



NW European IUSSI Newsletter: March
2021

Tales from the lab: Lumi Viljakainen (University of Oulu)



Greetings from the lab of Dr. Lumi Viljakainen, University of Oulu!

Lately we have been busy with a CRISPR-Cas experiment on the black garden ant *Lasius niger*. This project is done in collaboration with Dr. Jonna Kulmuni from the University of Helsinki and the experiment is conducted primarily by Mauno Konu with assistance from an undergraduate student Ville Salo.

Already in 2019, Mauno started testing suitable ant species for the CRISPR-Cas modification as an undergraduate project. We studied the egg-laying rate of a couple of *Formica* wood ant species and concluded that plenty of eggs were being laid, and the eggs hatched to larvae in good proportions. However, it was not possible to raise larvae to adulthood because the workers ate eggs that were laid by queens in isolation.

Since we wanted to produce gene manipulated adult workers, we turned to the lab rat of the ant world, the black garden ant *Lasius niger*. We collected 150 queens in late July 2019 and established lab colonies. Mauno studied the egg-laying rate of the queens again, survival after injecting eggs with sterile water and survival during and after putting the colonies to hibernation. Everything looked promising.

We continued the experiment in summer 2020. Now Mauno had matured into a master's student and started his thesis work supervised by me and Jonna. We collected almost 300 additional *L. niger* queens in July and established lab colonies. We thought that the lab rat of the ant world would not fail us, but we were wrong – after the first set of workers had hatched, the new queens did not lay eggs at all! After consulting Google and some colleagues, we decided to put the ants in hibernation by keeping the colonies in +4°C for two months.



1 - *L. niger* queens were kept in the collection tubes until the first workers emerged.

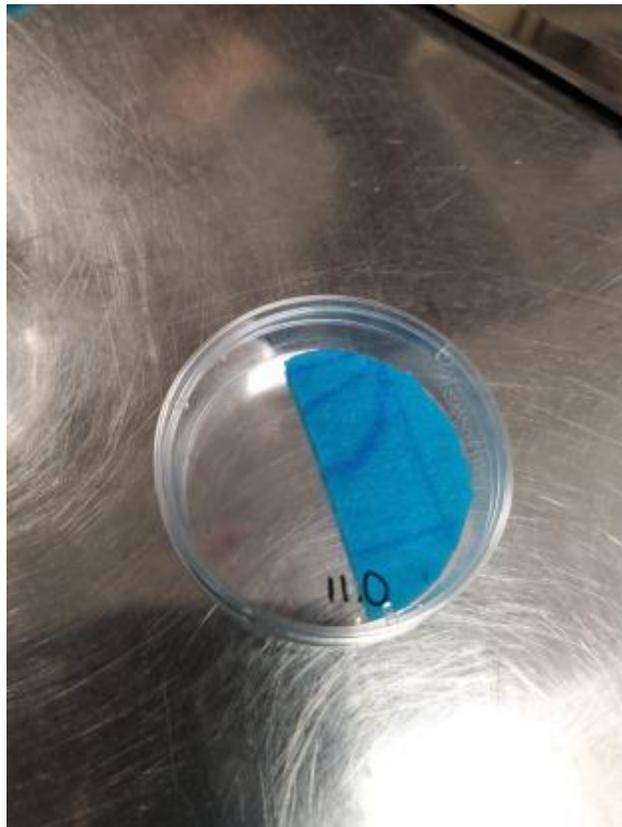


2 - *L. niger* queens were kept in the collection tubes until the first workers emerged.



3 - After the emergence of first workers the colonies were transferred to petri dish nests with a plaster layer in the bottom.

During the hibernation we designed a CRISPR-Cas construct for a gene that affects eye color. In January 2021, the real experiment started. Mauno was assisted by Ville Salo, an undergraduate project worker. Every day, they collected queens from their petri dish nests, transferred them to smaller egg laying petri dishes containing moist sponge cloth. After 1 hour of egg laying the dishes were checked for eggs. The hibernation had worked, the queens happily laid eggs!

