



COST Action E43
Harmonization of National Inventories in Europe: Techniques for Common Reporting

GROUND VEGETATION NATIONAL FOREST INVENTORIES REFERENCES

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COST Action E43 WG3 – ICP Forest expert panel Biodiversity and GV
Florence, Italy

GROUND VEGETATION: CORE VARIABLE IN NFIs

- Ground vegetation-biodiversity:
Wildlife forage and shelter, indicator site degradation, pollution, assess ecosystem health...
- Forest biodiversity questionnaire – NFIs
OBJECTIVE: Select core bio-variables
RESULT: 16/41 selected



GROUND VEGETATION QUESTIONNAIRE 1

(Provided May-March 2006)

- 20 Countries collaborating
(AT, BE, CY, EE, FI, FR, DE, GR, HU, IT, LT, NO, RO, SK, ES, SE, CH, and UK)
- Focus on:
 - Sampling area
 - Inventory design
 - Measured attributes of each GV group (life-form)
 - Taxonomic inventory exhaustiveness

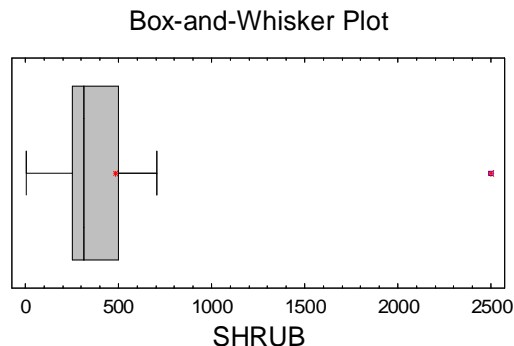
GROUND VEGETATION QUESTIONNAIRE 2

(Provided July 2006-January 2007)

- 19 Countries collaborating
(AT, BE, CY, EE, FI, FR, DE, IT, LT, NO, RO, SK, ES, POR, SE, CH, and UK)
- Objective:
 - clarify 1st questionnaire
 - extend information of some selected variables
- Focus on:
 - Sampling area
 - GV groups definition
 - Shrub measured attributes
 - Cover measurements

DIFFICULTIES- COMPARATIONS BETWEEN NFIs :

- Inventory cycles
vary from annual inventories to 10 years cycle
- Sampling year season
50% countries do not have a fixed period for the visits while 40% do
- Monitoring area




- No experts in field teams; trained personnel

COST E43 - WG3 – GROUND VEGETATION

	Area (m ²) SHRUB	Area (m ²) HERBS	Area (m ²) FERNS	Area (m ²) LICHENS	Area (m ²) LIVERWORTS	Area (m ²) MOSESSES
AT	300.00	300.00	300.00	-	-	300.00
BE	452.39	452.39	452.39	-	452.39	452.39
CY	314.16	-	-	-	-	-
CZ	500.00	500.00	500.00	500.00	500.00	500.00
EE	314.16	-	-	-	-	-
FI	-	-	-	-	-	-
FR	700.00	700.00	700.00	700.00	700.00	700.00
DE	314.16	314.16	314.16	-	-	314.16
IT	25	-	-	-	-	-
LT	40.00 60.00	-	-	-	-	-
NO	250.00	-	-	-	-	-
RO	3.14	3.14	-	3.14	-	3.14
SK	499.55	499.55	499.55	499.55	-	499.55
ES	1963.50 706.85 314.16	1963.50 706.85	1963.50 706.85	1963.50	1963.50	1963.50
SE	314.16	0.50 100	0.50 100	0.50 100	0.50 100	0.50 100
CH	200 2 500.00	2 500.00	2 500.00	-	-	-

**COST Action E43 WG3 – ICP Forest expert panel Biodiversity and Ground vegetation
Firenze, 20-23 March 2007**

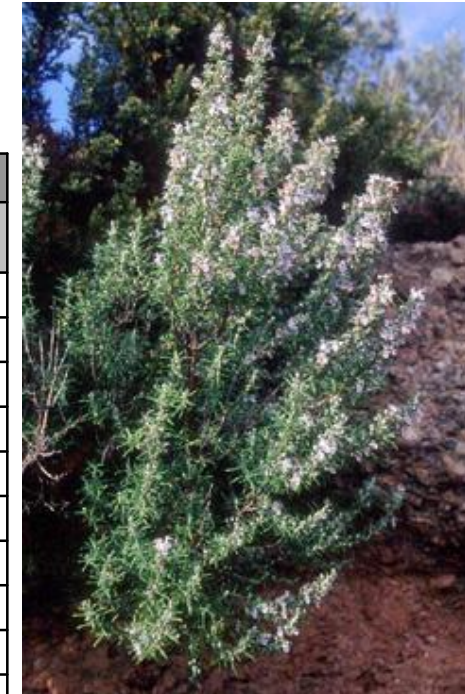
PROPOSED INDICATORS FOR EUROPEAN WIDE NFI CALCULATIONS

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1. Shrubs, climbers and palms shrubs composition
 2. Ground vegetation layers coverage
 3. Shrub species cover

