CONECOFOR

Corpo Forestale dello Stato

Ispettorato Generale – Servizio II – Divisione 6ª

Rete Nazionale Integrata
CON ECO FOR
Controllo Ecosistemi Forestali

CONECOFOR

Rete Nazionale Integrata CONECOFOR Controllo Ecosistemi Forestali

Corpo Forestale dello Stato

National Integrated Network CONECOFOR Forest Ecosystems Monitoring

UN/ECE International Co-operative Programme on Assessment and Monitoring of Air Pollution Effects on Forests

Regulation (EC) n. 2152/2003 on forest monitoring and environment interactions in the Community *(Forest Focus)*

Il Programma Nazionale CONECOFOR ed il progetto transnazionale FutDiv: le attività del Corpo Forestale dello Stato, dal Reg. Forest Focus al Reg. LIFE+

Bruno Petriccione, Ph.D.

CORPO FORESTALE DELLO STATO – SERVIZIO II, DIV. 6a (UFFICIO CONECOFOR)


CONECOFOR
OBIETTIVI
analisi delle relazioni ecologiche tra le componenti strutturali e funzionali degli ecosistemi forestali ed i fattori di pressione e cambiamento su larga scala ed a lungo termine
inquinamento atmosferico
cambiamenti climatici
biodiversità

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CONECOFOR International Networks

ICP Forests / UE *Forest Focus* (1995)

CLRTAP International Co-operative Programme on Assessment and Monitoring of Air Pollution Effects in Forests / EC Regulation n. 2152/2003 *Forest Focus*

31 plots

ICP Integrated Monitoring (1996)

CLRTAP International Co-operative Programme on Monitoring of Air Pollution Effects on Ecosystems

13 plots

FAO-GTOS/TEMS *(2001)*

Global Terrestrial Observing System – Terrestrial Ecosystem Monitoring Sites

13 plots

I-LTER *(2006)*

International Long-Term Ecological Research Network

10 plots

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CONECOFOR modus operandi

- ***1 Centro di Coordinamento Nazionale*** staff: 5-10
  (Ufficio CONECOFOR, Corpo Forestale dello Stato, Roma)

- ***9 Centri di Ricerca Nazionali*** staff: 40-80
  (1 Corpo Forestale dello Stato, 2 Consiglio per la Ricerca in Agricoltura, 2 Consiglio Nazionale delle Ricerche, 4 Università)

- ***25 Uffici locali del Corpo Forestale Stato*** staff: 50-80
  (3 Comandi Regionali, 4 Comandi Provinciali,
  6 Uffici Territoriali per la Biodiversità, 12 Comandi Stazione)

- ***12 Amministrazioni Locali*** staff: 25-50
  (7 Regioni, 2 Province, 3 Enti gestori di Parchi Naturali)

STAFF TOTALE IN ATTIVITA': 100-200 circa

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National co-ordination and research centres

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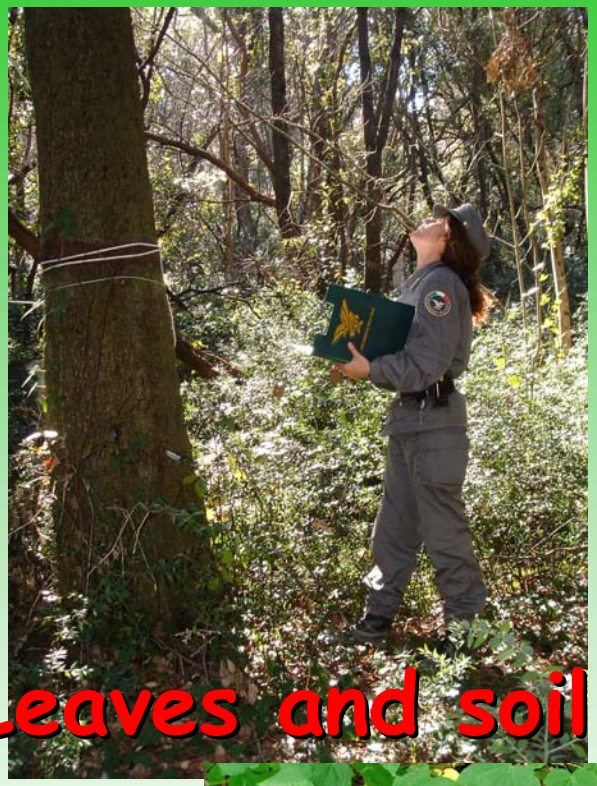
Crown condition & phenology



Vegetation

Biodiversity

Leaves and soil chemistry

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Deposition chemistry

Ozone

Forest growth

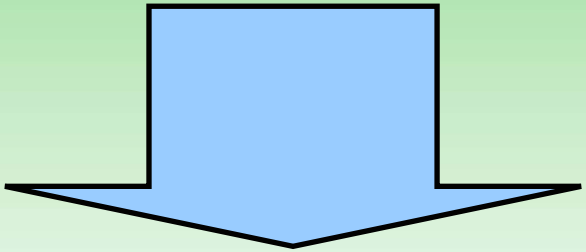
Meteorology

CONECOFOR

50.000 physical, chemical and biological data measurements (annually from 1995)

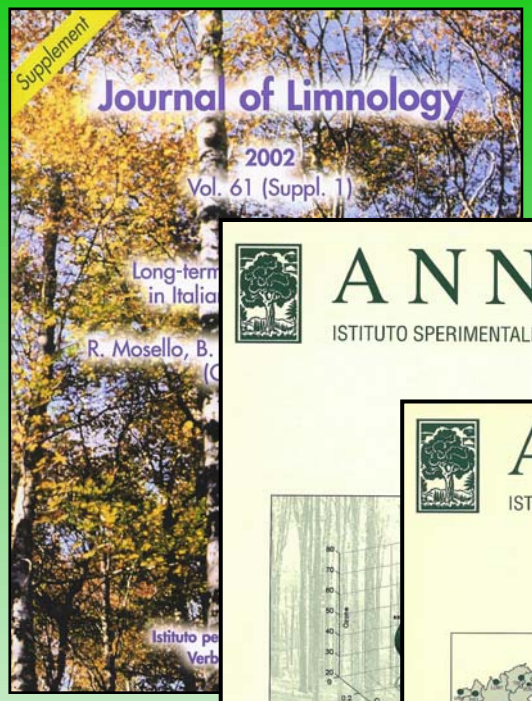
TOTAL records in 10 years:

ca. 500.000 !



National Task Force on Integrated and Combined data evaluation
(coordinator: Marco Ferretti)

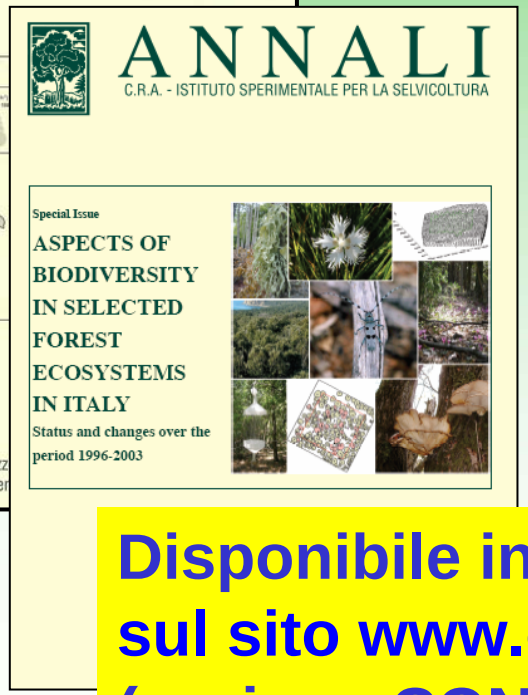
CONECOFOR



Special Report 2002
(Programme and surveys)

1st Report I&C 1999
(status)

2nd Report I&C 2003
(ozone)



3rd Report I&C
2006
(biodiversity)

Disponibile in versione digitale sul sito www.corpoforestale.it (sezione CONECOFOR)

