

# Managing invasive species in the Podyjí National Park



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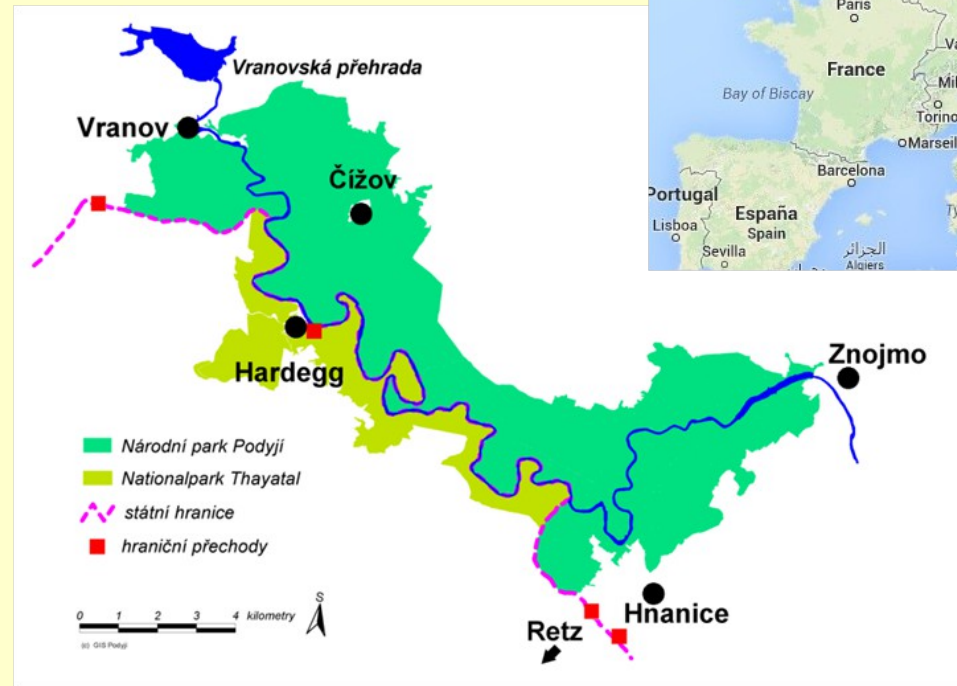
# Where we are

**Natura 2000:**  
**SPA Podyjí**  
Established: 2004  
Area: 7666 ha

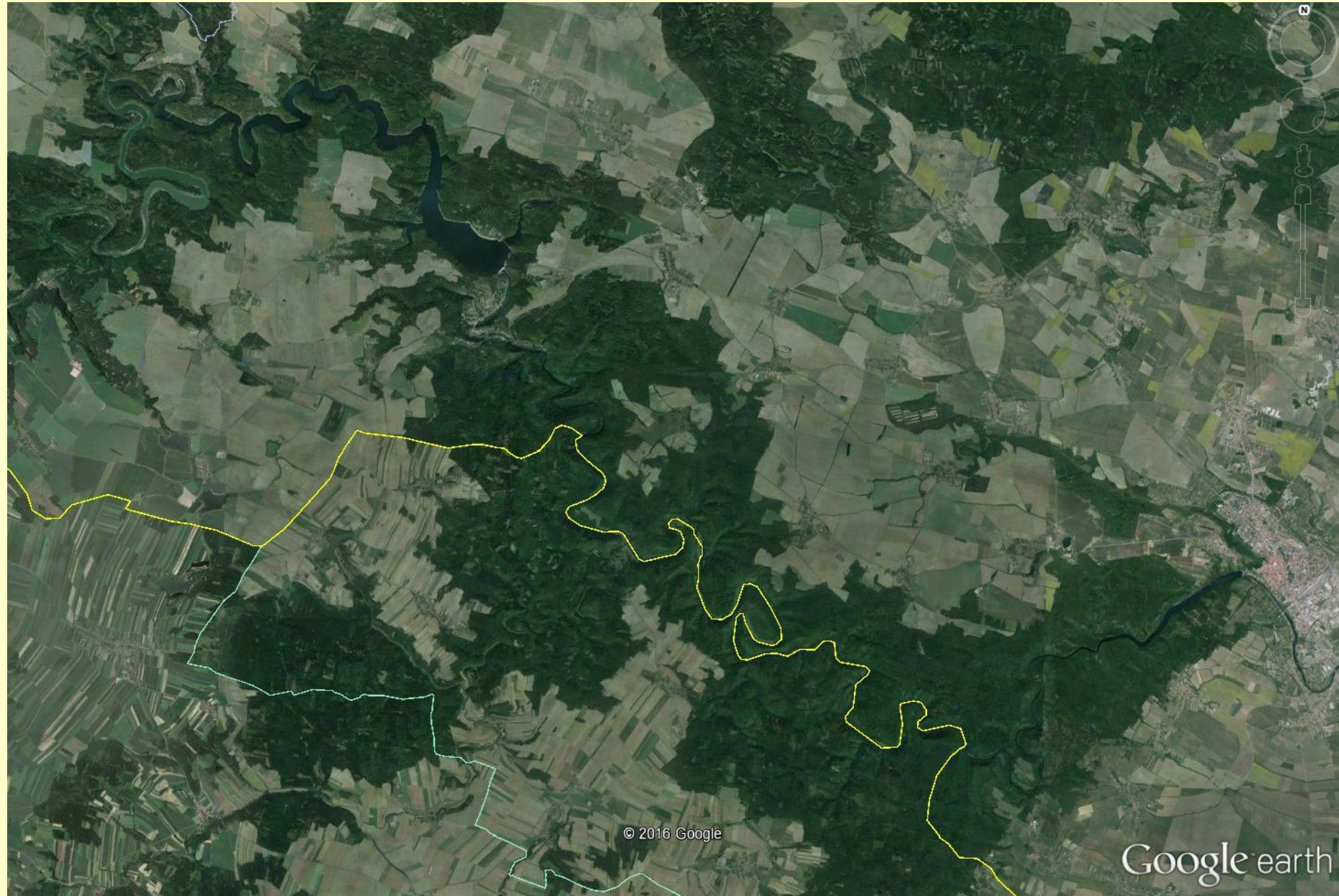
**Natura 2000**  
**SCI Podyjí**  
Established: 2005  
Area: 6273 ha

