Conservation of coppice forest habitats:

Hierarchies of rarity and protection

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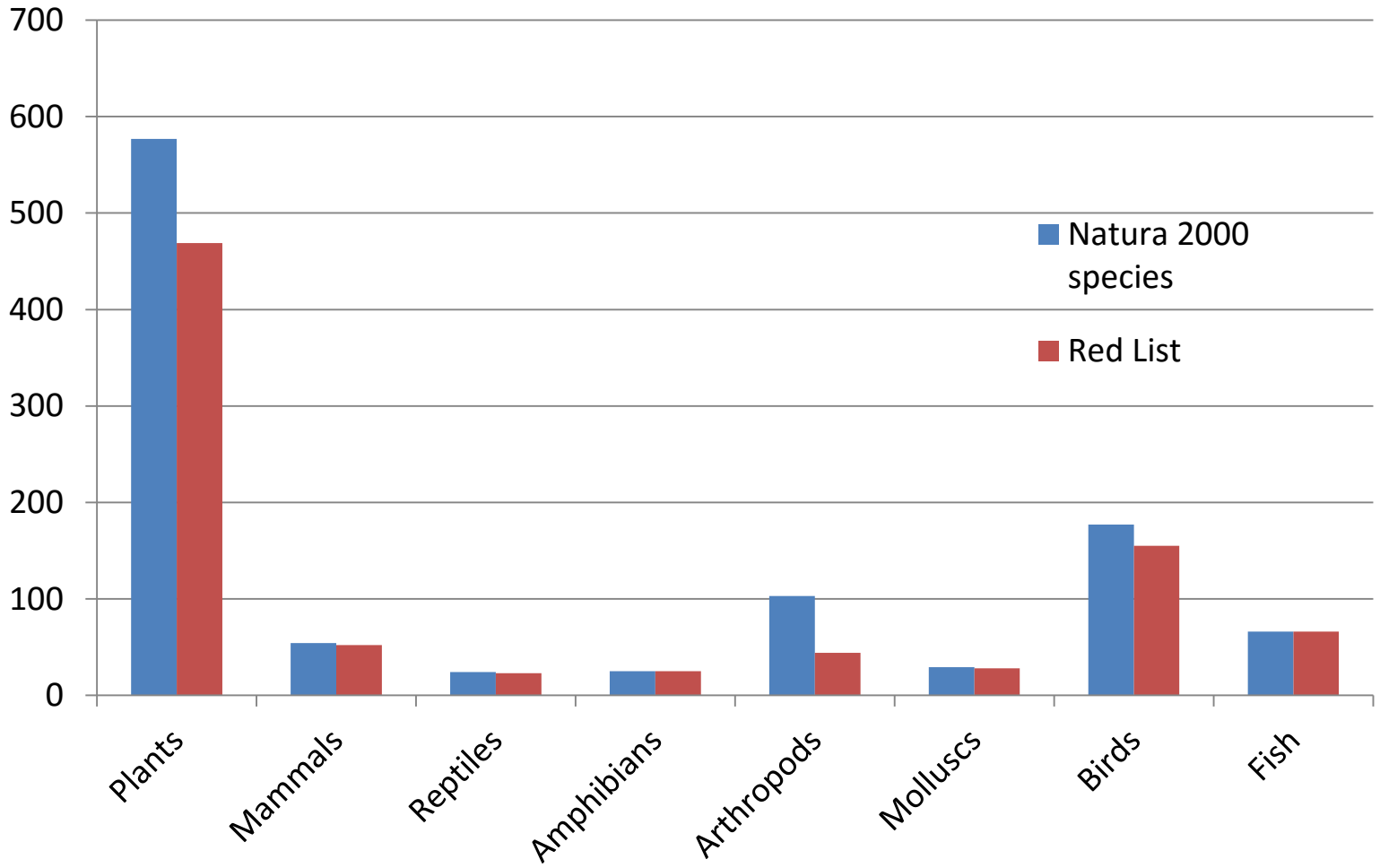
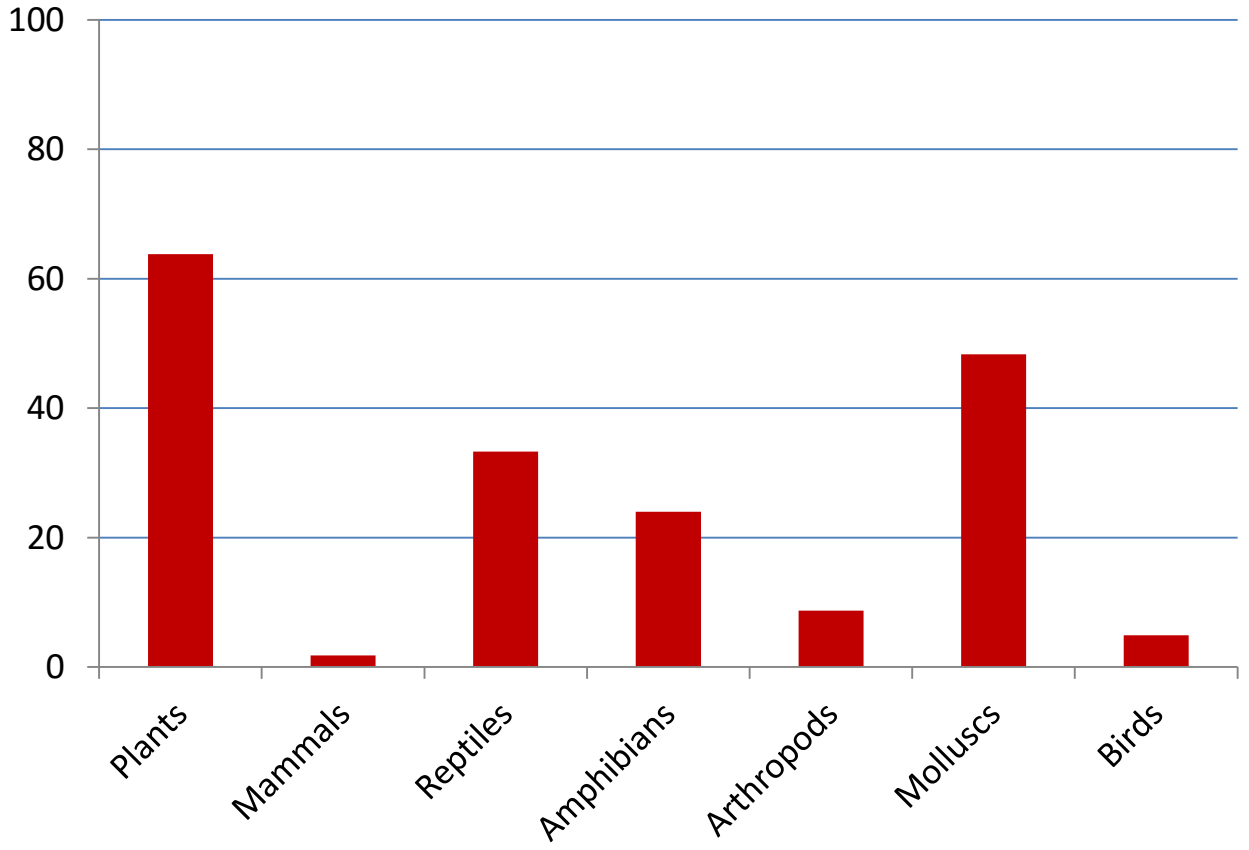
Threatened habitats and species