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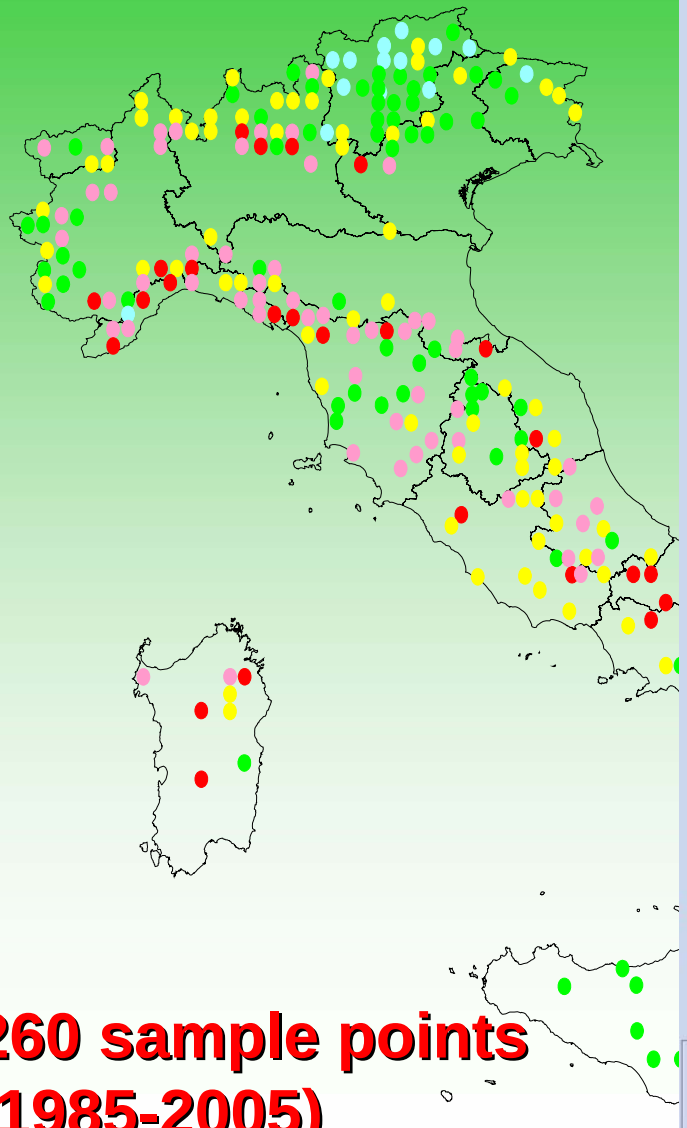
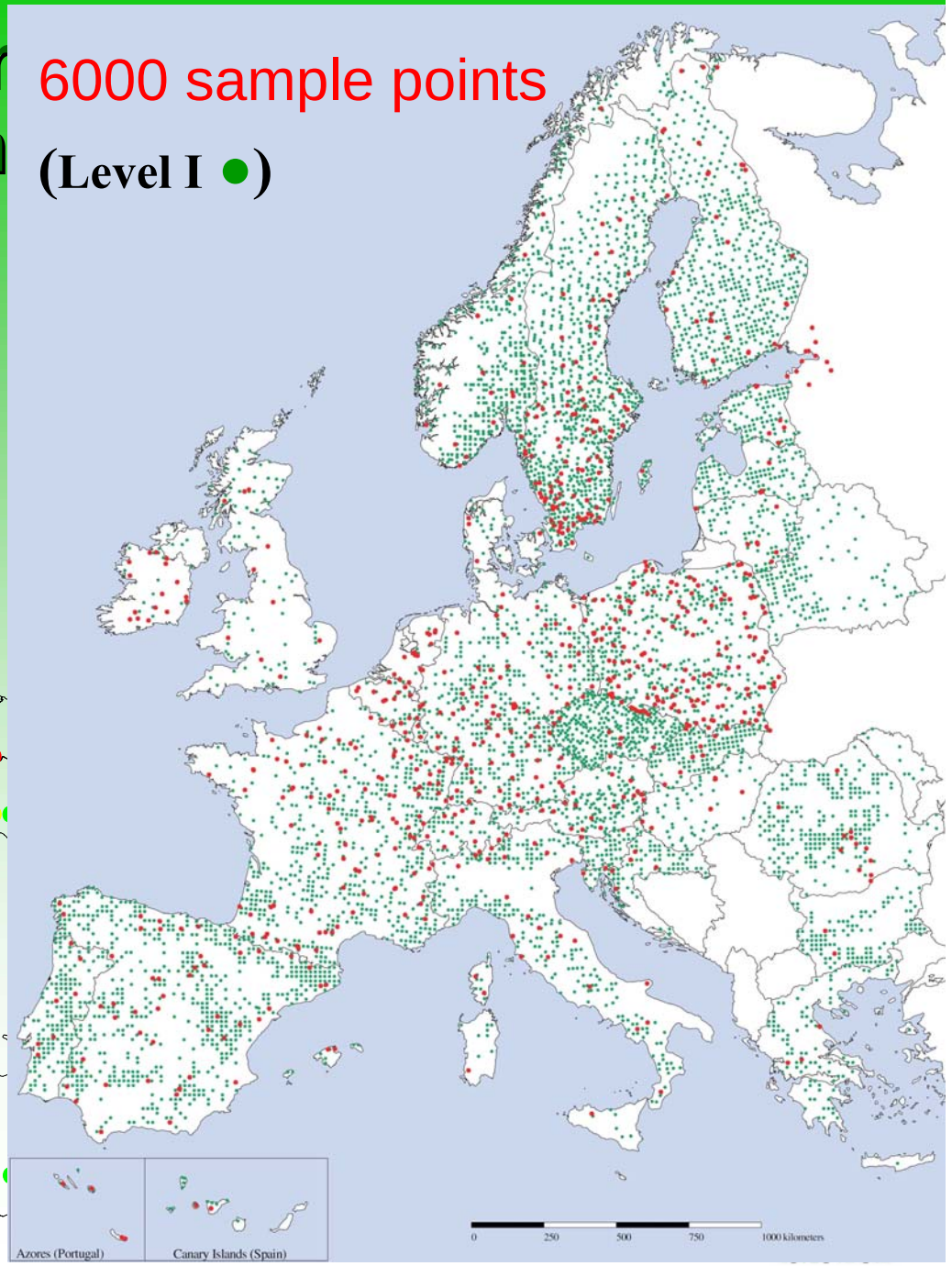
The Level I Italian
(crown condition



260 sample points
(1985-2005)

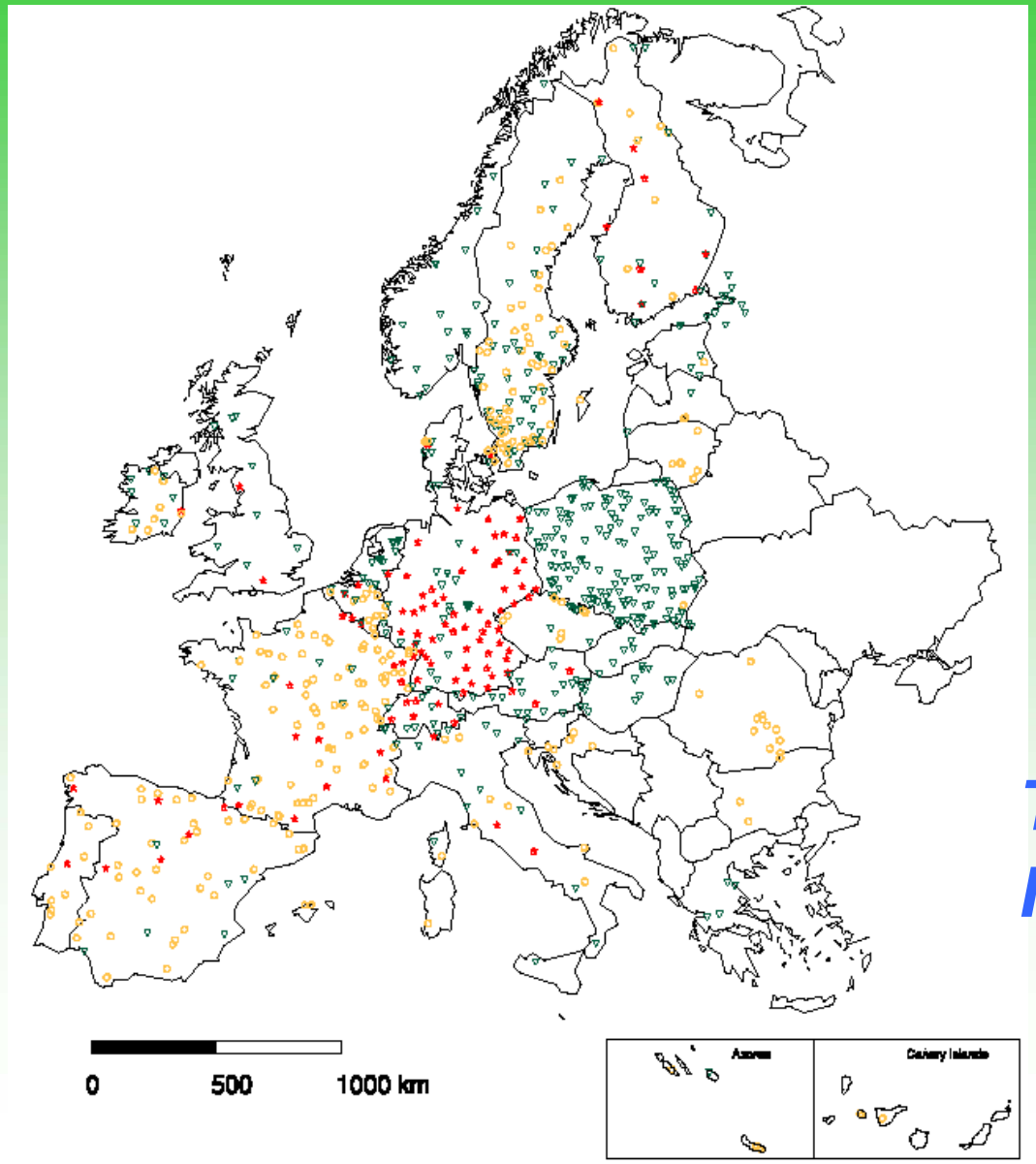
6000 sample points

(Level I ●)



CONECOFOR

Geographical location of EU/ICP-Forests permanent plots



All surveys

Core surveys

Other combination of surveys

TOTAL: 800 plots

Italy: 31 plots

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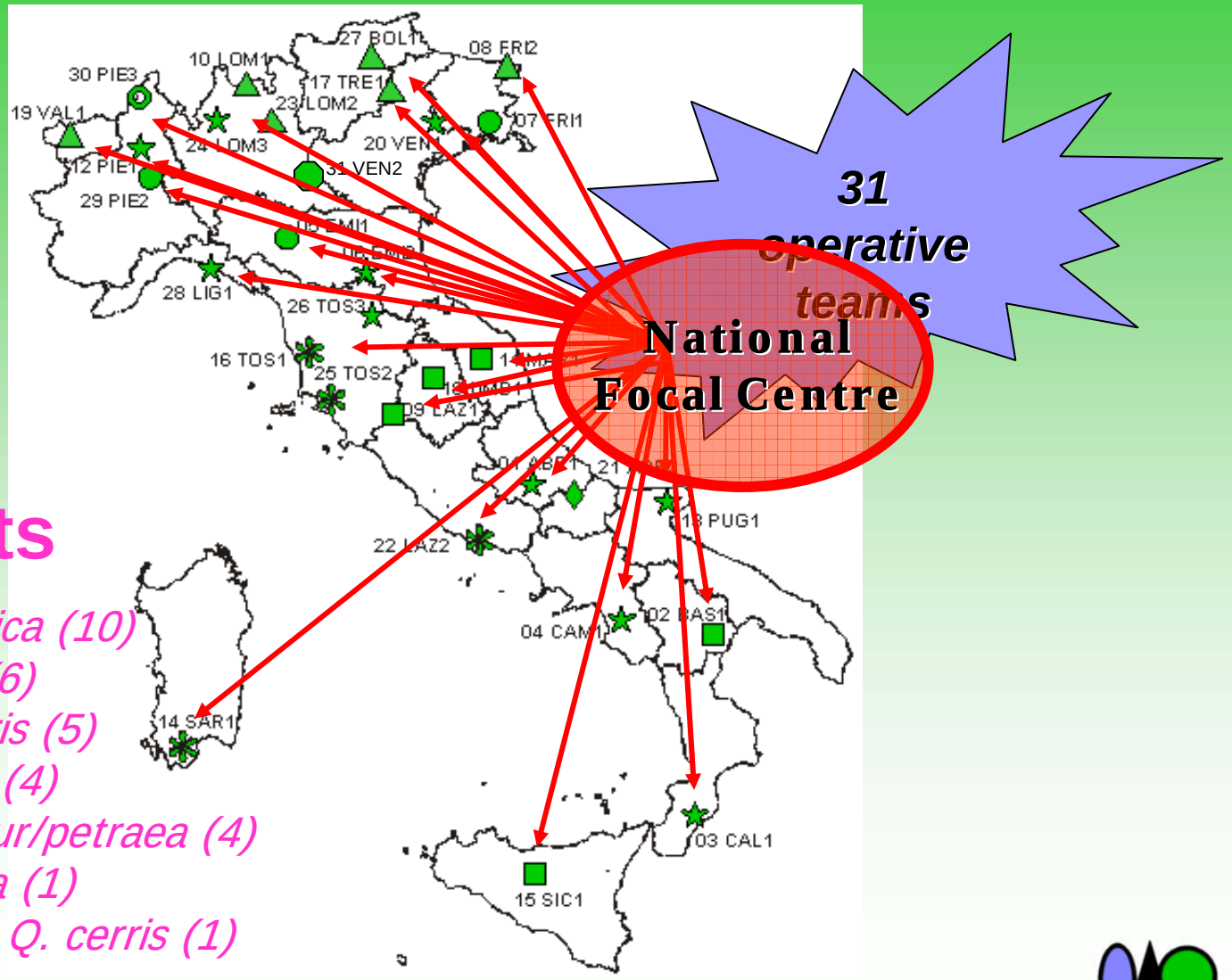
Geographical location of the National Network CONECOFOR permanent plots



