

Insights to a vibrant Marteloscope network and the I+ Software



facilitated by EFI

Marteloscope Manager Workshop

Sharing experiences on the use of marteloscopes for training, education and research

28-29/06/2022

Wissenschaftszentrum Bonn, Germany

Andreas Schuck, Sergey Zudin, Jakob Derks

FoReSite project under unexpected circumstances

- Project start at the rise of the Covid 19 pandemic
- Project plan needed numerous re-adjustments
- Physical events, field visits and other face to face meetings could hardly take place
 - Manager WS planned during first phase of the project (postponed twice)
- Pandemic constraints especially affected practice network activities
- However we all made the best out of the situation
 - Few training events took place but many new sites established
 - Software further improved and developed
 - Use of marteloscopes in other projects strengthened (national/EU)



Photo: Vasyyl Lavny

Demonstration site network at the start of FoReSite

96 sites in 15 countries across Europe



Country	BE	CH	CZ	ES	DE	FR	HU	IE	IT	LU	PL	RS	SE	SI	SK	Total
Established	2	3	6	1	41	12	1	1	1	3	5	14	1	3	2	96

Demonstration site network now

- ~80 new sites added to the network
- Now more than 170 sites in 23 countries across Europe
- Incoming requests to add further sites
- Enquiry last week for establishing 2 sites in Georgia



Country	AT	BE	DE	DK	ES	FI	FR	HU	IE	IT	LU	NL	PT	RO	TR	UA
New sites	5	3	21	4	11	2	2	1	8	10	4	1	1	2	3	2

