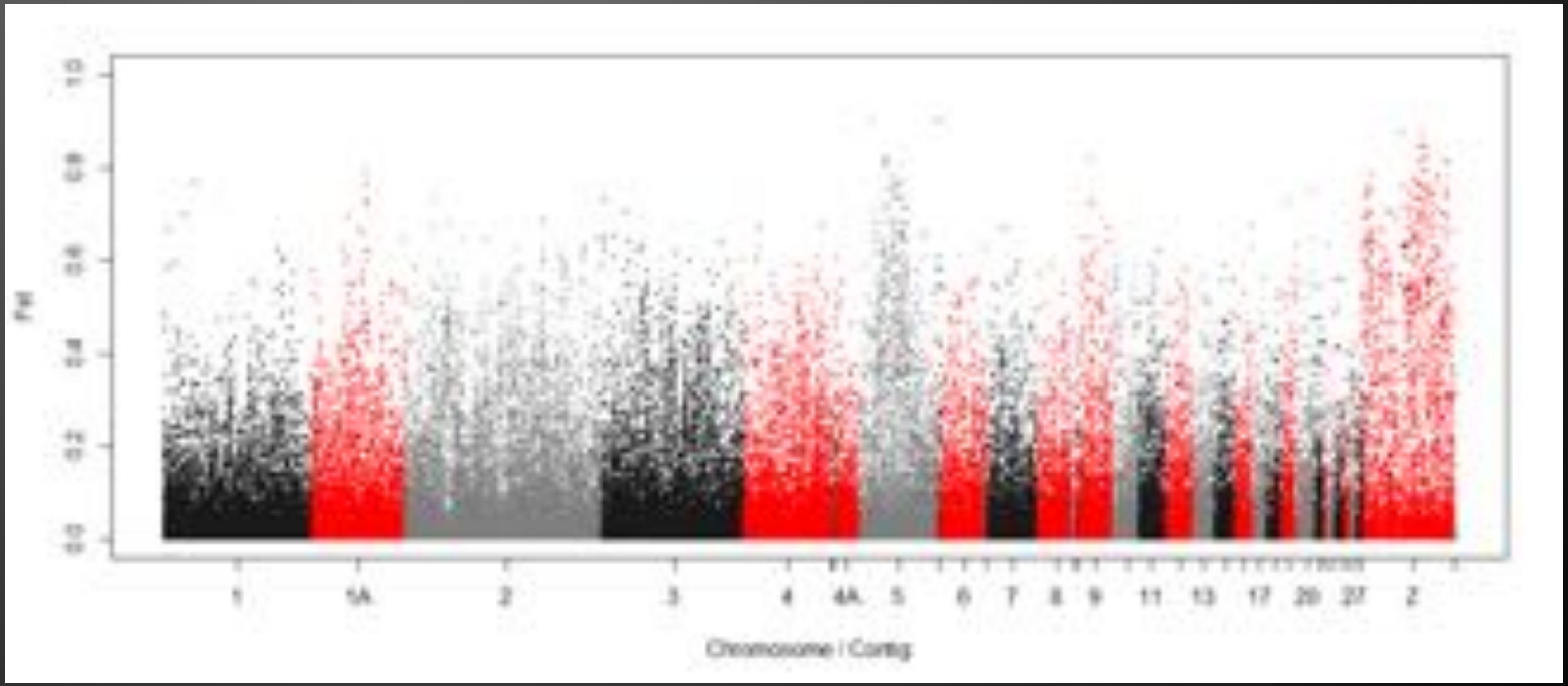
Participant Introduction

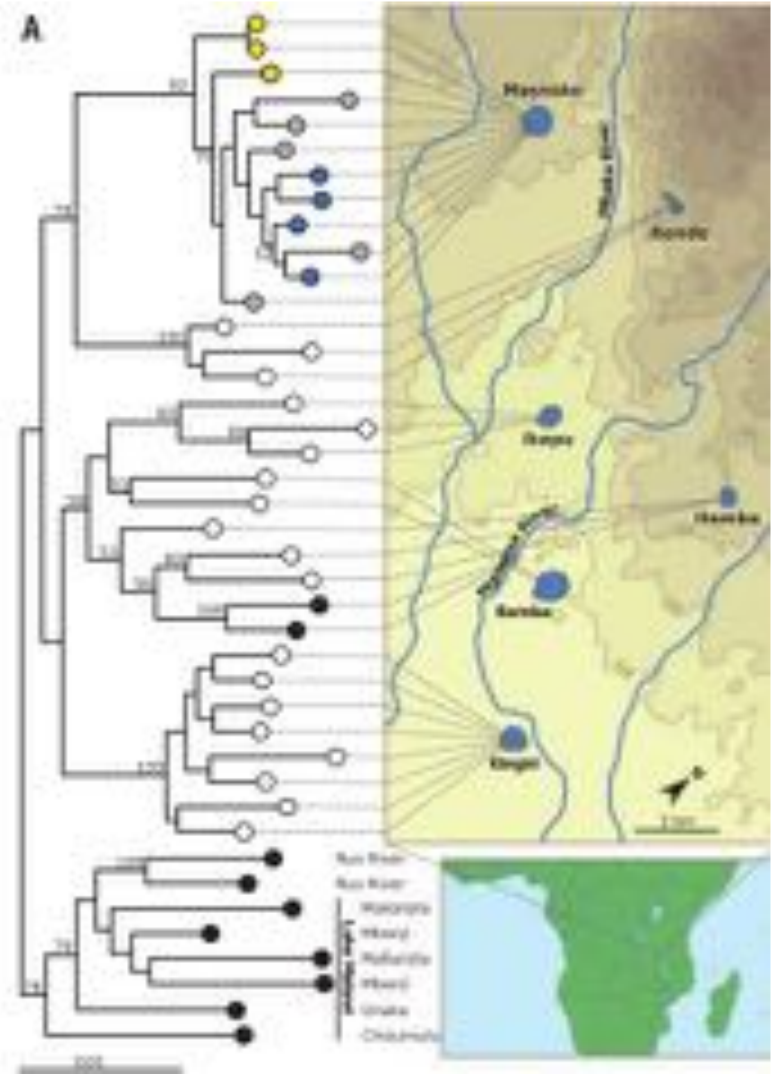
JASON SARDELL

University of Miami, USA



Divergence & speciation

Haplochromine cichlids, isolated crater lakes



Sympatric divergence

- Massoko GWAS
- Behavioural variation
- Phenotypic plasticity

Parallel evolution

- Environment & morphology
- Parallel speciation

Alexandra Tyers,
Bangor University, UK

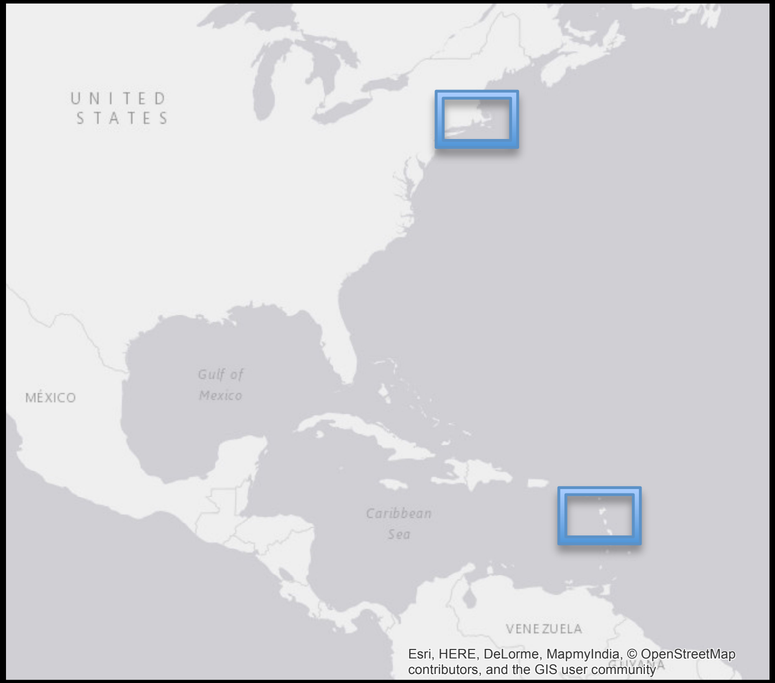
T.J. McGreevy, Ph.D.
Wildlife Genetics & Ecology Laboratory
Natural Resources Science Department
University of Rhode Island

Eastern Cottontail

PhotoCredit: Rand Herron

New England Cottontail

Photo Credit: Lou Perrotti



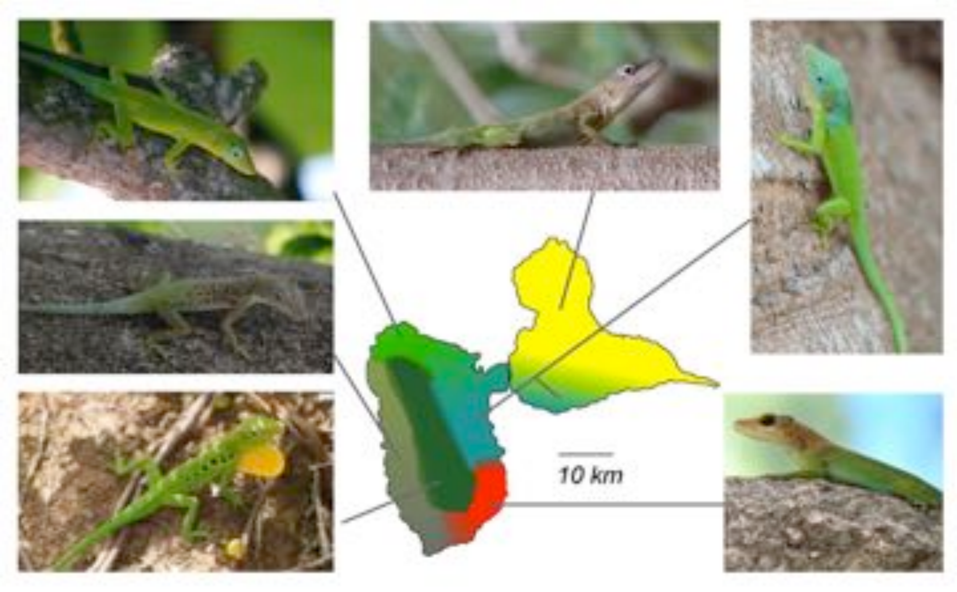
Bobcat

Photo: www.nhptv.org

American Black Bear

Photo: Westernwildlife.com

Guadeloupean anole

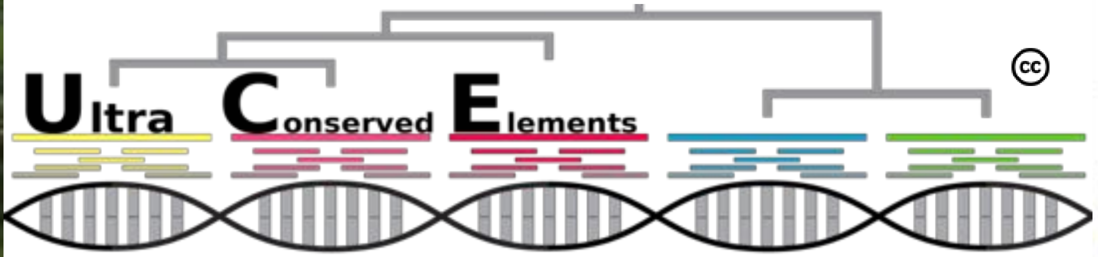


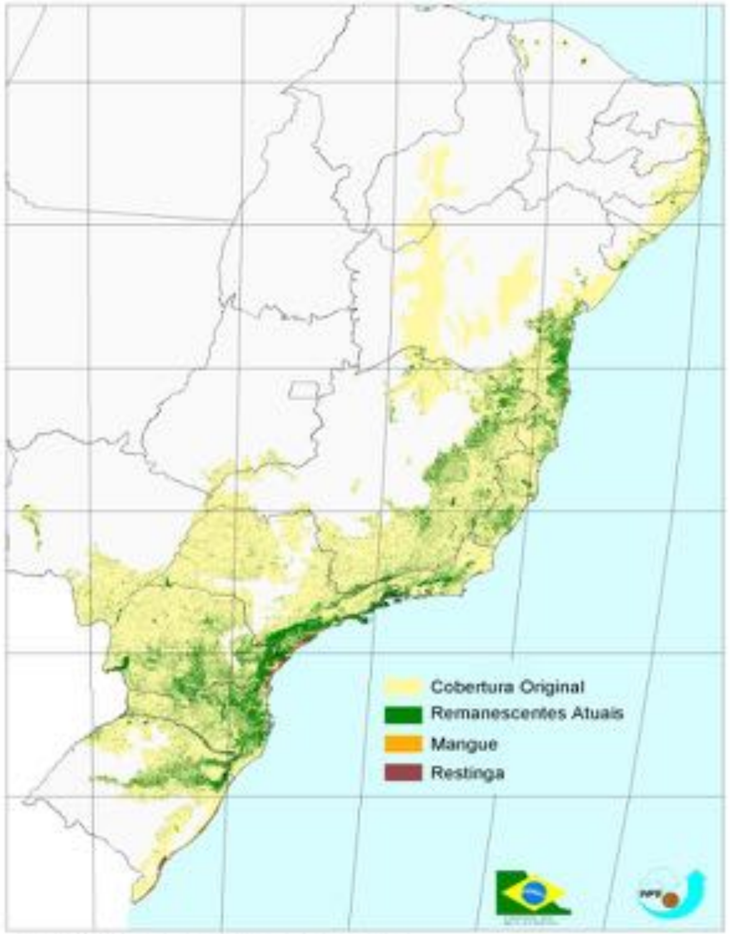
From: Universidade Federal do Paraná - Curitiba - Brazil

Patrícia Regina Ströher

working on

Phylogeography of Brazilian Atlantic Rainforest





Fonte: Dados do Nordeste - CI/SNE/Biodiversitas 1993
Atlas dos Remanescentes Florestais - SOS Mata Atlântica/INPE, 2002

Laboratories:

Laboratório de
Dinâmica Evolutiva e
Sistemas Complexos

MOORE LABORATORY OF ZOOLOGY
OCCIDENTAL COLLEGE
EAGLE ROCK | LOS ANGELES | CA

Advisor: Prof. Dr. Marcio Pie

Contact: patricia.stroher@gmail.com

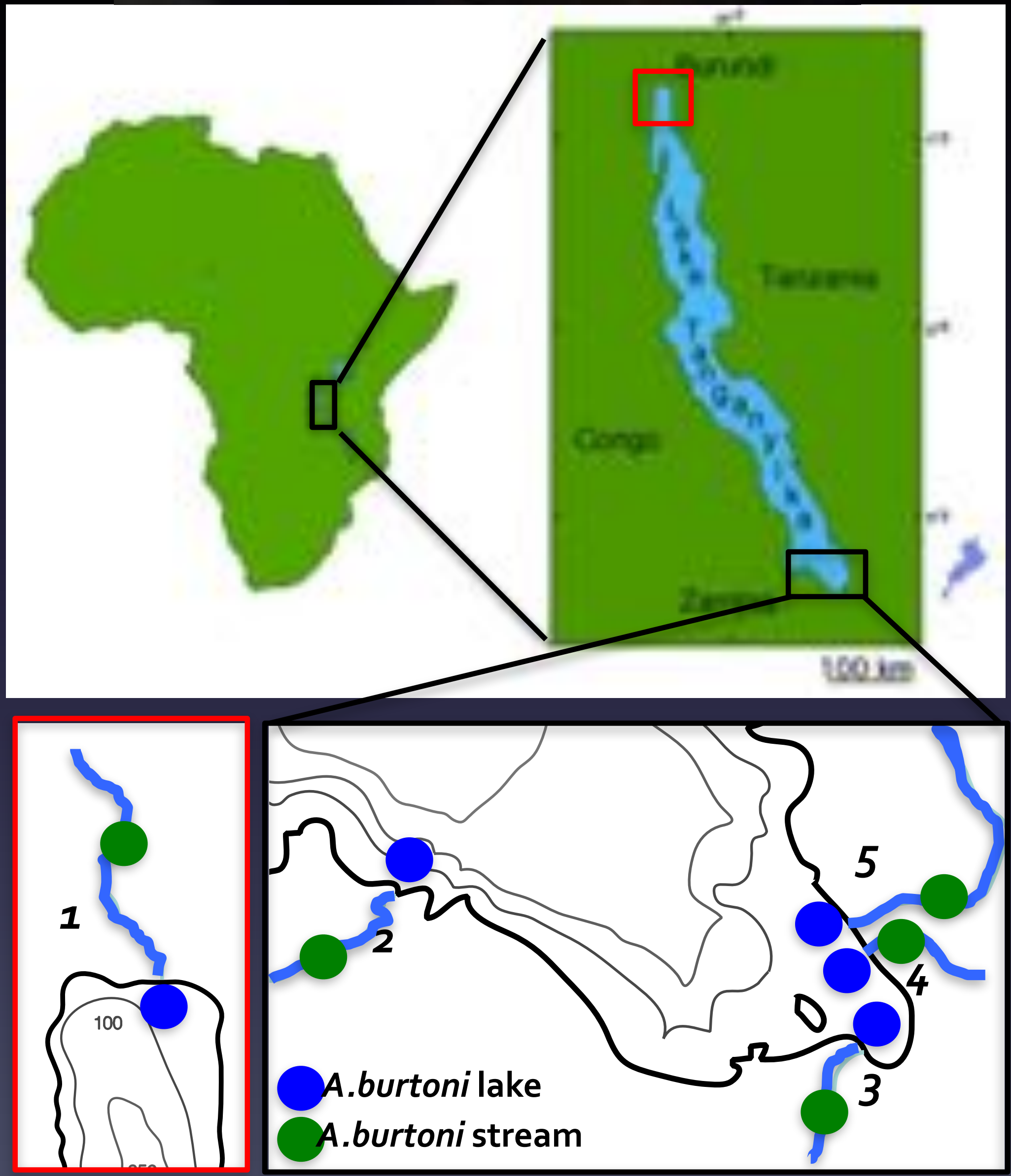
Support:

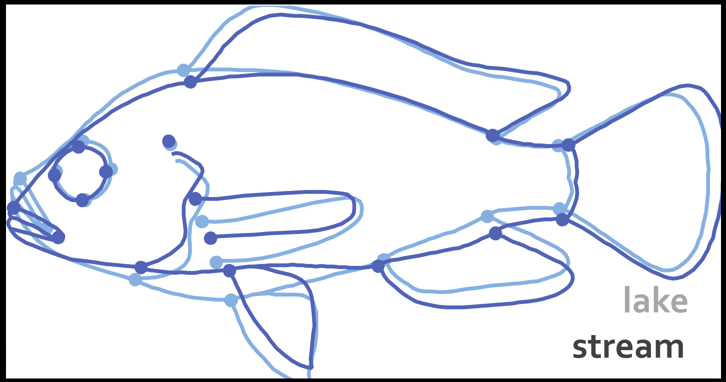
ENTOMOLOGIA-UFPR

UFPR
UNIVERSIDADE FEDERAL DO PARANÁ

CNPq
Conselho Nacional de Desenvolvimento Científico e Tecnológico

Adaptive divergence in the cichlid fish *Astatotilapia burtoni*





Morphological differences

- Body depth
- mouth position
- Trophic apparatus

Genome divergence during speciation

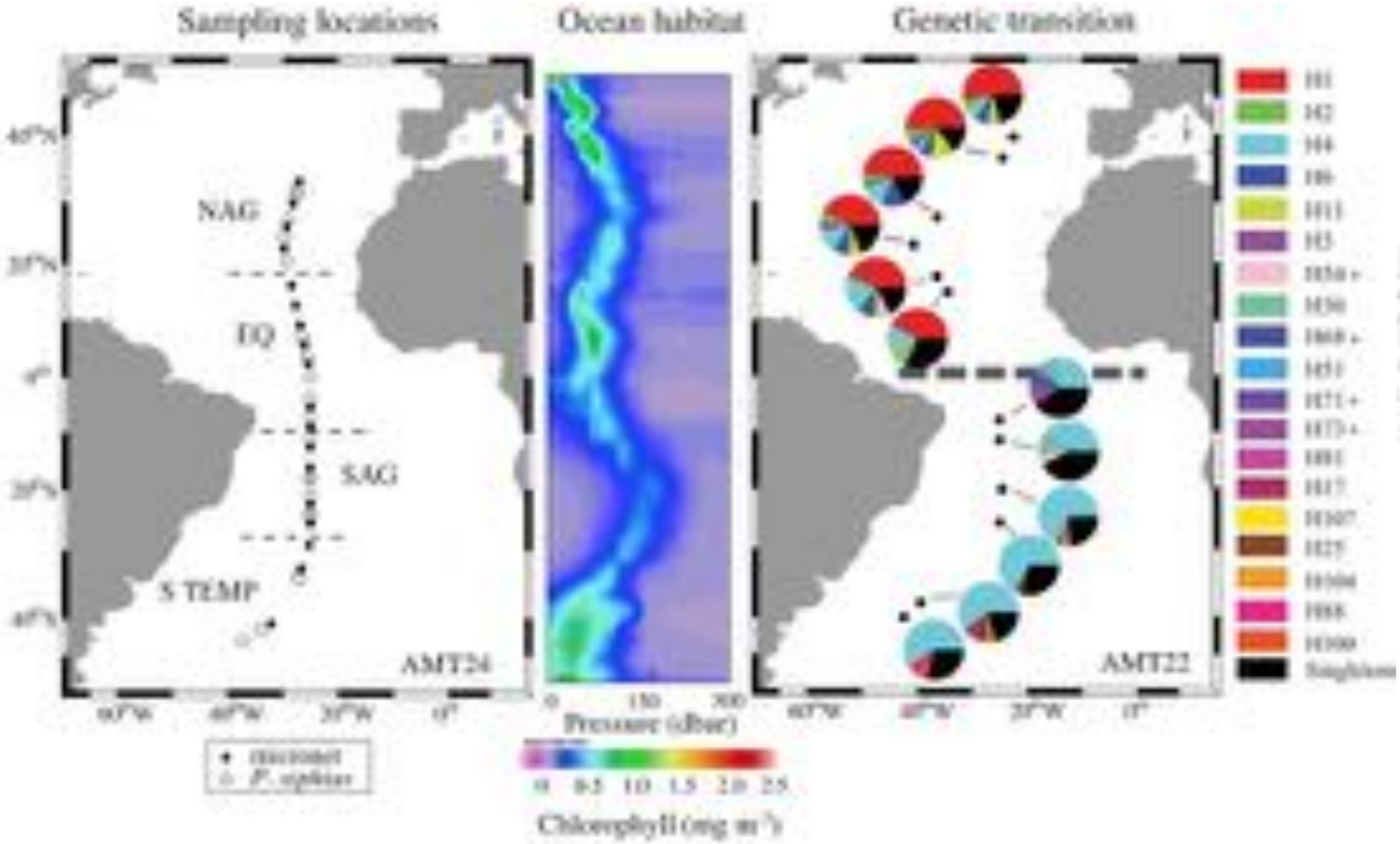
- 5 « replicate » lake – stream systems (10 pop)
- Different stages of speciation continuum
- 12 individual genomes per pop (120 genomes)
- Genes involved in adaptation to different envt?
  - → same among replicates?
  - → local adaptation?

Alexandra A-T. Weber - Ale.weber@unibas.ch - www.salzburgerlab.org

UNI BASEL

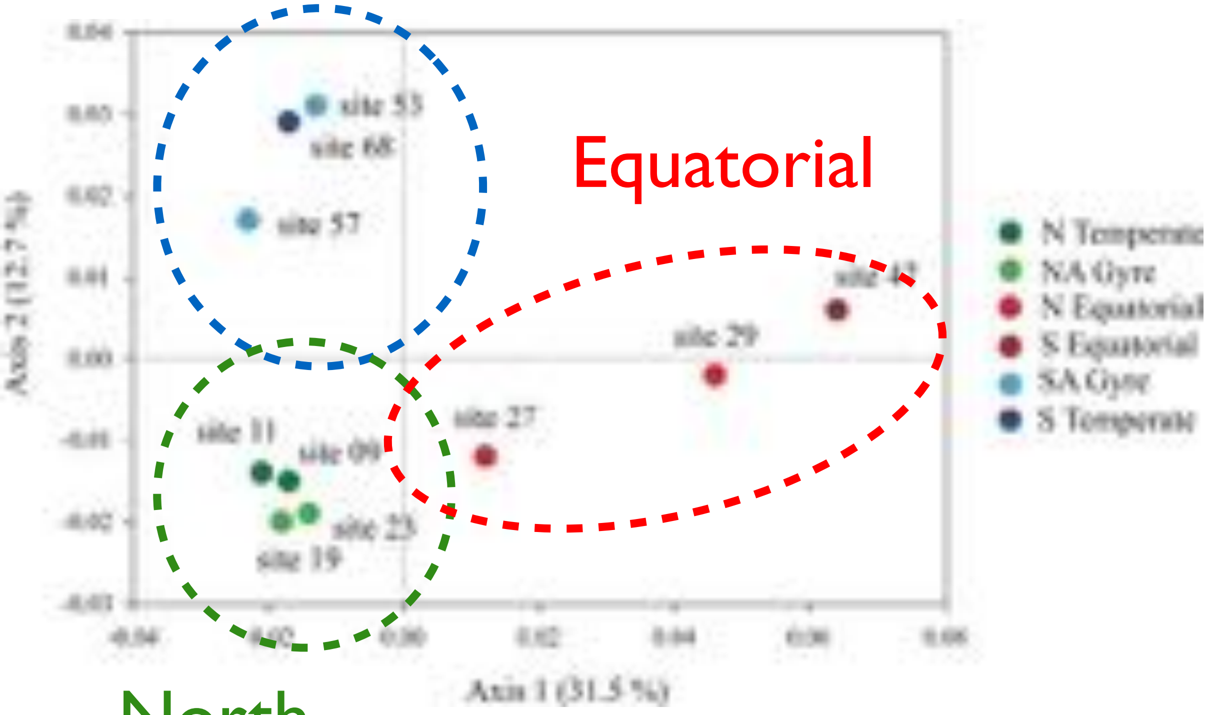
Adaptation in the open ocean

Erica Goetze, Department of Oceanography, University of Hawaii at Manoa



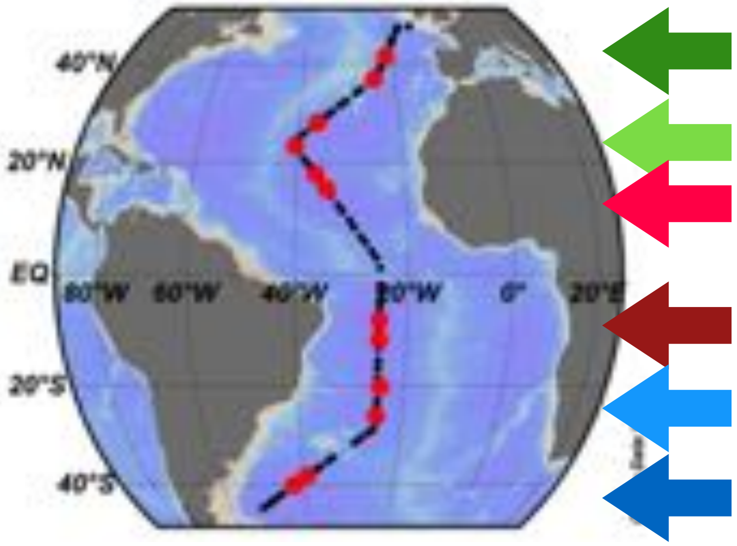
RadSeq

South



Equatorial

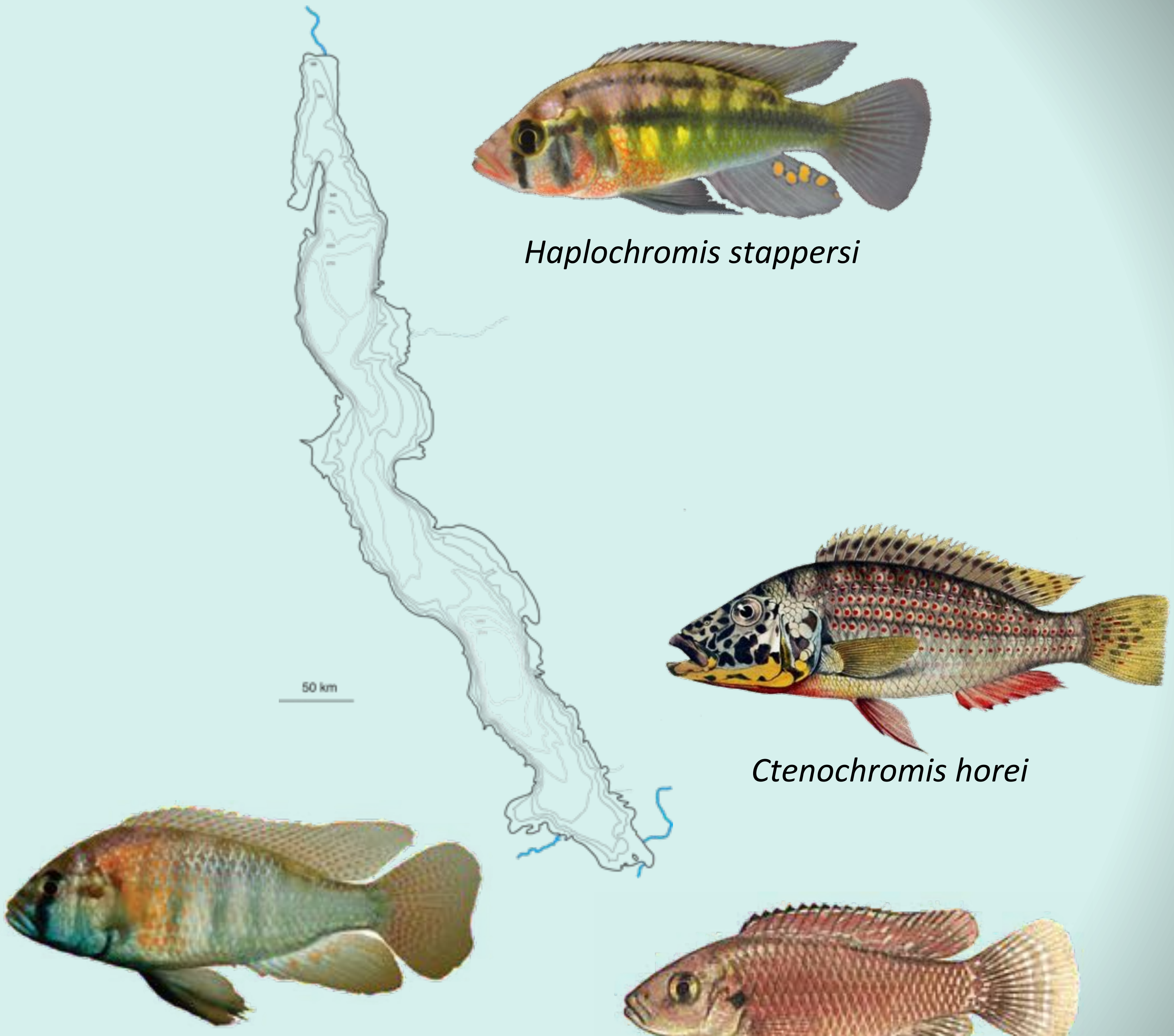
North



Adaptive divergence along a lake-stream environmental gradient in East African cichlid fishes: a comparative approach

Lake Tanganyika

Affluent rivers



Haplochromis stappersi

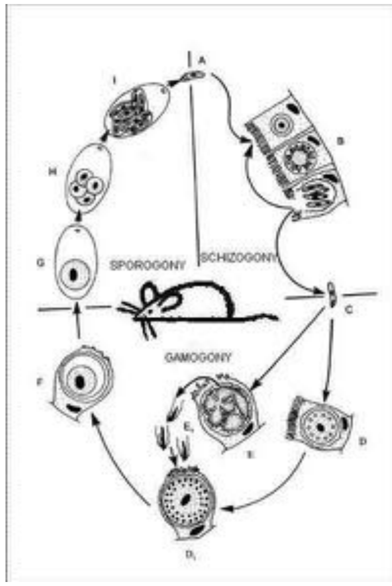
Ctenochromis horei

Astatotilapia burtoni

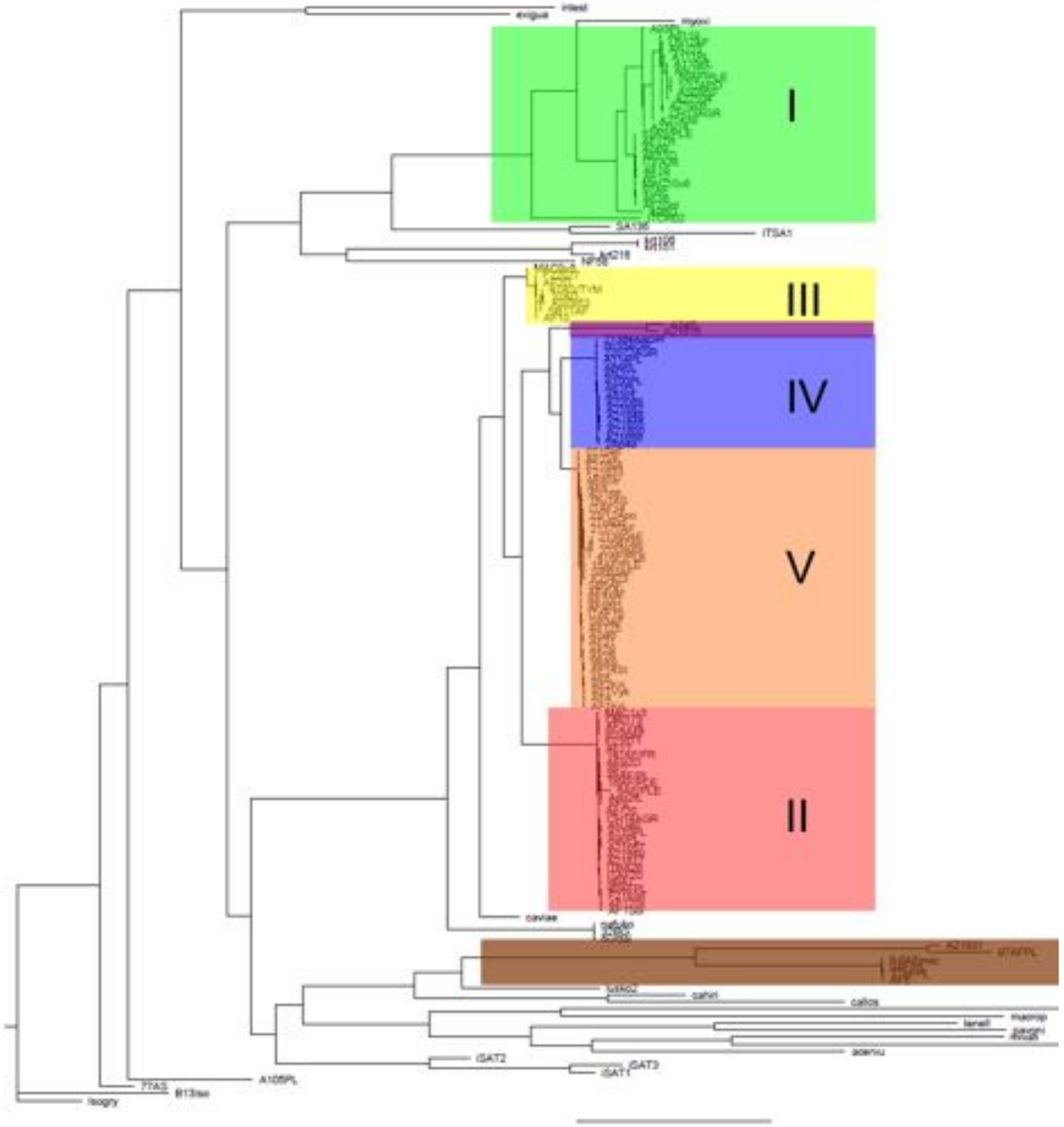
Pseudocrenilabrus multicolor

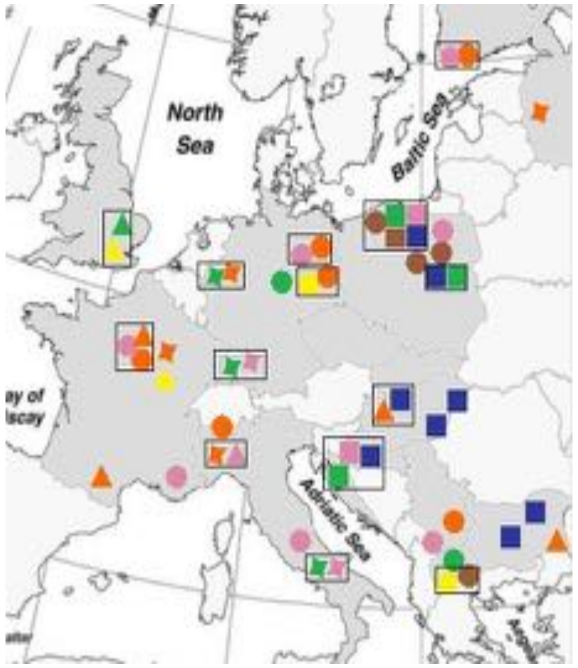
Jelena Rajkov www.salzburgerlab.org

Universität Basel



Evolution and phylogeny of *Eimeria* sp. infecting *Apodemus* sp.



