### **Participant Introduction**



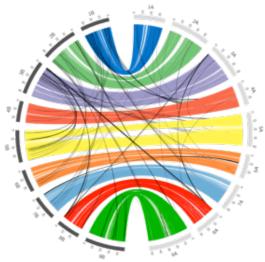
### **Hanin Ahmed** PhD student

King Abdullah University of Science and Technology

Simon Krattinger's Lab https://cerealgenomics.kaust.edu.sa Thuwal, Saudi Arabia

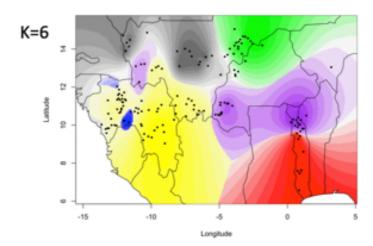


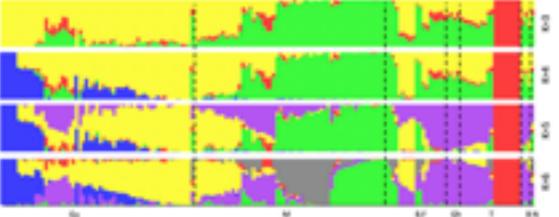
#### High quality reference genome of Fonio millet (Digitaria exilis)



#### Whole genome re-sequencing data of Fonio millet

- Genetic diversity and structure -
- Is fonio a domesticated species? -





Genomic resources are the basis that will allow us to advance the crop improvement



#### Lane Atmore PhD Candidate University of Oslo



UiO : Universitetet i Oslo

Current research: Tracing early origins of Atlantic herring exploitation using ancient DNA and marine historical ecology

Academic Interests: Genomics, population genetics, marine biology, human evolution and culture

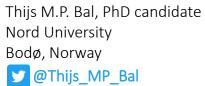
Background: B.A. in anthropology and Chinese Grinnell College, USA MPhil in applied biological anthropology University of Cambridge

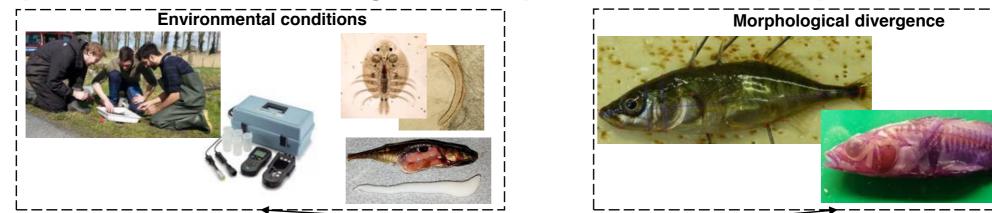


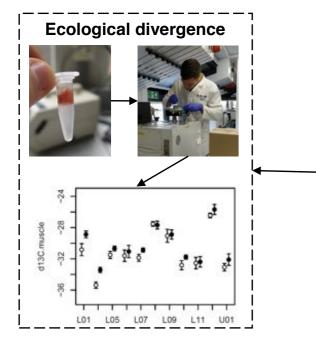


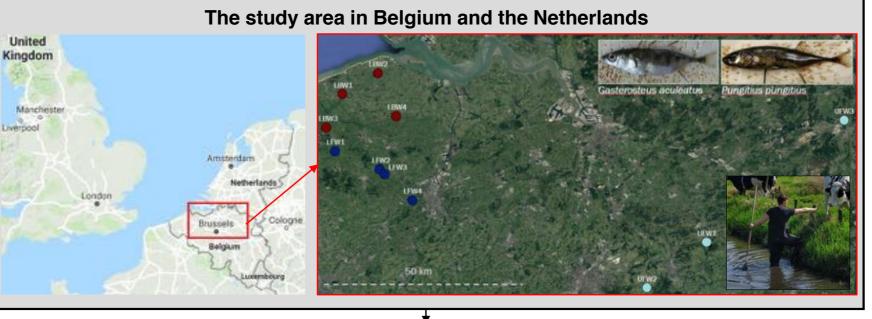


#### Adaptive responses in coexisting three-spined and nine-spined stickleback









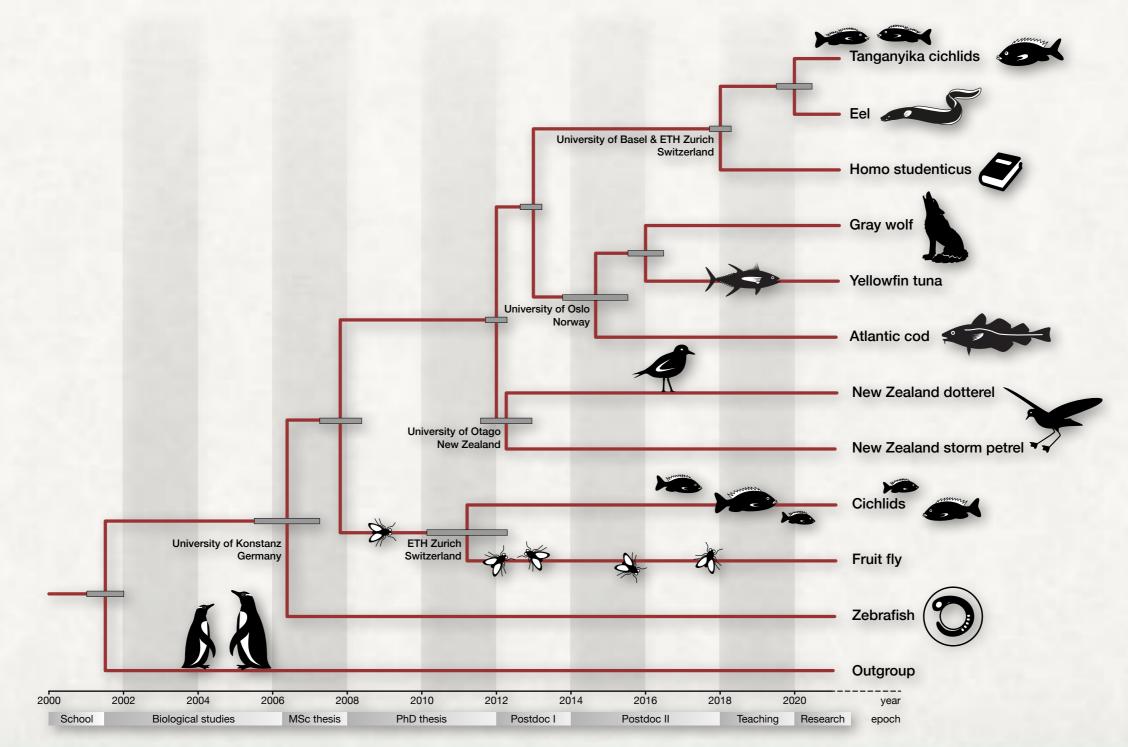




### JULIA M.I. BARTH

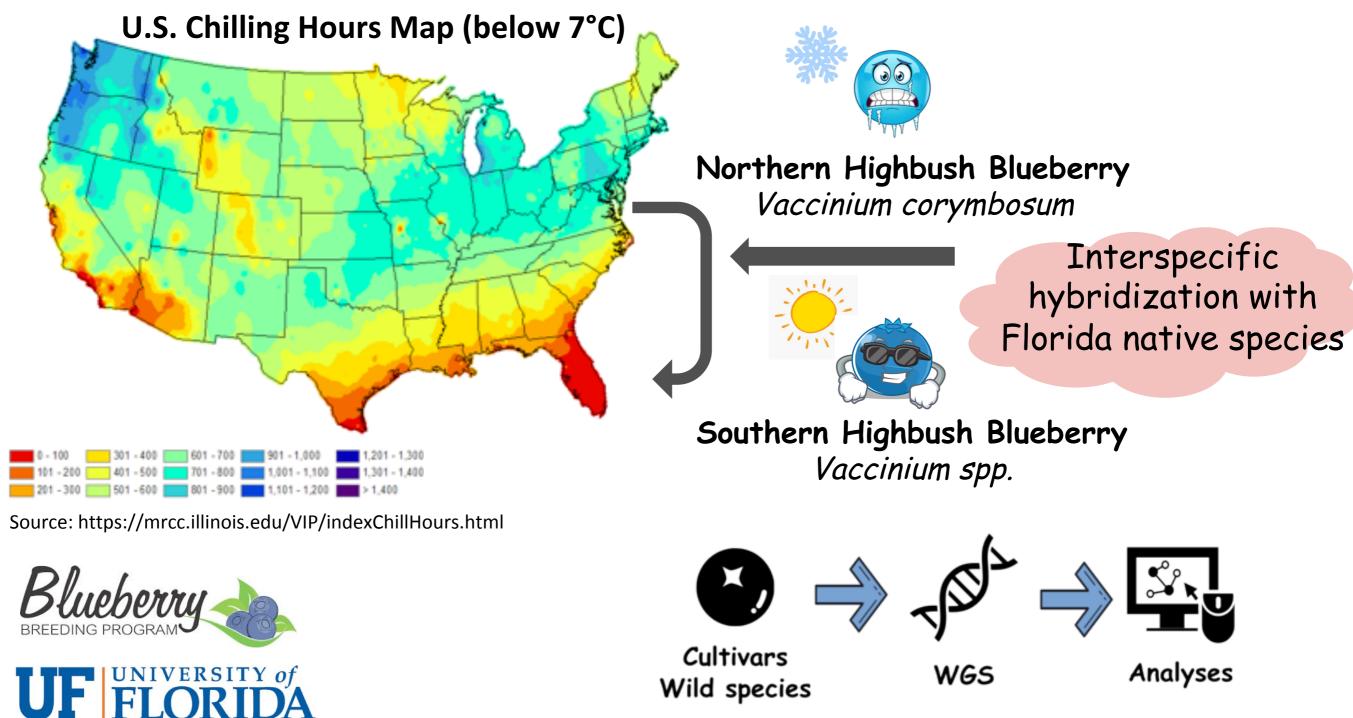
#### University of Basel, Switzerland

#### www.zebrafin.ch



### The blueberry domestication history: diversity, introgression, and signatures of selection

PhD. Juliana Benevenuto Postdoc Associate



### **Semyon Bodrov**

Molecular systematics of mammals dept.



### Zoologycal Institute of Russian academy of sciences Saint-Petersburg, Russia



### Olga Bondareva, PhD student

ВОСЛОГИЧЕСКИЙ ИНСТИТУТ РАН 1832

Molecular systematics of mammals dept. Zoologycal Institute of Russian academy of sciences Saint-Petersburg, Russia

Key words: underground rodents, adaptations, molecular evolution, underground lifestyle, Arvicolinae subfamily





Underground rodent Ellobius talpinus



### Andrea Borbón



Tübingen, Germany

**Background:** MSc. Microbiology / Computational biology Gut microbiome of Andean bears





LEY LAB

Co-diversification of mammalian hosts and their gut microbiomes

TLR5 and bacterial flagellin





Andrea Bours, Doctoral Researcher Max Planck Research Group for Behavioural Genomics (Group Leader: Dr. M. Liedvogel)



Max Planck Institute for Evolutionary Biology



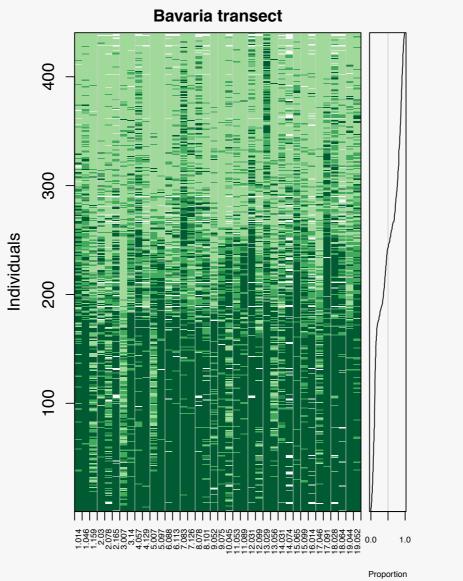
# (Statistical) models for hybridization and speciation

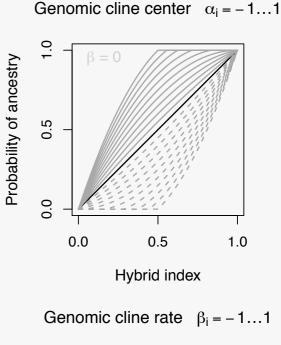
#### Alex Buerkle – University of Wyoming, USA

