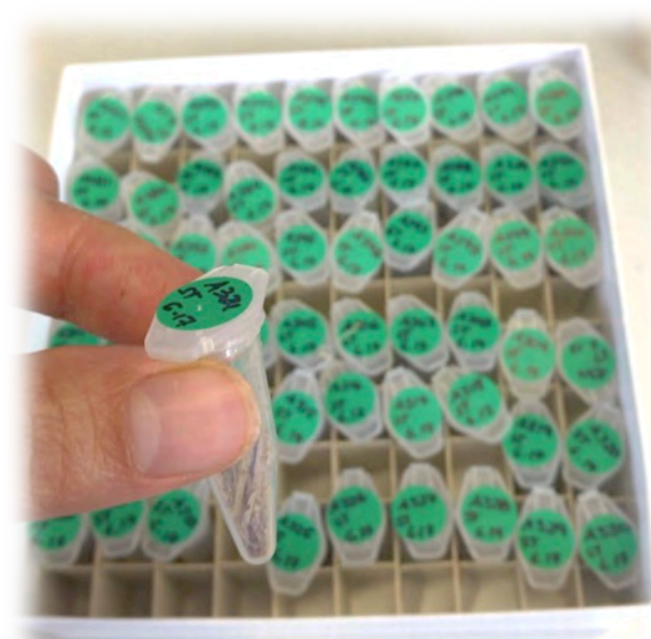


Hybrid Incompatibility in *A. thaliana* & *A. arenosa*



Cristina Barragán

PhD Student

Detlef Weigel's Lab

Max-Planck Institute for Developmental Biology

Tübingen, Germany



MAX-PLANCK-GESELLSCHAFT

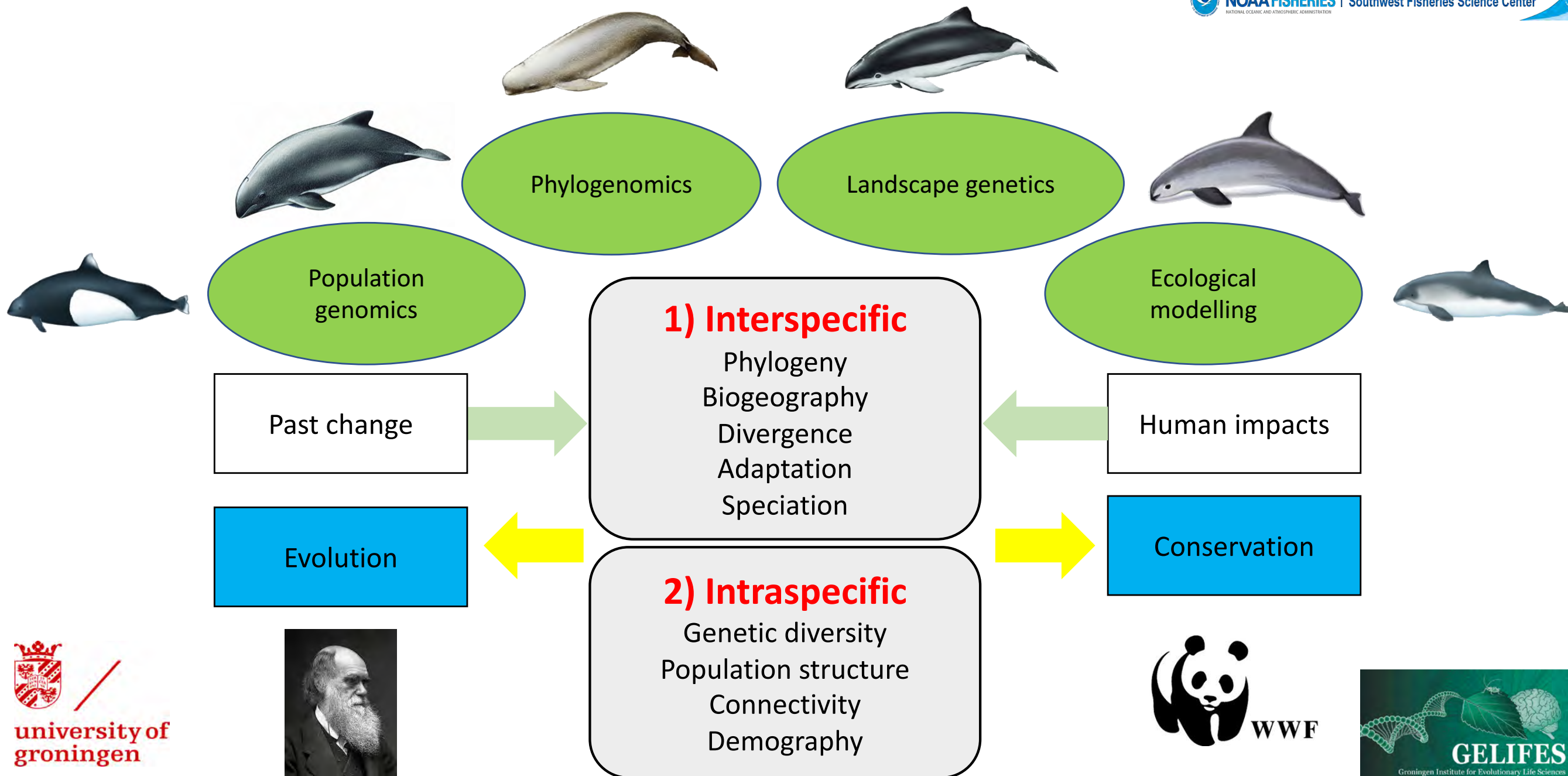


weigelworld

plant biology, developmental genetics
and evolutionary genomics.

Yacine Ben Chehida – Groningen University

Ecological and evolutionary genomics of porpoise family (*phocoenidae*)





Dr Kerstin Bilgmann

Associate Lecturer

Marine Vertebrate Conservation & Evolution Group

Department of Biological Sciences

Macquarie University, Sydney, Australia

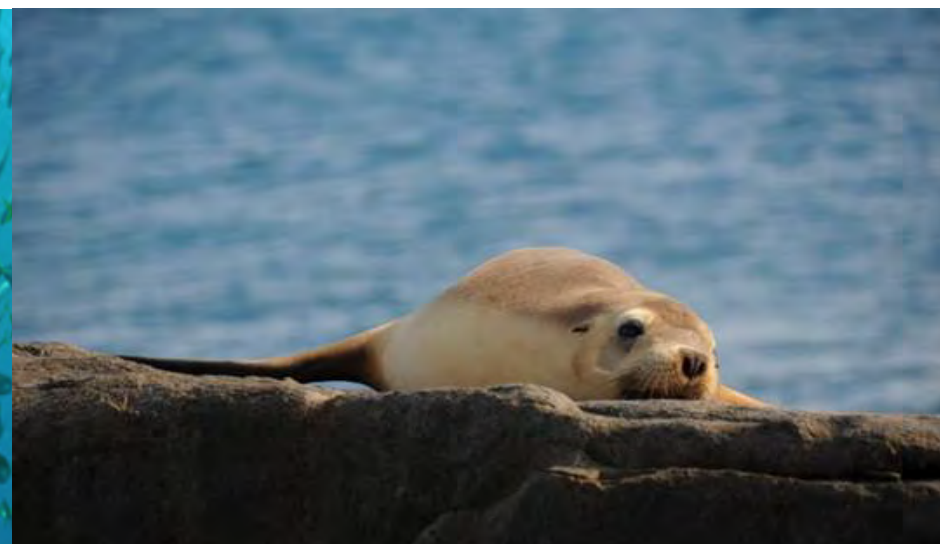
kerstin.bilgmann@mq.edu.au

 @KBilgmann



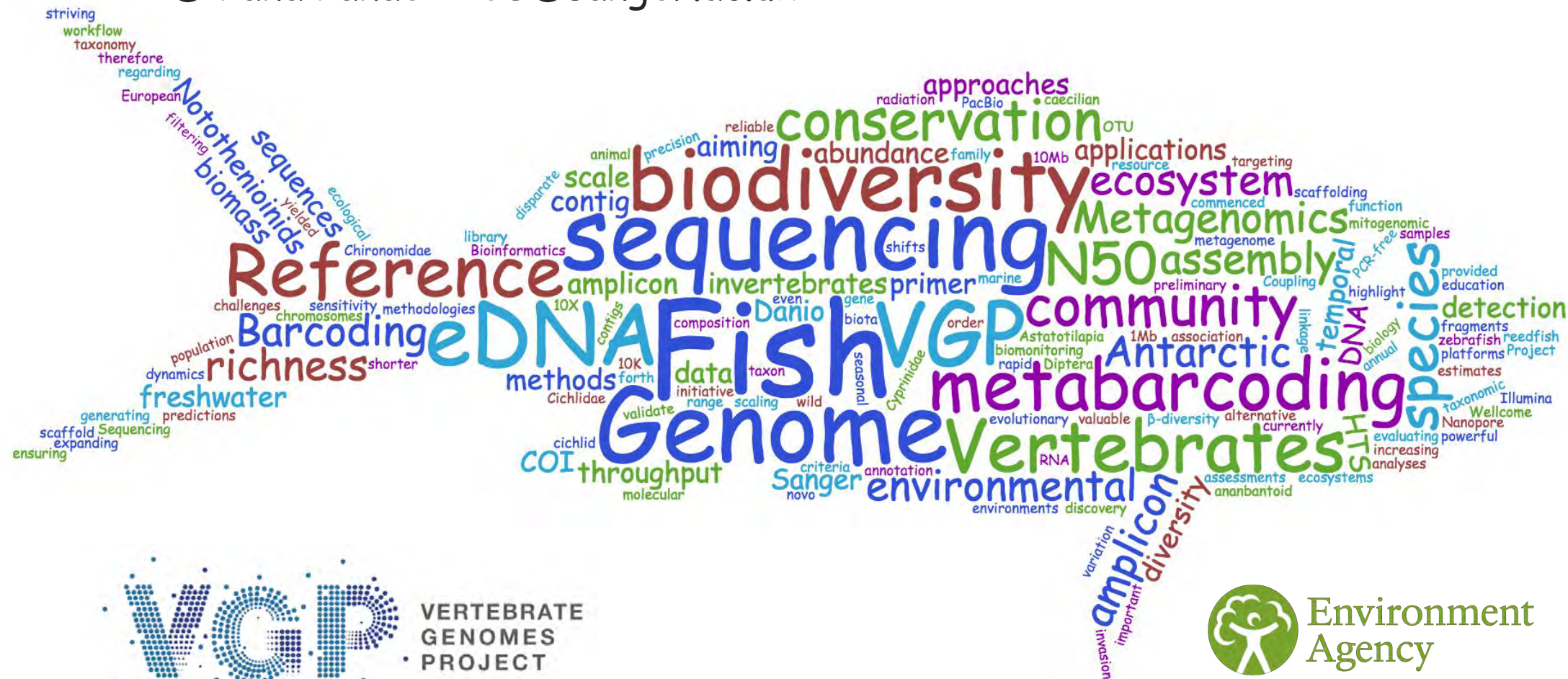
Research: Genetic and genomic research that is central to large marine vertebrate conservation (population structure, adaptive variation, demographic history, effective population sizes, etc).

Currently I am analysing SNP data of two endangered species: grey nurse sharks (*Carcharias taurus*) and Australian sea lions (*Neophoca cinerea*).





@ilianailiana3 - ib8@sanger.ac.uk


UNIVERSITY OF
CAMBRIDGE

VERTEBRATE
GENOMES
PROJECT

DIGITAL NOAH'S ARK GENOME LIBRARY



Environment
Agency



PRIFYSGOL
BANGOR
UNIVERSITY

- Generating reference quality assemblies across a range of fish diversity
- Genome evolution of the Antarctic Notothenioid fish radiation
- Biodiversity monitoring using HTS of Environmental DNA (eDNA) (Bista et al. 2017, Nat. Communications)
- Invertebrate community diversity estimation through metagenomics

José Cerca

PhD student - University of Oslo

On the Origins of Cryptic Species: insights from the *Stygocapitella subterranea* species complex



@j_cerca



Josecercadeoliveira.org

1. **The evolutionary history of the cryptic species complex of *Stygocapitella subterranea***
 - A. How many clades?
 - B. Biogeographical distribution
 - C. Population structure and admixture
2. **Rates of genomic divergence and morphological divergence**
 - A. Evolutionary stasis – ‘The paradox of stasis’
 - B. Selection for conserved morphology
3. **Assembling the genome of one clade**
 - A. Genomic signatures of ‘an aberrant’ developmental event



Invertebrate genomics | Genome architecture | Selection for conserved morphology | Population genomics



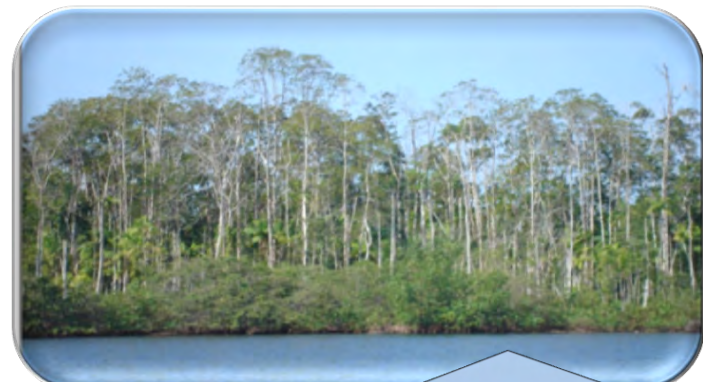
Ivania Cerón-Souza
Corpoica - Colombia



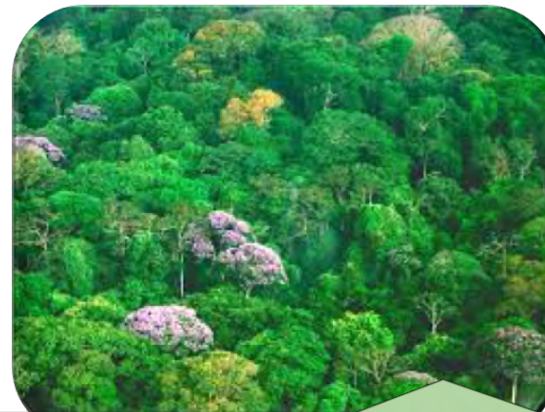
I am an evolutionary Biologist from Colombia



Currently, I am a research scientist at Corpoica (The Colombian Corporation of Agricultural Research).
I am working on the conservation and genomic characterization of the Colombian crops germplasm bank for pre-breeding programs



My research experience includes questions about speciation, hybridization and local adaptation in both new world mangrove trees and rainforests trees



For this workshop, I bring GBS data of new world rainforest trees (a current NSF project). The goal is to examine adaptive genetic variation and phenotypic plasticity in response to climate change

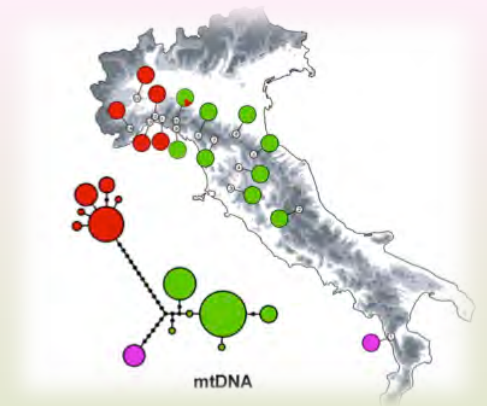


I love sports, especially running!!

Andrea Chiocchio

Università della Tuscia – Italy

Current position: postdoctoral fellow



Research interests:

Amphibian ecology and evolution

geographic patterns of
genetic diversity within
biodiversity hotspots



Speciation in lepidopterans

Species boundaries,
intra- and interspecific
hybridization,
evolution of reproductive
isolation mechanisms



Emrah Çoraman

Berlin Natural History Museum

Central Natural Science Collections, Martin Luther University, Germany

Bats

Evolutionary history of bat species

Keywords: Cryptic species, introgression, adaptation to climate change, phylogenetics

Pipistrellus kuhlii



museum für
naturkunde
berlin

Pigs and Wild boar

Comparing genomes:

Current populations with 100 years old historical material
2 domesticated species + wild boar

Aim:

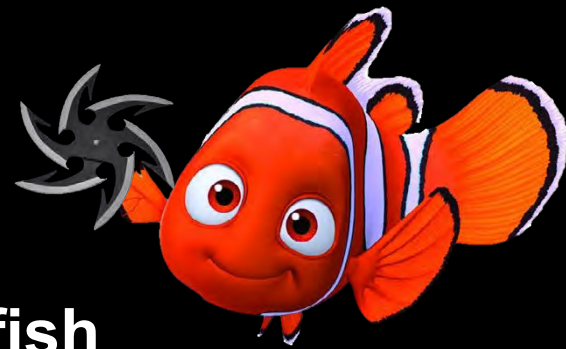
Identifying selection

Central Natural Science Collections, Martin Luther Uni, Halle Germany



Mutant ninja Nemo

Deep sea critters



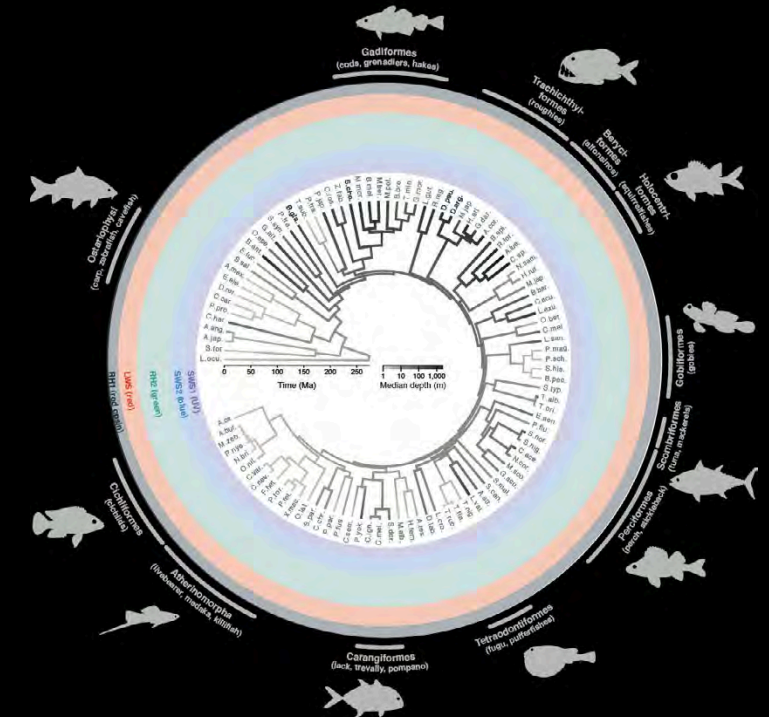
Coral reef fish



All things vision



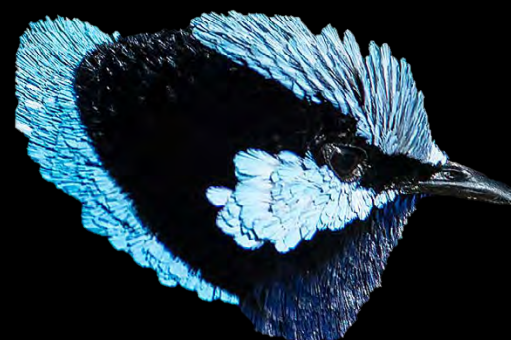
Comparative 'omics'



Mobula rays



Song birds & cuckoos



Fabio Cortesi

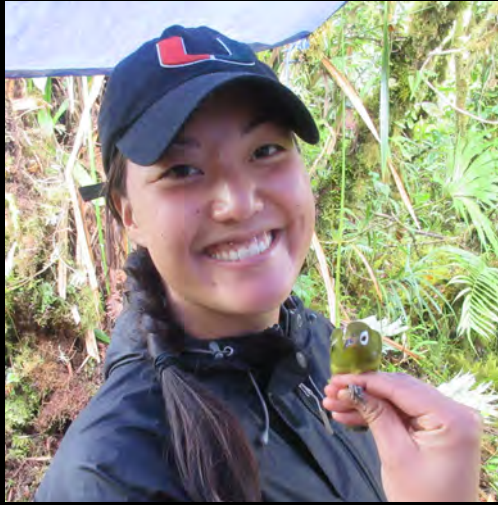


QBI

Queensland Brain Institute



@FCortesi

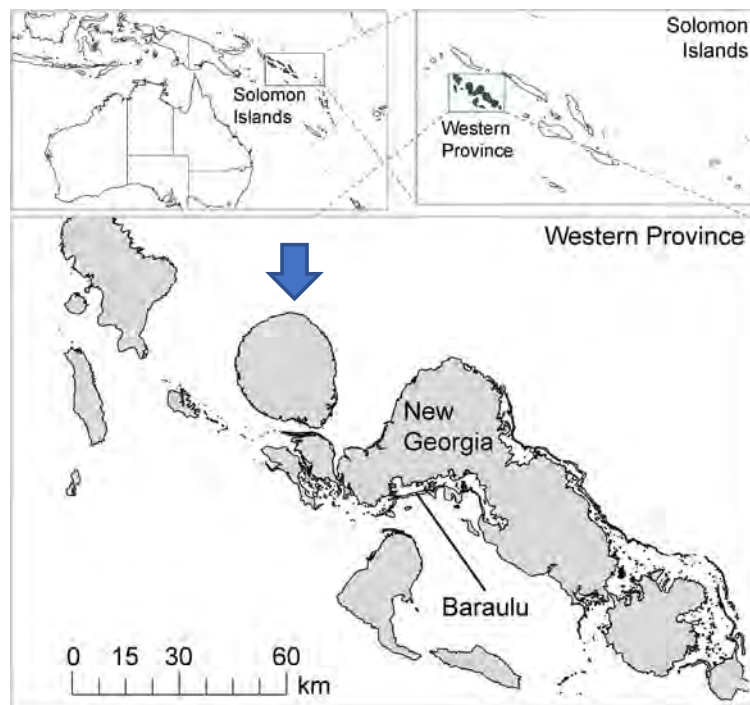


Sarah Cowles

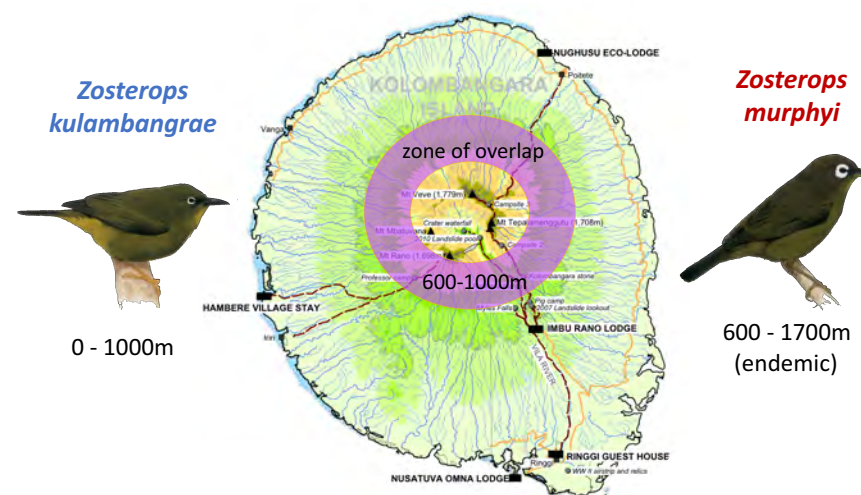
Ph.D. Candidate, Department of Biology
University of Miami, FL, USA
Advisor: Dr. J. Albert C. Uy
s.cowles@umiami.edu



Genomic Consequences of Secondary Contact in the Kolombangara White-eyes



Albert et al. 2015 PLoS ONE





Robin CRISTOFARI

Myanmar Timber Elephant Project
University of Turku, Finland

Research focus:

Intersection of **Life history**, **Demographic modelling** and **Population genomics** in long-lived and complicated species.

