Master's thesis in the CultEs project: Creating a reliable tool for adaptive monitoring of ecosystem services using the Sample Point approach

Photo: Xabi Ancin

In the projects CultEs and ESArctic, both led by UiT, we are developing new tools and technologies for adaptive monitoring of ecosystem services in arctic and alpine areas. In collaboration with Utah State University (Monz, https://qcnr.usu.edu/directory/monz_christopher), Oregon State University (D'Antonio, http://fes.forestry.oregonstate.edu/people?path=people/dantonio-ashley) and the Norwegian Institute for Nature Research (Fauchald, http://www.nina.no/kontakt/Ansatte/Ansattinformasjon/AnsattID/18021) we are developing spatial models for the distribution of ecosystem services at the landscape scale. We are looking for a MSc student who is interested in developing a tool for analyzing ecosystem services using the Sample Point approach (http://www.samplepoint.org/).

Background and aim:

Climate-related changes and human activities may affect supplies of ecosystem services in northern areas. To monitor these changes at landscape scale we need tools that are cost-effective and easy to apply in the field. The Sample Point software has been used to e.g. estimate vegetation cover, identify presence of rare species or calculate the relative cover of different functional groups in a time/cost effective manner. However, the measurements of berries, flowering plants, wildlife cues and potentially impacts have not previously been assessed using this tool. The Sample Point approach offers a unique possibility to measure ecosystem services supplies at a large scale. The aim of the thesis is to develop the sample point approach for the different types of ecosystem services and determine how many points are necessary to reliably estimate their supply.

Study area and design of the project

The study area is Varanger peninsula in Finnmark. We have designed the study to represent the variation at the landscape scale (see Figure 1). The MSc student is welcome to join the field crew in 2017, but it is also possible to analyze the pictures already taken in summer season 2016 by ESArctic (appx. 2500 pictures have been collected).

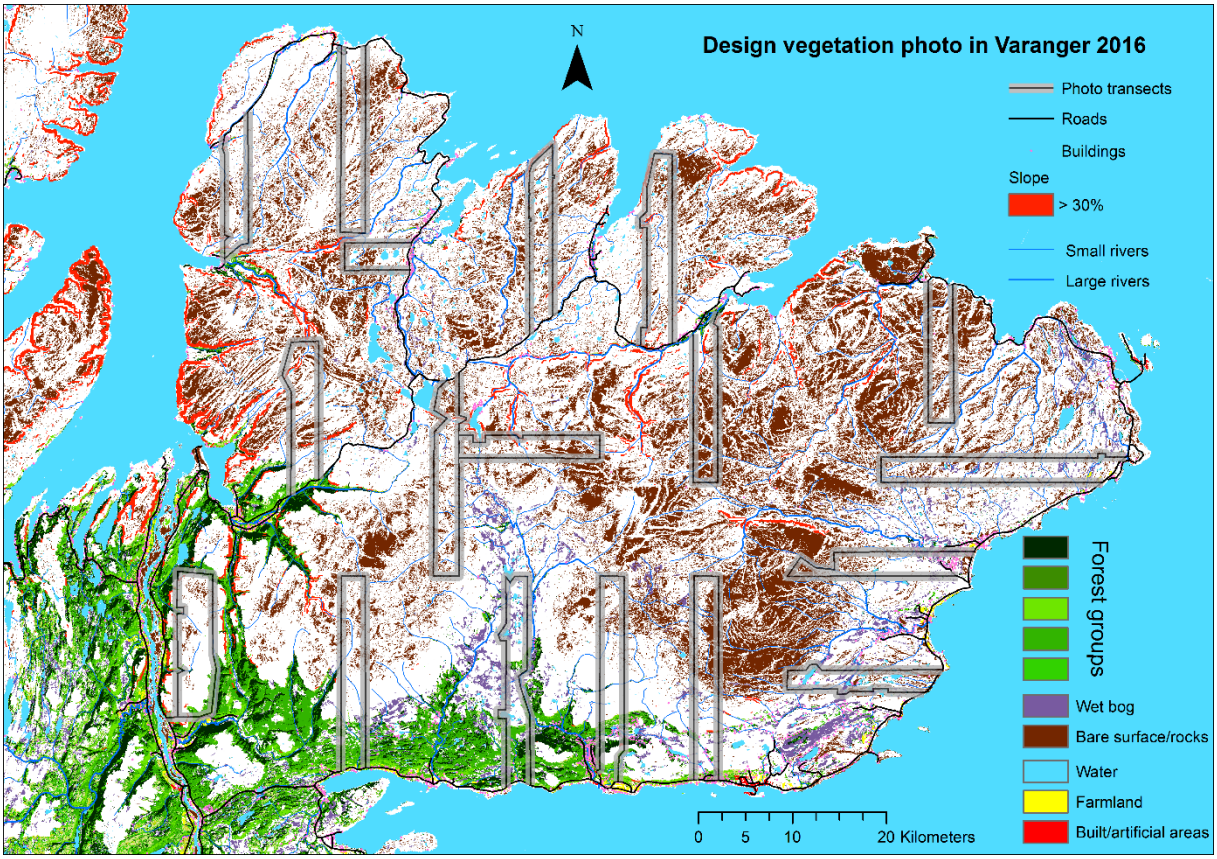

Figure 1. Design of the vegetation picture sampling in Varanger peninsula, summer season 2016.

Institutional affiliation and supervision

The MSc student will be included in the project team and will particularly work close together with a PhD student (Lorena Munoz) who will also work with the Sample Point approach. Chris Monz and Ashley D'Antonio will join us in the summer 2017 and will supervise the student's work. They will also work with different aspects using the Sample Point approach. Per Fauchald will be a co-supervisor on the statistical analysis of the pictures, and will specifically help the student with simulations of number of points needed to estimate ecosystem services. The UiT supervisor, Vera Hausner, has her primer competence in ecosystem services research and is also the project leader of CultEs and ESArctic. Since the student will work with the other team members and share the data, there are good opportunities to participate on publications.

Requirements

- Bachelor level studies in ecology or a similar field
- Good collaborative skills
- Proficiency in written and spoken English
- If participating in the field, the student need to be able to endure long walks every day and have sufficient skills for camping in the field. Driver's license is also an advantage. However, it is possible for the student to focus only on the lab work, if preferred.
- Prior field experience from northern environments is an advantage.
- The thesis must be written in a scientific article form.

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Project start

We hope that the MSc student could start to analyze some data already autumn 2016, but if not possible, we also welcome students in 2017.

Interested?

Please send a CV and an email to:

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