31 plots

- ★ *Fagus sylvatica (10)*
- ▲ *Picea abies (6)*
- ■ *Quercus cerris (5)*
- ✥ *Quercus ilex (4)*
- ⬢ *Quercus robur/petraea (4)*
- ◎ *Larix decidua (1)*
- ♦ *Abies alba + Q. cerris (1)*

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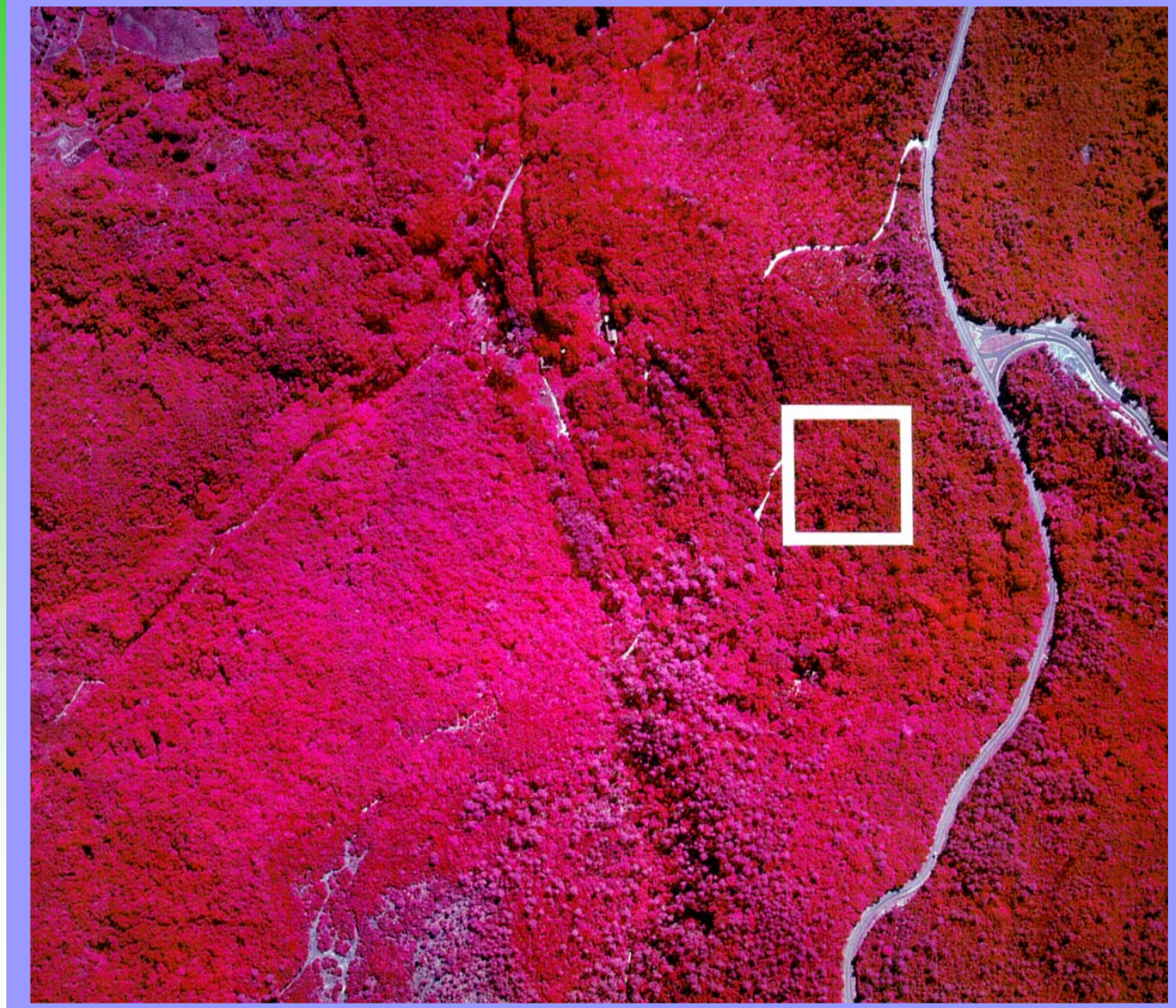
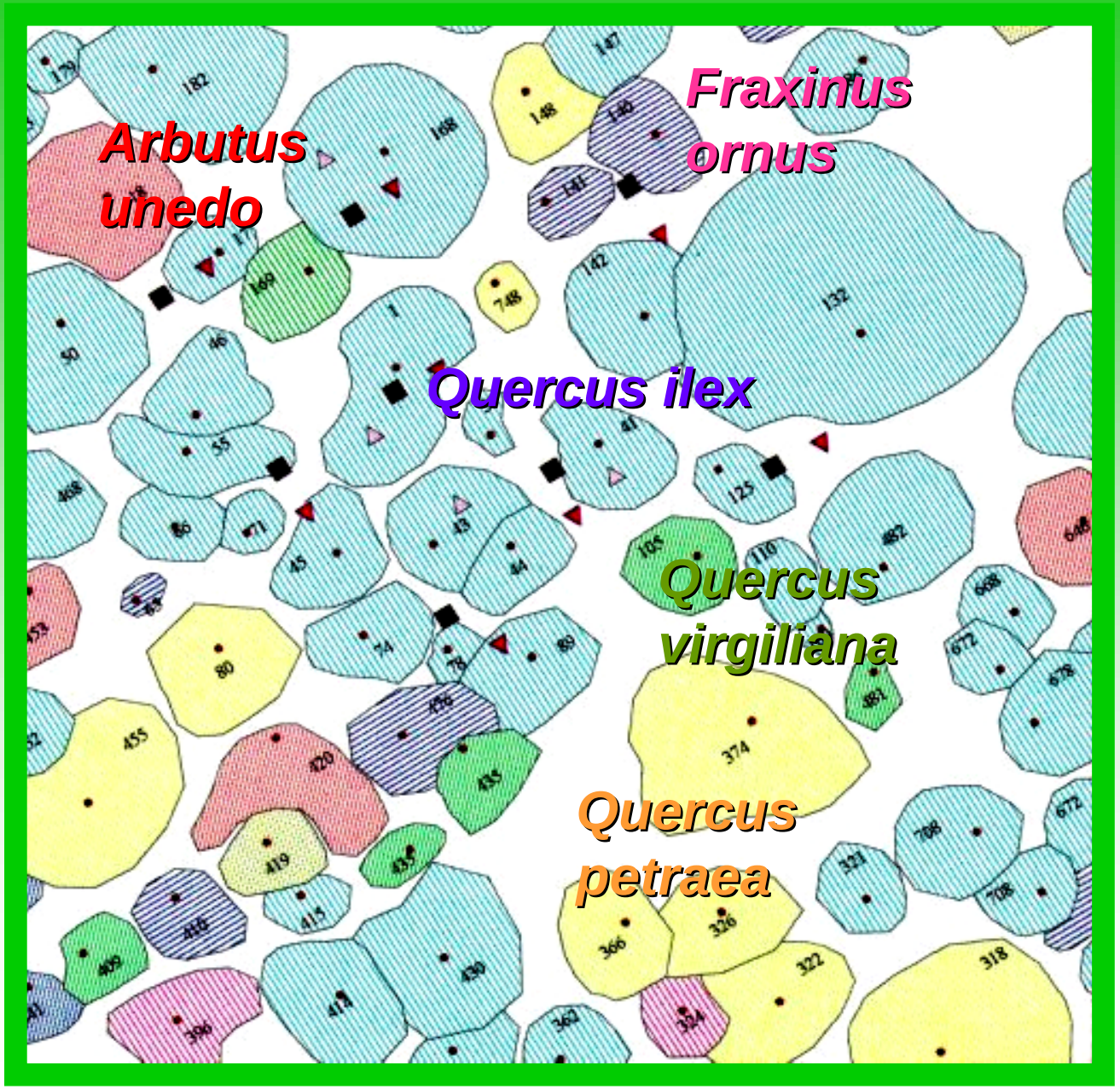
TOS1

