

Evolution 2019 Program

Session Executive joint council opening meeting
Friday - 8:30 - 12:30 **Room 557**

Session SSE workshop: Undergraduate professional development
Friday - 8:30 - 12:30 **Room 556**

An optional pre-conference event. Prior registration required (during conference registration).

This workshop is part of the [Undergraduate Diversity at Evolution program](#) which provides funds for travel, lodging, and meeting registration for undergraduate students in an effort to increase diversity. The workshop will cover topics such as networking at conferences and applying to graduate school and is open to all undergraduates, even those not part of the UDE program.

Session Code of Conduct training for society councils and EvoAllies
Friday - 9:00 - 12:00 **Room 550B**

By invitation only.

Session SSB workshop - New developments in phylogenetics and evolution
Friday - 9:00 - 17:00 **Room 555**

An optional pre-conference event. Prior registration required (during conference registration).

Phylogenies form the foundation of our understanding of both the pattern and process of evolution on Earth. Methods for inferring phylogenies and using them in comparative and macroevolutionary analyses are constantly improving, and it can prove difficult for even seasoned investigators in the field to keep pace. In this workshop we will offer a collection of short courses on analytical and pedagogical methods, with a focus on new developments. This workshop is intended for users who are already familiar with R and have a good working knowledge of phylogenetics. Attendees will be expected to bring a laptop with R and RStudio installed, and will be provided with a list of necessary R packages beforehand.

Session SSE workshop: Professional development for undergraduate educators
Friday - 9:00 - 17:00 **Room 552**

An optional pre-conference event. Prior registration required (during conference registration).

Come join us for the Professional Development for Undergraduate Educators (PDUE) workshop and learn to use Avida-ED, a freely available software package developed to help students learn about evolution and the nature of science. Workshop participants will be provided an Avida-ED manual with exercises developed by evolutionary biologists and science educators. Participants must register through meeting website. Lunch will be provided.

Session 'Reproducibility for Everyone' workshop
Friday - 10:30 - 12:00 **Room 551**

An optional pre-conference event. Prior registration required (during conference registration).

Rigor and reproducibility are at the core of modern science and set apart scientific inquiry from pseudoscience. Several new initiatives and tools have been established to address barriers to reproducibility. While very welcome, these projects have led to a proliferation of online tools and resources which can be hard to sift through. This workshop will introduce you to reproducible workflows and a range of tools along the themes of organization, documentation, analysis, and dissemination.

Session ASN Executive council opening meeting
Friday - 13:00 - 17:00 **Room 550B**

Session ASN workshop: Science communication 101
Friday - 13:00 - 17:00 **Room 554**

An optional pre-conference event. Prior registration required (during conference registration).

Sure, your research is the most exciting and important science out there! But to have an impact, it must be communicated in ways that enable people to understand and compel them to care. This workshop will combine empirical evidence gained from science communication research with fun, engaging activities to provide you with strategies and approaches to help you communicate your work effectively to diverse audiences. It will also explore specific strategies for communicating "controversial" science in non-controversial, non-confrontational ways.

Facilitator: Dr. Jory Weintraub (Science Communication Director, Duke Initiative for Science & Society, Duke University). Jory teaches undergraduate and graduate science communication courses at Duke University and runs science communication workshops for students, postdocs and faculty at institutions around the country. Previously he spent over 10 years leading the public outreach and education efforts at NESCent (the National Evolutionary Synthesis Center).

Session SSB Executive council opening meeting
Friday - 13:00 - 17:00 **Room 550A**

Session SSE Executive council opening meeting
Friday - 13:00 - 17:00 **Room 557**

Session SSE workshop - Leveraging your PhD: careers in and out of academia
Friday - 13:00 - 17:00 **Room 556**

An optional pre-conference event. Prior registration required (during conference registration).

The key goals of the workshop are to guide students and postdocs through the first steps of personal career exploration (academic and non-academic) and necessary actions for active planning of post-graduate school or post-postdoctoral stages. In addition to small-group conversations with professionals from various careers, there will be presentations on how to market/ brand oneself, networking, informational interviews, etc. Based on our past workshop, we expect that attendees will leave the workshop with more confidence regarding career options, and with actionable items and strategies for successive efforts.

Session Molecular Ecology editorial board meeting
Friday - 14:00 - 17:00 **Room WLounge**

**Session Stephen J. Gould Prize public Outreach Lecture:
Mohamed Noor (Duke U.)**

Friday - 19:00 - 20:00

Room ExHallA

The **Stephen Jay Gould Prize** is awarded annually by the **Society for the Study of Evolution** to recognize individuals whose sustained and exemplary efforts have advanced public understanding of evolutionary science and its importance in biology, education, and everyday life in the spirit of Stephen Jay Gould.

The SSE Gould Prize Committee is pleased to announce Dr. Mohamed Noor of Duke University as the 2019 recipient of the Stephen Jay Gould Prize. Dr. Noor was selected for his continued outreach to broad audiences outside of academia, including an ongoing MOOC titled "[Introduction to Genetics and Evolution](#)" and his recent book "[Live Long and Evolve: What Star Trek Can Teach Us about Evolution, Genetics, and Life on Other Worlds](#)." Dr. Noor's tireless promotion of evolution includes outreach through public appearances at science fiction conventions, a [genetics and evolution app](#), K-12 programs, and a [classroom kit for teaching natural selection](#). As the Gould Prize awardee, Dr. Noor will present the public outreach lecture at this year's [Evolution meeting](#) in Providence, RI, USA in June. Learn more about the Gould Prize [here](#).

19:05 Evolution in the Final Frontier: Why Might We See So Many Humanoid Aliens in Star Trek?
Mohamed Noor

Session Opening reception

Friday - 20:00 - 22:00

Room ExHallB/C

Snacks and drinks; open to all conference attendees.

Session

Saturday - 8:20 - 9:20

Room ExHallA

ASN Presidential address: Michael Whitlock - The science of doubt
Michael Whitlock

Session Causes and consequences of temporally fluctuating selection in the wild 1

Saturday - 9:30 - 10:45

Room ExHallD

Organizers: Zach Gompert (Utah State U.) and Alan Bergland (U. Virginia)

Sponsor: ASN

Topic: It has long been appreciated selection pressures fluctuate through time. However, the extent to which fluctuating selection pressures promote the long-term maintenance of functional genetic diversity and how functional variation within a species shapes ecological interactions remain open questions. Our symposium seeks to address these basic questions by (i) highlighting recent theoretical developments on the footprints of fluctuating selection and stability of balanced polymorphism, (ii) showcasing recent work identifying abiotic drivers of fluctuating selection from genomic data, and (iii) examining how fluctuating selection, and consequent adaptation, affects ecological dynamics and interactions.

9:30 Our contemporary understanding of the causes and consequences of temporally varying selection

Alan Bergland, Zachariah Gompert

9:45 A map of climate change-driven natural selection in *Arabidopsis thaliana*

Moises Exposito-Alonso, Hernán Burbano, Oliver Bossdorf, Rasmus Nielsen, Detlef Weigel

10:00 Can fluctuating selection stabilize polymorphism concurrently at many loci? Possible contributions from boom-bust demography and overlapping generations.

Jason Bertram, Joanna Masek

10:15 Stable polymorphisms due to seasonally fluctuating selection and their genetic footprint

Meike Wittmann, Sylvain Mousset, Joachim Hermisson

Session Education symposium: Summer research and professional development for teachers, best practices 1

Saturday - 9:30 - 10:45

Room 555

Organizer: Louise Mead (Michigan State U. & BEACON)

Sponsor: SSE

Topic: As a society, SSE strives to support the teaching of evolution at levels (K-12, undergraduate, and graduate). Yet, many K-12 instructors either lack the content knowledge or the confidence to teach evolution, particularly in areas where evolution is considered controversial. Many of our members hold summer workshops for teachers in the area of evolution education and others provide research experiences for teachers in the form of RETs (Research Experience for Teachers). How do we leverage these experiences to get the maximum benefit for our investment of time and money? The Education Symposium will feature speakers with expertise in teacher professional development (i.e., workshops) and with expertise in meaningful research experiences for teachers.

