Beyond nature policy
- semi-natural grassland and wider public goods

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Content of talk

- Semi-natural farmland and the Biodiversity Strategy
  - Green Infrastructure
  - Ecosystem Services
- Some aspects of semi-natural farmland and climate change
- Overlaps with other existing EU law

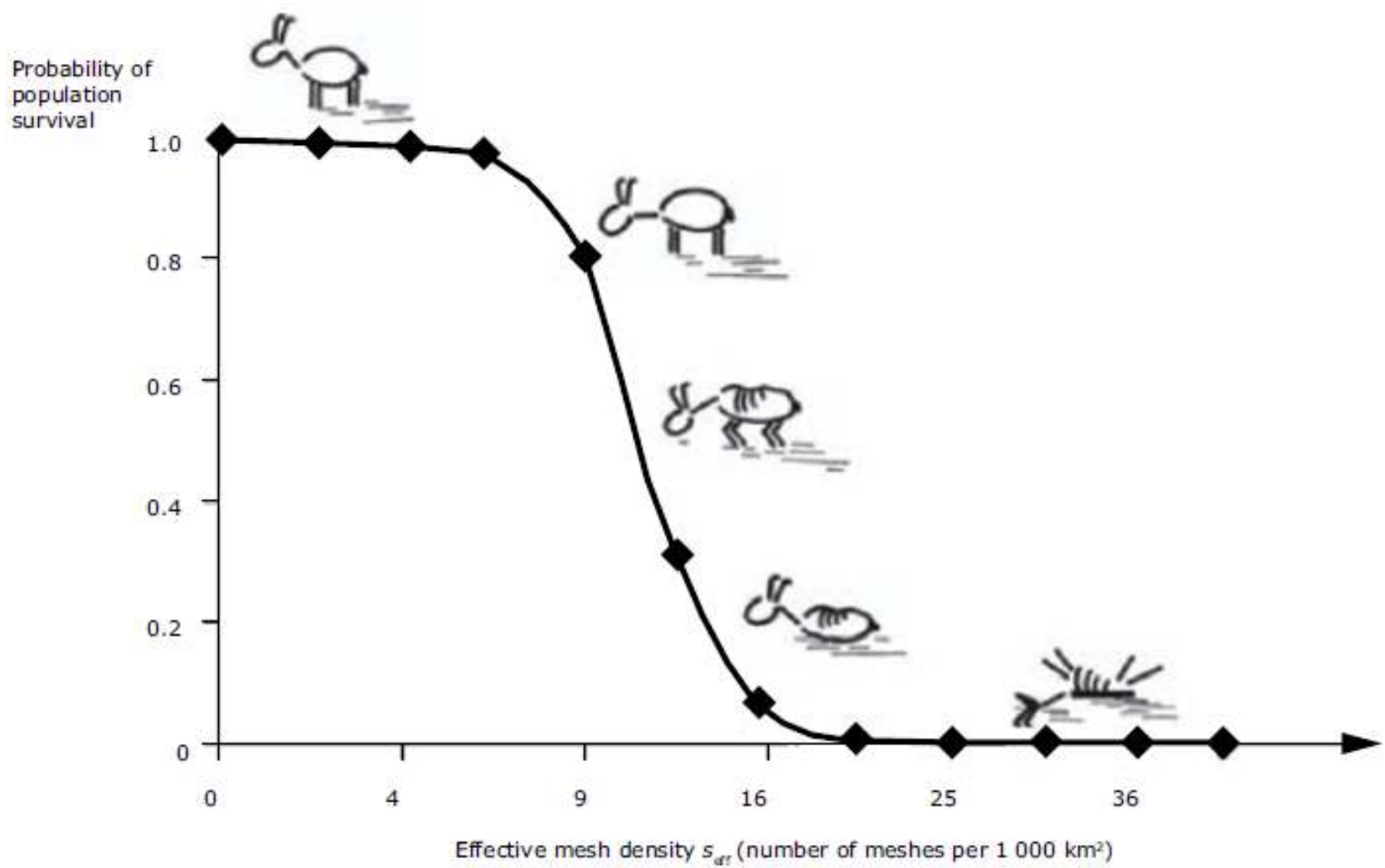
EU Biodiversity Strategy

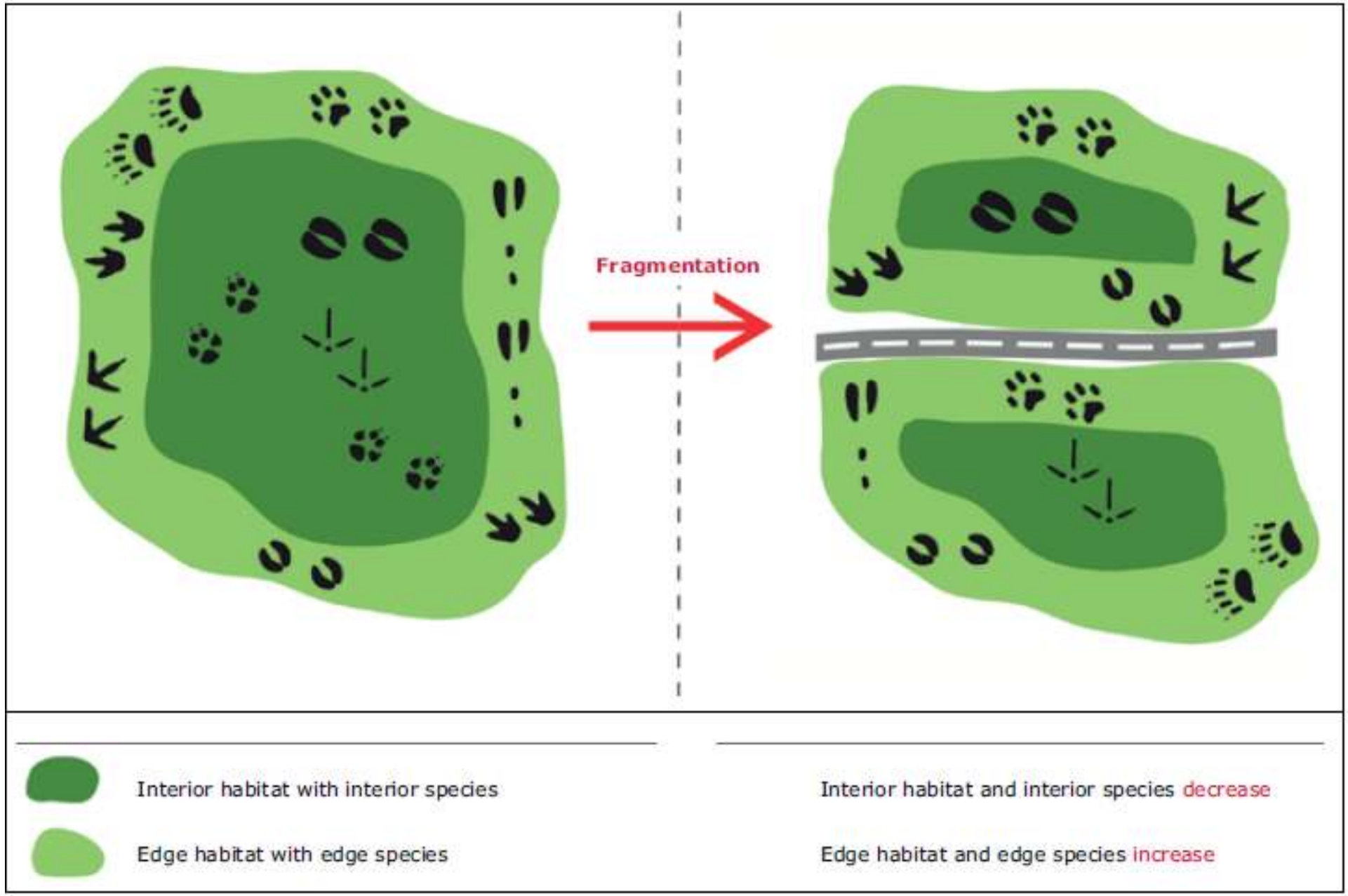
- Target 2: By 2020, **ecosystems and their services** are maintained and enhanced by establishing green infrastructure and restoring at least 15 % of degraded ecosystems.

