



Покрајински Завод за заштиту природе  
*Institute for Nature Conservation in Vojvodina Province*

# Nature conservation & Sustainable Forestry

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# Introduction



## Institutional nature conservation in Serbia:

- Ministry of agriculture and environment
  - Institute for Nature Conservation of Serbia (state) INCS

Regional level: Secretariat for Spatial planning and Environment Protection in AP Vojvodina

- Institute for Nature Conservation of Vojvodina Province INCVP

*Responsibilities of INCVP:*

- *Natural values evaluation and PA proposal*
- *INCS and INCVP play ruling function in planning (spatial, FMP, water, game... management planning)*
- *Consulting Protected Area Managers*
- *Educational, promotional ... activities (Eco-edu programmes)*
- *Protected species monitoring*
- *National&International project partnership (habitat restoration)*
- *Policy development and implementation*

# Biographical regions in Serbia



North Serbia: Pannonian biogeographical region

Forest-steppe vegetation












Central and South Serbia: Continental biogeographical region

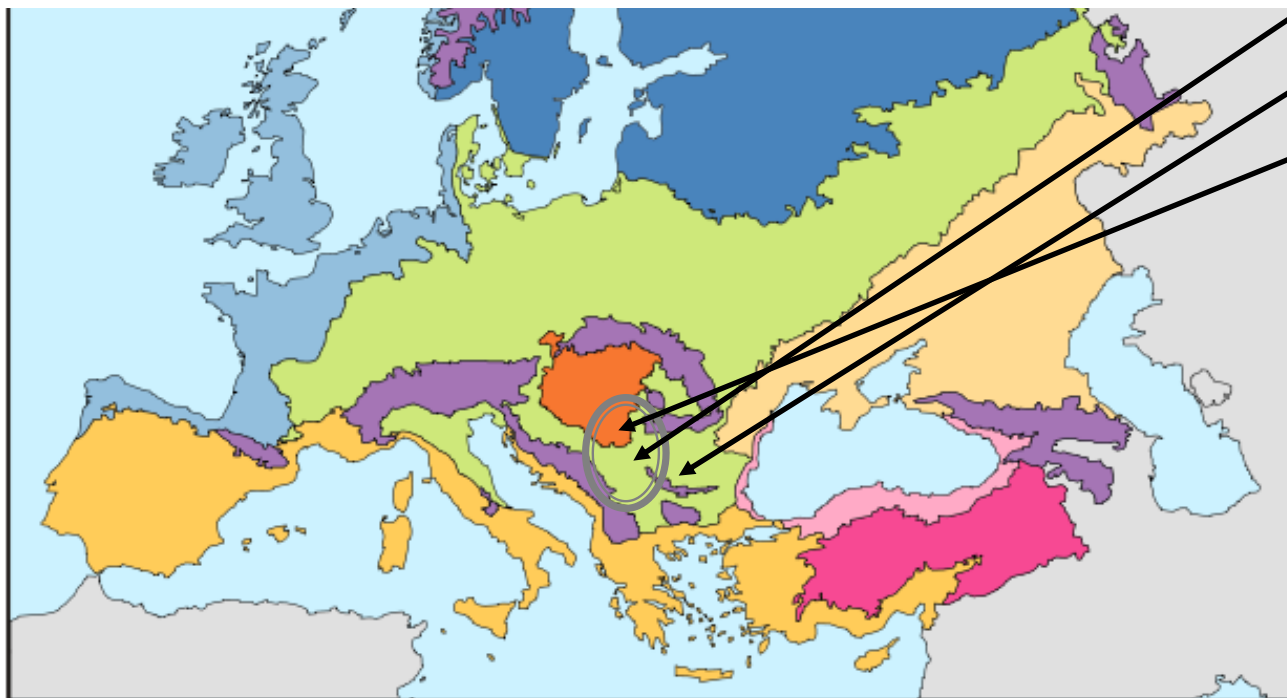
Deciduous and coniferous forests

High mountains: Alpine biogeographical region

shrubs, grasslands

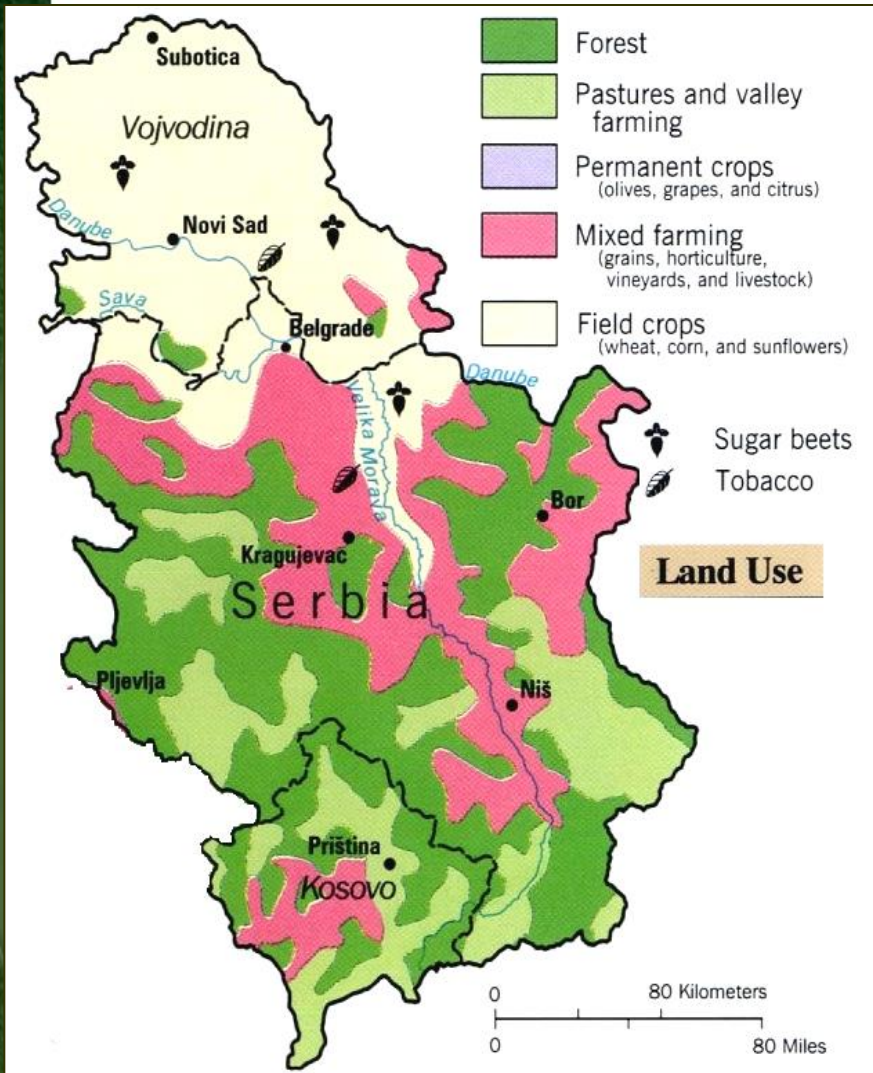
Biogeographical regions of Europe

-  Arctic
-  Boreal
-  Atlantic
-  Continental
-  Alpine
-  Pannonian
-  Mediterranean