SSE Education Symposium introduction

Louise Mead

TBD

Thomas McKenna

A tale of three workshops: lessons for professional development in evolution

Becky Fuller

Session SSB Mayr Award Symposium 1

Saturday - 9:30 - 10:45

Room Ball_A

The Ernst Mayr Award is given to the presenter of the outstanding student talk in the field of systematics at the annual meetings of the Society of Systematic Biologists (SSB). This is SSB's premier award, and is judged by the quality and creativity of the research completed over the course of the student's Ph.D. program. The award consists of \$1000, a certificate of distinction, and a two-year subscription to the journal *Systematic Biology*. Based on the submitted abstracts, the Mayr Awards Committee (appointed by the Awards Chair) selected 10 applicants for inclusion in the Mayr Award symposium.

9:30 Morphological traits and their impact on the historical biogeography in conifers

Kristina Klaus, Nicholas Matzke

9:45 Local adaptation and convergent evolution of foraging strategies in the most species-rich genus of bats, *Myotis*

Ariadna Morales, Bryan Carstens

10:00 The perfect storm: gene tree estimation error, deep coalescent, and ancient gene flow explain the most recalcitrant ancient angiosperm clade, Malpighiales

Liming Cai, Zhenxiang Xi, Emily Moriarty Lemmon, Alan Lemmon, Austin Mast, Christopher Buddenhagen, Liang Liu, Charles Davis

10:15 Distinguishing parameter estimates from model fit when testing Dollo's law and diagnosing gene tree incongruence

Huw Ogilvie

10:30 Automatic generation of evolutionary hypotheses using mixed Gaussian phylogenetic models

Venelin Mitov, Krzysztof Bartoszek, Tanja Stadler

Session Macroevolution 1

Saturday - 9:30 - 10:45

Room 551

9:30 Utilizing historical biogeographic models in cophylogenetic analyses

Wade Dismukes, Tracy Heath

9:45 The Evolution of Cooperation Shapes the Body-Size-Biomass Distribution Across Taxa

Edward Tekwa, Katrina Catalano, Simon Levin, Malin Pinsky

10:00 Tracing the evolutionary history of flowering plants through space and time

Santiago Alejandro Ramírez Barahona, Hervé Sauquet, Susana Magallón

10:15 Extracting fossil occurrence data using natural language processing

Bjørn Kopperud

10:30 Differentiating among modes of directional evolution: detecting runaway evolution in fossil time series

Daniel Varajao de Latorre

Session Selection 1

Saturday - 9:30 - 10:45

Room 552

- 9:30 Antagonistic Pleiotropy in the *Drosophila*-*Gamasodes* system: Fitness costs related to ectoparasite resistance**
Joy Bose, Michal Polak, Joshua Benoit
- 9:45 Identifying population stratification for GWAS-based selection tests using sibling-based effect size estimates**
Michael Edge, Jeremy Berg, Graham Coop
- 10:00 The genetics of persistence in the Panamanian Golden Frog**
Allie Byrne, Corinne Richards-Zawacki, Jamie Voyles, Ke Bi, Erica Rosenblum
- 10:15 Ancient DNA reveals that few disease-associated loci have been strongly selected during recent human history**
Joseph Lachance
- 10:30 Testing for maintenance of locally adaptive variation in the face of genetic rescue in Trinidadian guppies**
Gideon Bradburd, Sarah Fitzpatrick, Colin Kremer, Chris Funk, Lisa Angeloni, Patricia Salerno

Session Phylogeography 1

Saturday - 9:30 - 10:45

Room 553

- 9:30 From RADSeq to whole genomes: phylogeographic history of the North American water vole (*Microtus richardsoni*)**
Drew Duckett, Kailee Calder, Jack Sullivan, David Tank, Bryan Carstens
- 9:45 Detecting lineage fusion—an overlooked phenomenon in phylogeography and speciation research**
Ryan Garrick
- 10:00 A new approach to estimating historical distributions with ecological niche modeling and ancestral state reconstruction**
Wilson Guillory, Jason Brown
- 10:15 Unraveling the evolutionary history of gray foxes with mitogenomes and UCEs derived from museum specimens**
Susette Sami Castañeda Rico, Mirian Tsuchiya, Courtney Hofman, Sabrina Shirazi, Dawn Reding, Torben Rick, Cody Edwards, Jesus Maldonado
- 10:30 Phylogeography of sand-burrowing amphipods (*Haustoriidae*) supports an ancient suture zone in the Gulf of Mexico**
Zachary Hancock

Session Evolutionary Ecology 1

Saturday - 9:30 - 10:45

Room 554

- 9:30 Cascading community consequences of fish adaptation**
Zachary Wood
- 9:45 The sensory space of the threespine stickleback.**
Robert Mobley, Janette Boughman
- 10:00 Evolutionary computation as a model system for studying eco-evolutionary dynamics**
Emily Dolson
- 10:15 Density feedback in dispersal and growth changes the structure of genealogies in range expansions**
Gabriel Birzu, Oskar Hallatschek, Kirill Korolev
- 10:30 Accelerating demographic rates create opportunities for evolutionary rescue in warming environments.**
David Vasseur, Colin Kremer

Session Phenotypic Plasticity 1

Saturday - 9:30 - 10:45

Room 556

- 9:30 Plasticity-led evolution: novelty and adaptation in spadefoots**
Nick Levis, David Pfennig

9:45 Transcriptomic changes associated with the role of phenotypic plasticity and transgenerational effects in the thermal adaptation of desert *Drosophila mojavensis*
Fernando Diaz, Luciano Matzkin, Nathaniel Talamantes, Josh Coleman, Rebecca Hoyle, Abraham Kuijper

10:00 The link between an invasive predator and rapid evolution in zooplankton prey: a test using resurrection.
Alex Landy, Matthew Walsh

10:15 Phenotypic plasticity and environmental adaptation in house mice from the Americas
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Mallory Ballinger, Michael Nachman

10:30 Evolution of phenology along elevation gradients: insights from different modeling approaches
Ophelie Ronce, Isabelle Chuine, Julie Gauzere, Sylvain Delzon, Luis-Miguel Chevin

Session Plant Reproduction 1

Saturday - 9:30 - 10:45

Room 557

9:30 Adaptation to hummingbird pollination is associated with reduced diversification in *Penstemon*
Carolyn Wessinger, Mark Rausher, Lena Hileman

9:45 Context-dependency of resource allocation trade-offs highlights constraints to the evolution of floral longevity
Rachel Spigler, Alyssa Woodard

10:00 Pedigree-based inbreeding: Self-incompatibility reduction of inbreeding is highly localised within the genome
Thomas Meagher, Elizabeth Thompson

10:15 Earlier snowmelt influences flowering phenology, pollen limitation, and reproductive success in a long-lived alpine plant
Megan Peterson, Micaela Seaver, Ellen Waddle

10:30 Emission rates of species-specific volatiles change across communities of *Clarkia* species: Evidence for character displacement in floral scent
Katherine Eisen, Monica Geber, Robert Raguso

Session Coevolution

Saturday - 9:30 - 10:45

Room Ball_BC

9:30 Microbial ecology and symbiont replacements within an evolutionary radiation of New Zealand cicadas
Diler Haji, Eric Gordon, Chris Simon, Jason Vailionis, Jefrin Thomas

9:45 Host outcrossing is maintained by host-parasite coevolution, but not frequent parasite genotype turnover
Amanda Gibson, McKenna Penley, Arooj Khalid, Chase Gornbein, Raythe Owens, **Levi Morran**

10:00 Loss of symbiotic adaptations during experimental evolution suggests antagonistic evolutionary past in a social amoeba/bacteria symbiosis
Tyler Larsen, Justine GARCIA, Cara Jefferson, Anthony Bartley, Joan Strassmann, David Queller

10:15 Localization of bacterial communities across gut compartments in *Cephalotine* ants
Peter Flynn, Corrie Moreau, Jacob Russell, Catherine D'Amelio

10:30 Tree distance measures and their utility in cophylogeny
Mariano Avino, Art Poon

Session Genomics 1

Saturday - 9:30 - 10:45

Room Ball_DE

9:30 Genetic basis of hybrid sterility between *Drosophila pseudoobscura* and *D. persimilis*
Alannah Mattice

9:45 Satellite DNA-mediated expansion of a meiotic drive gene family in *Drosophila*
Christina Muirhead, Rose Driscoll, Daven Presgraves

10:00 Recent hybrids recapitulate ancient hybrid outcomes
Samridhi Chaturvedi, Zachariah Gompert

10:15 Mode and Tempo of Microsatellite Evolution in Insects
Michelle Jonika, Heath Blackmon

10:30 Sources of phylogenetic signal and 'noise' in complex genomic datasets
Robert Literman, Rachel Schwartz

Session Coffee break

Saturday - 10:45 - 11:15

Room ExHallB/C

Session 'Flying solo' coffee mixer

Saturday - 10:45 - 11:15

Room Rotunda

Open to all attendees; prior registration is not required.

