

Participant introduction



Abush Zinaw
PhD Student



Uio Naturhistorisk museum

Project SpeciationClock: How fast does the plant 'speciation clock' tick in the African Sky Islands?



Draba fladnizensis



A ? B
Y

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



Sex chromosomes, reproductive isolation and speciation in algae



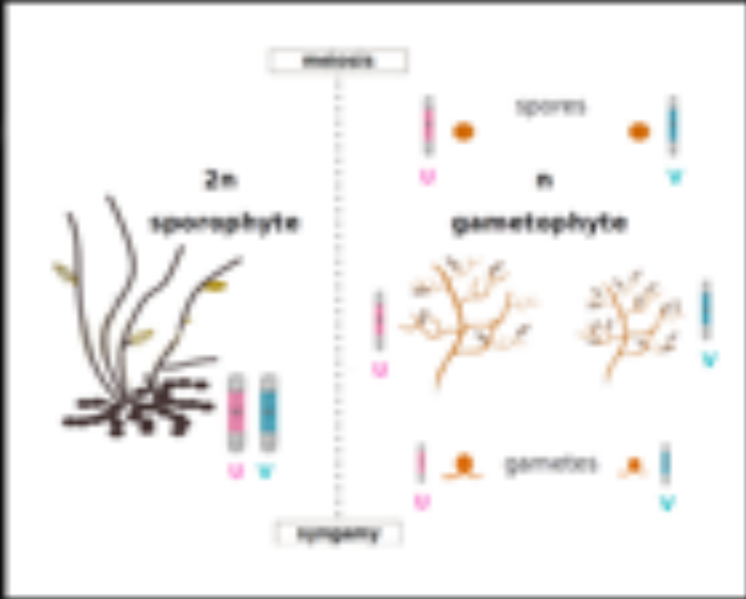
Agnieszka Lipinska

Group Leader
Department of Algal Development and Evolution
Max Planck Institute for Developmental Biology
Tübingen, Germany

alipinska@tuebingen.mpg.de



THE HAPLOID-DIPLOID LIFE CYCLE AND THE UV SEX CHROMOSOME SYSTEM



Differential gene expression during the gametophyte and sporophyte generations



Sex chromosomes and evolution of sexual dimorphism in algae



Genetic architecture of gamete differentiation and male-female gamete recognition



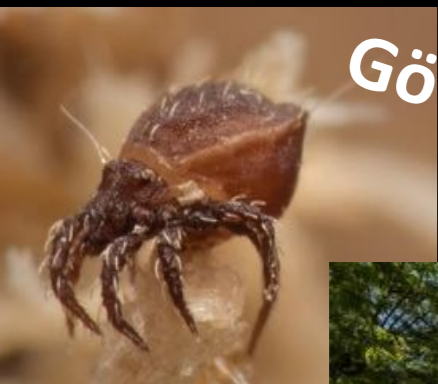
The role of UV sex chromosomes in speciation

Albertien van Heerden: MSc student



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

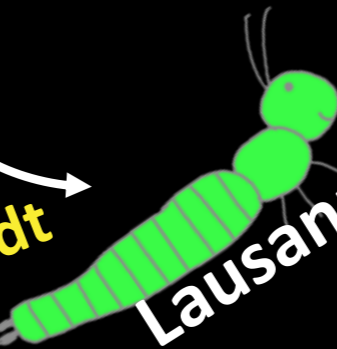




Göttingen



Alexander Brandt
Group Schwander
DEE, UNIL



Lausanne



Cesky Krumlov

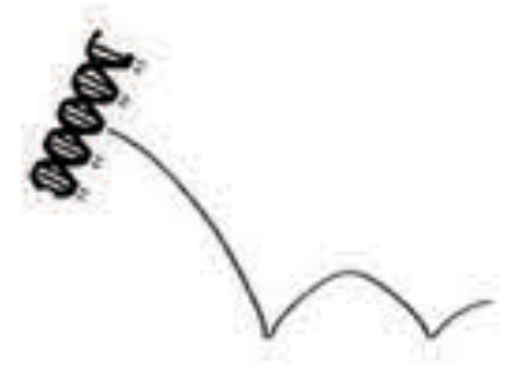


Me (Alex)

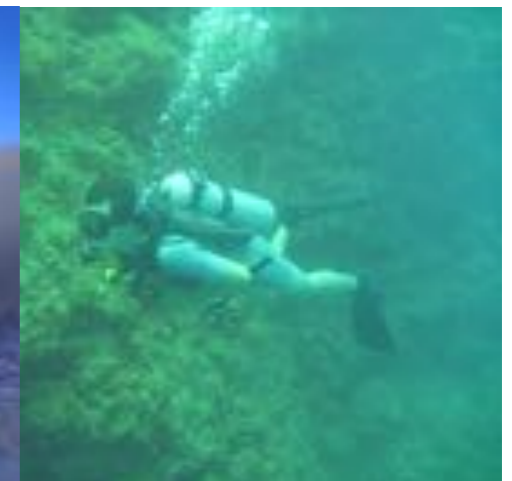


Alexander Sang-Jae Suh

서상재 徐商在



Mobile DNA (transposable elements, endogenous viruses, weird chromosomes) variation between *cells/populations/species*



What is the genomic basis for rapid convergent evolution?

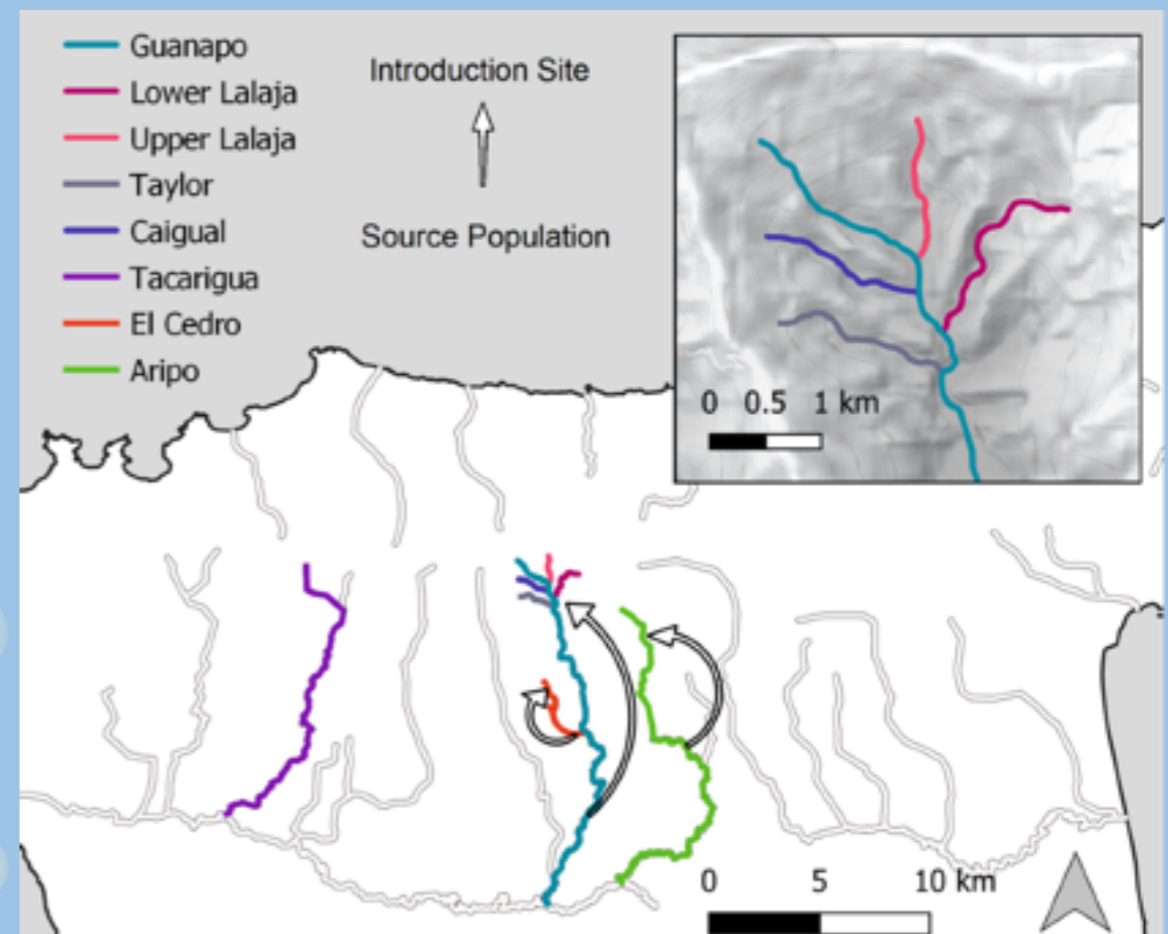
Wild guppies disperse via the coast to rivers with many predators. Then they migrate upstream to tributaries with few predators.

Low predation guppies evolve a low predation phenotype. (colourful males, life-history traits, schooling behaviours...)

Experimental translocations have shown that this is rapid and repeatable, and now we are able to sequence these populations.

Data:

- 7 natural low and high predation sites
- 3 introduction experiments
 - Two established around 1980 with differing demographic histories
 - One conducted in 2008-9 with four replicate pops from the same source pop, sampled in 2013 and 2018 for temporal analysis.



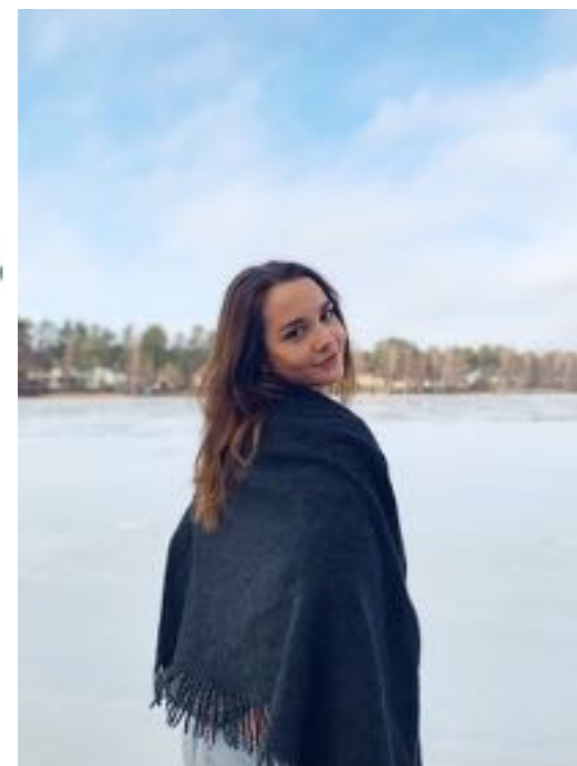
Ali Hudson

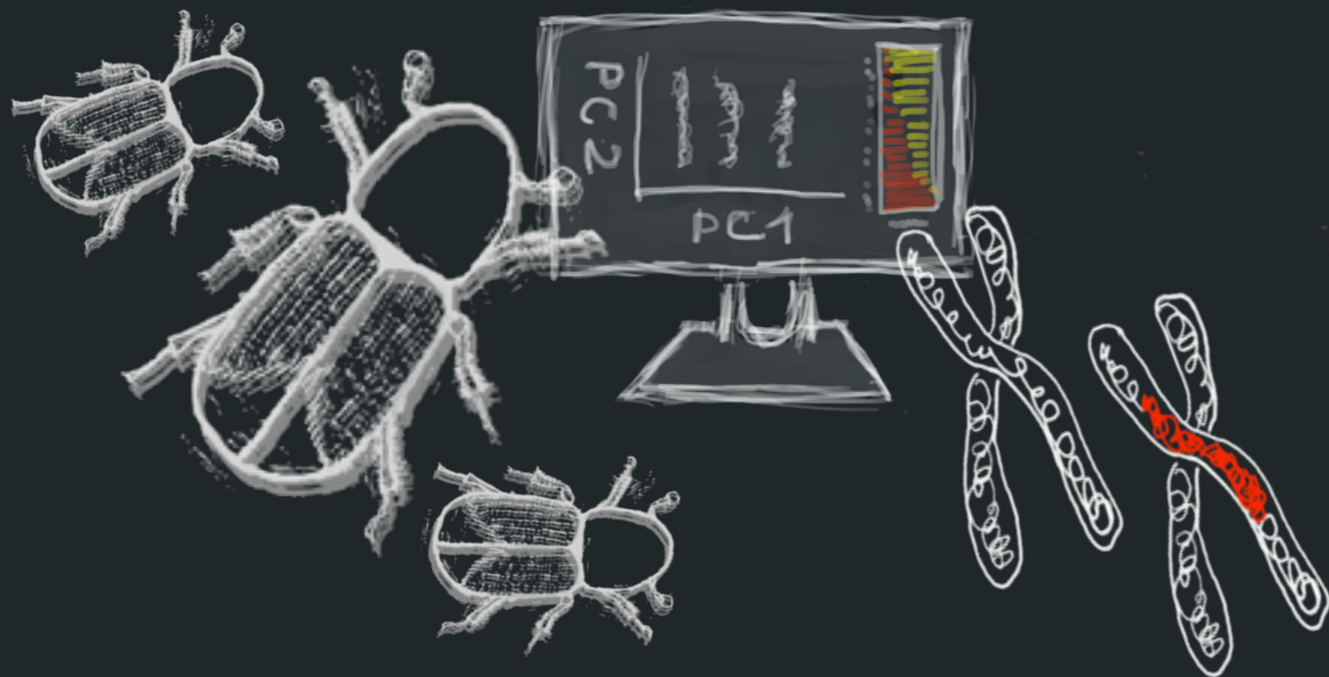
1st year PhD, University of Exeter, UK

Amanda Lazdina



- I have recently completed a master's in Biology at University of Latvia;
- Research Institute of Food Safety, Animal Health and Environment "BIOR";
- Molecular Geneticist in the Inland Water Department.
- Until now, there has not been enough effort in the genetic studies of fish populations in Latvia. Right now, I am researching the genetic diversity of salmon in Latvian rivers.
- Attendance of this workshop would greatly facilitate the fulfillment of my work objectives and also give me valuable knowledge and skills that could be used in planning and implementation of future projects involving genetic studies in Latvian fish populations.





Genomics of population outbreaks

Neutral and adaptive evolution in spruce bark beetle

Mykhailenko Anastasiia

Jagiellonian University, Institute of Environmental Sciences

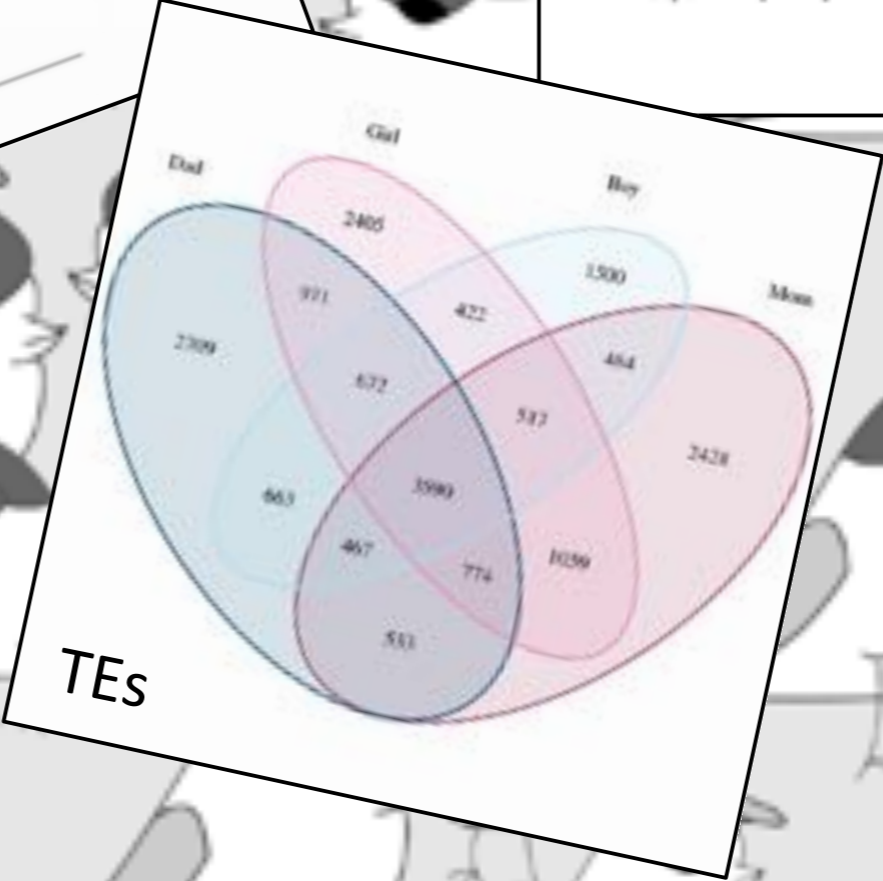
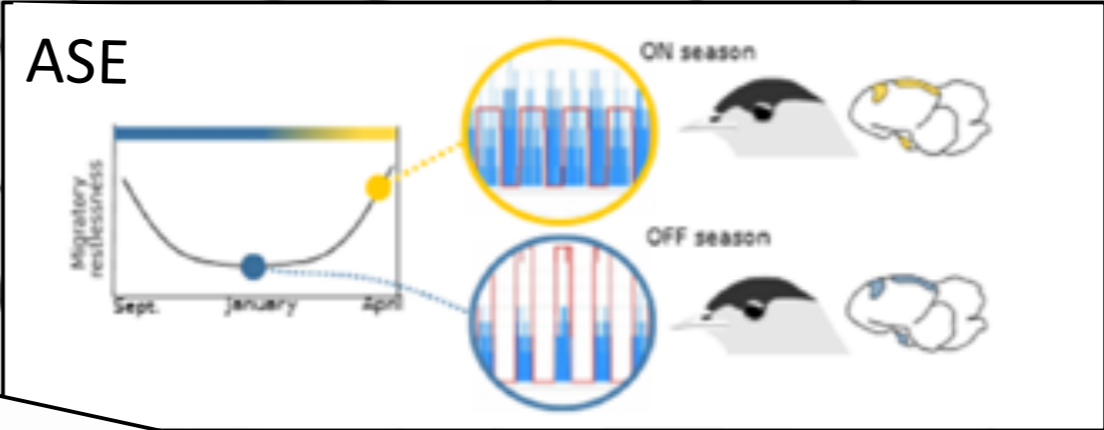
anst.mykhailenko@gmail.com



ask me about soil!

Population genomics of the blackcap

The remix



- How organisms respond and adapt to environmental change?
- Genomic basis and environmental drivers of adaptation

genomics | bioinformatics | ecological modelling | conservation



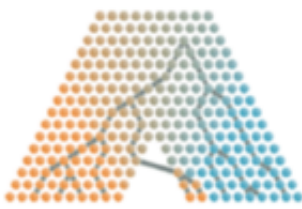
Atlantic herring
(*Clupea harengus*)



Atlantic horse mackerel
(*Trachurus trachurus*)

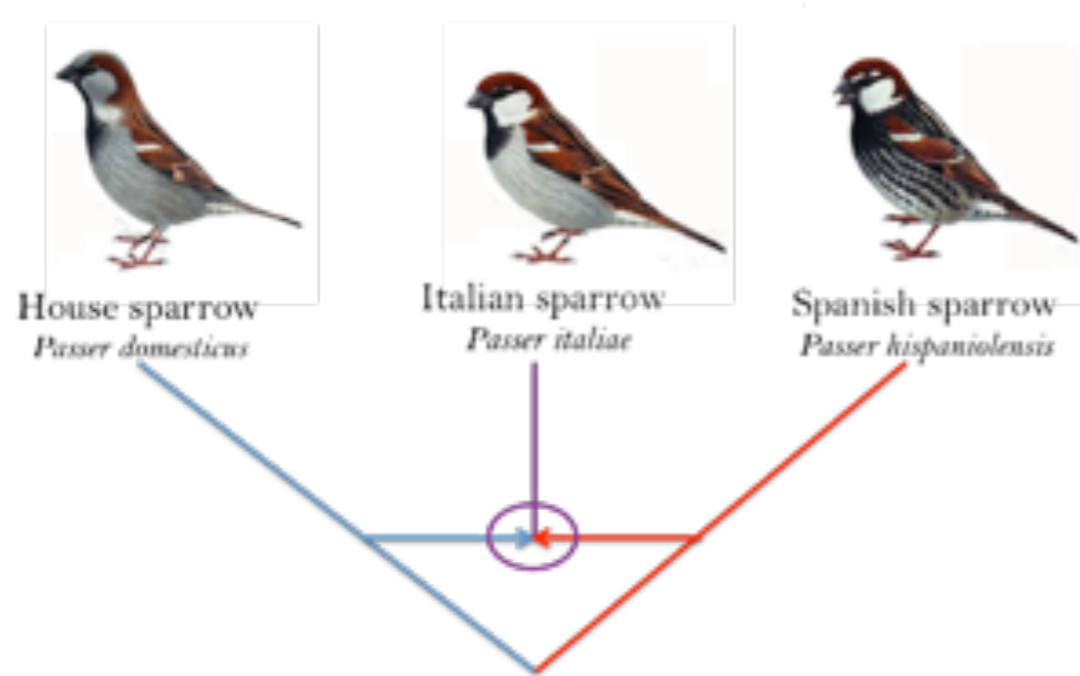


Bean beetles
(*Acanthoscelides
obtectus*)



Adaptive potential of a hybrid species

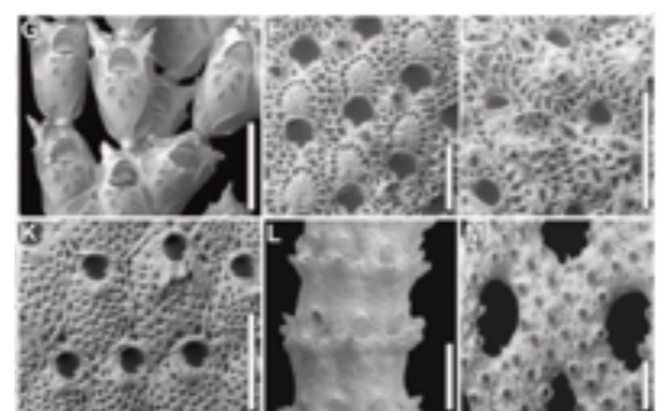
Ancient DNA viking cod



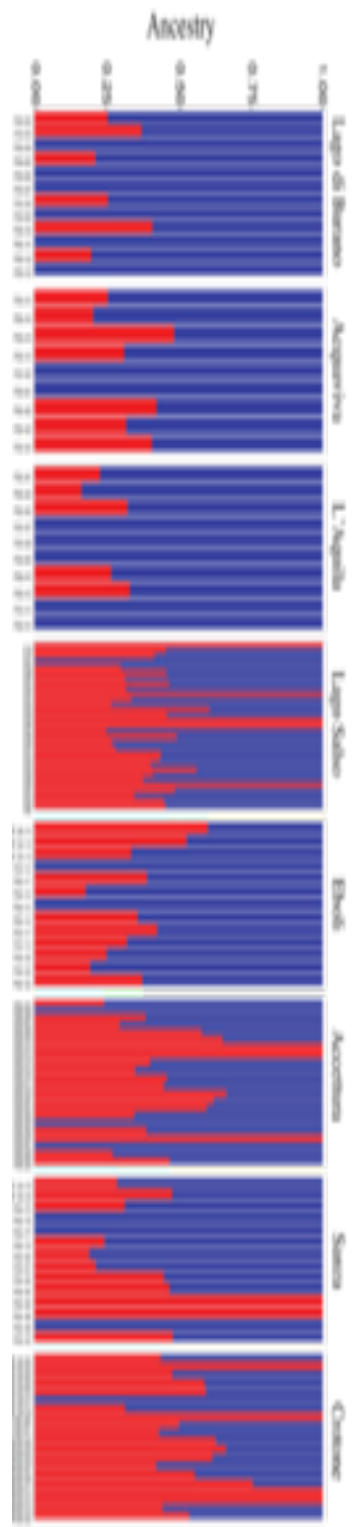
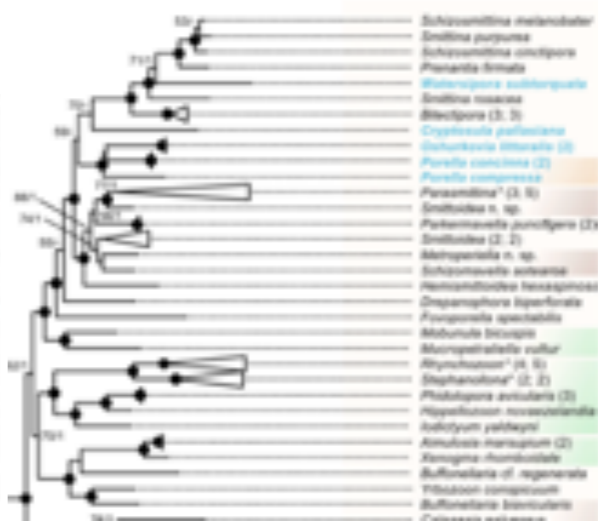
Gadus morhua



