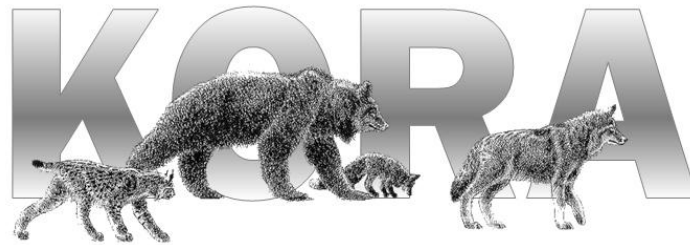


# Guidelines for Population Level Management Plans for Large Carnivores

Urs Breitenmoser

KORA & Large Carnivore Initiative for Europe



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- 1.** Introduction
- 2.** Large Carnivores in Europe
- 3.** Conservation of large carnivore populations
- 4.** Guidelines for population level management



# 1. Introduction

## Guidelines for Population Level Management Plans for Large Carnivores

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Prepared by Large Carnivore Initiative for Europe  
c/o Istituto di Ecologia Applicata, July 2008  
Via Arezzo 29 - IT 00161 Rome

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LCIE 2008

on behalf of European Commission

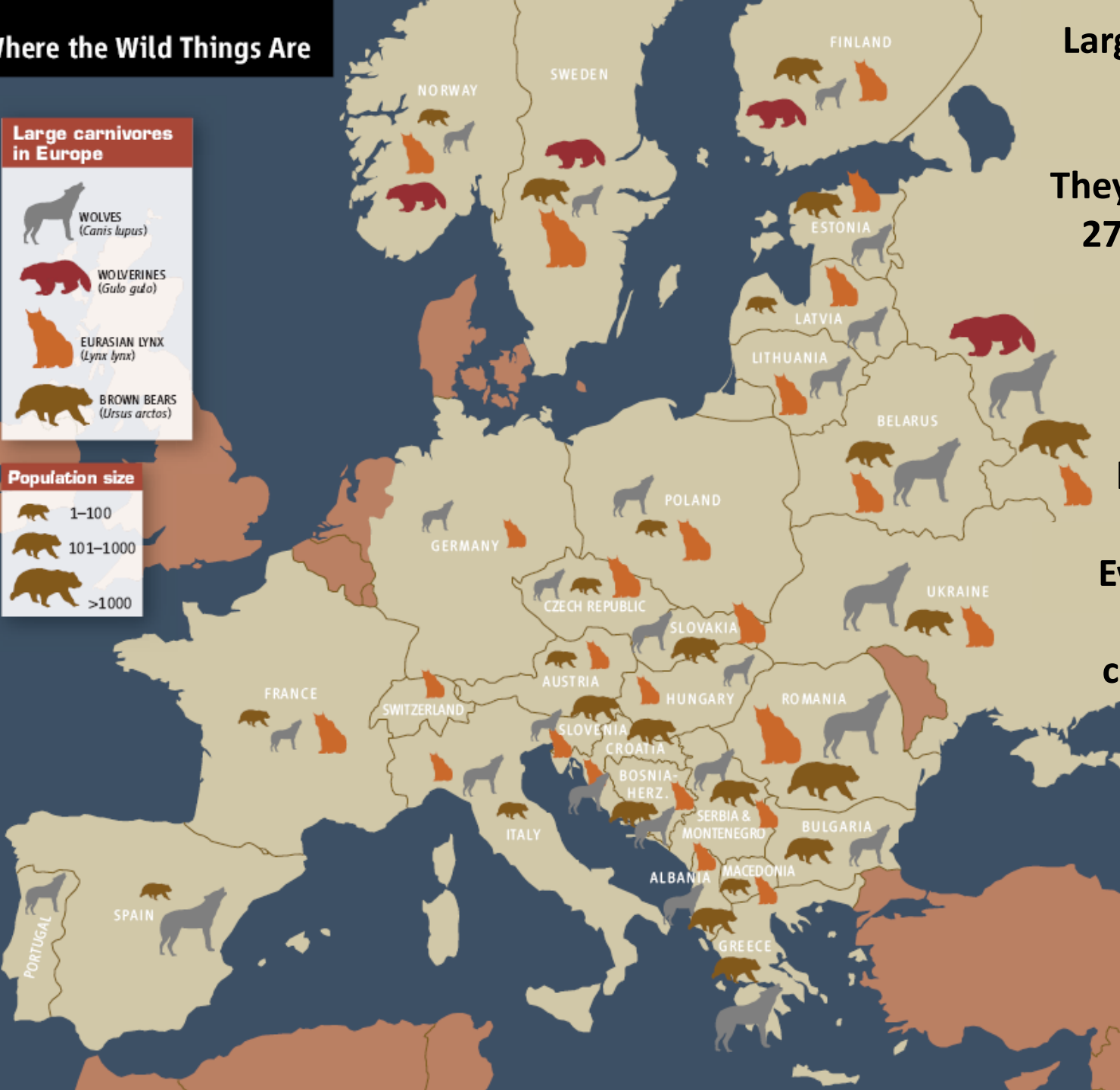


# Where the Wild Things Are

## Large carnivores in Europe



## Population size



Large carnivores are spreading!