An SSE Graduate Student Advisory Council organized coffee break for people who are attending the meeting without their lab group or advisor. This event is intended to provide networking for people who are "flying solo" at this year's meeting.

Session Causes and consequences of temporally fluctuating selection in the wild 2

Saturday - 11:15 - 12:30

Room ExHallD

Organizers: Zach Gompert (Utah State U.) and Alan Bergland (U. Virginia)

Sponsor: ASN

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11:15 Repeated phenotypic and genomic evolution in response to seasonality in experimental *Drosophila* populations

Seth Rudman, Sharon Greenblum, Subhash Rajpurohit, Ozan Kiratli, Jonathan Levine, Dmitri Petrov, Paul Schmidt

11:45 Tangling the webs of life
Carlos Melian

12:15 Symposium discussion / Q&A
Zachariah Gompert

Session Education symposium: Summer research and professional development for teachers, best practices 2

Saturday - 11:15 - 12:30

Room 555

Organizer: Louise Mead (Michigan State U. & BEACON)

Sponsor: SSE

Topic: As a society, SSE strives to support the teaching of evolution at levels (K-12, undergraduate, and graduate). Yet, many K-12 instructors either lack the content knowledge or the confidence to teach evolution, particularly in areas where evolution is considered controversial. Many of our members hold summer workshops for teachers in the area of evolution education and others provide research experiences for teachers in the form of RETs (Research Experience for Teachers). How do we leverage these experiences to get the maximum benefit for our investment of time and money? The Education Symposium will feature speakers with expertise in teacher professional development (i.e., workshops) and with expertise in meaningful research experiences for teachers.

Session SSB Mayr Award Symposium 2

Saturday - 11:15 - 12:30

Room Ball_A

The Ernst Mayr Award is given to the presenter of the outstanding student talk in the field of systematics at the annual meetings of the Society of Systematic Biologists (SSB). This is SSB's premier award, and is judged by the quality and creativity of the research completed over the course of the student's Ph.D. program. The award consists of \$1000, a certificate of distinction, and a two-year subscription to the journal *Systematic Biology*. Based on the submitted abstracts, the Mayr Awards Committee (appointed by the Awards Chair) selected 10 applicants for inclusion in the Mayr Award symposium.

- 11:15 Sexual selection does not explain diversity disparities among clades**
Elizabeth Miller, John Wiens
- 11:30 Bayesian estimation of species divergence times using correlated quantitative characters**
Sandra Álvarez-Carretero, Anjali Goswami, Ziheng Yang, Mario dos Reis
- 11:45 Comparative genomics reveal modes of differentiation in North American warm desert birds**
Kaiya Provost, Stephanie Shue, Meghan Forcellati, Brian Smith
- 12:00 The Evolution and Diversification of Siphonophore Tentacles as Tools for Prey Capture**
Alejandro Damian-Serrano, Steven Haddock, Casey Dunn
- 12:15 Considering the process of speciation while investigating species limits leads to more accurate and biologically relevant species delimitations**
Megan Smith, Bryan Carstens

Session SSE Hamilton Award Symposium 1

Saturday - 11:15 - 12:30

Room Ball_BC

- 11:15 Dispersal evolution: components, kernel, syndrome and metabolome**
Sudipta Tung, Abhishek Mishra, P.M. Shreenidhi, Mohammed Aamir Sadiq, V.R. Shree Sruti, Navdeep Gogna, Sripad Joshi, Kavita Dorai, Sutirth Dey
- 11:30 Experimental evolution results in rapid adaptation of rhizobia to their local legume host**
Rebecca Batstone, Tia Harrison, Anna O'Brien, Megan Frederickson
- 11:45 Somatic Mutation and Cell Lineage Selection during Vegetative Growth Promotes Rapid Adaptation in Plants**
Jaime Schwoch, Mitch Cruzan
- 12:00 High genetic diversity can contribute to extinction in small populations**
Chris Kyriazis, Robert Wayne, Kirk Lohmueller
- 12:15 The evolutionary consequences of reproductive and aggressive interactions between species**
Rachel Moran

Session Diversification 1

Saturday - 11:15 - 12:30

Room 551

- 11:15 Does polyploidy contribute to the species diversification of Allium?**
Ting-Shen Han
- 11:30 Plant diversification in old tropical mountains**
Thais Vasconcelos
- 11:45 Genetics, development, and evolution of phenotypic diversification, innovation, and integration in monkeyflowers (Mimulus)**
Yaowu Yuan
- 12:00 Coastal fish hybrid zone constrained by a salinity gradient**
Yamila Cardoso, Lily Hughes, Mariano Gonzalez-Castro, Guillermo Orti
- 12:15 Endosymbiosis and the diversification of light capture across a billion years of Cryptophyte evolution.**
Matthew Greenwold, Brady Cunningham, Eric Lachenmyer, John Pullman, Tammi Richardson, Jeff Dudycha

Session Selection 2

Saturday - 11:15 - 12:30

Room 552

- 11:15 Ancient polymorphisms contribute to genome-wide variation via long-term balancing selection and divergent sorting in *Boechera stricta***
Baosheng Wang, Thomas Mitchell-Olds
- 11:30 Evolutionary dynamics of recent selection for enhanced social cognition**
Sara Miller, Michael Sheehan
- 11:45 Parallel clinal and seasonal changes suggest selection maintains genome-wide clines in *Drosophila melanogaster***
Rodrigo Cogni, Murillo Rodrigues
- 12:00 Parallel evolution of drug resistance in the malaria parasite, *Plasmodium falciparum*: the exception or the norm?**
Angela Early
- 12:15 Joint estimation of demography and the distribution of fitness effects**
Parul Johri, Brian Charlesworth, Jeffrey Jensen

Session Comparative Phylogeography

Saturday - 11:15 - 12:30

Room 553

- 11:15 Testing main Amazonian rivers as barriers across time and space within widespread taxa**
Renata Pirani, Fernanda Werneck, Andrea Thomaz, Mariah Kenney, Marcelo Sturaro, Teresa Ávila-Pires, Pedro Peloso, Miguel Rodrigues, Lacey Knowles
- 11:30 Full Bayesian comparative biogeography of Philippine geckos challenges predictions of climate-driven vicariant speciation**
Jamie Oaks, Cameron Siler, Rafe Brown
- 11:45 Eco-evolutionary communities in complex landscapes: support for recent assembly and co-evolutionary histories of ecologically similar beetle taxa**
Katharine Marske, Andréa Thomaz, Lacey Knowles
- 12:00 The relative influence of dispersal ability and niche breadth on genomic connectivity of co-distributed Cerrado species**
Luciana Resende-Moreira, Maria Bernadete Lovato, José Lemos-Filho, Lacey Knowles
- 12:15 Effects of insect-plant interactions in the early stages of diversification: insights from a community of palm-associated insects**
Bruno de Medeiros, Brian Farrell

Session Evolutionary Ecology 2

Saturday - 11:15 - 12:30

Room 554

- 11:15 Testing the process of character displacement as a driver in the evolution of root traits**
Sara Colom, Regina Baucom
- 11:30 The invisible fraction revealed by artificial seed aging: implication for evolution experiments using the resurrection approach**
Steven Franks, Michael Sekor, Samuel Davey, Arthur WEIS
- 11:45 Host-parasite coevolution and the evolution of seed banking strategies**
Melissa Verin, Aurelien Tellier
- 12:00 The strength of plant-pollinator interactions varies across an urbanization gradient**
Ruth Rivkin, Vanessa Nhan, Arthur WEIS, Marc Johnson
- 12:15 Floral scent divergence and its effect on reproductive isolation in sympatric orchid lineages**
Maria Guizar Amador, Santiago Ramirez