**Thayatal National Park**  
Established: 2000  
Area: 1330 ha

**Podyjí National Park**  
Since 1978 PLA  
Established: 1991  
Area of NP: 6267 ha  
Area of BZ: 2822 ha



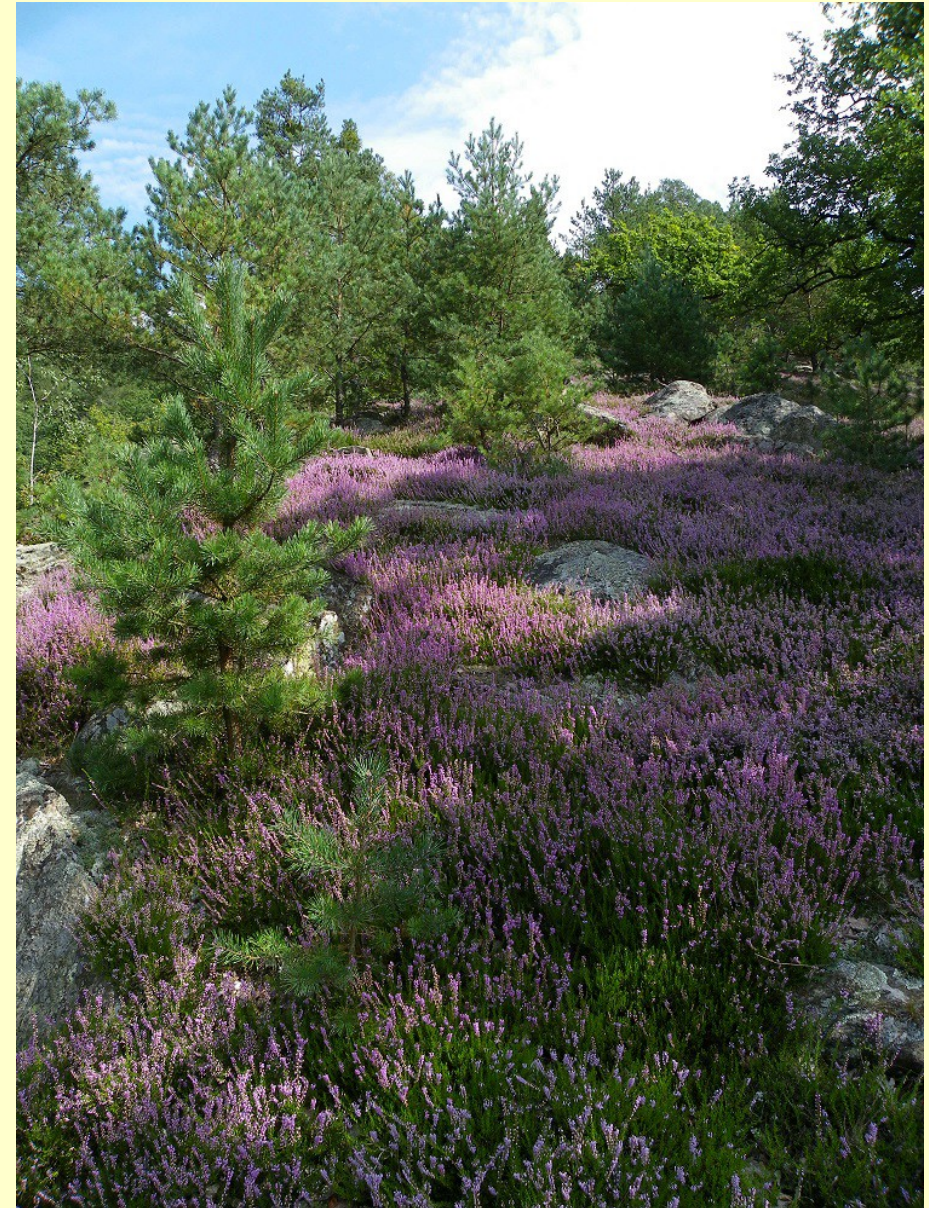
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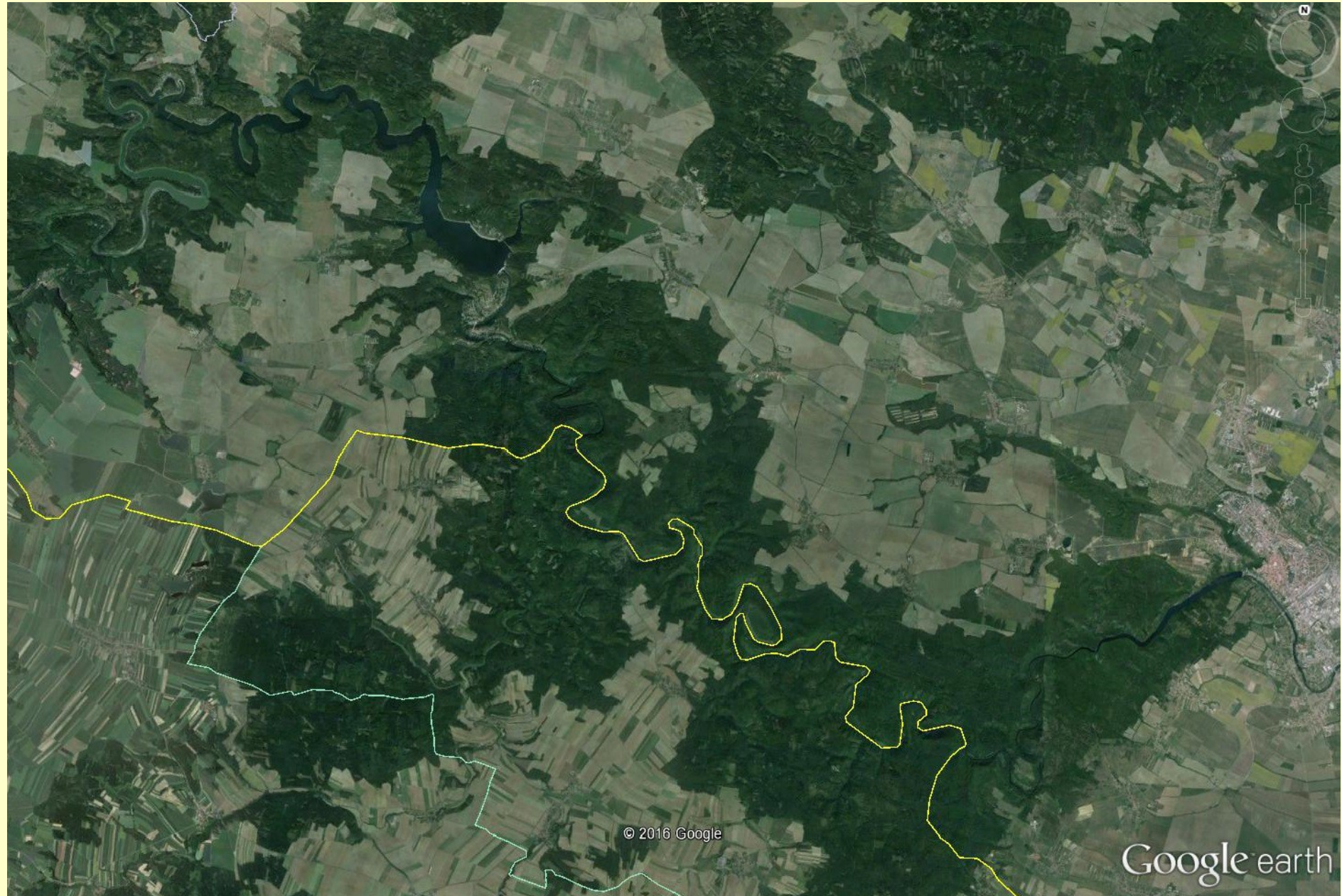
# Where we are



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# Strategical Aims by Management plan