INDICATOR 1: SHRUBS CLIMBERS AND PALMS SHRUBS COMPOSITION

INDICATOR: SPECIES PRESENCE PROBABILITY/HA

- HARMONIZATION- SHRUBS LISTS
- 2 LEVELS: GENUS/SPECIES
- ICP codification



SHRUB DEFINITION	BASED ON			INCLUDING		
	SPECIES LIST	GROWTH FORM	SIZE (HEIGHT)	SPRAWLING SHRUBS	LIANAS, CLIMBERS	PALM SHRUBS
AT	Yes	Yes	Yes	Yes	Yes	-
BE	No	Yes	Yes	Yes	No	-
CY	Yes	No	No	Yes	No	No
CZ	Yes	Yes	No	No	No	-
EE	No	Yes	No	Yes	No	Yes
FR	No	Yes	No	Yes	Yes	-
DE	Yes	Yes	Yes	Yes	Yes	-
IT	Yes	No	Yes	Yes	Yes	Yes
LT	Yes	No	No	Yes	N/A	-
RO	Yes	No	Yes	Yes	No	-
SK	Yes	No	No	No	No	-
ES	Yes	Yes	Yes	Yes	Yes	Yes
CH	Yes	No	No	Yes	Yes	Yes
UK	Yes	No	No	Yes	na	-
	11Y/3N	7Y/7N	6Y/8N	12Y/2N	6Y/6N	4Y/1N

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INDICATOR 2: GROUND VEGETATION LAYERS COVERAGE

VEGETATION LAYERS PROPOSAL:

- **Moss layer** (terricolous bryophytes and lichens)
- Terricolous bryophytes and
- Terricolous lichens
 - **Herb layer** (all non-ligneous, and ligneous < 0.5m height)
- Regeneration/Plantation (trees)
- Herbs
- Shrubs/no perennial
 - **Shrub layer** (only ligneous, incl. climbers) > 0.5 m height)
- Regeneration/Plantation (trees)
- Herbs
- Shrubs/no perennial
- Climbers
 - **Tree layer** (only ligneous, incl. climbers; > 5 m height).
- Tree
- Shrubs
- Climbers

COVER SCALE PROPOSAL:

<1%
 1-5%
 5-10%
 10-25%
 25-50%
 50-75%
 75-100%

INDICATOR 2: GROUND VEGETATION LAYERS COVERAGE

GV GROUPS LAYERS VS. LIFE-FORMS

SHRUBS DEF. BASED ON		
SPECIES LIST	GROWTH FORM	SIZE (HEIGHT)
78.57%	50.00%	42.86%

HERBS DEF. BASED ON		
Life form	Height, strata	Species/taxon list
60.00%	20.00%	20.00%

FERNS DEF. BASED ON		
Life form	By height, strata	Species/taxon list
37.50%	12.50%	50.00%