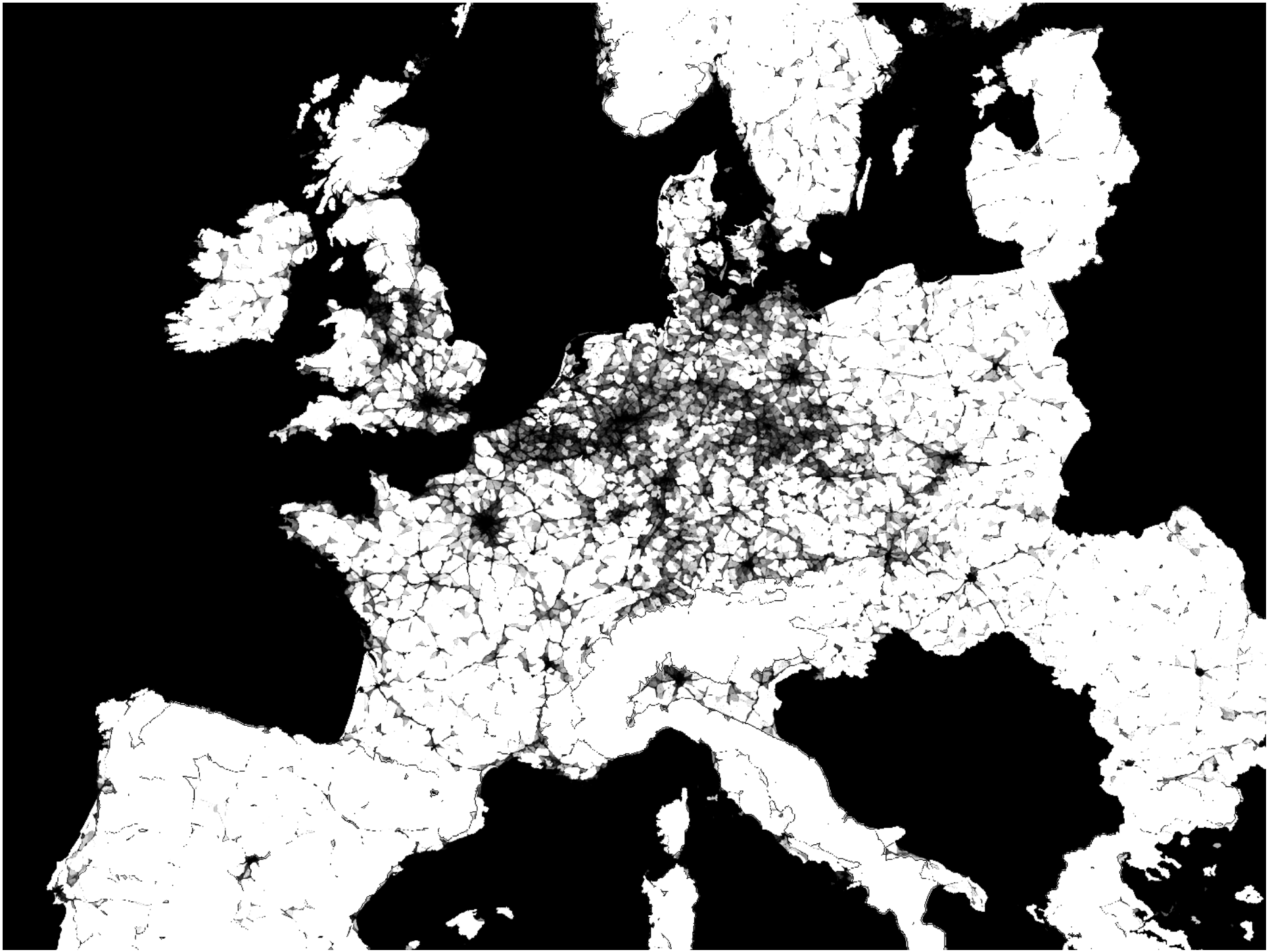
- Target 3: …. to bring about a measurable improvement in the conservation status of species and habitats that depend on or are affected by agriculture and in the provision of **ecosystem services**…

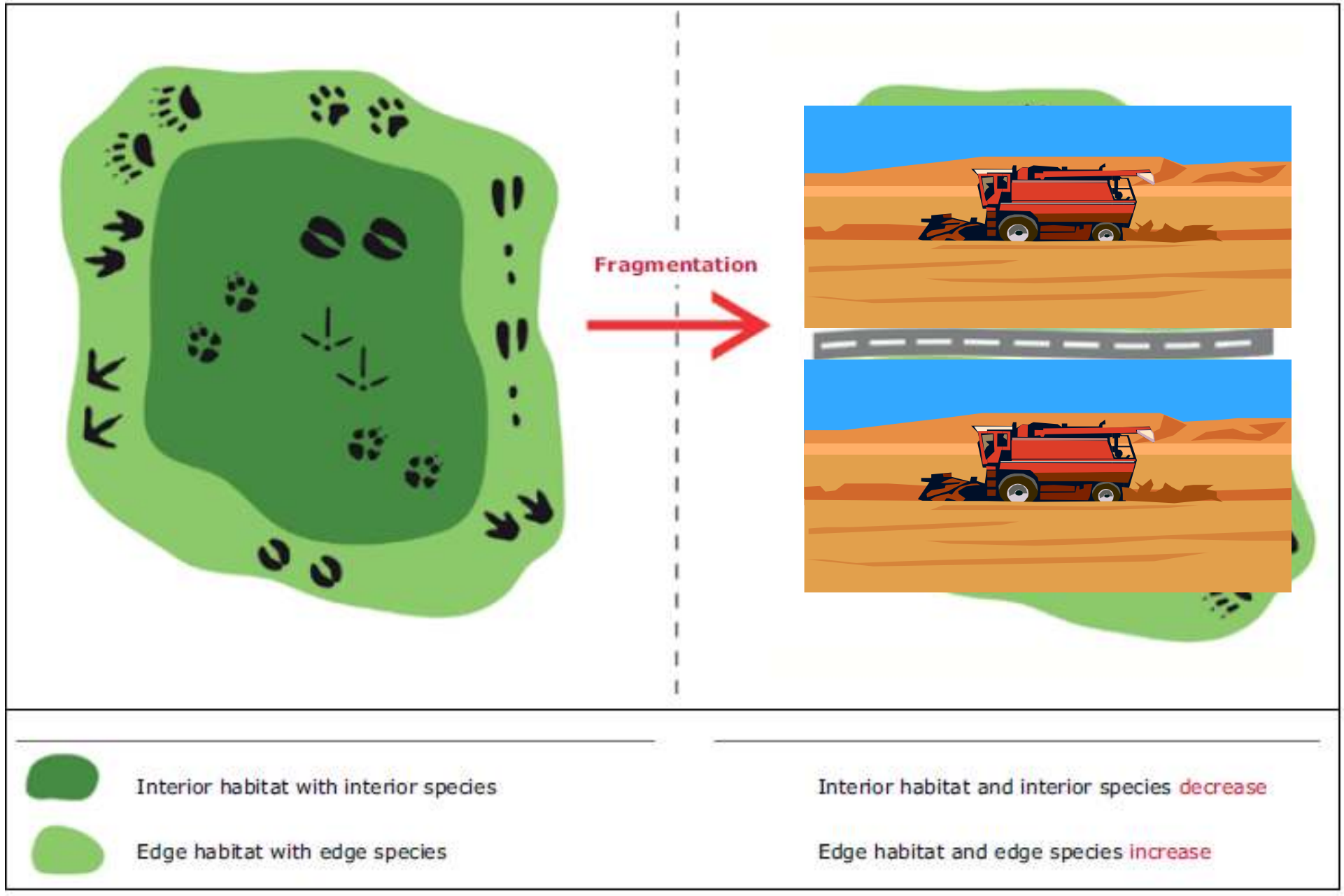
Green Infrastructure

Figure 1.4 Illustration of thresholds in the effect of landscape fragmentation on the viability of wildlife populations




