## **Participant Introduction**



# JASON SARDELL

## University of Miami, USA













# **Divergence & speciation**

Haplochromine cichlids, isolated crater lakes



Alexandra Tyers, Bangor University, UK

## Sympatric divergence

- Massoko GWAS
- Behavioural variation
- Phenotypic plasticity

# Parallel evolution

- Environment & morphology
- Parallel speciation









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





Eastern Cottontail



PhotoCredit: Rand Herron





Photo Credit: Lou Perrotti



Esri, HERE, DeLorme, MapmyIndia, O OpenStreetMap contributors, and the GIS user community A



Photo: www.nhptv.org



Photo: Westernwildlife.com

### Guadeloupean anole



From: Universidade Federal do Paraná - Curitiba - Brazil

## Patrícia Regina Ströher

### working on

## **Phylogeography of Brazilian Atlantic Rainforest**



### Laboratories:



Laboratório de Dinâmica Evolutiva e Sistemas Complexos



Advisor: Prof. Dr. Marcio Pie

Contact: patricia.stroher@gmail.com







## 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?
  - $\rightarrow$  same among replicates?
  - → local adaptation?



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

# Adaptation in the open ocean

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



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



Lake Tanganyika



Affluent rivers





Jelena Rajkov www.salzburgerlab.org



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  $\rightarrow$  Basel  $\rightarrow$  Auckland  $\rightarrow$  Oslo









CladeAge

F4

# Introgression in cichlid fishes:



#### Derycke Sofie Verheyen Erik

### **GENBAS: GENomic BAsis of Speciation**



From left to right: O. ventrolis, O. nosuta and O. boops. Pictures courtesy of Ad Konings and Siegfried Loose.



# JULIA M.I. BARTH University of Oslo



www.zebrafin.ch

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

PhD project University of Oslo

Silje Rekdal

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)

 $\rightarrow$  sexual selection and the resulting evolutionary consequences

### Camille Ameline, PhD

Zoological Institute, Evolutionary Biology Dieter Ebert group Basel, Switzerland





The Swiss pond

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



Coevolution of Host – Parasite interactions

Dynamics of resistance/infection alleles in the populations





# Genetic insights into the Bantu-speaking migrations

### **UPPSALA** UNIVERSITET

Department of Evolutionary Biology, Evolutionary Biology Centre, Uppsala University, Sweden

Mário Vicente

- Language spread associated with human dispersal starting ~5 kya from Grassfields of Cameroon
- Carrying agricultural system



## Cong Liu

Okinawa Institute of Science and Technology Graduate University



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



Lúa López Pérez – Workshop on Population and Speciation Genomics

## 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



# 181 (B 100

### 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)





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*



### River 2

River 3





### 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



## 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

![](_page_23_Picture_3.jpeg)

![](_page_23_Picture_4.jpeg)

A. longimanus

![](_page_23_Picture_6.jpeg)

H. nematopus

![](_page_23_Picture_8.jpeg)

![](_page_23_Picture_9.jpeg)

#### Poecilia mexicana

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

# **Cold-water Coral Genome Project**

![](_page_24_Picture_1.jpeg)

![](_page_24_Figure_2.jpeg)

## 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"

![](_page_25_Picture_3.jpeg)

**Evolution of symbiosis** 

Invasive species

![](_page_25_Picture_6.jpeg)

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

![](_page_25_Picture_8.jpeg)

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

Filip Kolář, University of Oslo & Charles University in Prague

![](_page_26_Figure_2.jpeg)

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

Tanganyika

ribes

![](_page_27_Picture_1.jpeg)

## POPULATION (EPI)GENOMICS (POSTDOC)

![](_page_27_Picture_3.jpeg)

marine sticklebacks

(epi)genetic variation local adaptation

![](_page_27_Picture_6.jpeg)

PHYLOGENIES (PHD)

**East African cichlids** 

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

![](_page_28_Picture_0.jpeg)

#### Inger Skrede, University of Oslo

![](_page_28_Picture_2.jpeg)

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

![](_page_28_Picture_4.jpeg)

Serpula lacrymans var. lacrymans natural distribution Serpula lacrymans var. shastensis

Serpula lacrymans var. lacrymans "Japanese population" Serpula lacrymans var. lacrymans "European population"

#### Current population genomic project:

- 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

![](_page_28_Picture_11.jpeg)

# Frode Fossøy

# Trondheim-Norway

NTNU Norwegian University of Science and Technology

- Avian brood parasitism WGS
- Ecosystem services eDNA

![](_page_29_Picture_5.jpeg)

![](_page_29_Picture_6.jpeg)

![](_page_29_Picture_7.jpeg)

- Metabarcoding, eDNA
- RADSeq

![](_page_29_Picture_10.jpeg)

![](_page_29_Picture_11.jpeg)

![](_page_29_Picture_12.jpeg)

## fineSTRUCTURE

## **STRUCTURE**

![](_page_30_Figure_2.jpeg)

## finerSTRUCTURE?

![](_page_31_Picture_0.jpeg)

## 

![](_page_32_Picture_0.jpeg)

![](_page_32_Picture_1.jpeg)

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

![](_page_33_Picture_3.jpeg)

Transforming Science into Business

## Oscar Gaggiotti Scottish Oceans Institute University of St Andrews

![](_page_34_Picture_1.jpeg)

Statistical inference of the demography and ecology of species from the spatial patterns of <u>neutral</u> genetic diversity

Study of <u>local adaptation</u> to understand the molecular bases of phenotypic variation

![](_page_34_Picture_4.jpeg)

![](_page_35_Picture_0.jpeg)

# Vikings as Vectors

![](_page_35_Picture_2.jpeg)

![](_page_35_Picture_3.jpeg)

