HNV Grasslands – why they are important for European biodiversity

Peter Veen

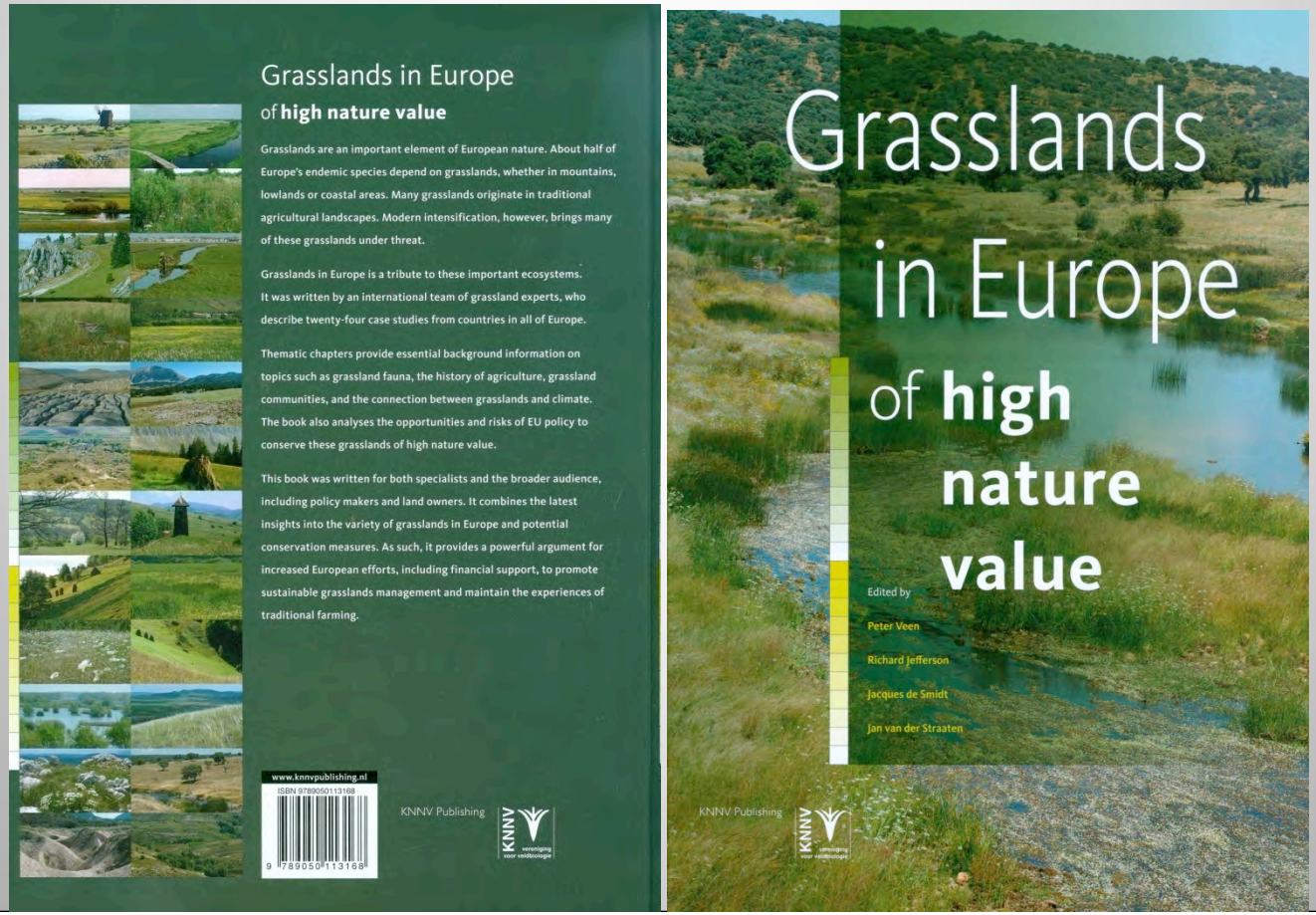
Royal Dutch Society for Nature Conservation / Veen Ecology

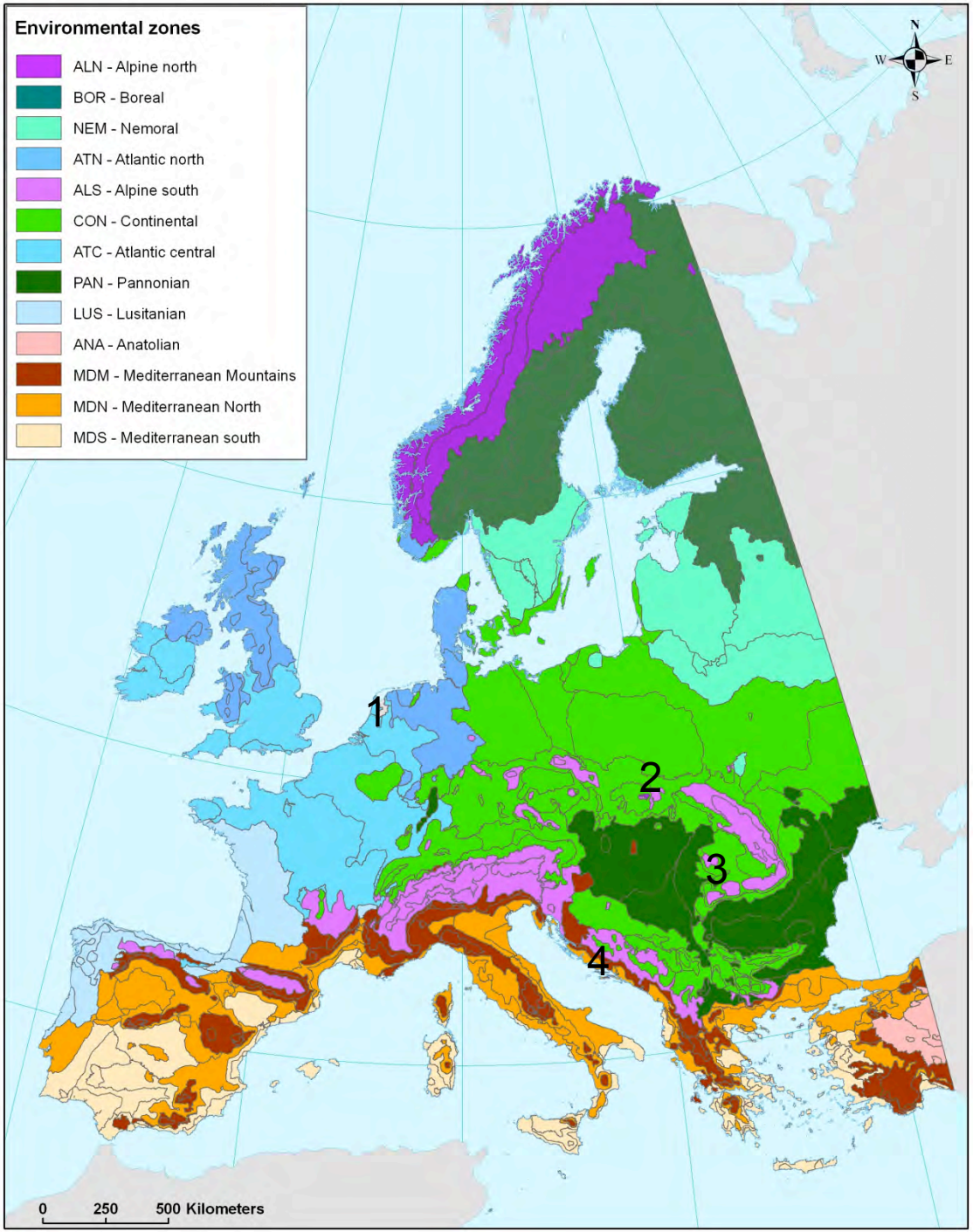
Conference Sibiu September 2010

Content of presentation

1. Four examples of HNV grasslands in Europe
2. Classification and mapping of HNV grasslands within an European landscape context
3. Conservation and management options with special attention to counteract the impacts of climate change
4. Some final conclusions