Current population models:

- Asian elephants
- Various penguins
- Pre-industrial Finnish humans

Applications:

- Fighting ivory poaching
- Understanding senescence
- Hanging out with penguins

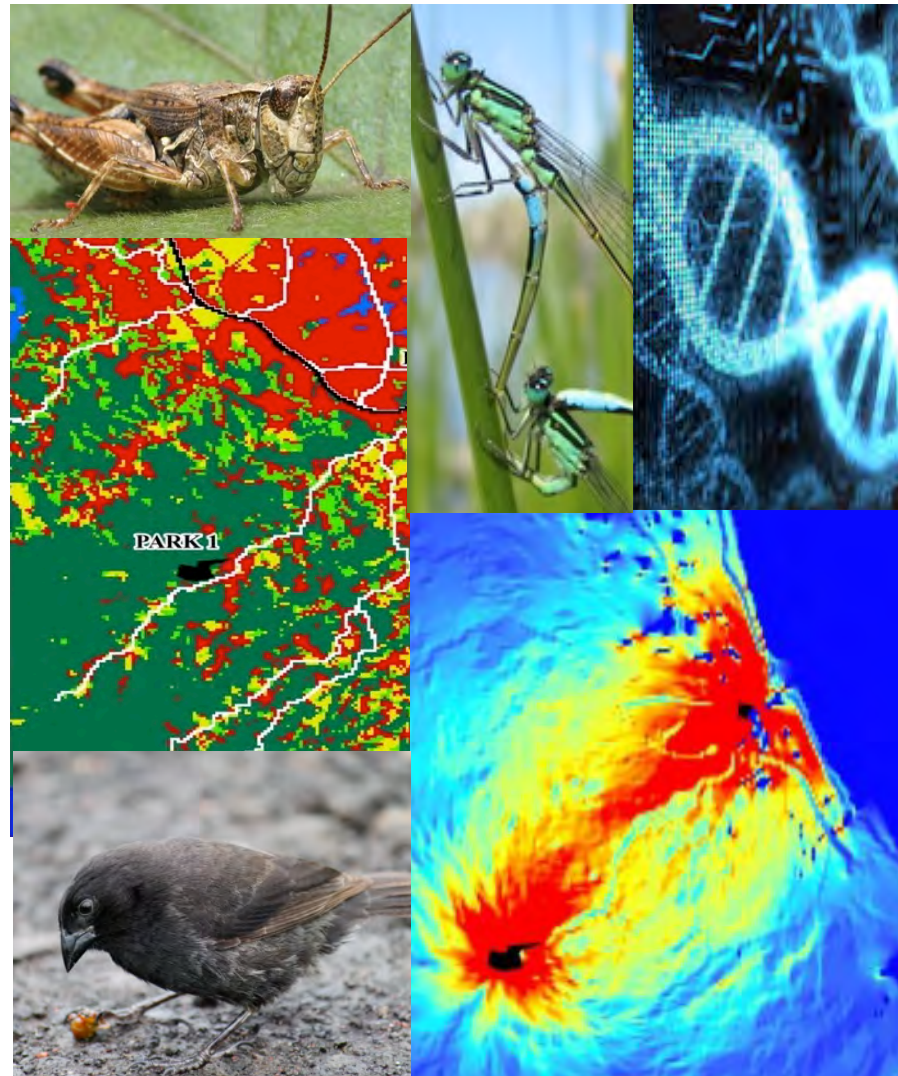


Turun yliopisto
University of Turku



Landscape and Evolutionary Genetics Lab

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



What?

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

How?

- RADseq
- RNAseq
- landscape genetics

Kristýna Eliášová

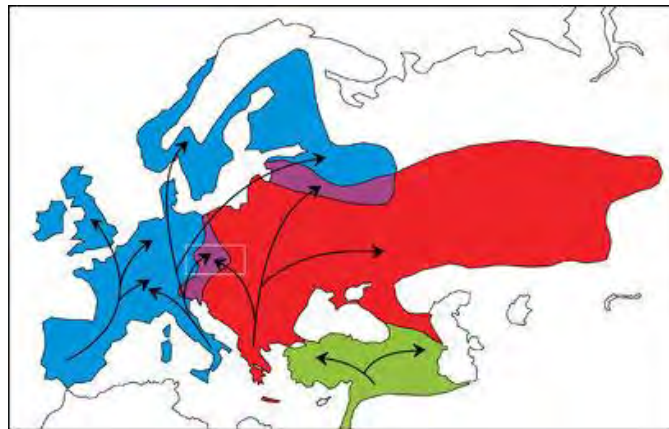
Department of Zoology, Faculty of Science, Charles University

Department of Zoology, National Museum

my PhD. project:

Mechanism of speciation and interspecific interactions between Palearctic hedgehogs

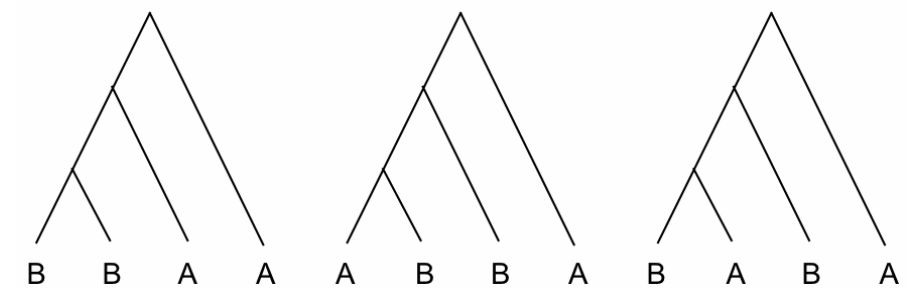
RAD-Seq



Special interest

Demographic history inference

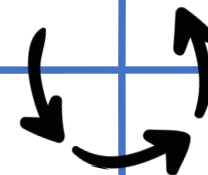
Detection of ancient hybridization



Graham Etherington



Mustelids

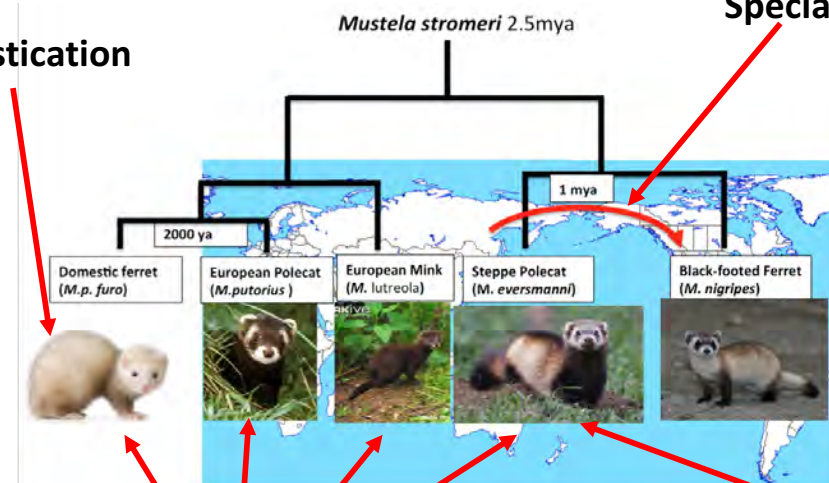


Why mustelids?

Domestication

Speciation

Conservation genomics



Hybridisation & genome introgression

Chromosome rearrangements





UNIVERSITY OF
GOTHENBURG

Ellika Faust

Department of Marine Sciences
University of Gothenburg – Tjörnö
Sweden

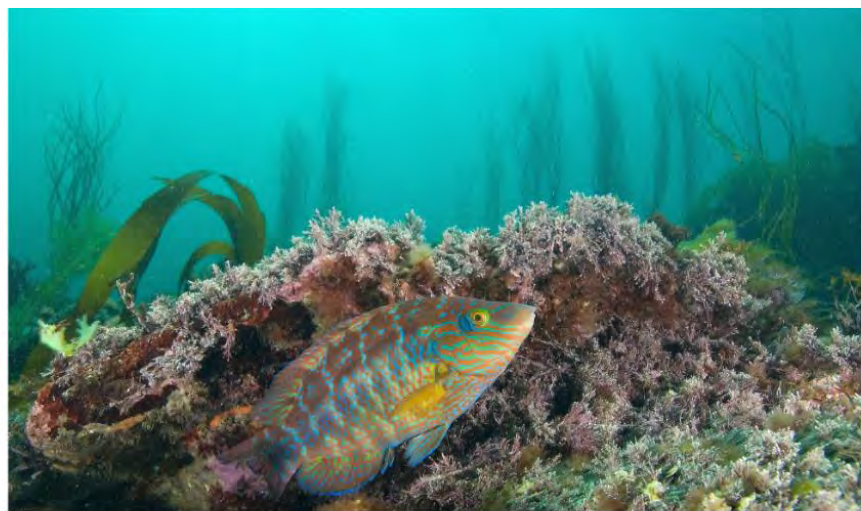
ellika.faust@gu.se

@EllikaFaust

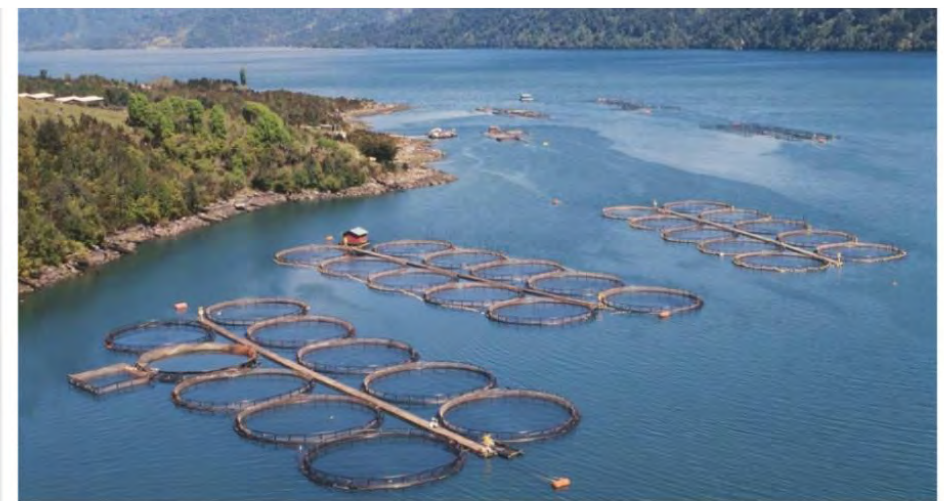
Marine Research Station



Study Organism



Used in salmon farms



Pavel Flegontov Ph.D., University of Ostrava, Czech Republic

- My group: me, 2 postdocs, 1 PhD student
- Ongoing projects on human genetic history and paleogenetics:
 - **Settlement of Chukotka and the American Arctic** (paper under peer review at *Nature*);
 - Multiple waves of negrito and Indian admixture in Southeast Asia;
 - Genetic admixture in the history of the European Jewish diaspora;
 - Phylogeny of human populations in Papua New Guinea, a genetic and linguistic diversity hotspot (reanalysis of published data);
 - **Genetic affiliation of Xiongnu and Huns – creators of major nomadic empires.**
- Methods relying on:
 - allele frequency correlations (*qpAdm/qpWave, qpGraph*)
 - rare allele frequency spectra (*Rarecoal*),
 - haplotype structure (*ChromoPainter, GlobeTrotter*),
 - PCA, ADMIXTURE, etc.
- Major collaborators:
 - David Reich (Harvard Medical School),
 - Stephan Schiffels and Johannes Krause (Max Planck Institute for the Science of Human History, Jena),
 - various archaeologists and linguists.

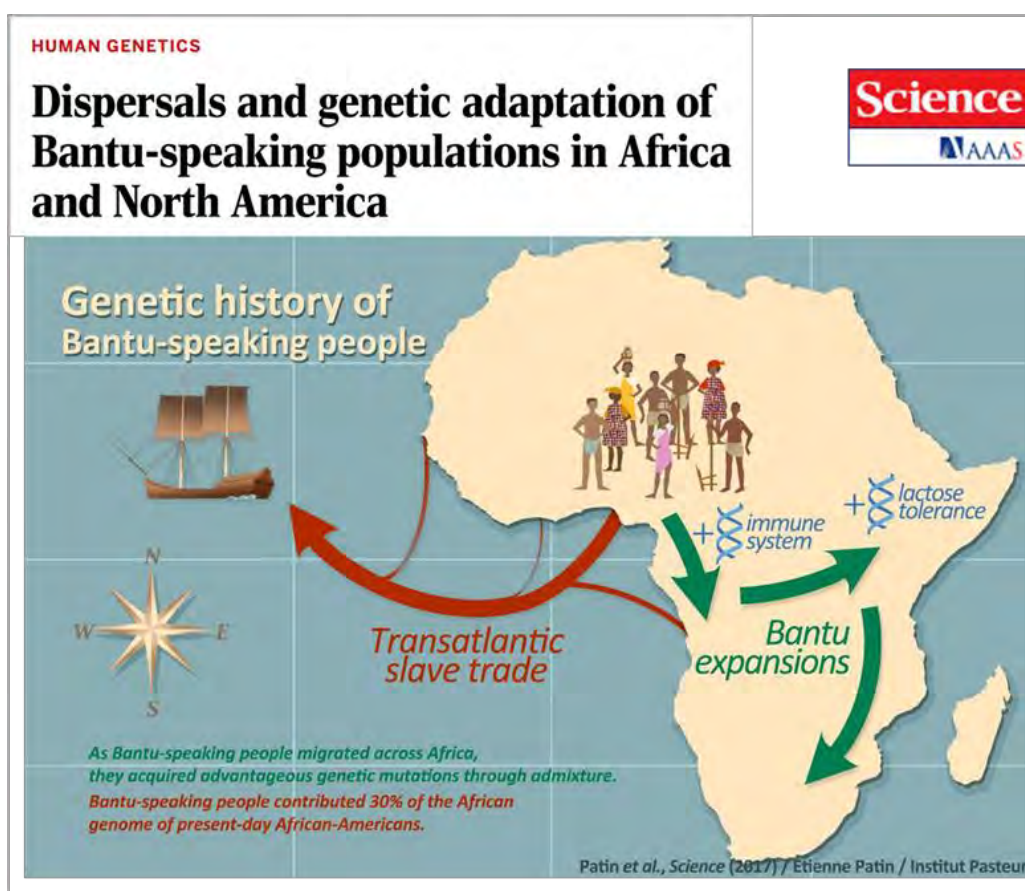
Genome-wide ancestry and demographic history of African-descendant populations



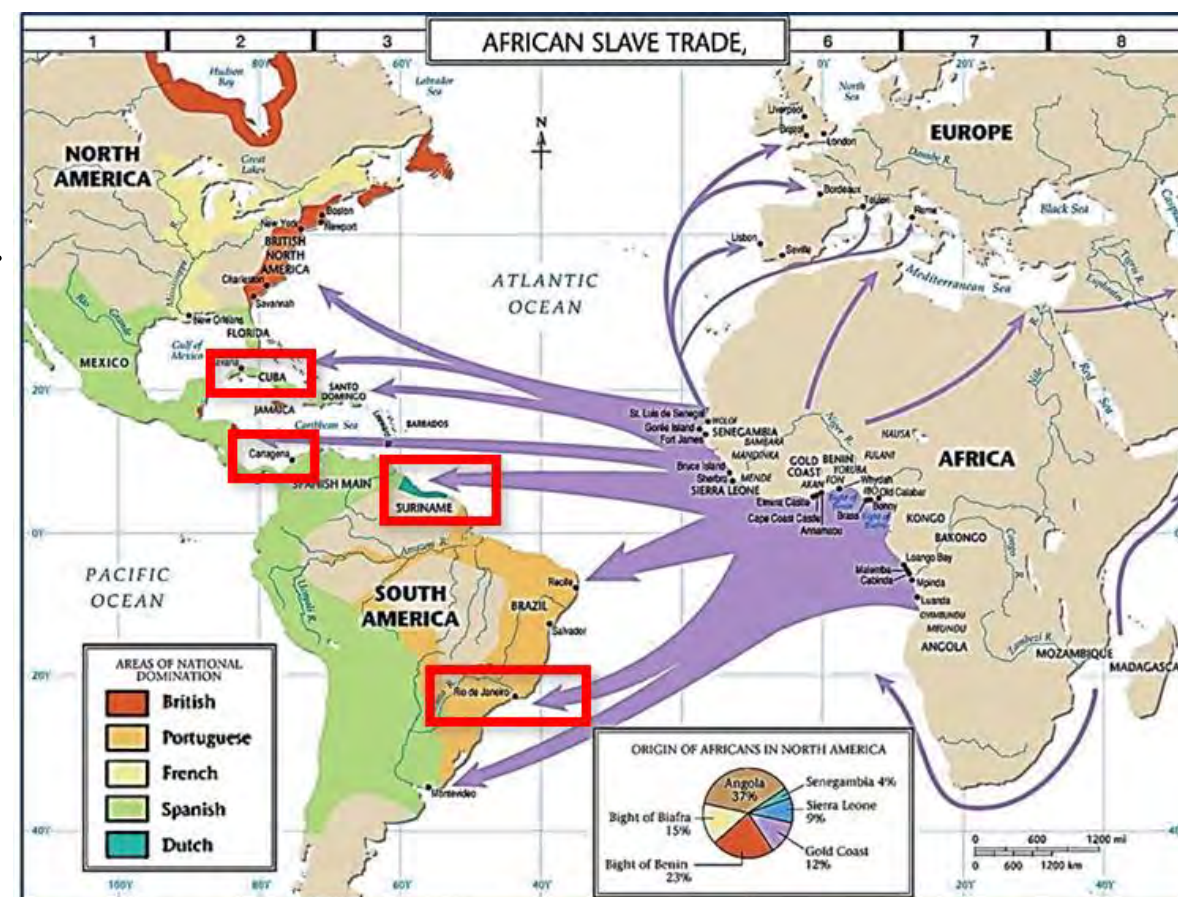
Cesar A. FORTES-LIMA

PhD in Biological Anthropology, UPS, Toulouse, France.

Postdoc in Population Genetics, CNRS-MNHN, France.



Patin et al., Science 2017



EUROTAST

<http://eurotast.eu/>



éco-anthropologie
ethnobiologie

ANR



UNIVERSITÉ
TOULOUSE III
PAUL SABATIER





PETER FRANDSEN | PHD



pef@zoo.dk

RG

/Peter_Frandsen



@FrandsenPtr





@apfuentes7

Angela Fuentes-Pardo

PhD candidate



DALHOUSIE
UNIVERSITY

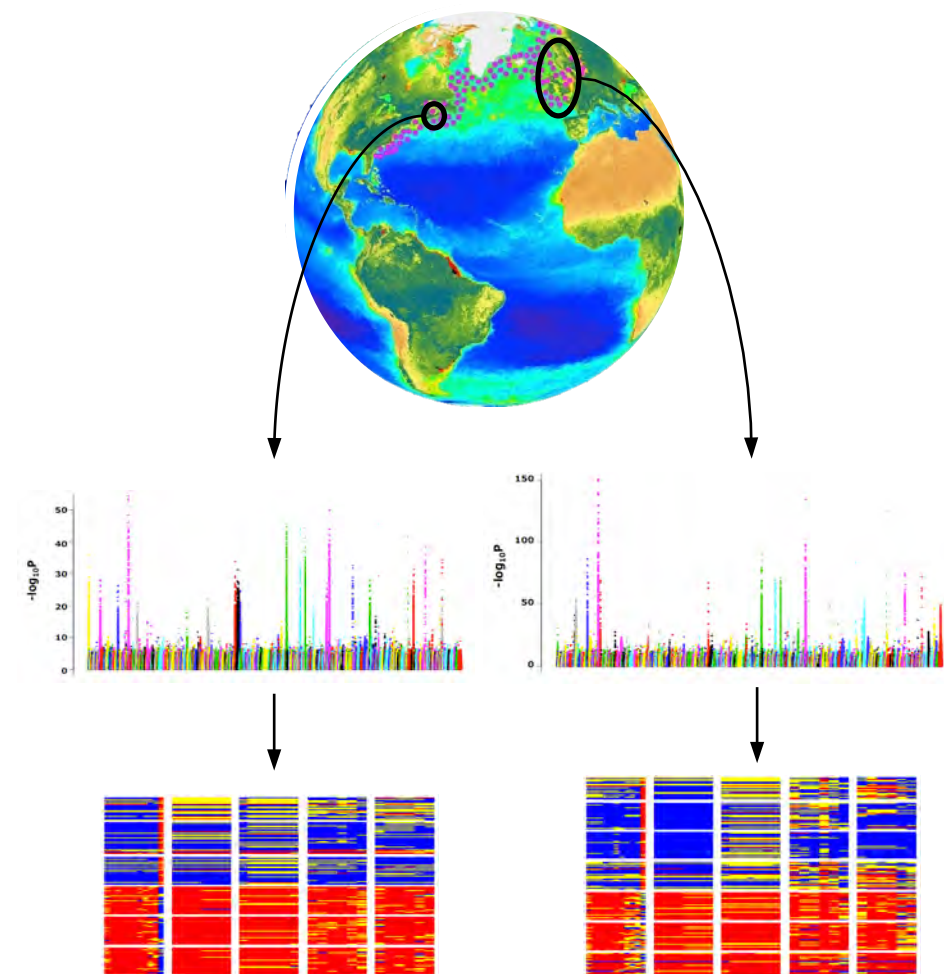
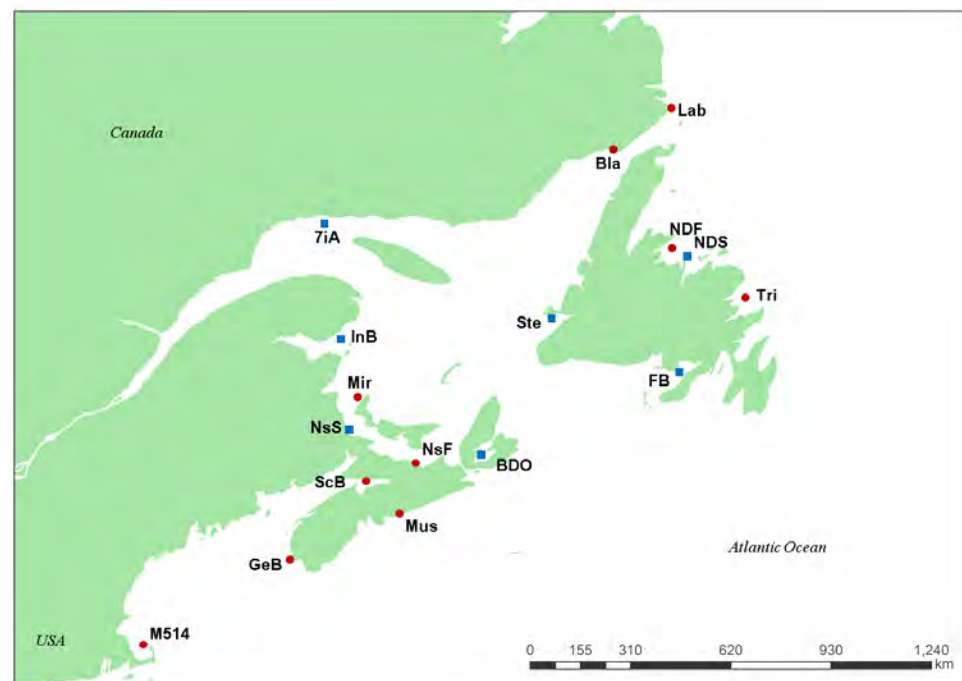
Evolutionary biology • Population genomics • Bioinformatics • Conservation • Management



- Genetic stock identification

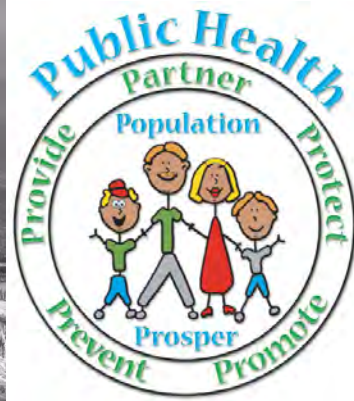
- Comparison across the Atlantic

- Fine-scale study within Canada (local adaptation?)