-  Macaronesian
-  Steppic
-  Black Sea
-  Anatolian



After a map by the European Environmental Agency: [www.eea.eu.int](http://www.eea.eu.int)

# Land use and protected areas



Source: [www.lib.utexas.edu](http://www.lib.utexas.edu)

## Vojvodina:

Natural vegetation: grassland- woodland mosaic

Agricultural region, 78% arable land

Small protected areas embedded into cultural landscape

## Central and Southern Serbia

Natural vegetation was dominated by forests

Mountain region, rural mosaics mostly in river walleys

Species rich mountain pastures, created by deforestation

Large pristine areas, high number of endemic species, biodiversity hot-spot on Balkan peninsula

# Protected areas



474 protected objects, 6% of the country (530.714 ha),

- 5 National Parks
- 69 Natural Reserves
- 17 Park of Nature
- 16 Landscape of Outstanding Beauties
- 3 Protected Habitats
- 325 Natural Monuments (rocks, trees, springs, caves etc.)
- 39 Cultural /Historical Monuments

# Zonation of protected areas

Regulated in Law

**I zone** – only for monitoring&research, visiting is restricted

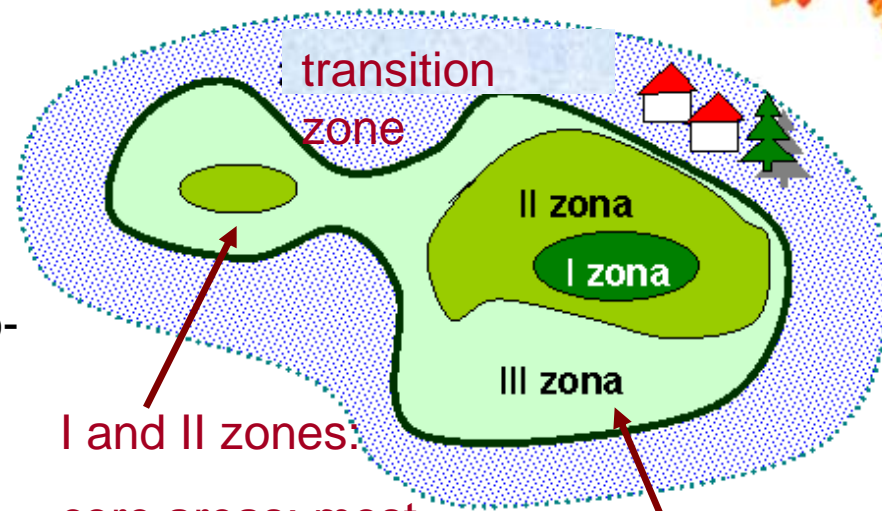
**II zone** – management activities, eco-tourism, traditional land use adapted for the conservation goals (eg hayfields, pastures, autochthonous forests, extensive orchards)

**III zone** – restricted use of natural resources, organic farming, extensive agriculture, forestry, ethno-tourism, recreation...

