



PolliClim

“The PolliClim project is progressing, we are on track”

-Dr. Nielsen

A Sporadic Newsletter

Vol 1; November 2014

Time has passed and PolliClim is up and running. I was formally hired 100% on the project February 1th 2014 and Trond came on board with his 20% position a month later. In the initial phase most of my time was used to finish old projects and to organize all the practicalities required to get the project going. Then I spent some time organizing the start-up workshop. In spring I established collaboration with the industry and decided on study sites and in June I did some field work. The first report to the RCN has been submitted and approved. According to the progress plan outlined in the application we are roughly on track. There are no visible delays when it comes to the science part of the project. There have been some management issues, in particular regarding the finances to be transferred to the international partners. These are all sorted out and the Research Council has approved the changes we posed. PolliClim has taken on several master students and the work force available for the 2015 field season looks promising.

Web page and logo

In April 2014 my good friend Fred Lammers had designed the beautiful PolliClim logo. It has been used in presentations and it refreshes the project web page, making it a bit more interesting than the standard pages. Indeed the web pages have been read and attracted master students, see below. The PolliClim project is covered in detail on the web page of the Dr. Nielsen (I presume) group: <http://folk.uio.no/andeni>. Any activity related to the PolliClim project might be reported under “project progress”. I urge all involved partners to drop me some lines if they have been somewhere and



mentioned PolliClim, spoken or in written. This shows that the project is in motion and is having impact.

Startup workshop

An important part of any project is to get to know the people involved. As outlined in the application we therefore arranged a startup workshop in Oslo, inviting all national and international partners, co-PIs and some external experts on issues of particular interest. The program and names of participants can be found on the web page under “project progress”.

Collaboration with the industry

Raspberry was selected as the focal species in Norway. Through our collaboration with Nina Heiberg in Gartnerhallen (the cooperation for Norwegian fruit and berry, vegetables and potato producers) we identified four raspberry farms to work with: Gjerde and Røysum in Leikanger (West coast) and Moskvil and Aarsland in Vestfold (East coast). They are all cooperative and the field season has run smoothly. We look forward to get back in the field in May 2015.

Field work Norway

In June and July we conducted field work in the four farms listed above. We counted pollinator visits to raspberry flowers growing on “free land” out in the open and within growing tunnels. We (Dr. Nielsen and SJ Hegland) spent some time fine-tuning the sampling protocol and we will use our experiences in the discussions on sampling protocols also in the collaborating countries. A draft of a paper is in motion between Oslo and Sogn. Field work in 2015 will primarily be done on the east coast and be far more laborious.





Early summer photo from one of the focal farms in Sogn. Note the growing tunnel to the left.

The goal is to gather much more detailed data on raspberry pollination, but also on the pollination of the surrounding plant community. The master students (see below) will be essential to this work.

Field work abroad

Mariano is about to hire a post doc in Argentina and has been out searching for field sites. The coming (southern hemisphere) spring will hopefully gather some good data to be included in our project. Argentina seems to be on track. In August 2015 a Norwegian master student will travel to Argentina to work with Mariano on the soybean pollination project, as a visitor from the PolliClim project. This will further strengthen the collaboration between Norway and Argentina and give the Norwegian team hands on experience with the Argentinean field data. Adrian has not started on the field work yet. However, the lack of experience of the Australian team (Adrian) we will postpone this till next year. The Idea is for Dr. Nielsen to travel to Argentina and Australia next year to visit field sites and further develop the collaboration. Due to the critical economic situation and the high bee species diversity we are trying to allocate some additional resources from Norway to Greece. Species identifications are expensive so much of the funding will be spent there. To get some fieldwork done we hope to gather a crew (including some master students, Dr. Nielsen and Ø. Totland) that can travel down to Greece in spring 2015 and help Thomas out. This is still in the planning.

Thomas and Adrian have been working on testing the effectiveness of pan traps painted in UV bright colours. At the time, painted soup bowls are sent across the world

for throughout testing Down Under. I am looking forward to see the results as they will be important for our fieldwork next year.

Master students

PolliClim has actively searched for master students and I dear say we have been successful! Their interest in the project (or more precisely, how they found out that it exists) seems to come partly from the information meeting for future master students, where Dr. Nielsen and Anne Brysting presented the project, but also from looking through the project web page. As stated on the web page we have searched for independent students with the ability to define their own project as long as it fits, at least partly, within the scope of PolliClim. In August 2014 three students was enrolled:

Julie Paus-Knudsen will work on pesticides and investigate how wild and domesticated pollinators might be affected by different substances used in the raspberry fields. Her exact approach is not decided upon, but it might involve chemical analyses and/or behavioural studies. We have been in contact with Dara Stanley in London and different approaches have been discussed. Adrian might also have some ideas regarding the pollinator behaviour part. Professor Katrine Borgå at the division for Ecotoxicology will act as co-supervisor.