Wide variety of site types and management regimes

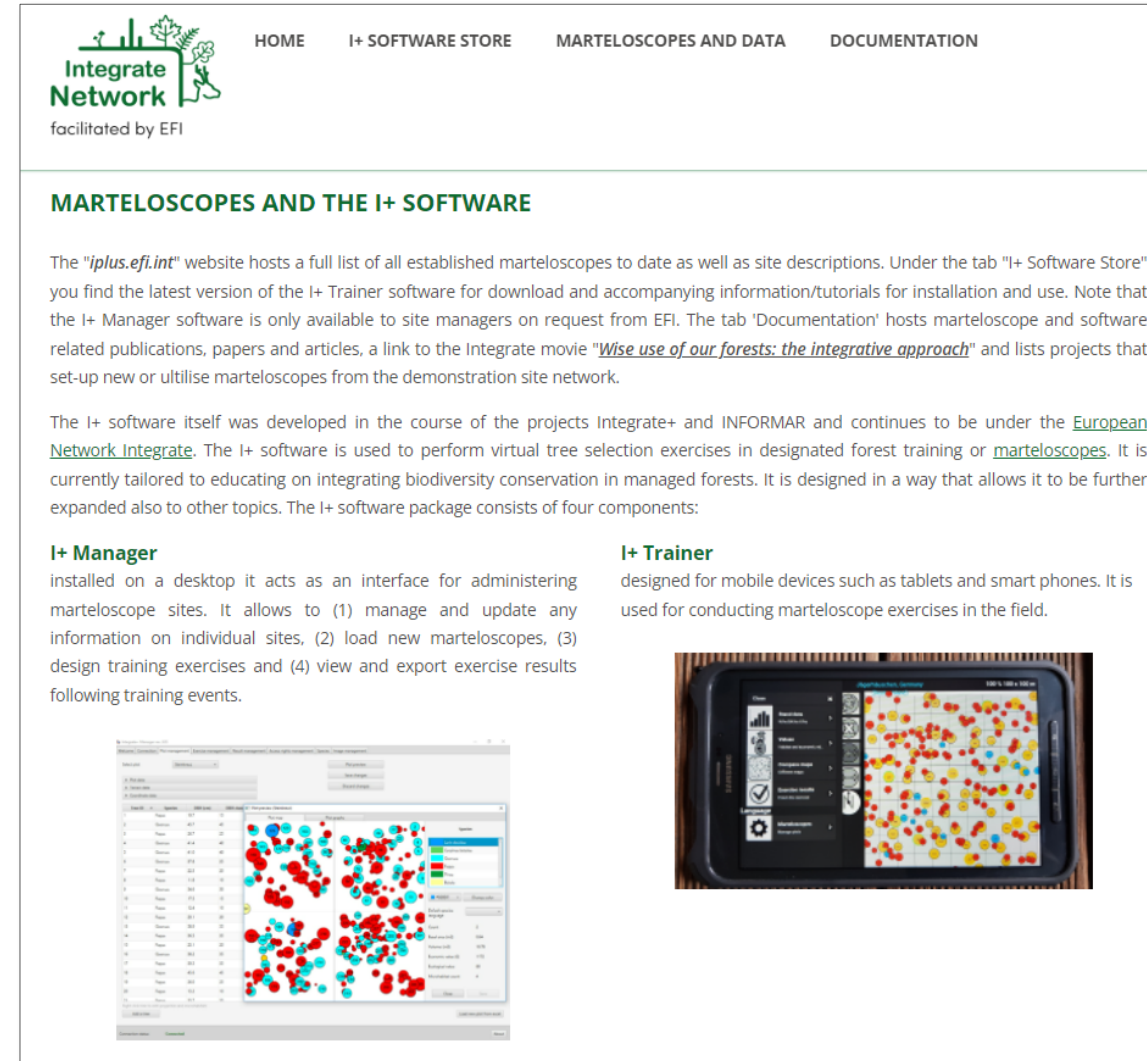


Photos: local marteloscope managers (do not use images without contacting the presenter)

I+ Software development

New functionalities and new modules available and under development

All information directly or indirectly linked to the software can be found on the I+ website (<http://iplus.efi.int/>)



The screenshot shows the website header with the Integrate Network logo and navigation links: HOME, I+ SOFTWARE STORE, MARTELOSOPES AND DATA, and DOCUMENTATION. Below the header, the section title 'MARTELOSOPES AND THE I+ SOFTWARE' is displayed. The main text describes the 'iplus.efi.int' website, which hosts a list of established marteloscopes and site descriptions. It mentions that the 'I+ Software Store' provides the latest version of the I+ Trainer software for download, along with installation and use information. It also notes that the I+ Manager software is only available to site managers on request from EFI. The 'Documentation' tab contains publications, papers, and articles, including a link to the Integrate movie 'Wise use of our forests: the integrative approach' and lists projects that set-up new or utilise marteloscopes from the demonstration site network. The text further explains that the I+ software was developed during the Integrate+ and INFORMAR projects and continues to be under the European Network Integrate. It is used for virtual tree selection exercises in designated forest training or marteloscopes, tailored for educating on integrating biodiversity conservation in managed forests. The software package consists of four components: I+ Manager and I+ Trainer. I+ Manager is a desktop interface for administering marteloscope sites, allowing users to manage and update site information, load new marteloscopes, design training exercises, and view/export exercise results. I+ Trainer is a mobile application for conducting marteloscope exercises on tablets and smartphones. Two images are included: one showing the I+ Manager desktop software interface with a tree plot and data tables, and another showing the I+ Trainer mobile application interface on a tablet displaying a tree plot.

Integrate Network
facilitated by EFI

HOME I+ SOFTWARE STORE MARTELOSOPES AND DATA DOCUMENTATION



MARTELOSOPES AND THE I+ SOFTWARE

The "iplus.efi.int" website hosts a full list of all established marteloscopes to date as well as site descriptions. Under the tab "I+ Software Store" you find the latest version of the I+ Trainer software for download and accompanying information/tutorials for installation and use. Note that the I+ Manager software is only available to site managers on request from EFI. The tab 'Documentation' hosts marteloscope and software related publications, papers and articles, a link to the Integrate movie "[Wise use of our forests: the integrative approach](#)" and lists projects that set-up new or utilise marteloscopes from the demonstration site network.

The I+ software itself was developed in the course of the projects Integrate+ and INFORMAR and continues to be under the [European Network Integrate](#). The I+ software is used to perform virtual tree selection exercises in designated forest training or [marteloscopes](#). It is currently tailored to educating on integrating biodiversity conservation in managed forests. It is designed in a way that allows it to be further expanded also to other topics. The I+ software package consists of four components:

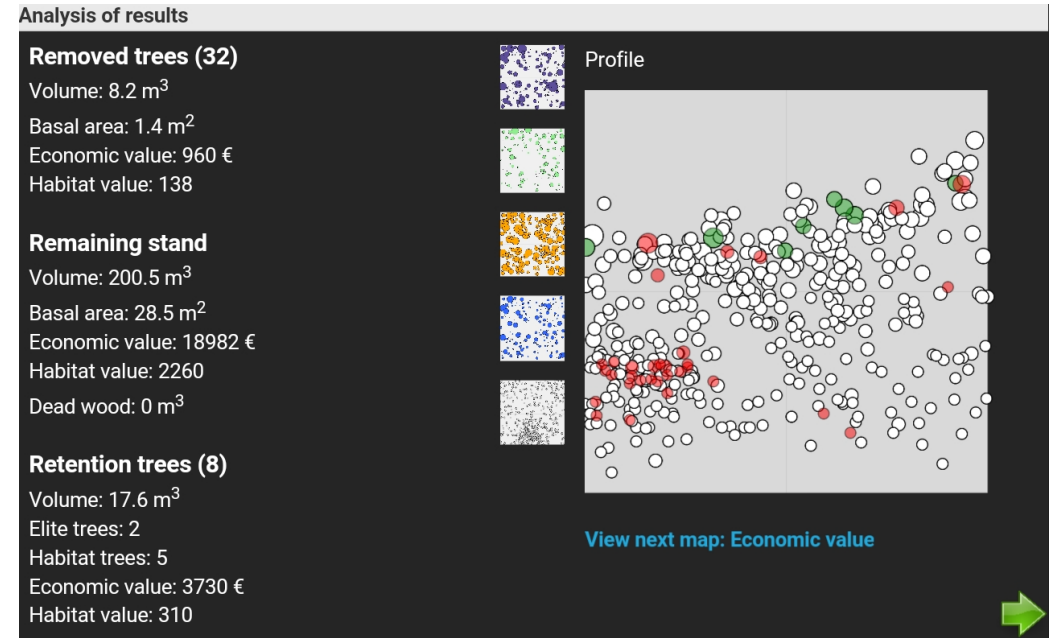
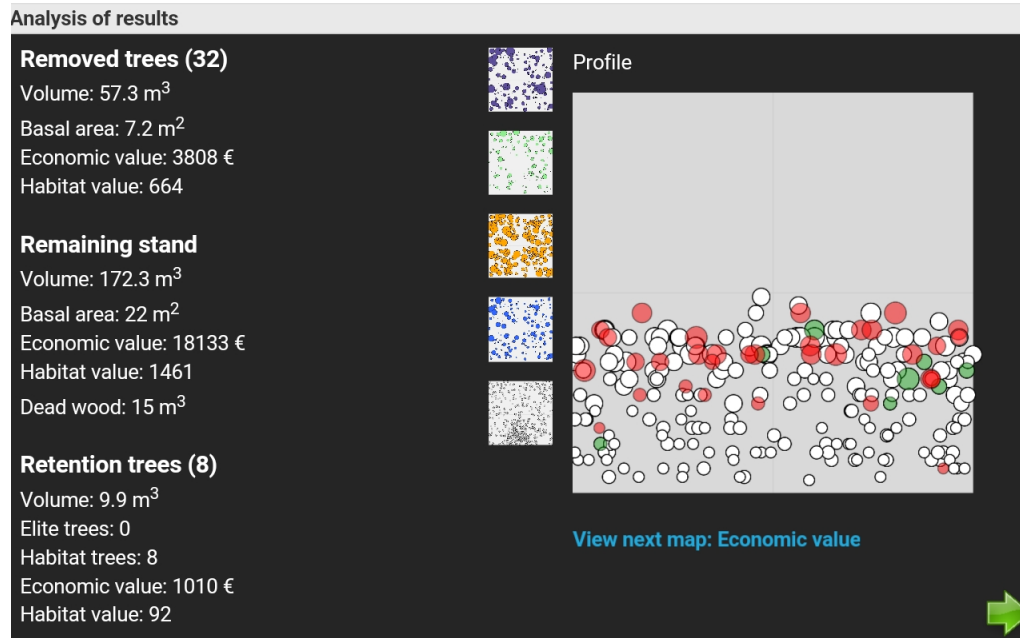
I+ Manager
installed on a desktop it acts as an interface for administering marteloscope sites. It allows to (1) manage and update any information on individual sites, (2) load new marteloscopes, (3) design training exercises and (4) view and export exercise results following training events.

I+ Trainer
designed for mobile devices such as tablets and smart phones. It is used for conducting marteloscope exercises in the field.



I+ Software developments

Stand profile (mini maps)



I+ Software developments (cont.)

Deadwood module

Menu

Tree selection

Removed trees (18)

Volume: 81.4 m³
Basal area: 6.6 m²
Economic value: 2616 €
Habitat value: 470

Remaining stand

Volume: 373.9 m³
Basal area: 25 m²
Economic value: 20098 €
Habitat value: 1570
Dead wood: 48.8 m³

Retention trees (5)

Volume: 27.6 m³
Elite trees: 0
Habitat trees: 5
Economic value: 1249 €
Habitat value: 128

Microhabitats Quality distribution Toggle competing trees

common beech
Fagus sylvatica [id: 235]