They live in 22 of the 27 EU states and in 6 states of the Bern Convention

Some countries host all 4 species

Everywhere, large carnivores cause conflicts and bind considerable capacities



## 2. Large carnivores in Europe

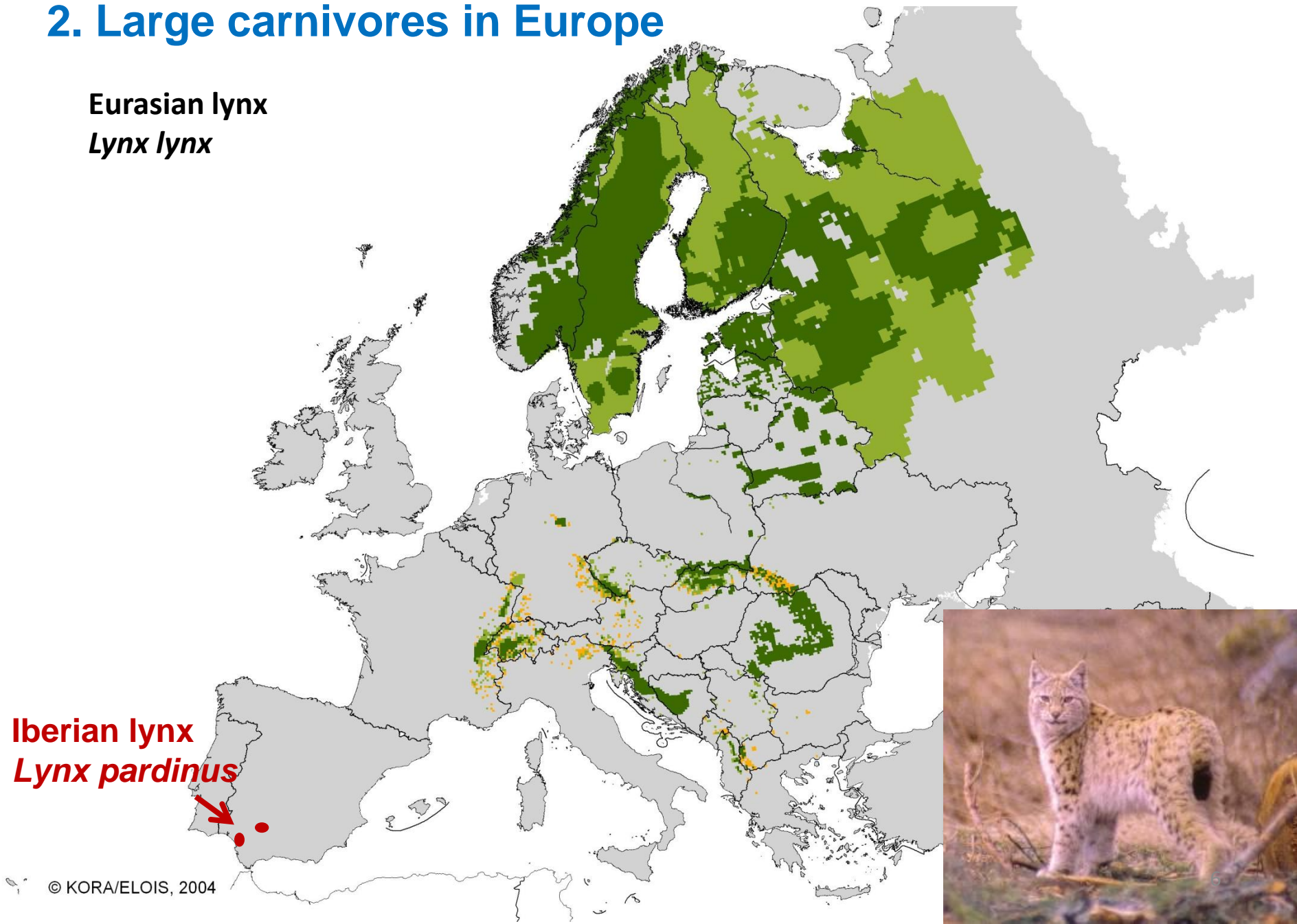
Brown bear  
*Ursus arctos*



## 2. Large carnivores in Europe

Eurasian lynx  
*Lynx lynx*

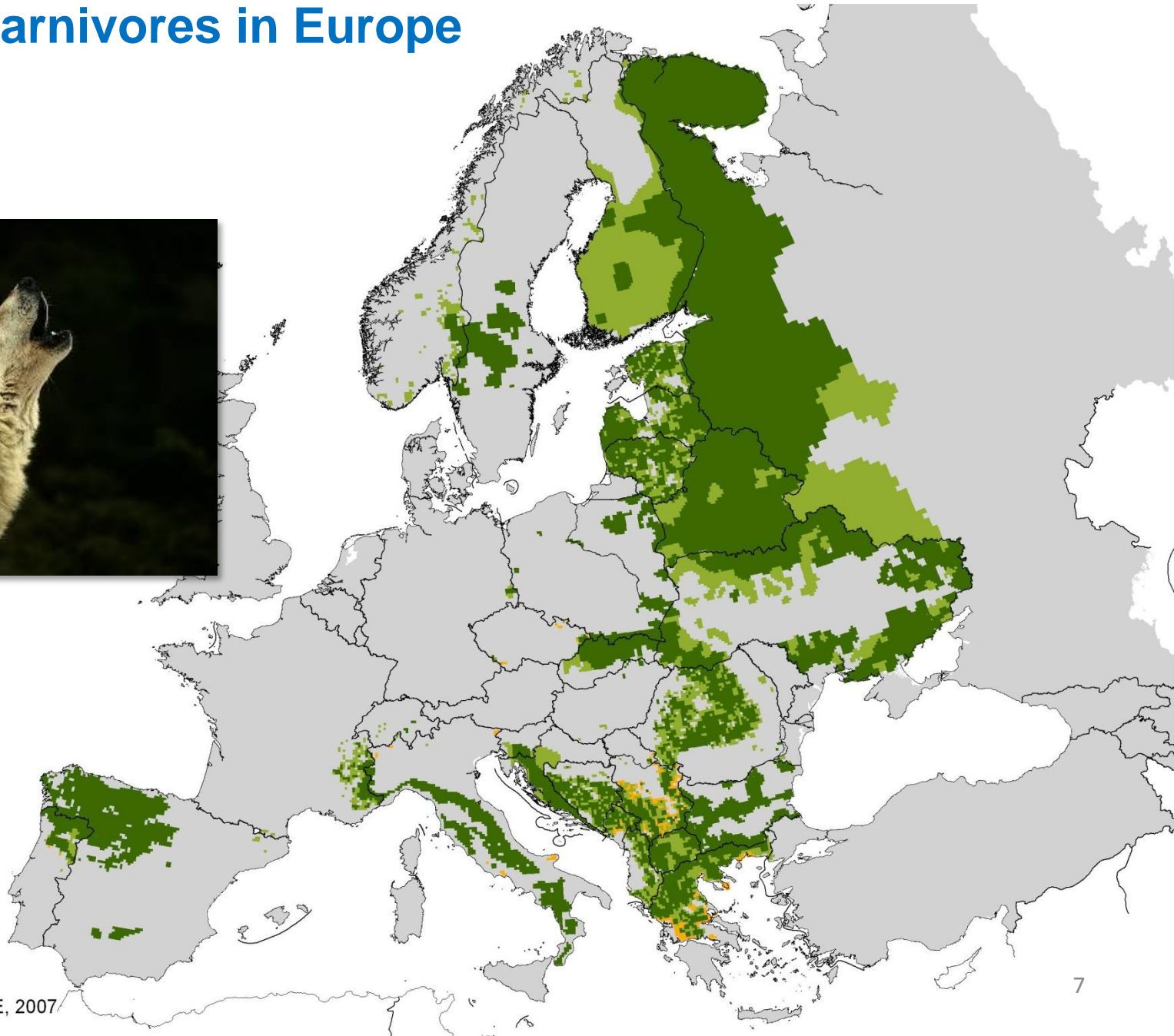
Iberian lynx  
*Lynx pardinus*



## 2. Large carnivores in Europe

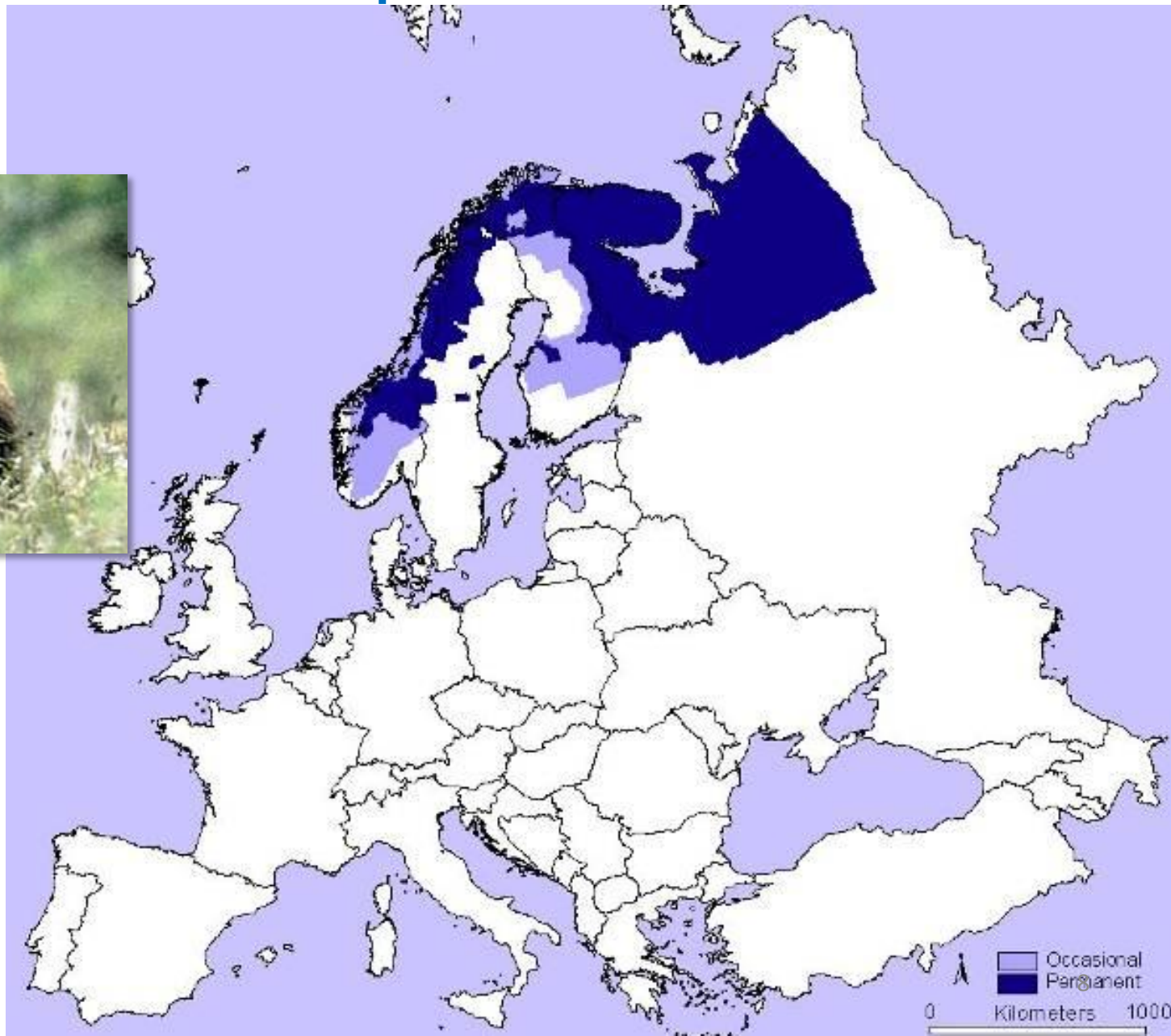
Wolf

*Canis lupus*



## 2. Large carnivores in Europe

**Wolverine**  
*Gulo gulo*





## 2. Large carnivores in Europe

### *Reasons for their return:*

- Recovery of forests
- Renaissance of wild ungulate populations
- Legal protection (change of attitudes)

