

# Large carnivores in Europe: the challenge of maintaining viable populations in human- dominated landscapes



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# LCIE, an IUCN/SSC group on the European Large Carnivores



- **Bear**
- **Wolf**
- **Eurasian lynx**
- **Wolverine**
- **Iberian lynx**

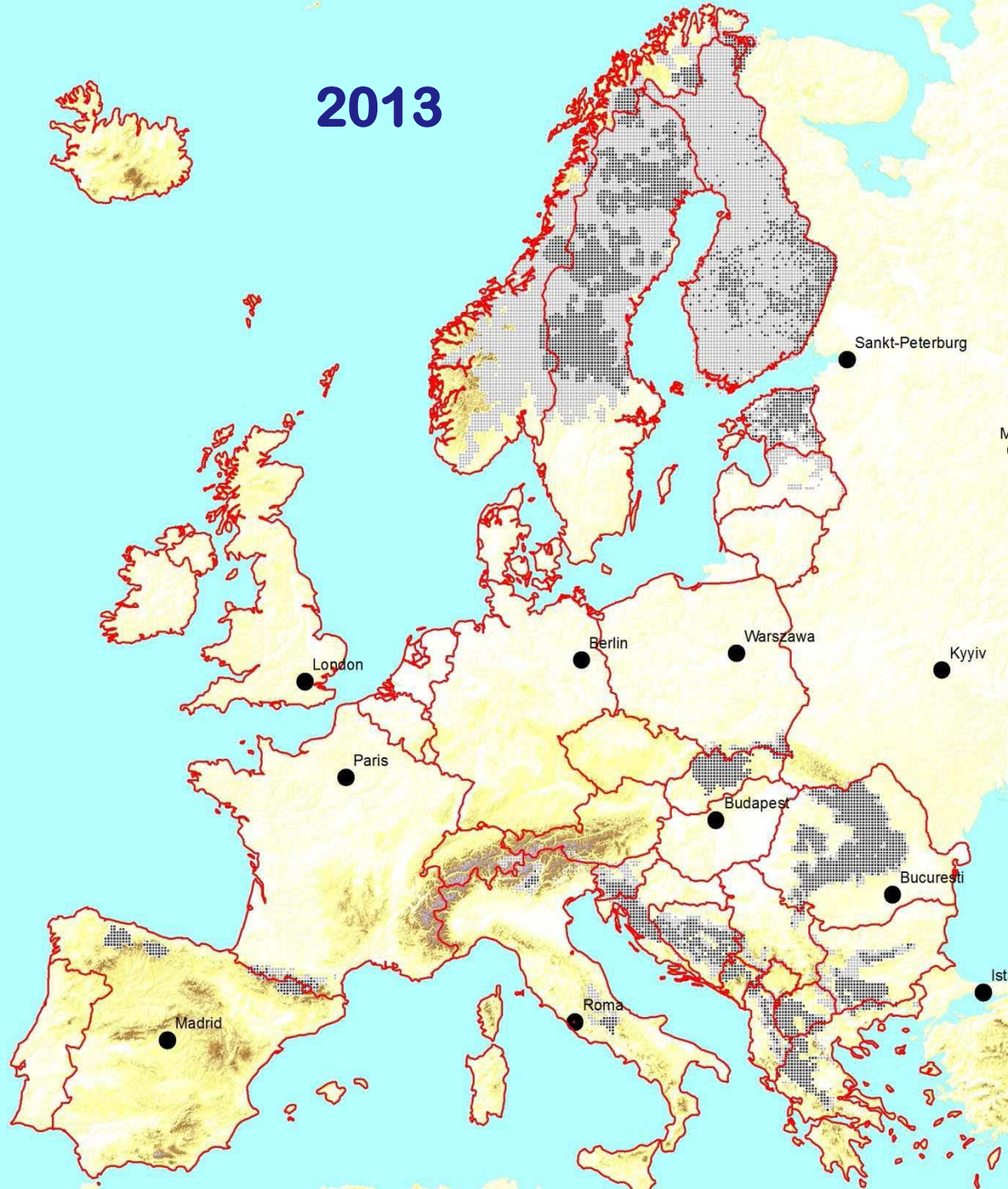
- [www.lcie.org](http://www.lcie.org)

# Why LCs are a challenge

- Large home ranges - 100 to 1000 km<sup>2</sup>
- Low densities - 0.1 - 2 per 100 km<sup>2</sup>
- Long dispersal distances 10 - 1000 km
- Population processes function at massive scales - often crossing administrative borders
- Effective conservation requires intra- and international cooperation of several policy sectors