- WG4 brief (COST): *to examine existing literature about coppice forests in relation to nature conservation & biodiversity*
- EU Birds Directive 1979: Annex I (**bird** species)
- EU Habitats Directive 1992: Annex I **habitats**
  Annex II/IV species (**animals** and **plants**)
- Habitats + Birds Directives = '**Natura 2000 network**'
  (375,000 km²of forests)
- Network targets some 230 habitat types and 1000 species
- Most 'Natura 2000' species are red-listed by the IUCN, but not all…

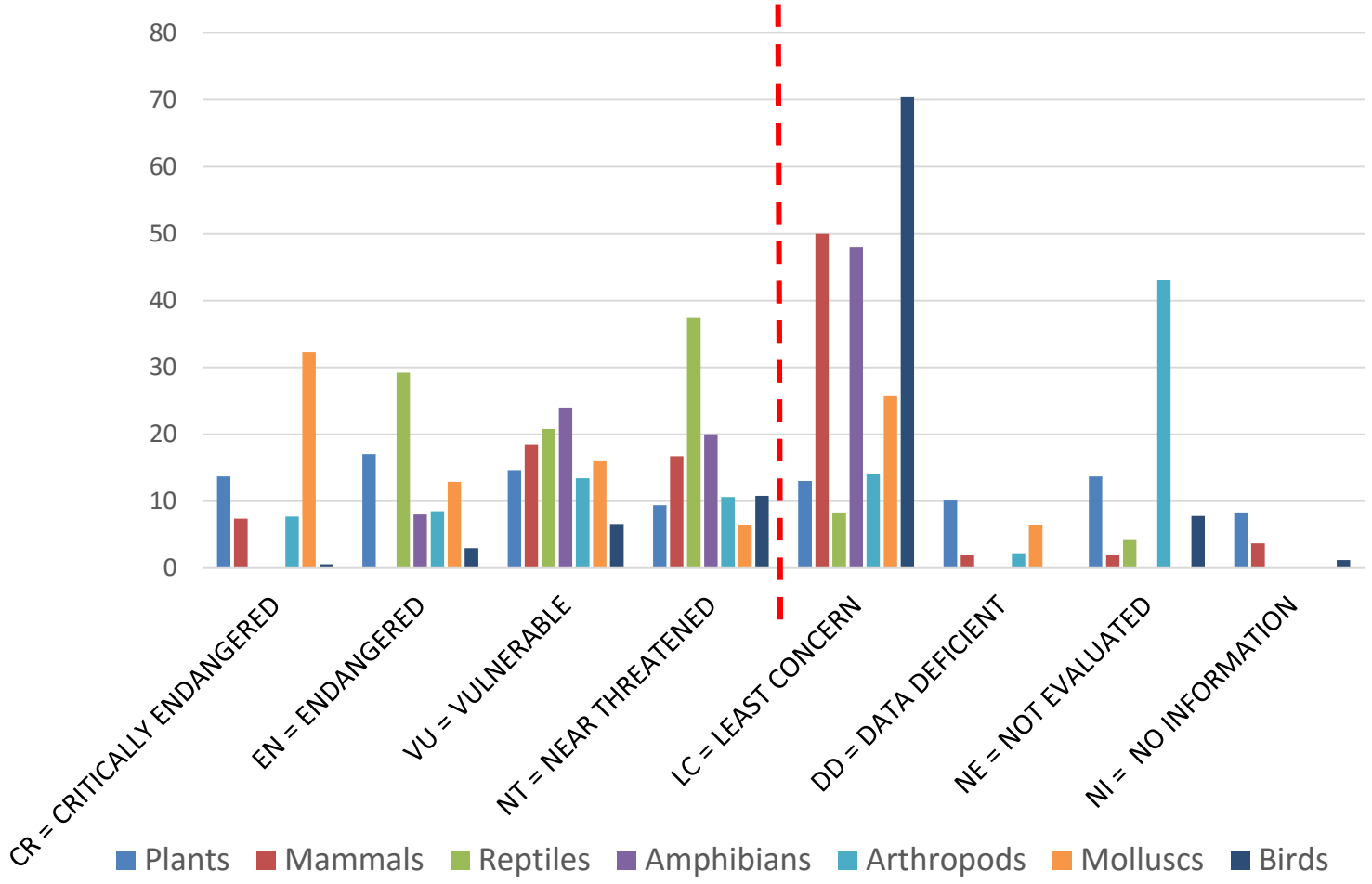
Numbers of ‘Natura 2000’ species per taxonomic group



