



Newsletter January 2015

Happy New Year!

... and welcome to the 6th edition of the PopGen ALUMNI newsletter!

Recent events

December 2014: PopGen Xmas!

We had great fun at this year's **X-Mas event** on December 18. Despite the current flu wave that prevented several colleagues from joining, we learned a few intricate dance steps at an Irish Ceili workshop. The Shamrock Dance Company in the 15th district did a great and charming job to teach our mixed crowd of PhD students, postdocs and faculty, and after only a bit more than one hour we hopped through a full 10-minute Ceili choreography! The sweat and concentration was rewarded by excellent burgers and craft beer at Burgenland Beisl "Hawidere", just a short walk from the dance studio.





November 2014: Career workshop

The Vienna Graduate School of Population Genetics organised a Career workshop on November 27 at Vetmeduni Vienna to give our students an insight about possible career alternatives after the PhD. Representatives of Baxter International presented their company and gave us some valuable tips about what to expect from a job interview in a non-academic setting. Several other students from Vetmeduni's Biomedicine master study along with Pharmacology PhD students joined the seminar entitled *Career outside Academia - recruitment advice by Baxter*.

November 2014: Four defenses!

We're proud of Daniel Fabian, Johanna Bertl, Christian Huber and Ludwig Geroldinger who all successfully defended their theses recently! Congratulations, and good luck for their new positions!

Daniel relocated to Cambridge to work in [Frank Jiggin's lab](#) as Postdoc.

Johanna is now Postdoc at the [University of Aarhus](#).

Christian accepted a Postdoc position at UCLA with Kirk Lohmueller, starting in January.

November 2014: FWF extension hearing

A very important date for us was November 4th, when 10 students and 6 new faculty members presented their projects in front of 6 reviewers and the FWF panel. The good news: THE DK WAS PROLONGED FOR ANOTHER 4 YEARS! Congratulations and thank you to students, faculty and alumni! We'll continue to provide excellent training for a next generation of PopGen PhD students!

November 2014: 1st Alumni Symposium

Following the hearing we organised our 1st Alumni Symposium – it was great to see former students and faculty for this interesting occasion! DK Graduates **Claudia Bank, Florian Clemente, Martin Kapun** and **Nicola de Maio** gave us insights into their current research, and our students **Tom Hill, Dominik Schrempf, Kerstin Gärtner** and **Ana-Marija Jaksic** presented their projects to update our alumni. We're already looking forward to the next Alumni Symposium!





DK Graduates Florian, Nicola, Claudia and Martin



DK students Tom, Dominik, Kerstin and Ana-Marija

October 2014: NGS course

The **Practical Course on Next Generation Sequencing for Population Genetics and Experimental Evolution** from October 19 to 26 at the Vetmeduni Vienna was a big success. Carolin Kosiol and co-organisers (Ville Mustonen, Jon Bollback and Christian Schlötterer) were backed up by our enthusiastic students who helped during the preparatory phase and tutored the international participants during the busy teaching and practical units.

The course was immensely popular as seen from the large number of applications. Eventually we welcomed 25 participants from all over the world, along with 15 participants from Austrian institutions.

Teachers alongside the organisers were:

Eszter Ari, Eötvös Loránd University, Hungary

Andrea Betancourt, Vetmeduni Vienna, Austria

Simon Boitard, INRA Toulouse, France

Sinead Collins, University of Edinburgh, UK

Santiago Elena, Instituto de Biología Molecular y Celular Plantas, Valencia, Spain

Angela Hancock, University of Vienna, Austria

Darren Kessner, University of California Los Angeles, USA

Robert Kofler, Vetmeduni Vienna, Austria

Magnus Nordborg, Gregor Mendel Institute, Austria

Alexander Platzner, Gregor Mendel Institute, Austria

Mark Robinson, University of Zürich, Switzerland



Participants and Teachers of the NGS course 2014

Recent visitors

Dr. **Fernando Diaz** from the Universidad del Valle (Colombia) visits the Vienna Graduate School of Population Genetics from October 15, 2014 until January 15, 2015:



"My work has been focused on thermal adaptation in the invasive pest whitefly (*Bemisia tabaci*) through quantitative genetics and experimental evolution. I just finished my PhD at the Universidad del Valle (Colombia) and would like to continue studying thermal adaptation but now using experimental evolution in combination with whole-genome sequencing. I will spend three months studying the reversibility of thermal selection between hot and cold environments in *Drosophila melanogaster* in collaboration with the scientific community at the Vienna Graduate School of Population Genetics."

Alumni lab portraits

We feature a brief report about one of PopGen's graduate and faculty alumni in every Newsletter. Martin Kapun told us about his postdoc experiences in the last edition.

We're looking forward to learn about the experiences of our brand-new postdocs Johanna, Daniel and Christian in one of the upcoming Alumni News editions.

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. In each of the Newsletters one of them tells us about their experiences.

