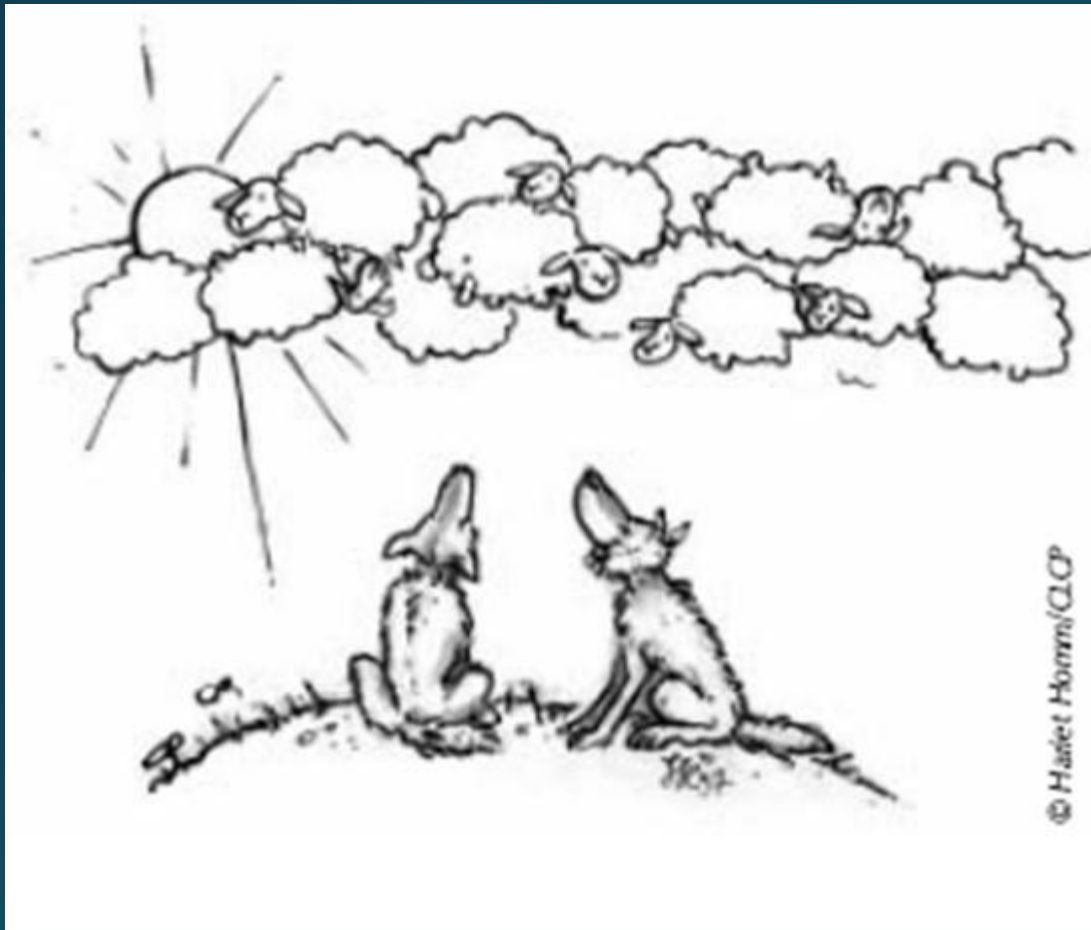


Wolves satiated and all sheep on count



Prof. dr. Josip Kusak DVM

Biology department, Veterinary faculty, University of Zagreb





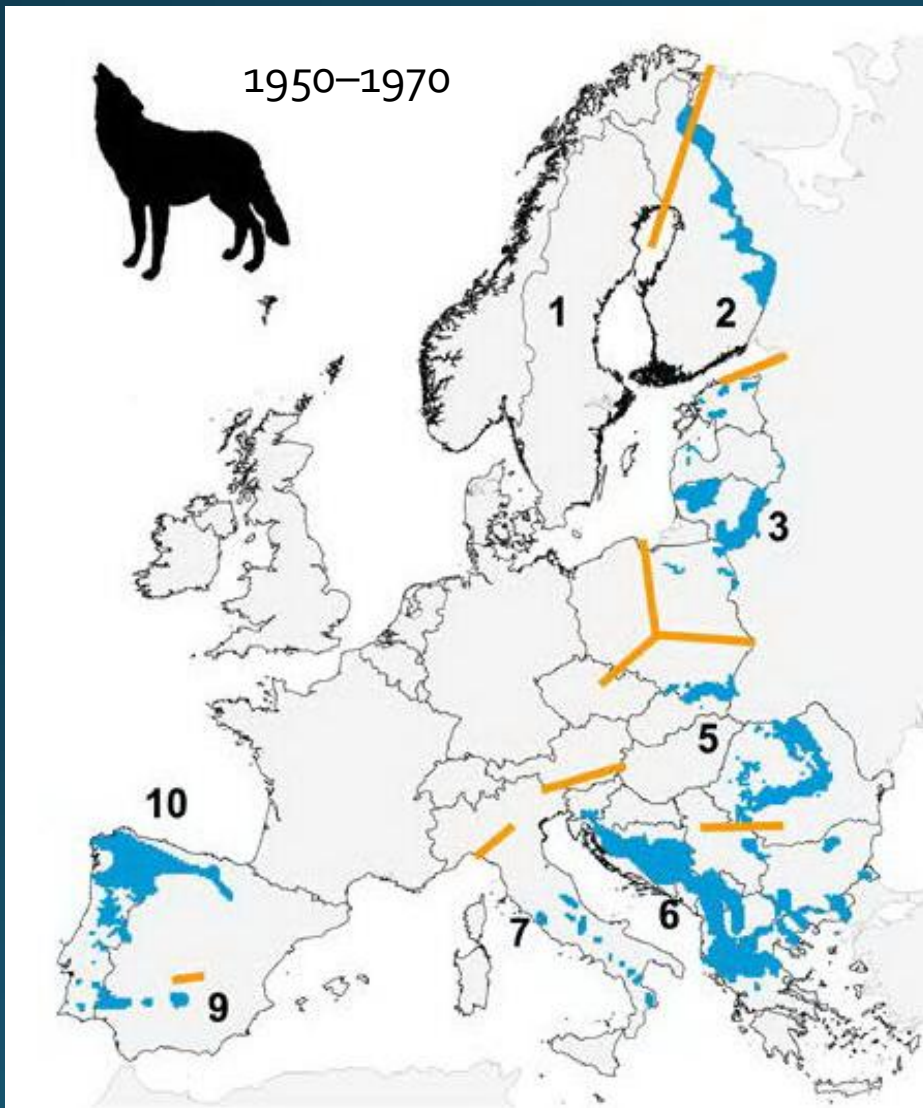
7.000 DINARA NAGRADE ZA SVAKO UNIŠTENOG VUKA

Sve informacije i stručne upute
daje nadležna šumarija



Historic low wolf distribution