1. Four examples of HNV grasslands in Europe

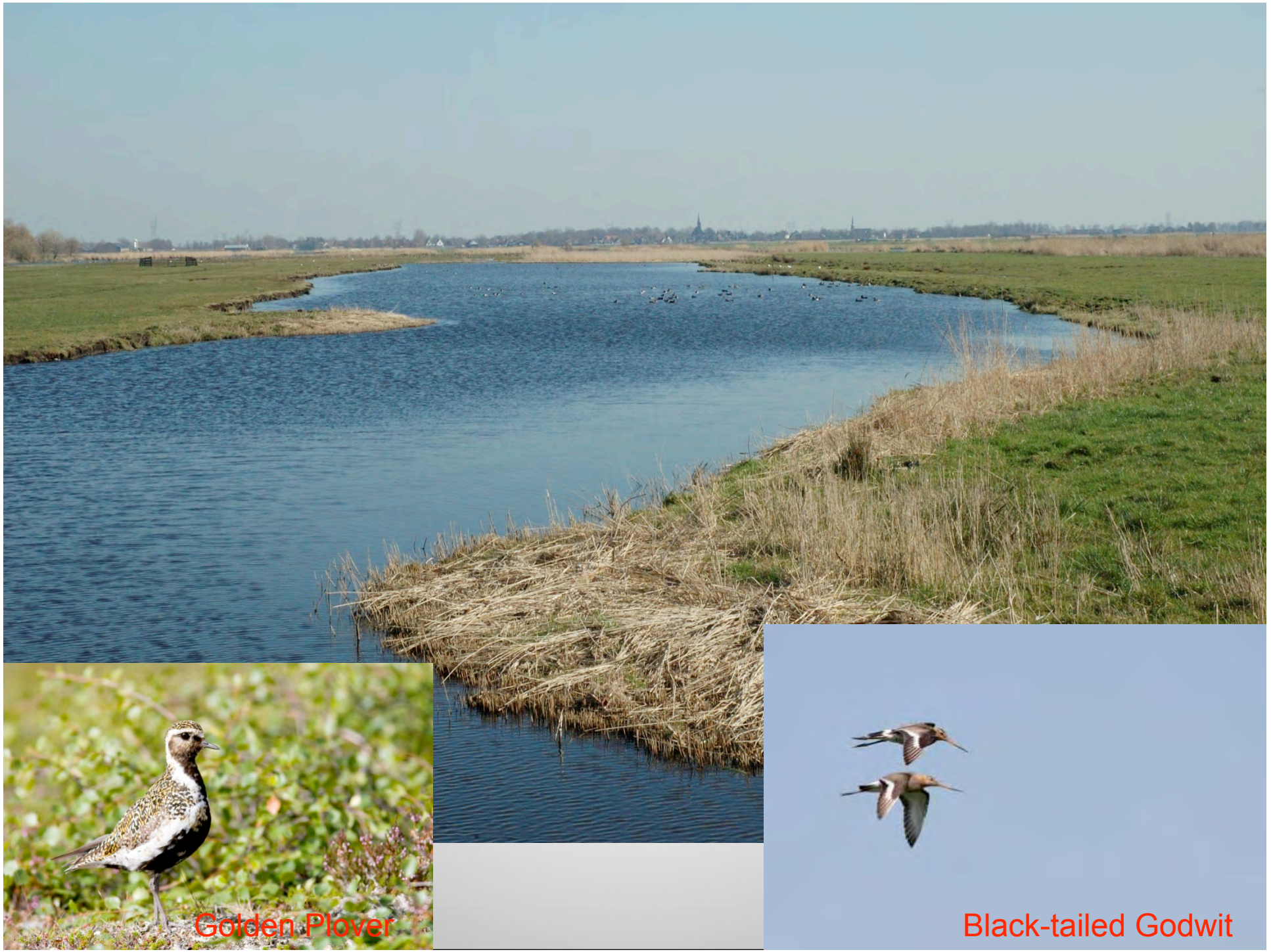




Location of examples on the Map Environmental Zones in Europe

(Source map: Metzger et al)