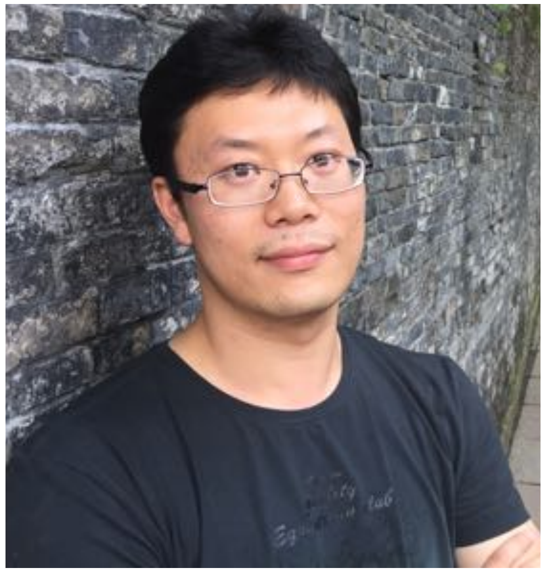


Anna Mácová

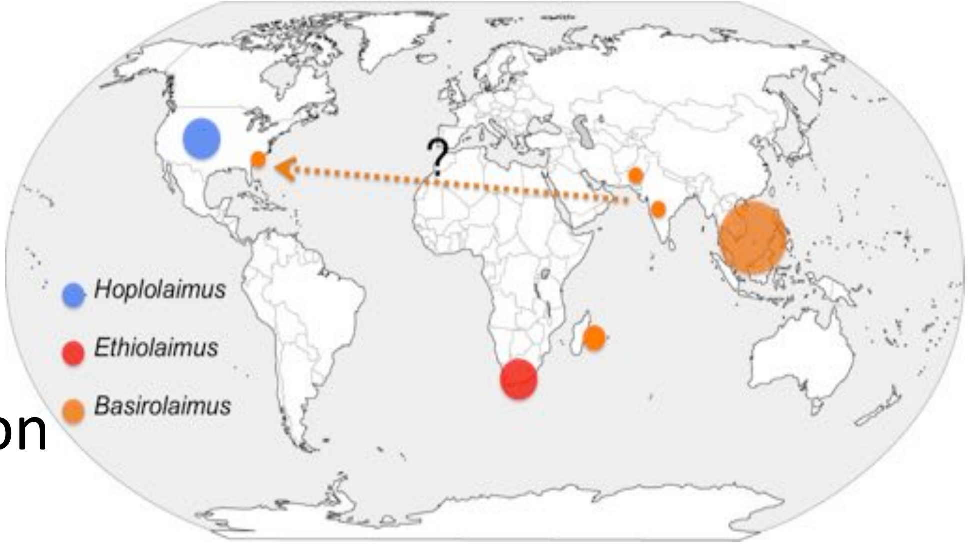
University of South Bohemia, Faculty of Science, České Budějovice, Czech Republic

Academy of Sciences of the Czech Republic, Institute of Parasitology, České Budějovice, Czech Republic

Xinyuan Ma "Max" PhD student, Plant and Environ. Sciences. Clemson University. Clemson, SC. USA
Plant Nematology Lab. Advisor: Dr. Paula Agudelo



LAB RESEARCH FOCUS: Biology and ecology of lance nematodes in agroecosystems.



PERSONAL INTERESTS: Speciation and phylogenetic relationships among lance nematodes (*Hoplolaimus* spp.). Biogeographic patterns. Genetic diversity and population structure.

Michael Matschiner

Konstanz → Basel → Auckland → Oslo

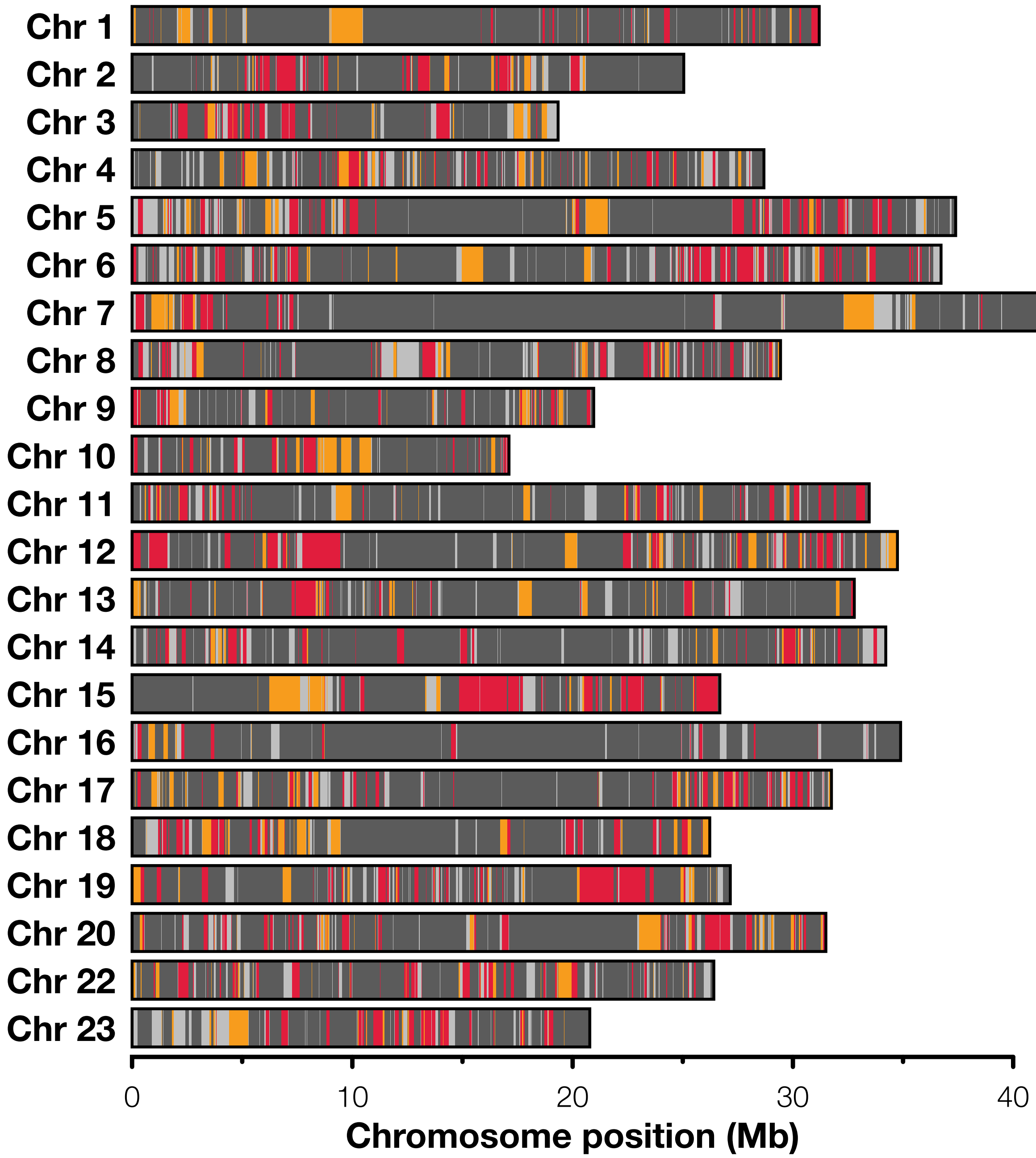
Tandem

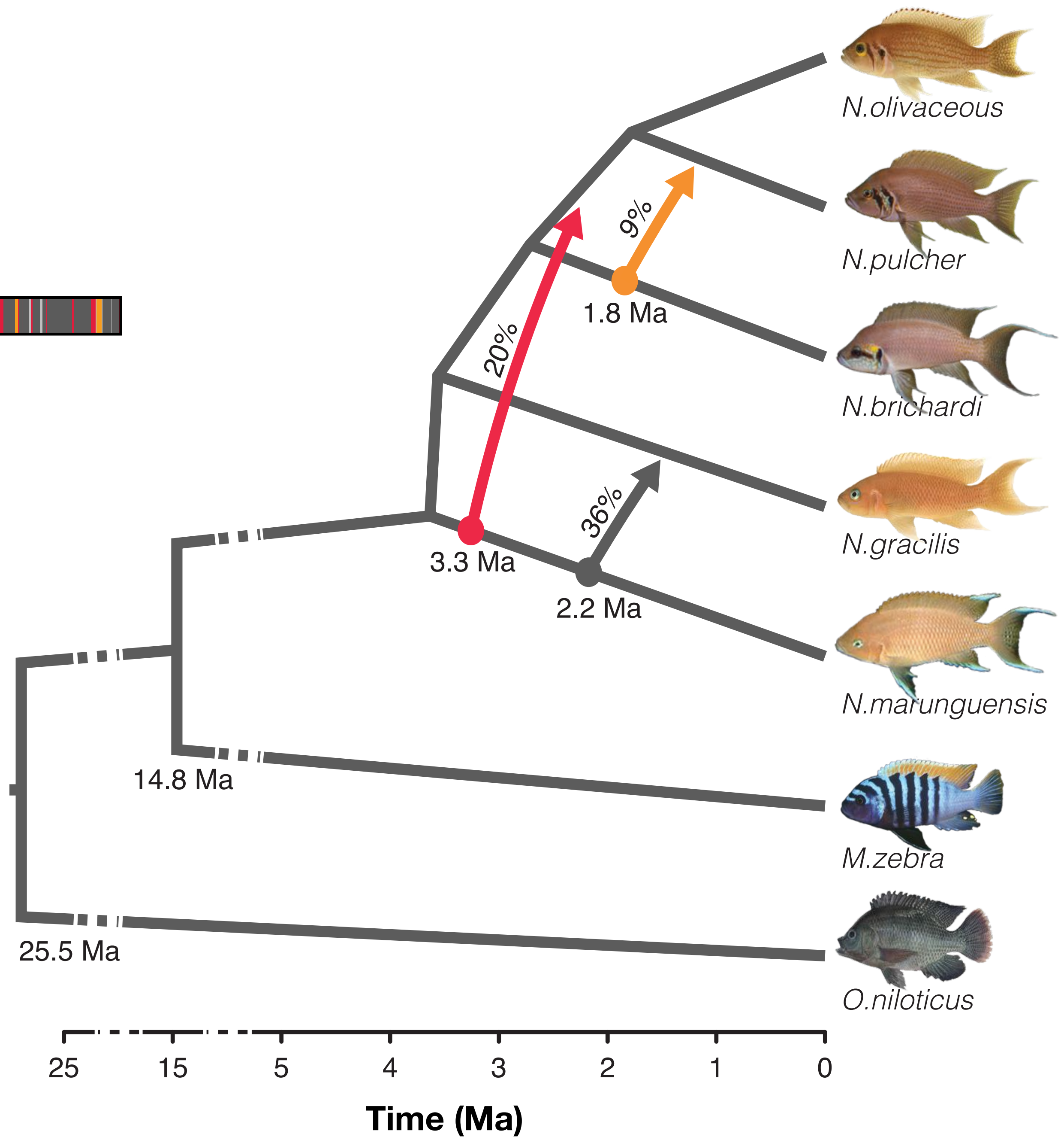
CladeAge

Fitchi

F4

Introgression in cichlid fishes:



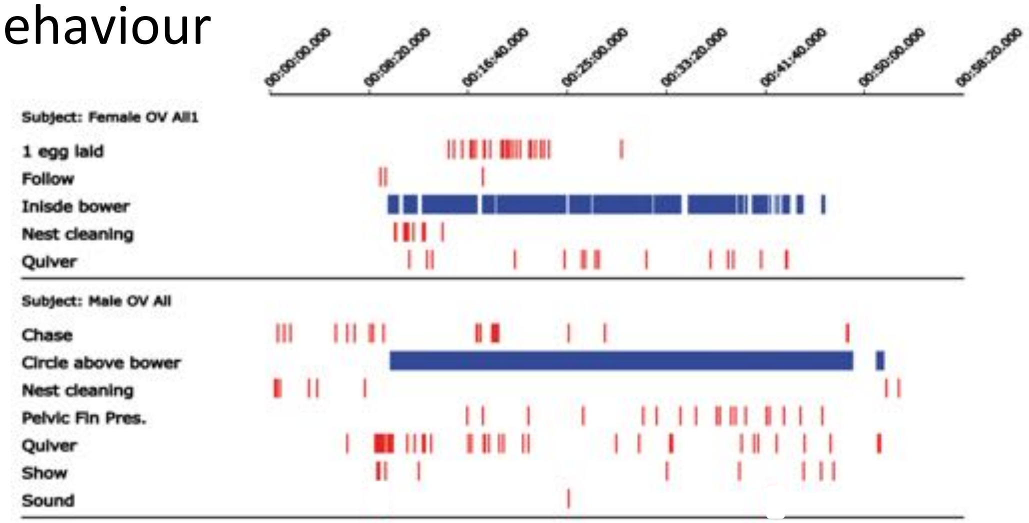


Derycke Sofie
Verheyen Erik

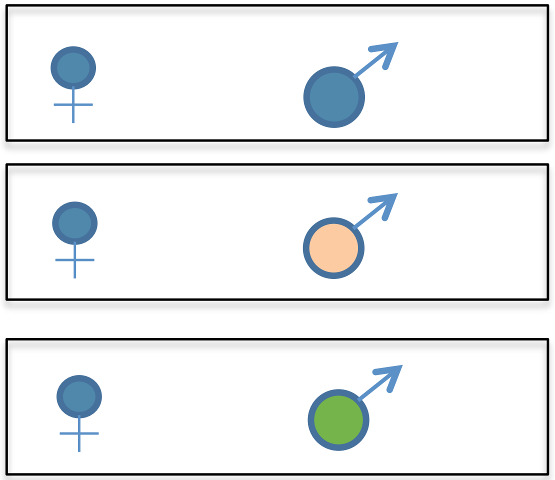
GENBAS: GENomic BAsis of Speciation

From left to right: *O. ventralis*, *O. nasuta* and *O. boops*. Pictures courtesy of Ad Konings and Siegfried Loose.

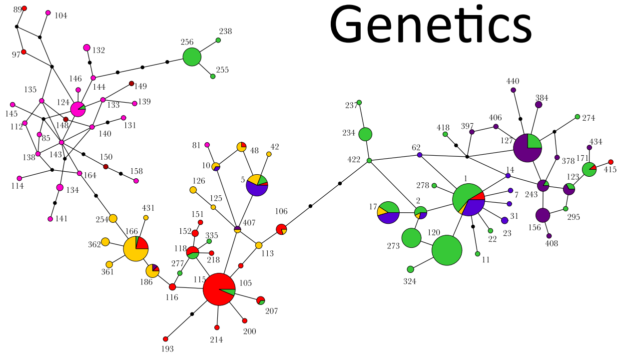
Behaviour



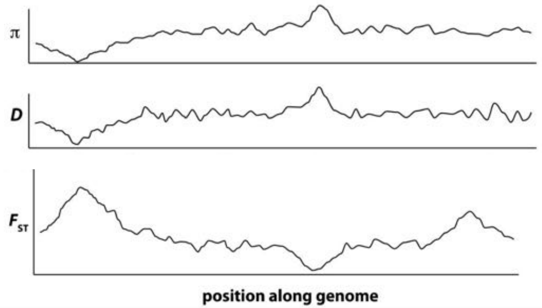
Transcriptomics – Quantseq 3’ mRNA seq



Genetics



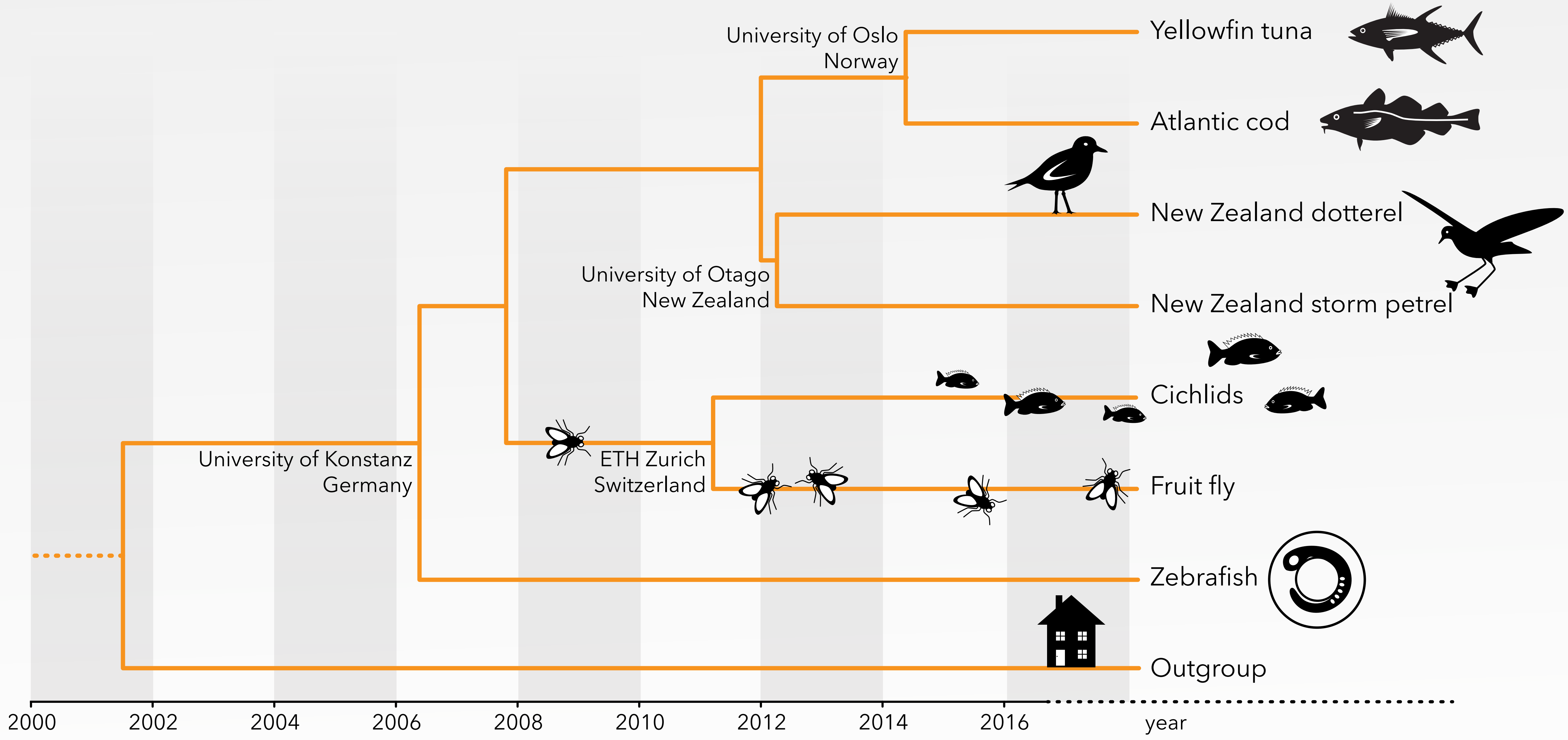
Population genomics - GBS



Royal Belgian Institute
for Natural Sciences
museum

JULIA M.I. BARTH

University of Oslo



University of Oslo
Norway

University of Otago
New Zealand

ETH Zurich
Switzerland

University of Konstanz
Germany

Yellowfin tuna
Atlantic cod
New Zealand dotterel
New Zealand storm petrel
Cichlids
Fruit fly
Zebrafish
Outgroup

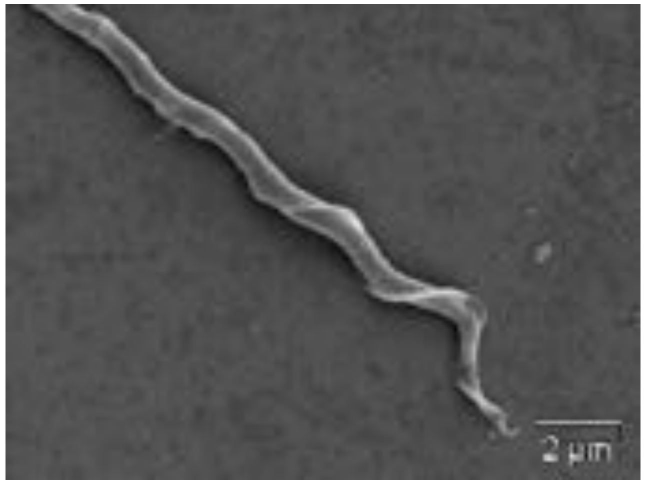
www.zebrafin.ch

Postcopulatory sexual selection: the genetics of sperm traits and female extrapair mate preferences

Silje Rekdal
PhD project
University of Oslo

Part I – SPERM COMPETITION:

genetic bases for sperm traits

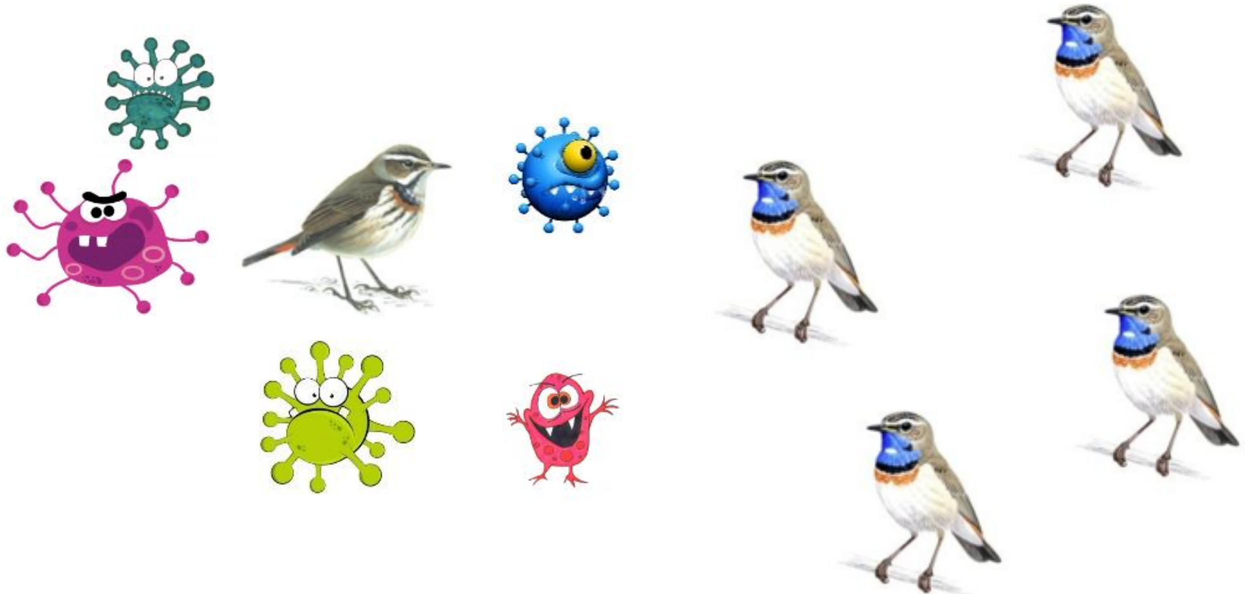


willow warbler (*Phylloscopus trochilus*)

- Variation in sperm traits
- Genome-wide SNPs
- Identification of related genomic regions (GWAS)
- Linkage map

Part II – CRYPTIC FEMALE CHOICE:

Extra pair mate preferences and MHC diversity



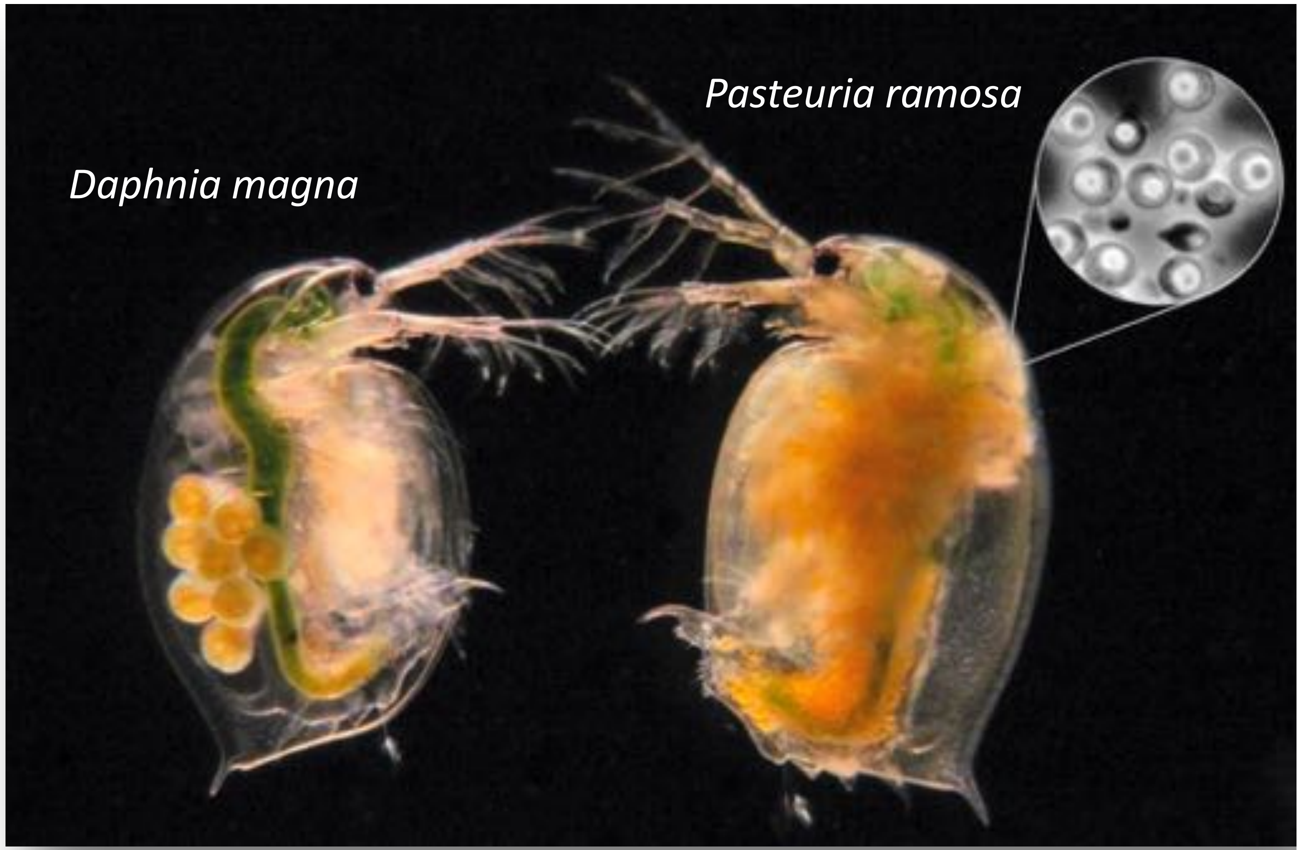
bluethroat (*Luscinia svecica*)

- MHC diversity
- Relation to mating systems (EPY vs WPY)
- Amplicon sequencing (Ion Torrent)

→ **sexual selection and the resulting evolutionary consequences**

Camille Ameline, PhD

Zoological Institute, Evolutionary Biology
Dieter Ebert group
Basel, Switzerland

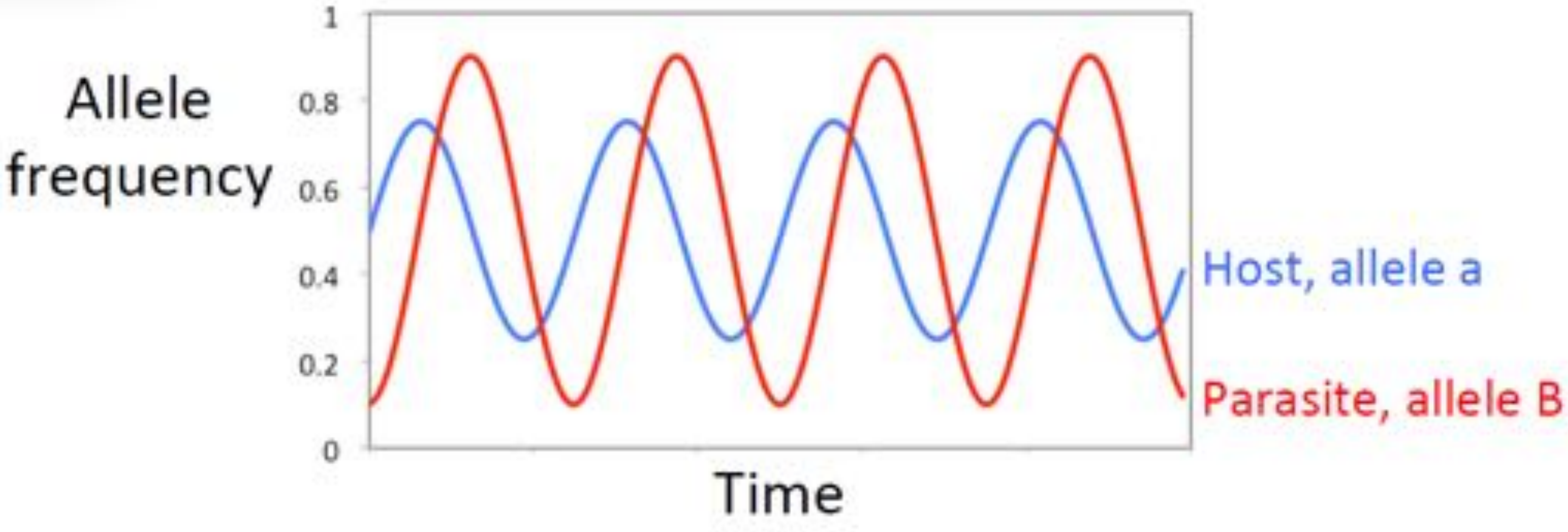


The Swiss pond

Coevolution of Host – Parasite interactions

- ➢ Dynamics of resistance/infection alleles in the populations

- ❖ Red Queen hypothesis
- ❖ Negative Frequency Dependant Selection
- ❖ Matching Allele Model



Cong Liu

Okinawa Institute of Science and Technology Graduate University

Research interests:

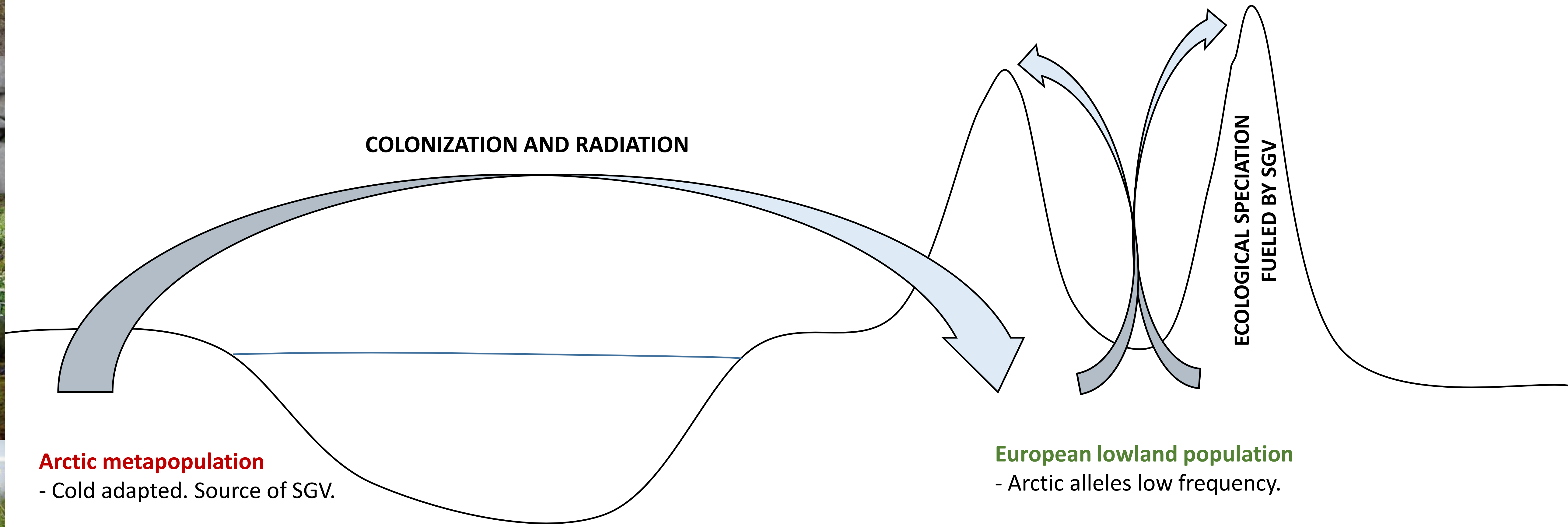
Ant systematics, Community ecology/phylogeny, Phylogeography, and Population genetics

Current project:

Phylogeny, population genomics, speciation and adaptation of ant genus *Camponotus* in the Pacific archipelagoes using RADseq.

© alex wild

System of study: plant genus *Cochlearia.*



European alpine population
- Arctic alleles fixed or high frequency.

COLONIZATION AND RADIATION

ECOLOGICAL SPECIATION FUELED BY SGV

Arctic metapopulation
- Cold adapted. Source of SGV.

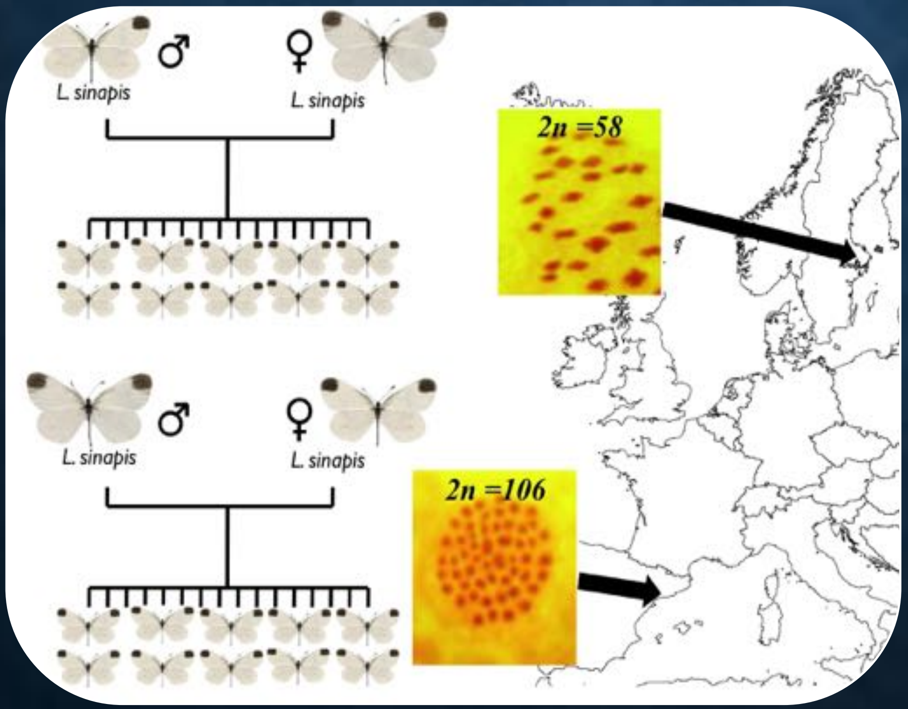
European lowland population
- Arctic alleles low frequency.

UPPSALA
UNIVERSITET

THE “CRYPTIC” CASE OF EUROPEAN WOOD WHITE BUTTERFLIES

Venkat Talla

Niclas Backström



> “Taken as a whole the Tanganyikan cichlids represent the most outstanding example of adaptive radiation of all those to be considered.”

