CONSERVATION STATUS OF THE BALKAN LYNX
(*Lynx lynx balcanicus* Bureš, 1941)

Dime Melovski
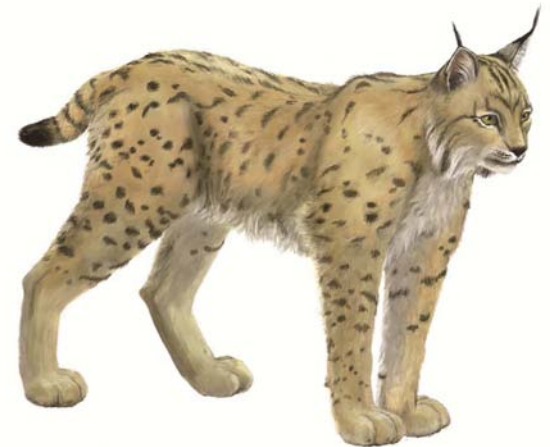
The genus *Lynx* Kerr, 1792

Canada lynx (*Lynx canadensis*)
Least Concern
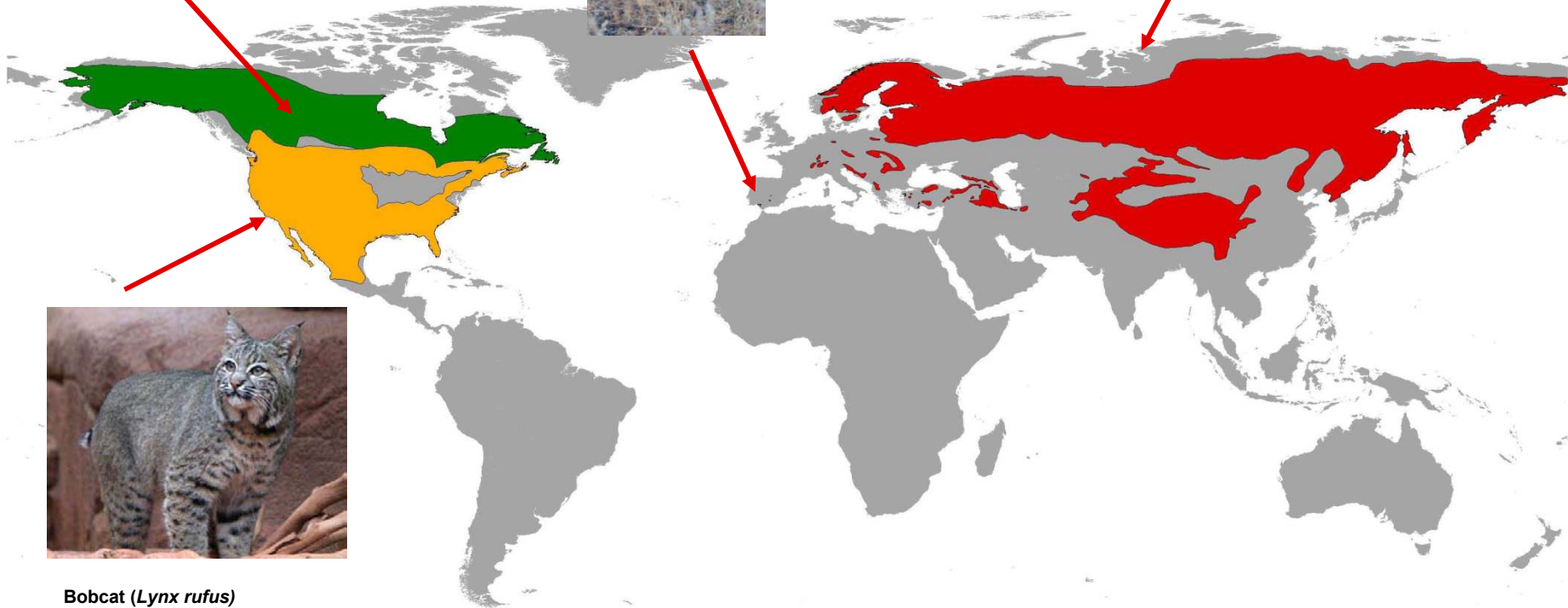Photo: G. Merrill, Colorado Division of Wildlife

Iberian lynx (*Lynx pardinus*)
Critically Endangered
Photo: Alex Sliwa

Eurasian lynx (*Lynx lynx)*
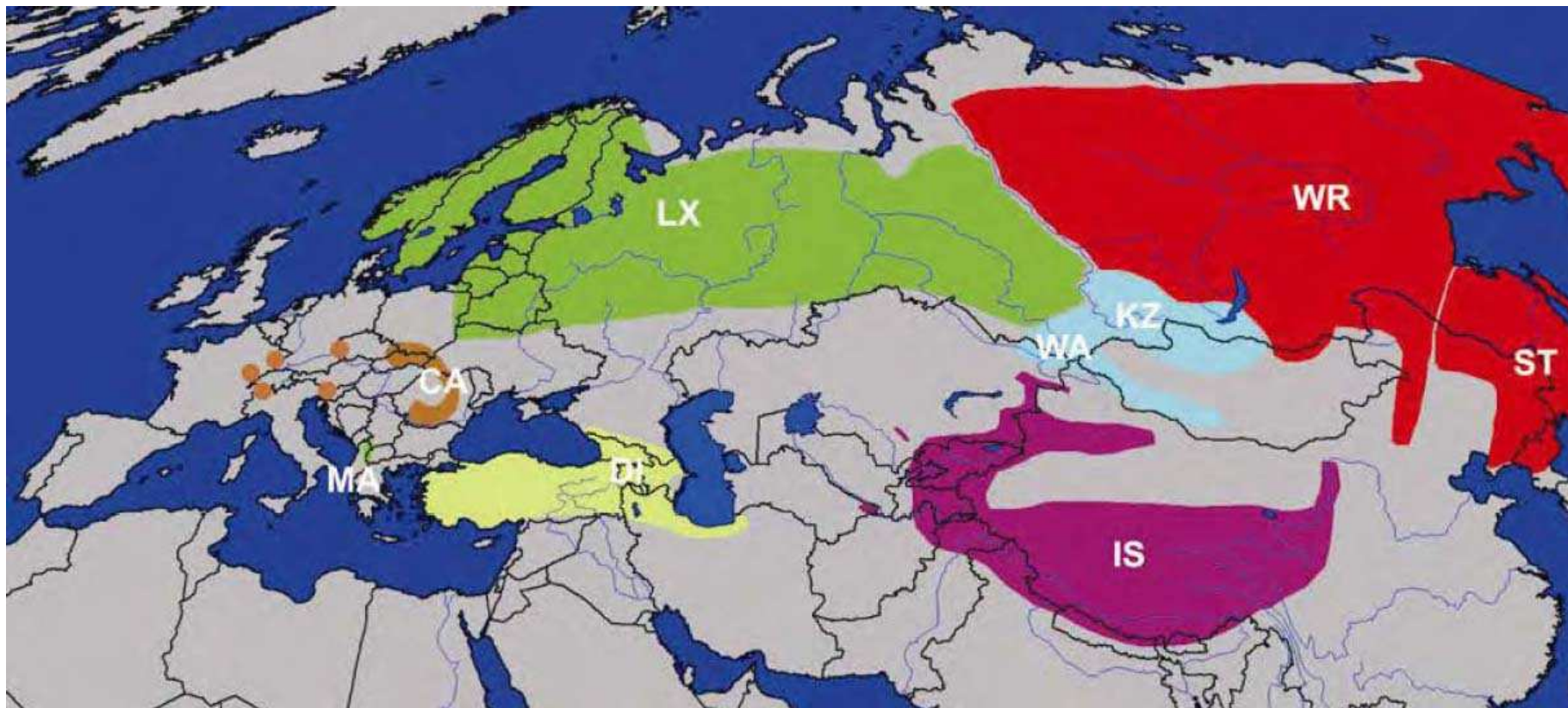**Least Concern**
Photo: KORA