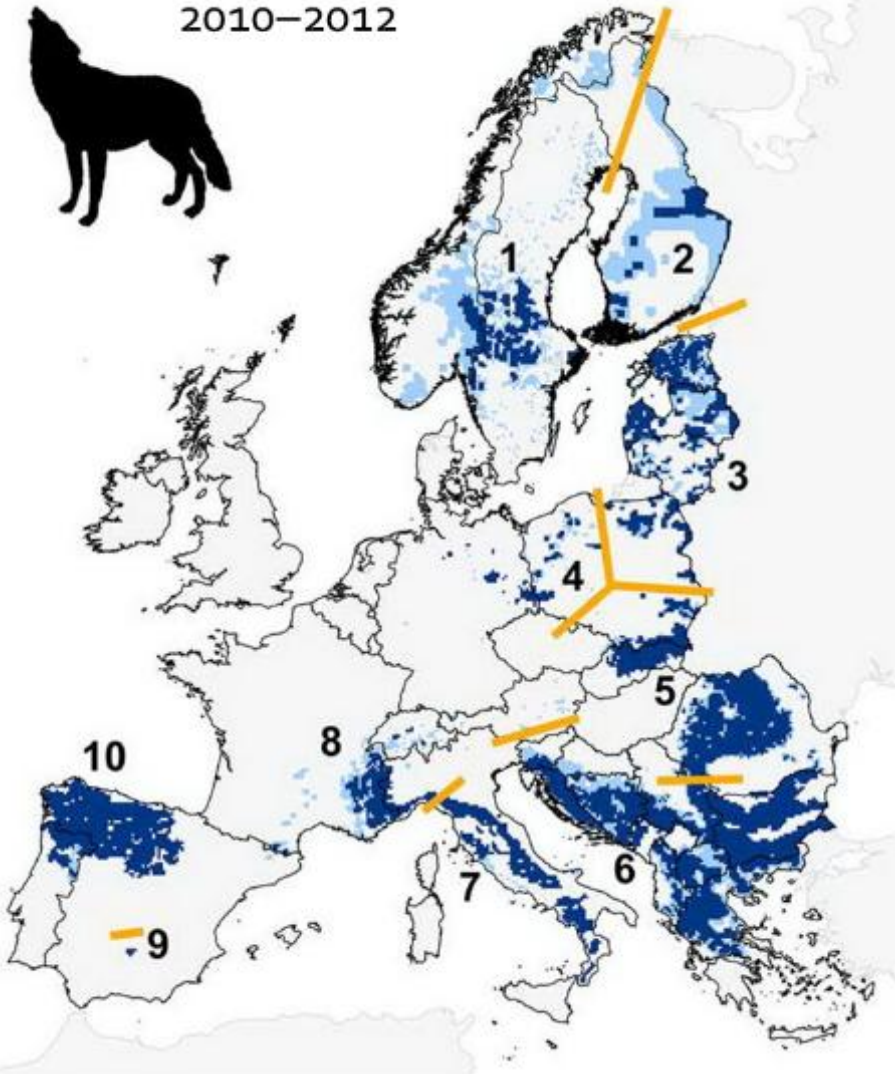
from Chapron et. al, Science 2014



Present wolf distribution

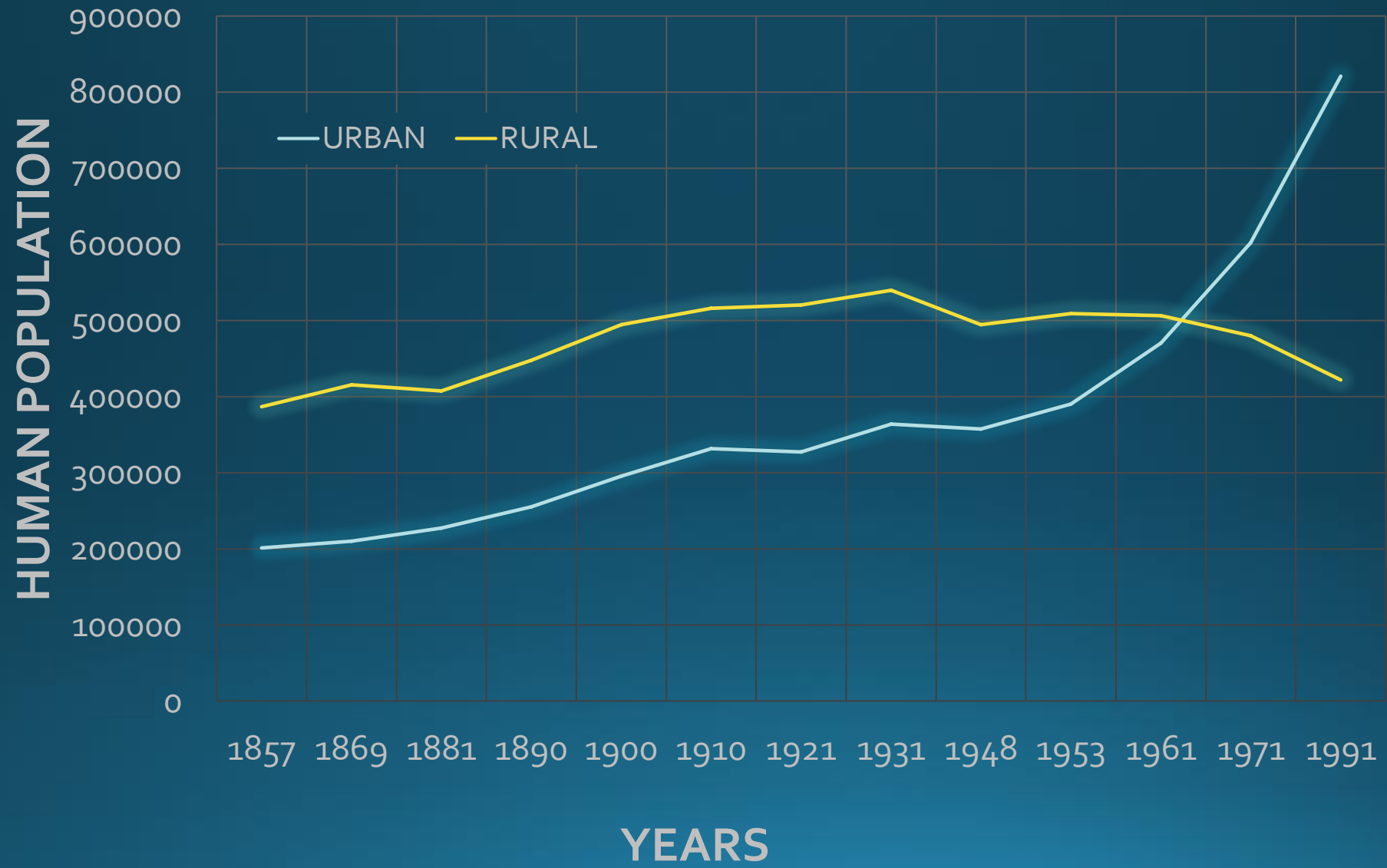
from Chapron et. al, Science 2014

2010–2012



- Causes of wolf recovery in Europe
- Human abandonment of rural areas
- Succession of forest
- Less negative attitude toward wolves (less wolves)
- Conservation efforts