Percentage of endemic species per taxonomic group



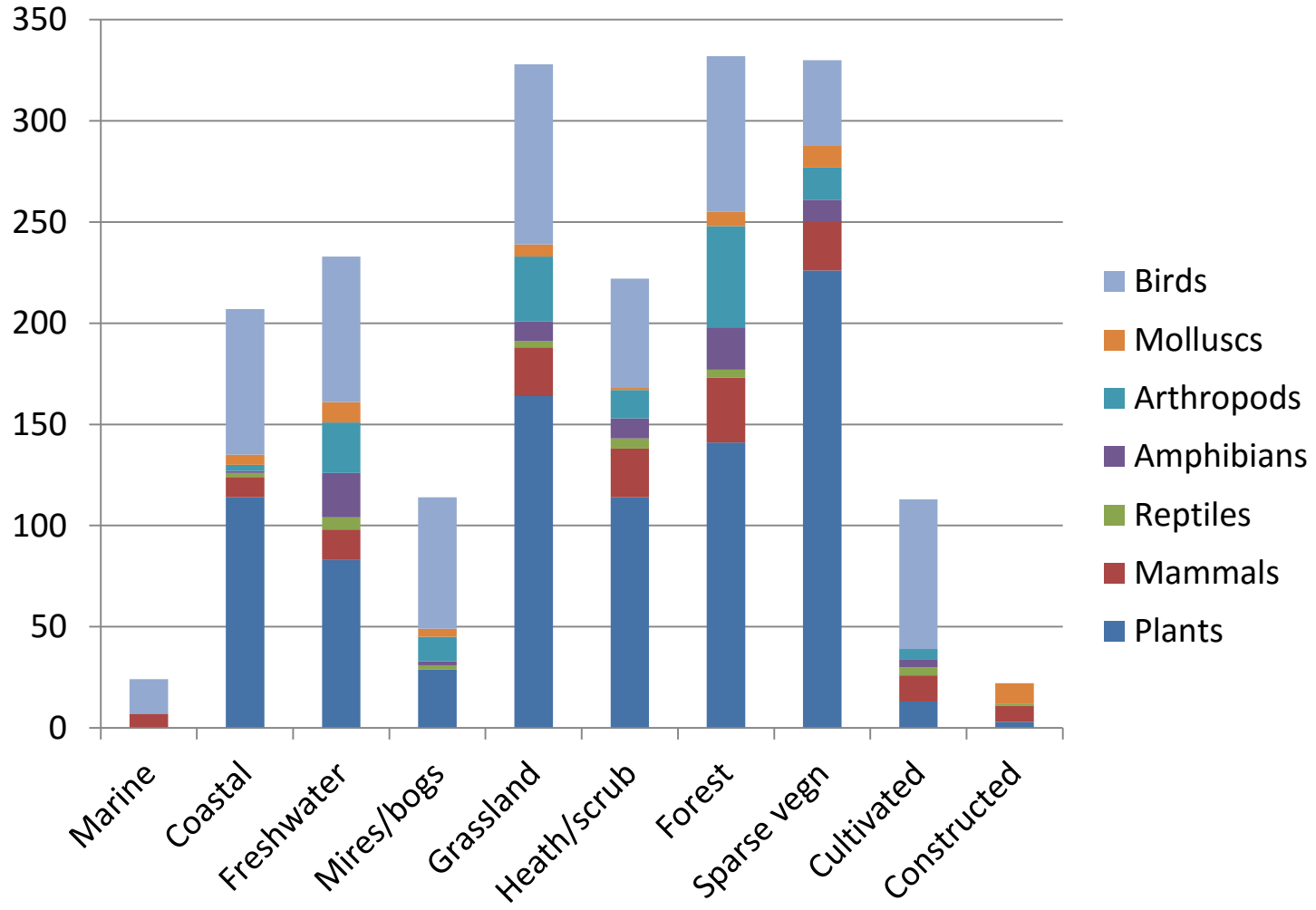
Percentage IUCN threat status of Natura 2000 species in different taxonomic groups



