

# Wildlife and Traffic in the Carpathians

How to solve the problem between green and gray infrastructure

TRANSGREEN Kick-off Meeting  
Vienna, 28 February – 2 March 2017

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Nature Conservation Agency of the Czech Republic ,



# INFRA ECO NETWORK EUROPE (IENE)

<http://www.iene.info/>

## **IENE is a network of experts**

A formalized network of experts active in the field of ecology and linear transportation infrastructure. Non-profit, non-governmental, non-political.

## **IENE is an arena for knowledge exchange**

Providing an independent, international and interdisciplinary arena for exchange and development of expert knowledge, experience and data.

## **IENE promotes a sustainable transport infrastructure**

The aim is to promote a safe and ecologically sustainable pan-European transport infrastructure.

**IENE international conferences on ecology and transportation**  
provide a recurring interdisciplinary forum for the exchange of current research, knowledge and practical experience between the sectors of environment and transport, between scientists and practitioners, in Europe and worldwide

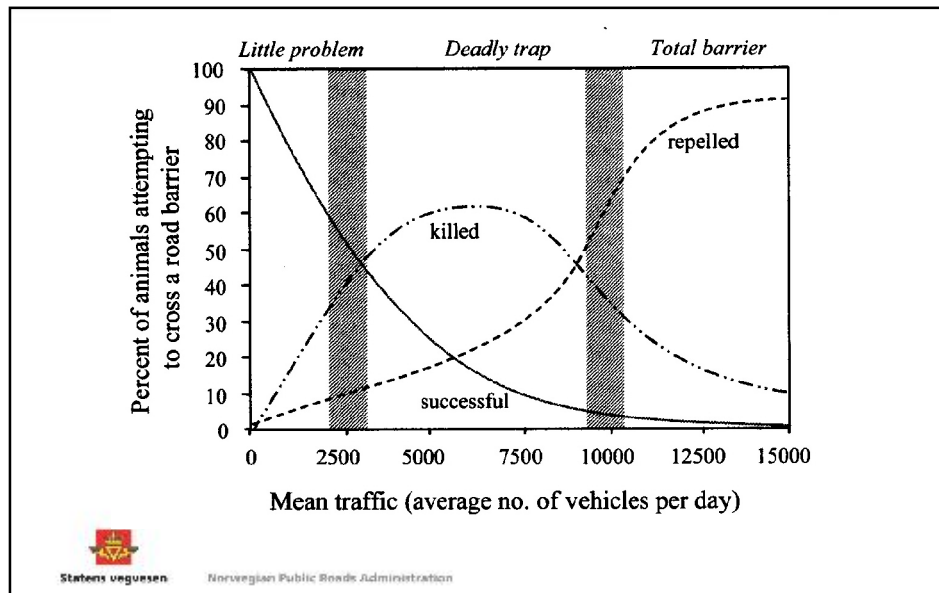


**The aim of IENE:** to promote a safe and ecologically sustainable pan-European transport infrastructure.

**Ecological effects of transport :**

- barrier effect
- fauna traffic mortality
- loss of wildlife habitat
- disturbance and pollution
- ecological function of verges
- .....

**Habitat  
fragmentation**



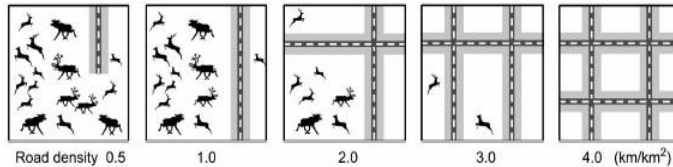
**IENE**  
Infra Eco Network Europe

# Habitat fragmentation – the most significant impact

*The loss of habitats, barrier effect, fauna traffic mortality and disturbance can be summarised by the term **fragmentation***

## Habitat fragmentation

Splitting of natural habitats and ecosystems into smaller and more isolated patches.



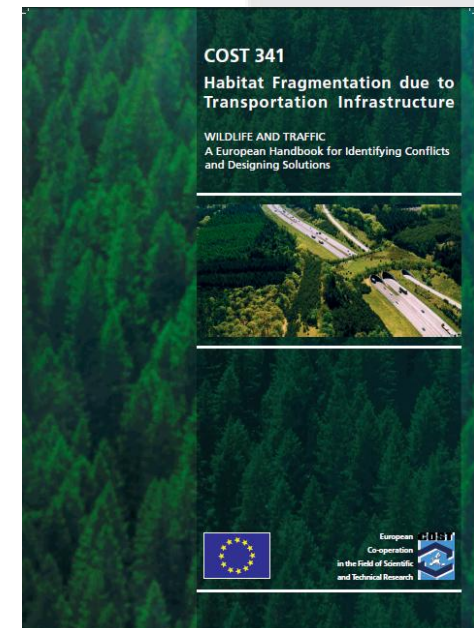
Habitat fragmentation due to transportation infrastructure can lead to local extinction of species when the patches become smaller than the minimum habitat size.



Statens vegvesen

Norwegian Public Roads Administration

European experience how to avoid the negative impacts:





**From a European perspective the Carpathians are still an area of extreme natural beauty and unique richness of biodiversity.....**





**Carpathians - still low-fragmented area - the last true wilderness in Central Europe with thriving populations of large carnivores and many other species**





**Mountain environment is more sensitive than other types of landscape**





**Transportation had proceeded in the traditional way there for centuries, but times are changing**





**Building of new transport infrastructure, growing intensity of traffic and spreading of new development go very fast also in Carpathians**





**Rapid development brings fragmentation of habitats and populations. The process is usually irreversible**





**We usually start to solve the problem when it is too late .....**





**We usually start to solve the problem when it is too late .....**

- **Rapid development of transport infrastructure can be expected in Carpathian countries in coming years**
- **There is a lot of experience in Europe how to minimize the negative environmental impacts of transport**
- **We have a unique opportunity to use this European experience, avoid the mistakes that have been made and develop the transportation infrastructure in the Carpathians in a sustainable way**





...the crucial problem is the placement of transport infrastructure and the settlement in mountain valleys