Bobcat (*Lynx rufus*)
Least Concern
Photo: Alex Sliwa

The species *Lynx lynx* (Linneaus, 1758)

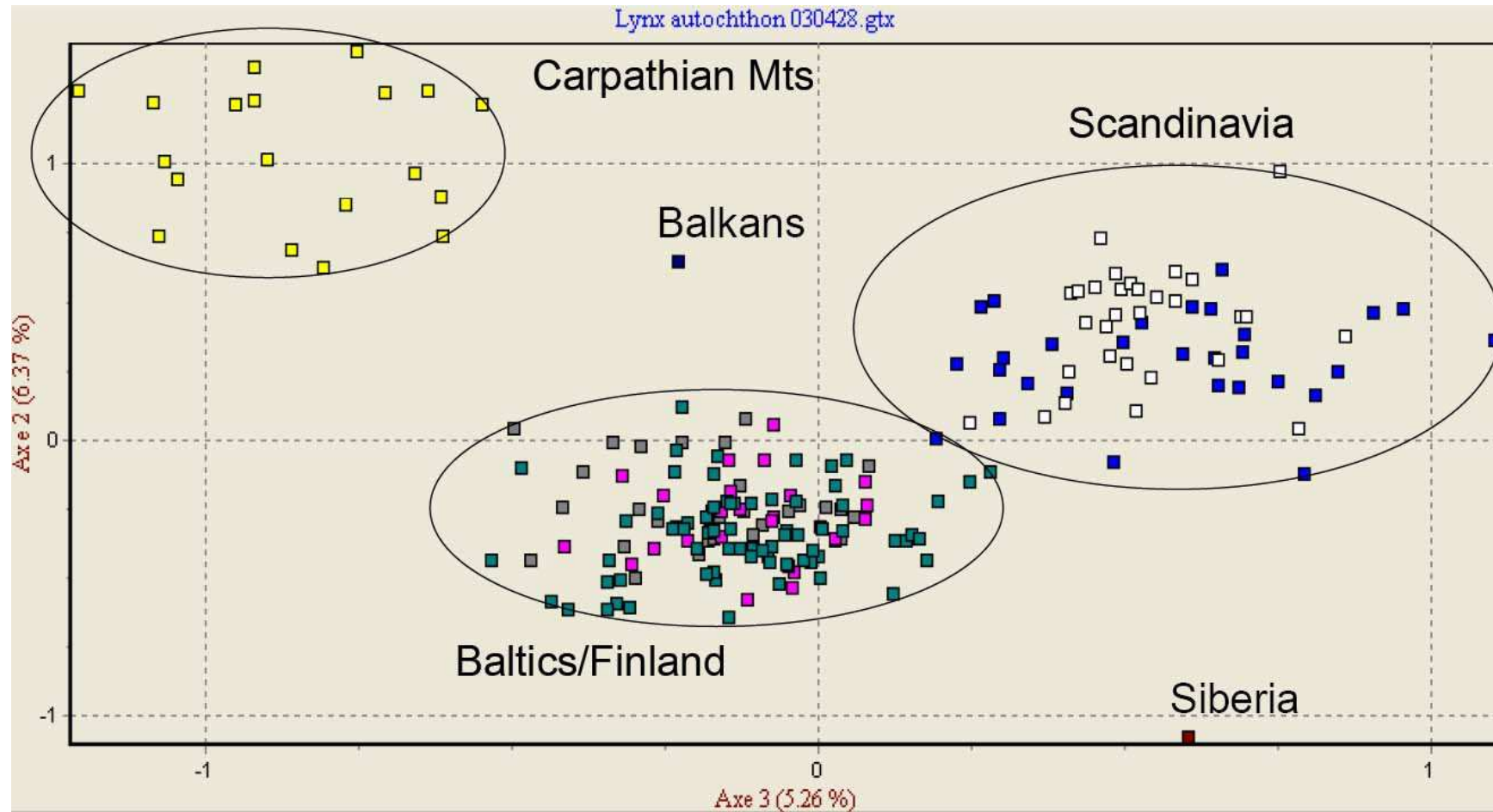- KORA (2004): there are 9 subspecies of Eurasian lynx; 3 are in Europe

The subspecies *Lynx lynx balcanicus* Bureš, 1941

The most endangered autochthonous population

What is the Balkan lynx??

Literature reviews and decline of the population through the history

- First transcripts are from XVII and XVIII century

- Hunters' magazines in XIX century

- Assessment of the status and analysis of the population of Eurasian lynx in 1960's – Kratochvil

- Report on the balkan lynx status for the Bern Convention in 1990 – Breitenmoser et al.