1Netherlands
Den Ilp

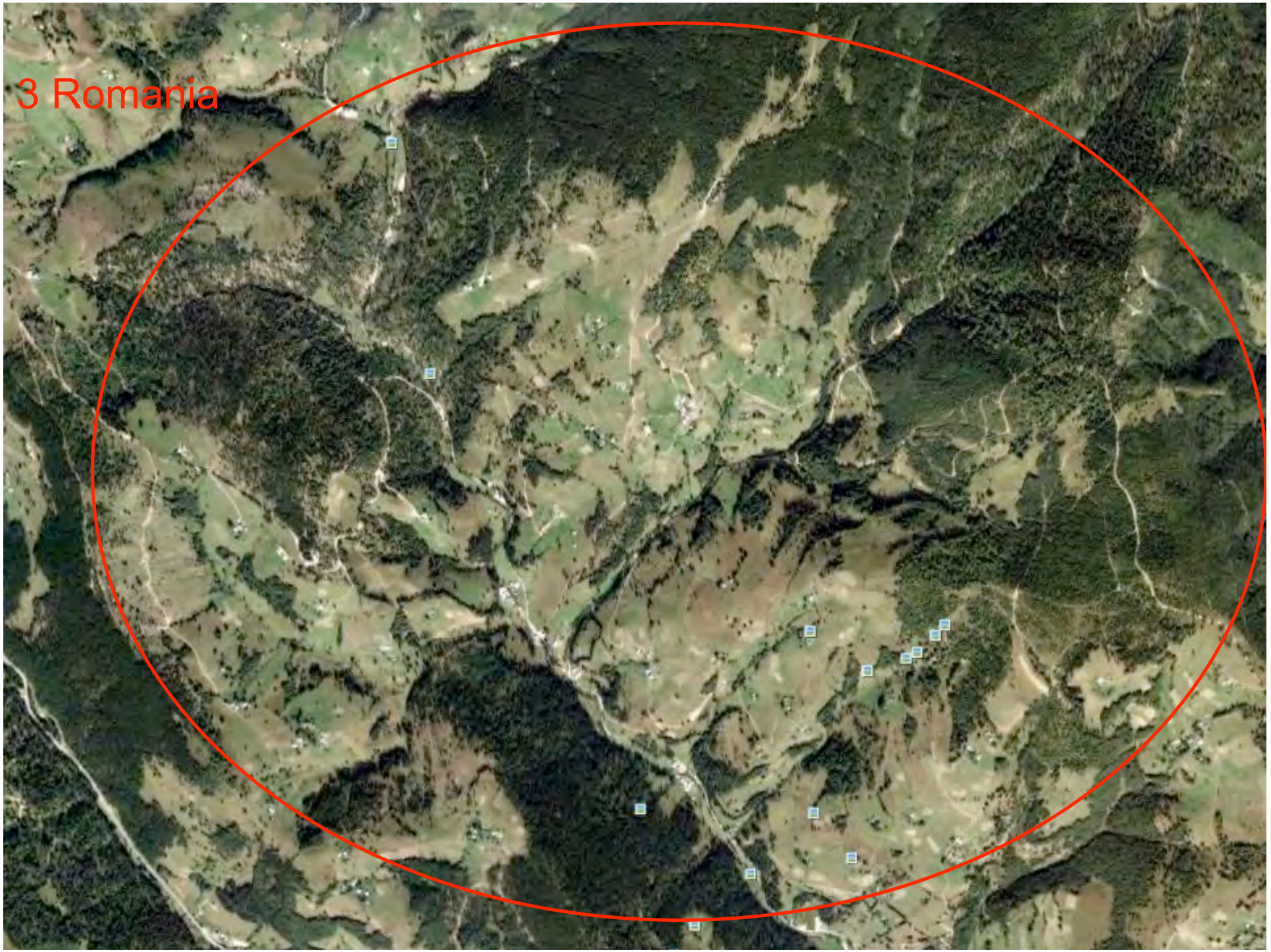


Golden Plover

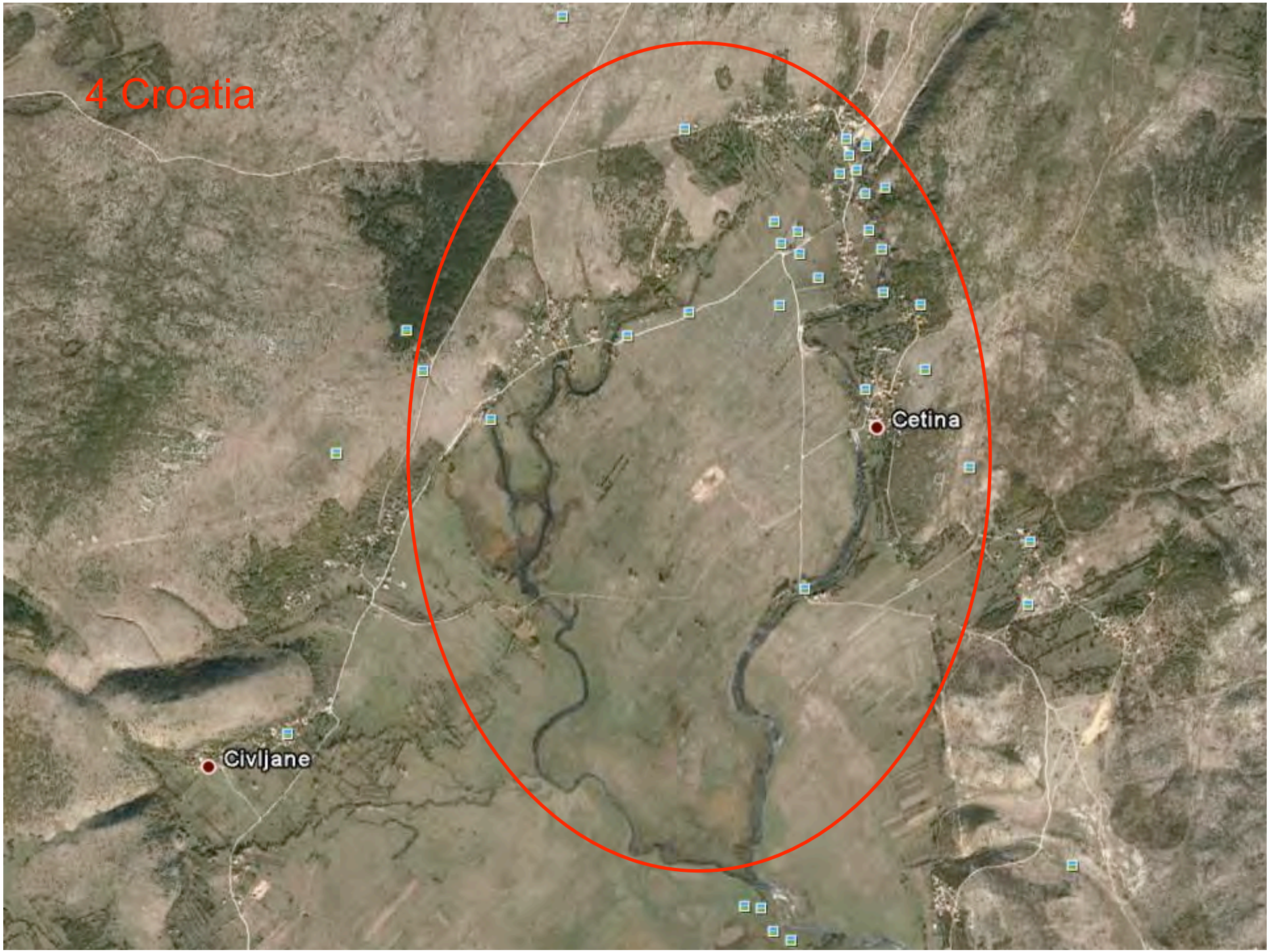
Black-tailed Godwit

2 Czech Rep
Malá Vrbka

Epipactis pal.
Colias myrmidone

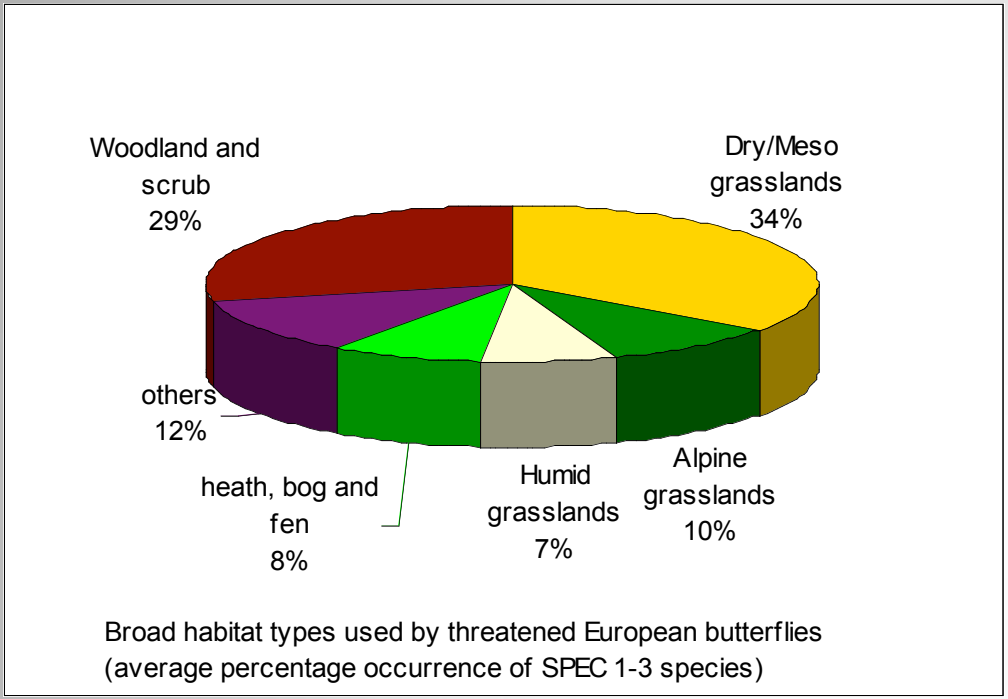

3 Romania

Centaurea pseu.
Campanula cervicaria


4 Croatia
Cetina
Civljane

Scilla litardierei
Lathyrus pannonicus

Threatened Butterflies and dry/mesic grasslands



Broad habitat types used by threatened European butterflies (average percentage occurrence of SPEC 1-3 species)

Source: Council of Europe, 1999. Red Data Book on European Butterflies (Rhopalocera)

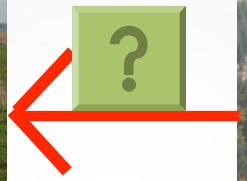
Out of the 71 most threatened European Butterflies species (on a total of 576 European species), 51 % are linked to grasslands habitats, and more specifically, 34% to dry/mesic grasslands habitats.

Source: ETC-BD

Main conclusions from national case-studies

- **HNV Grasslands are the backbone of *traditional* agricultural landscapes in Europe (section 2 of this presentation)**
- **We propose to *classify* the HNV grasslands as a part of these agricultural landscapes with integration of flora- and fauna-aspects (section 2 of this presentation)**
- **On the base of this landscape approach, management options for reducing climate change impacts need attention (section 3 of this presentation)**

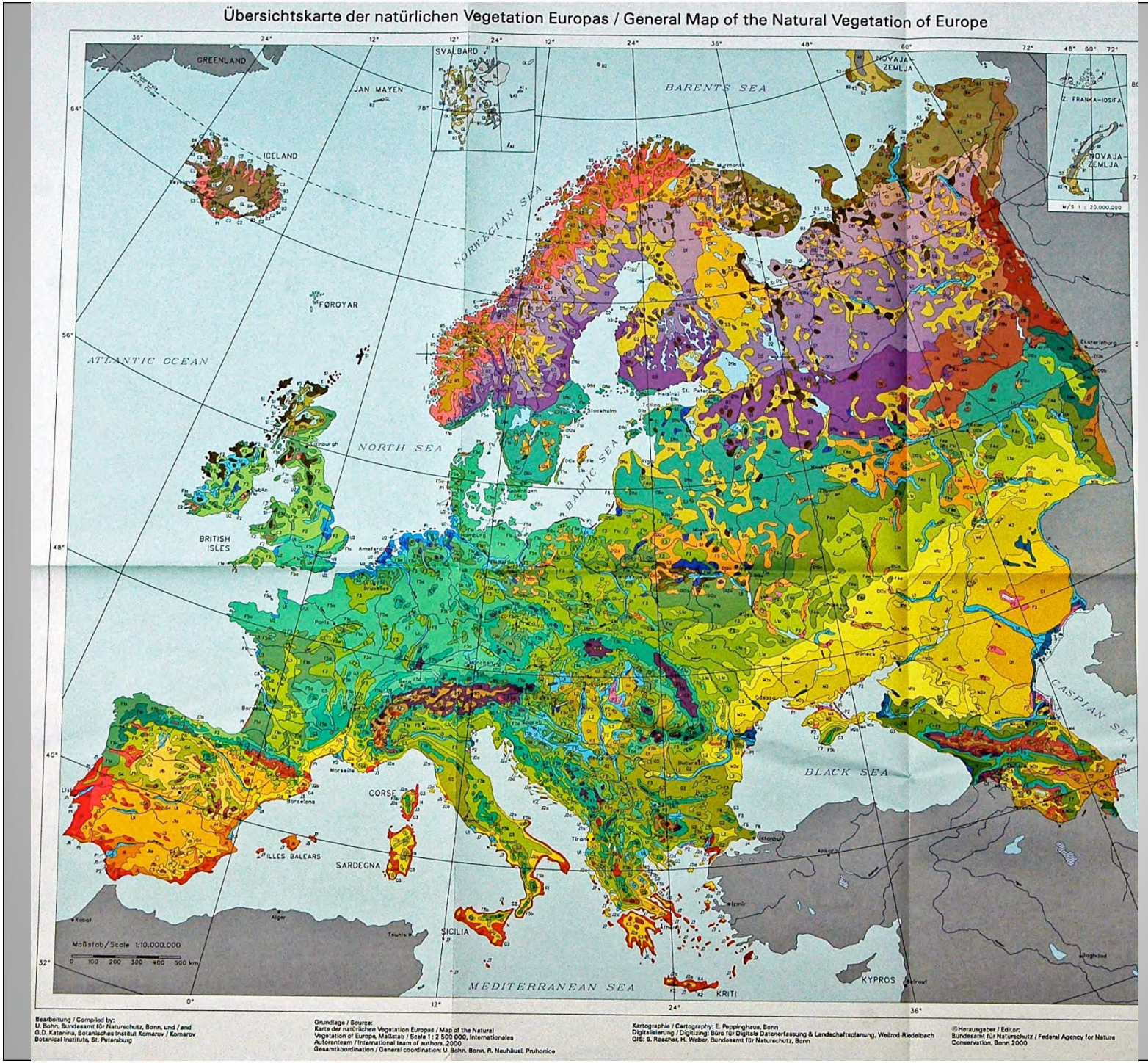
Shifting functions of traditional agricultural landscapes in future



