

## Masters Research Project Opportunity

We have an opportunity available within the ECOGEN project for one or two enthusiastic, hard-working, and competent individual(s) to develop a research project at the MSc level.

**Working project title:** Palaeoecological reconstruction of the postglacial flora and fauna of northern Norway using sedimentary ancient DNA.

**Supervisors:** Dr. Peter Heintzman, Dr. Dilli Rijal, Prof. Inger G. Alsos, Prof. Kari Anne Bråthen.

**Location:** The botanical station (Kvaløyvegen 30) of Tromsø University Museum (TMU).

**Details:** There is great concern about the ability of species and ecosystems to resist both direct human impact and future climate changes. An approach to better predict the impact of these future changes is to understand the impact of similar changes that occurred in the past. In this project, the candidate will look at the changes that occurred in northern Norway over the past ~10,000 years – a period that includes the post-ice age floral, faunal, and human recolonization of the region. Specifically, the candidate will use genetic data and other proxies derived from a lake sediment core to infer and refine our understanding of the timing and extent of ecosystem changes and human impacts at that site.

**Training:** The candidate will learn a suite of techniques associated with palaeoecological reconstruction, as inferred from a lake sediment core. The focus will be on genetic techniques (ancient DNA extraction, metabarcoding, and associated data analyses), but other non-genetic techniques will include those required for macrofossil, near infrared reflectance spectroscopy (NIRS), and loss of ignition (LOI) analyses. Furthermore, the candidate will have the opportunity to develop research questions within the scope of ECOGEN and to work within a diverse and growing research group at the TMU as well as with our international colleagues.

**About ECOGEN:** ECOGEN (Ecosystem change and species persistence over time: a genome-based approach) is a 5-year, multi-institutional collaboration to develop high resolution ancient environmental DNA methods in order to evaluate how drivers of change (human, climate, biota) affect species persistence and ecosystem tipping points in arctic-alpine biomes. For more information: <https://www.researchgate.net/project/ECOGEN-Ecosystem-change-and-species-persistence-over-time-a-genome-based-approach>

**Contact:** If you are interested in this opportunity, please contact either Dr. Heintzman ([peter.d.heintzman@uit.no](mailto:peter.d.heintzman@uit.no)) or Prof. Alsos ([inger.g.alsos@uit.no](mailto:inger.g.alsos@uit.no)).