![](_page_35_Picture_4.jpeg)

University of Oslo

Heidi Nistelberger
# **SpArc**

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



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 T

Advisor: Dr. Michael Cummings

#### RESEARCH PROJECTS



Grid computing — The Lattice Project lattice.umlacs.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

Copyright Prosicks

&

University of South Bohemia Faculty of Science



Lukáš Drag

České Budějovice, Czech Republic

## Molecular Ecology of Saproxylic Beetles in Europe



Great Capricorn beetle

(Cerambyx cerdo)



5 1 1.5 2 2.5 3 3.5 4 Geographic distance (log lov)





Rosalia Longicorn (Rosalia alpina)

Hermit beetle (*Osmoderma eremita*)

#### 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)



# Grafting



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









UPPSALA

# Sandra Lorena Ament Velásquez

# Evolutionary genomics of Spore Killing in the fungus *Podospora anserina*







ТхТ

SxT



- Molecular systematics
  - Mating systems
  - Asexual evolution and poliploidy



### Origin and genomic history of the Greenlandic sledge dogs and wolves Mikkel Sinding









Jakub Vlček



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:

MYCOPHAGOUS

HERBIVOROUS

OUTGROUP

**COPHAGOUS** OCCINELLIN

HI OCORM

OCCUPELIA IN

CODULIN

museum

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 G Museum A. Koenig, ZFMK

Supervisors -Oliver Niehuis -Bernhard Misof





STICHOLOTIDINAS ladybirds PREDATORS OCCIPULIN STICHOLOTION **EPILACHNINI** COCCIDENT SHIFT CHLOCORN



Endeavour Scholarship and Fellowships



Unterstützt von / Supported by



Stiftung/Foundation

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







#### **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 coevolution?

#### Methods

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

Problem: How to deal with admixture?



**Gautam Shirsekar** <u>gshirsekar@tuebingen.mpg.de</u> **>** @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





The same neck of the woods? Neighborhood interactions and tree competition

Chelsea Chisholm PhD Fellow





#### 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

# What I do





WORKSHOP ON POPULATION AND SPECIATION GENOMICS

## **Research interests**

### Human evolutionary biology





# (Statistical) models for hybridization and speciation

## Alex Buerkle – University of Wyoming, USA





1.0

1.0

# Milan Malinsky













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.

TI-ARNO





COLOENCIAS

# 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







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

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





UiO: University of Oslo

Caroline Øien Guldvog



# Diede Maas, MSc PhD: "Elucidating mechanisms of response to climate change scenarios in marine lake populations"



# **Petr Nguyen**



# **BIOLOGY CENTRE ASCR** BIOLOGICE Institute of Entomology



**DB** 100400

Figh 50

















GGCCCTATCGTGACTGATTACCAGGATCCTAGCG( TGGTCAGGTTGTTCAACTCGATGACTAGAATATAT GTAACGTTGCAAATTCAGTCGGTACGTTTCCAGG CTGTAGCURLYHAIRGCCCTTGAATCTTGGCAGTC AACTCATCCAGGAATGGGCCCTACGTACCGTAAC CTACACACACACTGACAGATAGACAGATTGTCGT( ATCTTGGCAGTCGTAACGTACGTACGGTACTGGTA TCTACTAGAAGAAAAATTGGGCCCTACGTACCGT# GGCTACACACACACTGACAGATAGACAGATTGTCC GAATCTTGGCAGTCGTAACGTACGTACGGTACTGH CCCTGGGAAAAATTGGGCCCTACGTACCGTAACG TACACACACACTGACAGATAGACAGATTGTCGTG1 ATGTAATGCAGTGGTCAGGTTGTTCAACTCGATG/







autosomes Z chromosome



Emiliano Trucchi

www.emilianotrucchi.it



UiO: Universitetet i Oslo

Centre for Ecological and Evolutionary Synthesis





# **Jakub Kreisinger**

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







# **Genetic diversity in Grauer's gorillas** Tom van der Valk



UPPSALA UNIVERSITET

#### <u>Philipp Kirschner</u> 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



#### Interests

- Processing RAD data
- Admixture models
- Phylogeographic modelling



#### 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



# Genomic signature of sexually selected hybridization on common wall lizard



Weizhao Yang Lund University Sweden





France, Female

France, Male

Tuscany, Male

Tuscany, Female





Female

Male

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









# **Evolution of marine organisms**



#### **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





- Interspecific variation in genomic regions linked to local adaptation
- 2. Mapping ecological traits to genomic regions
  - Transect 2 Transect 3 Gargano Sardinia Sicily
- 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

# What is the adaptive potential of planktonic gastropods?



phenotypic variability
genomic variability

- · spatial partitioning
- · neutral vs adaptive

Burridge, Goetze, Raes, Huisman, Peijnenburg (2015). *BMC Evol. Biol.*  <u>Cuvierina pteropods:</u>

- · 2 morphotypes
- · 3 samples, 26 libraries
- $\cdot$  RAD tag sequencing



### Katja T. C. A. Peijnenburg (peijnenburg@uva.nl)

Naturalis Biodiversity Center Leiden, University of Amsterdam, the Netherlands





### Islands of sea: community assembly in marine systems

Lisa Becking Marine Animal Ecology group Wageningen University The Netherlands



#### Population genomics of migration

#### Karyotype-driven speciation



#### Gerard Talavera

Postdoctoral Associate Museum of Comparative Zoology Harvard University







Vanessa cardui

### 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

SIS PULLANTIAN SIS TO THE THE STATE



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]

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



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





## Reticulate evolution in Acropora



#### Acropora digitifera



Acropora echinata



Acropora gemmifera



Acropora tenuis



#### Acropora subglabra



Acropora yongei

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!**