Session Phenotypic Plasticity 2

Saturday - 11:15 - 12:30

Room 556

- 11:15 Does relaxed selection increase phenotypic plasticity? Responses to fluctuating temperatures in domesticated and field populations of *Manduca sexta***
joel Kingsolver, M. Elizabeth Moore, Christina Hill, Kate Augustine
- 11:30 The success of a robust structure : *Drosophila suzukii* ovipositor presents similar reaction norms among geographic populations in response to developmental temperature**
Ceferino Varón González, Antoine Fraimout, Arnaud Delapré, Vincent Debat, Raphaël Cornette

- 11:45 Phenotype-first evolution of cellular differentiation in the volvocine green algae**
Dinah Davison, Richard Michod
- 12:00 Population divergence of developmental plasticity in the spadefoot toad, *Pelobates cultripes***
Hyeun-Ji Lee, Ivan Gomez-Mestre
- 12:15 The genetics and epigenetics of transgenerational effects in response to seasonality**
Mariano Alvarez, Andrew Bleich, Gabriela Auge, Kathleen Donohue

Session Plant Reproduction 2

Saturday - 11:15 - 12:30

Room 557

- 11:15 Investigating the Agents Driving Floral Diversity in *Penstemon* Using Morphology, Climate, and Pollinator Data**
Rosa Rodriguez-Pena, Andrea Wolfe, Laura Kubatko
- 11:30 Mating portfolios, pollination, and mate diversity in monkeyflower**
Jeffrey Karron, Randall Mitchell, Dorset Trapnell, Dorothy Christopher, Wendy Semski, Patrick Smallwood, Emmanuelle Porcher, Celine Devaux
- 11:45 Greater variation in male than in female fitness in monkeyflower: evidence for Bateman's principle**
Dorothy Christopher, Jeffrey Karron, Randall Mitchell, Dorset Trapnell, Wendy Semski, Patrick Smallwood, Celine Devaux, Emmanuelle Porcher
- 12:00 Disentangling genetic and ecological factors influencing among-population variation in selfing rate in monkeyflower**
Wendy Semski, Jeffrey Karron, Randall Mitchell, Dorset Trapnell, Dorothy Christopher, Patrick Smallwood, Emmanuelle Porcher, Celine Devaux
- 12:15 The influence of floral display, floral traits, and pollinators on selfing rates of *Mimulus ringens***
Randall Mitchell, Jeffrey Karron, Dorset Trapnell, Dorothy Christopher, Wendy Semski, Patrick Smallwood, Celine Devaux, Emmanuelle Porcher

Session Genomics 2

Saturday - 11:15 - 12:30

Room Ball_DE

- 11:15 Evaluating positive selection and gene content in the white shark genome: insights about genome stability and patterns of sensory gene content in cartilaginous fishes.**
Nicholas Marra, Michael Stanhope, Nathaniel Jue, Minghui Wang, Qi Sun, Paulina Pavinski Bitar, Vincent Richards, Aleksey Komissarov, Mike Rayko, Sergey Kliver, Bryce Stanhope, Chuck Winkler, Stephen O'brien, Agostinho Antunes, Salvador Jorgensen, Mahmood Shivji
- 11:30 Evolutionary dynamics of transposable elements in asexual bdelloid rotifers**
Reuben Nowell, Christopher Wilson, Timothy Barraclough
- 11:45 Social evolution in sweat bees is associated with convergent rate shifts in non-coding sequence**
Benjamin Rubin, Sarah Kocher
- 12:00 Genomic Perspectives on the Origins of Brood Parasitic Behavior in Songbirds**
Christopher Balakrishnan, Mathew Louder, Timothy Sackton, Jeffrey DaCosta, Sarah London, Michael Sorenson, Mark Hauber
- 12:15 Genomics reveals a complex colonization history of reedwarblers across the Pacific**
Anna Kearns, Michael Campana, Alice Cibois, Gary Graves, Robert Fleischer, Lainie Berry

Session American Naturalists editorial board meeting

Saturday - 12:30 - 14:30

Room 550A

Session Lunch

Saturday - 12:30 - 14:30

Room OnTheTown

Lunch is not provided for conference attendees (except for a few optional events that required pre-registration or council/editorial board meetings).

Session Systematic Biology editorial board meeting
Saturday - 12:30 - 14:30 **Room 550B**

Session SSE/ASN Public policy panel discussion
Saturday - 12:45 - 14:15 **Room 557**

Prior registration required (during conference registration). Includes a boxed lunch.

Are you interested in promoting scientific research to the public and legislators, but are not sure how to get started? This event, which will feature a panel of experts in science policy, will equip you with the tools you need to begin engaging with key decision makers in your community.

Session Work-life balance mini workshop
Saturday - 13:15 - 14:15 **Room 554**

Open to graduate students and postdocs; prior registration is not required. Lunch is not provided but you can bring your own.

We often feel like we need to fit a particular mold to succeed as scientists, but this attitude can limit both our personal and professional fulfillment. Thriving in graduate school and beyond requires orienting toward our deeper goals, developing strategies for effectiveness at work, and balancing personal and professional growth. This mini-workshop will provide some strategies for breaking the mold and a forum for discussing challenges and opportunities in cultivating work-life balance.

Session How do I choose? Methodological approaches for cutting-edge phylogenomic research 1
Saturday - 14:30 - 15:45 **Room Ball_A**

Organizer: Courtney Hofman (U. Oklahoma) and Brant Faircloth (Louisiana State U.)

Host: SSB

Topic: Next generation sequencing methods have fundamentally changed the types and amounts of DNA and RNA sequence data that we can collect from different organisms. However, the sheer number of different approaches is often overwhelming when researchers are trying to select the best technique(s) to address their particular questions. The goal of this SSB Spotlight Session is to focus on five important approaches for phylogenomic research—RAD Seq, RNA Seq, target enrichment, ancient DNA, and genome sequencing/re-sequencing. Presentations within the session will involve one overview talk for each approach and one empirical talk demonstrating how the approach was used within a phylogenetic framework to address a research question. Ideally both sets of talks for each major approach will provide attendees with information about the benefits and costs of each approach, analyses of the data collected, and utility of the approach for their research question. Presentations will also focus on a diversity of organisms and highlight the work of early-career researchers.

14:30 The diverse and growing family of RAD sequencing approaches

Paul Hohenlohe

14:45 Sliding windows, species trees and SNPs: RAD applications in plant phylogenomics

Deren Eaton

15:00 Targeted Enrichment - Easy and efficient multi-locus sequencing for any taxon

Alison Devault

15:15 Diversification dynamics of chachalacas, curassows and guans (Family Cracidae).

Janet Buckner

15:30 Population and comparative genomics approaches to study adaptive evolution

Sangeet Lamichhaney, Scott Edwards

Session Outside the models for understanding the evolution of sex chromosomes and sex determination: insights from fishes, amphibians, and reptiles 1

Saturday - 14:30 - 15:45

Room ExHallD

Organizers: Rob Denton (U. Minnesota), Max R. Lambert (UC Berkeley) and John Malone (U. Connecticut)

Sponsor: SSE

Topic: Sex determination, sex chromosomes, and their evolution profoundly influence sexually dimorphic traits, reproductive isolation, and speciation. In vertebrates, understanding the mechanisms of sex chromosome evolution has come primarily from studies of birds and Therian mammals but, in both cases, their sex chromosomes evolved hundreds of millions of years ago. Among all other vertebrates, sex chromosomes have evolved hundreds of times independently and many lineages have experienced transitions between sex determining modes with varying degrees of environmental and genetic control of sex across closely related taxa. Recent research from these organisms is generating new observations for understanding the patterns and processes underlying the evolution of sex determination and sex chromosomes, even reshaping our general models of sex chromosome evolution.