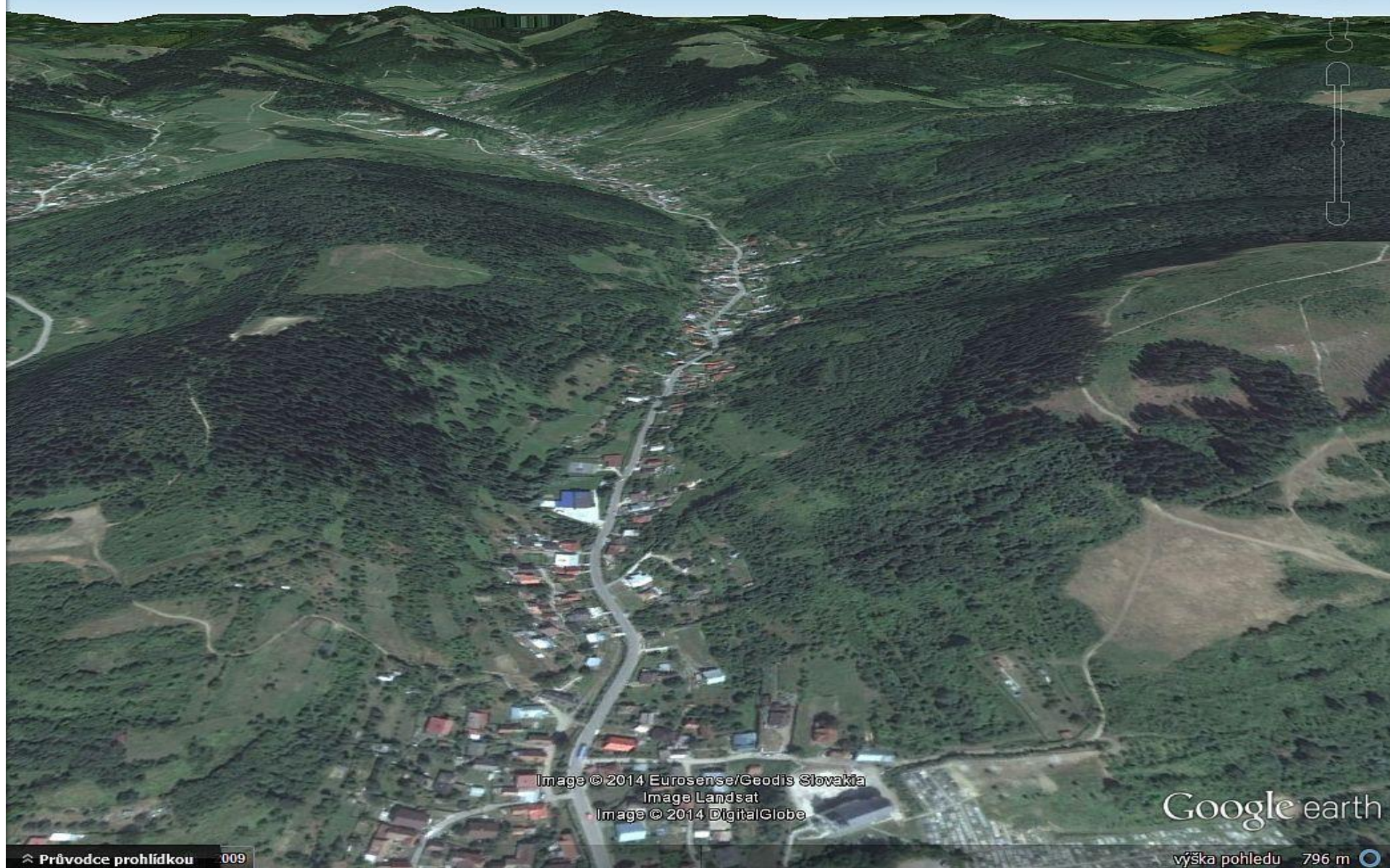
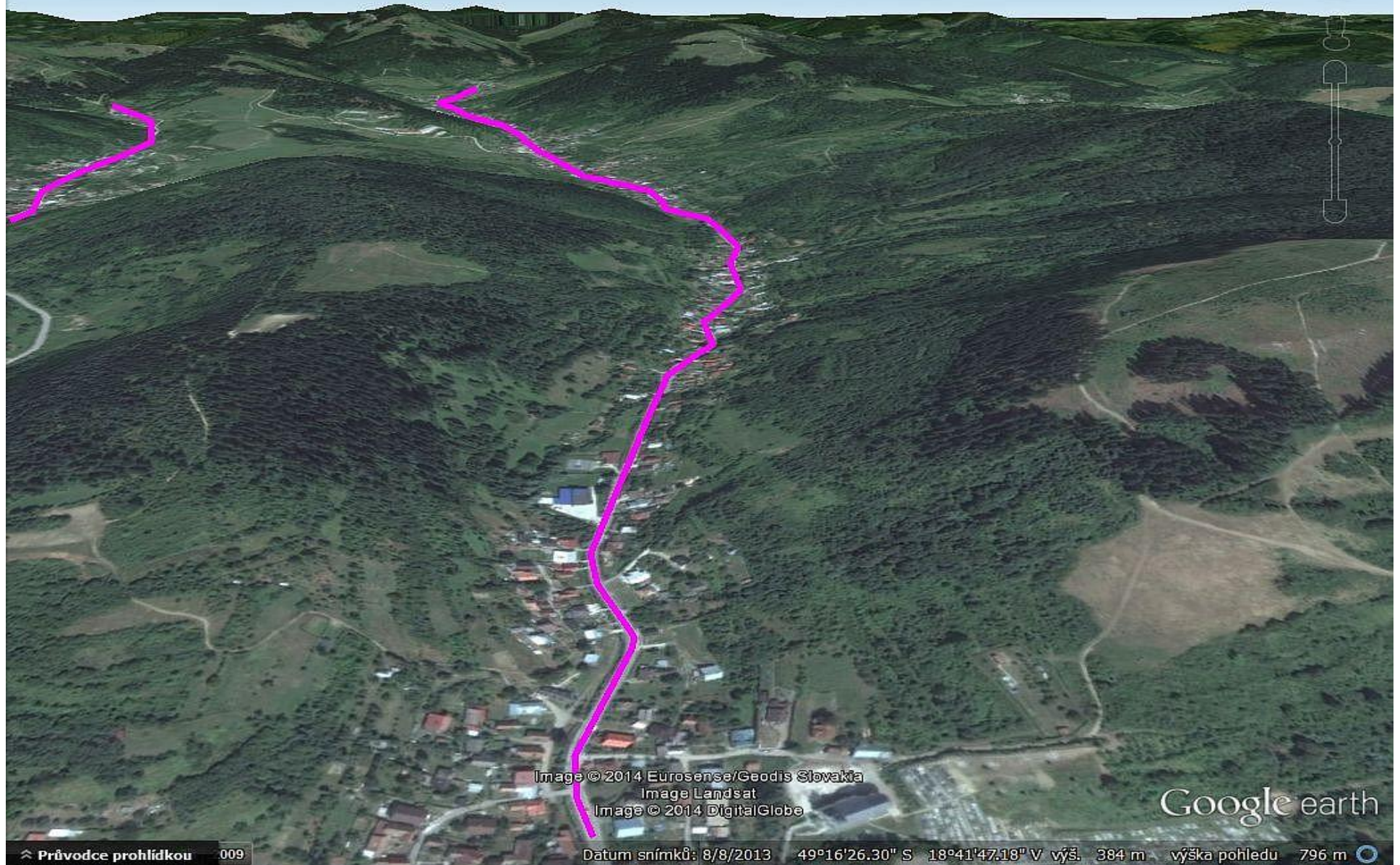


Image © 2014 Eurosense/Geodis Slovakia  
Image Landsat  
Image © 2014 DigitalGlobe