Andreas Westgård Rinvold will work with plant and pollinator phenology. He will study pollinator activity in relation to temperature and seek for potential temporal mismatches between plants and pollinators. He will observe pollinator activity to wild flowers before, during and after raspberry flowering as well as to the raspberries themselves. In addition to direct pollinator observations we might use pan traps to get unbiased estimates of the pollinator community. Anne Brysting will act as co-supervisor.

Helge Lone will work on the economics of raspberry production in Norway. For the time being we have not settled on the spatial scale to focus on (single farm, Municipality, County, Region). A meeting with Gartnerhallen is planned where we will get a better idea of what kind of data that is available. Helge is situated at the Department of Economics and will write a thesis for 30 credits in spring 2015. Florian Diekert will act as main supervisor.

In 2015 two more students will join the team:

In January **Mari Bø** will start on her master in pedagogics. Just as Helge this program includes a short 30 credits master thesis. The exact details of her project are not decided upon, but we will make a plan in January.



She will do her fieldwork in and/or around the raspberry fields in eastern Norway. Anne Brysting will act as co-supervisor

In June **Ingvild Fonn Asmervik** will finish her bachelor in Biology and join the PolliClim team for her master thesis. She might help out during the 2015 field season in Norway but her main focus for her master thesis is the soybean pollination in Argentina. She will travel to Argentina in fall 2015 to conduct fieldwork and collaborate with Mariano and his post doc. This will indeed strengthen the collaboration Norway and Mariano and we will have a much better understanding of what is going on in the Argentinean soybean fields also here in Norway. Anne Brysting will act as main supervisor.

Networking/visitors

Dr. Nielsen is representing Norway in the Management Committee of the COST Action Sustainable pollination in Europe - joint research on bees and other pollinators (SUPER-B). Through the participation in this action the PolliClim project get access to a large network of researchers from all over Europe, and beyond. This will strengthen the project with respect to scientific quality but also make the project more visible, also in a European setting.



Megan Hoff, a student at DePaul University in Chicago, Illinois, USA, has applied for a Fulbright scholarship to come to Norge to work with Dr. Nielsen on the PolliClim project. If successful she will arrive in Norway early summer 2015. She will come here to learn about how to do science including fieldwork, data handling and analyses as well as writing up a report and, she will of course contribute to the research group in general.

Outreach/dissemination/presentations/publications

PolliClim is still in its start-up phase, though almost a year has passed. It should not cause any concern that we have no published publications yet. This will change! Several papers have been initiated and drafts have been circulated. None of these are close to submission but writing will be the focus of the forthcoming months. Some preliminary titles and author lists:

Nielsen, A., Hegland, SJ. Temperature induced changes in raspberry production; effects on flowering phenology, pollinator visitation and fruit production.

Reitan, T., Nielsen, A. A better data management framework for analyzing count data.

Dyer, A., Tscheulin, T., Devoto, M., Hegland, SJ., Nielsen, A. Plant pollination and climate change: resource management through the identification of individual differences in pollinator performance.

Outreach and dissemination is important for the Research Council and for us. In the project plan it is stated that outreach is a major goal of the project and we have tried our best to communicate the project through more non-scientific channels. Dr. Nielsen and the PolliClim team have been around talking about the flowers and the bees on several occasions. Here is a brief list of outreach activities:

- Lecture «Biene forsvinner», Aker seniorakademi, Mars 18. 2014
- Interview EKKO NRK P2, Mai 22. 2014
- Invited talk «Pollination ecology and the effects of climate change», Universidad Rey Juan Carlos, Madrid, June 9. 2014
- Panel discussion following the play «BIOS» set up at Chat Noir as a part of «Forskingsdagene», September 18. 2014
- Answering questions from the listeners, EKKO (Abels Tårn) NRK P2, October 3. 2014
- Presentation at the SCAPE meeting «Pollination; an ecosystem service affected by climate change» 25. October 2014 (Dr. Nielsen)
- Presentation at the SCAPE meeting «Valuation of ecosystem services: The effect of pollination in Norwegian agriculture» 25. October 2014 (Helge Lone)
- Presentation at the SCAPE meeting «Effects of pesticides on domesticated and wild pollinators» 25. October 2014 (Julie Paus-Knudsen)
- Dr. Nielsen participated in the Management Committee and Working Group meetings of the COST Action SUPER-B in Rome 4.-5. November 2014
- Presentation at the Miljø2015 conference in Trondheim 6.-7. November 2014 (Dr. Nielsen)
- Lecture for master students at Hedmark University College, Evenstad Campus «Insects, pollination and human effects» 26. November 2014 (Dr. Nielsen)