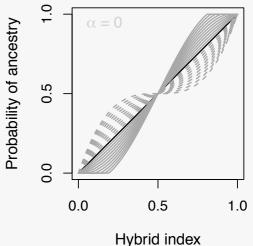






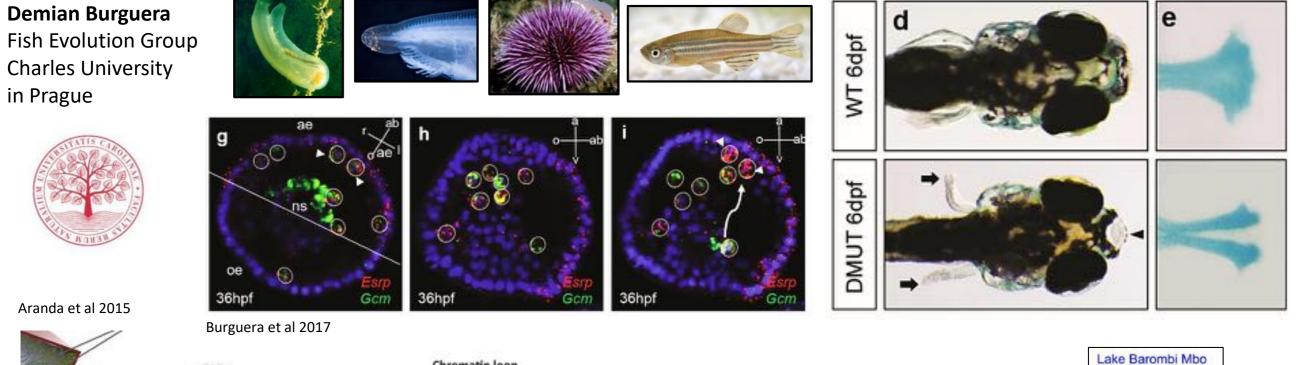


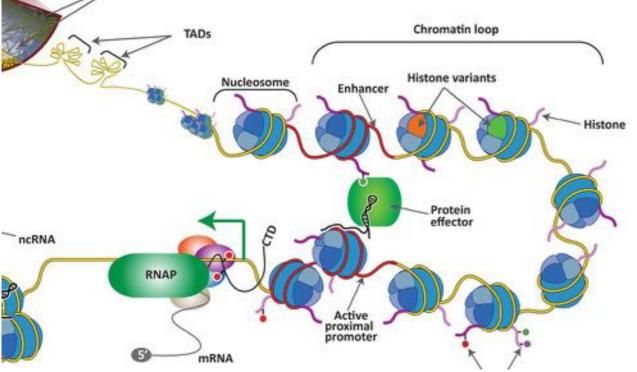




Markers

M. musculus





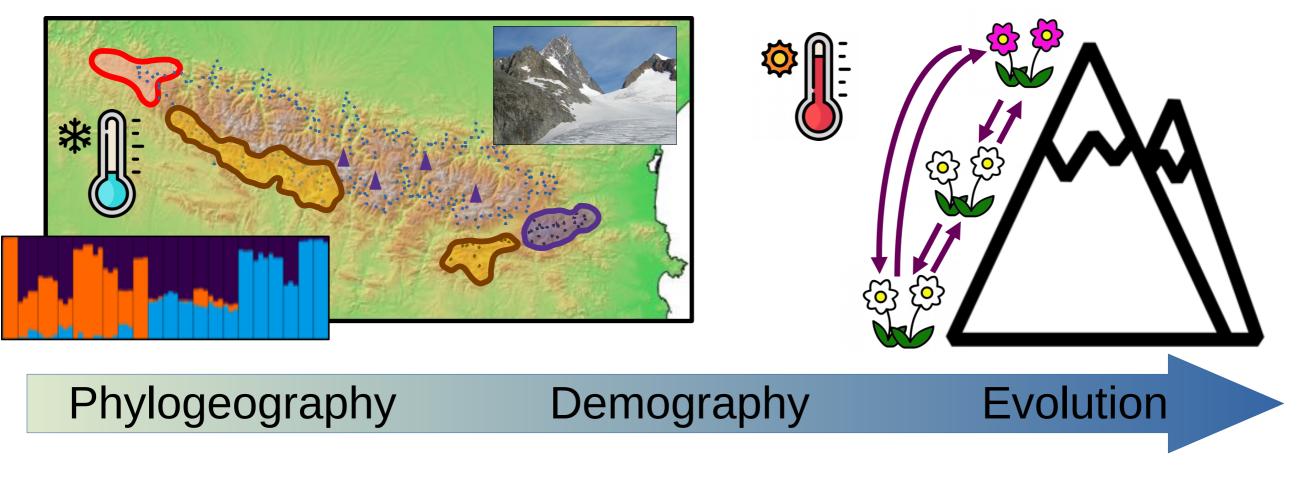


Adapted from Martin et al 2015



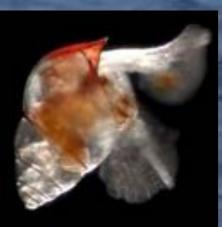
Pau Carnicero pau.carnicero@uibk.ac.at

## Alpine plant populations under environmental change



### Le Qin Choo De @lqchoo

- Pteropods (shelled planktonic gastropods)
- Population structure and dispersal in global oceans
- Apply population genomics analyses to target capture dataset
  high coverage SNPs
  homologous regions





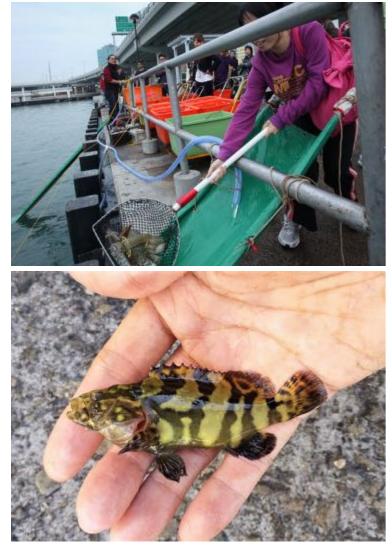








#### Impact from mercy release of Hybrid grouper/ Sabah grouper (Tiger grouper, *Epinephelus fuscoguttatus* x giant grouper, *E. lanceolatus*) *Arthur Y.C. Chung, Mphil student*



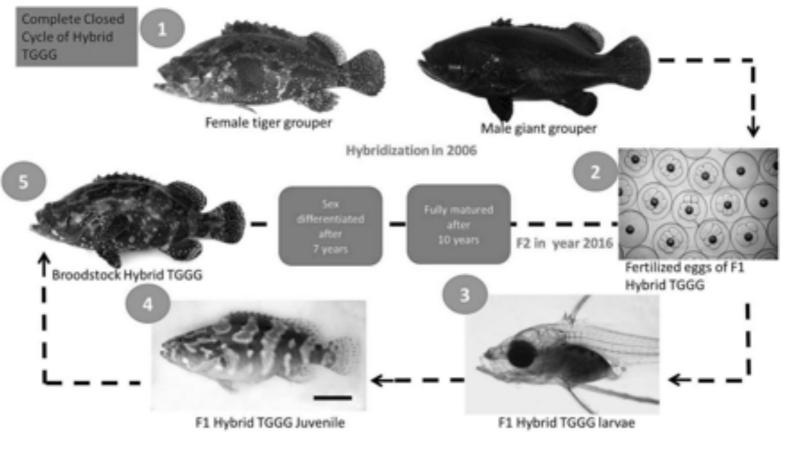


Fig. 1 Complete closed cycle of hybrid tiger grouper, Epinephelus fuscoguttatus × giant grouper, E. lanceolatus (TGGG)

Ching, F. F., Othman, N., Anuar, A., Shapawi, R., & Senoo, S. (2018). Natural spawning, embryonic and larval development of F2 hybrid grouper, tiger grouper Epinephelus fuscoguttatus× giant grouper E. lanceolatus. *International Aquatic Research*, *10*(4), 391-402.

### Claudia Ciotir, PhD, University of Haifa Israel Evolutionary history of Washington Lupine, *Lupinus polyphyllus*

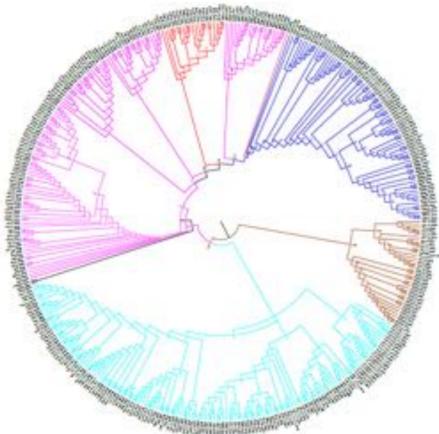


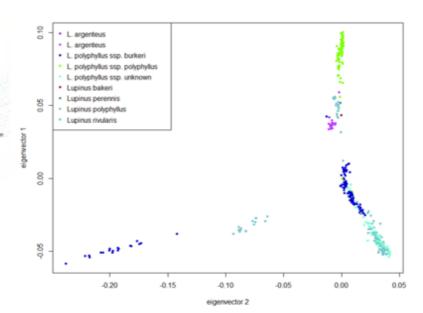


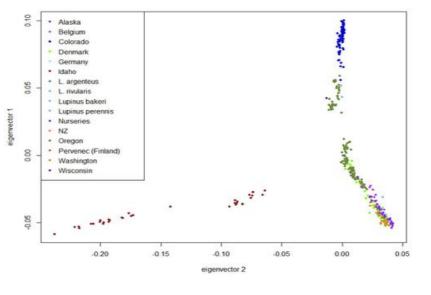
Washington lupine Natural populations

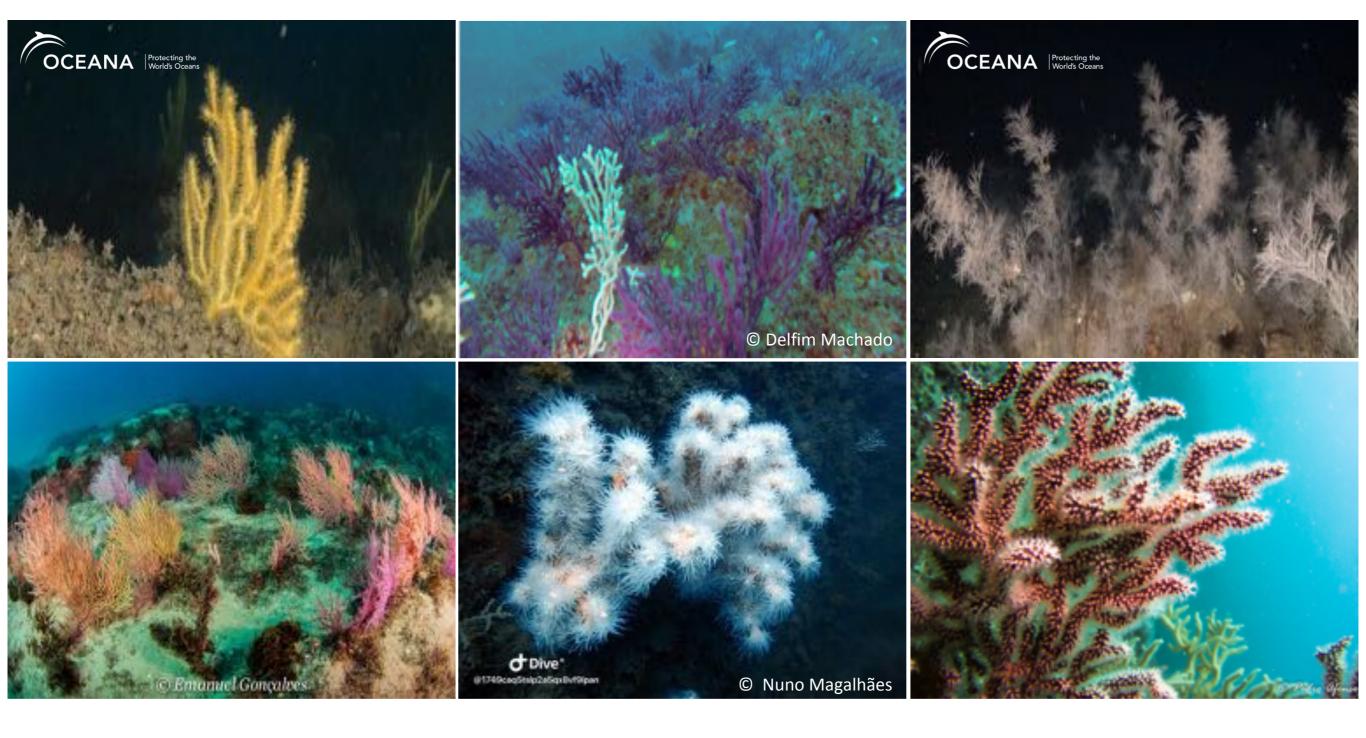


Russell Lupine, ornamental and feral populations









#### Márcio Coelho

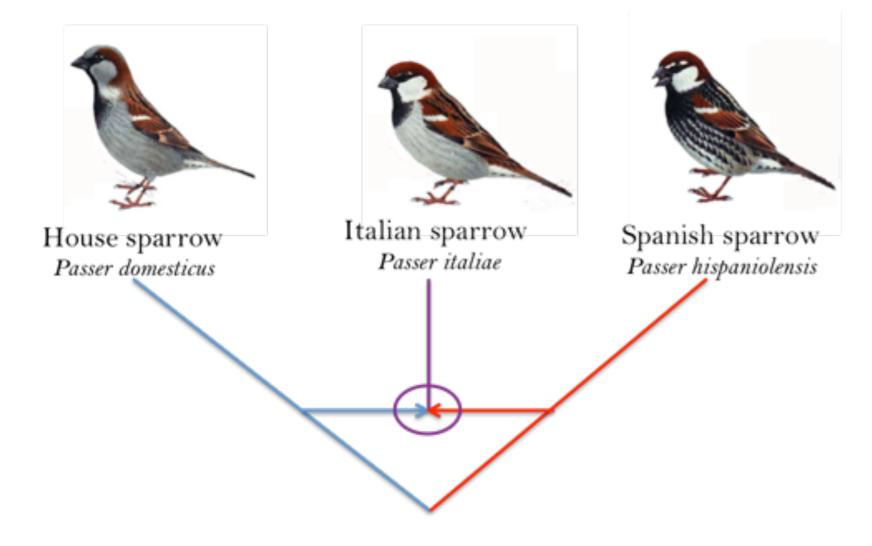
Postdoc, Centre of Marine Sciences - University of Algarve



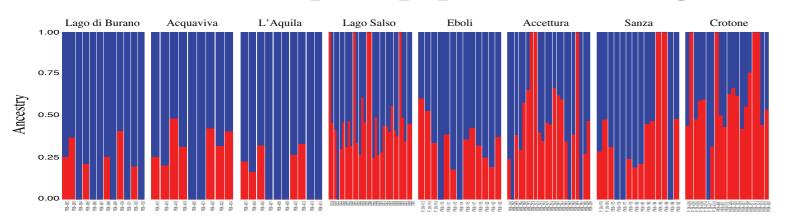


Biogeographical, Ecology & Evolution (BEE)

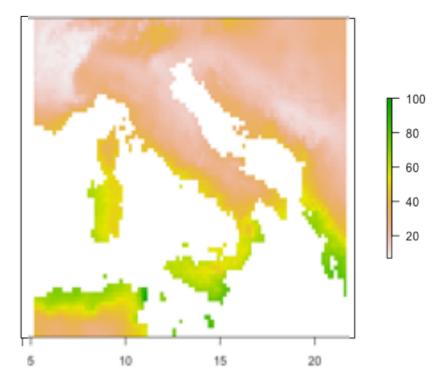
### The genomic architecture of a hybrid species and its adaptive potential