Google earth

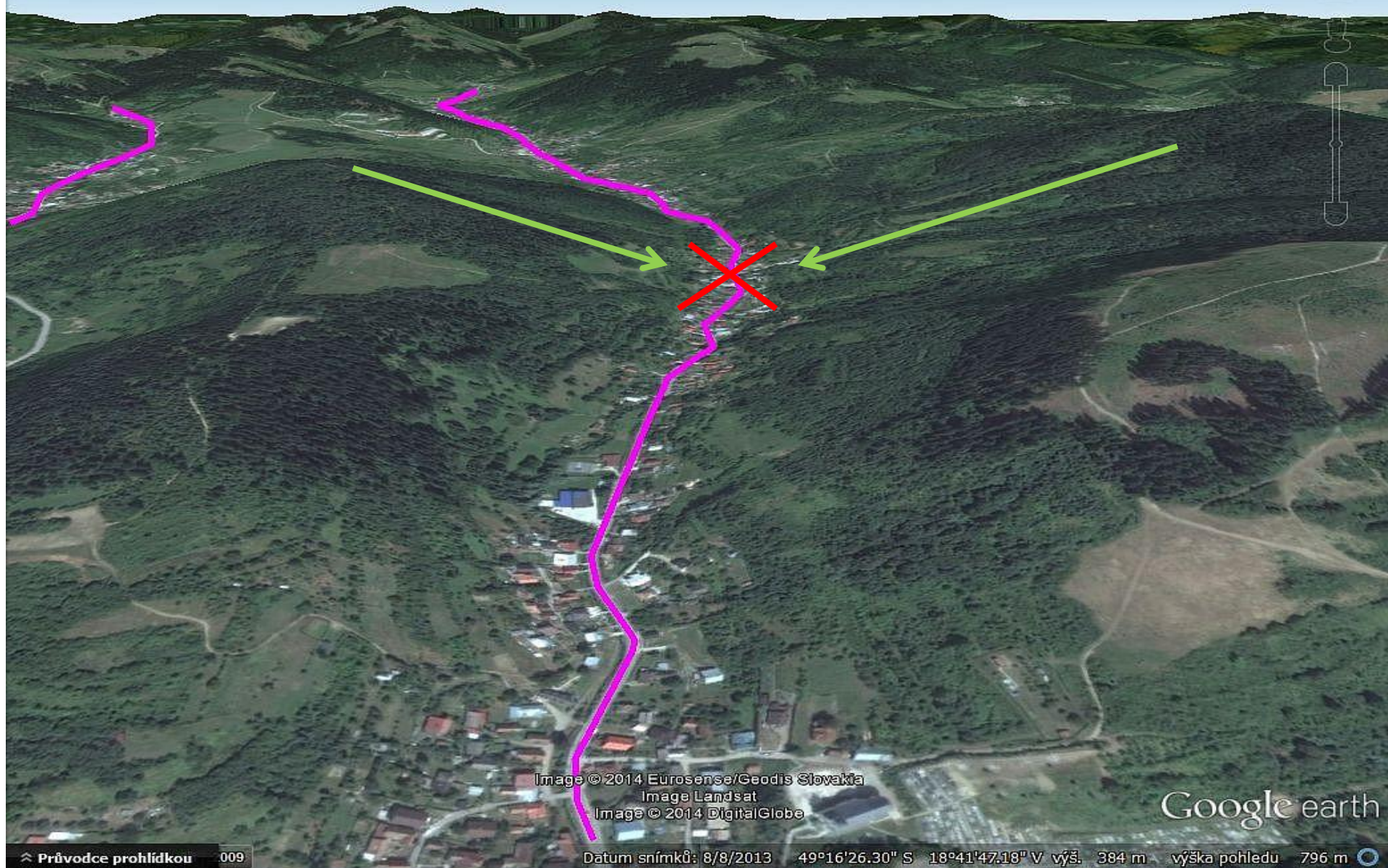


Continuously built-up areas along the road create a migration barrier for animals, often tens of kilometers long



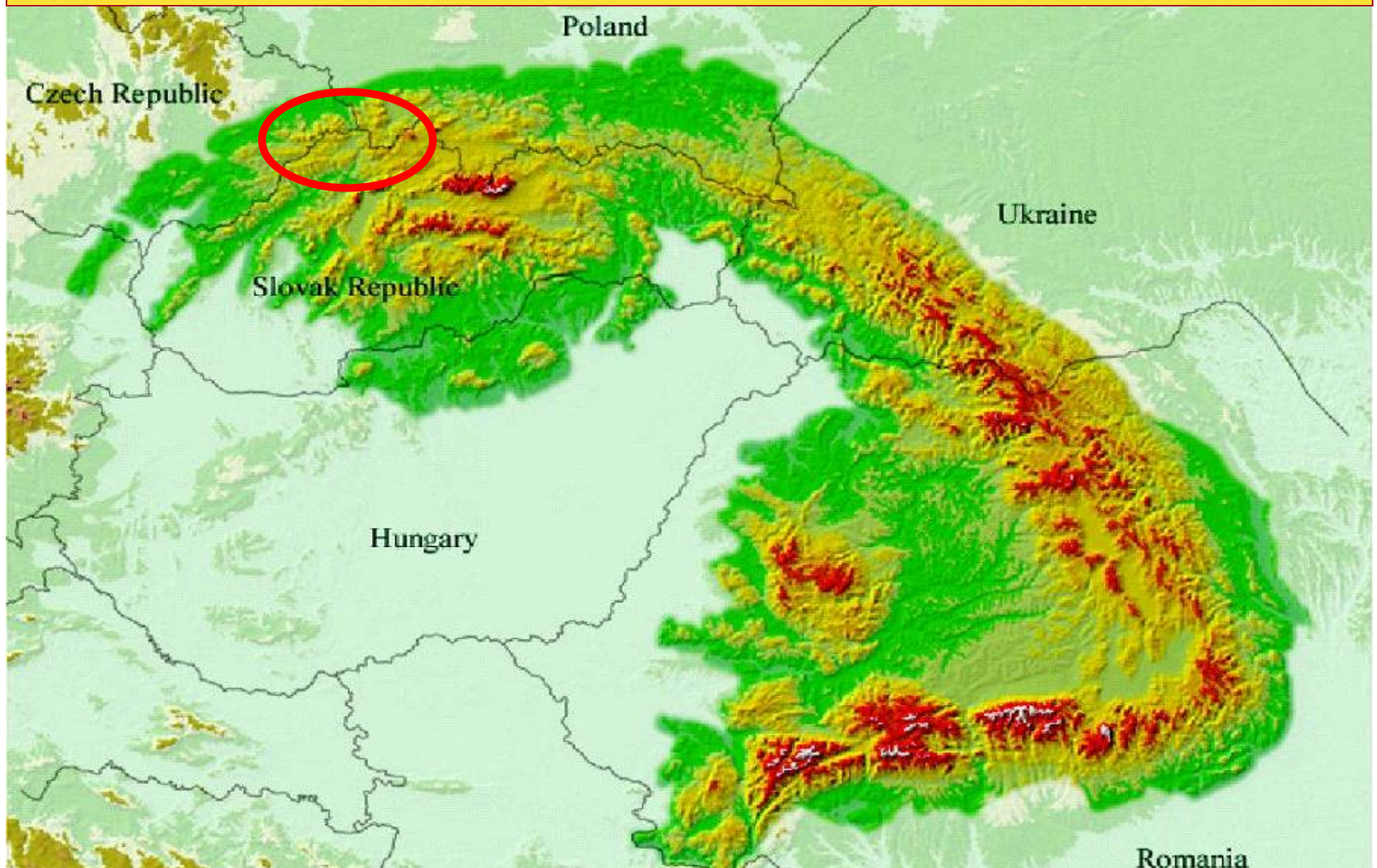


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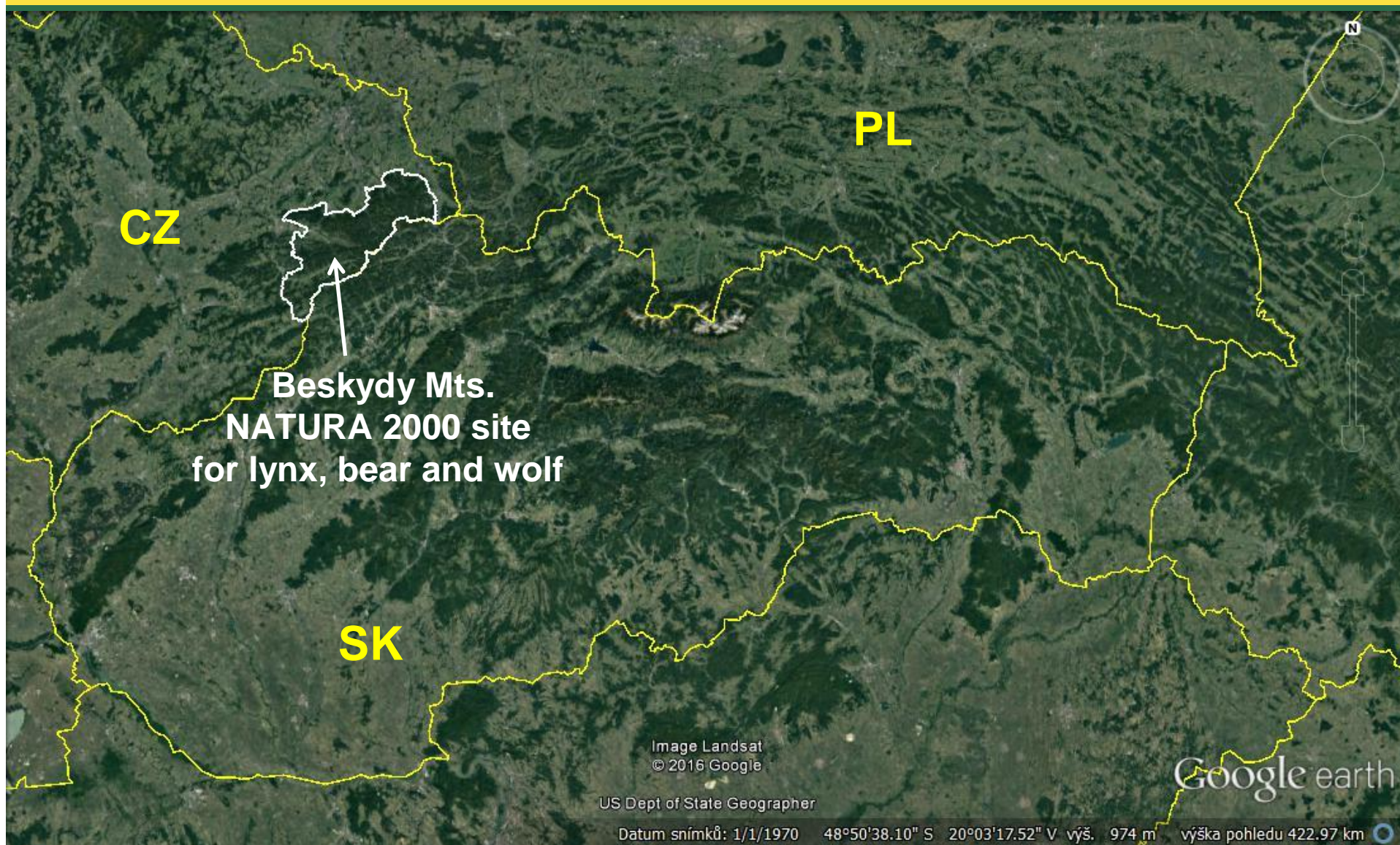


