ECOSYSTEMS SERVICES ECONOMIC VALUATION: CASE STUDY IN LATVIA

LIFE13 ENV/LV/000839 *"Assessment of ecosystems and their services for nature biodiversity conservation and management"*

https://ekosistemas.daba.gov.lv/public/eng/

The aim of the research

The aim of the research is to present and discuss the model for ecosystem economic valuation for the socio-economic development planning in Latvian coastal areas.

Necessity of Ecosystem assessment and evaluation

- To provide decision makers with the opportunity to assess the benefits of environmental and nature conservation measures, to identify spatial dependencies and compromises;
- Identification of the full value of natural resources provides with the opportunity to make decisions about the natural environment that do not compromise the benefits to society, business and the economy at large;
- Reduces the risks and increases opportunities for sustainable management, including for new market opportunities;
- Defines and evaluates "less tangible" or non-material ecosystem services.

Methodology

The ecosystem services identification and classification was based on the Common International Classification of Ecosystem Services (CICES) and considering information about structure of ecosystems and expert knowledge about them. The assessment of the ES was performed based on identified indicators and the assigned values.

There is carried out collection of primary data, aggregation and comparative assessment of secondary data by using approbated scientific research methods and ES assessment indicators. The obtained data is adapted to Latvian social-economic situation by using correction factors.

Economic assessment of ecosystem services evaluates the willingness and also necessity to pay for ecosystem services in monetary or relative terms. Decision on the most appropriate ecosystem services management scenario mainly depends on indicator selected for ecosystem services assessment.

Project Pilot areas

Pilot area "Jaunkemeri" is located within the city and is part of Kemeri national park. It includes sandy beach and biologically valuable habitat of EU importance – wooden dunes. The area is not much transformed and relatively poorly visited (90,85 ha).
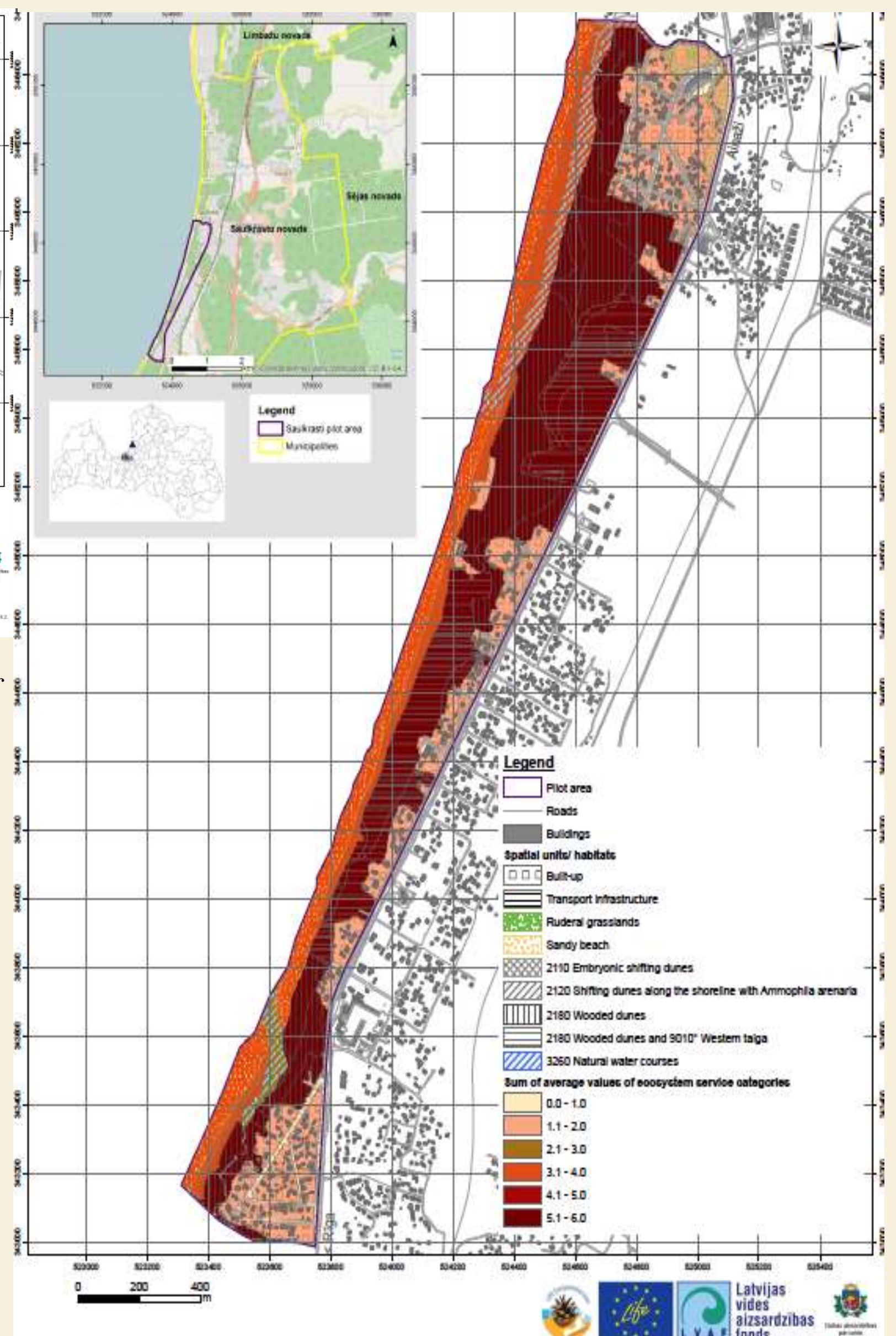
Pilot area "Saulkrasti" is located in Saulkrasti municipality. It includes sandy beach and biologically valuable habitat of EU importance – wooden dunes and remarkable cultural and nature monument – White Dune. The well-maintained nature object is frequently visited and subjected to excessive anthropogenic pressure and erosion (132,86 ha).