- ELOIS study – repeated survey in 2001

Present status of the Balkan lynx according to LEK

- **Baseline survey** – assessment of the distribution, relative abundance and tend of the lynx, other large carnivores and prey species using interviews and finding other signs from the field
  - Category (C1) – "hard facts"
  - Category (C2) - confirmed tracks, killed prey…
  - Category (C3) – unconfirmed signs for lynx presence
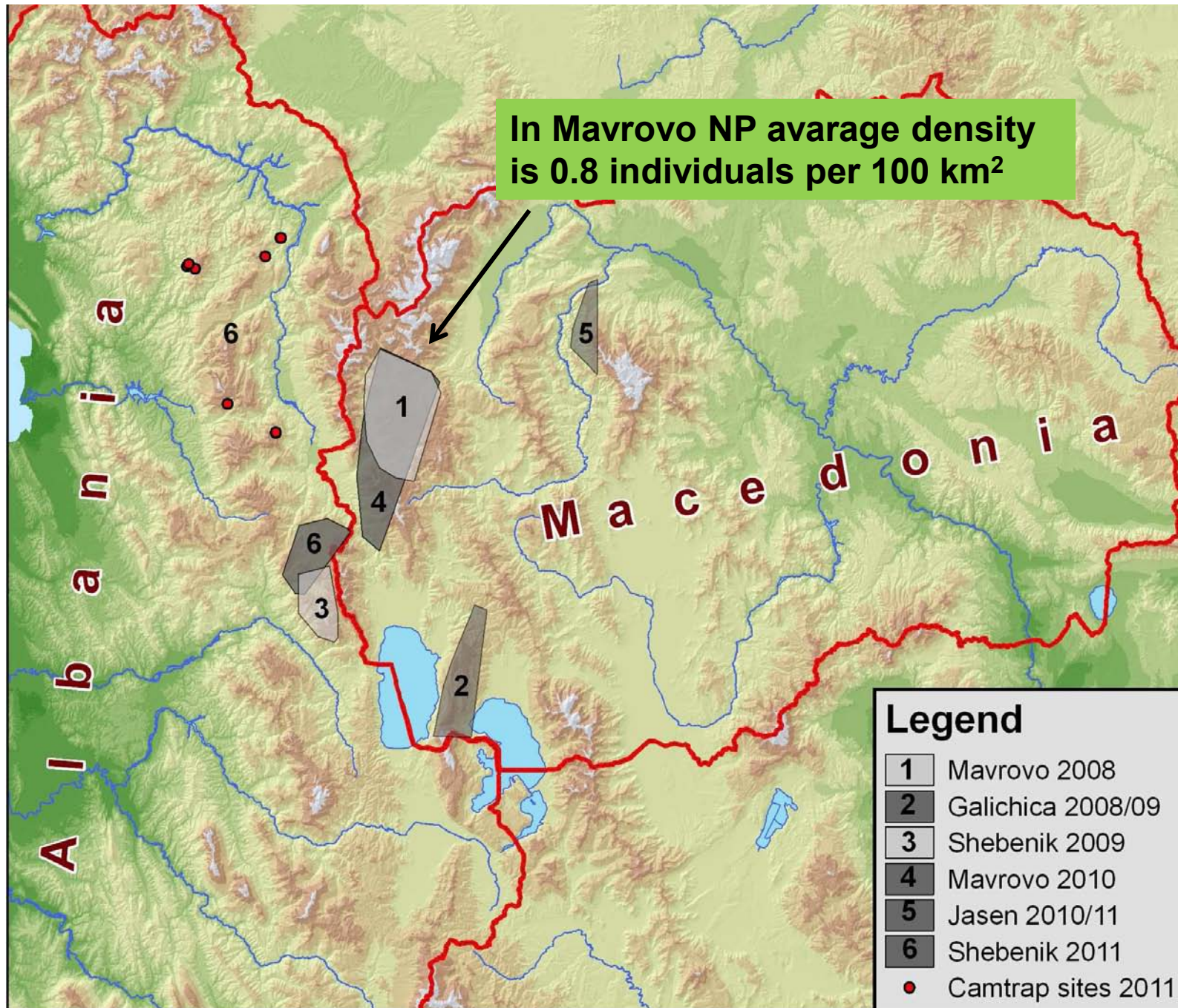
  SCALP criteria

Present status of the Balkan lynx according to LEK

- **Assessment of the distribution area – 5 years, 3 data-sets: questionnaires, hard-facts, chance observations**
  - MGR
    - Minimal grid range - MGR_{min}
    - Maximal grid range - MGR_{max}
  - AOO
    - Minimal area of occupancy - AOO_{min}
    - Maximal area of occupancy - AOO_{max}
  - EOO
    - Minimal extent of occurrence - EOO_{min}
    - Maximal extent of occurrence - EOO_{max}

Present status of the Balkan lynx according to LEK

- **Assessment of the density and population size** – 2 data-sets: questionnaires from the baseline survey and camera-trapping data

  - Minimal value of Area of Occupancy (**AOO**$_{min}$)
  - Maximal value of Area of Occupancy (**AOO**$_{max}$)

  - Formula $\dfrac{X * Y}{100}$ = number of individuals

    X is **AOO**$_{min}$ or **AOO**$_{max,}$ and Y is minimal, mean and maximal population density according to the camera-trap session in Mavrovo NP

In Mavrovo NP avarage density is 0.8 individuals per 100 km²

Legend
1	Mavrovo 2008
2	Galichica 2008/09
3	Shebenik 2009
4	Mavrovo 2010
5	Jasen 2010/11
6	Shebenik 2011
●	Camtrap sites 2011

Assessment of the conservation status - IUCN Red List assessment

- Web application for species in order to help the assessor convey IUCN Red List assessment - Species Information Service Toolkit
  - Distribution – AOO and EOO
  - Population density – camera-trapping method
  - Population trend – Baseline survey
  - Threats

  » IUCN   CATEGORY ???

