

## Project information

### Keywords

citizen science, moth outbreaks, learning, outreach, distribution mapping, insects

### Project title

Målerjakt: a citizen science initiative for mapping of an invasive species

### Year

2017

### Project leader

Jane Uhd Jepsen

### Geographical localization of the research project in decimal degrees (max 5 per project, ex. 70,662°N and 23,707°E)

Northern Norway, but primarily Troms and Finnmark Counties. Example coordinates: Tromsø: 69.64° N, 18.95° E, Kautokeino: 69.01° N, 23.04° E, Alta: 69.95° N, 23.33° E.

### Participants

Jane Uhd Jepsen (Project leader, NINA)

Niklas Backman (Technical development, Designråd, org. nr. 915 382 347)

Malin Ek and Ole Petter Vindstad (BIRCHMOTH project group, UiT)

Ingrid Jensvoll (COAT Outreach, UiT)

### Flagship

Terrestrial

### Funding Source

Terrestrial flagship, Fram Centre

Research Council of Norway (via the project After-the-pest)

UiT Arctic University of Norway

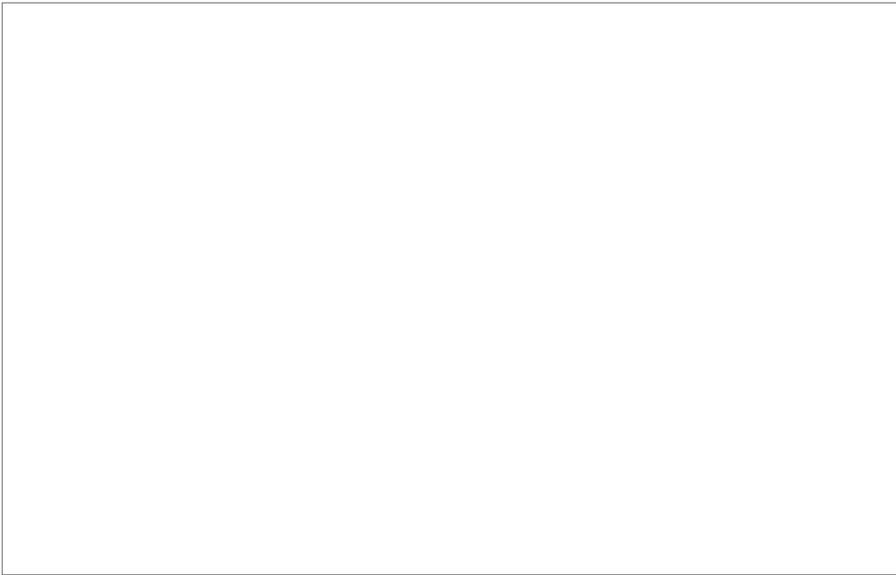
NINA Norwegian Institute for Nature Research

### Summary of Results

The goal of Målerjakt is to engage volunteer observers of all ages in a campaign to map the current distribution of scarce umber moth, a forest pest species that is currently expanding its range in Northern Norway. The spread of the species as far as Tromsø has been documented by research, but its continued spread north and east of Tromsø is not known. The scarce umber moth is a good target for citizen science as it is easy to recognize with very low risk of misidentifications. Further the adult males are strongly phototactic and tend to aggregate around bright lights. This renders the species relatively easy to find for untrained observers even at low densities.

We developed a smartphone app Målerjakt and published it on Google Play and App store immediately prior to the flying period of the adult males in september. Using the app observers can get information about moth and moth outbreaks, take pictures of scarce umber moth they observe and submit them to a joint database. All observations were controlled by an expert to ensure correct identification of the species.

Moth populations fluctuate dramatically between years. In 2017 the scarce umber moth has been relatively difficult to find in Northern Norway. Despite of this we received around 30 new positive localities from almost as many observers. The frequency of images of other moth species (e.g. misidentifications made by the observer) was relatively high (about 1 in 5), but only a handful of pictures had to be discharged due to insufficient image quality. The app was installed by approx. 150 users in the course of a few weeks. All observations will not be assessed and as many as possible transferred to [www.artsobservasjoner.no](http://www.artsobservasjoner.no). All code for the app has been made open source on github and can relatively easily be modified for use on other species distribution apps.



#### Master and PhD-students involved in the project

PhD student Malin Ek (UIT)

#### For the Management

Målerjakt is not a management tool, but improved knowledge of the distribution ranges of invasive forest pests is of high value to forest managers.

#### Published Results/Planned Publications

*Målerjakt*. A smart phone app for iOS and Android. Sept 2017 Google Play and App Store

Homepage: [www.malerjakt.no](http://www.malerjakt.no)

#### Communicated Results

Forskningsdagene 2017: Activity on moth outbreaks and the app Målerjakt

nina.no: <http://nina.no/Aktuelt/Nyhetsartikkel/ArticleId/4338/Bli-med-pa-malerjakt>

framsenteret.no: <http://www.framsenteret.no/bli-med-paa-maalerjakt-med-ny-app.6028674-146437.html#.Wcu0qcgjFPY>

nrk.no: <https://www.nrk.no/troms/ny-type-lauvmakk-er-pa-tur-nordover-1.13707721>

nrk radio: Interview 27/9.

#### Interdisciplinary Cooperation

Målerjakt is a collaboration between a local technology business in Tromsø (Designråd, Niklas Backman) and Fram Centre researchers with expertise on moth outbreaks, and moth identification, and outreach and learning.

#### Budget in accordance to results

Costs have been in accordance with budget. All phases of the project has been completed.

App design, development and hosting (Designråd): 80.000 NOK

Marketing: 10.000 NOK

Researcher hours (Jensvoll, Jepsen: planning, design, testing, marketing, quality check of observations): 70.000 NOK

Could results from the project be subject for any commercial utilization

No

Conclusions

Based on the experiences made during this first campaign, we conclude:

-The app is technically stable and easy to maintain. The system for handling the observations as they come in is efficient, but some improvements can be made in the next version

- Given the very low population density of the species in 2017, the number of new observations is satisfactory. We intent to repeat a short autumn campaign every year over the next few years until population sizes increase. This should ensure that we achieve a good picture of the northern distribution range of the species in the course of a few years.