Fragmentation
Interior habitat with interior species
Edge habitat with edge species
Interior habitat and interior species decrease
Edge habitat and edge species increase

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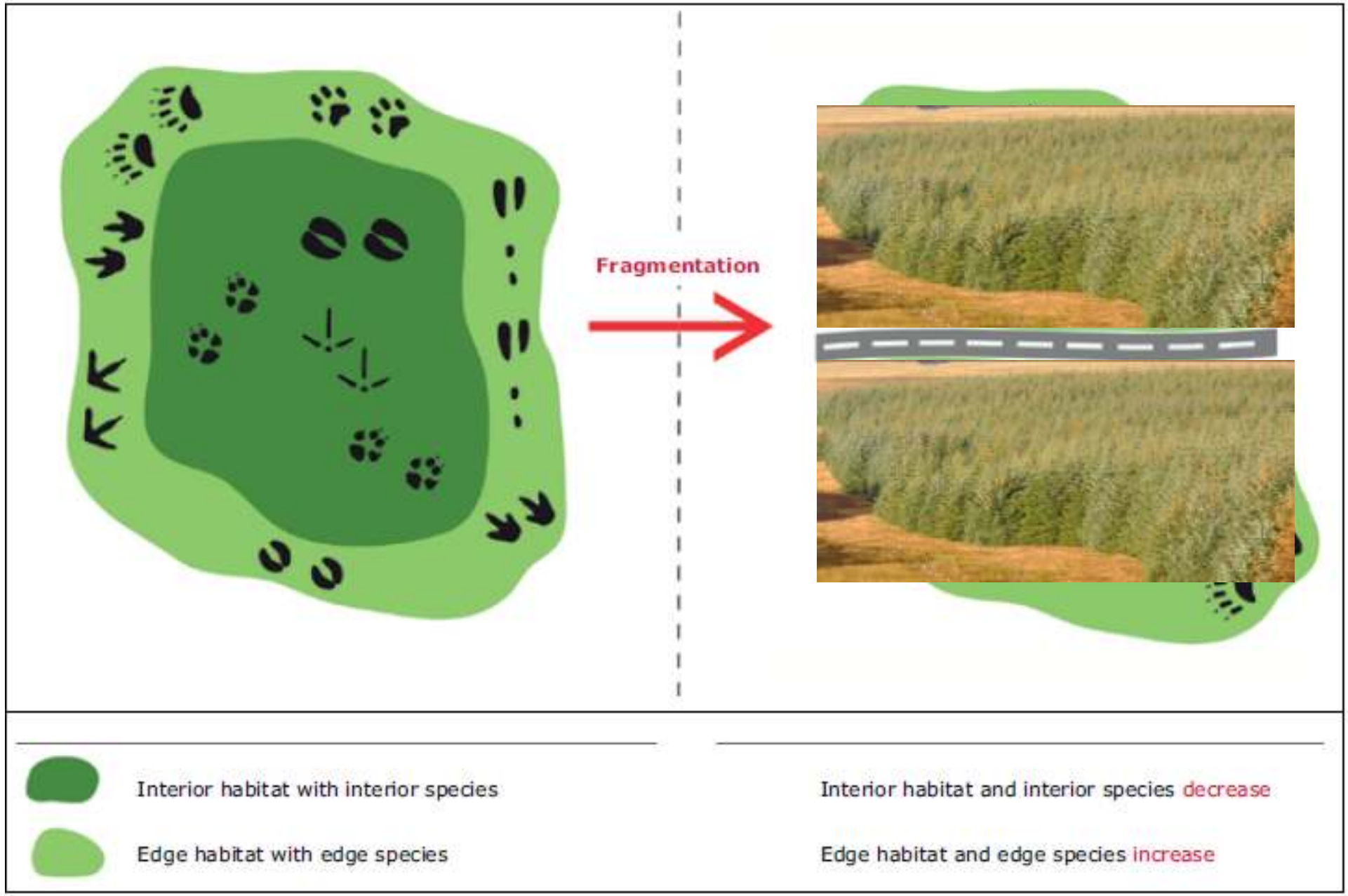
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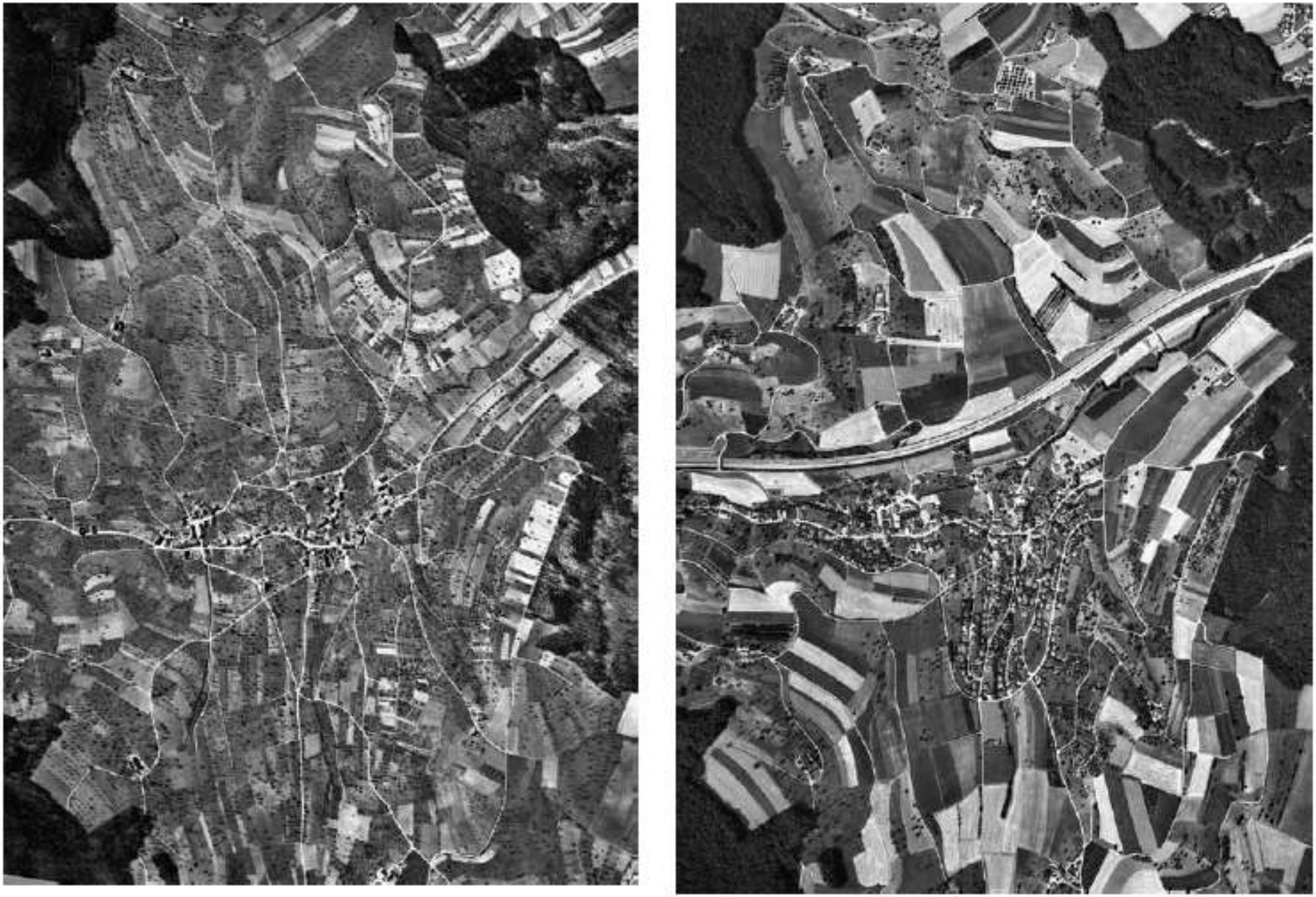
Pontrhydfendigaid
Elan Village
Tregaron
Wales
© 2012 Google
Image © 2012 Getmapping plc
Google earth
Imagery Date: 5/31/2009
2006
52°10'55.24" N 3°44'48.81" W elev 364 m
Eye alt 13.40 km