a) Spontaneous processes – ca. 75% of area NP

b) Biodiversity support, continuous management – ca. 25% of area NP



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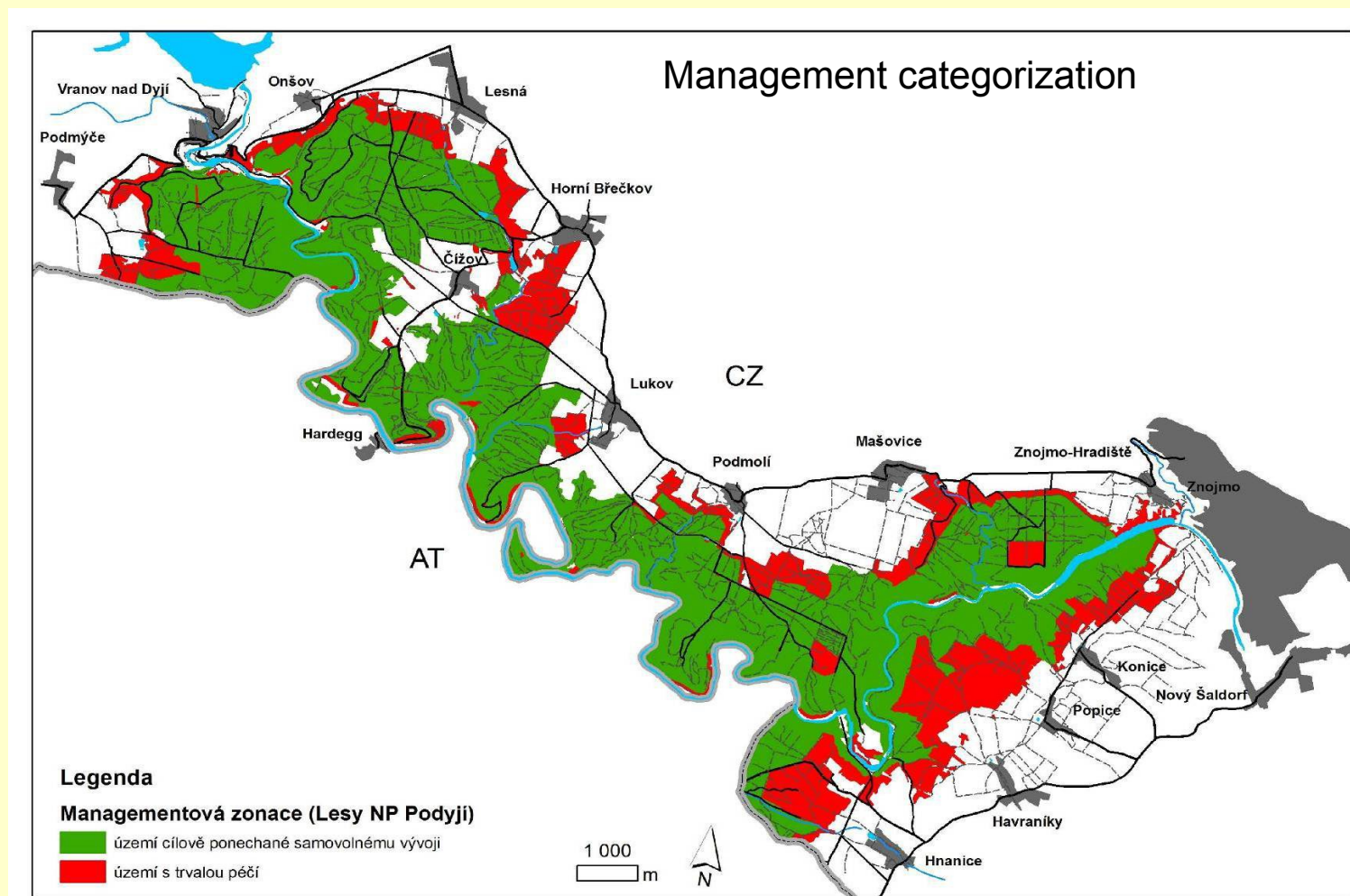
Management categorization



# Strategical Aims by Management plan

a) Spontaneous processes – ca. 75% of area NP

b) Biodiversity support, continuous management – ca. 25% of area NP



# Problematic non-indigenous species – subject to management intervention

## A)Animals

- *Pseudorasbora parva* (the stone moroko)
- *Carassius 'gibelio'* (the Prussian carp)
- *Dama dama* (the fallow deer)
- special case: *Salmo "trutta"* (the brown / river trout)

## B)Plants

- *Impatiens glandulifera* (the Himalayan balsam)
- *Robinia pseudoacacia* (the black locust)



# Examples of some other non-indigenous species – without current management intervention

## A)Animals

- *Neovison vison* (the American mink)
- *Nyctereutes procyonoides* (the racoon dog / mangut)
- *Aix galericulata* (the mandarin duck)
- *Harmonia axyridis* (the harlequin ladybird)

## B)Plants

- *Reynoutria bohemica* (the Bohemian knotweed)
- *Heracleum mantegazzianum* (the giant hogweed)

**No racoons, no alien crayfish etc.**



## Examples of some other non-indigenous species – without current management intervention



# Man-bred animals in the wild: Undefined questions

## 1) Free-ranging cats

- enter functionally into ecological bonds
- roam many km apart from settlements
- active in the most valuable parts of the national park
- shoot on sight till 2012, since then not anymore

## 2) Mouflon

- bred from an ancient domesticated sheep
- according to the management plan, it has to be eradicated from the NP (based on an outdated status)
- currently very small numbers
- only cons mentioned in most statements; no rigorous cost-benefit analysis available (vs wild boar, roe deer etc.)
- subject to game management (still hunted)



# Management in practice

## 1)(a) stone moroko and (b) Prussian carp

- since 2010
- one approach to both species
- both – competitors of native fish species
- (a) predator of other water animals and parasite to other fish
- overpopulated in ponds, reservoirs...

## Fishponds

- where discharge devices occur
- draining and fishing the pond (as a standard fishpond harvesting procedure)
- cooperation with Faculty of Fisheries and Protection of Waters