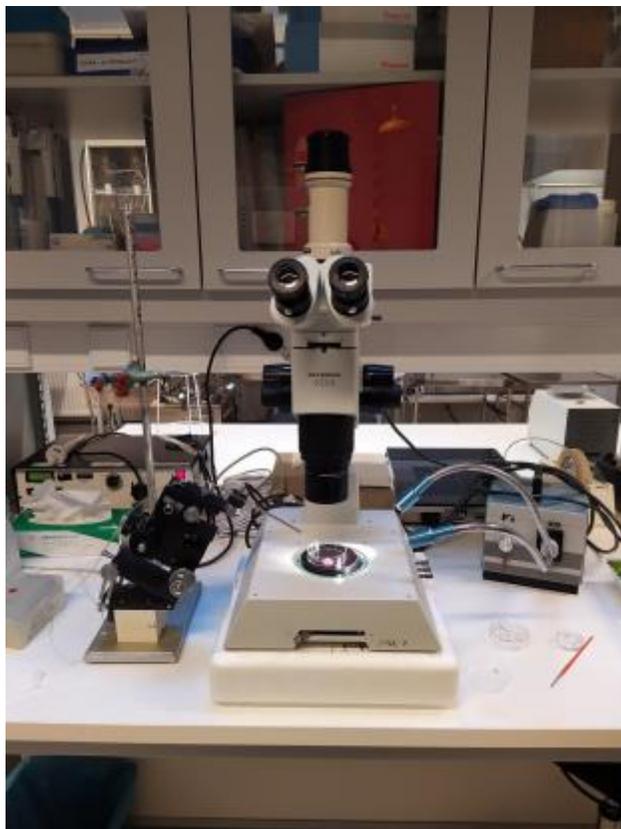


4 - Egg-laying petri dishes.



5 - Mauno checking with microscope whether queens have laid eggs while Ville makes notes.

The queens were transferred to new egg-laying dishes while the freshly laid eggs were injected with the CRISPR-Cas construct using quite an old but very well working Hamilton pico-injector. After injection the eggs were transferred to +23°C with several workers.



6 - Hamilton pico-injector is back on the left. On the left side of the microscope is a micromanipulator attached with a glass capillary containing the CRISPR-Cas construct.



7 - After injection the eggs were transferred to +23°C with several workers.

And now we have the first adult worker!

We will analyze the eye color of adult workers by imaging, and check the success of the gene editing by sequencing the target gene region. Exiting times ahead!



8 - Some weeks later the first larvae hatched.



Section nominations for General Secretary of the IUSSI



As Madeleine Beekman mentioned in the latest IUSSI newsletter, it is time to begin to think of candidates to take over as General Secretary after the International IUSSI Congress in San Diego in 2022, where nominations will be presented.

Mark Brown has kindly volunteered to take on this task, but in order to assure maximum transparency and a democratic process, we invite you to consider nominating yourself for this position. Should you wish to do so, please contact Michael (mpoulsen (at) bio.ku.dk) by the 15th of April 2021.

The Newsletter that will be circulated end of April will then include an opportunity to cast your vote for your preferred candidate.

No slacking here: Join the SI-NET Slack



The North American Section of the IUSSI recently started the SI-NET Slack channel as a global social insect networking tool for sharing new research, for discussions, and for distribution of graduate, postdoctoral and faculty opportunities.

You can join here: https://social-insect-network.slack.com/join/shared_invite/zt-fzz7a47r-jNq9BRaeeOeuJEALbpsW~g#/

The NWE IUSSI Slack that was started by the extended committee prior to the online winter meeting in December will remain alive, but the committee has decided that it will be prioritised for use during future meetings.

Section questionnaire - we need your input!