Figure 1.1 Example of landscape change from Switzerland: aerial photographs of Arisdorf (canton of Basel-Country) from 1953 (left) and 1994 (right)




BUS

	PROVISIONING SERVICES
1	**Food** (e.g. fish, game, fruit)
2	**Water** (e.g. for drinking, irrigation, cooling)
3	**Raw Materials** (e.g. fiber, timber, fuel wood, fodder, fertilizer)
4	**Genetic resources** (e.g. for crop-improvement and medicinal purposes)
5	**Medicinal resources** (e.g. biochemical products, models & test-organisms)
6	**Ornamental resources** (e.g. artisan work, décorative plants, pet animals, fashion)
	REGULATING SERVICES
7	**Air quality regulation** (e.g. capturing (fine)dust, chemicals, etc)
8	**Climate regulation** (incl. C-sequestration, influence of vegetation on rainfall, etc.)
9	**Moderation of extreme events** (eg. storm protection and flood prevention)
10	**Regulation of water flows** (e.g. natural drainage, irrigation and drought prevention)
11	**Waste treatment** (especially water purification)
12	**Erosion prevention**
13	**Maintenance of soil fertility** (incl. soil formation)
14	**Pollination**
15	**Biological control** (e.g. seed dispersal, pest and disease control)
	HABITAT SERVICES
16	**Maintenance of life cycles of migratory species** (incl. nursery service)
17	**Maintenance of genetic diversity** (especially in gene pool protection)
	CULTURAL & AMENITY SERVICES
18	**Aesthetic information**
19	**Opportunities for recreation & tourism**
20	**Inspiration for culture, art and design**
21	**Spiritual experience**
22	**Information for cognitive development**

Ecosystems Services (TEEB)









Massif des Bauges

	REGULATING SERVICES
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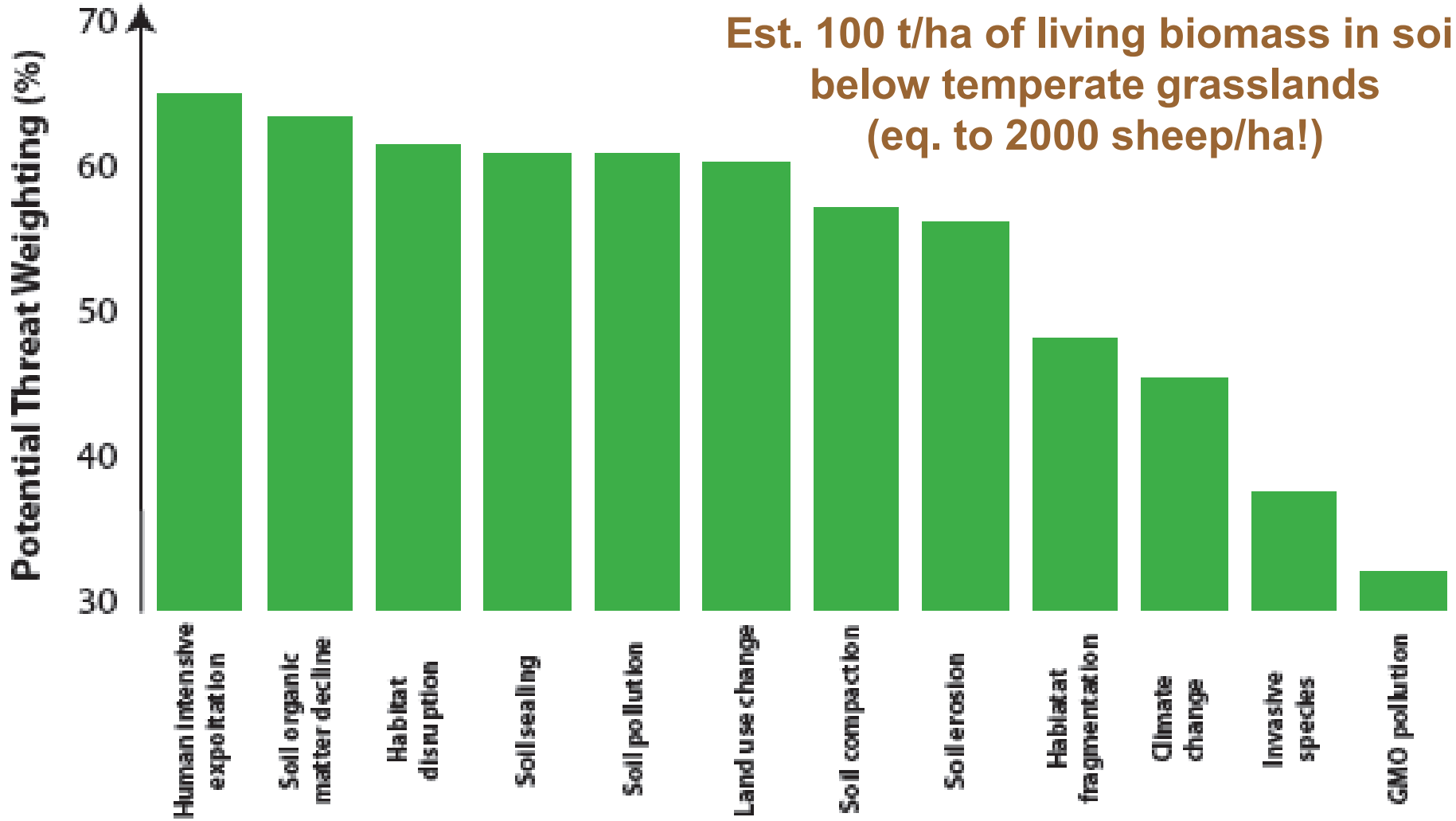
Threats to soil biodiversity (EU soil biodiversity atlas)



Est. 100 t/ha of living biomass in soil below temperate grasslands (eq. to 2000 sheep/ha!)