#### Genomic landscape of population divergence



Population structure and isolation by adaptation



Angélica Cuevas PhD candidate

### UiO SUNIVERSITETET I OSIO







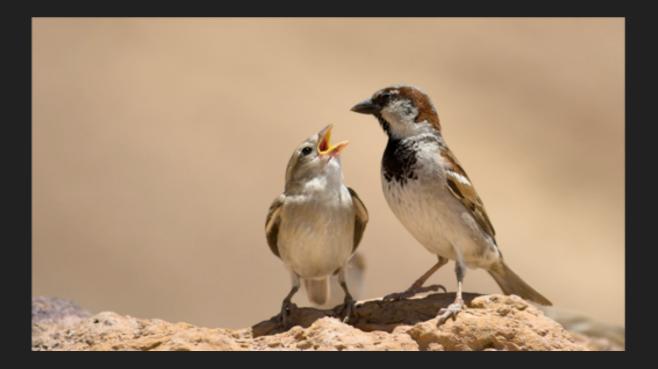
## Mastomys natalensis hybrid zones shaping arenavirus distribution

Laura Cuypers PhD student Evolutionary Ecology Group University of Antwerp

> Promotors: Herwig Leirs Joëlle Goüy de Bellocq Stuart J.E. Baird



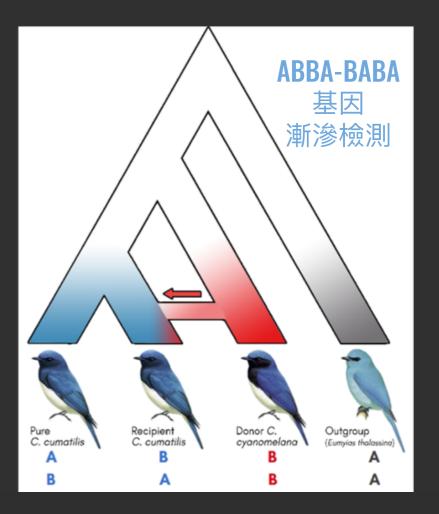
#### **GABRIEL DAVID** Evolutionary Biology, Husby Group Uppsala University | gabriel.david@ebc.uu.se



Adaptive Structural Variants and Demography of Norwegian House Sparrows



#### Phylogeography and Population Genomics of *Cyanoptila* Flycatchers in East Asia





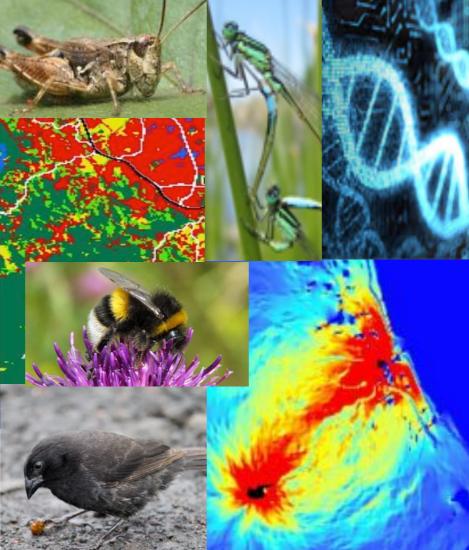
### Rachael Dudaniec

Senior Lecturer in Biological Sciences Macquarie University, Sydney, Australia



### Landscape and Evolutionary Genetics Lab

- Species adaptive response to environmental change
- 2. Landscape and climatic effects on genetic connectivity
- Host-parasite
   coevolution, speciation
   and hybridization



### What?

- Damselflies
- Grasshoppers
- Bumblebees
- Darwin's finches
   + parasitic flies

### How?

- RADseq
- RNAseq
- WGS

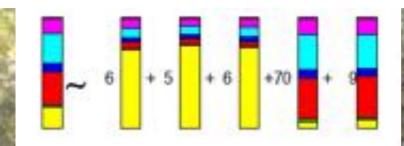
### www.dudanieclab.weebly.com

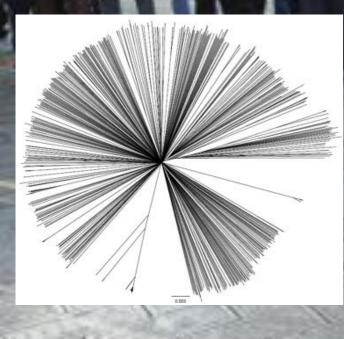
### Duncan Edgley PhD, University of Bristol







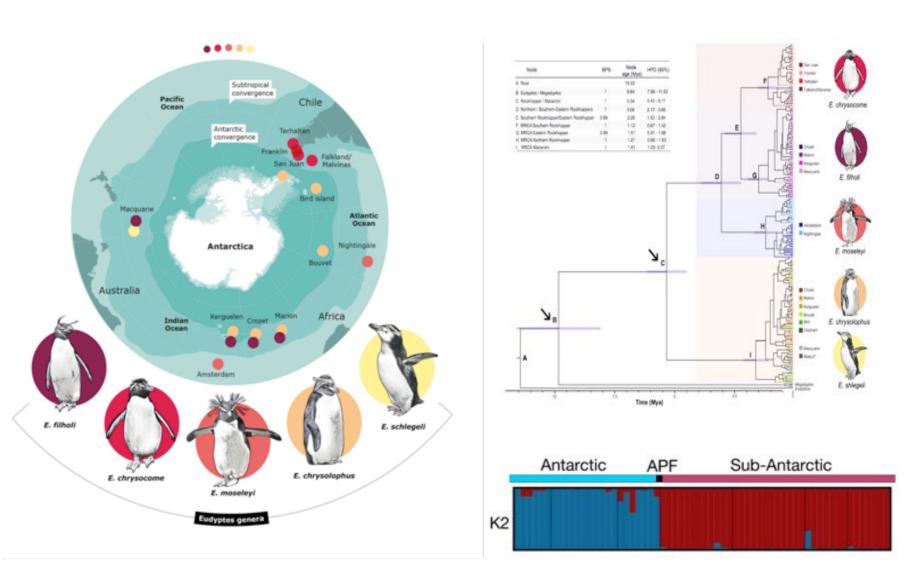




#### Just arrived Institute Pasteur Shanghai And I am hiring....

| A Singapore  |
|--|
|  |
| B Venezuela, Amerind   |
|  |
| C South Africe, black  |
|  |
| D South Africa, black  |
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| E Ladokh   |
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| F Estonia  |
|  |
| G Spain  |
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| H Sudan  |
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| uner month who have a how a ho |
| and the second s |

- Eudyptes penguins
- Historical and contemporary patterns of conectivity
- Barriers to dispersal
- Taxa under taxonomic debate







#### María José Frugone W.

PhD student in Ecology and Evolutionary biology

Universidad de Chile

### Angela Fuentes-Pardo, PhD

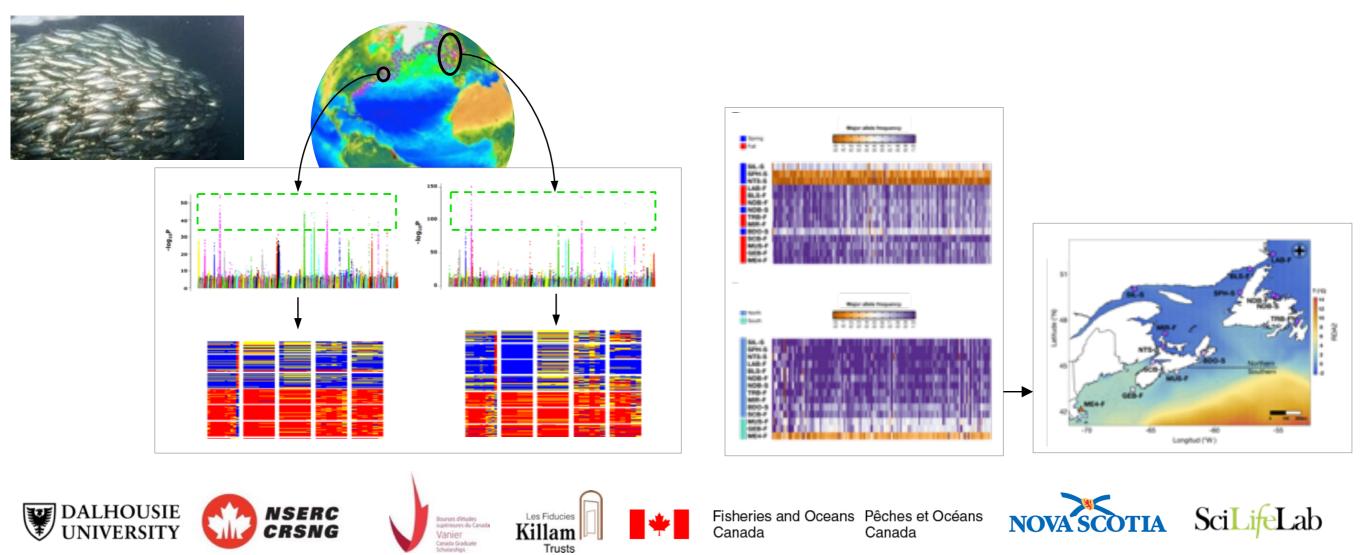
E-mail: apfuentesp@gmail.com

2 @apfuentes7



#### Evolutionary biology - Genomics - Bioinformatics - Management applications

- BSc from Universidad del Valle, Colombia
- PhD from Dalhousie University, Canada
- Postdoctoral researcher in Leif Andersson's Lab, Uppsala University, Sweden
- Currently: Population genomics, transcriptomics, and ecological adaptation of Atlantic herring and other fish species



Species delimitation and introgressive hybridization of *Ficus auriculata* complex in an obligate symbiotic system based on the whole genome resequencing



#### Xishuangbanna tropical botanic garden Yunnan, China **Jie Gao**



F. auriculata





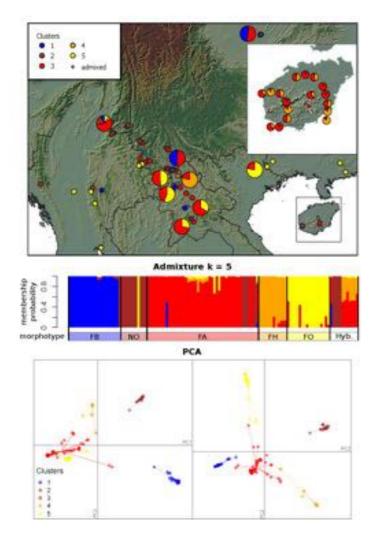


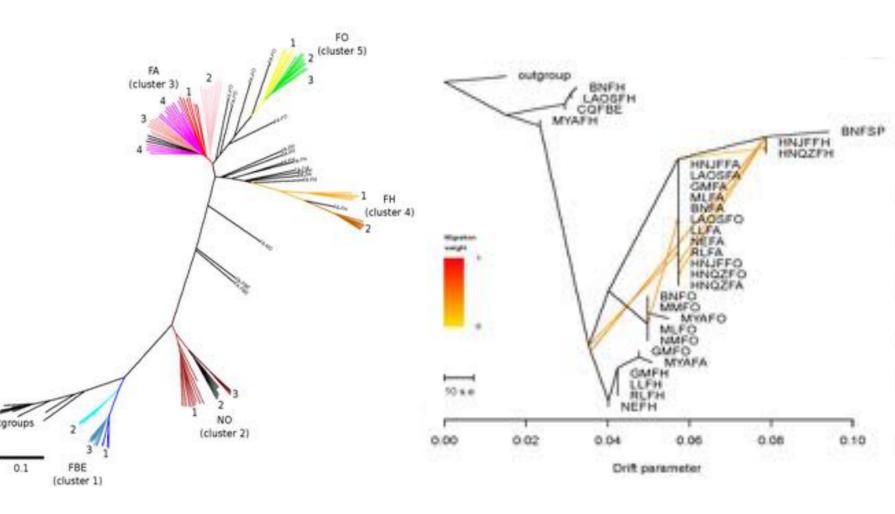


F. oligodon

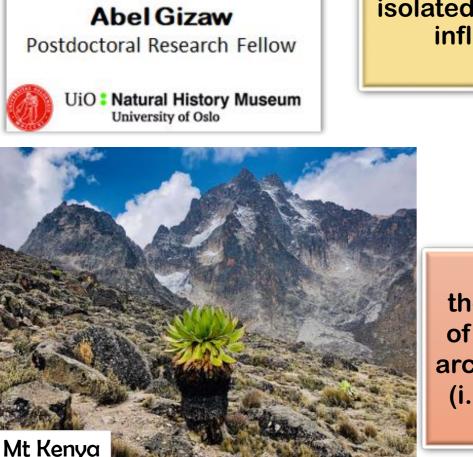
F. hainanensis

*F. beipeiensis pollinator* wasps

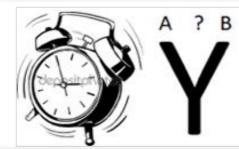




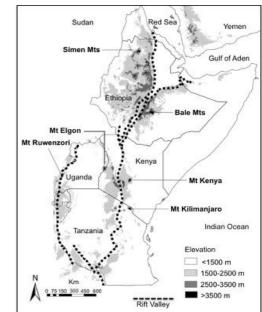
#### SpeciationClock: How fast does the "speciation clock" tick in selfing versus outcrossing lineages?



How long it takes for new, reproductively isolated species to arise and what factors influence the rate of speciation?