## Transition zone:

Not obligatory. Buffer area around the boundaries of the protected areas.

Restricted development of industry, urbanization or other activities that are sources of pollution and disturbances. Ban of the invasive species in silviculture.



I and II zones:

core areas: most valuable&sensitive

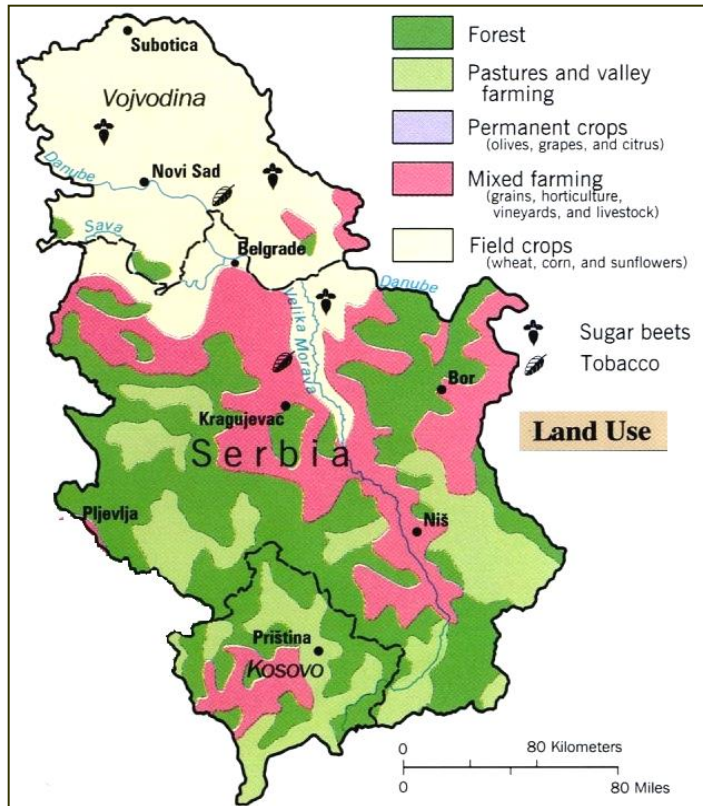
III zone: less sensitive, but contains important resources or key habitats

# Forest Cover



Forest cover in SRB = 29,1% (World average 30%, European 46%)

- Vojvodina 7,1%,
- Central Serbia 37,6%
- Forest cover increased in 5,2% since 1979.
- 65% of annual timber production is beech and oak wood



Northern Serbia - forest-steppe converted into cultural landscape

Central and Southern Serbia – woodland partly converted into rural mosaics

# Key issues in forest Composition&Structure:



## Forest mixture

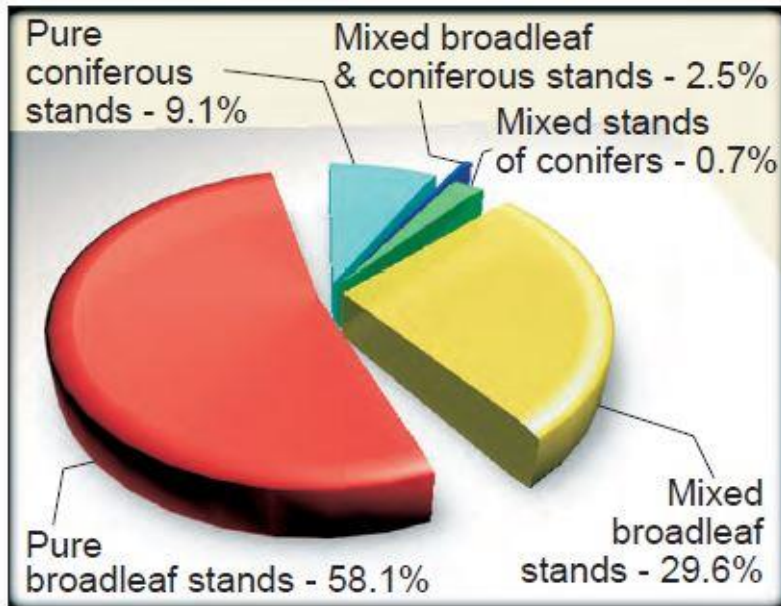


Diagram 6. Forests by mixture (area)

SRB (without Provinces)