Colognole



CONECOFOR

TOS1
Colognole



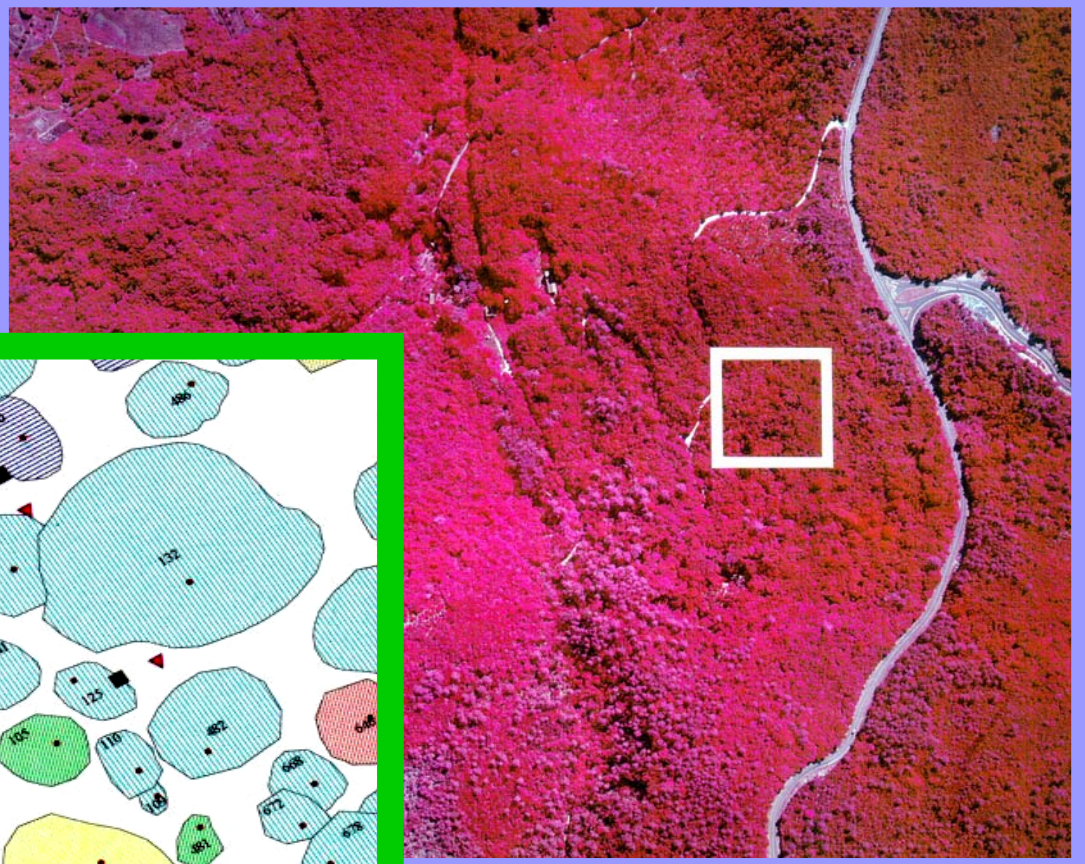
CROWN PROJECTION MAP

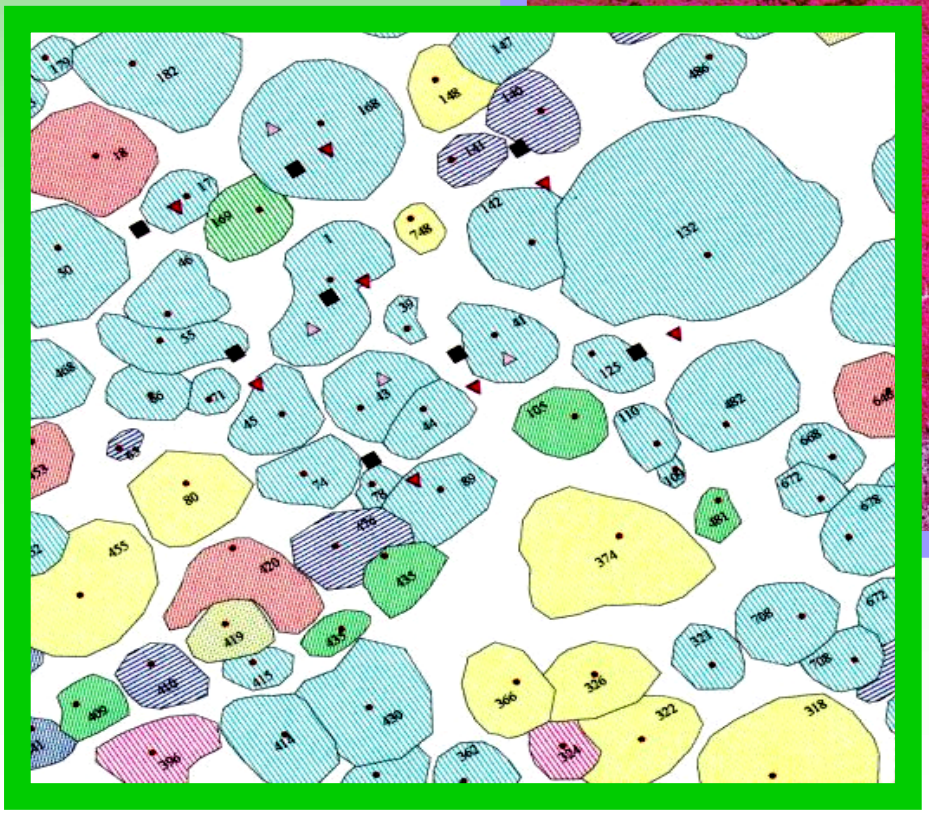
1:250 scale

CONECOFOR

TOS1

Colognole





CONECOFOR

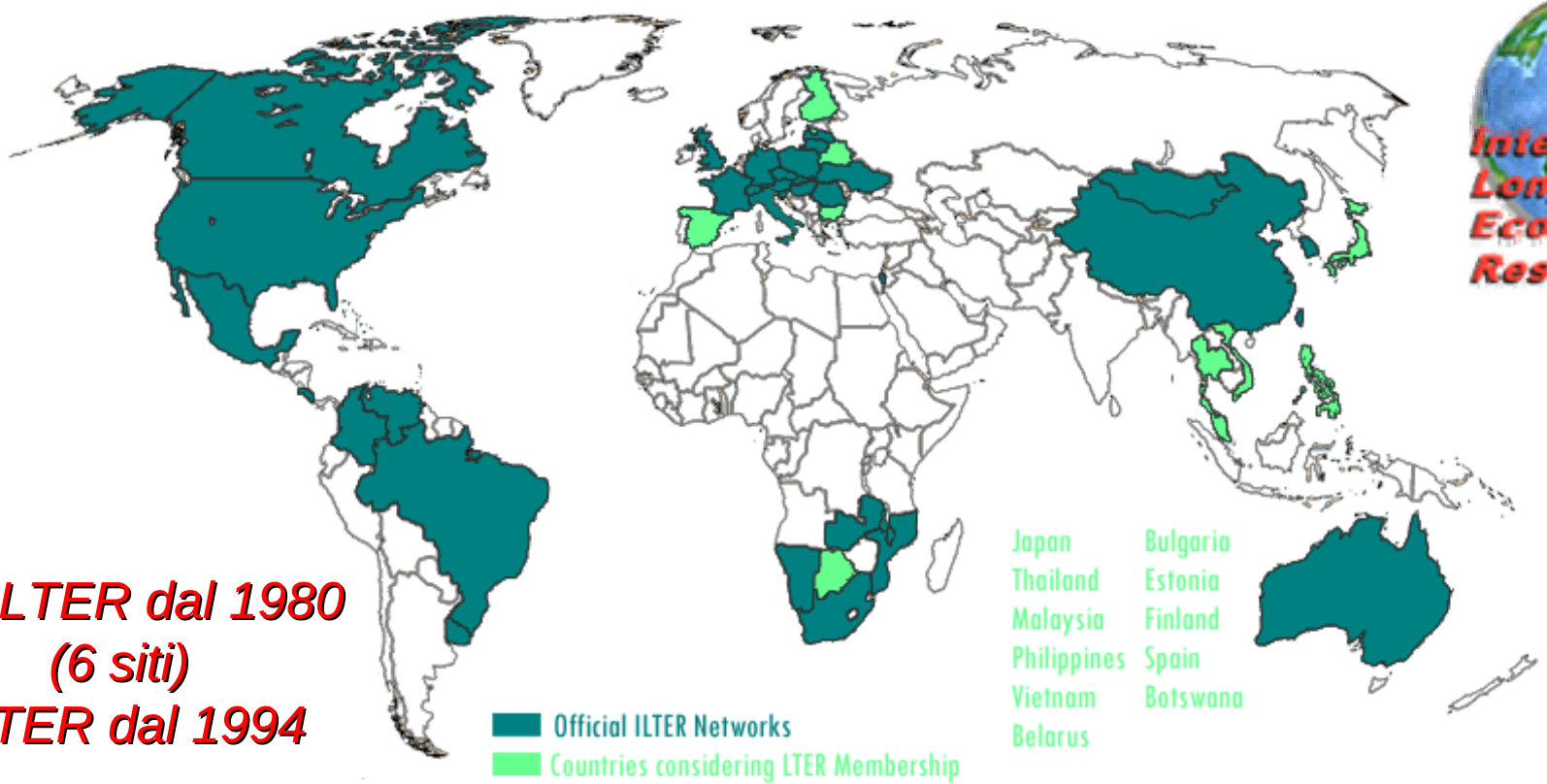
TOS1
Colognole


Il Programma CONECOFOR
primo ed unico esperimento riuscito
di Rete ecologica a lungo termine
su scala nazionale
che sia stato possibile costituire, mantenere e
sviluppare per un periodo di tempo di 12 anni

The International Long Term Ecological Research Network

ILTER

International Long Term Ecological Research



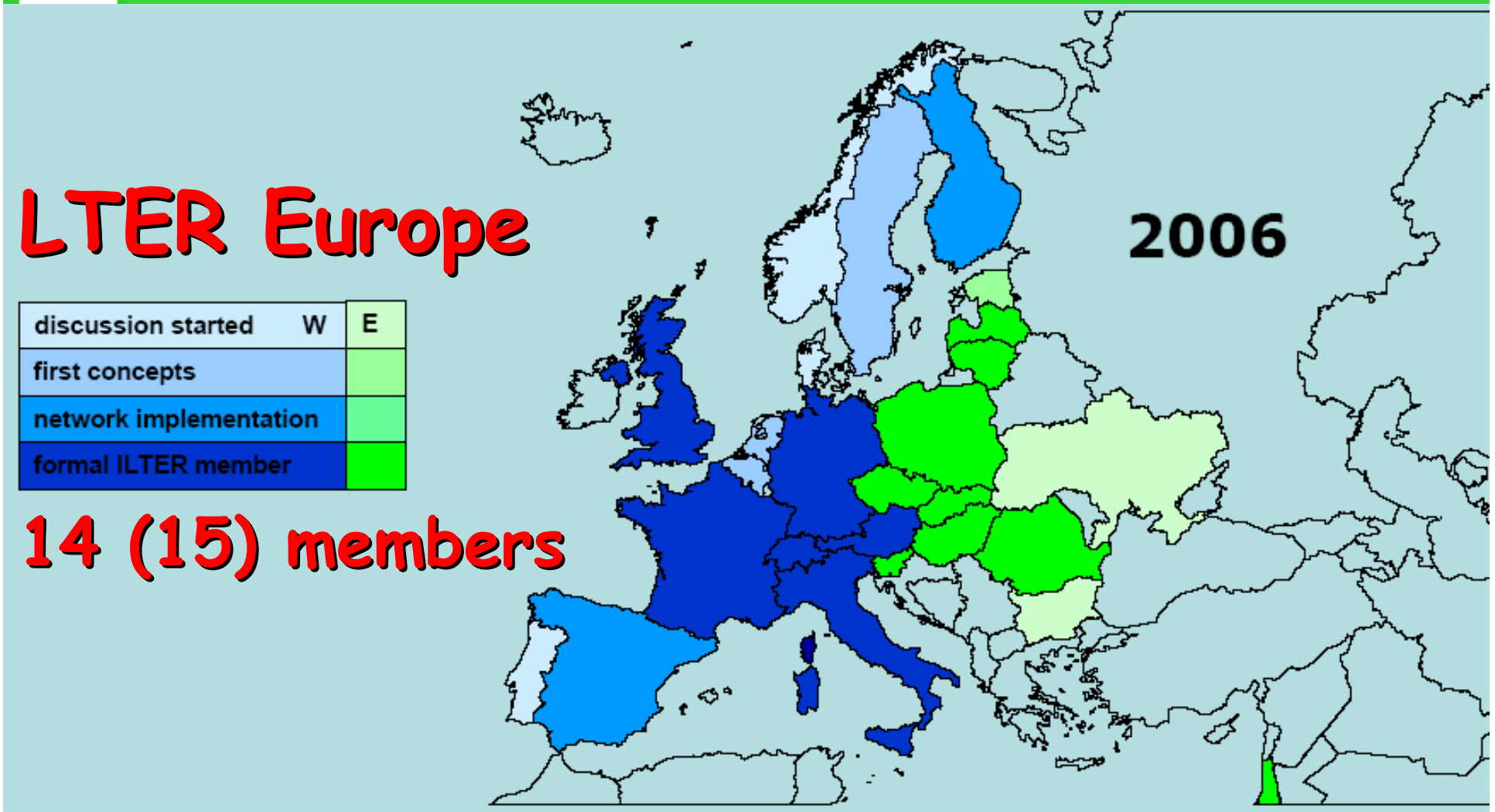
US-LTER dal 1980
(6 siti)
ILTER dal 1994