# Management in practice



# Management in practice

## **Small reservoirs**

- fishing the reservoirs
- draining by a pump – with cooperation of fire brigade



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# Management in practice

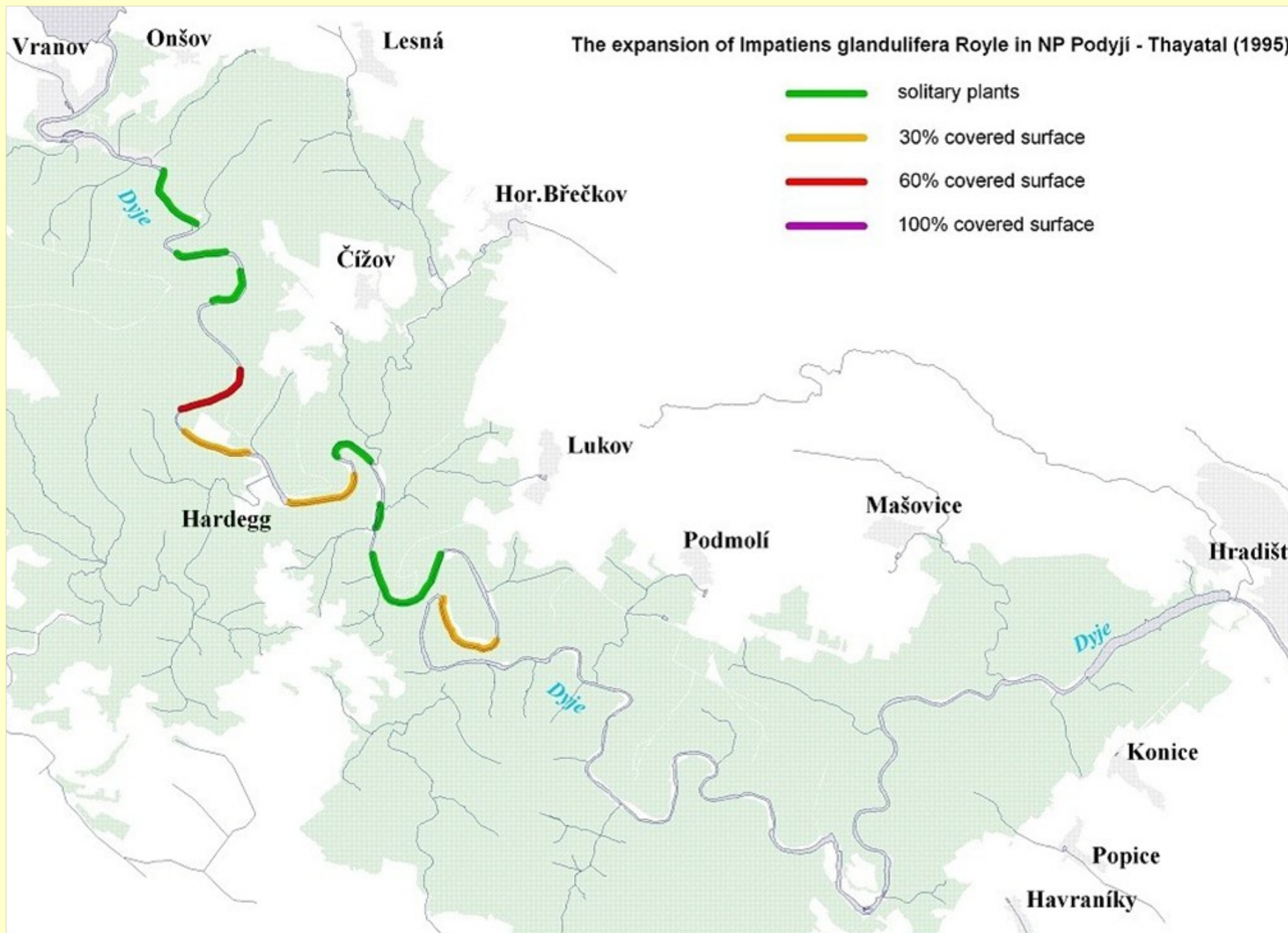
## 2) Himalayan balsam

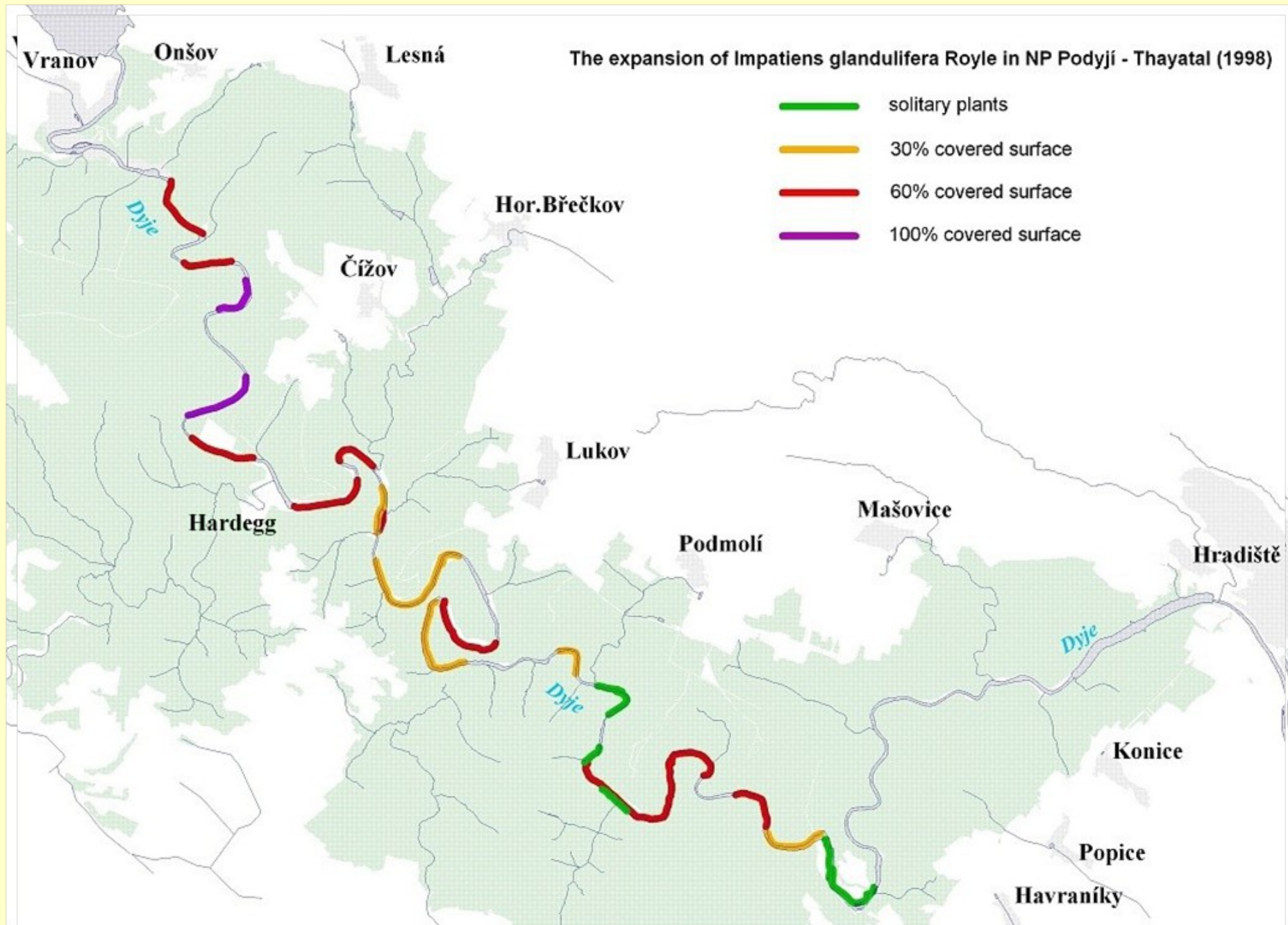
- since the mid of 1990s
- mechanical liquidation before seeds are mature: whole plants (including roots) are removed, put in bags and taken away. Bigger populations are mowed.
- done by ourselves, with cooperation of the neighboring Thayatal Nationalpark.

