



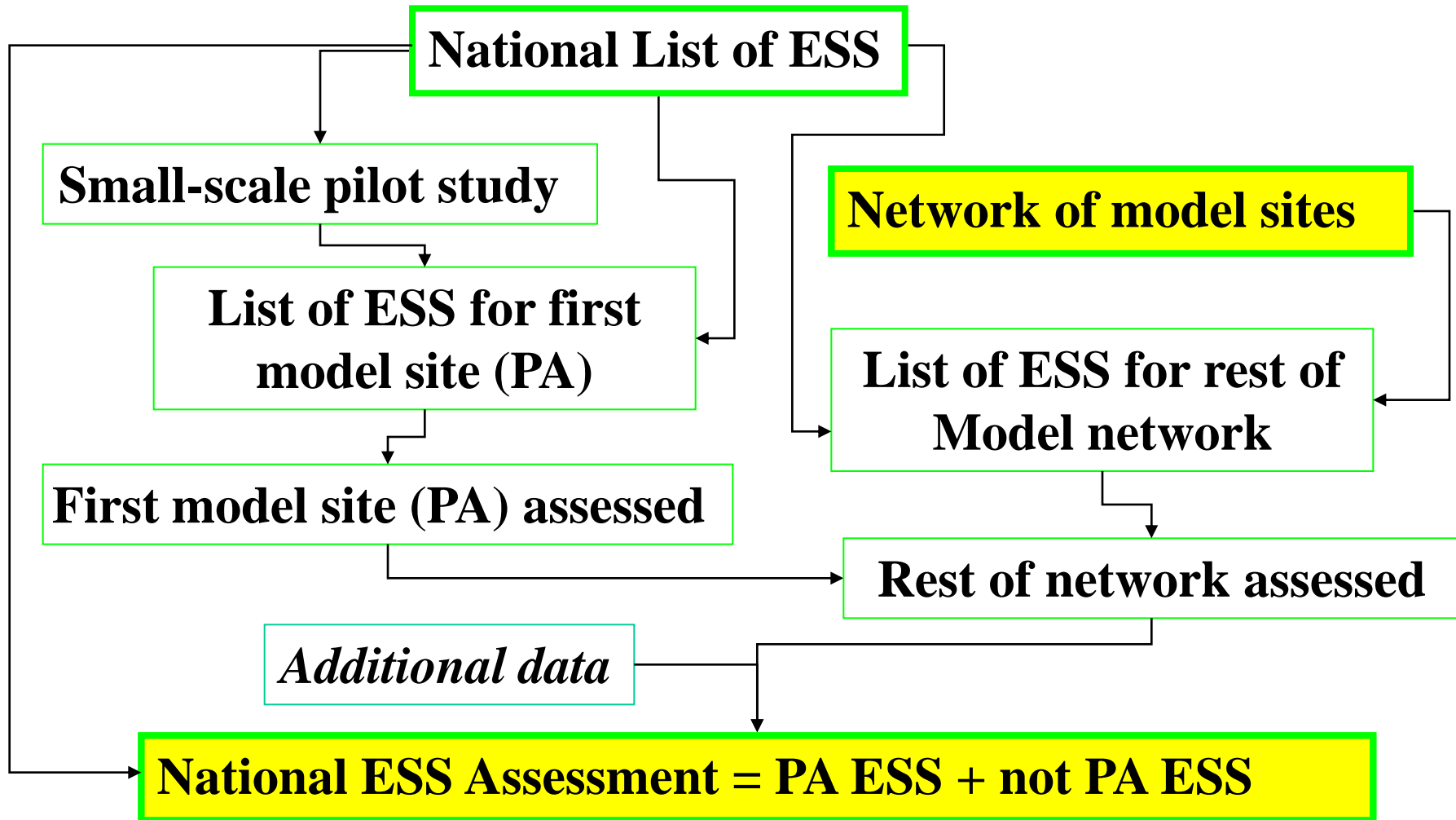
Centre for  
Environmental  
Solutions

# **Ecosystem Services Evaluation Approach: Selecting of the Protected Area as One of the Pilots for Further National Assessment in Lithuania**