**Future existence of large carnivore populations is endangered in western Carpathians due to heavy fragmentation of their habitat, especially in peripheral parts of distribution area (CZ, PL)**

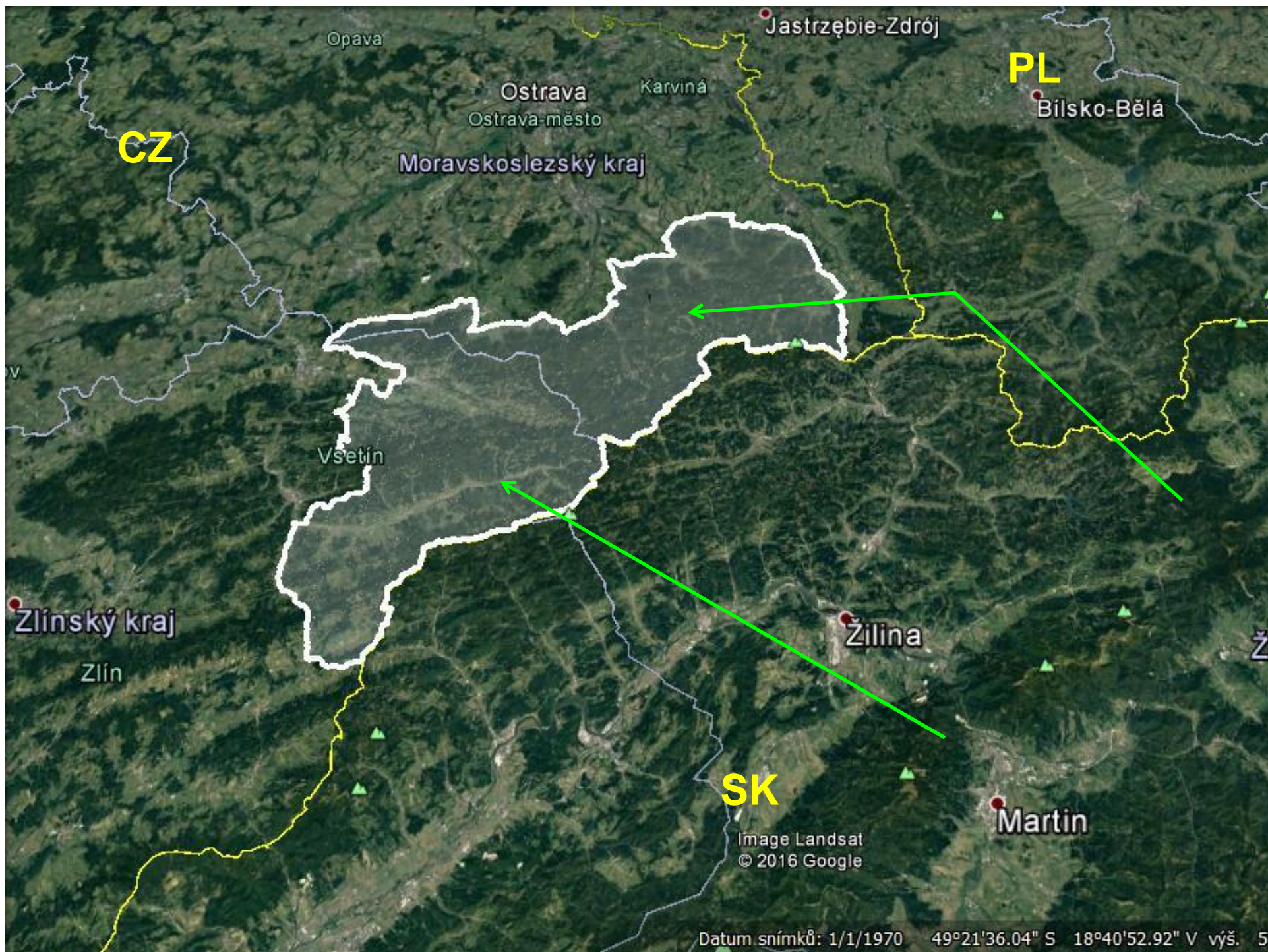




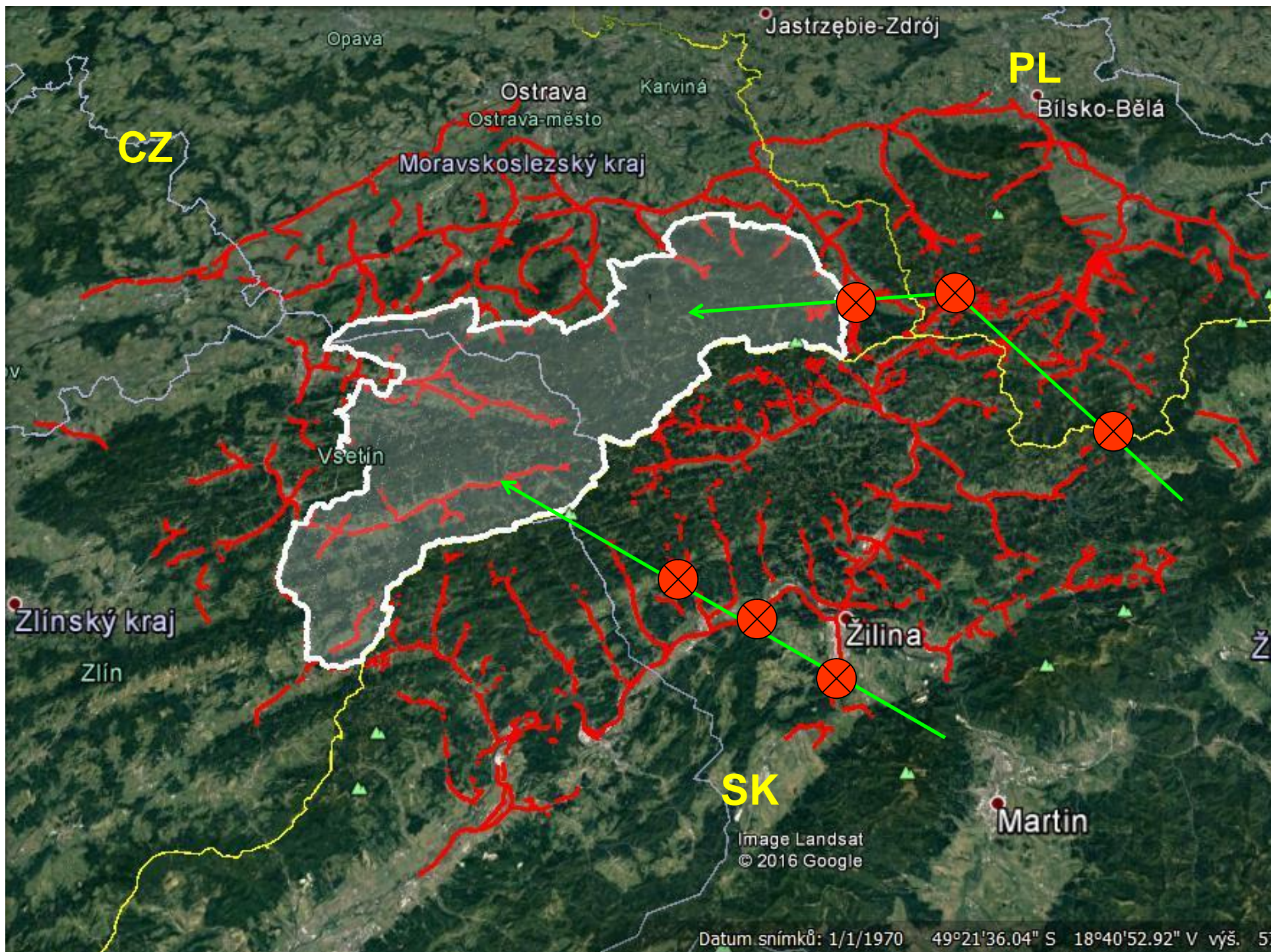
**Beskydy Mountains is a Natura 2000 site for lynx, wolf and bear. Populations of all three species are declining in the long term. Recently, there have been recorded about 8 - 12 lynx, 1-3 bears and 1-5 wolves.**