Raymond Tobler (advisors Christian Schlötterer, Joachim Hermisson and Claus Vogl) was hosted by Dmitri Petrov as guest student at Stanford University from January to April 2013:

*“In early 2013 I left the frigid melancholy of Vienna for the maverick metrosexuality of the San Francisco Bay Area for a 3 month stay in the lab of Dmitri Petrov. Dmitri had previously given one of the weekly seminar series talks where he discussed some recent results on seasonally varying genome-wide allele frequency variation in Nth American *Drosophila melanogaster* populations. With my interest piqued, I approached Dmitri about a possible lab exchange to which he immediately agreed.*

*On my arrival in Stanford, Dmitri introduced me to Alan Bergland, a postdoc in Dmitri’s lab who had performed the seasonal *D. melanogaster* analyses. Alan, who’d been working with Dmitri since 2010, had recently initiated a project with several other *Drosophila* researchers to investigate spatial and temporal evolution in natural Nth American *Drosophila* populations. In parallel with his investigations on seasonally varying selection, he was also interested in untangling the effects of demography and selection on genomic variation amongst the Nth American populations on the East Coast. The central issue was that the colonization of *D. melanogaster* along the East Coast was thought to have resulted from two founding events - one each from a European and African population - which resulted in the European population becoming established in the colder north, and the Africans in the more tropical south. Subsequent migration and admixture between the two founder populations is thought to have generated much of the clinal patterns that are now evident at the genomic level in contemporary populations. The question Alan wanted to answer is how much of the signal was due to demography, and how much could be attributed to local selection? I helped Alan with much of the preliminary investigations, which, after much more work from Alan, were recently submitted for publication.*

Overall, I enjoyed my time in Dmitri’s lab immensely and was taken aback by the natural beauty of California. It had also clearly benefitted from being run by the 2nd greatest Austrian of all time, but then what place wouldn’t? Stanford wasn’t bad either, but the real highlight was the burrito, perhaps the most delicious brick-shaped object ever to come out of Mexico/Texas/a truck.”



Two versions of Ray in California in front of big things

Upcoming events

We're preparing for the first **SAB meeting** of the new funding period and hope to welcome all members back to Vienna in May.

The preparations for [SMBE 2015](#) this coming Summer are running intensely, we're looking forward to see you all back in Vienna!

Upcoming seminars

This term's concluding seminar guests will be John Huelsenbeck (UC Berkeley) and Hinrich Schulenburg (Kiel Univ.).

We're working on the schedule for the Summer Term starting in March – several exciting speakers (Sally Otto, Jeff Jensen, Gianni Liti and many others) will visit us!

Publications of our students

A summary of our student's 2014 publications:

H. Uecker, **Derek Setter** and J. Hermisson. Adaptive gene introgression after secondary contact. *J Math Biol.* (in press)

S. Franssen, V. Nolte, **Ray Tobler** and C. Schlötterer C. Patterns of linkage disequilibrium and long range hitchhiking in evolving experimental *Drosophila melanogaster* populations. *Molecular Biology and Evolution* pii: msu320 (2014)

Ludwig Geroldinger and R. Bürger: Clines in quantitative traits: The role of migration patterns and selection scenarios. *Theoretical Population Biology* 99C:43-66 (2014)

C. Schlötterer, R. Kofler, E. Versace, **Ray Tobler** and S.U. Franssen: Combining experimental evolution with next-generation sequencing: a powerful tool to study adaptation from standing genetic variation. *Heredity* doi: 10.1038/hdy.2014.86 (2014)

Christian Huber, M. Nordborg, J. Hermisson and I. Hellmann: Keeping it Local: Evidence for Positive Selection in Swedish *Arabidopsis thaliana*. *Molecular Biology and Evolution* 31(11):3026-39 (2014)

C. Schlötterer, **Ray Tobler**, R. Kofler and V. Nolte: Sequencing pools of individuals - mining genome-wide polymorphism data without big funding. *Nature Reviews Genetics* 15(11):749-63 (2014)

E. Versace, V. Nolte, R.V. Pandey, **Ray Tobler** and C. Schlötterer: Experimental evolution reveals habitat-specific fitness dynamics among *Wolbachia* clades in *Drosophila melanogaster*. *Mol Ecol* 23, 802-814 (2014)

Ray Tobler, S.U. Franssen, R. Kofler, P. Orozco-terWengel, V. Nolte, J. Hermisson and C. Schlötterer: Massive Habitat-Specific Genomic Response in *D. melanogaster* Populations during Experimental Evolution in Hot and Cold Environments. *Molecular Biology and Evolution* 31, 364-375 (2014)

Peter Klepsatel, M. Galikova, C.D. Huber and T. Flatt: Similarities and Differences in Altitudinal Versus Latitudinal Variation for Morphological Traits in *Drosophila melanogaster*. *Evolution* 68(5):1385-98 (2014)

Ludwig Geroldinger and R. Bürger: A two-locus model of spatially varying stabilizing or directional selection on a quantitative trait. *Theor Popul Biol* 94, 10-41 (2014)

Martin Kapun, H. van Schalkwyk, B. McAllister, T. Flatt and C. Schlötterer. Inference of chromosomal inversion dynamics from Pool-Seq data in natural and laboratory populations of *Drosophila melanogaster*. *Mol Ecol*. 23(7):1813-27 (2014)

Ada Akerman and R. Bürger: The consequences of gene flow for local adaptation and differentiation: a two-locus two-deme model. *J Math Biol* 68, 1135-1198 (2014)

Ada Akerman and R. Bürger: The consequences of dominance and gene flow for local adaptation and differentiation at two linked loci. *Theor Popul Biol* 94, 42-62 (2014)