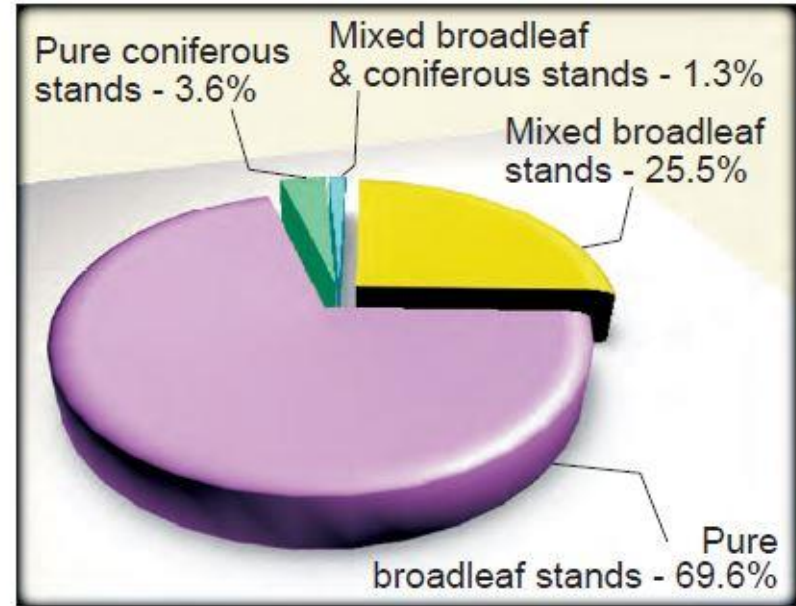


Diagram 6. Forests by mixture (area)

Vojvodina

Mono-dominant stands 67,2 %!

Mono-dominant stands of 73,5 % forest cover !

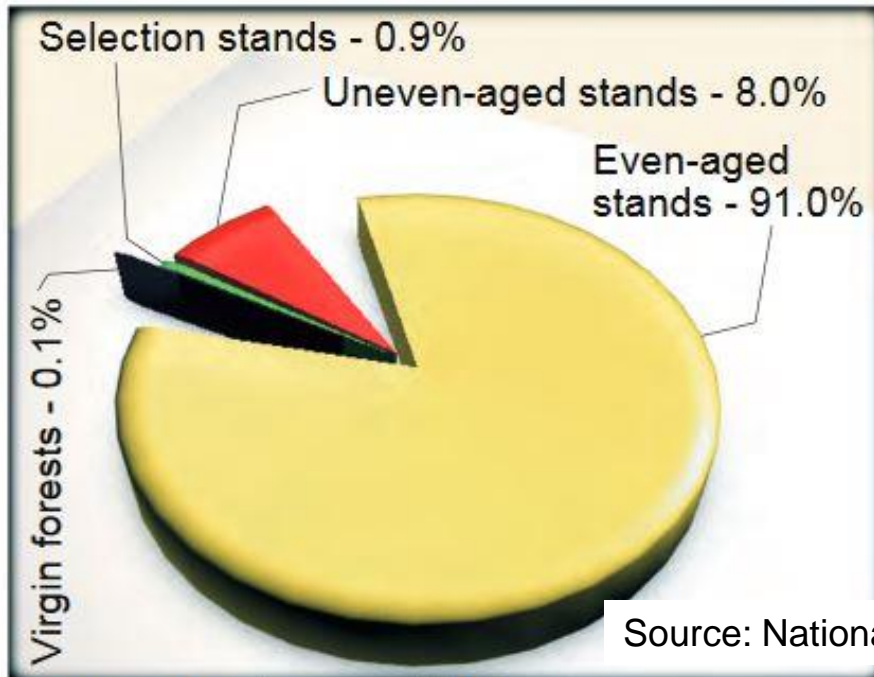
NFI (2009): objective> “advance” ..., “support” ... “improve“ forest heterogeneity!



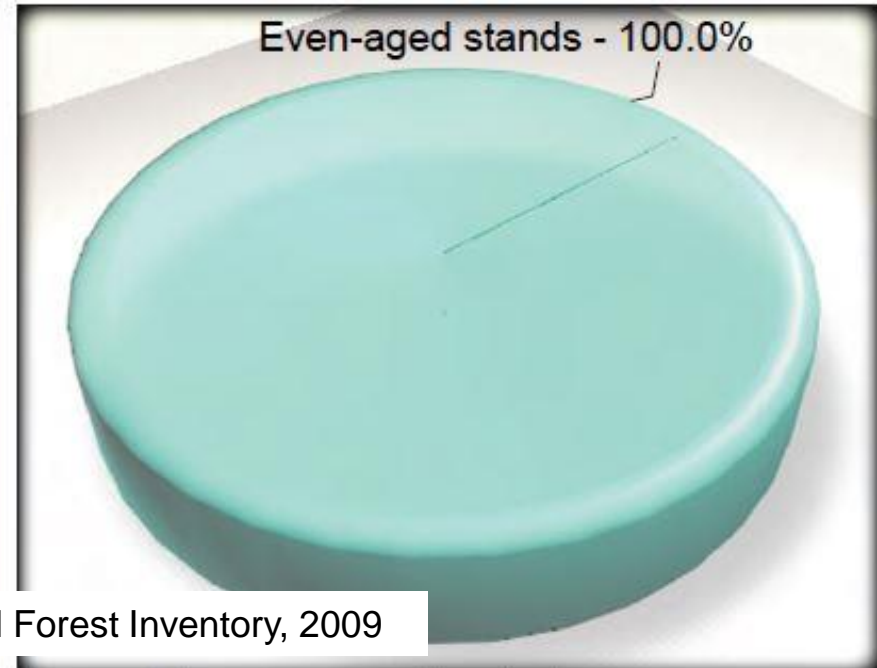
# Forest Composition&Structure:



## Age structure 1. Central Serbia



## 2. Vojvodina



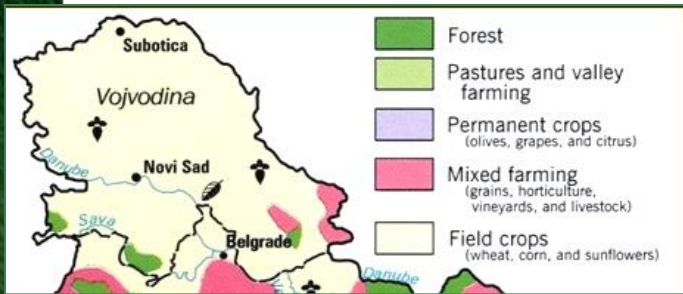
Source: National Forest Inventory, 2009

### Consequences:

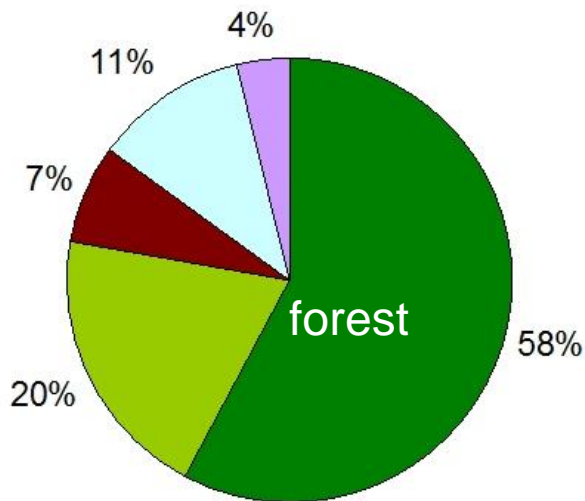
- Absence of vertical structured, naturally multi-layered forest (ecological niche loss!)
- Deeper „edge-effect“, sensitized to extreme weather, habitat change...
- Production sustainability?

NFI (Ministry report, 2009 ): „A long-term strategic problem which results from the above analysis is **the need to break up the homogeneity resulting from dominant even-agedness and its structure...**“