G. Fryer and T. D. Iles (1972) The Cichlid Fishes of the Great Lakes of Africa

Walter Salzburger

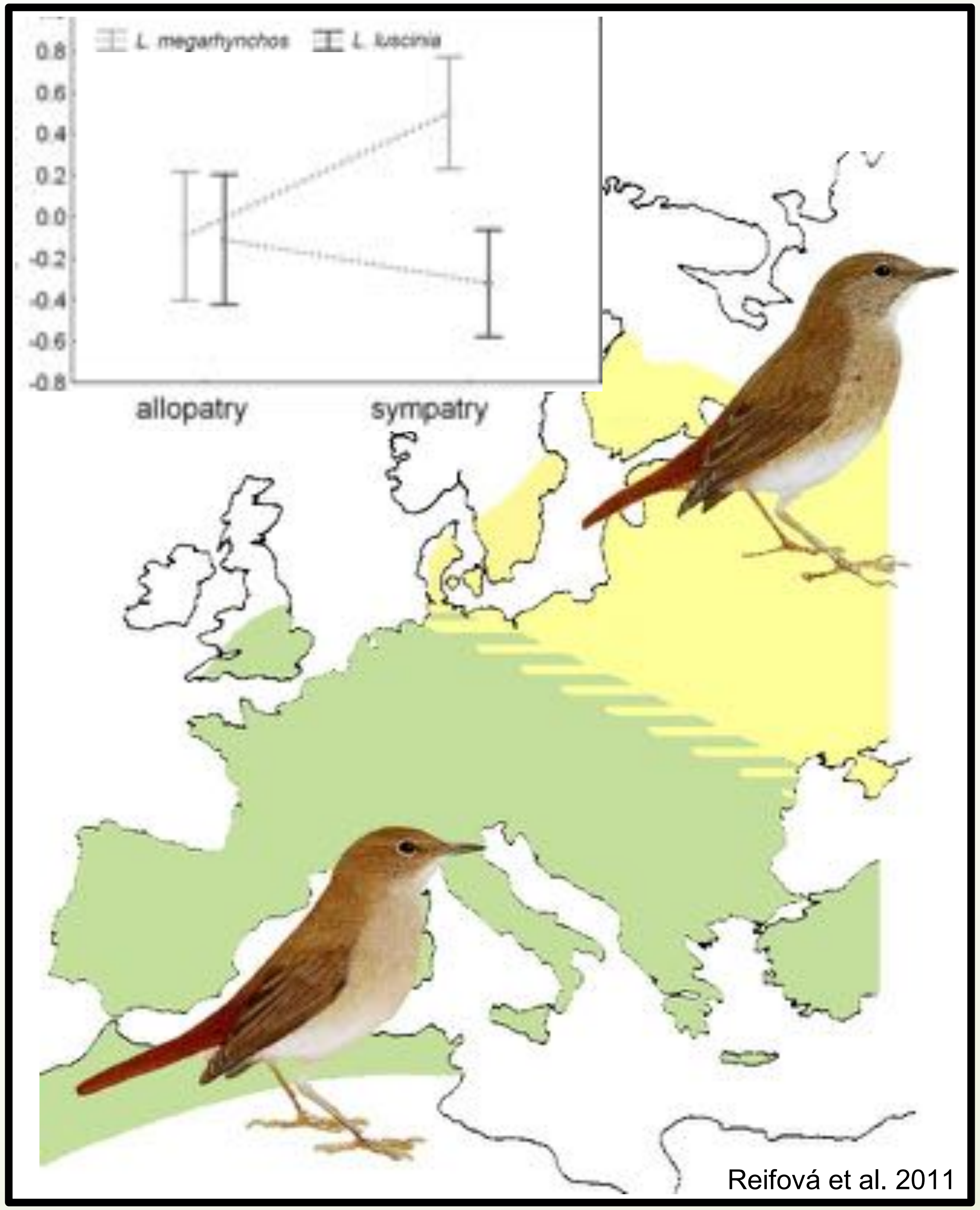
Zoological Institute
University of Basel, Switzerland

Unraveling the ecological and genetic basis of adaptive divergence in two hybridizing songbirds

Camille Sottas, PhD student
Supervisor: Radka Reifová

Faculty of Science, Charles University in Prague
Department of Zoology - Biodiversity Research Group

Common Nightingale
(*Luscinia megarhynchos*)



Reifová et al. 2011

Trush Nightingale
(*Luscinia luscinia*)

Lubomír Piálek
České Budějovice (Budweis)
Czech Republic

Faculty of Science
University of South Bohemia
in České Budějovice

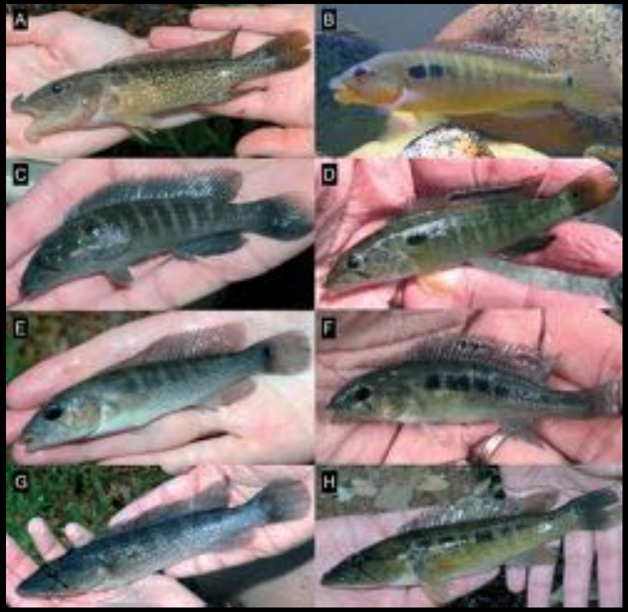
Lab of Oldřich Říčan (USB)
Jorge Casciotta (Museo de La Plata)
Adriana Almirón (Museo de La Plata)
Klára Dragová (USB)

Research interests:

Evolution of Neotropical cichlids *(and other fishes..)*

Faunistic field work in Argentina (Iguazú/Paraná/Uruguay basins)

- 9 new fish species discovered & described (so far)
- **new species flock** of ***Crenicichla*** discovered in the Iguazú River: *piscivore – grazer – picker – thick lips*

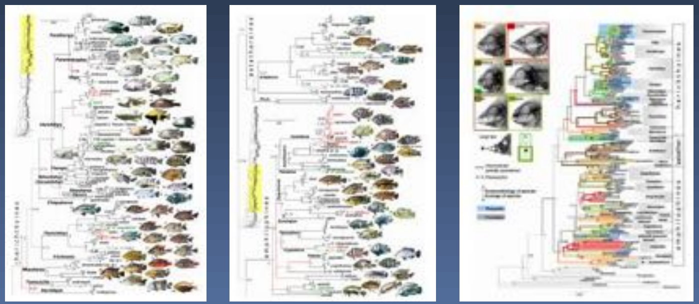


Parallel speciation in two unrelated *Crenicichla* species flocks from different basins

- distinct 'ecomorphospecies' are polyphyletic
- repeated diversification also in different subbasins?
- evolutionary mechanisms being studied based on ***ddRAD*** genomic markers

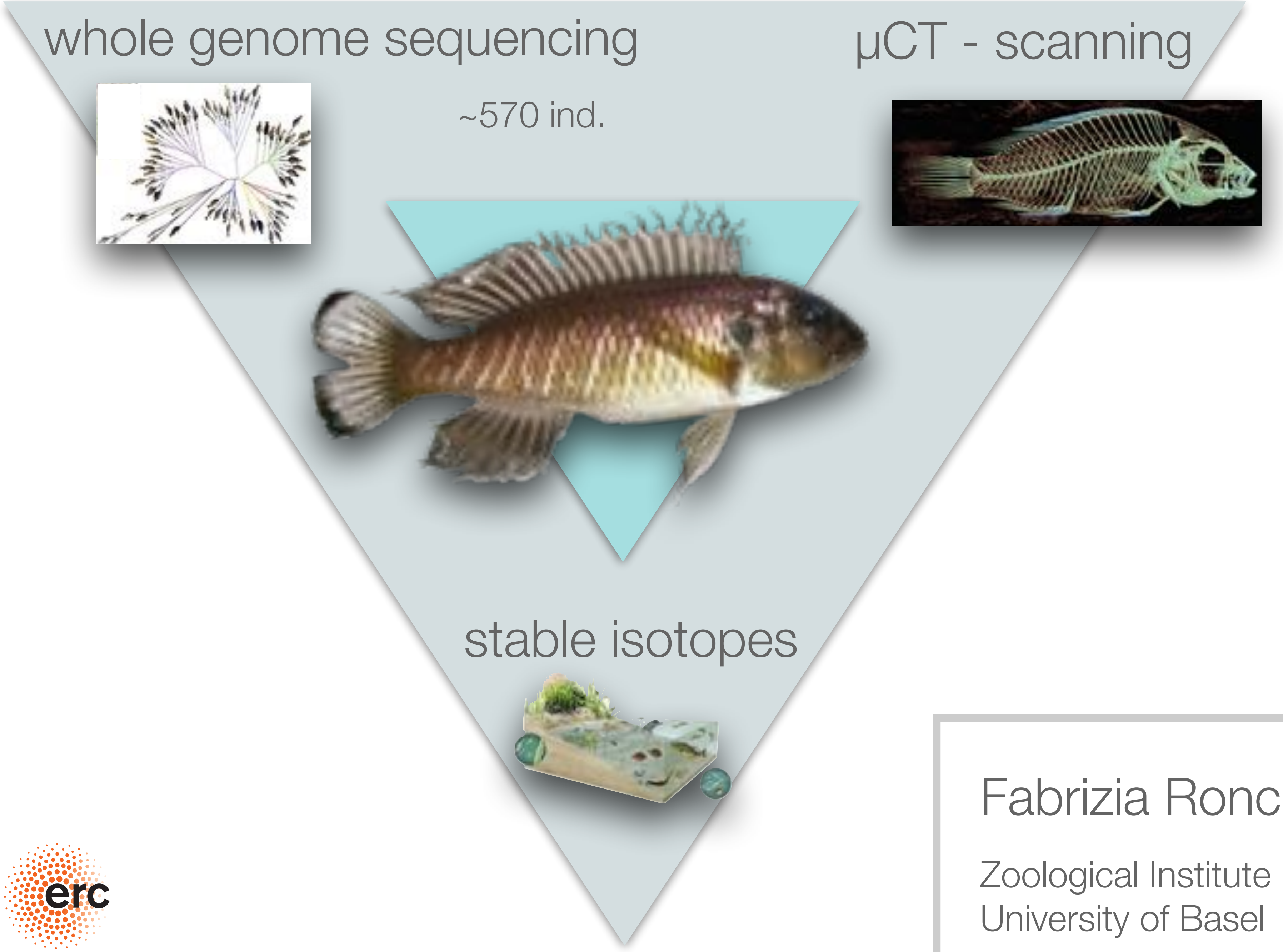
Diversity & evolution of Middle American cichlids

- new phylogenetic inference & taxonomy
- general principles of ecomorphological diversification



genomics, morphology and ecology of the Tanganyikan cichlid radiation

~250 species



whole genome sequencing

~570 ind.

µCT - scanning

stable isotopes

Fabrizia Ronco

Zoological Institute
University of Basel

CEES
Centre for Ecological and Evolutionary Synthesis

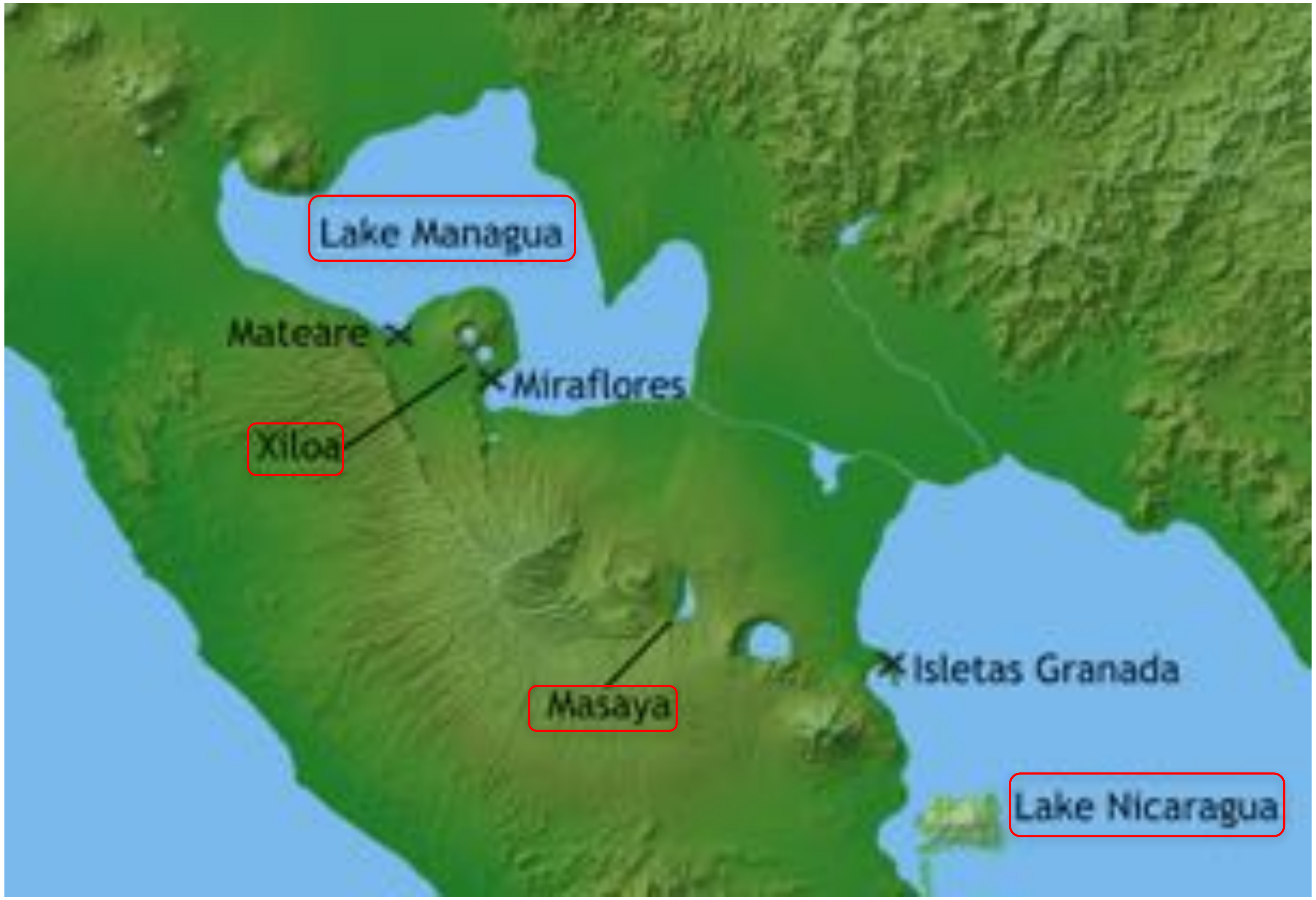
erc
European Research Council
Established by the European Commission

UNI BASEL

Population genomics and demographic history of non-Midas

Aim:

Population genomic analysis using SNP markers in non-Midas Cichlid fish to investigate their genetic diversity and population structure to reconstruct the demographic history of species inhabiting Nicaraguan crater lakes



A. longimanus

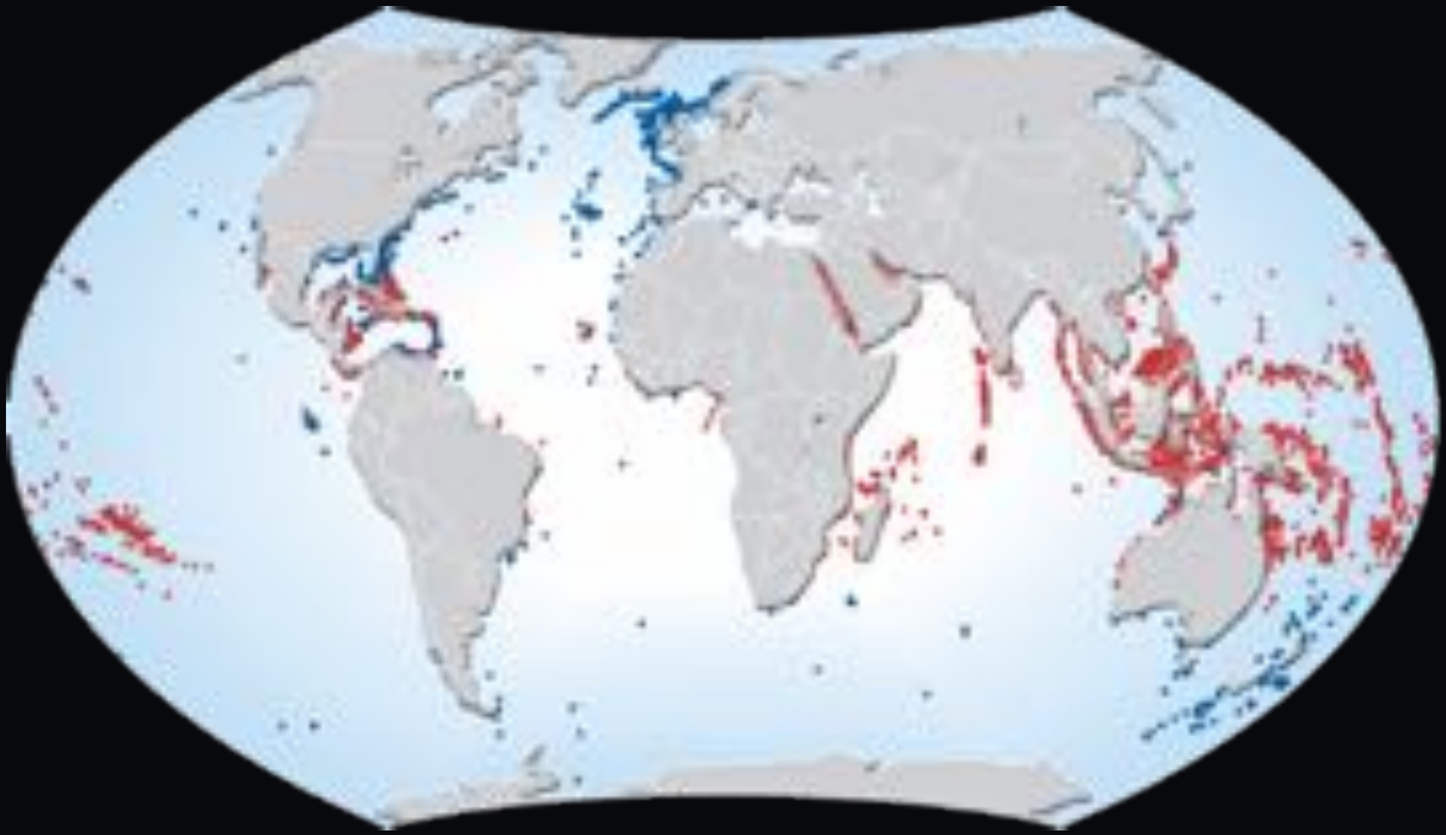
H. nematopus

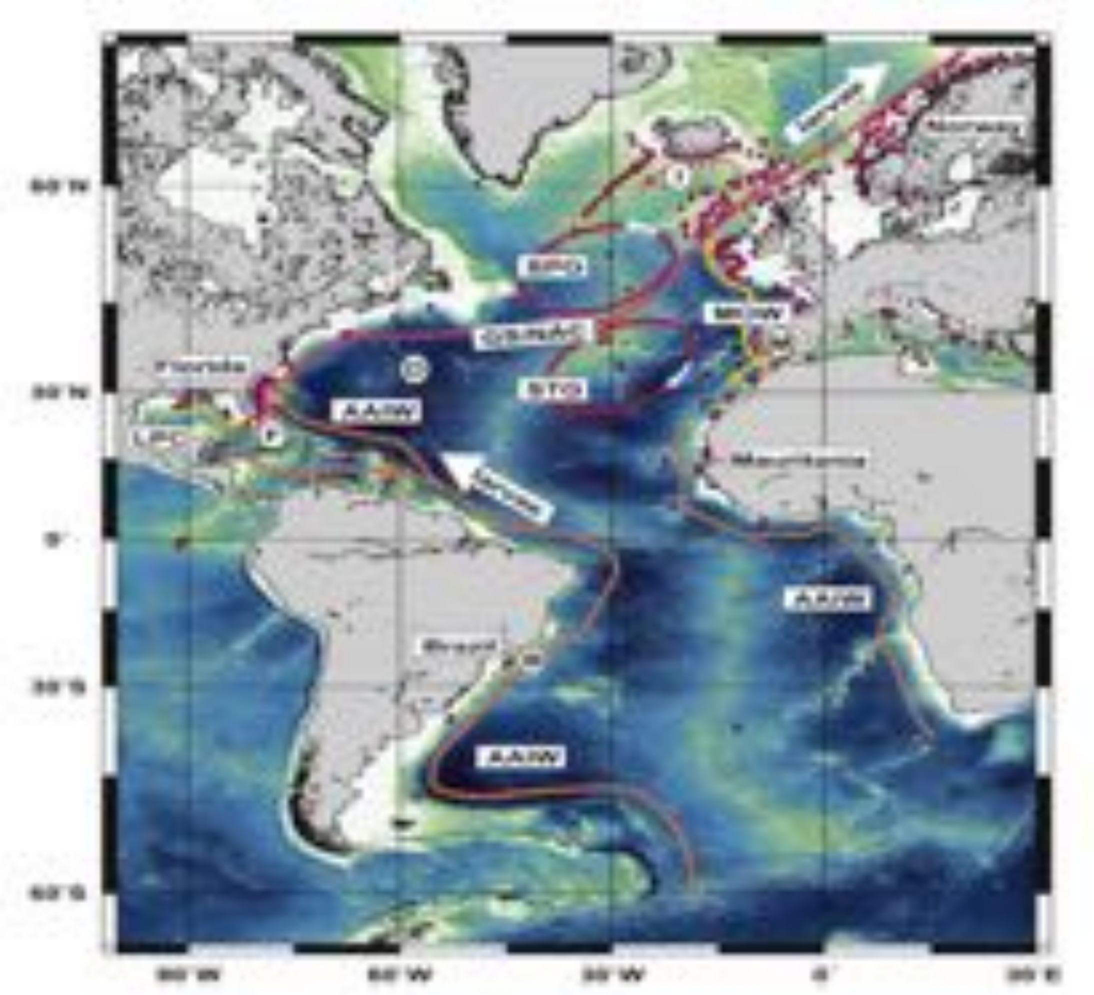
P. managuensis

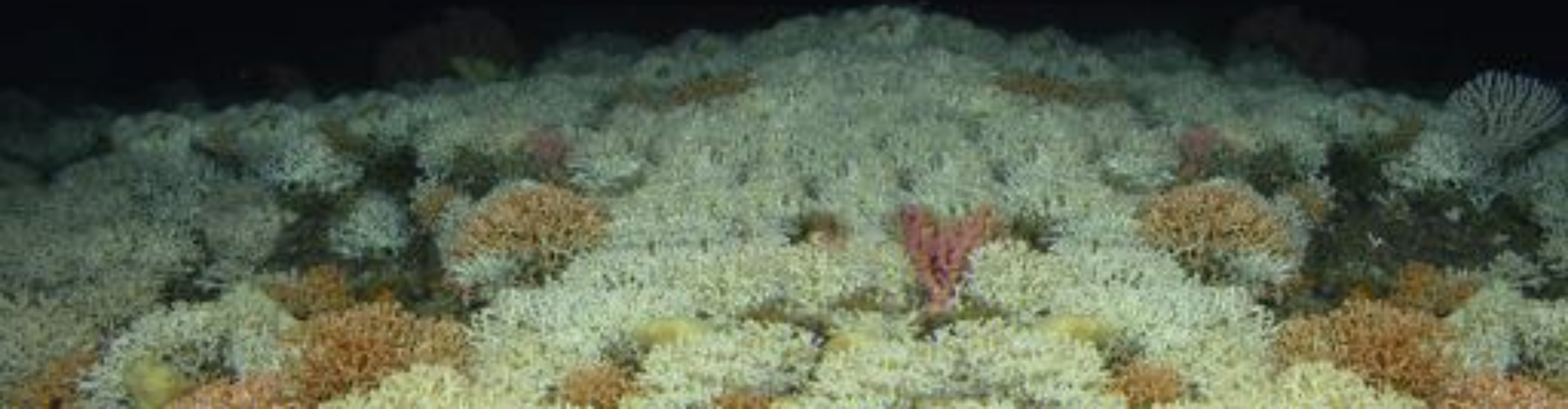
Poecilia mexicana

Lucia Paiz Medina
Laboratory for Zoology and
Evolutionary Biology
University of Konstanz

Cold-water Coral Genome Project







Jaqueline Hess
Postdoctoral Researcher – University of Oslo, Norway
Computational Biologist in the team of Inger Skrede

"Genome evolutionary mechanisms and their role in ecological transitions"

Evolution of symbiosis

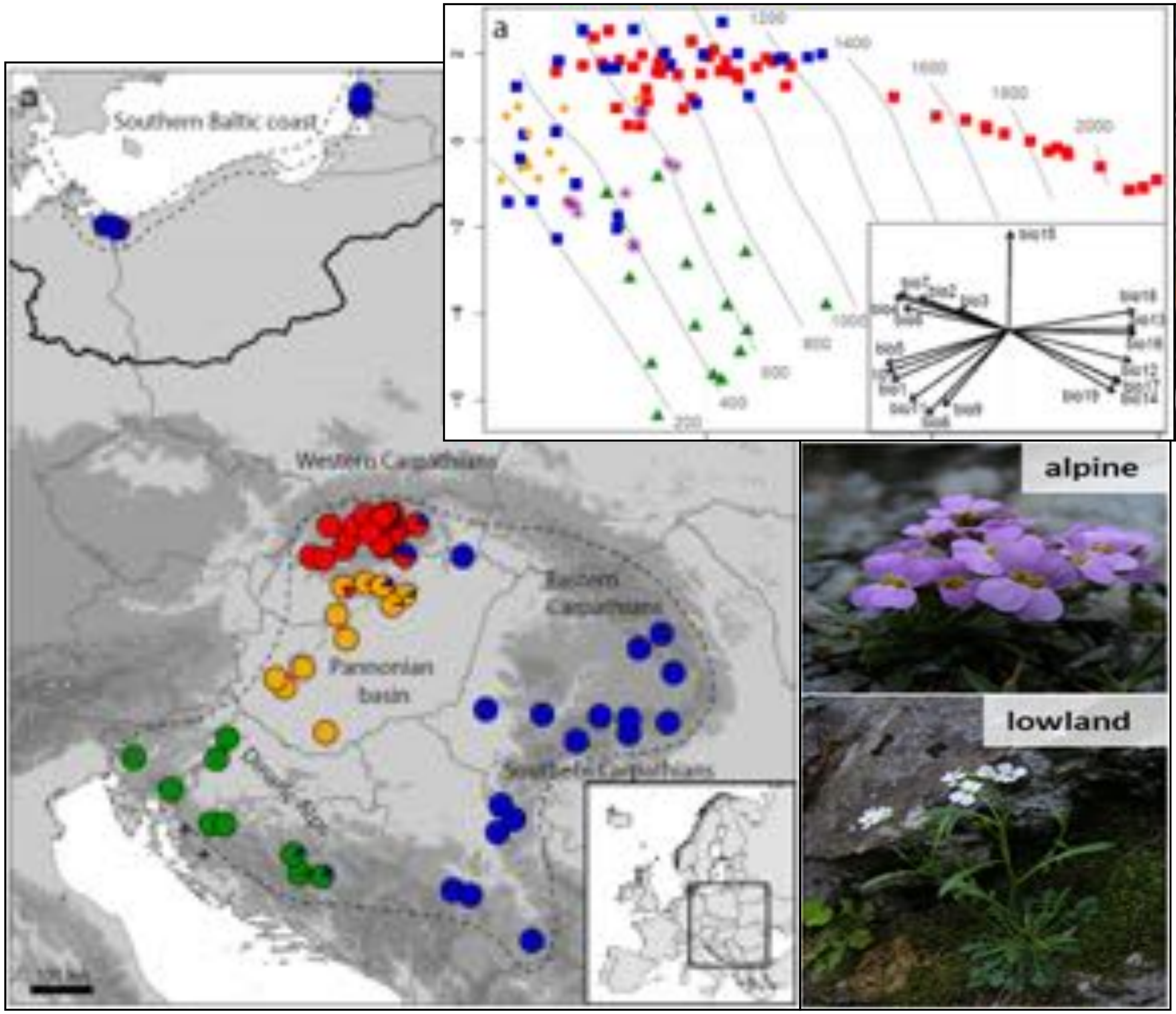
Invasive species


Copyright (c) 1985 Robert [illegible]

Transposable elements and their role in facilitating an early adaptive response to a change in environments

Ecological and historical drivers of range-wide genomic differentiation in *Arabidopsis arenosa*

Filip Kolář, University of Oslo & Charles University in Prague



Genetic structure (> 2000 SNPs), niche and phenotypic variation of diploid *A. arenosa*

Range-wide resequencing of ~ 300 indivs. (collaborative project with L. Yant & K. Bomblies, John Innes Centre, Norwich, UK)

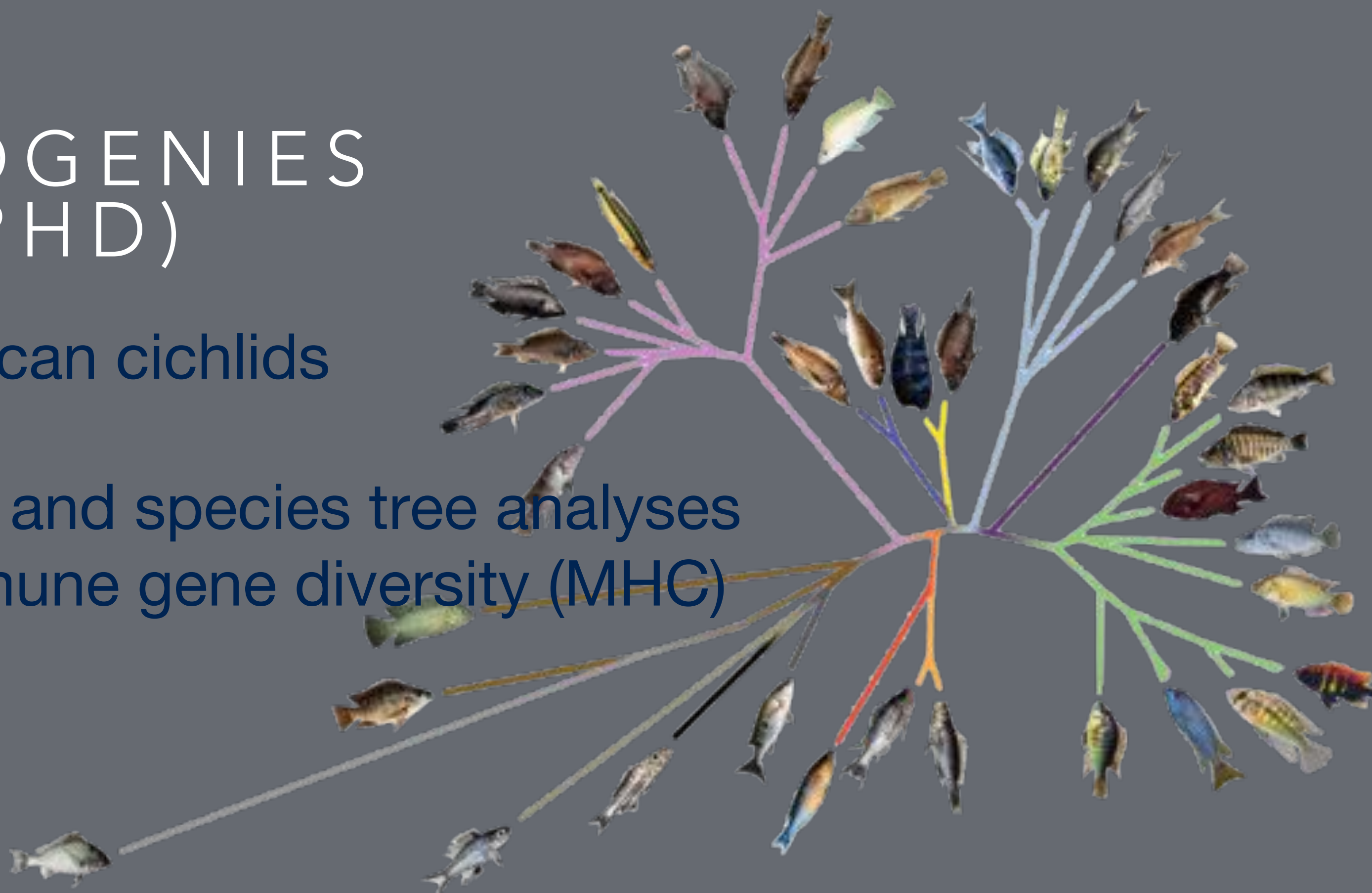
BRITTA MEYER

POPULATION (EPI)GENOMICS (POSTDOC)

marine sticklebacks

(epi)genetic variation
local adaptation

PHYLOGENIES (PHD)

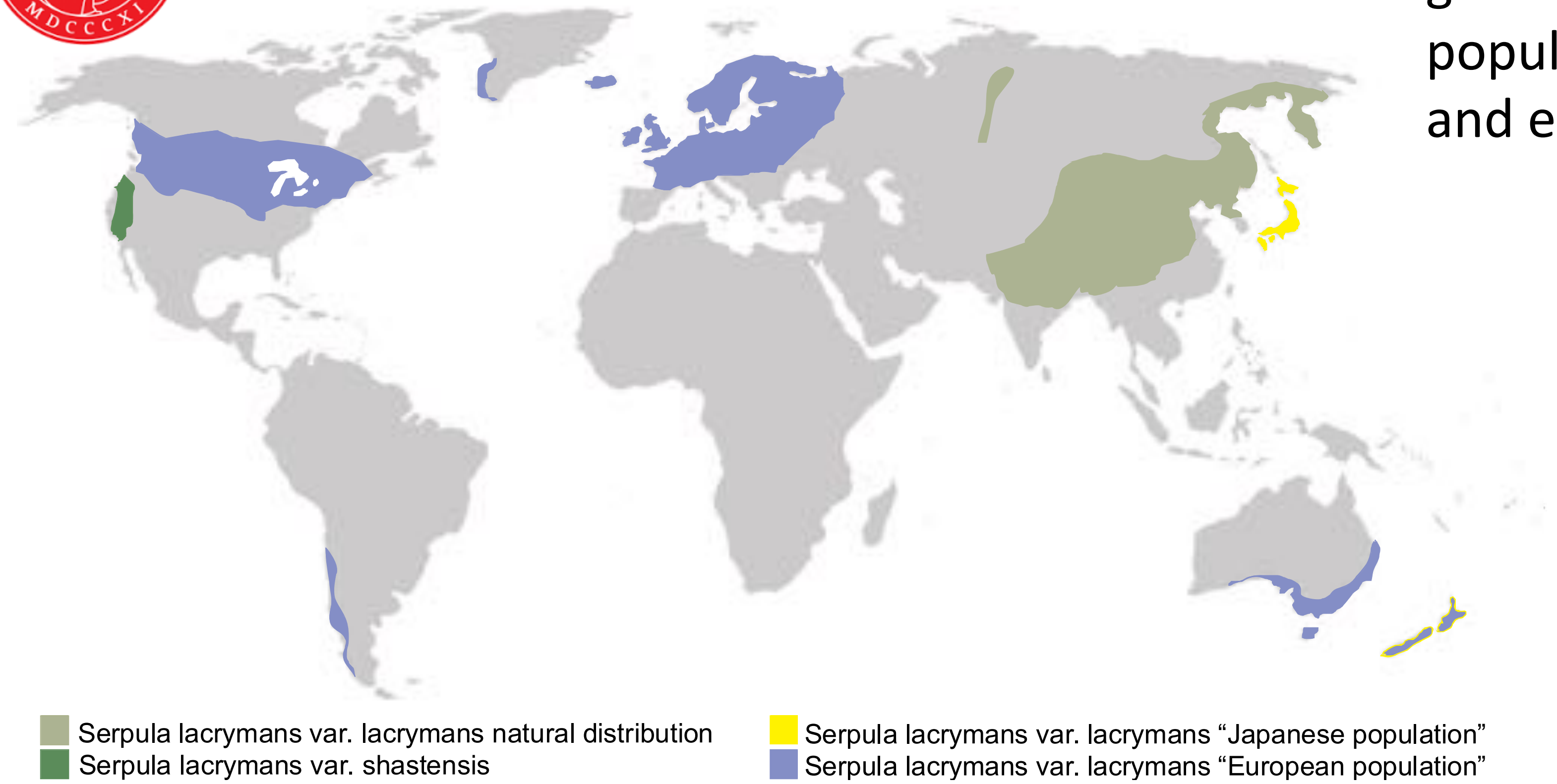


East African cichlids

multilocus phylogenies and species tree analyses
biogeography and immune gene diversity (MHC)

Inger Skrede, University of Oslo

<u>Research topics:</u> population genetics, comparative genomics, population genomics, fungi, ecology and evolution



<u>Current population genomic project:</u>

- Identify genes/functions important for colonization of new habitat/human made habitat?
- Divergence, diversity and demographic history of populations from Japan, Europe and New Zealand?