14:30 Unexpected patterns of dosage compensation across independently evolved XX/XY and ZZ/ZW turtle systems illuminate vertebrate sex chromosome evolution

Nicole Valenzuela, zhiqiang wu, Robert Literman, Basanta Bista

15:00 Convergence and divergence of sex chromosome gene content and expression

Melissa Wilson

15:15 Y-chromosome differentiation is associated with developmental transcriptome masculinization and earlier male gonad completion in common frogs

Wen-Juan Ma, Paris Veltsos, Roberto Sermier, Melissa Toups, Nicolas Rodrigues, Nicolas Perrin

15:30 Is there a universal epigenetic mechanism controlling temperature sex determination in reptiles?

Clare Holleley

Session SSE Hamilton Award Symposium 2

Saturday - 14:30 - 15:45

Room Ball_BC

14:30 The genomic ecosystem of transposable elements in maize

Michelle Stitzer

14:45 On the logic of Fisherian sexual selection in diploids

Pavitra Muralidhar, Carl Veller, David Haig

15:00 Haplodiploidy leads to heterogeneous genomic divergence during speciation

Emily Bendall, Vitor Sousa, Catherine Linnen

15:15 Genetic basis and evolutionary context for structural color shift in the Buckeye butterfly (*Junonia coenia*)

Rachel Thayer, Nipam Patel

15:30 Gene flow constrains the divergence of thermal performance curves in a widespread marine copepod

Matthew Sasaki, Hans Dam

Session Diversification 2

Saturday - 14:30 - 15:45

Room 551

14:30 How landscape features influence the genetic diversity of lizards with different habitat specialization in Australia

Jessica Fenker, Craig Moritz

14:45 Evolutionary history of Lake Tanganyika's Nile perch (*Lates* spp.)

Jessica Rick, Catherine Wagner

15:00 Shape Evolution and Diversification in North American Leuciscidae (Cypriniformes)

Milton Tan, Jonathan Armbruster

15:15 Diversification rate patterns across major North American freshwater fish lineages

Ava Ghezelayagh, Thomas Near

15:30 Inferring macroevolutionary dynamics of extinct clades: a test using 'bird-hipped' dinosaurs (*Ornithischia*)

David Černý, Daniel Madzia, Graham Slater

Session Selection 3

Saturday - 14:30 - 15:45

Room 552

- 14:30 A likelihood approach for uncovering selective sweep signatures from haplotype data**
Alexandre Harris, Michael DeGiorgio
- 14:45 The impact of domestication on the distribution of fitness effects and mutation spectrum of canids**
C. Eduardo Guerra Amorim, Clare Marsden, Bernard Kim, Tanya Phung, Jacqueline Robinson, Robert Wayne, Kirk Lohmueller
- 15:00 Robust and window-insensitive mixture model approaches for localizing balancing selection**
Xiaoheng Cheng, Michael DeGiorgio
- 15:15 The effect of autoploidy on selective sweeps and measures of selection**
Patrick Monahan, Arthur Zwaenepoel, Yaniv Brandvain
- 15:30 Background selection does not mimic the patterns of genetic diversity produced by selective sweeps**
Daniel Schrider

Session Adaptation 1

Saturday - 14:30 - 15:45

Room 553

- 14:30 Localized thermal adaptation in a broadcast spawner challenged by marine heatwaves: a seascape genomics study of Roe's abalone**
Luciano Beheregaray, Jonathan Sandoval-Castillo, Nicholas Robinson, Stephen Mayfield, Lachlan Strain, Lachlan Strain
- 14:45 Bill size evolution in response to human-mediated ecological change in a tidal marsh songbird.**
Phred Benham, Rauri Bowie
- 15:00 The Goldilocks Principle: intermediate-sized lakes are "just right" for intraspecific diversification in stickleback**
Daniel Bolnick
- 15:15 Vertebral number, body form and elevation: patterns of variation in populations of the Neotropical fish *Rhoadsia* (Characidae) inhabiting mountain streams of the Ecuadorian Andes**
Windsor Aguirre, Roberto Cucalon, Ashley Young, Ronald Navarrete-Amaya, Jonathan Valdiviezo-Rivera, Pedro Jimenez-Prado, Fredy Nugra-Salazar, Paola Calle-Delgado, Virginia Shervette
- 15:30 Genomic basis of convergent island phenotypes in boa constrictors**
Daren Card, Richard Adams, Drew Schield, Blair Perry, Andrew Corbin, Giulia Pasquesi, Kristopher Row, Juan Daza, Warren Booth, Chad Montgomery, Scott Boback, Todd Castoe

Session Evolutionary Ecology 3

Saturday - 14:30 - 15:45

Room 554

- 14:30 Examining changes in the realized niche and flowering niche across 150 years**
Jennifer Weber, Jason Brown, Colette Berg
- 14:45 Allocation to male function and its effect on fitness returns in the wind pollinated herb, *Ambrosia artemisiifolia***
Abrar Aljiboury, Jannice Friedman
- 15:00 Hybridization and geographic distribution shapes the spatial genetic structure of two co-occurring orchid species**
Fabio Pinheiro
- 15:15 Elucidating the evolutionary history of ciscoes (genus: *Coregonus*) using genomic approaches**
Moises Bernal, Daniel Yule, Gerald Smith, Wendylee Stott, Thomas Dowling, Trevor Krabbenhoft
- 15:30 Testing for range-wide rapid evolution to drought in *Erythranthe cardinalis***
Daniel Anstett, Amy Angert

Session Sexual Selection 1

Saturday - 14:30 - 15:45

Room 555

- 14:30 Can "good genes" in females maintain male mate choice in polygynous systems? A mathematical model.**
Courtney Fitzpatrick, Sumit Dhole, Maria Servedio
- 14:45 The fate of guppy color polymorphism in four introduction populations**
Jeff Arendt, David Reznick, Paul Bentzen
- 15:00 Molecular convergence in the evolution of a sex-linked dwarfism gene**
Pooja Singh, Michael Taborsky, Christian Sturmbauer
- 15:15 Patterns of sex-specific selection and inheritance of a colour pattern polymorphism in an Australian lizard**
Genevieve Matthews, David Chapple, Tim Connallon
- 15:30 The evolutionary impacts of male pregnancy on the testis transcriptome in syngnathid fishes**
Bernadette Johnson, Emily Rose, Andrew Anderson, Clayton Small, Adam G Jones

Session Phenotypic Plasticity 3

Saturday - 14:30 - 15:45

Room 556

- 14:30 A test for transgenerational plasticity in the adaptive divergence of acorn ant thermal tolerance across an urban-rural temperature cline**
Ryan Martin, Lacy Chick, Aaron Yilmaz, Sarah Diamond
- 14:45 Evolution of phenotypic plasticity and bet-hedging: A meta-analysis on insect diapause reaction norms**
Jens Joschinski, Dries Bonte
- 15:00 Phenotypic plasticity across a major evolutionary transition; can we predict the reponse?**
Beatriz Baselga Cervera, Noah Gettle, Michael Travisano
- 15:15 The (non)interaction between habitat construction and phenotypic plasticity in adaptation to variable environments**
Samuel Scheiner, Michael Barfield, Robert Holt
- 15:30 Can you trust what you see? How short-term costs to plasticity promote its long-term evolution when social environments vary**
Elizabeth Lange, Joseph Travis, Kimberly Hughes, Leithen M'Gonigle

Session Comparative Biology 1

Saturday - 14:30 - 15:45

Room 557

- 14:30 Coevolution of Asian amphibian species and chytrid fungus, a globally emerging pathogen**
Minjie Fu, John Eimes, Bruce Waldman
- 14:45 Habitat use, competition, and phylogenetic history shape the evolution of claw morphology in Lesser Antillean anoles**
Michael Yuan, Catherine Jung, Marvalee Wake, Ian Wang
- 15:00 Building a body shape morphospace of teleostean fishes**
Samantha Price
- 15:15 Analysis of evolutionary co-appearance of mobile dicistronic tRNA-mRNA transcripts and vasculature in land plants**
Lakshay Anand, Rakesh David, Carlos Rodriguez Lopez, Fei Zheng, Stephen Pederson, Na Sai
- 15:30 Macroevolutionary bursts and constraints generate a rainbow in a clade of tropical birds**
Jon Merwin, Glenn Seeholzer, Brian Smith

Session Genomics/Expression 1

Saturday - 14:30 - 15:45

Room Ball_DE

- 14:30 Antimicrobial peptide diversity in the giant desert hairy scorpion (Hadrurus arizonensis)**
Gunnar Nyström
- 14:45 Exploiting serial homology: Novel genes involved in tooth development and differentiation in cichlid fishes**
Nidal Karagic, Ralf Schneider, Axel Meyer, Darrin Hulsey
- 15:00 Intron position conservation illuminates evolution of Histone H2A variants in Nematodes**
Swadha Singh, Scott Roy

15:15 Transcriptional analysis of the effects of genetic variation on response of *Gasterosteus aculeatus* (three spined sticleback) to a cestode parasite

Lauren Fuess, Jesse Weber, Natalie Steinel, Stijn Den Haan, Daniel Bolnick

15:30 Investigating complex phenotypes using venom from the genus *Scolopendra*
Schlyer Ellsworth

Session Coffee break

Saturday - 15:45 - 16:15

Room ExHallB/C

Session Coffee for parents with kids @ Evolution

Saturday - 15:45 - 16:15

Room Rotunda

Open to all attendees; prior registration is not required.