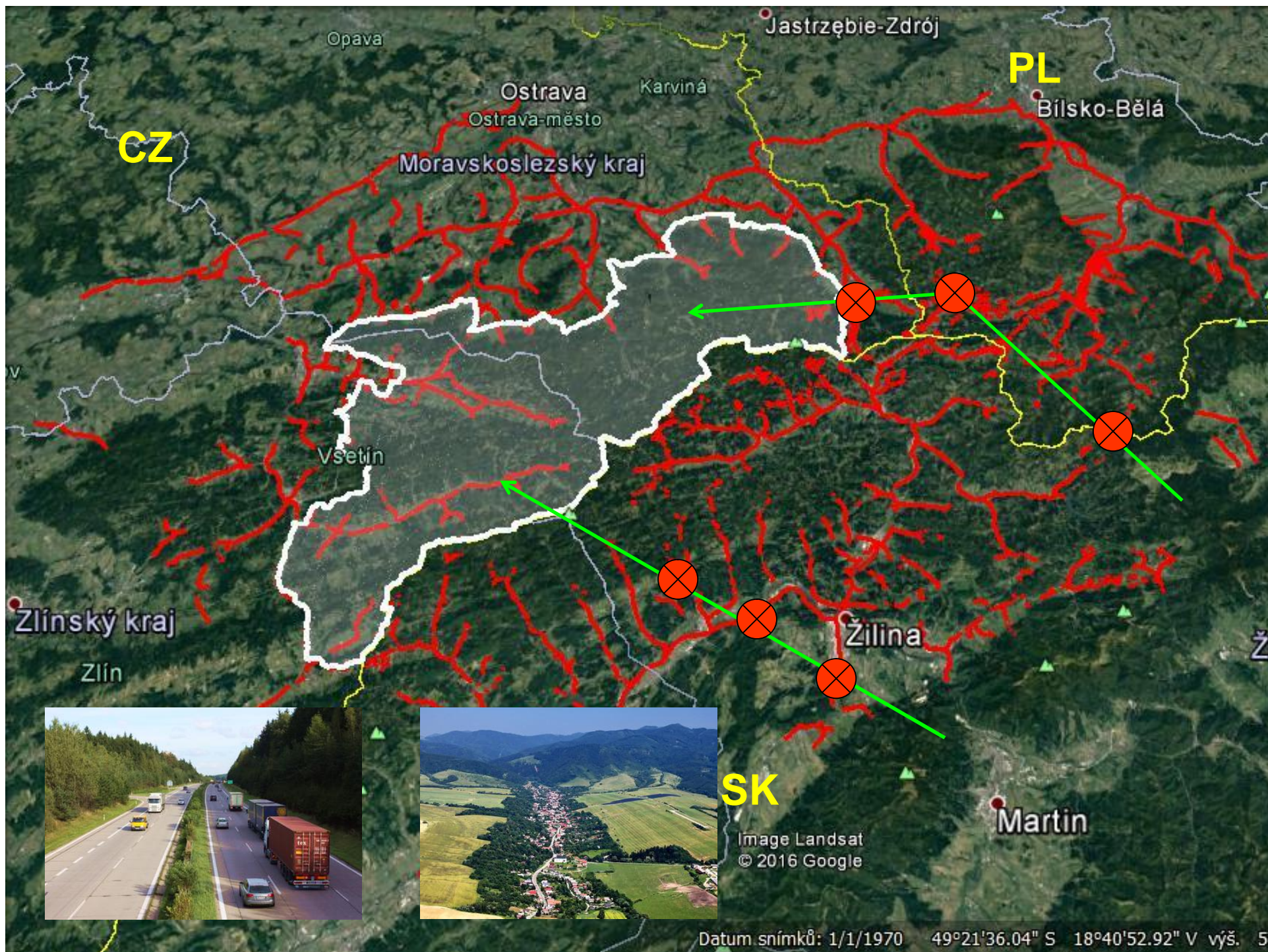




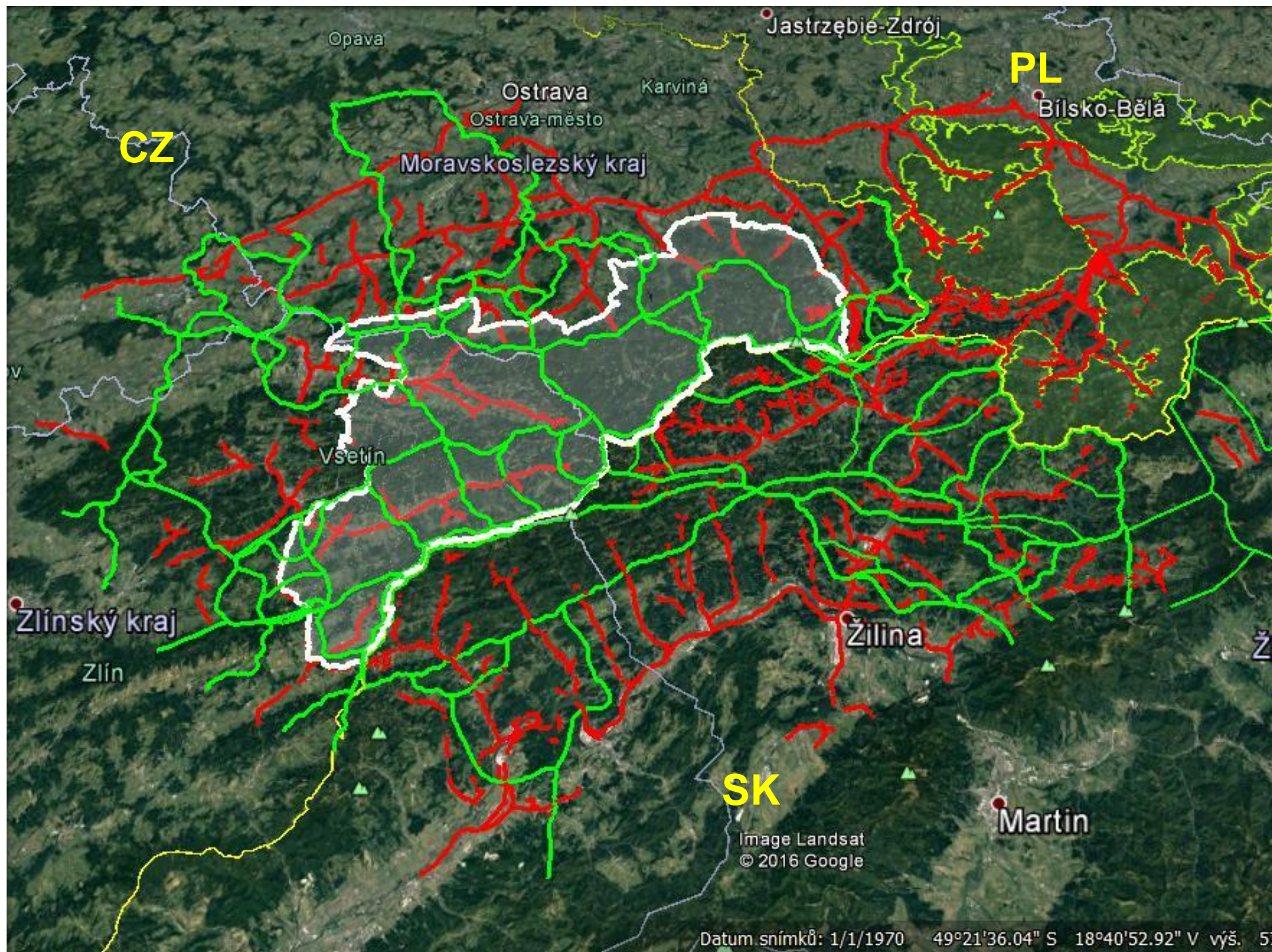






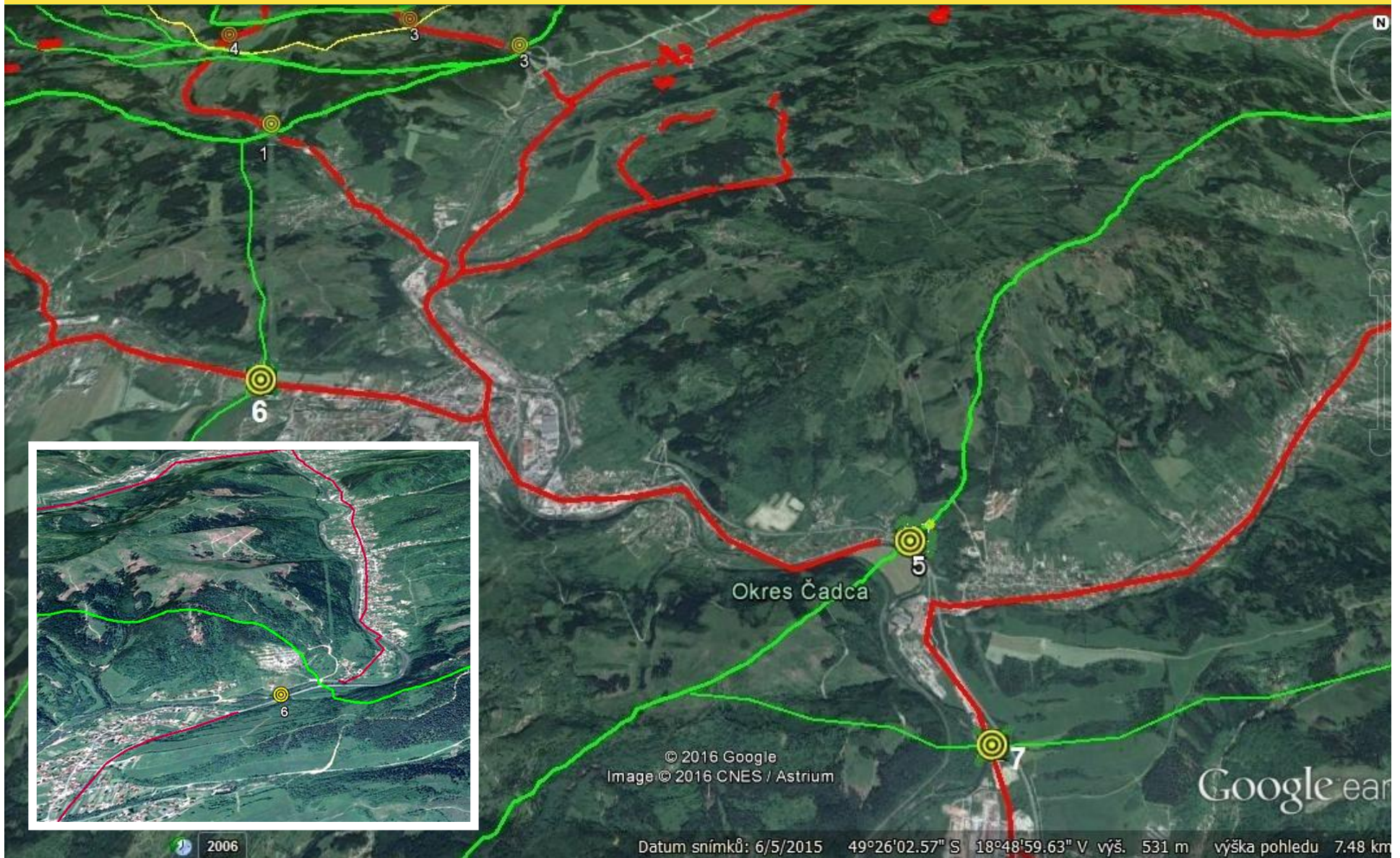




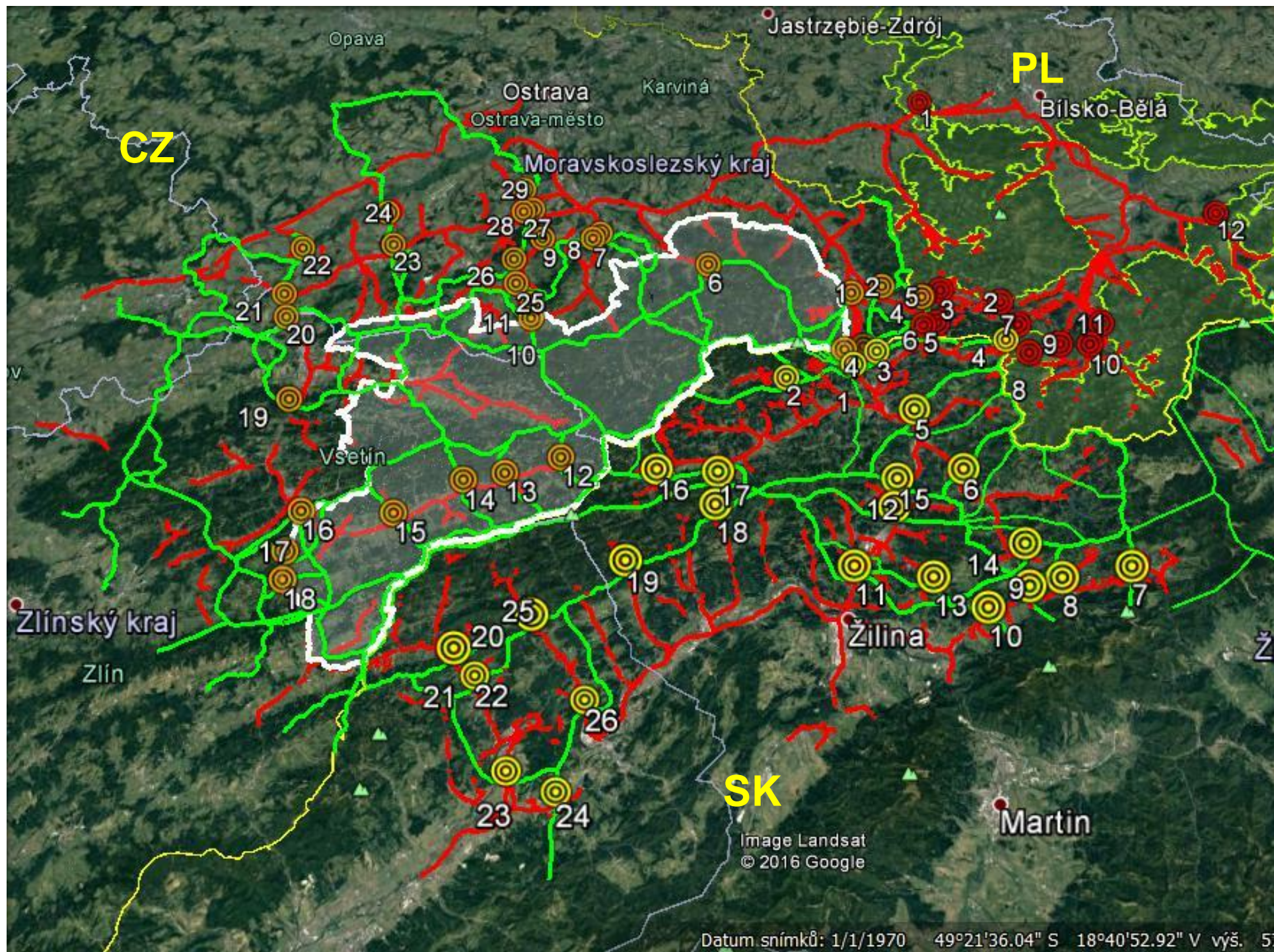




**Migration corridors are in serious conflict with barriers. They cross it often in places where the continuous barrier is interrupted only for a few tens of meters. The permeability of corridors in these bottle necks is already difficult – In the project these places are identified as „critical points“**