37 genomes (about 100X coverage)
~500,000 SNPs

Frode Fossøy Trondheim-Norway

NTNU
Norwegian University of Science and Technology

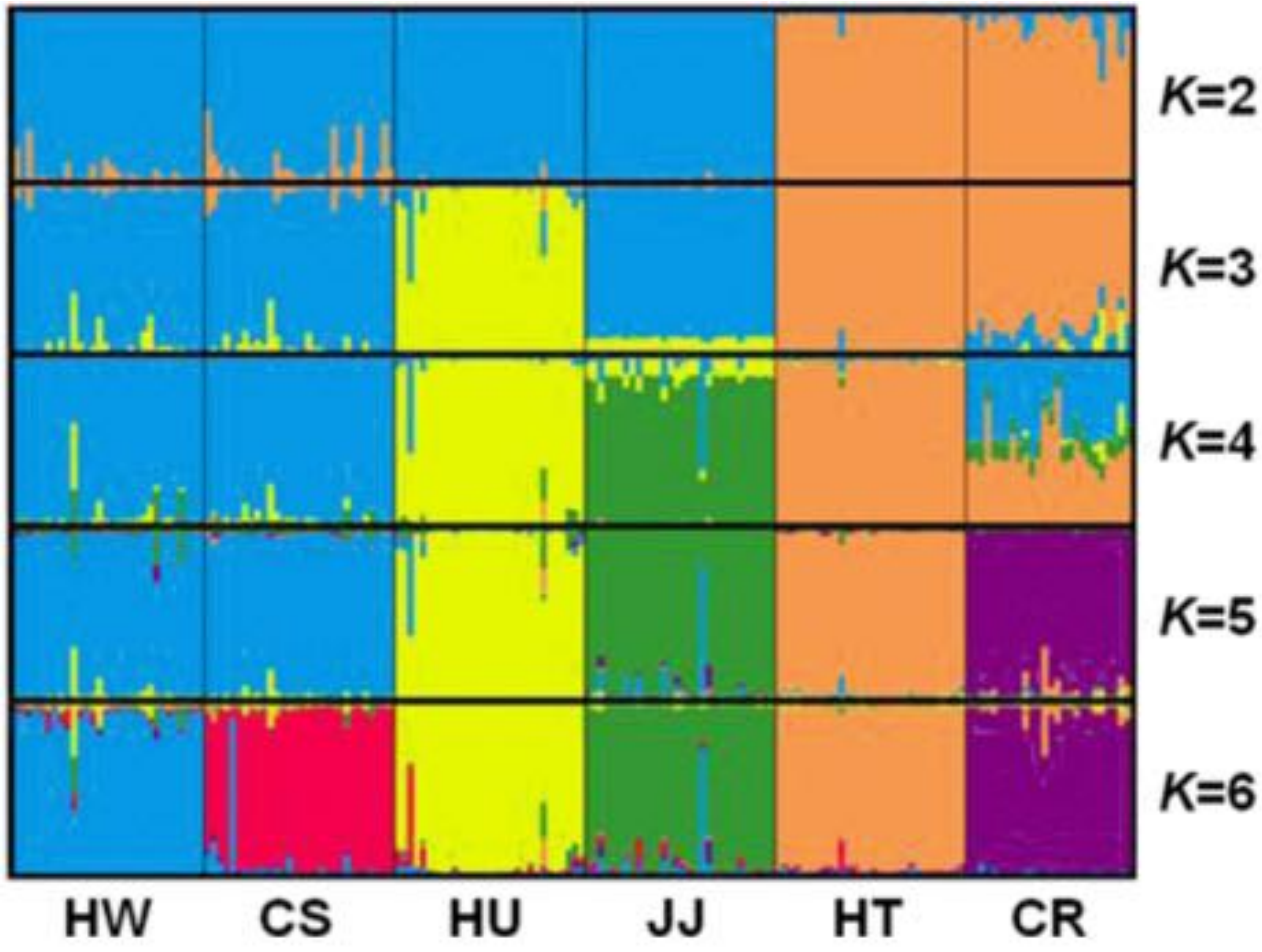
AfricanBioServices

- Avian brood parasitism – WGS
- Ecosystem services – eDNA

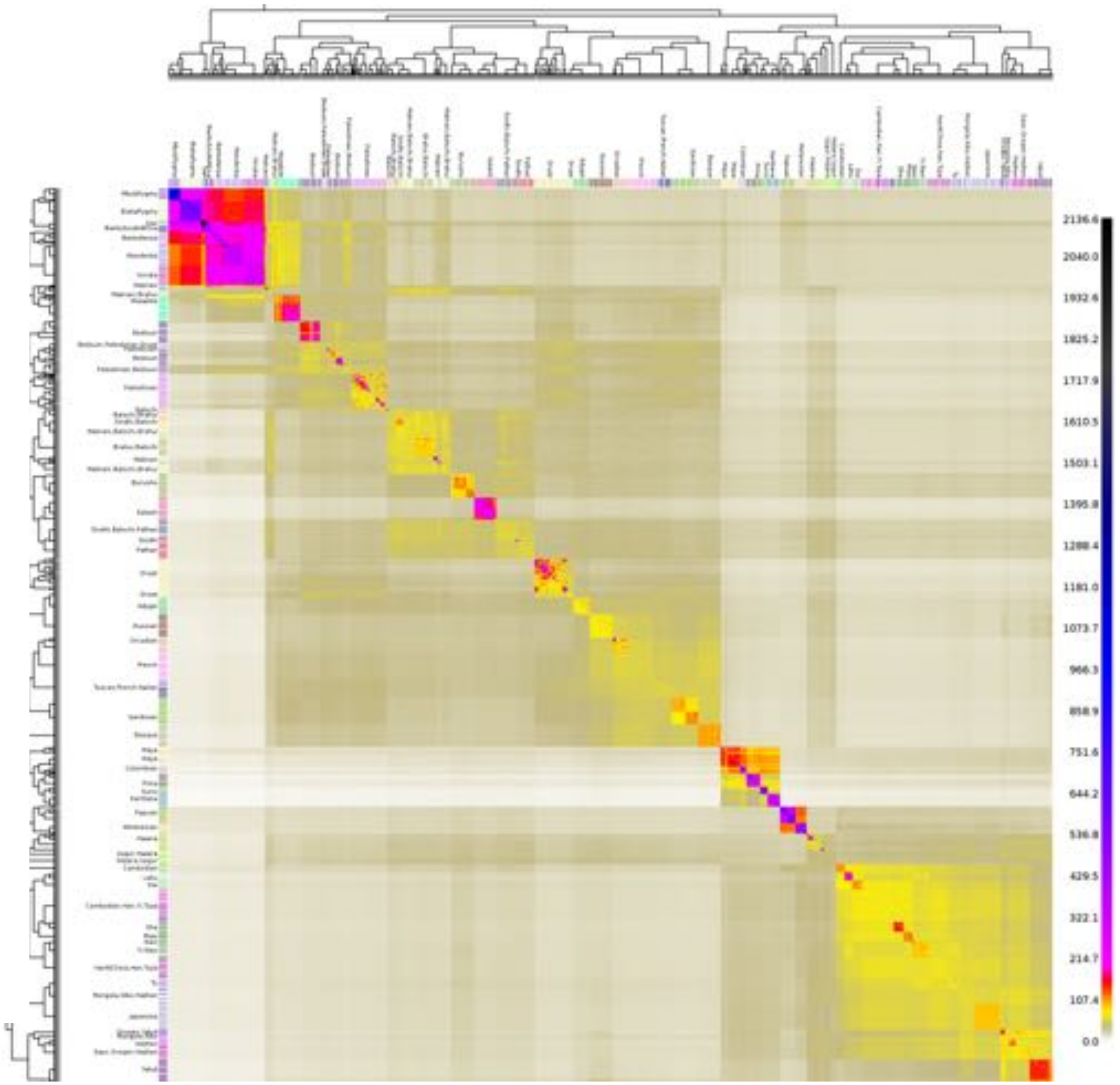
NINA
Norwegian Institute for Nature Research

- Metabarcoding, eDNA
- RADSeq

STRUCTURE

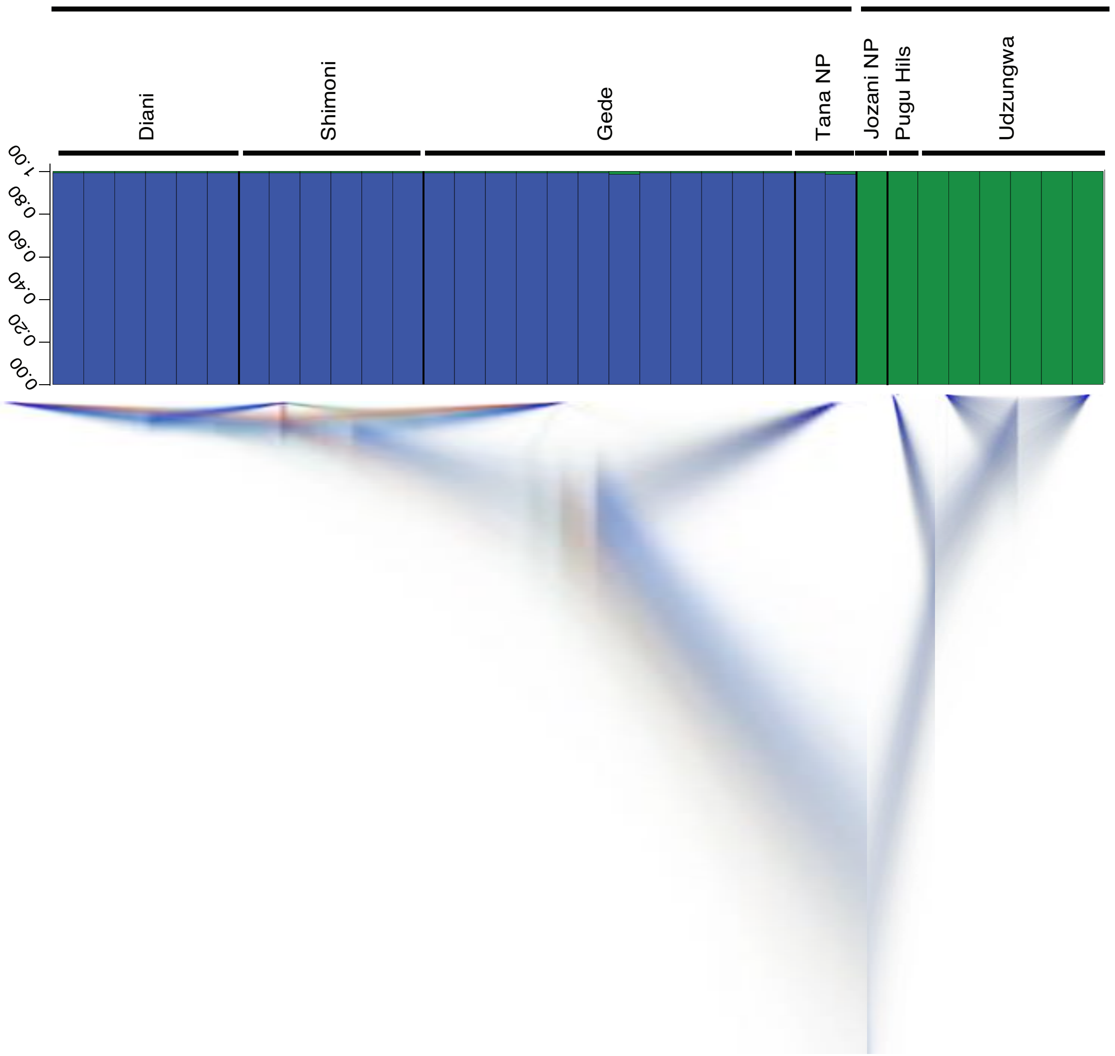


fineSTRUCTURE



finerSTRUCTURE?

CRYPTIC DIVERSITY & SPECIATION



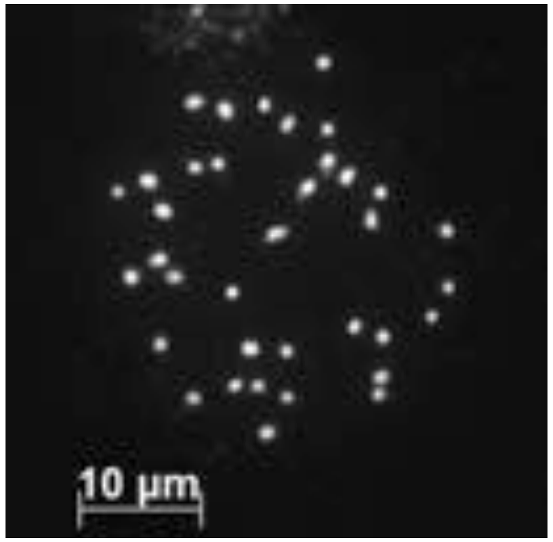
DPZ

Luca Pozzi

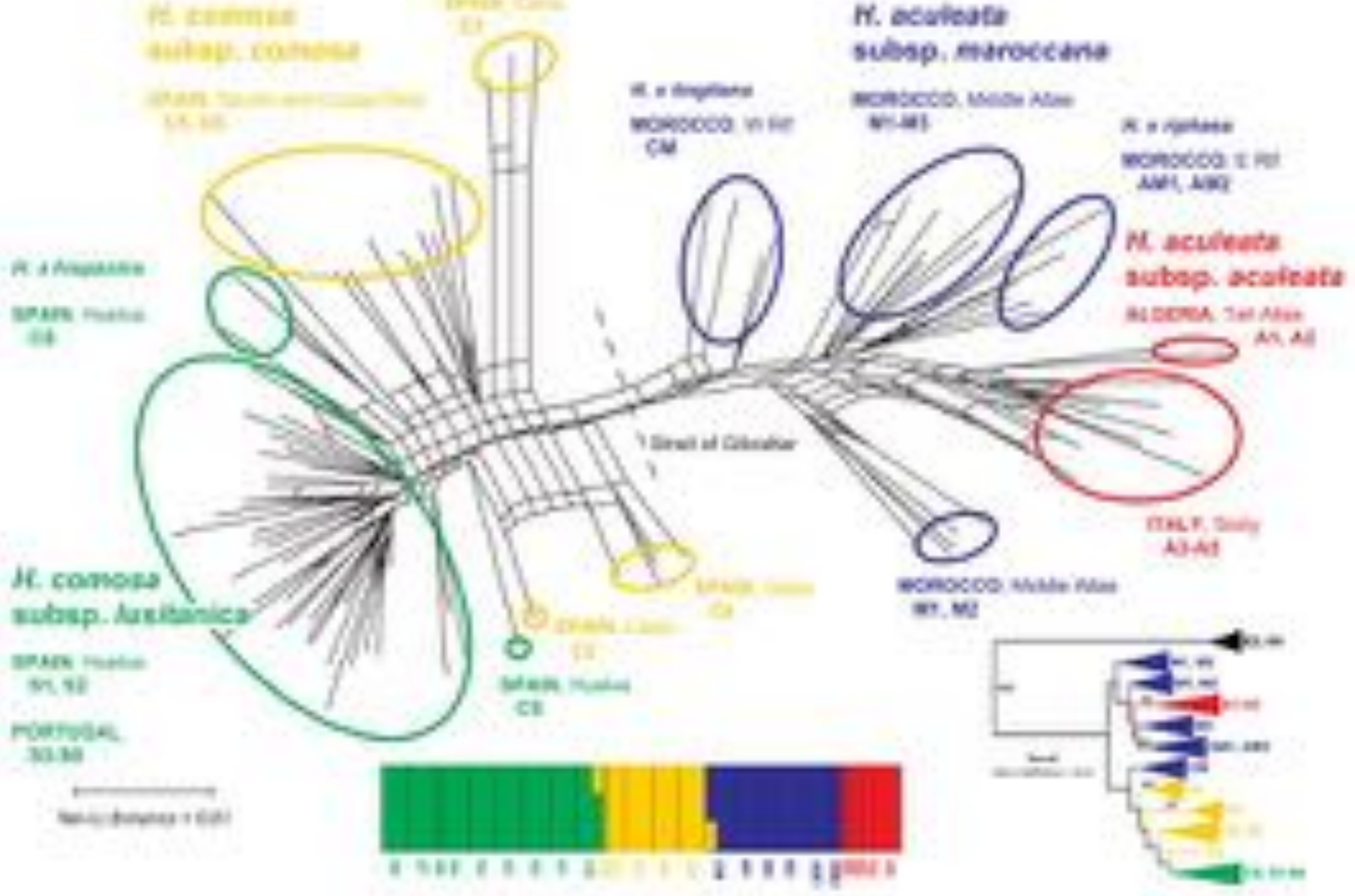
Behavioral Ecology and Sociobiology Unit, German Primate Center

Plant evolution

Polyploidy



Incomplete lineage sorting vs. hybridization



Soil seed bank

Karin Tremetsberger
University of Natural Resources and Life Sciences, Vienna, Austria

Natalia Díaz Arce
PhD Student 2015-2019

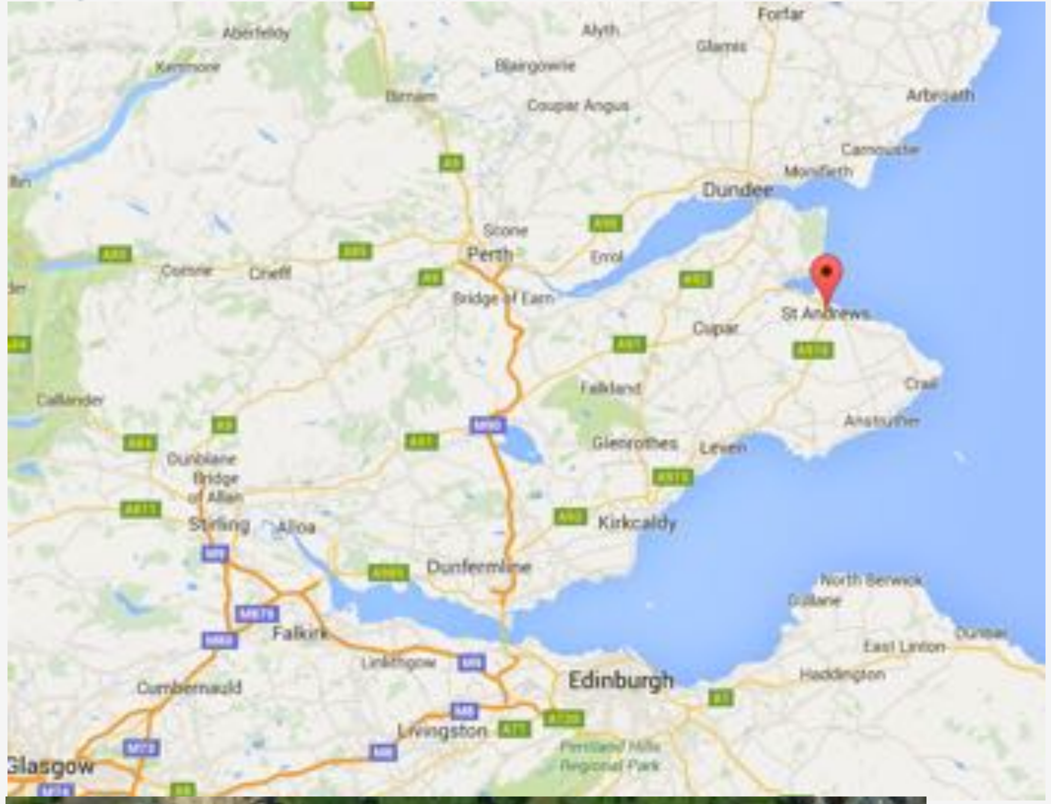
Marine Research Division AZTI
(Sukarrieta, Spain)

PhD Supervisors:
Dra. Naiara Rodríguez-Ezpeleta
Haritz Arrizabalaga

azti tecnalia
Transforming Science into Business

Oscar Gaggiotti
Scottish Oceans Institute
University of St Andrews

University of St Andrews | FOUNDED 1413



- Statistical inference of the demography and ecology of species from the spatial patterns of *neutral* genetic diversity
- Study of *local adaptation* to understand the molecular bases of phenotypic variation

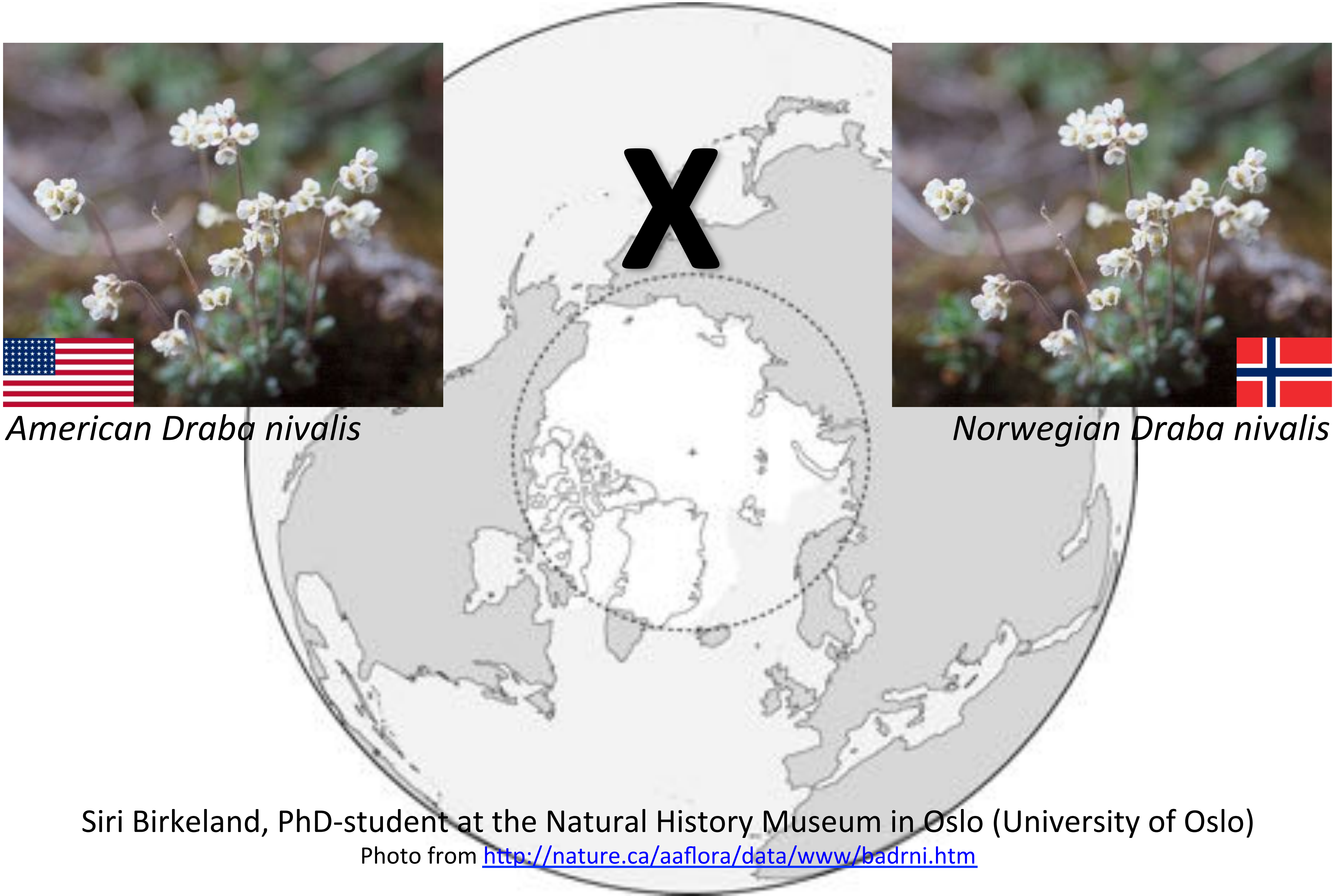
Vikings as Vectors

University of Oslo

Heidi Nistelberger

SpArc

Speciation genetics in Arctic plants and searching for cryptic species in the Mediterranean flora

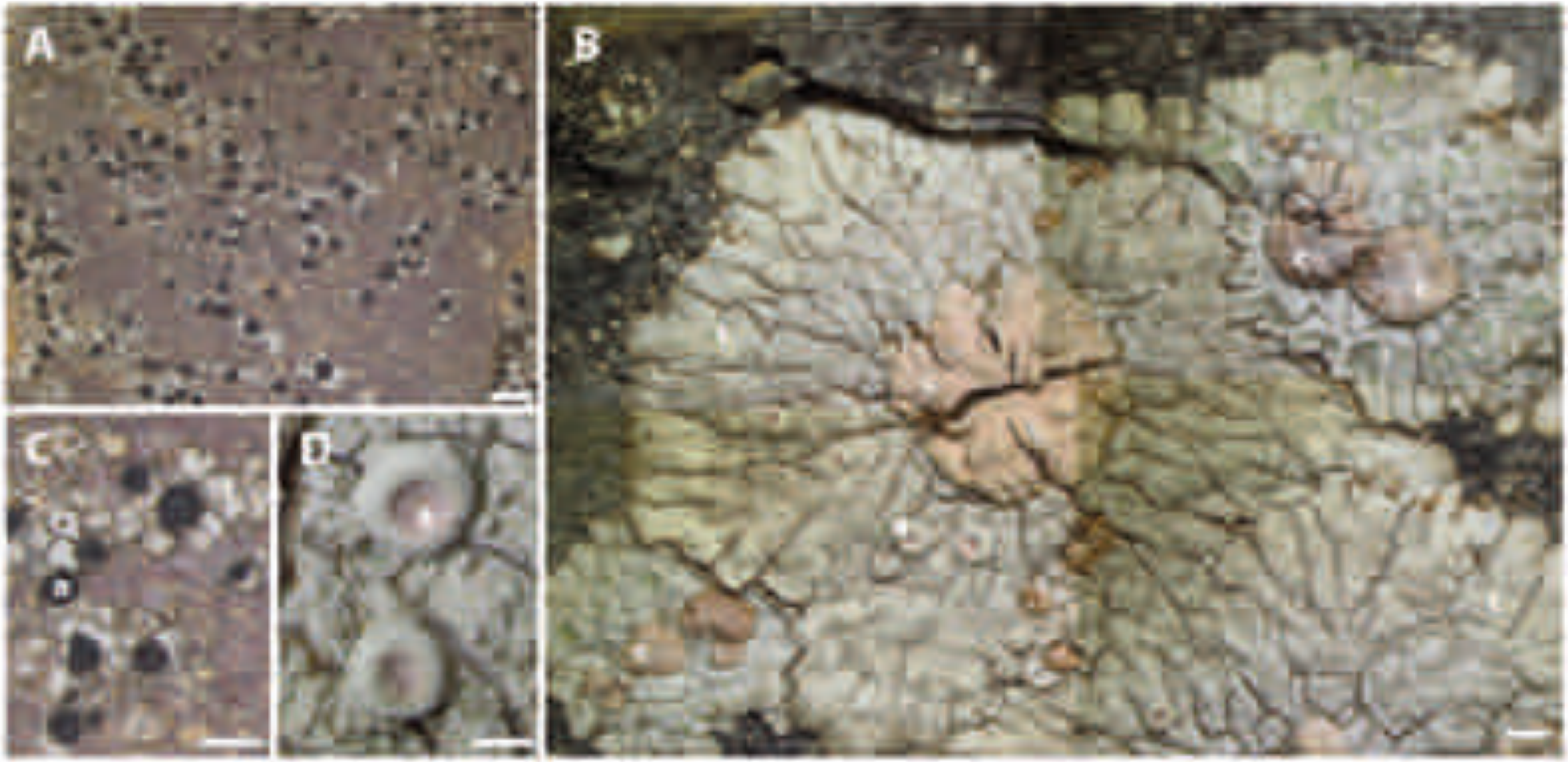


American Draba nivalis

Norwegian Draba nivalis

Siri Birkeland, PhD-student at the Natural History Museum in Oslo (University of Oslo)

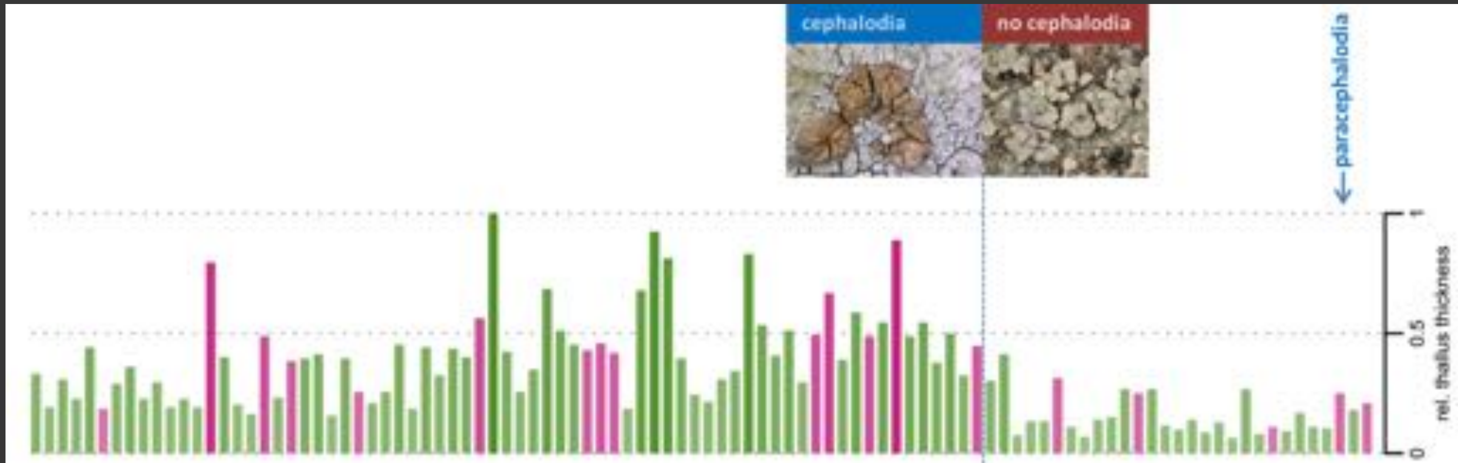
Photo from http://nature.ca/aaflora/data/www/badrni.htm

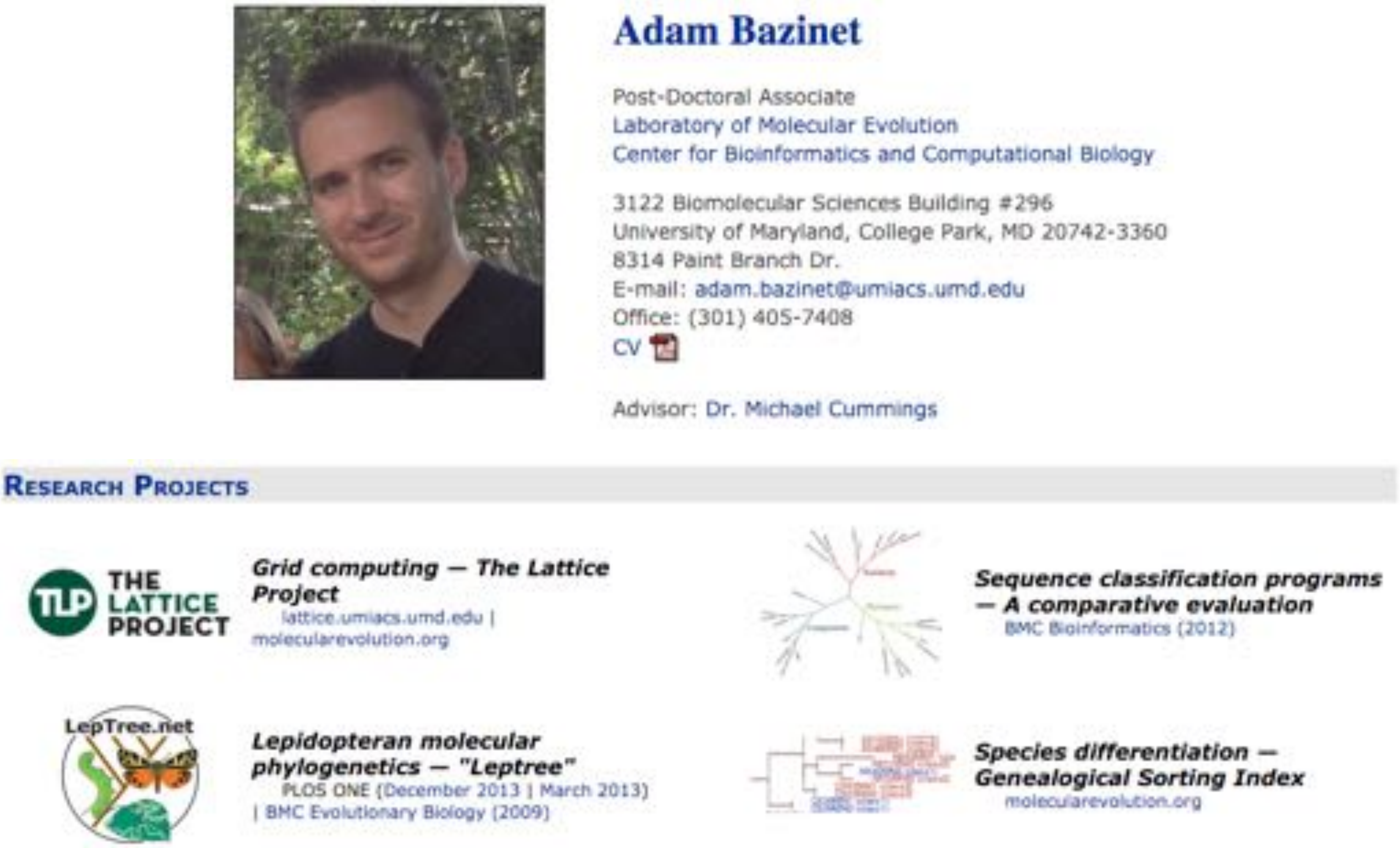


Escape from the cryptic species trap: lichen evolution on both sides of a cyanobacterial acquisition event

Kevin Schneider

University of Graz, Austria





Adam Bazinet

Post-Doctoral Associate
Laboratory of Molecular Evolution
Center for Bioinformatics and Computational Biology

3122 Biomolecular Sciences Building #296
University of Maryland, College Park, MD 20742-3360
8314 Paint Branch Dr.
E-mail: adam.bazinet@umiacs.umd.edu
Office: (301) 405-7408
CV

Advisor: Dr. Michael Cummings

RESEARCH PROJECTS

Grid computing — The Lattice Project
lattice.umiacs.umd.edu | molecularevolution.org

Sequence classification programs — A comparative evaluation
BMC Bioinformatics (2012)

Lepidopteran molecular phylogenetics — "Leptree"
PLOS ONE (December 2013 | March 2013) | BMC Evolutionary Biology (2009)

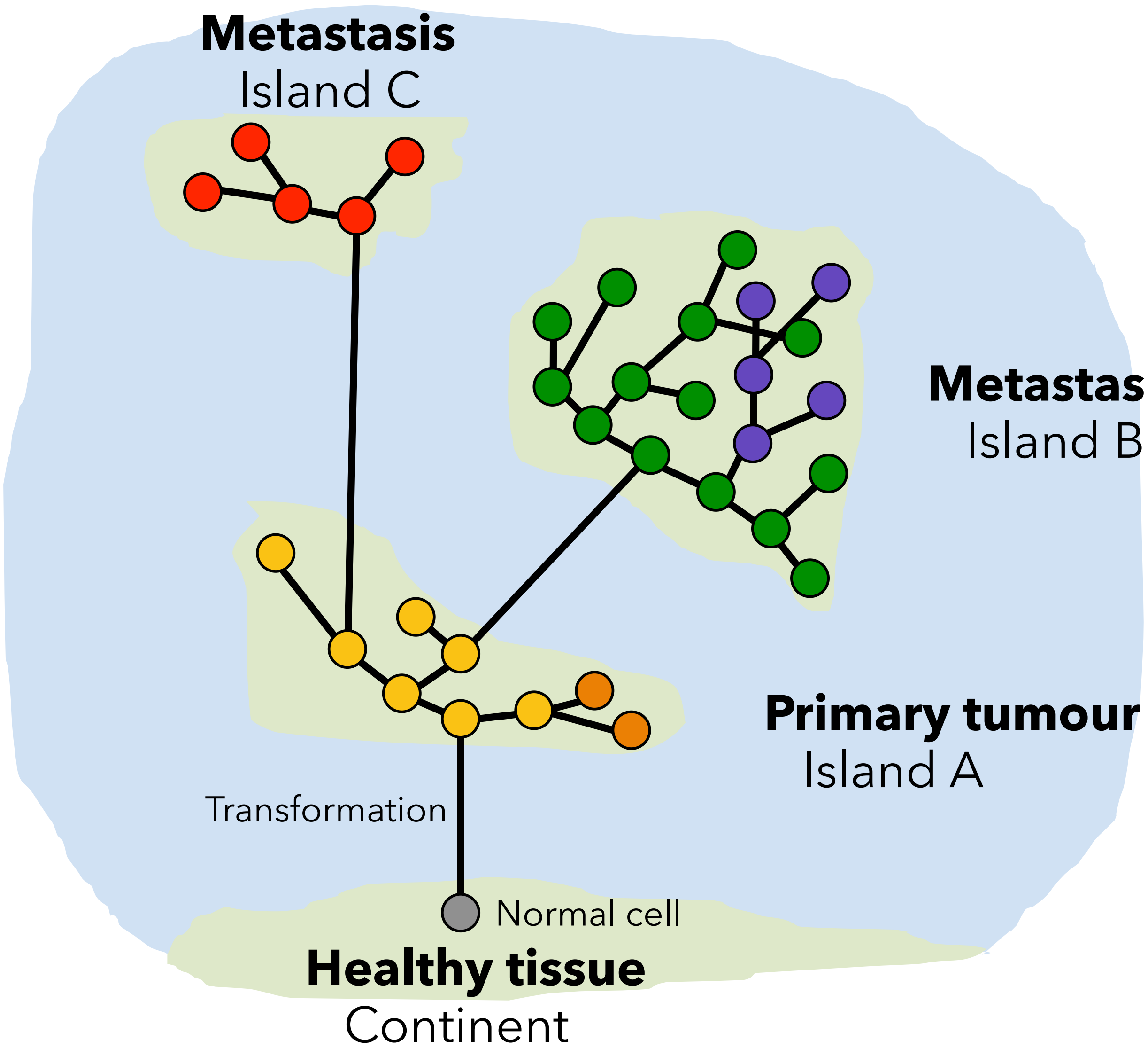
Species differentiation — Genealogical Sorting Index
molecularevolution.org

