







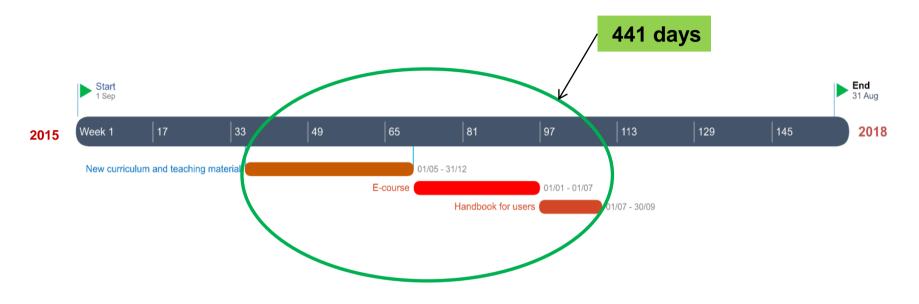
Project's results:

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



•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, • ESTASBLISHING OF SEED OBJECTS



Methodology 2/2

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

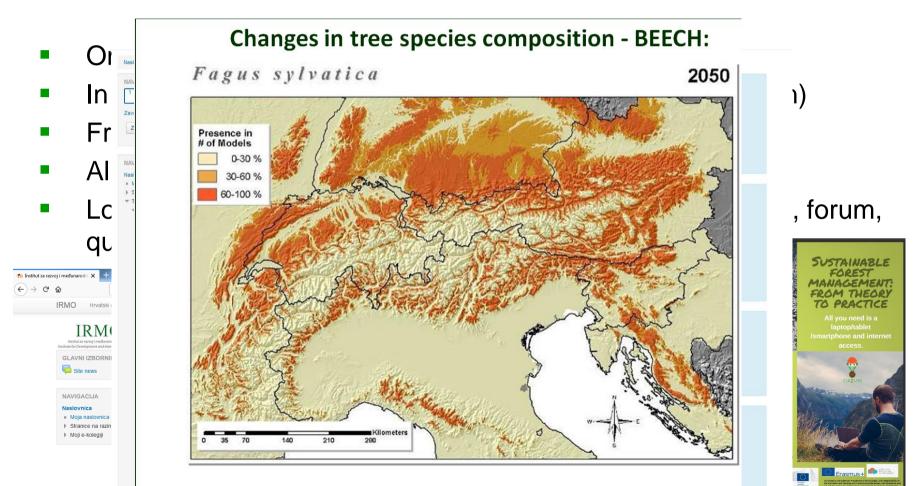




Andrej Breznikar from SFS presents curriculum on climate changes



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



Modeling of climate envelopes (spatial distribution models of plant/animal species). Authors: WSL - Niklaus E. Zimmermann, Eliane S. Meier, Signe Normand, Dirk 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 i
IRMO Instant at instra(i mediumodine officie Instante for Development and International Relations Home 🕑 Log in to the site	
Log in	Is this your first time here?
Username Password Remember username Log in Forgotten your username or password? G+ Log in with Google Cookies must be enabled in your browser (?)	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/ >
- **Project results>** 2.
- 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	
Main page	2
Authentication	2
Entering a course	
Navigation	5
Student Profile	
User report	
Assignments	9
Forum	
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 guizzes and
- how to monitor personal progress at a user profile.

Naslovnica > CIA2SFM > SFM: From theory to practice

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
L	 1.6. Biotic disturbances and damages
	Insects
	Gypsy Moth ID (Outsmart App)
	Cross-border War on Bark Beetles
	E 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
	 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

Ice break Case Stur

1. Basics of sustainable forest management (SFM)

SADRŽAJ

4 Sources

NMAGACILA

Nasiounica

Moja naslovnici

Treputačni e-kolenii

Sudionici

Introduction

management

🔔 Assignment

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networking I 4.5. Ice break Case Study Moli e-kolegiji

Administracija knjige Uredi postavke

PO \$TAVKE

4.4. Communication, participation and

climatically c.

h Zončka

1 Introduction

Section 1. Basics of sustainal

INTRODUCTION: In order to maintain fe ecological, economic and social benef to be understood. For a healthy forest undisturbed nutrient cycle and healthy provide a wide range of specific knowl

EDUCATIONAL OBJECTIVE: The objectiv ecological principles in forestry (biogeoche) and to educate about the core forest practic protection. The goal is to improve knowledg private forest owners to forestry professiona