**Dr. Vytautas Naruševičius & Dr. Gintaras Matiukas**

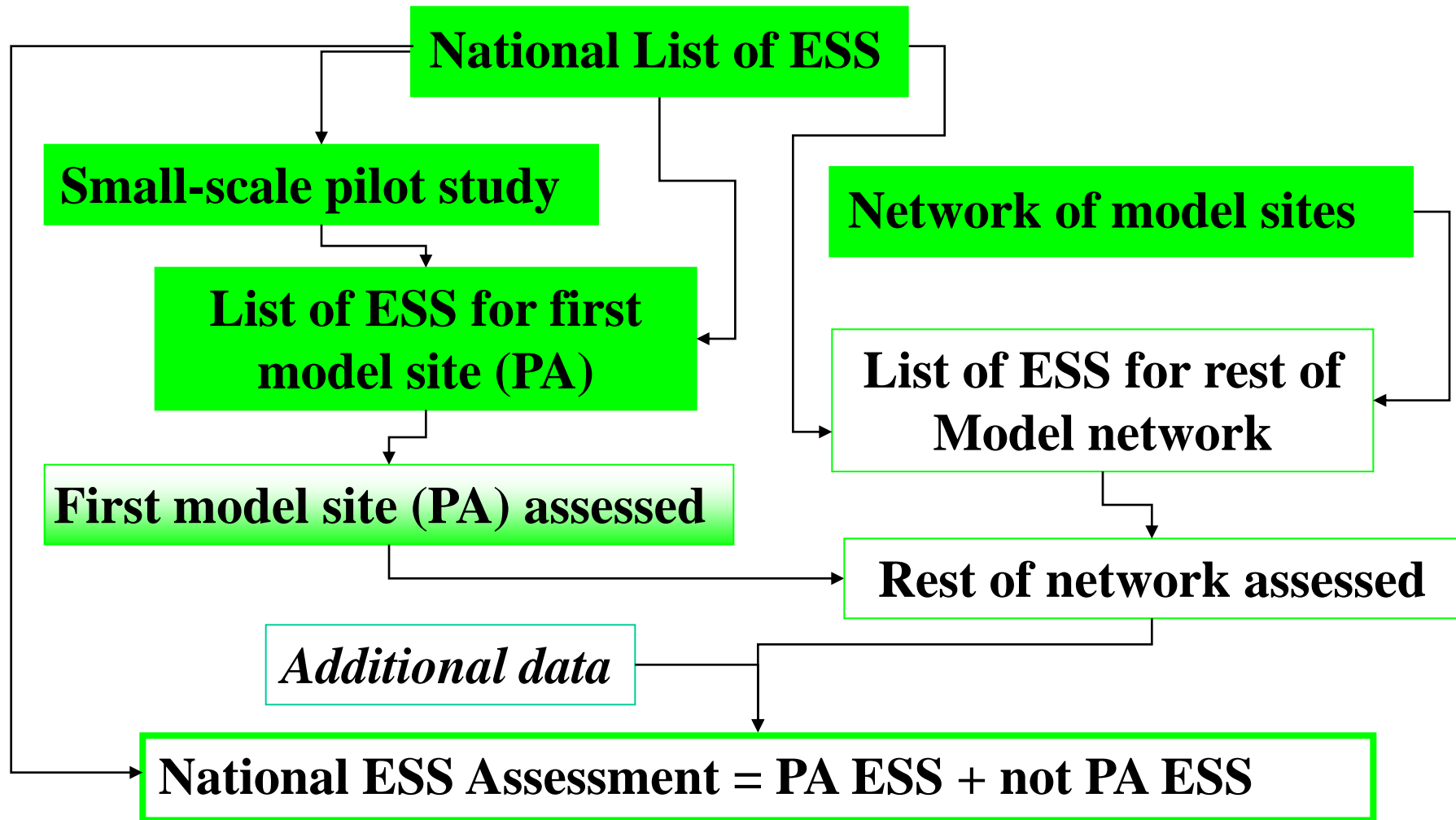


# Assessment design





# Assessment design





# Network of model sites

**Selected model sites for national valuation of ESS represents Lithuanian territory and are based on physical, natural and social parameters:**

- **Forest/grassland coverage**
- **Coverage by wetlands and water bodies**
- **Density of inhabitants**
- **Proximity to bigger cities**
- *Local customs/habits*