Phylogenomics in Bryozoa



Orr et al., 2022 Science advances



Annabelle de Vries

BSc Biology – Leiden University, Netherlands

MSc Biology: Evolution, Biodiversity & Conservation – Leiden University, Netherlands

Research Assistant, Palm seed evolution – Royal Botanic Gardens Kew, UK

PhD (3rd year) – Warwick University & Natural History Museum London, UK



Oceanic island museomics: human impact and the natural laboratory paradigm

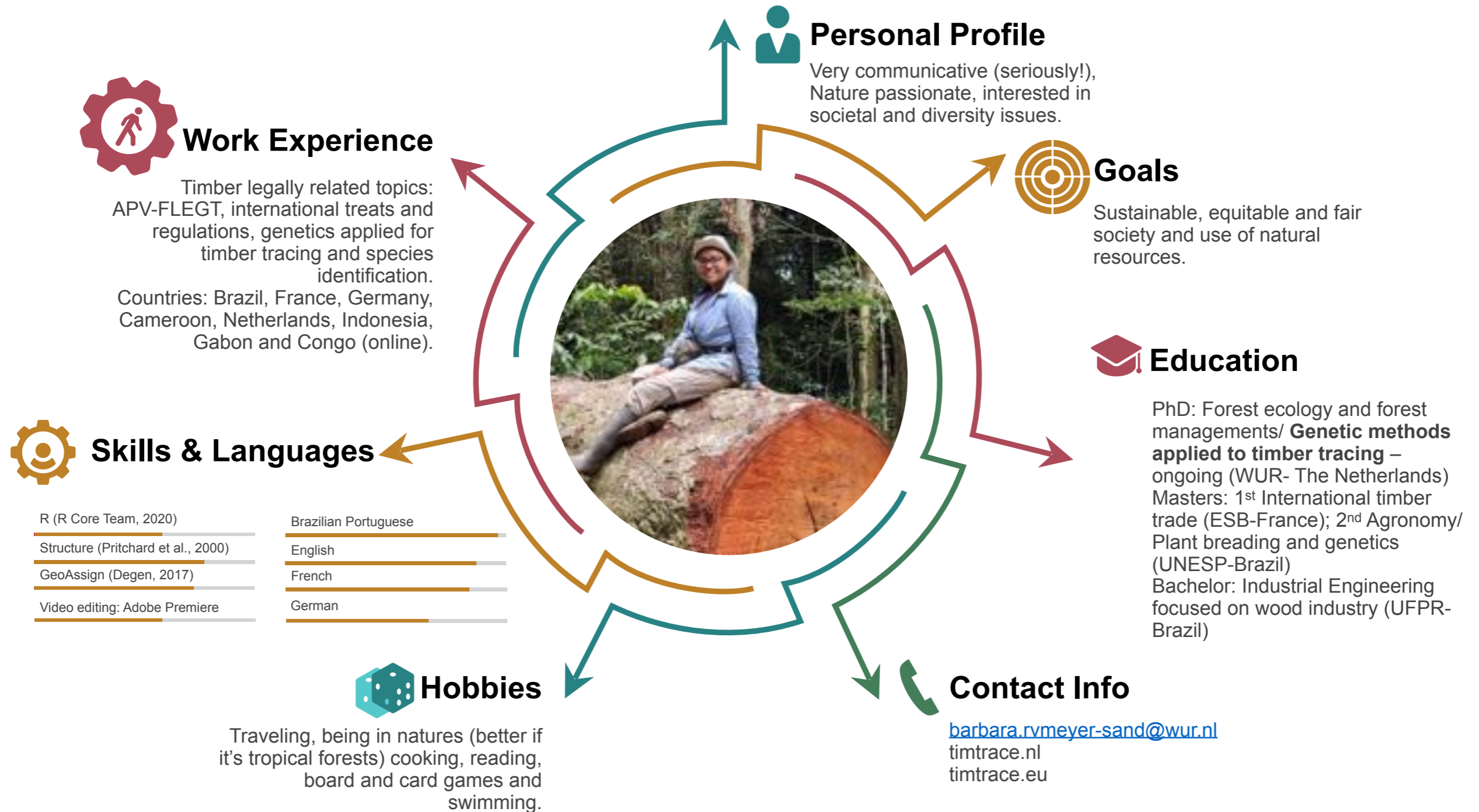
Human impact brought the genus *Trochetiopsis* almost to extinction

Comparing ancient DNA to the modern genome

- Observing the change in genetic diversity over the last 320 years
- Explore how herbarium specimens can help us understand evolution of island plant groups affected by human impact



Barbara Rocha Venancio Meyer-Sand



Cecilia Padilla-Iglesias



University of Zurich^{UZH}



UNIVERSITY OF CAMBRIDGE

- PhD student at Evolutionary Ecology Group, **UZH**

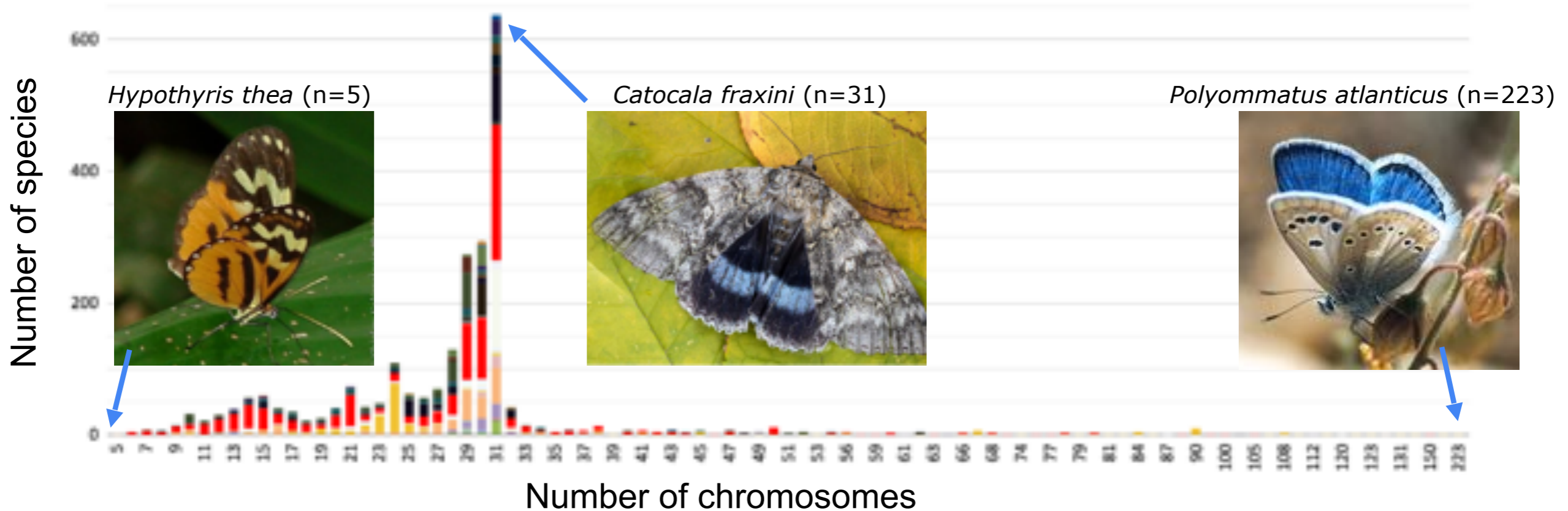


- Climate
 - Physical landscape
 - Demography
 - Mobility
 - Connectivity
 - Cultural diversity
 - Genetic diversity
- Contemporary **hunter-gatherer** populations from Africa
 - Computational **modelling, bioinformatics**, ethnographic **fieldwork** in Republic of Congo



Image courtesy from Paulo Sayeg

Chromosome evolution in the Lepidoptera

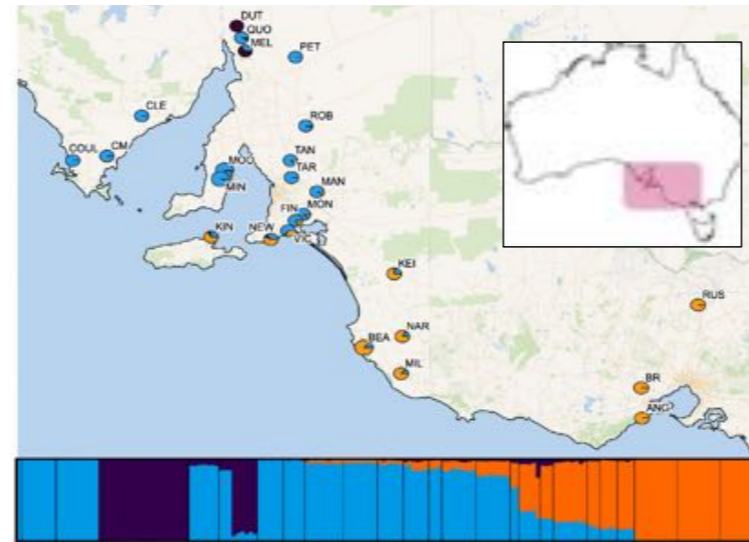


Charlotte Wright

@CharJWright 

Blaxter Lab, Wellcome Sanger Institute





Colette Blyth

Project Coordinator – DivSeek International
Regional Hub for Australasia

PostDoc – Environment Institute, University of
Adelaide



- Seed sourcing for restoration
- Conservation genomics of threatened plant species
- Stocktake of Australasian plant genetic resources



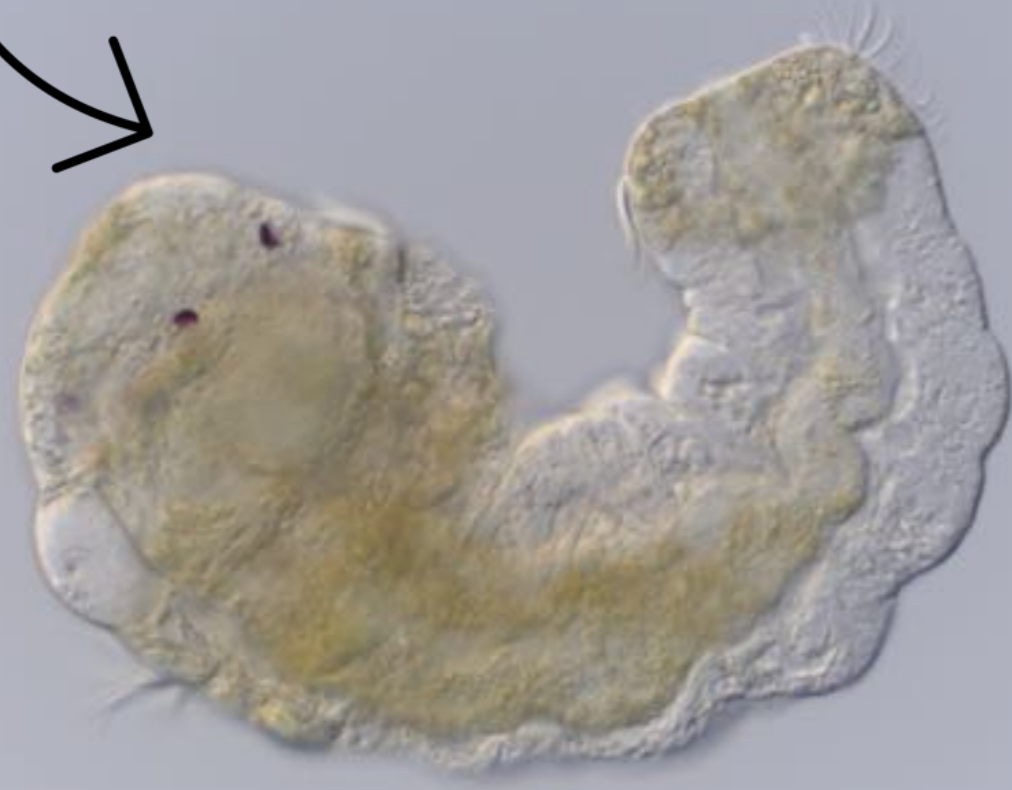
lecithotrophic female

Conor Gilligan
New York University
Rockman Lab



planktotrophic female

Streblospio benedicti has a heritable intraspecific life-history dimorphism



50 μ m



50 μ m



Daniela Souza



Phd candidate
University of Basel
Salzburgerlab

Flounders forensic ID
and conservation
genetics

2014

2018

Flounders
Complete mitochondrial
phylogenetic analysis

RAD and amplicon
seq pipeline

2021



Present

Phd candidate
How genetic diversity
is determined
in cichlid fishes



Dr Darren O'Connell

Postdoc in University
College Dublin

 darren.oconnell@ucd.ie

 @Dar_OConnell

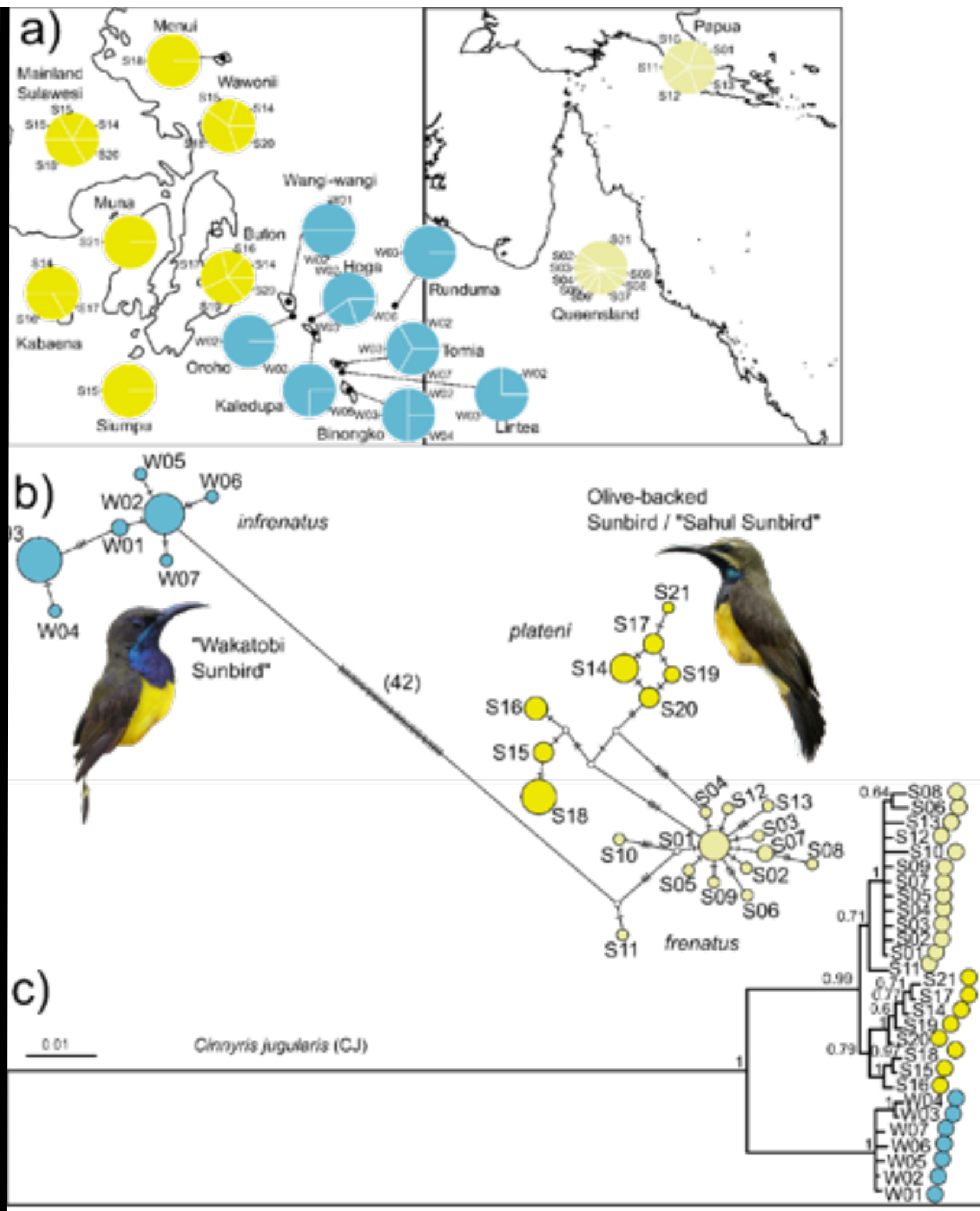
Primarily work with birds
and bees

Interests:

Speciation

Biogeography

Comparative genomics



Derek Setter

Email: derek.setter@ed.ac.uk
Twitter: @derek_setter

BSc In Genetics



KU THE UNIVERSITY OF
KANSAS

PhD in Mathematics



universität
wien

Postdoc with Konrad Lohse



THE UNIVERSITY
of EDINBURGH

Population genetic theory and inference

VolcanoFinder: Genomic scans for adaptive
introgression

Derek Setter^{1,2,3}, Sylvain Mousset¹, Xiaoheng Cheng⁴, Rasmus Nielsen⁵,
Michael DeGiorgio^{6†}, Joachim Hermisson^{1,2,7†}

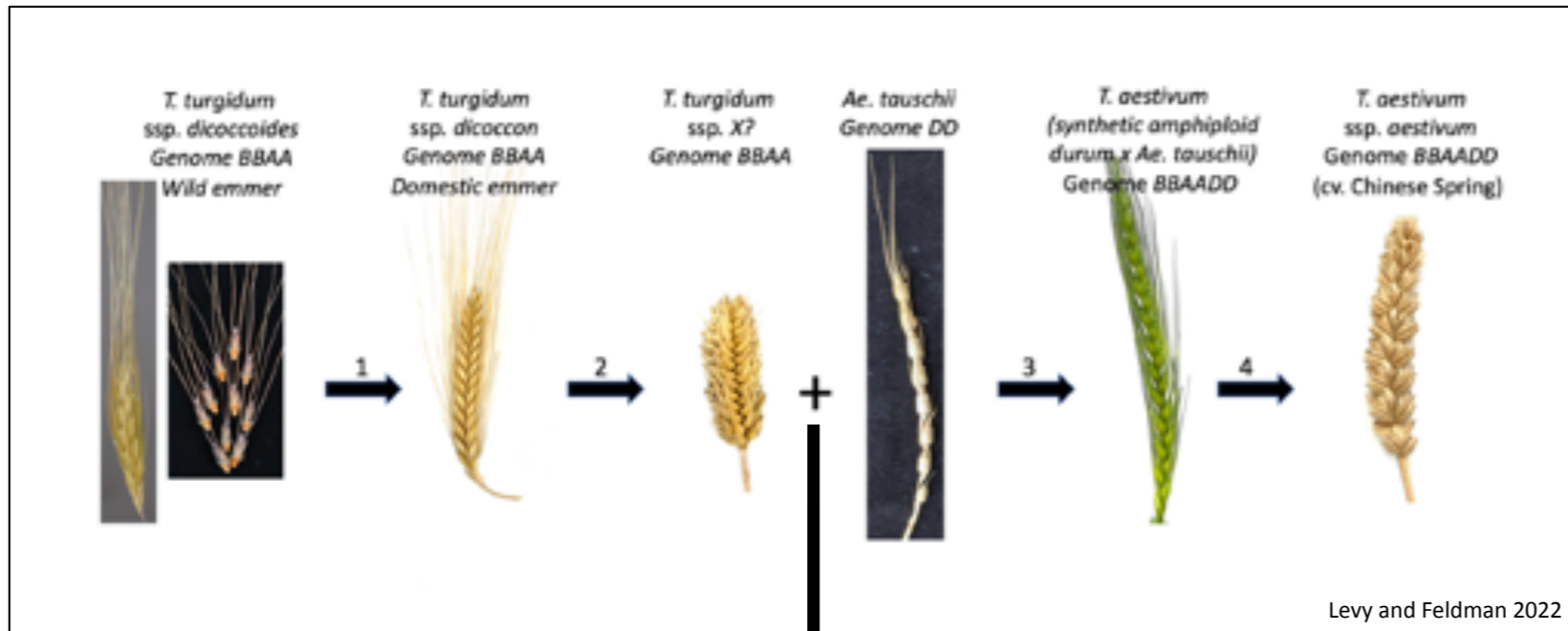
Estimating the rates of crossover and gene conversion
from individual genomes

heRho

Derek Setter^{*,1,2}, Sam Ebdon^{*,1}, Ben Jackson^{*} and Konrad Lohse^{*}
^{*}Institute of Evolutionary Biology, University of Edinburgh, Edinburgh, EH9 3FL, UK

The Origin of Hexaploid Bread Wheat

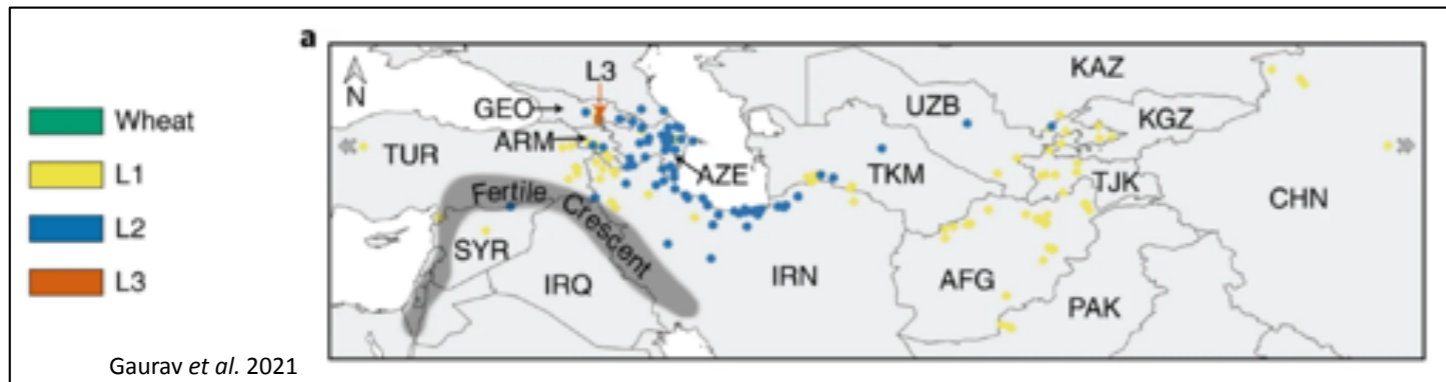
Emile Cavalet-Giorsa



How many times?

Where?

Who?



Prof. Simon Krattinger Group

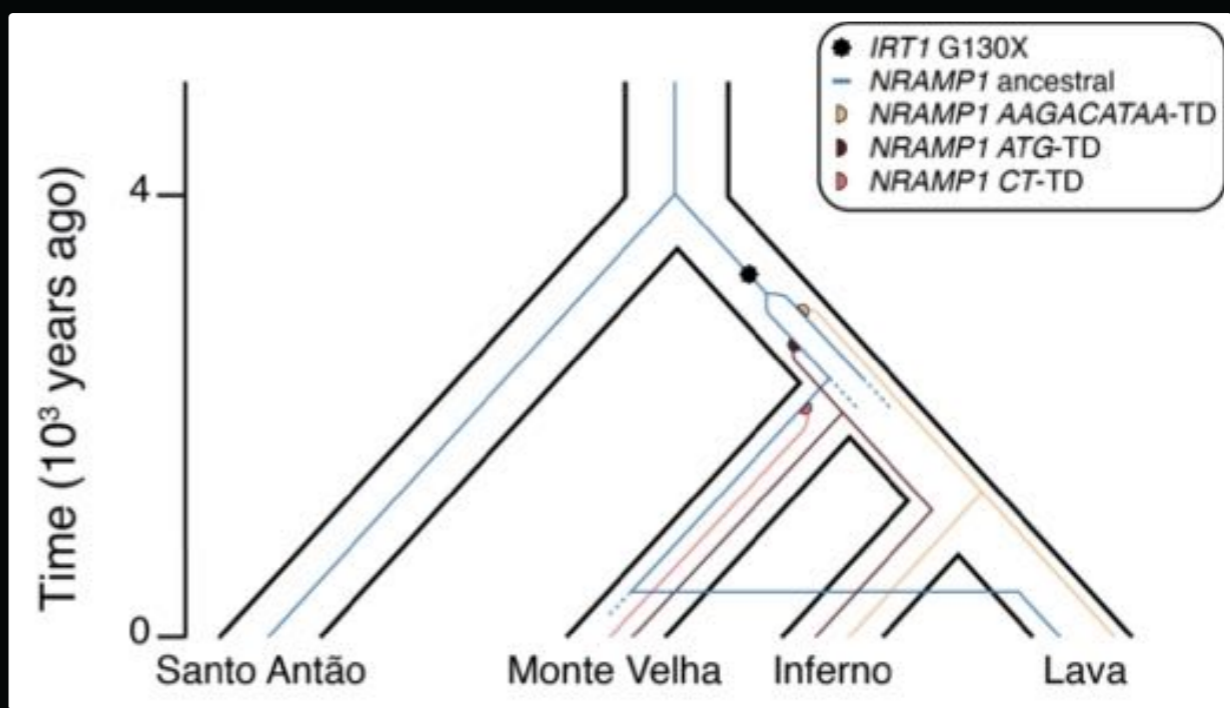


Emmanuel Tergemina
 Angela Hancock's group
 Max Planck Institute for Plant Breeding Research
 Cologne, Germany



@ETergemina

How do plants colonize challenging soil environments?