MOSS DEF. BASED ON	
Life form (cover)	Species/taxon list
55.56%	44.44%

LICHEN DEF. BASED ON	
Life form (cover)	Species/taxon list
66.67%	33.33%

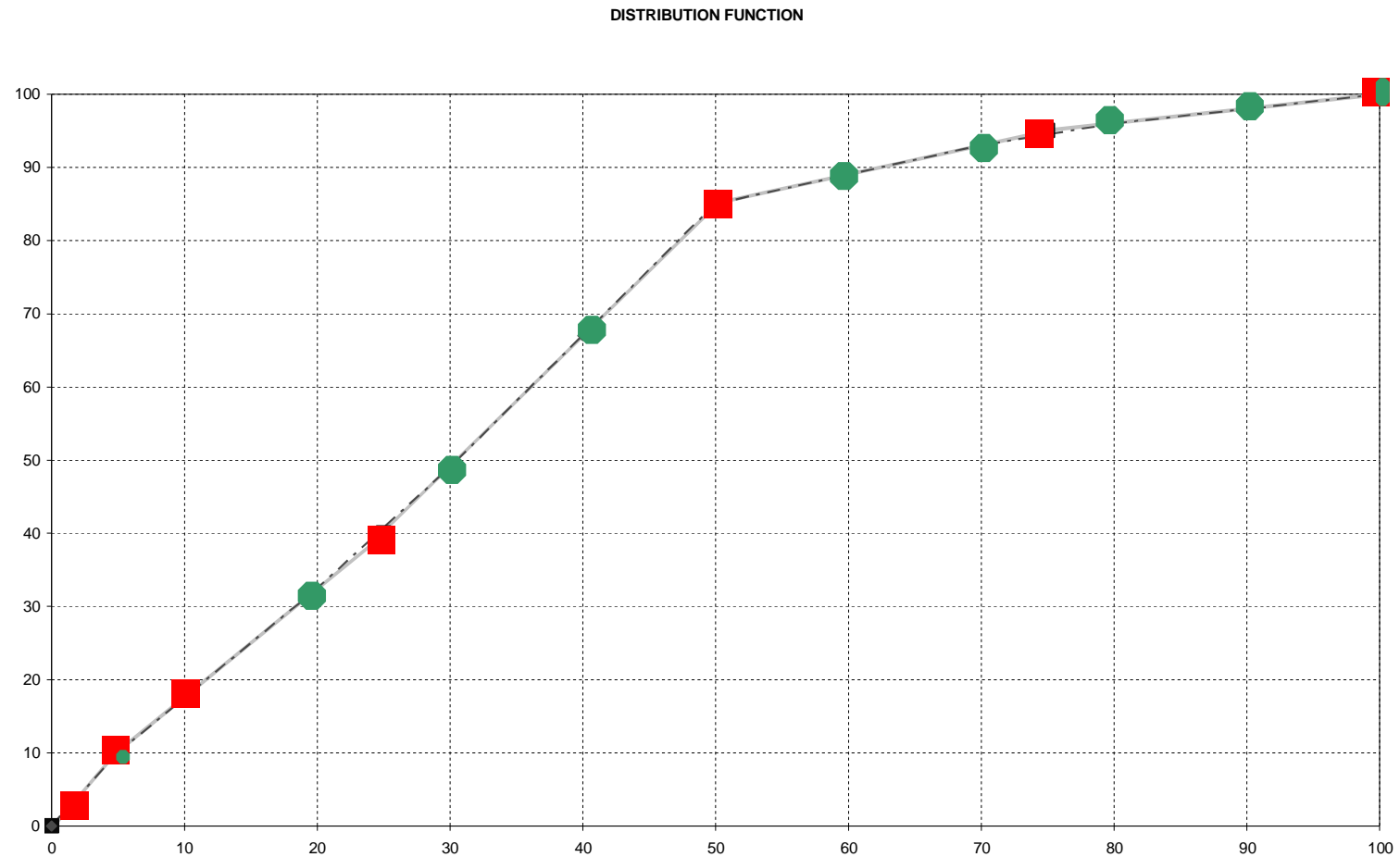
LIVERWORT/ HORNWORT BASED ON	
Life form (cover)	Species/taxon list
60,00%	40,00%

INDICATOR 2: GROUND VEGETATION LAYERS COVERAGE

THRESHOLD HEIGHT	0<h<0,3	0,3<h<0,5	0,5<h<1,0	1,0<h<1,3	1,3<h<1,5	1,5<h<2	2<h<3	3<h<5	5<h<7	7<h<10	h>10
REFERENCE	HERB LAYER		SHRUB LAYER								
AT	CLASS 1 (HERB LAYER)				CLASS 2						
BE	CLASS 1							CLASS 2		CLASS 3	
FR	CLASS 1						CLASS 2				
DE	CLASS 1		CLASS 2				CLASS 3				
IT			CLASS 1		CLASS 2						
LT	CLASS 1		CLASS 2			CLASS 3		CLASS 4			
RO			CLASS 1		CLASS 2						
ES	CLASS 1		CLASS 2			CLASS 3		CLASS 4			
CH											
CY											
CZ											
EE											
SK											
UK											