HUMAN POPULATION DINAMIC IN WOLF RANGE IN CROATIA DURING 134 YEARS

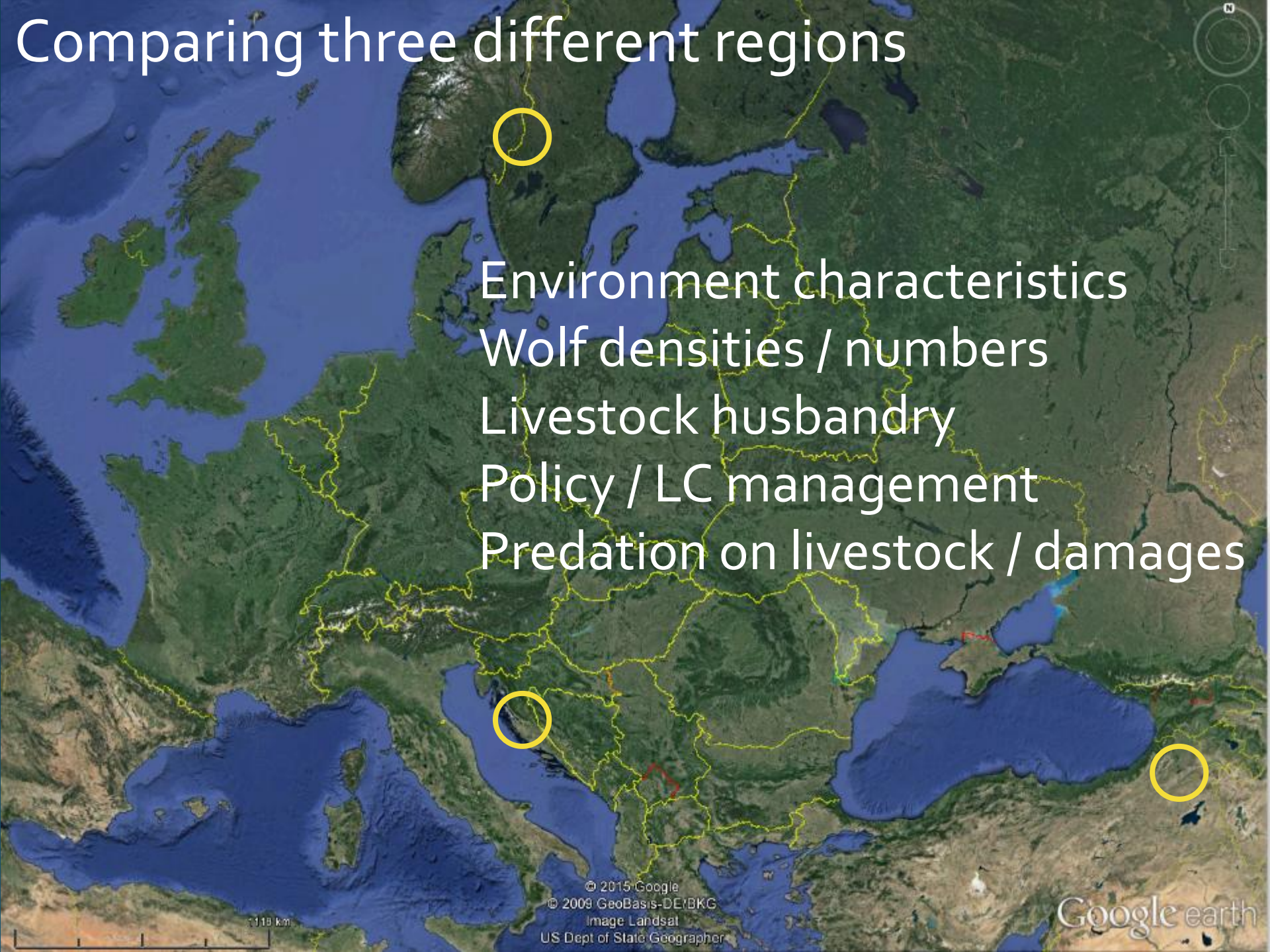


Gorski kotar region of Croatia



The level of conflict with livestock farming does not necessary correspond with the density of wolves and with the density of livestock, but depends on the degree of alienation from wolf-safe livestock husbandry and on the presence of alternative food sources for wolves.