[10.1126/sciadv.abm9385](https://doi.org/10.1126/sciadv.abm9385)



Emiliano Trucchi

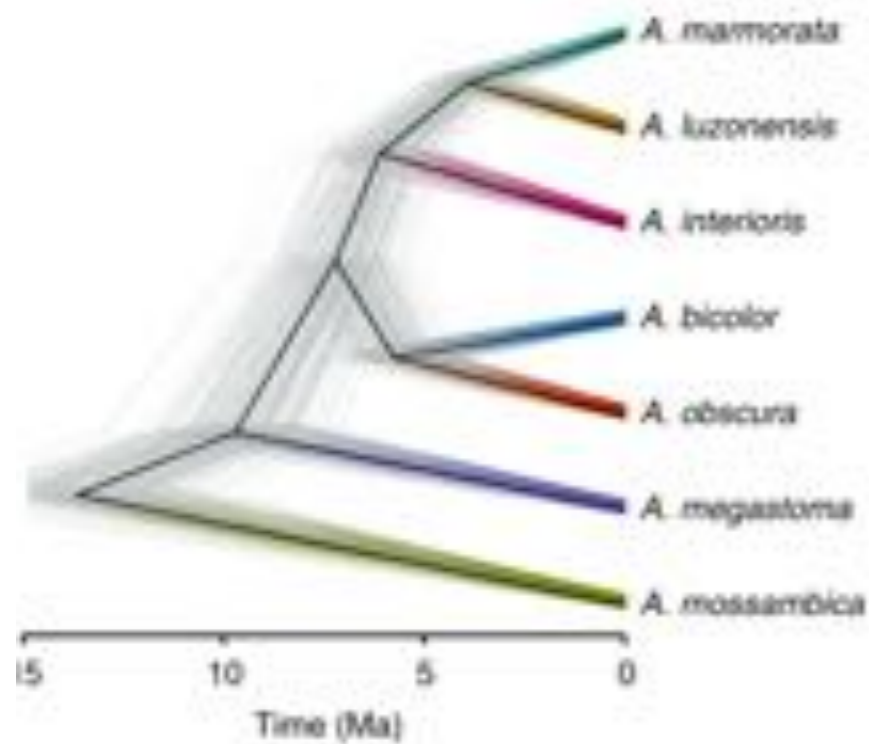
Studying demographic and adaptive processes in natural populations of (mostly) non-model species



ENDEMIXIT
Genomic susceptibility
to extinction of five
Italian endemic species

Keywords

Population genetics, Molecular Ecology, Genomics,
Bioinformatics, Conservation biology



Eva Paulus

University of Salzburg,
Austria



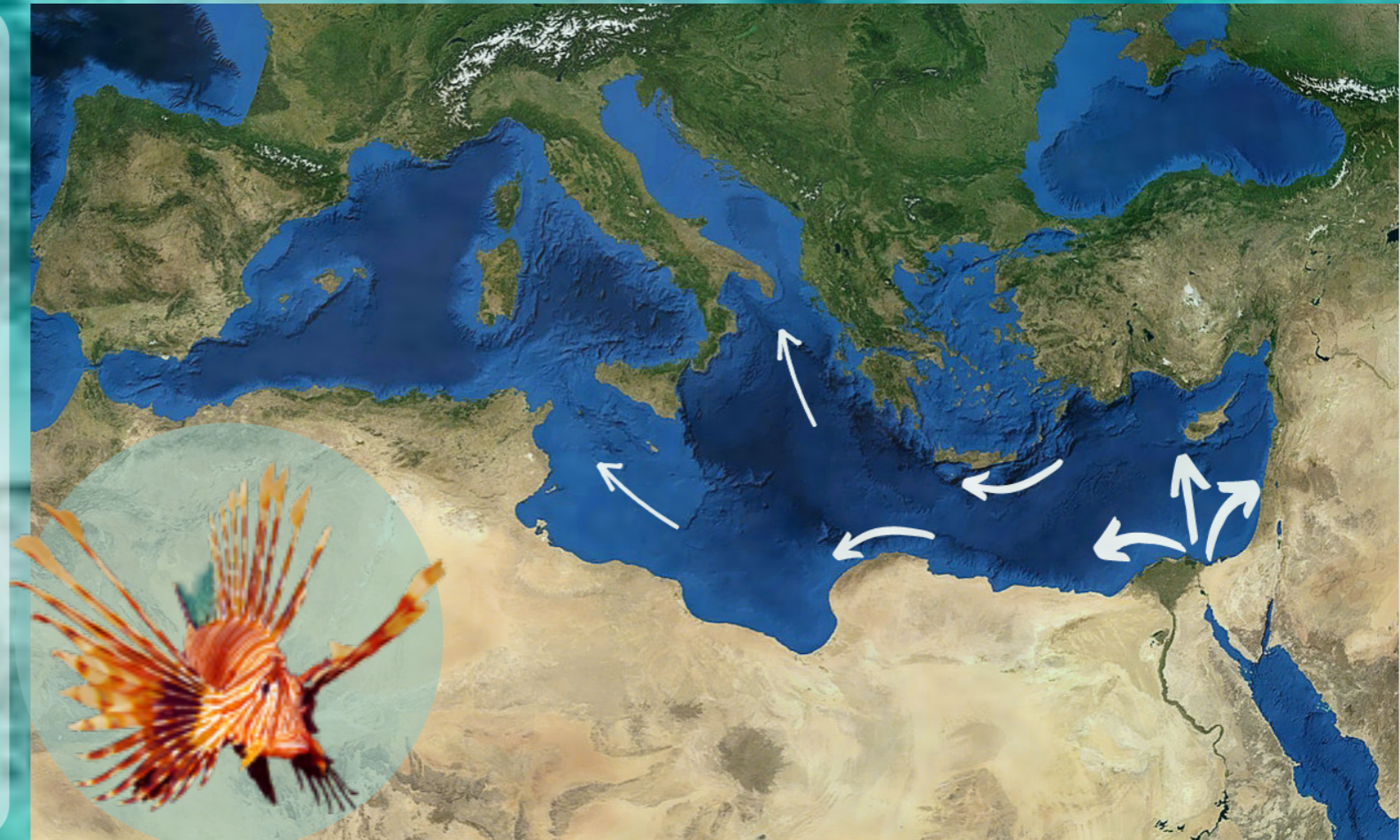
GENOMICS OF SUCCESSFUL LESSEPSIAN ALIEN FISHES COLONISING THE MEDITERRANEAN SEA

Genomic traits of a potential invasive population

Impact of the invasive process on genetic variability

Methods:

Genomic and transcriptomic data
Simulations of population dynamics



Francesco Giannelli, PhD student
Supervisor: Emiliano Trucchi - Emanuela Fanelli
Genomics Lab - Dept of Life and Environmental Sciences
Polytechnic University of Marche, Italy



UNIVERSITÀ
POLITECNICA
DELLE MARCHE

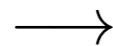
- I am teaching the `msprime/tskit/tsinfer` sessions next Thursday.
- I am a `tskit` developer, with a particular focus on computational models for identity-by-descent, local ancestry and other haplotype-based information.

Email: `g.tsambos@gmail.com`

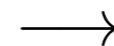
Twitter: GeorgiaTsambos



Stephen Leslie
Damjan Vukcevic



Peter Ralph
Andy Kern

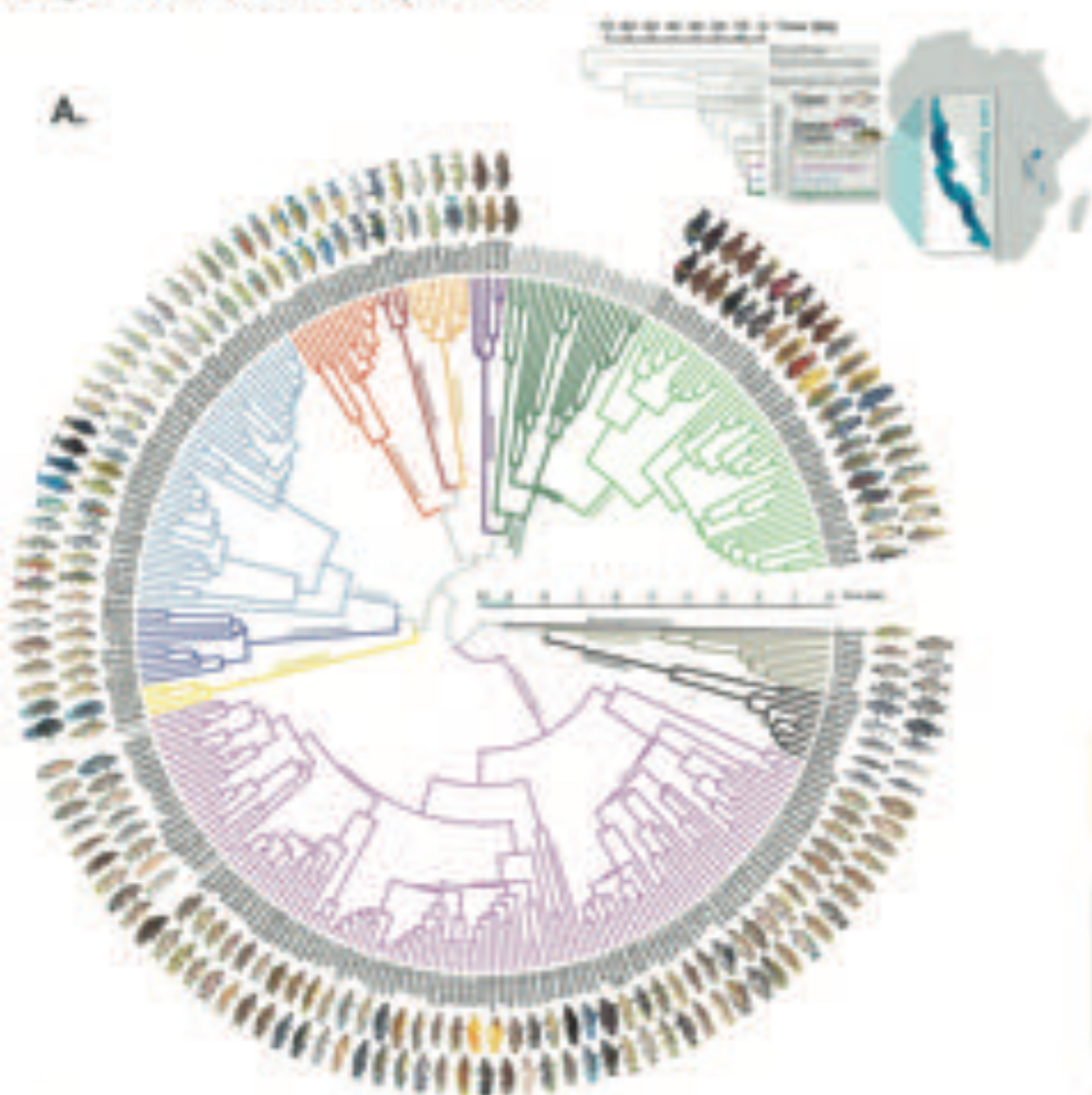


Kelley Harris

The Mobilome of the Lake - the role of transposable elements dynamics during a massive vertebrate radiation

The case of Lake Tanganyika cichlids

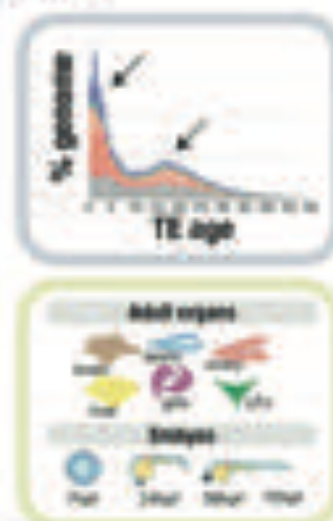
Grégoire Vernaz - University of Basel



B.



C.



D.



Project

- TEs might represent major actors of phenotypic divergence, generating functional structural variants and epigenetic variation, in particular during development (PhD)

Methods

- Long Read PacBio Genomes of one representative species across LT radiation (comparative TE dynamics)
- Multi-tissue RNAseq (adult and embryonic; comparative transcriptomics)
- Comparative approach: cisTE candidates, and in vivo experimentation (CRISPR)

Goal

- Population genomics - analytical and conceptual approach - international expertise

Rapid adaptation and diversification

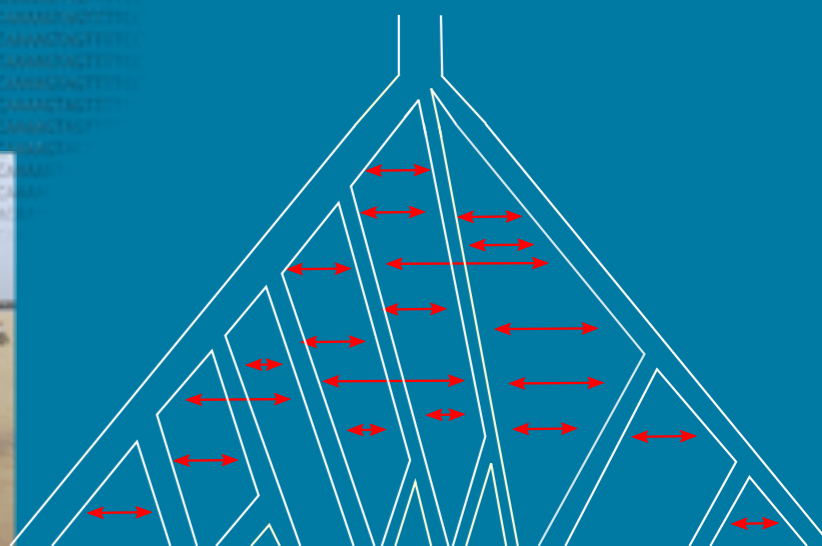
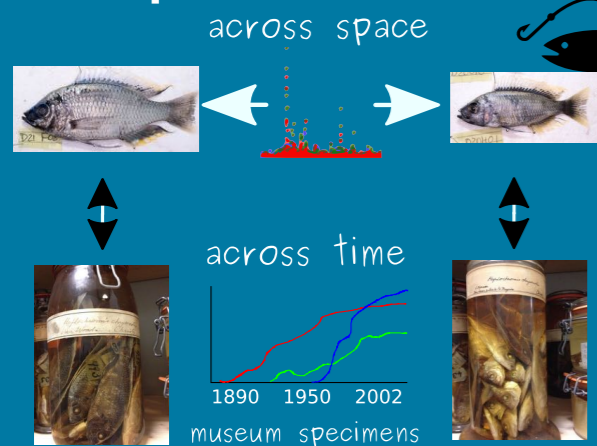
Hannes Svardal

hannes.svardal@uantwerpen.be



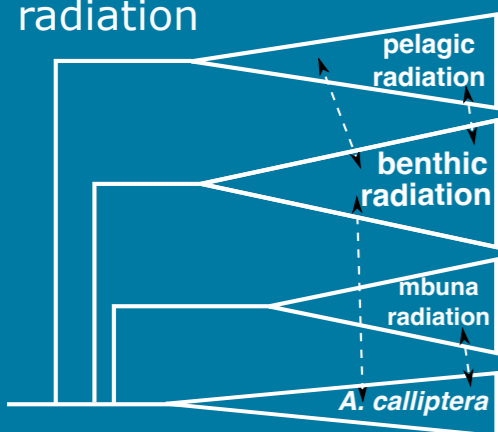
Role of gene flow

Adaptation to fishing



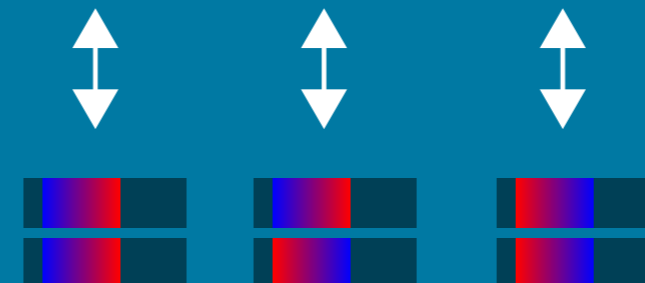
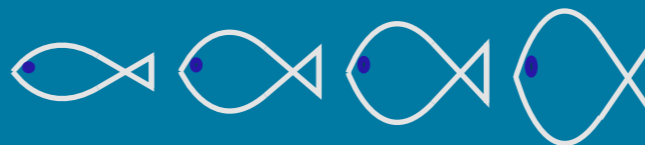
Role of genomic inversions in adaptive diversification

Malawi cichlid adaptive radiation



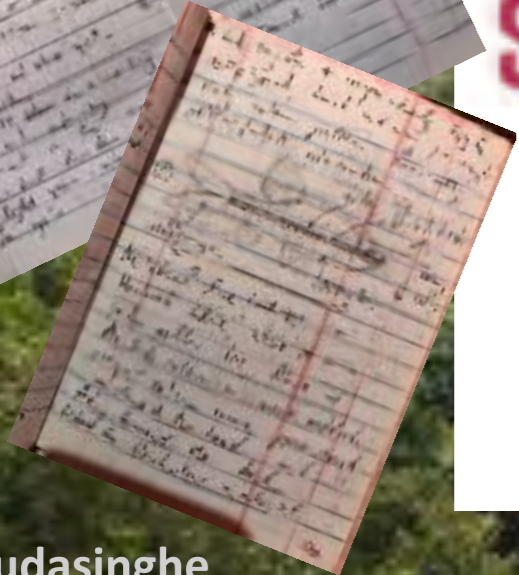
Cross 1

Cross 2



Looking for a postdoc/PhD!

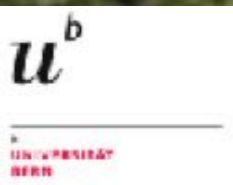
Computational genomics



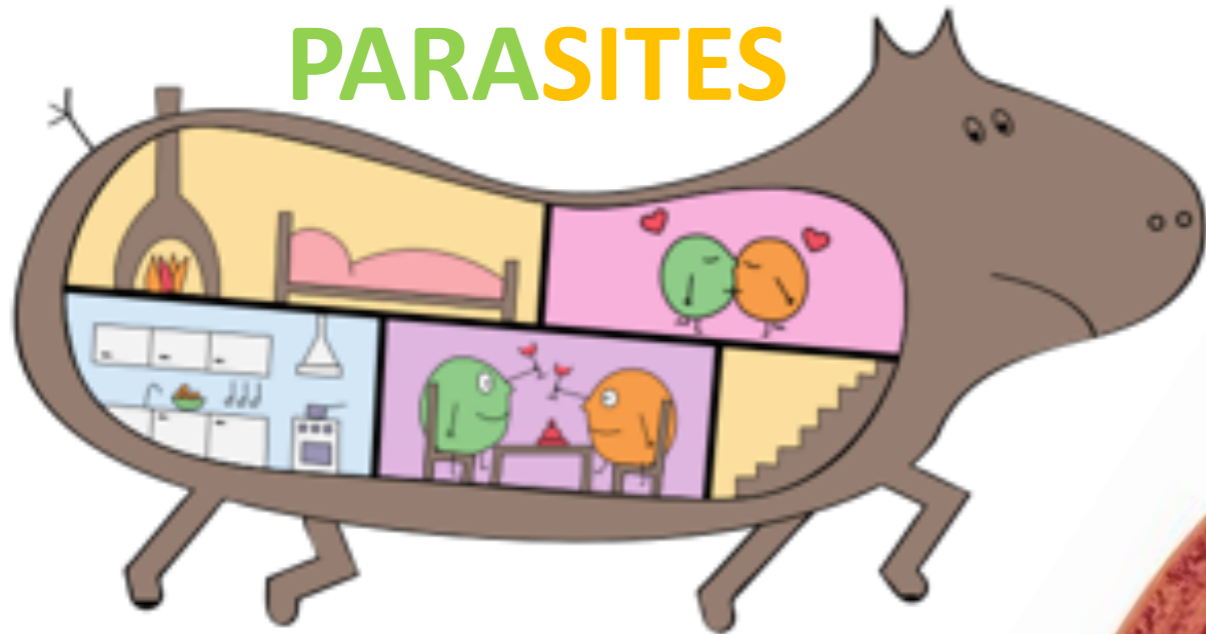
MINIATURIZATION
PHYLOGENETICS
HERPETOLOGY SYSTEMATICS
SPECIATION **BIOGEOGRAPHY** **POPULATION GENETICS**
EVOLUTIONARY BIOLOGY
GENOMICS **ICHTHYOLOGY**
CYPRINIFORMES TAXONOMY
BIODIVERSITY CONSERVATION



Hiranya Sudasinghe
PhD student, Evolutionary Ecology, Institute of Ecology and Evolution, University of Bern, Switzerland & Naturhistorisches Museum Bern, Switzerland



PARASITES



Isabel BLASCO COSTA
Natural History Museum
of Geneva, CH



Jack Harper

2nd year BBSRC PhD student at the University of Nottingham, UK

Current working title: Using biological invasions to understand rapid adaptation to new environments: a genomic reconstruction of the house sparrow global spread