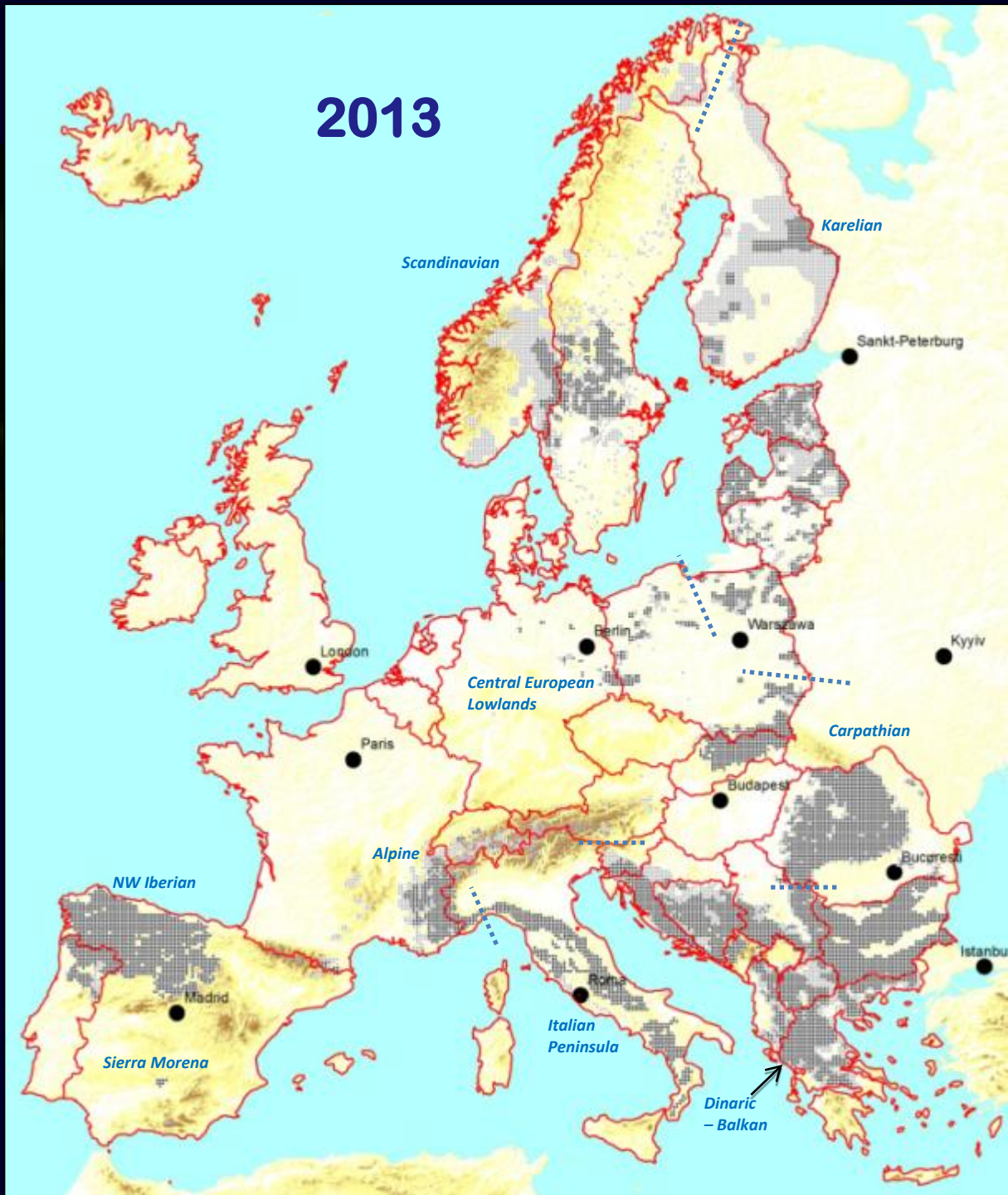


# Bear distribution in Europe





# Wolf distribution in Europe





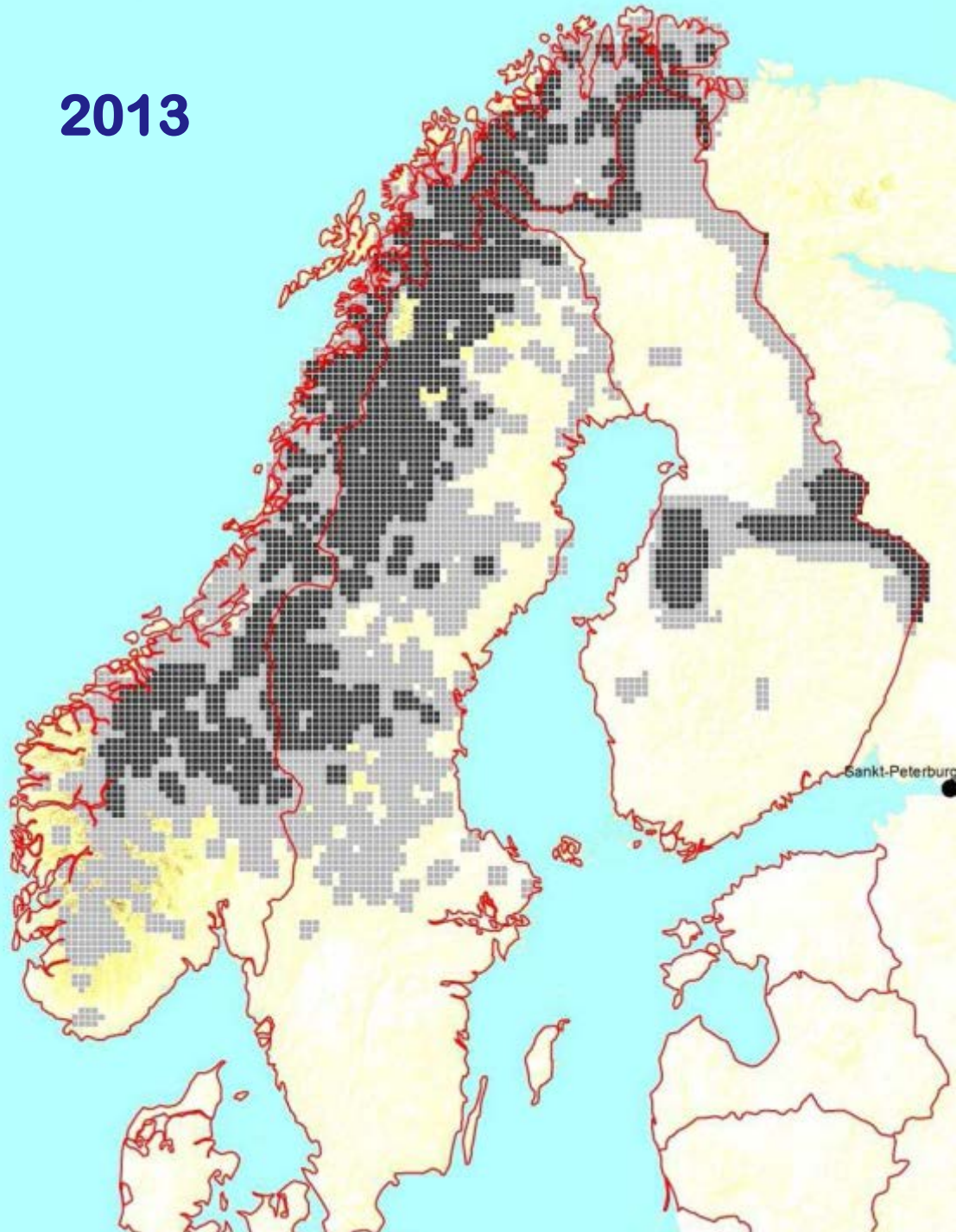
# Lynx distribution in Europe



2013



# Wolverine distribution in Europe



- Presence of 4 species
- Presence of 3 species
- Presence of 2 species
- Presence of 1 species