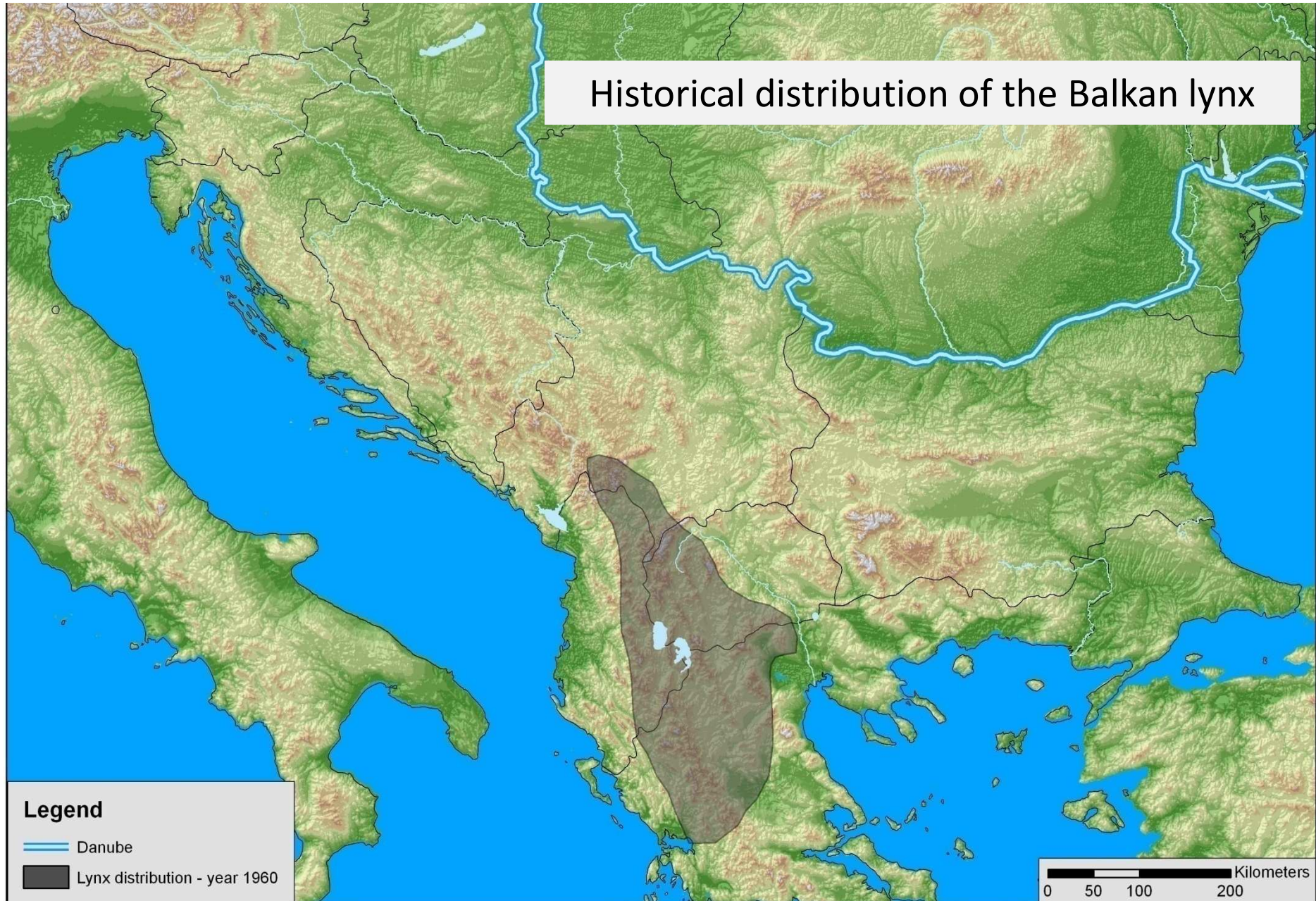Historical distribution of the Balkan lynx

