



## ***Newsletter September 2022***

Welcome to the 26<sup>th</sup> edition of the PopGen ALUMNI newsletter!

*Follow us on Social Media*

<https://twitter.com/PopGenViennaPhD>

<https://www.youtube.com/channel/UCAdGx2zyQNYvti9Cr1muhUg>

Join our Tuesday webinars:

<https://www.popgen-vienna.at/news/seminars/>

***Sign up now for our final event (email to Julia):***

***May 15-17 2023 at Parkhotel Hirschwang (Reichenau a.d. Rax)***

### ***Recent events and news***

#### **May 2022: SAB meeting & Mini Symposium**

This year's SAB meeting finally was held in person again. After our board members had listened to our student's project presentations and gave precious feedback, we were treated to a Mini-Symposium featuring latest research of John Parsch, Virginie Courtier-Orgogozo, Nick Barton and Andy Clark.



You may re-watch Nick's talk on our YouTube channel:

[https://www.youtube.com/watch?v=O0\\_FVXlvQMg](https://www.youtube.com/watch?v=O0_FVXlvQMg)

For talk recordings of Virginie, John and Andy, please email Julia for the links.

#### April 2022: PhD defense

Congratulations to **Mimmi Eriksson** (Paun group) on successfully defending her PhD thesis "Rinse and repeat: genome dynamics following repeated allopolyploidization in marsh orchids (*Dactylorhiza*)".



#### April 2022: Alumna in the press

Graduate alumna **Ana Marija Jakšić**, group leader at EPFL in Lausanne, was recently portrayed in The Scientist: <https://www.the-scientist.com/scientist-to-watch/ana-marija-jak-i-shapes-fruit-fly-brains-69863>

Jakšić lab: <https://www.jaksiclab.com/>



#### April 2022: PhD defense

Congratulations to **Aglaia Szukala** (Paun group) on her successful PhD thesis defense "Parallel and adaptive processes during ecotype formation in *Heliosperma pusillum*".



### Alumni portraits

We feature a brief report about one of PopGen's graduate and faculty alumni in the Newsletter. This time, PopGen Vienna graduate alumna **Sabine Felkel** gives us some insight into her work environment at the *University of Natural Resources and Life Sciences, Vienna (BOKU)* and her next career step:

"Given my background as a Microbial Ecologist it was kind of unexpected to work on the Y chromosome of the horse with Barbara Wallner at VetmedUni for my PhD. I graduated in September 2019 when I was already working as a PostDoc at BOKU. As my interests cover a broad field, I made another move from animals to plants when I started working at BOKU, where I am conducting population genetic analyses of hundreds of whole genome sequenced beets.

Main aims of the project are to study domestication history of beet cultivars, especially sugar beets (below you can see me proudly with my prey), and population structure and dynamics in their wild relatives. Further focus lies also on the identification of signatures of artificial selection due to domestication and breeding in cultivars, as well as signatures of natural selection due to adaptation to environmental conditions in the wild.



Sabine on the hunt for sugar beets.

There was not much time to adapt to the new working environment because soon the coronavirus pandemic came and dominated life. Ever since the group has been working in home office. Working completely isolated on a new project as a highly enthusiastic young scientist was not much of a challenge in the beginning. After some time, I missed valuable scientific discussions and office mates, especially Barbara and Claus from good old days at Vetmeduni. Being involved in teaching for the first time and holding classes 100% online was an interesting experience and things went smoother than expected. I wish, however, people would use their cameras more often. After three years it is time for a change again, and that is why in autumn I will start my second PostDoc on fish genomics at the University of Uppsala in Leif Andersson's group. Hopefully I will meet my future colleagues more often in person. I am not sure if I will return to microbes or plants afterwards, but I guess some day I will return to my lovely hometown Vienna."

## ***Out of sight, out of mind?***

### ***Experiences of our students abroad***

Many of our students choose to spend three to six months abroad during their study time. **Hannah Götsch** (advisor Reinhard Bürger) was hosted at the Hausdorff Research Institute for Mathematics in Bonn (DE) for 4 months, in close collaboration with Ellen Baake (Univ. Bielefeld).



“Starting my PhD studies in the beginning of 2020, I did not have many opportunities to exchange and interact in „real life“. Therefore it was a pleasure to be accepted by the Junior Trimester Program „Stochastic modeling in the life science: From evolution to medicine“ at the Hausdorff Research Institute for Mathematics (HIM) in Bonn.

During the four months young mathematicians (PhD students, postdocs, junior faculty) had the opportunity to carry out collaborative research in stochastic modeling in life sciences. We were organized in subgroups. My group consisted of PhD students and PostDocs from University of Warwick, University of Oxford and Bielefeld University. The program had its own building in the beautiful Poppelsdorfer Allee with excellent technical support such as digital boards in every office. But what makes mathematicians even happier are the blackboards all over the institute - even in the garden (see picture). Here and during the daily coffee breaks I met over 50 scientists from all over the world.