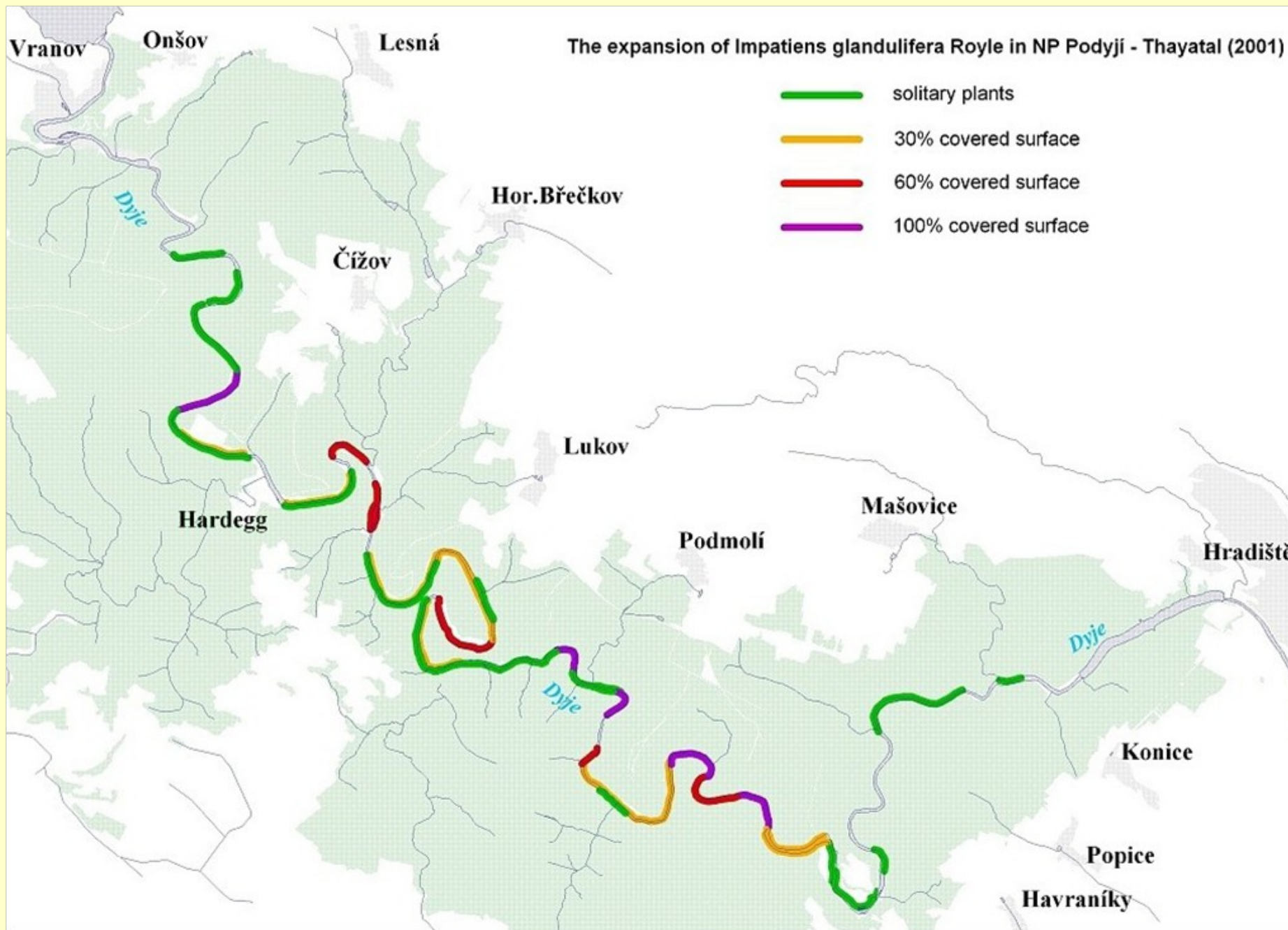


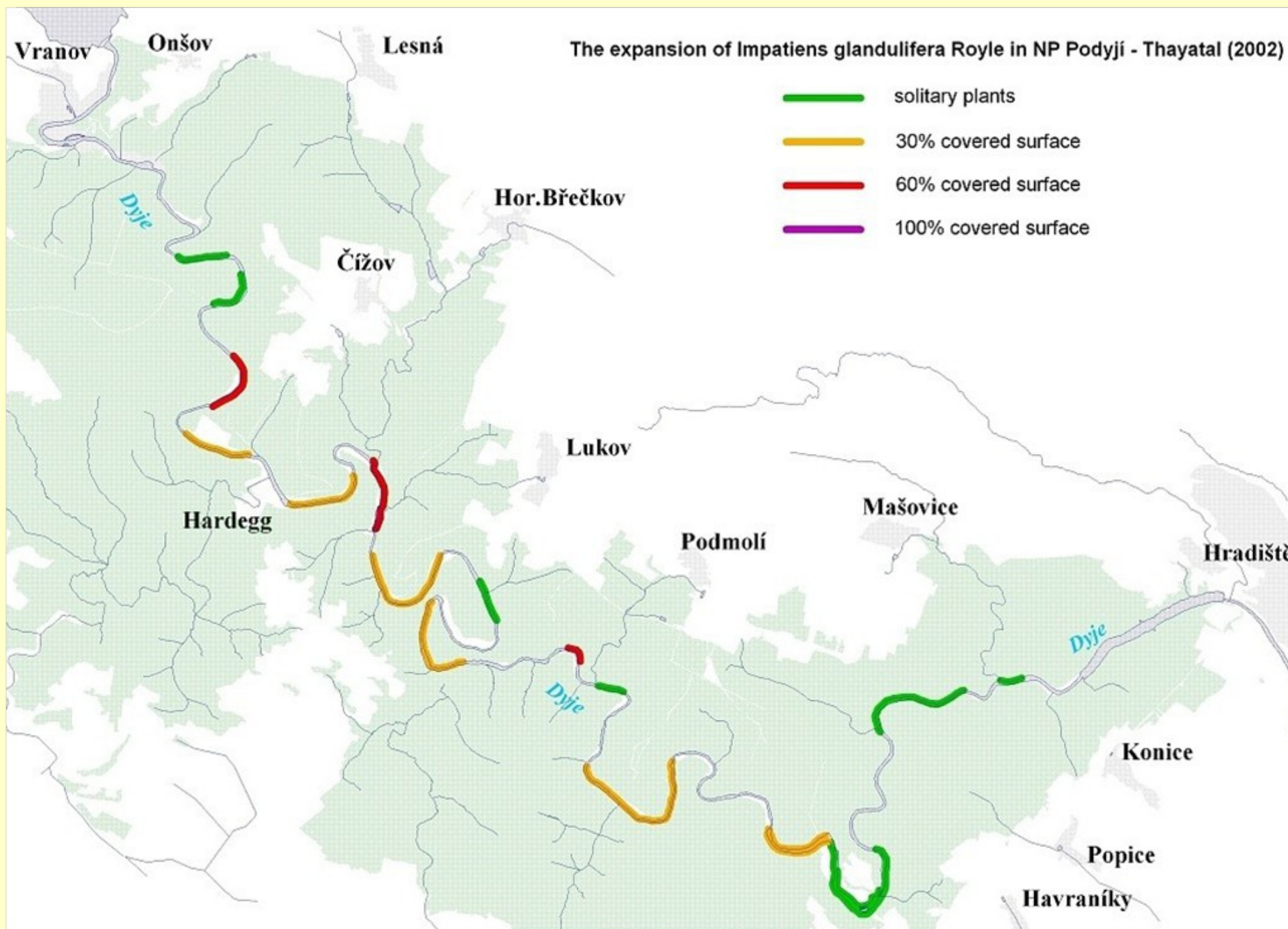
# Management in practice

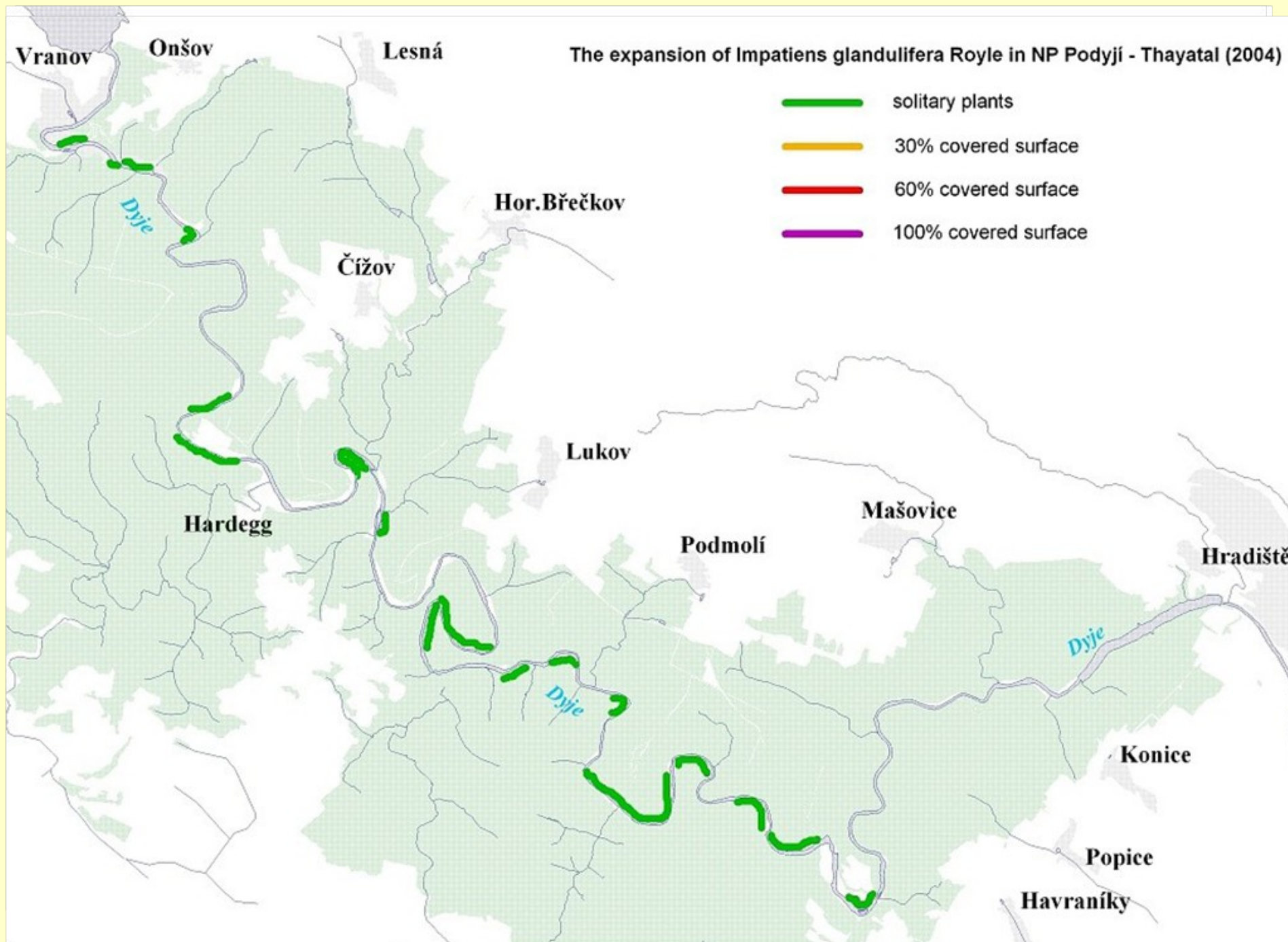


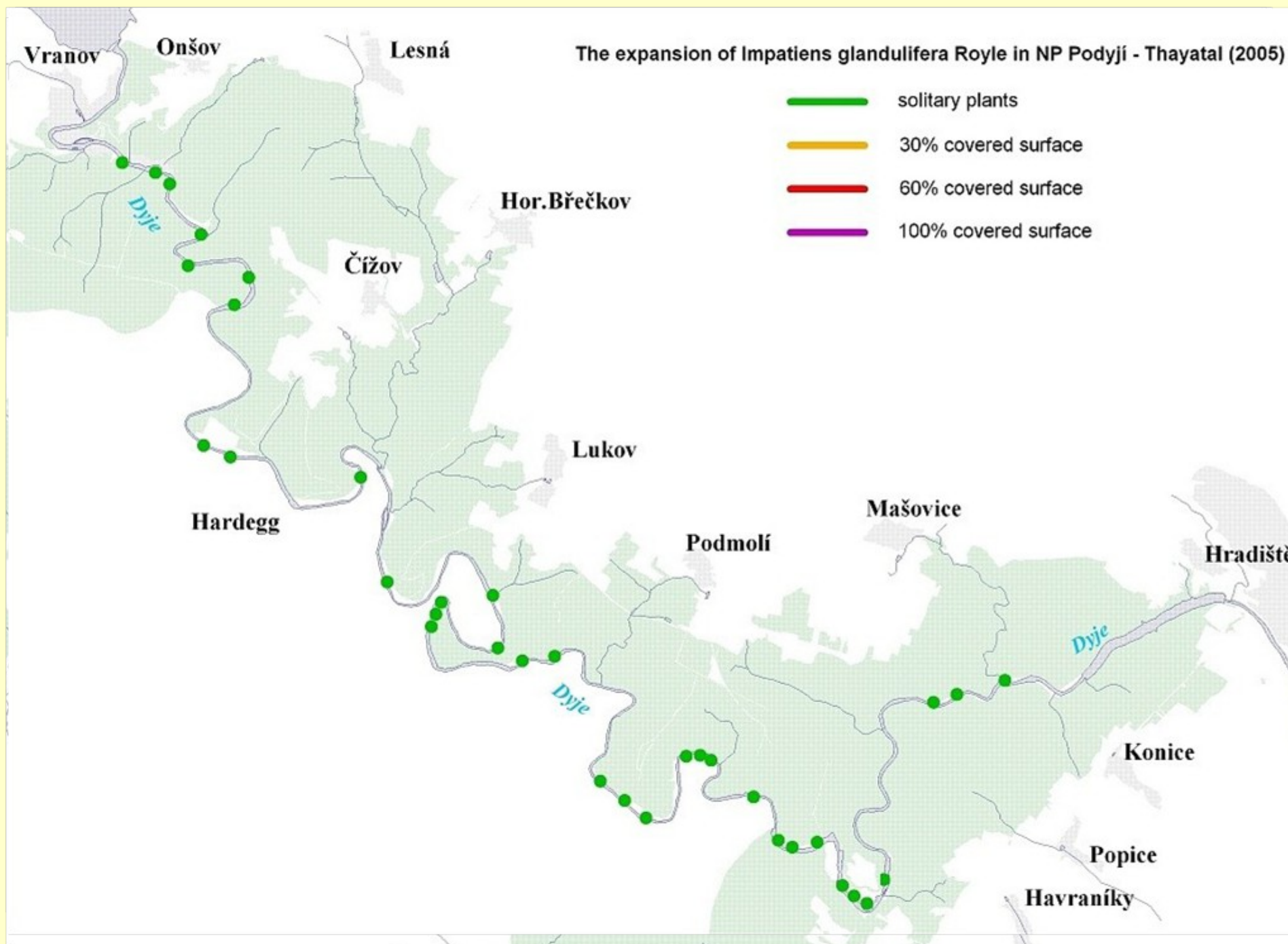




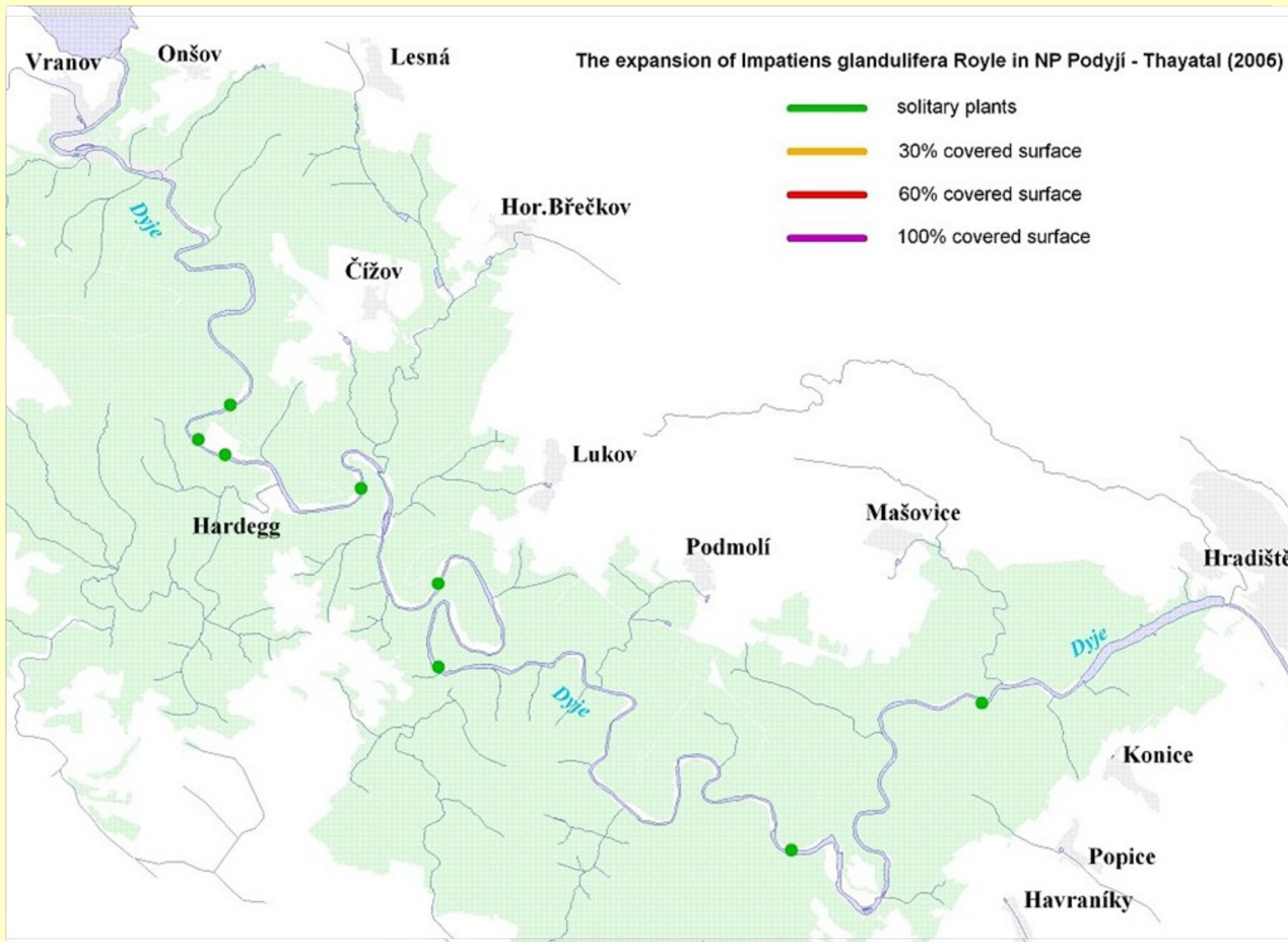








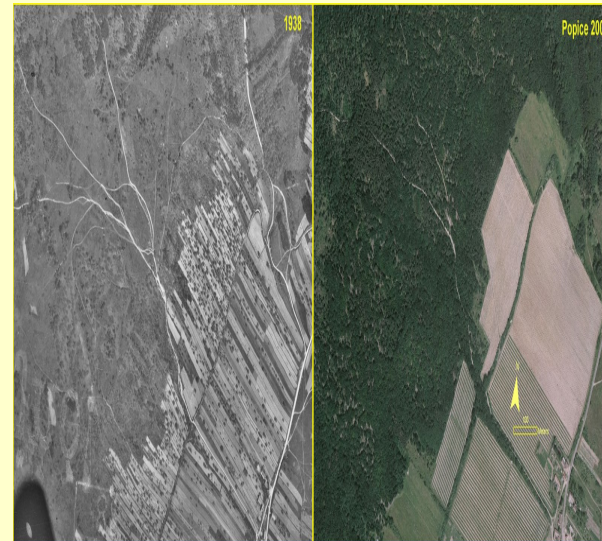
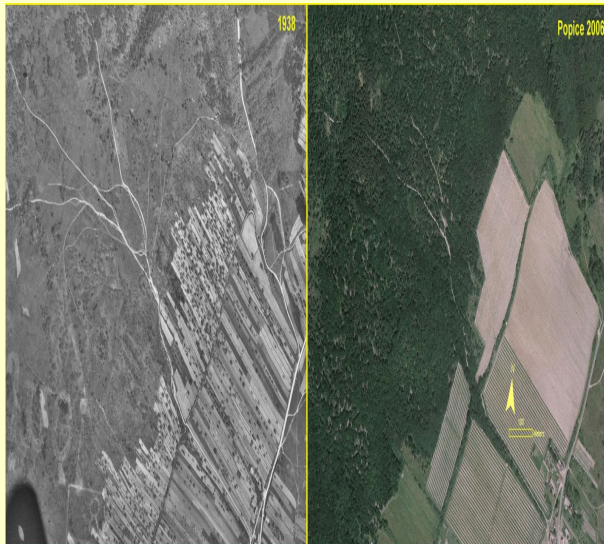