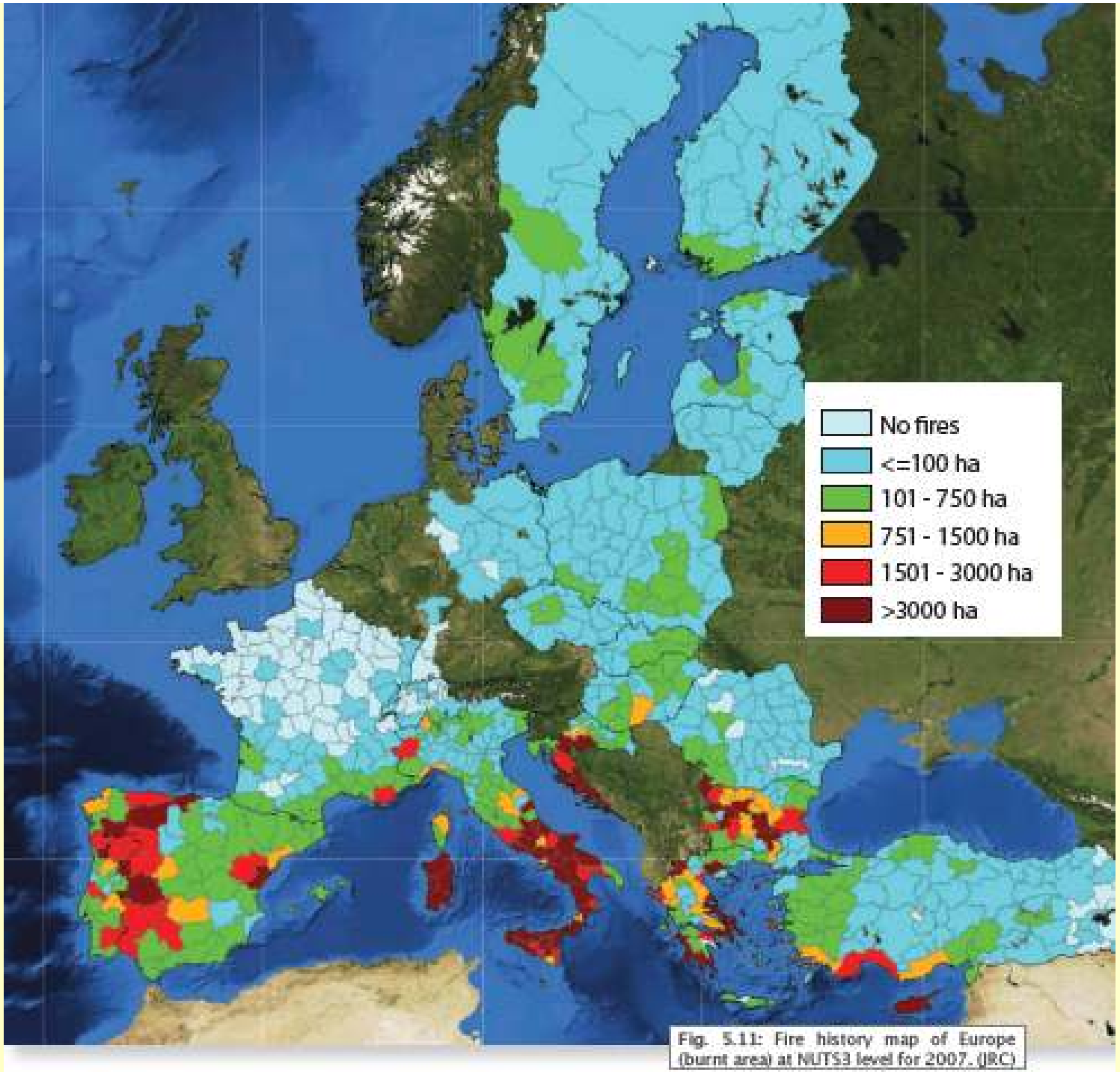
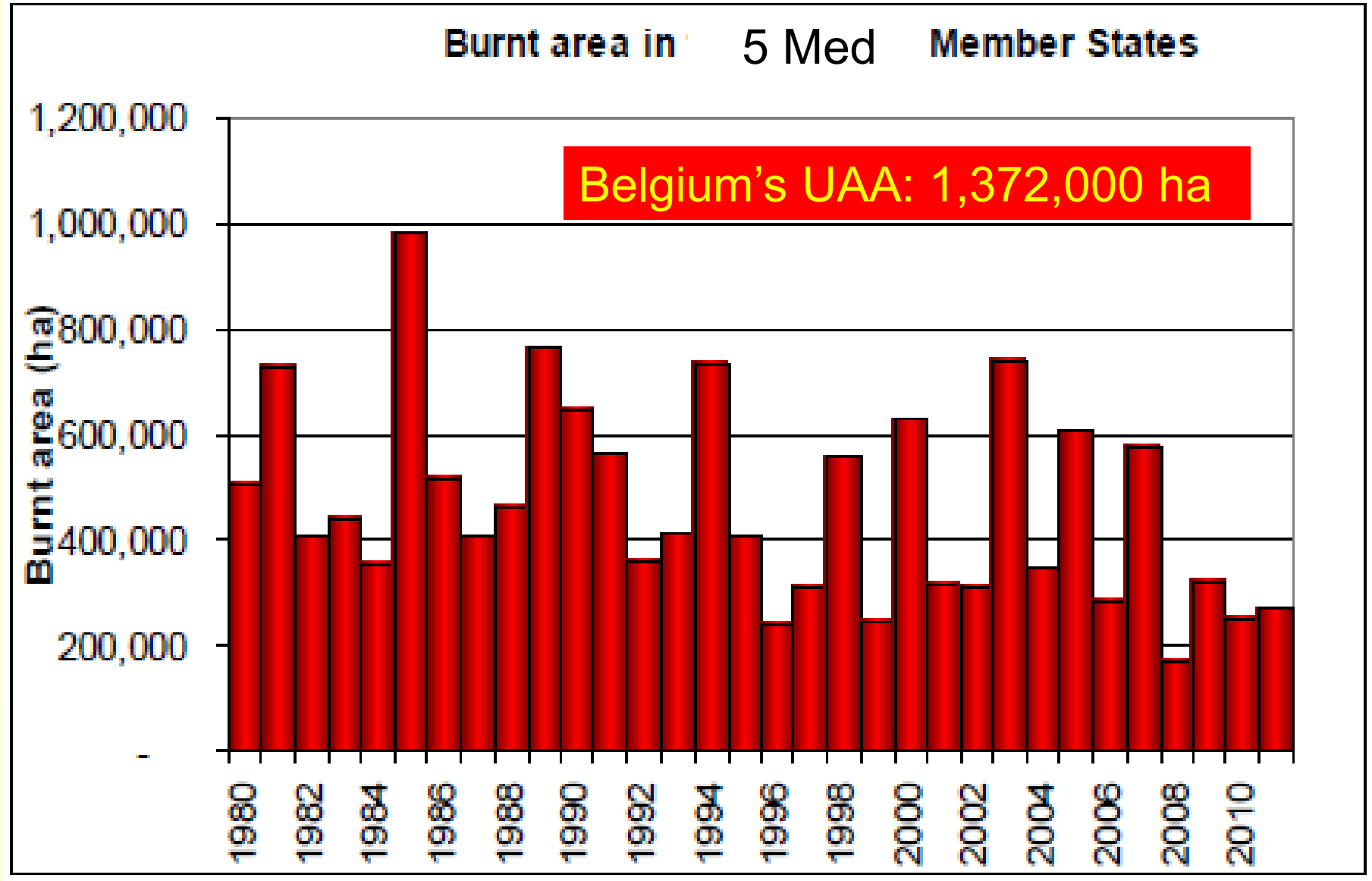
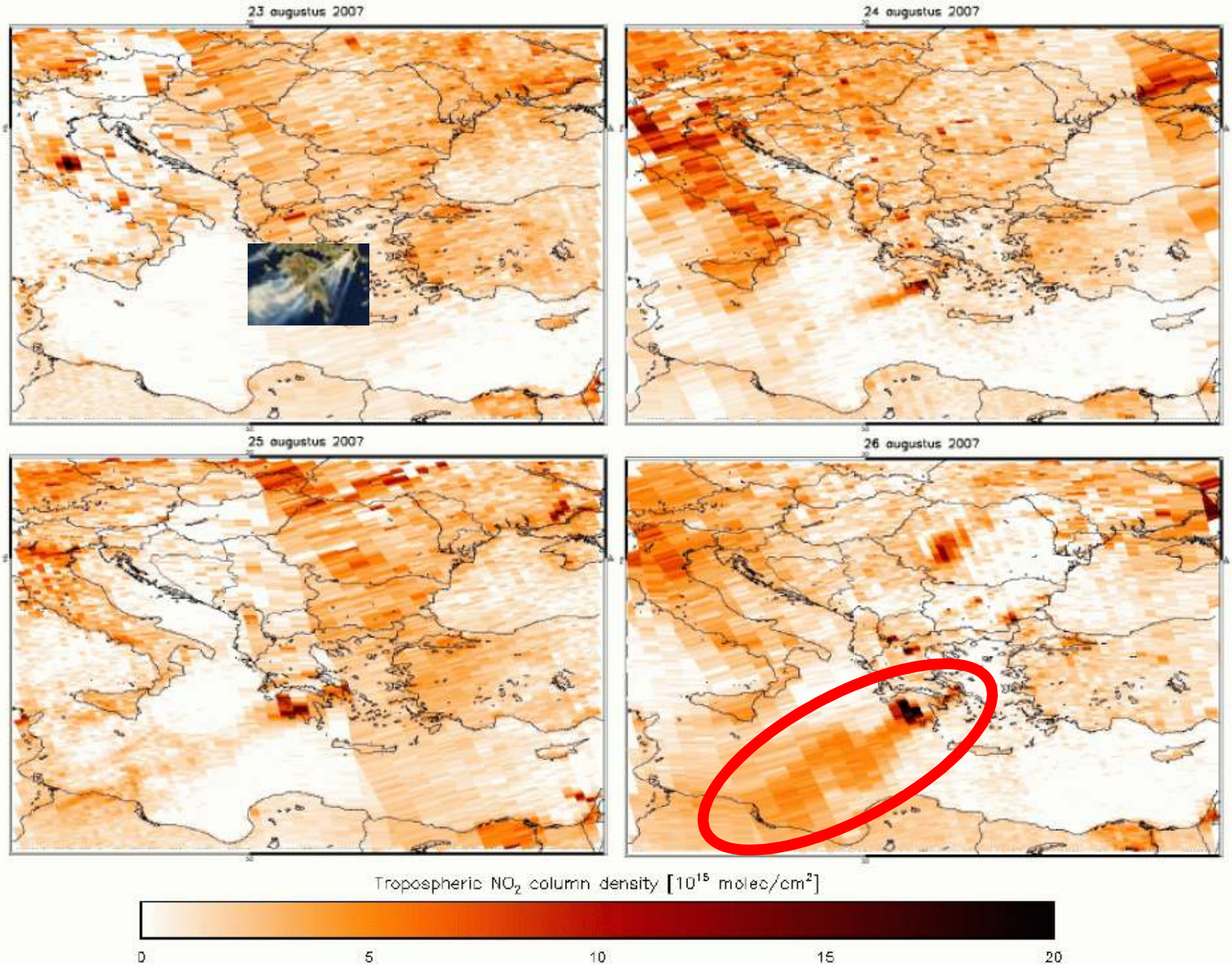