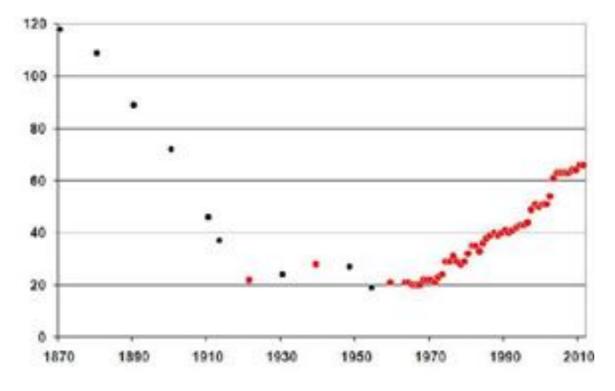
Develop and empirically test theoretical models on the impact of mating systems on the genetic architecture and rate of speciation (i.e. the ticking of the 'speciation clock')







## **Charles Christian Riis Hansen**

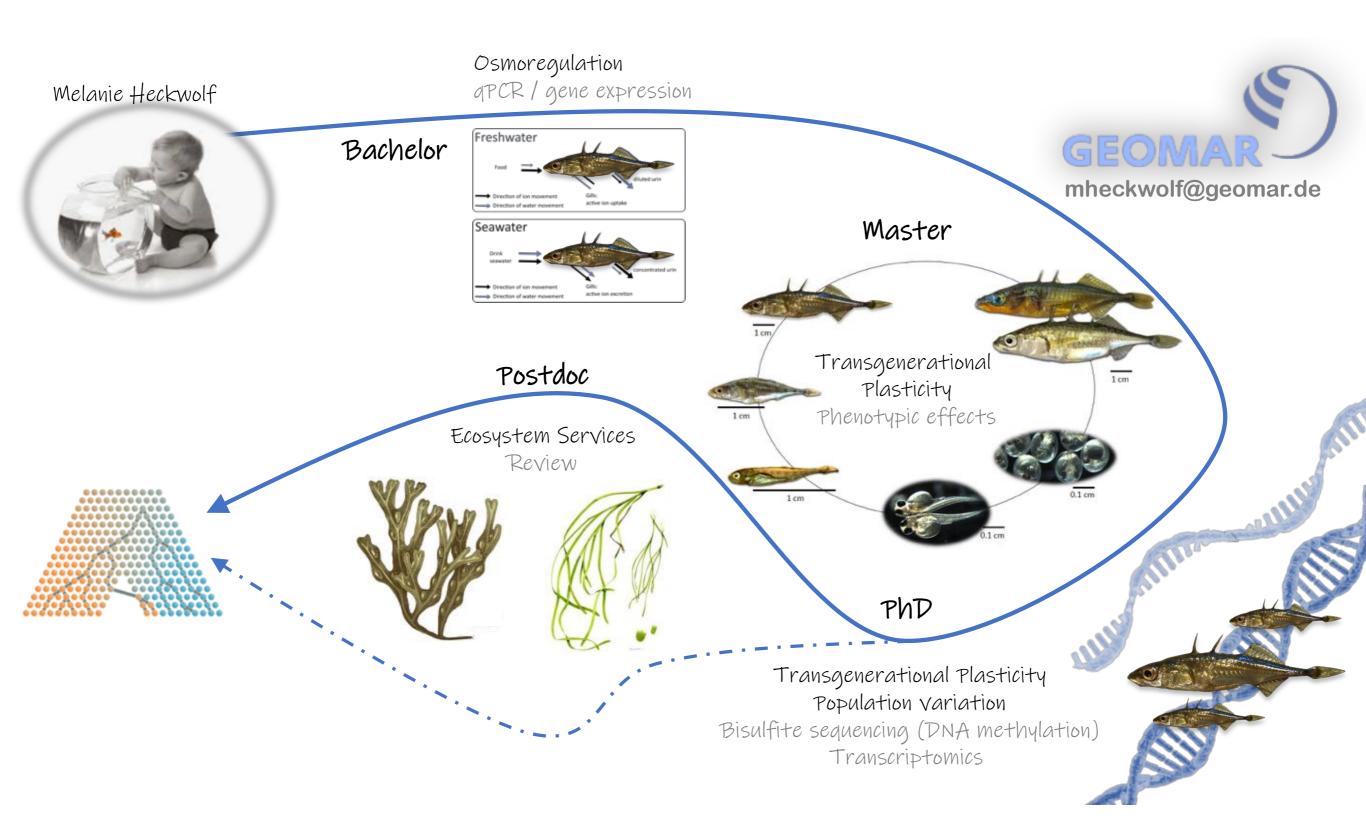




### Population genomics of white-tailed eagles in Iceland

PhD student at the University of Iceland, supervisor: Snæbjörn Pálsson

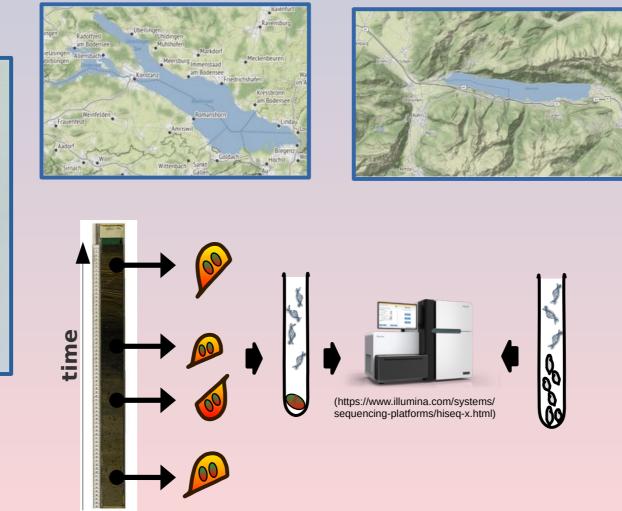
M.Sc. Biology (populations genetics), Copenhagen 2016



**Daphnia Resilience -** Genomic and ecological changes within peri-alpine populations of the *Daphnia-longispina*-species-complex under trophic change

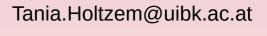
University of Innsbruck, Department of Ecology, Molecular Ecology Group

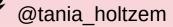
















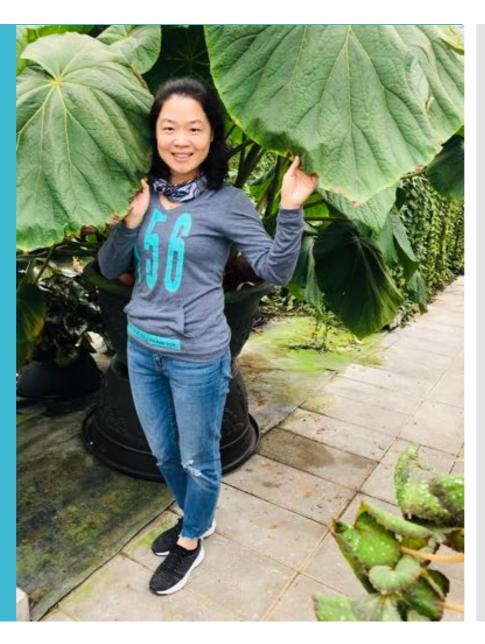
#### 1/19-2/1 2020 Workshop on Population and Speciation Genomics, Cesky Krumlov

#### Hu Ai-Qun, Daisy

Ph.D. The University of Hong Kong IUCN SSC Orchid Specialist Group Postdoctoral Researcher Biodiversity Research Center Academia Sinica Email: daisyhu2012@gmail.com

#### **Research focuses**

Elucidating diversification and adaptive evolution in tropical flowering plants: Using Orchidaceae and *Begonia* as models







International Max Planck Research School for Evolutionary Biology

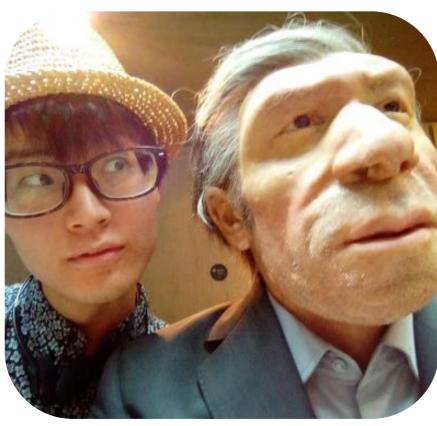
Max Planck Institute for Evolutionary Biology



### Jun Ishigohoka 🔵 🕨 🛑

Max Planck Institute for Evolutionary Biology Supervisor: Dr Miriam Liedvogel

### **Behavioural Evolution**



Me with a well-dressed Neanderthal



#### **Genetic & evolutionary basis**

- Genetic architecture
- Differentiation & speciation
- Demography
- Structural variations

- Molecular & neural basis
- Specialised brain regions
- Gene expression pattern & regulation
- Cell-type specific expression

Bachelor: Neural basis for species-specific song learning



Master & PhD: Evolutionary genomics of avian migration

# Mechanisms underlying behaviour, sociality and diversification of species

**Julia Jones** 

School of Biology and Environmental Science, UCD Dublin









### Darija Josić PhD student - Museum fur Naturkunde Berlin darija.josic@mfn.berlin

Population structure of Myotis nattereri species complex

Evolutionary history of two lineages – M. nattereri & M. crypticus

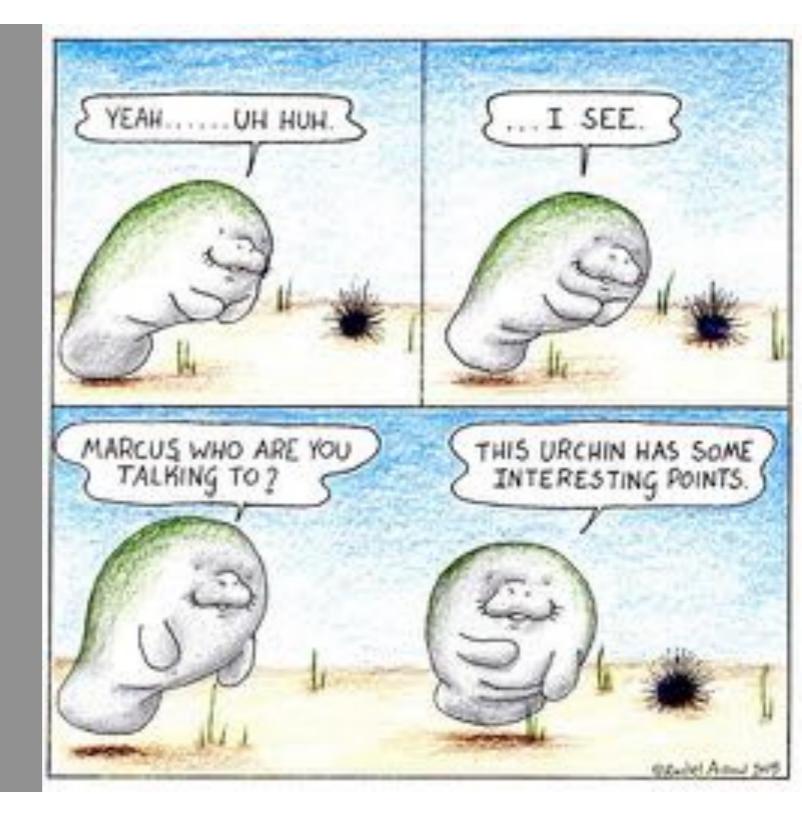








**Remi N. Ketchum** University of North Carolina Charlotte



### Verena Kutschera, Stockholm (Sweden)

Bioinformatician

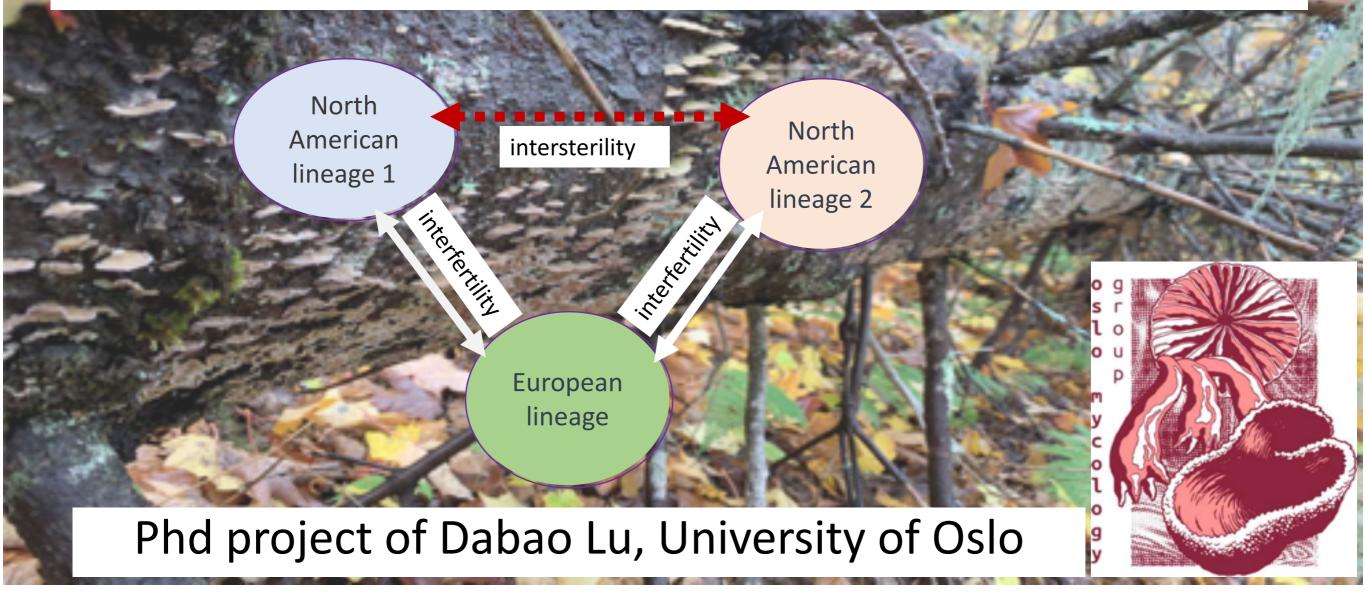
• Bioinformatics support for research projects at Swedish universities

SciLifeLab

- Population & conservation genomics, genome annotation
- Non-model organisms



Population genomics of *Trichaptum abietietinum* -a window into fungal speciation