EUNIS habitat type hierarchical classification

Habitat type	Description
Marine	
Coastal	Includes estuaries, brackish lagoons, infra & circa littoral zones
Inland waters	
Mires, Bogs, Fens	Includes raised and blanket bog complexes
Grasslands	Includes machair and inland dune complexes
Heath, Scrub, Tundra	
Woodland, Forest, OWL	Includes pasture woodland, parks & sparsely wooded areas
Sparse vegetation	Includes inland sand dunes
Cultivated land	Include crops shaded by trees, large and small gardens
Artificial/industrial land	

Habitat distribution among taxonomic groups

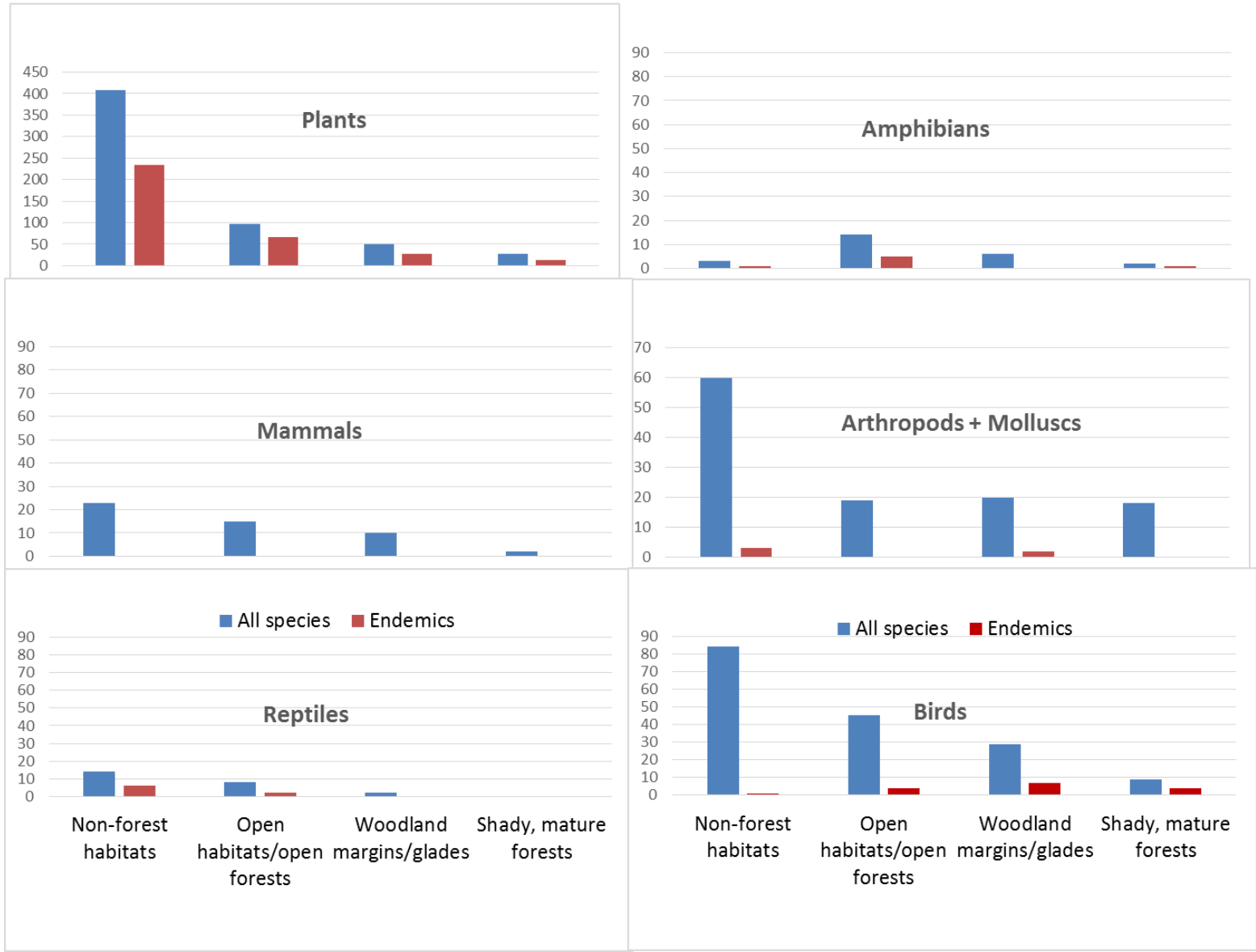


Allocation of terrestrial ‘Natura 2000’ species to gradients of forest cover

Literature review (IUCN red list, EUNIS, BirdLife International, scientific journals, on-line floras, etc.)

1. Non-forest (including wetland and fresh water)
2. Predominantly open, but with scattered trees or scrub
3. Woodland margins and young, transient woodland cover
4. High forest; mature and shaded

Taxonomic groups and main habitat preferences



Priority species for biodiversity conservation

Taxonomic group	Natura 2000 species on IUCN red list	Natura 2000 species	European red list (EU27)	France - red lists	UK Biodiversity Action Plan 2007	Flanders red lists	Estonian protected species
Vascular plants	412	**554**	*1750	1018	212	1152	215
Non-vascular plants	1	**32**	* Bryophytes		122		46
Mammals	45	**47**	179	99	18	65	18
All invertebrates	75	**135**			349		52
Dragonflies	11	**11**	*134		2	64	0
Saproxylic beetles	9	**17**	*408		10		0
Molluscs	31	**31**	*1805		19		4
Lepidoptera	14	**38**	421‡	253‡	175	72‡	10
Bees	0	**0**	1900		20		17
Reptiles	23	**24**	128	35	6	6	5
Amphibians	25	**25**	82	35	4	16	11
Fungi/lichens	0	**0**	0		214		97
Birds	150	**162**	399	345	59	200	116