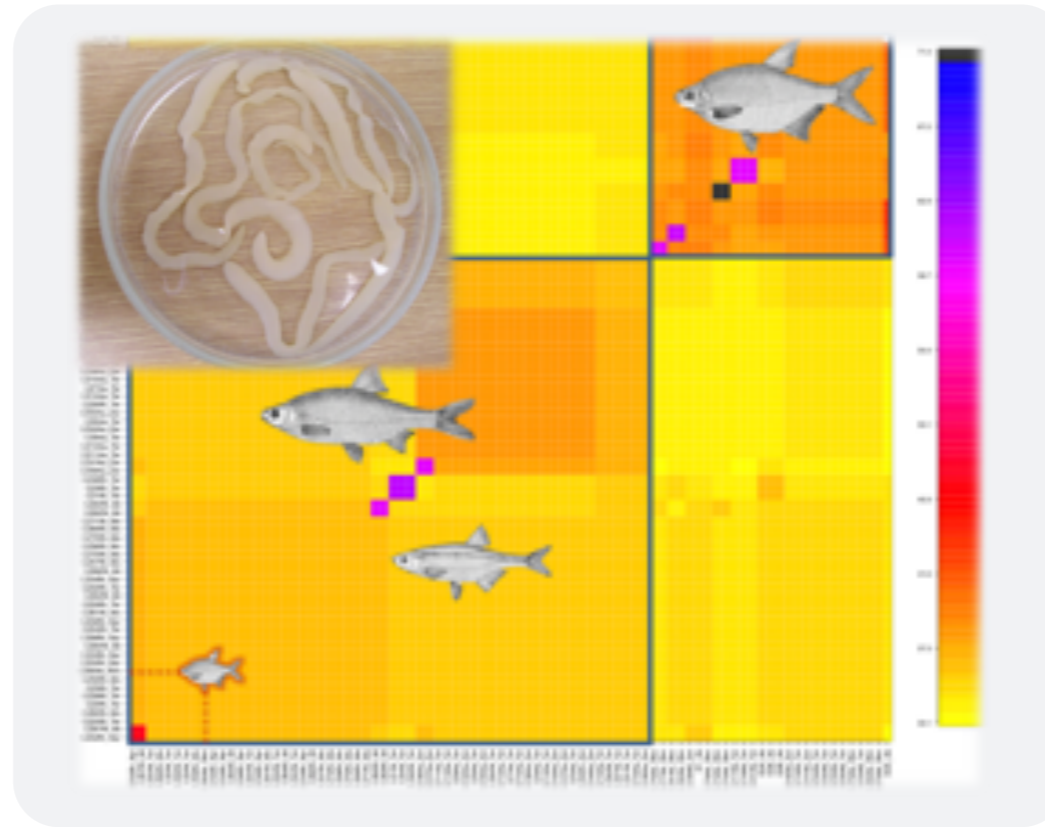
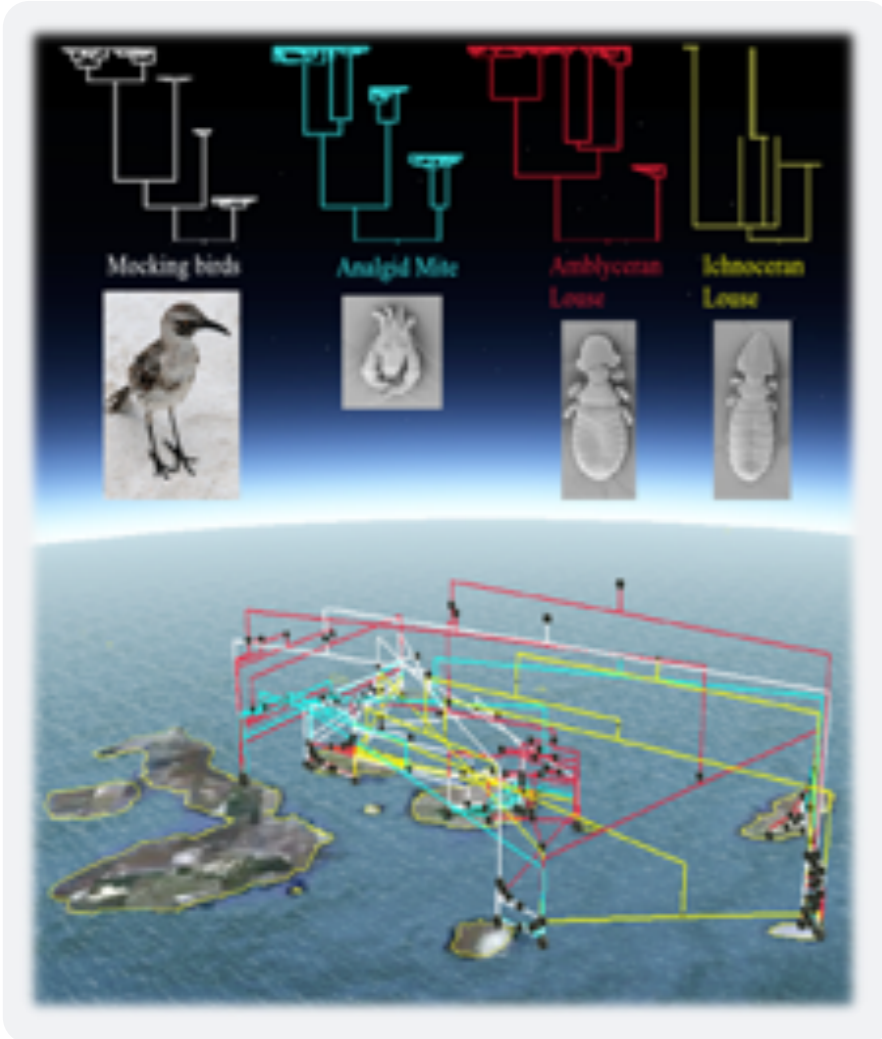
University of
Nottingham

UK | CHINA | MALAYSIA



Biotechnology and
Biological Sciences
Research Council

Jan Štefka



Population genetics/omics of host-parasite co-evolution





Who? Jeronimo Cid



Undergraduate in forestry engineering, U. P. Madrid.
MSc in Ecology, Evolution and Conservation, Imperial College.
PhD in Evolutionary Biology, Bangor University and Kew Gardens.

What?

Interested in Evolutionary and Biogeography of [plants](#).

Project on the evolution of the date palm's wild relatives (*Phoenix* sp.) and their adaptations to drought conditions.

Why?

Understanding how palms adapted to a wide range of arid conditions could help us predict which plants will adapt to climate change, and select adequate varieties for crop improvement.

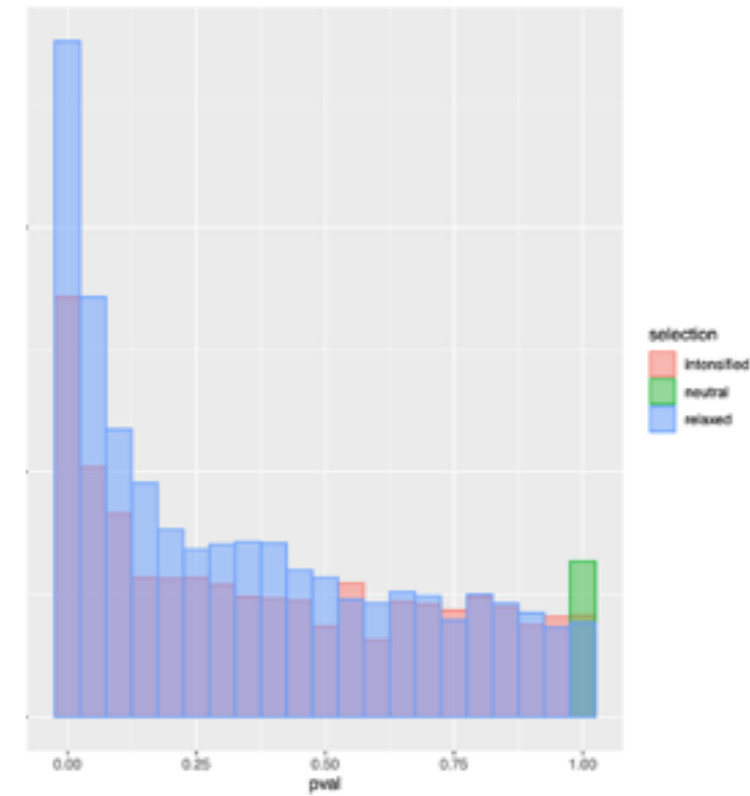
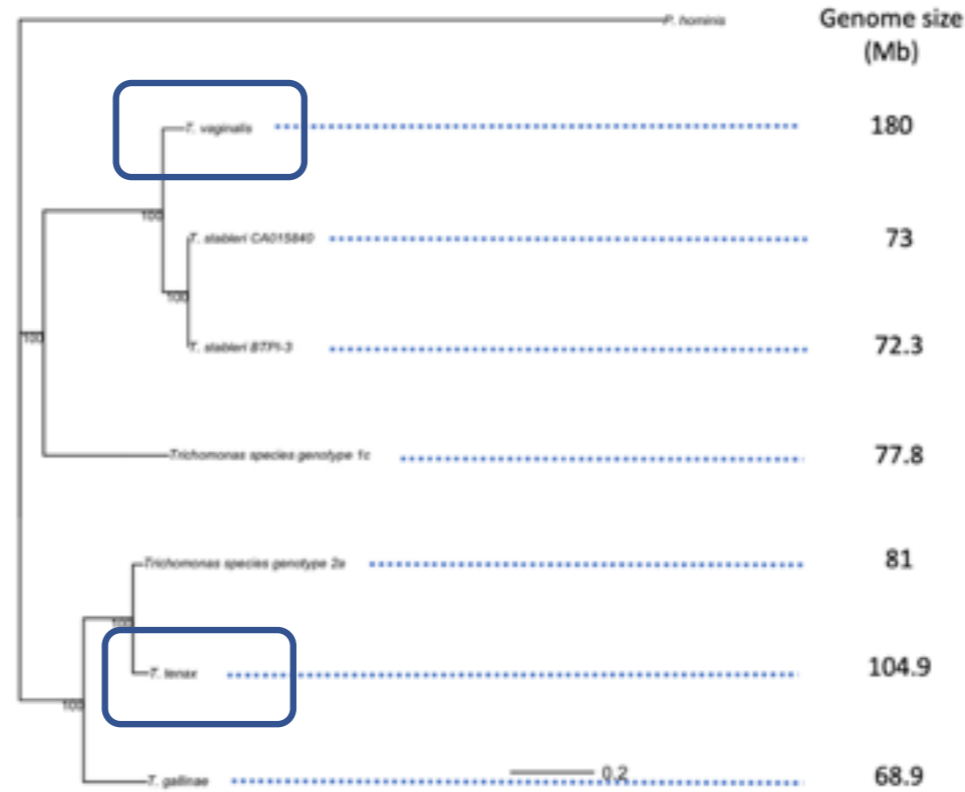
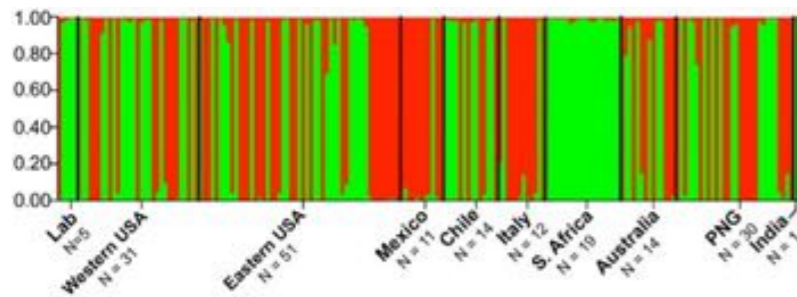
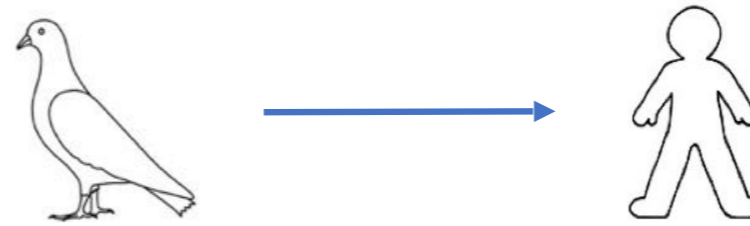
How?

Bioinformatic pipelines including phylogenetics and population genetics, and spatially explicit modelling.





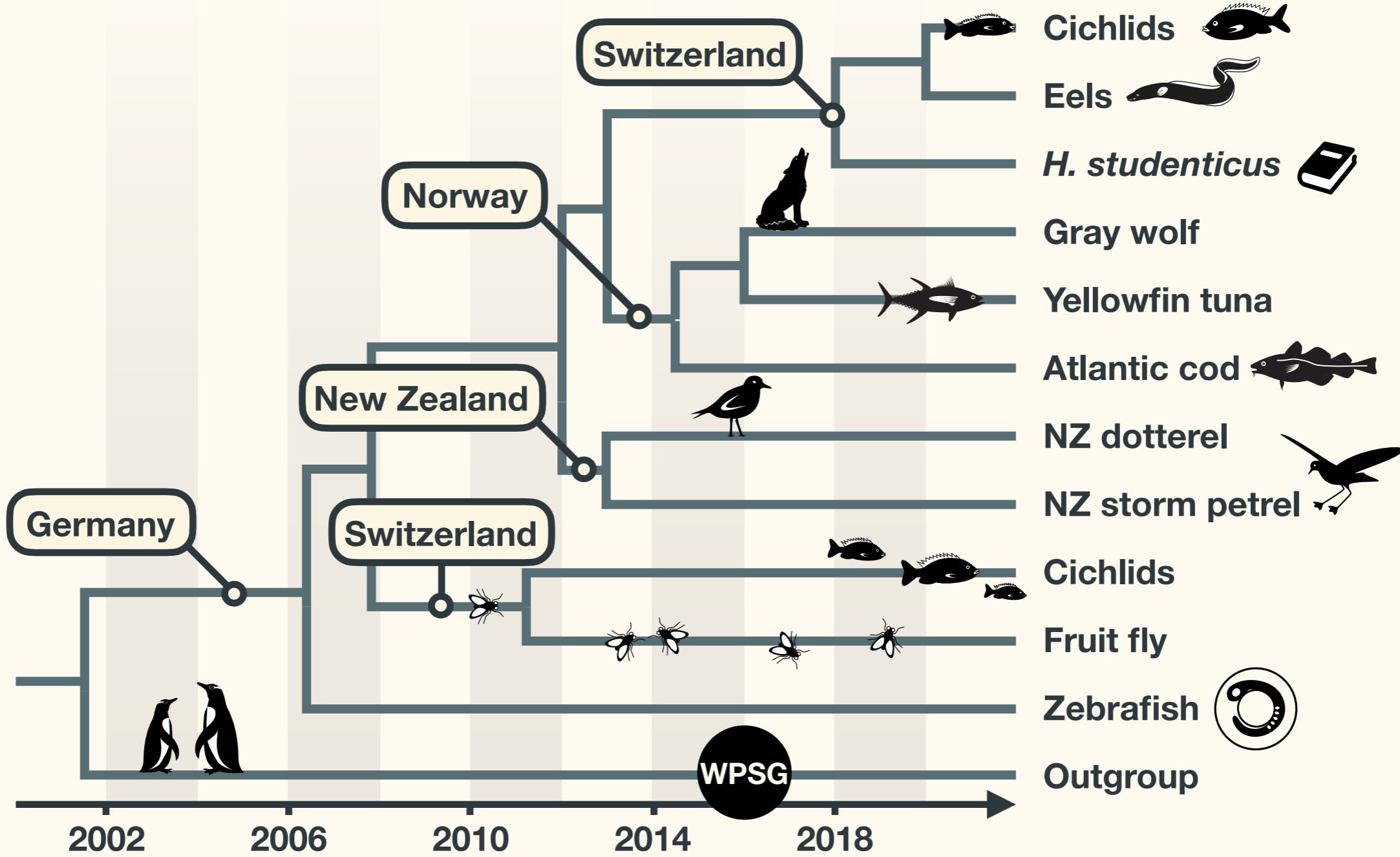
Trichomonas vaginalis
 Jordan Orosco
 Jane Carlton Lab



Julia M.I. Barth

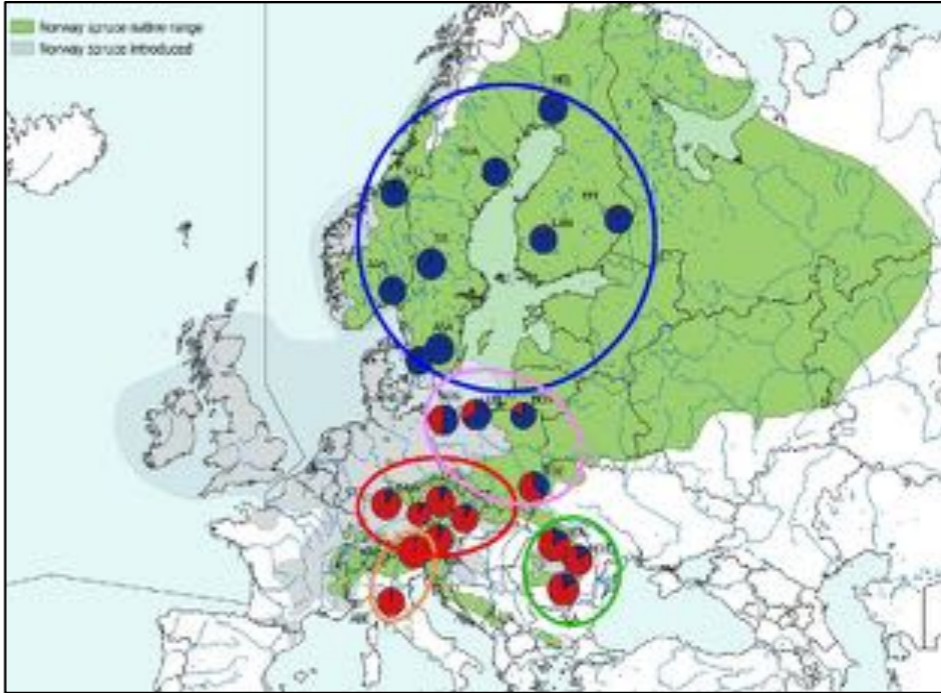
University of Basel, Switzerland

www.zebrafish.ch



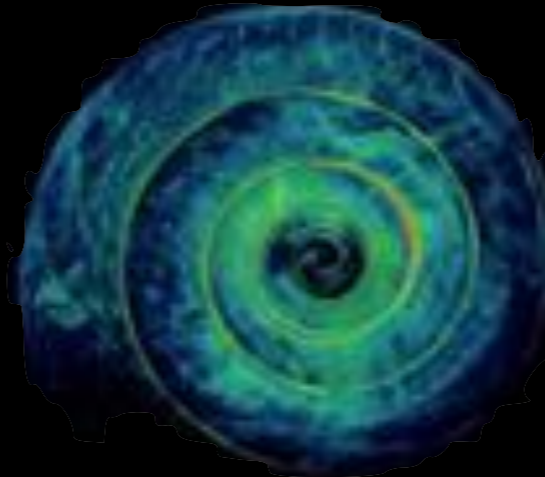


Julia Morales-García
Institute of Environmental Sciences
Jagiellonian University of Krakow (Poland)



Can planktonic snails adapt to an acidifying ocean?

- Evolutionary framework
- Phenotypic/ genomic variability
- Short-term responses to OA



Peijnenburg et al. (2020) PNAS



N

Naturalis
Biodiversity
Center



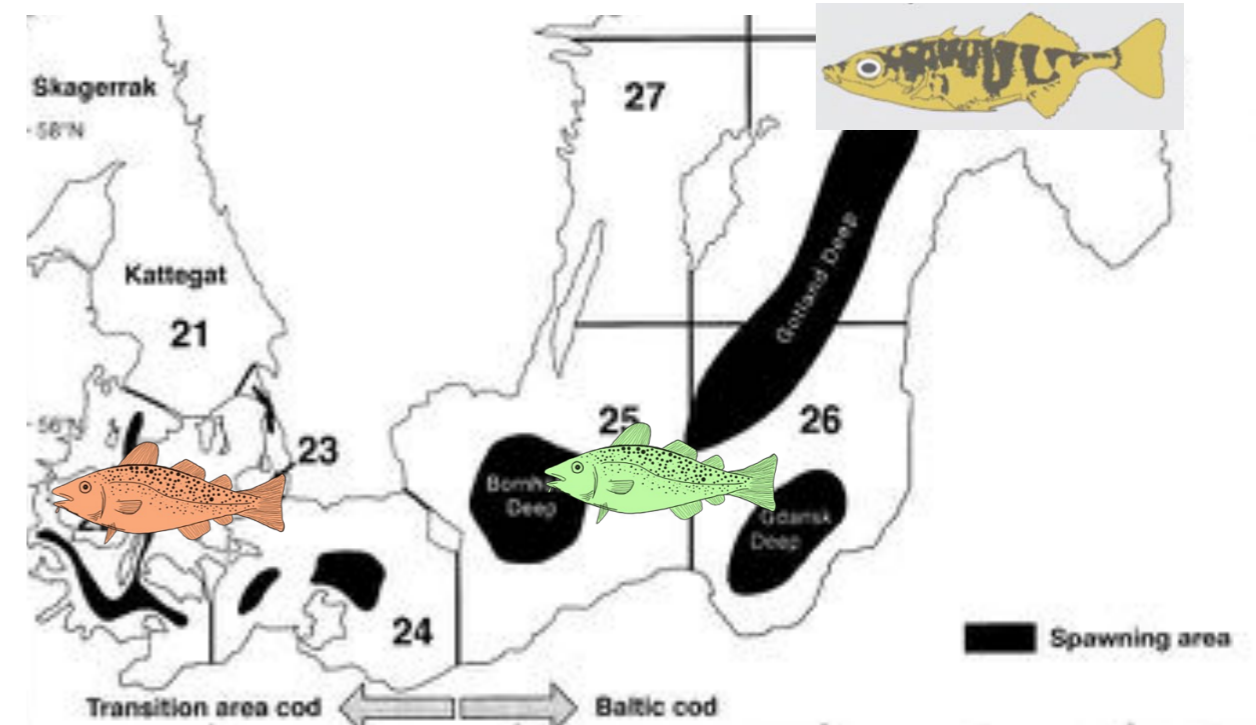
Katja T. C. A. Peijnenburg

peijnenburg@uva.nl - *@katjaplankton*

Plankton Diversity & Evolution research group

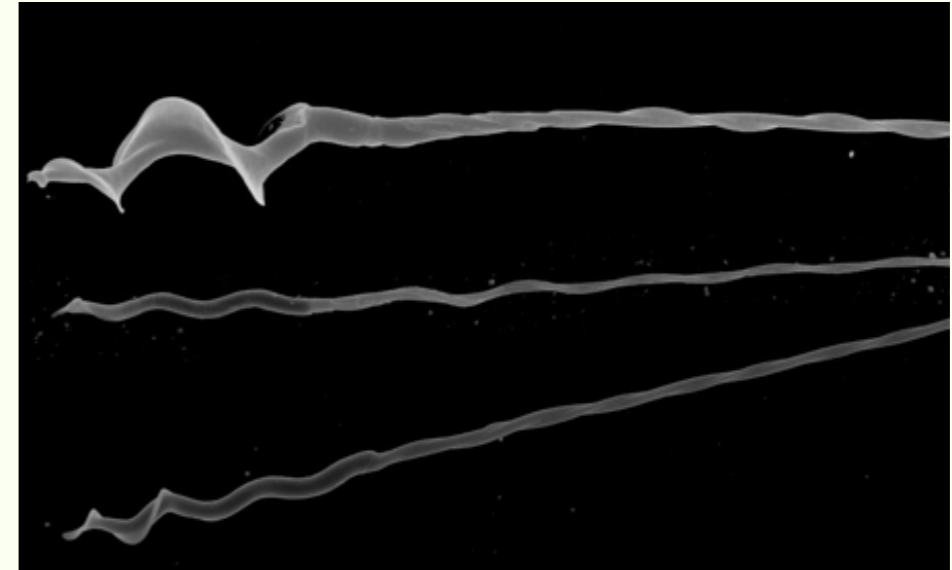


Kwi Young Han



- Cod Temporal Population (Fisheries induced evolution)
- Divergence of Eastern Baltic cod
- Adaptation of Baltic Three-spined Stickleback

LAIMA BAGDONAITĖ



MSc, 2019 Biodiversity and
Systematics
University of Gothenburg

Applications of Next-Generation Sequencing
Data for a Population Genomics Study of
Lesser Whitethroats

PhD student at Natural History
Museum, University of Oslo

Evolutionary Genomics of Avian Spermatozoa





LARISSA ARANTES



GENOMICS
CONSERVATION

HYBRIDIZATION

ADAPTATION

PHYLOGENY

RELATEDNESS





(Images: Darren Obbard)



(Images: Iris Peralta)