# Black locust in the national park – a brief history

Beginning of the 20<sup>th</sup> century – afforestation of some pastureland

- 🕒 (especially on poor sites)
- 🕒 After World war II (1945) - afforestation of abandoned agricultural
- 🕒 and wooded landscape (land use changes)



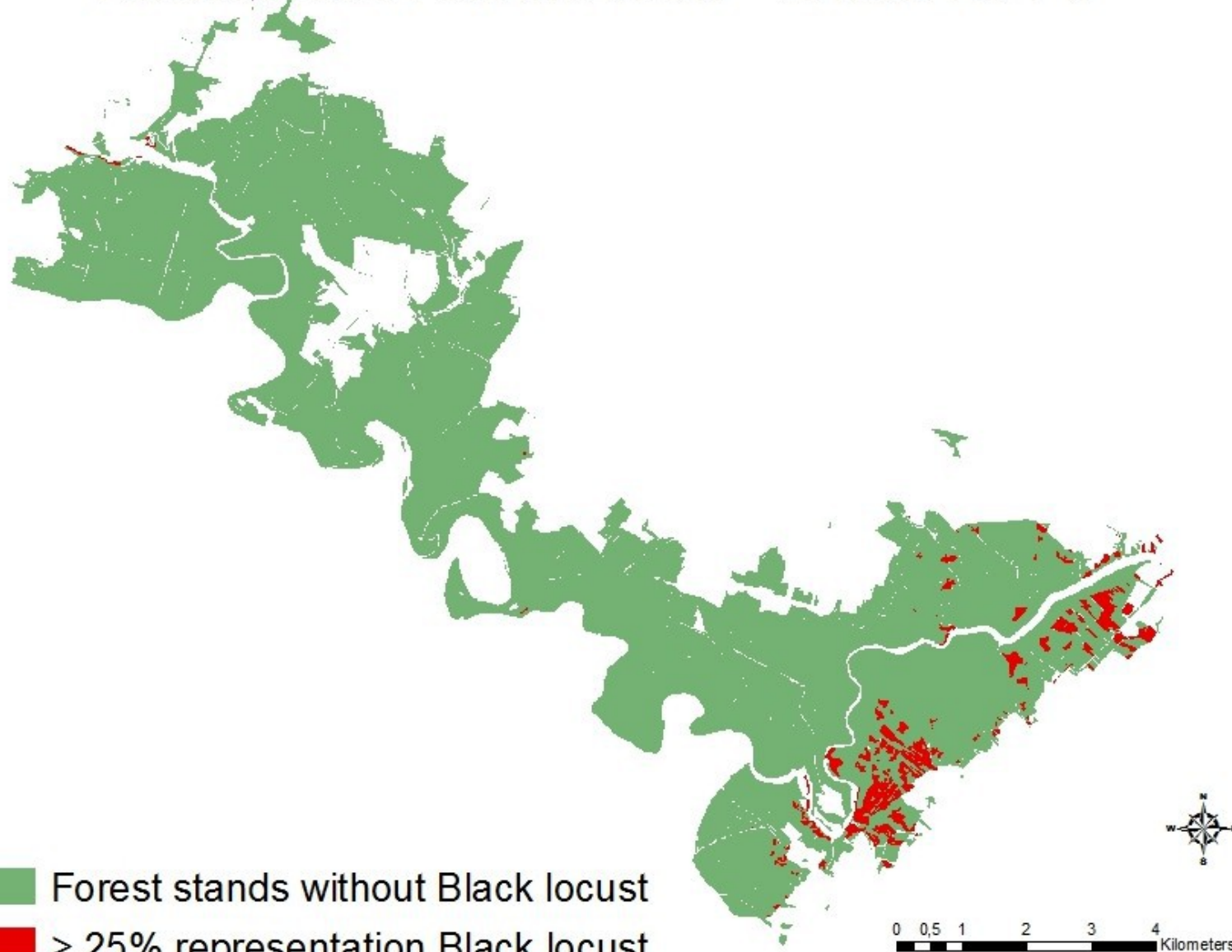
Type of occurrence – monoculture plantations, small groups or amixed B.L. (from spontaneous spreading)

- 🕒 Today – only spontaneous spreading = the **main threat**



# Black locust – distribution, current state

Black locust distribution - /state 2014/



Locust forest type  
(area ca. 150 ha (2014))



# Black locust – scope of management, methods

**1. Management plan** – defines strategical aims and time limits (e.g. 2035 – 2045 for restoration management – probably unreal for B.L.)