#### PhD project: Genomics of hybridization and speciation

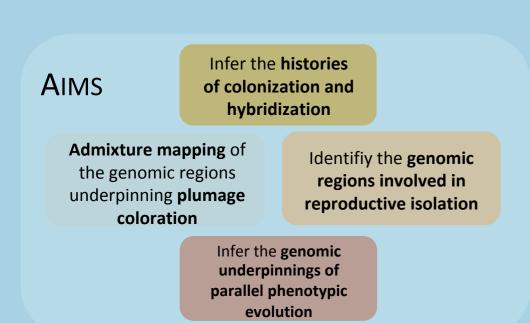
Supervised by Reto Burri & Holger Schielzeth

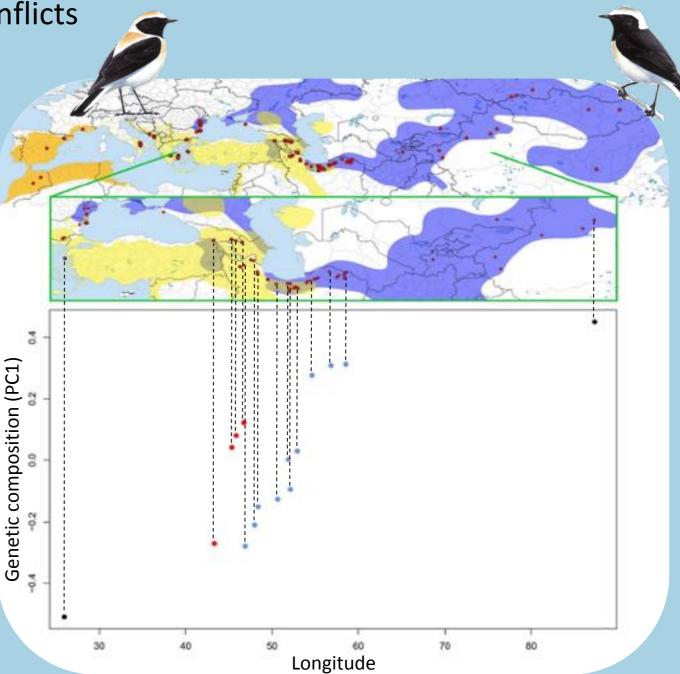
#### Research background:

- MSc in evolutionary biology (Montpellier)
- Phylogeography & cyto-nuclear conflicts
- Comparative transcriptomics & convergent molecular evolution

#### PhD project

- 3 replicated hybrid zones
- Chromosome scale reference genome & physically phased resequencing data





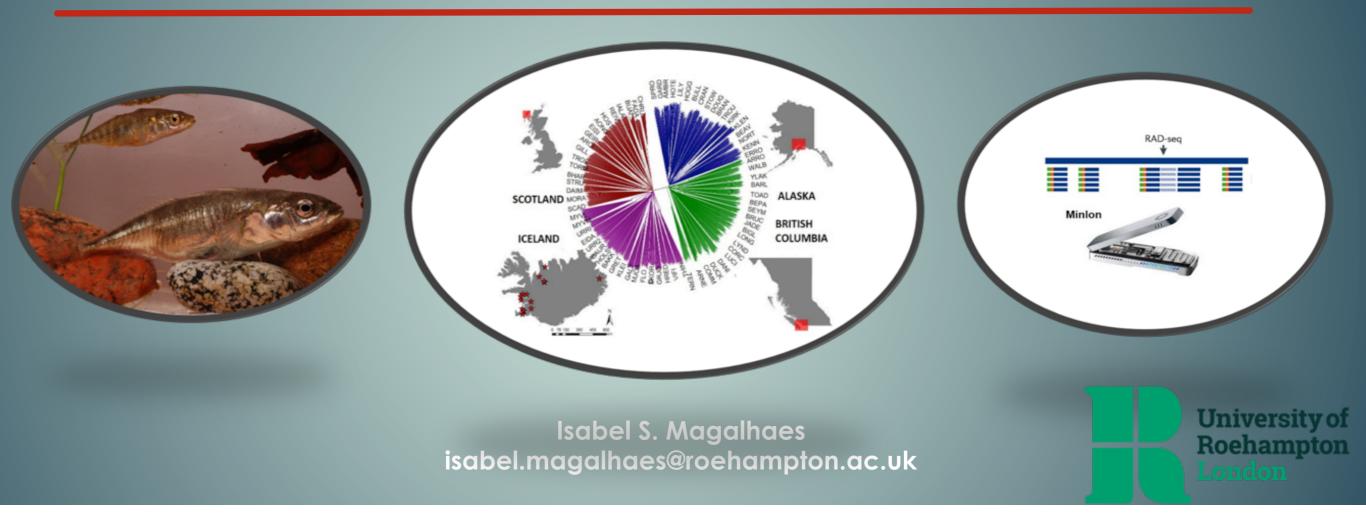
POPULATION

ECOLOGY

#### What is the genetic basis of adaptation to new environments?

Does migration from differently adapted populations change the potential for local adaptation?

**To what extent is evolution during adaptation parallel ?** 



### Milan Malinsky

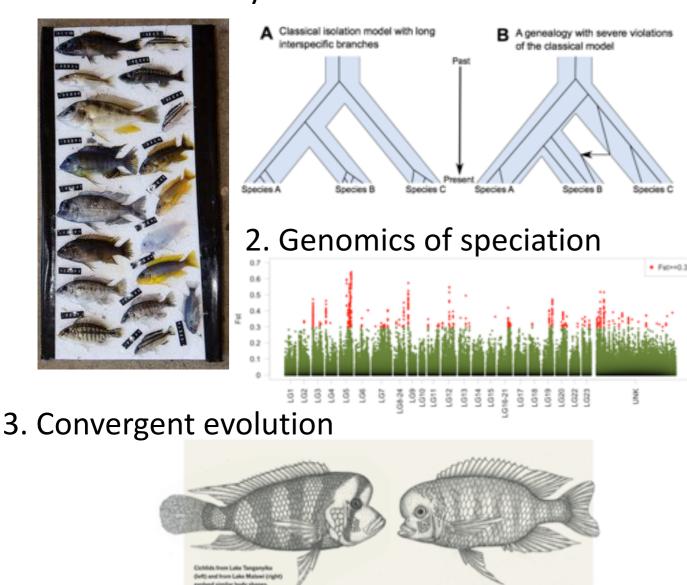
#### Short CV

2007-2010 BSc Computer Science, Birmingham, UK 2010-2011 Master in Computational Biology, Cambridge, UK 2011-2015 PhD in Evolutionary Genomics, Cambridge, UK 2016-present EMBO Fellowship + Postdoc, Basel, Switzerland

#### **Biology:**

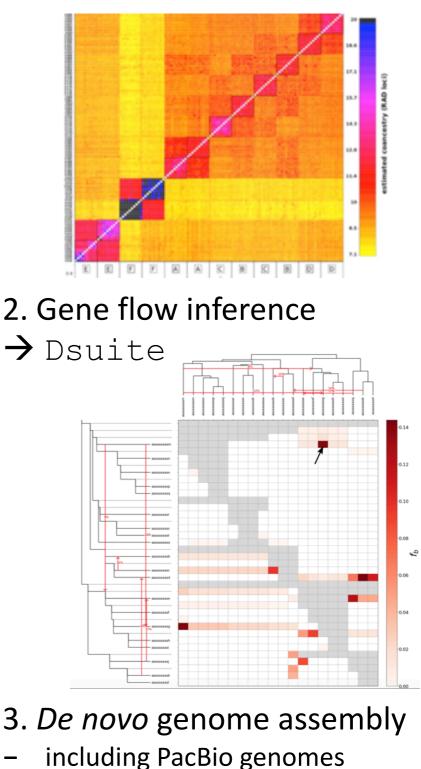
1. Genetic diversity in Lake Malawi cichlids