Legend

— Danube

▬ Lynx distribution - year 1800

Kilometers
0 50 100 200

Historical distribution of the Balkan lynx

Legend

Danube

Lynx distribution - year 1900

Kilometers
0   50   100   200

Historical distribution of the Balkan lynx

Legend

— Danube

▪ Lynx distribution - year 1960

Kilometers
0   50   100   200

Historical distribution of the Balkan lynx

Legend

— Danube

▨ Lynx distribution - year 1985

Kilometers
0   50   100   200

Present distribution of the Balkan lynx

Legend

— Danube

▮ Lynx distribution - year 2012
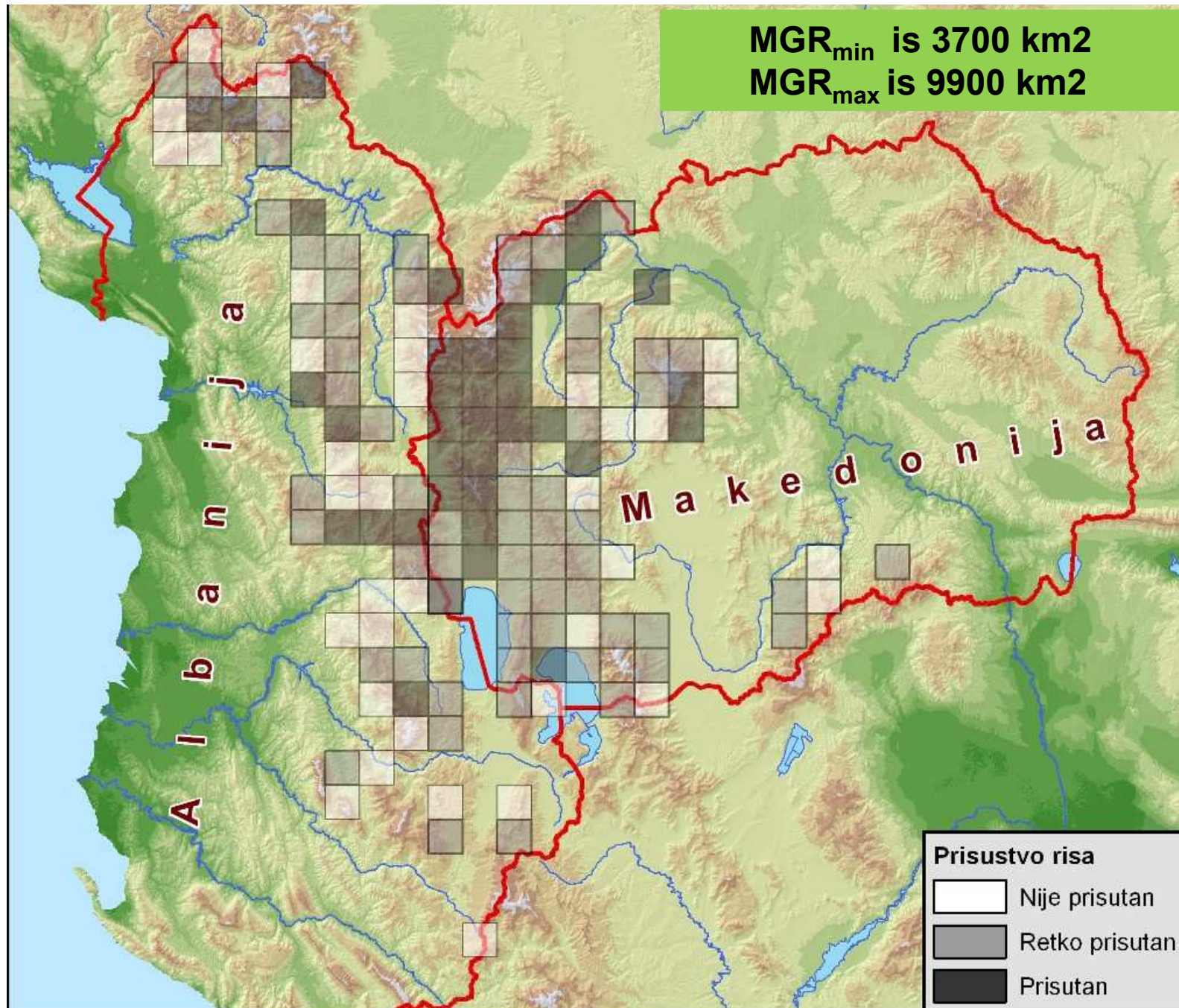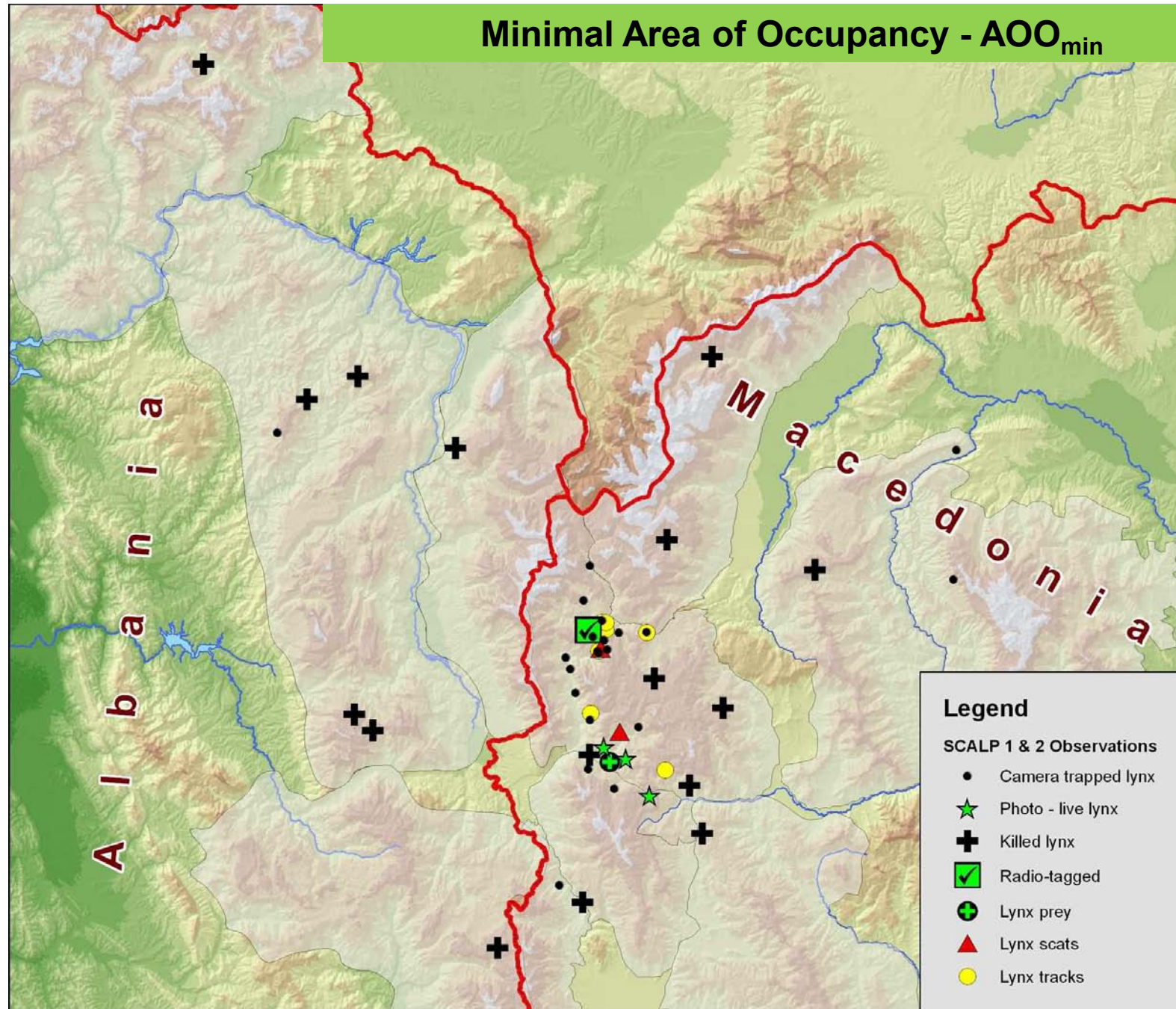
Kilometers
0   50   100   200
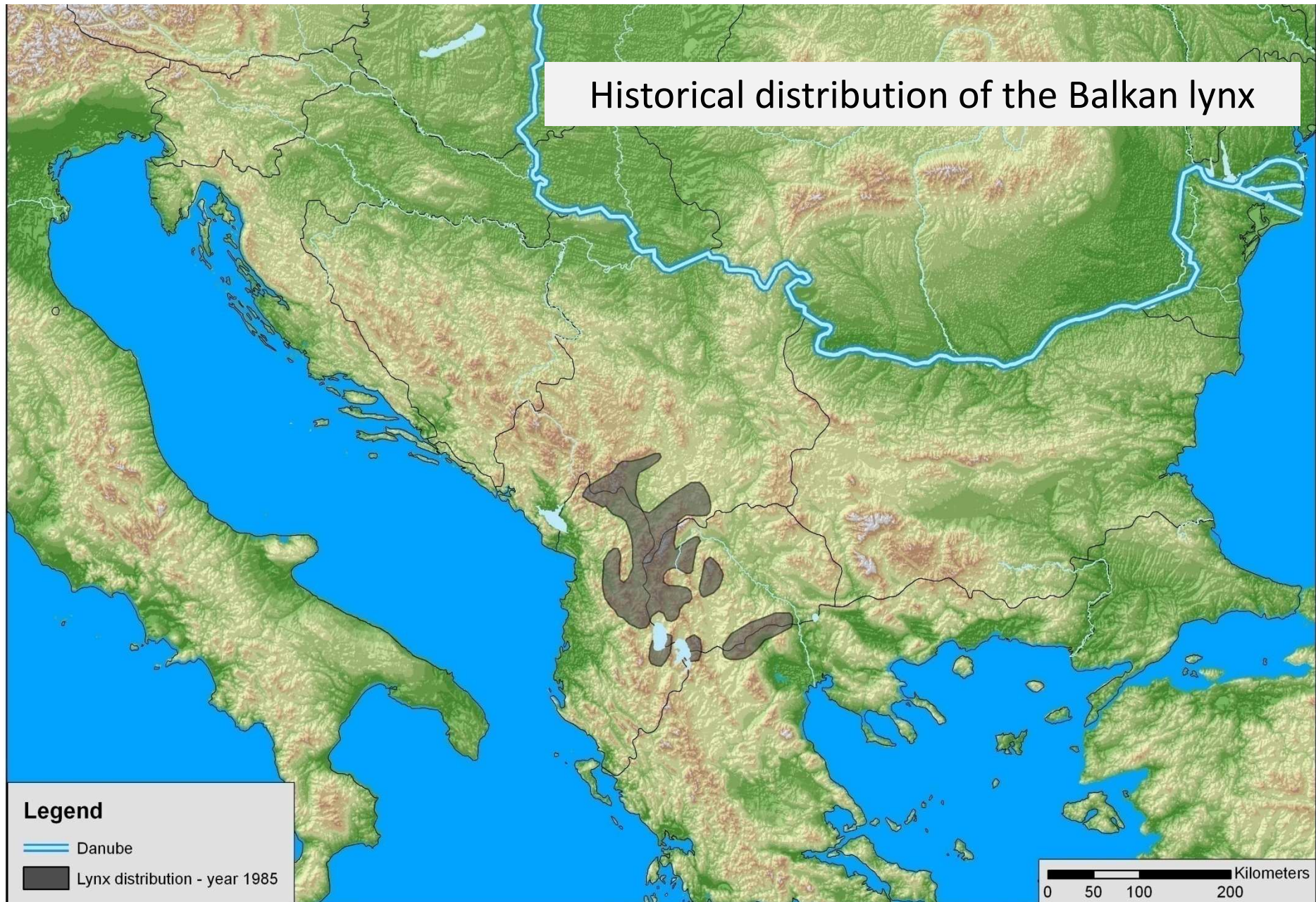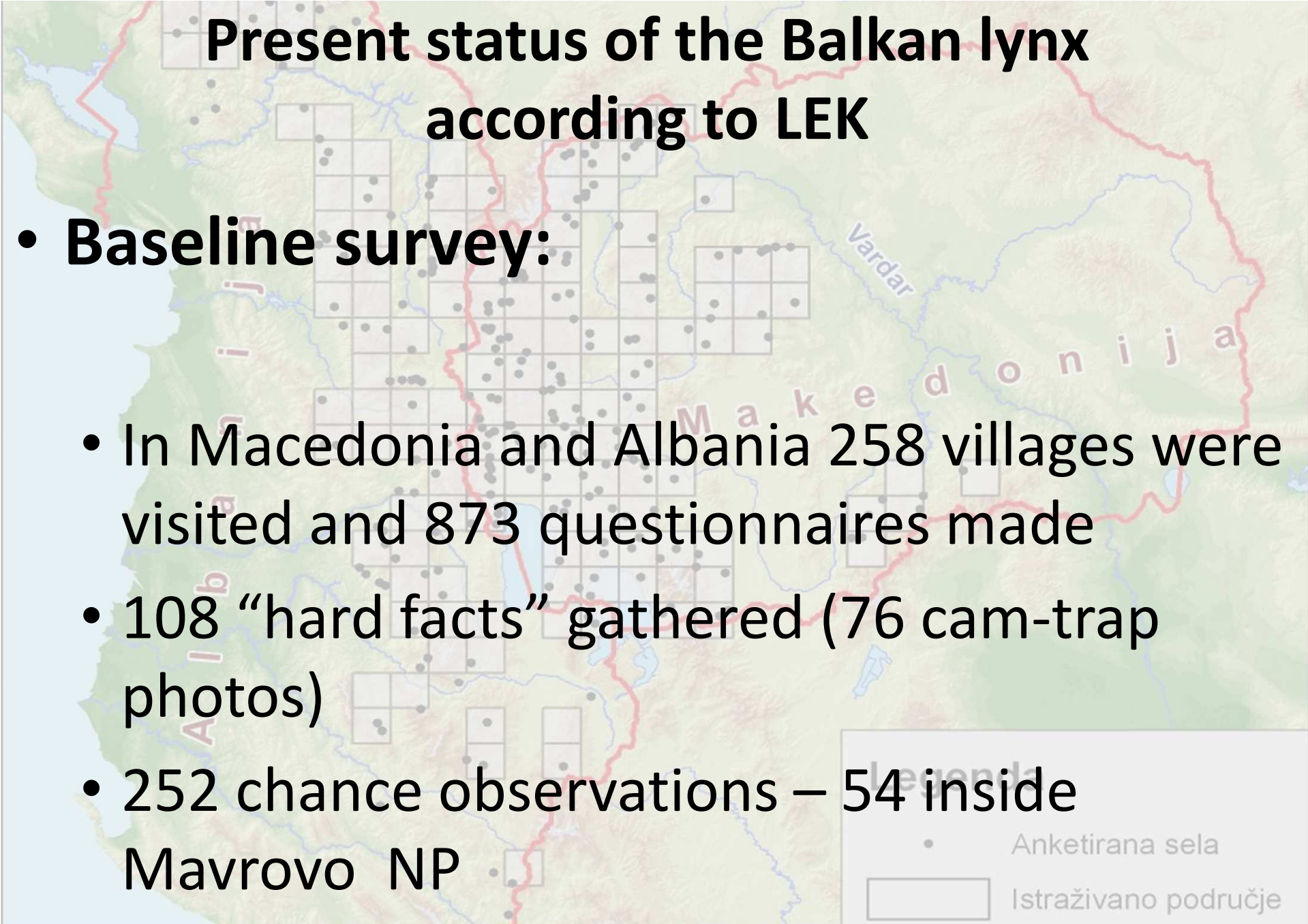
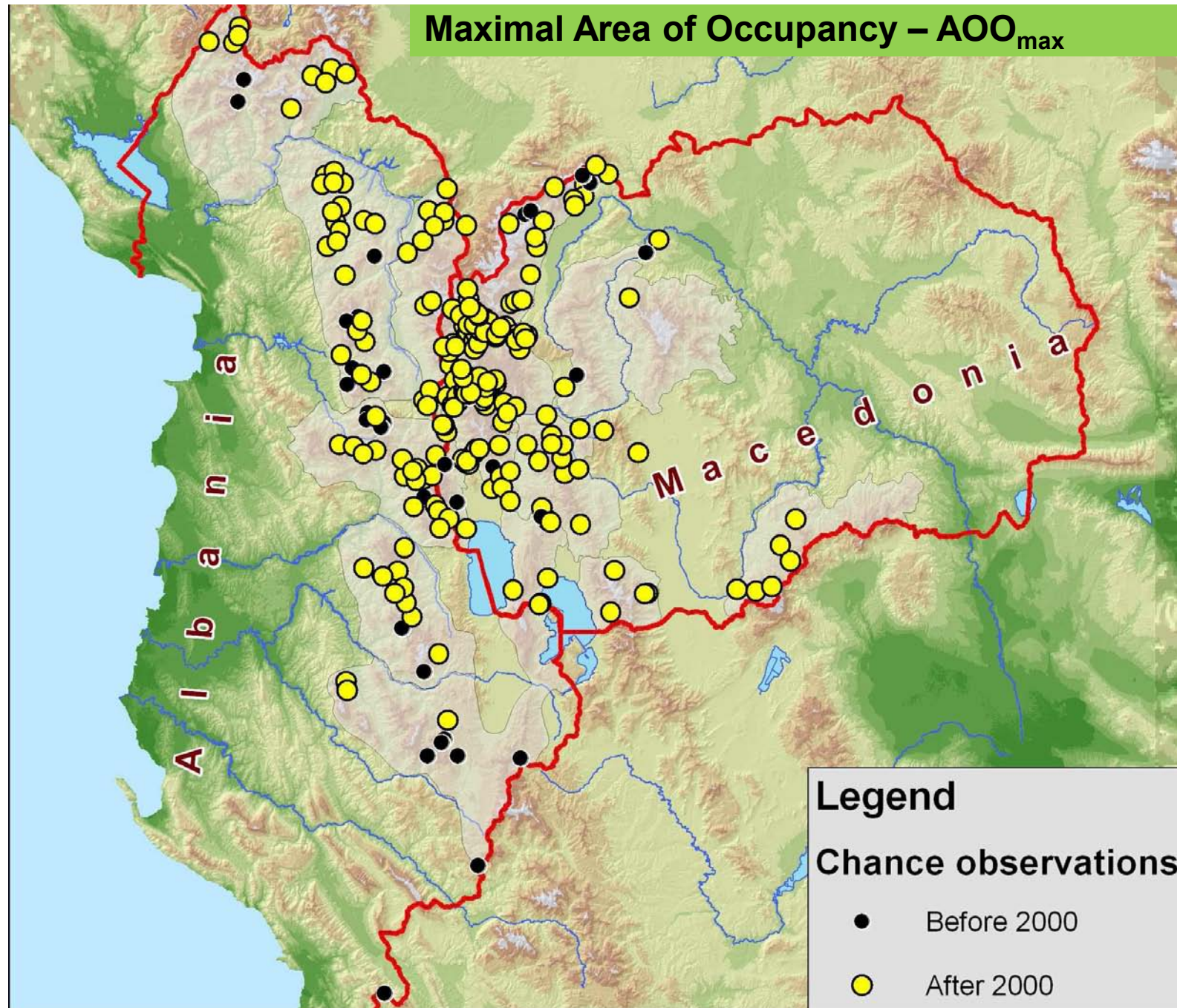# Present status of the Balkan lynx according to LEK