Bonasa bonasia


Muscardinus avellanarius


Euphorbia amygdaloides


Euphydryas maturna


Eriogaster catax


Silene dioica

Coppice **High forest** **Minimum intervention**

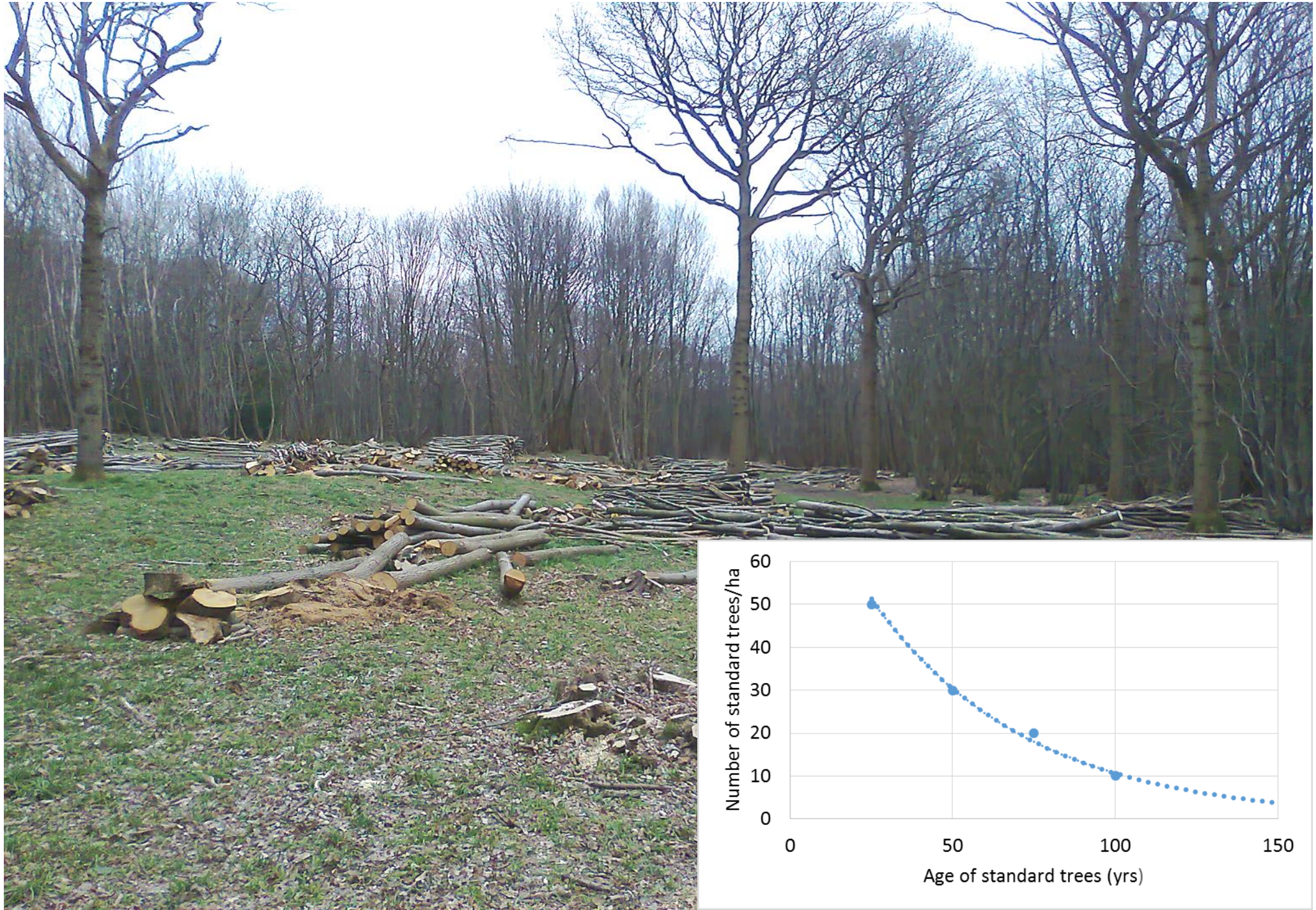
Increasing management intensity

<10m³/ha dead wood
Young trees, small dbh
High tree/shrub diversity
Low canopy cover
Early succession stages
Vascular plants, ruderals
Butterflies, Sylviidae, reptiles

>50m³/ha dead wood
Veteran, 'habitat' trees
Lower woody diversity
Dense canopies
Late succession stages
Lichens, fungi, saproxylics
Picidae, Chiroptera