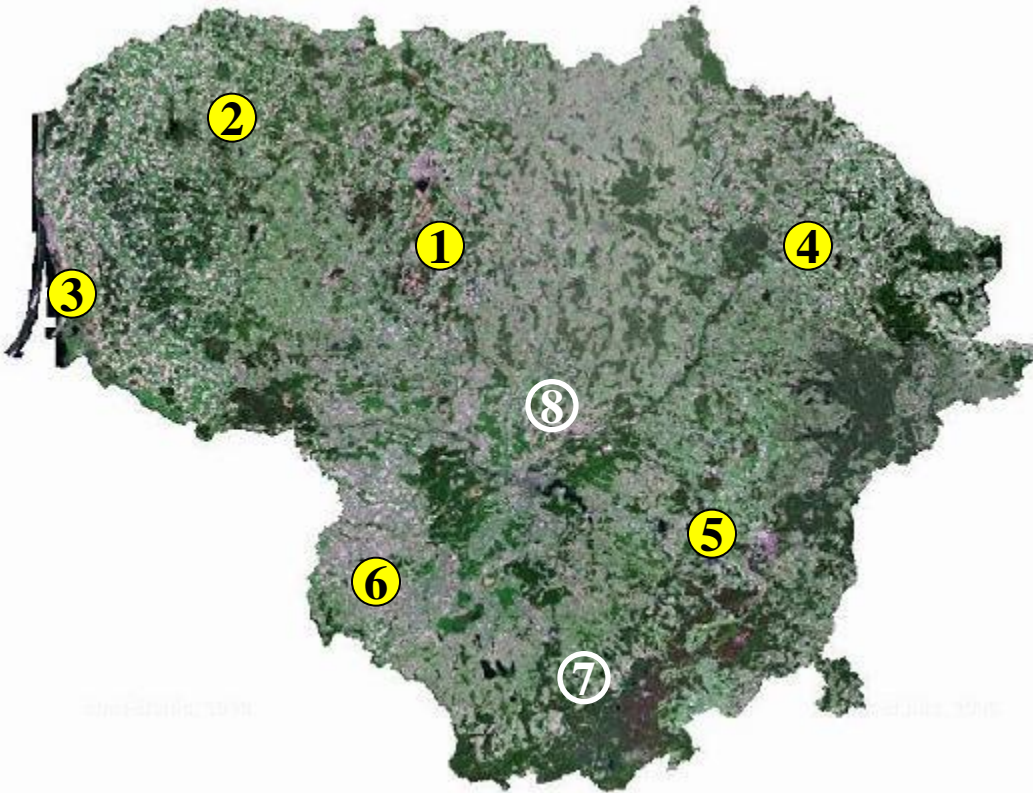
**Optimal size of the model site – 10.000 to 20.000 ha**

**Part of protected areas within the total area of all model sites corresponds to the proportion of PA on national scale**