Leonie Moyle
lmoyle@indiana.edu



@SpeciationLab

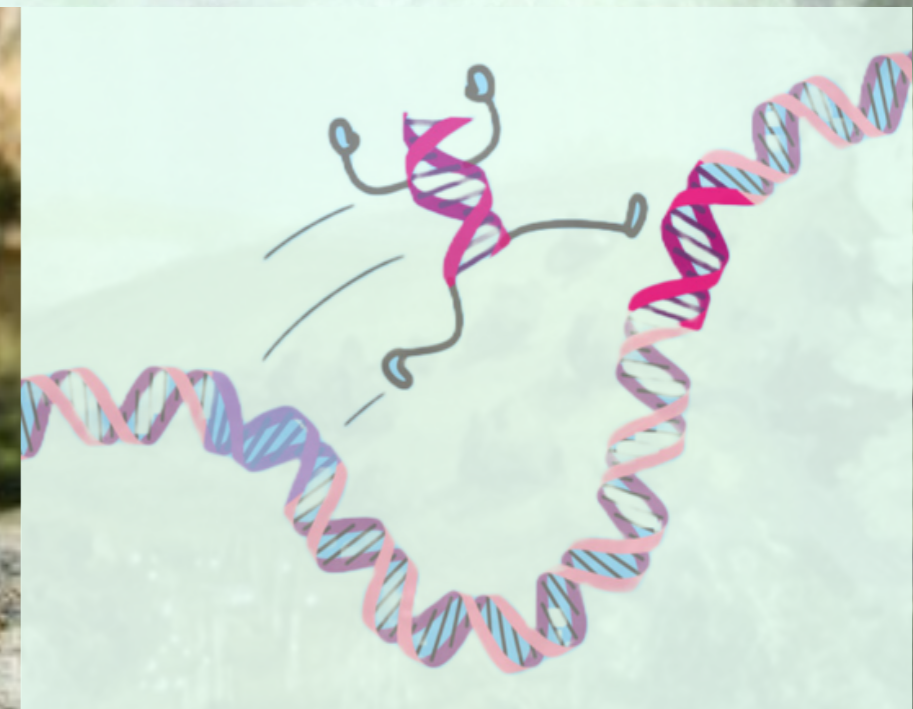
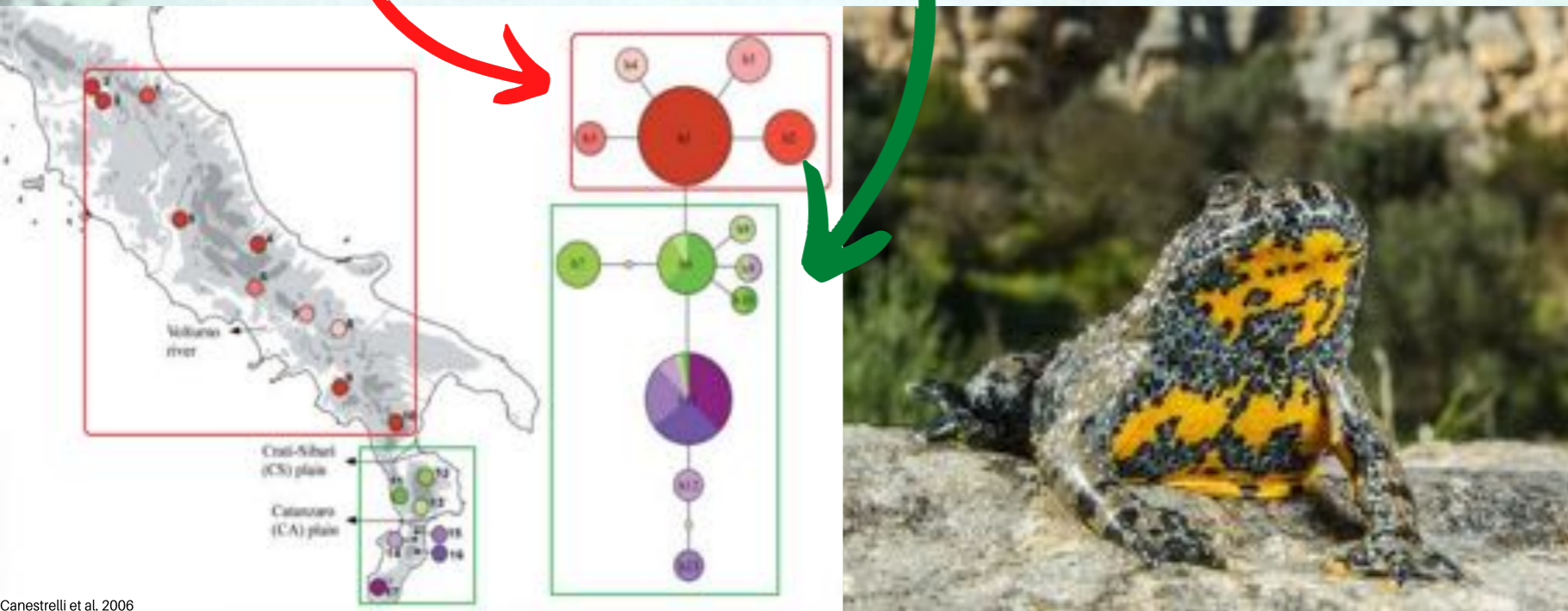
Indiana University,
Bloomington (USA)

Transposable elements dynamics in the genome of the endangered Apennine yellow-bellied toad (*Bombina pachypus*)

Small but with a huge genome (10 Gb)

Genetic pattern of "southern richness and northern purity"

- Impact of TEs on the structural variation of a large genome
- Impact of selection on TE dynamics



Lorena Ancona, PhD Student
Supervisors: Emiliano Trucchi - Marco Barucca
Genomics Lab, Dept of Life and Environmental Sciences
Polytechnic University of Marche, Italy

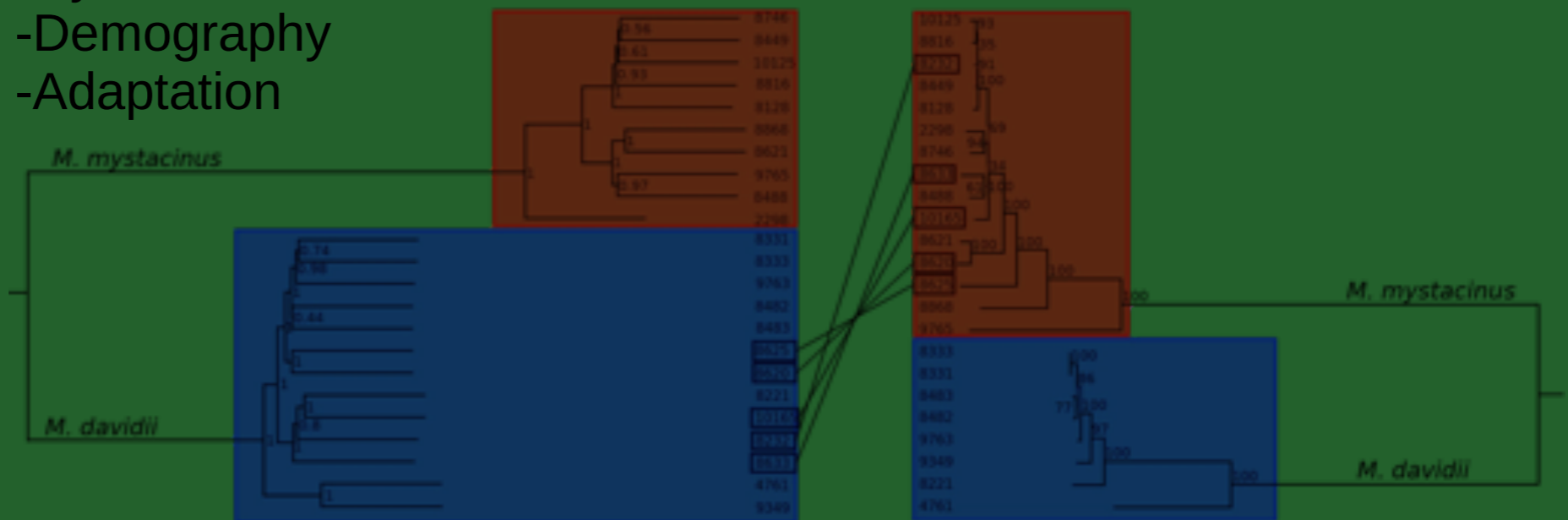


Evolutionary consequences of hybridization in insect-predatory bats in Western and Central Asia

Marie Gurke, PhD student



- Population structure
- Hybridization
- Demography
- Adaptation



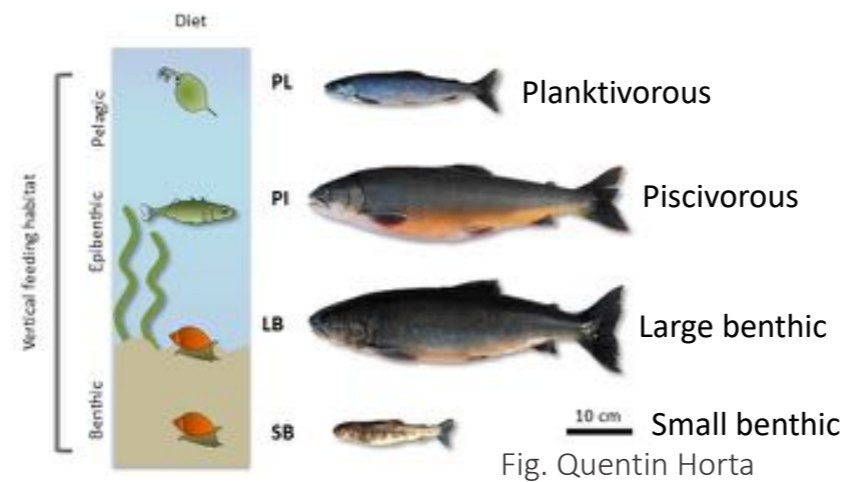
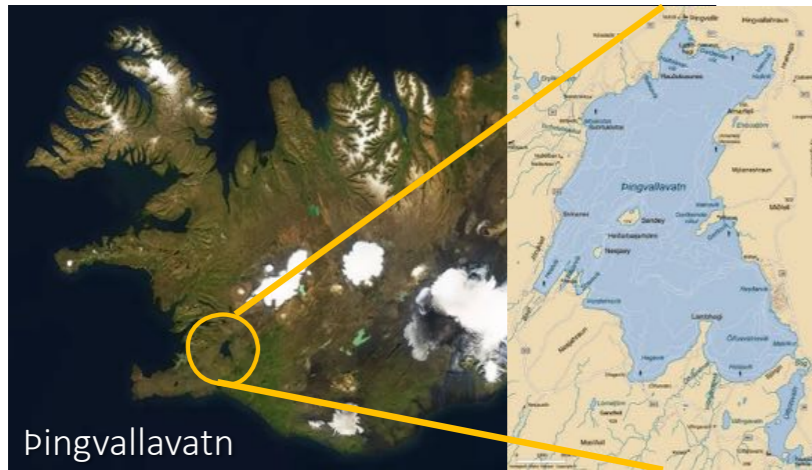


Marina de la Cámara
PhD student
University of Iceland

Kapralova, K.H.¹, Morrissey, M.B.²,
¹University of Iceland, ²University of St Andrews

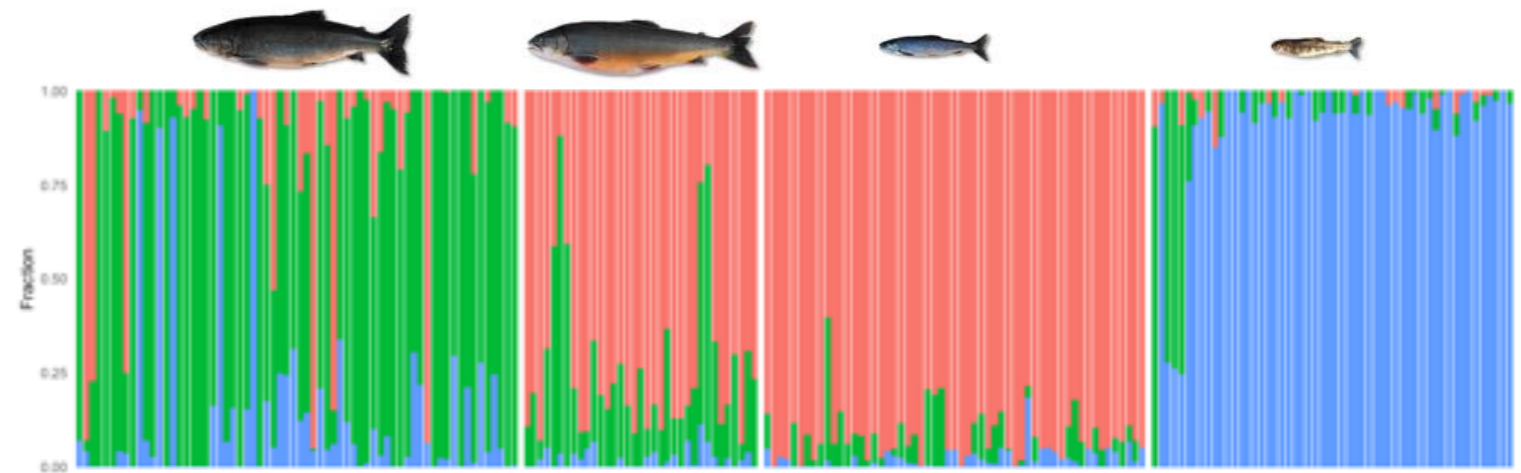


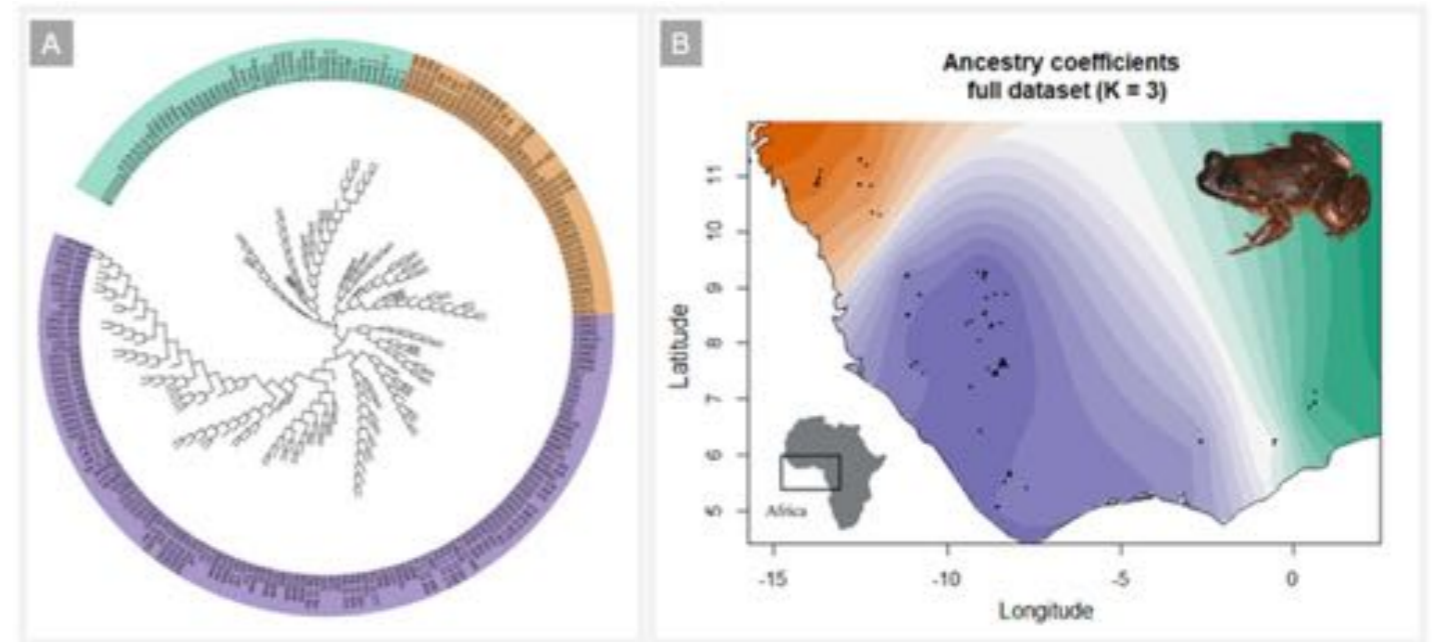
The genomic basis of adaptive differentiation between closely related morphs of Arctic charr



QTL mapping & Pop. Genomics & GWAS

Complex evolutionary history
Population subclustering
Highly introgressed ecomorphs





PhD Student

Mario Ernst

Dr. Mozes Blom

Dr. Mark-Oliver Rödel

Marion Talbi



Msc in Ecology and Evolution



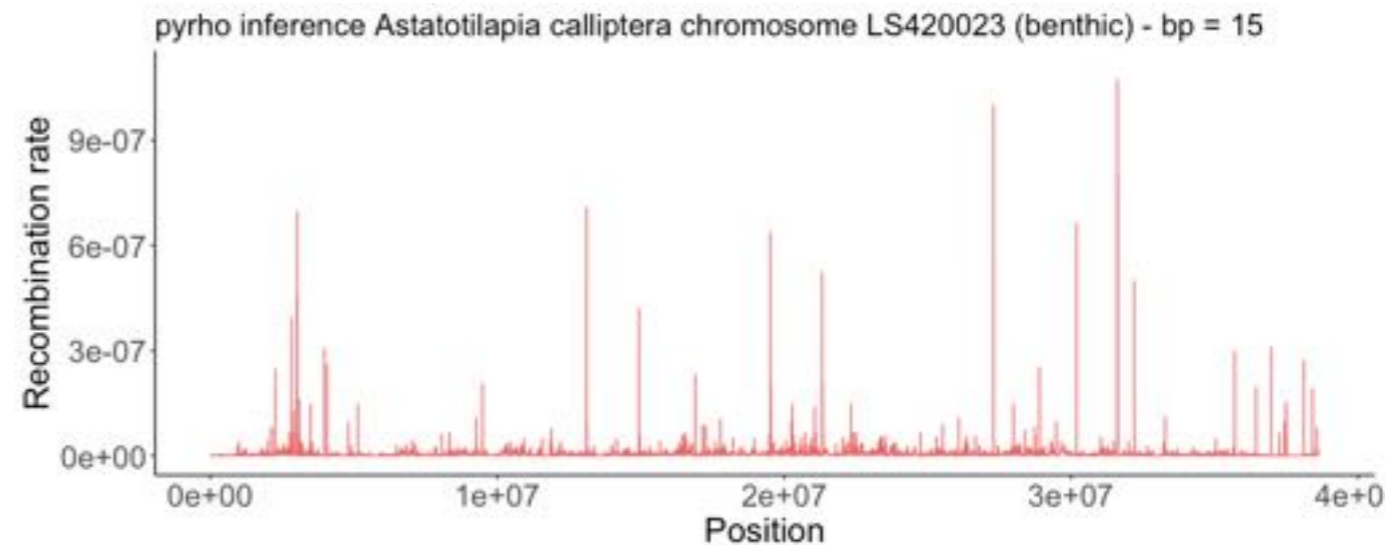
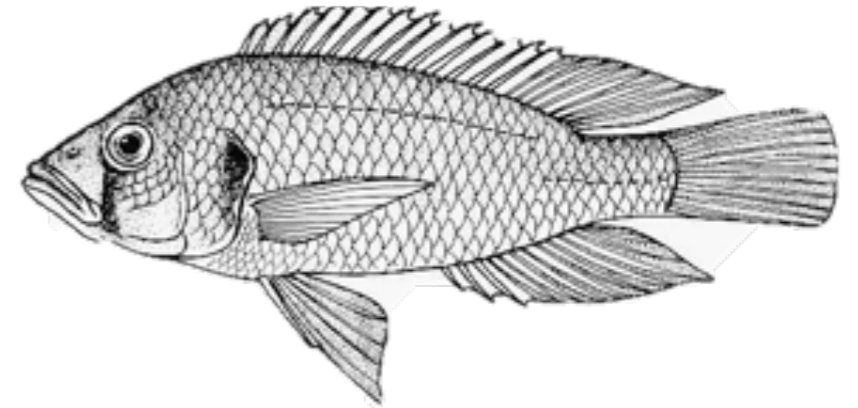
1st year PhD student



u^b

b
**UNIVERSITÄT
BERN**

“Evolution of recombination landscapes within percomorph fishes”





whole genome duplication (polyploidy)



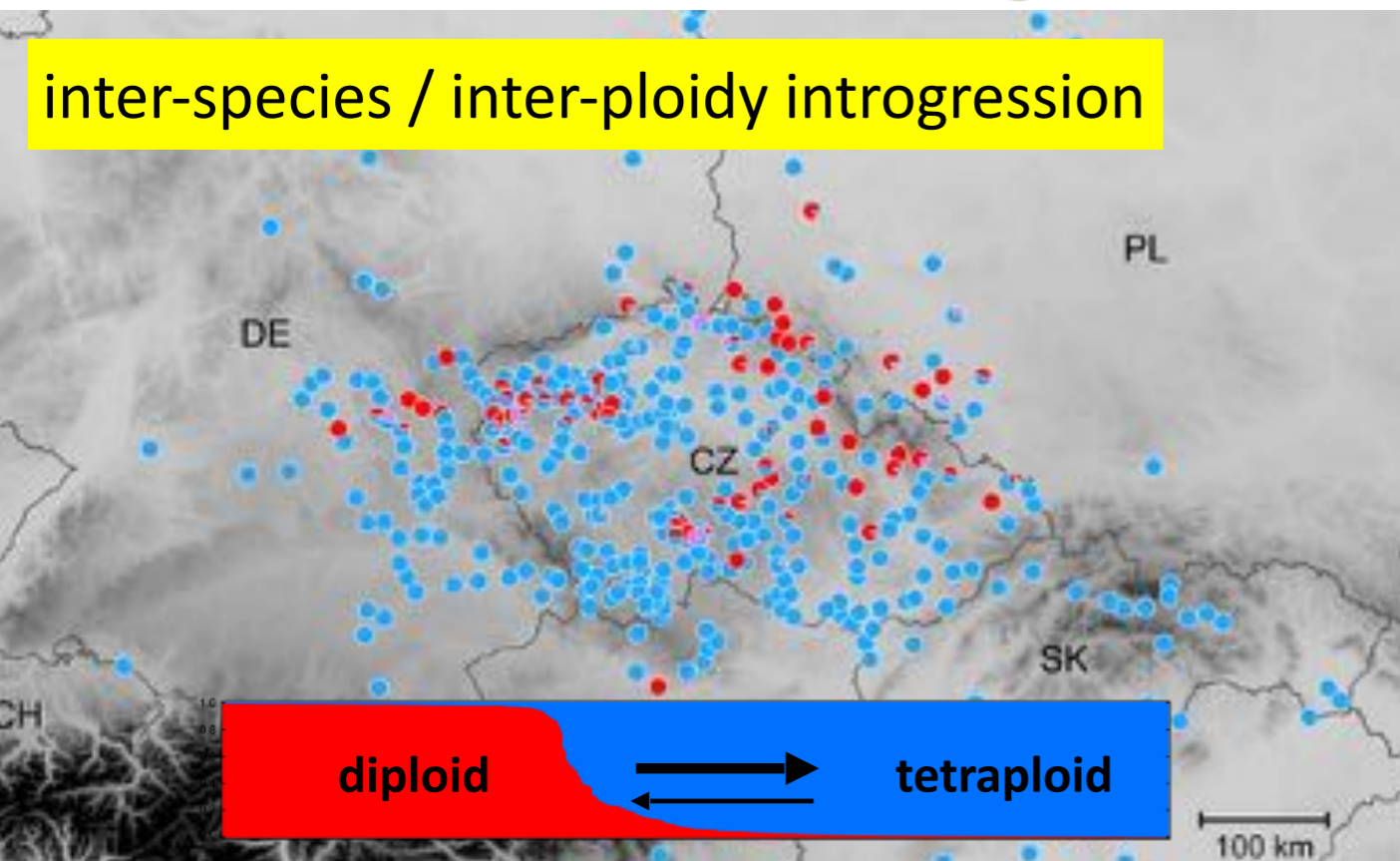
Martin Čertner



Dpt. of Biology, University of Fribourg
(Switzerland)