Funding:





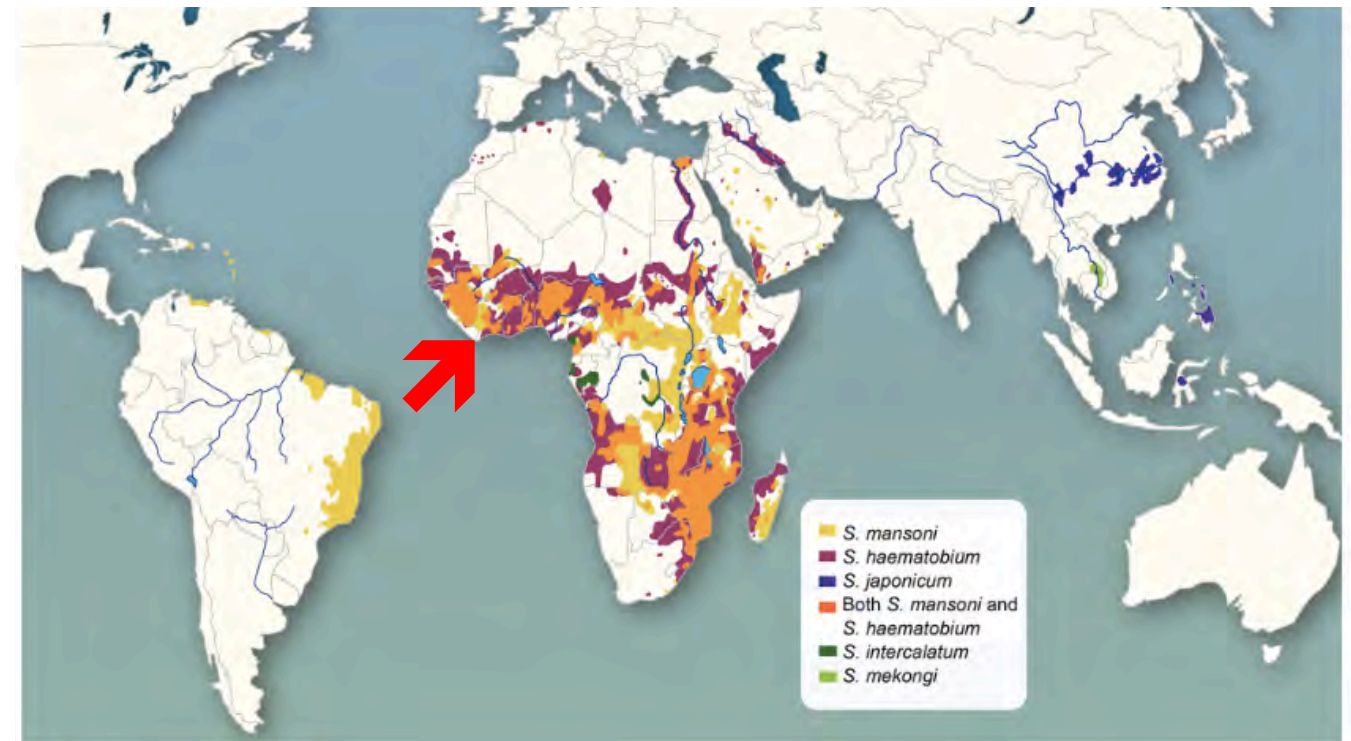
Skiing
Public Health



Fasciola hepatica and *Schistosoma*

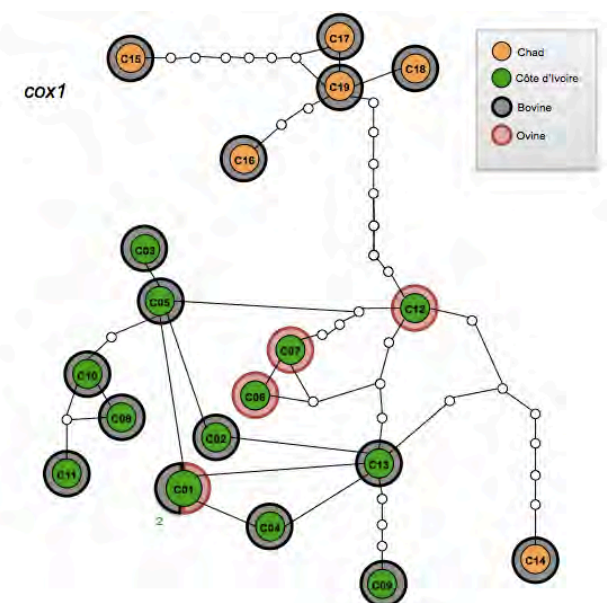
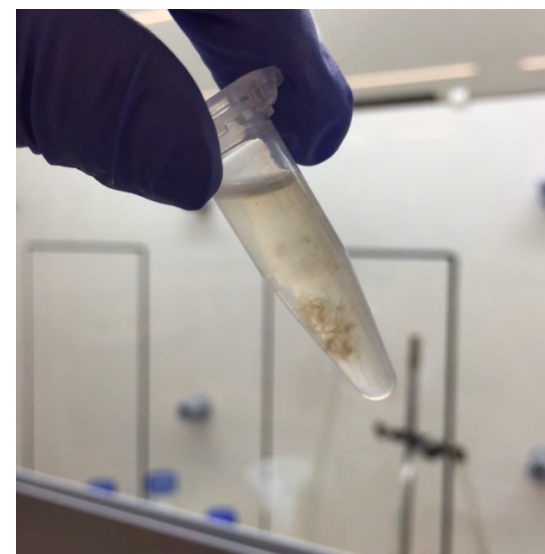


One Health



Burden of *Schistosoma*

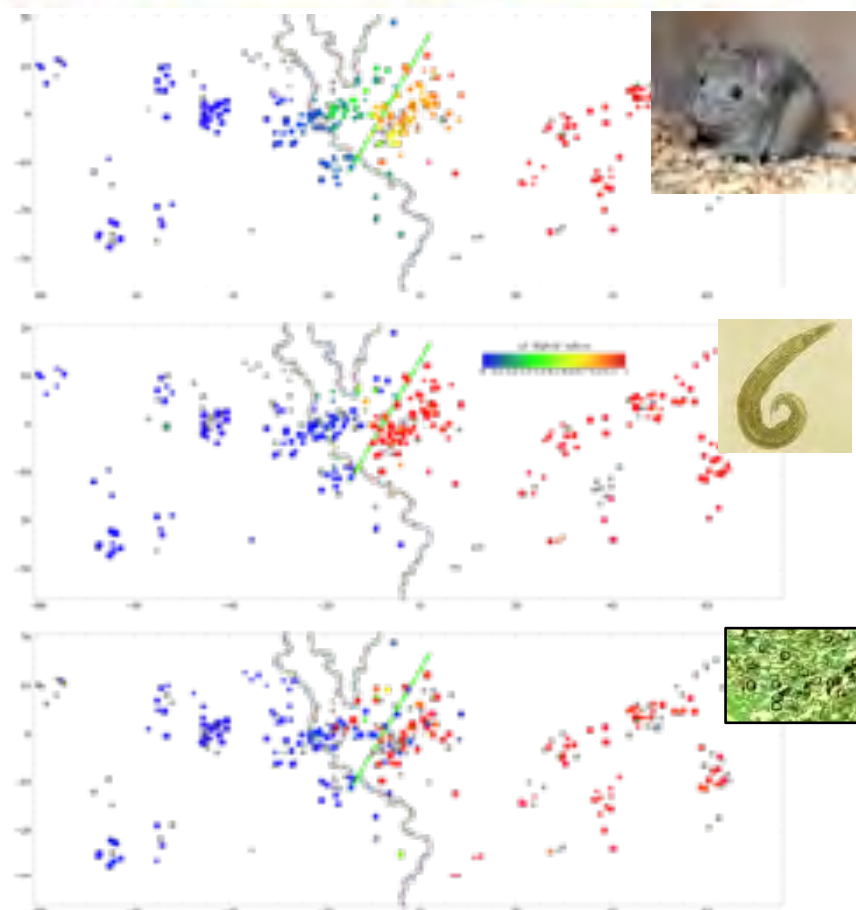
(Weerakoon, 2016)



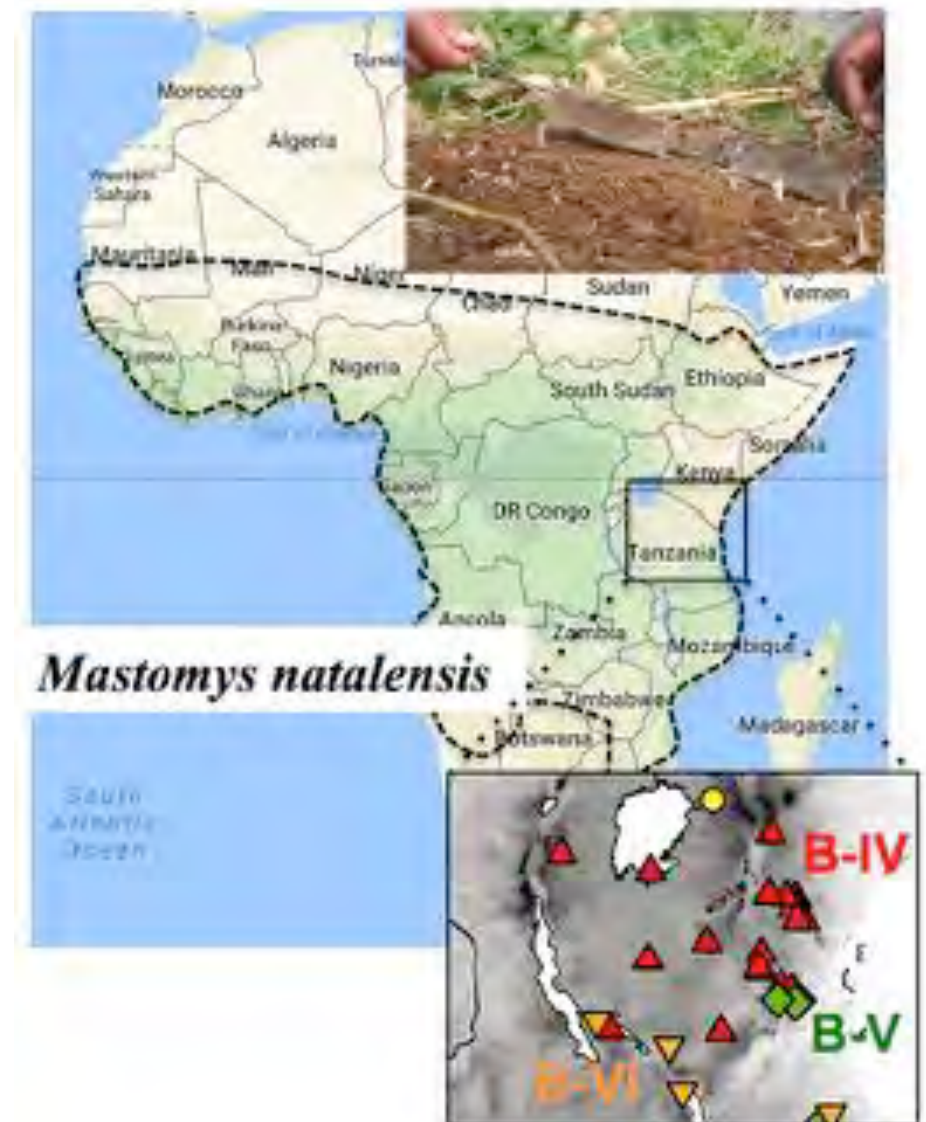
Fasciola hepatica DNA and Haplotype Genealogy

Host-parasite secondary contacts: barriers and introgression

The house mouse hybrid zone in Europe



The multimammate mouse in Tanzania

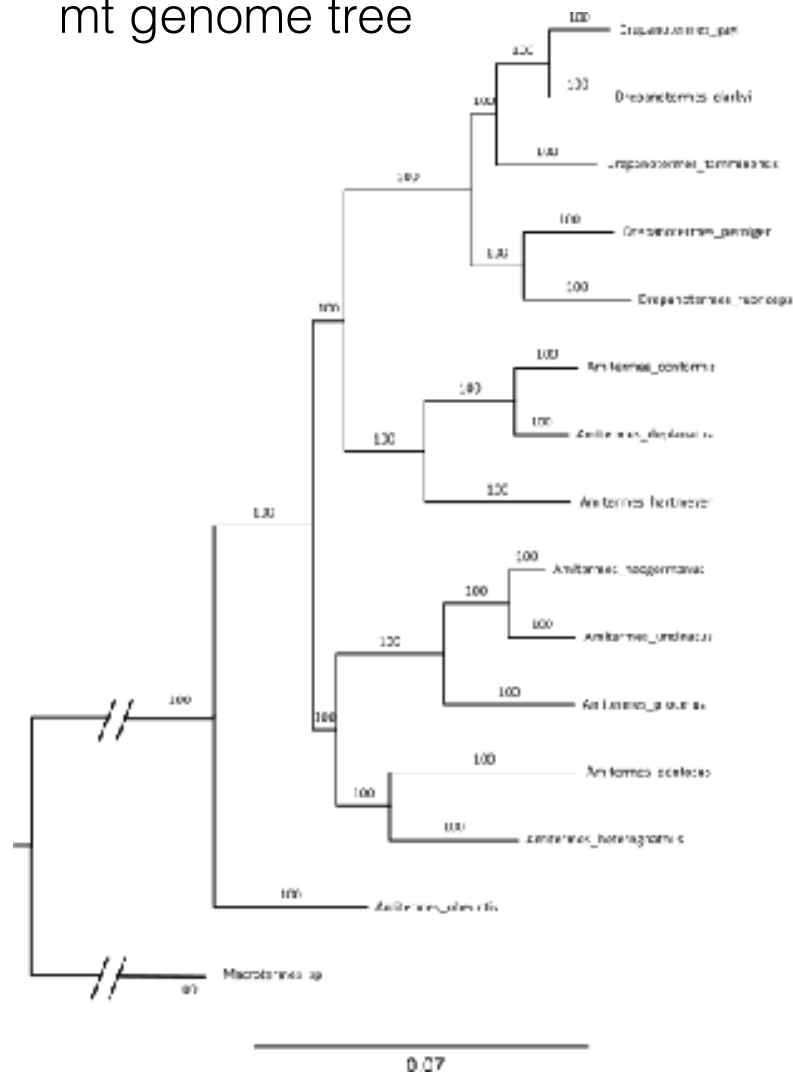


Joëlle Goüy de Bellocq

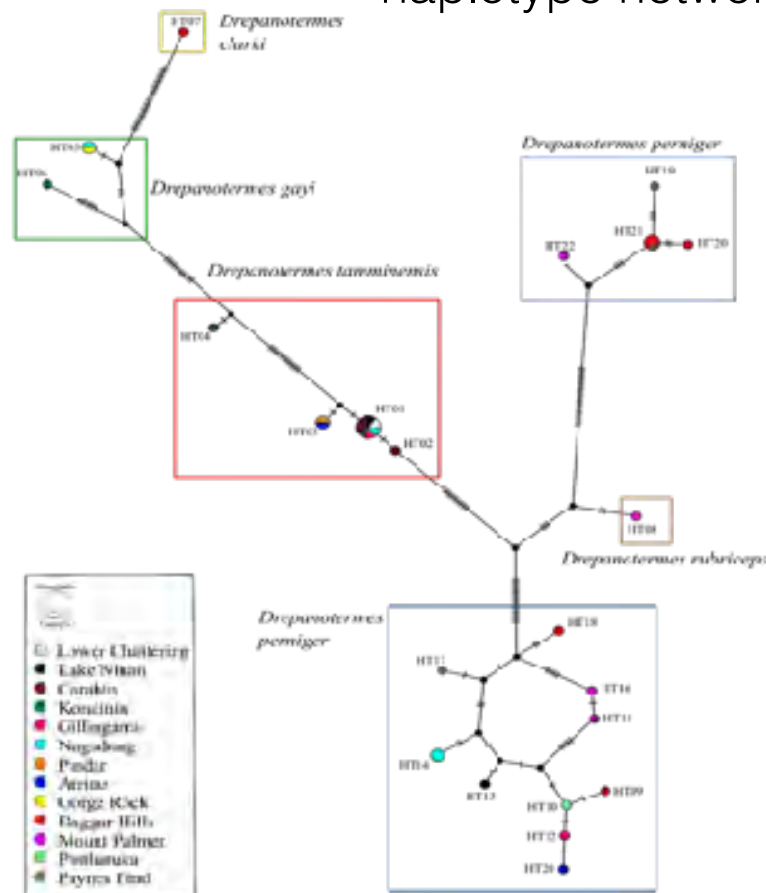
Institute of vertebrate Biology
The Czech Academy of Sciences

AAG: a few widespread species (complexes?), huge phenotypic differences, many local endemics, two species shared with PNG. How did this happen?

mt genome tree



haplotype network



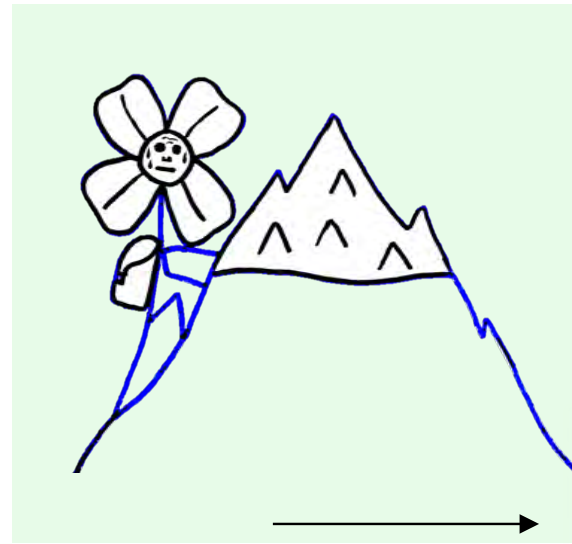
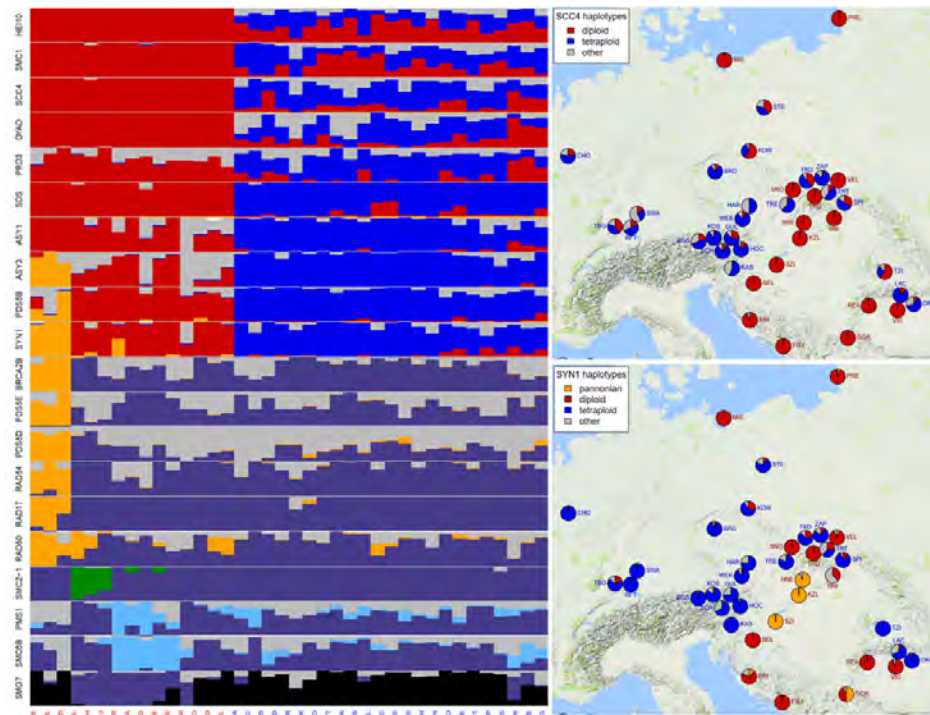
Drepanotermes



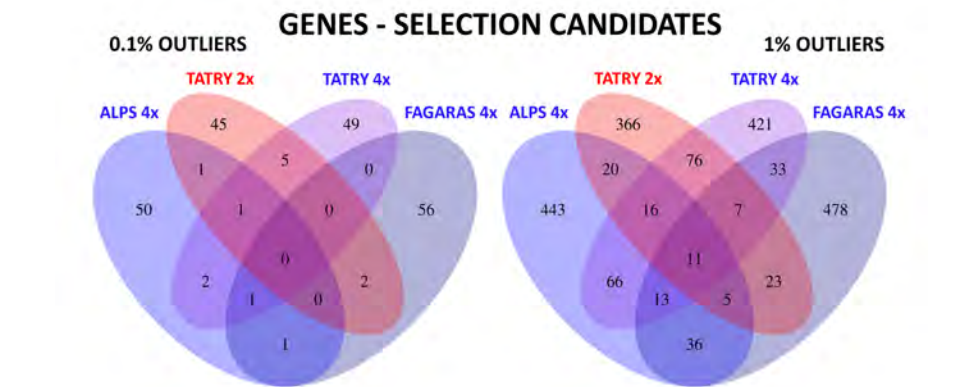
Amitermes



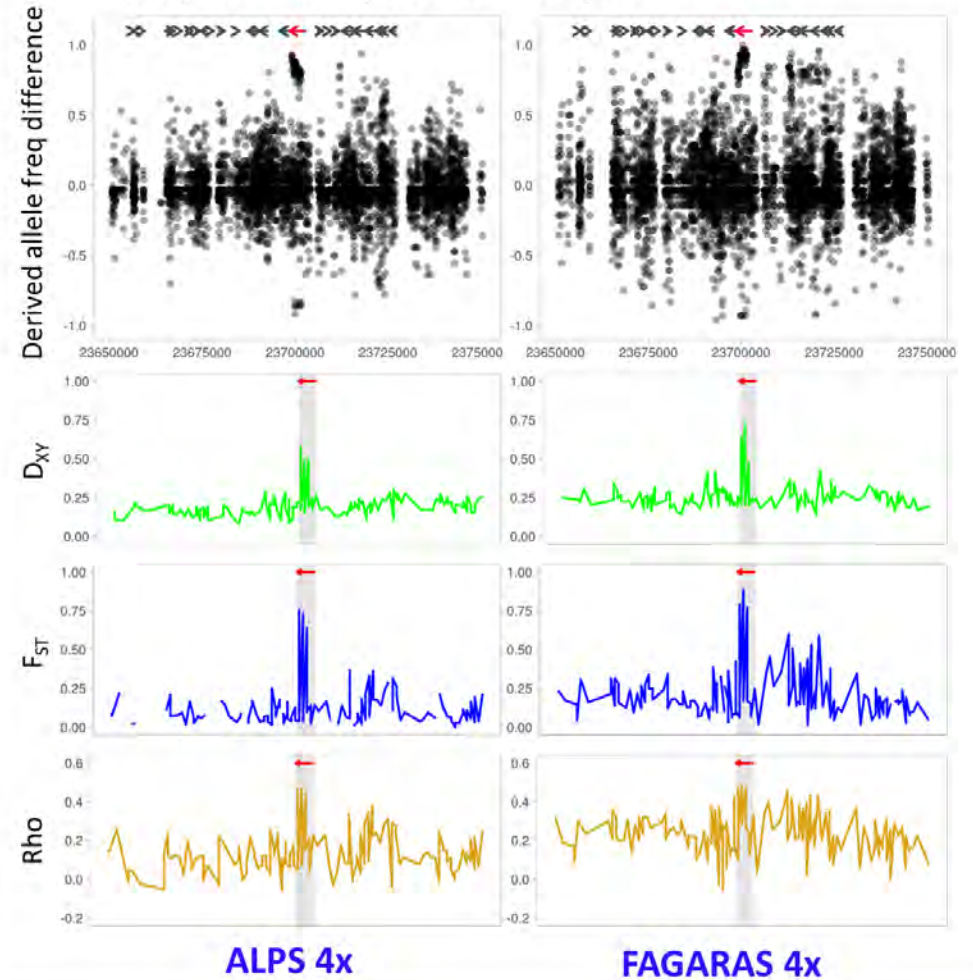
Magdalena Holcová, Charles University in Prague, Faculty of Science



