: 40 EUR / m³
- standing stock: 300 m³ / ha
- value: 8000 EUR / ha
- afforestation costs for the following stand: 3000 EUR / ha
- remaining value: 5000 EUR / ha (once in 80-100 years)

Interest rate of a forest

- The growth rate of a forest is approximately 3% of the standing stock.
- Active forest management is required; otherwise unused wood decays.

The annual removal of 5 m³ wood / ha can yield 200 EUR / ha.

Deducting of silvicultural costs leaves an annual revenue of 50-100 EUR / ha.

The interest rate is therefore (50 / 8000=) 0.6% or higher.

The interest rate is as modest as the interest rate in a savings account.

Who performs forest operations?

- If the owner performs the cuttings and extractions himself he/she can see forest operations as a welcome form of pastime activity.
- Investments in machinery are only useful when the machines are reasonably often in use.
- The operator of forest machinery needs education and risk awareness.

Forest ownership as social liability

A forest owner needs to comply with different legal regulations regarding sustainable forest cover and forest health. Forest access roads need to be kept in safe conditions.

Seeking advice

- Chambers of Agriculture
- Forest Authorities
- Service Providers

see
section



Section 3. O

INTRODUCTION

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CONTENT: Content
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Content overview

3.1. Organization
3.2. Project mana
3.3. Legal matters

4. Adaptation of SFM to climatically changing environment



Uredi

SADRŽAJ

- 1 Adaptive forest management and adaptation to climate change
- 2 Steps to adaptive sustainable forest management
- 2.1 First step: Vulnerability and risk assessment
- 2.2 Second step: Assessment of adaptive capacity of forests and the forestry sector
- 2.3 Third step: Development of adaptation strategies at different levels
- 3 Adaptation measures
- 3.1 Adaptation measures for minimizing the impacts of disturbances
- 3.2 Adaptation measures for ensuring wood production
- 3.3 Adaptation measures for ensuring other ecosystem services
- 4 The importance of forest owners and practitioners' awareness
- 5 Sources

NAVIGACIJA

Naslovnica

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 - SFM: From theory to practice
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 - 1.3. Silviculture

Adaptive forest management environment

1 Adaptive forest management



Adaptation of forest management

- The effects of climate change and climate variability
- In some cases, climate change is impairing the ability of forests to provide ecosystem services
- Adaptation is necessary in order to maintain the benefits of forests
- Meeting the challenges posed by climate change
- Delays in taking action will increase the costs of adaptation

From: Climate change guidelines for forest management

Adaptation of forest management

Forest managers, aiming to minimize the impacts of climate change, need to consider the costs associated with the changes in forest management.

While global climate models can project broad trends, the uncertainty is high at the subnational level and especially at the local level.

This uncertainty is a challenge for forest managers when choosing adaptation options.

From: Climate change guidelines for forest management

4.5. Ice break Case Study



Icebreak in Slovenian Forests

(30th January – 10th February 2014)

CASE STUDY

In February 2014, Slovenian forests were hit by a catastrophic event caused by freezing rain - an ice break, which encased trees in a thick layer of ice. The ice break damaged over 50% of Slovenian forests, devalued 9.000.000 m³ of timber and blocked around 15.000 km of forest roads. The total damages were estimated to 214 million €, and 14.000 ha of forests had to be reestablished.

This course covers the following topics:

- Ice break - what is it and what meteorological factors cause it;
- Consequences of the 2014 ice break for Slovenian forests;
- The areas and structure of the most damaged forests in ice break in 2014;
- The 2014 ice break Forest Service response and restoration plan, including harvesting and safety information, bark beetle attack management, post ice break silviculture and forest protection;
- Main ice break lessons for Slovenia;
- Activities and relations with forest owners, the general public and the media with respect to the ice break.

Find out more in the pdf document below.

Follow the instructions:

- Read the case.
- Join the [Chatroom](#) and reflect your understanding of the case.
- List your eventual developments.

[Ice break in Slovenian forests](#)

Uredi

[Chatroom](#)

Uredi

[Quiz about the 2014 ice break in Slovenia: "Frozen is not just a fairy tale"](#)

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To conclude

- Lots of material available
- Lots of topics covered

“Find what you like and let it kill you”



Thank You



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