Comparing three different regions

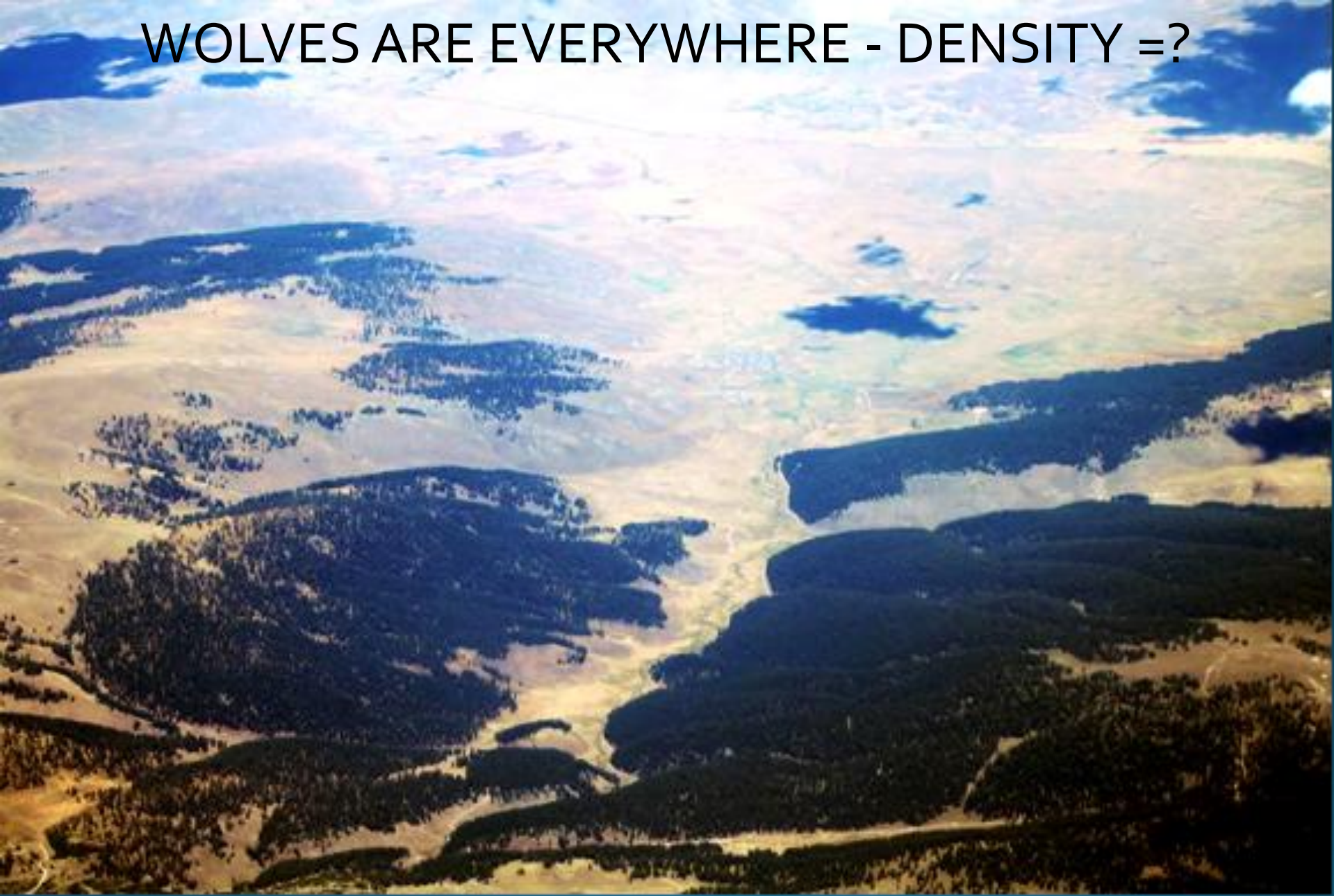


Environment characteristics
Wolf densities / numbers
Livestock husbandry
Policy / LC management
Predation on livestock / damages



Google image of north-eastern Turkey and parts of Georgia and Armenia.
Sarikamis area is in the circle

WOLVES ARE EVERYWHERE - DENSITY =?



Aerial photo of a typical forest landscape of Kars-Ardahan Plato. Fragments of forest are surrounded by agricultural land

Kaynak village – Sarikamiş area



About 851000 livestock heads in the Kars province in 2012



Large herd of cattle and sheep flocks can be found on the pastures all around the Sarikamiş forest, north-eastern Turkey





Sheep and cows are regularly present even in the Sarikamiş-Allahuekber Mountains National Park



wild boars are present at low density, and roe deer are very rare



Livestock constitute most of the biomass intake for wolves (Capitani et al. 2015). However, it is not known what is the ratio of predation vs. scavenging.











TURKEY SUMMARY

Wolves in Turkey are a species under protection from hunting according to the Article 4 of Turkey's Terrestrial Hunting Law

No Management plan

No damage compensation

Illegal killing of wolves happens

No fine for killing a wolf

a „fine” for killing a leopard in 2013 was 300 TL or 100 USD

„NO PROBLEM!”