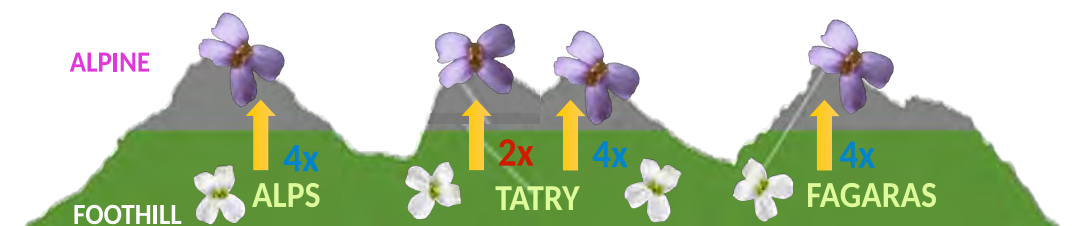
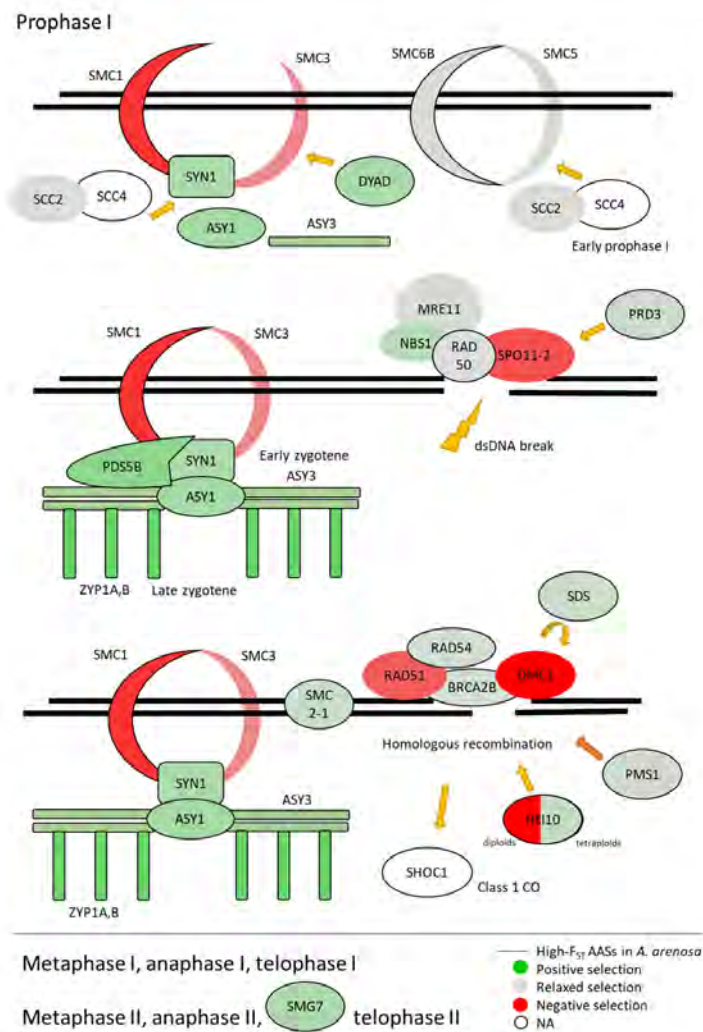
Alpine
adaptation



Red/far-red photoreceptor

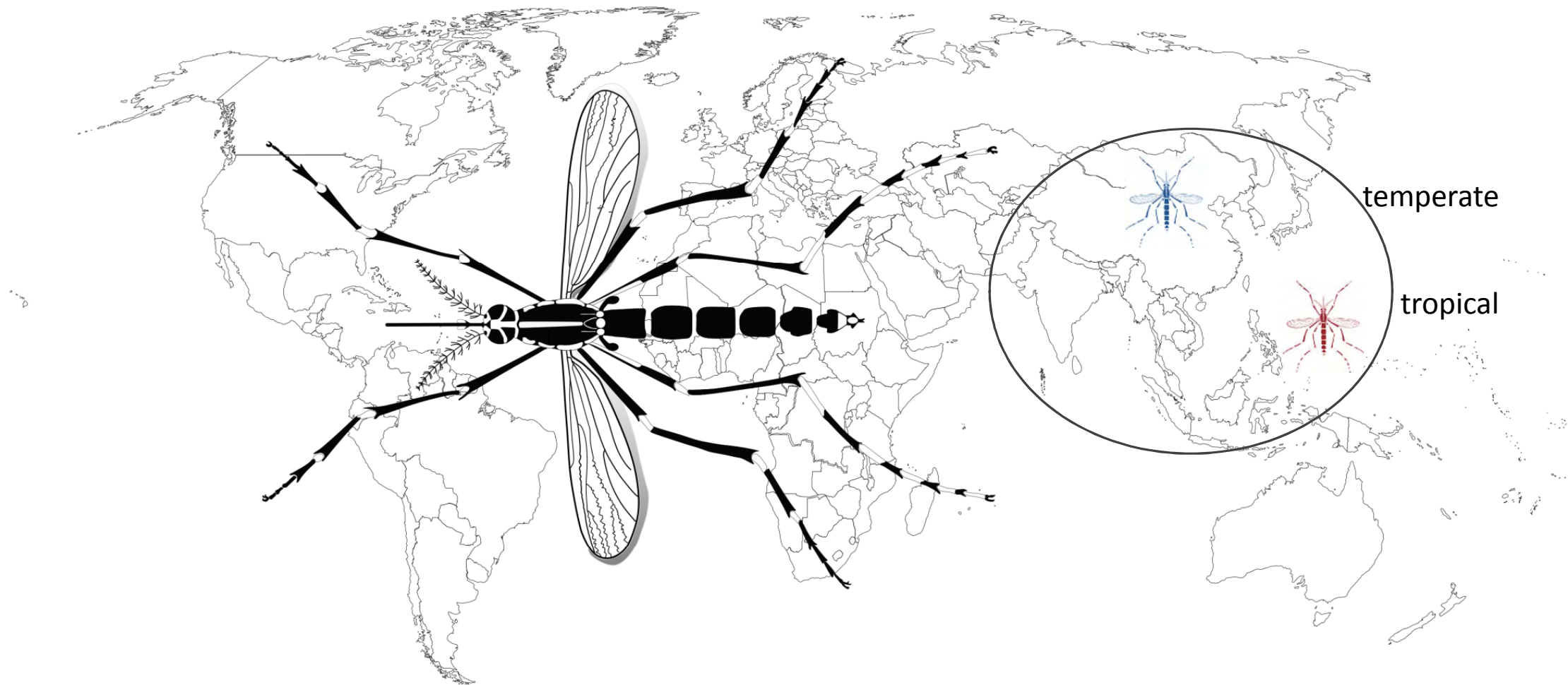


Molecular evolution
of meiosis

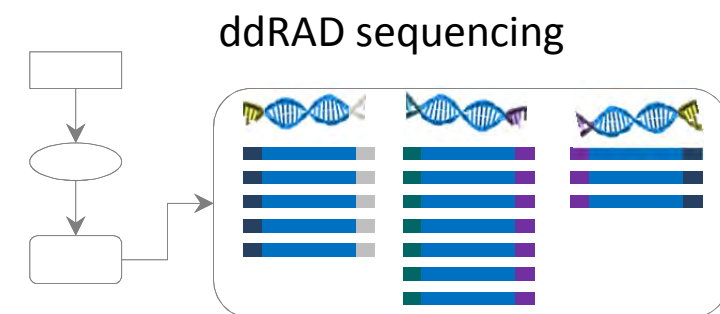


The global Phylogeography of the invasive tiger mosquito

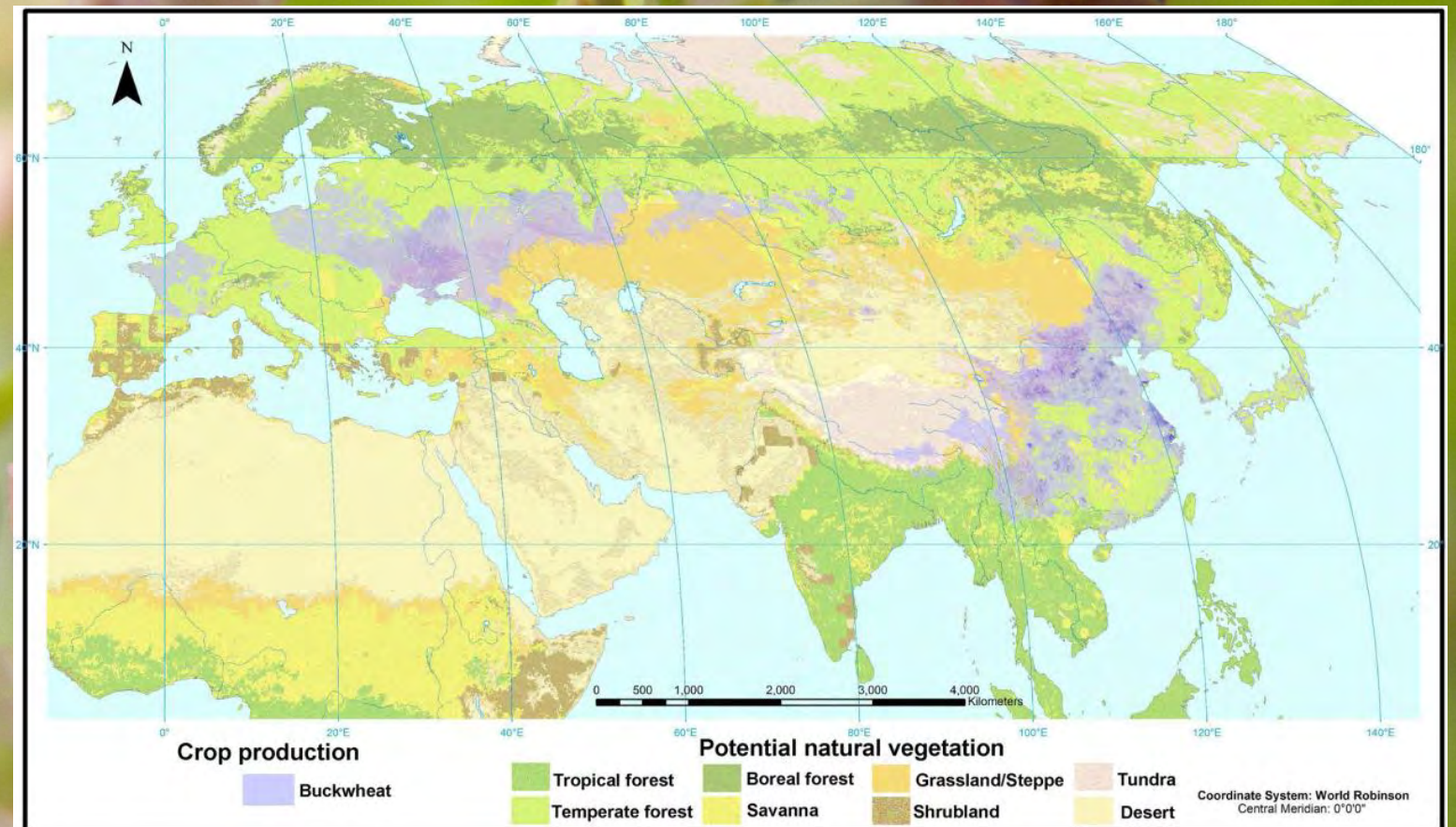
Ann-Christin Honnen, *Swiss Tropical and Public Health Institute*



- Population genetic diversity in native and invaded range
- Connectivity between and among new/old populations
- What are the source populations for the invaded range



Harriet Hunt



McDonald Institute for Archaeological Research,
University of Cambridge, UK

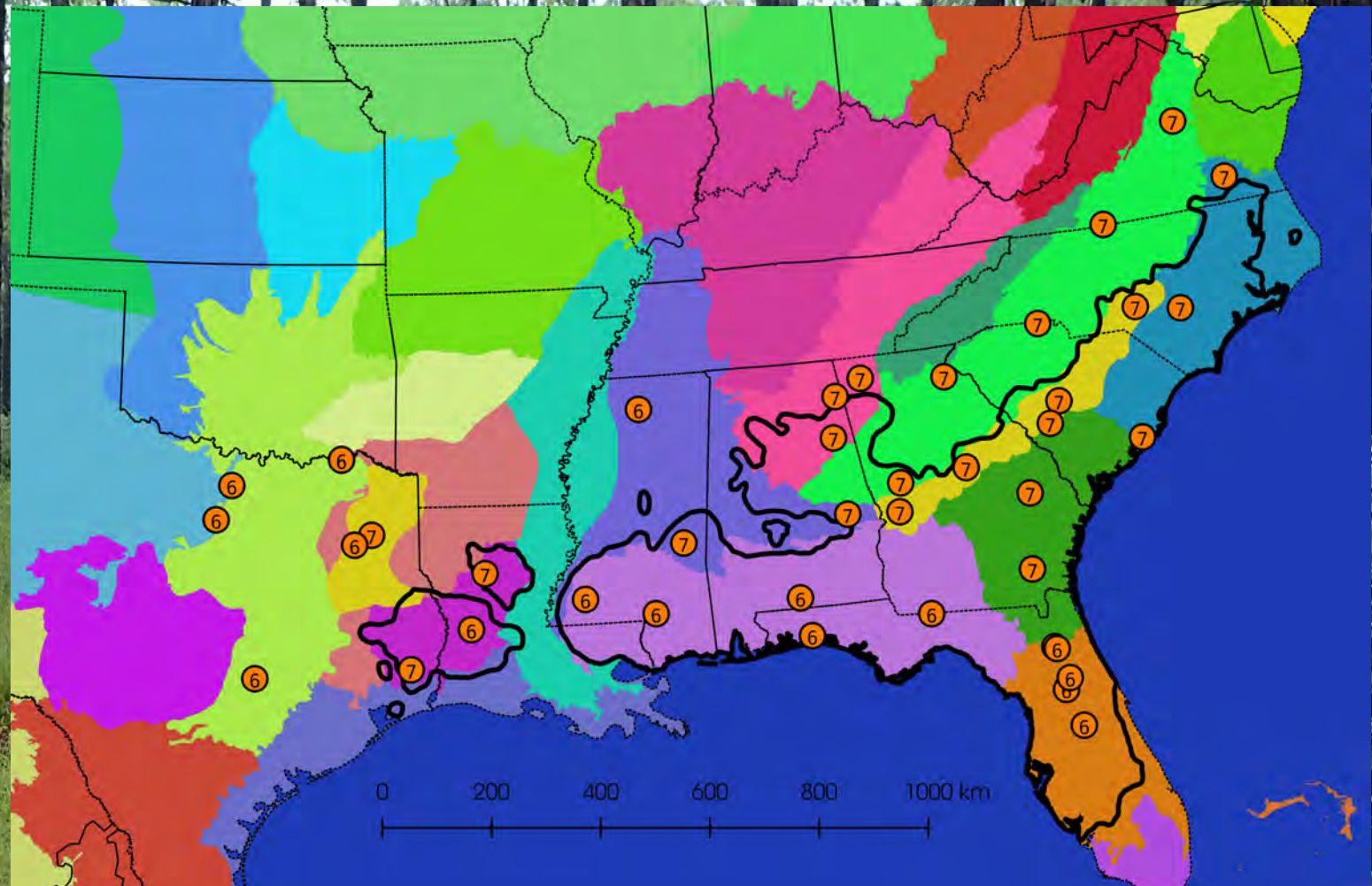
Jason Paul Joines

Clemson University, Clemson, South Carolina, U.S.A.

Local adaptation in wide-ranging herbaceous plants








Tephrosia virginiana (Fabaceae)



Dávid Jónás Ph.D.

Education and experience

- B.Sc.: Animal production engineer – 
- M.Sc.: Animal breeding and genetics –  & 
- Ph.D.: genetics – 
- Post-doc – 
- Experience:
 - Bioinformatics (~6 years)
 - NGS data analysis
 - Teaching

Current research

- Evolutionary genetics in birds
 - Speciation history of the Common and Thrush Nightingales
 - ABC modeling
 - Genetic diversity



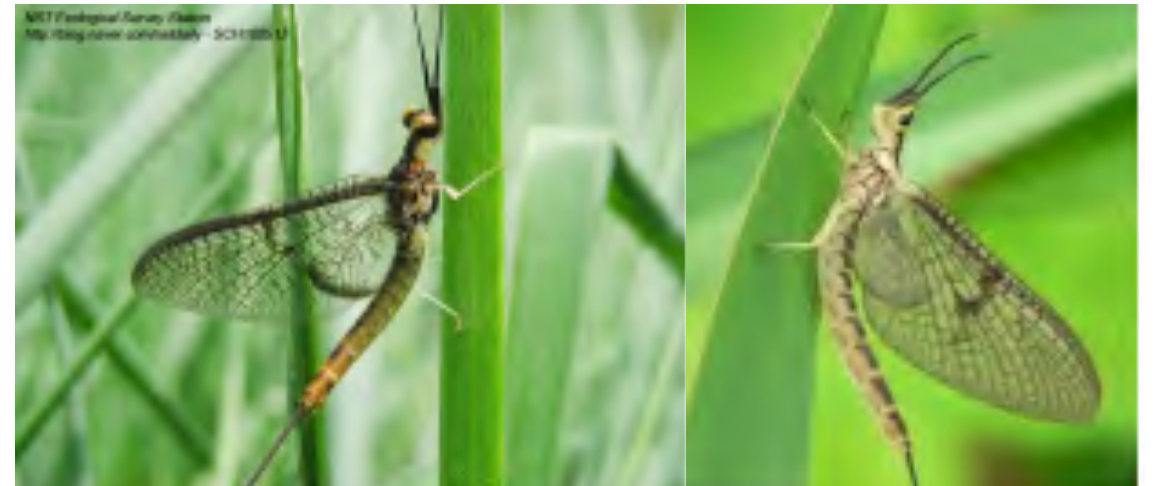
2018 WORKSHOP ON POPULATION AND SPECIATION GENOMICS



Dung beetle



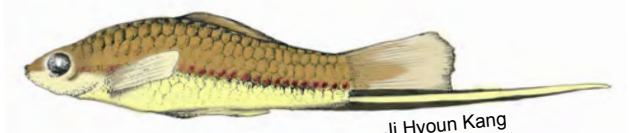
G. mopsus



Mayflies

Jihyoun Kang

Korean Entomological Institute, Korea University, Seoul, South Korea



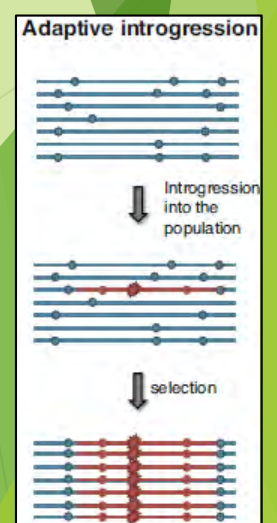
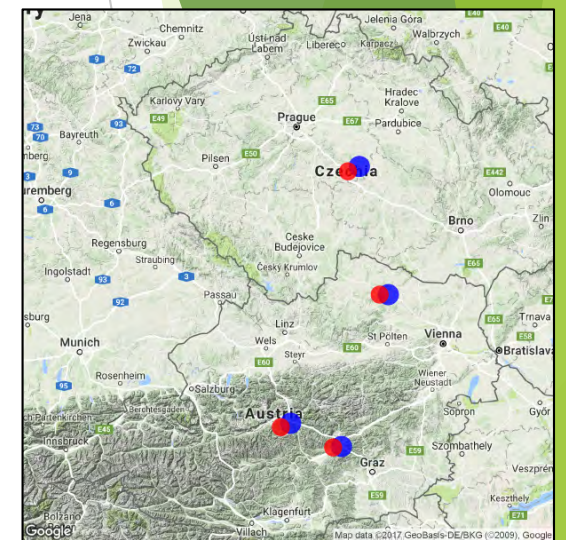
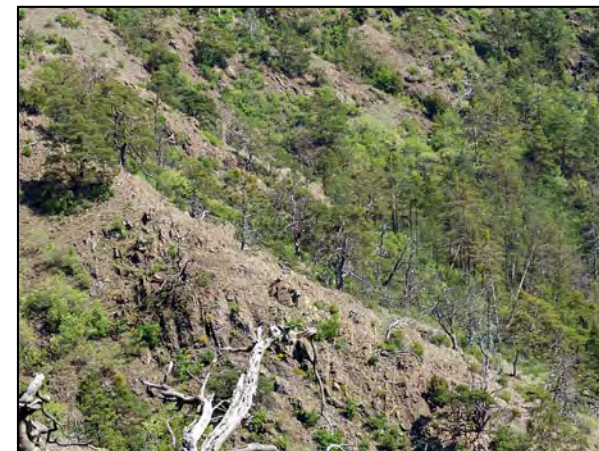
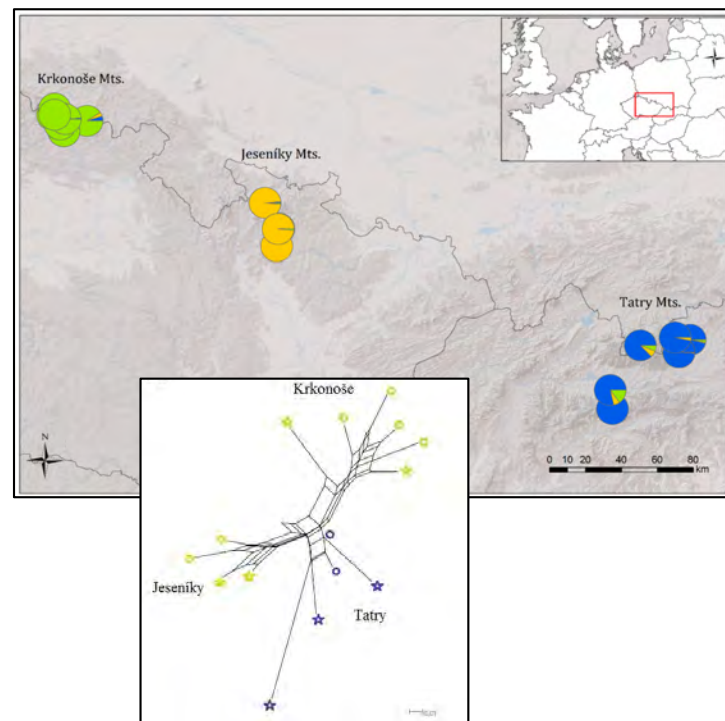
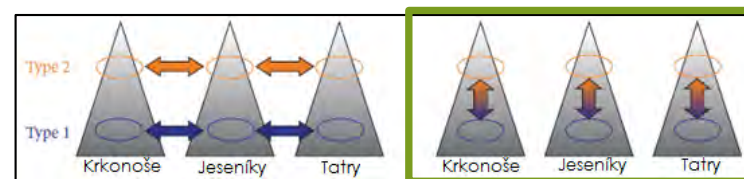
Ji Hyoun Kang