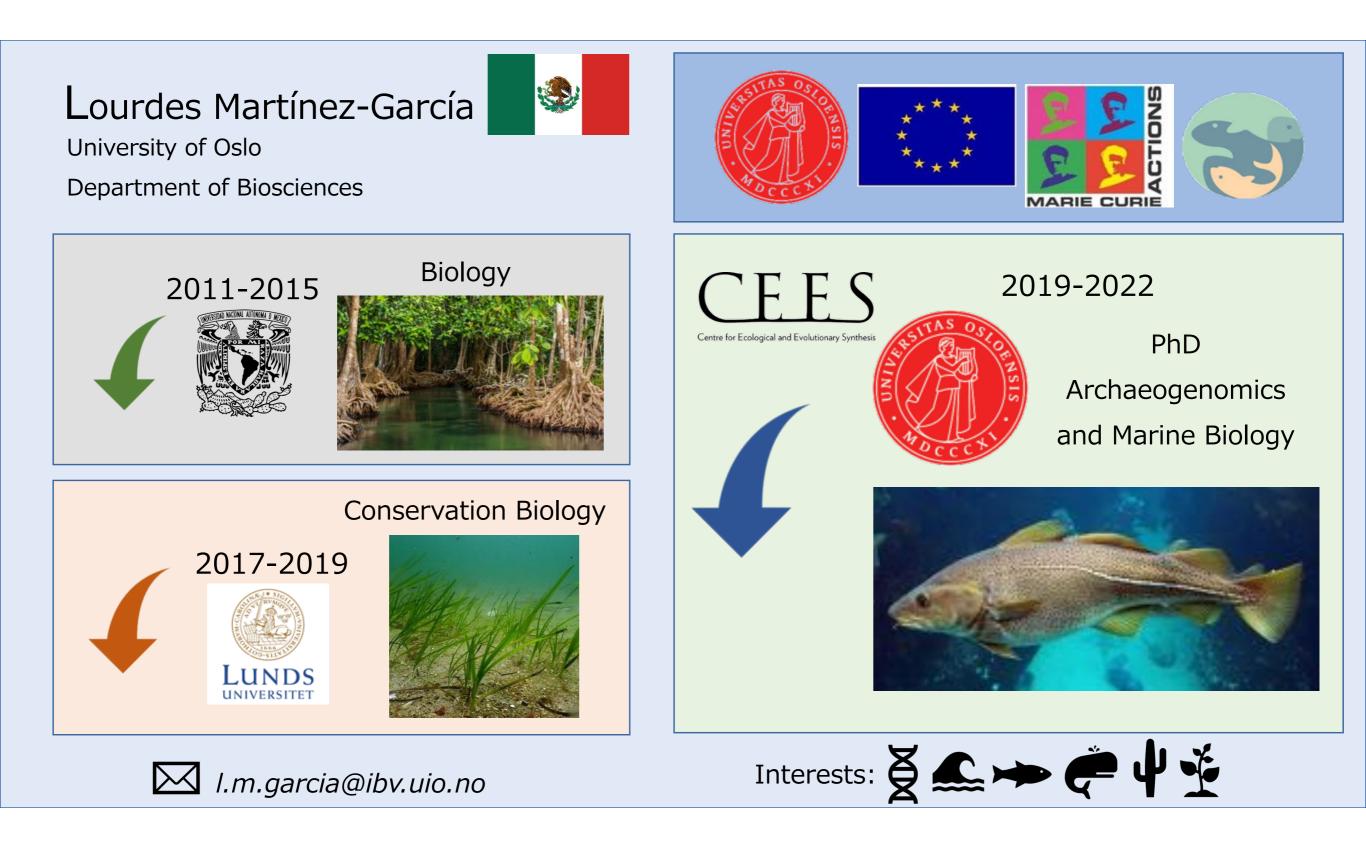




#### **Technical interests:**

- 1. Population structure inference
- fineRADpainter  $\rightarrow$





6

## **Michael Matschiner**

**University of Zurich** 

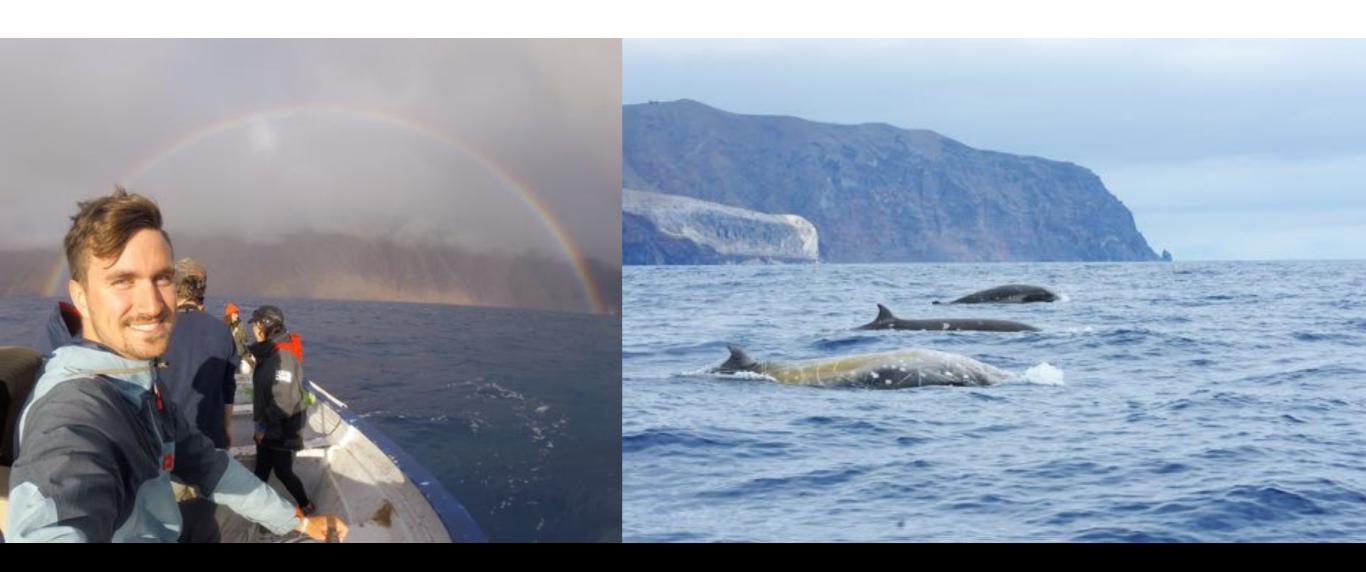




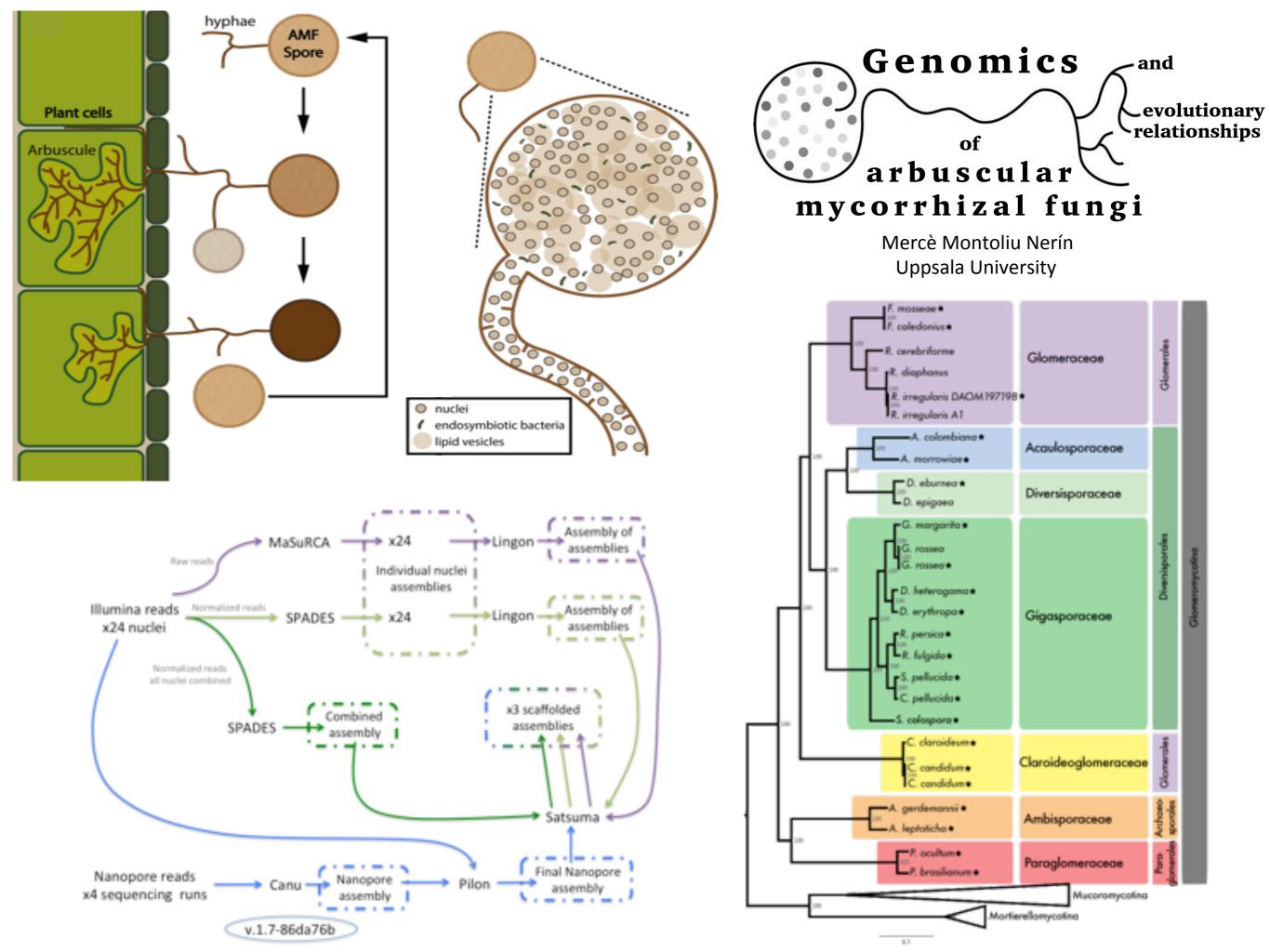




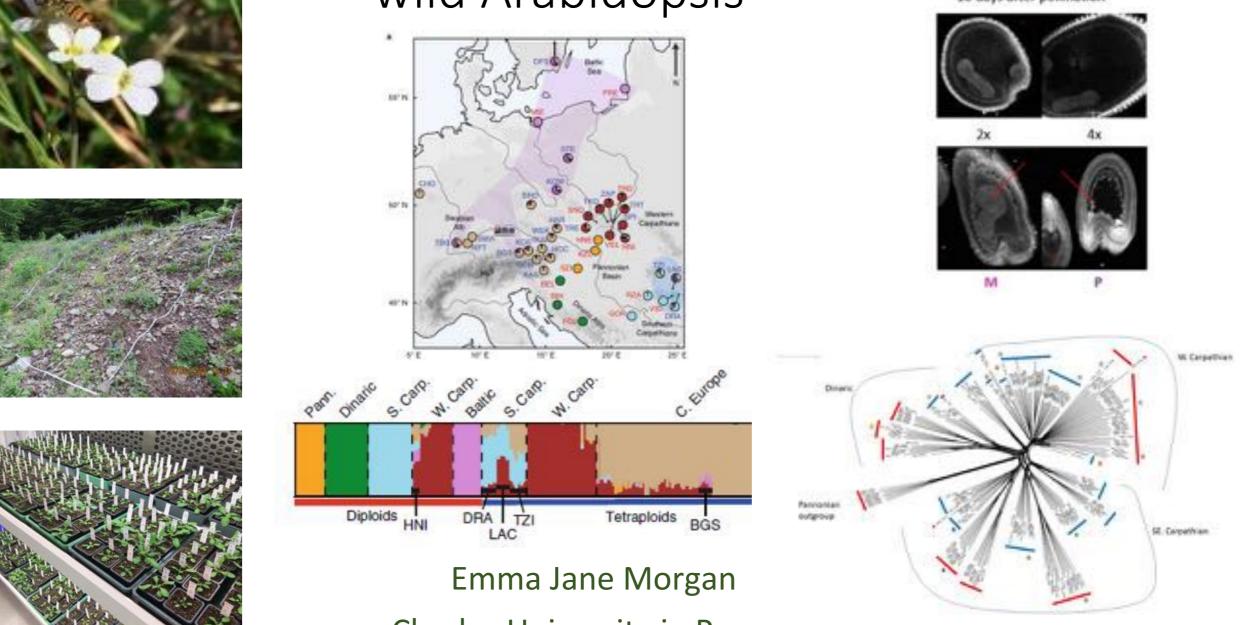
©Dante Fenolio



- From Boston, Massachusetts (USA)
- 1<sup>st</sup> year PhD Student at the University of Copenhagen (Evolutionary Genomics Section, Marine Mammals Ecology and Evolution Group)
- Currently mapping and comparing genomes of three species of beaked whales, including one new species (Sept. 2019)
- Generally interested in marine mammal population structure, speciation, bottlenecks, aDNA, eDNA



## Barriers and drivers of gene flow across ploidy barrier in wild Arabidopsis



**Charles University in Prague** 



#### Samantha Mynhardt

University of Pretoria, South Africa

crology & Evolution



#### Faculty of Natural and Agricultural Sciences

Fakulteit Natuur- en Landbouwetenskappe Lefapha la Disaense tša Tihago le Temo

#### Parentage, relatedness and colony structure in Damaraland mole-rats

Golden moles (Amblysomus):

- Phylogeography and phylogenomics
- Reproductive neurobiology
- eDNA sampling from soil

**Prof. Nigel Bennett** 

Behavioural Ecology and Physiology of Mammals Department of Zoology and Entomology

#### **Prof. Paulette Boomer**

Molecular Ecology and Evolution Programme (MEEP) Department of Biochemistry, Genetics and Microbiology (BGM)



Population genetics of Suni antelope

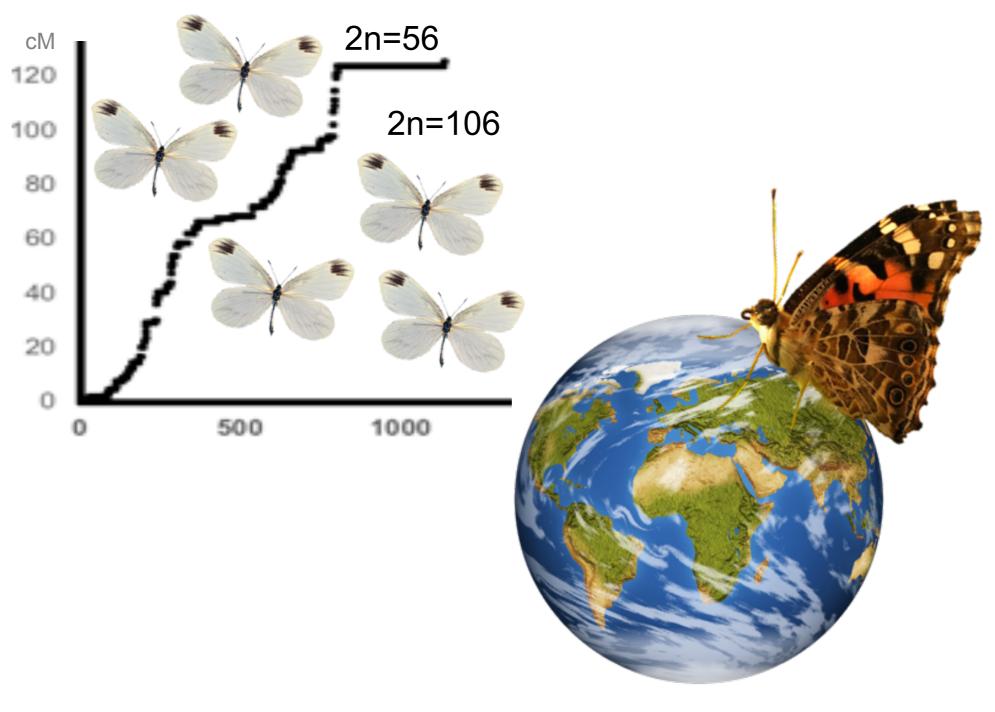


#### Karin Näsvall PhD-student

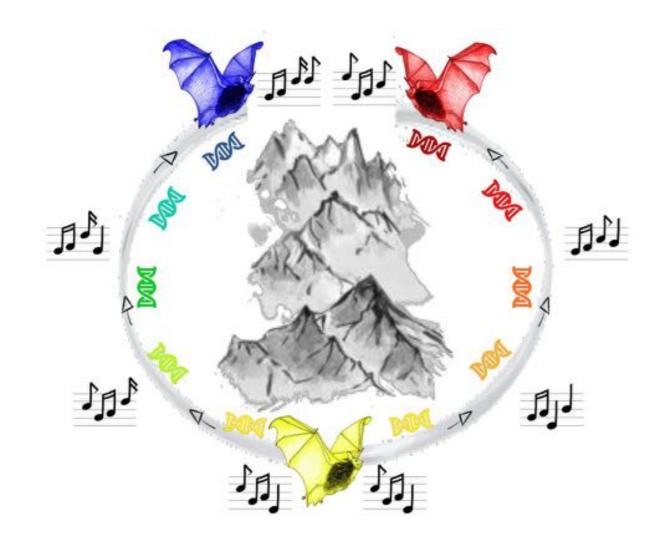


Dept of Ecology and Genetics, EBC Norbyvägen 18D SE-752 36 Uppsala Sweden

# Speciation and genome evolution in butterflies



Culture as an evolutionary force: Does song learning accelerate speciation in a bat ring species?



Greater sac-winged bat (*Saccopteryx bilineata*)









Established by the European Commissi



**Masoud Nazarizadeh** 



Jihočeská univerzita v Českých Budějovicích University of South Bohemia in České Budějovice

View in geographic space

**Population Genomics - Demographic history, Population structure and Adaptation** 

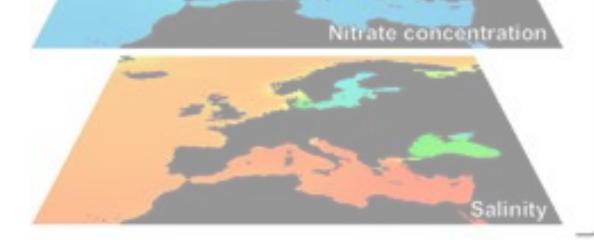
> DNA Barcoding

Historical biogeographic studies
 Integrative Ecological Niche modelling
 Landscape and Conservation genetics

My PhD project: Population genomics of parasite adaption: insights into diversification and speciation of

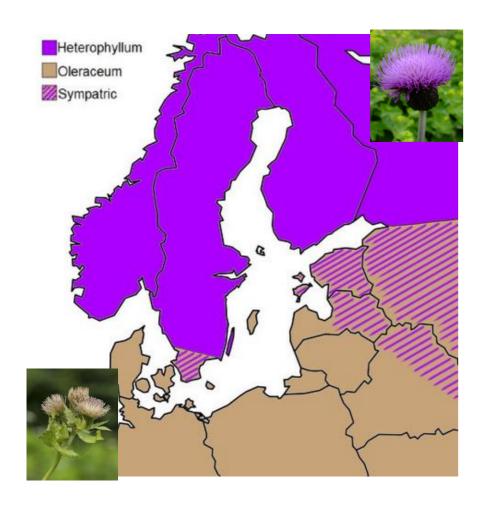
parasites

ea surface temperature





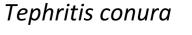
LUND UNIVERSITY



Kalle Nilsson

•

- Lund University, Sweden
  - Evolutionary Ecology
    - Evolutionary Ecology of Plant-Insect Interactions





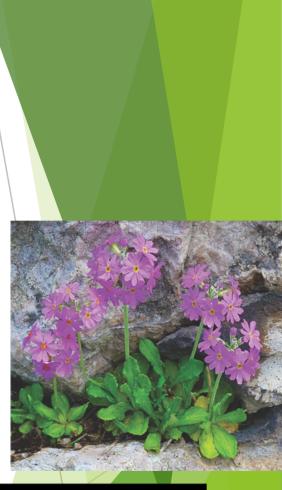
Genomic underpinnings of host plant adaptation in *Tephritis* flies

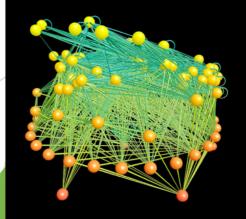
- Phenotypic responses to host plant adaptation and secondary sympatry with a close congener
- How does colonizing a new niche affect evolvability?
- The genomic landscape of host race plant adaptation
- What are the relative roles of coding genetic divergence and regulation of expression in host plant adaptation?