### *Consequences:*

- Conflict between traditional land users and conservation organisations
- Ambivalent public opinion
- Problems with “traditional” wildlife management

### *Challenges:*

- Balance between conservation and land use
  - Maintenance of viable LC populations in fragmented landscape
  - Integration of LCs into wildlife management and hunting systems
- Translation of legal requirements into practical management



### 3. Maintenance of large carnivore populations in Europe

#### What is a „population“?

A **population** is a group of **individuals** (of the same **species**), living in the same **area** and potentially reproducing among each other.

#### When is a population „viable“?

- MVP (*Minimum Viable Population*) concepts
- Models: 90-95 % probability of survival within 100 years
- IUCN Red List assessment: hierarchical system of threat categories
- Demographic viability: several tens to several hundreds
- Genetic viability: several hundreds to several thousands



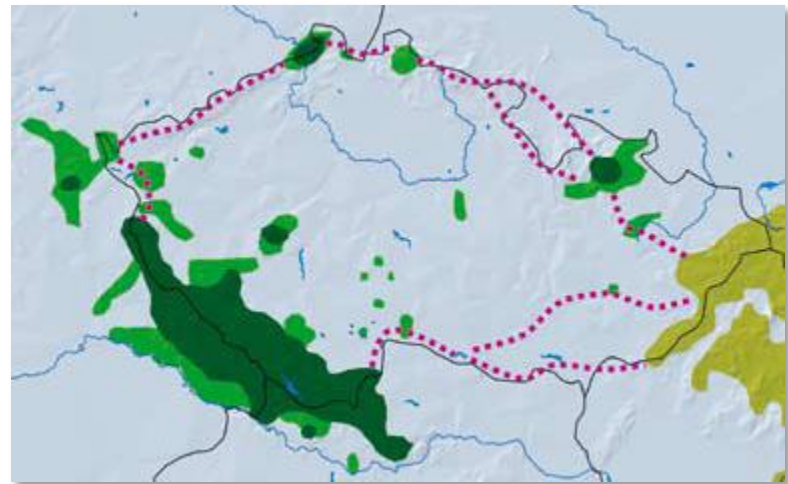
### 3. Maintenance of large carnivore populations in Europe

**What is a „population“?**

*Reality: spatial heterogeneity, discontinuity and fragmentation*

*More practical:*

**Metapopulation:** Series of small(er) (sub-)populations with a limited exchange of individuals.



Metapopulation of lynx in Bavarian-Bohemian Forest and Carpathians (Wölfl et al. 2001)

**Challenge: 29 out of 33 large carnivore populations in Europe are transboundary!**



### 3. Maintenance of large carnivore populations in Europe

What is a „population“?