A) Restoration management - forest area

B) B.L. elimination followed by traditional management (pasture, mowing,...) – nonforest area

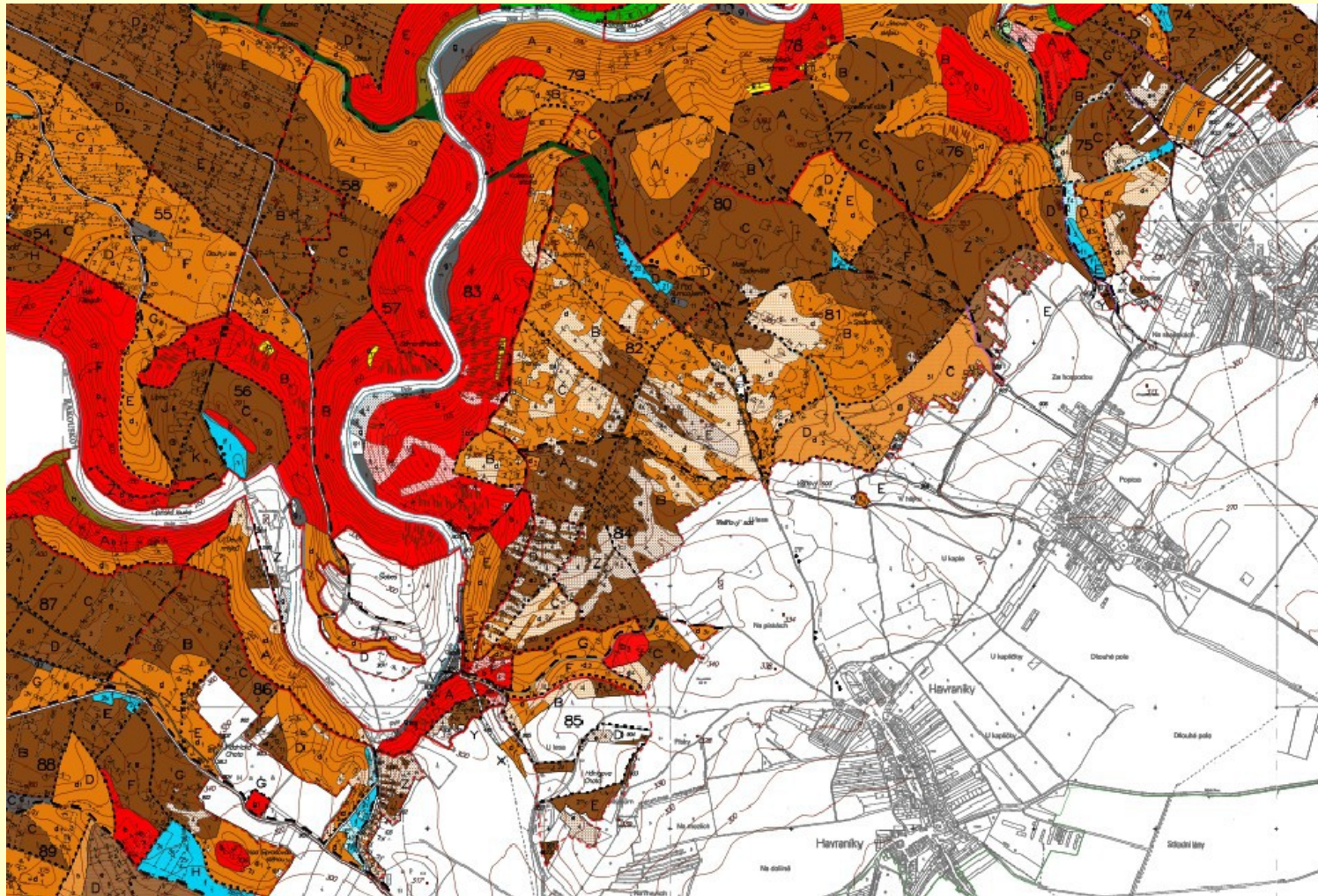
**2. Forest management plan** (10 y. period) - mapping, planning measures, controlling (statistical inventory)

## Methods:

- ) The first measure in 1994 – small clear-cuts, herbicide used against B.L. regeneration (sprouts), use in large monocultures, high costs, slow restoration, herbicide damage of target regeneration and plants
- ) From 2005 – higher stump cutting (ca. 1,3 m) followed by mechanically remove sprouts (no herbicide), use in mixed forest stands, possibility for natural regeneration of target species (oak, maple, hornbeam, ...), low costs
- ) Ring barking – on the rocks, one or two steps method, require inspection



# Black locust – scope of management, methods



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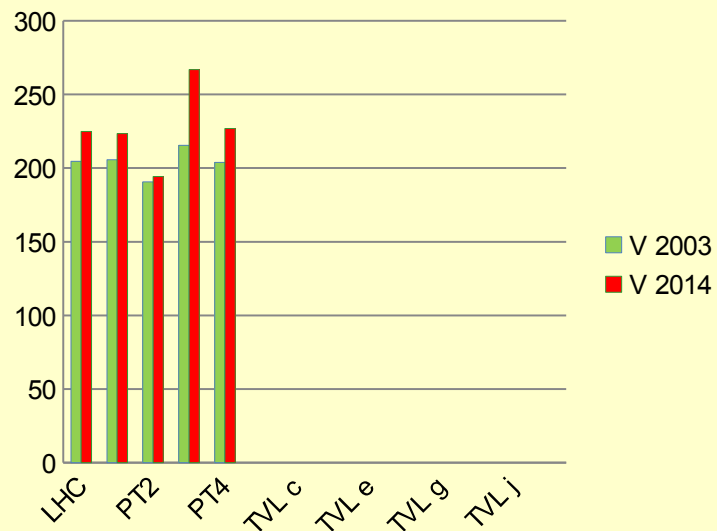


# Black locust – results

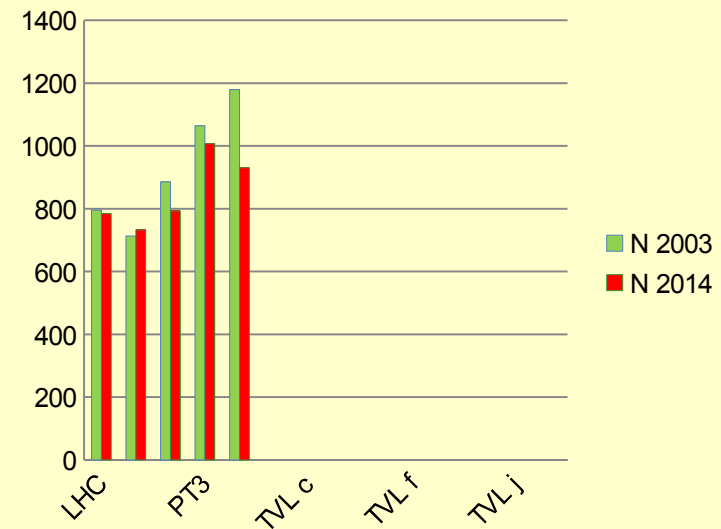
## Development of the area representation of Locust forest type

Year/Stand type	Locust FT(ha)	Total timber land (ha)
1995	225	5320
2001	211	5320
2003	208	5320
2006	191	5320
2014	155	5320

Development of volume per hectare [m<sup>3</sup>/ha] between inventory 2003 and 2014



Development of number trees per hectare [pcs/ha] between inventory 2003 and 2014





# Conclusions

- 📁 as seen from the results, in some cases the methods used are not so much efficient they should be (e.g. from the viewpoint of the speed and the area managed) – limits (financial, personal)
- 📁 lack of consistent approach to the invasive/alien species management – definition consensus, reflecting new scientific results etc.
- 📁 the problem of „traditional“ game management – the hunting should be only a management tool, not a kind of tradition (mouflon – hunting for horns, for meat etc., based on an outdated status)
- 📁 thanks to having the management in „our hands“, we can be more operative, which is important in the beginnings of invasions (the case of *Impatiens glandulifera*).



**Thank you for your attention**