Enjoy this coffee break with other parents who have kids of any age at the meeting. This is an opportunity to network with other parents and chat about everything from science to things to do with kids in Providence.

Session How do I choose? Methodological approaches for cutting-edge phylogenomic research 2

Saturday - 16:15 - 17:30

Room Ball_A

Organizer: Courtney Hofman (U. Oklahoma) and Brant Faircloth (Louisiana State U.)

Host: SSB

Topic: Next generation sequencing methods have fundamentally changed the types and amounts of DNA and RNA sequence data that we can collect from different organisms. However, the sheer number of different approaches is often overwhelming when researchers are trying to select the best technique(s) to address their particular questions. The goal of this SSB Spotlight Session is to focus on five important approaches for phylogenomic research--RAD Seq, RNA Seq, target enrichment, ancient DNA, and genome sequencing/re-sequencing. Presentations within the session will involve one overview talk for each approach and one empirical talk demonstrating how the approach was used within a phylogenetic framework to address a research question. Ideally both sets of talks for each major approach will provide attendees with information about the benefits and costs of each approach, analyses of the data collected, and utility of the approach for their research question. Presentations will also focus on a diversity of organisms and highlight the work of early-career researchers.

16:15 Domestic pigeon's checkered past: using comparative genomics to identify a link between wing color patterning, introgression, and hereditary blindness

Anna Vickrey, Michael Shapiro

16:30 Enriching for protein coding genes: phylogenies and beyond.

Felipe Zapata

16:45 Exon-based phylogenomics of the fish clade Ovalentaria

Lily Hughes

17:00 Expectations and challenges in rescuing ancient and degraded DNA

Courtney Hofman

17:15 DNA from museum specimens elucidates patterns and processes of cuscus evolution in Sulawesi, Indonesia

Lillian Parker, Michael Campana, Jesus Maldonado

Session Outside the models for understanding the evolution of sex chromosomes and sex determination: insights from fishes, amphibians, and reptiles 2

Saturday - 16:15 - 17:30

Room ExHallD

Organizers: Rob Denton (U. Minnesota), Max R. Lambert (UC Berkeley) and John Malone (U. Connecticut)

Sponsor: SSE

Topic: Sex determination, sex chromosomes, and their evolution profoundly influence sexually dimorphic traits, reproductive isolation, and speciation. In vertebrates, understanding the mechanisms of sex chromosome evolution has come primarily from studies of birds and Therian mammals but, in both cases, their sex chromosomes evolved hundreds of millions of years ago. Among all other vertebrates, sex chromosomes have evolved hundreds of times independently and many lineages have experienced transitions between sex determining modes with varying degrees of environmental and genetic control of sex across closely related taxa. Recent research from these organisms is generating new observations for understanding the patterns and processes underlying the evolution of sex determination and sex chromosomes, even reshaping our general

models of sex chromosome evolution.

16:15 Sex chromosome evolution: lessons from non-traditional model reptiles

Zexian Zhu, Kazumi Matsubara, Foyez Shams, Tony Gamble, Arthur Georges, Stephen Sarre, Graves Jennifer, Qi Zhou, Tariq Ezaz

16:30 Meiotic double strand breaks and gene conversion across the young sex chromosomes of threespine stickleback

Michael White

16:45 Intra- and inter-specific variation in sex chromosome differentiation and dosage compensation in livebearers

Judith Mank

Session SSE Hamilton Award Symposium 3

Saturday - 16:15 - 17:30

Room Ball_BC

16:15 Complexity and convergence: Using experimental evolution to uncover the molecular genetic mechanisms that drive adaptive innovations

Noah Gettle, Michael Travisano

16:30 Genomics of adaptation to herbicides and agriculture

Julia Kreiner, Detlef Weigel, John Stinchcombe, Stephen Wright

16:45 The home advantage: ancestral microbes aid host adaptation in novel environments

Aparna Agarwal, Deepa Agashe

17:00 Getting to the bottom of it: Morphological diversification in benthic teleosts

Sarah Friedman, Samantha Price, Peter Wainwright

17:15 Local adaptation at range edges and under anomalous climates

Megan Bontrager, Amy Angert

Session Diversification 3

Saturday - 16:15 - 17:30

Room 551

16:15 Fish radiations in and out of South American freshwaters

Guillermo Orti, Lily Hughes, Yamila Cardoso, DAHIANA ARCILA, Ricardo Betancur-R.

16:30 Phylogenomics and the evolution of defensive traits in ants

Benjamin Blanchard, Corrie Moreau

16:45 Squamate diversification in South American Dry Diagonal

Flavia Lanna, Frank Burbrink, Guarino Colli, Bryan Carstens

17:00 Comparative transcriptomics support the wing gene cooption hypothesis for the origin of the novel treehopper helmet

Elizabeth Jockusch, C. Fisher, Jill Wegrzyn

17:15 What can lichens tell us about the latitudinal diversity gradient?

Klara Scharnagl, Alan Prather

Session Molecular Ecology 1

Saturday - 16:15 - 17:30

Room 552

16:15 Detecting the signature of polygenic adaptation in temporal datasets

Vince Buffalo, Graham Coop

16:30 The effects of pleiotropy and epistasis on genome-wide scans for adaptive outlier loci

Adam G Jones, Stevan Arnold, Reinhard Bürger

16:45 Genomic Signatures of Evolution in Nautilus, an endangered living fossil

Sarah Lemer, David Combosch, Gonzalo Giribet

17:00 Towards population genomics analyses in Chlamydomonas reinhardtii

Rory Craig, Rob Ness, Peter Keightley

17:15 Functional variants of DOG1 control seed chilling responses and drive variation in seasonal life history strategies in Arabidopsis thaliana

Alejandra Martinez-Berdeja, Michelle Stitzer, Johanna Schmitt

Session Adaptation 2

Saturday - 16:15 - 17:30

Room 553

- 16:15 Local adaptation in structured populations: a simulation-based study in heterogeneous riverine environments**
Andréa Thomaz, Michael Whitlock
- 16:30 Adapting to life in the trees: evolution, genetics and function of deer mouse whiskers**
Jacob Gable, Hopi Hoekstra
- 16:45 Sex in a warming world: thermal effects on sex determination, sex conversion and sex-specific survival**
Suzanne Edmands
- 17:00 Adaptation of partially clonal populations under spatial structure**
Maria Orive, Michael Barfield, Robert Holt
- 17:15 Adapting the Ornstein-Uhlenbeck model to test for adaptive divergence between paired taxa.**
Sean Anderson, Jason Weir

Session Evolutionary Ecology 4

Saturday - 16:15 - 17:30

Room 554

- 16:15 Environmental heterogeneity maintains variation in life cycle and reproduction in an annual plant**
Jannice Friedman, Matthew Rubin
- 16:30 A meta-analysis of natural selection on plant functional traits**
Christina Caruso, Hafiz Maherali, Ryan Martin
- 16:45 Can changes in phenology alter the strength of natural selection on physiological and phenological traits?**
Michelle D'Aguillo, Kathleen Donohue
- 17:00 Does genetic variation in phenology explain phenological patterns in natural populations?**
Victoria DeLeo, David Des Marais, Tom Juenger, Jesse Lasky
- 17:15 Climate-associated gene expression patterns can predict flowering time in *Arabidopsis thaliana***
Melis Akman, Jack Colicchio, Benjamin Blackman