# Network of model sites

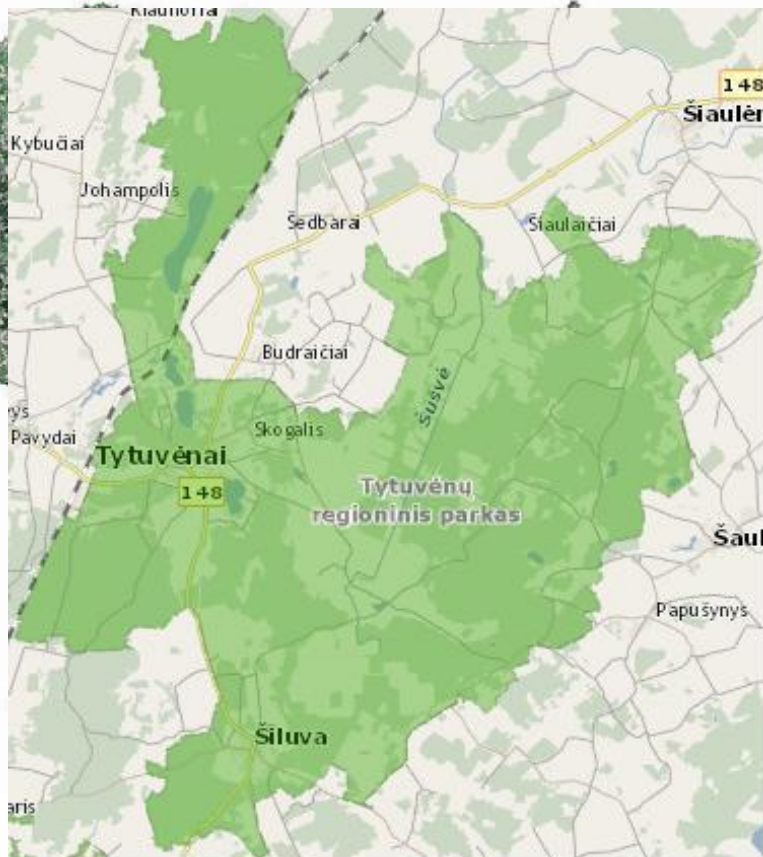


- 1. In Central Lithuania – protected area**
- 2. In Samogitian highlands, North Lithuania**
- 3. In Baltic Sea lowland**
- 4. In Aukštaitija highlands, North-East Lithuania**
- 5. In the highest population region**
- 6. In South-West Lithuania**
- 7. Additional area – heavily forested**
- 8. Additional area – intensive agriculture**





# Network of model sites



**Site name:** *Tytuvėnai Regional Park*

**Background for selection:**

- *partially protected area,*
- *average density of inhabitants,*
- *relatively in the middle of country (climatic factor),*
- *relatively close (40 km) to one of five bigger cities,*
- *coverage by forest, water bodies, agriculture land close to average,*
- *biodiversity conservation areas and*
- *recreation areas established*





# Why Protected Area?

## 1) *Added value:*

- **Specific complex of ES and ESS**
- Exceptional (rare) value of individual/complex of ESS (*supporting and provisioning* (very high biodiversity (genetic resources), habitats, **medicines**), *cultural*)
- **Specific manner/intensity of ESS use**
- **Higher responsibility/opportunities for local authorities/community**
- **More precise assessment of ESS on national scale:** e.g. *analysis* of public costs-benefits, *comparison* of ESS stocks/use/potential in PA/not PA

## 2) *Relatively easy to identify:*

- **Clear borders, area, cover, habitat composition/biodiversity, costs**
- **Opportunities to monitor use of main ESS**