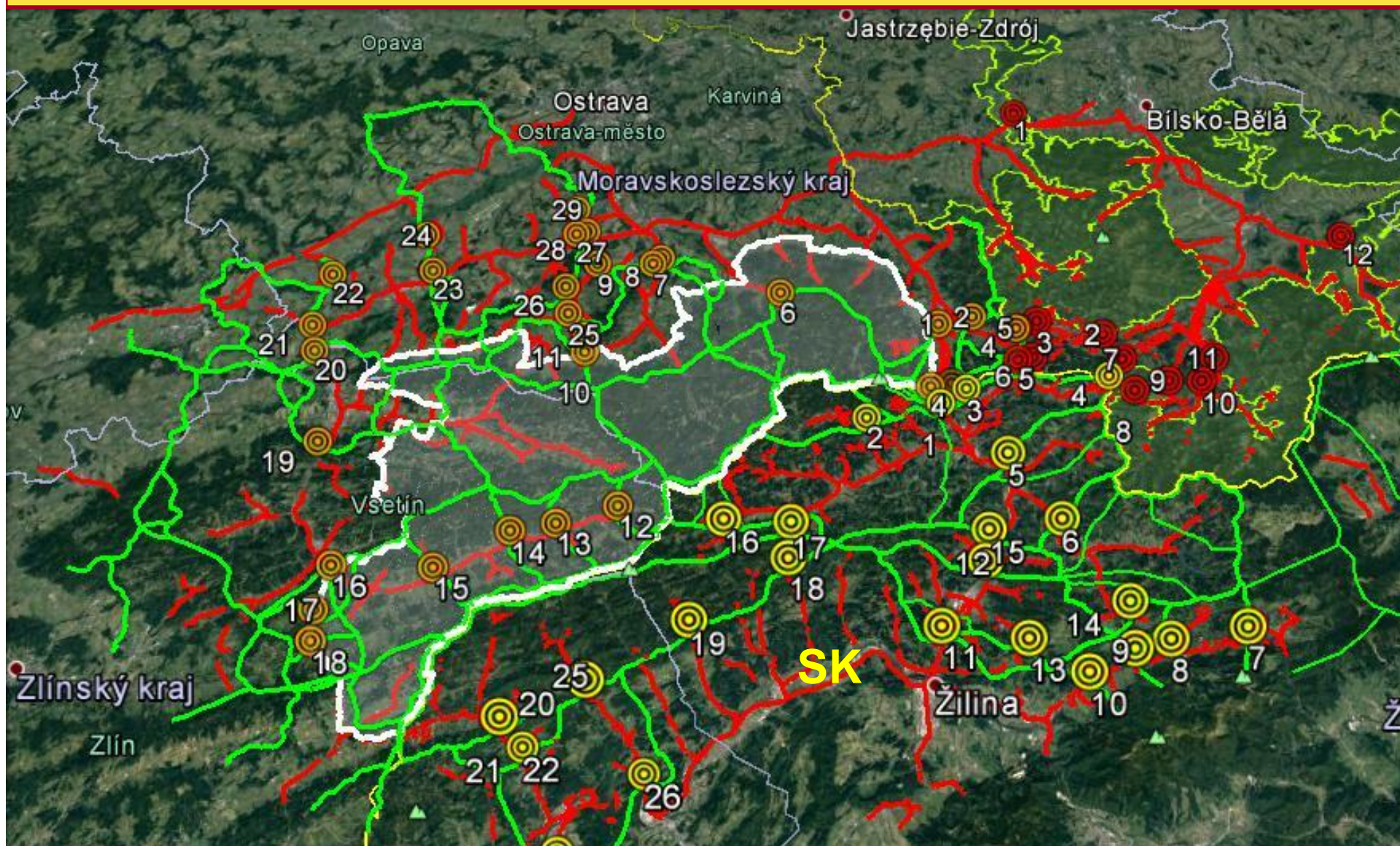








**Conclusion:** The analysis showed that most of original migration routes has been already irreversibly interrupted. To rescue the populations of large carnivores in the Beskydy, it is necessary to start with strict protection and restoration of last migration corridors. If no action is taken in a short time, the population of large carnivores will be doomed to extinction in the Western Carpathians.





Effective protection of migration corridors can be done only through their incorporation into spatial planning. A new project aimed at protection of the migratory routes of large mammals is going to be finished in the Czech Republic this year.

### **Objectives of the project:**

- Delimitation of the migratory routes of large mammals on the basis of actual data
- Assurance of protection of the migratory routes through their incorporation into spatial planning

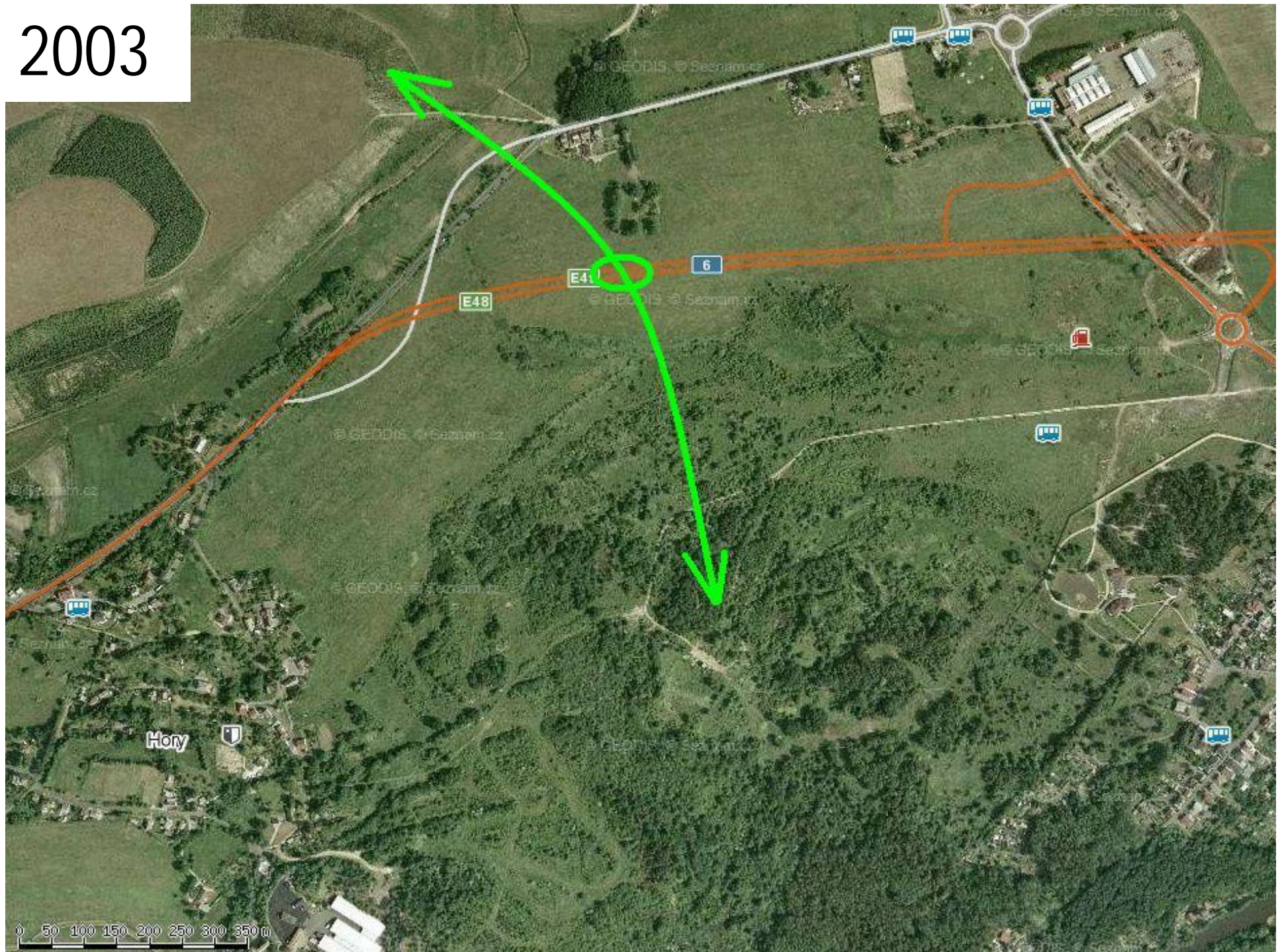
### **Legal principles of the project:**

