# ECOSYSTEM SERVICES ASSESSMENT FOR SUSTAINABLE MANAGEMENT OF DEGRADED PEATLANDS

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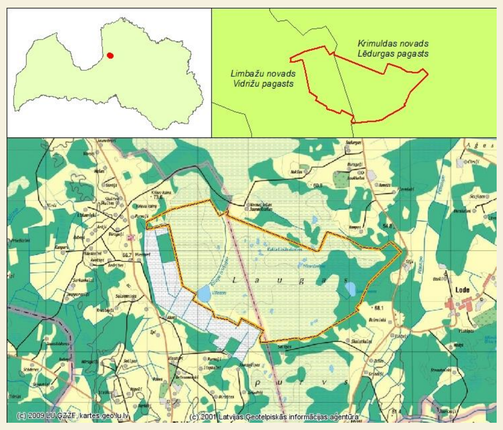
## The aim of the research

The aim of the study is to present and discuss the approach for ecosystem assessment for sustainable management and re-use of degraded peatland that has been used in the project "Sustainable and responsible management and re-use of degraded peatlands in Latvia" (LIFE REstore, LIFE14 CCM/LV/001103).

## Topicality of the research

Assessment of ecosystem services has been set a strategically important role at the European Union countries. Ecosystem services are defined as the benefits that people obtain from using ecosystems and can be divided into the following categories: provisioning, regulating and cultural services.




Nature management plan for Lauga mire has been developed within LIFE REstore project. And for the first time assessment of ecosystem services has been carried out within the framework of Nature management plan.
There is presented the case study for pilot territory in Latvia - the protected nature area and NATURA 2000 territory 'Lauga mire', where ecosystem services assessment was implemented – biophysical indicators are developed and assessed by experts and results in ecosystem services matrix and maps represented.

## *2nd step: Expert based ecosystem assessment*

**Expert based ecosystem assessment**

- Experts from different fields carried out an assessment of ecosystem services for each identified indicator of ecosystem services.
- Expert assessment based on their knowledge, literature research, experience, surveys, interviews, measurements and other types of research methods

**Indicator page (protocol)**

- An indicator page was used to provide comparable data about the various ecosystem services.
- Indicator pages provide complete information about data that were obtained by experts.
- The assessment of ecosystem services was performed on a scale from 0-5 (0-ecosystem service is not provided; 5-very high valuation of ecosystem services).

## Methodology

The assessment of ecosystem services is a relatively new initiative and is carried out in a number of projects. To assess the ecosystem services for Lauga mire, a method for assessing ecosystem services adapted within the project LIFE13 ENV/LV/000839 "Assessment of ecosystems and their services for nature biodiversity conservation and management" has been used.
In order to assess the ecosystem services in the Lauga mire, the following steps described below were taken.

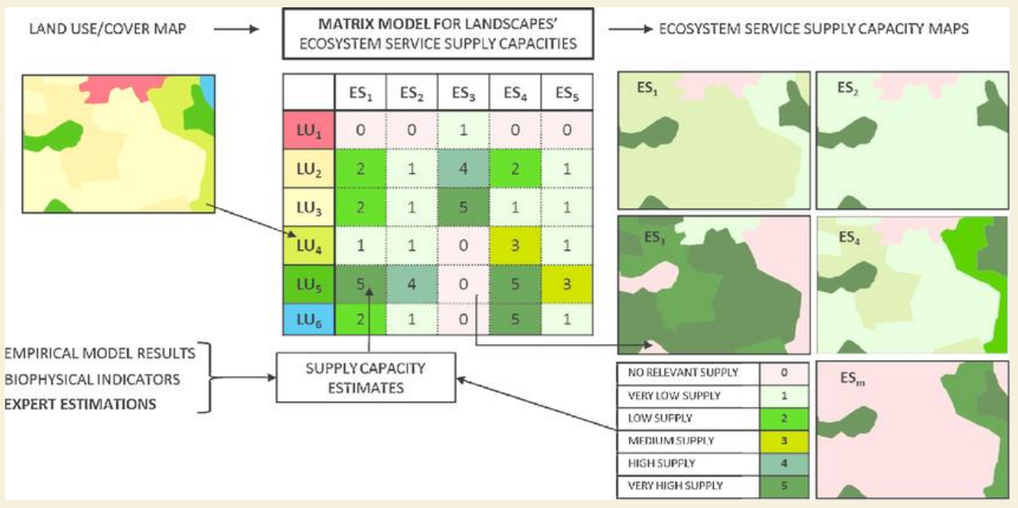
## *1st step: Detailed study of Lauga mire*

1. Land cover and land use in Lauga mire was identified (land cover type, area covered and quality);
2. Survey of mire habitats in Lauga mire as well as nearby peat extraction areas and large cranberry farms were carried out;
3. Ecosystem services as well as indicators of ecosystem services that Lauga mire provide were identified.

| Habitat/ Land use | Area ha | Quality of Habitat |
|---|---|---|
| 7110* Active raised bogs | 563,21 | Excellent |
| 7120 Degraded raised bogs still capable of natural regeneration | 61,5 | Good |
| 7140 Transition mires and quaking bogs | 0,79 | Excellent |
| 91D0 Bog woodland | 80,1 | Low |
| 9010 Western taiga | 6,15 | Good |
| 3160 Natural dystrophic lakes and ponds | 21 | Good |
| 3260 Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho – Batrachion* vegetation | 2,86 | Good |
| Ditches | 3 | Low |
| Cranberry farming (Z/S "Gundegas") | 39,4 | Medium |
| Peat extraction (Ltd. "Lauga") | 132,75 | Low |
| Abandoned peat fields | 35 | Low |

## *3rd step: Ecosystem services matrix*

1. The values of ecosystem services obtained from the indicator pages (2nd step) are reflected in the matrix (Burkhard et al., 2009, 2012, 2014.
2. Maps of ecosystem services in Lauga mire has been developed based on the ecosystem services matrix.




**Burkhard** et al., 2014

## Main conclusions

- Provision services had lowest rate. Average value for each geospatial unit is 0-1 (very low value) Highest provision value is for woods, because they provide several services at the same time – wild berries, mushrooms and herbals, that local people harvest.
- Regulation services had the highest rate, confirming that the greatest value of natural territories is its ability to regulate and maintain the services provided by nature (Folley et al., 2005). Highest value of regulation services is for active raised bogs.
- Value of cultural services is low because the territory is far from populated areas, it does not have any special tourist infrastructure (trails, signs, etc.), and the area is not well known for tourists.

## Take home messages

### Messages 1

Land cover and land use largely determine ecosystem functions. The supply of ecosystem services is closely related with the potential of the ecosystem service as well as additional investment, which thus shapes the actual use of ecosystem service.

### Messages 2

The demand for ecosystem services is linked to ecosystem services and benefits in the area and the current time. Regardless of the supply of ecosystem services, demand for them can change at any time.

Project LIFE REstore (LIFE14 CCM/LV/001103) is implemented with the support of the LIFE financial instrument of the European Community.