East Asia-Pacific Region	Central/Eastern European Region	Western European Region	African Region	North American Region	Central/South American Region
Australia LTER Network	CZ LTER Network	Austria LTER Network	Malawi LTER Network	Canada EMAN	Brazil LTER Network
CERN	Hungary LTER Network	France LTER Network	Mozambique LTER Network	Mex LTER Network	Colombia LTER Network
Mongolia LTER Network	Israel DEN	Italian LTER Network	Namibia LTER Network	US LTER Network	Costa Rica LTER Network
South Korea LTER Network	Latvia LTER Network	LTER-D Network	SAEON		Uruguay LTER Network
TERN	Lithuania LTER Network	Swiss LWF Network	Zambia LTER Network		Venezuela LTER Network
	Poland LTER Network	UKECN			
	Romania LTER Network				
	Slovakia LTER Network				
	Slovenia LTER Network				
	Ukraine LTER Network				

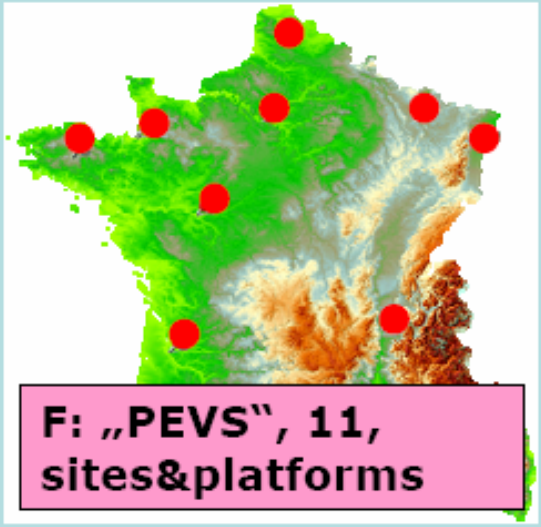
34 Paesi partecipanti

10 Paesi in via di adesione

LTER Europe

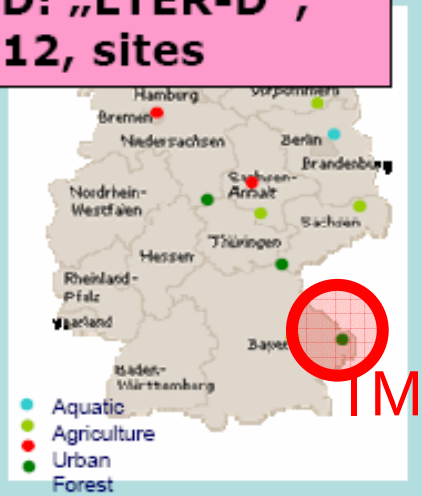


14 (15) members

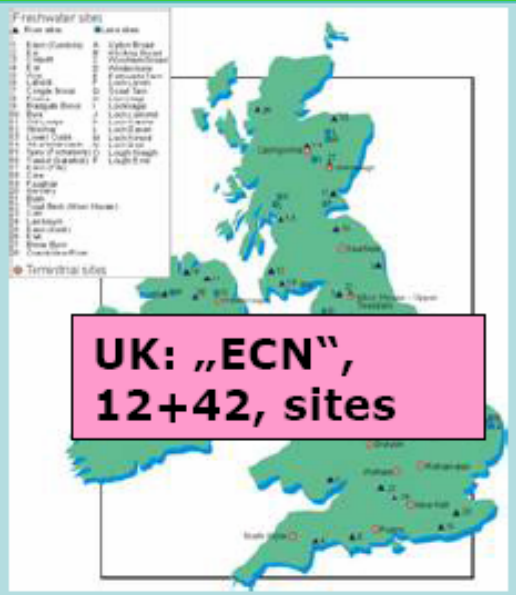


F: „PEVS", 11, sites&platforms

D: „LTER-D", 12, sites

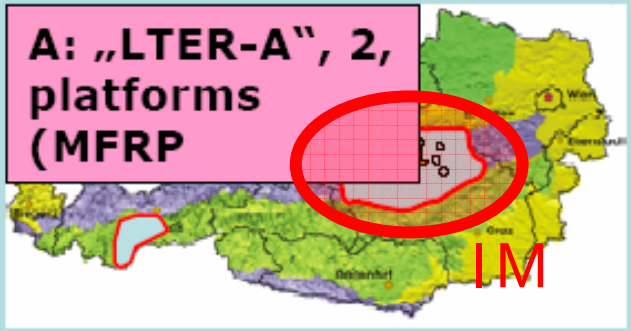


IM



UK: „ECN", 12+42, sites

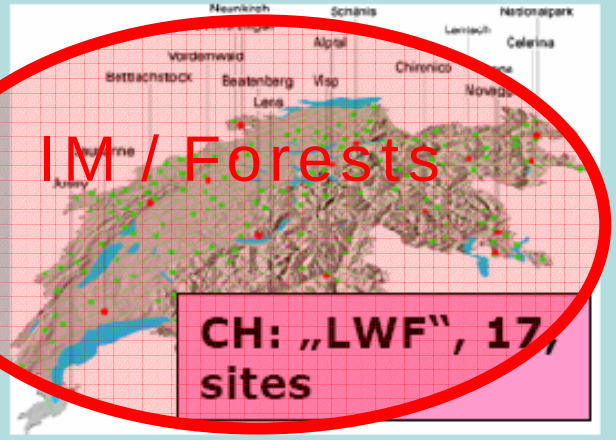
A: „LTER-A", 2, platforms (MFRP



IM

IM / Forests

IT: „LTER-IT", 10, sites



IM / Forests

CH: „LWF", 17, sites

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ILTER

CORPO FORESTALE DELLO STATO

ALTERNet

Consiglio Nazionale delle Ricerche

S.It.E. Società Italiana di Ecologia

The *LTER-ITALY* initiative

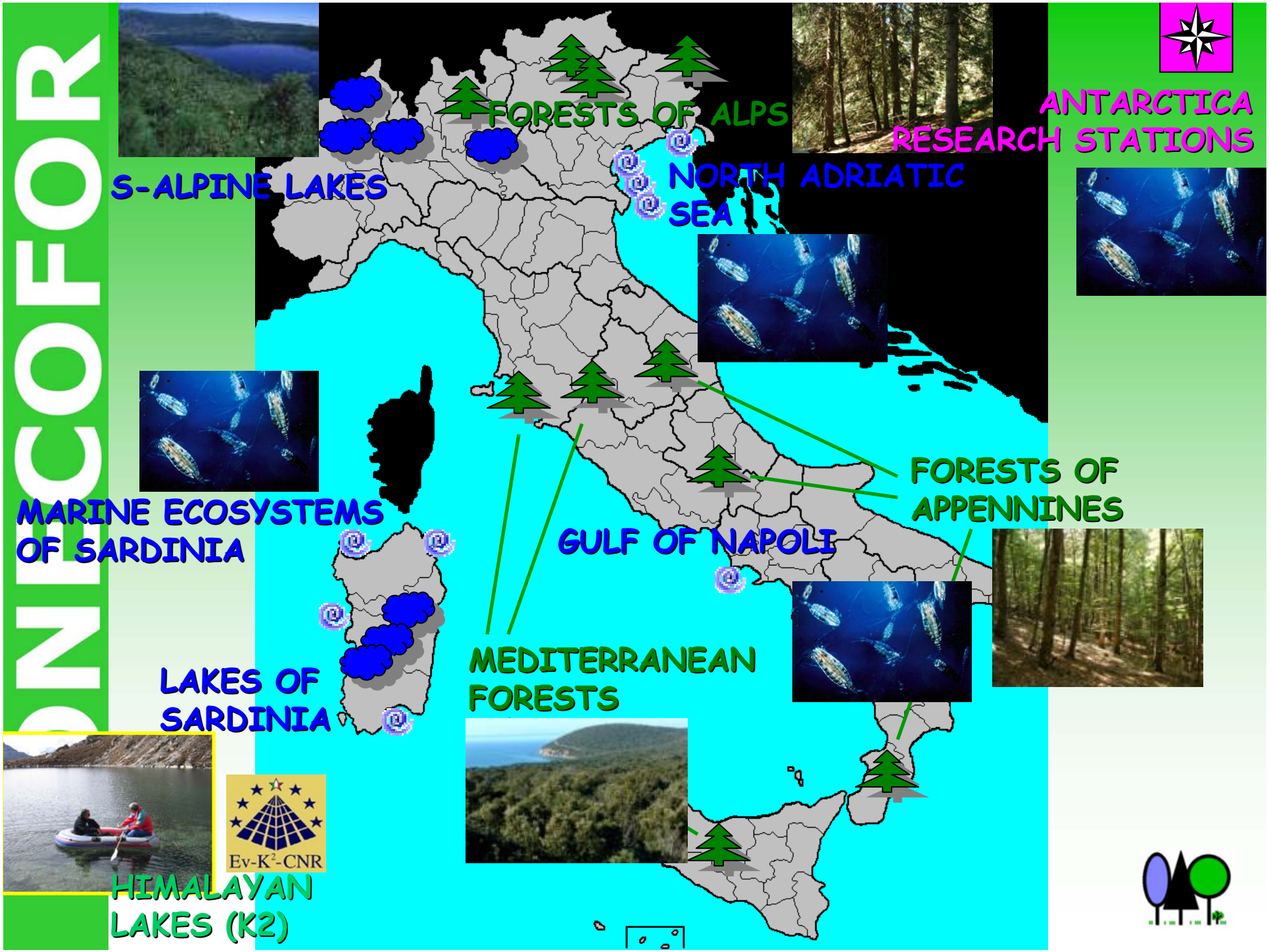
a joint effort of

National Forest Service

National Council of Research

Italian Society for Ecology

S.It.E. Società Italiana di Ecologia


NECOFOR
S-ALPINE LAKES
FORESTS OF ALPS
NORTH ADRIATIC SEA
ANTARCTICA RESEARCH STATIONS
MARINE ECOSYSTEMS OF SARDINIA
GULF OF NAPOLI
FORESTS OF APPENNINES
LAKES OF SARDINIA
MEDITERRANEAN FORESTS
Ev-K²-CNR
HIMALAYAN LAKES (K2)

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European Forest Monitoring Program

A project proposal for *Future* bio*Diversity* monitoring in Europe: *FutDiv*

Bruno Petriccione, Ph.D.