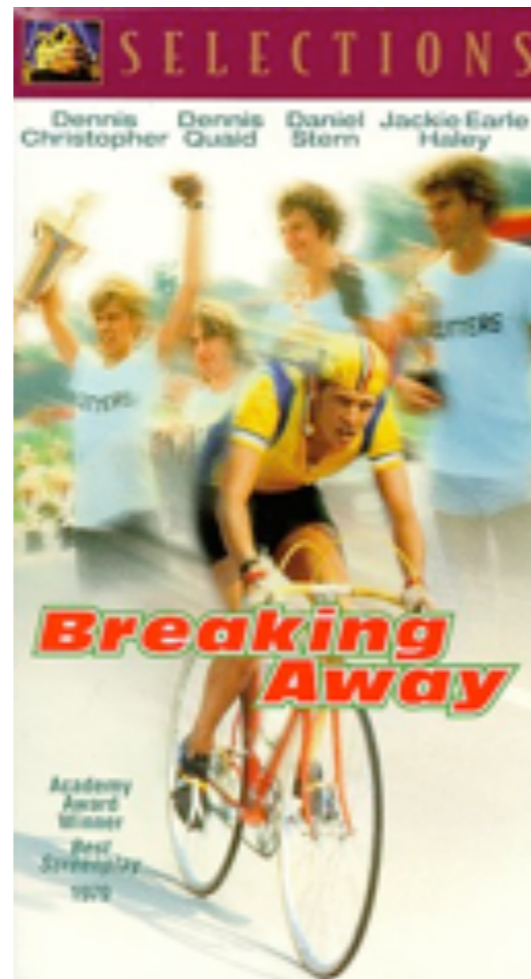
Dpt. of Botany, Charles University,
Prague (Czechia)

inter-species / inter-ploidy introgression



genomics of local adaptation





Matthew Hahn
mwh@indiana.edu
@3rdreviewer 



Molecular biology support for *ex-situ* conservation breeding

Zoonotic pathogen detection & surveillance

Metabarcoding / molecular approaches to biodiversity inventories

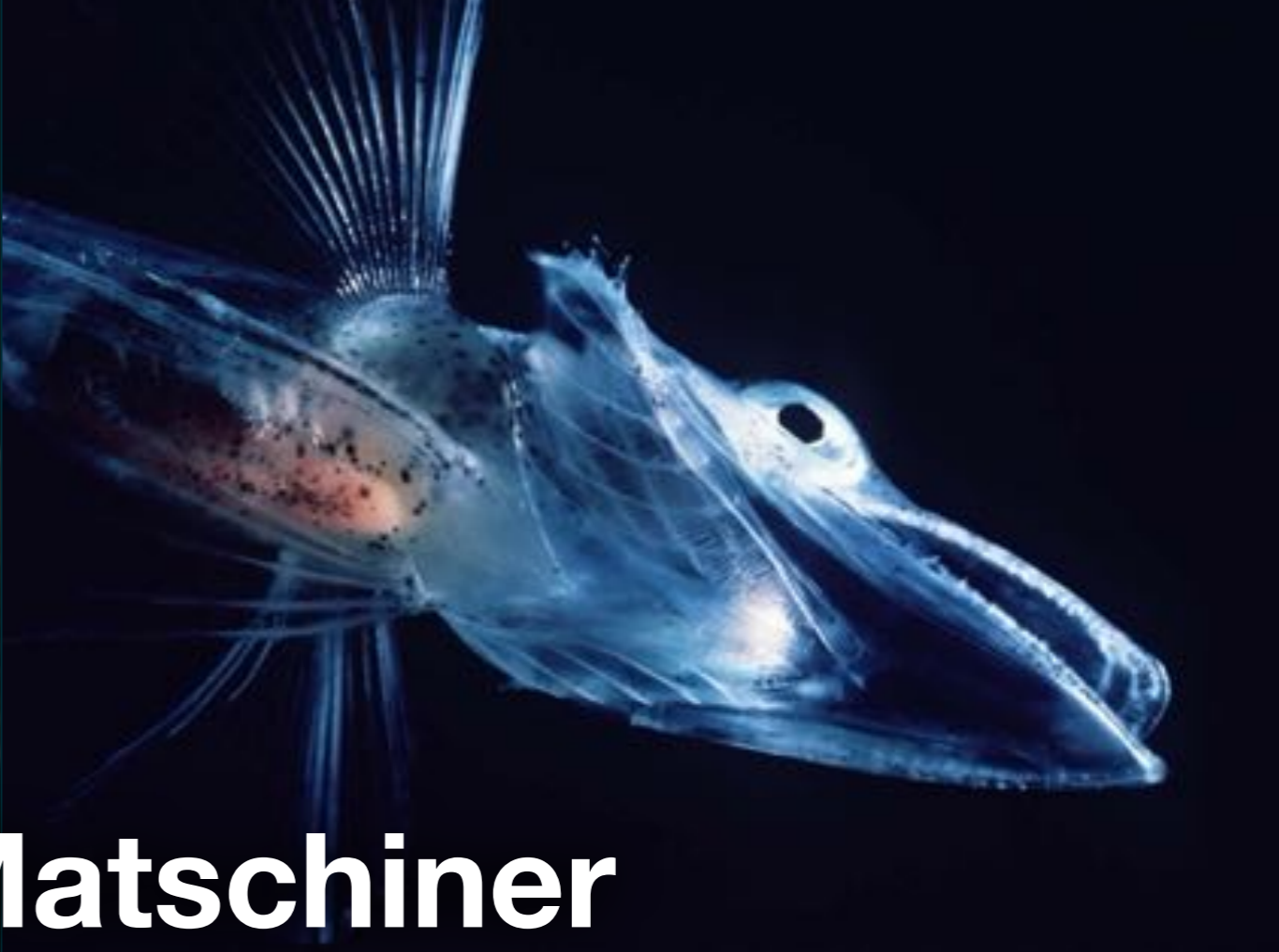
Steppic bird conservation & evolutionary genomics

Unlock basic & applied scientific potential of the world's largest avian conservation breeding program

Matthew Miller

Researcher & Head of Conservation Genetics Lab,
Abu Dhabi, United Arab Emirates

RENECO
FOR WILDLIFE PRESERVATION



Michael Matschiner

University of Oslo



Milan Malinsky

Short CV

2007-2010 BSc Computer Science, Birmingham, UK

2010-2011 Master in Computational Biology, Cambridge, UK

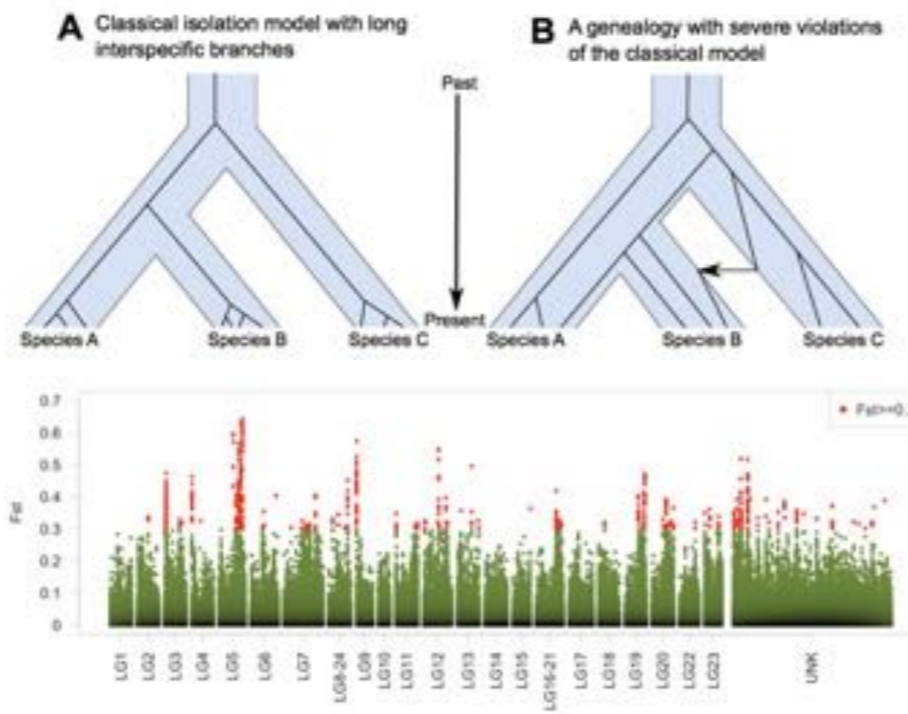
2011-2015 PhD in Evolutionary Genomics, Cambridge, UK

2016-2020 EMBO Fellowship + Postdoc, Basel, Switzerland

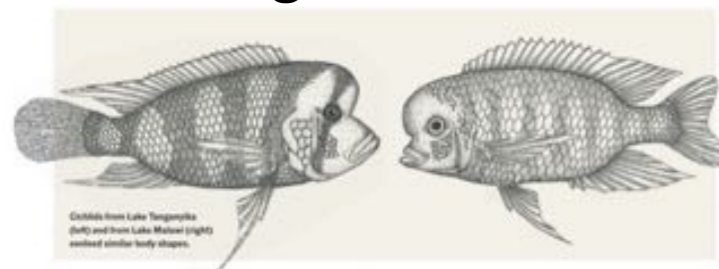
2021-now Junior PI, IEE, Bern, Switzerland

Biology:

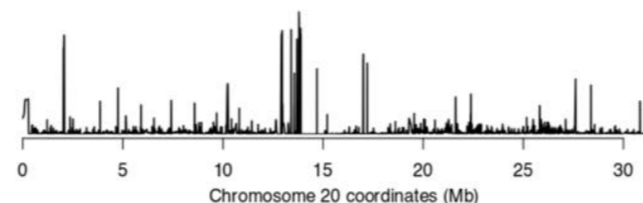
1. Genomics and speciation in cichlid fishes



2. Convergent evolution



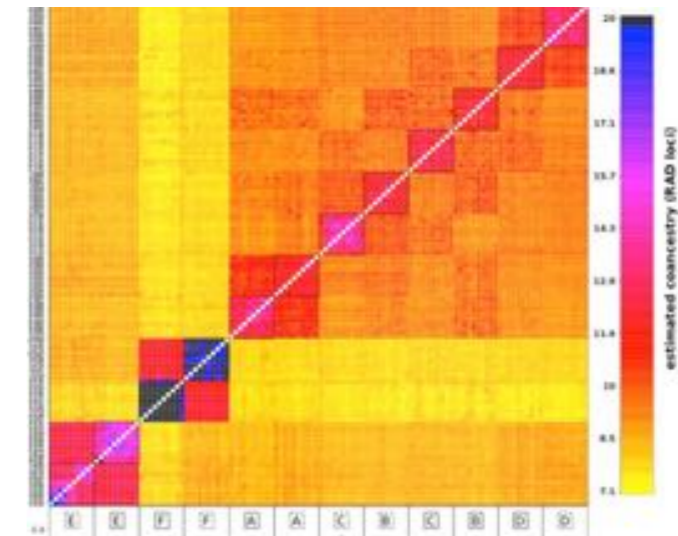
3. Recombination



Technical interests:

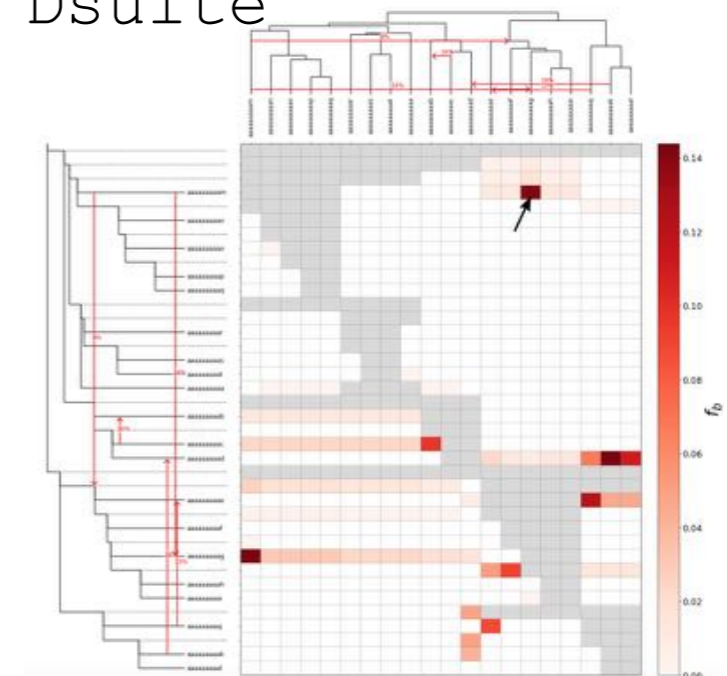
1. Population structure inference

→ fineRADpainter



2. Gene flow inference

→ Dsuite



3. De novo genome assembly

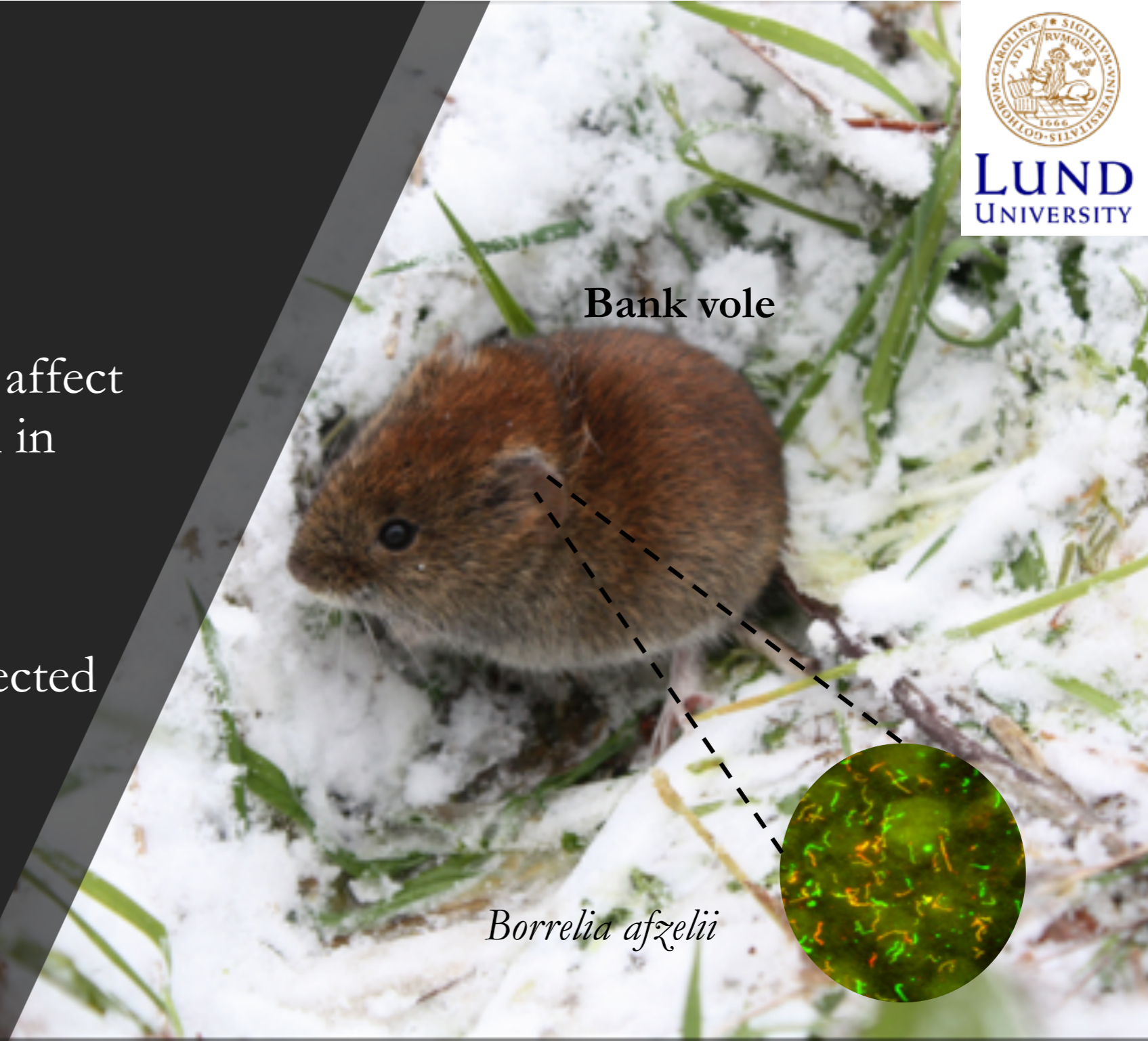
– including PacBio genomes

Mridula Nandakumar
PhD student
Lund University, Sweden



LUND
UNIVERSITY

- How does pathogen pressure affect genetic diversity and selection in immune genes?
- What functional effect do selected variants have?



Bank vole

Borrelia afzelii

Nélida Padilla
Postdoc researcher
Charles University of Prague

My journey studying plant evolution

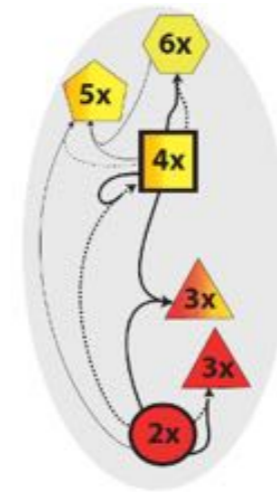


Adaptive value of evolutionary processes in natural populations, and their role in speciation



My main research projects

The role of interploidy gene flow in plant polyploid complexes

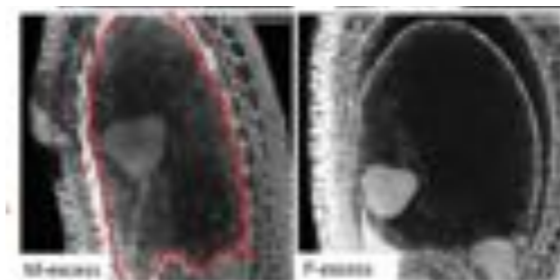


Polyploid

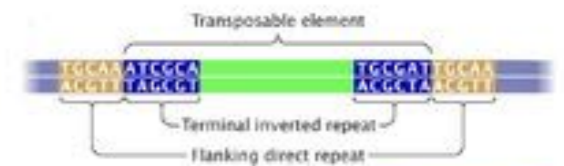


Diploid

The evolutionary significance of genomic imprinting itself in *Arabidopsis lyrata* and *A. arenosa*



Transposable Elements





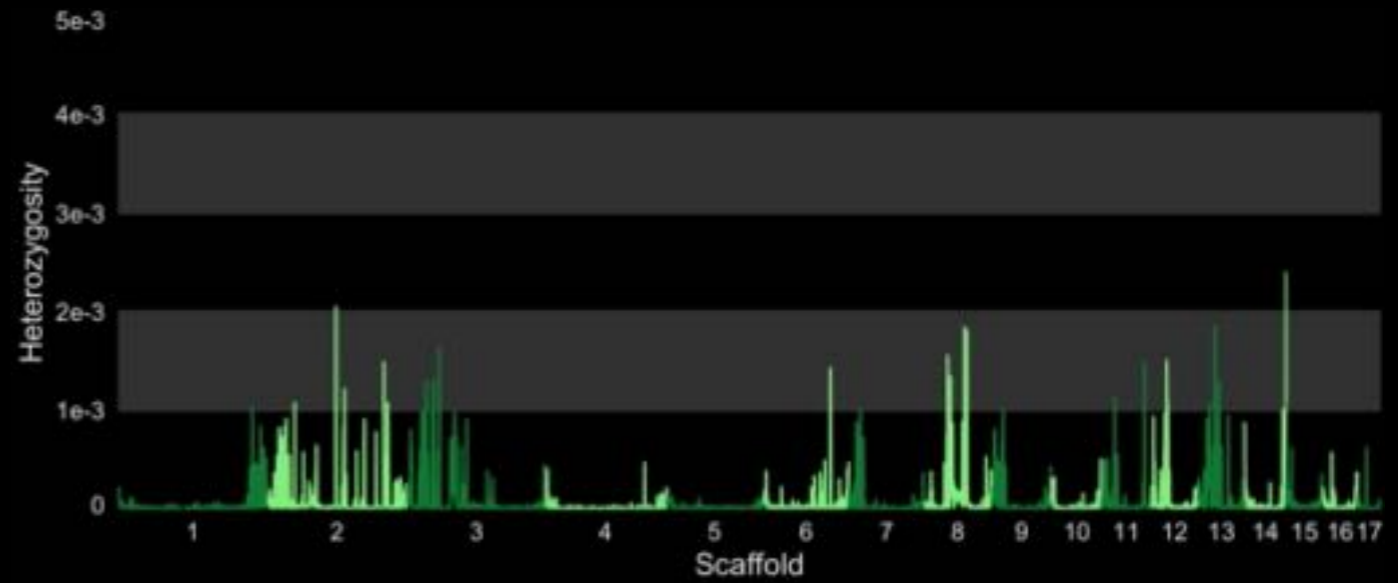
Oliver Stuart

PhD Candidate

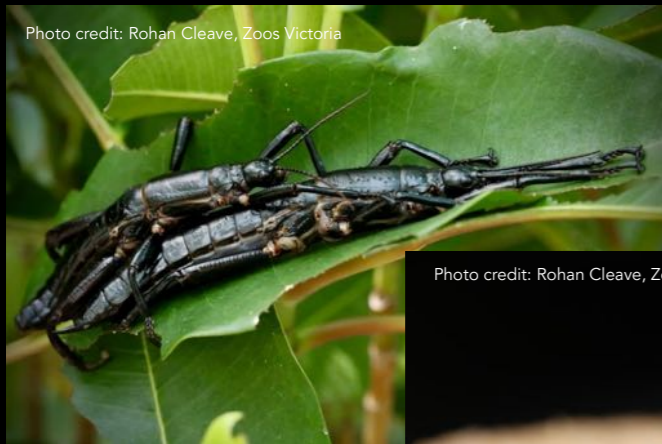
Research School of Biology



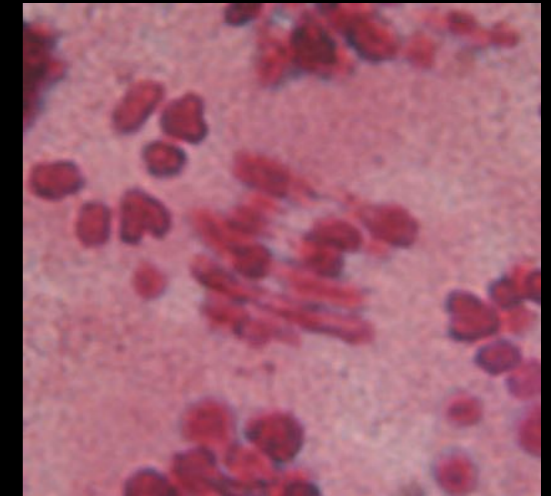
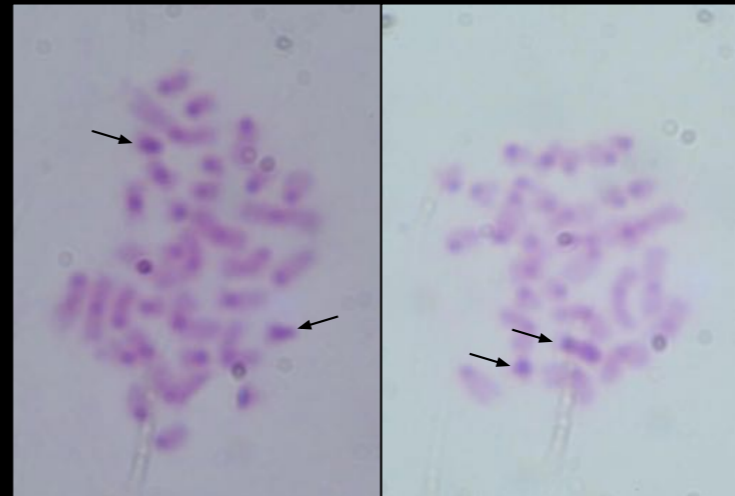
Australian National University



Genome structure, inheritance, and captive adaptation in the critically endangered the Lord Howe Island stick insect (*Dryococelus australis*)



LEAST CONCERN NEAR THREATENED VULNERABLE ENDANGERED < CRITICALLY ENDANGERED >



Ondřej Balvín

Department of Ecology
Faculty of Environmental Sciences
Czech University of Life Sciences
Prague
o.balvin@centrum.cz



Phaneroptera nana
in Prague since 2014



Bedbugs (Heteroptera: Cimicidae)
bloodfeeding; live in host 's shelters
passive dispersal by host (humans, bats, birds)
small (N=1) propagules, rapid local extinctions



bedbugs.fzp.czu.cz



Social Genes

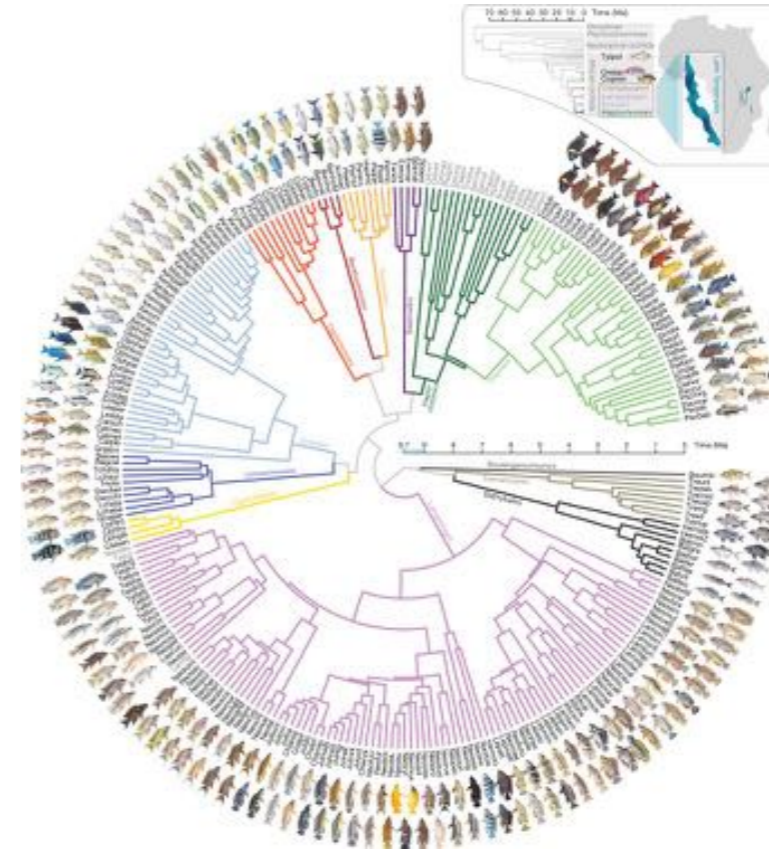
Pol Sorigué

Integrative Behavioural Biology

Rui Oliveira's lab



www.seaframes.com; Angel M. Fitor



Ronco et al., 2021 Nature



Nile tilapia (*Oreochromis niloticus*)



www.pecesdeacuario.net

Reference genome

22 chromosomes

1Gbp

42,6k genes

30k protein-coding

MA Conte et al. (2017)