## 3) *Supporting features for use intensity/value:*

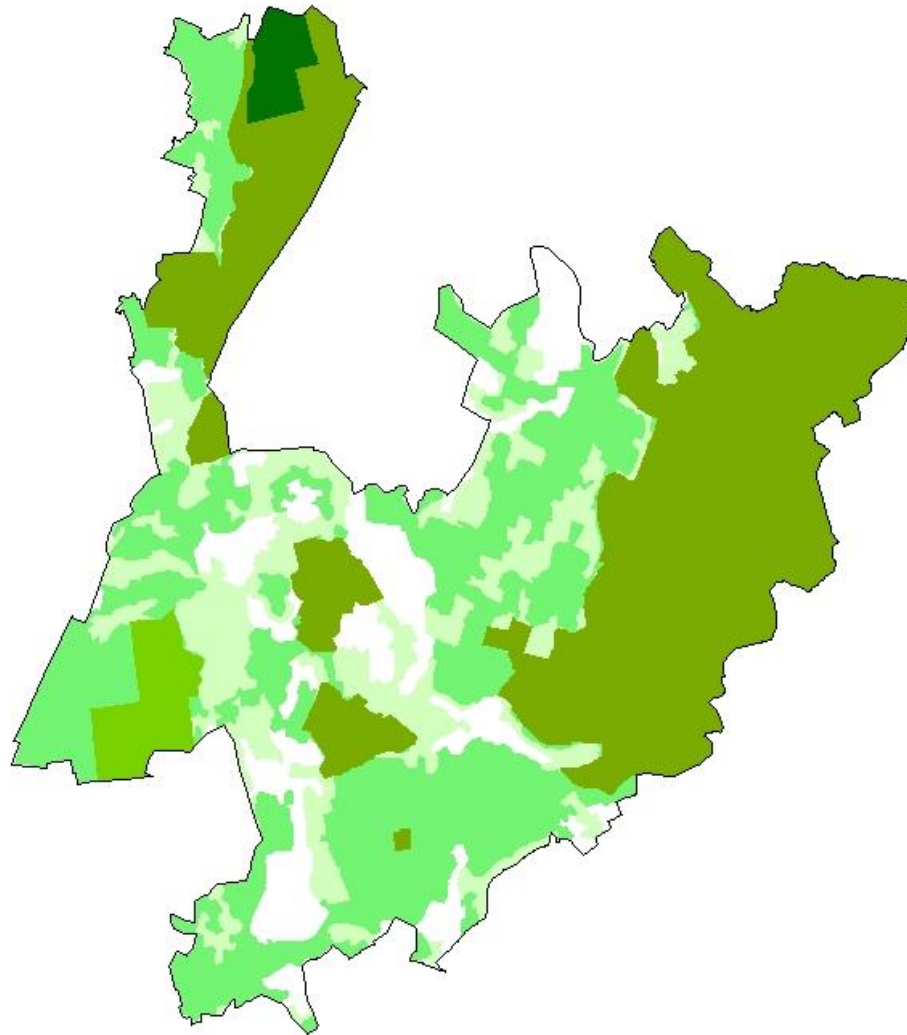
- **brand, infrastructure, staff**





# ESS mapping

*Ecological  
background*

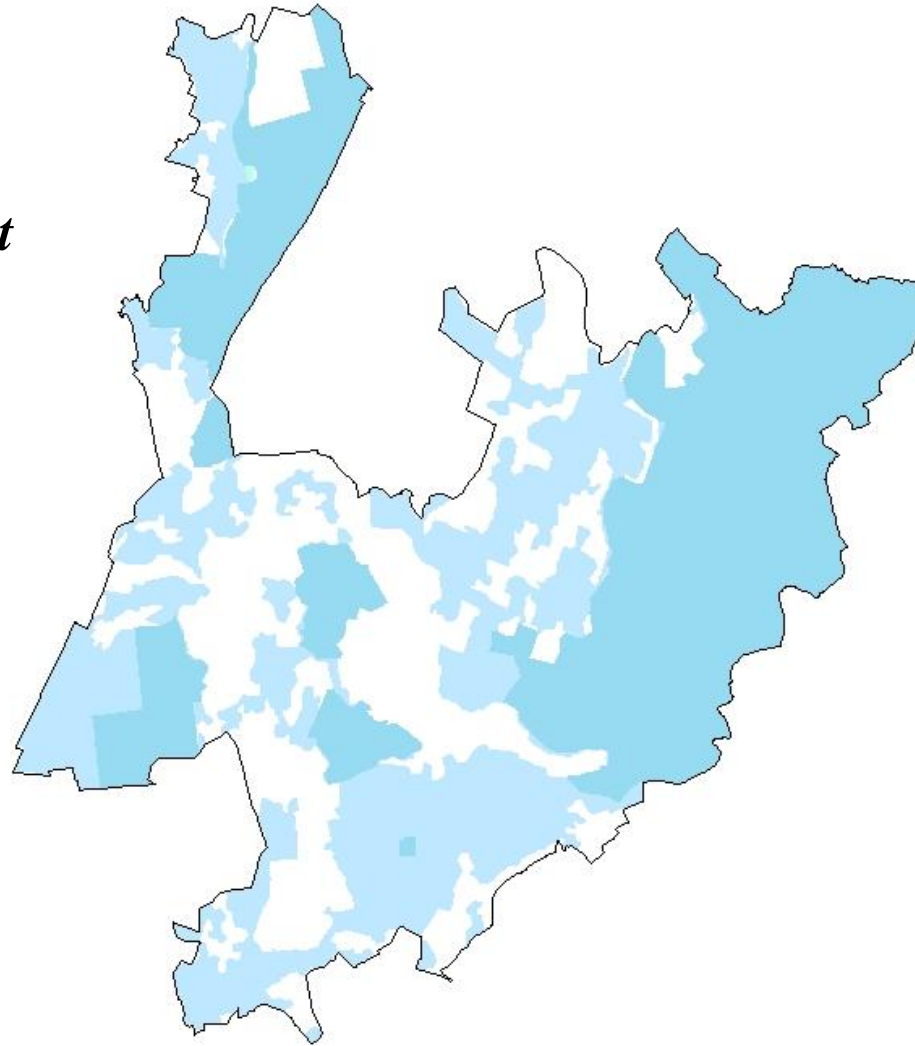






# ESS mapping

***Cultural ESS:  
Cognitive development  
(educational value),  