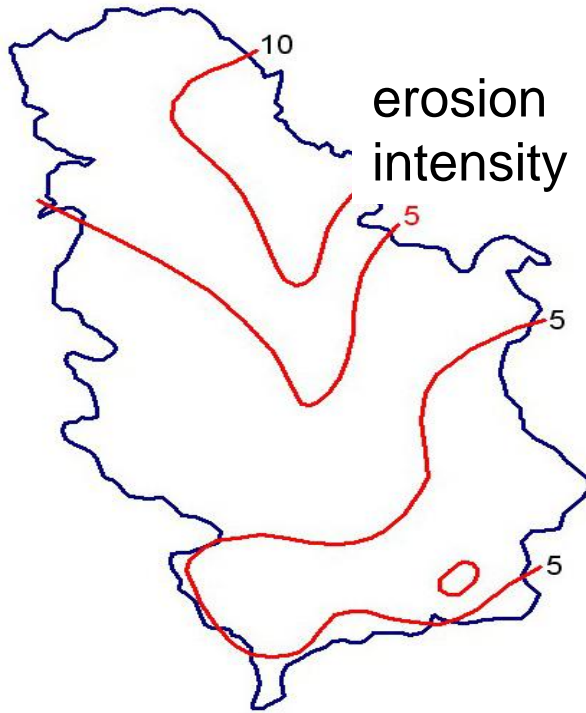
# Pannonian (northern) Serbia



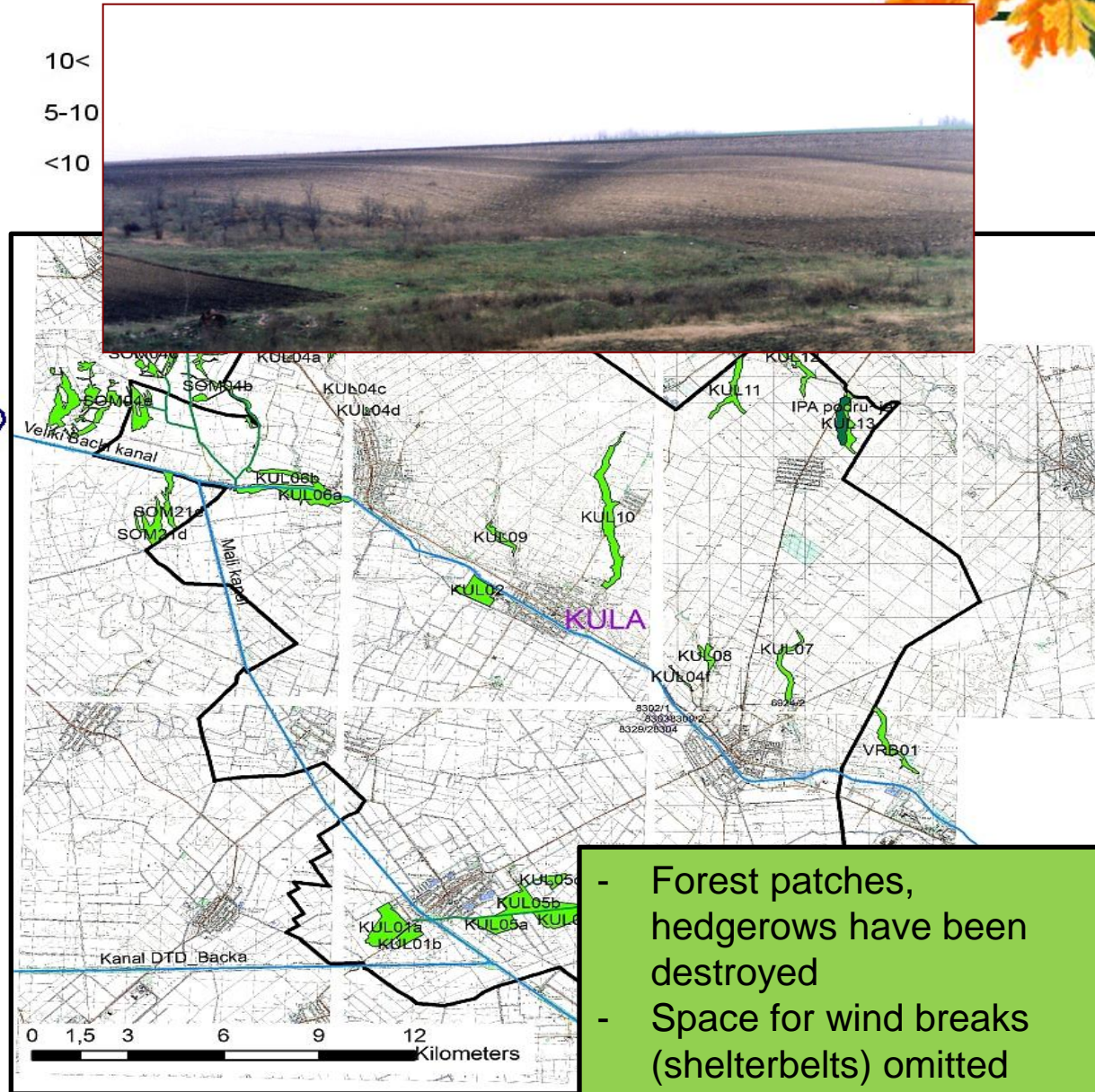
- Lowland with forest – steppe patches and alluvial forests, two small mountains (540m a.; 642m a.)
- 78 % arable! Only 7,1 % of forest (heavily fragmented!)
- Common oak+ash and poplars (**hygrophilous!**)
- Systematically drained soil in the whole lowland
- > Forest devitalisation, loss of wood increment!
- > ES?! (soil formation/conservation, water filtration, aquifer decrease.... human health and aesthetic function)



# Soil degradation



Homogenous landscape created by land consolidation (arondation) in second half of XX c



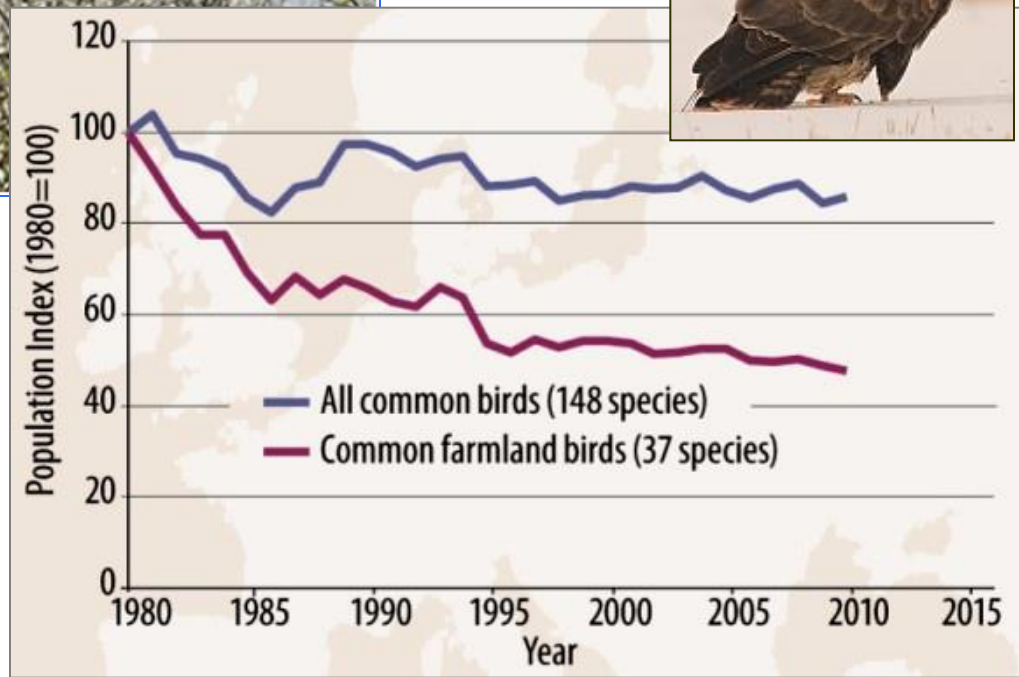
# Consequences of biodiversity loss in agrarian areas