Veronika Konečná



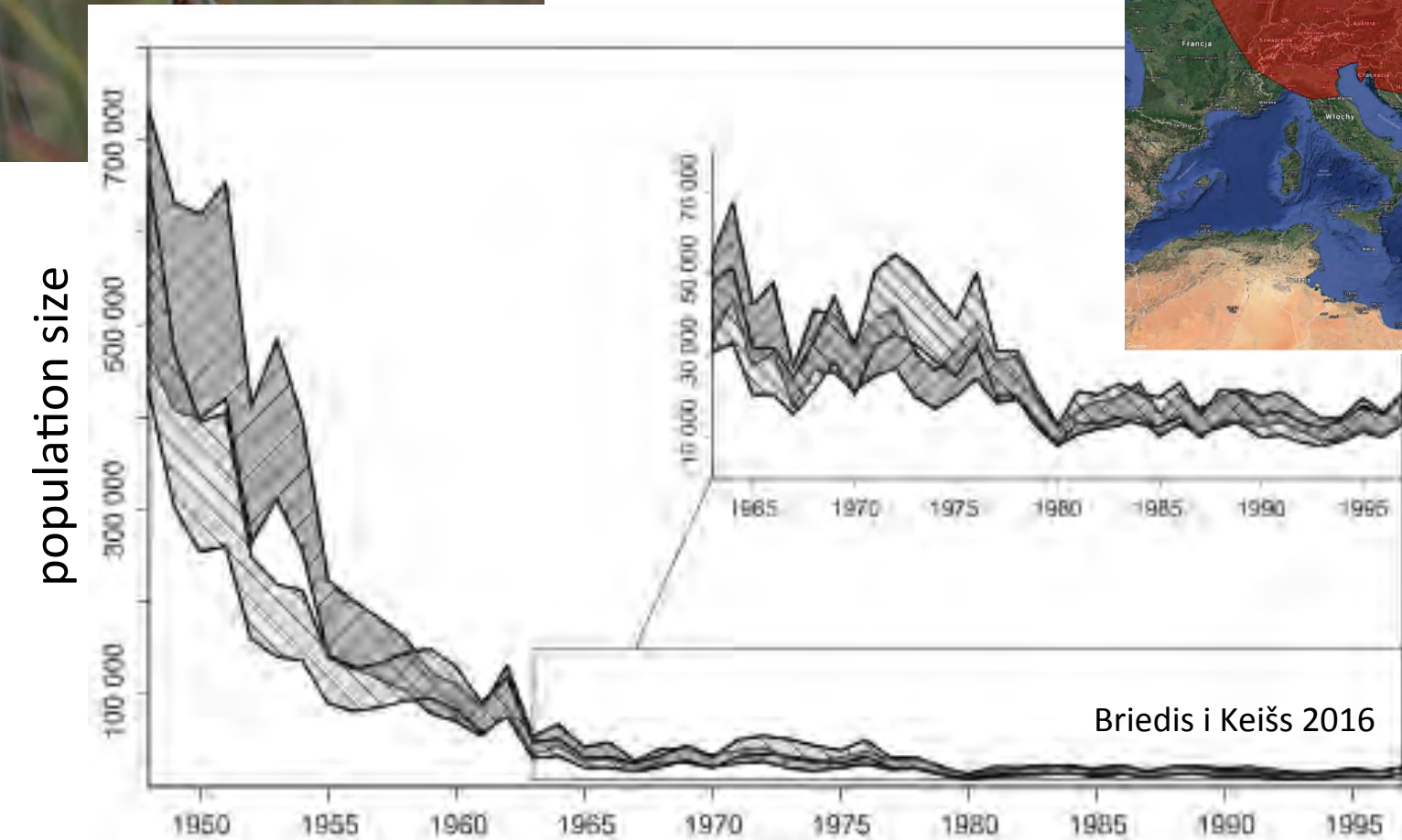
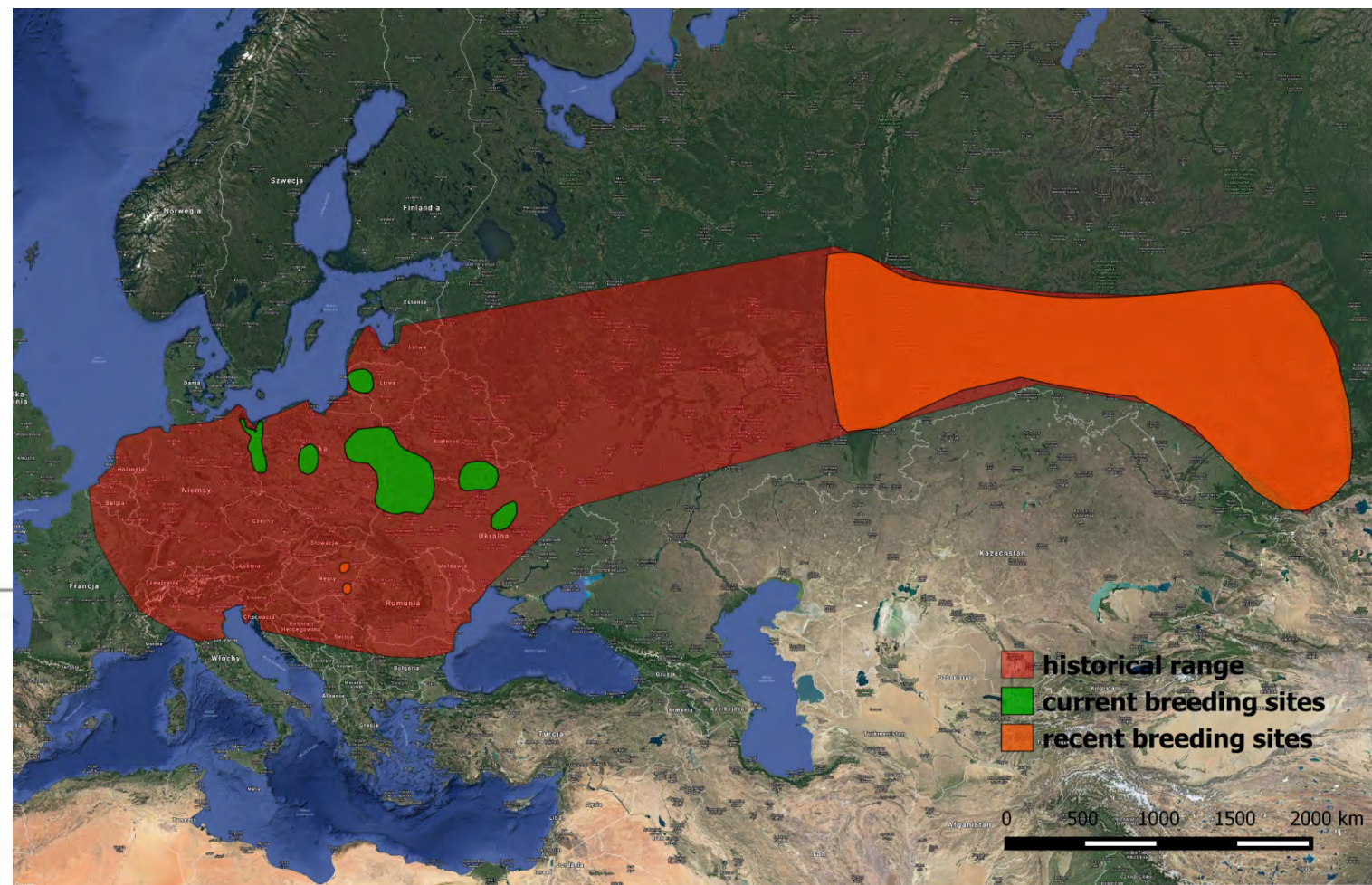
FACULTY OF SCIENCE
Charles University

- Demographic consequences and adaptive responses to parallel environmental switches





Aquatic Warbler
Acrocephalus paludicola



Justyna Kubacka
Museum and Institute of Zoology,
Warsaw, Poland



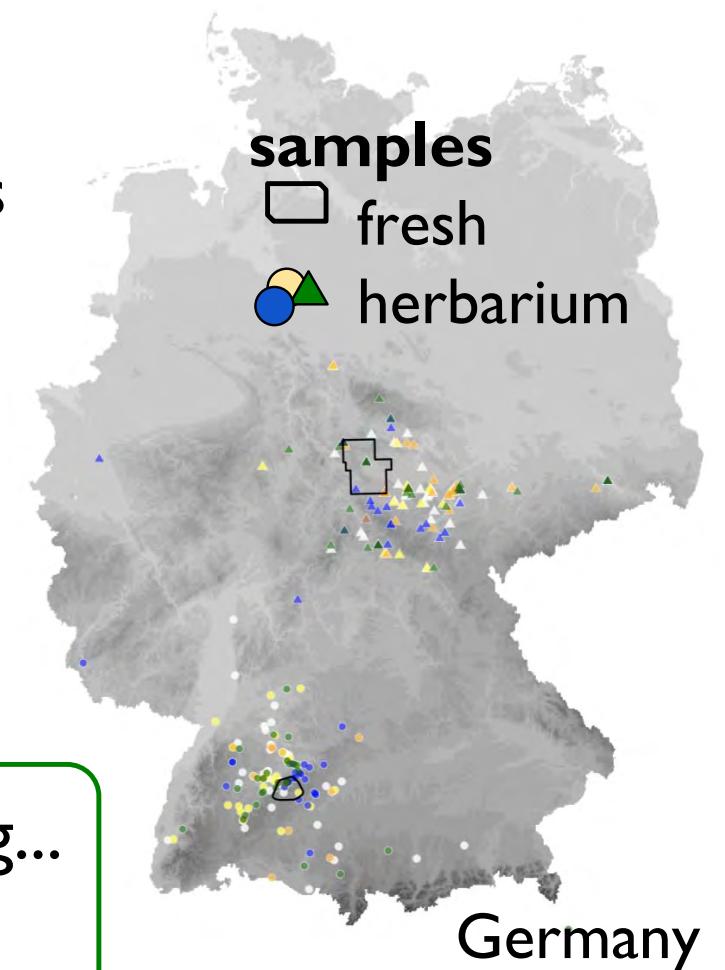
Plants facing climate change - genetics over 200 years



5 non-reference species
1000 fresh, 300 herbarium plants
climate and flowering data

ddRADseq +
ancient DNA capture

warmer spring = earlier flowering...
➔ correlated genetic changes?
➔ plasticity vs adaptation?



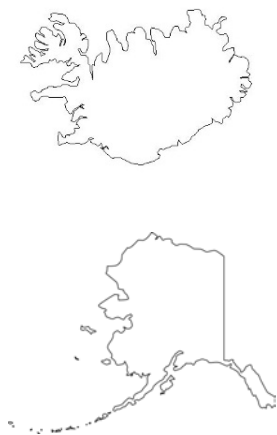
... also: wetlab, miRNAs, transcriptional regulation in evolution/adaptation



Patricia Lang | patricia.lang@tuebingen.mpg.de

 @plantricia | www.weigelworld.org

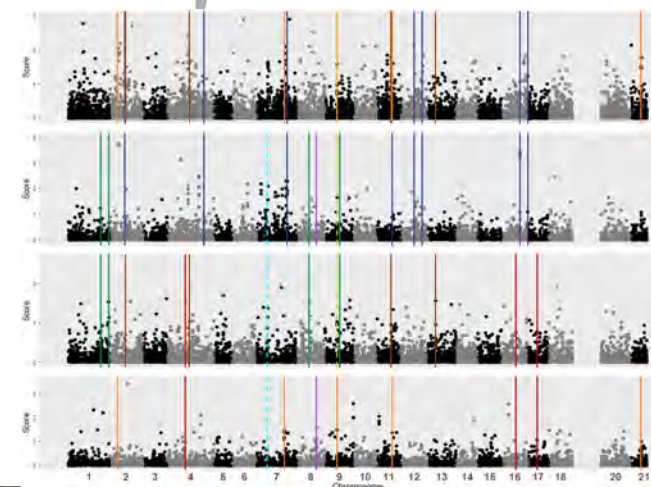
Max Planck Institute for Developmental Biology, Tuebingen, Germany



Andrew MacColl



University of
Nottingham
UK | CHINA | MALAYSIA

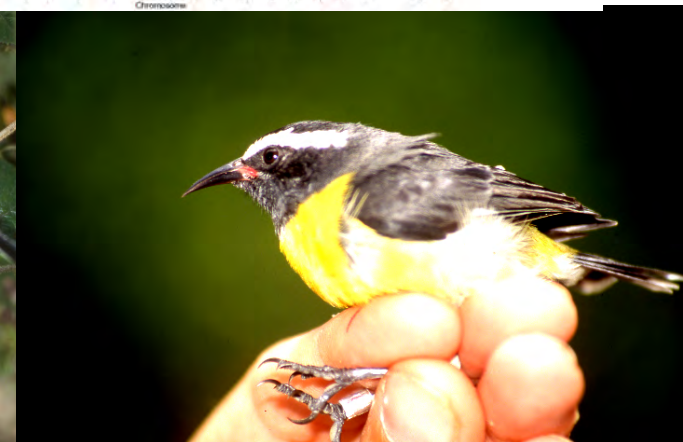


B.C.

Alaska

Uist

Iceland



João Pedro Marques

- 2nd year PhD dual degree

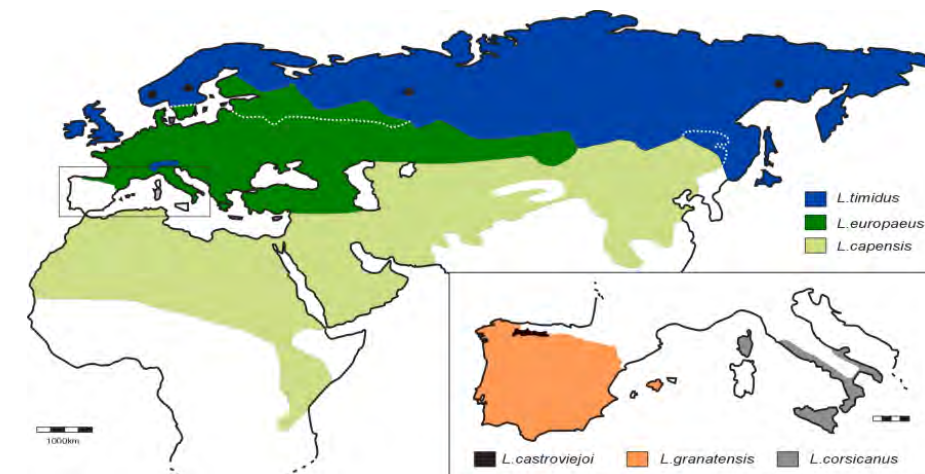
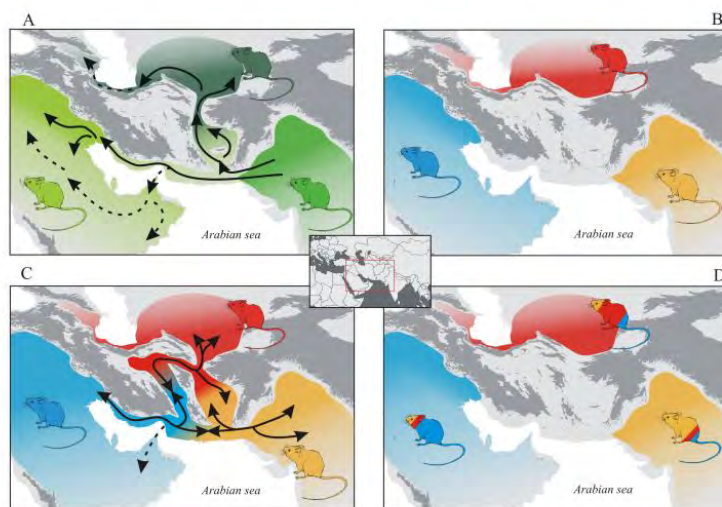
The role of natural selection in species genomic differentiation and admixture



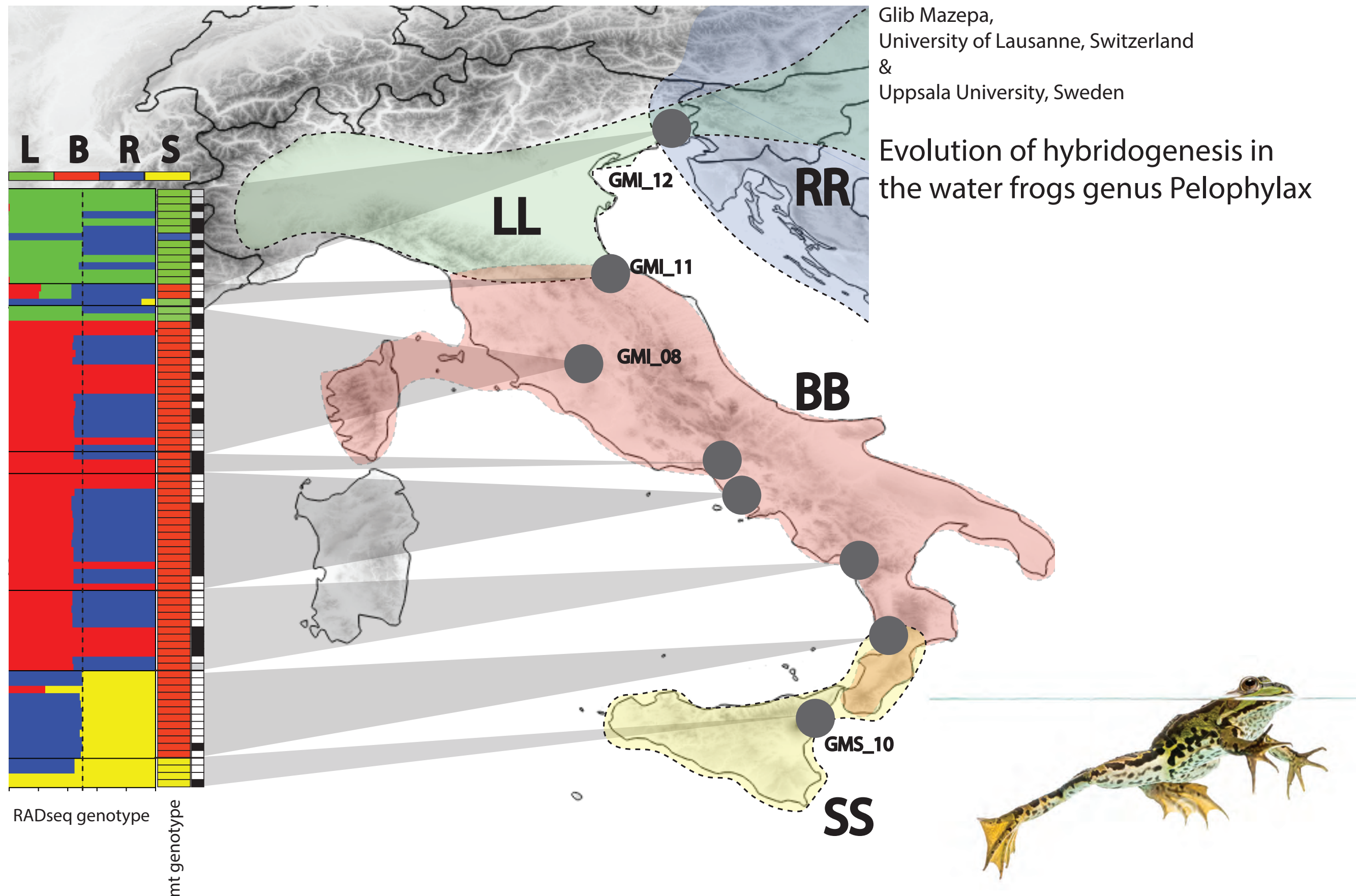
Pierre Boursot



José Melo-Ferreira



joao.marques@cibio.up.pt



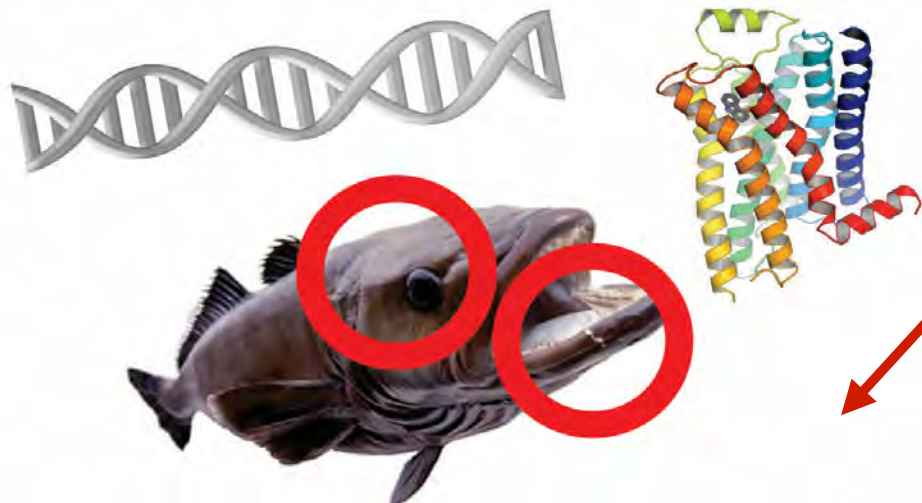


Santiago Montero-Mendieta





Sensory genomics:



**Molecular mechanism:
what and how do
fish see/smell/
taste?**

Genomics of sensory adaptations: evolution of vision, smell and taste in fishes Zuzana Musilová

(Assistant Professor, Dpt. of Zoology)

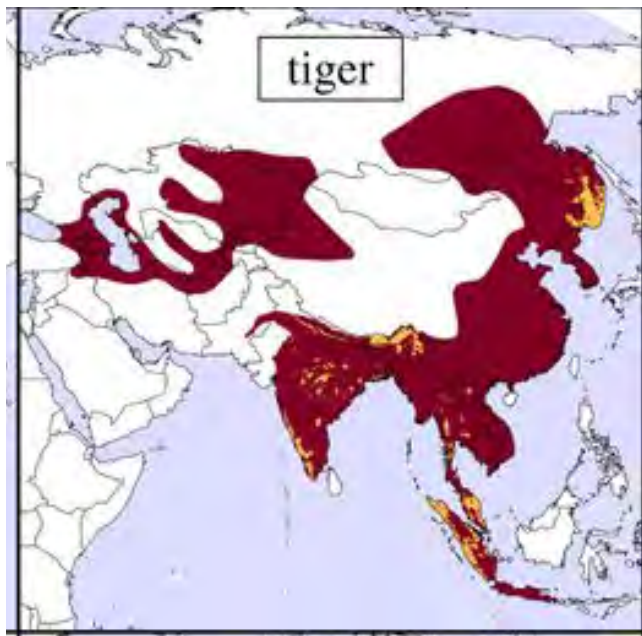


FACULTY OF SCIENCE
Charles University
Prague, Czech Republic

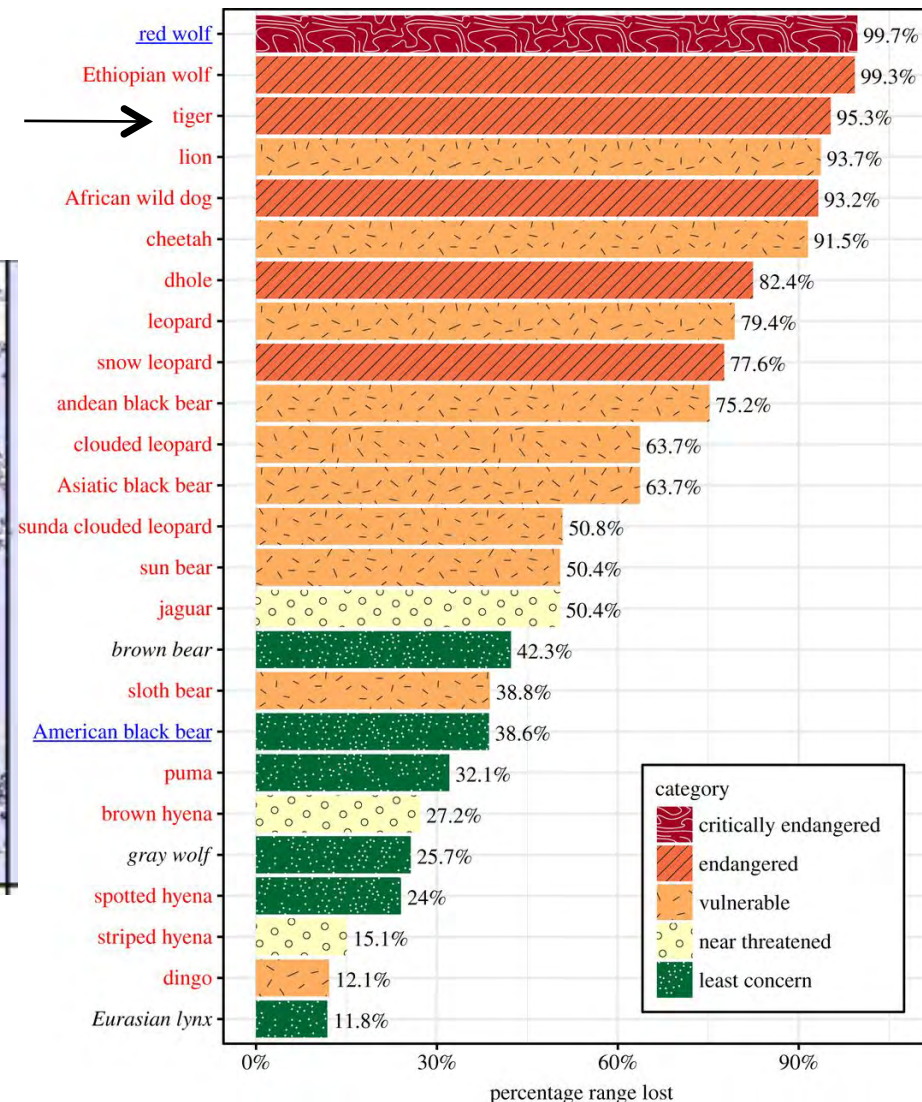
Interrogating Pan-Indian tiger genetic variation

