Diary 7 – 18 July 2010

This week our friendly and humming Zanderling team (Jeroen Reneerkens and Jan van der Kamp) went back to Holland in order to greet their sanderlings passing the Wadden Sea en route to, maybe, Ghana and Namibia. We also lost our Viking handyman and Icelandic translator Jón. In turn we received a new load of scientists and last but not least, fresh fruits and veggies from exotic Iceland, such as banana, grapes and melon. I think Jón would have preferred a little more frozen lamb and fewer vegetables in the shipment, but most of the team up here does appreciate fresh green food, in particular the sweet apple pies coming out of the delicious Dinaland kitchen. We also finally meet some of the Zackenberg "dinosaurs" who were around when the first shelters on the station were set up, namely lemming "hunters" Thomas Berg and Niels Martin Schmidt. Mads Forchhammer is another Greenland veteran and is along to help Niels Martin setting up the musk ox exclosures. Who knows what will happen if the hundreds of muskoxen are not allowed to grass all over? Maybe we have a seed potential in the ground to sprout up a whole forest? With an average annual radial growth at 0.12 mm it will take app. 600 years to grow a small 7 cm wide *Salix* flag pole in the exclosures. That is, if the climate remains cold and stable. Fortunately the exclosure team had most up within a few days and is almost ready to keep out any large grazing mammal (including arctic hare).

Thomas has mostly talked about his lemming flea research, but we still have to actually see him perform the flea circus experiments, including an interesting choice assay with *Cassiope* as a non-toxic and environmentally friendly flea deterrent. This will probably be very soon as lemming traps are now a common sight around lemming holes in area 1A.

Claudia Baittinger arrived just in time to celebrate her birthday with Brennivin Icelandic schnapps) and strawberry chocolate cake with cream from the Dinaland kitchen. Noémie Boulanger-Lapointe and Claudia do, by the way, have the easiest job at Zackenberg. They need to locate arctic willow (*Salix arctica*) which basically can be found just about anywhere. Their biggest problem has been to locate a scattered population where individual plants can be identified. Not an easy task as *Salix* easily grows together once neighbouring individuals meet. Michelle Skovgaard and Pernille Sørensen have fought muskoxen and mosquitoes but are still in good spirit. They will probably soon have novel data about carbon cycling and nitrogen fixing cyanobacteria at Zackenberg. Michael Jacobsen and Uncle Jan have also been busy. Saturday we lost hot water in the kitchen but they were able to locate a used thermal device and replace it almost before we noticed.

Julie Falk and Lena Ström are finally up and running. The methane measuring device that Julie has worked on since we came here in early June just kept giving her an error message that she complained about day and night. Now they got a new computer and finally the error messages vanished. Julie and Lena have also been able to work outside of the yellow tent and recently started identifying grasses around the yellow tent. I hope they will also keep an eye out for the flies and maybe soon start monitoring those as well.

Charlotte Sigsgaard and Kirstine Skov often talk about the latest mountain peak they visited and the daily photos they have from all of the Zackenberg area cameras. If it was not for all of the data they collected and the backpacks full of batteries and tools they carry around, one could be

led to believe that they were on a trekking vacation rather than a scientific mission to the peaks of the Zackenberg valley.

Ditte Kristensen and Christian Bay have moved fast on their road to the last bit of vegetation at the top of Aucella. They passed the landing strip long ago and have raised their daily consumption of Ritter Sport to two/person/day. Christian is a specialist on the Greenland flora and warned to us that most *Dryas* at Zackenberg combines key characters of the two *Dryas* species, *D. integrifolia* and *D. octopetala*, with the vast majority of Zackenberg *Dryas* being hybrids rather than true species. Whatever the identity, *Dryas*, remains the absolute best source of pollen, nectar, and heat (it is several degrees warmer inside a flower cup than outside) for the insects. As it also turns out, Ditte is the proud owner of many *Peruphasma schultei* walking sticks. An odd looking phasmid described by Conle and Hennemann in 2005 from material collected in a remote part of NE Peru by my good friend Rainer Schulte. I was even the one who sent Conle the first pictures of this new phasmid and was pleased to learn about this rare Peruvian endemic now being offered for sale on Greenland at a great bargain.

Lars Hansen has been an outstanding Deputy and seen to that we all follow the trails, stay 20 m away from any running experiments, don't move old fox traps, as well as counted muskoxen, registered plants, lost a radio, monitored fox activity, sampled water, etc. Jannik Hansen has been successful in sampling blood and ringed sanderlings after Jeroen and Jan went back to Holland. Jannik has been so efficient that he is now left with only seven green flags for the marking. The sanderlings carry a combination of five colour plastic rings on their legs, one with a flag, allowing people in all parts of the sanderling migration route to look up the "name" and biography of individual birds based on these rings. With seven possible combinations left, we hope that Jannik will not find more than seven new nestlings.

As for sights. Fox puppies have been around the "Feddet" building for awhile and did not disappoint us. Many good photo opportunities in particular when they located a headless fish on the river bank, and pulled the large fish onto the *Cassiope* heath. Paparazzi-Lars was of course on the scene with a monster lens to document the meal. When we left the foxes Julie and Lena took over the photo session and were fortunate enough to see the puppies pushing around for a share of the meal.

Jesper Mosbacher and I have had a very successful week. We finally came above 500 flower visiting insects since I began monitoring flowers here 6 June. Between the two of us we trace all insect activity in individual flowers of 28 different plant species during 40 daily minutes/species. We have to admit that some flowers are not very attractive to even the smallest or ugliest fly. However, across an entire field season we will eventually have great phenological data on the flight period of insects and the flowering of the plants they visit. We can then construct the web of interactions among flowers and insects, compare this complex web with a similar study conducted by Heidi Elberling in the 1996-1997 field seasons, eventually providing us with an exceptional opportunity to analyze climatically induced changes at ecological network level. Our buggiest days so far were 8 July and 9 July with more than 50 insects on a single day. They were also the worst mosquito days this season and we hope, probably as the only ones, for many more mosquitoes this season. Much to the surprise of rest of the Zackenberg team that have become used to see us

standing near flowers for prolonged periods of time, Jesper has already been around much of the valley and even reached the peak of Aucella Saturday night and is planning for further peak visits in the near future.

Claus Rasmussen and Jesper Mosbacher, Team Pollinator-X