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**Preparedness to climate change in European
forestry based on COST ECHOES database on
adaptive measures**

ECHOES and MOTIVE open science conference

May 21-24, 2012, Tours, France



Objectives and outline of presentation

- To scrutinize contents of ECHOES adaptive measures database
 - To assess the preparedness to climate change in different bioclimatic regions
-
1. Introduce ECHOES Adaptive Measures Database
 2. Regional distribution and implementation status of measures
 3. Coverage across European Forest Types
 4. What determines the choice of measures?
 5. Conclusion: how well prepared are we?

ECHOES Data Base on Adaptive Measures

echoes.boku.ac.at/start.php

Most Visited LEO Dictionary English... W Hauptseite - Wikipedia EFI

WG 2 "Adaptation" - Data Collection

Country overview
logged in as 'at'

 Help



	Estonia	5
	Spain	29
	Finland	18
	France	46
	Germany	61
	Greece	10
	Hungary	33
	Italy	69
	Netherlands	18

ECHOES Data Base on Adaptive Measures

echoes.boku.ac.at/start.php

Most Visited LEO Dictionary English... W/ Hauptseite - Wikipedia EFI

WG 2 "Adaptation" - Data Collection
Edit adaptive measure
Record# 357

[Save](#) [Back to list](#) [Reload](#) [Help](#)

Specific measure [Help](#)
Specific measure
Choose one measure from the popup-window or provide as free text.
Click to select from catalog: [Select Measure](#)
(please select a measure)
Or specify as free text:

forest/woodland type [Help](#)
Forest/woodland type
<please select...>

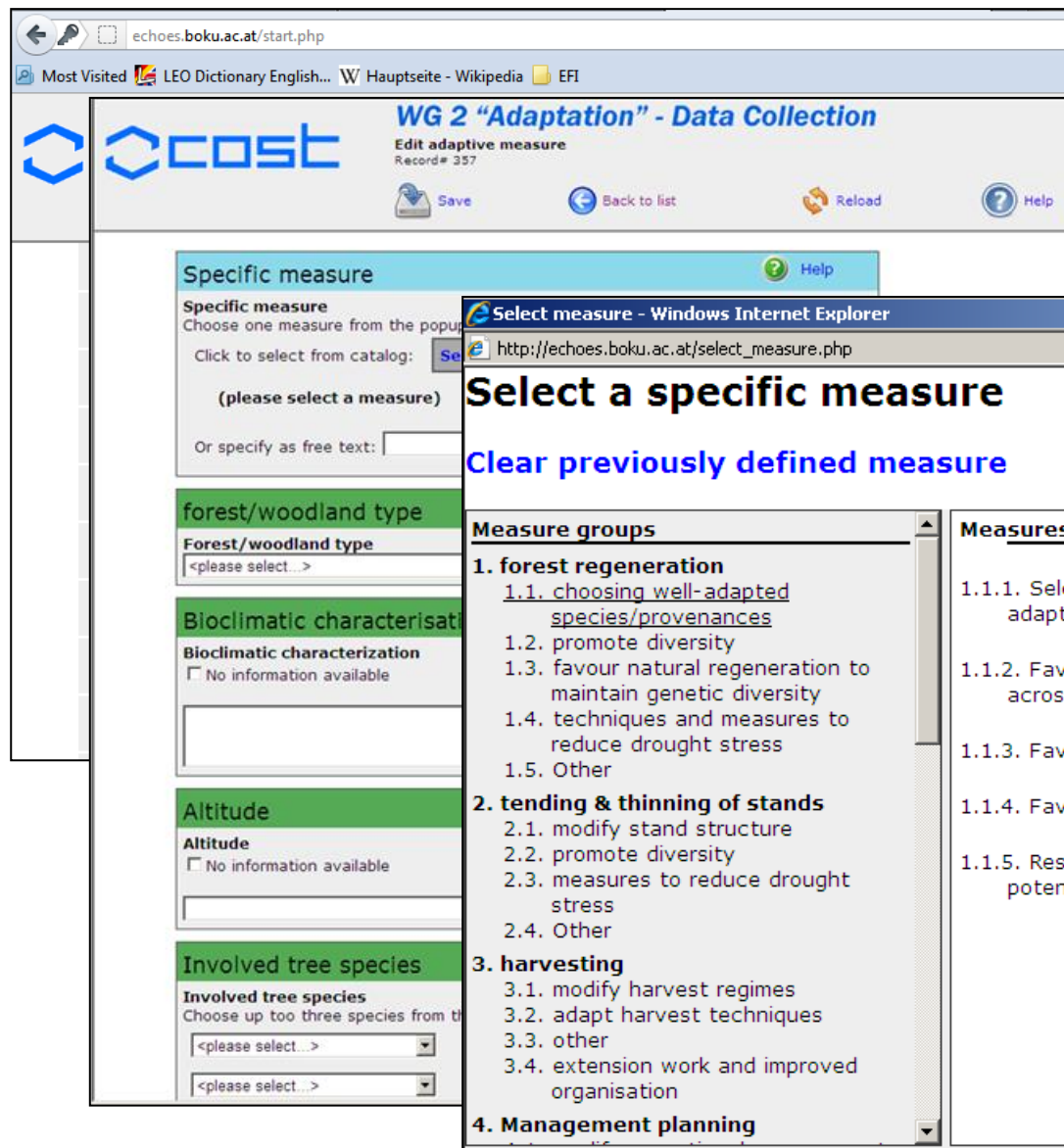
Bioclimatic characterisation [Help](#)
Bioclimatic characterization
☐ No information available