Pollination in orchards in China (2011)

Breeding of bumblebees in UK

Bird populations decrease in EU



Crop yield changes under the HadCM3/HIRHAM A2 scenario [%]

# Crop yield change

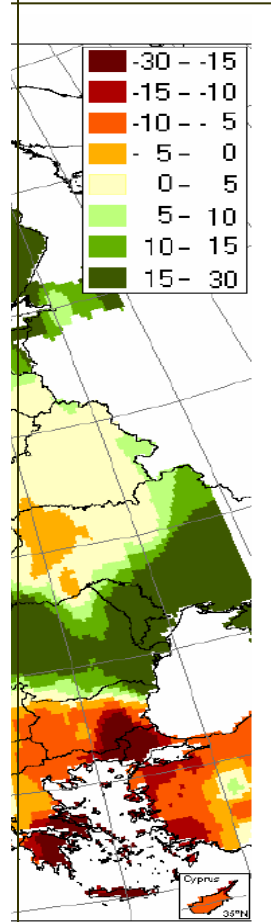
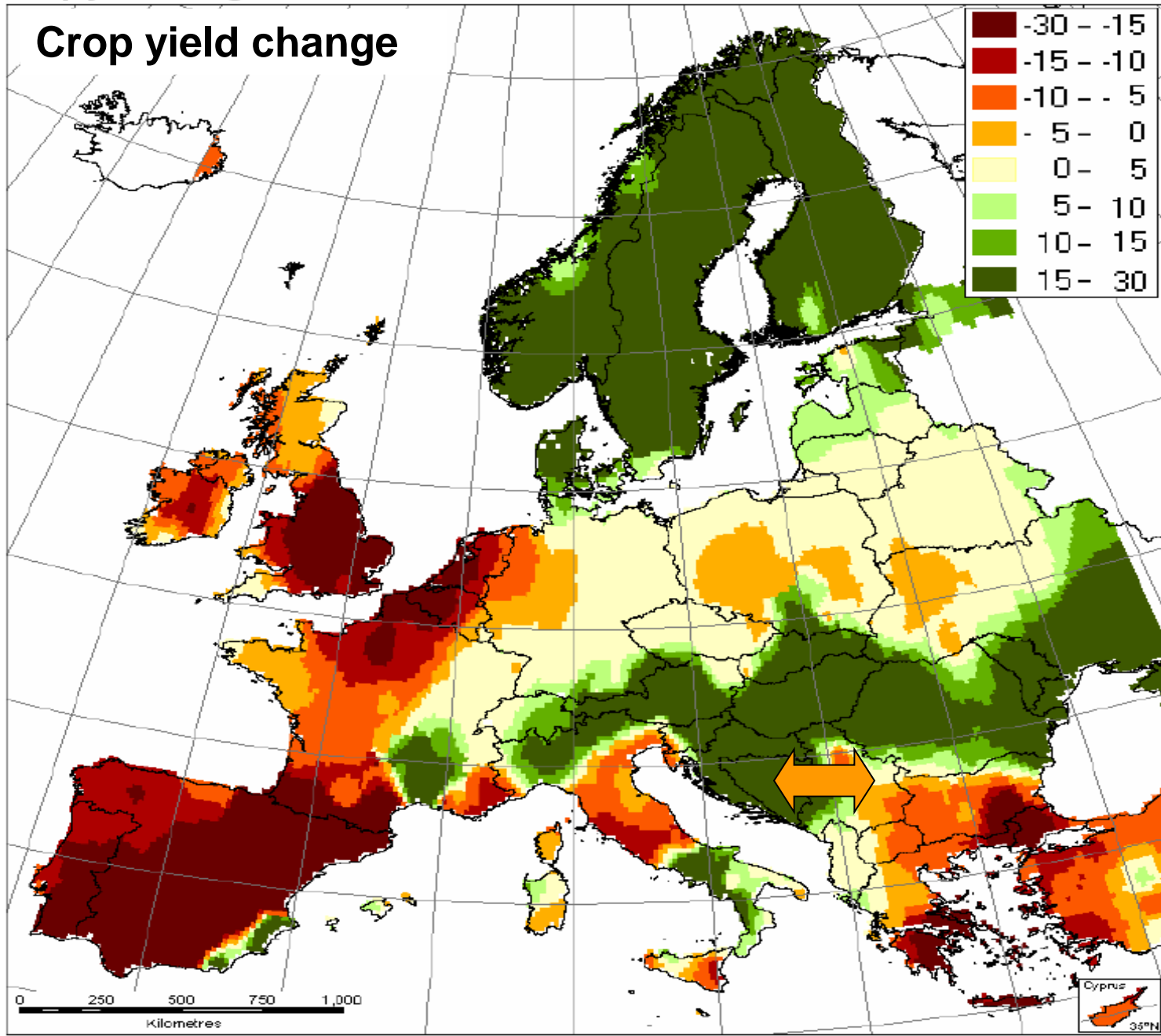


Fig. 3. T

# Possibilities for Cooperation:



Forest certification (FSC in Serbia since 2007)

Largest state forest managers in Serbia

Consultation process with FSC representatives

Official support to the PE Vojvodinašume (to solve legal issues and fulfill the certification principles)

## Results:

HCVA, FMP consultations, Protected species survey, Plantation conversion, Guidelines for forestry operations (buffer zones, deadwood, nests...)