Terms used in the *Guidelines*:

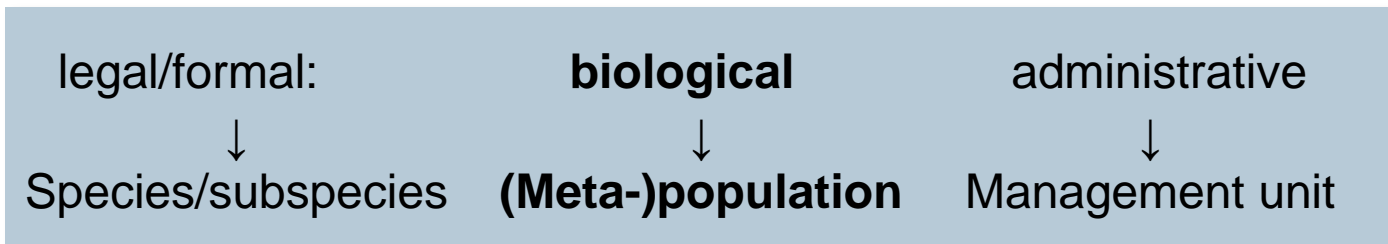
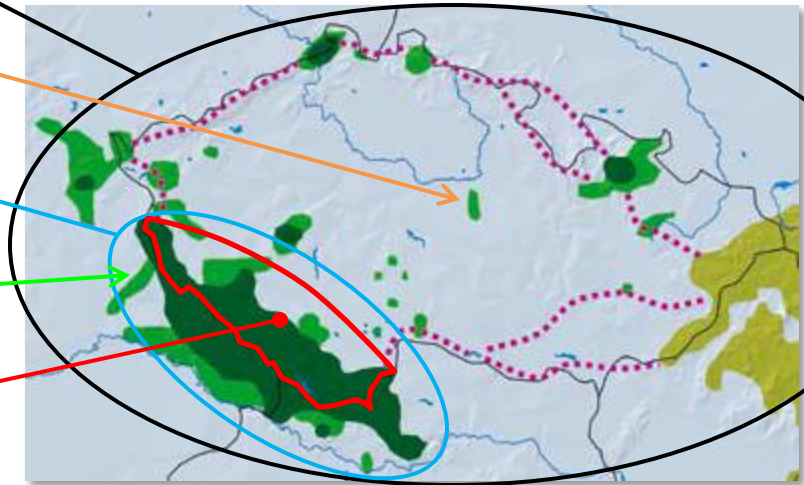
**Metapopulation**

**Isolated occurrence**

**Population or subpopulation**

**Part of population**

**Management unit**



### 3. Maintenance of large carnivore populations in Europe

#### Formal requirements:

##### CoE/ Bern Convention:

- Wolf, brown bear: Appendix II (strictly protected)
- Lynx: Appendix III (protected)

##### EU / Habitat Directives (FFH) :

- Appendix II (Natura 2000)
- Appendix IV (strictly protected)

Exceptions and reservations in both international treaties

#### ***Favourable Conservation Status:***

Conservation status of a species is „*the sum of the influences acting on the species concerned that may affect the long term distribution and abundance of its populations within the territory*“. Conservation status is favourable, if:

- *population dynamics data on the species concerned indicate that it is maintaining itself on a long term basis as a viable component of its natural habitat, and*
- *the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and*
- *there is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long-term basis.*

### 3. Maintenance of large carnivore populations in Europe

#### Formal requirements:

*„...the obligation of a Member State is more than just avoiding extinctions.“*

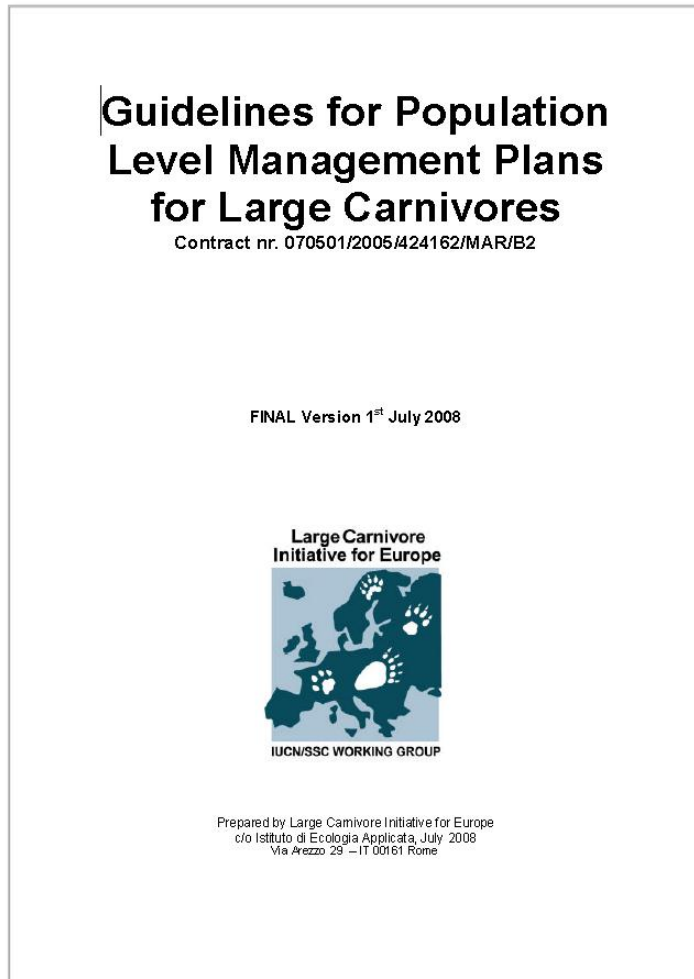
- **Favourable Conservation Status (FCS)** is to be reached, based on two reference values:
- **Favourable Reference Range (FRR)**
  - **Favourable Reference Population (FRP)**