Nature conservation
Touristic activities on farms
Scenic value of landscape
Regional certified products
Direct selling to consumers
Water retention function

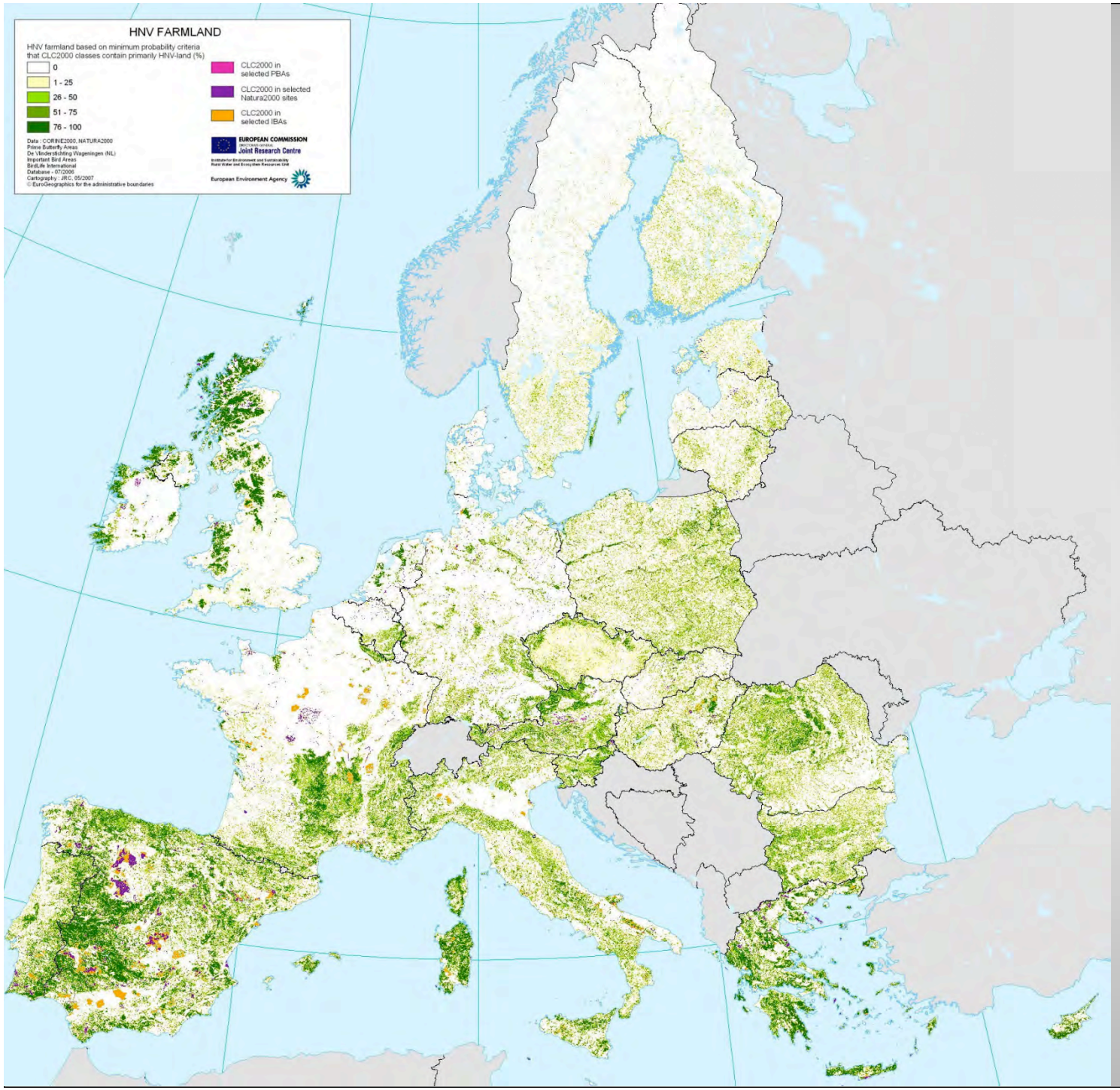
Subsistence farming
Low input farming systems
Subsidies important part of farmers income
Mixed farming types
Non-certified products

2. Classification and mapping of HNV grasslands within an European landscape context



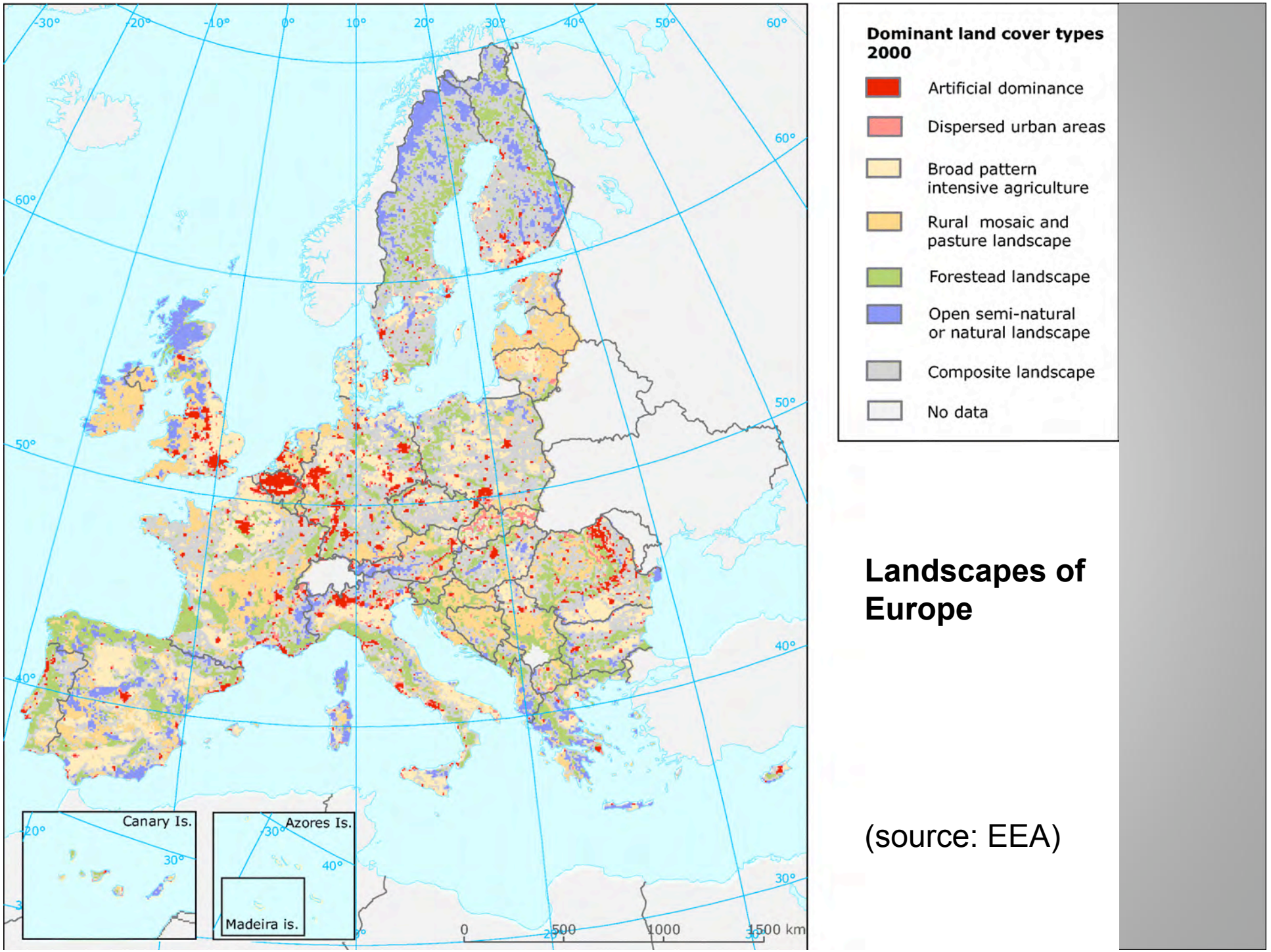
Map of (Potential) Natural Vegetation of Europe