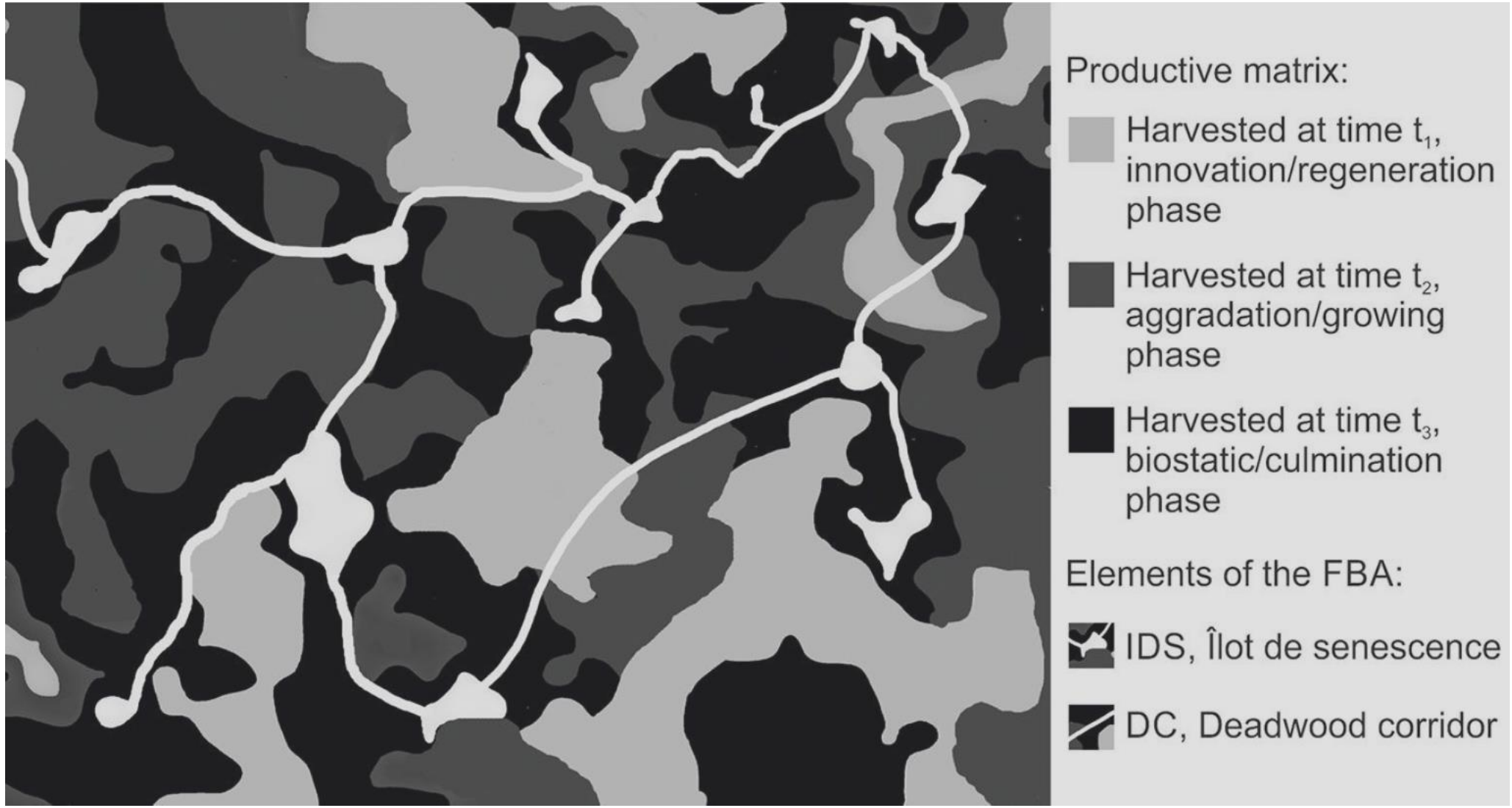
Relative sensitivity to management (Brunet et al, 2010)

herbaceous plants < soil macrofungi
< ground dwelling arthropods < land snails < saproxylic fungi <
hole nesting birds/saproxylic insects
< epiphytic lichens/ bryophytes <
epixylic bryophytes


60
50
40
30
20
10
0
Number of standard trees/ha
0
50
100
150
Age of standard trees (yrs)

Wood-pasture, Hatch Park

To integrate or segregate the age-classes?



Conclusions

- Natura 2000: a bottom-up (species) or top-down (habitat) approach?
- Annex species lists are incomplete and taxonomically biased
- EU ‘Health check’ of the Birds and Habitats Directives
- Comparatively few ‘Natura 2000 species’ are coppice specialists - open habitats have many more
- Conservation strategies: a) minimal intervention, b) traditional and c) non-traditional management, d) key species management
- Full range of biodiversity can only be delivered by providing all successional stages of the forest habitat, *including* coppice