Meghana Natesh - Dr. Uma Ramakrishnan's Lab
National Center for Biological Sciences, Bangalore, India

95% decline in tiger range



(Wolf and Ripple, 2017)



- ~ 60% of wild tigers reside in India
- Largely restricted to small protected area
- Connectivity and genetic differentiation
 - Pan-India
 - Western Ghats
- Fecal Genomics – getting more from less
 - SNP marker panel
 - Low - tech

Non-invasive sampling



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<http://www.medvede.sk/>

Archaeogenomics of Viking Sheep

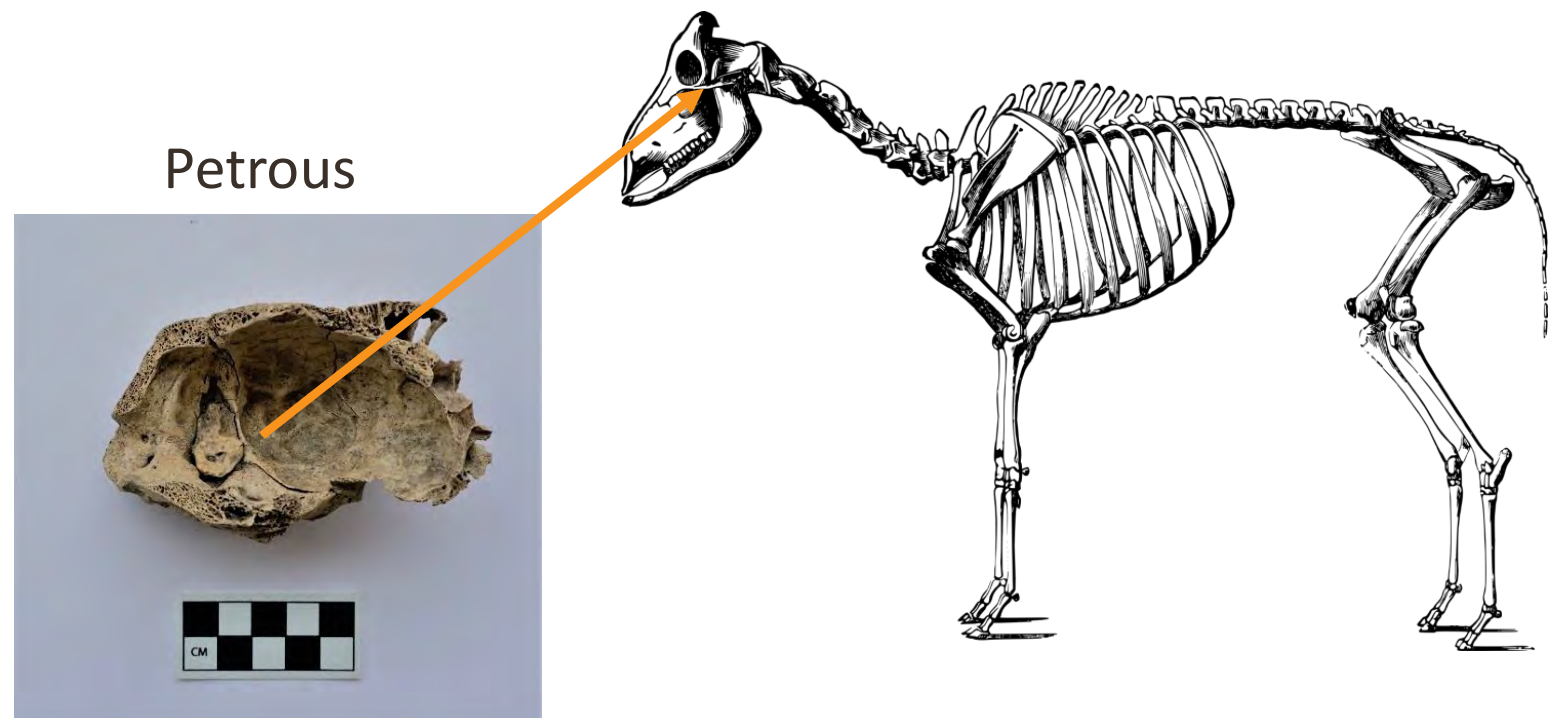
Albína Hulda Pálsdóttir
PhD student
University of Oslo

Supervisors

Dr Sanne Boessenkool &
Dr Nils Chr. Stenseth,
University of Oslo

Dr Jón Hallsteinn Hallsson,
Agricultural University of
Iceland

Dr Juha Kantanen, Natural
Resources Institute Finland



UiO • University of Oslo

CEES
Centre for Ecological and Evolutionary Synthesis



Landbúnaðarháskóli Íslands
Agricultural University of Iceland

Repeat content and speciation in Birds-of-Paradise



Valentina Peona
PhD Student
Alexander Suh Lab
Dept. of Evolutionary Biology, Uppsala University
valentina.peona@ebc.uu.se



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Sandrine Picq

- Postdoc in insect population genomics
- Canadian Forest Service in Quebec city
- Study two important forest pests in Canada



Eastern spruce budworm, native

➡ To understand epidemic dynamics



Gypsy moth, invasive

➡ To identify introduction routes

Adaptation to ecologically diverse landscapes



Raeymaekers *et al.* (2017) *NatCommun* 8: 267

DOI: 10.1038/s41467-017-00256-6

OPEN

Adaptive and non-adaptive divergence in a common landscape

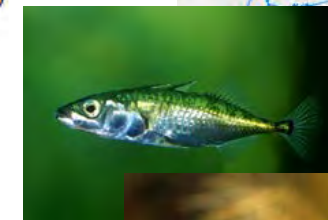
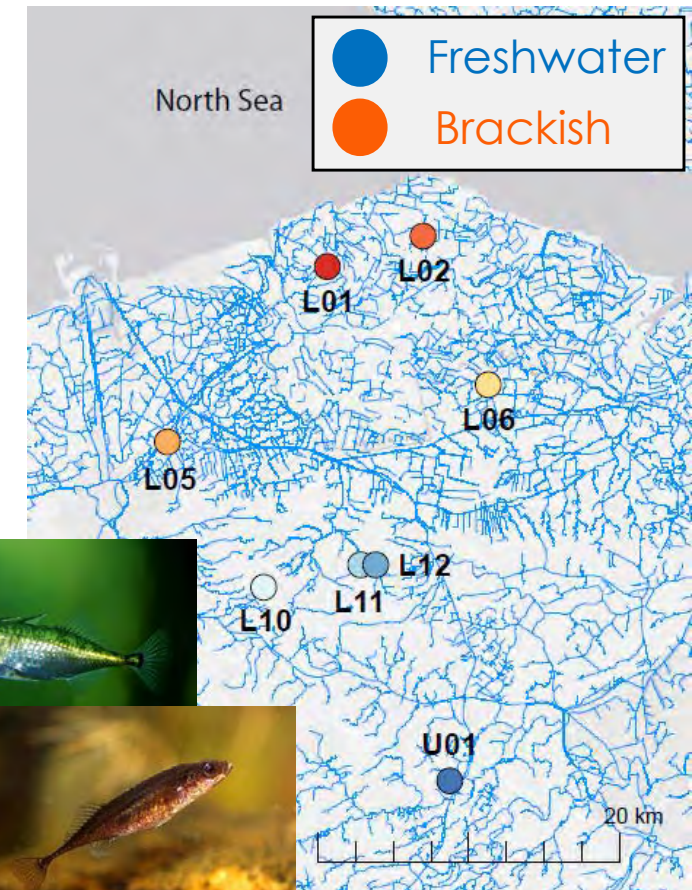
Joost A.M. Raeymaekers^{1,2,3}, Anurag Chaturvedi^{1,4}, Pascal I. Hablützel^{1,5}, Io Verdonck¹, Bart Hellemans¹, Gregory E. Maes^{1,6,7}, Luc De Meester⁴ & Filip A.M. Volckaert¹

Mission

- 1) Comparative riverscape genomics among stickleback species
SNPs → whole genomes
- 2) Comparative lakescape genomics among Lake Tanganyika sardines
Assembly of a high-quality genome



Joost Raeymaekers
Faculty of Biosciences
Nord University, Bodø, Norway



Stolothrissa tanganyicae

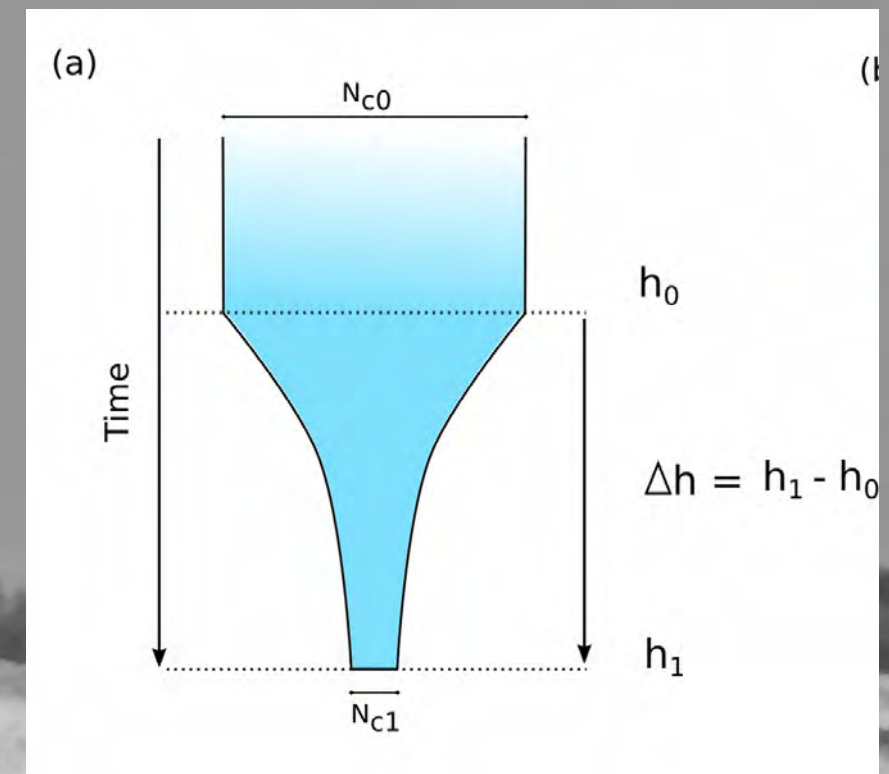


Limnothrissa miodon



Extinction genomics of African rhinos

The before and after of a population collapse



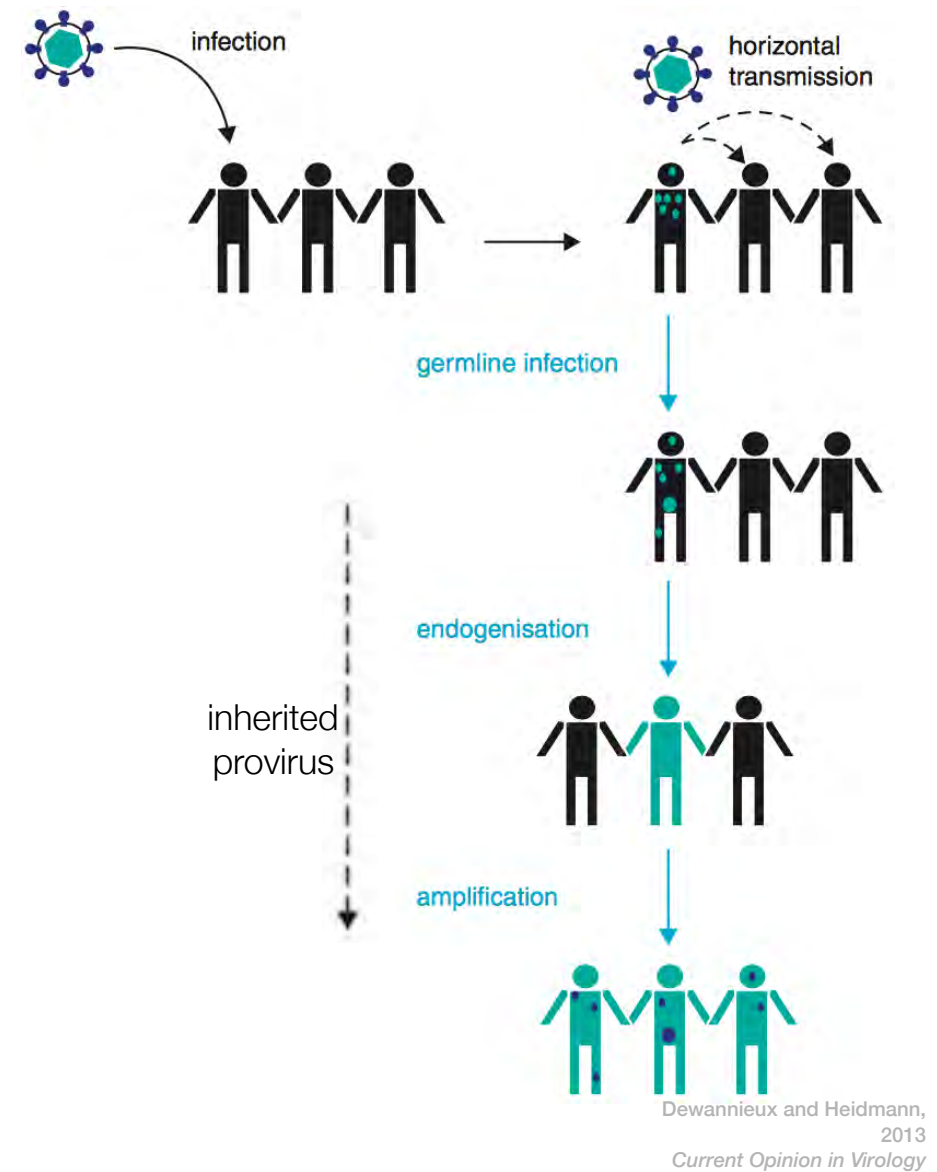
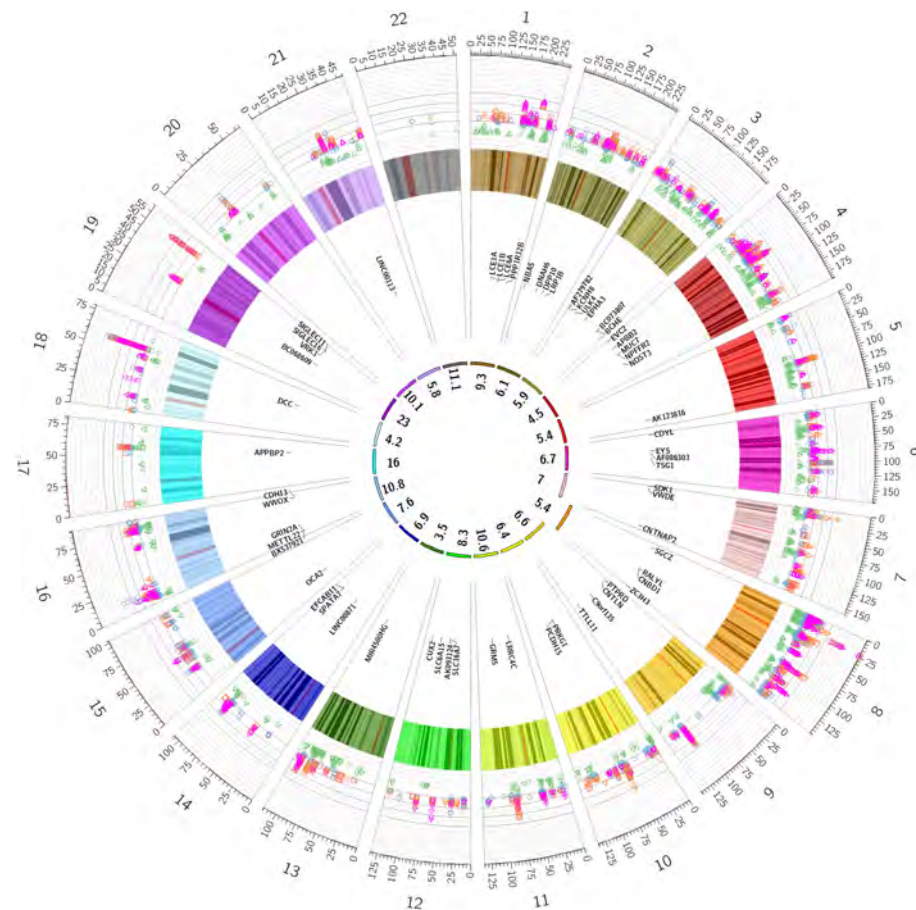
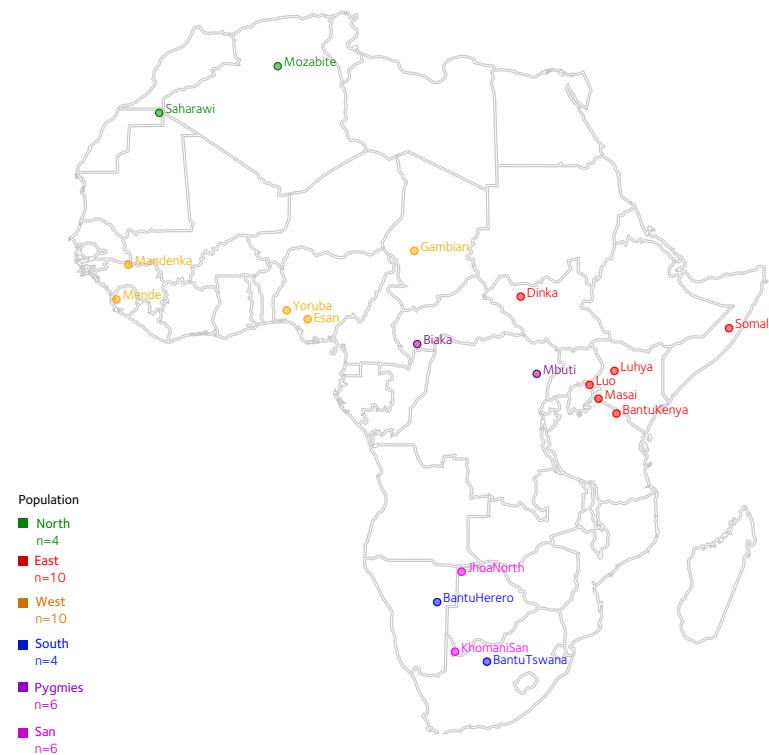
From Díaz-del-Molino et al. (in press)

Fátima Sánchez Barreiro

Section for EvoGenomics
Natural History Museum of Denmark
University of Copenhagen



human archaic introgression in Africa



human endogenous retroviruses

CINDY SANTANDER
DPhil Candidate in Zoology
Human Evolutionary Genetics

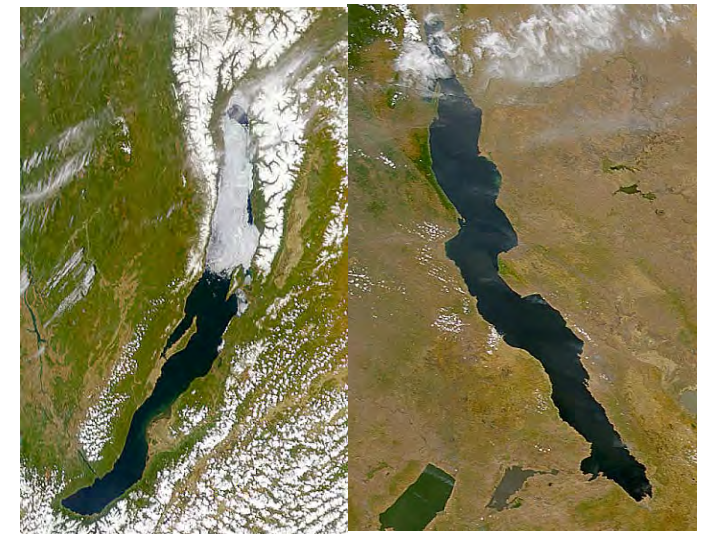
Isa Schön

RBINS

(Royal Belgian Institute of Natural Sciences)

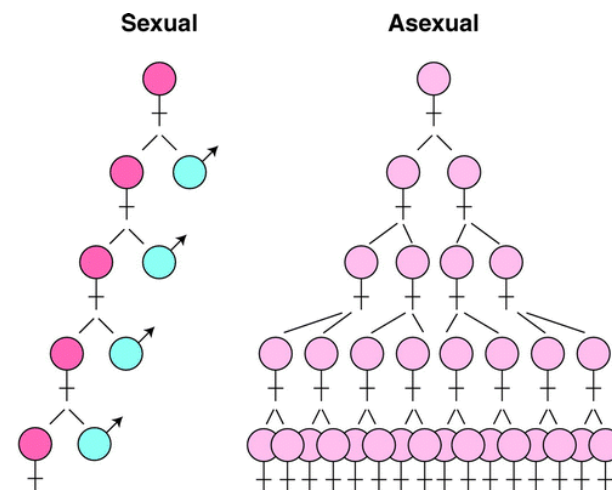
Brussels, Belgium

Adaptations & speciation



Ancient lakes

Ostracods



Effects of asexuality



Oceania



Antarctica

Reconstruct population histories

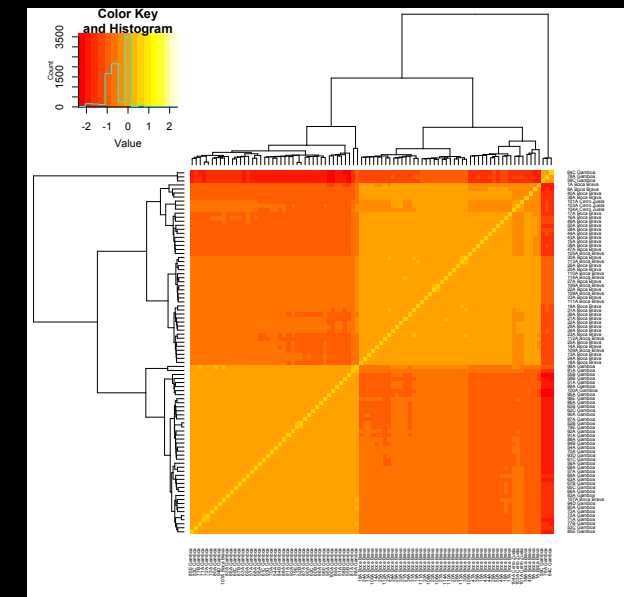
Ants, ants, ants, ants, ants...