ITALIAN FOREST SERVICE - CONECOFOR BOARD

Co-chairman of ICP Forests Expert Panel on Biodiversity and ground vegetation

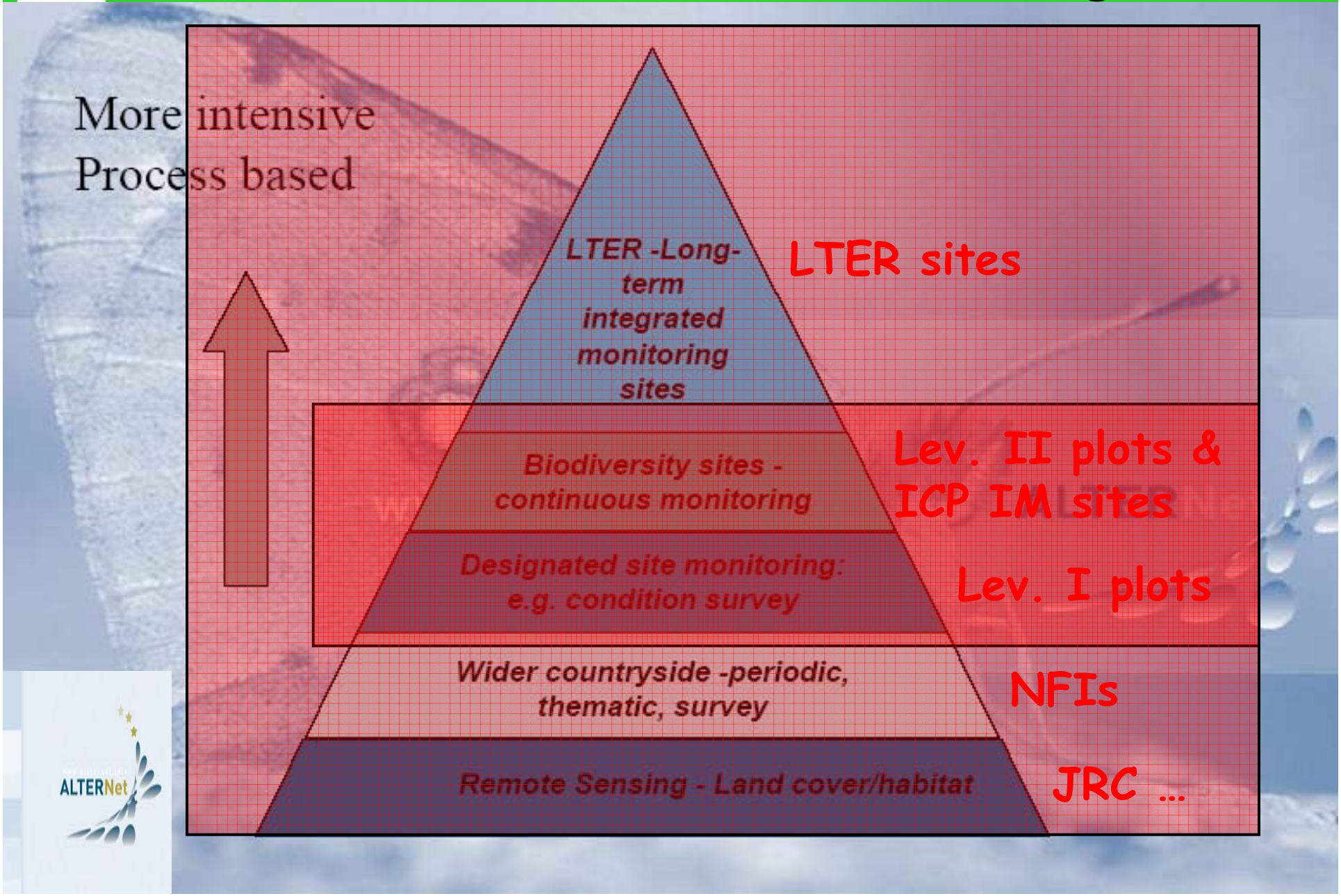
CONECOFOR

MAIN PILLARS

- Promoting integration at all levels: NFIs, Lev. I, Lev. II and landscape level (ICP IM & LTER sites)
- Merging Lev. I and NFIs
- Adding landscape scale to biodiversity survey, on the basis of core “expanded” Lev. II plots (*biodiversity cannot be only assessed at plot level!)*

FIRENZE WORKSHOP MINUTES AND PRESENTATIONS:
http://www.aisf.it/biodv/joint_meeting.htm

BIODIVERSITY research & monitoring levels



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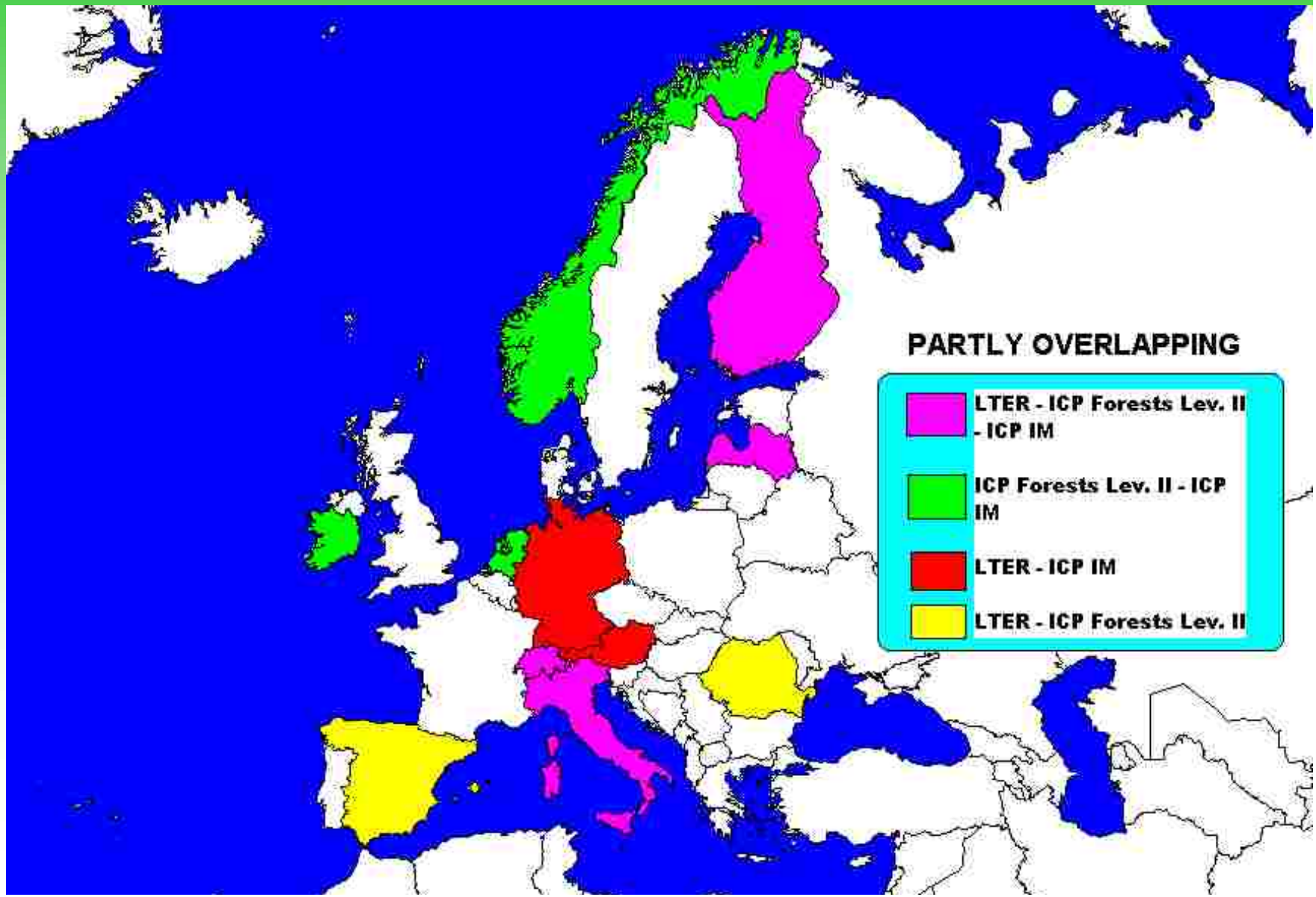
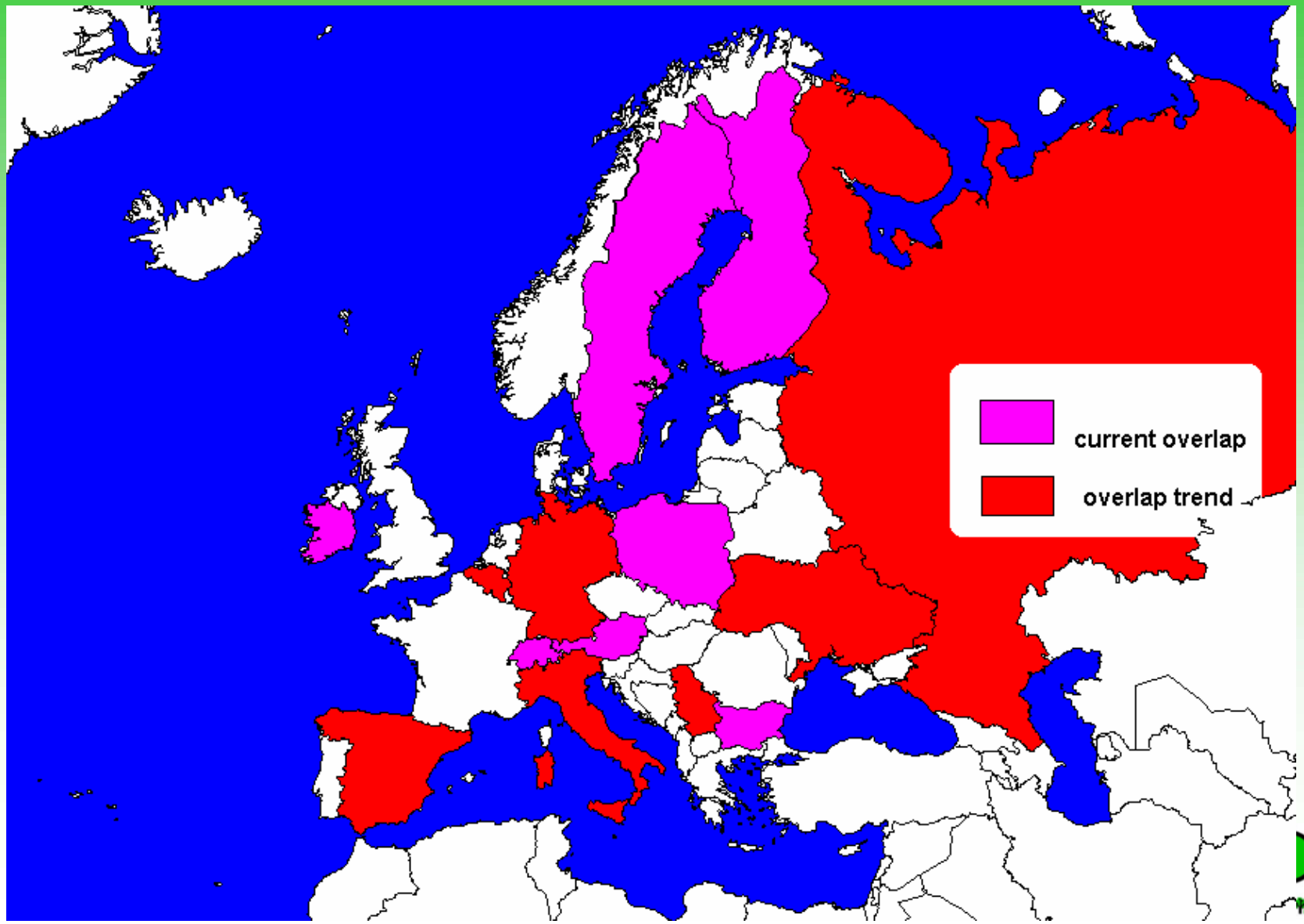
At least 11 Countries with significant overlaps (preliminary data) …