Fig. 5.11: Fire history map of Europe (burnt area) at NUTS3 level for 2007. (JRC)

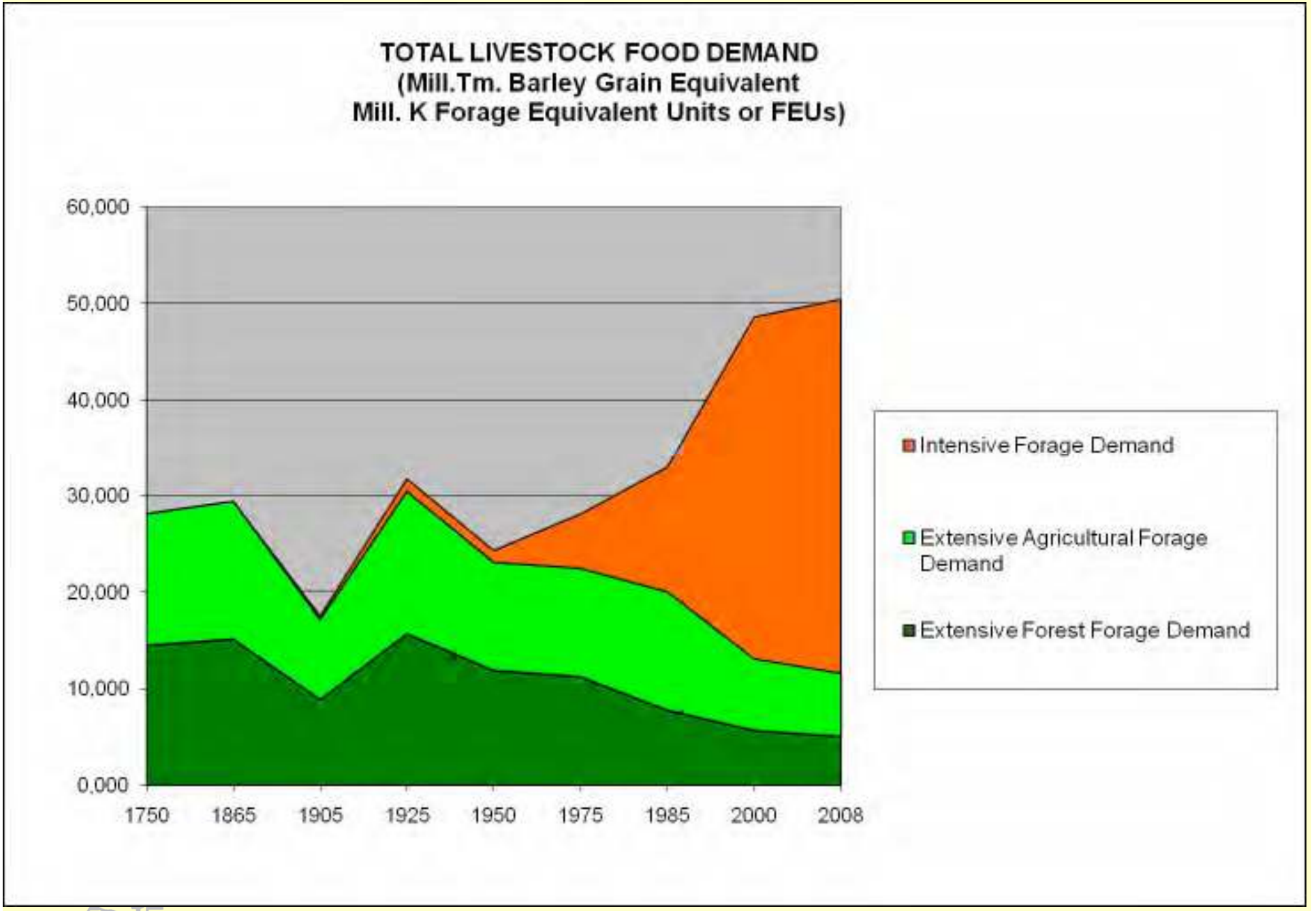

Burnt area in 5 Med Member States
Belgium's UAA: 1,372,000 ha
Burnt area (ha)
1,200,000
1,000,000
800,000
600,000
400,000
200,000
-
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010


23 augustus 2007
24 augustus 2007
25 augustus 2007
26 augustus 2007
Tropospheric NO_2 column density [10^{15} molec/cm^2]
0
5
10
15
20

Part of a wider picture – example of Spain

- Since 1975, livestock increased from 12 to 20 million LU
- Reduction in use of semi-natural grasslands, not just as proportion but in ABSOLUTE terms

From a talk by Alvaro Picardo

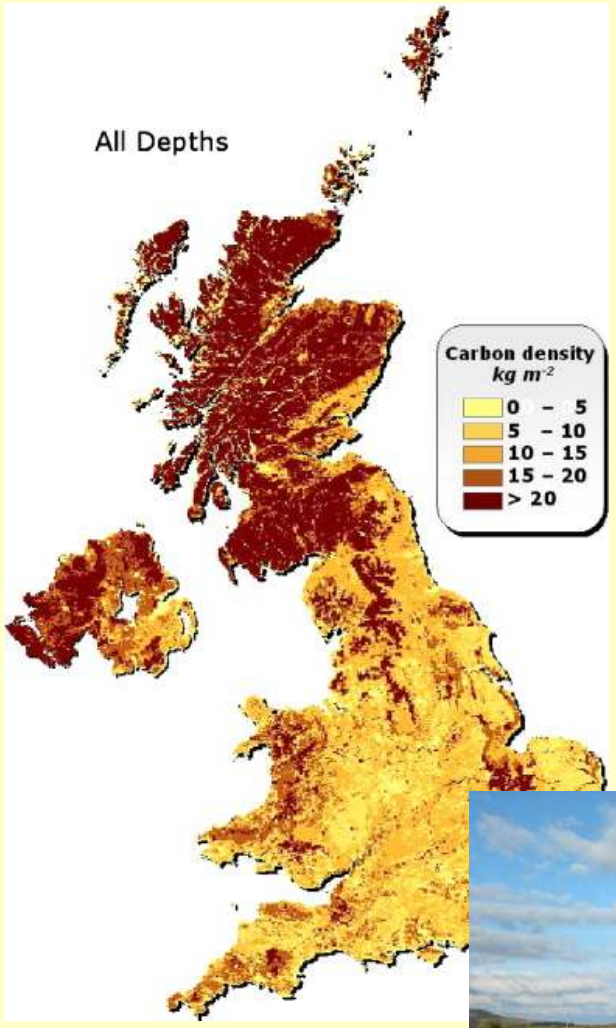

TOTAL LIVESTOCK FOOD DEMAND
(Mill.Tm. Barley Grain Equivalent
Mill. K Forage Equivalent Units or FEUs)
60,000
50,000
40,000
30,000
20,000
10,000
0,000
1750
1865
1905
1925
1950
1975
1985
2000
2008
Intensive Forage Demand
Extensive Agricultural Forage Demand
Extensive Forest Forage Demand