INDICATOR 2: GROUND VEGETATION LAYERS COVERAGE

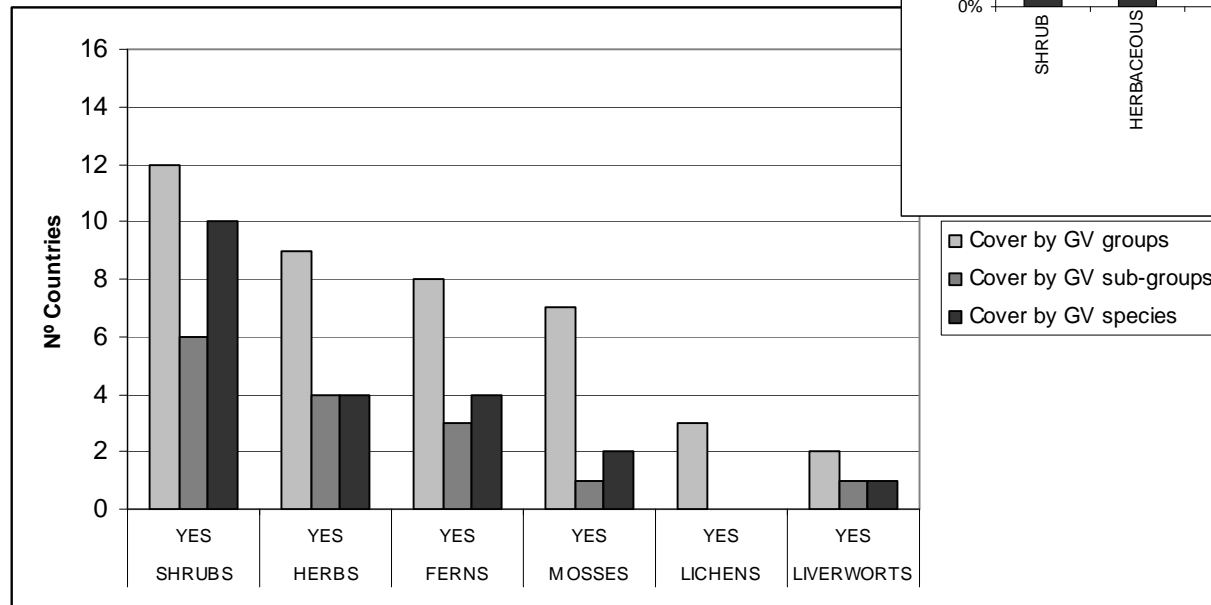
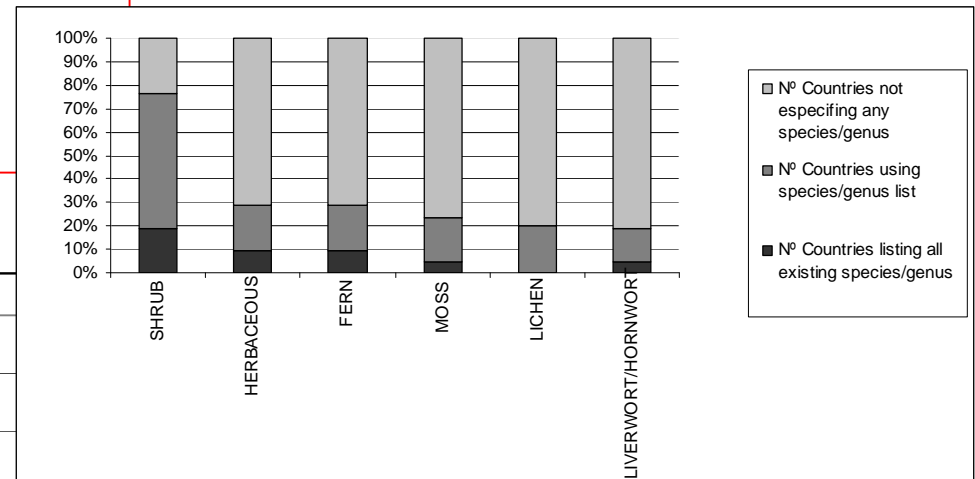
COUNTRY	COVER RANGE											
REF.	>1%		1-5%	5-10%	10-25%	25-50%	50-75%	75-100%				
AT	0,01% (r)	0,261% (+)	1-5%	5-25%		25-50%	50-75%	75-100%				
BE	<1% (+)	1% (r)	1-5%	5-25%		25-50%	50-75%	75-100%				
CZ	(r) ; <0,2%	0,2-1%	1-5%	5-25%		25-50%	50-75%	75-100%				
RO	<1% (+)		1-5%	5-10%	10-25%	25-50%	50-75%	75-100%				
ES	<1% (+)	1% (r)	1-5%	5-10%	10-25%	25-50%	50-75%	75-100%				
CH	<1% (+)		1-5%	5-10%	10-25%	25-50%	50-75%	75-100%				
FR	<5%			5-25%		25-50%	50-75%	75-100%				
EE Gr-H	<5%			5-25%		25-50%	50-75%	75-100%				
SK	1-10%			10-20%	20-30%	30-40%	40-50%	50-60%	60-70%	70-80%	80-90%	90-100%
DE	1-10%			10-50%				>50%				
EE s.	0-50%						50-100%					



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INDICATOR 3: SHRUBS SPECIES COVER

HARMONIZATION- SHRUBS LISTS
2 LEVELS: GENUS/SPECIES
ICP codification



PROPOSAL OF FUTURE BIODIVERSITY INDICATORS

- Shrubs layer indicator species –unreal nowadays-
- Herb layer indicator species –unreal nowadays-
- Moss layer indicator species –unreal nowadays-
- Sociability –unreal nowadays-
- Shrubs genus/species average height (Cover-Biomass) –unreal nowadays-