Lukas Schrader

Institute for Evolution & Biodiversity
University of Münster, Germany

Centre for Social Evolution
University of Copenhagen, Denmark





UPPSALA
UNIVERSITET

Luciana Gaspar Simoes

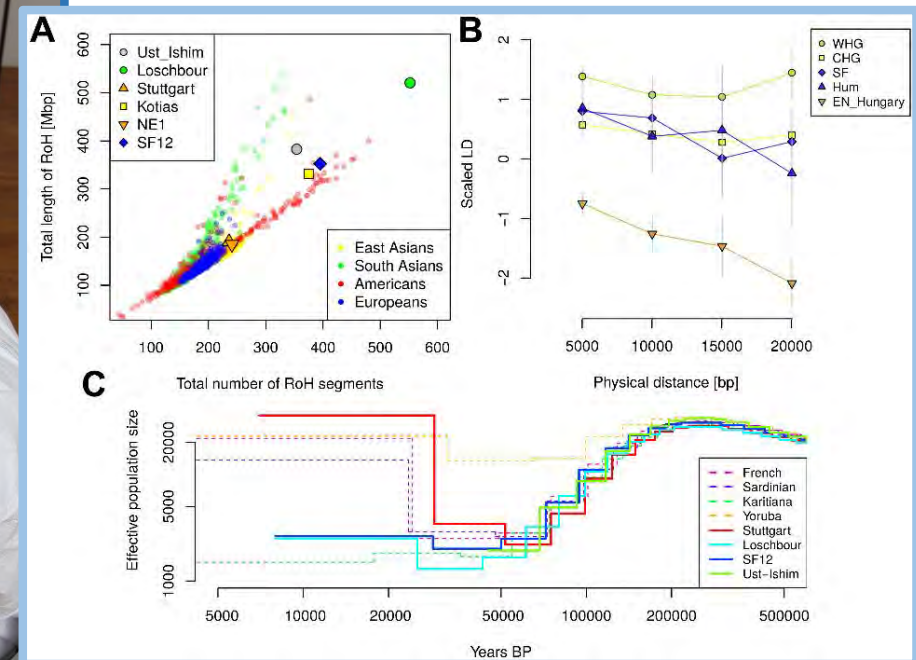
PhD student in Human Evolution and Genetics



My friends



What I have been doing

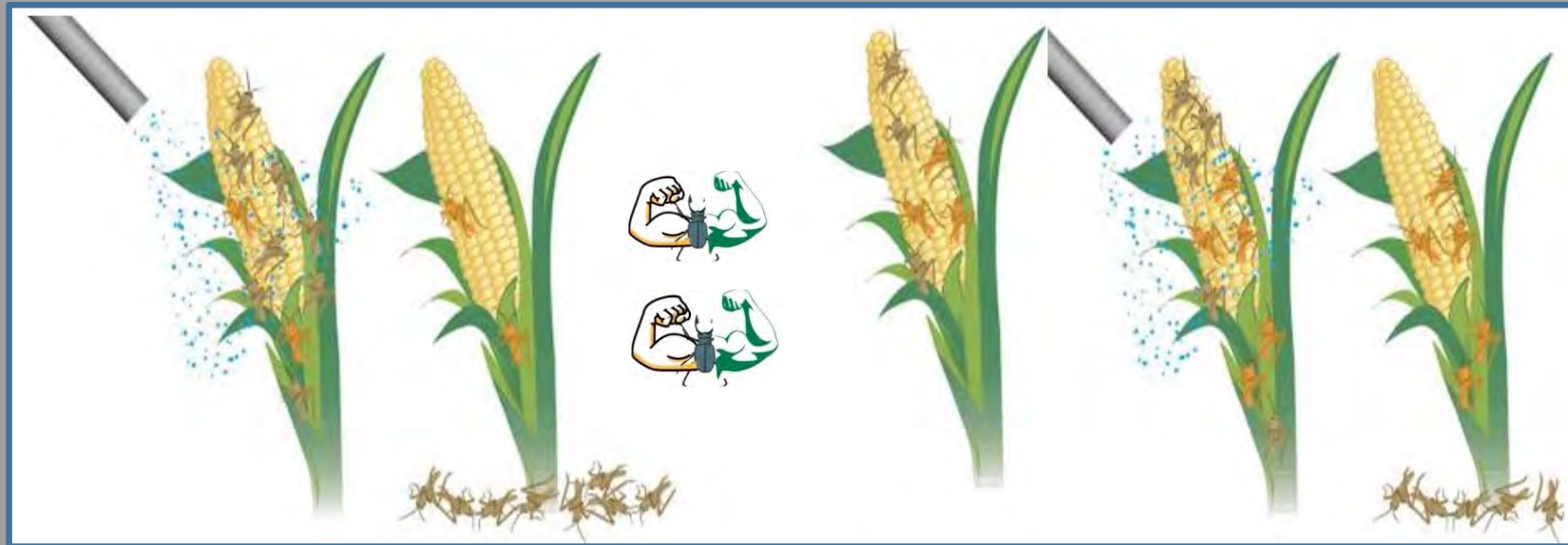


What I want to do!

Human population genomics

Using ancient DNA to understand human evolutionary and demographic history: **migration, admixture, selection...**

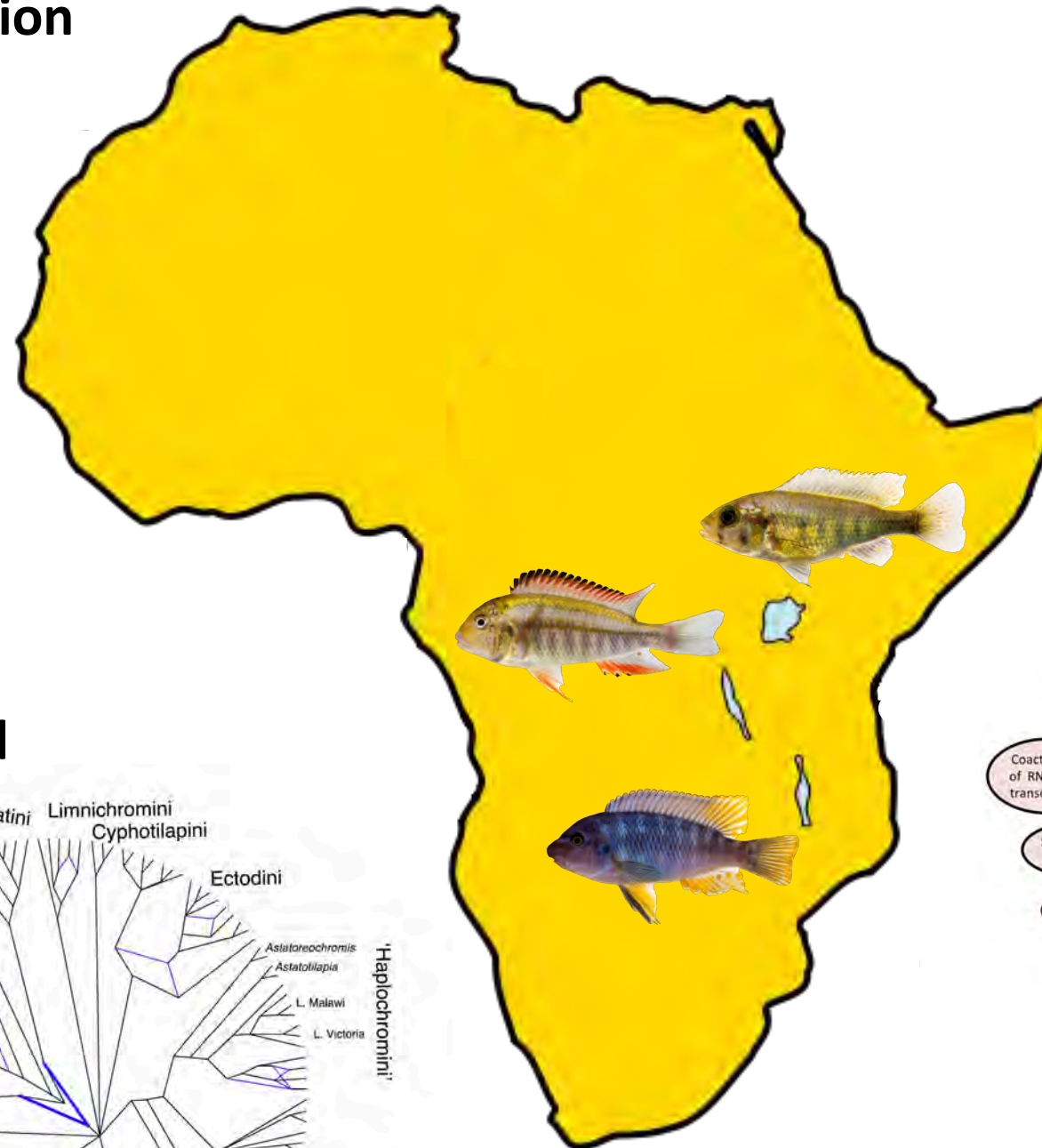
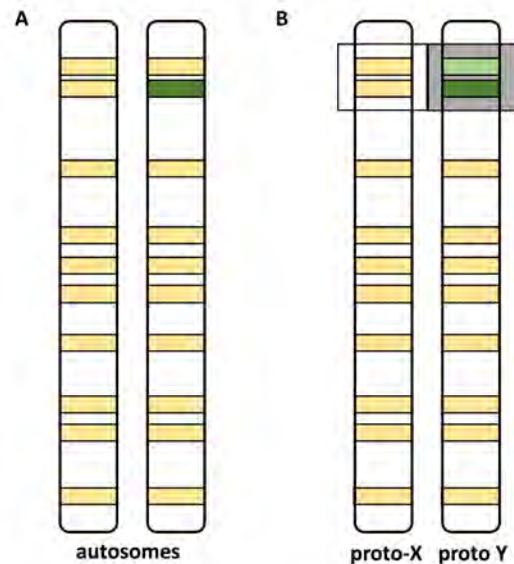
Where else in agriculture is understanding evolution important?



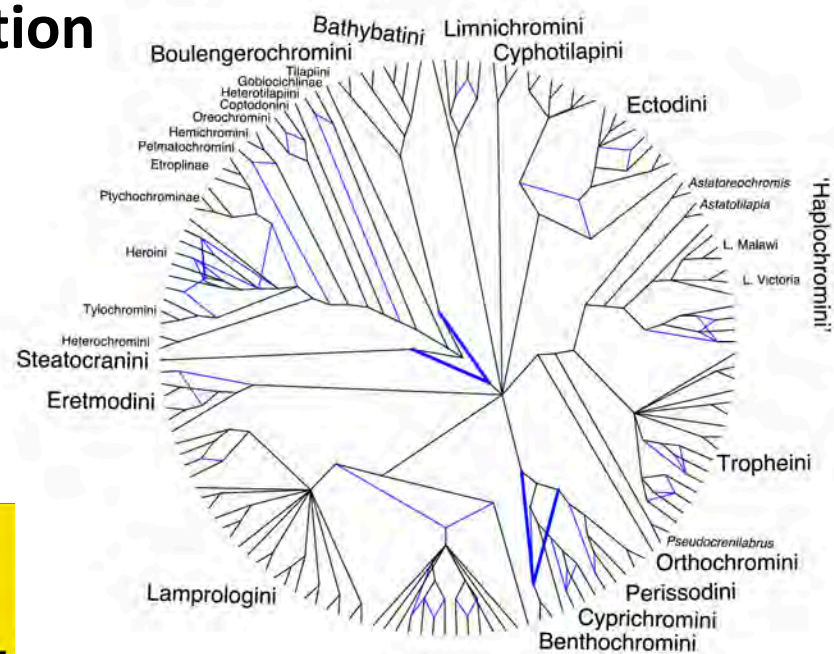
- Understand the molecular basis of adaptive traits in insects.
- Evolution of insect resistance to natural and synthetic insecticides.
- Resistance mediated genome evolution in insects.
- Translate this knowledge in to tools and strategies to prevent, slow or overcome resistance development in pest insects.

Pooja Singh

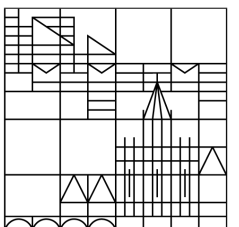
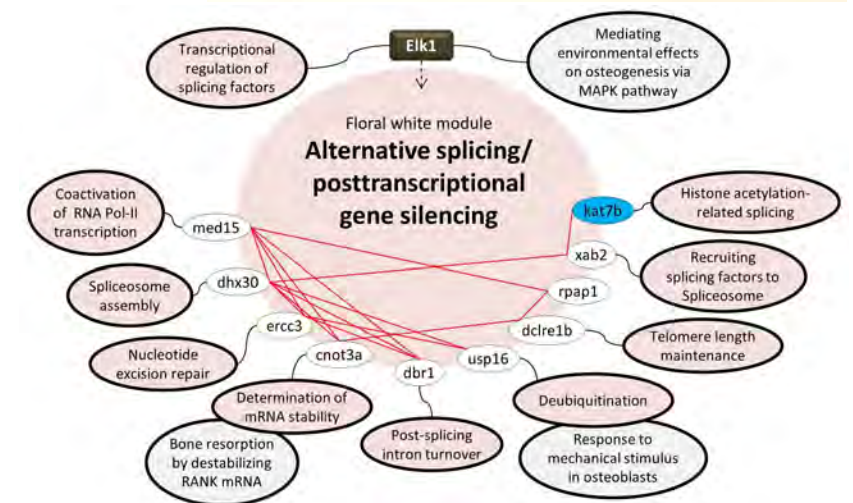
Sex-chromosome evolution



Evolutionary history and hybridisation

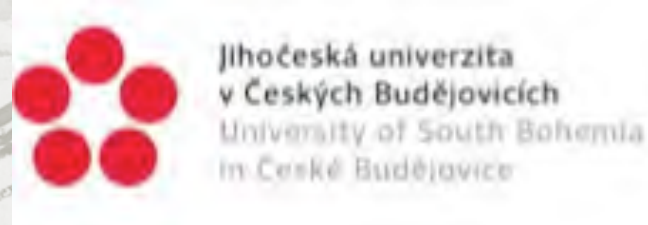


Trophic morphology



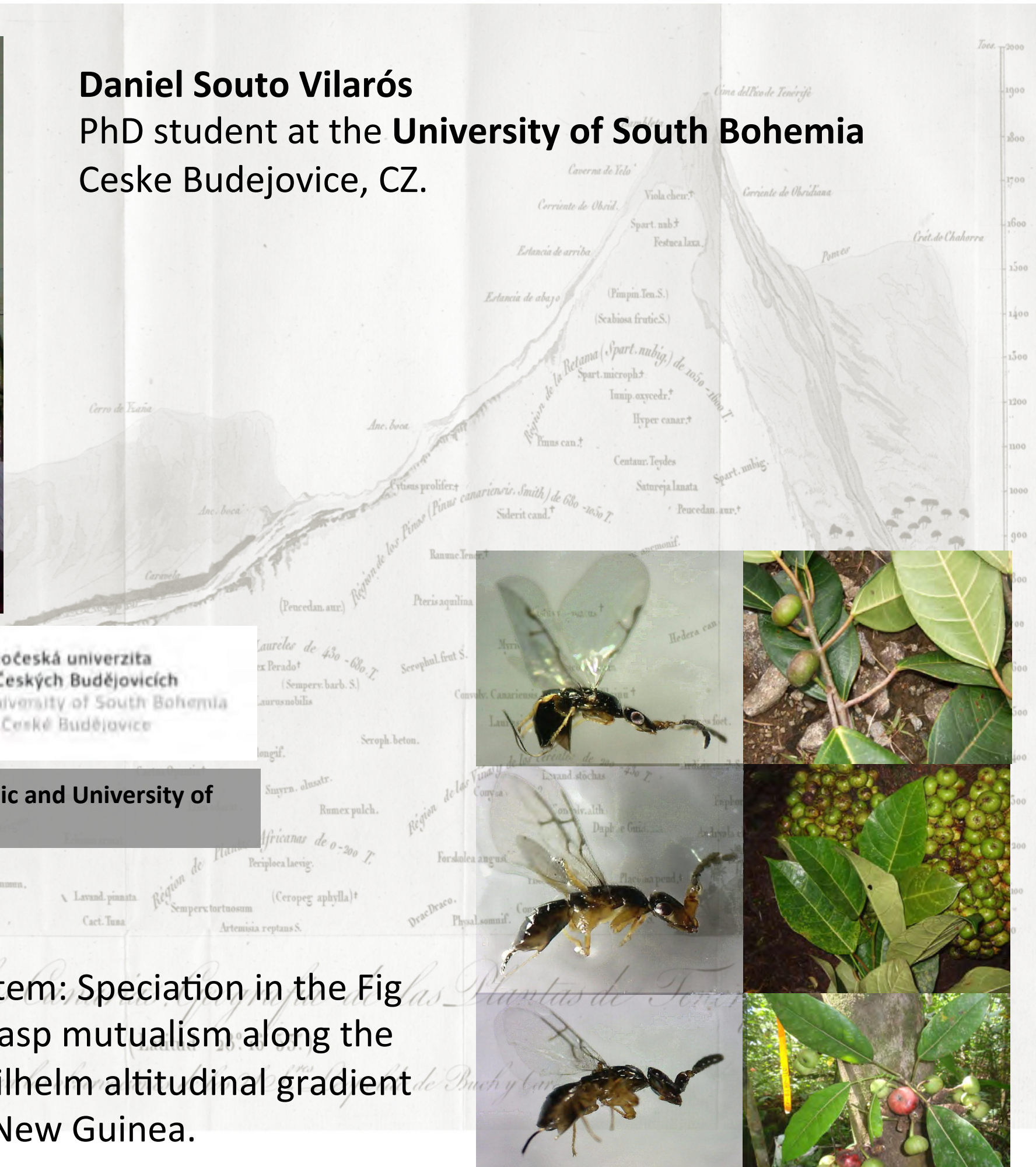


Daniel Souto Vilarós
 PhD student at the **University of South Bohemia**
 Ceske Budejovice, CZ.



Academy of Sciences of the Czech Republic and University of South Bohemia

Study System: Speciation in the Fig and Fig-wasp mutualism along the Mount Wilhelm altitudinal gradient in Papua New Guinea.





Alexis (Alex) Sullivan

Umeå University, Sweden

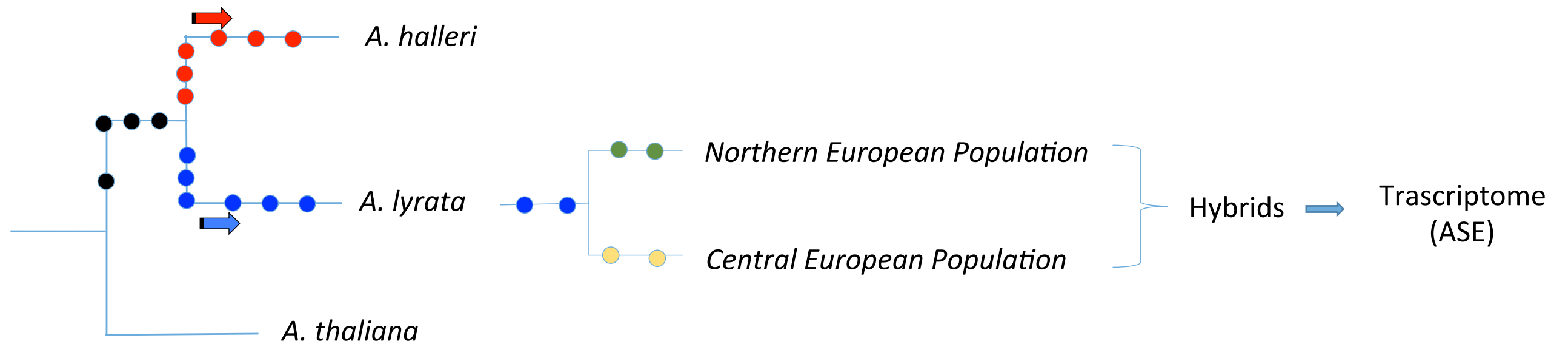
Why do things live where they do and how did they
get there?

Main focus now:

- Boreal forest trees during the last 2 million years
- Ecology, demography, hybridization, dispersal, niche evolution, speciation
- Population genetics, phylogeography, phylogenetics
- Buckets of genomic data

Polygenic basis of local adaptation in *Arabidopsis lyrata*

Margarita Takou, Dr prof Juliette de Meaux



He et al, 2016 (MBE)



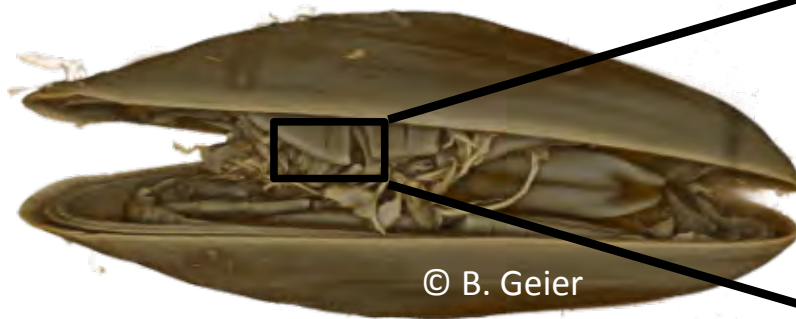


Merle Ücker

Department of Symbiosis

Max Planck Institute for Marine Microbiology

Bathymodiolus

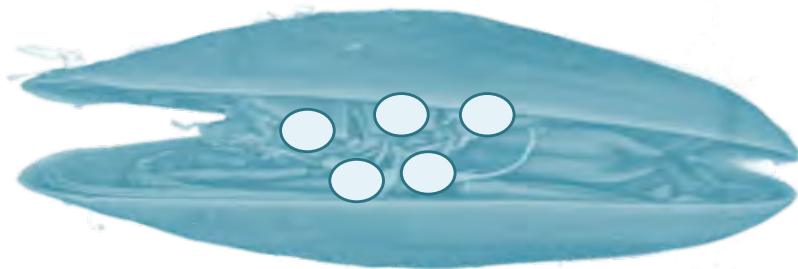


© B. Geier

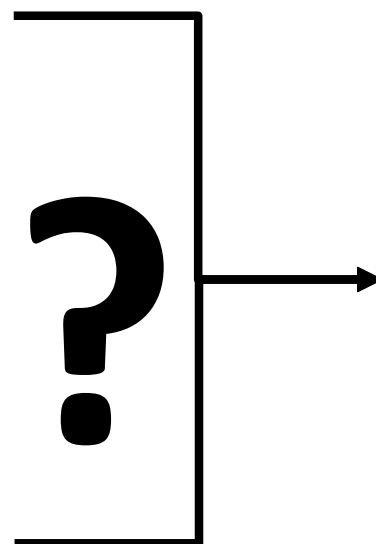
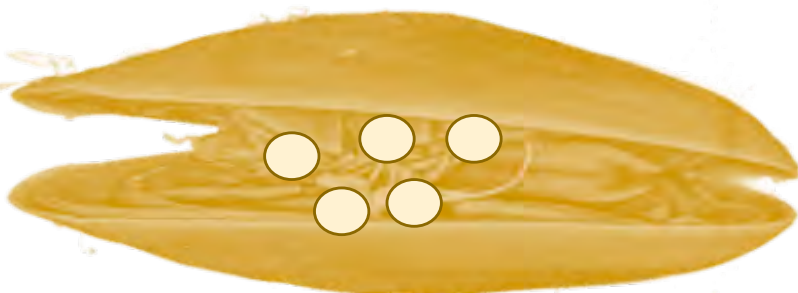
Microbial
symbionts