Altitude [Help](#)
Altitude
☐ No information available

Involved tree species [Help](#)
Involved tree species
Choose up too three species from the dropdown and/or use the additional text fields.
<please select...>
<please select...>

	# measures	# different measures
Austria	15	10
Croatia	9	9
Cyprus	21	15
Czech Rep.	23	9
Estonia	5	5
Finland	18	18
France	46	19
Germany	61	41
Greece	10	9
Hungary	33	32
Italy	69	26
Netherlands	18	8
Serbia	7	5
Slovakia	34	15
Slovenia	26	6
Spain	29	26
Sweden	11	9
Switzerland	38	21
UK	10	10
total	483	146

ECHOES Data Base on Adaptive Measures



	# measures	# different measures
Austria	15	10
Croatia	9	9
Cyprus	21	15
Czech Rep	22	9
		5
		18
		19
		41
		9
		32
		26
		8
		5
		15
		6
		26
		9
		21
		10
		146

Context information

ECHOES WG2 Data collection - Windows Internet Explorer

http://echoes.boku.ac.at/view.php?id=-1&todo=new&country=at

Datei Bearbeiten Ansicht Favoriten Extras ?

ECHOES WG2 Data collection

WG 2 "Adaptation" - Data Collection

Edit adaptive measure
Record# 357

 Save  Back to list  Reload  Help

Management system  Help

Management system

<please select...>

<please select...>

unmanaged/ nature reserve
close to nature forestry (C2N)
combined objective/ multi-purpose forestry
intensive even-aged forestry
coppice forestry (includes coppice, coppice with reserves, coppice with standards)
short rotation forestry
various management system (unspecific)

☐ cork
☐ berries
☐ carbon sequestration
☐ maintainance of biodiversity
☐ provision of drinking water
☐ protection against avalanches
☐ protection against rockfall
☐ protection against soil erosion
☐ game management/hunting
☐ various objectives (unspecific)

Add. objective: (optional)
Add. objective: (optional)

Observed Impacts  Help

Observed Impact

☐ No observed impacts

Expected impacts  Help

Expected impact

until 2020
2021-2050

Context information

ECHOES WG2 Data collection - Windows Internet Explorer

http://echoes.boku.ac.at/view.php?id=1&todo=new&country=at

Datei Bearbeiten Ansicht Favoriten Extras ?

ECHOES WG2 Data collection

WG 2 "Adaptation" - Data Collection

cost

WG 2 "Adaptation" - Data Collection

Edit adaptive measure
Record# 357

Save Back to list Reload Help

Management

Management

<please select...>

<please select...>

unmanaged/ nat
close to nature f
combined object
intensive even-a
coppice forestry
short rotation for
various manager

☐ cork
☐ berries
☐ carbon se
☐ maintaina
☐ provision o
☐ protection
☐ protection
☐ protection
☐ game man
☐ various ob

Add. objective
Add. objective

Observed

Observed Im

☐ No observe

Expected

Expected impact

until 2020

2021-2050

Scale of measure

Scale of measure

<please select...>

<please select...>

stand level
forest management unit level
higher levels (policy level, regional level, national level)
various scales (unspecific)

Purpose of measure

Purpose of measure

purpose	comments
☐ Reduce impacts?	
☐ Increase adaptive capacity?	

Effectiveness

Effectiveness

<please select...>

free text (optional):

Potential trade offs

Potential trade offs

ECHOES Database: Number of measures by bioclimatic region and status

Region	Number of respondent countries in the region	Number of entries in the database					Number of different measures
		Total	Idea/proposal	Ongoing	Planned	No status	
N	3	34	11	19	3	1	27
CW	6	188	47	106	28	7	77
CE	3	90	3	23	62	2	43
SW	2	98	37	56	5		47
SE	5	73	16	56	1		32
Total	19	483	114	260	99	10	146



Disturbances are not new:

We know how to respond!
(at least in theory)