CONTENT: This section includes sever interest in forestry but no formal traini

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

Sustainable forest management: From theory to practice



Forest seed object registration 2 Requirements for becoming a FRM supplie 2.1 Types of production sites 3 FSO registration procedures 3 F8O registration procedures Step-by-step procedures on how to register into the Register of FSO: 1. Fill in the application form The form may be filled by the owner of the forest or forest land where a tree, a group of trees or a stand for which the application is being submitted is located Submit the form to the sectoral ministry Ministry of Agriculture (in the case of Croatia) 3. Submit expert opinion E Stranice na razini sustava Expert opinion is given by the Official Body (Croatian Forest Research Institute in the case of Croatia) * SEM: From theory to practice The application must be accompanied by - completed form on phenotypic evaluation and measurement of trees in a potential FSO from the recapitulation (FOI-\$SO) topographic map of a management unit at a scale of 1:10 000 ('source identified' and 'selected') topographic map at a scale of 1:10 000 showing the boundaries of a potential FSO and its immediate surroundings Section 1. Basics of sustainable forest topographic map at a scale of 1:1000 with marked geographical coordinates of the seed source of a single tree or a group of trees ("source identified") - copy of the OQ/O3 form from the management programs for a management unit or from the management programs for private forests > 1.1. Biogeochemistry program proposal of a management unit categorized as "gualified" and "tested". T 1.2 From seed to seedling Official body and expert opinion C Introduce Yourself Based on expert cointion given by the Official Body (OB) the Ministry makes a decision whether to register FSO into the Register of FRM supplier or not. Help and support Forest reproductive material The OB starts the process of evaluating the potential FSOs when the owner of the potential FSO submits the application for issuing an expert opinion on the eligibility for registration Forest seed object registration The process of evaluation consists of Distinguishing, collecting and storing - documentation review E Seed analysis and seedling production - field survey Quiz - reproductive material, seed objects - creating a record with expert opinior Based on the expert coinion given by the Official Body, the Ministry brings a decision on registration of FSO into the Register of FRM suppliers 1.4 The choice of tree species. k 1.5. Eccent protection Examples of the form 1.6. Biotic disturbances and damages Section 2. Technical aspects of SFM k. 2.1. Evolutiation of forests. 2.2. Soll protection and erosion - Forest road > 2.3. Chain saw and technology Section 3. Organization of SFM 3.1. Organization of private forest owners and 3.2. Project Management for EU Funded Projects 3.3. Legal matters Manageron P LENERDO DETUNA RODAL DE TUNA Section 4. Adaptation of SFM to the 4.1. Climate change and its challenges for 4.2. Adaptive forest management strategies 4.3. Wood market and wood blomass in the

Online forms:

 Application for Expert opinion form

V Quiz - reproductive material, seed objects and analysis



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2. Technical aspects of SFM





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

INTRODU The biolog Sustainable forest management: From theory to practice types. The less tree to the Naslovnica CIA2SFM SFM: From theory to practice 2.3. Chain saw and technology Practical work in the forest Forest op private ar SADRŽAJ Practical work in the forest In small pr 1 Personal safety equipment 4 & X @ + with the h 2 Chain saw and tools 444X0+ EDUCATI 5 Cutting a tree 3 Chainsaw handling **↑↓☆×@+** 4 Working position and handling prima 444X@+ The organization of work includes: and to 5 Cutting a tree ↑↓\$×@+ · set up warning signals. 5.1 Felling big trees 444X0+ · place tools, CONTENT 5.2 Felling small trees / thinning a forest stand · defining the direction of felling, construct ↑↓☆×@+ · making sure that escape paths are available, We are a appropriate cutting technique. 5.3 Removing branches A & X @ + provided · retreat when the tree is falling. We are w hopefully NAVIGACIJA - < Baumfällung. Vorbereitung und Dur... 🕓 🌧 + + -Content Zweiten Keil setzen 2.1. Expl Naslovnica 2.2. Chai Moja naslovnica 2.3. Fore Stranice na razini sustava Trenutačni e-kolegiji SFM: From theory to practice Sudionici Značke + 2.1. Ex Introduction Section 1. Basics of sustainable forest Forests h management. productio 1.1. Biogeochemistry stated that 1.2. From seed to seedling empress The second se



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3. Organization of SFM

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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

2 Seven questions for owners of small forests

Take the money and run? 1 What can a small-scale private forest owner do?