*“Member States shall undertake surveillance of the conservation status of the natural habitats and species referred to in Article 2 with particular regard to priority natural habitat types and priority species.”*



## 4. Guidelines for population level management

### Goals of the *Guidelines*:



1. To shift the focus from the species and the management unit to the (meta-) population.
2. To interpret FFH-term „Favourable Conservation Status“ for correct and concrete use.
3. To recommend „best management practices“ for large carnivores.

## 4. Guidelines for population level management

### Practical proposal for *Favourable Reference Population (FRP)*:

- IUCN Red List Categories **LC** (Least Concern) or **NT** (Near Threatened) according to
- „**Criteria E**“: *Population Viability Analysis*, <10% extinction risk in 100 years
- MVP according to FFH „smallest tolerable population size“
- „**Criteria D**“: *Number of mature individuals* in a population...
  - ...1000 if single/isolated population
  - ...250 if population of a metapopulation and immigration possible
- Status to be surveyed with scientifically robust monitoring methods





## 4. Guidelines for population level management

### Practical proposal for *Favourable Reference Range* (FRR):

- FRR  $\equiv$  FRP occupied by the reference population
- Size of FRR (needed) depends on density, in particular on
  - Ecological carrying capacity
  - „Social carrying capacity“ (acceptance)
- Ecological CCs of LCs in cultivated landscapes are high (often >SCC)
- Social CC depends on land use forms (livestock husbandry, hunting, forestry, tourism) and attitudes of local society
- Large distribution at lower density >> high density with limited distribution
- Population dynamics – FRR needs to be larger than minimum FRP



## 4. Guidelines for population level management

### Practical definition of *Favourable Conservation Status (FCS)*:

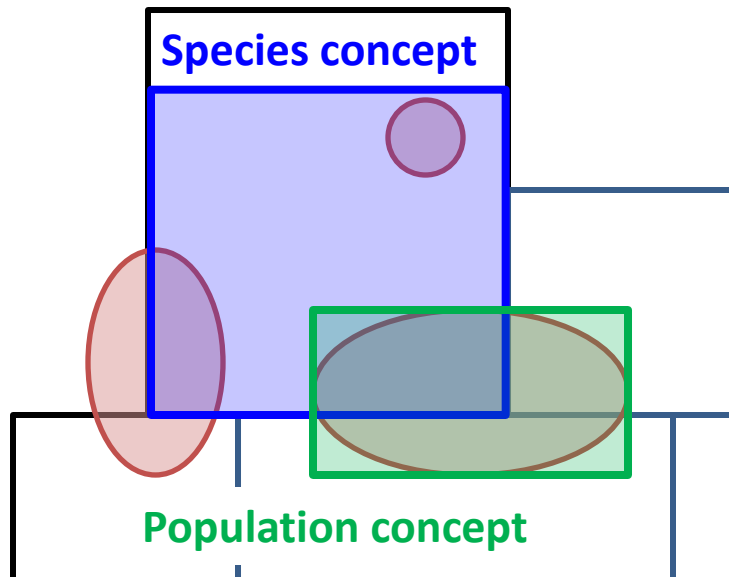
1. „Population dynamics data on the species concerned indicate that it is maintaining itself on a long term basis as a viable component of its natural habitat.“
2. „The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future.“
3. „There is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long-term basis.“
4. Population size and distribution not smaller than when FFH ratified.
5. Favourable Reference Population FFR is reached and Favourable Reference Range FRR is settled.
6. Connection within FRR and among populations is guaranteed.
7. Monitoring of population status and mortality is established.



## 4. Guidelines for population level management

### Practical goals for large carnivore populations:

- Populations should in principle be allowed to expand over all suitable habitats.
- Limitation of expansion and/or density should be possible under defined conditions if FCS is reached.
- Limits (area, density) also according to land use conflicts.
- Achievement of FCS at population level (versus country level) is not only biologically coherent, but more practical because and if...