(Source: Bohn et al, 2003)



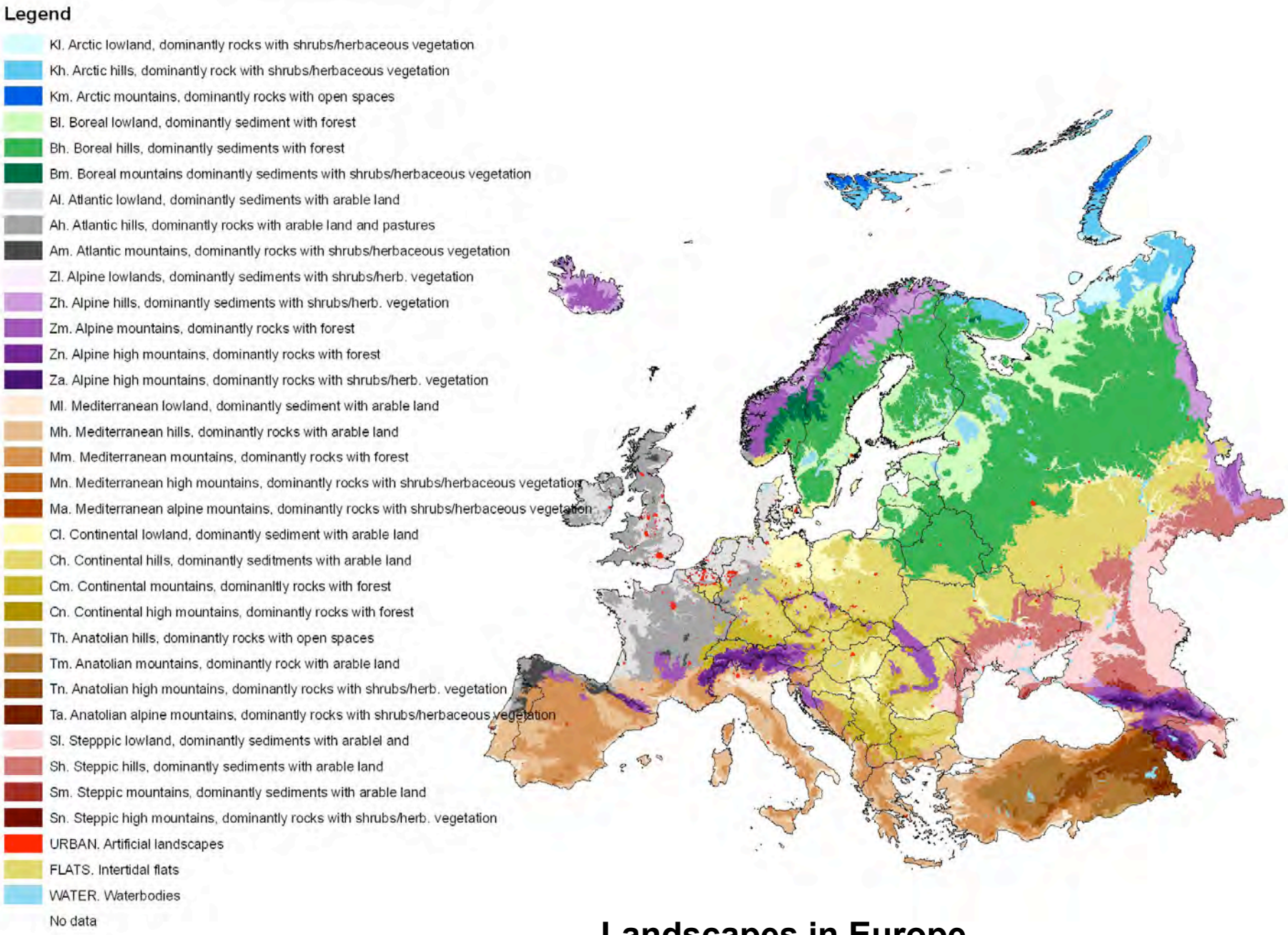
Global position of HNV areas based on CORINE Land Use Cover interpretation

(Source: EU JRC)



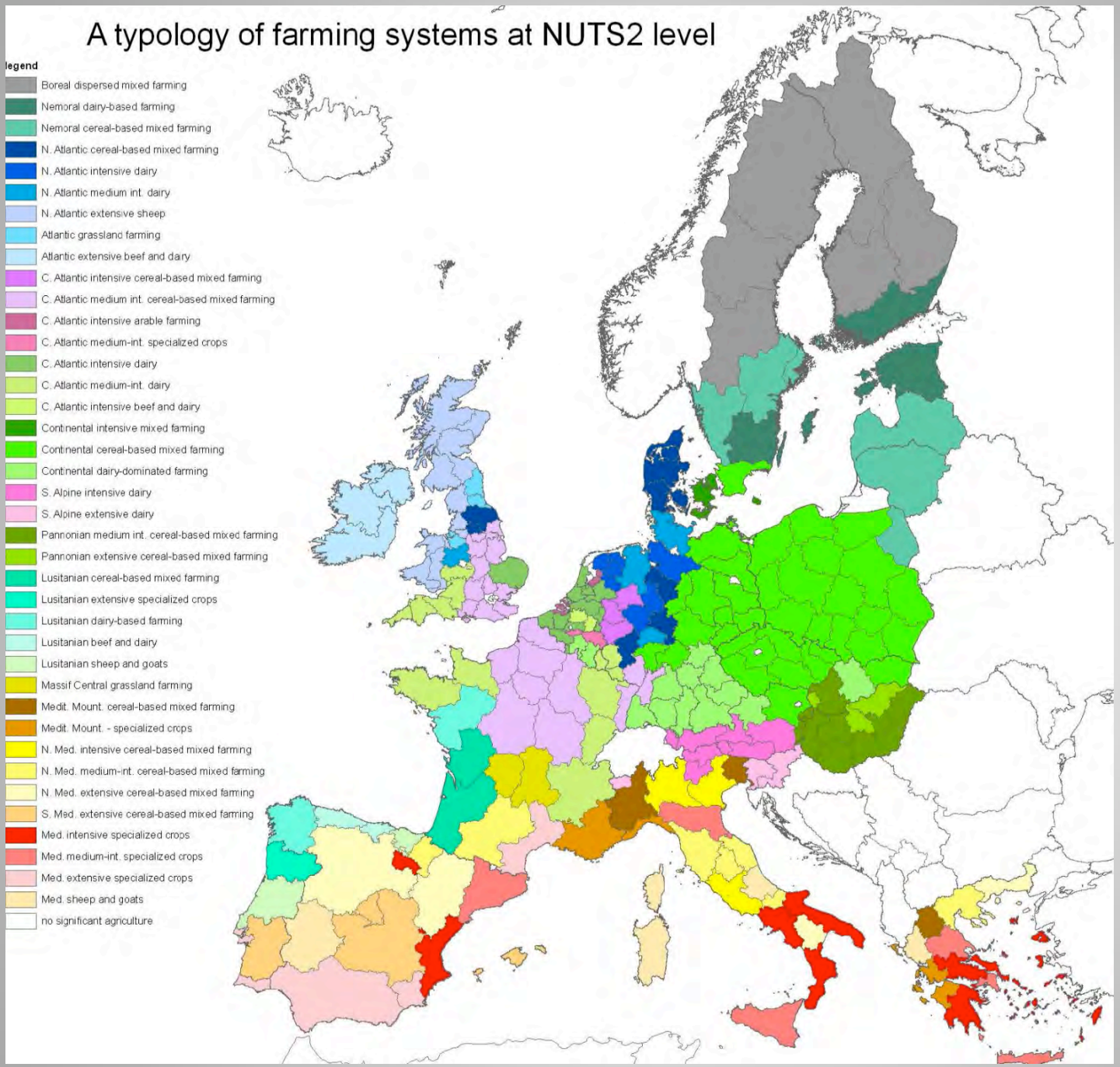
Landscapes of Europe

(source: EEA)



Landscapes in Europe

(Source LANMAP2)



(Source: Seamless project)

Main data sources for these maps

- CORINE Landcover maps

- European Environmental Zones
- Elevation (GTOP30)
- Soil (FAO/Unesco Database and European Soil Data Base)