## Range overlap for large carnivores Europe in 2013



# How Many ?

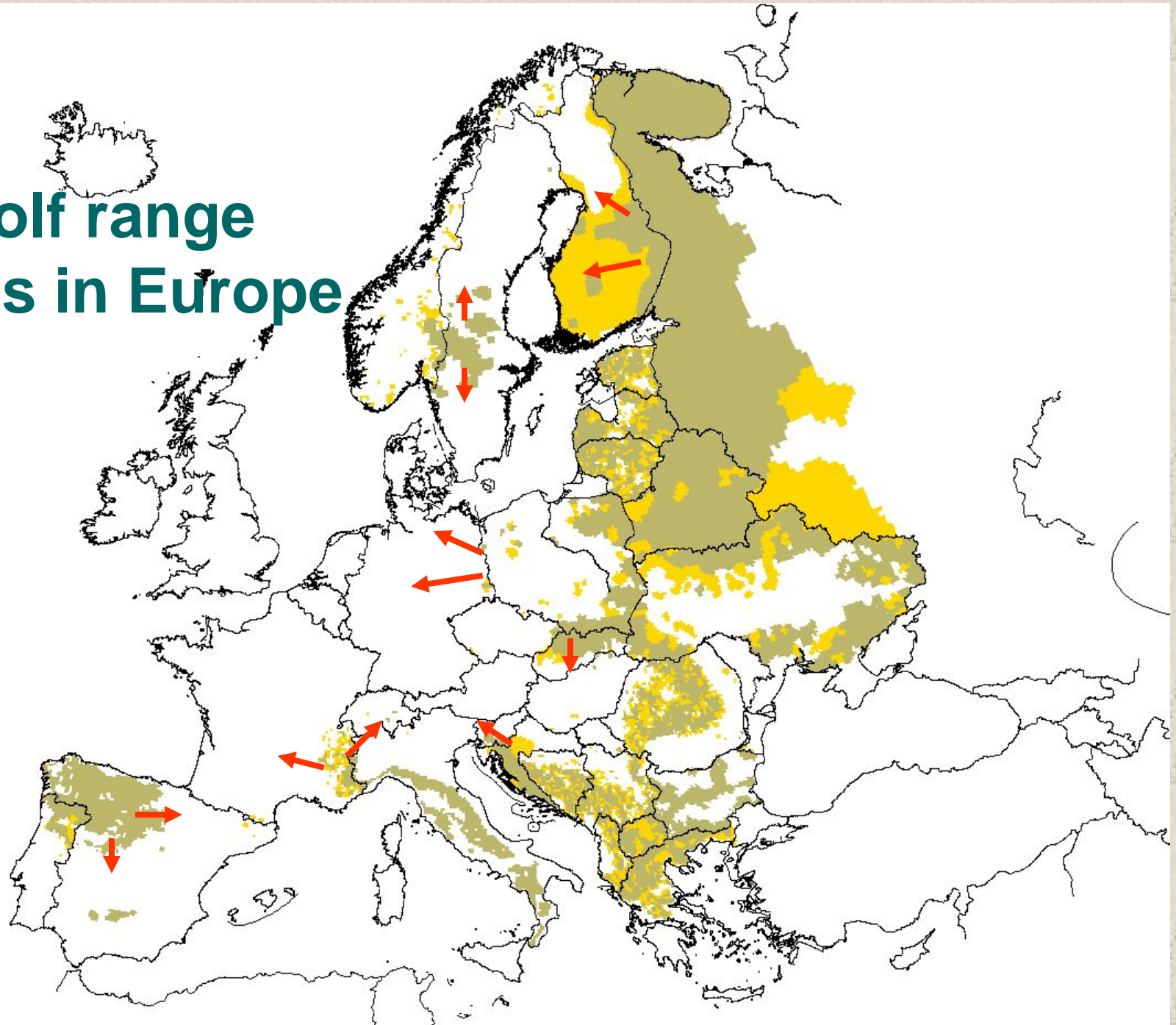
## The obsession of numbers

- Wolves ~ 14000
- Bears ~ 17000
- Eurasian Lynx ~ 9000
- Wolverine ~ 1300

# LC trends

- General increase in numbers and ranges of bears, wolves, lynx and wolverines (many local exceptions!)
- Decrease in range and numbers of Iberian lynx

# Wolf range trends in Europe



# Main Causes of LC Increase

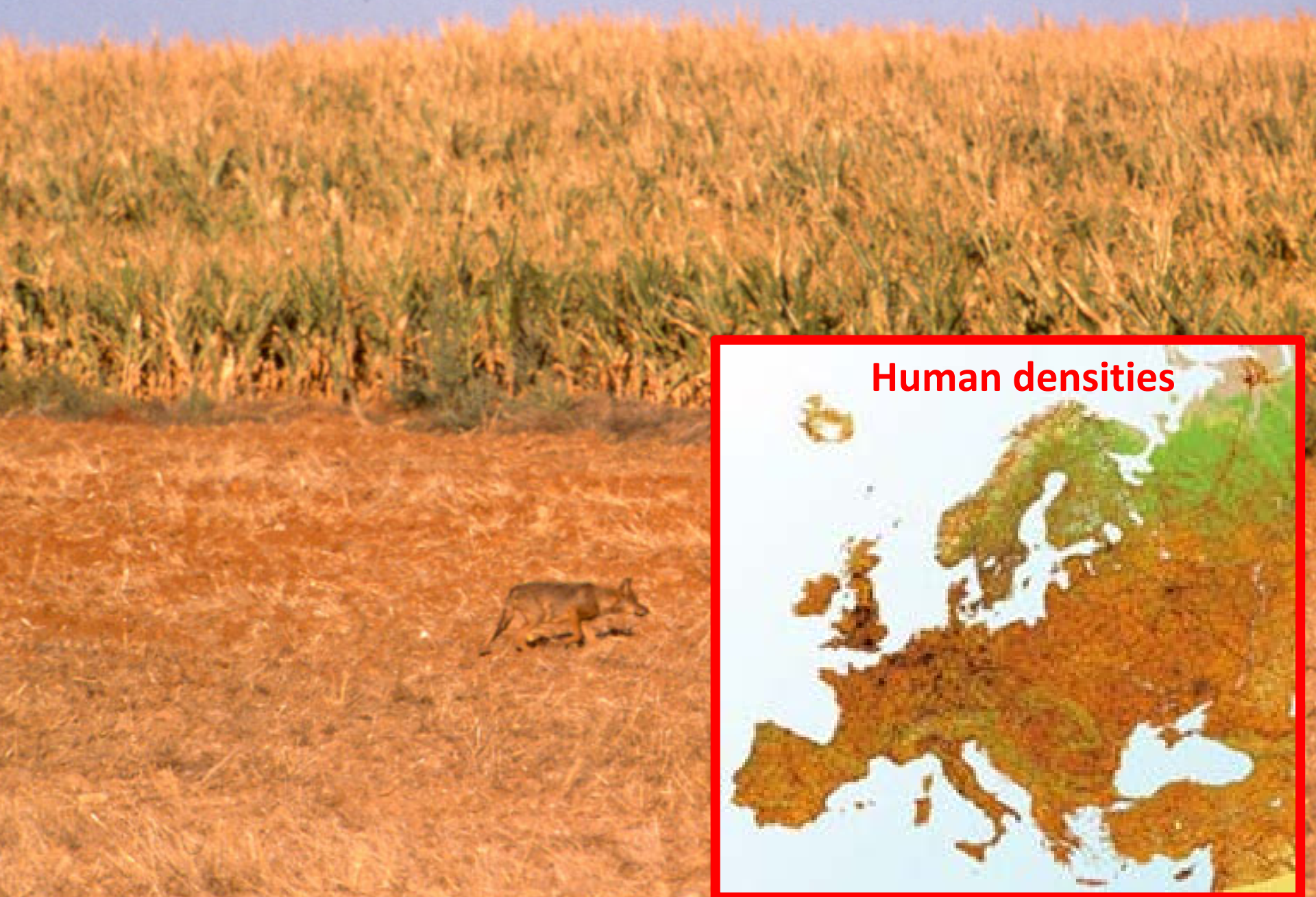
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Disentangling the relative weight of each factor in quantitative and objective way is impossible