Images and data courtesy by
Prof. dr. Jon Swenson



WOLF

Norway

30

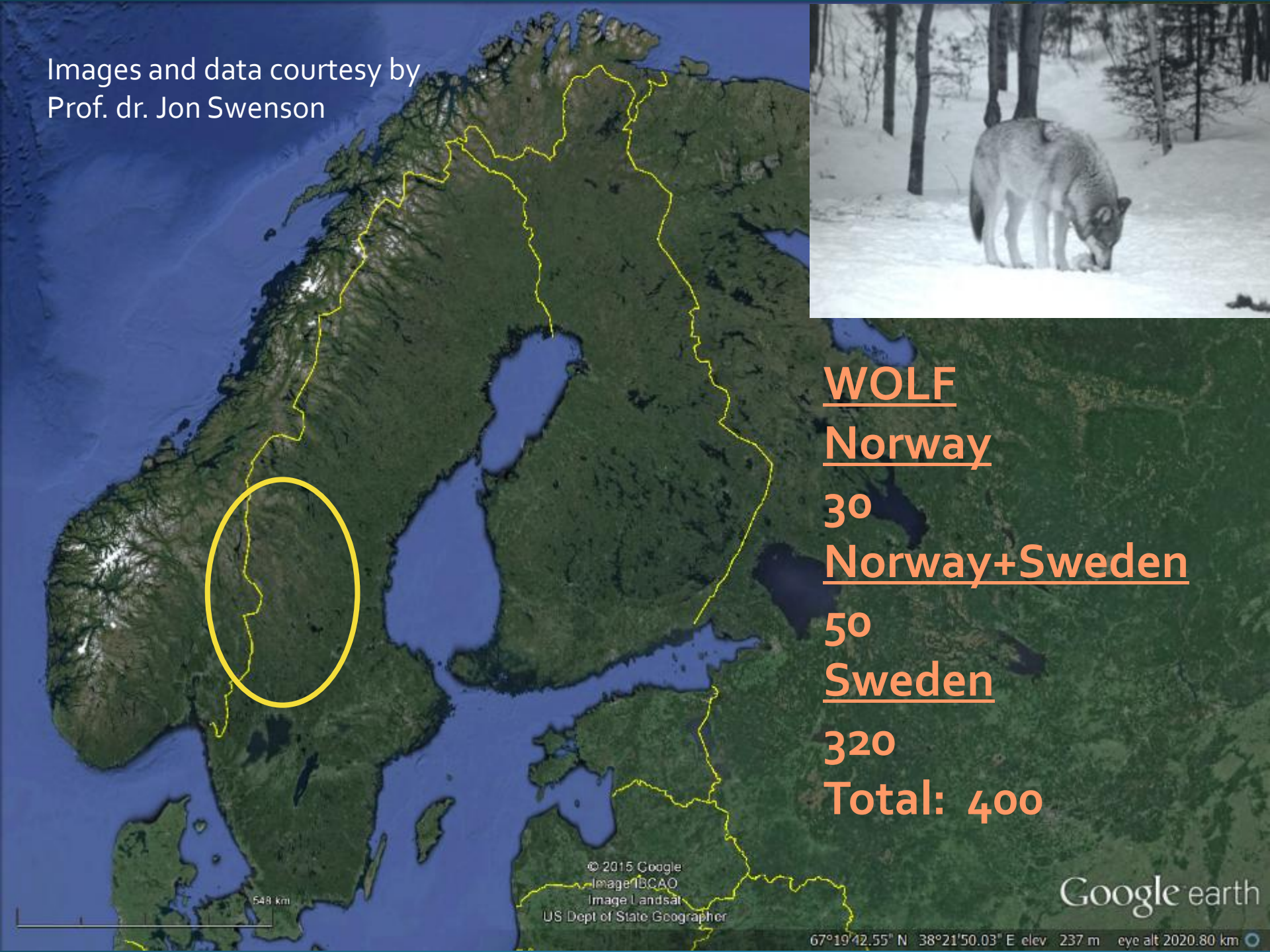
Norway+Sweden

50

Sweden

320

Total: 400



Google earth

67°19'42.55" N 38°21'50.03" E elev 237 m eye alt 2020.80 km

Sheep husbandry and compensation rules

(data and slide courtesy by Jon Swenson)

Norway

>2,000,000 sheep graze unguarded on mountain and forest ranges

Compensation for sheep documented killed or probably killed by large carnivores

No requirement for use of effective protective measures



Sweden

450,000 sheep graze mostly in fenced pastures near farms

Compensation for sheep documented killed or probably killed by large carnivores

Use of approved protective measures is required for compensation

Norwegian wolf policy