Although almost everyone worked on models in population genetics in one or other way, I was among the more applied people during the program. So, I had the opportunity to discuss very mathematical aspects of my current project on the response of quantitative traits to directional selection. Moreover, ideas for future projects arose. In particular, we discussed mathematical techniques from probability which may be useful to model clonal interference and/or recombination. Moreover, I met established experts in the field during a summer school and three workshops.

If I was not at the institute, I did some sightseeing, also in nearby cities (the 9€ ticket for public transport during the summer was great!). I want to especially thank Ellen Baake and a large proportion of her group from Bielefeld and of course the HIM for funding.

To all students: Take the opportunity for a stay abroad! “

## Upcoming seminars

Our Tuesday seminars will partly go back to in-person but we'll keep streaming, so you can join us from all over the world!

Sign up here to receive reminders and links for Winter term webinars:

<https://forms.gle/B2XWA3djhNd89xjZ9>

## Upcoming course

Experimental Evolution Course Dec. 05-09, 2022:

<https://www.popgen-vienna.at/training/experimental-evolution-course/>

## Have an energetic semester start!

## Publications of our students so far in 2022

**Eriksson MC**, Mandáková T, McCann J, Temsch EM, Chase MW, Hedrén M, Weiss-Schneeweiss H and Paun O. Repeat dynamics across timescales: a perspective from sibling allotetraploid marsh orchids (*Dactylorhiza majalis* s.l.). *Mol. Biol. Evol.* msac167. (2022) doi: 10.1093/molbev/msac167

<https://academic.oup.com/mbe/article/39/8/msac167/6651906>

**Szukala A**, Bertel C, Frajman B, Schoenswetter P and Paun O. Parallel adaptation to lower altitudes is associated with enhanced plasticity in *Heliosperma pusillum* (Caryophyllaceae). *bioRxiv* 2022.05.28.493825. (2022) doi: 10.1101/2022.05.28.493825

<https://www.biorxiv.org/content/10.1101/2022.05.28.493825v1>

**Christodoulaki E**, Nolte V, **Lai W-Y** and Schlötterer C. Natural variation in *Drosophila* shows weak pleiotropic effects. *Genome Biol.* 23(1), 116. (2022) doi: 10.1186/s13059-022-02680-4

<https://genomebiology.biomedcentral.com/articles/10.1186/s13059-022-02680-4>

Yang E, Metzloff M, **Langmüller AM**, Xu X, Clark AG, Messer PW and Champer J. A homing suppression gene drive with multiplexed gRNAs maintains high drive conversion efficiency and avoids functional resistance alleles. *G3* (2022) doi: 10.1093/g3journal/jkac081

<https://academic.oup.com/g3journal/article/12/6/jkac081/6565321>

**Fulgione A**, Neto C, Elfarargi AF, Tergemina E, Ansari S, Göktay M, Dinis H, Döring N, Flood PJ, Rodriguez-Pacheco S, Walden N, Koch MA, Roux F, Hermisson J and Hancock AM. Parallel reduction in flowering time from de novo mutations enable evolutionary rescue in colonizing lineages. *Nat. Commun.* (2022) 13(1), 1461. doi: 10.1038/s41467-022-28800-z

<https://www.nature.com/articles/s41467-022-28800-z>

**Szukala A**, Lovegrove-Walsh J, Luqman H, Fior S, **Wolfe TM**, Frajman B, Schoenswetter P and Paun O. Polygenic routes lead to parallel altitudinal adaptation in *Heliosperma pusillum* (Caryophyllaceae). *Mol. Ecol.* (2022) doi: 10.1111/mec.16393

<https://onlinelibrary.wiley.com/doi/10.1111/mec.16393>

**Lirakis M**, Nolte V and Schlötterer C. Pool-GWAS on reproductive dormancy in *Drosophila simulans* suggests a polygenic architecture. *G3* jkac027. (2022) doi: 10.1093/g3journal/jkac027

<https://academic.oup.com/g3journal/advance-article-abstract/doi/10.1093/g3journal/jkac027/6523974>

Remer V, **Bozlak E**, **Felkel S**, **Radovic L**, Rigler D, Grilz-Seger G, Stefaniuk-Szmukier M, Bugno-Poniewierska M, Brooks S, Miller DC, Antczak DF, Sadeghi R, Cothran G, Juras R, Khanshour AM, Rieder S, Penedo MC, ... Wallner B. Y-Chromosomal Insights into Breeding History and Sire Line Genealogies of Arabian Horses. *Genes*. 13(2), 229. (2022) doi: 10.3390/genes13020229

<https://www.mdpi.com/2073-4425/13/2/229/htm>

See all publications [here](#)