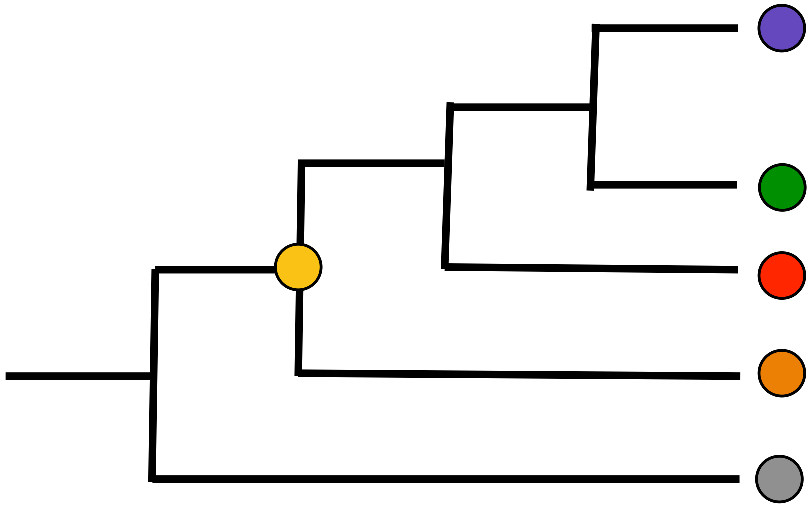
After the Ice: hybrid male sterility in a grasshopper hybrid zone

Ricardo J Pereira
ricardojn.pereira@gmail.com

Natural History Museum of Denmark
University of Copenhagen

PHYLOCANCER





Aim

Reconstructing tumor evolution

Data

WGS / WES

Bulk-seq / SC-seq

Bioinformatic analysis

Somatic variant calling

Evolutionary analysis

Population growth

Population structure

Population effective size

Divergence time

Selection vs neutral

Tamara Prieto

Biology Centre CAS
Institute of Entomology

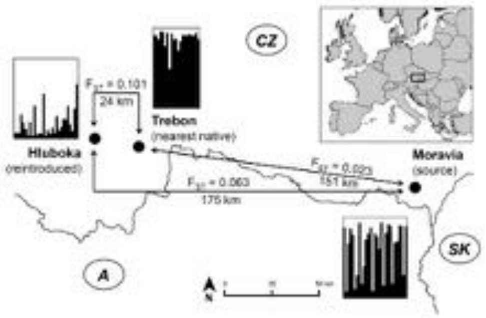
&

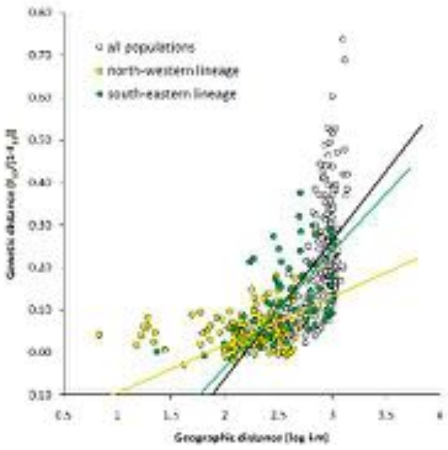
University of South Bohemia
Faculty of Science

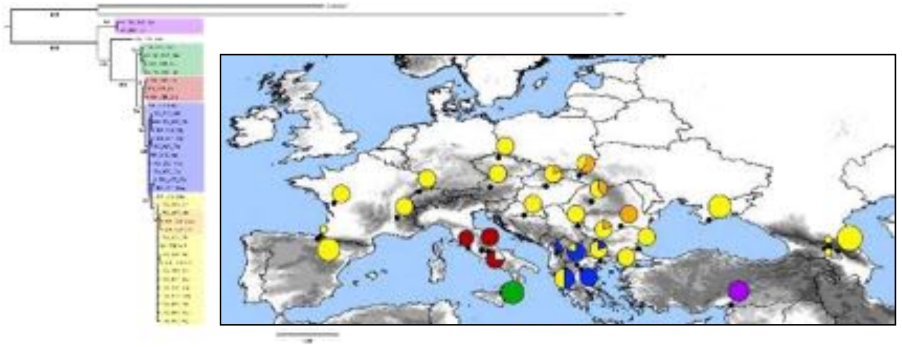
České Budějovice, Czech Republic

Molecular Ecology of Saproxylic Beetles in Europe

Lukáš Drag







Great Capricorn beetle
(*Cerambyx cerdo*)

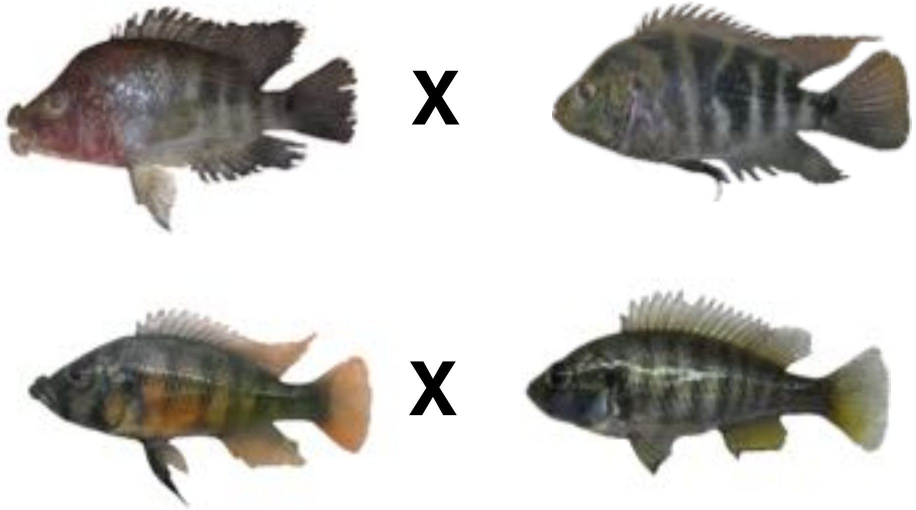
Hermit beetle
(*Osmoderma eremita*)

Rosalia Longicorn
(*Rosalia alpina*)

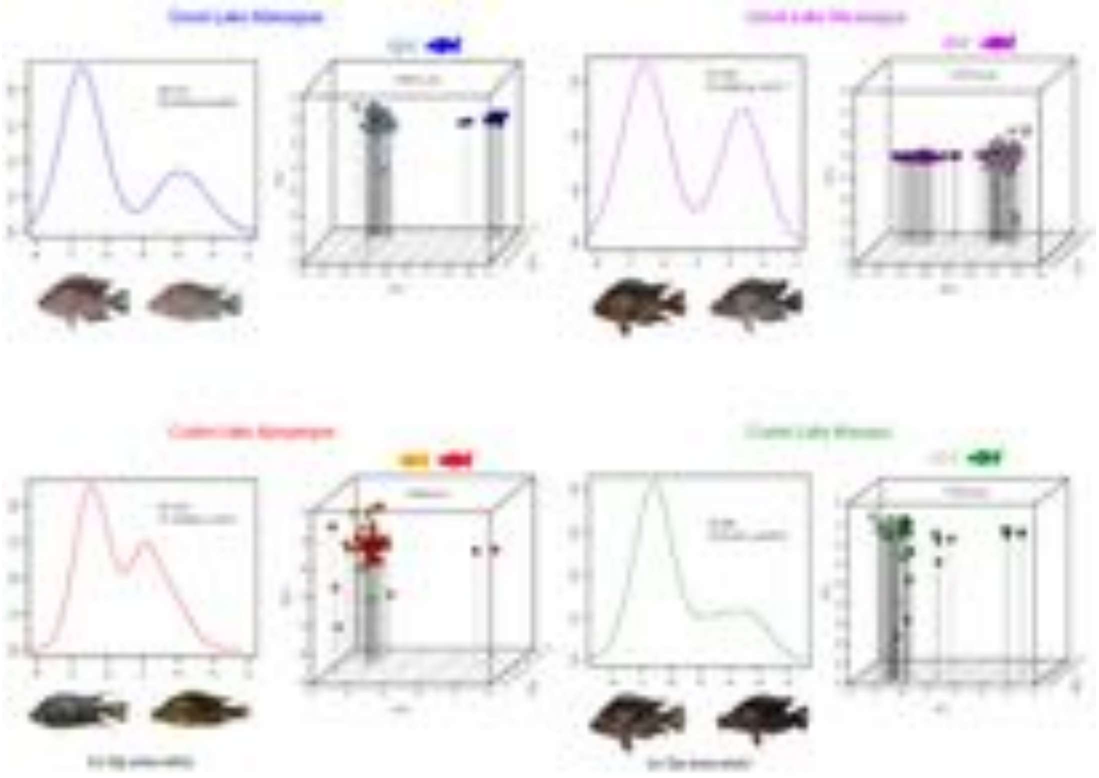
The genetic bases of convergent evolution: hypertrophic lips

Gonzalo Machado-Schiaffino (University of Konstanz, Germany)

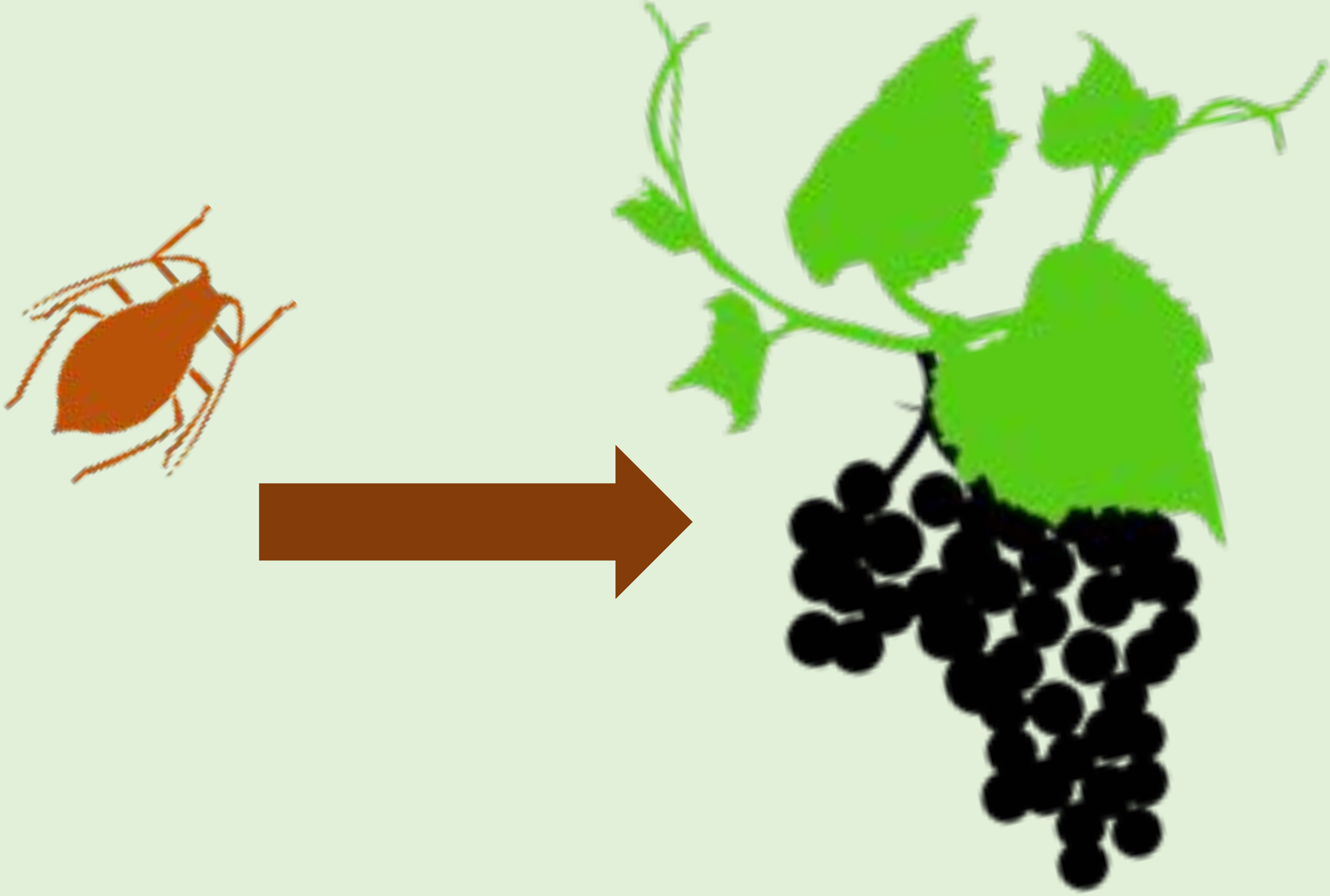
QTL mapping in Neotropical and African cichlids (RADseq)



Incipient speciation driven by hypertrophied lips in Midas cichlids fish?



Genetic and morphological differentiation (+ demography + lip function + assortative mating)



Phylloxera

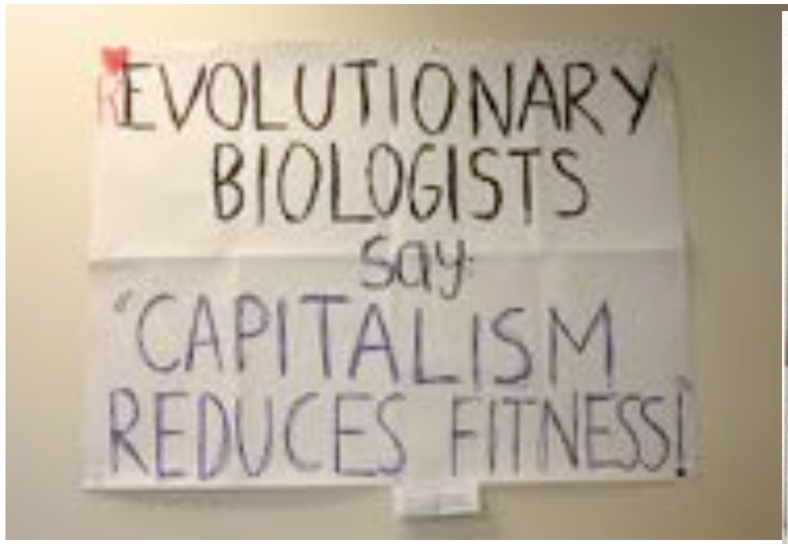
Grafting

劉 筱 蕾
Hsiao-Lei Liu
PhD Student
University of Warwick
E-mail: H.Liu.6@warwick.ac.uk
lei.oct.1985@gmail.com

Matteo Fumagalli

PhD in Bioengineering
Polytechnic University of Milan, Italy

Postdoc (EMBO fellow)
Dept. Integrative Biology
Univ. of California, Berkeley, USA
Nielsen Group

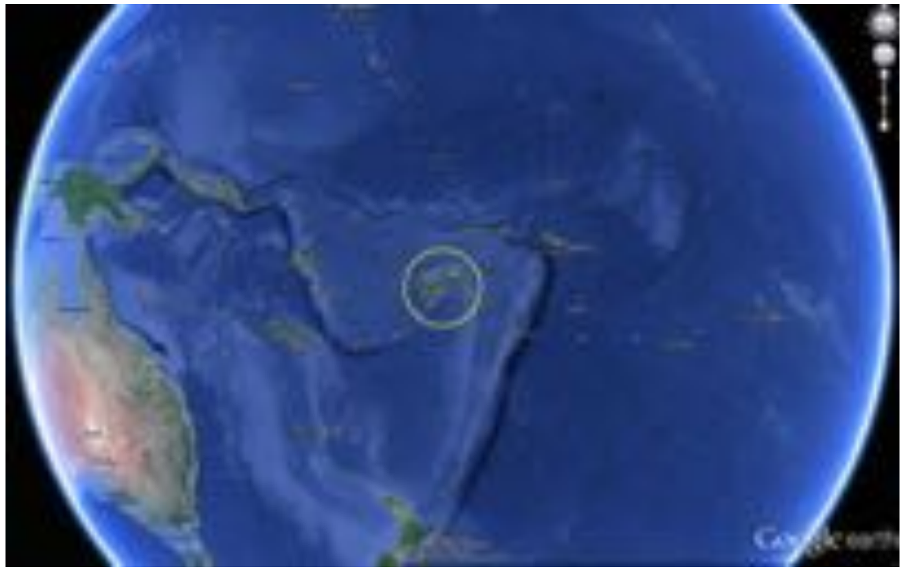


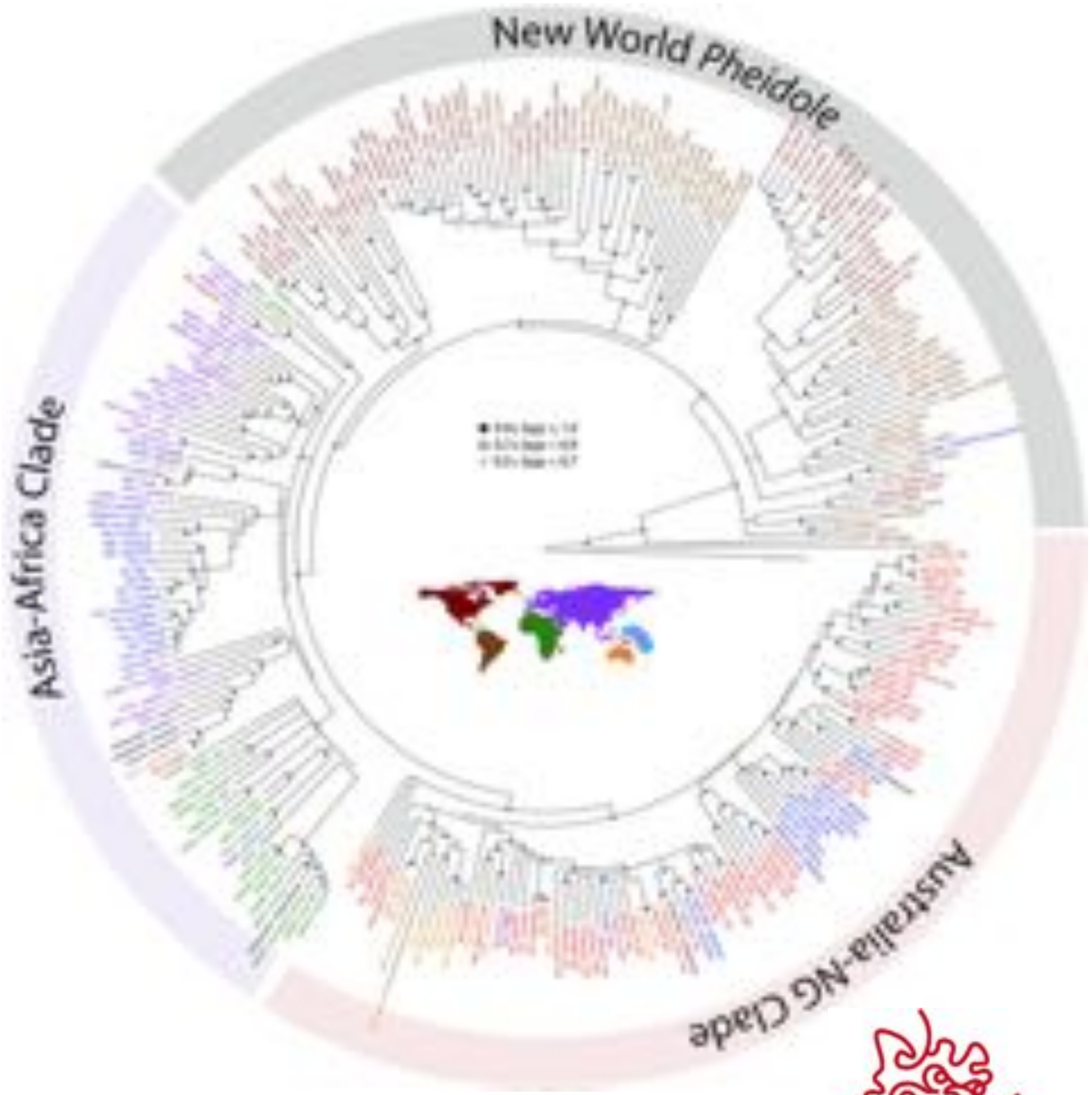
Postdoc (HFSP fellow)
UCL Genetics Institute
University College London, UK
Balloux Group

Human
Evolution @
UCL

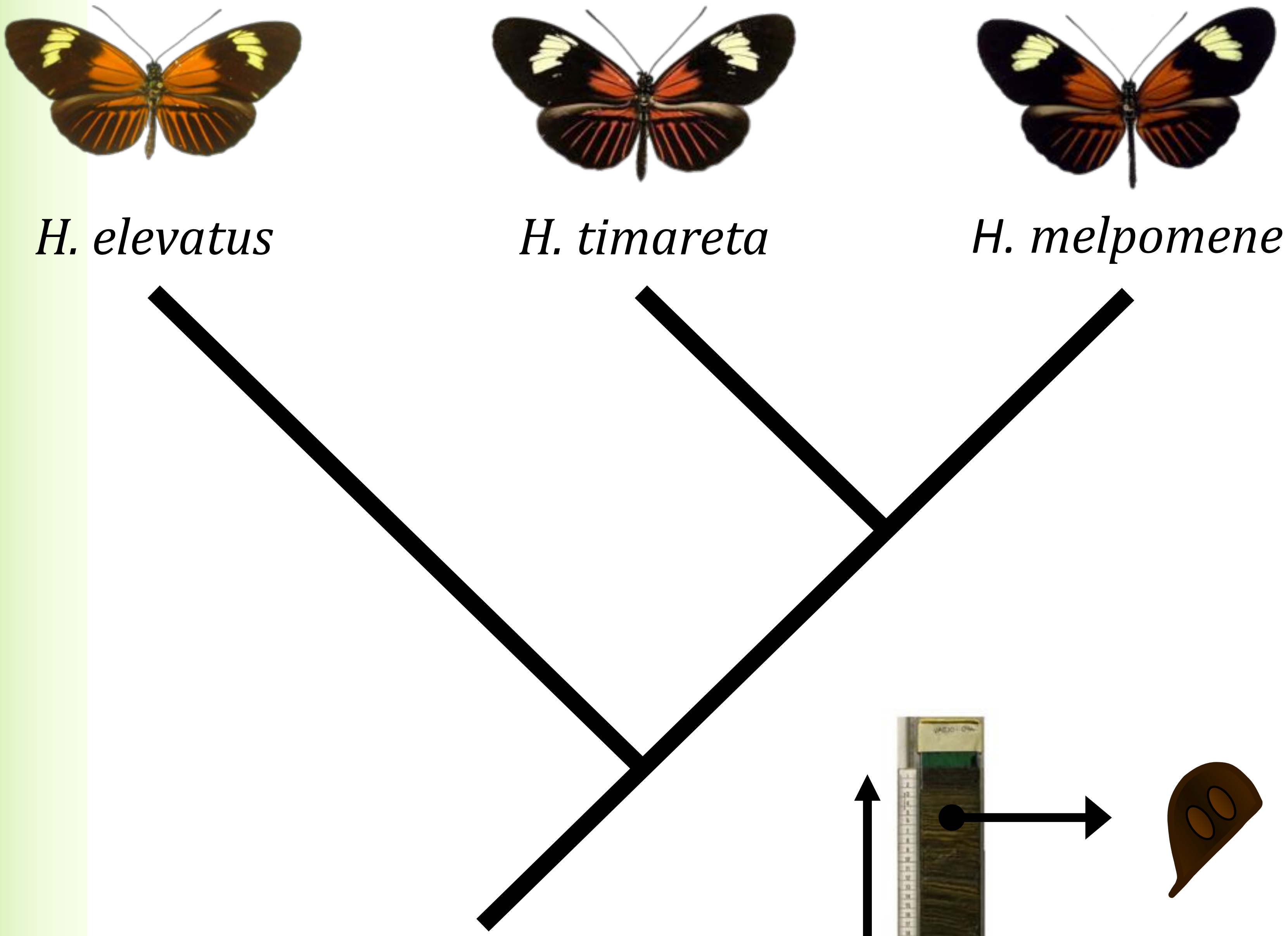
Ants of Fiji

- Archipelago 2-25 Ma.
- 43 genera; 187 species; 70% endemism
- Adaptive radiations
- Multiple speciation events
- Demographic histories
- Taxon cycle
- Ancient DNA (museum collections) - RADseq

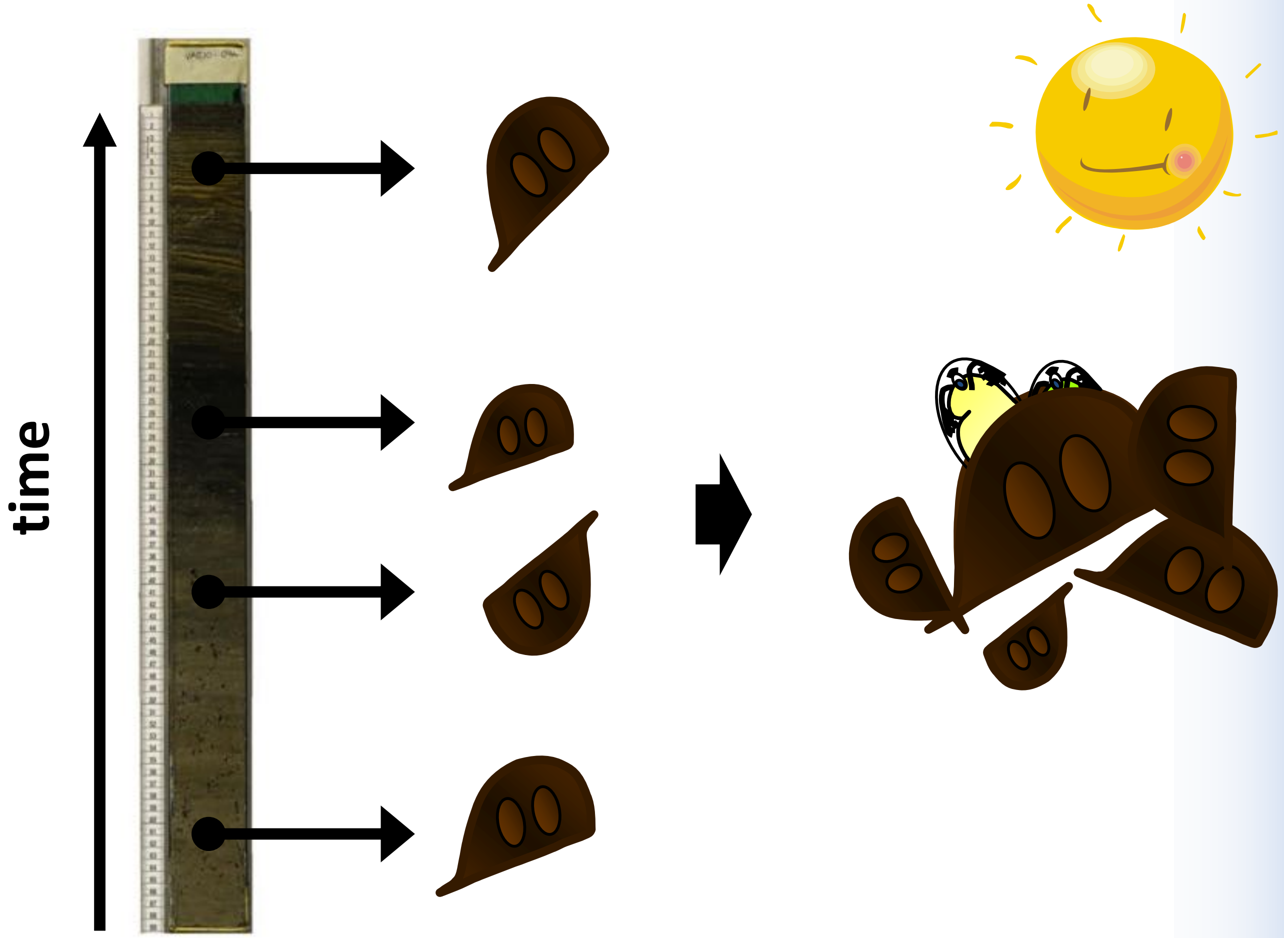




Clive T. Darwell, Economo Unit, Okinawa Institute of Science and Technology, Japan



MARKUS MÖST
FWF E. SCHRÖDINGER FELLOW
DEPT. OF ZOOLOGY
UNIVERSITY OF CAMBRIDGE
mm2083@cam.ac.uk

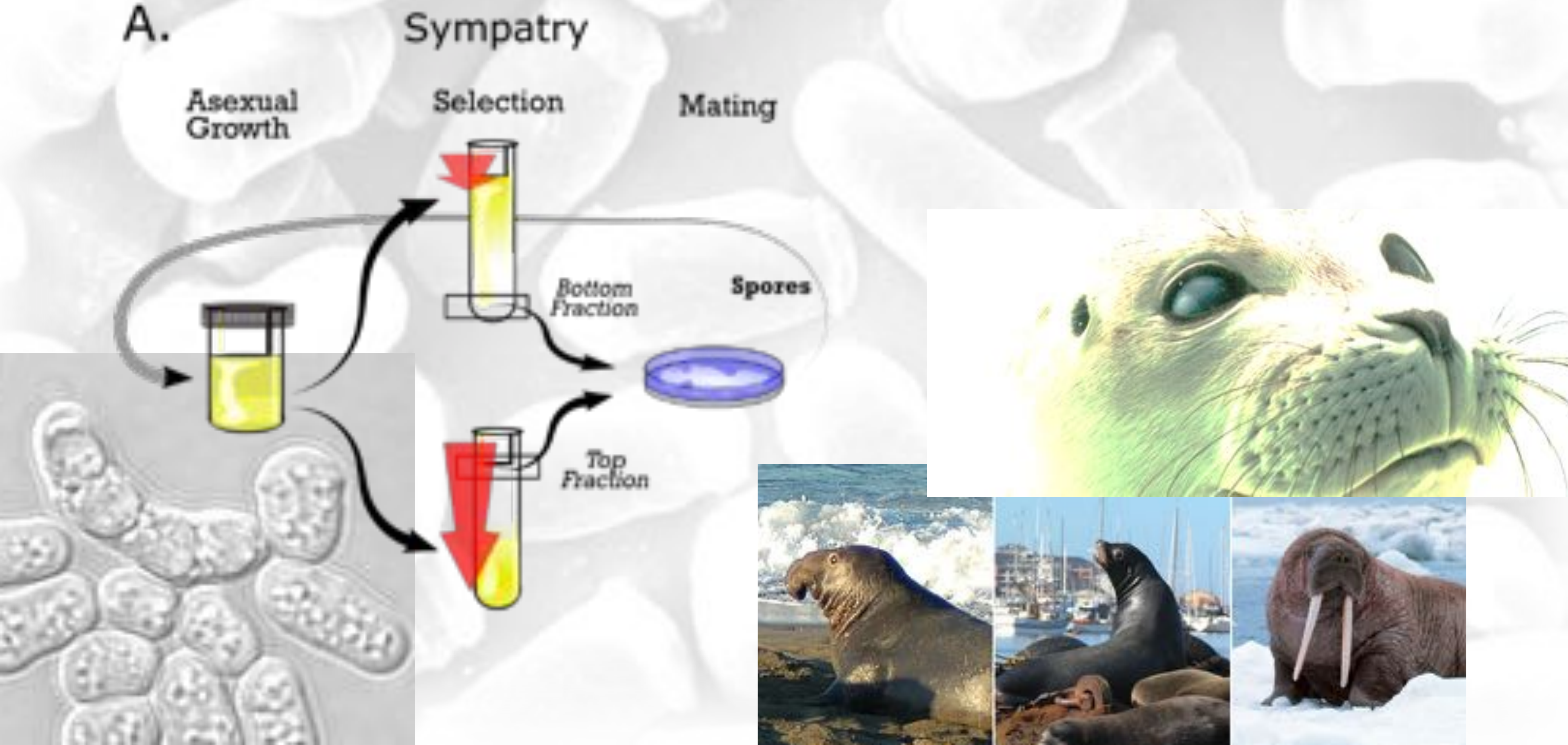


Sergio Tusso

PhD student

Speciation Genomics

UPPSALA UNIVERSITET



Origin and genomic history of the Greenlandic sledge dogs and wolves

Mikkel Sinding

UNIVERSITAS OSLOENSIS

NCB
NATIONAL CENTRE FOR BIOSYSTEMATICS NORWAY

SIGILLVM UNIVERSITATIS HAFNIENSIS

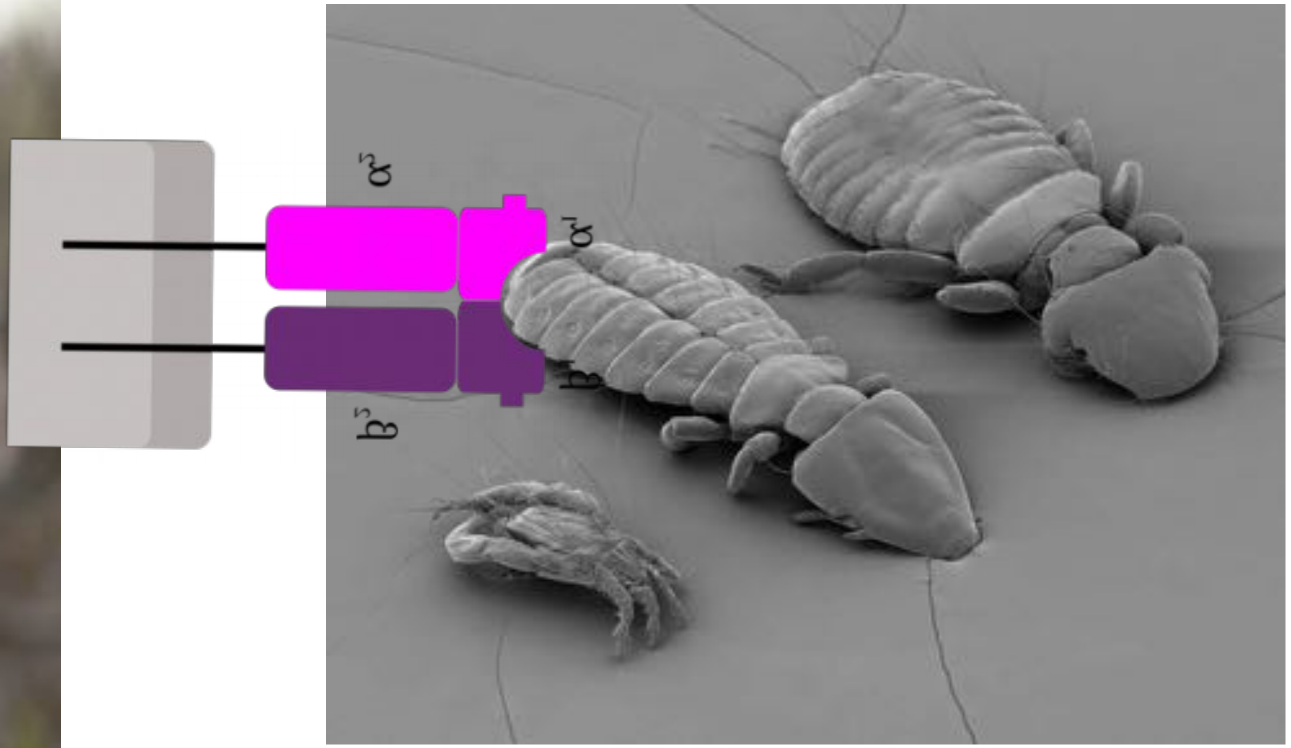
Centre for GeoGenetics

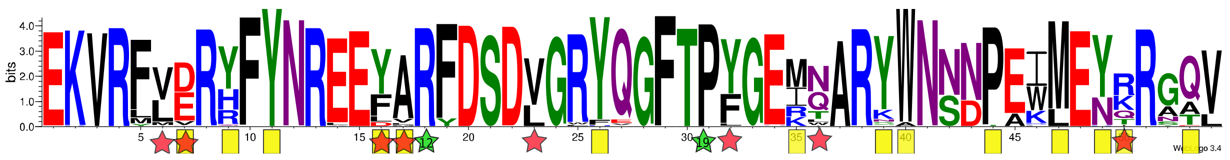
Jakub Vlček

Přírodovědecká
fakulta
Faculty
of Science

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

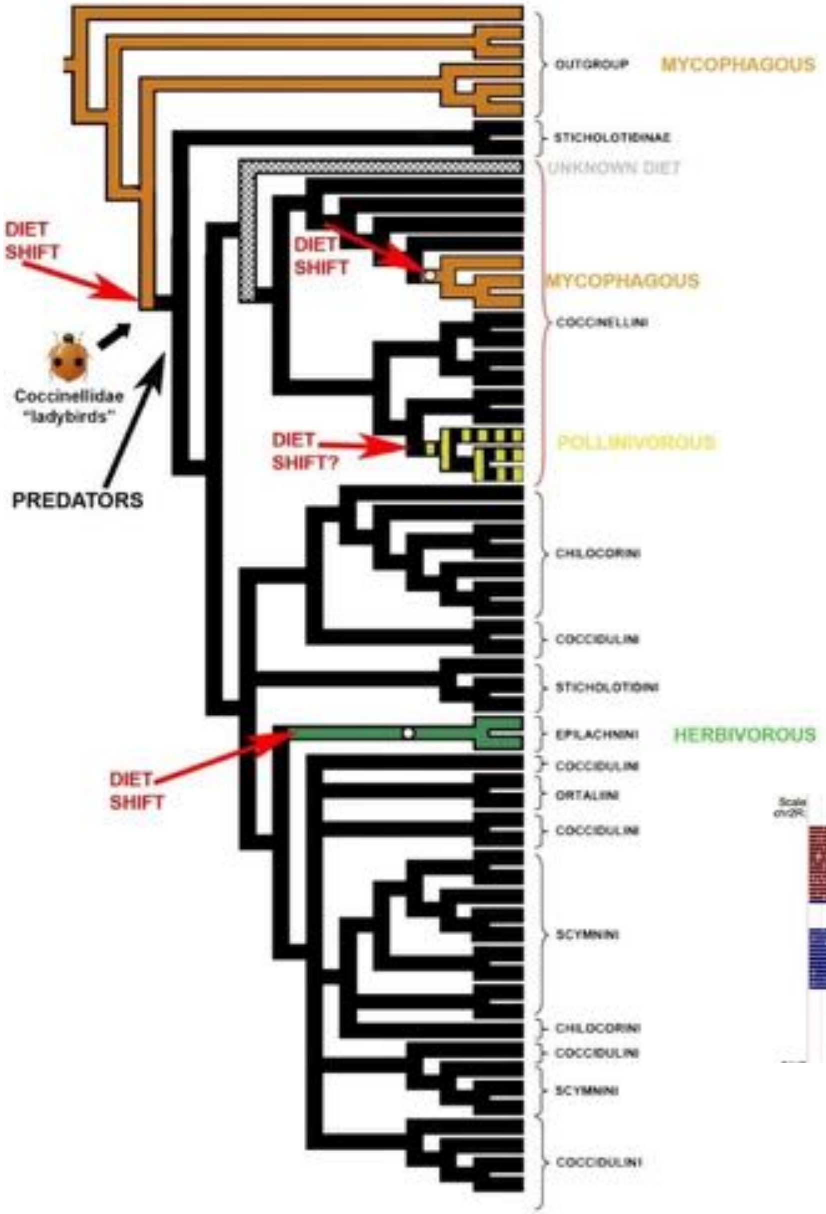
- Wildlife immunogenetics
- Major Histocomp. Complex
- Toll-like receptors