Nature watching***



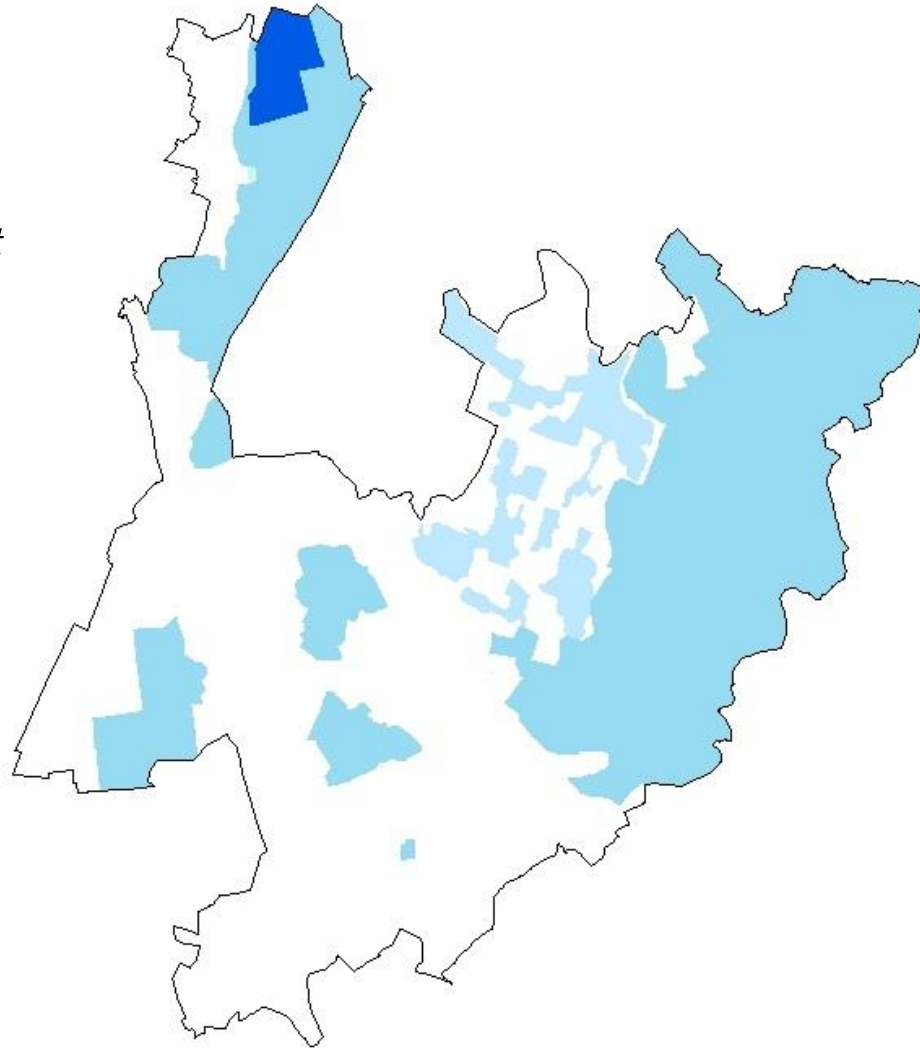


# ESS mapping

***Cultural ESS:***  
*Cognitive development*  
*(scientific value)*

***Supporting ESS:***  
*Habitat provision*  
*(high nature value)*

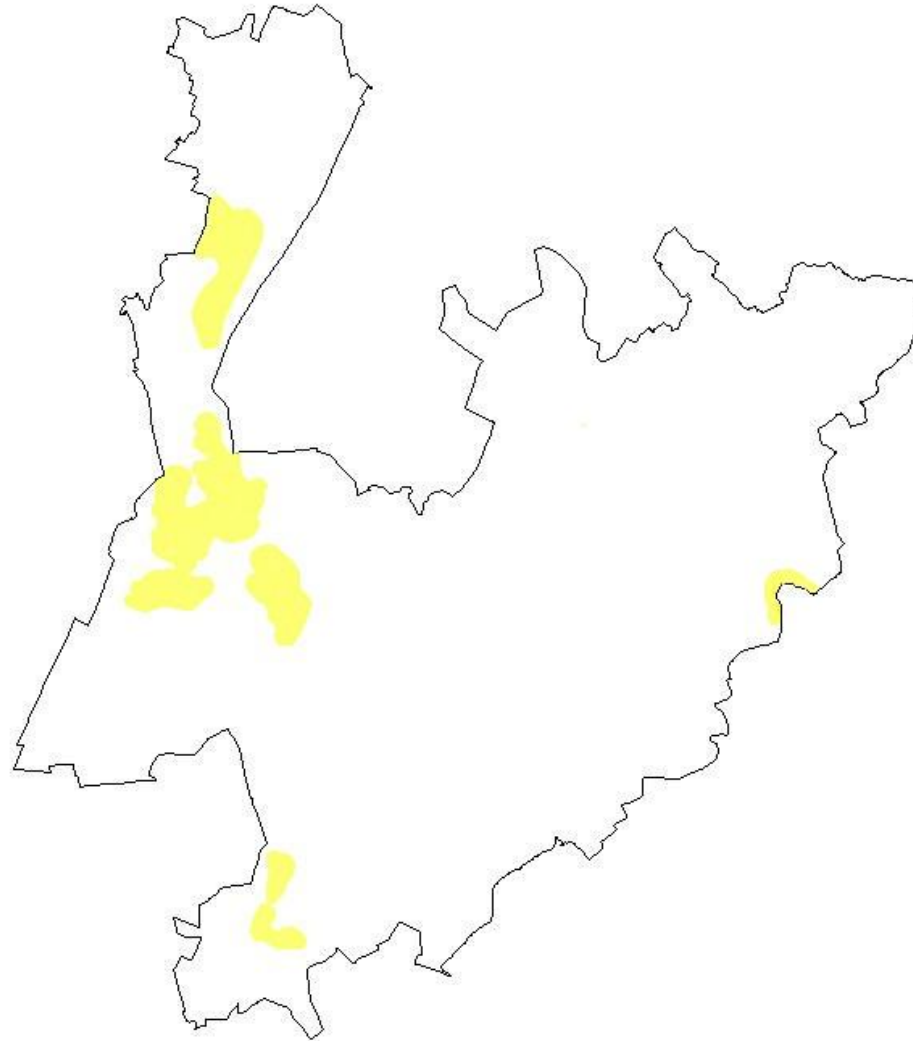
***Provisioning ESS:***  
*Genetic resources*