DBH: 77 cm
height: 33.9 m
Basal area: 0.47 m²

Retention
Elite tree
Habitat tree
Veteran tree
Diversity
Seed tree

Removal
Target diameter
Competitor
Structure
Regeneration
Sanitary

Dead wood
Standing
Lying
Crown

Analysis of results

Removed trees (20)

Volume: 89.3 m³
Basal area: 7.2 m²
Economic value: 2822 €
Habitat value: 515

Remaining stand

Volume: 363.4 m³
Basal area: 24.3 m²
Economic value: 19538 €
Habitat value: 1525
Dead wood: 51.3 m³

Retention trees (6)

Volume: 35.1 m³
Elite trees: 0
Habitat trees: 6
Economic value: 1512 €
Habitat value: 197

Dead wood (m³)

View next map: Profile

Analysis of results

Fagus sylvatica	hornbeam	Carpinus	betulus	pedunculate oak	Quercus robur	red oak	Quercus rubra	sycamore	maple	Acer	pseudoplatanus	wild cherry	Prunus avium	Total
	1	0	0.3	5	0	0								205
		29	7.8	122.4	9203	694	62							24.3
														363.3
														19538
														1513
														167
														Dead wood
														4
														1.1
														17.2
														959
														34
														Lying
														51.3
														2084
														368

DBH distribution after removal

Before Removed After

Dead wood

Dead wood	N/ha	BA/ha	V/ha	EconV	HabVal
	[#]	[m ²]	[m ³]	[EUR]	[pts.]
Crown	4	2.1	24.8	706.82	290
Lying	6	1.4	24	1298.11	43
Standing	2	0.8	12.2	682.93	24
Total	12	4.3	61	2687.85	357

Crown Lying Standing

Dead wood

Dead wood	N/ha	BA/ha	V/ha	EconV	HabVal
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Crown Lying Standing

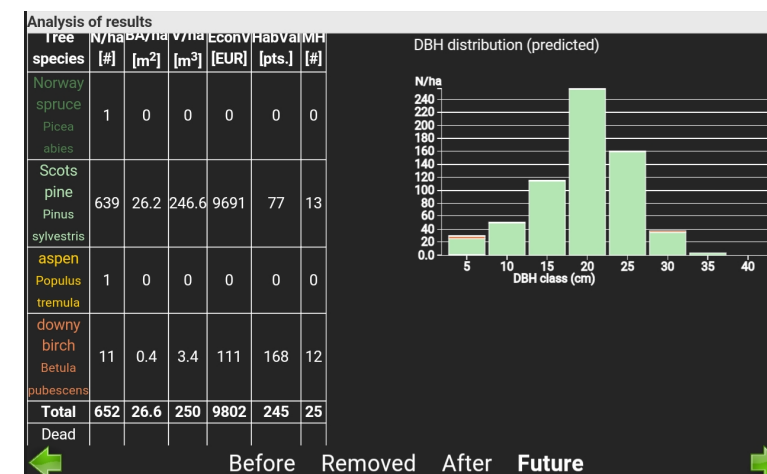
Dead wood

Dead wood	N/ha	BA/ha	V/ha	EconV	HabVal
	[#]	[m ²]	[m ³]	[EUR]	[pts.]
Crown	5	2.5	27.3	785.4	325
Lying	6	1.4	24	1298.11	43
Standing	3	1.1	17.2	958.88	34
Total	14	5	68.5	3042.39	402

Crown Lying Standing

I+ Software developments (cont.)

Stand development after intervention



Training events and communication

EFI
Connecting knowledge to action

Governance Forest Risks Biodiversity Urban Forestry Global Change Media About

Combining silviculture and ecology to benefit our forests – the Irish way
Published July 26, 2021 by Gesche Schifferdecker

[Tweet](#)

Ireland is one of the few countries in Europe that experienced almost complete deforestation in recent history with just over 1% forest cover remaining at the beginning of the 1900s. Since then, an impressive effort has been made by the State of Ireland and other stakeholders to increase forest cover – but the Irish plan to plant forests has also

<https://integratenetwork.org/>; <https://resilience-blog.com/>

Integrate Network

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Environment

More than 200 forest stakeholders trained in Italian marteloscope
25/06/2021 - admin

Recently over two hundred forest technicians, professionals, naturalists, biologists, public administration officials, entrepreneurs, forest workers, students and operators of protected areas met in Lazio region, within Sala State Forest (Rieti), for two days of field experience. The activities took place in the **Rieti-Lazio marteloscope** belonging to the **European Integrate Marteloscope Network**. Part of the exercises was the recognition of tree microhabitats, the application of the Potential Biodiversity Index (IBP) and the simulation of silvicultural interventions attentive to aspects related to biodiversity.

