

## Project information

### Project title

Species identification and demographic information from fecal NIRS scans? A study on fox and small rodents

### Year

2015

### Project leader

Kari Anne Bråthen

### Participants

Francisco J. A. Murguzur, Siw Killengren, Eeva Soininen, Tove Utsi - UiT- The Arctic University of Norway

Maria Tuomi, Katrine S. Hoset – University of Turku, Finland

Eva Fuglei - Norwegian Polar Institute

Nina E. Eide - NINA

Dominique Berteaux - University of Rimouski, Canada

Anders Angerbjörn -University of Stockholm, Sweden

### Flagship

Terrestrial

### Funding Source

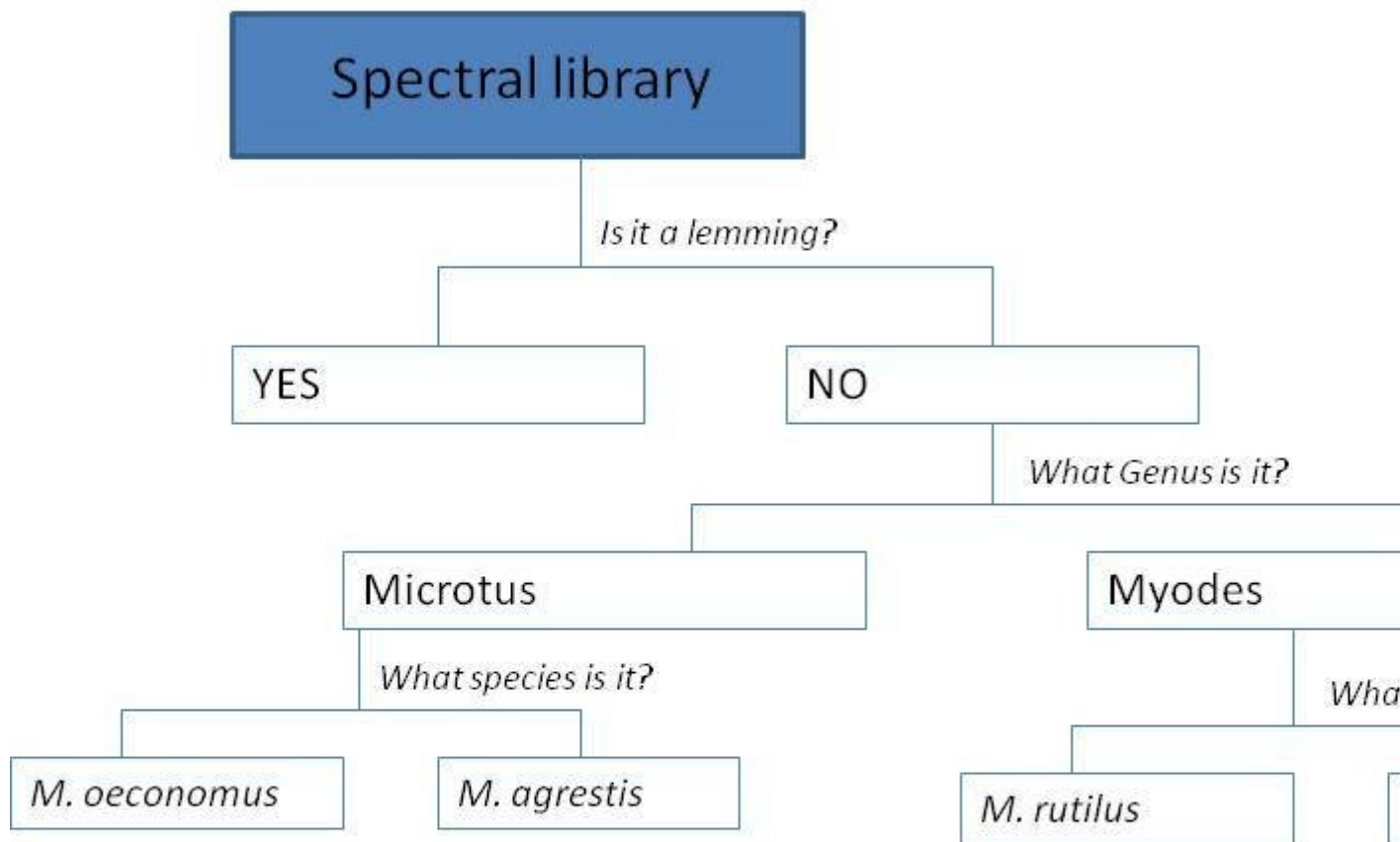
Terrestrial Flagship, Category of Incentives

## Summary of Results

In this project we want to develop new cost-efficient methodology for the determination of species, sex and demographic parameters of small rodents and foxes from samples of feces found in the field. The methodology is based on NIRS (Near Infrared Reflectance Spectrophotometry).

### Small rodent part of the project:

We are still awaiting final results. So far we have found that NIRS scans of small rodent feces can be used to differentiate species level and sex among species in the small rodent guild of Finnmark, i.e. Norwegian lemming, greysided vole, field vole, root vole and red vole. We are currently DNA meta-barcoding the feces for data on diet in order to assess to what extent species differentiation is due to diet differences.



Fox part of the project:

A common protocol for sampling fox scats were prepared and sent to partners in the spring. However, due to low fox numbers this year and hence lack of samples from most partners the sample size is too low for us to proceed with the aim of differentiating red fox and arctic fox based on fecal NIRS scans. We have received samples of arctic fox and will assess NIRS as a way to determine whether the fox is a male or a female. This part of the project is still running.

For the Management

We want to develop new methodology for the determination of species, sex and demographic parameters of small rodents and foxes from samples of feces found in the field.

Published Results/Planned Publications

NIRS-page to be established on internet (<http://plants-in-ecosystems.uit.no/plant/Welcome.html>)

Tentative titles of planned publications;

Discrimination between small rodent species based on fecal NIRS scans.

Discrimination between the sexes of arctic fox based on fecal NIRS scans.

Demographic parameters of small rodents species based on fecal NIRS scans.

#### Communicated Results

We have held seminar to present the idea of our research at UiT and at FRAM. We will communicate results when they are final.

#### Interdisciplinary Cooperation

Among disciplines within biology. Zoology, botany and molecular biology.

#### Budget in accordance to results

Project is running according to budget for all parts but the species identification of fox which will not be conducted (due to lack of samples).

#### Could results from the project be subject for any commercial utilization

No

#### Conclusions

So far we have success in the project in that NIRS scans of small rodent feces can be used to differentiate species level and sex among species in the small rodent guild of Finnmark, i.e. Norwegian lemming, greysided vole, field vole, root vole and red vole. However, we are still awaiting final results and the project is not finalized.