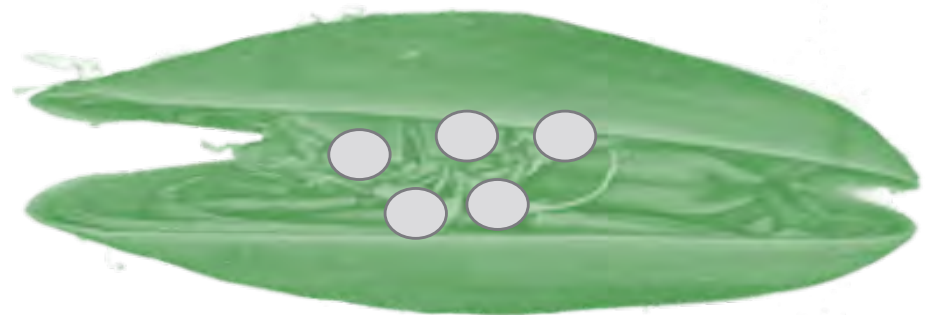
Gill

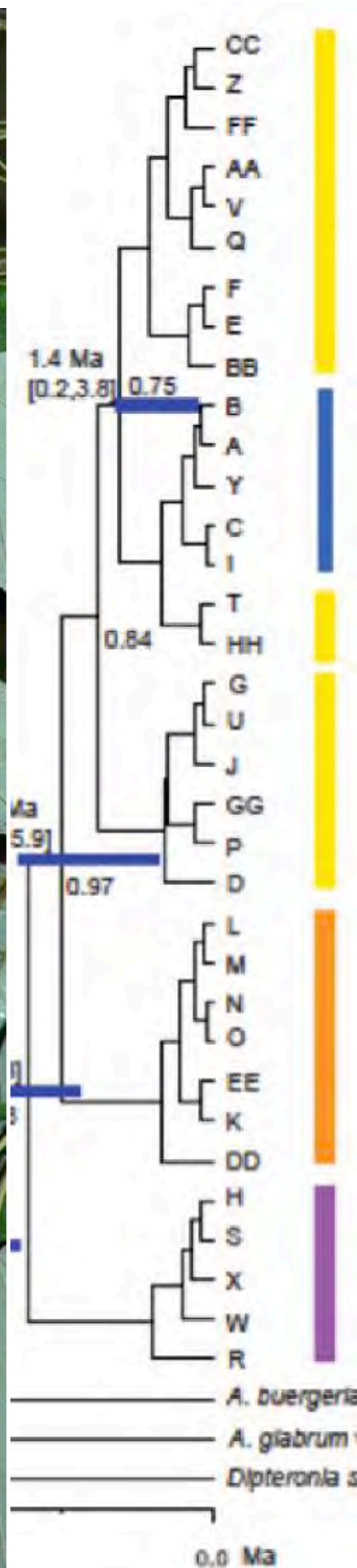


Parental individuals



Hybrids



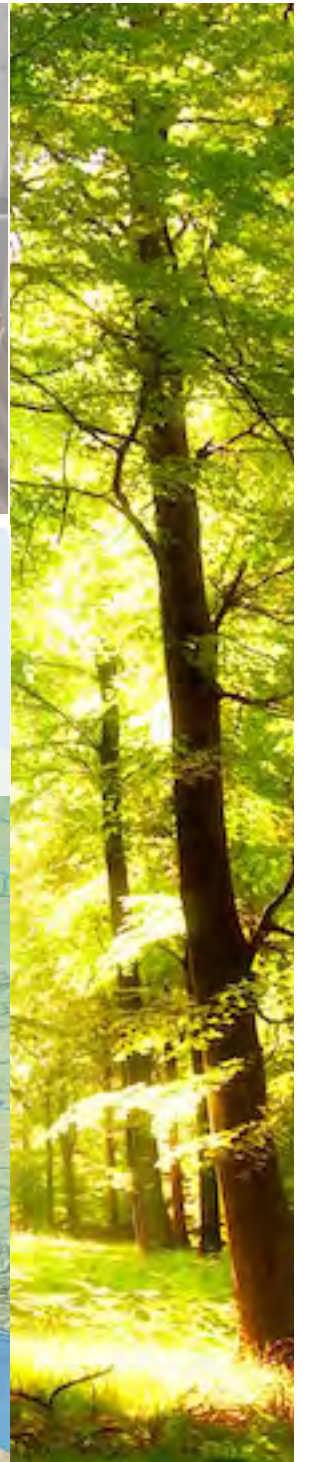


Yalma L. Vargas-Rodriguez
National Council of Science and
Technology - Mexico
&
University of Guadalajara (Dept.
Ecology and Natural Resources)
yalmavargas@gmail.com
ylvargasro@conacyt.mx

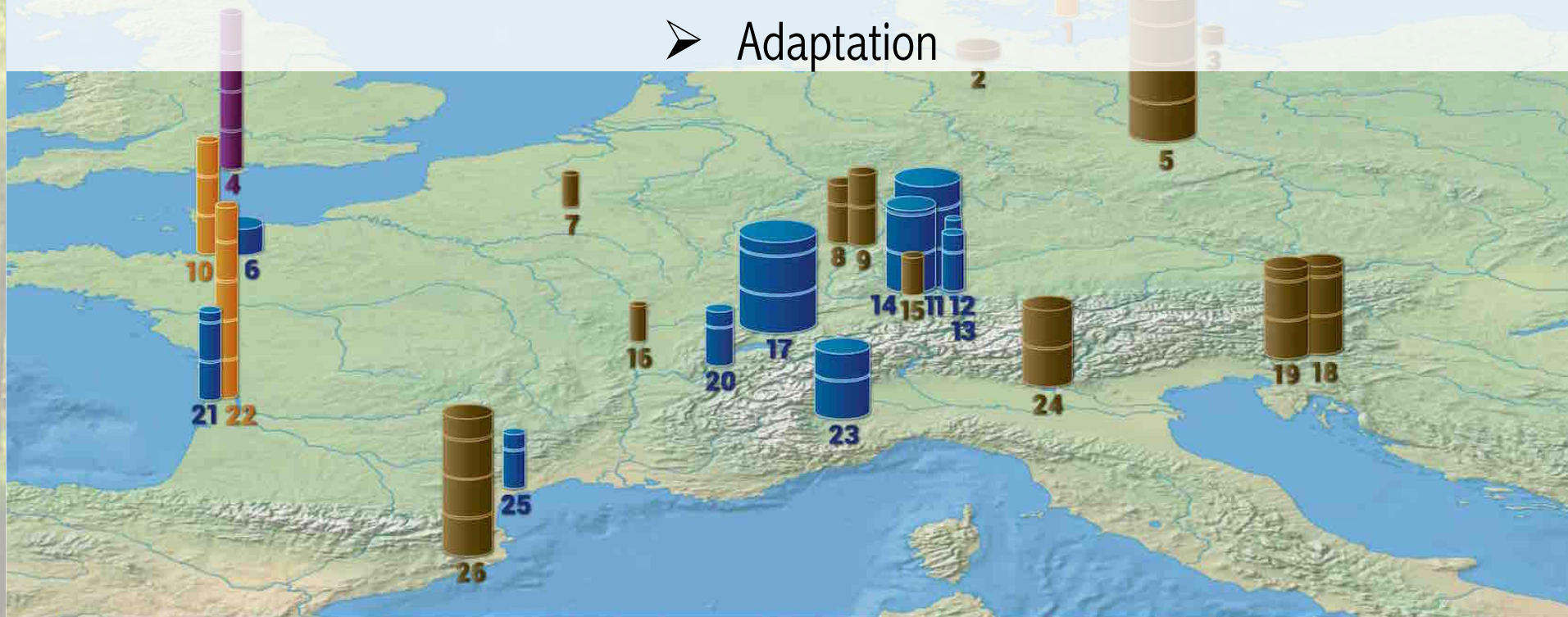


Evolutionary history of European white oaks

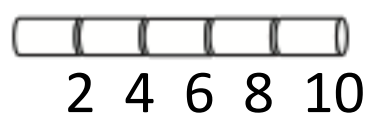
Stefanie Wagner, PhD
Orlando group
AMIS, CNRS, Université Paul Sabatier, Toulouse, France



- High-Throughput sequencing of ancient DNA preserved in wood
 - Colonization and demographic dynamics
 - Adaptation



Age [kilo years]



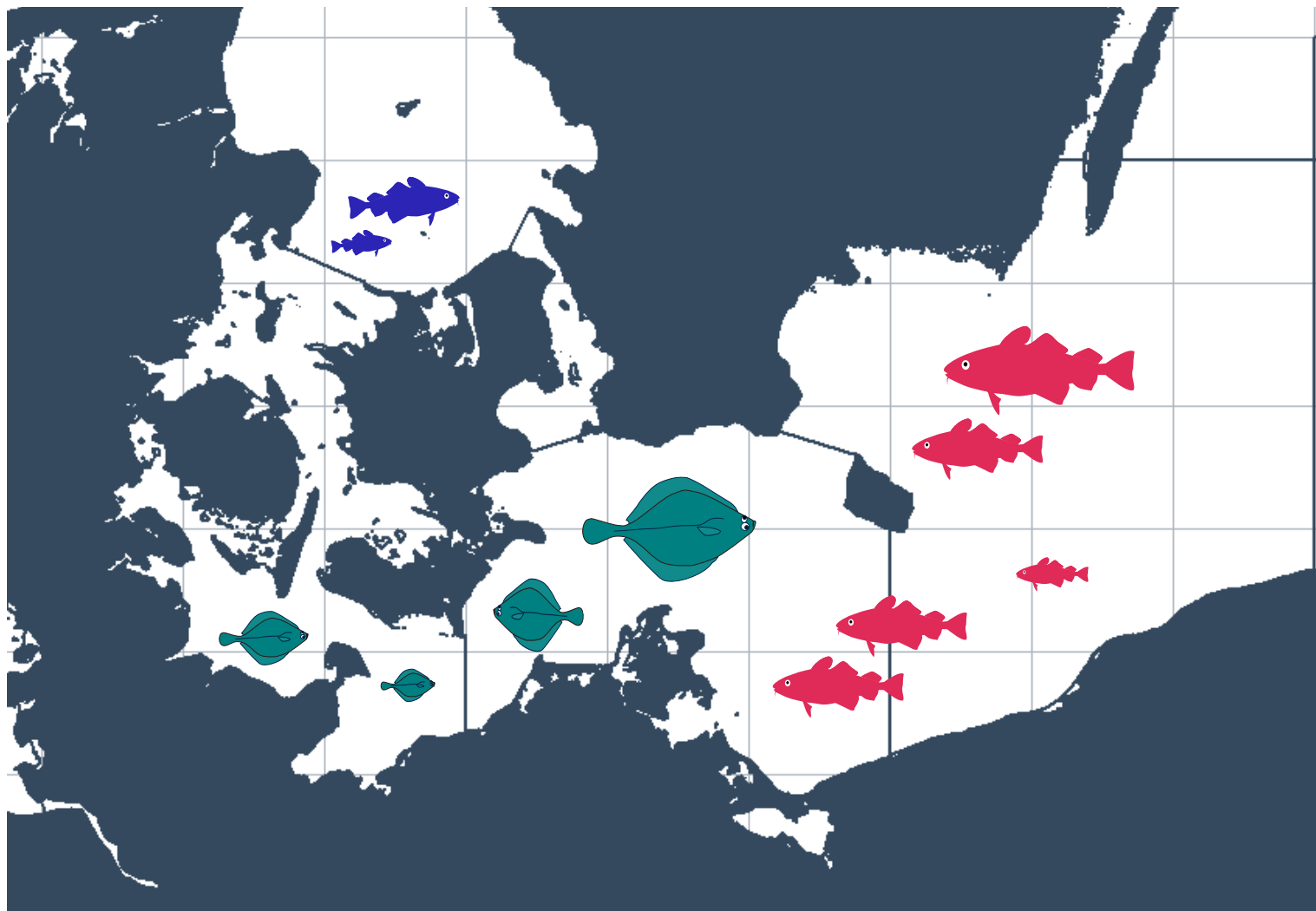
Sample number



Type of wood

- Submerged subfossil
- Submerged archaeological
- Terrestrial subfossil
- Terrestrial archaeological

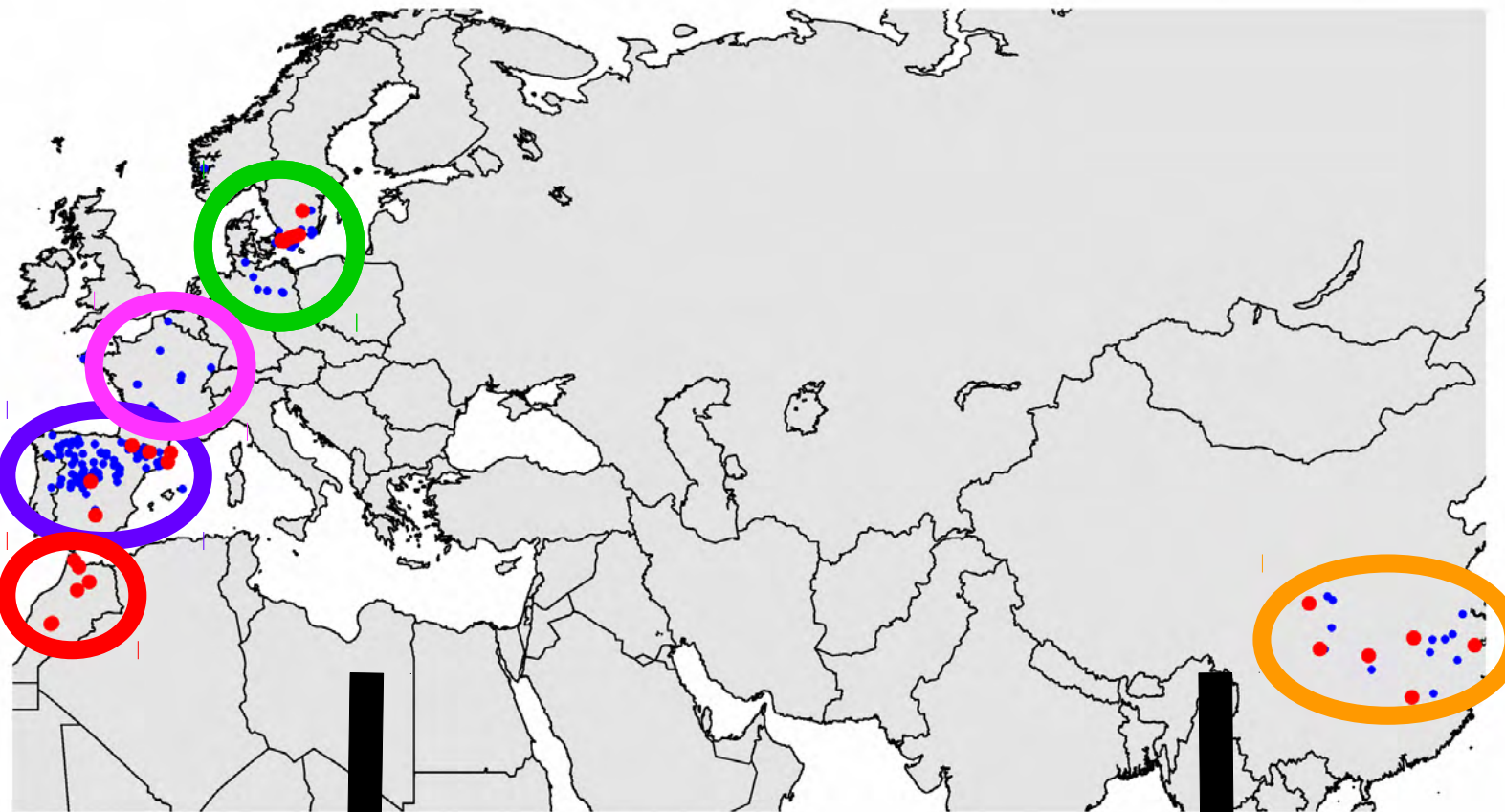
PhD project: population structure of demersal fish species in the Baltic Sea



Adaptive evolution of rosette growth rate in *Arabidopsis thaliana*



Benedict Wieters
PhD student
PI: Juliette de Meaux



Phenotypic differentiation



- regional differences
- GWAS
- Qst, Fst, H² ...

Gene expression of F1

→ *cis*-regulatory divergence
between the regions

Conservation, early life history and speciation in coral reef invertebrate species

Nina Yasuda from **University of Miyazaki, Japan**

- Why and how population outbreaks of the coral predator, crown of thorns starfish, are taking place?
- How coral reefs are mutually connected through larval dispersal and where should we conserve as Marine Protected Area?
- How Indo-Pacific coral reef organisms are diverged and speciated?



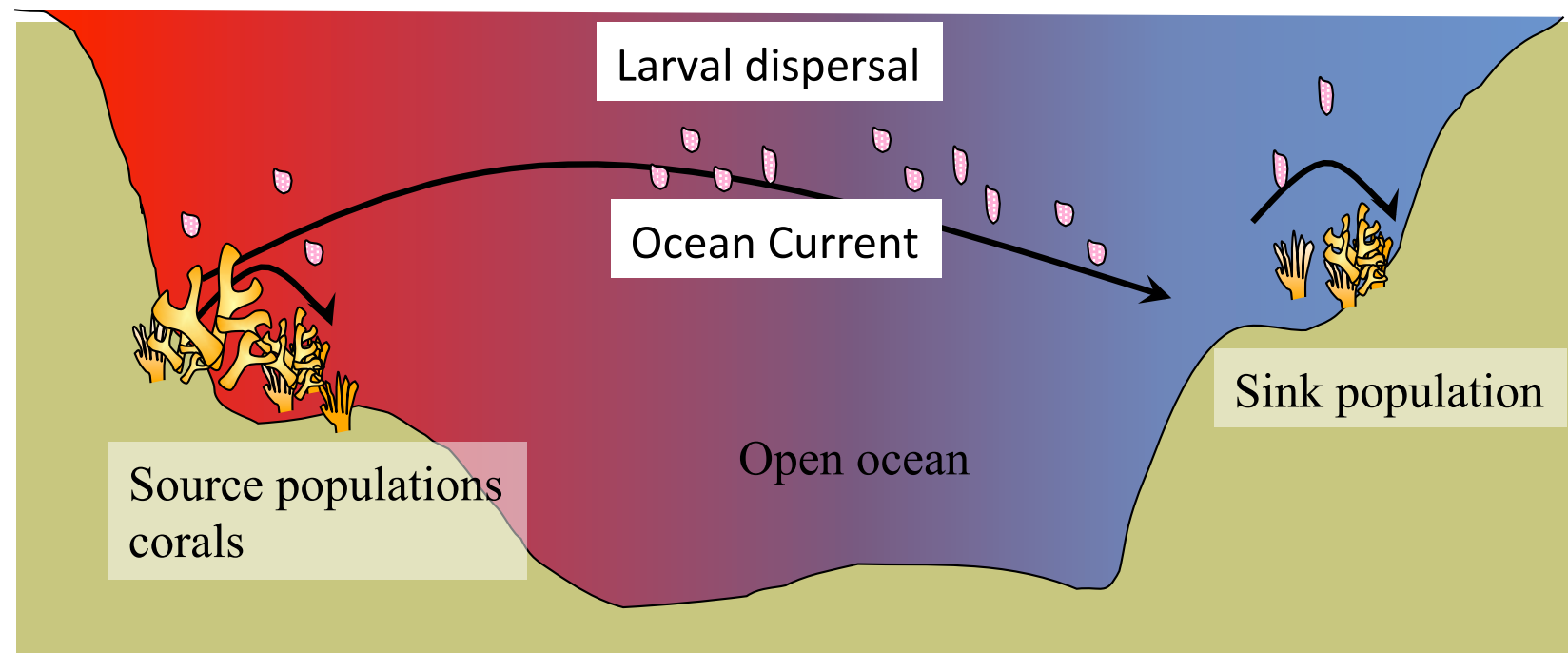
Coral reef ecosystem
30 % of marine organisms live here!



Crown-of-thorns starfish
Blue starfish, cushion starfish, sea cucumbers



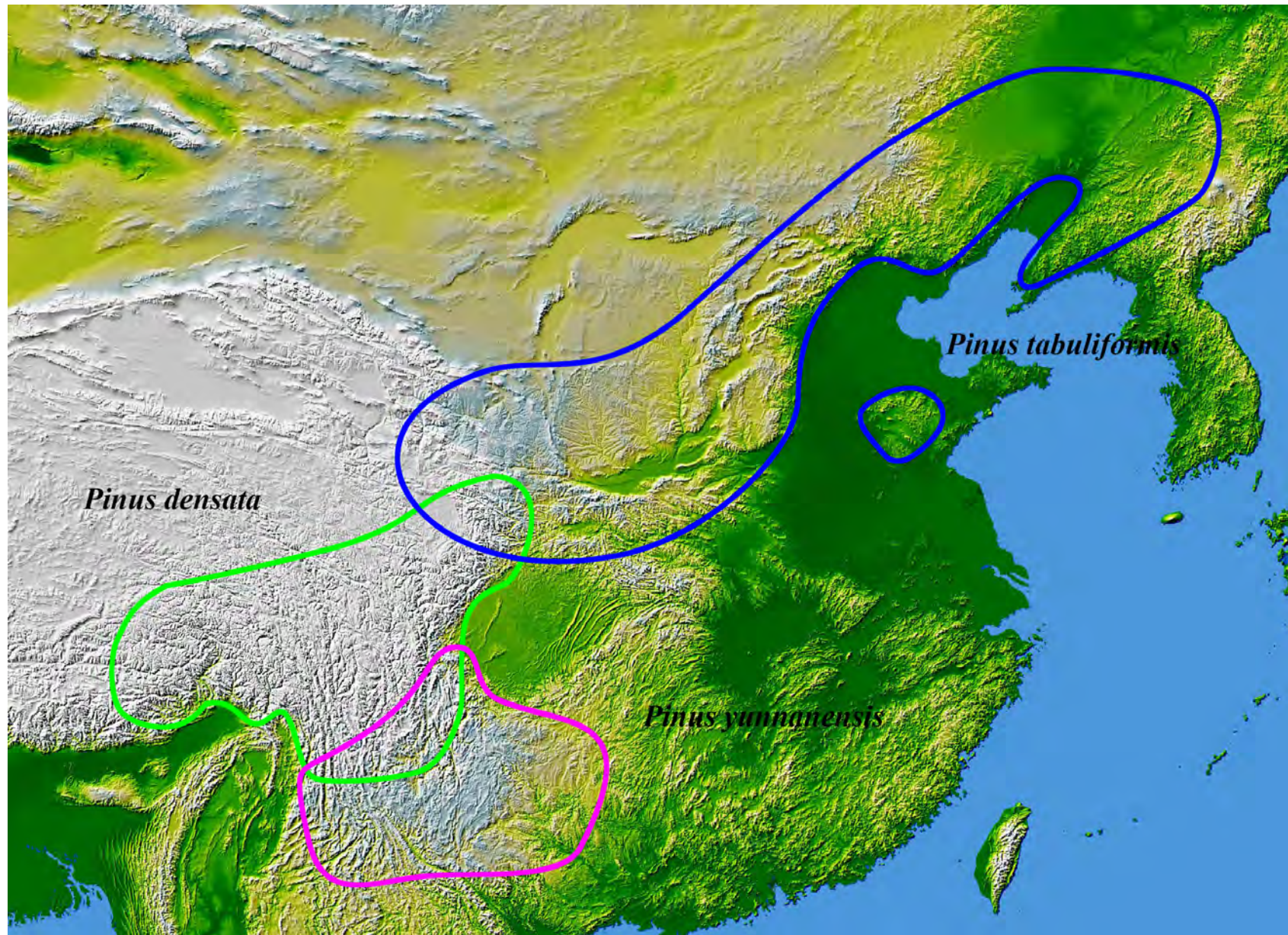
blue corals



Key words:

Coral reefs, crown of thorns starfish, global warming, Fertilization related genes, larval dispersal, connectivity, Marine Protected Areas, Poleward migration of corals, Reproductive timing
Speciation in blue corals, Indo-Pacific

Speciation history of the homoploid hybrid pine *Pinus densata* on the Tibetan Plateau



Wei Zhao
Umeå University