Session Sexual Selection 2

Saturday - 16:15 - 17:30

Room 555

- 16:15 Spatial constraints have limited influence on sexual selection via extra-pair paternity**
Emily Cramer, Emma Greig, Sara Kaiser
- 16:30 Modeling sexual selection as sequential pairwise contests**
Andrew Clark
- 16:45 Phylogenetic pattern of genital asymmetry in Anablepid fishes and its role in multiple paternity**
Julián Torres-Dowdall, Sina Rometsch, Axel Meyer
- 17:00 Direct benefits of mate choice in the katydid *Poecilimon veluchianus***
Karoline Fritzsche, Jonathan Henshaw, Steven Ramm, Klaus Reinhold, Brian Mautz
- 17:15 Giants in a world of dwarves: the evolution of extreme hindlegs and body size in male tree lobster stick insects**
Romain Boisseau, Sven Bradler, Douglas Emlen

Session Mutualism

Saturday - 16:15 - 17:30

Room 556

- 16:15 Host-microbiome interactions under stress: ecological and evolutionary consequences**
Anna O'Brien, Megan Frederickson
- 16:30 Coevolution in facultative and obligate mutualisms in the presence of exploiters**
Mayra Vidal, Kari Segraves

- 16:45 Global repeated replacement of bacterial symbionts by fungal pathogens in cicadas**
Eric Gordon, Piotr Łukasik, Diler Haji, Alan Lemmon, Emily Moriarty Lemmon, John McCutcheon, Chris Simon
- 17:00 Phylogeny & ecology predict taxonomic & functional composition of ants' microbiomes**
Jacob Russell, Yi Hu, Piotr Łukasik, Christian Cabuslay, Catherine D'Amelio, Justin Newton, Jon Sanders, Brian Wray, Narayan Wong, Andrew Suarez, Corrie Moreau
- 17:15 Frequent Horizontal Transmission, Recombination, and Horizontal Gene Transfer Maintain Ever-Young Endosymbiont Genomes**
Shelbi Russell, Russell Corbett-Detig

Session Comparative Biology 2

Saturday - 16:15 - 17:30 **Room 557**

- 16:15 Locomotory adaptations and morphological rates in Rodentia: a comparative analysis of constraint and diversification within the appendicular skeleton ~~withdrawn 2019-06-16~~**
13:51:26.0
Carl Saltzberg
- 16:30 What makes a fang? Phylogenetic and ecological controls on dental evolution in rear-fanged snakes**
Erin Westeen, Michael Grundler, Andrew Durso, Daniel Rabosky, Alison Davis Rabosky
- 16:45 Evolutionary dynamics of genome size in a radiation of woody plants (Viburnum)**
Morgan Moeglein, David Chatelet, Michael Donoghue, erika edwards
- 17:00 Trait differentiation through modular toxin expression in the Black-Speckled and Talamancan Palm-Pitvipers**
Andrew Mason, Mark Margres, Mahmood Sasa, Darin Rokyta, Christopher Parkinson
- 17:15 How diversity in parental care evolves: a phylogenetic comparative study in amphibians**
Andrew Furness, Isabella Capellini

Session Genomics/Expression 2

Saturday - 16:15 - 17:30 **Room Ball_DE**

- 16:15 Population-specific sequence and expression differentiation in Europeans**
Xueyuan Jiang, Raquel Assis
- 16:30 The ghost of temperature past: interaction of previous and current thermal conditions on gene expression in *Manduca sexta***
Meggan Alston, Jeeyun Lee, M. Elizabeth Moore, joel Kingsolver, Christopher Willett
- 16:45 Ocean warming rather than acidification shapes the transcriptomic and proteomic response of a juvenile coral reef fish**
Alison Monroe, Michael Jarrold, Celia Schunter, Huoming Zhang, Philip Munday, Timothy Ravasi
- 17:00 Alternative splicing across the rapidly evolving *Oryza sativa* complex**
Nathan Catlin, Rod Wing, W. Brad Barbazuk
- 17:15 The Genetic Anatomy of the Eastern Diamondback Rattlesnake (*Crotalus adamanteus*)**
Michael Hogan

Session ASN poster award committee meeting

Saturday - 17:00 - 20:00 **Room 550A**

Poster Session Posters: Adaptation 1

Saturday - 17:30 - 19:30 **Room ExHallBC_01**

Poster board #1 Evolution of burrowing and associated behavioral traits in Lagomorphs
Harsha Kumar, Nandini Rajamani

Poster board #2 Characterizing the impact of a natural toxin mix on *Drosophila* species
Lauren Haynes, Clare Scott Chialvo, Jordan Beveridge, Sarah-Ashley Giambrone, Olivia Fish, Laura Reed

- Poster board #3 **Assessing the genomes of *Drosophila* species for genetic indicators of alpha-amanitin tolerance**
Olivia Fish, Clare Scott Chialvo, Rebecca Varney, Laura Reed
- Poster board #4 **Quantifying the impact of the gut microbiome on toxin tolerance in mushroom-feeding *Drosophila***
Sarah-Ashley Giambrone, Jordan Beveridge, Olivia Fish, Lauren Haynes, Bailey Lose, Clare Scott Chialvo, Laura Reed
- Poster board #5 **Assessing the evolution of alpha-amanitin tolerance in mushroom-feeding *Drosophila***
Jordan Beveridge, Olivia Fish, Lauren Haynes, Sarah-Ashley Giambrone, Clare Scott Chialvo, Laura Reed
- Poster board #6 **Thermal adaptation to local temperature: fine-scale phenotypic and genetic differentiation in the widespread rainbow darter (*Etheostoma caeruleum*)**
Daniel Oliveira, Sarah Fitzpatrick
- Poster board #7 **The home advantage: ancestral microbes aid adaptation to novel environments**
Aparna Agarwal, Deepa Agashe
- Poster board #8 **Variation in reproductive traits among house mice from different regions in the Americas**
Tiffany Longo Longo, Jesse Bragger, Mallory Ballinger, Michael Nachman, Megan Phifer-Rixey
- Poster board #9 **Evolution of dispersal in space and time**
Courtney Van Den Elzen, Nancy Emery
- Poster board #10 **Urban plant evolution: A case-study with *Capsella bursa-pastoris* in New York City**
Rebecca Panko, Daniel Bunker
- Poster board #11 **Life History Trade-Offs in *Callosbruchus maculatus* as Measured Through Additive Genetic Correlations** **withdrawn 2019-06-20 13:37:00.0**
Jacob Botello, Matthew Wolak

Topic Posters: Education/outreach 1

- Poster board #64 **The Mind Hears: a new mentoring forum for deaf and hard-of-hearing academics**
Ana Caicedo, Michele Cooke
- Poster board #65 **Leveraging evolutionary research in citizen science and teacher education: An example using Mediterranean geckos (*Hemidactylus turcicus*) at Oklahoma's only metropolitan university**
Allyson Fenwick
- Poster board #66 **Unwelcome behaviors at the Evolution meetings: Survey results**
Brian O'Meara, Andrea Case, JODIE WIGGINS, Kelly Zamudio, Regina Baucom, Sharon Strauss

Topic Posters: Evolutionary ecology 1

- Poster board #67 **Physiological responses of native and invasive wavyleaf basketgrass (*Oplismenus undulatifolius*) to environmental variables**
Emma Dressel, Carrie Wu
- Poster board #68 **Investigating the Potential for Evolutionary Rescue by Association in a Model Cnidarian-Dinoflagellate Symbiosis**
Jennica Moffat, Casey terHorst
- Poster board #69 **When to defend? Variation in defense traits along multiple resource gradients**
Neha Mohan Babu, Mark Ritchie
- Poster board #70 **Trade-offs in Defense: Does Resistance to Herbicide come at the Expense of Resistance to Herbivory?**
Nia Johnson, Regina Baucom
- Poster board #71 **Next-generation sequencing of fecal samples reveals extensive trans-species polymorphism in the major histocompatibility complex in mandrills and related primates**
Anna Weber, Amour Mickala, Jackie Lighten, Cock van Oosterhout, Katharine Abernethy, David Lehmann, Stephan Ntie, Patrick Mickala, Nicola Anthony