- Data from Farm Accountancy Data Network (FADN)
- Additional data

In future: Map of European *HNV landscapes*

- **Based on a typology of functional „grassland habitat units“ within a framework of European agricultural landscapes:**
- **Agricultural landscapes classified within climatic zones and focussed on diversity in historical and present land use**
- **Components of these grassland habitat units (databases on European level available):**

  - Grassland vegetations according European standards

  - Functional groups of grassland birds

  - Functional groups of grassland butterflies

  - Functional groups of mammals

Example of a grassland habitat unit in Bulgaria

Lasiommata maera

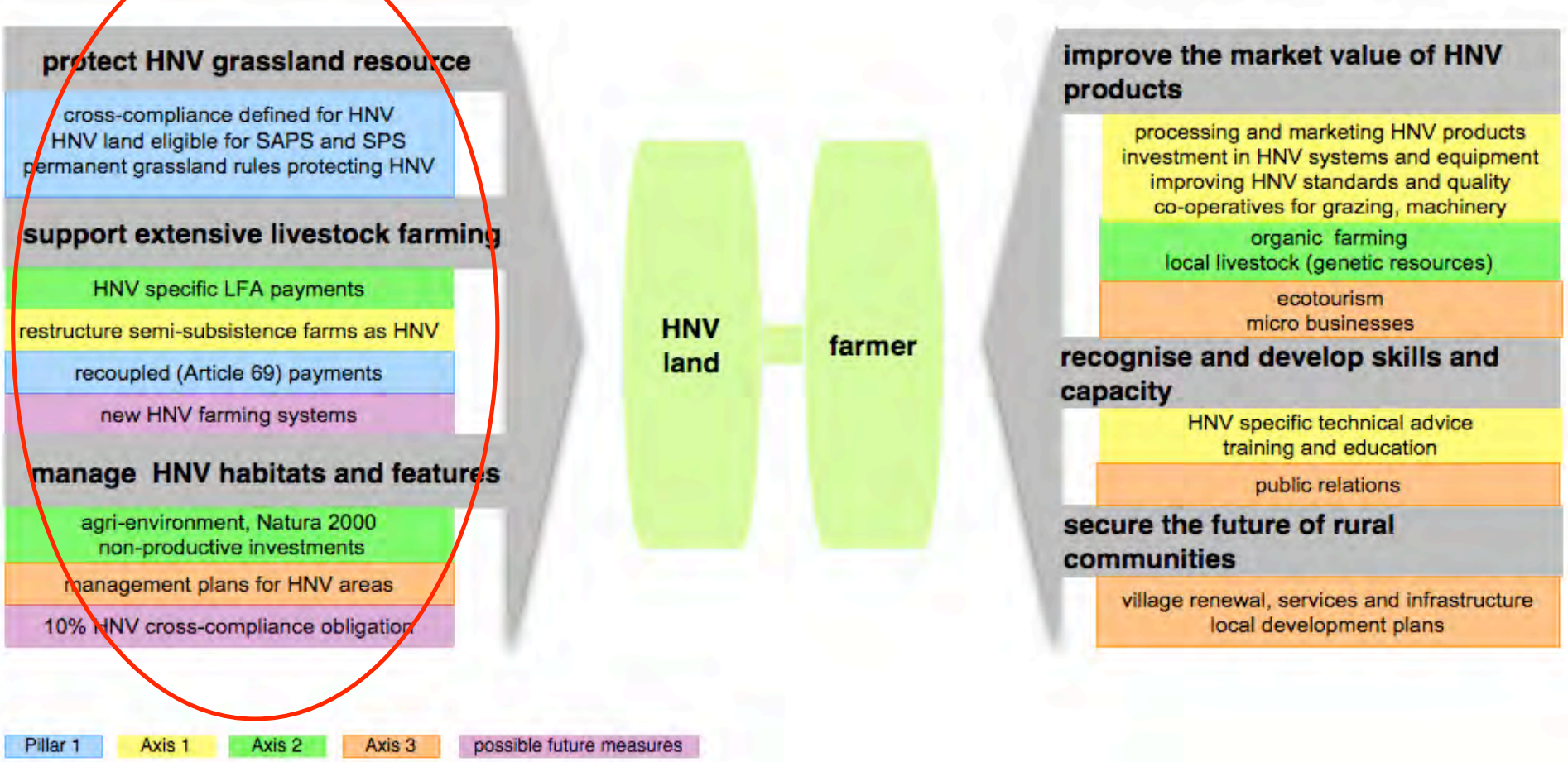
Jurinea mollis

Vrachanski Karst grasslands
(Festuca-Brometalia type)

Metrioptera spec

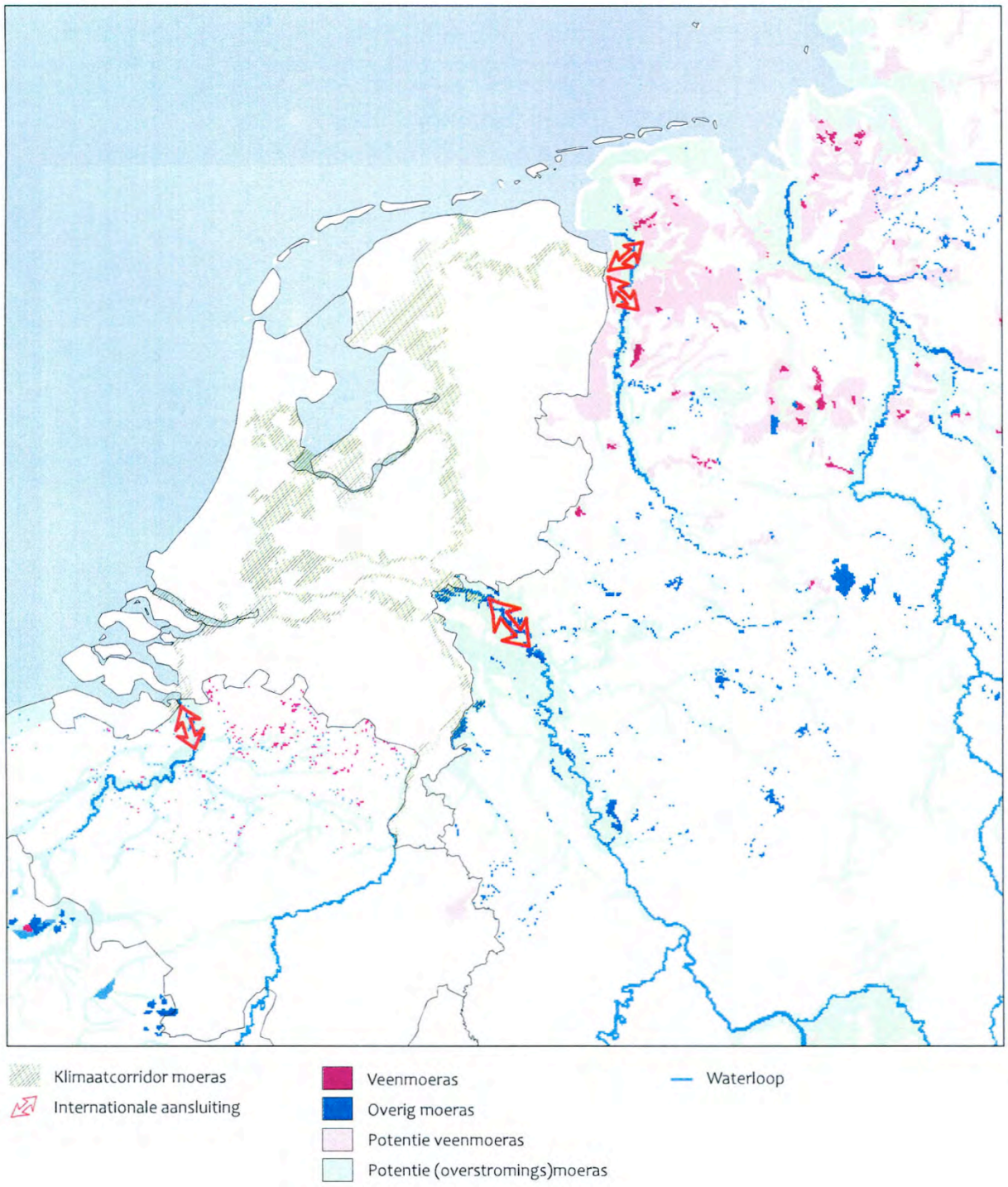
Emberiza citrinella

3. Conservation and management options with special attention to counteract the impacts of climate change



The idea of "*new HNV farming systems*" within a farmer-centred framework of support for HNV grasslands