Robert Lehmann

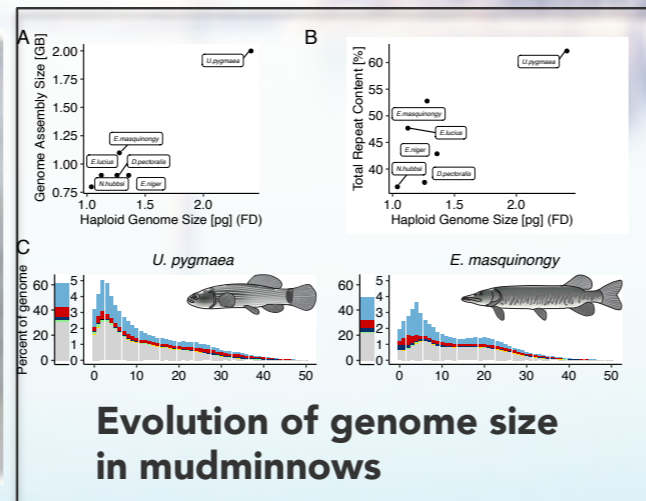
Research scientist

Living systems lab @KAUST

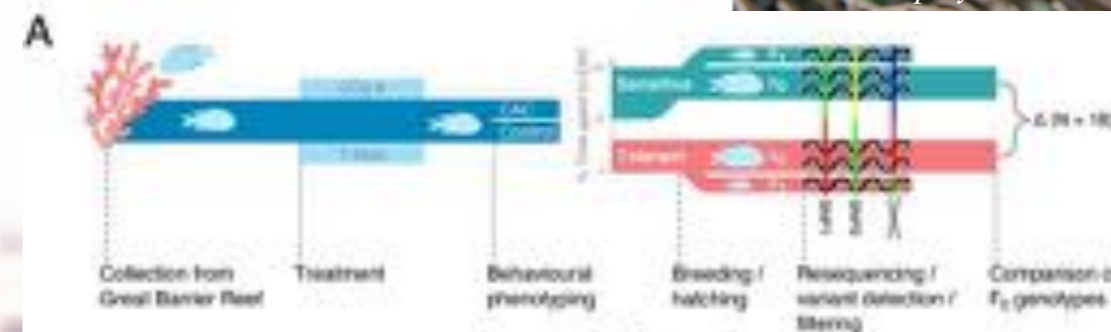
Genome assembly

Comparative genomics

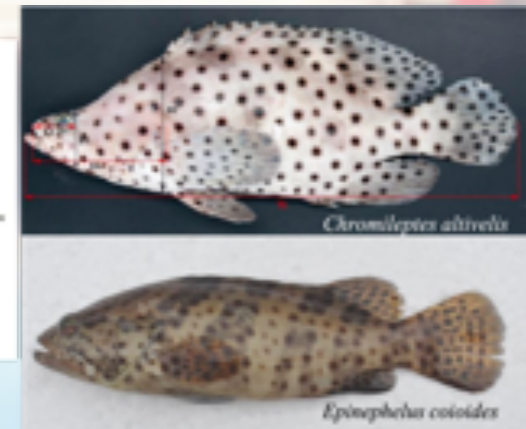
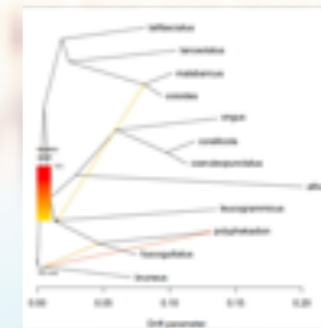
Speciation + Population genetics



Behavioural genetics of ocean acidification



Genetics of Humpback Grouper morphology

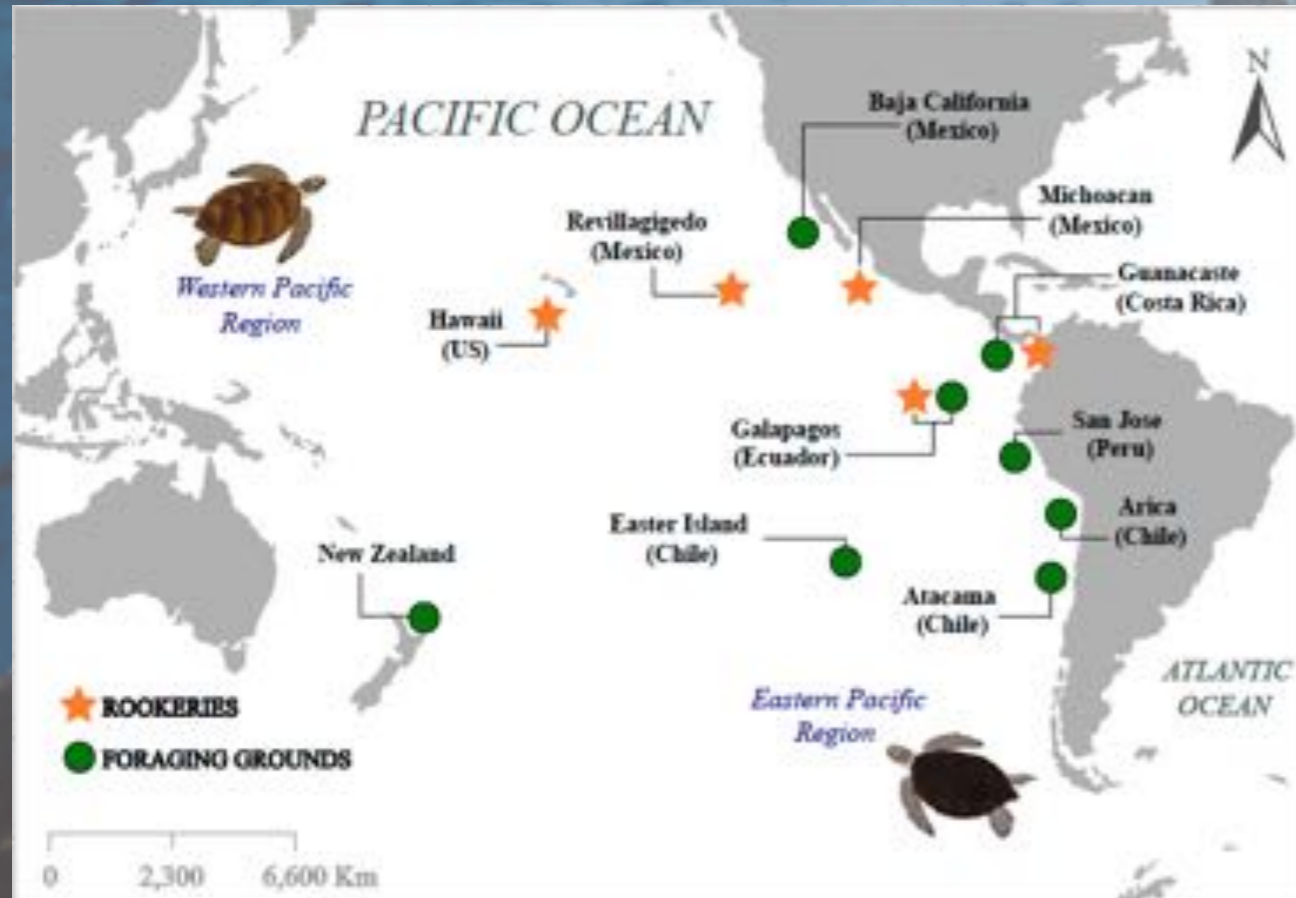


Rocío Álvarez Varas

Postdoctoral Researcher

Universidad Católica del Norte

Coquimbo, Chile

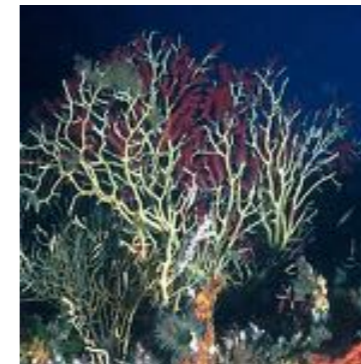
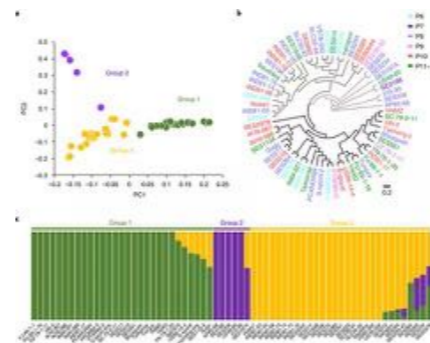
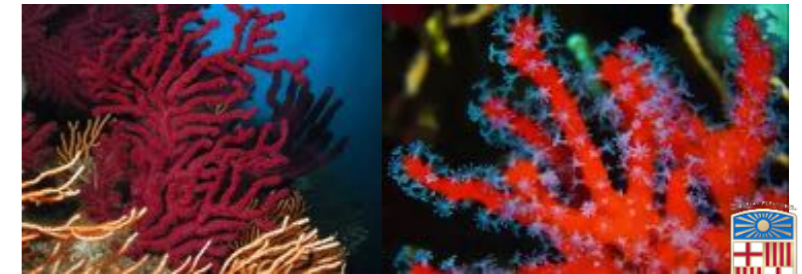


Phylogeography
Ecology & Evolution
Population genomics
Adaptation
Sea Turtles
Network/Collaboration

Sandra Ramirez-Calero, M.Sc.



PhD student at Institut de Ciències del Mar (CSIC)



Dr. Joaquim Garrabou Dr. Jean-Baptiste Ledoux

@SandraR_C / @Med_Recover

2022 Workshop on Population and Speciation Genomics, Cesky Krumlov

Introduction: Sarah Coates



What?

- **Past:** Bsc in Evolutionary Biology at the University of Edinburgh (2019). Msc in Ecological and Evolutionary Genomics at Queen Mary University of London (2020).
- **Present:** 2nd year PhD student at Bangor University, North Wales. Studying adaptation to heavy metals and adaptive introgression in *Silene uniflora* (Sea Campion).



Why?

- I find it fascinating how evolutionary forces have shaped every organism on the planet to generate the diversity we see today.
- I want to know how genetic diversity in natural populations can determine how plants adapt to stressful environments



Really?

- I saw orangutans during a field course to Borneo
- I own at least ten potted plants
- I play several musical instruments

Sarah du Plessis

**Eurasian
otter** in UK, and
across Eurasian
range using whole
genome
sequencing



- 3rd year PhD student
- Cardiff University – Molecular Ecology and Otter Project Groups
- Supervisors – Frank Hailer, Liz Chadwick and Klaus-Peter Koepfli

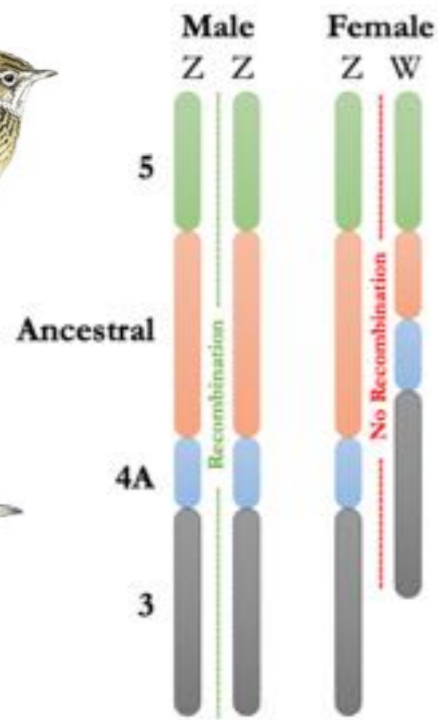


Evolutionary and ecological consequences of genetic sex determination

Neo-sex chromosomes in larks



Skylark
Alauda arvensis
Large panmictic population



Hypothesised structure of the neo-sex chromosomes in male and female Eurasian skylarks



Raso Lark
Alauda razae
Severely bottlenecked



Horned lark
Eremophila alpestris
Multiple (~42) subspecies adapted to very differing niches

Research questions:

- How are genes linked to sex determination shaped by selection and drift?
- How do these genes affect the populations in which they occur?

Genes of interest:

- Sex-linked vs. autosomal
- Recombining Z vs. non-recombining W
- Time since sex-linkage (different strata of neo-sex chromosomes)
- *csd* and flanking genes in bumblebees

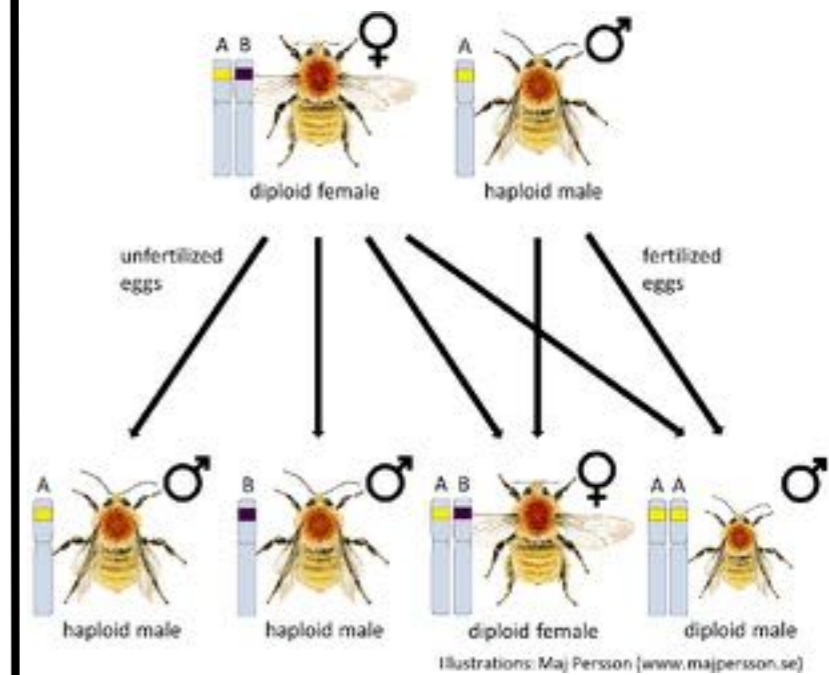
Ecological aspects:

- Demography
- Sexual selection
- Environmental adaptation
- Habitat fragmentation

Genomic data:

- WGS individuals
- WGS PoolSeq
- (Amplicon?)
- (Expression?)

Haplodiploid bumblebees (single locus complementary sex determination)



Common carder bee
Bombus pascuorum
Increasing



Shrill carder bee
Bombus sylvarum
Declining



Moss carder bee
Bombus muscorum
Declining, red listed as vulnerable



LUND
UNIVERSITY

Simon Jacobsen Ellerstrand
Doctoral student

Molecular Ecology, Microbial Ecology and Evolutionary Genetics
Department of Biology, Lund University
simon.jacobsen_ellerstrand@biol.lu.se



Suvratha Jayaprasad

Masters in Bioinformatics &
Applied Biotechnology

PhD student at FSU Jena,
Germany

Working on neo-sex
chromosome evolution in
grasshoppers



Worked mostly on genomic
data across plants and insects

Fluent in English, Shell, R &
Python

Part time musician, baker and
photographer

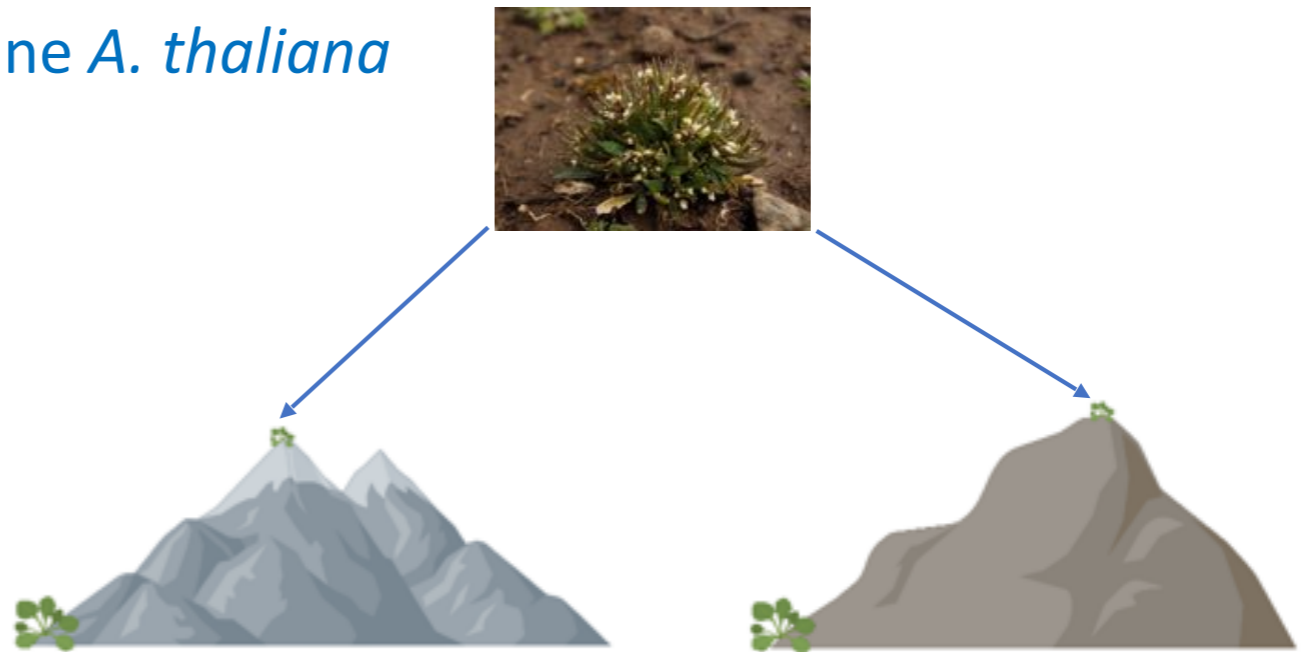


suvratha.jayaprasad@uni-jena.de

Afroalpine *A. thaliana*



EA samples ○
Elevation (m)
0
4050
8424



What is the genetic basis of local adaptation to altitudinal gradients?

Is there evidence of parallel adaptation?

Sofía Rodríguez Pacheco

PhD student - Max Planck Institute for Plant Breeding Research

Supervisor: Angela Hancock





Peregrine falcon
(*Falco peregrinus*)



Saker falcon
(*Falco cherrug*)



Gyr falcon
(*Falco rusticolus*)



Lanner falcon
(*Falco biarmicus*)



Houbara bustards
(*Chlamydotis spp.*)

Thierry Hoareau

thoareau@reneco.org



FORSCHUNGS
museum
KOENIG



UiO • Naturhistorisk museum

Herpetology

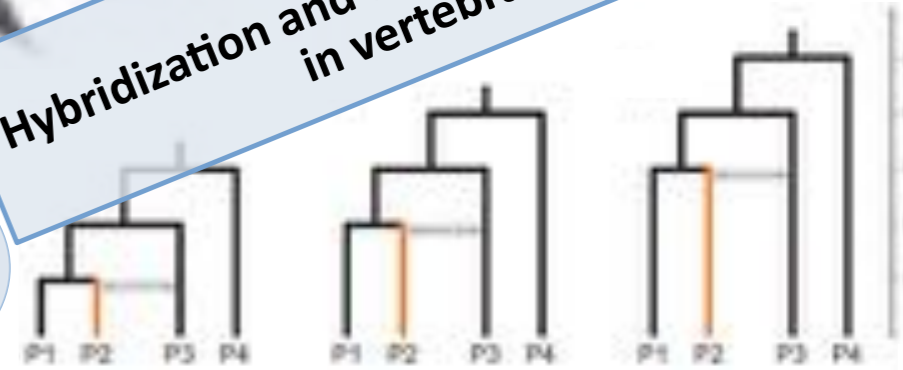
Taxonomy

PhD project:
Hybridization and diversification dynamics
in vertebrates

Morphology

Thore Koppetsch

Natural History Museum Oslo



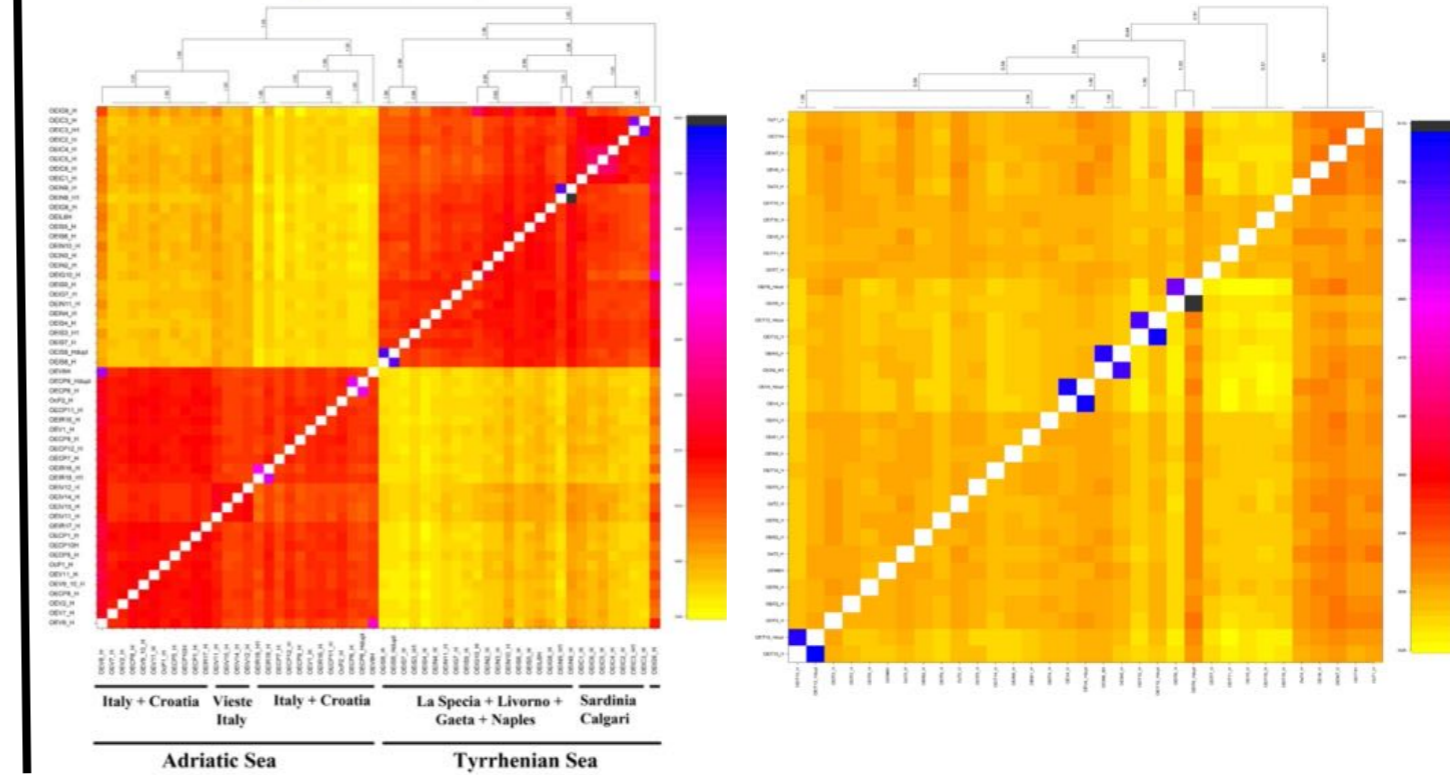
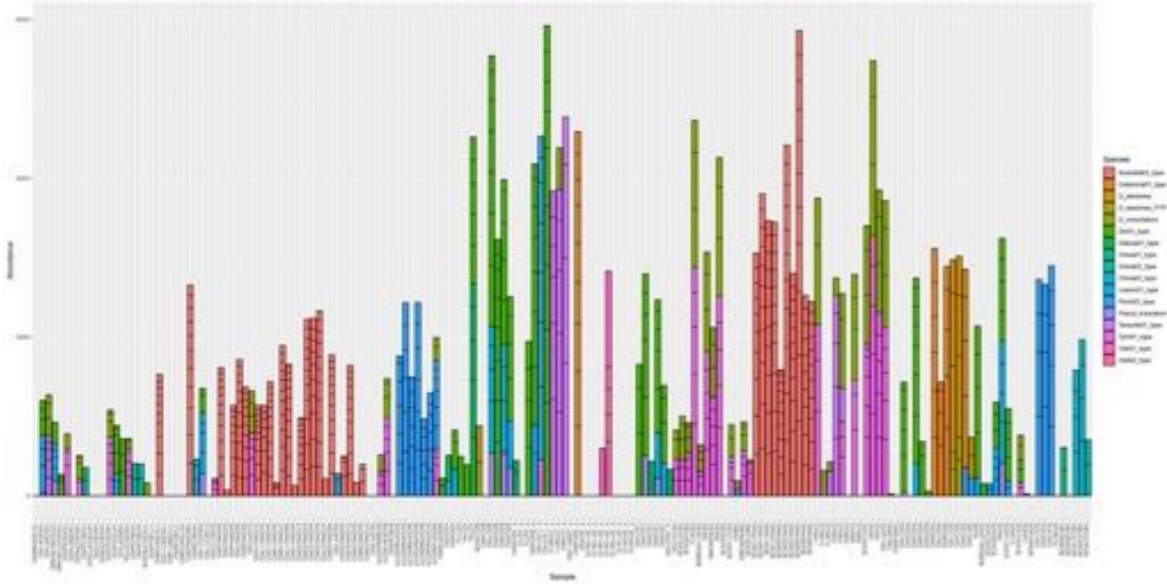
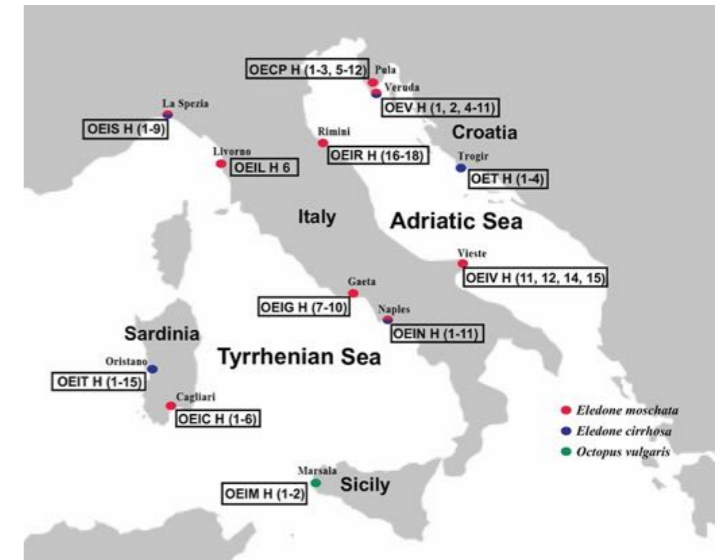
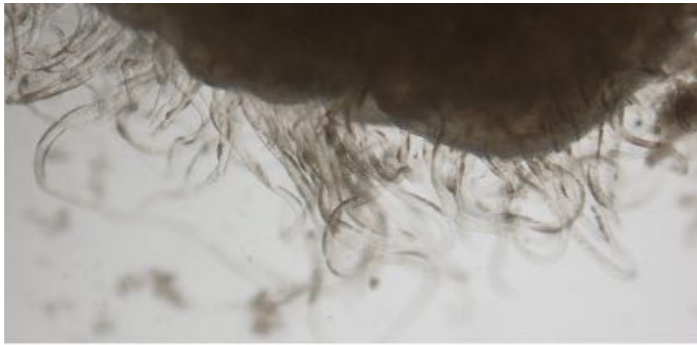
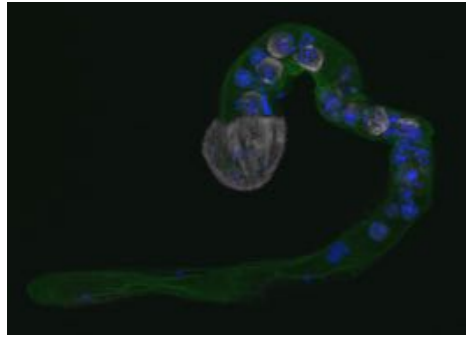
Field work