The questionnaire we circulated a while ago did not prompt enough responses for the extended committee to obtain a good basis for prioritisation of section activities and funds.

We have therefore decided to re-circulate the questionnaire and encourage that you take a couple of minutes to share your thoughts on the aspects we inquire about, as they will be important for shaping the section future.

With very little effort, this is your chance to help shape the section, as we will act on member preferences in the months to come.

Please fill in the form by end the of April via this link: <https://forms.gle/cRE3PJL5gnC6de6t8>

Thanks in advance for your help and ideas!

Do you like Social Media? Are you looking for experience in Science Communication?



The NWE IUSSI Social Media Committee needs you! Would you be able to either step up and volunteer to tweet on behalf of the IUSSI?

We are looking for things like:

- Take-over by a student (Masters or PhD) about their research. They send several tweets on behalf of our IUSSI account, with the purpose to show what it is to be a social insect researcher.
- Tales from the past. Anecdotes from previous meetings, or history. Maybe interview your VIP and share it via multiple tweets over the year?
- Regular retweeting of sister groups (the North American IUSSI, the Brazil section, etc).

Let us know your ideas!

Contact Liz ([elizabeth.bates \[at\] cornwall.ac.uk](mailto:elizabeth.bates@cornwall.ac.uk)) for details and if you wish to volunteer!

Get involved in the section extended committee



The extended committee works closely with the officers to improve our section activities and presence on SoMe platforms.

Being on the committee is a excellent networking opportunity, so we encourage PhD students and postdocs to consider joining the committee and getting engaged.

Contact Liz Bates ([elizabeth.bates \[at\] cornwall.ac.uk](mailto:elizabeth.bates@cornwall.ac.uk)) for more information.

The NWE IUSSI Twitter account



The NW IUSSI Twitter¹ account already has more than 400 followers, which is a great step in order to increase the number of people we reach with news and achievements of our society. The aim is to use this platform to communicate events, recent publications and news from the society to a wider audience.

As this is still the beginning:

- 1) If you are a Twitter user, please follow us so that we can follow you back. This will allow us to re-post your research/outreach activities as the society. You can also tag us in your posts if you want us to see it. Use our twitter handle @IUSSI_NWES
- 2) Whether you use Twitter or not, feel free to send us material (such as an event or a recent publication on social insects) you would like to see posted on Twitter. To do this please email the social media team iussi.nwes.socialmedia@gmail.com².

¹https://twitter.com/iussi_nwes

²<mailto:iussi.nwes.socialmedia@gmail.com>

How to become a NWE IUSI member



Having a subscription to IUSI is a great way to support the world of social insect research. Membership is cheap (£10 for students, £20 for full members). One additional perk of being a member is that it provides large discounts when registering for IUSI conferences. Registrations can be done here: <http://www.iussi.org/NWEurope/subs.htm>.

Current job opportunities



More vacancies on the section web site: <http://www.iussi.org/NWEurope/vacancies.htm>:

Do you have Ph.D. or Postdoc positions coming up? Email nbos [at] bio.ku.dk and we will add them to the newsletter. We also run the INSECTSmal mailing list, which distributes information about job and studentship opportunities, meetings, courses, and calls for information about social insects. See more on the section website: <http://www.iussi.org/NWEurope/INSECTSmal.htm> and send any information to be included (or subscription requests) to INSECTS [at] bio.ku.dk.

Looking for pictures!



The pictures in this newsletter were contributed by both Nick Bos, as well as Quentin Willot from Stellenbosch University, who kindly allowed us to choose freely from his portfolio. Have a look at his great work here: <https://www.picuki.com/profile/qwilltn>

If you have pretty pictures to share, please send a link to nbos [at] bio.ku.dk and they might just be used for the next newsletter. Credits will be given of course!

Questions? Contact Us!

If you have any questions, comments or suggestions, please mail to [nbos \[at\] bio.ku.dk](mailto:nbos@bio.ku.dk).