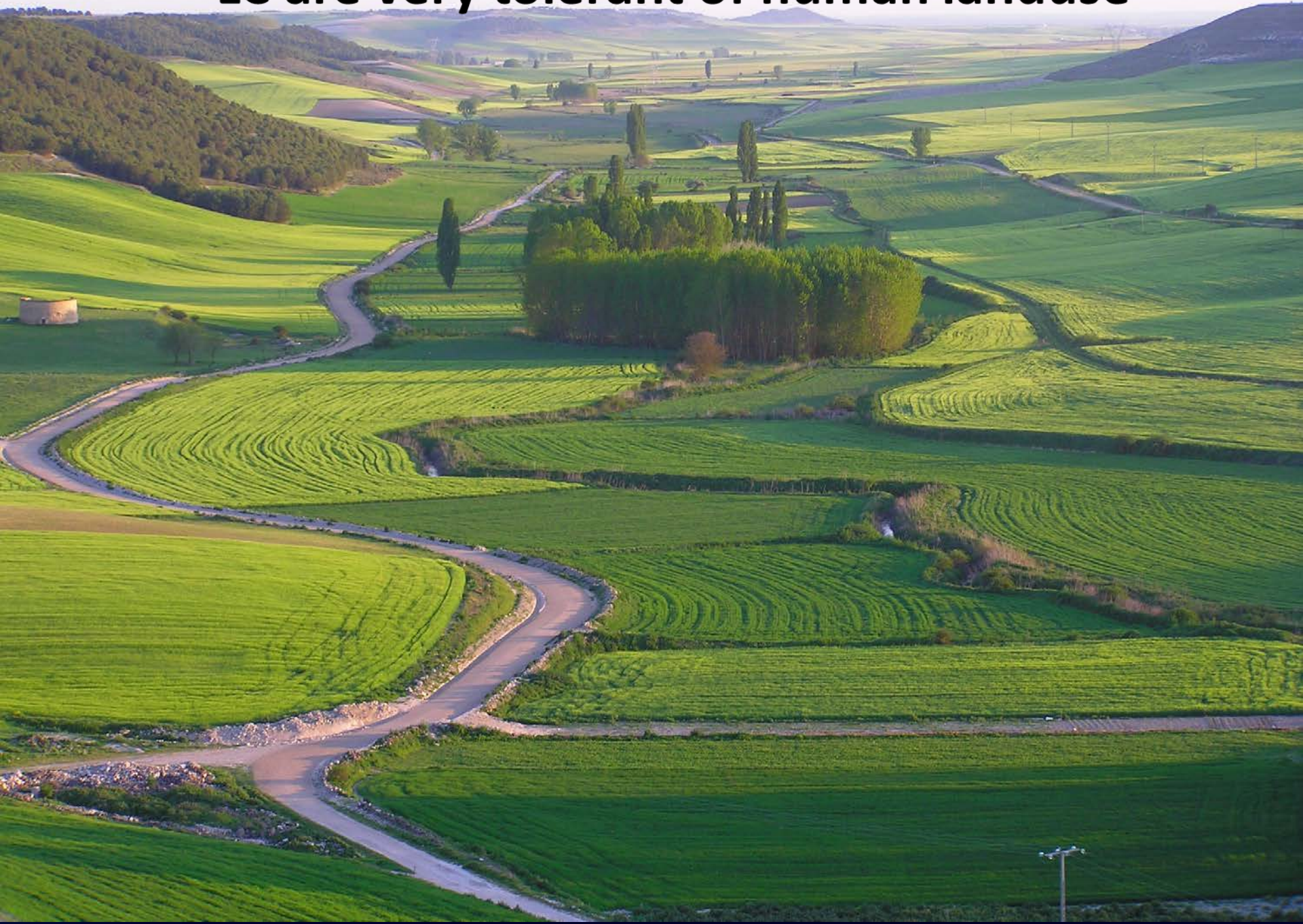
- Changes in land use patterns
- Increase in wild prey
- Natural recovery
  
- Changes in human attitudes (?!)
- Some reintroductions
- Legislation (EU and national)



**LC are very tolerant of human landuse**



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# Can LC recovery in Europe be considered a management success?

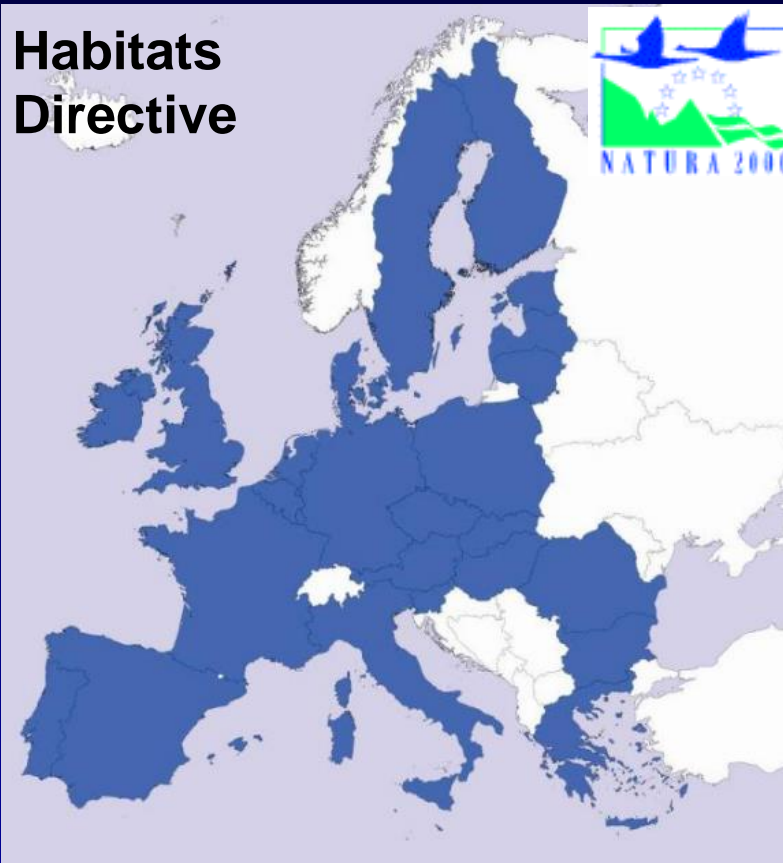
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## Unresolved problems:

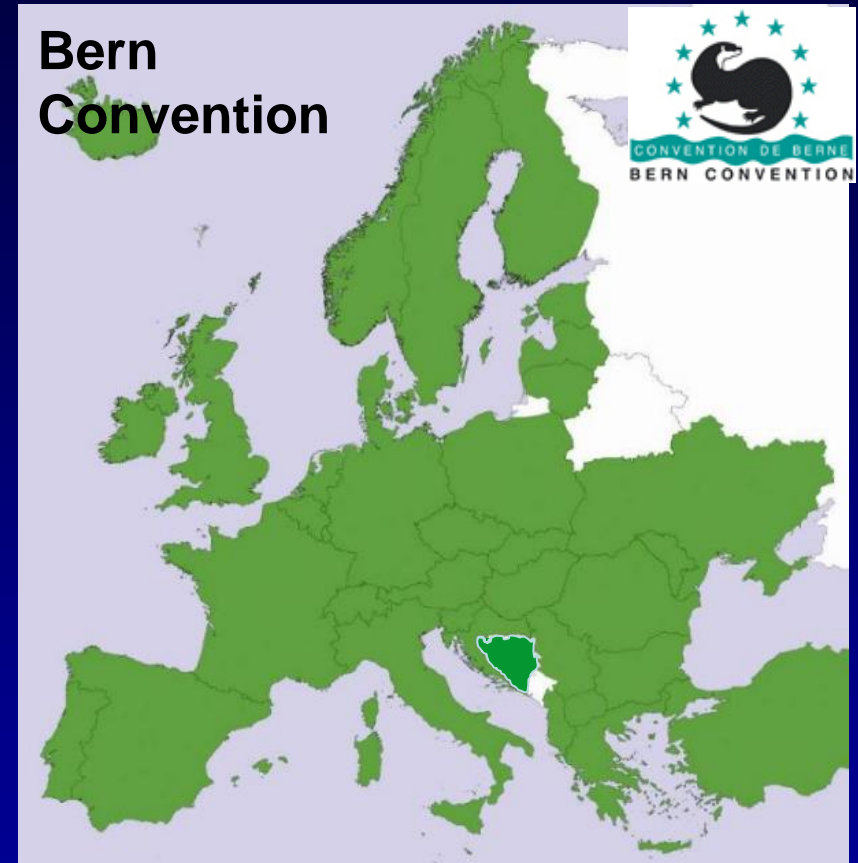
- 1: Fragmentation of management policies (at EU, national, provincial levels)
- 2: Poor law enforcement (widespread poaching)
- 3: Management of livestock depredation
- 4: LC-human conflicts (social, fear, attacks, ..)
- 5: Large scale socio-economic policies affecting LCs



## European Union



## Council of Europe



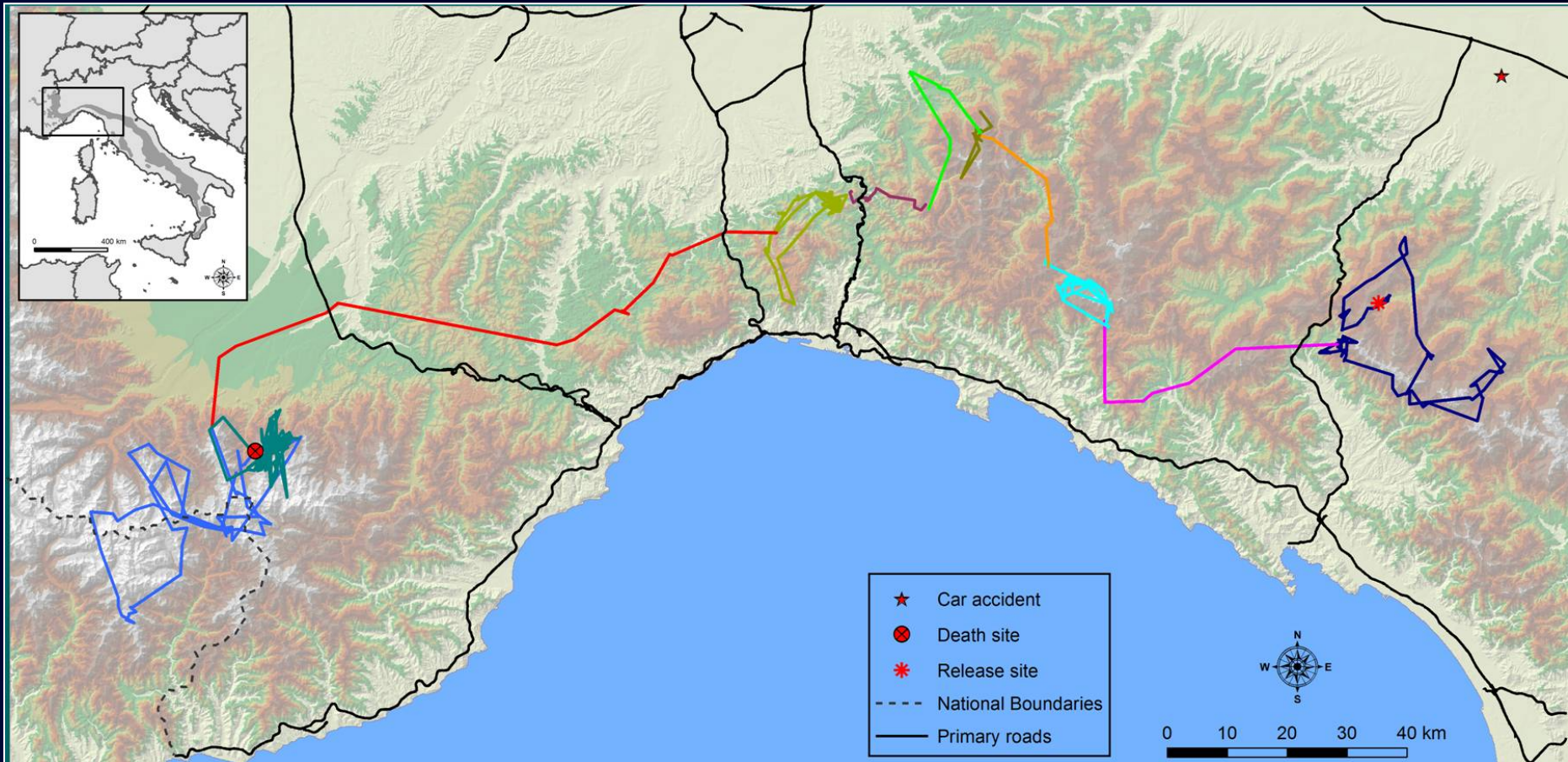
Despite the existence of two pan European bodies, management scales for both conservation planning and assessment have remained at national (or sub-national) scales.