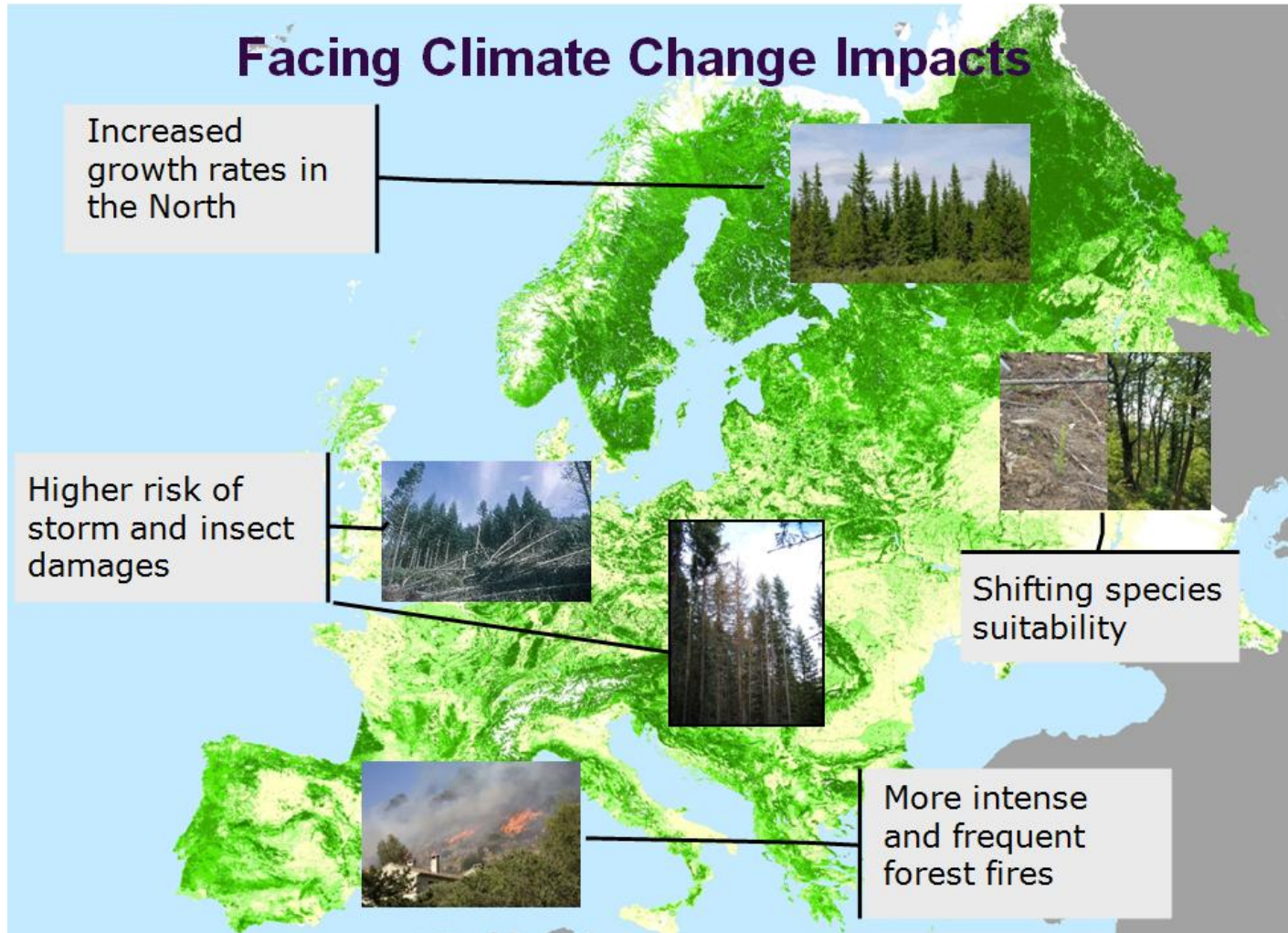
Foto: State Forests Tatras
National Park, Slovakia