#### **Etsuko Nonaka** Postdoctoral researcher University of Jyväskylä, Finland

- Ecologist and modeler
- Research interests
  - Interaction between ecological and evolutionary processes
  - Especially, in a spatial context
  - Genetically explicit (individual-based) population models
- Projects
  - Inferring pollinator movement from population genomics of spatially structured plant populations (*Primula farinosa* in Öland, Sweden)
  - Effects of density dependent attack on the extinction risk of inbreeding parasitoid populations
  - Fisheries-induced evolution and population dynamics in complex food webs
- From Osaka, Japan
- Studied/Worked in US, Sweden, and Finland







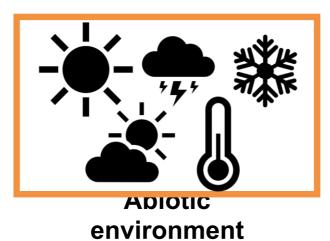
#### Ph.D. project: Genomic and ecological bases of adaptation in aphids in the context of fruit tree domestication



*Dysaphis plantaginea* Passerini Rosy apple aphid



Biotic environment *Malus domestica* Borkh Cultivated apple



Adapted to local host and/or local climate?

Genomic architecture of local adaptation?







**\* île**de**France** 







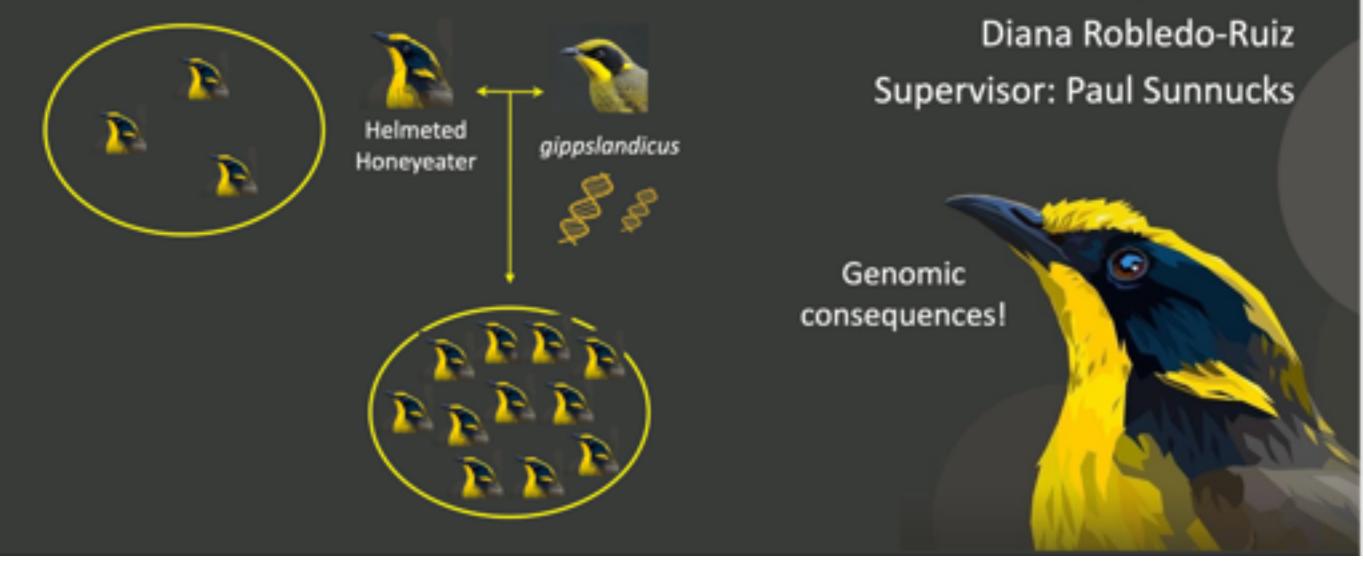


Sergio Gabriel OLVERA-VAZQUEZ Ph.D. candidate University of Paris-Saclay-France/GQE Le Moulon-INRAE

Amandina CODNIII I E Sunamiaar CNDS/COE I a Maulan INDAE/University Daria Saalay Erana



## Genetic rescue of the Helmeted Honeyeater



## Black is the new Orange

#### The Story of the Pseudomelanistic Tigers of India



Single Base Substitution

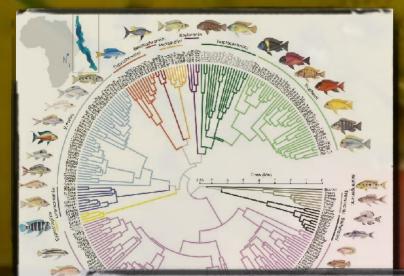




Vinay Sagar Research Scholar Uma Ramakrishnan's Lab NCBS, Bangalore (India)



## The dynamics of diversification











## Stephen Schlebusch

Postdoc at Charles University

### MARCOS SILVA

UNIVERSITY OF BASEL

PhD Student



Adaptive radiation Convergent evolution Chromosomal evolution Genotype X Phenotype Biodiversity Conservation









Ecological response -----Local adaptation-----Ecological speciation
Changing environmental conditions over time

- To study the effect of land cover on the abundance of a range of mosquito species including both forest and rice agro-ecosystem adapted species and its implications on malaria epidemiology in Meghalaya, Northeast India. (Ecological response)
- Population genomics studies of *An. baimaii* to identify genomic regions putatively involved in adaptation to well-breeding in South-eastern Myanmar (**Local adaptation**)
- Speciation genomics to understand genomic changes under different modes of speciation i.e. allopatric and sympatric in *An. dirus* species complex and to reveal their evolutionary history (**Speciation**)

**Upasana Singh** PhD Ecology and Evolution *Supervisor: Dr Catherine Walton* 



## František Sklenář

### PhD. student

Charles University, Faculty of Science, Department of Botany

Institute of Microbiology of the Czech Academy of Sciences



Aspergillus

Microscopic fungi





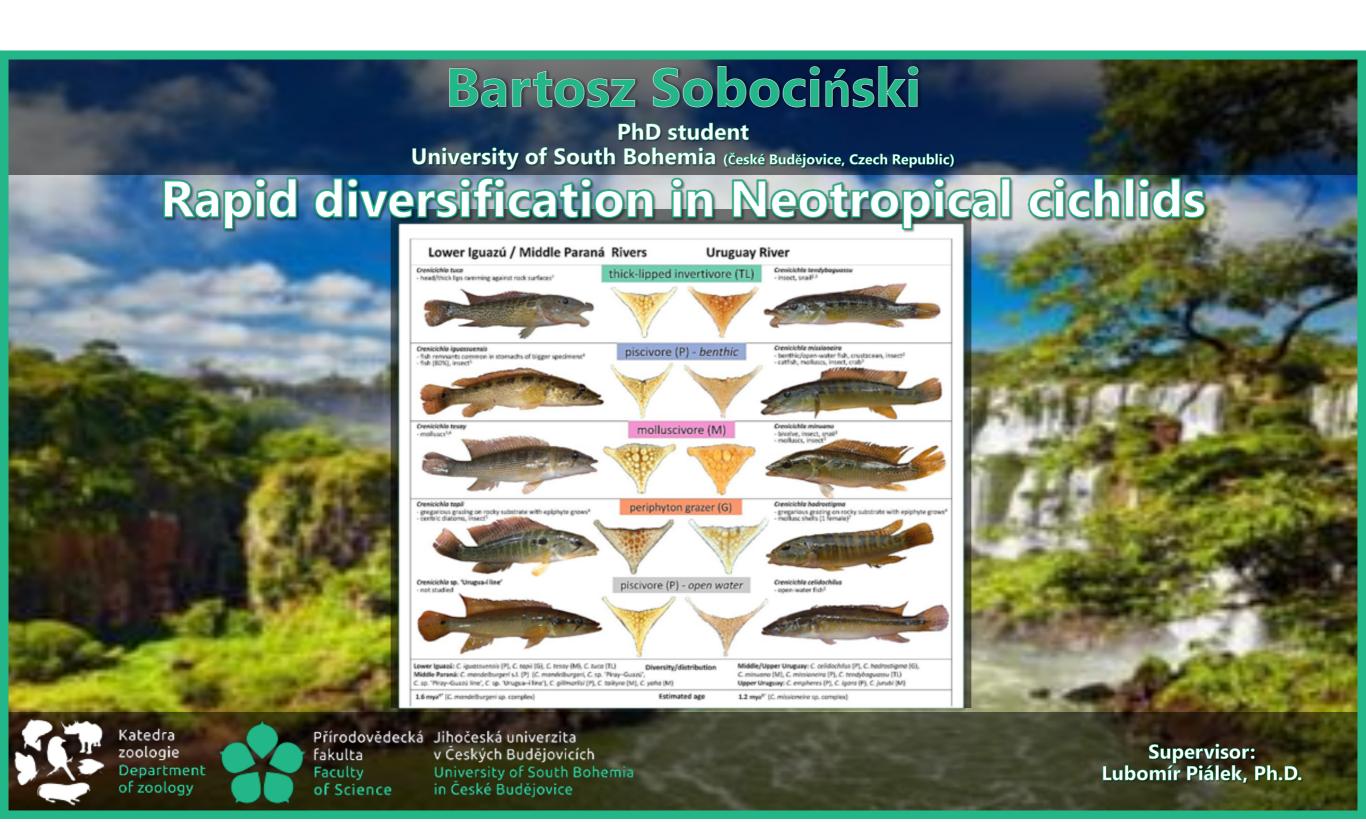




**Reproductive barriers** 

NBL





#### **Carolin Sommer-Trembo**



#### Adaptive radiation Cichlids



Combining behavioural data with genomics, ecology, etc.







Vitor C. Sousa cE3c, Faculdade de Ciências Universidade de Lisboa, Portugal vmsousa@fc.ul.pt



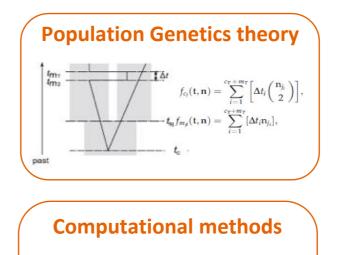
#### **Bioinformatics and Population genomics**

Interaction of gene flow and natural selection

#### **Development of methods** to detect and quantify:

- Demographic history of populations
- Gene flow and divergent selection
- Effect of deleterious mutations (background selection)

### Analysis of data from **experimental evolution** and **natural populations**















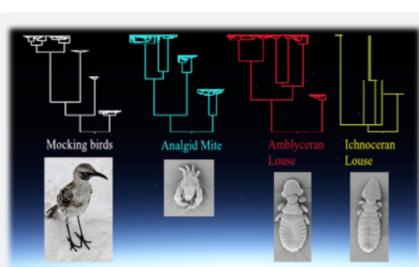


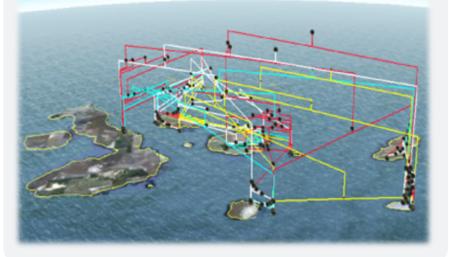


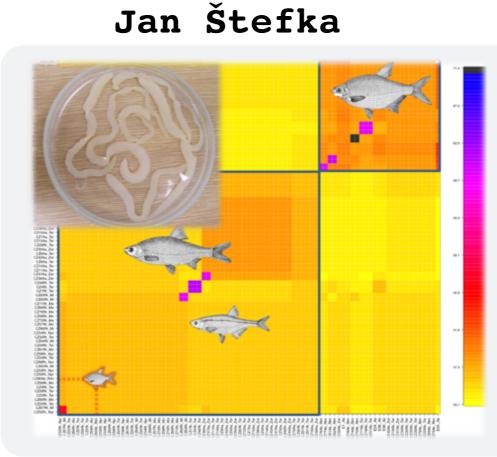
Laboratory of Molecular Ecology and Evolution 🔵



Jihočeská univerzita v Českých Budějovicích University of South Bohemia in České Budějovice











Population genetics/omics of host-parasite co-evolution





\*recruiting a postdoc!

