

SLU Platform for Crop Production Systems, Research project:

Assessing the ecosystem services associated with options of change in landscape composition and re-organization of agricultural and forest land in Sweden

Ecological intensification aims to harness ecosystem services (ES) to sustain agricultural production while minimizing adverse effects on the environment. Ecological intensification proposes landscape approaches that make smart use of the natural functionalities that ecosystems offer. Increase in landscape diversification (i.e. the organization and composition of landscape covered by a variety of semi-natural, non-crop habitats such as forest and pastures in a given physical environment) can enhance the delivery of a range of regulating, provisioning and supporting ES. Knowledge regarding the effect of land use composition and landscape organization on ES exists. The use of this knowledge at large scale in Sweden could help identify options of composition and organization change of landscape to strengthen the delivery of ecosystem services and contribute to increasing the sustainability of forestry and agriculture in Sweden. The objective of this project is to develop and use the geodatabase to assess options of landscape diversification for the Swedish production agricultural and forestry landscapes and to quantify trade-offs among ecosystem services under different levels of landscape diversification.

We aim to identify what type of landscape diversification that should be promoted to improve the delivery of ecosystem services in Swedish landscapes. The first aim of this project is to describe the the proportion and spatial locations of the different agricultural, horticultural and forestry systems and landscape elements together with biophysical characteristics. In these existing landscapes we will assess the delivery of ecosystem services, such as provision of food, fiber and fuel; habitats for predators for biological control; nitrogen and phosphorus cycling; carbon sequestration; water security and provision; and nature conservation areas. Thereafter, we will model alternative landscapes and assess ecosystem services in those, in order to propose alternatives for litions of landscape diversification in Sweden. The project process is described in figure 1.

The project will be done within the [SLU Platform for Crop Production Systems](#) utilising competences with SLU from vaious disciplines as well as with stakeholders involved in management of the landscape att different scales.

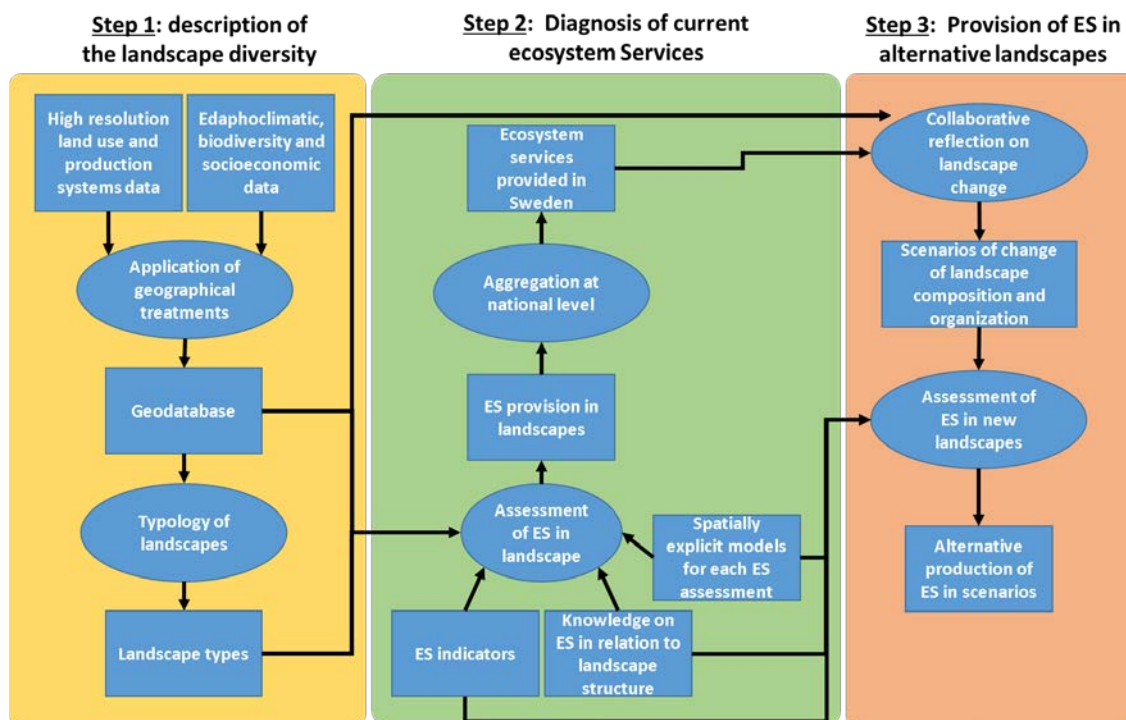


Figure 1: Structure of the project to identify areas of interest in Sweden to change the composition and organization of forest and agriculture production systems and other land use in Sweden to respond to ES demand. Colored backgrounds represent the three steps of the project, circled boxes are processes or actions and squared boxes represent inputs or outputs of these processes or actions.

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Duration: 2019 -

Project leader: [Linda-Maria Dimitrova Mårtensson](#)

Project members: [Pierre Chopin](#), [Emma Holmström](#) and [Marcos Lana](#)

Associated researchers: [pending]

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