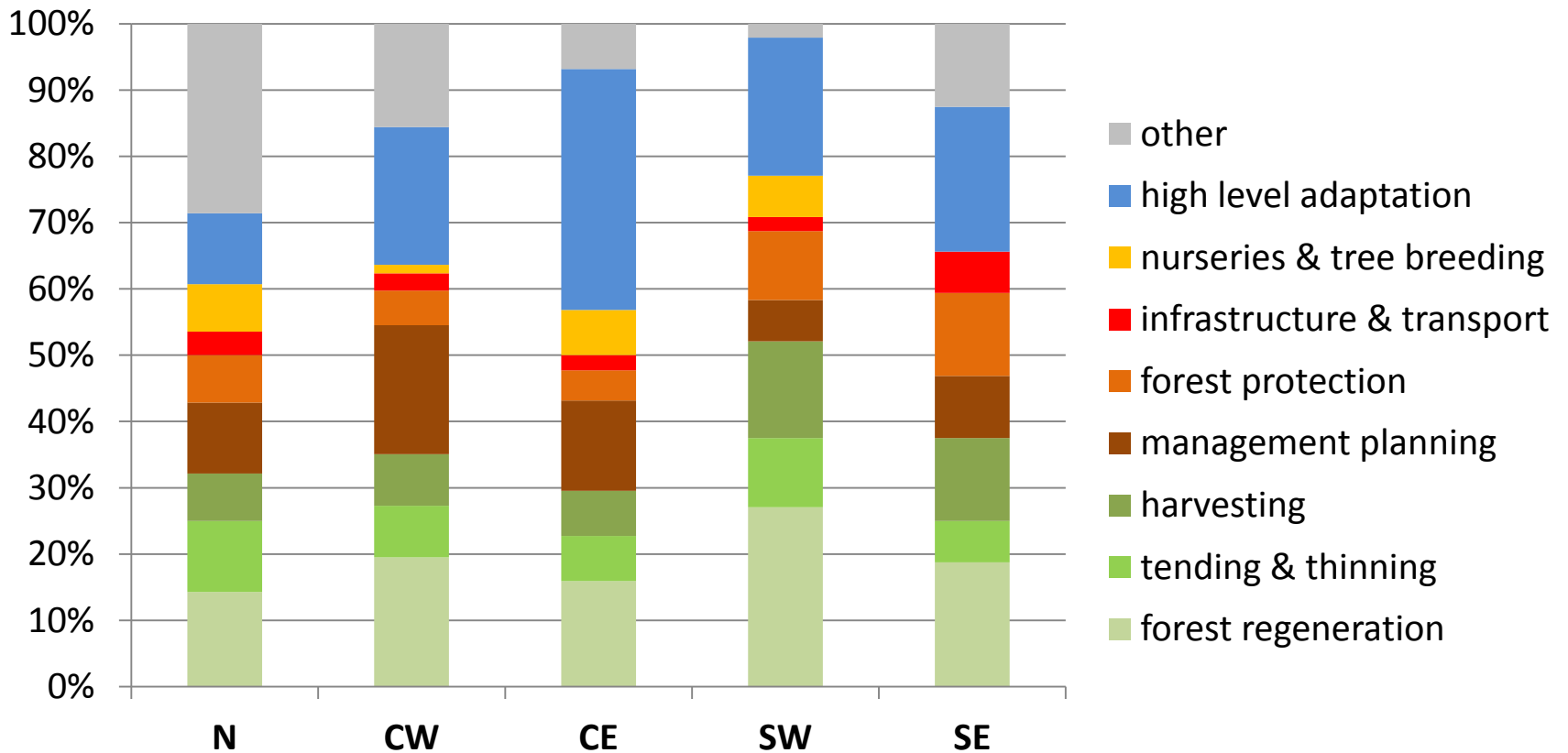
Typical ongoing measures

	Total	idea/ proposal	ongoing	planned	No status	% ongoing
<i>Tending & Thinning</i>						
2.1. modify stand structure	20	2	15	2	1	75%
<i>Forest protection</i>						
5.1. general preventive measures	13	2	9	1	1	69%
5.3. manage disturbance risks	8	1	7			88%
<i>Infrastructures & transport</i>						
6.4. disturbance management	9	2	6	1		67%
<i>all</i>	483	114	260	99	10	54%

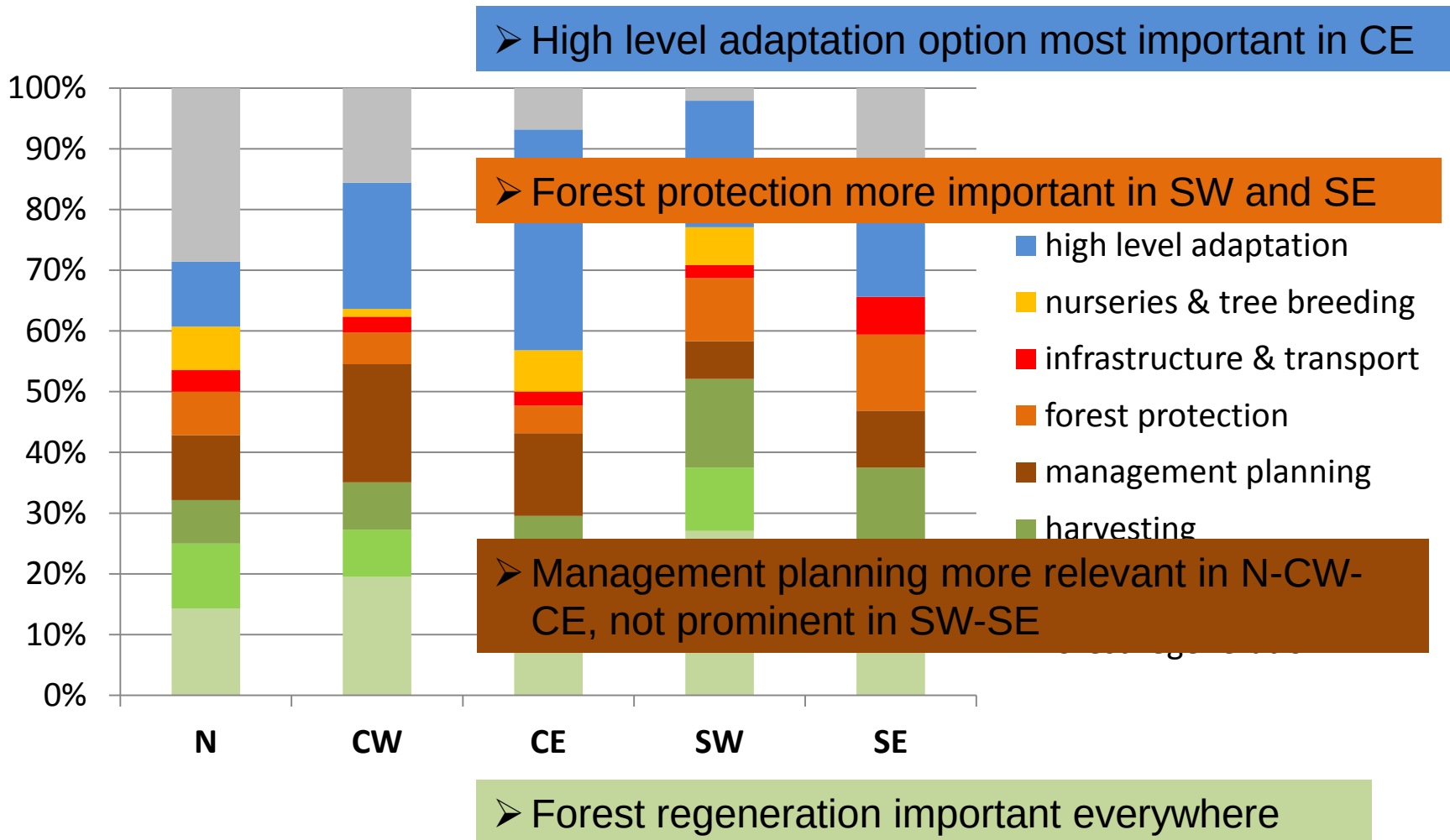
What type of measure is relevant where?