Evolutionary biology

Phylogenomics



Using genomics in population studies of marine cephalopods

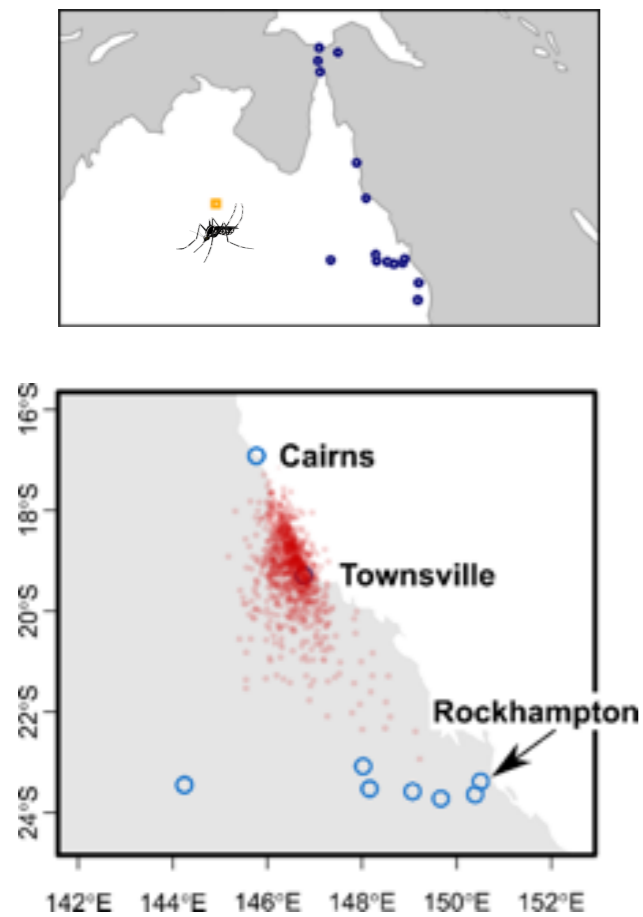


Tijana Cvetković

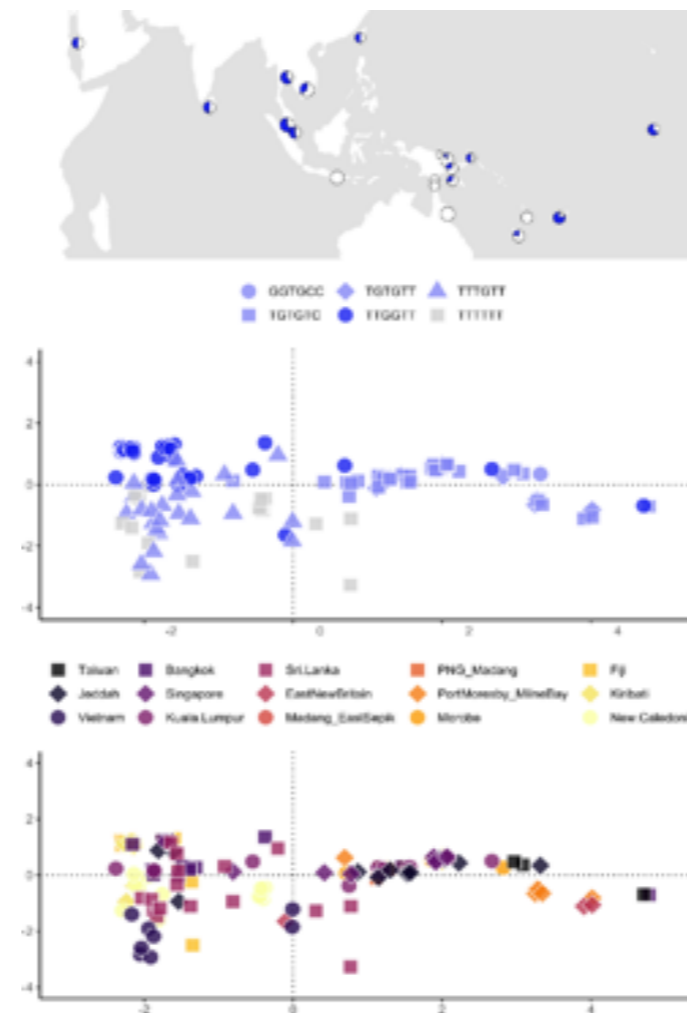
Invasion genomics

Tom Schmidt | University of Melbourne

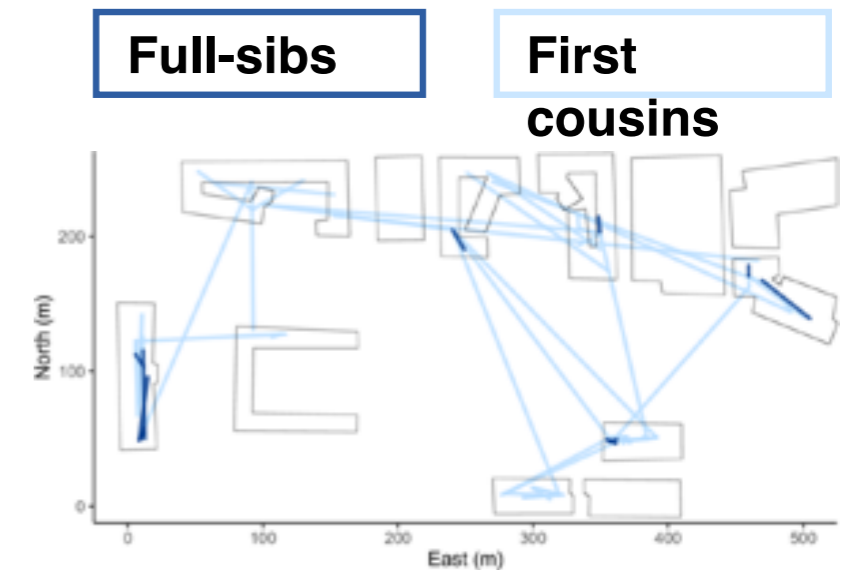
1. Tracing incursions



2. Post-invasion evolution



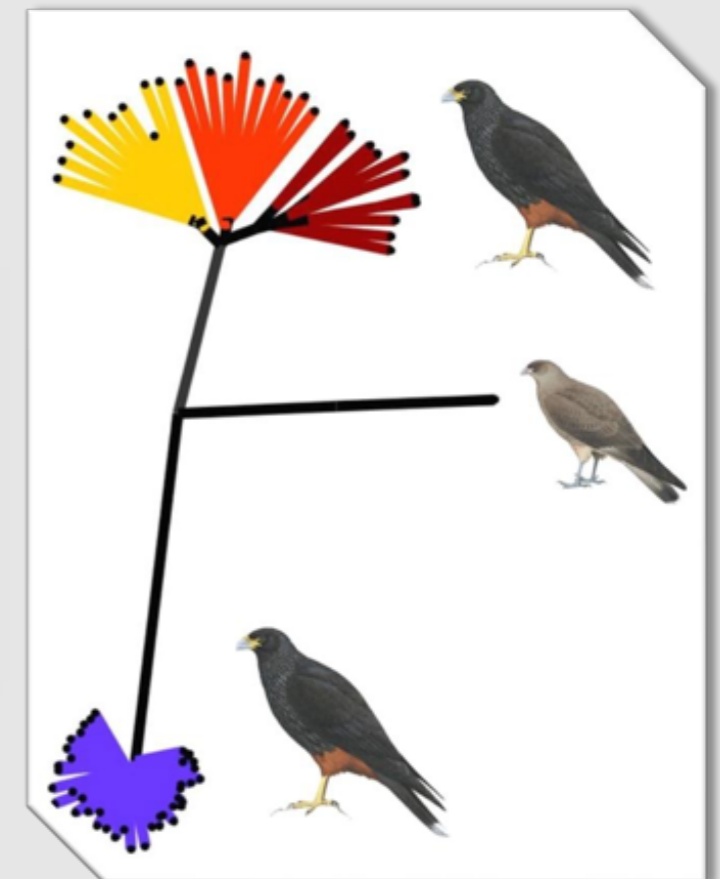
3. *Wolbachia* invasions



Ulises Balza, PhD Universidad de Buenos Aires

Centro Austral de Investigaciones Científicas (CADIC-CONICET)
Ushuaia, Argentina

What I did so far (just 1/4th of my thesis!
Need to learn more- here I am)



What I'd like to do next

- To built connectivity hypothesis using past landscape and distribution modelling
- To link dispersal in ecological-contemporary scales with historical connectivity
- To add more study cases, especially associated with Andean ecosystems

Looking forward to collaborate with you!

  @UlisesBalza
ulisesbalza@gmail.com

Valentina Peona

Uppsala University
Postdoc

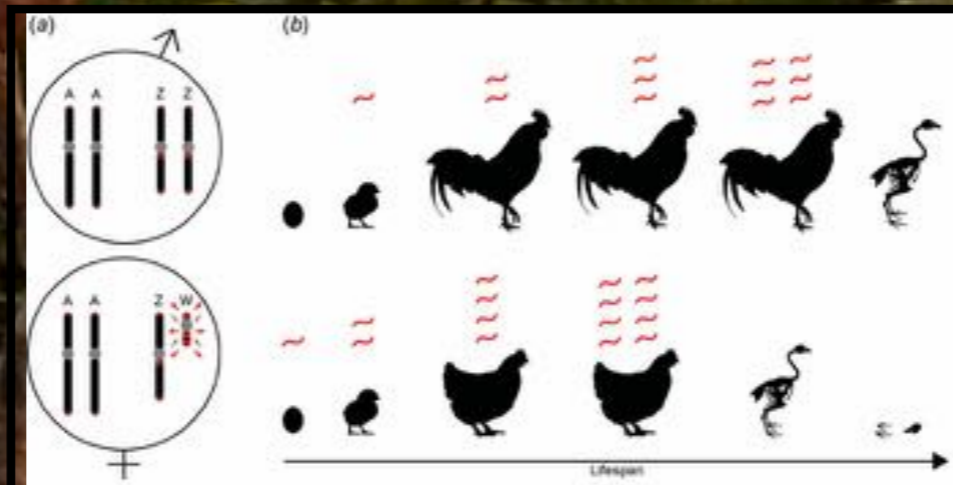
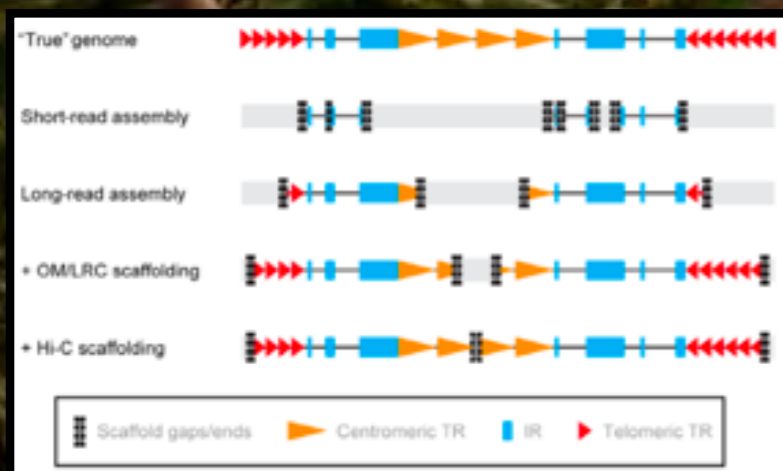


Alexander Suh

The exploration and evolution of the avian genomic dark matter

Genome assemblies

Sex chromosomes and transposable elements



Structural variants

Centromere composition

Saxifraga oppositifolia - untangling relationship between diploids and tetraploids in Svalbard

Separate lineages?

New polyploidization events?

Hybridization between ploidies?

Viktorie Brožová



Bioinformatics and Population genomics

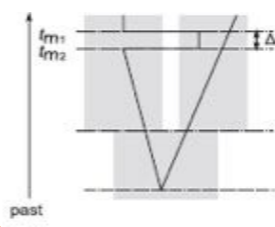
Interaction of gene flow and natural selection

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**

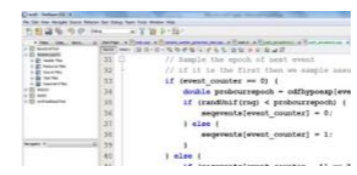
Population Genetics theory



$$f_{c1}(t, n) = \sum_{i=1}^{c_T + m_T} [\Delta t_i \binom{n_i}{2}],$$

$$f_{c2}(t, n) = \sum_{i=1}^{c_T + m_T} [\Delta t_i n_i],$$


Computational methods



```

32 // Sample the epoch of next event
33 // If it is the first then we sample once
34 if (event_counter == 0) {
35   double probourepoch = oddlypos[lev]
36   if (randmif(rng) < probourepoch) {
37     segregate[event_counter] = 0;
38   } else {
39     segregate[event_counter] = 1;
40   }
41 } else {
  
```

Modeling and data analysis of genomic data



Adaptive Radiation | Lake Tanganyika Cichlid Fishes



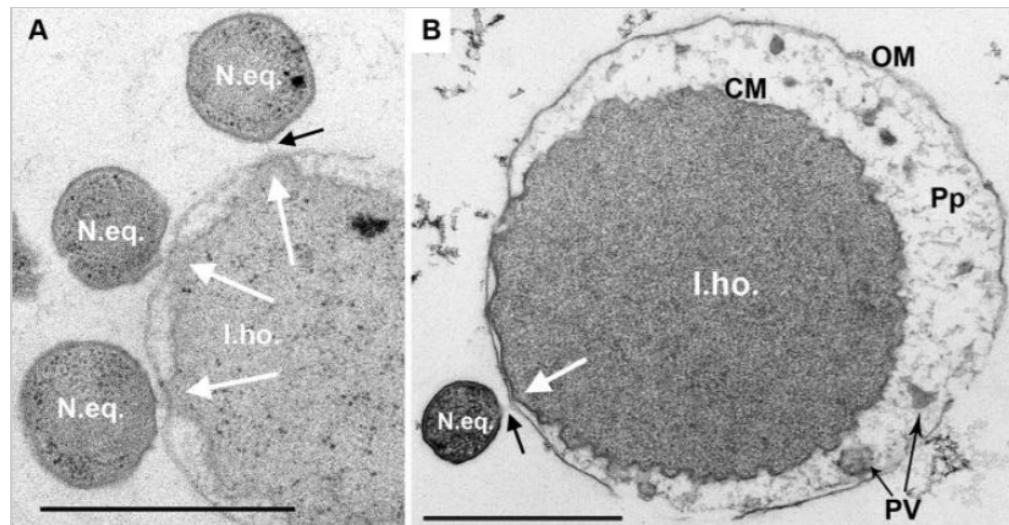
Walter Salzburger
Zoological Institute



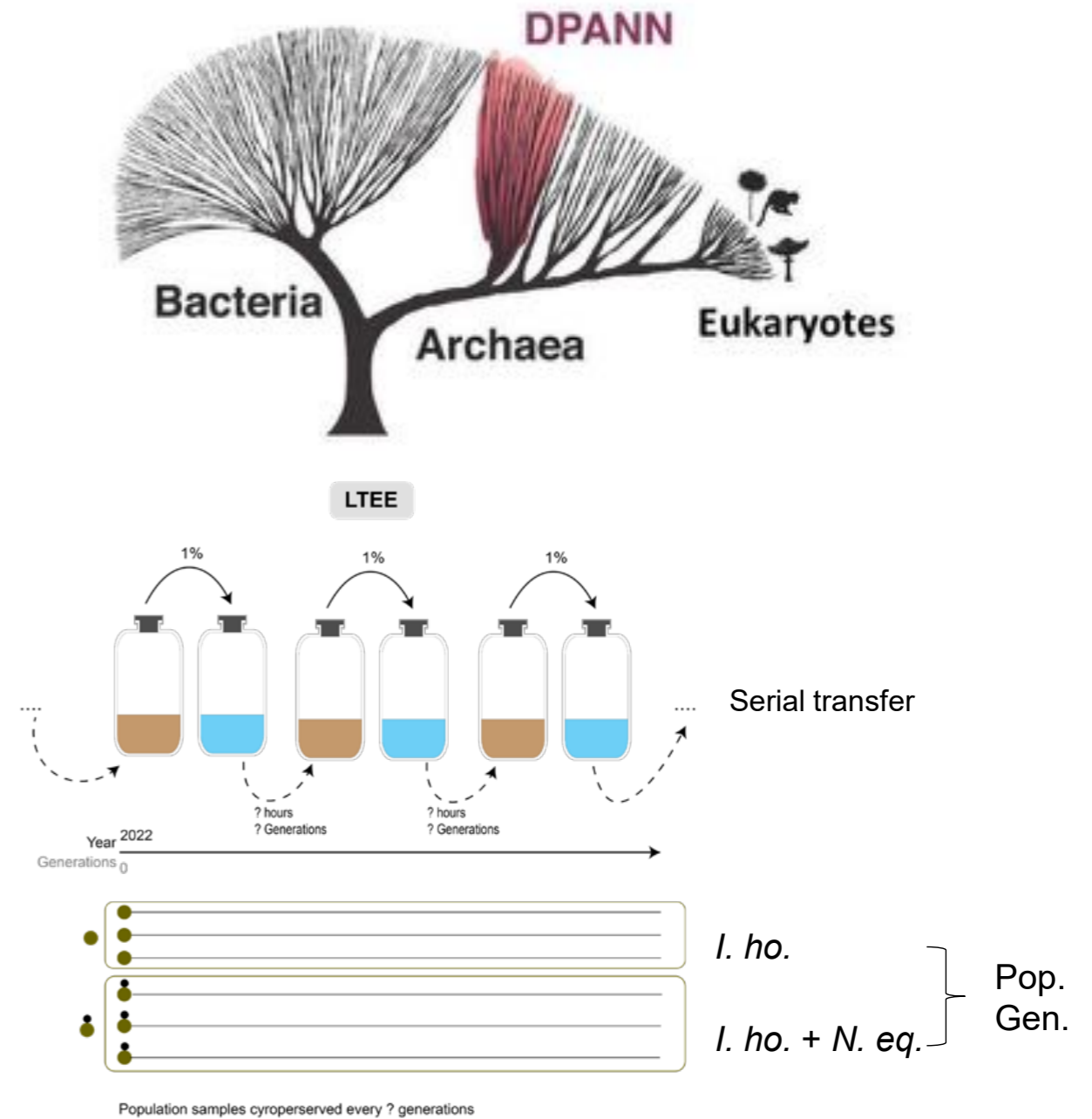
Universität
Basel

Wen-Cong Huang

PhD student supervised by Dr. Anja Spang
Archaeal symbiosis, evolution of **DPANN**
archaea



Jahn et al. 2008



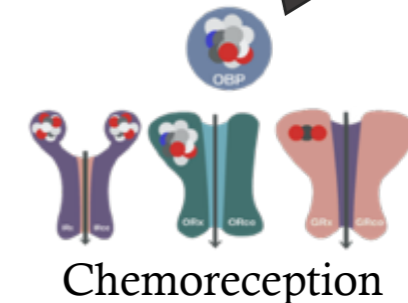
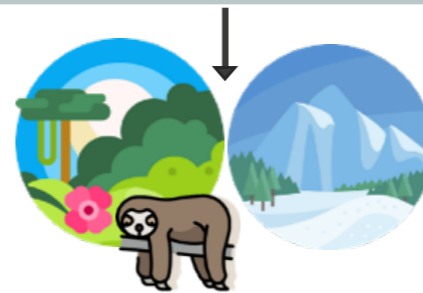
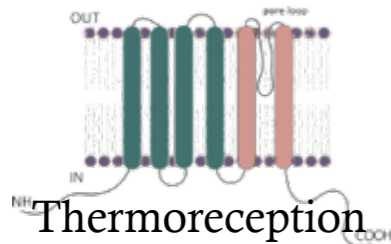
Sensory adaptations to specialized lifestyles

Zaide Montes, Jadranka Rota, Niklas Wahlberg, Christer Löfstedt, Bill S. Hansson & Marcus Stensmyr



What are the adaptations involved in **survival** and **reproduction** in **specialized niches**?

To provide insights into **adaptations** enabling insects to succeed in highly **specialized niches**



Genome annotation Ortholog inference
Comparative genomics Expression & Behavioral experiments

Thanks!

Workshop on Population and Speciation Genomics

Country:

Shandong province, China

Education:

2017.9-2020.12 Master of Science in Evolutionary Biology, Xishuangbanna
Tropical Botanical Garden, Chinese Academy of Sciences

2022.1-present PhD Fellow, the Department of Plant and Environmental Science,
Copenhagen University

PhD Project:

Local adaptation and evolution of weediness in *Alopecurus myosuroides* (blackgrass)

Research interests:

Population genetics, quantitative genetics and population genomics/genomics



Quanjing Zheng (Jing)

Thanks!