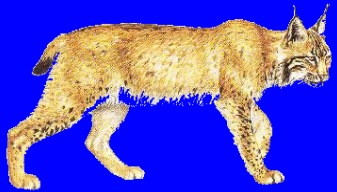
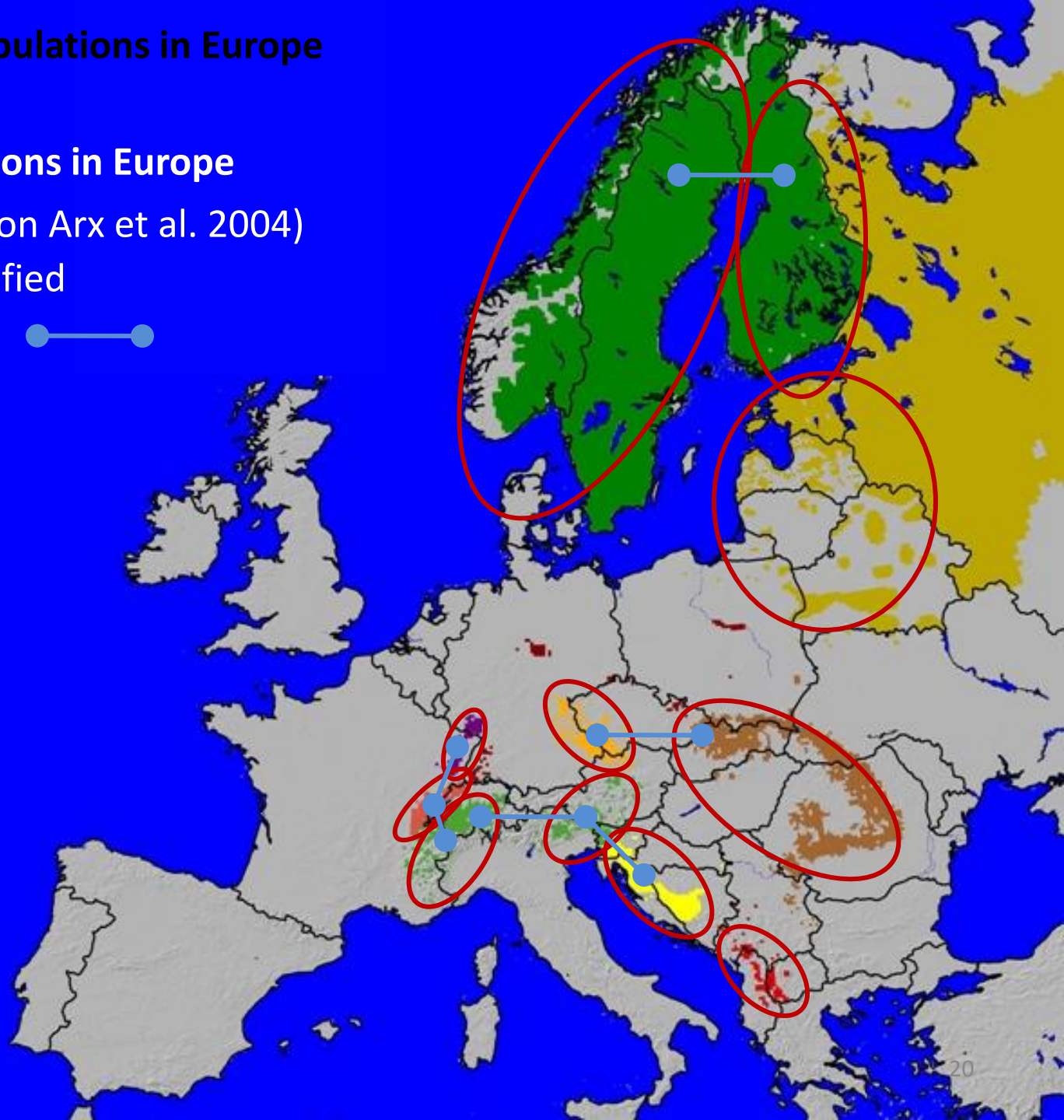
- ...countries sharing LC populations also share FCS responsibilities
- ...allow network of (sub) populations (connectivity)
- ...avoid “black holes”
- ...avoid for each country that population sinks below level of FHH ratification



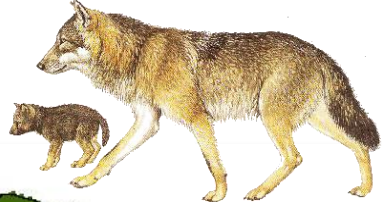
# Implementation: LC populations in Europe

## Eurasian lynx populations in Europe

- according to ELOIS (von Arx et al. 2004)
- 11 populations identified
- possible connections 