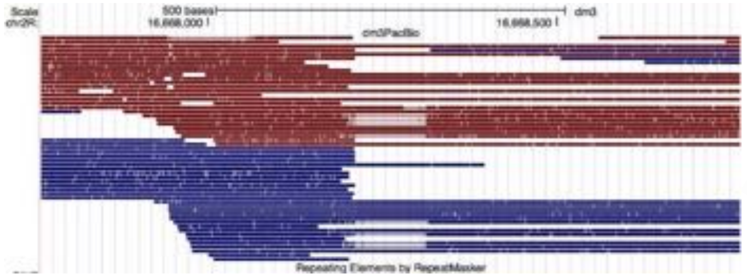
DIETARY SHIFTS IN LADYBIRDS BEETLES

Oliver Niehuis & Ralph Peters



Cynegetis impuctata (Linnaeus, 1767)

Hypothesis:
Genetic markers of dietary shift phenotypes will be present within the transcriptomes of the insect's mid-gut, where food digestion occurs



Hermes E. Escalona

AvH Postdoctoral Fellow

Museum A. Koenig, ZFMK

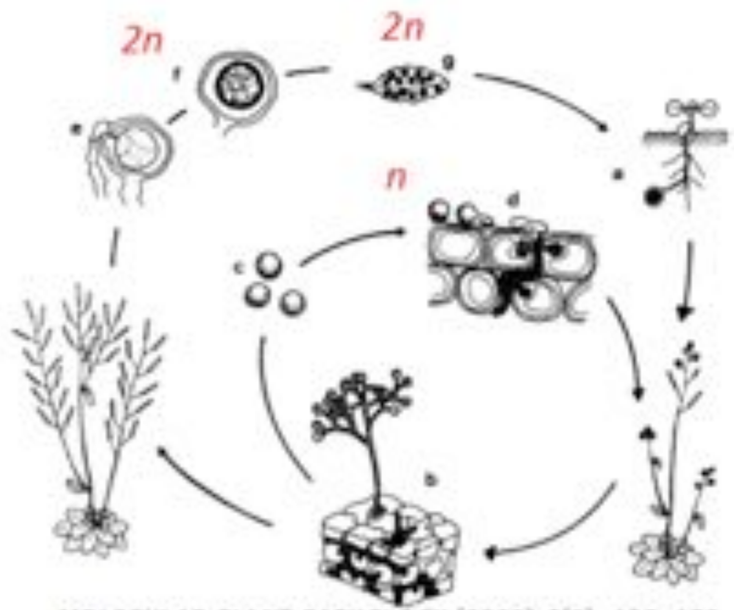
Supervisors

-Oliver Niehuis

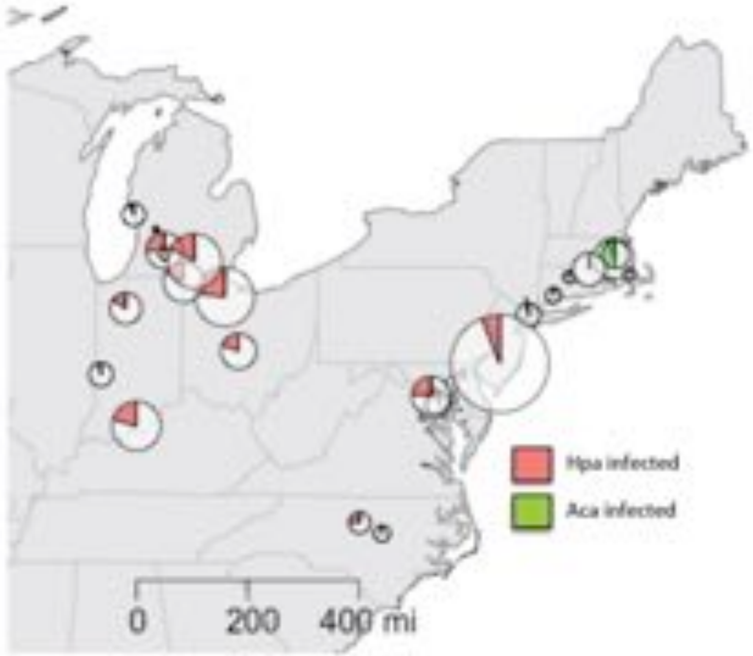
-Bernhard Misof

Australian Government
Endeavour Scholarships and Fellowships
Unterstützt von / Supported by
Alexander von Humboldt Stiftung/Foundation
CSIRO
Forschungsmuseum KOENIG

Co-evolutionary Tales: *A. thaliana* vs. *H.arabidopsidis*



MOLECULAR PLANT PATHOLOGY (2003) 4(3), 159–170



Research Questions

- How predominant ATH lineage sustains the pathogen pressure?
- Whether genetic structure and virulence spectra of HPA translates into local adaptation
- Are host-pathogen undergoing co-evolution?

Methods

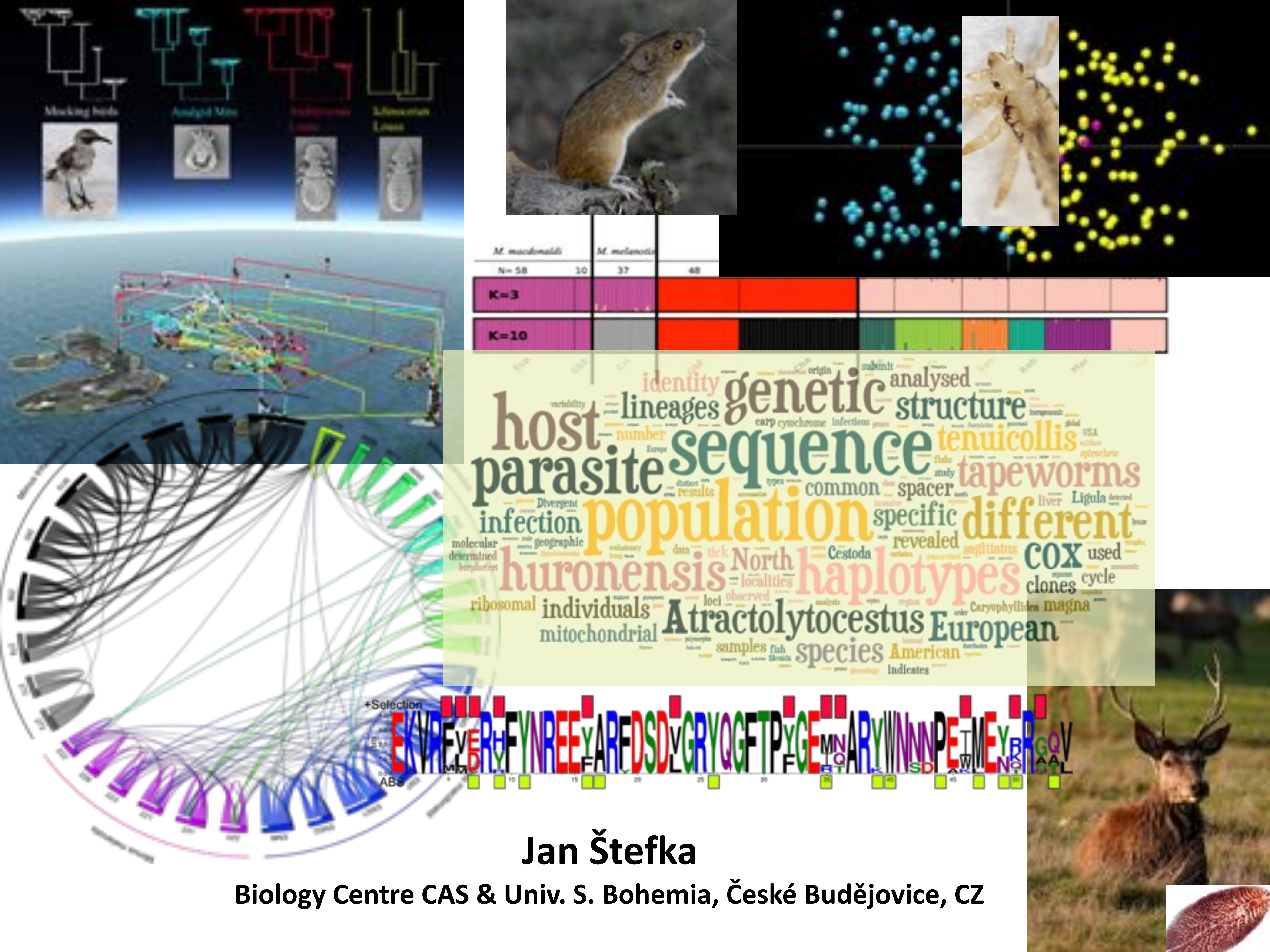
- Combination of RAD-Seq and whole-genome resequencing with both host accessions and pathogen strains
- Laboratory and field based disease and fitness phenotyping

Problem: How to deal with admixture?

Gautam Shirsekar gshirsekar@tuebingen.mpg.de @gaushi
www.weigelworld.org
Max Planck Institute for Developmental Biology, Tuebingen, Germany

Bastiaan Star
Centre for Ecological and Evolutionary Synthesis (CEES)
University of Oslo, Norway

25.01.2016



Jan Štefka

Biology Centre CAS & Univ. S. Bohemia, České Budějovice, CZ

Migration Patterns, Connectivity, and Population Sizes in Marine Keystone Organisms and their Implications in a Current Conservation Context

Katharina Fietz (PhD candidate)

** Centre for GeoGenetics, Natural History Museum of Denmark*
** Marine Evolution and Conservation Group, University of Groningen*

UPPSALA
UNIVERSITET

Presentation slide

Federico Sanchez Quinto, Ph.D.

Postdoc at the Jakobsson group

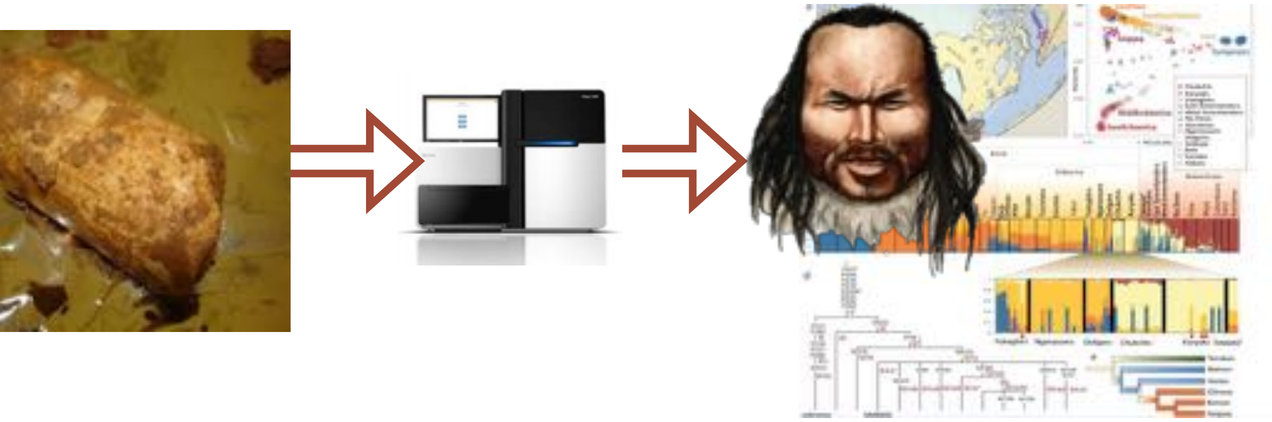
Evolutionsbiologiskt centrum (EBC)

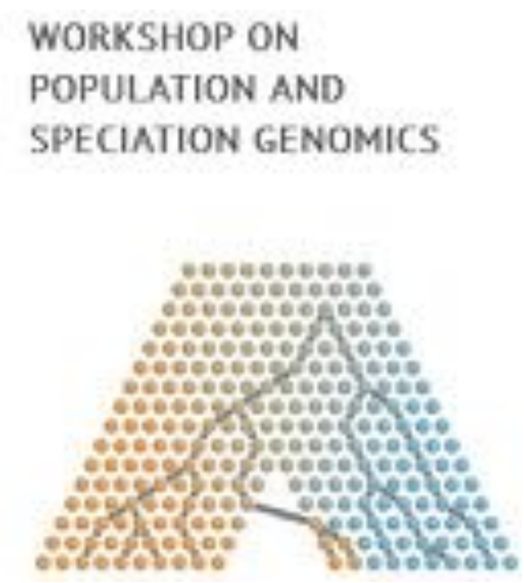
federico.sanchez@ebc.uu.se

EBC
EVOLUTIONS
BIOLOGISKT
CENTRUM

What I do

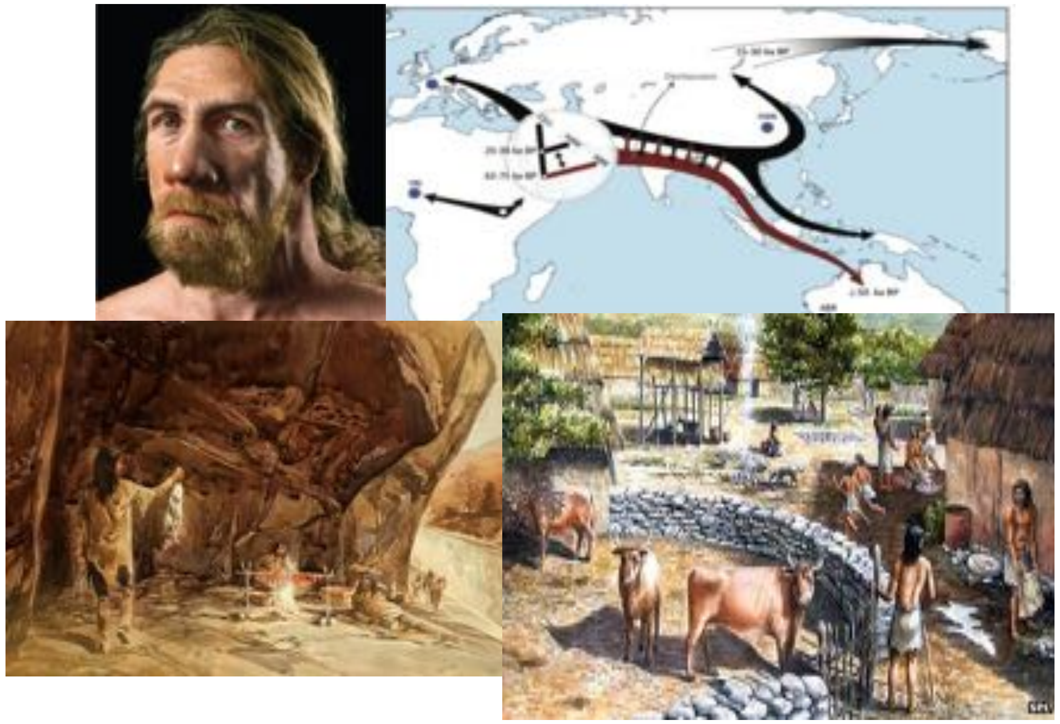
Paleogenomics





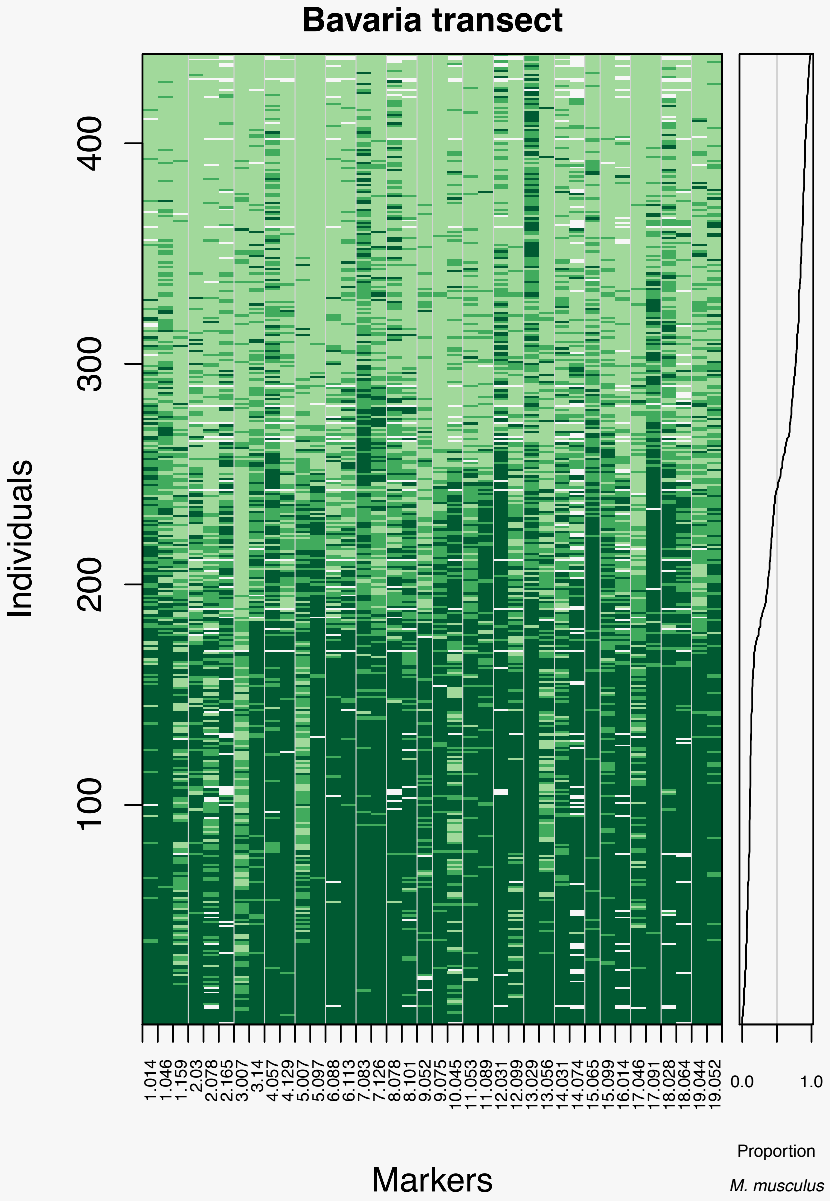
Research interests

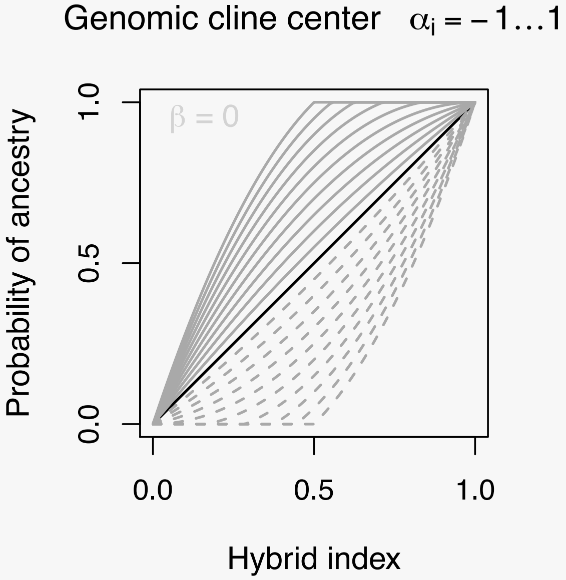
Human evolutionary biology

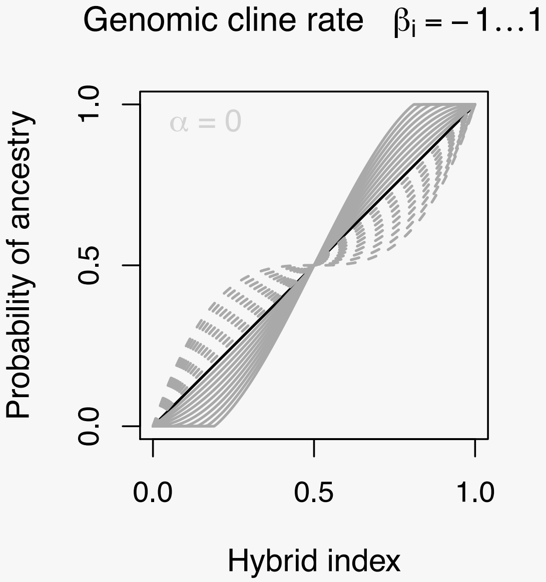


(Statistical) models for hybridization and speciation

Alex Buerkle – University of Wyoming, USA

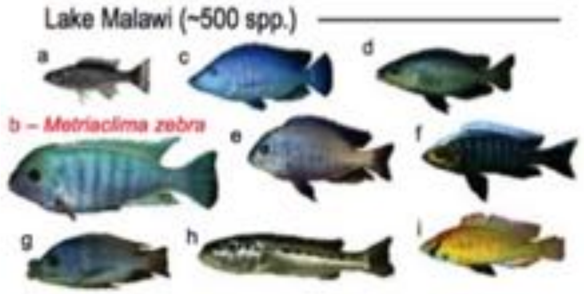


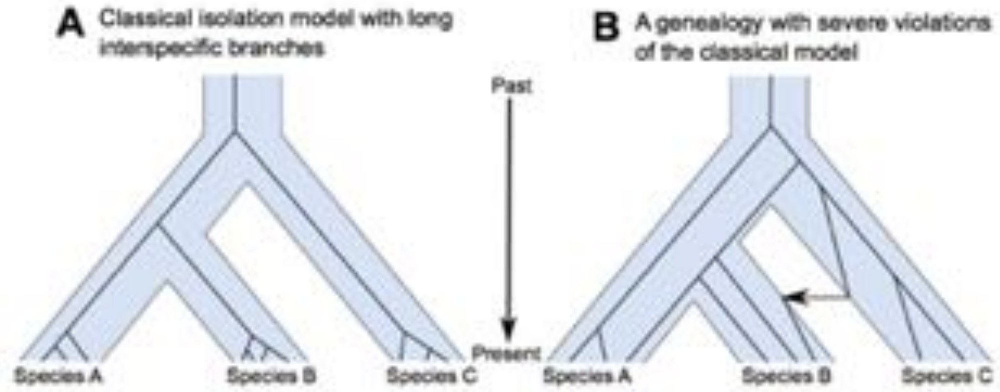


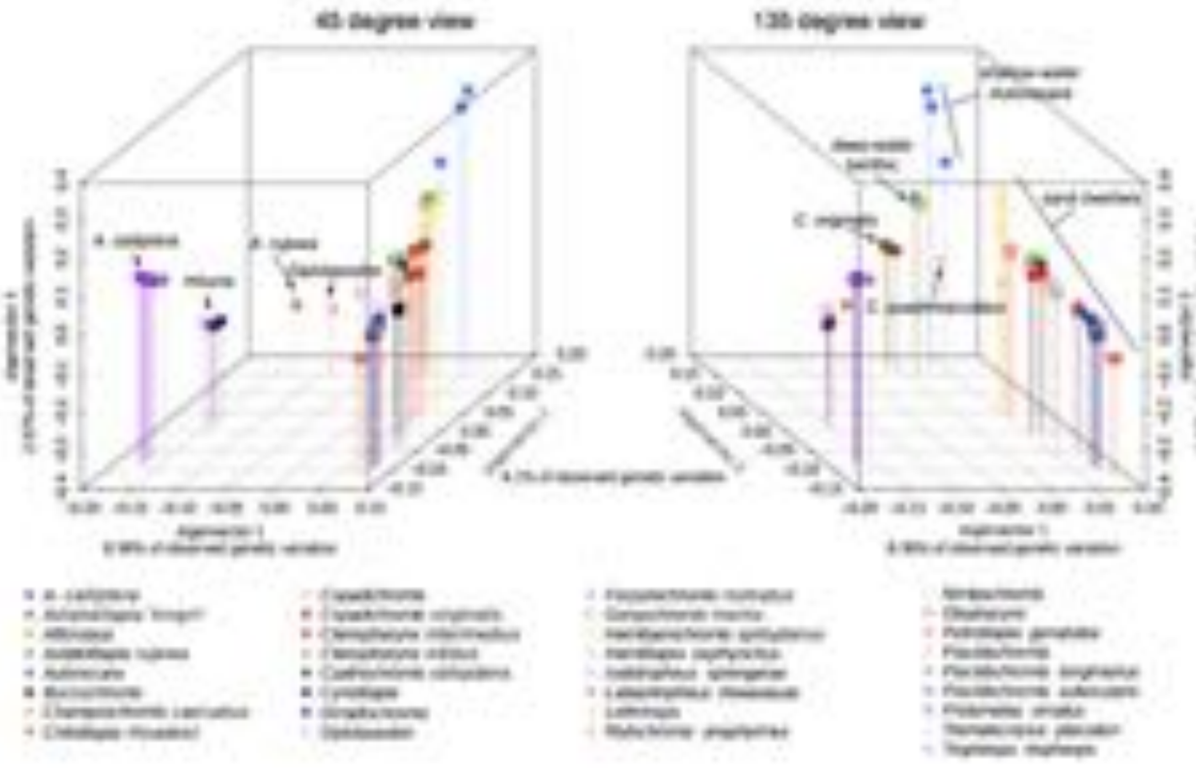


Milan Malinsky

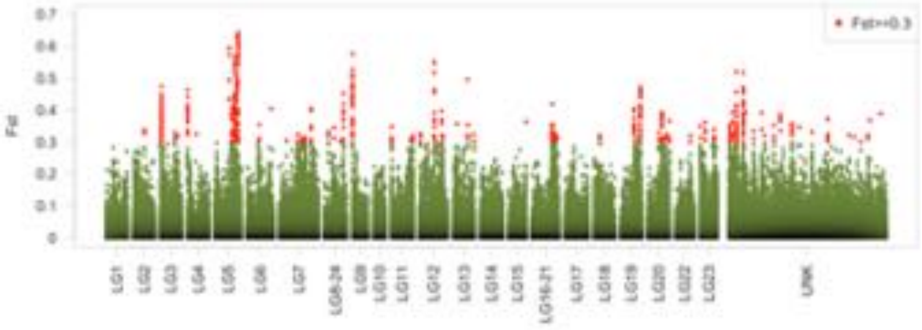
1. Genetic diversity in Lake Malawi cichlids



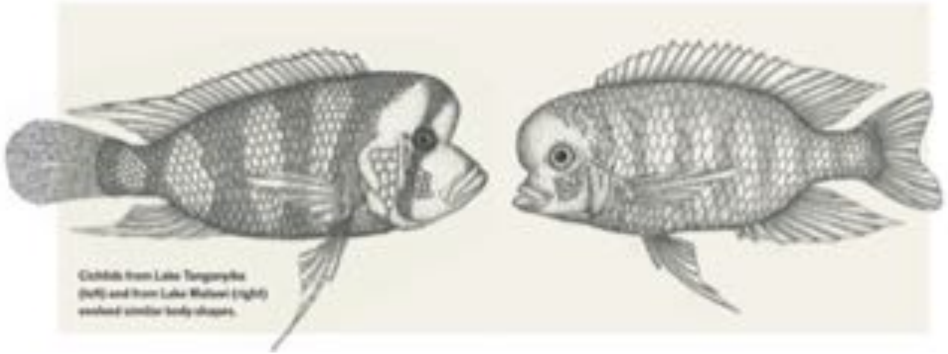




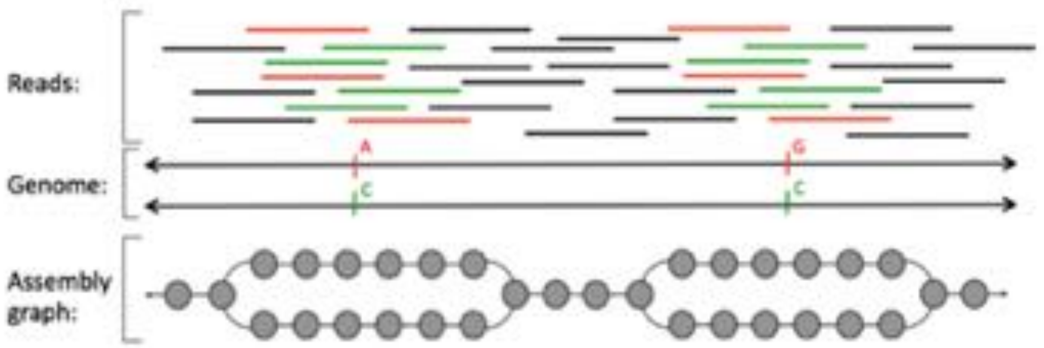
2. Genomics of speciation



3. Parallel/convergent evolution



4. *De novo* genome assembly



Y. Franchesco Molina-Henao

PhD Student
Bomblies and Hopkins Labs
Organismic and Evolutionary Biology
The Arnold Arboretum
Harvard University

molinahenao@fas.harvard.edu

Thermal Adaptation and Ecological Speciation

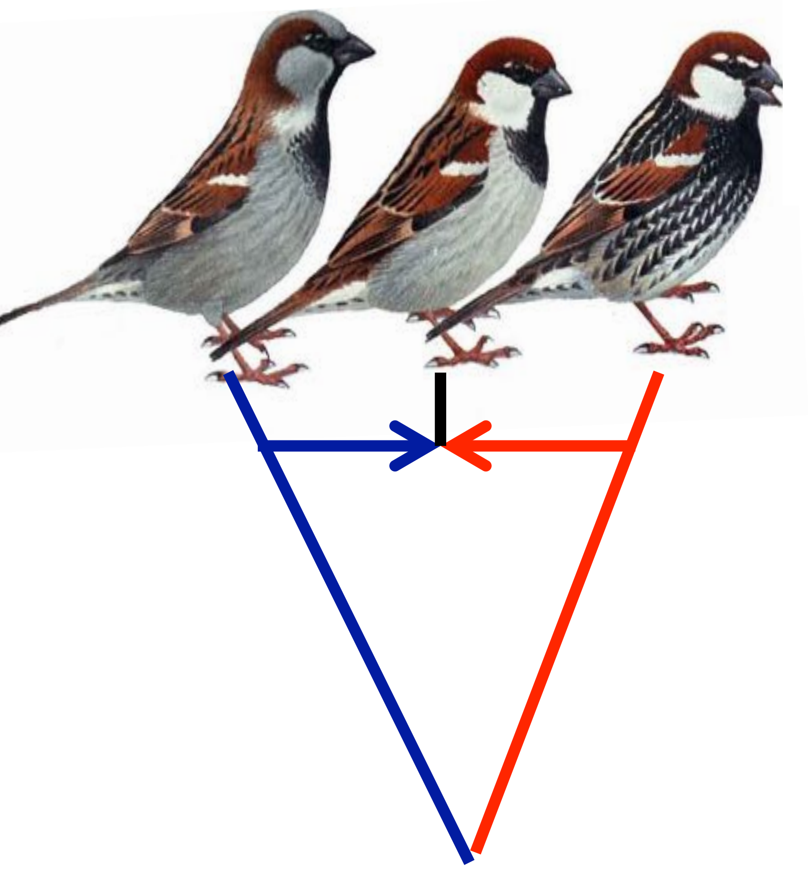
Evolutionary consequences of polyploidy

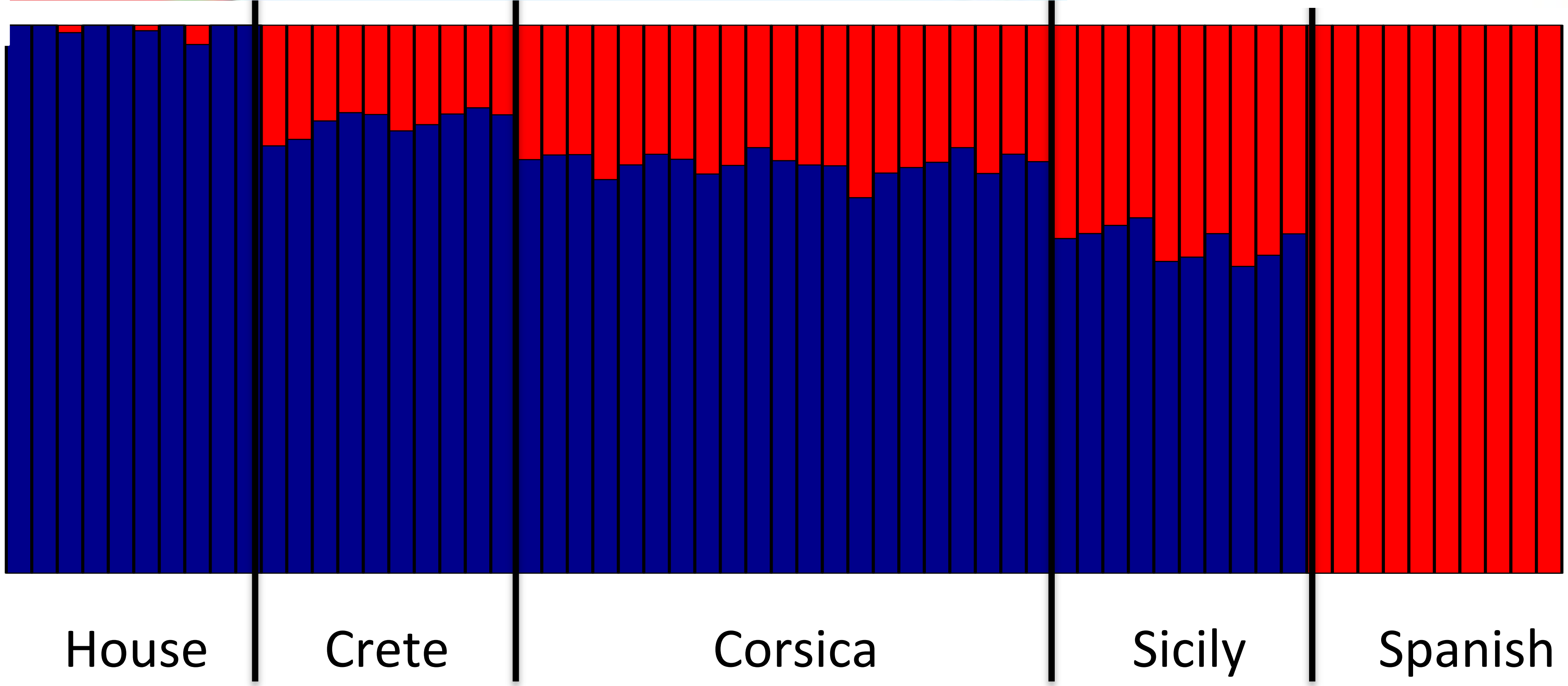
Adaptive evolution of meiosis

My main interest is to understand the processes of adaptation and speciation, from molecular mechanisms to ecological interactions. I use diverse tools from ecology, genetics, genomics, molecular, and cell biology to address fundamental questions in evolution.