# Integrated floodplain management



Floods in 2014!

## Forested Water Retention Areas

- Improved forest productivity
- Flood safety
- Habitat restoration

Funds:

LIFE programme, Structural and Cohesion Funds, Horizon 2020, GEF  
IPA Interreg



LIFE Project (LIFE06/TCY/INT/246): Flood defence capacities should have been improved by floodplain renaturation/retentions! (lowland poplar/oak forest)

# Agri-environment & Agro-Forestry

Agro-forestry as  
Integrated land management  
Crops + Wood (increased income)



Agri-environment programmes of EU  
focused on the environment and  
biodiversity issues.



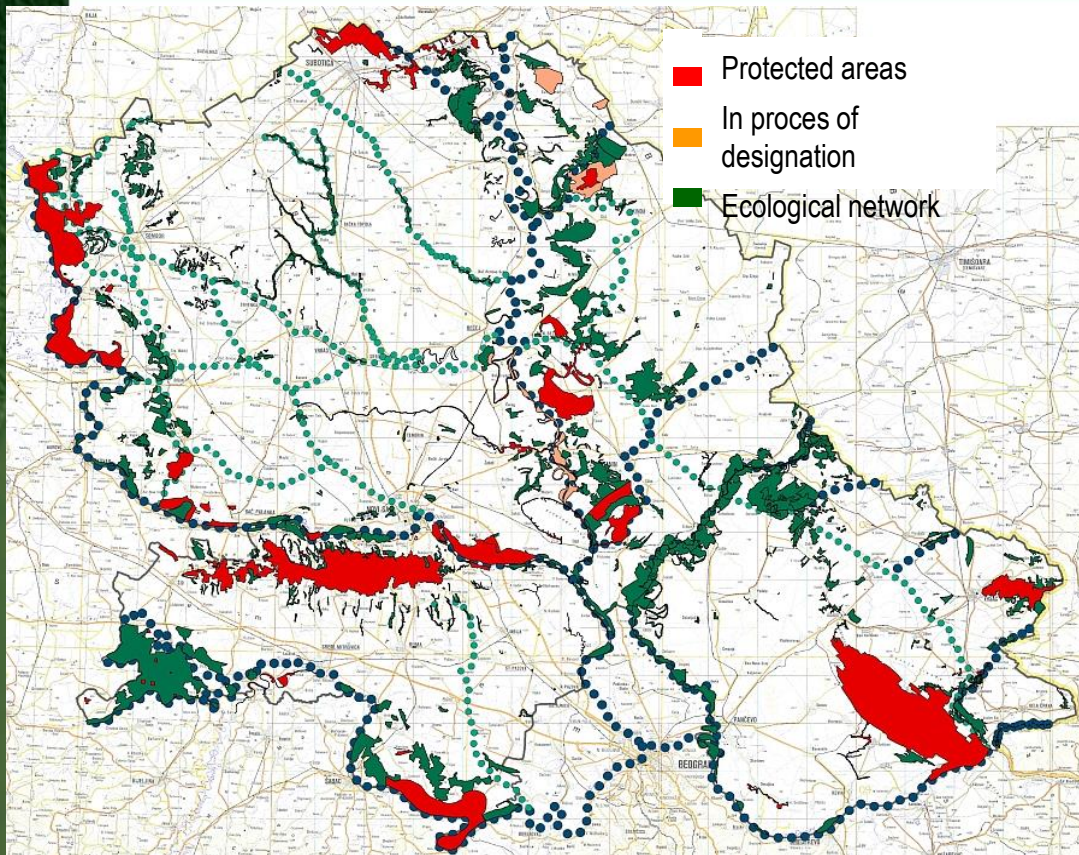
## DEVELOPING A NATIONAL AGRI-ENVIRONMENT

PROGRAMME FOR SERBIA





# Multifunctional eco-corridores in agrarian landscape



- Increased crops production
- Soil conservation
- Wildlife habitat&corridores



# Further steps



Diversification of financing mechanisms in forestry related issues!

Paying for the forest ecosystem services (PES)

National agri-environmental programmes

„Green Fund“ announced in SRB from 2017

Increasing forest resilience to extreme weather conditions  
(Climate change adaptations)

# Conclusions



Land cover/ land use specifics of our regions and social history (customary) are important for the integrated planning

Forest-Water-Agriculture-Nature.... and **Sustain(ability)**  
**Entrepreneurship** shift toward more integrated solutions

Nature Protection is an essential part of wise – long term (the only functional) sustainable forest(ed) land management

Brought together initiatives makes stronger voice and open doors to more fundraising options!



# Nature conservation in integrated, multifunctional, Ecosystem based i.e. **Sustainable Forestry**

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