Type of measure per region

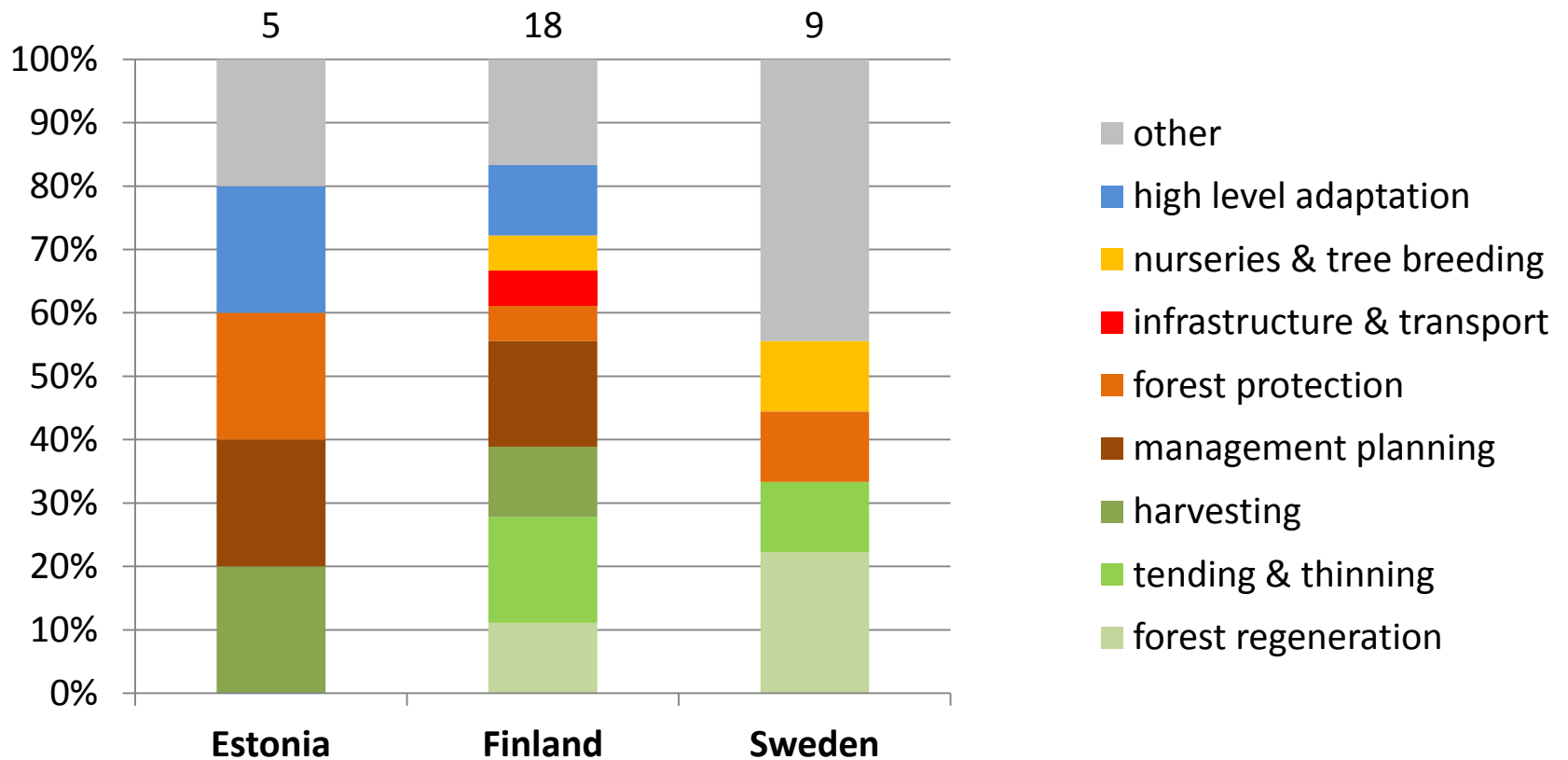


Type of measure per region



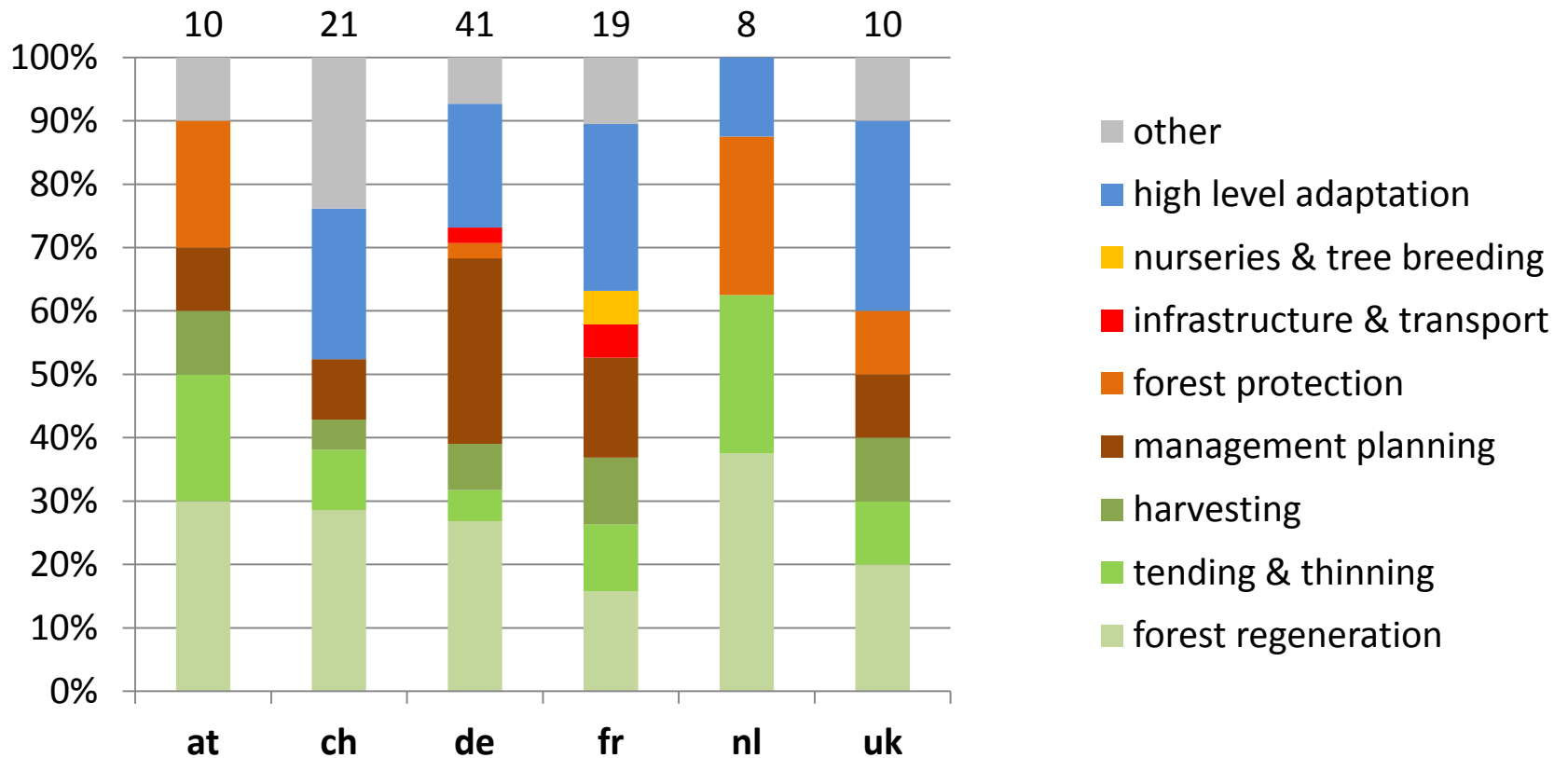
North

➤ High variability between countries



Central-West

➤ More similarity between countries compared to N



Distribution of measures per EFT

Forest type	% of forest area	% of measures
1. Boreal forest	25%	6%
2. Hemiboreal and nemoral coniferous and mixed broadleaved-coniferous forest	15%	12%
3. Alpine forest	5%	13%
4. Acidophilous oak and oak-birch forest	2%	2%
5. Mesophytic deciduous forest	6%	6%
6. Beech forest	3%	14%
7. Mountainous beech forest	4%	9%
8. Thermophilous deciduous forest	6%	3%
9. Broadleaved evergreen forest	6%	2%
10. Coniferous forests of the Mediterranean, Anatolian and Macaronesian regions	5%	13%
11. Mire and swamp forest	6%	0%
12. Floodplain forest	1%	2%
13. Non-riverine alder, birch or aspen forest	5%	0%
14. Introduced tree species forest	5%	9%
Unclassified forest	5%	10%