# 29 out of 33 LC populations are transboundary



# Dispersal route of M15

- March 2004 – February 2005
- 317 days
- 1.243 km

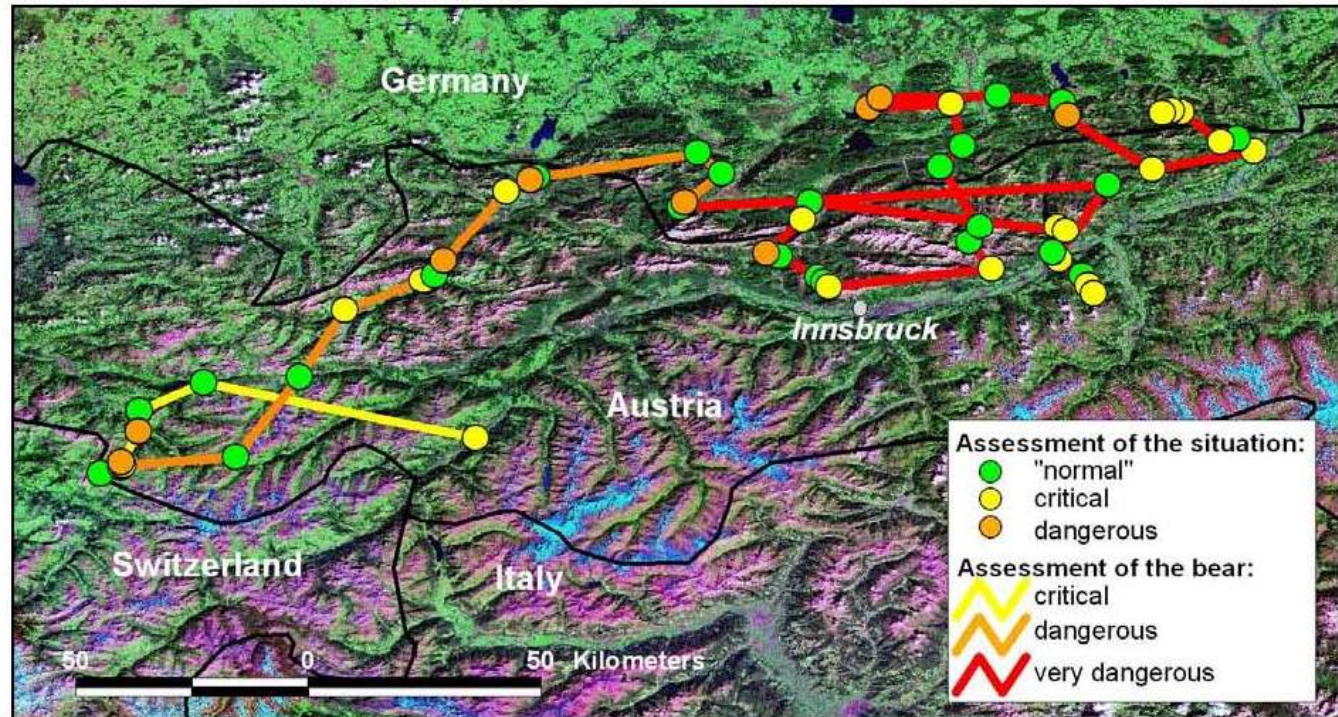




# Dispersal of bear JJ1 from Italian Alps to Germany – summer 206

## 2. Overview of the path of JJ1 in the Austrian and German Alps

Figure 2: Color-coded risk assessment of each single event (dots) and the bear based on the string of events in context with each other (lines).



# Conflicts with humans

## Diversity of conflicts:

- Depredation on livestock
- Competition with hunters
- Zoonosis and disease
- Competition with other conservation interests
- Risk of mortality for humans - fear
- Social and surrogate conflicts

# Livestock predation can be a very serious problem to marginal economies



# LC - human coexistence depends heavily on the management of livestock depredation: 4 basic types of action

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1. Prevent depredation
2. Control (of predators)
3. Compensation for losses
4. Research on ...all

+ Monitoring and evaluation, of course

# Prevention of predation: electric fences

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In many cases LGDs resolve or reduce wolf damages.

# Mitigation of damage: compensation

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In Europe, at least four major types of compensation systems:

1. Payments of reported/verified damages (most cases)
2. Payments of damages AND incentives for prevention measures (e.g., France, Norway)
3. Payments conditional to prevention measures (e.g., Tuscany)
4. Payment before the damage: compensation for the risk (Sweden)



- increasing level of shepherd's participation and responsibility

Large carnivore recovery: a cautionary note

Current LC management systems in Europe have not secured stability of LC-human relationship

Current positive trend is not guaranteed

AND new threats such as

- wolf/dog hybridization
- border fencing

# The first evidence of hybridization in Italy, 1975



# The impact of border fences

## DISRUPT:

- Home ranges
- Hunting
- Dispersal
- Population dynamics: demography, genetics and social
- Death
- .....

# Can LC recovery in Europe be considered a management success?

## Broad conclusions:

- It is hardly a success. It is rather a lucky coincidence of biological and historical factors
- All major conservation issues are not satisfactorily solved (often not even approached)
- The current positive trend can easily be reversed

# Management needs: a problem of scale

There is no single recipe to manage the LC-  
human interface

Every local situation has a different  
management solutions (often more than one)

Attempts of applying management solutions  
developed elsewhere are often bound to  
failure

# Management needs: A problem of scale

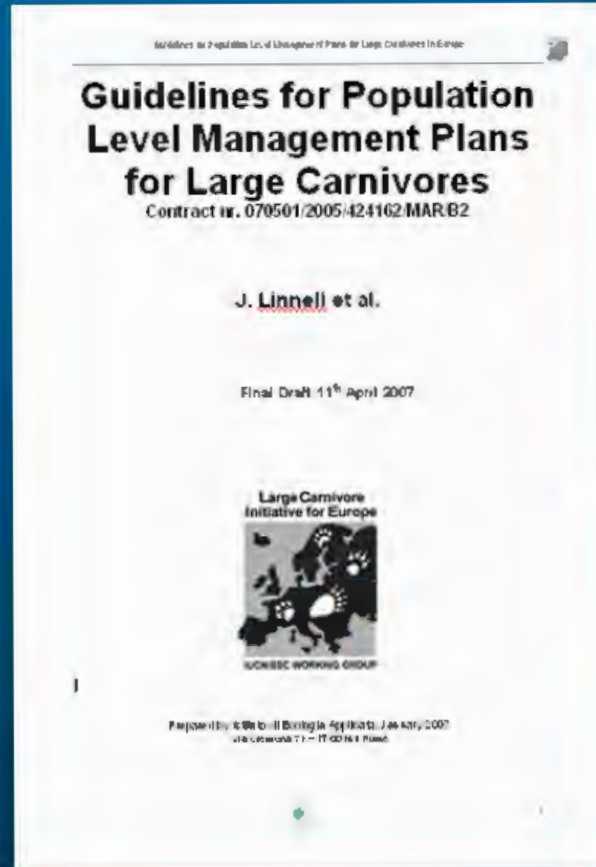
However, local management solutions must also be set in the context of:

- the large-scale processes affecting them,
- and the most appropriate biological scale

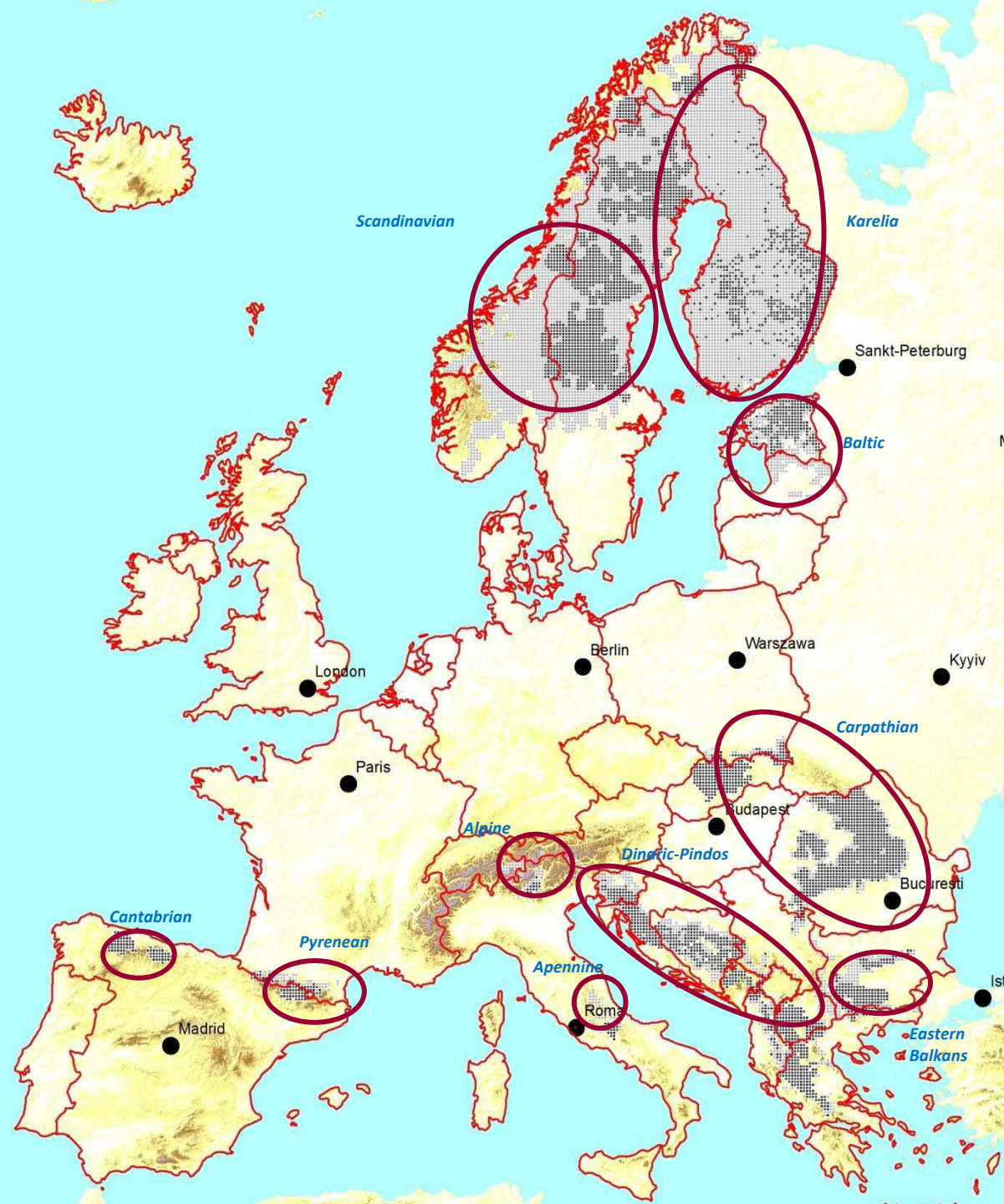


a population approach is necessary





# Main bear populations in Europe 2013



# Main wolf populations in Europe 2013



# What future for LCs in Europe ?

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We have moved beyond saving species from extinction.

Entering phase of learning to live with success.

Far more difficult and controversial!