The repeatability of genomic architecture in a homoploid hybrid species

Italian sparrows inherit different proportions of their genomes from the parent species on Crete, Sicily, Corsica and Malta

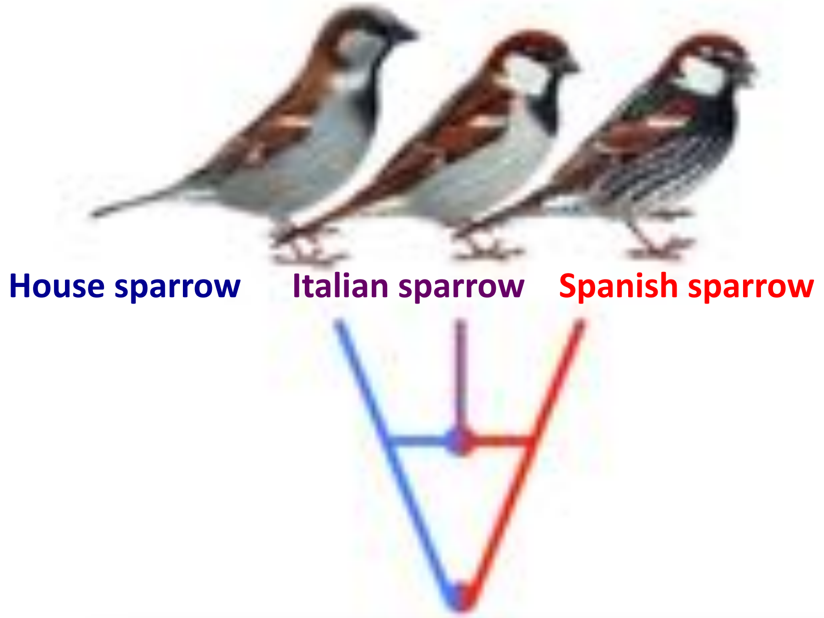




UiO : University of Oslo

Anna.Runemark@ibv.uio.no

Linkage, genomic conflict and TE-release in hybrid populations with different genomic architectures



1. **Patterns of linkage disequilibrium (LD) in different populations of a hybrid species**
2. **Genomic conflict resolution and genetic ancestry**
3. **The role of transposable elements (TEs) in molding a hybrid genome**

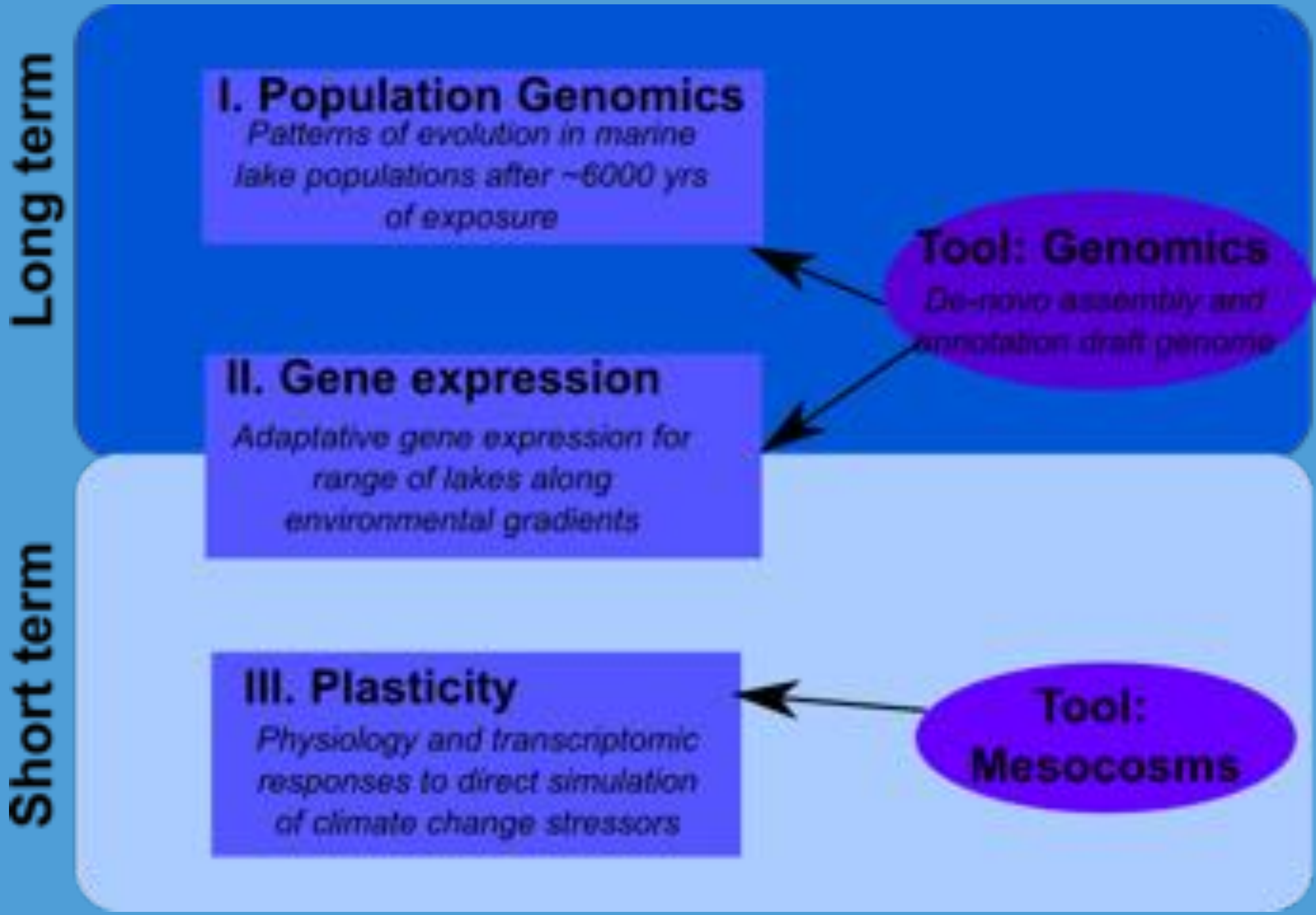
UiO : University of Oslo

Caroline Øien Guldvog

CEES
Centre for Ecological and Evolutionary Synthesis

Diede Maas, MSc

PhD: “Elucidating mechanisms of response to climate change scenarios in marine lake populations”



Long term

Short term

I. Population Genomics

Patterns of evolution in marine lake populations after ~6000 yrs of exposure

II. Gene expression

Adaptative gene expression for range of lakes along environmental gradients

III. Plasticity

Physiology and transcriptomic responses to direct simulation of climate change stressors

Tool: Genomics

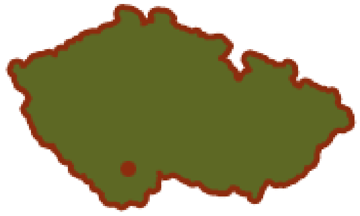
De-novo assembly and annotation draft genome

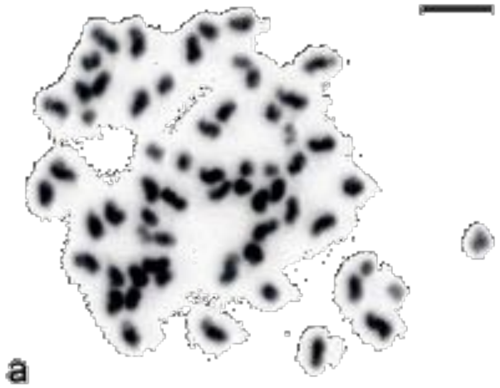
Tool: Mesocosms

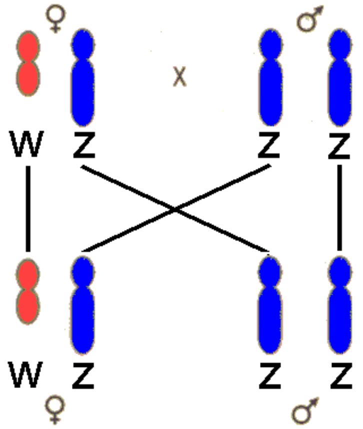
WAGENINGEN UR
For quality of life

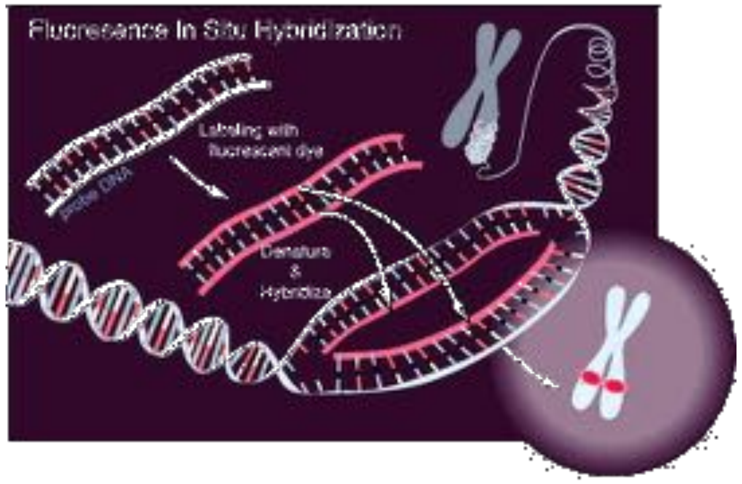
Petr Nguyen

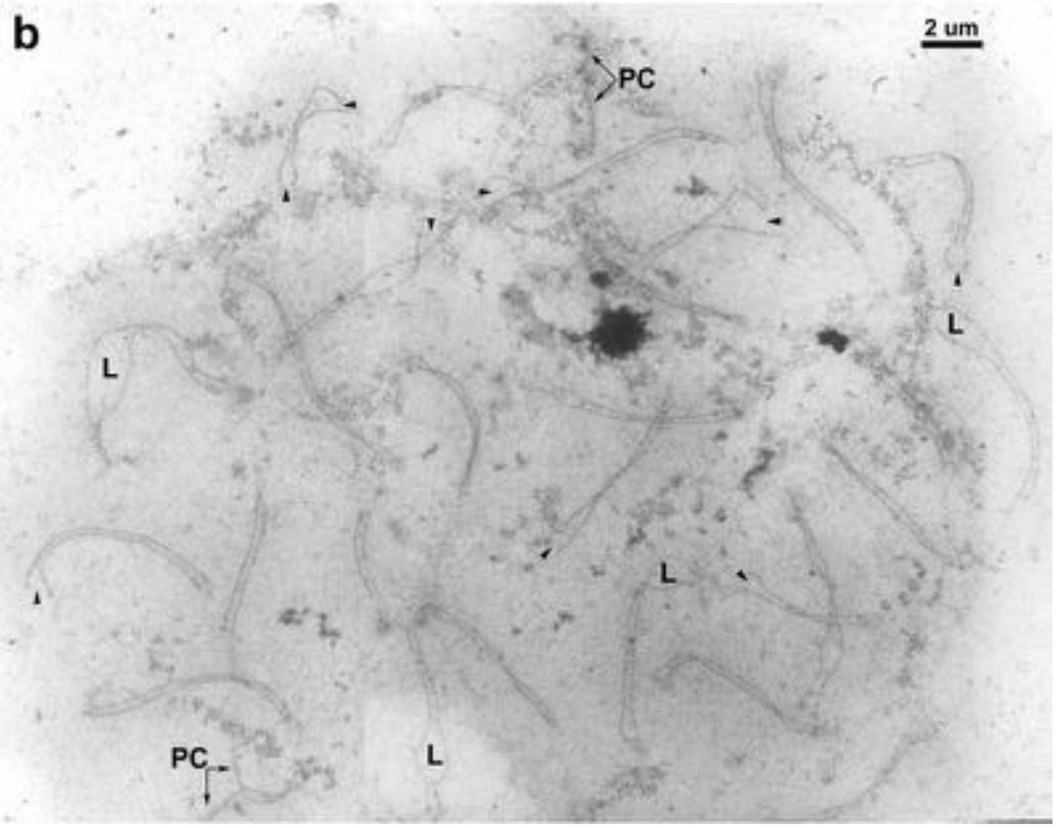
BIOLOGY CENTRE ASCR
Institute of Entomology

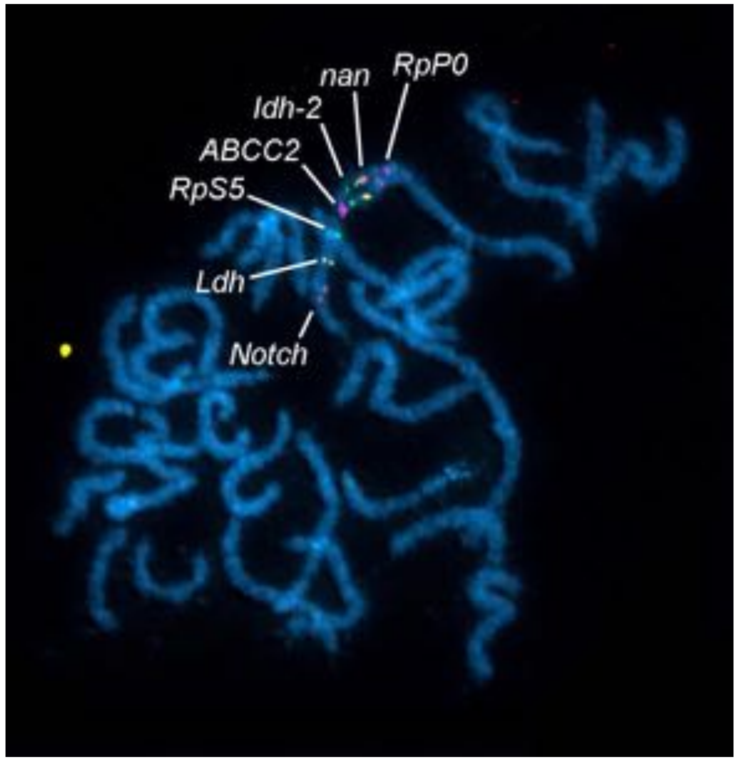


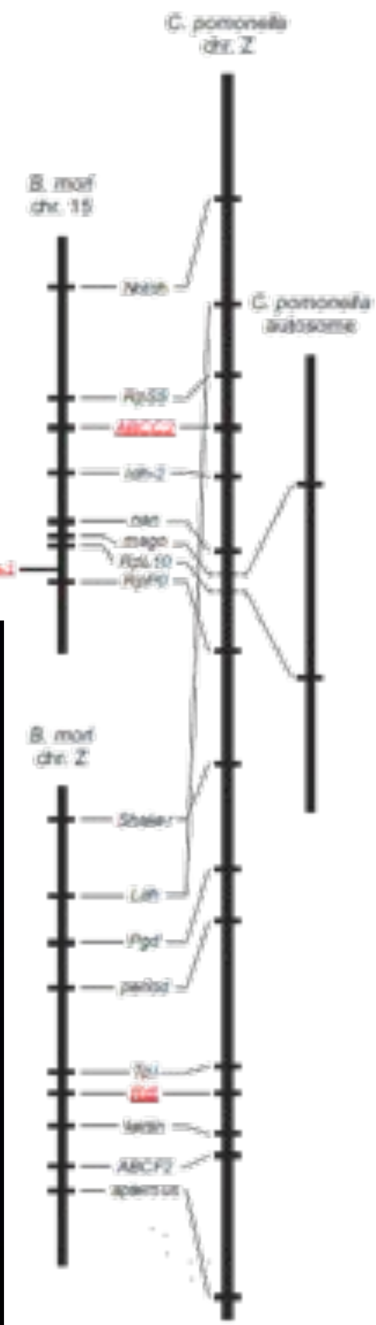


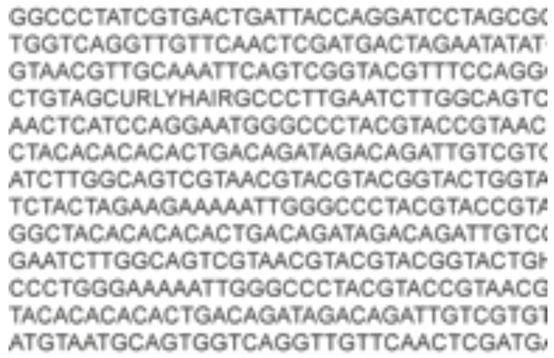












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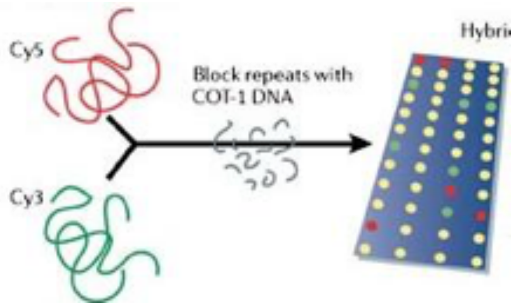
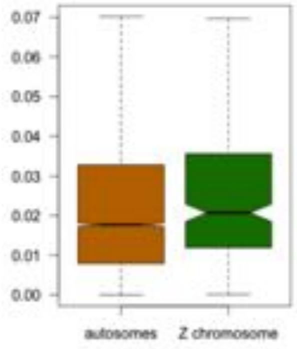
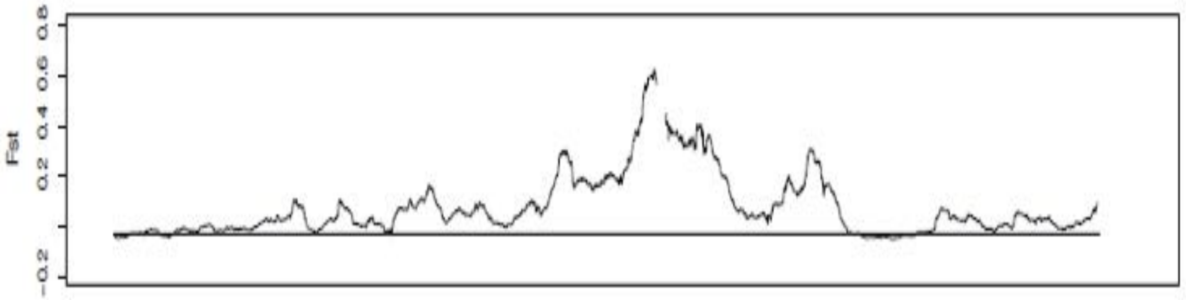




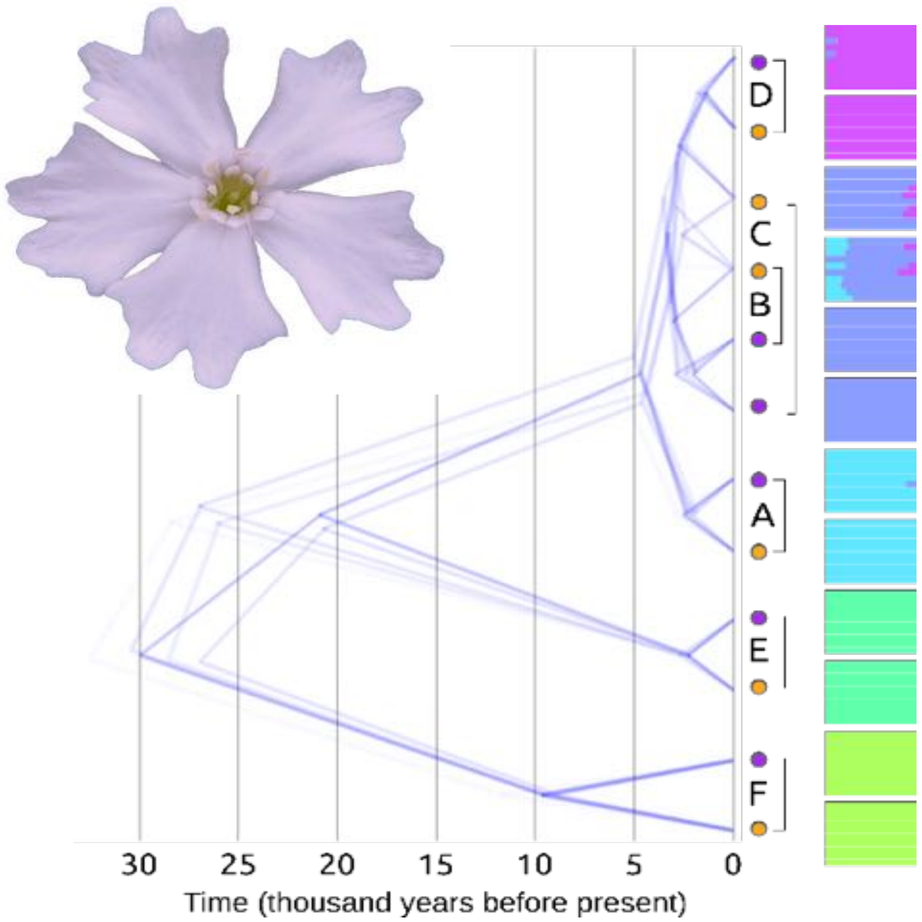


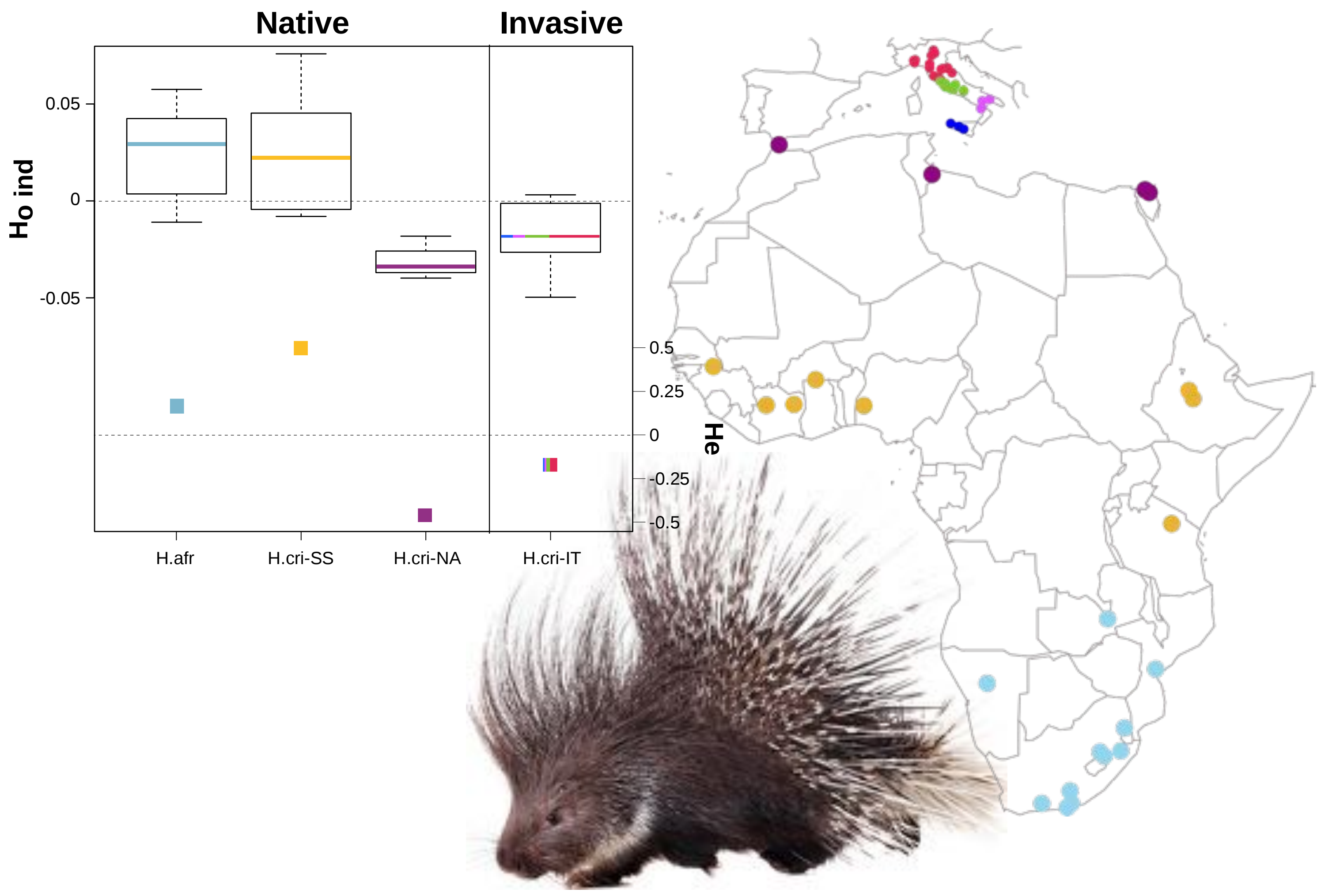
UiO Universitetet i Oslo
CEES
Centre for Ecological and Evolutionary Synthesis

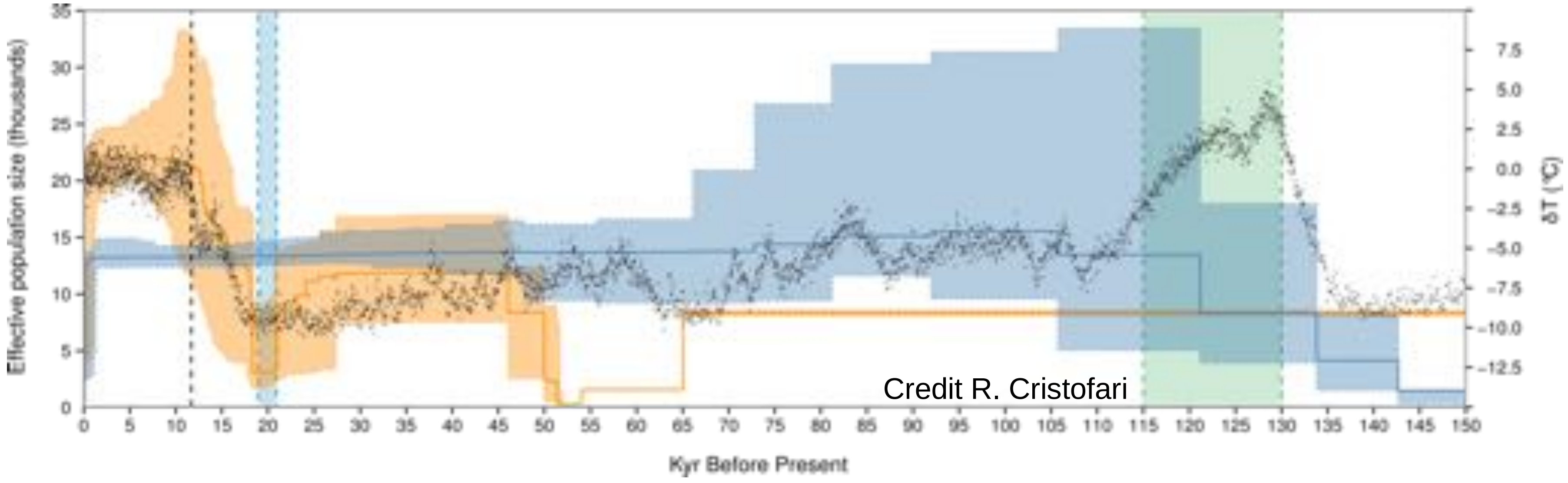
Emiliano Trucchi

www.emilianotrucchi.it

universität
wien





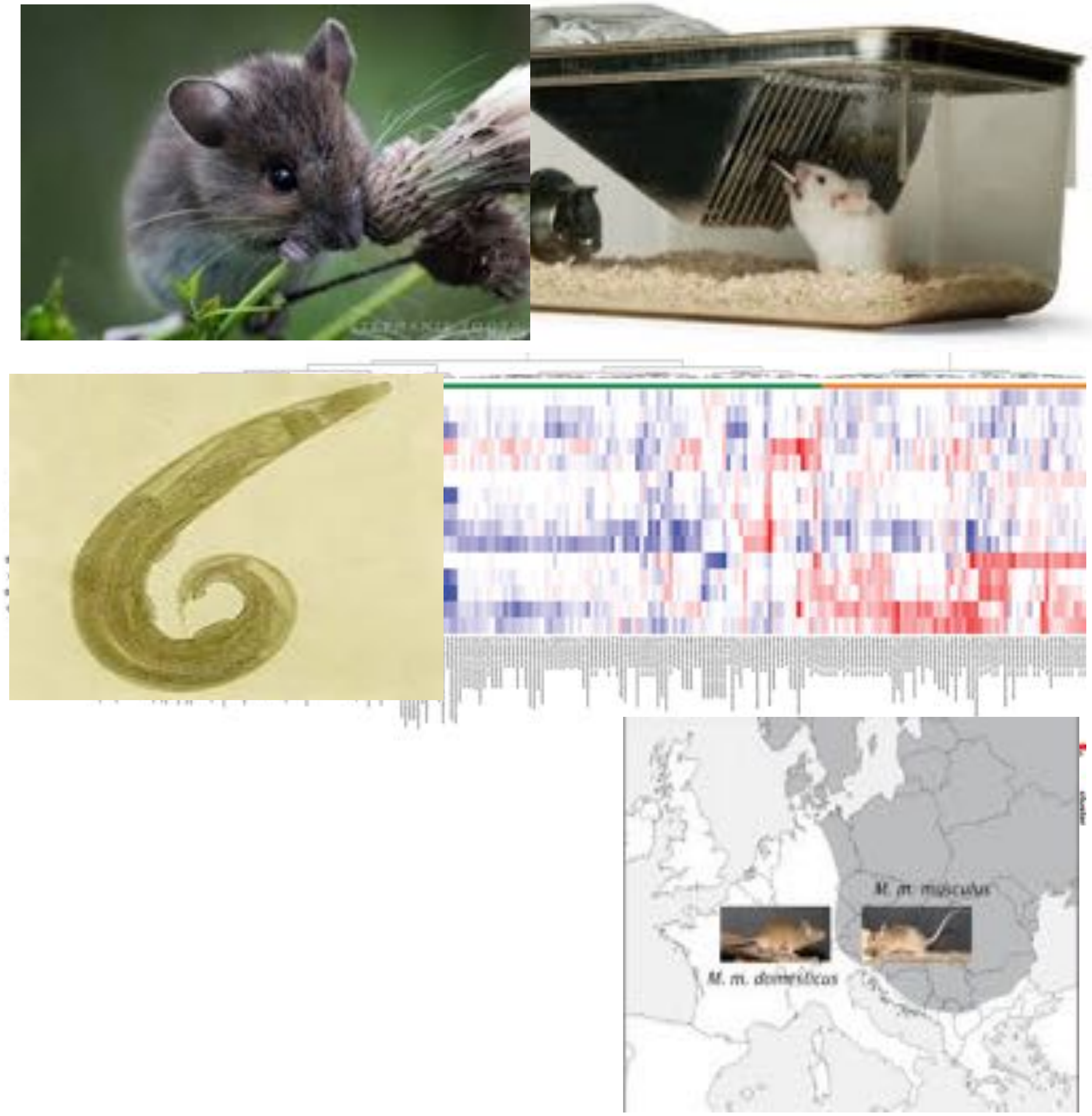


Credit R. Cristofari

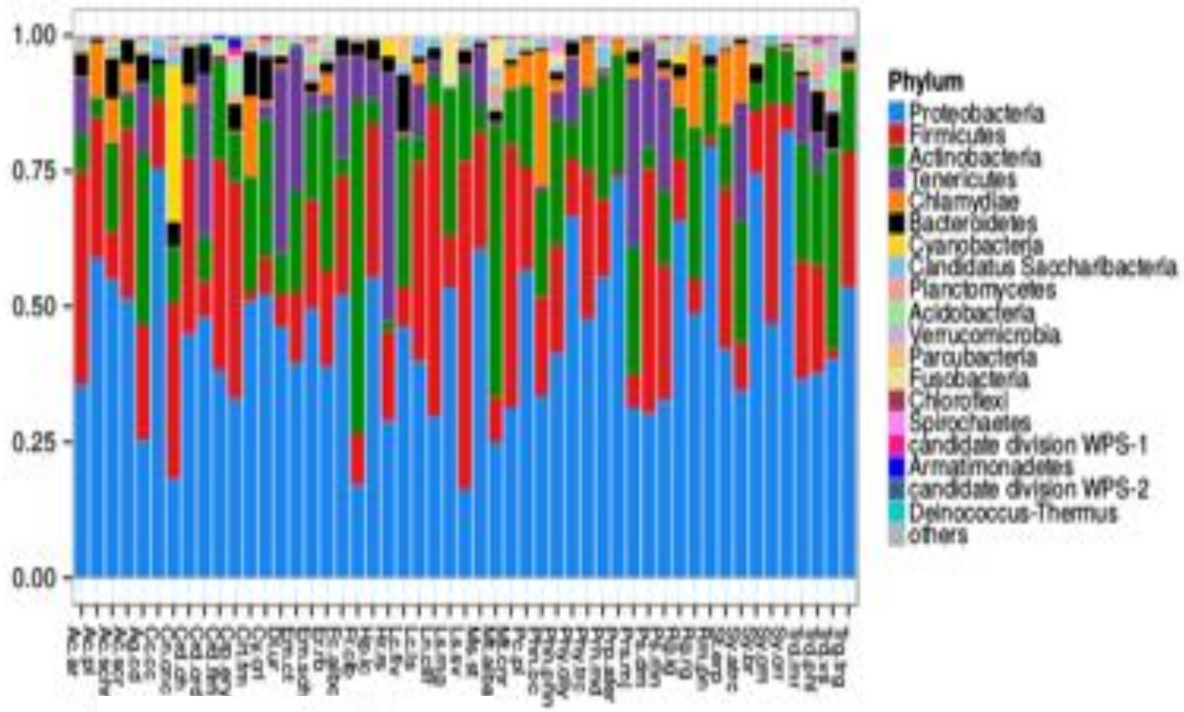
Jakub Kreisinger

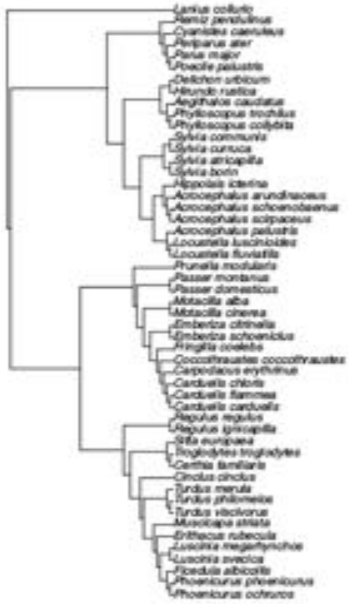
Dept. of Zoology, Charles Univ. in Prague
Inst. of Vertebrate Biol., Czech Academy of Science

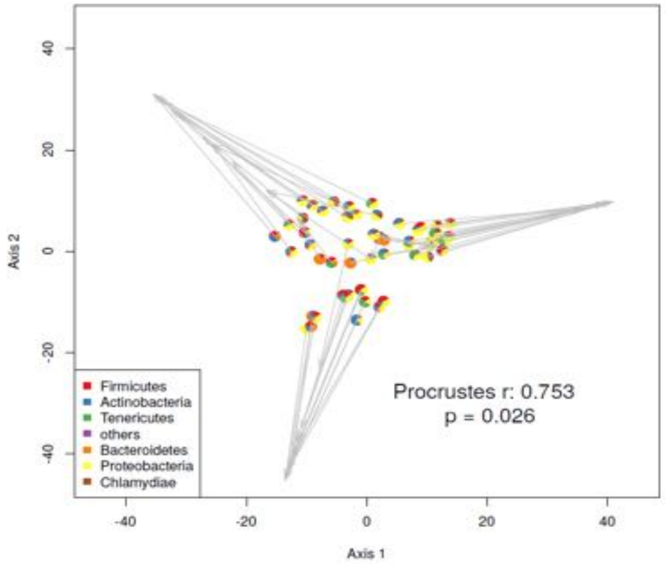
Gut microbiota of wild rodents



Gut microbiota of birds







Genetic diversity in Grauer’s gorillas

Tom van der Valk

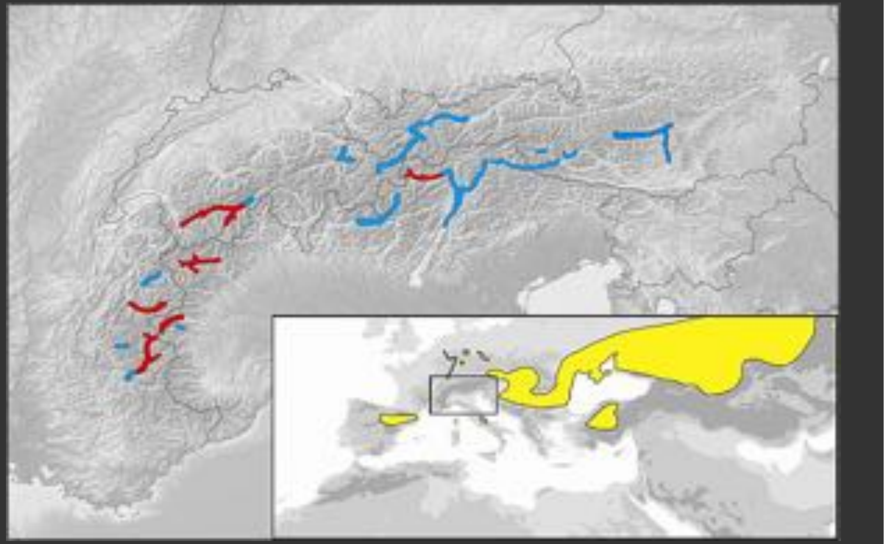
UPPSALA
UNIVERSITET

Philipp Kirschner

PhD-Student at the University of Innsbruck (Austria), Institute of Ecology

Research

- Origin of xerophilic European steppe biota
- Postglacial recolonisation of Alpine dry habitats
- Connectivity among xerothermic habitats in Europe



Studied organisms

- Two grasshoppers
  Omocestus petraeus
  Stenobothrus nigromaculatus
- One ant
  Plagiolepis taurica

