

# Newsletter August 2015

Welcome to the 7<sup>th</sup> edition of the PopGen ALUMNI newsletter!

#### Recent events

#### July 2015: SMBE annual meeting in Vienna

Faculty members of the Vienna Graduate School of Population Genetics organized SMBE 2015, the annual meeting of the Society for Molecular Biology and Evolution, from July 12th to 16th, 2015, at Vienna's Hofburg. The efforts of the local organising committee (Christian Schlötterer, Andrea Betancourt, Carolin Kosiol and Alex Kalinka) attracted more than 1400 participants from around the world at the royal setting of the Hofburg. The program featured 4 plenary sessions, a dedicated Fitch prize symposium for young scientists and nearly 350 invited and contributing talks, 5 poster sessions with 750 posters, and ample opportunities to network and socialise.

The conference felt like a real PopGen Vienna reunion – many of our Alumni travelled to Vienna from around the world to attend the largest SMBE meeting in history, and many gave talks and presented posters.

Two current PopGen Vienna students and four graduates contributed talks while other students of PopGen Vienna presented their work at the poster sessions. At a special Alumni dinner, 36 current and former members of PopGen Vienna came together to mingle and network in a Viennese beer garden and to catch up with their current research projects.

Twitter activities were exceptionally high: <a href="https://twitter.com/search?q=%23smbe15&src=tyah">https://twitter.com/search?q=%23smbe15&src=tyah</a>













Dominik Schrempf ( $2^{nd}$  year) and Andrea Fulgione ( $3^{rd}$  year) giving talks at SMBE 2015.



Graduate alumni Claudia Bank, Saad Arif and Martin Kapun contributing talks at SMBE 2015.



Faculty alumnus Alistair McGregor and graduate alumna Daniela Nunes Sanchez.





Christian Schlötterer closed the meeting after intense days full of science. Graduate alumnus Christian Huber and final-year student Ray Tobler: reunited.

### July 2015: Conference workshop with Brian Charlesworth

SAB member Brian Charlesworth held a special training session for our students on July 12<sup>th</sup> to prepare them for the SMBE meeting and for large conferences in general. This included advice on their oral and poster presentations as well as some tricks on how to connect and network with other scientists at such a big meeting.

Two students rehearsed their contributed talks with Brian, and 9 students received feedback for their poster presentations ahead of the meeting.

## July 2015: PopGen grows

Urban and social gardening at PopGen Vienna! A few months ago, the PopGen community garden lot was nothing more than a few inches of rough soil. Our students started to plan and plot, and their dedicated work along with the sunny and hot weather of this summer transformed the spot into a green wealth of salads, radishes, tomatoes, peppers, herbs and spices! Institute Members already enjoyed fresh samples of the produce during seminars and journal clubs.





Many PhD student hands are needed for planting, weeding, watering and – harvesting!

#### May 2015: PopGen Vienna participates at Open University Day

For the **250 year anniversary** of the Vetmeduni Vienna, our students thought of an additional attraction for visitors at the booth of the Vienna Graduate School of Population Genetics: participants were instructed how to extract DNA from strawberries using everyday materials. The feedback of the visitors of all ages was very positive. One pupil was so impressed that he repeated the experiment at school with all his classmates!

As usual, our temperature-adapted fruit flies, bizarre mutants and close-up shots of electron microscope images of Drosophila fascinated visitors of all ages.



PhD students Ana Marija Jaksic and Olga Pavlovska demonstrate DNA extraction and flies to visitors. A poodle hugs Kerstin Gärtner in the background.

## **April 2014: SAB meeting**

The yearly Scientific Advisory Board (SAB) meeting took place from April 22-24. The students reported their progress to SAB members Brian Charlesworth, John Parsch, Andy Clark and Jean-Michel Excoffier who gave their valuable feedback. After the busy meetings, the students took the SAB members out to the pub to socialise and chat in an informal setting.

## Recent visitors

Research assistant professor Christopher Willett visited PopGen Vienna again during summer for one month. Chris investigates the nature of genetic variation that underlies speciation and adaptation at the University of North Carolina at Chapel Hill. In collaboration with members of the Vienna Graduate School of Population Genetics, he will continue to study the genes that interact deleteriously to generate postzygotic reproductive isolation in a copepod system. He also looks at thermal tolerance and its potential interactions with reproductive isolation.

Dr. Giorgio Bertorelle from University of Ferrara, Italy, spent three months from March to June at the Vienna Graduate School of Population Genetics, working on NGS data analyses in conservation and evolutionary genetics.

Polish guest PhD student Marek Bukowicki works with institute members for several months during 2015.