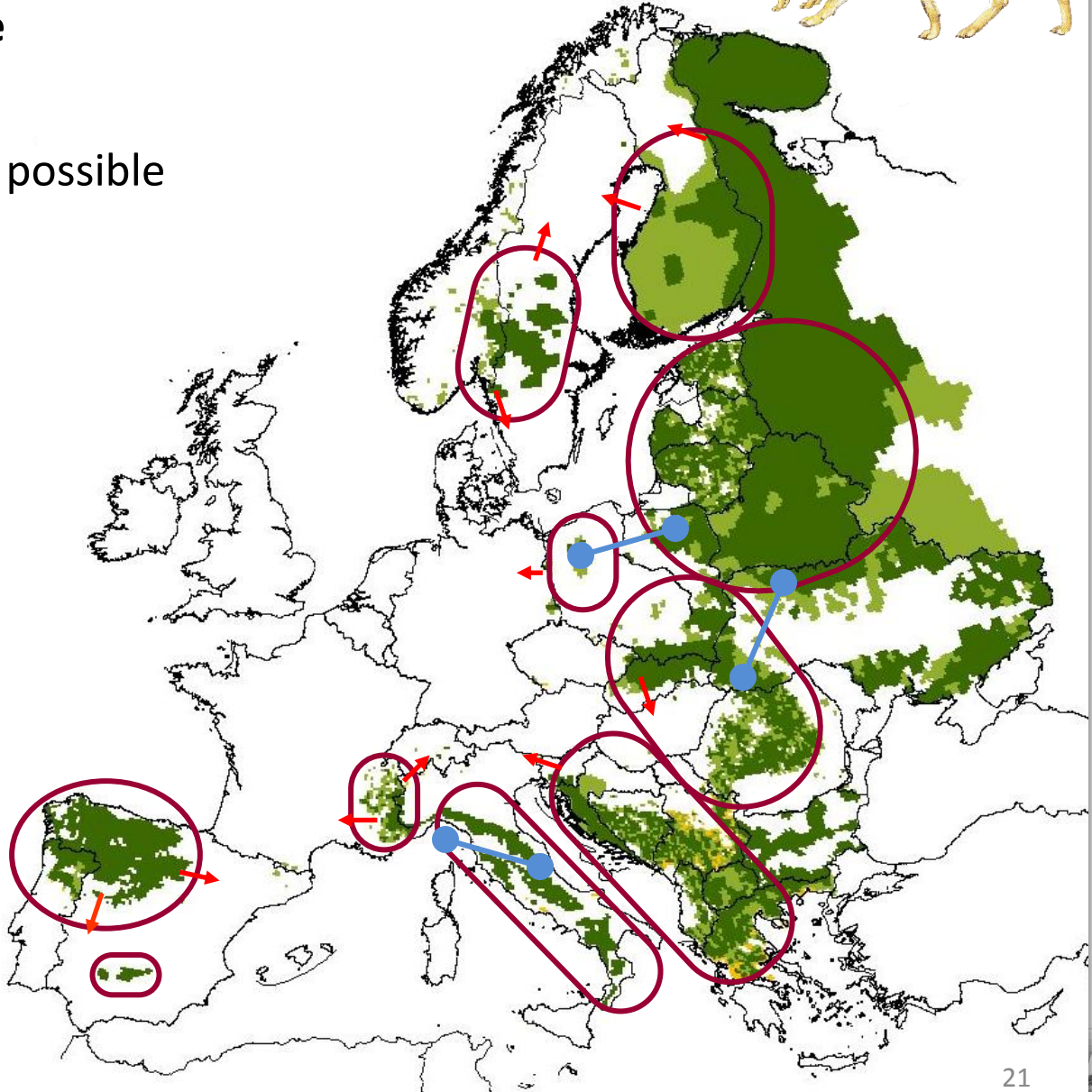


# Implementation: LC populations in Europe



## Wolf populations in Europe

- 10 populations identified
- Connection „everywhere“ possible



Distribution wolf in Europe

- Populations
- Metapopulations
- ➔ Expansion

## 4. Guidelines for population level management

### The Product: Management plans for populations

- Europe has and will have a limited number of identifiable LC populations.
- Dynamic, expansion and delineation of populations differ between species, but are for practical requirements often relatively easy.
- Countries sharing LC populations define common goals and develop common management principles (→ transboundary management plan).
- Parts of a Management Plan:
  1. *Background*: Status, trends, habitat, laws, traditions, etc.
  2. *Measurable, time-bound and spatially explicit goals*: FRP FRR, connectivity, management, monitoring plan (measure of success)
  3. *Activities* regarding: Habitat, prey, expansion and connectivity, laws, damage prevention and compensation, removal of individuals, management and monitoring, coordination and cooperation...



## 4. Guidelines for population level management

### The Process: Development of common management plans

- MPs are technical instruments, not political or legal documents
- Participatory development of MP is part of its success! → integrate society
- International and national processes must often be separated for practical and legal reasons. However: Goals must be defined at international level!
- Initiative/coordination e.g. country with highest share of population
- Integration of all national institutions within the potential area
- Integration of all sectors: Hunting, agriculture, forestry, tourism, etc.
- Professional moderation and support of the process
- Consideration of several species wherever possible (bear, wolf, lynx)
- Consideration of national/local management traditions if consistent with common goals



*Thank you for your attention!*

