



Ecosystem services mapping for spatial development planning as risk management – Talotinsky case

MB1: Promoting of ecosystem services of Arctic wetlands for sustainable development

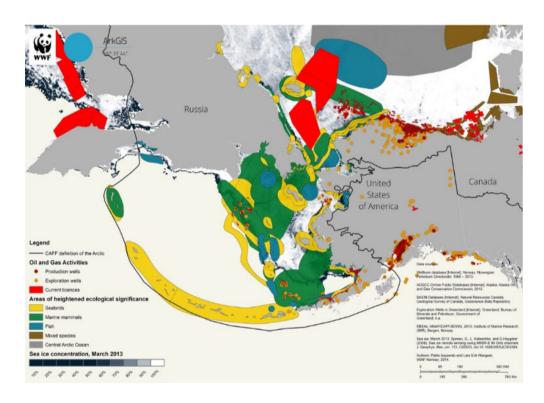
Anton Chistyakov, EthnoExpert

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Geo mapping

Modern geo mapping technologies could help in revealing how the ecosystems functions and services are connected to the ecosystem classes and distributed in the space at designated development area.

This approach application inspires **clear design solution identification**, which reduces possible risks, ensures project's sustainability for a long time and maintains favourable social and environmental conditions.





Talotinsky case

Pilot study has been carried out at the **East-Talotinsky site** in the Timan Pechora area (Nenets Autonomous Okrug) under a **Collaborative Partnership Agreement** between Wetlands International and Shell International Exploration and Production B.V.





Talotinsky case

The project introduces the Ecosystem Functions and Services Mapping Exercise (EFSME), which involves spatial mapping of sensitivities and risks. It aims to map ecosystems on the basis of their capacity to perform certain ecosystem functions.

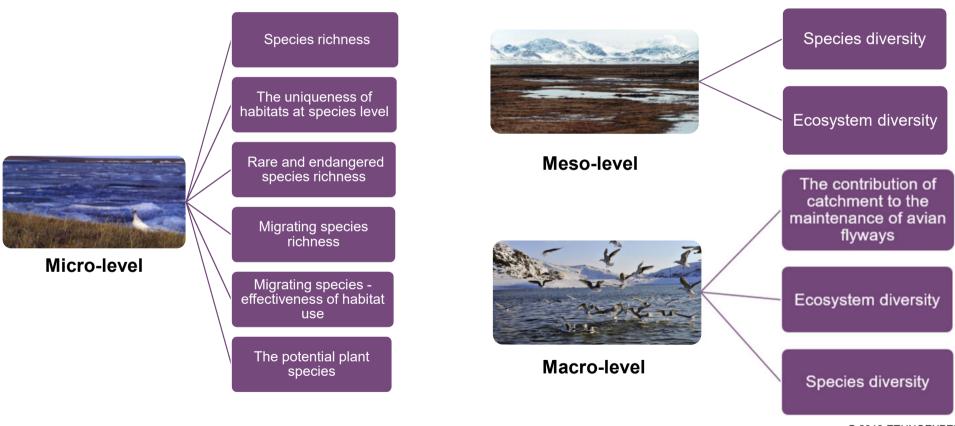








The biodiversity related attributes are assessed on the basis of field data and information from the literature.



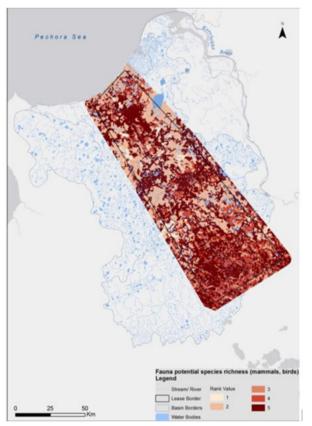
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Talotinsky case. Biodiversity