Ecosystem services economic valuation methods applied

Ecosystem valuation based on **Primary data**

TRAVEL COST METHOD

Provisioning services
Nutrition

Cultural services
- Physical and intellectual interactions with biotas, ecosystem and seascapes
- Spiritual, symbolic and other interactions with biota, ecosystem and seascapes

Ecosystem valuation based on **Secondary data**

DIRECT MARKET COST METHOD AND BENEFIT TRANSFER METHOD

Provisioning services
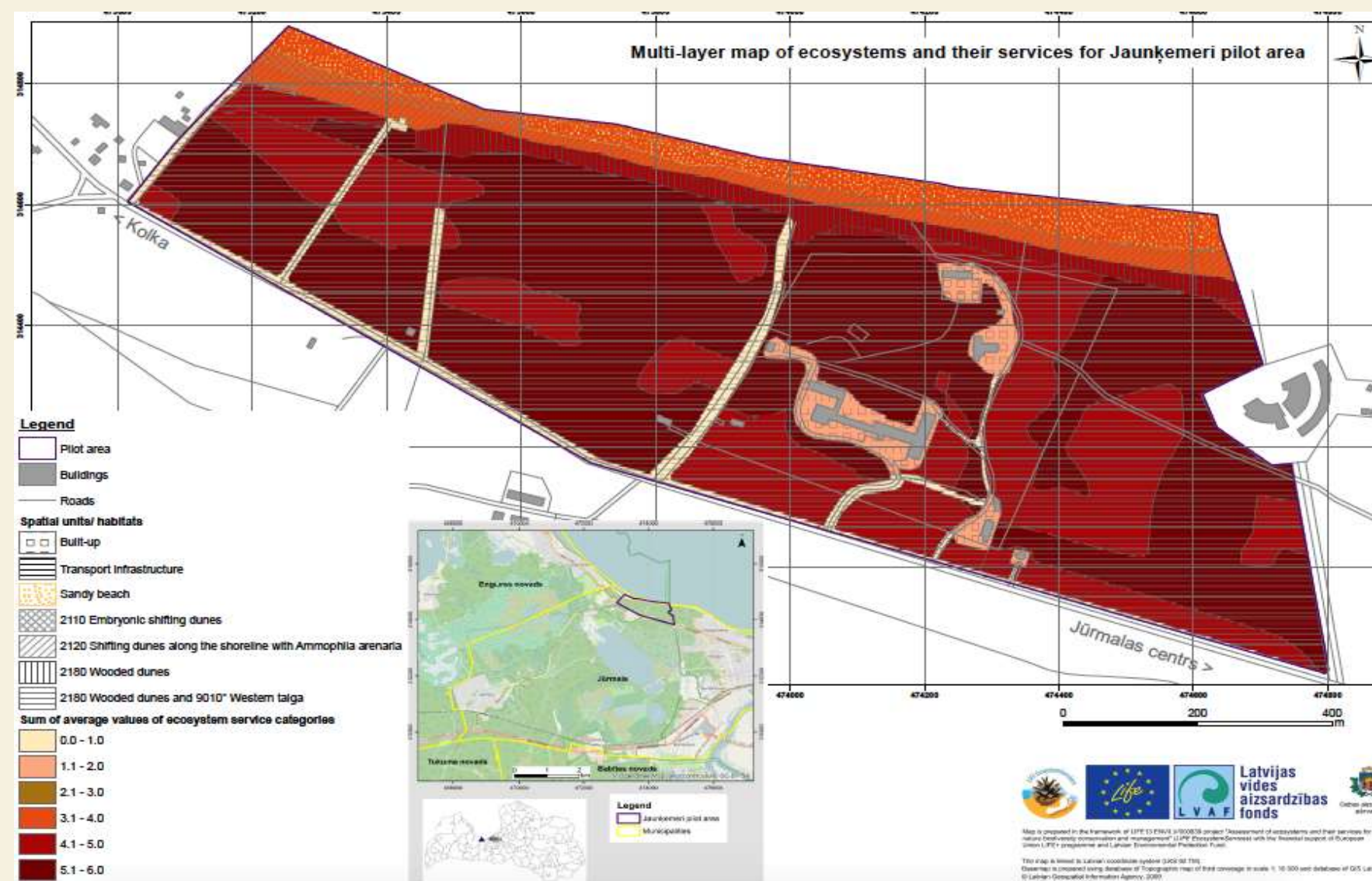- Nutrition
- Materials
- Energy

Regulating services
- Mediation of waste, toxic and other nuisance
- Mediation of flows
- Maintenance of physical, chemical, biological conditions

Cultural services
- Physical and intellectual interactions with biotas, ecosystem and seascapes
- Spiritual, symbolic and other interactions with biota, ecosystem and seascapes