# What future for LCs in Europe ?

## Abandonment of Agricultural Lands Across Europe by 2030

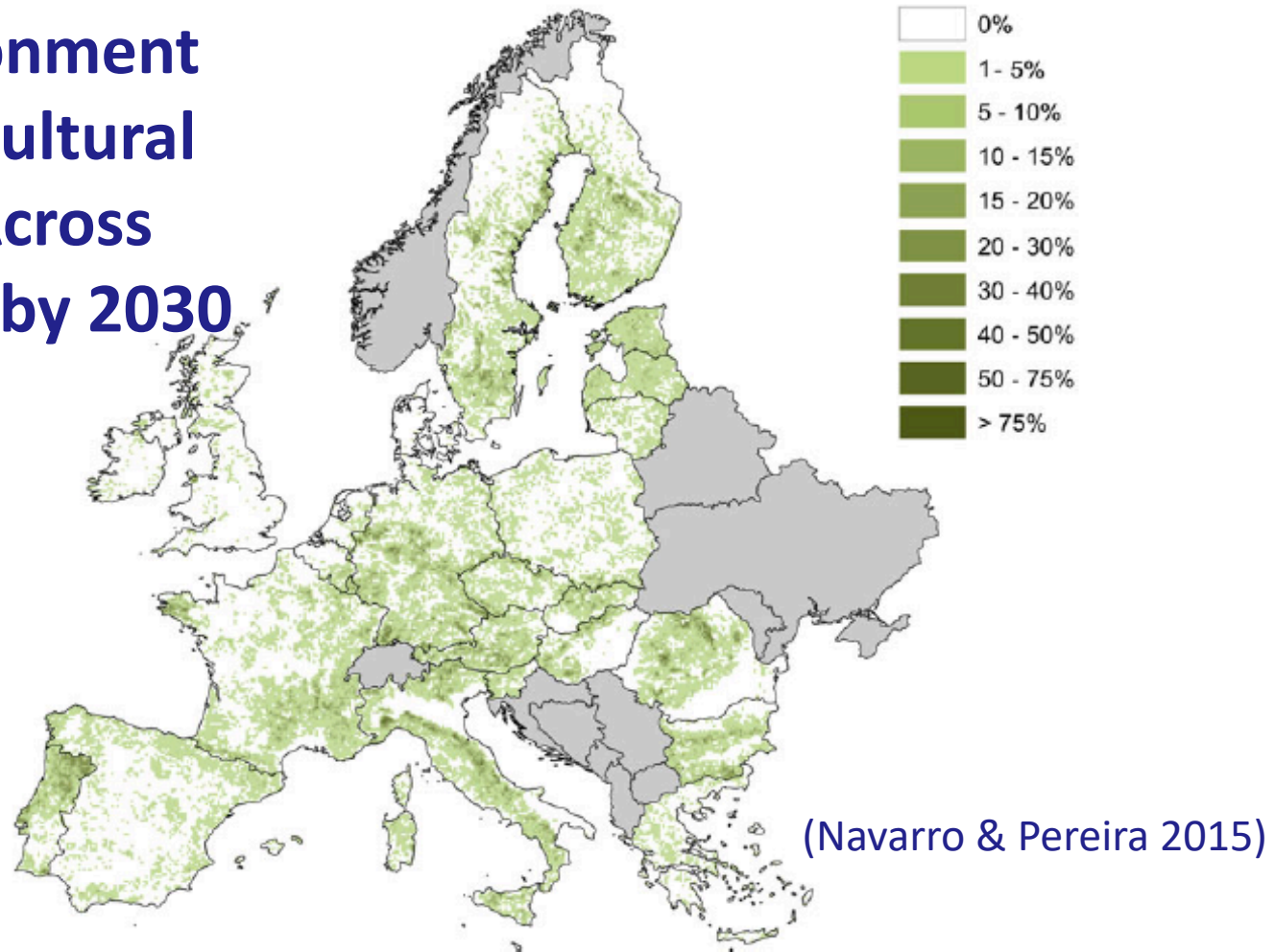
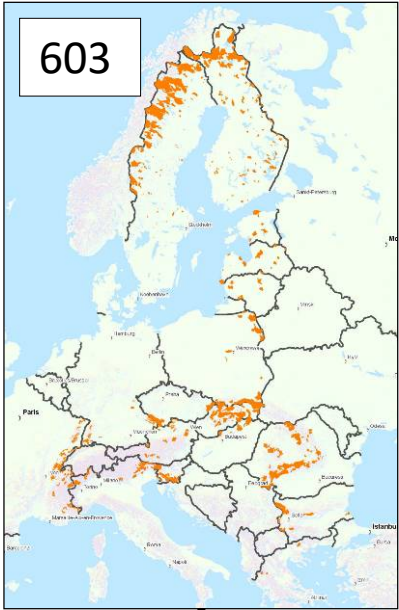


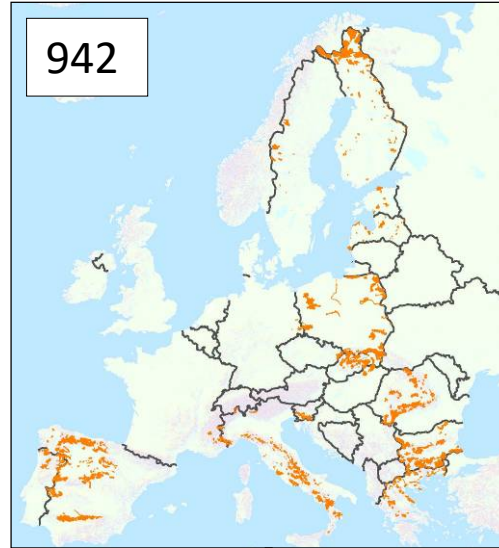
Figure 4. Localization of the hotspots of abandonment and rewilding in Europe. Those hotspots are areas categorized as “agriculture” in 2000 that are projected to become rewilded or afforested in 2030 and that are common to all four scenarios of the CLUE model (Verburg and Overmars 2009). Hotspots are expressed as a percentage of each 10-km<sup>2</sup> grid cell. Agricultural areas correspond to “arable land (non-irrigated)”, “pasture”, “irrigated arable land” and “permanent crops”. Rewilded and afforested areas correspond to “(semi)-natural vegetation”, “forest”, “recently abandoned arable land” and “recently abandoned pasture land”. Countries in *grey* have no data.

# Natura 2000 sites for large carnivores

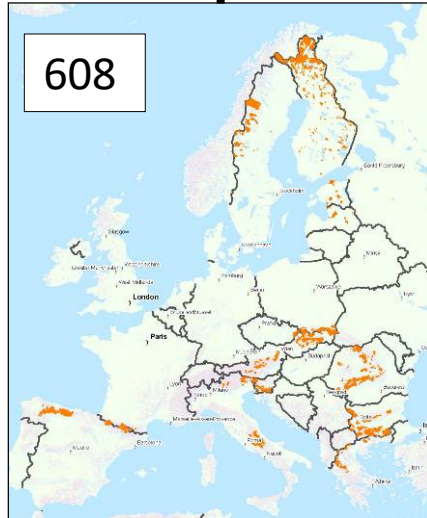
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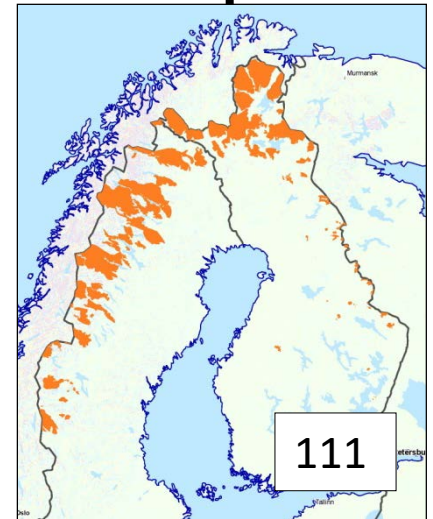
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**Natura 2000 is a great start, but....**

# What future for LCs in Europe ?

**An approach based on**

**- Population viability and**

**- Coexistence with humans**

This implies LC management in highly modified ecosystems where humans are also interactive elements at all trophic levels (*agriculture, forestry, hunting, pollution, nitrogen, climate change, etc.*)

# Limits to LC recovery

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How many more wolves we want ?

Where ?

How do we reach the goal ?



# Limits to LC recovery



How many ?  
where ?

**High density  
in small ranges  
or  
adaptive density  
in larger ranges ?**

# What future for LCs in Europe ?

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Not just how many wolves, bears, lynx

**BUT, also**

What level of carnivore-human conflict  
can Europe tolerate? Where?

# LC - human coexistence

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An Economic and Social carrying capacity defined by the cost of carnivore-human conflicts complements Ecological carrying capacity for carnivores in many human dominated landscapes.

This may imply limiting the potential ecological role of carnivores!!!

# IUCN/LCIE mission:

Large Carnivore  
Initiative for Europe



IUCN/SSC Specialist Group

*“To maintain and restore, in coexistence with people, viable populations of large carnivores as an integral part of the ecosystems and landscapes across Europe”*

*[www.lcie.org](http://www.lcie.org)*