2 Seven questions for owners of small forests

		Question	Answer	see
INTRODUCTION	NAVIGACIJA		Important questions are	section
Organization is a cr	÷ •		property borders	
organization to a or	Naslovnica	Do Unous my forest?	area of forest property	
Organizational knov	Moja naslovnica	Do I know my forest?	accessibility of forest	
<u> </u>	 Stranice na razini sustava 		 rights of neighbors forest characteristics (tree species, site conditions, forest age) 	
meet reality. In the	 Trenutačni e-kolegij 		 Intest characteristics (tree species, site conductions, intest age) 	
organization of p	 SFM: From theory to practice 		Possible products from a forest are	
private forest owne	 Sudionici 		• timber production	
today and for the fu	 Značke 	What is the purpose of owning a	fuelwood production recreation	
projects are alrea	Introduction	forest?	family tradition	
forests - their prepa	Section 1. Basics of sustainable forest		• financial reserve	
local forestry legi	management		The standing stock of the forest and the area of surface are marketed separately. The value of 1 m ² of forest ground is roughly 2 EUR or 20000 EUR / ha	
comprehend and u	1.1. Biogeochemistry		However, a forest can be sold only once, but wood production is a continuous process.	
compronona ana a	1.2. From seed to seedling			
	1.3. Silviculture		A rough estimate of the financial value of a forest:	
EDUCATIONAL OB	1.4. The choice of tree species		• value of wood: 65 EUR / m	
location-specific) al	1.5. Forest protection	What is the value of a forest?	harvesting costs: 25 EUR / m ³	
owners' wishes in re	1.6. Biotic disturbances and damages		• revenue: 40 EUR / m [°] 3	
practice and adapt	Section 2. Technical aspects of SFM		• standing stock: 300 m ² / ha	
practice and adapt	2.1. Exploitation of forests		 value: 8000 EUR / ha afforestation costs for the following stand: 3000 EUR / ha 	
CONTENT: Content	2.2. Soil protection and erosion - Forest road		remaining value: 5000 EUR / ha (once in 80-100 years)	
management of sm	and			
covers the possibili	2.3. Chain saw and technology		 The growth rate of a forest is approximately 3% of the standing stock. Active forest management is required; otherwise unused wood decays. 	
covers the possibili	Section 3. Organization of SFM			
Content overviev	 3.1. Organization of private forest owners and man 		The annual removal of 5 m^3 wood / ha can yield 200 EUR / ha.	
	Take the money and run?	Interest rate of a forest	Deducting of silvicultural costs leaves an annual revenue of 50-100 EUR / ha.	
3.1. Organization 3.2. Project mana	Cooperation possibilities for small-scale forest		The interest rate is therefore (50 /8000=) 0.6% or higher.	
3.3. Legal matters	0		The interest rate is as modest as the interest rate in a savings account.	
olor Logar matters	Management of small scale private forests Quiz - evaluating a forest in Austria		If the owner performs the cuttings and extractions himself he/she can see forest operations as a welcome form of pastime activity.	
	Quiz - organization of private forest owners	Who performs forest operations?	 Investments in machinery are only useful when the machines are reasonably often in use. 	
	and m		 The operator of forest machinery needs education and risk awareness. 	
	3.2. Project Management for EU Funded Projects	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	l.
	3.3. Legal matters		in safe conditions.	
	Section 4. Adaptation of SFM to the climatically		Chambers of Agriculture	
	c	Seeking advice	Forest Authorities Service Providers	
	4.1. Climate change and its challenges for fores		- Scittle Hotneia	

Section 3. O

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4. Adaptation of SFM to climatically changing

SADRŽAJ

1 Adaptive forest management	and adaptation to
climate change	+ \$ X @ +
2 Steps to adaptive sustainable for	est management
	$\wedge \downarrow \Leftrightarrow \times \oplus +$
2.1 First step: Vulnerability and ris	sk assessment
	$\wedge \uparrow \Leftrightarrow \times \odot +$
2.2 Second step: Assessment of	adaptive capacity of
forests and the forestry sector	↑ ↓ ↓ X @ +
2.3 Third step: Development of ad	aptation strategies
at different levels	↑↓\$×⊕+
3 Adaptation measures	↑↓☆×@+
3.1 Adaptation measures for minir	mizing the impacts
of disturbances	^↓\$×@+
3.2 Adaptation measures for ensu	ring wood
production	↑↓☆X@+
3.3 Adaptation measures for ensu	ring other
ecosystem services	^↓\$×@+
4 The importance of forest owners	and practitioners'
awareness	↑↓☆×@+
5 Sources	↑ ☆ X @ +

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4 4-

NAVIGACIJA

Naslovnica

- Moja naslovnica
- Stranice na razini sustava
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 - 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

Adaptive forest manage environment

1 Adaptive forest managem



Adaptation of forest management

- The effects of climate change and climate var
- In some cases, climate change is impairing t
- Adaptation is necessary in order to maintain
- Meeting the challenges posed by climate cha
 Delays in taking action will increase the cost

From: Climate change guidelines for forest mana

Adaptation of forest management

Forest managers, aiming to minimize the impact: impacts, and the costs associated with the chan

While global climate models can project bro subnational level and especially at local leve

This uncertainty is a challenge for forest manager adaptation options.

From: Climate change guidelines for forest mana



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.

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e timescale of

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:

- 1. Read the case.
- 2. Join the Chatroom and reflect your understanding of the case.

3. List your eventual developments.

🔟 Ice break in Slovenian forests 🧷	Uredi - 🗹	0
📮 Chatroom 🖉	Uredi - 💄 🗹	e
Choose a room where you belong according to the attitude towards forests and participate discussion.	e in the	ge of
Quiz about the 2014 ice break in Slovenia: "Frozen is not just a fairy	Uredi - 💄 🗹	



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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