Economic assessment of Ecosystem services in Saulkrasti and Jaunkemeri pilot areas based on secondary data (EUR/ha/per year)
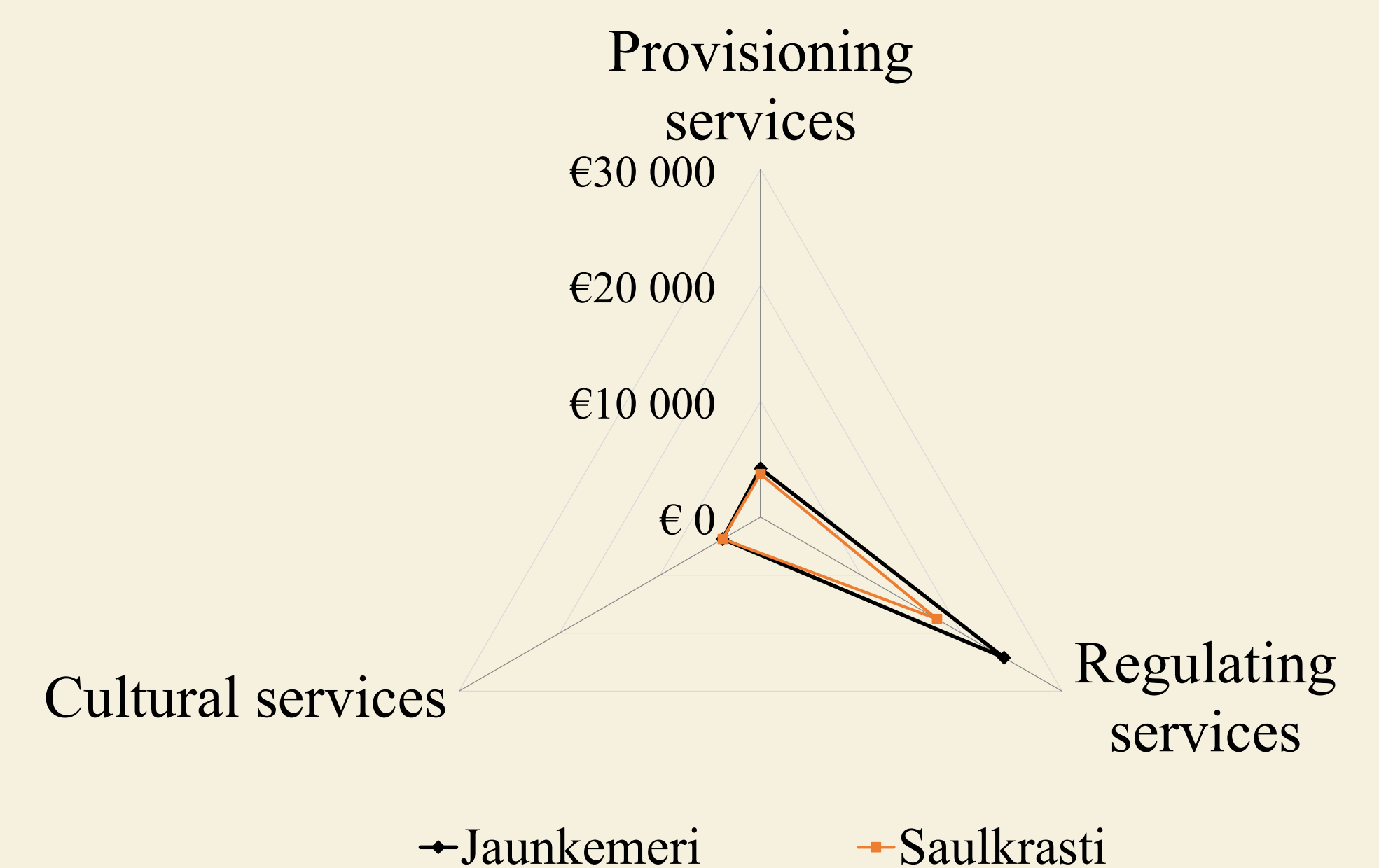
The overall value of ecosystem services (EUR/ha) (providing, regulating and cultural) is higher in Jaunķemeri pilot area than in Saulkrasti area.

Take home message

Message 1
Data obtained using different valuation methods vary considerably, for example, the primary data represents information about a beneficiary of particular service, while the secondary data reflects the current market situation (e.g. market price method), as well as provide information about the estimated value of the service, based on the values that were obtained in other studies (e.g. benefits transfer method).

Message 2
Economic assessment of Ecosystem services provides the value of ecosystem services in monetary or relative terms. Decision on the most appropriate ecosystem services management scenario mainly depends on indicator selected for ecosystem services assessment. The comparison of ecosystem valuation data which was obtained based on primary and secondary data, has been carried out only to assess the applicability of various methods.

Message 3
It could be hypothetically assumed that the primary data collected in a survey about beneficiary of actual ecosystem services reflects more objective economic value.

Main conclusions

The largest monetary value of all Ecosystem services for both pilot areas has regulating services (please see Figure below) and it is mainly provided by forest areas. The forest areas are the most valuable areas from ES monetary assessment perspective. Therefore, the priority should be given to management scenarios and measures which are directed to maintain and protect forest ecosystem

The most similar values of ecosystem services in both pilot areas are for cultural values. For example, the enjoyment of the natural landscape are valued in both areas identically. Saulkrasti and Jurmala are popular recreation and tourism destinations, therefore the main controversial interests are – nature conservation versus tourism development.

The lowest values is for provisioning services. Considering that both territories are located in coastal areas, there are legal and physical restrictions to obtain provisioning services (for example restriction of tree felling and fishing). Accordingly the economic values of the provisioning services are low.