- The current goal is "4-6 annual reproductions, of which 3 shall be totally within Norway", and with border reproductions counting as 0.5.
- Currently (2016), the decision is to kill 47 wolves out of estimated 67 wolves.
- Norway claims that their goals are in line with Bern Convention requirements (!!!) and with their own national laws.
- The problem is in ridiculously low population size goal and unsustainable quota!



Slovenia

Croatia

Hungary

Land & islands 56608 km²
Forest 24622 km² (43.5%)
Shrubs 1733 km² (3.1%)
Other 30253 km² (53.4%)

Gorski kotar

Lika

Dalmatia

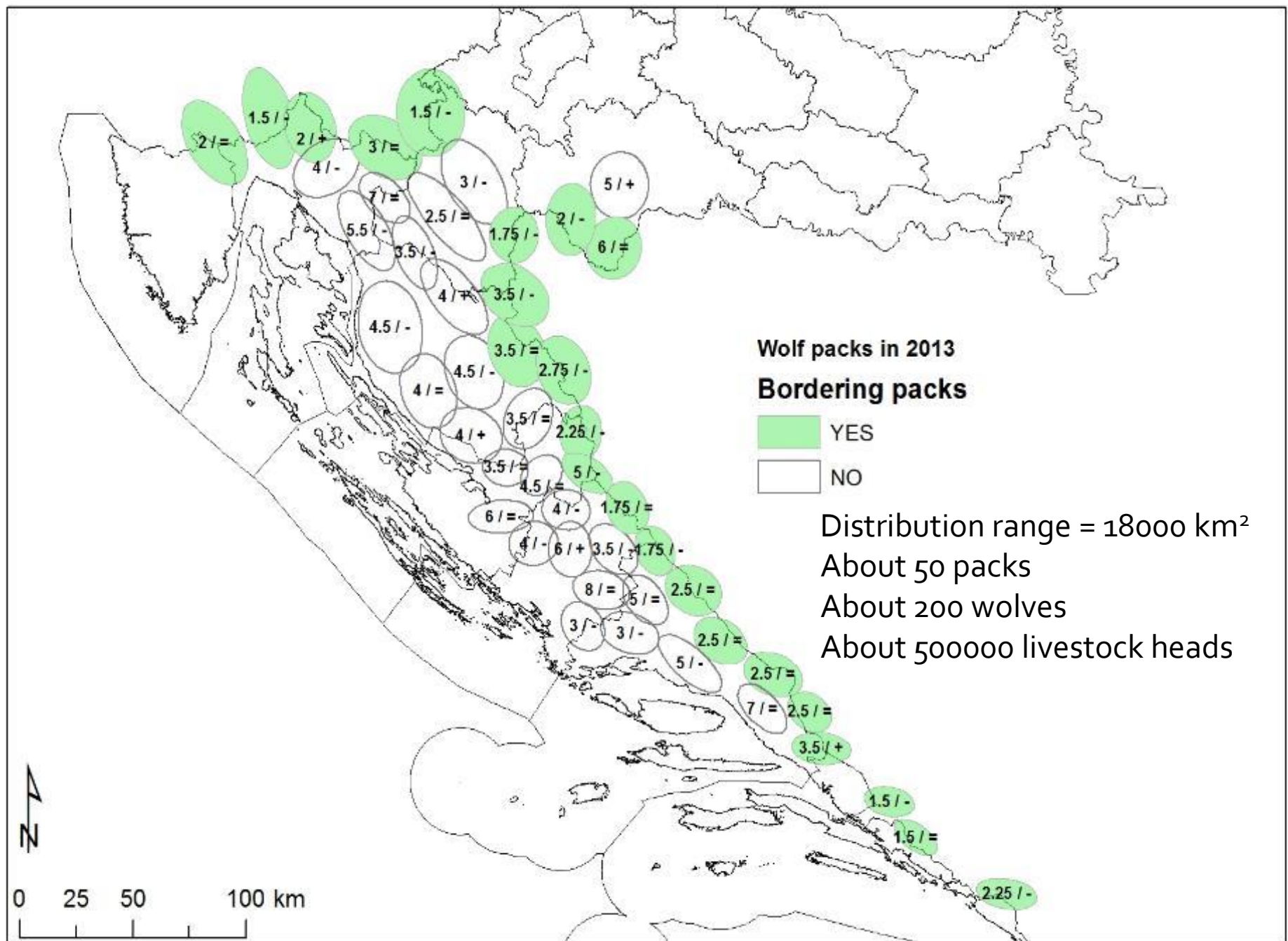
Bosnia & Herzegovina

Serbia

© 2015 Google
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image Landsat
US Dept of State Geographer