<https://integratenetwork.org/2021/06/25/more-than-200-forest-stakeholders-trained-in-italian-marteloscope/>

ANGEL Montessori Zentrum
ANST. F. P. F. P.

Infotermine im Herbst - Jetzt anmelden!
Die Infotermine für kommende Schuljahre stehen fest.

Montessori Zentrum Casa dei Bambini Grundschule Realschule Gymnasium Aus- und Weiterbildung

Gymnasium

- News
- Videos
- Pädagogisches Konzept
- Oberstufe bei Angel
- Gesundtagbetreuung
- Kollegium
- SMV
- Aufnahme
- Praktische Infos

Ab in den Wald
30. Juli 2021

Am 26.7. hat die Klasse von Annette Schuck und Arne Lehmberg einen Schulausflug in den Mooswald unternommen. Martha aus der 9b hat dazu einen Bericht geschrieben.

Wir, die Klasse 9b, haben in der letzten Schulwoche zwei Ausflüge unternommen. Am 26.07.2021 waren wir im Mooswald am Optinger Baggersee. Am Morgen haben wir Schüler um 8 Uhr in den Klassenzimmer getroffen, sind vom Angel mit der Straßenbahn bis ins Rieseefeld gefahren. Von dort aus haben wir den Bus genommen, der uns zum Optinger Baggersee gebracht hat, wo wir dann in den Mooswald gegangen sind. Dort haben zwei Männer mit uns praktische Sachen unternommen und uns viel erklärt. Der eine Mann, Alexander Held, beschäftigt sich mit den Bäumen im Wald. Er hat mit uns über Gefahren im Wald geredet. Der andere Mann hieß Andreas Schuck, er ist wie Alexander Held Forstwissenschaftler beim Europäischen Forstinstitut (<https://efi.int/>). Wir haben praktische Aufgaben gemacht, wie zum Beispiel Bäume markieren. Wir haben ein rotes Pagenband bekommen und an bestimmten Bäumen befestigt. Oder interessante Dinge aus dem Wald gesammelt (Früchte, Blätter). Wir haben auch das Alter der Bäume bestimmt. Alexander und Andreas haben uns viel theoretische Sachen über Bäume erklärt und wie man sie ausmisst. Zwischendurch haben wir eine Frühstückspause gemacht. Um 12:00 Uhr haben wir uns auf den Rückweg gemacht und sind mit Bahn und Bus zurückgefahren.

6th grade students on their green campus day in the marteloscope Mooswald

Einmal FörsterIn sein!

#WocheDerUmwelt
Woche der Umwelt: Einmal FörsterIn sein!

0:01 / 2:01

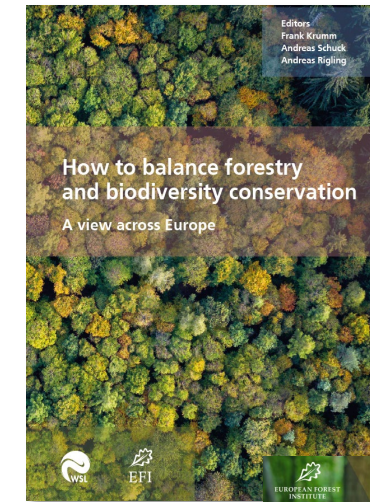
Participation in the „German Environment week 2021“

Demonstration sites and their use in research

- Marteloscope data available for science via 'Global Biodiversity Information Facility'
- Scientific research (applied and social sciences)
- Other publications (e.g. practitioners journals)
- Bachelor and master theses

Other important activities / outputs linked to the work of the Integrate Network

- Numerous events (selected examples)
 - Policy challenges of integrating biodiversity conservation in forest management – the way forward - March 2021
 - 7th European Integrate Network Meeting (Neuchâtel / Boudry, Switzerland): “Forests in 2080: Biodiversity and adaptation to climate change in future forest management” - October 2021
 - Are climate change adaptation, mitigation and biodiversity conservation in European forests two sides of the same coin? - March 2022
- Various publications and policy briefs



<https://forbiodiv.wsl.ch/de/>



Marteloscopes and software applied in other projects

- Dauerwald Project (national)
- Integrate Finland (EU Reg. Dev. Fund)
- GoProFor (EU Life+)
- Lifespan (Life+)
- Holisoils (EU H2020)
- Multipliers (EU H2020)
- INFORMA (EU Horizon Europe)
- Pending applications (EU/national)



Thank you

andreas.schuck@efi.int

sergey.zudin@efi.int

<https://integratenetwork.org/>

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