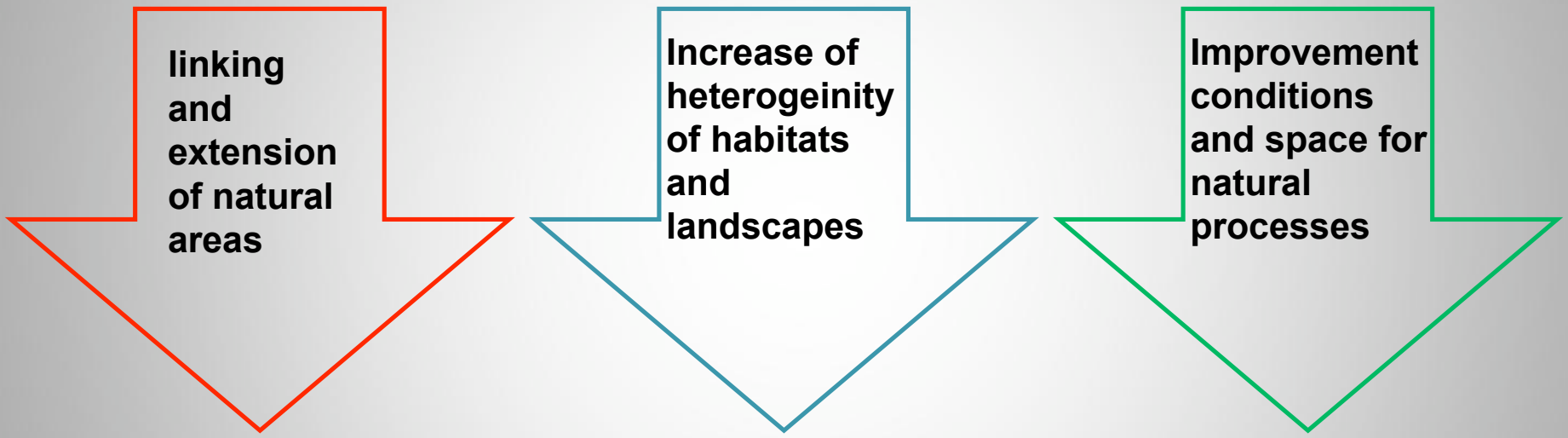
(Source: Keenleyside and Oppermann in Grasslands in Europe)



Climate-corridor for wetlands in NW-Europe (partly): a need to develop new farming systems in Europe

(Source: PBL/WUR, 2010)

New HNV farming systems to counteract climate change



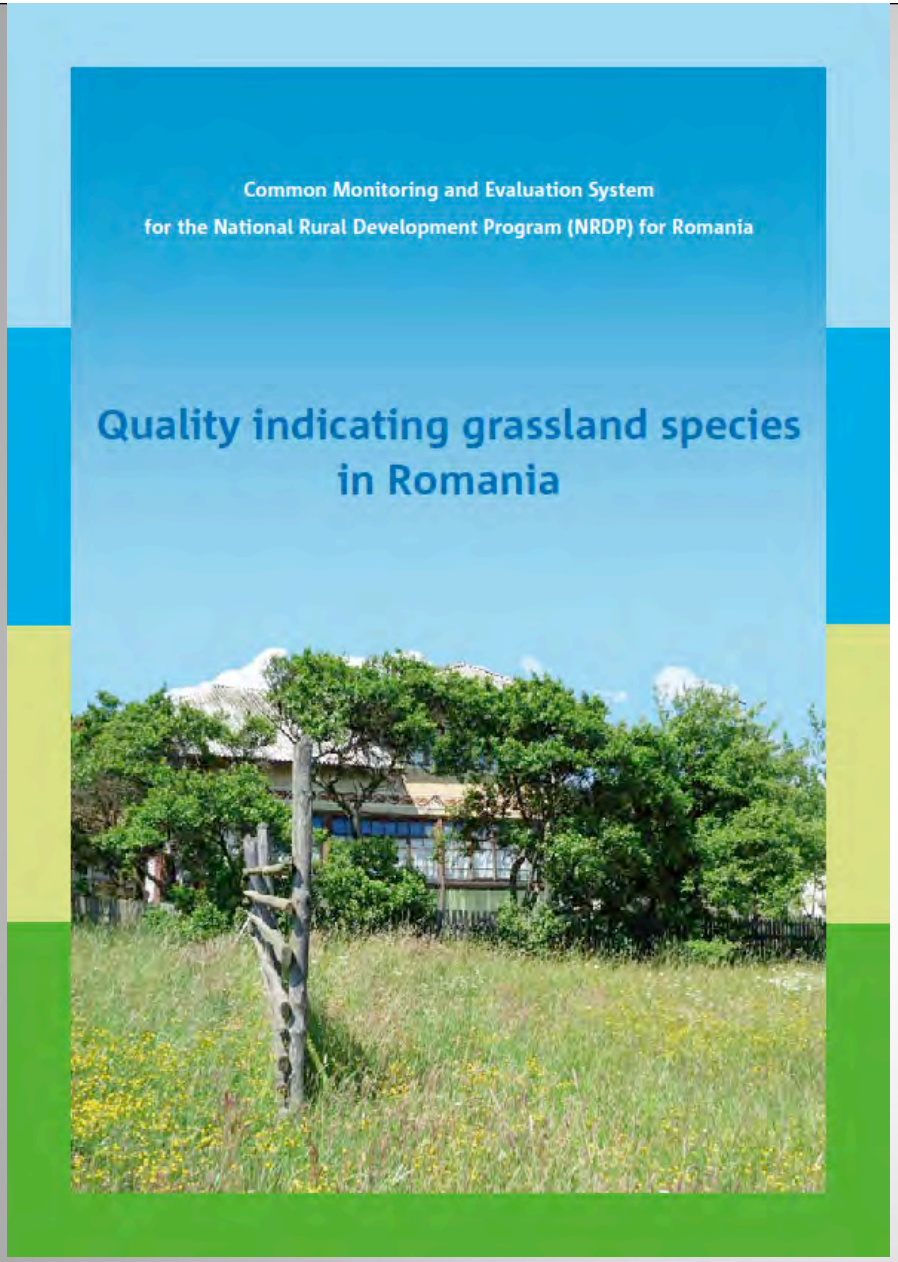
Development of adaptation strategies of grassland types over Europe by working out different dispersion models for selected species and spatial consequencies

(Source: PBL/WUR, 2010 modified)

4. Some final conclusions

- **The diversity in HNV grasslands has to be classified on an European level by taking into account grassland communities of flora and fauna. This community approach is missing at this moment.**
- **The development of an European landscape classification based on „grassland habitat units“ can help the EU to define important HNV grassland landscapes in EU Member States.**
- **For counteracting climate change impacts it is needed to develop European grassland corridors as soon as possible.**

An example of grassland monitoring



(Source: DLG-NL)

Montane (400-1300 m)

7. Arrhenatherion (400-800 m)

33. Arrhenatherum elatius
Height: 50-150 cm.
Flowering period: June-July.
Flowers: Inflorescence with a fairly well-branched nearly diffuse panicle. Spikelets with 2(-5) florets. Glumes are unequal. Lemma of male floret with a long dorsal awn.
Habitus: Loosely tufted perennials.
Growing place: Nutrient rich soils. Abundant grassland species on mowing sites.

34. Geranium pratense
Height: 30-60 cm.
Flowering period: June-July.
Flowers: Blue to violet-blue.
Habitus: Leaves are strongly divided > 5/6 to base through 7-9 lobes. Glandular hairs over the whole plants.
Growing place: Slightly wet and moderate acid to moderate calcareous soils.

35. Pimpinella major
Height: 40-100 cm.
Flowering period: June-September.
Flowers: "umbellifer" outlook with compound umbels and characteristic fruits; these fruits are important for identification of the species.
Habitus: Perennials with pinnate leaves with ovate, serrate lobes. Stem hollow and erect growing sometimes to 2 m.
Growing place: Nutrient rich soils like clay and loam with good water supply.