- **Baseline survey:**

  - In Macedonia and Albania 258 villages were visited and 873 questionnaires made

  - 108 "hard facts" gathered (76 cam-trap photos)

  - 252 chance observations – 54 inside Mavrovo NP

MGR$_{min}$ is 3700 km2
MGR$_{max}$ is 9900 km2

Prisustvo risa

Nije prisutan

Retko prisutan

Prisutan

Minimal Area of Occupancy - AOO$_{min}$

Legend

SCALP 1 & 2 Observations

- • Camera trapped lynx
- ★ Photo - live lynx
- ✚ Killed lynx
- ☑ Radio-tagged
- ⊕ Lynx prey
- ▲ Lynx scats
- ● Lynx tracks

Maximal Area of Occupancy – AOO$_{max}$

Estimation of the distribution range

Legend
- EOO_min
- EOO_max
- AOO_min
- AOO_max
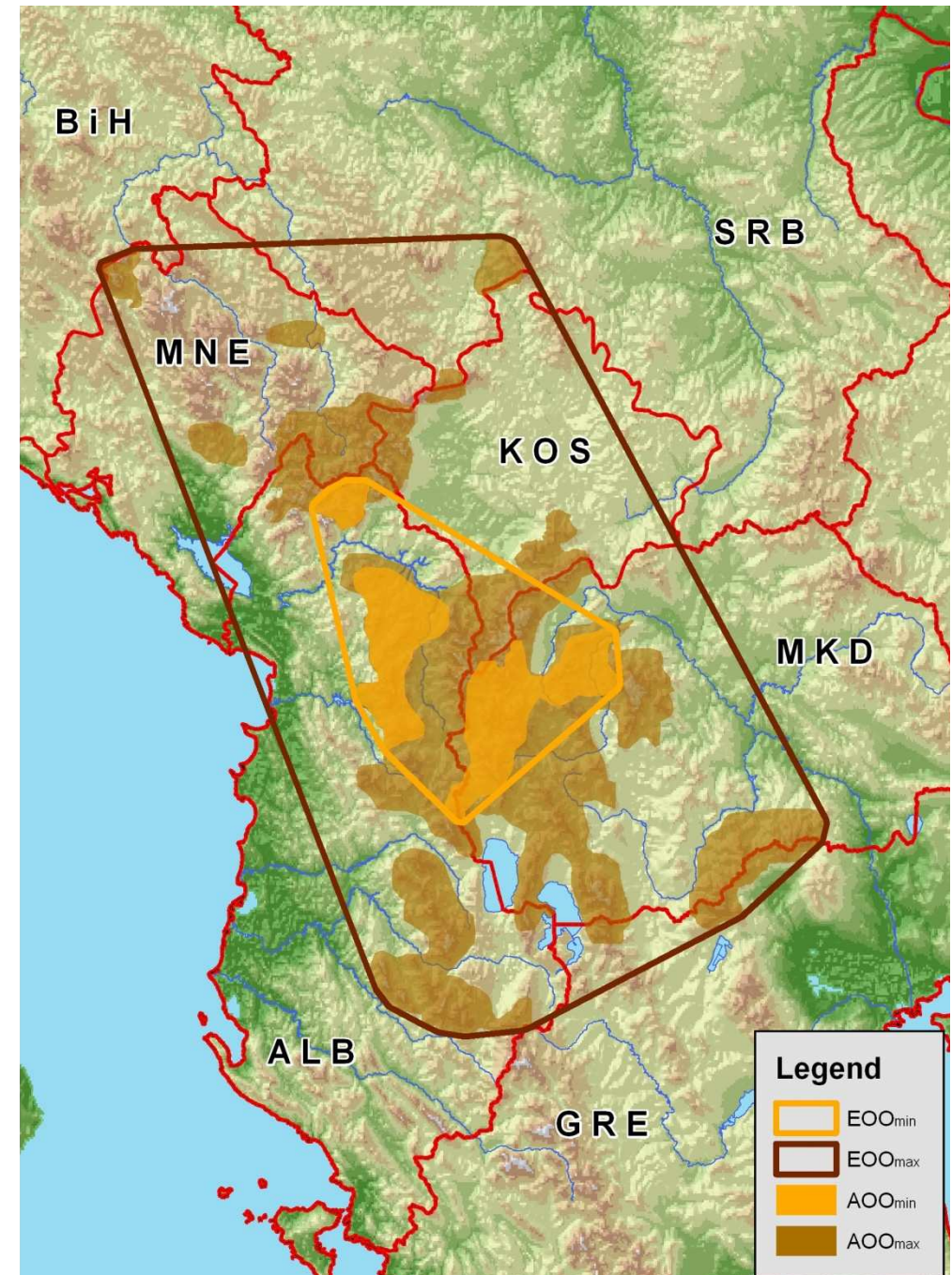
Estimation of the population size