Photo North Karelia College, Valtimo

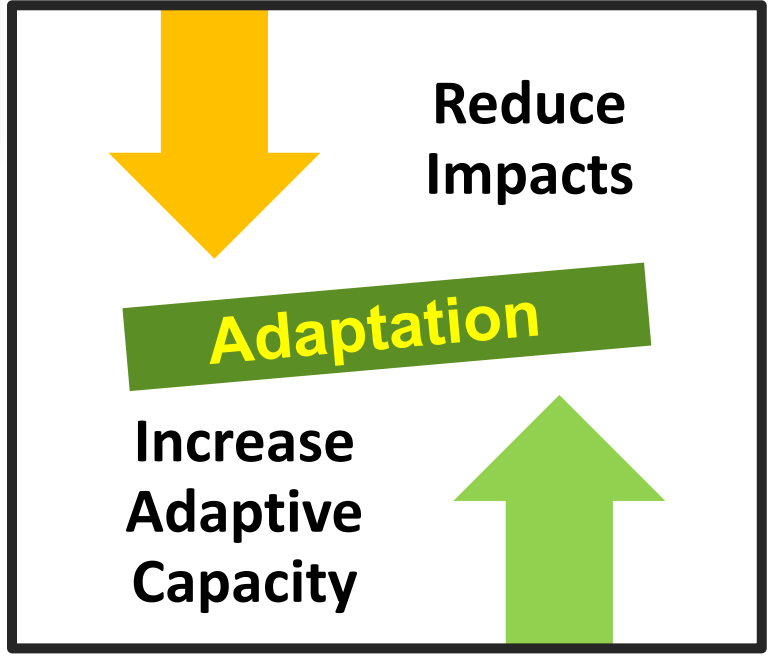


Photo Rupert Seidl

Photo: The Forestry Commission Picture Library, UK

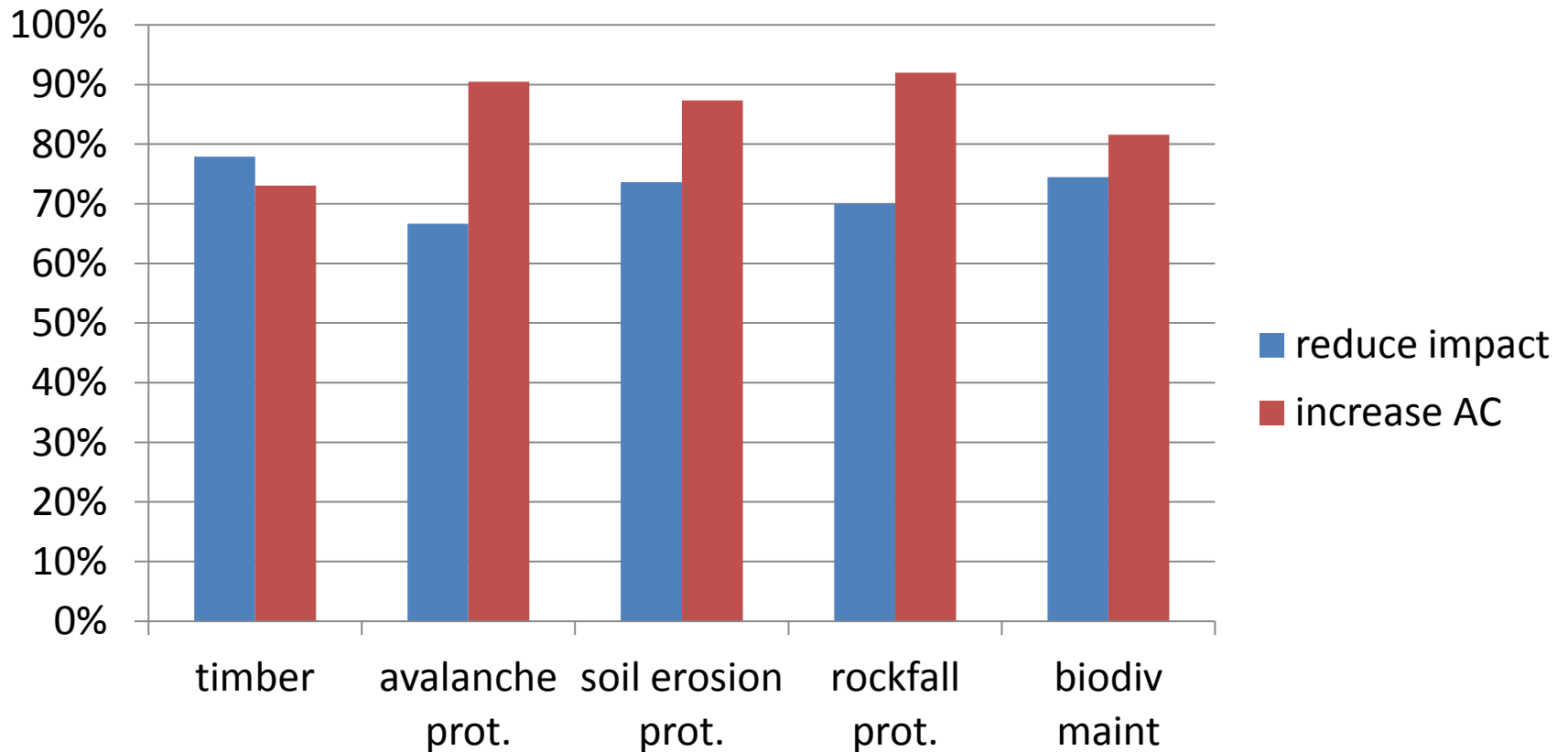


Photo: Michael den Herder

Hypothesis

1. Management objectives (MO) determine intended impact of measures
 - More **reduce impact (RI)** measures if management is focused on timber production
 - More **increase adaptive capacity (AC)** measures if MO is biodiversity protection
2. More AC measures in proposed measures (RI measures are already ongoing)