# Alumni lab portraits

We feature a brief report about one of PopGen's graduate and faculty alumni in every Newsletter. This time, alumnus **Saad Arif** gives us some insight into his postdoc research in **Tübingen** (Group of Felicity Jones):

"Two years after leaving Vienna, I finally finished my PhD under former PopGen Vienna PI Alistair McGregor at Oxford Brookes University. Even before I could contemplate "What next?" a post-doc position in stickleback genomics and genetics opened up in Tuebingen.

The threespine Sticklebacks system is one of the best known natural evolutionary experiments. Ancestrally marine threespine stickleback have repeatedly invaded and colonised various freshwater habitats all within the last 10,000 years. This process of rapid and parallel adaptation has provided oodles of replicate population pairs to dissect the genomic and genetic basis of adaptation and speciation.

My major project within this system is to unravel the genetic basis of migratory movement in these fishes. Moving from a classical model organism, such as Drosophila, to something slightly more off-kilter has been both challenging and rewarding. More recently, I've accepted a Lectureship at Oxford Brookes University and will be moving back to England this September. I hope to start developing my own research group and continue working on uncovering the genetics underlying long-distance migration."



Hoping for a "big one"? <sup>©</sup> Saad sampling Sticklebacks in Scotland.

# Out of sight, out of mind? Experiences of our students abroad

Many of our students choose to spend 3 months in foreign labs during their study time.

**Derek Setter** (advisors Joachim Hermisson, Reinhard Bürger and Andrea Betancourt) will tell us about his experiences in Jeff Jensen's lab (Lausanne) in the next Alumni News edition.

# Upcoming events

This year's edition of the **Introductory Course** is coming up. This year we again have several external and international students (Italy, Germany, Ecuador, France) alongside new PopGen students.

We're preparing a **Welcome Event** for new students and the yearly **retreat**. This year, we'll go back to good old Feuerkogel!

PopGen Vienna and the Department of Biomedical Sciences invites to a **Mini-Symposium** on October 6, 2015:

## Animal Genetics - The Step Ahead

16:00 – 18:00, Lecture Hall G (HS G), building LA, Vetmeduni Vienna

#### **Leif Andersson**

Dept. of Medical Biochemistry and Microbiology, Uppsala University "Molecular consequences of animal breeding"

#### **Michel Georges**

GIGA-R & Faculty of Veterinary Medicine, Unit of Animal Genomics, Univ. of Liege *Title tba* 

# Upcoming seminars

The seminar schedule for the Winter Term is nearly ready, the following international speakers will visit us: Nick Jones, Thomas Wiehe, Mark Kirkpatrick, Nadia Singh, Sophien Kamoun, Hirohisa Kishino, Johnathan Wendel, Eva Stukenbrock and Aoife McLysaght.

## Publications of our students

Several publications of our students and graduates came out in 2015:

- **N. De Maio, D. Schrempf** and C. Kosiol: PoMo: An allele frequency-based approach for species tree estimation. Systematic Biology doi: 10.1093/sysbio/syv048 (2015)
- **R. Tobler**, J. Hermisson and C. Schlötterer: Parallel trait adaptation across opposing thermal environments in experimental *Drosophila melanogaster* populations. Evolution 17. doi: 10.1111/evo.12705 (2015)
- R. Kofler, **T. Hill**, V. Nolte, A.J. Betancourt and C. Schlötterer: The recent invasion of natural *Drosophila simulans* populations by the P-element. Proc Natl Acad Sci U S A. 26;112(21):6659-63 (2015)
- K.M. Tanaka, **C. Hopfen**, M.R. Herbert, C. Schlötterer, D.L. Stern, J.P. Masly, A.P. McGregor, M.D. Nunes. Genetic architecture and functional characterization of genes underlying the rapid diversification of male external genitalia between *Drosophila simulans* and *Drosophila mauritiana*. Genetics. 200(1):357-69 (2015)
- **D.K. Fabian**, J.B. Lack, V. Mathur, C. Schlötterer, P.S. Schmidt, J.E. Pool and T. Flatt: Spatially varying selection shapes life history clines among populations of *Drosophila melanogaster* from sub-Saharan Africa. Journal of Evolutionary Biology 28: 826-840 (2015)
- H. Topa, **A. Jónás**, R. Kofler, C. Kosiol and A. Honkela: Gaussian process test for high-throughput sequencing time series: application to experimental evolution. Bioinformatics pii: btv014 (2015)
- H. Uecker, **D. Setter** and J. Hermisson. Adaptive gene introgression after secondary contact. J Math Biol. 70(7):1523-80 (2015)
- S. Franssen, V. Nolte, **R. Tobler** and C. Schlötterer: Patterns of linkage disequilibrium and long range hitchhiking in evolving experimental *Drosophila melanogaster* populations. Molecular Biology and Evolution 32(2):495-509 (2015)
- **L. Geroldinger** and R. Bürger: Clines in quantitative traits: The role of migration patterns and selection scenarios. Theoretical Population Biology 99:43-66 (2015)