- Pessimistic (likely) scenario – **AOO_{min}**
  - Lowest value of the population size: $\dfrac{4007 \times 0.49}{100} = \mathbf{20}$

  - Mean value of the population size: $\dfrac{4007 \times 0.80}{100} = 32$

  - Highest value of the population size: $\dfrac{4007 \times 1.11}{100} = 44$
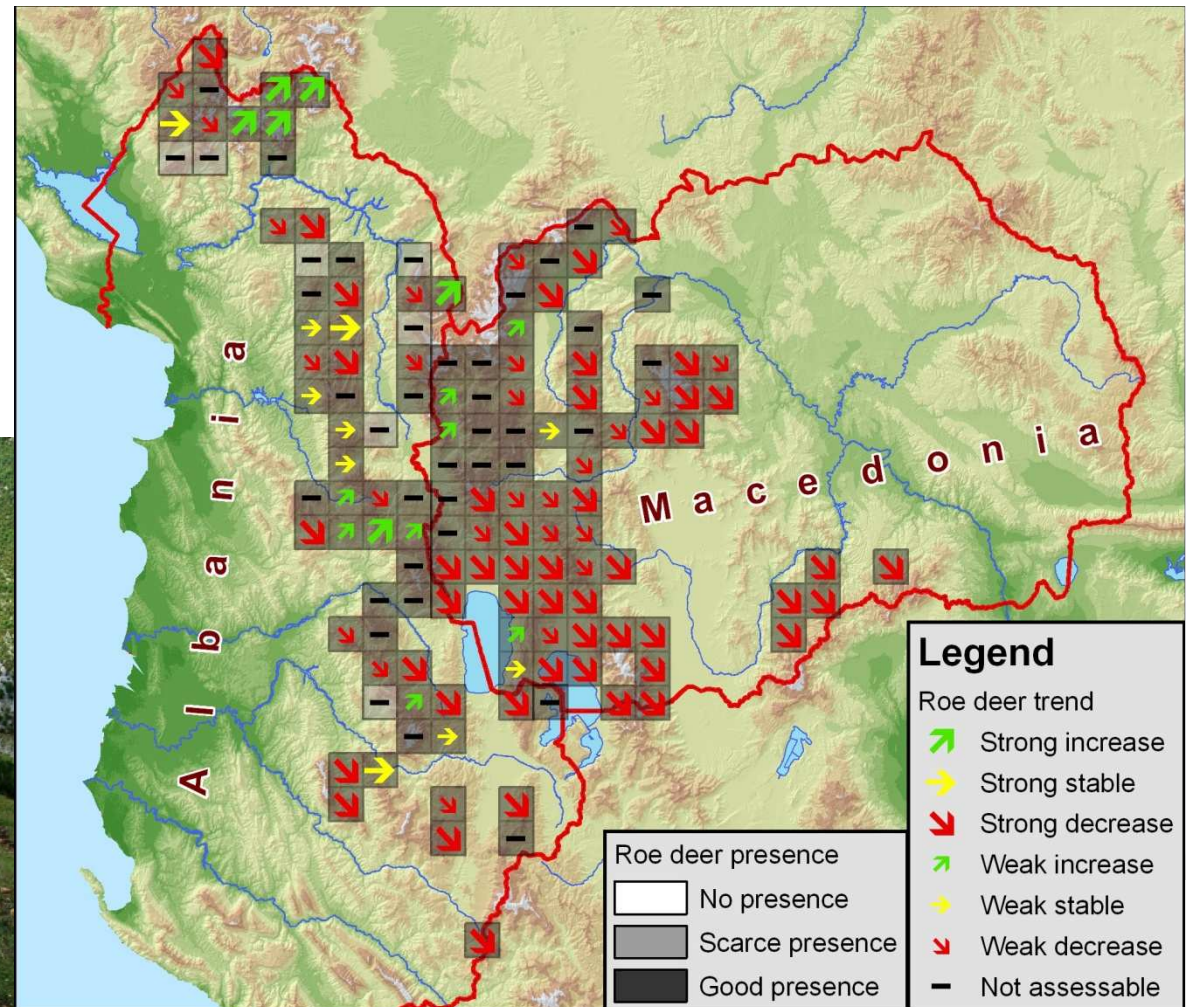
- Optimistic scenario – **AOO_{max}**
  - Lowest value of the population size: $\dfrac{19886 \times 0.49}{100} = 97$

  - Mean value of the population size: $\dfrac{19886 \times 0.80}{100} = 159$

  - Highest value of the population size: $\dfrac{19886 \times 1.11}{100} = \mathbf{220}$

Threats

- Poaching
- Depletion of prey base
- Habitat degradation

Assessment of the conservation status

IUCN Red List assessment

- **Critically endangered – CR (C2a(i,ii)D)**

- **C** – ' small population size and decline' or more specifically **C2** – 'continuing decline' in **a(i)** - 'number of mature individuals in each population' is less than 50 and/or **a(ii)** – '90 to 100% of the individuals are in one population'. **D** represents 'very small and restricted population'

4/17/2010   6:28 AM

Subspecies or ESU

- *Lynx lynx balcanicus –* genetic differences are not sufficient to justify subspecies differentiation in Europe; more markers are needed

- *Evolutionary Significant Unit -* ESU is one of the ways do describe this population – population of organisms which is considered distinct for the purposes of conservation

- Taxonomic and conservation status of the Balkan lynx should be officially recognized as soon as possible in order to attract the attention to the politicians and rise funds for its recovery

- We have proved that the Balkan lynx is an autochthonous population which is critically endangered according tot eh IUCN Red List criteria and thus deserves conservation attention with highest priority

3/15/2012 9:37 PM

Cuddeback

Future goals

- Downgrade the IUCN status of the Balkan lynx. According to IUCN (2008), a taxon may be downgraded from one category to the other if none of the upper categories are not met in five or more years.

- We urgently need to implement the above mentioned methods in Kosovo and Montenegro is order to standardize the results, calibrate the data and thus finalize and officialize the conservation status of the Balkan lynx under the auspices of the Bern Convention

Is there a chance for the Balkan lynx?

- Conservation efforts
- Public opinion

Macedonian 5-denar coin

Macedonian post-stamp

Partnership

MoEPP

MoEFW

COUNCIL OF EUROPE — CONSEIL DE L'EUROPE

BERN CONVENTION

IUCN

GOs, Authorities

Scientists, Experts

Stakeholders, NGOs, Public

Foresters

ΜΕΔ ΜΕS

EURONATUR

ASPBM

NINA

KORA

National parks

Hunters

Farmers

Lifestock breeders

Local people

Media

Thanks!