Google earth

Imagery Date: 4/10/2013 46°02'30.93" N 18°06'27.21" E elev 127 m eye alt 467.55 km



Gorski kotar region

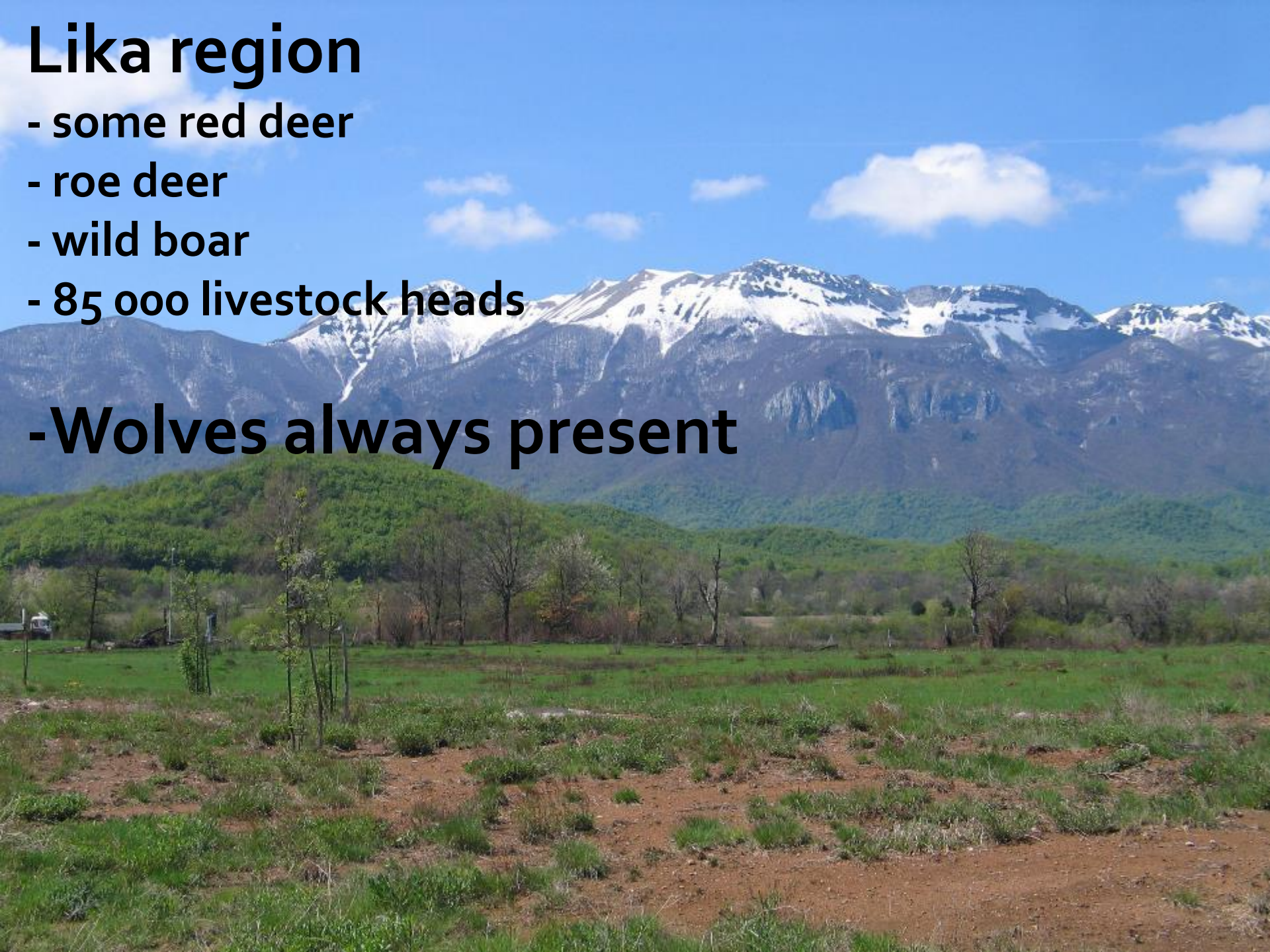
- red deer
- roe deer
- wild boar
- 37000 livestock heads mostly along the coast

-Wolves always present



Lika region

- some red deer
- roe deer
- wild boar
- 85 000 livestock heads
- Wolves always present



Dalmatia region

- no red deer
- some roe deer
- some wild boars
- 260000 livestock heads

**Wolves exterminated in 1950-es
but recolonized the area in 1990-es**







Protecting flocks additionally challenging because of dense Mediterranean shrub



Animals killed by wolves per single wolf attack

YEAR	N OF REPORTED WOLF ATTACKS	N OF KILLED LIVESTOCK	AVERAGE
2010	1373	2963	2.2
2011	1671	3105	1.9
2012	1635	2928	1.8
2013	1535	2608	1.7
2014. (until 15.09.2014)	776	1632	2.1
TOTAL/AVERAGE	6990	13236	1.94

Yearly cost:
400 000 EUR damage compensation
400 000 EUR for the work of damage inspectors

Ordinances for livestock guarding and the use of guarding dogs

On pastures (during the day) a shepherd(s) must be present, then guarding dog(s) and herding dogs, depending on the size of flocks:



up to 50 sheep: 1 shepherd and 1 guarding dog

50 to 150 sheep: 1 shepherd and 2 guarding dogs

more than 150 sheep: 2 shepherds and at least 3 guarding dogs



At daytime, dogs must be under control of the owner or shepherds.