Part of a wider picture – example of Spain

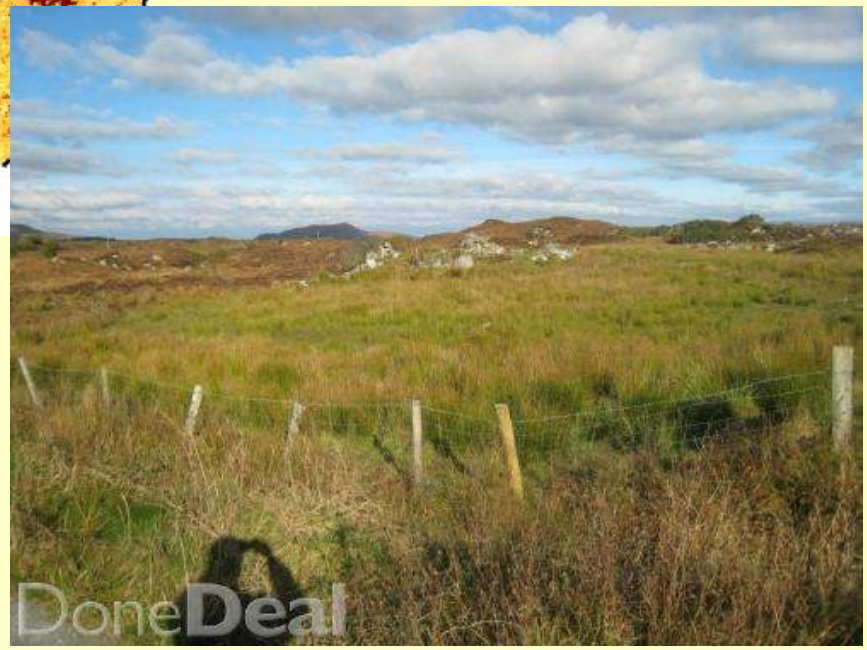
- Since 1975, livestock increased from 12 to 20 million LU
- Reduction in use of semi-natural grasslands, not just as proportion but in ABSOLUTE terms
- Apparently good results:
  - Increase in food production
  - Increase in woodland cover

Part of a wider picture – example of Spain

- Since 1975, livestock increased from 12 to 20 million LU
- Reduction in use of semi-natural grasslands, not just as proportion but in ABSOLUTE terms
- Apparently good results:
  - Increase in food production
  - Increase in woodland cover
- But at high price
  - Increased dependence on bought-in feed and irrigation
  - Increased pollution potential (and problems)
  - Strong effects on landscape and biodiversity
  - Increase in forest fires



- Oxidation of soil carbon
- Reduced water residence time
- Release of Al to streams
- Destruction of Annex 1 habitat



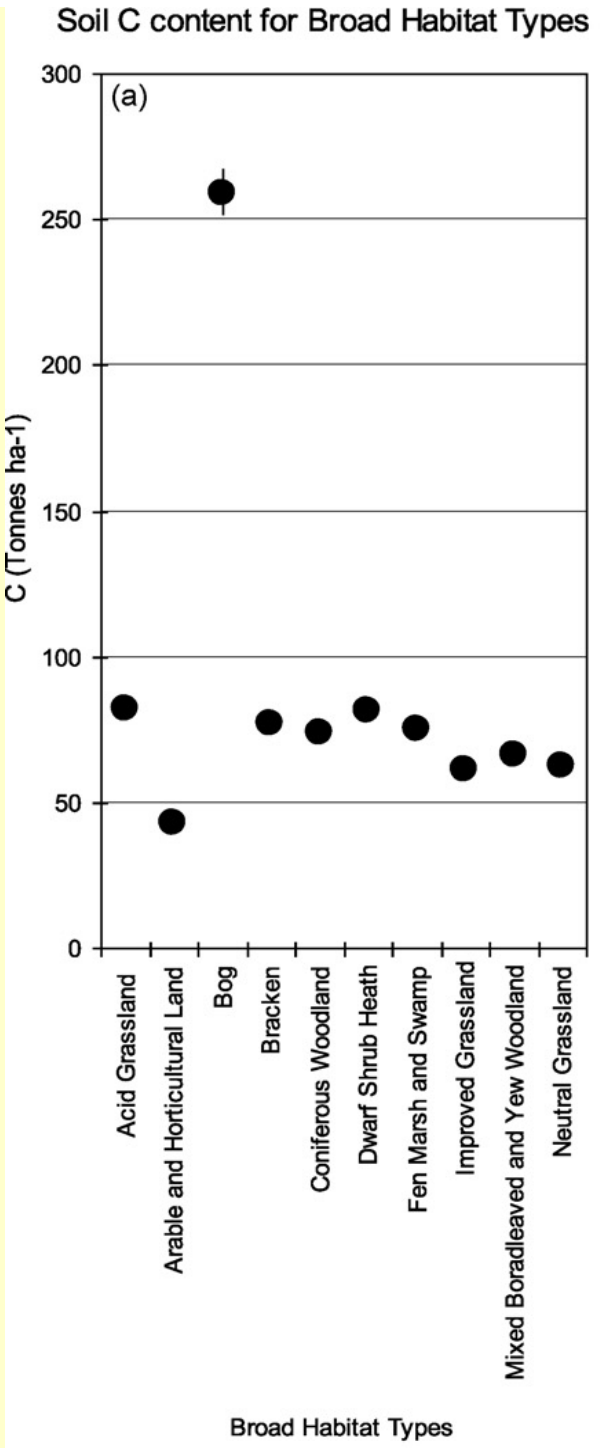
"Rough Grazing/ Planting land"