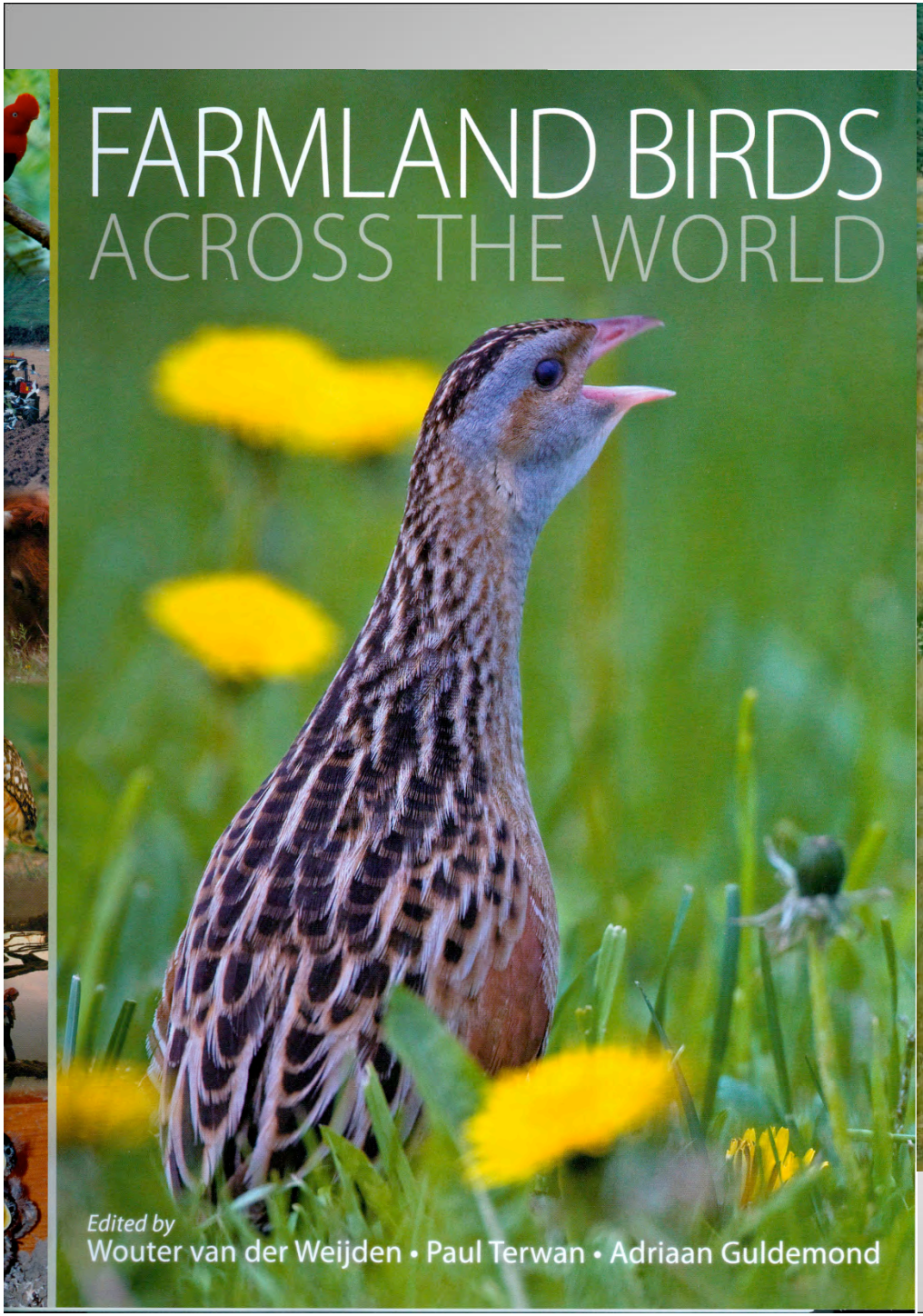
36. Leucanthemum vulgare
Height: 30-70 cm.
Flowering period: May-September.
Flowers: White in composite style.
Habitus: Stems erect to ascending. Upper leaves deeply serrate and the lower leaves obovate-spathulate in cuneate base.
Growing place: Nutrient rich soils on mowed lands.

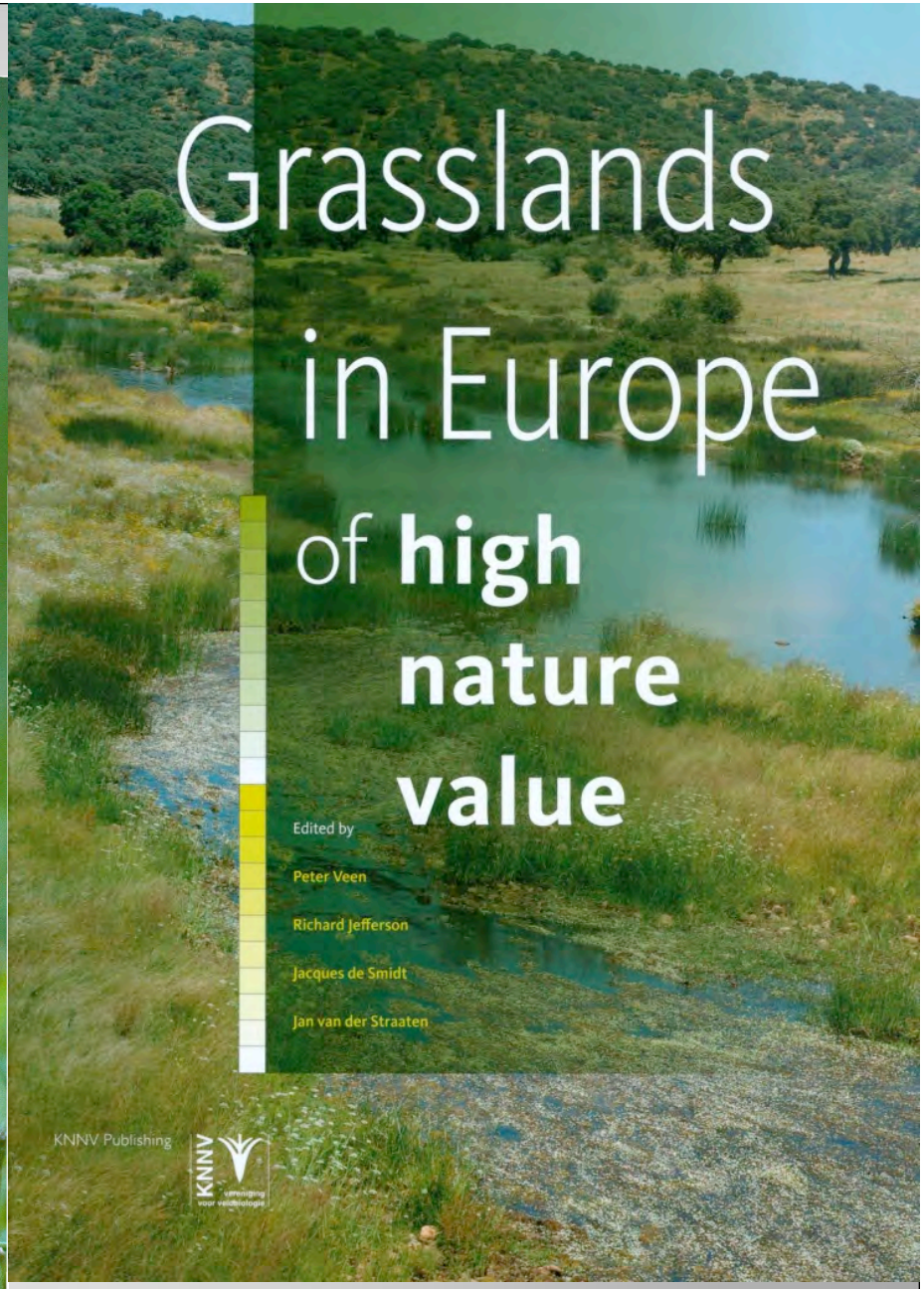
33. Arrhenatherum elatius
Height: 50-150 cm.
Flowering period: June-July.
Flowers: Inflorescence with a fairly well-branched nearly diffuse panicle. Spikelets with 2(-5) florets. Glumes are unequal. Lemma of male floret with a long dorsal awn.
Habitus: Loosely tufted perennials.
Growing place: Nutrient rich soils. Abundant grassland species on mowing sites.

34. Geranium pratense
Height: 30-60 cm.
Flowering period: June-July.
Flowers: Blue to violet-blue.
Habitus: Leaves are strongly divided > 5/6 to base through 7-9 lobes. Glandular hairs over the whole plants.
Growing place: Slightly wet and moderate acid to moderate calcareous soils.

35. Pimpinella major
Height: 40-100 cm.
Flowering period: June-September.
Flowers: "umbellifer" outlook with compound umbels and characteristic fruits; these fruits are important for identification of the species.
Habitus: Perennials with pinnate leaves with ovate, serrate lobes. Stem hollow and erect growing sometimes to 2 m.
Growing place: Nutrient rich soils like clay and loam with good water supply.

36. Leucanthemum vulgare
Height: 30-70 cm.
Flowering period: May-September.
Flowers: White in composite style.
Habitus: Stems erect to ascending. Upper leaves deeply serrate and the lower leaves obovate-spathulate in cuneate base.
Growing place: Nutrient rich soils on mowed lands.





Ordering these book in the conference hall

Thank you for attention!!!

More information
www.veenecology.nl