During the night, flocks must be in the stable or in the suitable fence (pen).

The minimal height of the fence must be 1.8m

At night, dogs must be kept in the confined place, preferably with flocks.



Tornjak dog
traditional breed of
livestock guarding dog
from Croatia and Bosnia

Government supported
donations of tornjak dogs



Government and EU
supported donations of
electric fences



CROATIA SUMMARY

Wolves, (brown bears and lynx) are strictly protected (Annex IV of the Habitats Directive, Berne convention, national law)

Management plan in place and in use

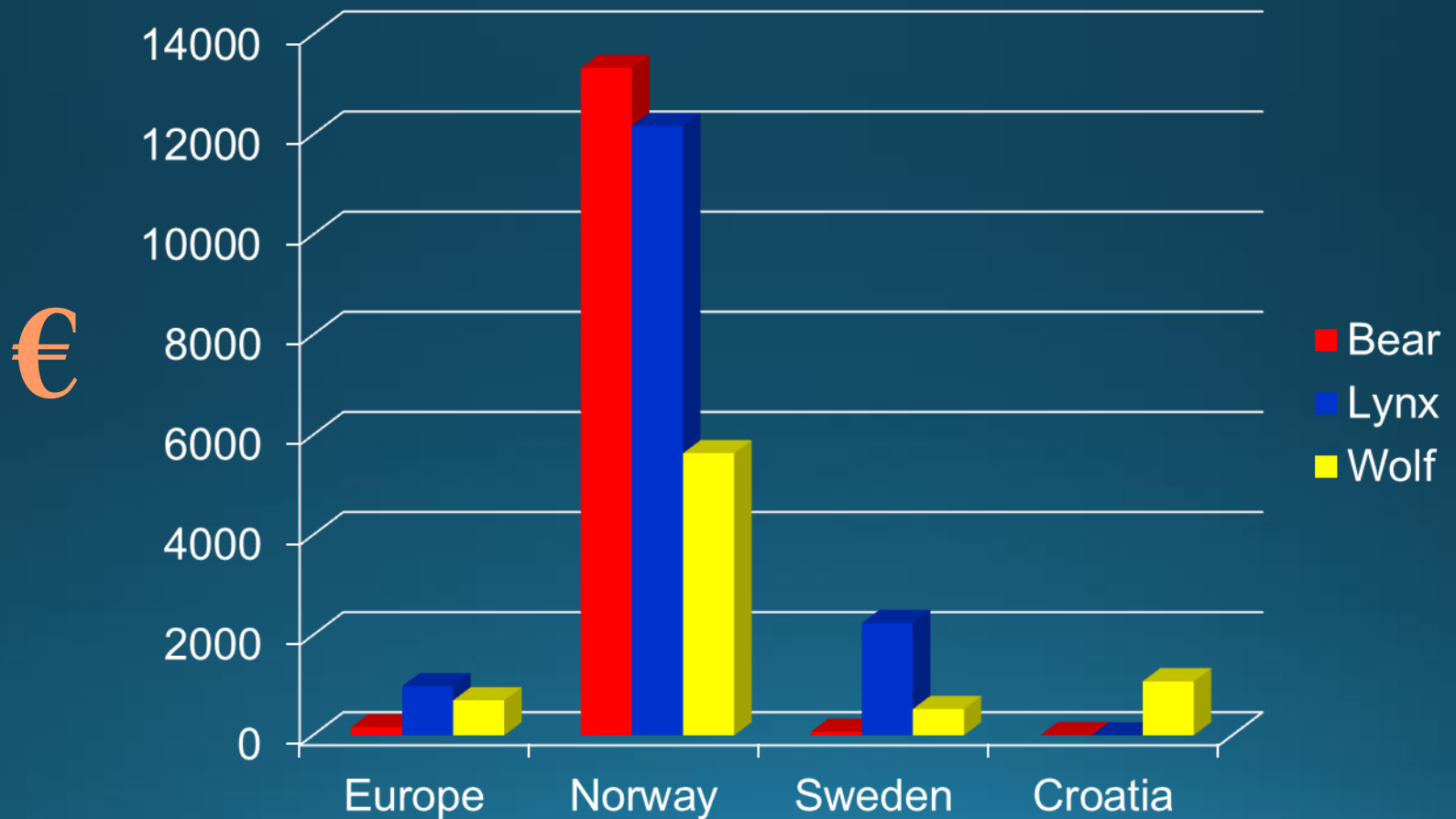
Damage compensation system implemented

Livestock guarding with dogs and shepherds are ordinary and is supported by the government through the implementation of wolf management plan

Limited quota shooting on wolves can be approved, but was not issued in the last three years because of wolf population decrease, as determined by monitoring

Illegal killing of wolves still happens, in spite of positive incentives

What does it cost society to have large carnivores? (compensation/individual/year, (data and slide courtesy by Jon Swenson)





THANK YOU!