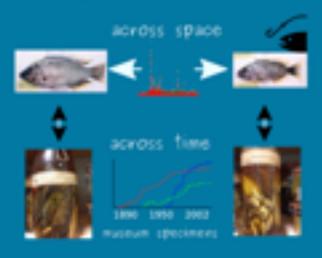


## Rapid adaptation and diversification

#### Hannes Svardal

hannes.svardal@uantwerpen.be

#### Adaptation to fishing



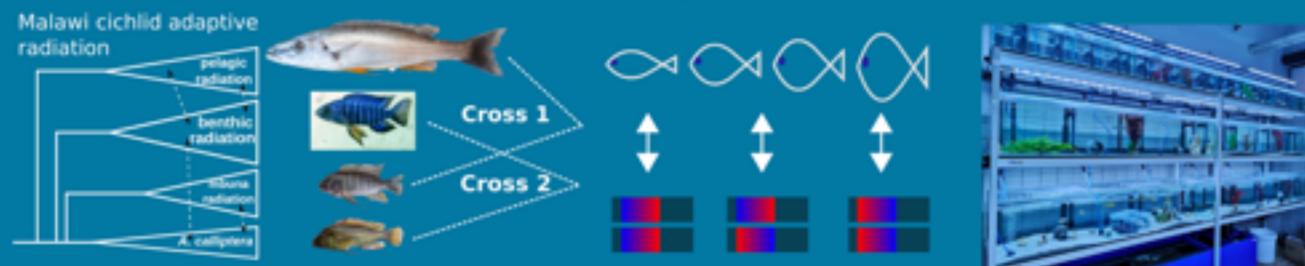


In the Construction of the

### University of Antwerp

#### Role of gene flow

#### Role of genomic inversions in adaptive diversification

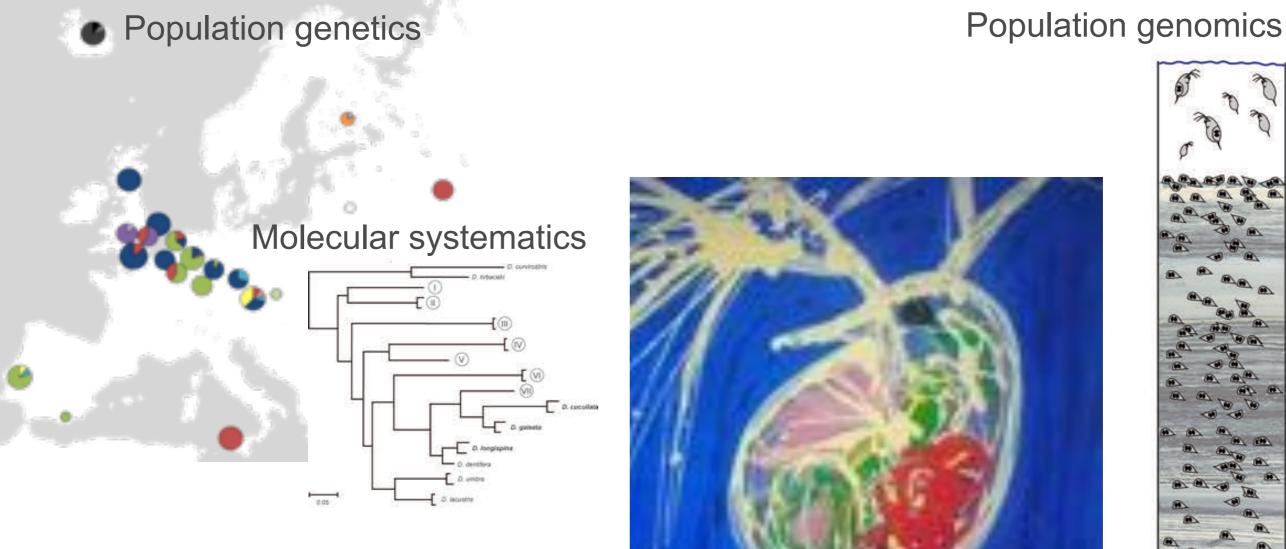


Looking for a PhD student!

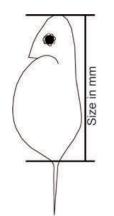
Computational genomics + experiments

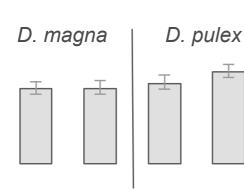


Anne Thielsch Molecular Ecology Group



#### Life history studies









## Emiliano Trucchi

#### Population genomics



#### **The Evolutionary History of Alba**

#### An Ancient Life-history Polymorphism







Q

Q

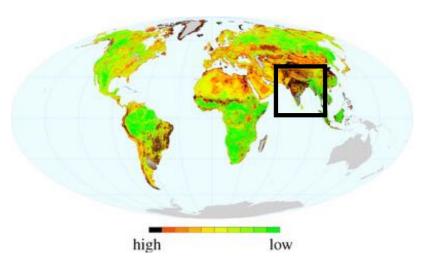
• Kalle Tunström

@kallekarlhugo



## Differential impact of habitat fragmentation on genetic connectivity and population structure of ungulates in India

Abhinav Tyagi Ph.D. Student National Centre for Biological Sciences, India

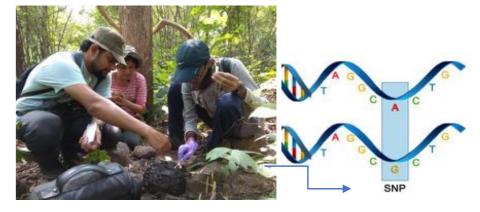


#### Habitat fragmentation

- Habitat loss
- Land use change
- Road network







Genomics and landscape genetics Identify potential barriers

- Animal movement/Gene flow
- Isolated populations
- Conservation units

#### aDNA



Ahmed et al. Quat. Sci. Rev., 181 (2018), pp. 19-29

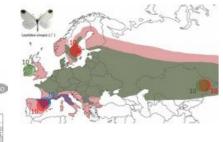
## Speciation and population genetics

Poelstra et al. Science

20;344(6190):1410-4

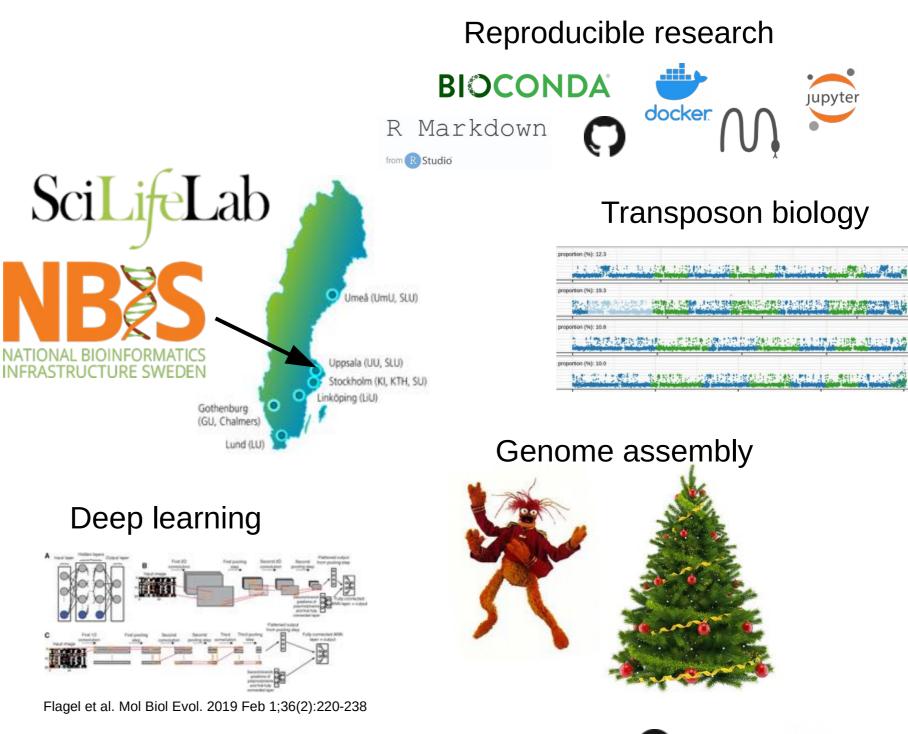
Per Unneberg

2014 Jun



Talla et al. Mol Ecol. 2019 Aug;28(16):3756-3770





National Bioinformatics Infrastructure Sweden

Science for Life Laboratory, Uppsala

C percyfal

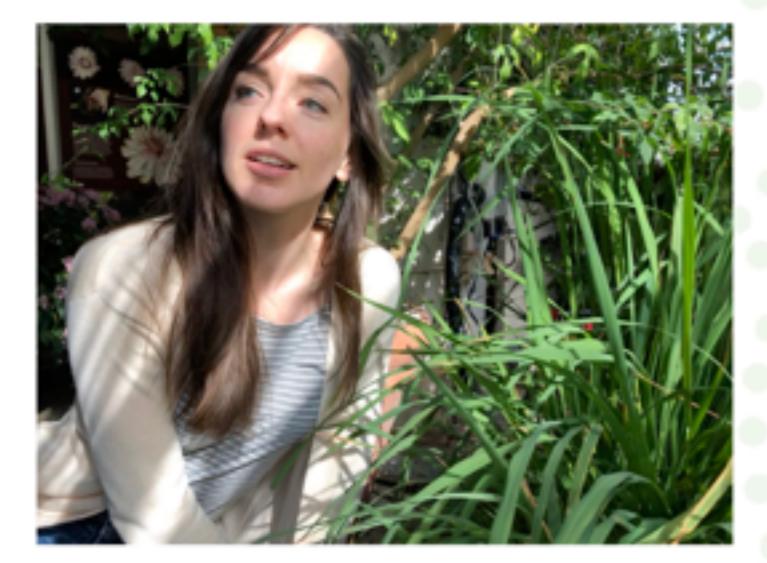




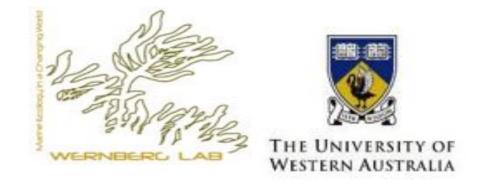
## UiO Solo University of Oslo



Margret Veltman, PhD candidate

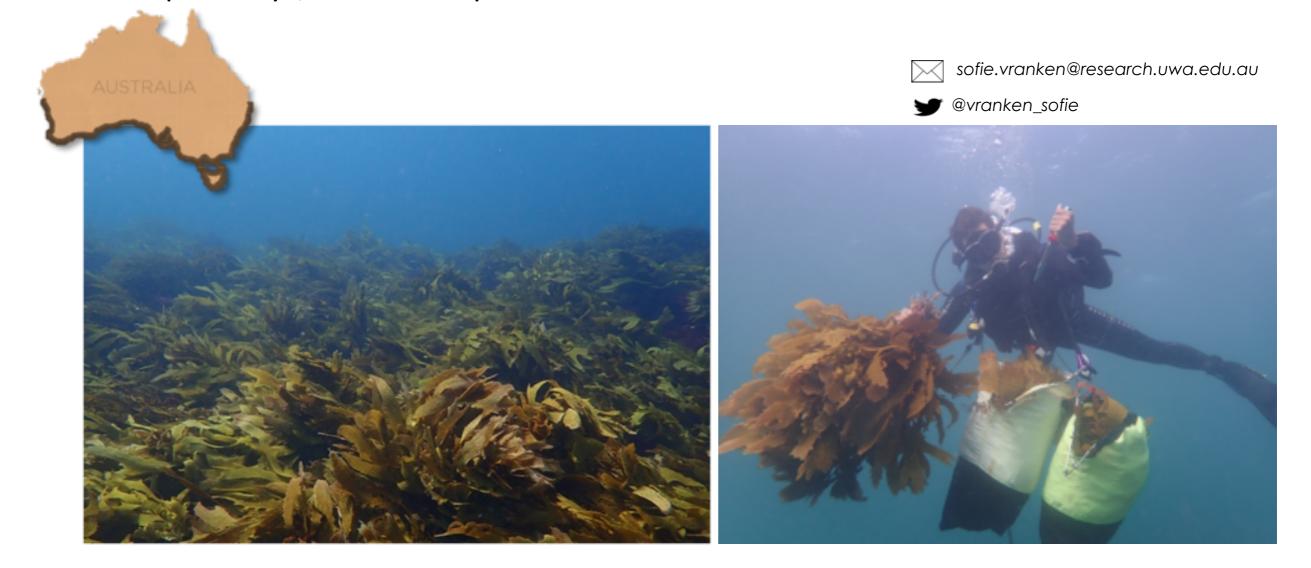


- MSCA-ITN Plant.ID PhD dissertation: "Genomic barcoding to identify and trace traded orchids"
- MSc Biology from Wageningen University: "Domestication and dispersal of African rice"



### Sofie Vranken

- 2012: MSc. Ecology & Evolution, Ghent University, Belgium
- PhD student, Wernberg lab, The University of Western Australia: Common kelp (*Ecklonia radiata*): population connectivity, local adaptation, (re)colonization pathways, different reproduction modes





### **Matthew Williams**

The Australian Centre for Ancient DNA, University of Adelaide





**B.A. Ancient Near Eastern History & Languages** 



M.A. Archaeology



#### PhD. Candidate Genetic History of the Ancient Near East

Dr. Yassine Souilmi Dr. Raymond Tobler Assoc Prof. Bastien Llamas







THE UNIVERSITY

ofADELAIDE



AUSTRALIAN CENTRE

matthew.williams01@adelaide.edu.au





#### Dr. Tanisha Williams

David Burpee Postdoctoral Fellow Botany Conservation, Genetics, and Ecology & Evolution of Plant Reproduction Group Biology Department Bucknell University, Pennsylvania, United States

tmw018@bucknell.edu



**Past Research:** plant ecology, plasticity, functional traits, climate science using common gardens, species distribution modeling, and phenology/herbarium specimens (South Africa)

\* I have dabbled in population genetics research trying to understand gene flow and hybridization patterns among three Populus species found throughout California and Nevada.



**Current Research:** conservation science (rare species in Pennsylvania), new species discovery (Australia), ecology and evolution of plant reproduction in the plant family Solanaceae (Australia)

\*\* I am currently using GBS tools to understand how biogeographic barriers impact population structure in a widespread legume found throughout northern Australia.

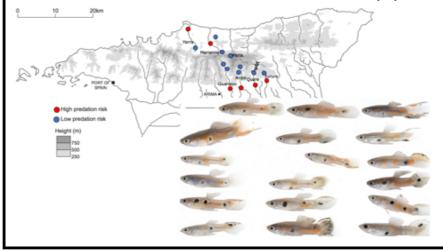
Lengxob 'Lenny' YONG Evolution | Color | Behavior | Genomics Post-Doctoral Fellow

#### **General Research Interest:**

Evolutionary genetics of sexual conflict and/or differences

#### Current Work:

Evolutionary genetics of male color polymorphism (and related chromosomal evolution) in guppies





Alastair Wilson

Deborah Charlesworth (co-PI)