Omocestus petraeus

Stenobothrus nigromaculatus

Plagiolepis taurica

Interests

- Processing RAD data
- Admixture models
- Phylogeographic modelling

Institute of Ecology

universität innsbruck

Marie Krausová

Evolution and Phylogeny of Dicyemids (Mesozoa), parasites of cephalopods

Laboratory of molecular phylogeny and evolution of parasites
third year of PhD, supervisor Jan Štefka

marine biology

population structure

genomics

bioinformatics

transcriptomics

linux/bash scripting

phylogeny

University of South Bohemia Czech Republic

Genomic signature of sexually selected hybridization on common wall lizard

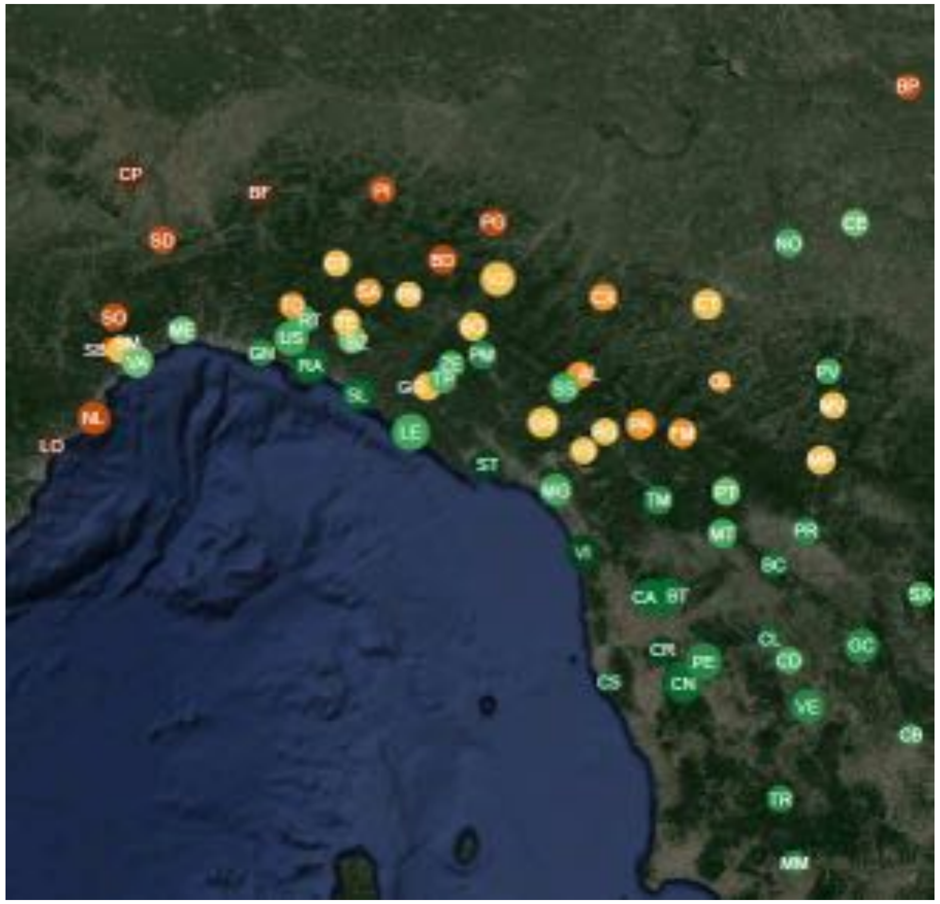
France, Female

France, Male

Tuscany, Male

Tuscany, Female

Female



Male

Weizhao Yang
Lund University
Sweden

Thierry B Hoareau
Dept Genetics, Univ. Pretoria, South Africa

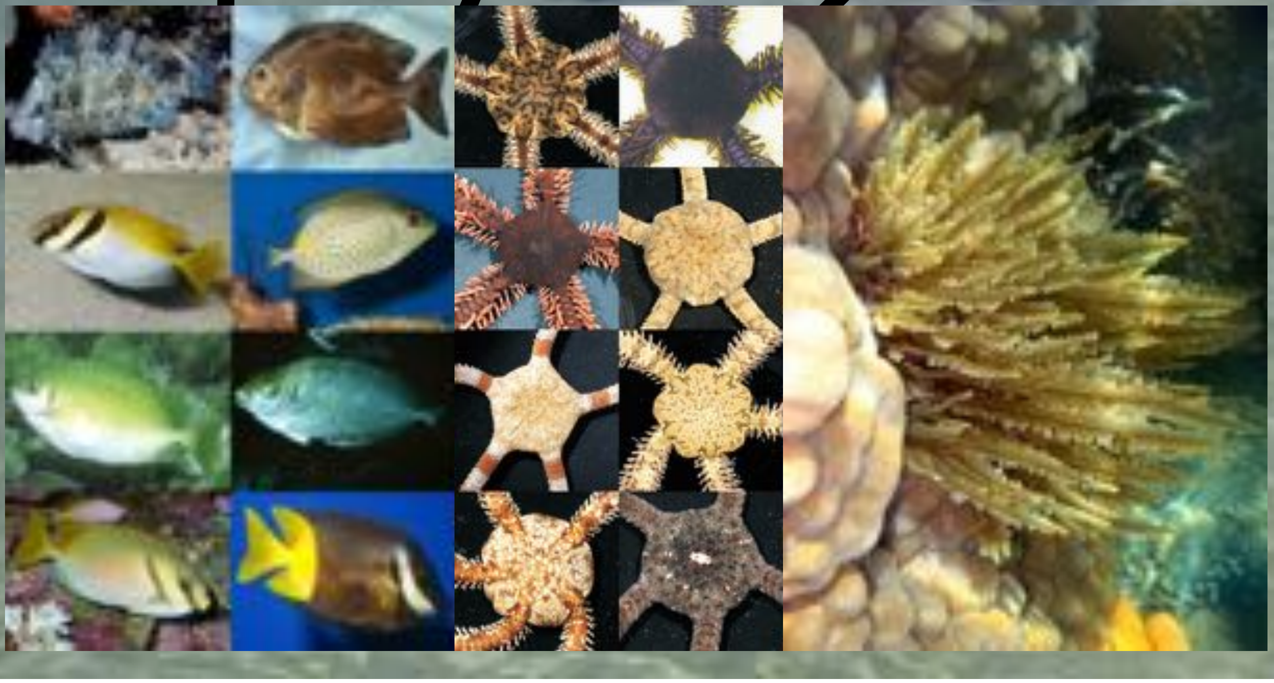
Evolution of marine organisms

Research questions:

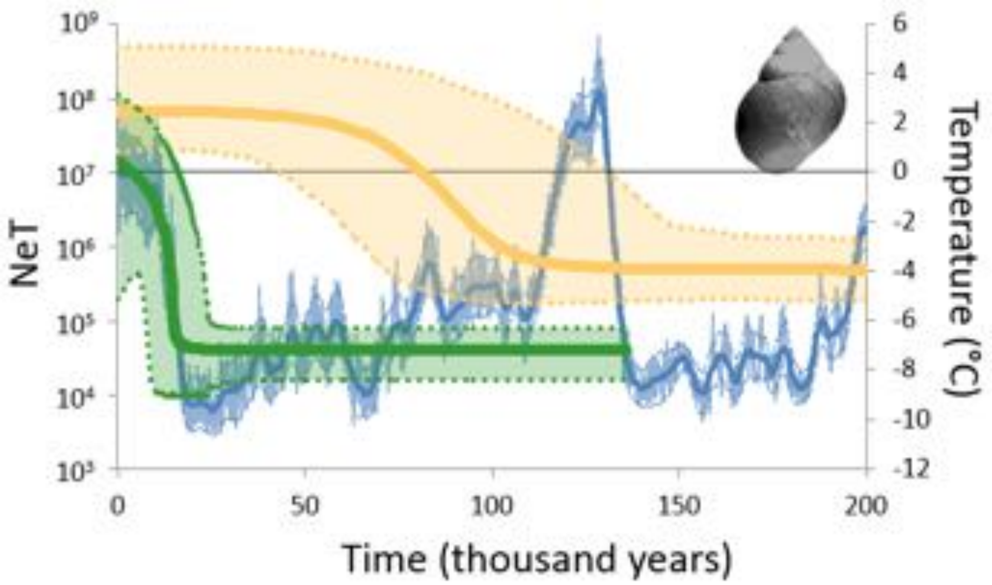
Environmental factors

Evolutionary processes

LHT



New method:

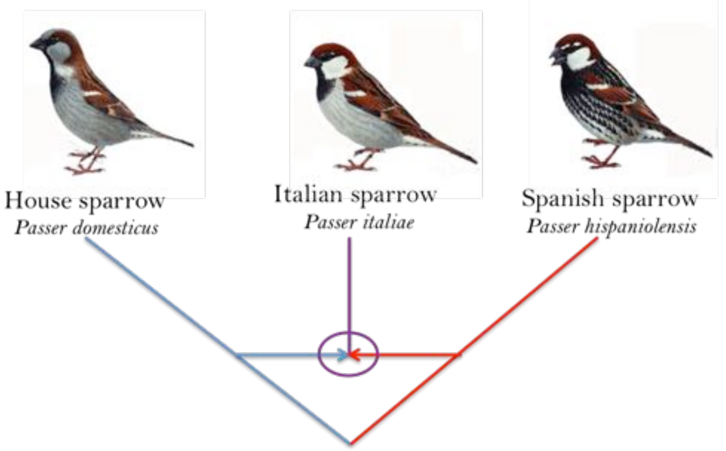


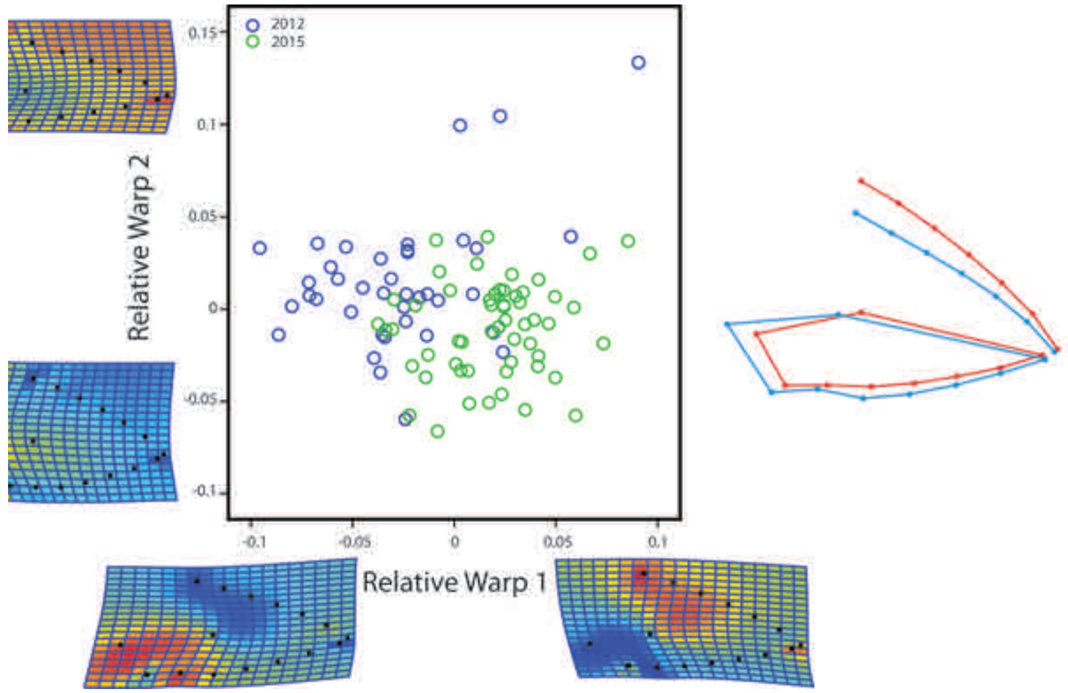
Calibration of Demographic Transition = GREEN
Fossil calibration = ORANGE

MORITZ MUSCHICK

Postdoc, EAWAG, Switzerland
Speciation and diversification in cichlid fishes and stick insects

The genomic architecture and evolutionary potential of a hybrid species



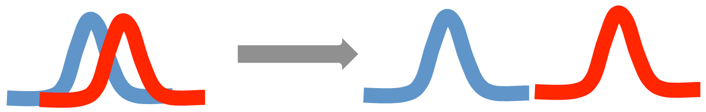


1. Interspecific variation in genomic regions linked to local adaptation
2. Mapping ecological traits to genomic regions

3. Population structure and isolation by adaptation.

4. Epistatic interactions and Pleitropy between loci may restrict purging of DMI reducing adaptive potential

5. Species interactions



Angélica Cuevas

PhD research fellow

UiO : Universitetet i Oslo

SCOTT A. HANDLEY

WASHINGTON UNIVERSITY SCHOOL OF MEDICINE
DEPARTMENT OF PATHOLOGY & IMMUNOLOGY

- **Metagenomics**
  - Identification of previously unrecognized pathogens or pathogenic microbiota associated with disease
- **AIDS**
  - Gastrointestinal virome and bacterial microbiome
    - Alterations during AIDS (HIV humans)
    - Alterations following vaccination (SIV macaques)
  - Other mucosal surfaces: mouth, lungs, genital tract
- **Inflammatory Bowel Disease**
  - Bacteriophage predation of bacteria instigating pathogenic dysbioitic flora
  - Identify candidate viral causes of IBD for vaccine target development

Who is there?

Are they normally there?

Why are they there?

Health / Disease

Health / Disease

Matthias Weissensteiner
PhD student
EBC Uppsala
@crow_speciation

UPPSALA UNIVERSITET

Structural Speciation Genomics

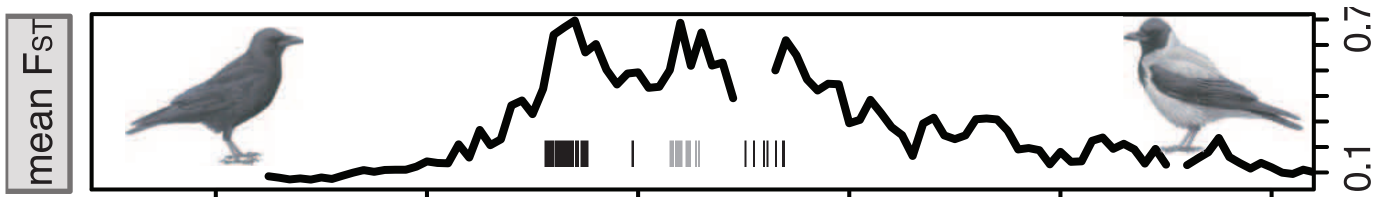
The role of structural variation in phenotype evolution

PACIFIC BIOSCIENCES

Long-read seq

BIONANO GENOMICS

Optical Mapping

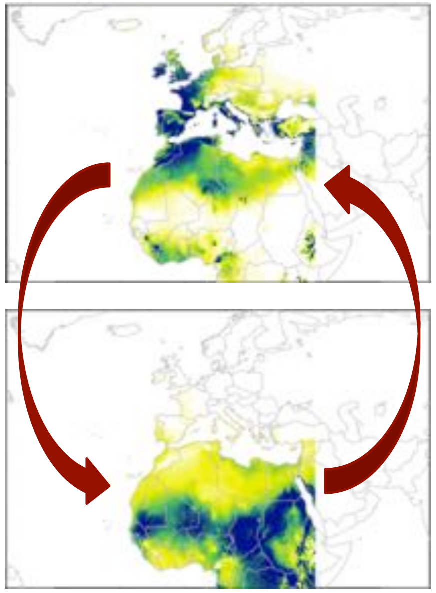


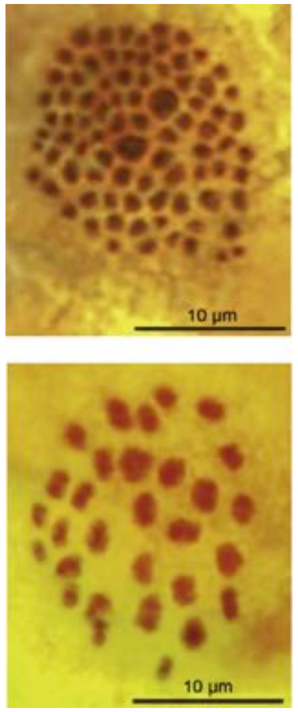
Keywords: *Evolution, phylogeography, speciation, genomics, migration, distributions, systematics, biogeography, ecology, insects, butterflies*

Population genomics of migration

Karyotype-driven **speciation**

Vanessa cardui





Lysandra coridon

Gerard Talavera
Postdoctoral Associate
Museum of Comparative Zoology
Harvard University

INSTITUT de BIOLOGIA EVOLUTIVA
CSIC UPF

PhD-project: Polyploid Evolution in *Dactylorhiza* (Orchidaceae)

Data

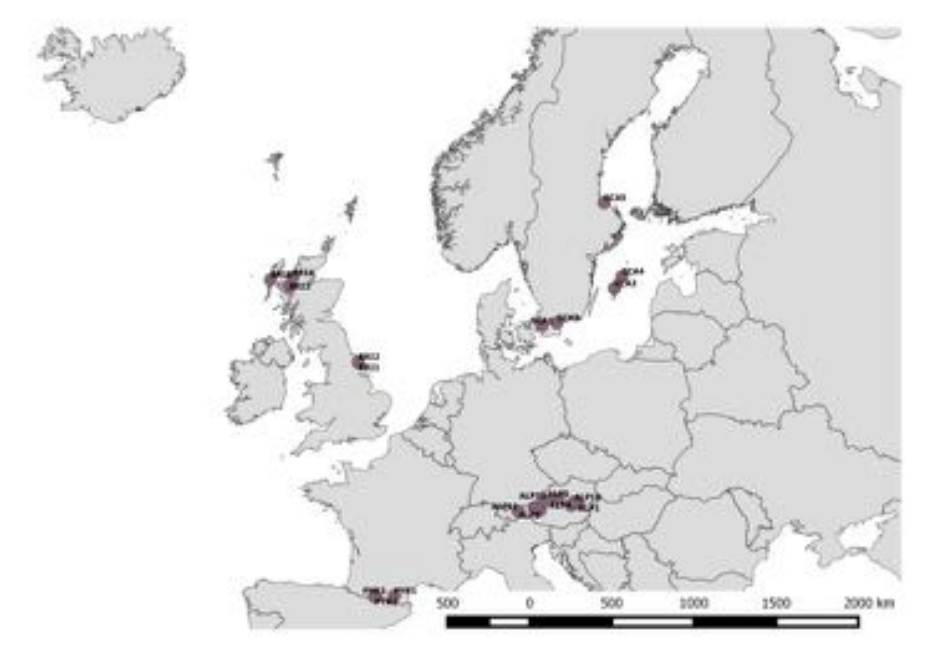
Two sibling allopolyploid species (+ parents)

- *D. traunsteineri (2n=80)*
- *D. majalis (2n=80)*
- *(+D. purpurella)*

Objective

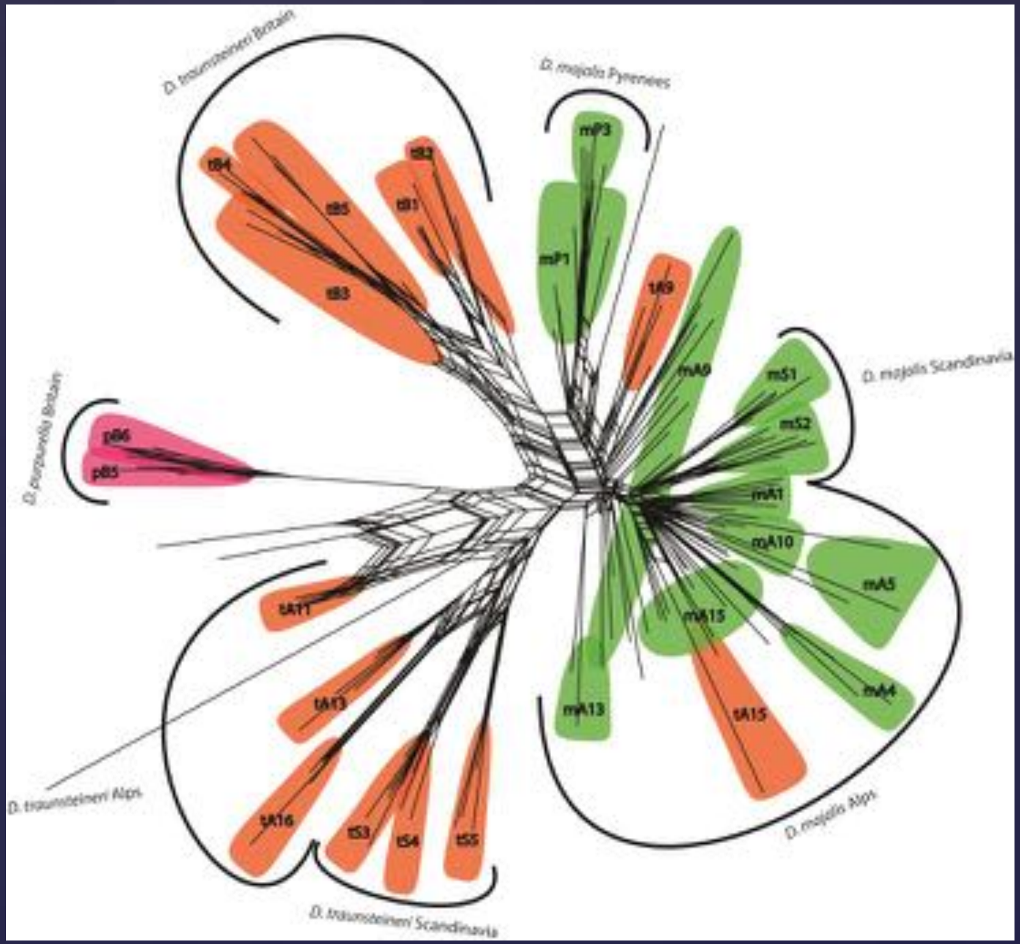
Investigating genetic structure and polyploid origin

With RAD-seq data (5000+ loci)



Results

- 5 groups
- Suggest two independent origins of *D. traunsteineri*



Marie Kristine Brandrud

marie.kristine.brandrud@univie.ac.at

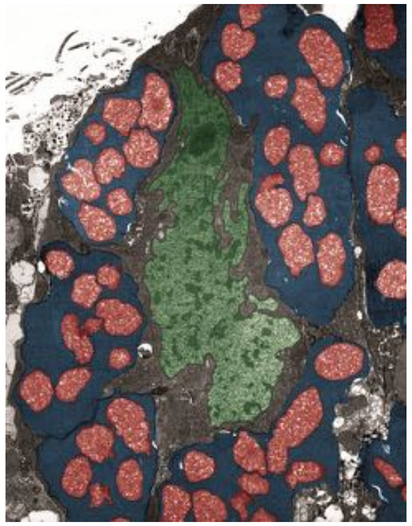
Supervisor:
Ovidiu Paun,
Universität Wien

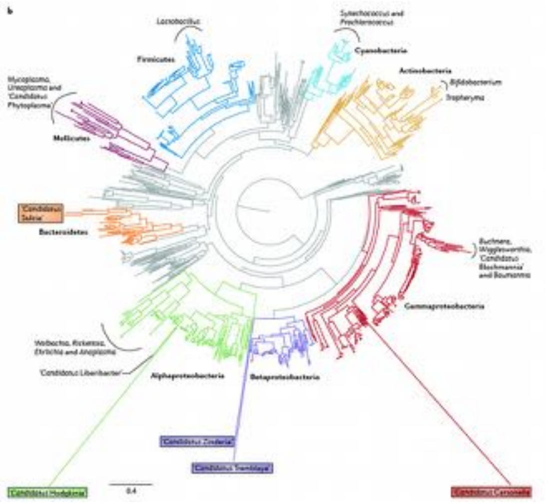
Genomics of Tripartite Nested Mealybug Symbioses

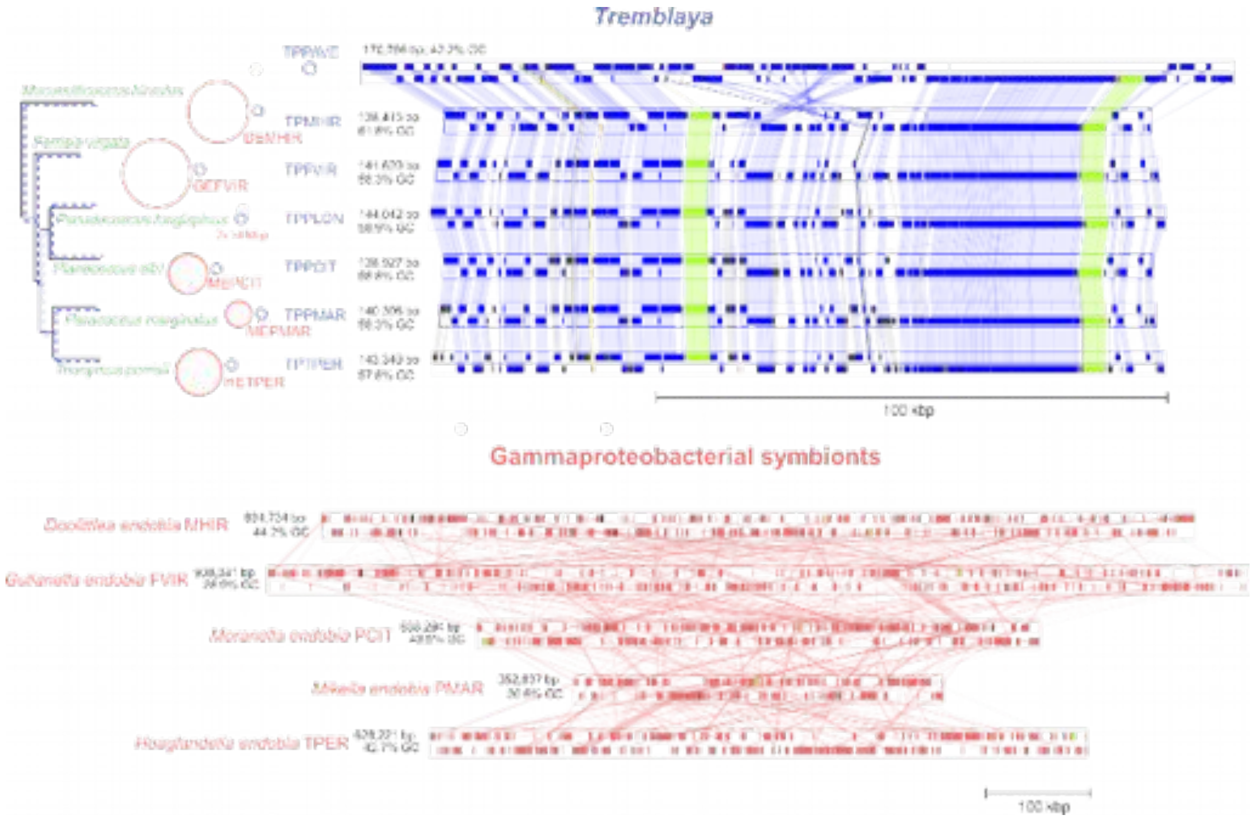
Filip Husnik

PhD student of Molecular and Cell Biology and Genetics
Institute of Parasitology, Czech Academy of Sciences

@FilipHusnik
filip.husnik@gmail.com





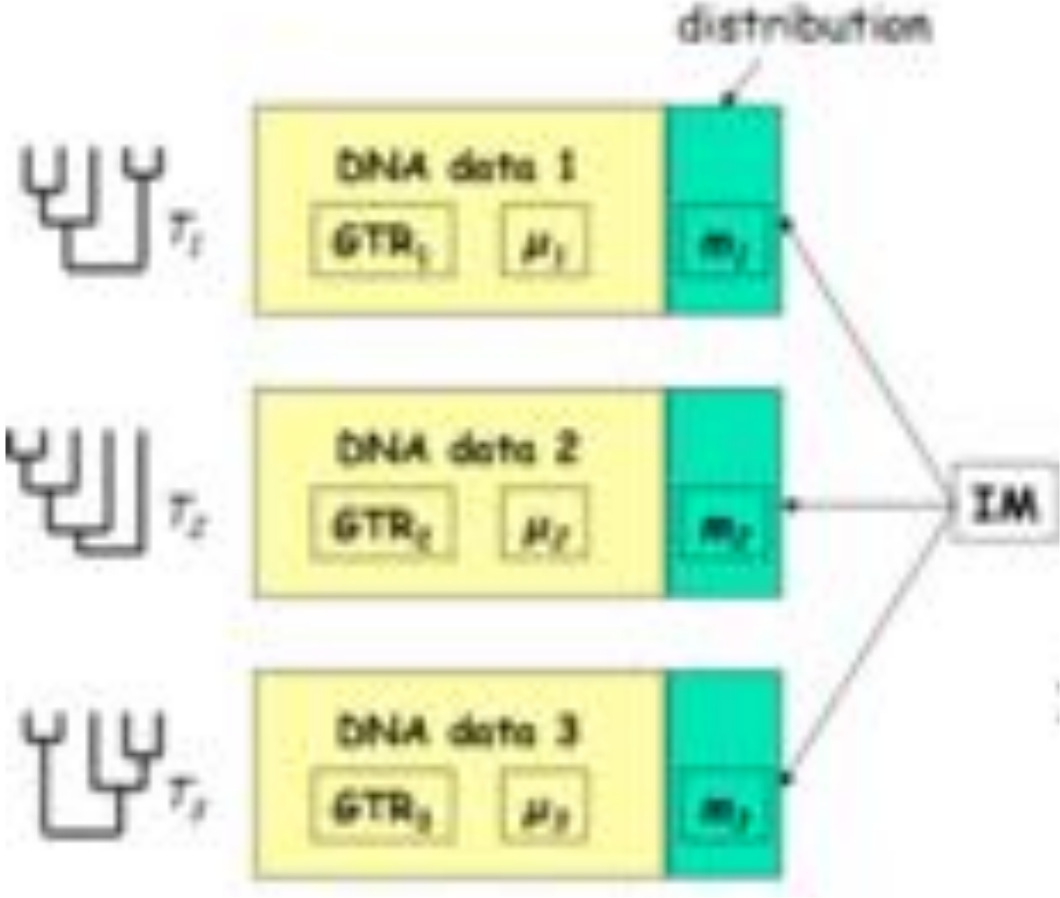


Origin of steppe flora and fauna in inner-Alpine dry valleys

[comparative phylogeography]

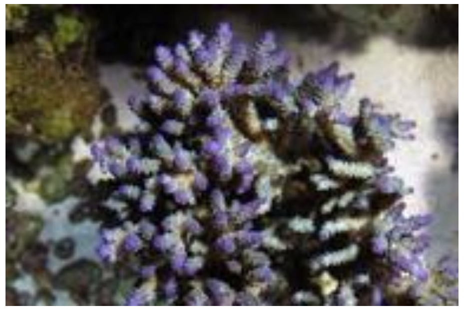
Eliska Zaveska
(postdoc)
Inst. of Botany,
Uni. of Innsbruck
Austria

PI. P. Schoenswetter & F. Steiner, **Funded by:** AT science Fund (FWF) no. P25955



Reticulate evolution in *Acropora*

Acropora digitifera



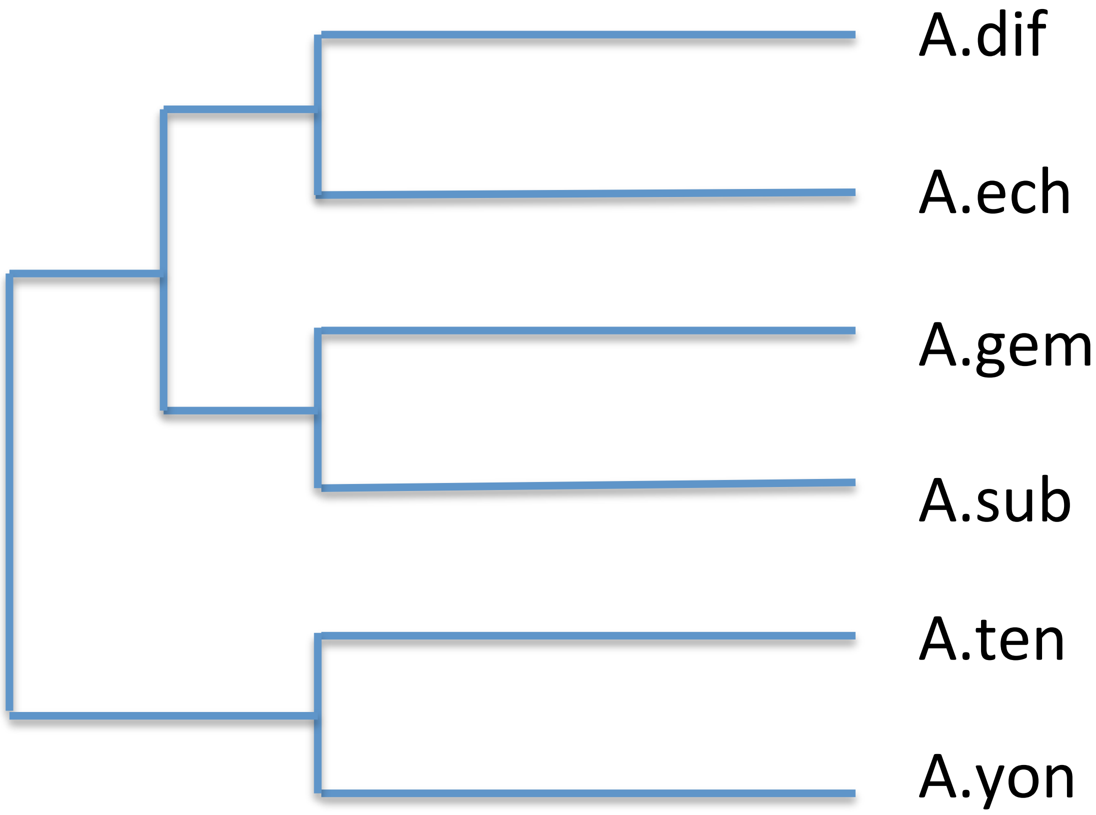
Acropora tenuis

Acropora echinata

Acropora subglabra

Acropora gemmifera

Acropora yongei



A.dif
A.ech
A.gem
A.sub
A.ten
A.yon

Okinawa Institute of Science and Technology
Graduate University

Yafei Mao
PhD student

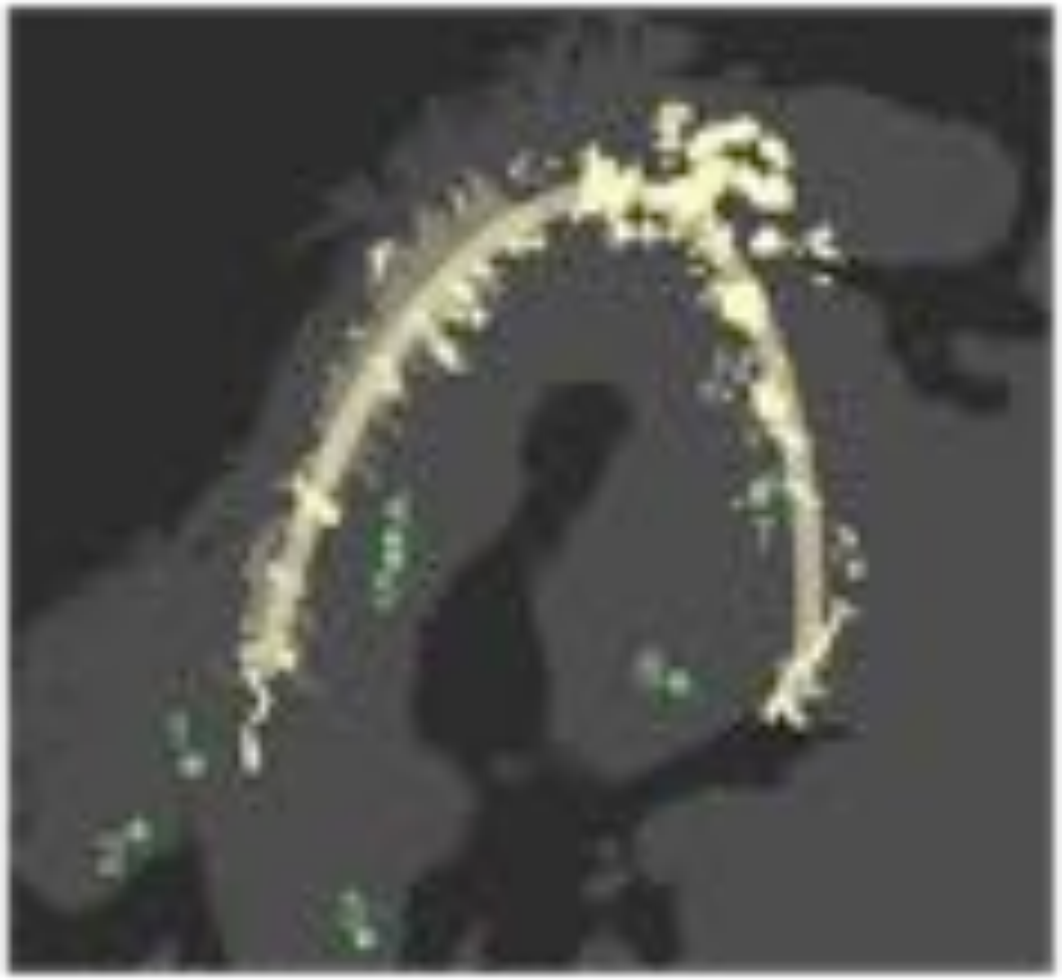
William Nicholson

School of Life Sciences, University of Warwick

- Project on sorghum – NGS data from about 10 modern and 10 ancient specimens including domestic, wild and feral varieties
    - variant calls made on the data
    - signatures of selection and selective sweeps
    - testing genetic diversity and looking for bottlenecks
    - domestication related loci
    - local adaptation to dry conditions, pest and disease resistance
    - introgression in modern and ancient genomes
- Project on barley
    - NGS data (using DNA capture arrays) from ancient specimens from Qasr Ibrim
    - working on developing software for haplotype phasing

Fungal species traits and dispersal

Sundy Maurice



3. Northern Eu. Level:
Correlate the population genetic structures of polypore species with a variety of life-history traits

13 species * 20 individuals * 7 localities

2. Evaluate the resolution of RAD markers in structuring genetic population at **a finer geographic scale**

4 species * 20 genotypes
*4 localities in Norway

1. **Reveal the genomic diversity within species**

1 forest 20 individuals * 13 species

Thanks!