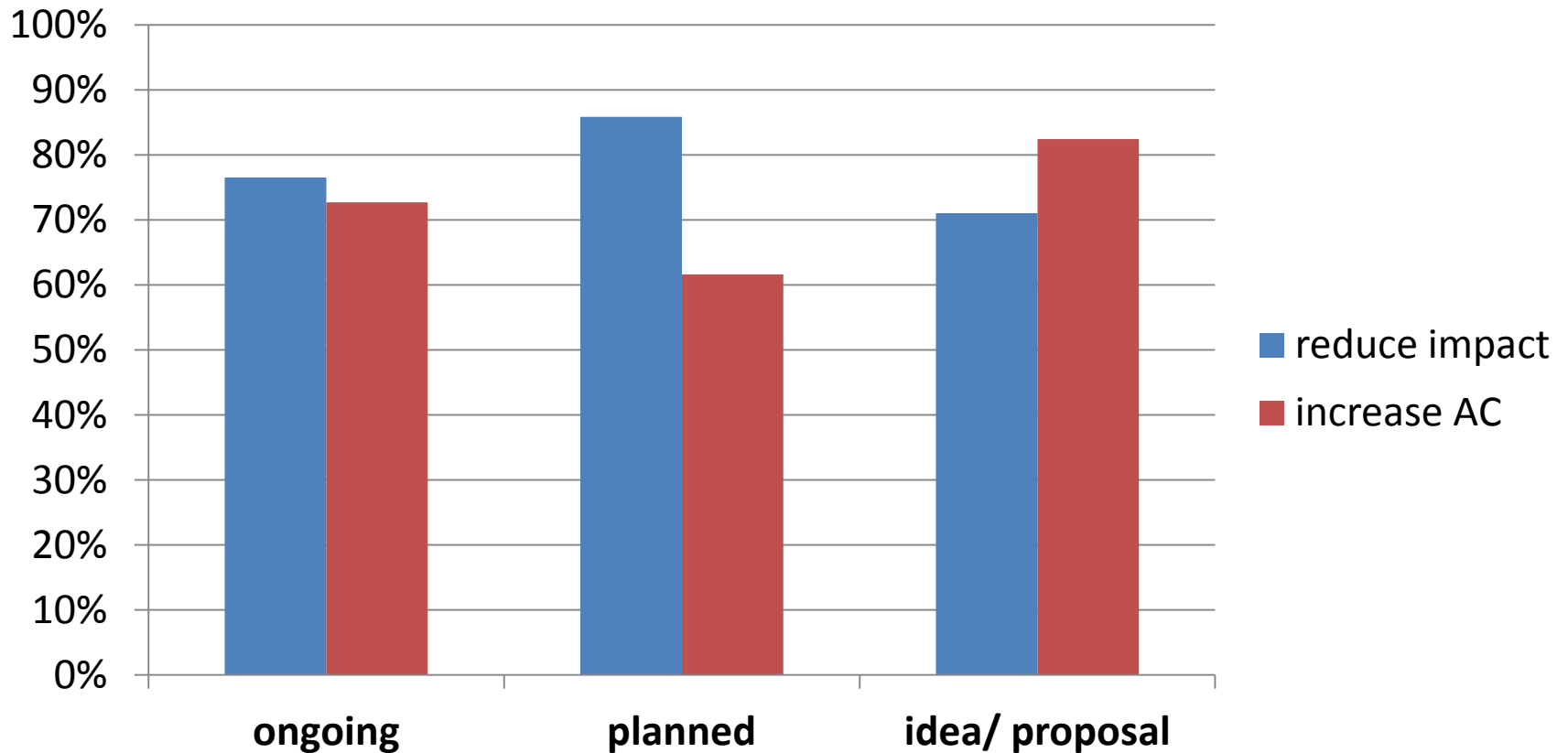
Intended effect of measures vs management objectives



Hypothesis

1. Management objectives (MO) determine intended impact of measures
 - More reduce impact (RI) measures if management is focused on timber production
 - More increase adaptive capacity (AC) measures if MO is biodiversity protection
2. More AC measures in proposed measures (RI measures are already ongoing)

Status of measures vs. intended effect



Conclusions

- There are a lot of so-called "ongoing" measures
- But not all types of measures are readily implemented
- Regional patterns in adaptation reflect different impacts and management objectives
- Increasing adaptive capacity is less common as an ongoing measure

Conclusions

- There are a lot of so-called "ongoing" measures
- But not all types of measures are equally effective
- Regional patterns of adaptation exist – but they are not uniform
- Increased capacity is less common as an ongoing measure

How well prepared are we?

A foundation for adaptation exists – but you can still carry out more research...



The ECHOES adaptive measure database will soon be made available to the wider community

Thank you!

To ECHOES WG2 participants for providing the adaptive measures

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