Species richness at micro-level: vascular plants



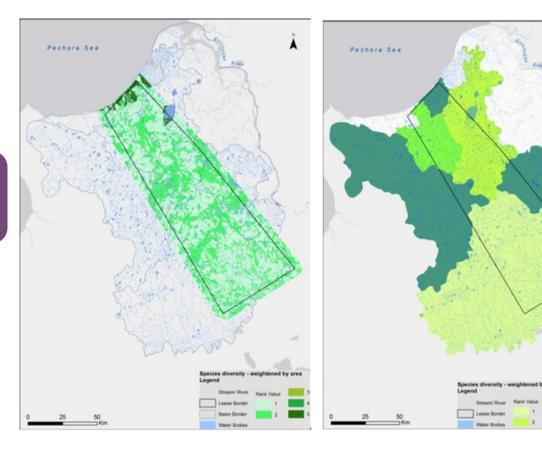


Species richness at micro-level: mammals and birds

Talotinsky case. Biodiversity



Species richness at meso-level

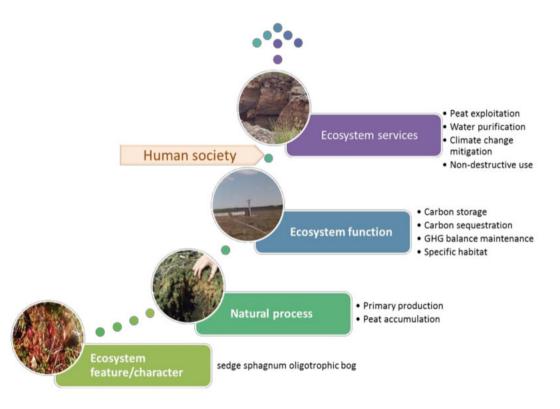


Species richness at macro-level

Ecosystem services mapping

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- The first step in mapping ecosystem services is the construction of a map of ecosystem functions.
- The map is then merged with the outcomes of stakeholder analyses to enable interpretation of the information on ecosystem functions in this context.
- The practical steps involve applying knowledge about the connections between structural characteristics (or ecosystem types), natural processes, natural functions and stakeholders' demands for these functions.

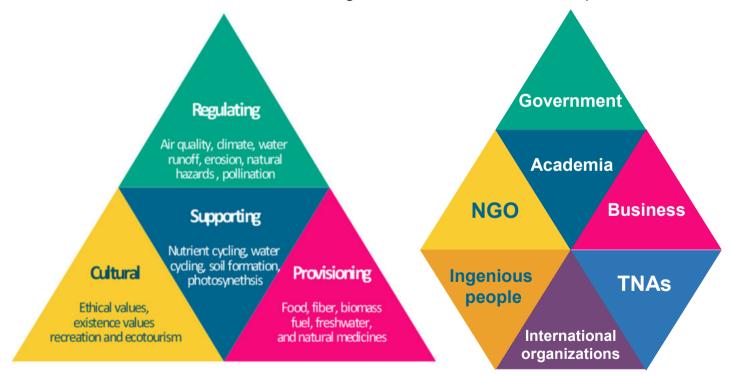




Ecosystem services and stakeholders



Key methodology concept is based on strong link between **ecosystem functions and ecosystem services**, which could be discovered through stakeholder needs and expectations research and analysis.



Stakeholders



Local herders

Inhabitants of towns and settlements

Children and youth

Poachers

Small local business

Remote business

Oil companies' workers on site

Oil company's management

Tourists

Scientists, environmentalists, teachers etc.

Local administration

Administration of Nenets Autonomous Okrug (NAO)

Federal government bodies in NAO

Federal government in Moscow

Natural Functions



Capacity for plant diversity maintenance

Capacity for animal species maintenance

Capacity to maintain rare species.

Capacity to maintain provisional plant species

Capacity to maintain provisional animal species)

maintenance of flyways and migrating rutes

Ecosystem diversity

Ecosystem productivity

The stability of landscape

Predators

Rodens

Midge, mosquitoes

Parasites

Stakeholders and Natural Functions



	Capacity for plant diversity maintenance	Capacity to maintain rare species	Midge, mosquitoes
Local herders	Variety of seasonal pastures	No	inconvenience for people and reindeer
Inhabitants of town and settlements	No	environmental education	inconvenience for people
Tourists	the attractiveness of the area to visit (large species diversity)	ecological tourism	inconvenience for people
Small local business	No	No	No
Local administration	No	No	No
Oil companies management	Requirements of environmental legislation and procedures for EIA, environmental monitoring	Requirements of environmental legislation and procedures for EIA	No
Administration of NAO	Biodiversity Conservation Programs	Protected Areas network development	No

Solutions



The ecosystem services map of the lease area and its surroundings

The information on spatial distribution and natural functions values of ecosystems could be combined with the outputs of stakeholder analyses

The further interpretation in terms of the spatial distribution of ecosystem services values

Joint analysis of data on natural ecosystem functions and stakeholder interests

Evaluation of ecosystem services

Analysis of ecosystem services data combined with information about future industrial activities and the associated hazards

The Arctic Biodiversity Congress

October 9-12, 2018, Rovaniemi, Finland

In their potential further use applying basic information directly in the planning process. In this case, we would use the sensitivity maps at different spatial levels to plan mitigation, restoration and compensation measures.

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