CONECOFOR

Partly overlapping of extensive Networks at Country level: current situation and expected scenario for 2008-2010, as concerns Lev. I and NFI.



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KEY BIODIVERSITY INDICATORS assessed at pan-European level

Indicator	Number of plots from different Networks			
	NFIs	EU/ICP Forests Liv.I (+ BioSoil)	EU/ICP Forests Liv.II (+ ForestBIOTA)	ICP-IM
Forest structure	287346	0 (4234)	714 (124)	2
Deadwood	287346	0 (4234)	0 (124)	2
Vegetation	289430	0 (4234)	679 (124)	32
Tree condition	204346	7365	806 (124)	32

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NATURA 2000 forest sites

A number of sites are included
in Lev. I and Lev. II plots,
up to 20% (Lev. I),
70% (Lev. II)
and 100% (LTER sites),
partly overlapping in some Countries !

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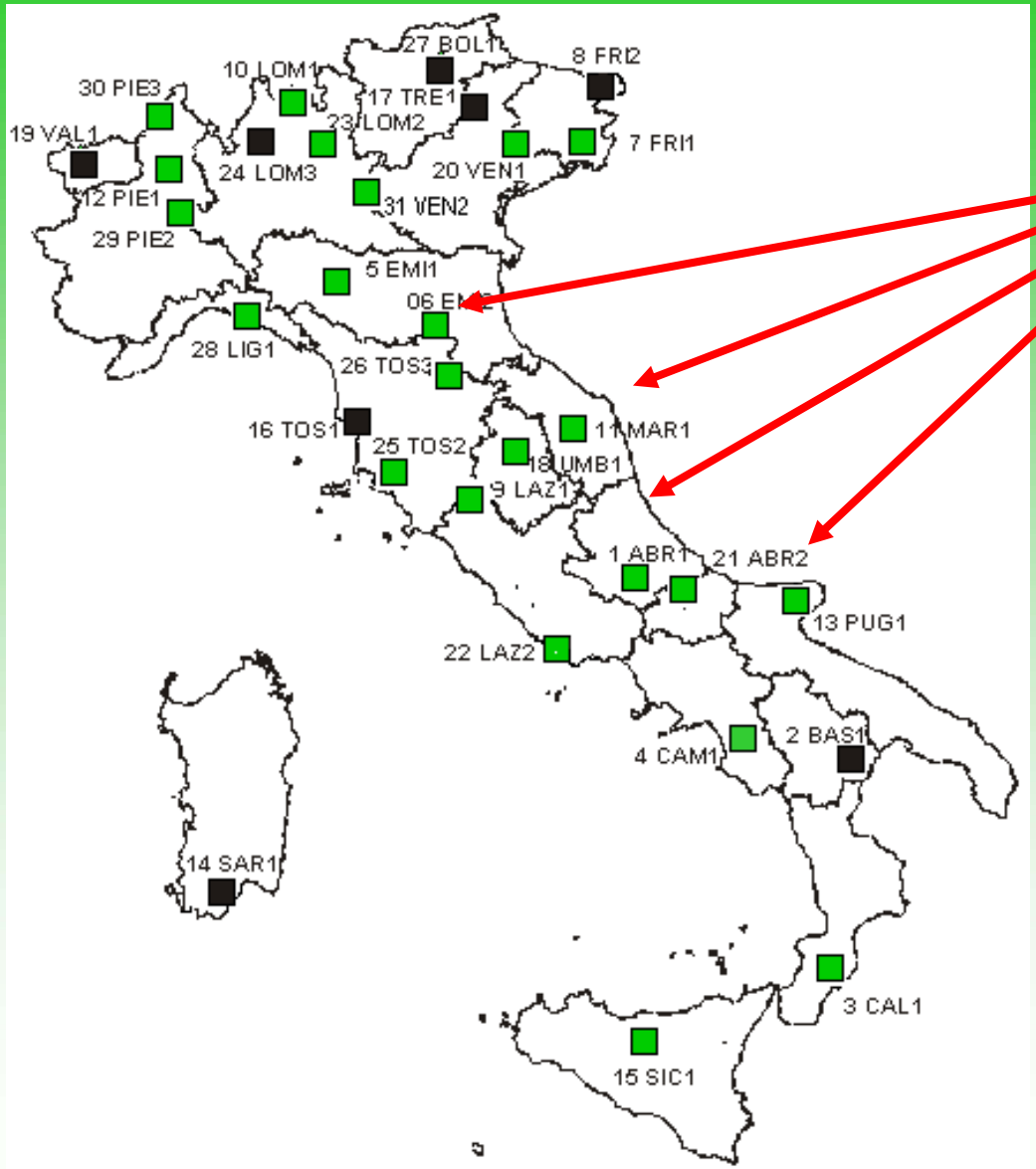
AN EXAMPLE FROM ITALY …



***Sites of Community Interest & Special Areas of Conservation (Natura 2000)*:**

- **23 out of 31 Lev. II plots (74%)**

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THE CONCEPT OF
EXTENDED CORE PLOTS

Input

Ecosystem Change

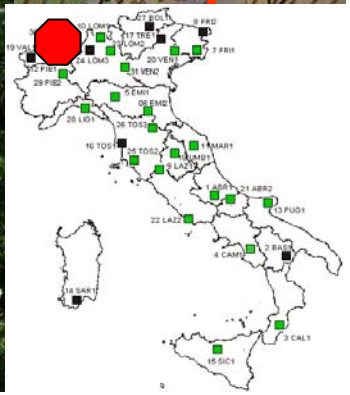
Output

CONECOFOR

"30-PIE3-Devero"
EXTENDED CORE PLOT
(Italy)

PIE
3

Natura2000
site



The Firenze workshop table (proposed for inclusion into the new EFMP FutDiv)

LEVEL	FOREST TYPES	STRUCTURE	TREE SPECIES	GROUND VEGETATION	DEADWOOD	LICHENS	~~NATURALNESS~~ ENVIRONMENTAL QUALITY	INVERTEBRATES	BIRDS
Level II	MCPFE/EEA Forest types	Tree coordinates (core plots)	All trees on plot	ICP Forests Manual (core plots)	**ForestBIOTA** methods plus random walk (core plots, stratified by forest types)		Method based on the reference plot (Petriccione, 2006) (core plots)	Window traps for key *Coleoptera* families (core plots, stratified by biogeographical Region / forest type)	Bird species density and frequency with *Birdlife* method (extended core plots, stratified by biogeographical Region / forest type)
Level I	**BioSoil (biodiversity module)**					ForestBIOTA & BioAssess methods, but macro-lichens only	Method of five classes, to be precisely defined (ref.: Bohn map; tree species nativeness as defined by EEA Report on Forest types)	Simplified methodology, after testing on Lev. II	
NFIs	Proposal for adoption of MCPFE/EEA forest types as reference	Indices based on dbh and height, partly tree coordinates	All trees in sampling units	All shrub species; only indicator groups of herb species	Develop bridging functions to the BioSoil method	Indicator species per biogeographical Region / forest type		NO	NO
Landscape & remote sensing	Forest maps	Pilot projects (habitats) ?	Conifers / broadleaves	NO	NO	Effects of surrounding landscape on species richness on the plot	Functional approach (extended core Lev. II plots)	NO	Same approach as Lev. II (extended core plots, stratified by biogeographical Region / forest type)

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Stand structure

Lev. I: BioSoil method

Lev. II: tree coordinates on core plots

NFIs: indices based on dbh and height, partly tree coordinates

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Ground vegetation

Lev. I:	BioSoil method
Lev. II:	ICP Forests Manual on core plots
NFIs:	all shrub species; only indicator groups for herb species

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Deadwood

Lev. I: BioSoil method

Lev. II: ForestBIOTA methods, plus random walk, on core plots

NFIs: develop bridging functions to the BioSoil method

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Epiphytic lichens

Landscape: Effects of surrounding landscape on species richness on the plot

Lev. I: ForestBIOTA & BioAssess methods, but macro-lichens only

Lev. II: ForestBIOTA methods, plus random walk, on core plots

NFIs: Indicator species per biogeographical Region / forest type

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Environmental quality

Landscape: Functional approach
(extended core Lev. II plots)

