

MGSE Newsletter 02/2016

Activities & accomplishments at the Münster Graduate School of Evolution

MÜNSTER
GRADUATE
SCHOOL OF
EVOLUTION

MGSE moved to a new building



At the beginning of October, the MGSE has moved to its new office building in Hüfferstr. 1a. As the different tenants in the northern *Kavaliershäuschen* have experienced significant growth within the last years, the WWU decided in October last year to offer the 'yellow villa' to the right of the Institute for Evolution and Biodiversity (IEB) to the MGSE as its new headquarter. One year later, the former offices of the Department for Strategic Planning and Controlling have been extensively renovated and newly furnished and were ready for occupation. The new offices—which are still within 3 min walking distance to Münster's City Palace—provide more space for ETT-Fellows and PhD

students and make collaborations with the IEB even more comfortable. In addition to a small seminar room in the new building, the MGSE is still able to use the big seminar room in the *Kavaliershäuschen* for lectures and other larger events. *We believe that the new offices will create an even more productive environment and are looking forward to meeting you there.*

First MGSE PhD Student Retreat

The first PhD Student Retreat took place on 24 - 26 October at the marine biological tideland station of the WWU in Carolinensiel along the tidelands of Lower Saxony. It brought together the PhD student community to present their projects and exchange experiences and knowledge in a focused but nevertheless enjoyable atmosphere. To inspire the PhD students and give them valuable feedback, MGSE

PIs Joachim Kurtz, Jürgen Gadau, and Sebastian Leidel joined the event. Furthermore, Tobias Krause from the Friedrich-Loeffler-Institute in Celle was invited as external speaker to provide additional input. Science apart, the participants enjoyed some time playing games or exploring the beautiful area at the coast. *Thanks to everybody who participated! We are looking forward to the next retreat.*



<http://www.uni-muenster.de/Evolution/mgse/teaching/retreat/index.html>

DFG funds new Research Training Group



On 11 November, the German Research Foundation (DFG) has granted the WWU funding for a Research Training Group on 'Evolutionary Processes in Adaptation and Disease' (RTG EvoPAD). PhD students within EvoPAD will use knowledge derived from the theory of evolution to achieve a deeper understanding of the processes that are underlying adaptation and disease. They will be mentored by 17 scientists from the

Faculty of Biology, the Medical Faculty, and the Department of Philosophy – 15 of whom are also Principle Investigators of the MGSE. Joachim Kurtz will act as Spokesperson of the RTG. EvoPAD is one of 20 new Research Training Groups funded by the DFG which offer PhD students the chance to complete their theses in a structured research and qualification programme at a high academic level. The project will be funded for a period of 4.5 years starting from April 2017 with almost 4 Million Euros.

<http://www.uni-muenster.de/news/view.php?cmidid=8590>



Gliding mammals are primates' closest kin

© Didasteph via Wikimedia Commons, CC-BY-SA-3.0

MGSE PI Jürgen Schmitz and PhD student Liliya Doronina from the Institute of Experimental Pathology were part of a team that used molecular and genomic data to support the hotly debated hypothesis that colugos – gliding mammals confined to evergreen tropical rainforests of South-east Asia – are the sister group to primates, to the exclusion of tree shrews. Comparative genomic analysis offered hints about specific adaptations in the colugo lineage, e.g., signs of positive selection affecting genes related to vision and hearing that likely underlie their nocturnal adaptations. At the same time, the investigation of sequence data from colugo museum specimens indicated that there may be far more colugo species than previously recognized. The results of the study have important implications for the understanding and interpretation of early primate origins and evolution as well as for the conservation of the sole living members of the order Dermoptera.

Mason VC et al. (2016) Genomic analysis reveals hidden biodiversity within colugos, the sister group to primates. *Science Advances* 2: e1600633: <http://advances.sciencemag.org/content/2/8/e1600633>

<https://campus.uni-muenster.de/fakultaet/news/colugo-genom-hilft-bei-entschluesselung-des-menschlichen-stammbaums/>

MGSE leading genome analysis of the tarsier primate

MGSE PI Jürgen Schmitz and previous PhD student Angela Noll led together with Wesley Warren at Washington University the *Tarsius syrichta* genome project, belonging to the last of the primate orders to be sequenced and analyzed. Mobile genetic elements in the genome of *Tarsius syrichta* (recently ascribed as *Carlito syrichta*) were the main focus of the analysis that uncovered unusual genomic reshuffling processes. The analyses revealed a copy of an entire mitochondrial genome in the nuclear genome as well as novel jumping elements; both of which underline the unique nature of this night active jungle dweller. The results also improved our understanding of the human genome and molecular evolution in general. The *Tarsius* genome project was the result of an extremely fruitful collaboration of the medical and biological faculties in Münster and an external cooperation with the German Primate Center in Göttingen. The latter was especially fruitful for PhD student Angela Noll, who is now the leading bioinformatics scientist at the Primate Center.