# ESS mapping

*Cultural ESS:  
Recreation & Amenity*





# First results of monetarization

Service class	Service/goods	Annual monetary value, €/year	Immediate monetary value, €
Provisioning	Timber	1.057.334	11.029.450
	Peat	70.000	2.800.000
	Wild foods (forest)	1.025.366	
	Genetic resources	6.338	
	Fish	5.052	
	Fresh water	152.945	
Regulating	Climate regulation	379.951	
	Air quality regulation	1.404.601	
	Water purification	734.764	
	Pest regulation	38.663	
	Soil erosion prevention	1.196.559	
Cultural	Camping	618.026	
	Fishing	22.500	
	Cognitive development, nature watching	87.000	
	Travel costs avoided	220.600	
Supporting	Nutrient cycling & soil formation	601.037	
	Pollination	792.687	
	Habitat provision	2.719.729	
<b>TOTAL (LT prices):</b>		<b>11.133.152</b>	<b>13.829.450</b>





# First results of monetarization

Service class	Service/goods	Approximate differences of annual monetary value of ESS, €/year	
		<i>Value in the Protected area</i>	<i>Value outside the Protected area</i>
Provisioning	Timber	<b>40-60%</b>	<b>100%</b>
	Peat	<b>10-15%</b>	<b>100%</b>
	Wild foods (forest)	<b>80-90%</b>	<b>100%</b>
	Genetic resources	100%	20-30%
	Fish	85-90%	100%
	Fresh water	100%	70-80%
	Climate regulation	100%	50-90%
	Air quality regulation	100%	90-100%
	Water purification	100%	60-85%
	Pest regulation	100%	50-70%
Cultural	Soil erosion prevention	100%	<b>50-60%</b>
	Camping	100%	<b>20-35%</b>
	Fishing	100%	<b>80-90%</b>
	Cognitive development, nature watching	100%	<b>20-30%</b>
	Travel costs avoided	100%	<b>10-30%</b>
Supporting	Nutrient cycling & soil formation	100%	<b>65-80%</b>
	Pollination	100%	<b>40-60%</b>
	Habitat provision	100%	<b>40-60%</b>

**ESS complex in PA vs regular ESS complex = 1,28**





*Thank You!*





# Much higher value of PA established

**Main principles of compensation – *compensation value for destroyed/damaged biodiversity based on CPI and depends on, e.g.:***

- **Category of species rareness and protection level** (*strictly protected species - 300% of species basic compensation value (BCV)*)
- **Impact to animal habitats/breeding sites** (*destroyed - 200-300% of species BCV*)
- **Site importance for biodiversity** (*damage for species/habitats/breeding grounds, made in protected area - 200% of overall compensation value*)
- **Importance of supporting/regulating/provisioning services damaged** (*habitats for rare species, natural framework*)
- **Landscape vulnerability** (*protected landscape – 300-500% of overall compensation value*)

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