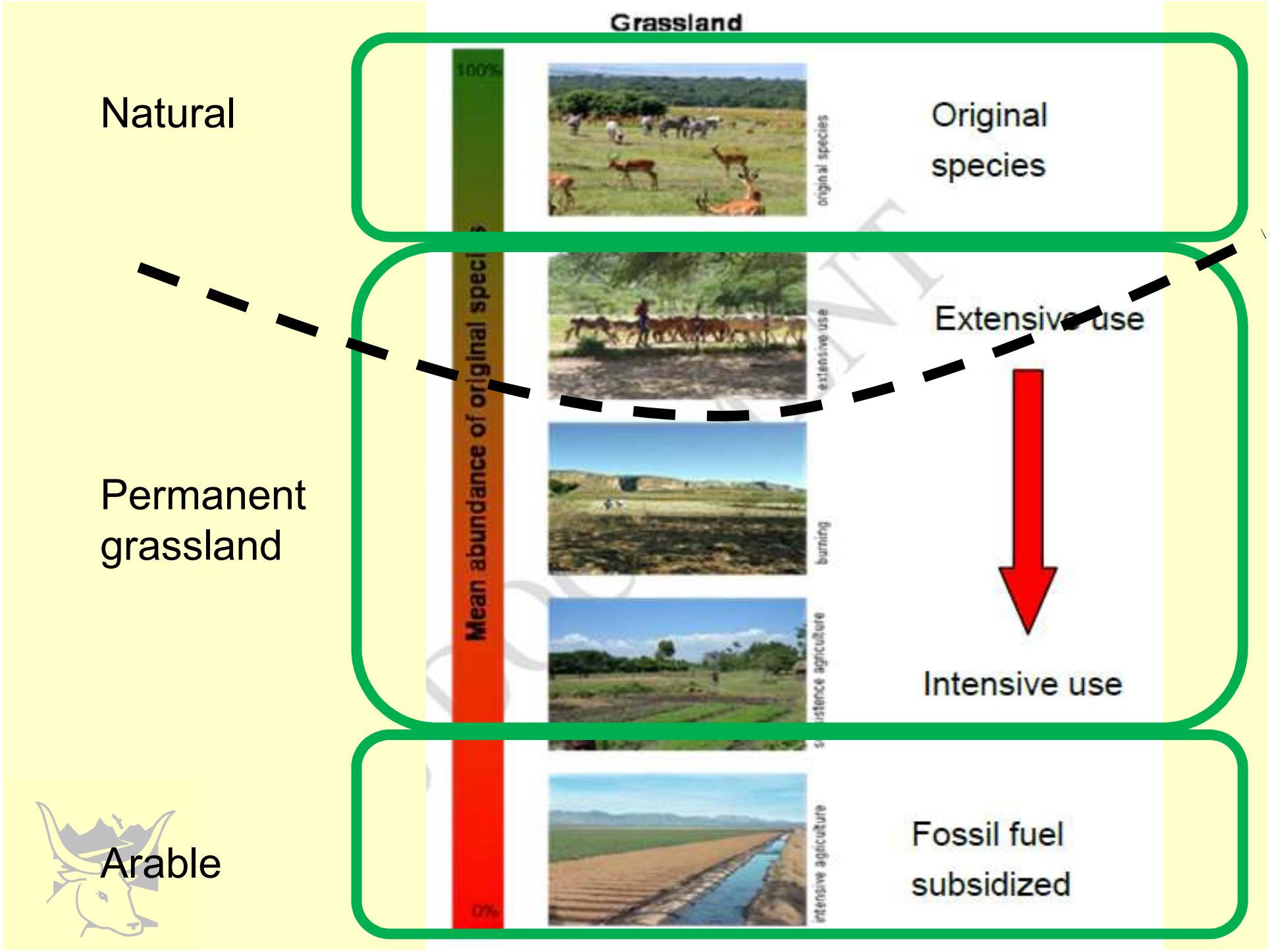
Potential changes in soil carbon storage resulting from land use change.

Data from Dawson and Smith (2007).

Land use change Net C rate and uncertainty (tonnes C ha−1 year−1)

Arable to ley: arable rotation 1.6
Arable to grassland (50 years) 0.3–0.8
Arable to grassland (35 years) 0.6
Arable to grassland (15–25 years) 0.3–1.9±0.6
Arable to grassland short leys (20 years) 0.4
Arable to permanent pasture 0.3
Arable to forestry 0.6 + 2.8 (C in veg.)
Arable to forestry 0.5–1.4
Permanent crops to arable −0.6 and 1.0–1.7
Grassland - arable −1.0 to −1.7
Grassland - afforestation (general, 90 years) 0.1±0.02
Native vegetation - grassland 0.4
Peatland - cultivation −2.2 to −5.4
Wetland - arable (temperate and boreal) −1.0 to −19



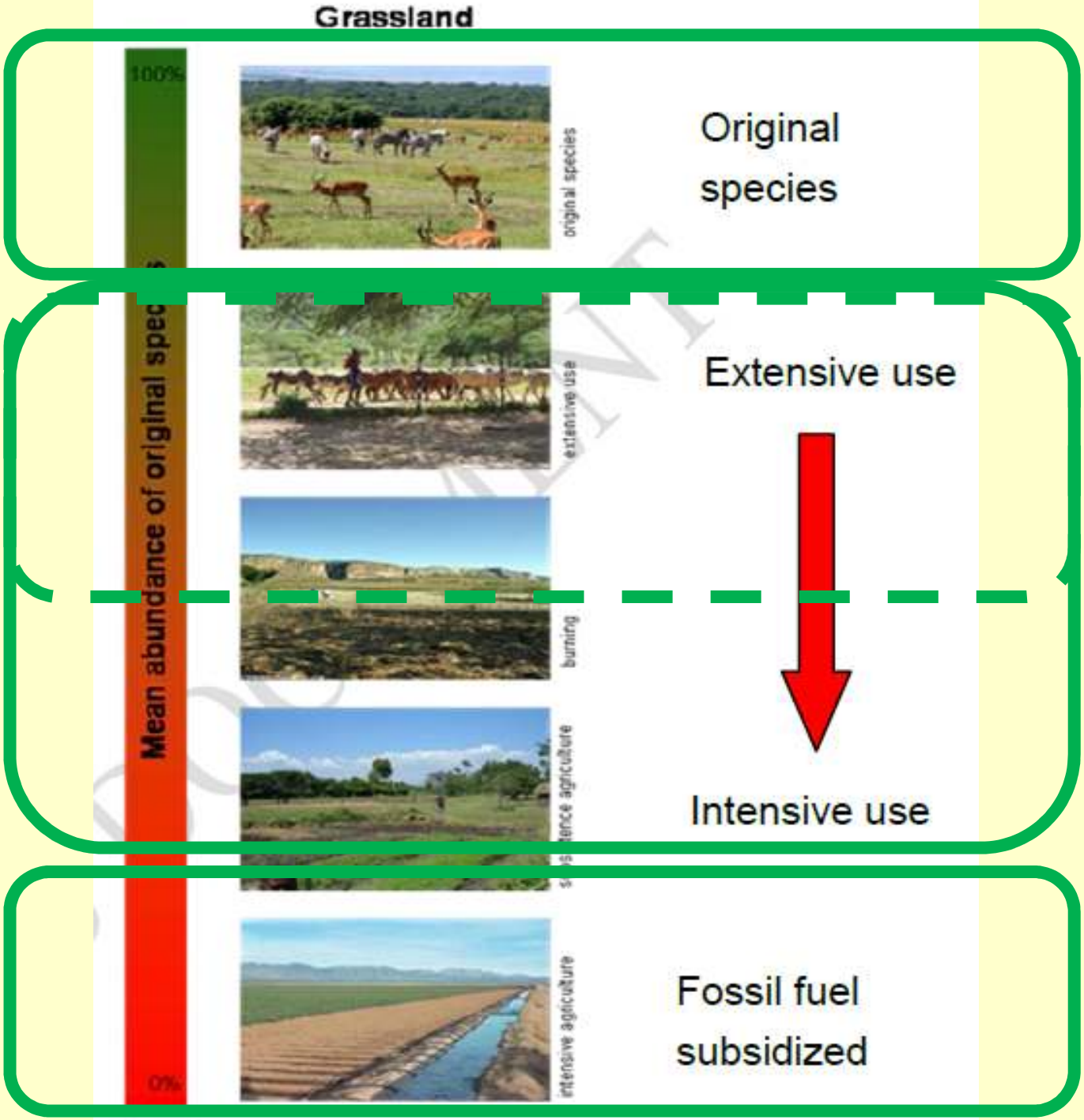

Grassland
Natural
Permanent grassland
Arable
Mean abundance of original species
100%
0%
Original species
Extensive use
Intensive use
Fossil fuel subsidized

Natural

Permanent grassland
– semi-natural

- other

Arable



Not a new idea in EU policy

- Environmental Impact Assessment Directive
  - ‘semi-natural and uncultivated land’ subject to proposed agricultural intensification
  - EU’s interpretation guidelines confused
  - Not well implemented in any MS
  - Does anyone care?
  - Idea of assessment suggests that black/white not possible or desirable??

- Renewable Energy Directive
  - Protection of certain land types, including ‘highly-biodiverse grasslands’
  - Yet another new thing to define, thereby reinventing the wheel

Is EU policy meant to be coherent or not?

- Very worrying signals from some Commission officials that agri policy should NOT be delivering other policy goals

- Farmers HAVE to deal with multiple policy areas – don't expect the farmer to integrate policy as you the policy maker intended if you can't be bothered to do it first

- Minimum number of classes of land, common to all policies, which is meaningful (as simple as possible, but no simpler!) and identified on LPIS

Not distinguishing semi-natural grasslands is too simple

– public policy goals are suffering

- a ‘neutral’ policy is not possible: farming semi-natural habitats is becoming ever more unattractive