© David Haring/Duke Lemur Center

Schmitz J et al. (2016) Genome sequence of the basal haplorhine primate *Tarsius syrichta* reveals unusual insertions. *Nature Communications* 7, 12997: <http://www.nature.com/articles/ncomms12997>

<https://campus.uni-muenster.de/fakultaet/news/koboldmaki-erbgut-ermoeglicht-einblicke-in-menschheitsgeschichte/>

Two new Principle Investigators joined the MGSE



In November, **Jürgen Gadau** moved from the Arizona State University to the University of Münster, where he now holds a professorship for Molecular Evolutionary Biology at the Institute for Evolution and Biodiversity. His research focuses on speciation, species differences, and adaptations in solitary and social Hymenoptera (ants, bees, and wasps) using a range of genetic and genomic techniques. In summer 2014, Jürgen Gadau visited the MGSE already as Fellow of the Evolution Think Tank. We are happy that the fellowship apparently has whetted his appetite for more ;-).



Christoph Scherber leads the Animal Ecology and Multitrophic Interactions Group at the Institute of Landscape Ecology at the WWU. In his research he focuses on the diversity of life on earth, in particular on the effects of changes in biodiversity on ecosystem processes such as plant-insect interactions and herbivory, and how biodiversity loss can be counteracted. Moreover, he is interested in anthropogenic environmental changes in a variety of ecosystems.

<https://www.uni-muenster.de/Tieroekologie/en/Team/scherber.html>

A warm welcome to our new PIs!

MGSE celebrates two more graduates



In May, **Patricia Kearney** successfully defended her PhD Thesis entitled 'Sporophyte development in *Rhynia gwynne-vaughanii*, an Early Devonian vascular land plant from the Rhynie chert, Aberdeenshire, UK'. The thesis was supervised by Hans Kerp in the Palaeobotany Research Group at the Institute for Geology and Palaeontology. The other members of the PhD Supervision Committee were Ralph Thomas Becker (Institute for Geology and Palaeontology) and Kai Müller (Institute for Evolution and Biodiversity).



In July, **Stefanie Henze** successfully defended her PhD thesis entitled "The impact of nitrogen deprivation on genome evolution in *Escherichia coli*". The thesis was supervised by Claudia Acquisti in the Evolutionary Functional Genomics Group at the Institute for Evolution and Biodiversity. The other members of the PhD Supervision Committee were Ulrich Dobrindt (Institute of Hygiene) and Joachim Kurtz (Institute for Evolution and Biodiversity).

We offer Patricia and Stefanie our warmest congratulations and wish them all the best for the future!

Three new PhD students joined the MGSE



In July, **April Kleppe** joined MGSE as a PhD student. April works in the Molecular Evolution & Bioinformatics Group of Erich Bornberg Bauer at the Institute for Evolution and Biodiversity. She is interested in how phenotypic mutations impact protein evolution. More specifically, she wants to investigate how heritability by the "look ahead-effect" model (Whitehead et al., 2008) may occur by looking for protein exposed to stop codon read-through.

<http://www.uni-muenster.de/Evolution/mgse/people/aprilkleppe.html>



Also in July, **Pauline Sell** joined the MGSE. Pauline works in the Animal Evolutionary Ecology Group of Joachim Kurtz at the Institute for Evolution and Biodiversity. In her PhD project she aims to elucidate the role of phenotypic plasticity for rapid evolutionary adaptation. Pauline will address this topic with several experimental approaches using the entomopathogen *Bacillus thuringiensis* in phenotypically plastic vs. non-plastic *Tribolium castaneum* hosts.

<http://www.uni-muenster.de/Evolution/mgse/people/paulinesell.html>



In October, **Nicole Demandt** started her PhD in the Animal Evolutionary Ecology Group at the Institute for Evolution and Biodiversity under the supervision of Joachim Kurtz. In her PhD project she plans to investigate how animal personality, social environment, and immunity are interconnected. As model system she will use three-spined sticklebacks (*Gasterosteus aculeatus*). The project is a cooperation between the Animal Evolutionary Ecology Group and the Department of Behavioural Biology. Nicole holds a DAAD scholarship in course of the DAAD Graduate School Scholarship Programme.

<http://www.uni-muenster.de/Evolution/mgse/people/nicolledemandt.html>

A warm welcome to our new members!



Upcoming events



**Mondays,
1630 – 17:30**

Lecture series 'The Growth of the Evolutionary Thought'
Each lecture is followed by an informal drinks reception

21 Nov, 19.15

Science Pub with Prof. Dr. Peter Hammerstein at *Weinbar Ideal*

5 Dec, 14.30

MGSE General Assembly (*Kavaliershäuschen*)

22–23 Mar

MGSE Symposium

**MÜNSTER
GRADUATE
SCHOOL OF
EVOLUTION**

Up-to-date information
can also be found at:
www.wwu.de/Evolution/mgse/