Lev. II: Method based on the reference plot (Petriccione, 2006) on core plots

Lev. I & NFIs: Method of five classes, to be precisely defined
(ref.: Bohn map; tree species nativeness as defined by EEA Report on Forest types)

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Forest invertebrates

Lev. II: Window traps for key *Coleoptera* families (core plots, stratified by biogeographical Region/forest type)

Lev. I: Simplified methodology, after testing on Lev. II

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Forest birds

Lev. I
& Lev. II: Bird species density and frequency with Birdlife method (extended core plots, stratified by biogeographical Region/forest type)

Landscape: Same approach as Lev. II (extended core plots, stratified by biogeographical Region/forest type)

CONECOFOR

Development of a
Forest Status Indicator
(status and trend of forest ecosystem)

A pilot project under the responsability of the
Italian Forest Service,
in collaboration with PCC of ICP Forests,
funded by EEA, in the SEBI2010 framework

Final report just delivered to EEA

CONECOFOR

Development of a
Forest Status Indicator
(status and trend of forest ecosystem)

- ✓ Tree condition
- ✓ Plant species composition and coverage
- ✓ Deadwood amount and type
- ✓ Forest structure
- ✓ Naturalness level
- ✓ Conservation status of forests in Natura2000 sites

Forest Focus, ForestBIOTA & BioSoil data

CONECOFOR

CORPO FORESTALE DELLO STATO
ITALIAN NATIONAL FOREST SERVICE

ISPETTORATO GENERALE

Servizio II - Divisione VI - Ufficio CONECOFOR

***SEBI2010* special ad hoc project**

Development and harmonization of a *Forest Status Indicator (FSI)*

EEA Contract no. 3603/B2006/EEA.52678 (06/10/2006)

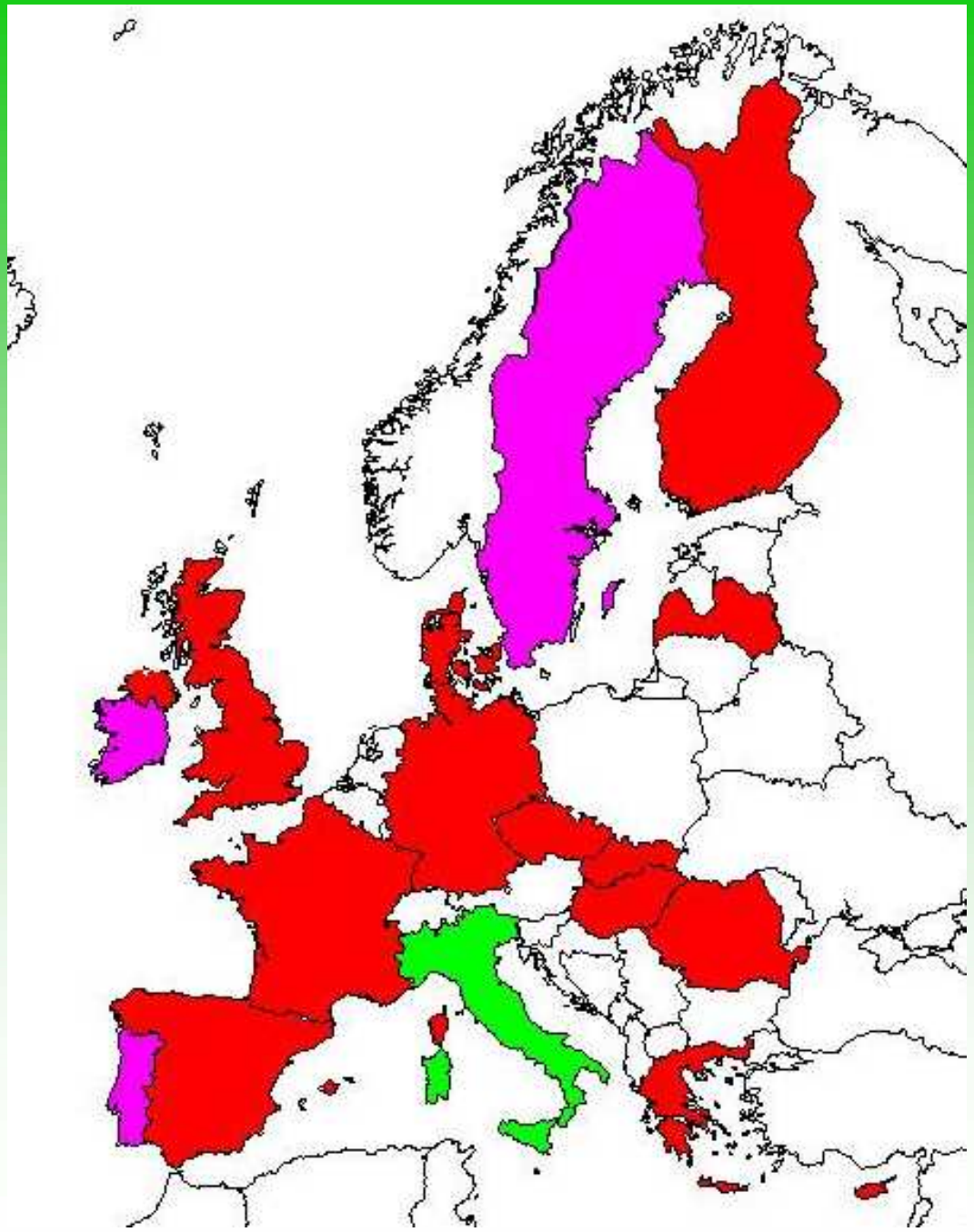
Technical report

prepared by:
Bruno Petriccione, Claudia Cindolo, Cristiana Cocciufa, Silvia Ferlazzo, Giuseppe Parisi
Italian Forest Service, CONECOFOR Board

Via G. Carducci 5, Roma (Italy)
conecofor@corpoforestale.it

Final version – Roma, 04/06/2007

CONECOFOR



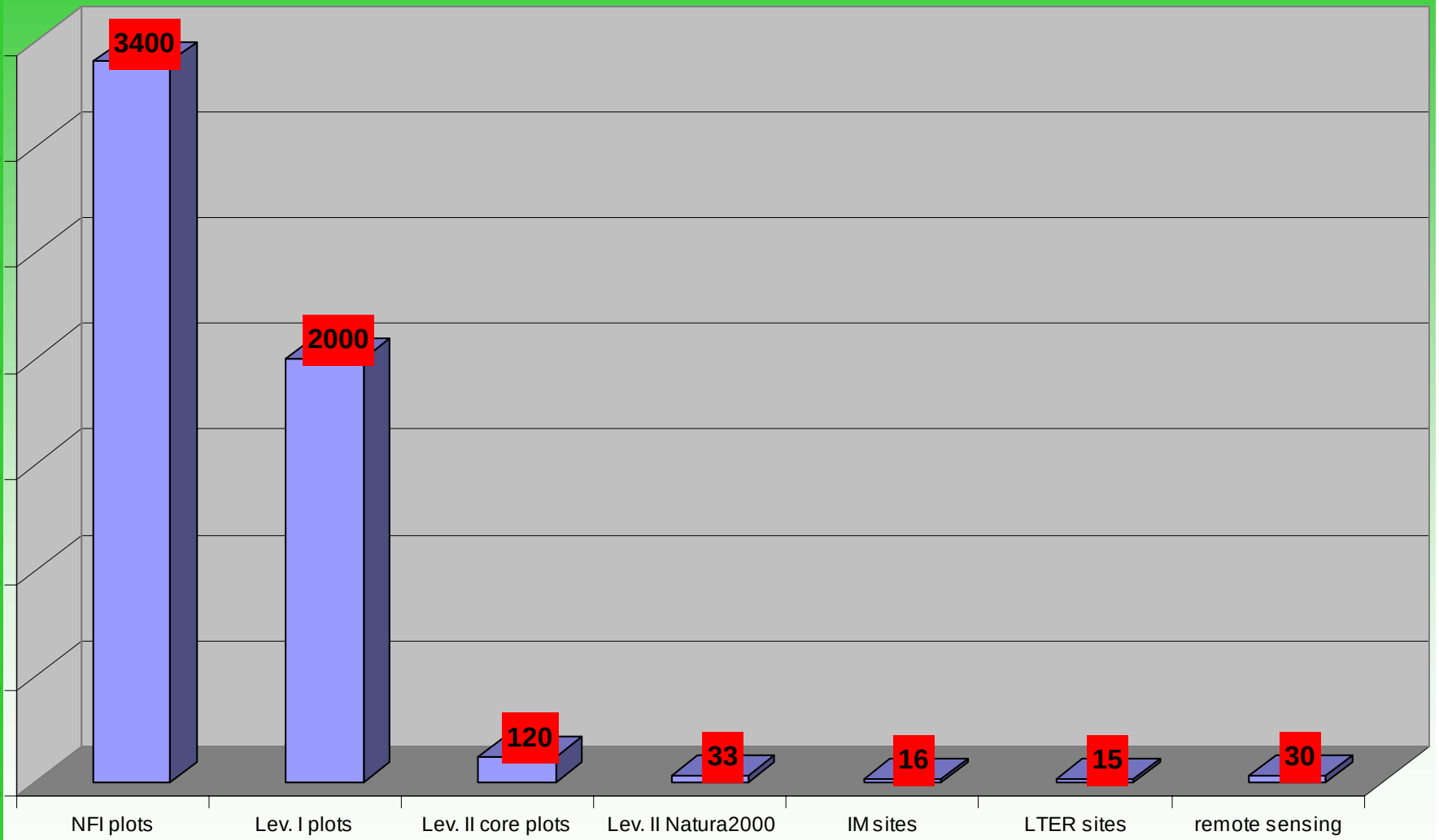
FutDiv

14 (17)
PARTICIPATING COUNTRIES

(July 2007)

CONECOFOR

FutDiv networks (8 Countries)



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FutDiv expected results

- **Show feasibility** of "harmonised" methods at all levels on EU scale
- **Provide data** on status and trends of forest biodiversity on EU scale
- **Clarify cause-effect relationship** between pressure factors and biodiversity parameters (in connection with other SEBI2010 indicators)
- **Test phase 2009-2011** (implementation phase 2012-2014 in a 2nd project)

For more information, please visit web sites:

CONECOFOR & LTER-Italia

http://www.corpoforestale.it
(see CONECOFOR part)

SEBI2010

http://biodiversity-chm.eea.eu.int/information/indicator

ALTER-Net

http://www..alter-net.info/

ForestBIOTA

http://www.forestbiota.org