- Large carnivores belong to the species of national importance.
- Habitat of species of national importance has to be obligatory incorporated into spatial planning
- Habitat of protected species includes both the core areas and migration routes connecting them





2003





2006





### Basic information about the new project:

#### Participating organizations:

- Nature Conservation Agency
- EVERNIA s.r.o. , Liberec
- Transport Research Centre, Brno
- The Silva Tarouca Research Institute for Landscape and Ornamental Gardening

Period: 2015 – 2017

Supported by: EEA grants, Norway grants

### Target species:



**wolf**

**lynx**

**bear**

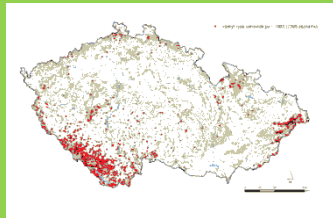
**moose**

- Protected species migrating for long distances,
- Umbrella species for many other species associated with forest habitats

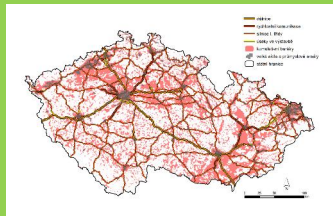




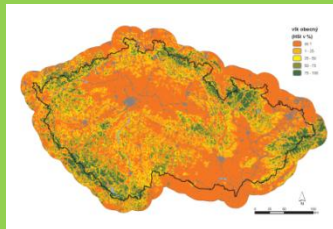
# Sources and results



**Distribution  
data**



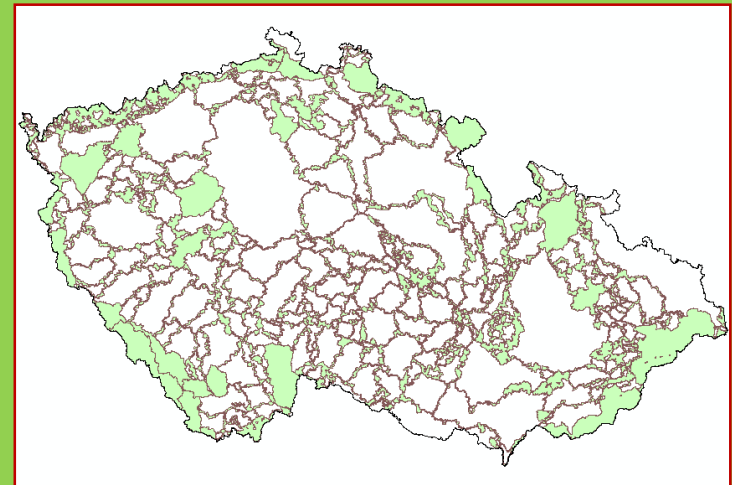
**Barrier  
analysis**



**Habitat  
suitability  
models**

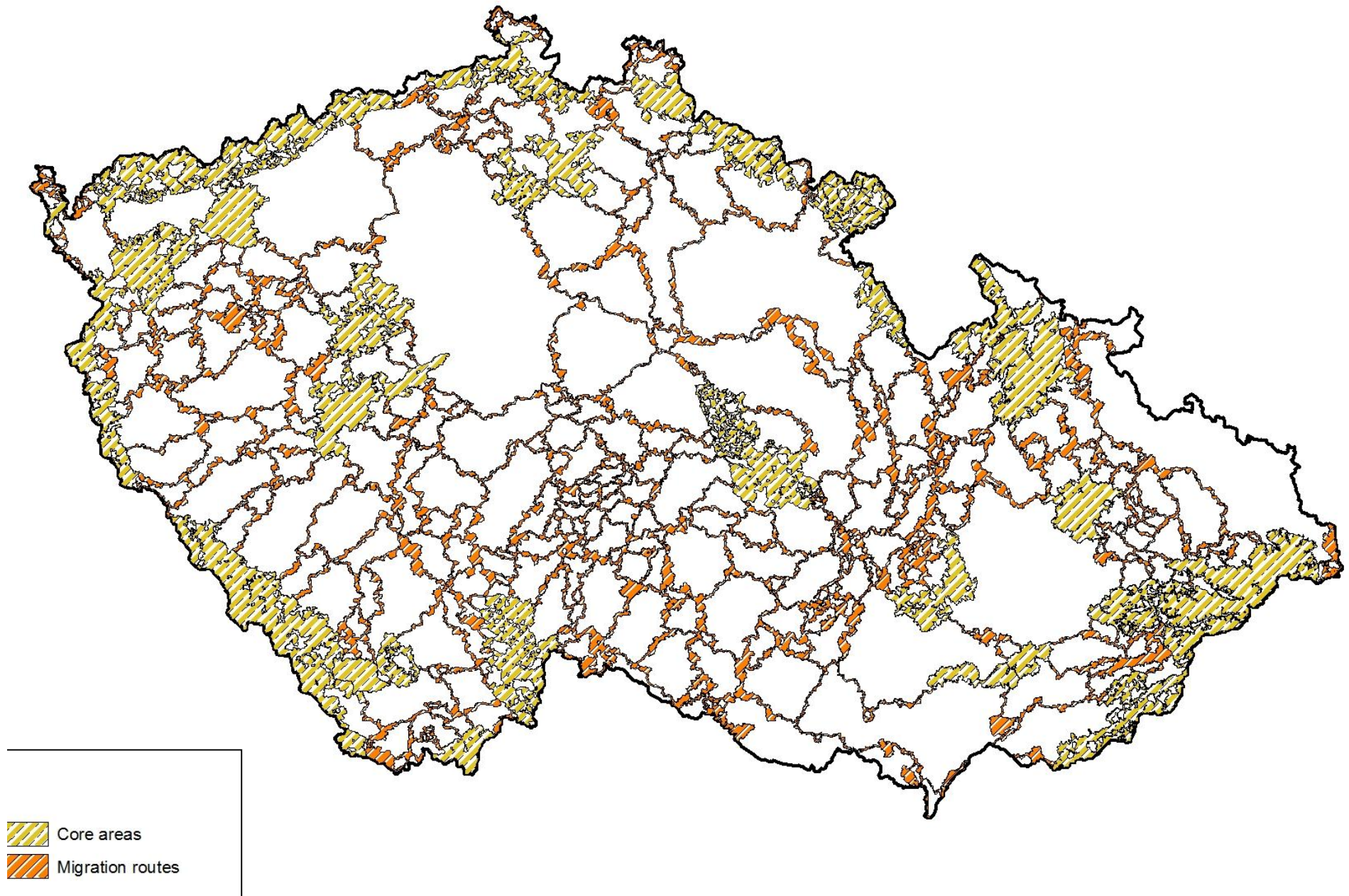


**Map of habitats of protected  
species of large mammals**





## Habitat of protected species of large mammals







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# Thank you for your attention

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