Poster **Pollination efficiency of a generalist species following a hurricane in Haiti**
board *Julie Faure, Simon Joly*
#72

Topic Posters: Genomics 1

Poster **A Genetic Contribution to Split Sex Ratios in the Ants, *Formica glacialis* and *Formica podzolica***
board *German Lagunas-Robles, Jessica Purcell, Alan Brelsford*

#73

Poster **Ribosomal RNA copy number under natural selection**
board *Mark Williamson*

#74

Poster **Population Genomics of a Tropical Euryhaline Fish Distributed Across a Salinity Gradient**
board *Alexander Mauro, Elias Oziolor, Andrew Whitehead, Cameron Ghalambor*

#75

Poster **Comparative venom gland transcriptomics of wandering spiders (Araneae:Ctenidae)**
board *Timothy Cole, Michael Brewer*

#76

Poster **Extensive negative linkage disequilibrium between amino acid changing variants reveals interference among deleterious mutations in the human genome**

#77 *JESSE GARCIA, Kirk Lohmueller*

Poster **Enhancer runaway and the evolution of gene expression in *Capsella grandiflora***
board *Bianca Sacchi, Stephen Wright*

#78

Poster **Genetic architecture of tristily**
board *Haoran Xue, Stephen Wright, Spencer Barrett*

#79

Poster **Copy number variation of V genes of the adaptive immune system in the Great Apes**
board *Hao Yiu*

#80

Topic Posters: Host-parasite

Poster **Exploring signal evolution in Neotropical weakly-electric fish**
board *Bruna Silva, Luis De León*

#81

Poster **Studying phage-bacteria interactions: what microtiter plate-based assays tell us about phage virulence and bacteria resistance**

#82 *Rachel Loney, Will Stump, Madeleine Miller, Sam Roth, Veronique Delesalle, greg krukonis, Rachel Wert, Olivia Chatowsky, Zowie Searcy*

Poster **Symbiont Replacement in North American Cicadas**
board *Jason Vaillionis, Eric Gordon, Chris Simon*

#83

Poster **Effect of Bacteriophage Attachment on Plaque Size and Productivity**
board *Kristen Bailey, Richard Heineman*

#84

Poster **Don't count your metacercariae before the snail is cracked: Can definitive host mortality be predicted by intermediate host infection patterns?**

#85 *Rebecca Bachtel, Jennifer Koop*

Poster **Introduction of novel parasite leads to demographic compensation in guppy population**
board *Emma Rogowski, Ronald Bassar*

#86

Poster **Assessing the transcriptional response to a body-snatching parasite in the mud crab *Rhithropanopeus harrisi***

#87 *Zachary Tobias, Carolyn Tepolt*

Poster **Factors Influencing Ectoparasite Diversity Among Passerine Hosts on Bioko Island, Equatorial Guinea**

#88 *Steve Miller*

Poster board #89 **Population history of rice-infecting *Magnaporthe oryzae* populations**
Sergio Latorre, Claudia Reyes-Avila, Joe Win, Sophien Kamoun, Hernán Burbano

Poster board #90 **Ecological interactions among trypanosomatids (Kinetoplastida: Trypanosomatidae) and blowflies (Insecta: Calliphoridae) with different feeding habits**
Vanessa A. S. Cunha, Gustavo A. Faria, Carla A. S. S. Chibante, Marta Campaner, Marta M. G. Teixeira, Erney P. Camargo, Tatiana T. Torres

Topic Posters: Macroevolution/paleobiology

Poster board #91 **The original conifer cone - What did it look like?**
Julian Kevin Herting, Thomas Stützel, Kristina Klaus

Poster board #92 **Global cooling & the rise of modern grasslands: Revealing cause & effect of environmental change on insect diversification dynamics**
Katie Davis, Jon Hill, Adam Bakewell, Hojun Song, Peter Mayhew

Poster board #93 **A combined phylogenetic analysis of Pan-Alcidae (Aves: Charadriiformes) integrating morphology, sequence, and fossil data**
Alexandria DiGiacomo, Tracy Heath, Robert Meredith

Poster board #94 **Marine speciation rates across the Palaeocene-Eocene Thermal Maximum reef gap**
Katie Davis

Poster board #95 **Dietary Ecomorphological Dispersion and Phenotypic Integration in Felidae and Mustelidae (Mammalia; Carnivora)**
Ricardo Ely

Poster board #96 **Evolution of vetigastropod shell shape in the Mesozoic and early Cenozoic Eras**
Tauana Cunha, Gonzalo Giribet

Poster board #97 **Demographic modeling identifies introgressed genes in Lake Kivu cichlid radiation**
Reid Olson, Catherine Wagner, Chad Brock

Topic Posters: Pathogens

Poster board #98 **Does the presence of phage affect biofilm formation in *Bacillus subtilis* strains?**
Will Stump, Rachel Loney, Sam Roth, Veronique Delesalle, greg krukonis, Olivia Chatowsky, Rachel Wert, Zowie Searcy, Madeleine Miller

Poster board #99 **The impacts of spatial structure on the evolution of antibiotic resistance**
Mahfuza Akter

Poster board #100 **Ecological genetics of the ubiquitous plant pathogen *Pseudomonas syringae***
Rebecca Satterwhite, Joy Bergelson

Poster board #101 ***Vibrio fischeri* Adaptation to a novel sepiolid squid host is linked to increased pathogenicity in caridean shrimp**
Ekaterina Mashanova, Sophia Guglielmo, Clarissa Beilema, William Soto

Poster board #102 **Comparative transcriptomics of three lizard plasmodium species**
Sarah Pangburn, Janus Borner, Susan Perkins

Topic Posters: Phenotypic plasticity/GxE 1

Poster board #103 **Reproductive interference induces plastic changes to male display**
Rebecca Moss, Megan Higgle, Conrad Hoskin

- Poster board #104 **Do warmer temperatures increase the effects of spontaneous mutations in *Daphnia pulex*?**
Libby Davenport, Trenton Agrelus, Krista Harmon, Jeff Dudycha
- Poster board #105 **Improving Genomic Prediction Models in Balsam Poplar by Incorporating Genotype by Environment Interaction**
Baxter Worthing
- Poster board #106 **Variation of chick growth in response to climate change in four high latitude seabird species**
Drew Sauve
- Poster board #107 **Role of DNA methylation in gene regulation and phenotypic responses of Eastern oyster exposed to ocean acidification**
Alan Downey-Wall

Topic Posters: Phylogenetic comparative methods

- Poster board #108 **Notung: Software to infer evolutionary events by comparing phylogenetic trees**
Maureen Stolzer, Rosanna Alderson, Han Lai, Minli Xu, Dannie Durand
- Poster board #109 **Local effects of fossil calibrations overwhelm estimated divergence-times**
Manpreet Kohli, Jessica Ware
- Poster board #110 **Some new methods for analyzing discrete character evolution on phylogenies**
Liam Revell
- Poster board #111 **Evolution of facial color patterns in didelphid marsupials (Marsupialia: Didelphimorphia)**
Cayo Dias, Gabby Guilhon, Fernando Perini
- Poster board #112 **Informing comparative analyses of trait evolution using knowledge graphs (ontologies)**
James Balhoff, Wasila Dahdul, Hilmar Lapp, Paula Mabee, Sergei Tarasov, Josef Uyeda, Todd Vision
- Poster board #113 **Evolution of converging flower morphologies in Antillean Gesneriaceae associated with multiple pollination syndromes**
Marion Leménager, Simon Joly
- Poster board #114 **Are potential photosynthetic trade-offs mediated by evolutionary history in Cryptophyte algae?**
Jake Swanson, Matthew Greenwold, Tammi Richardson, Jeff Dudycha
- Poster board #115 **Phylogenetically-aligned Components Analysis: a new phylogenetic ordination method**
Michael Collyer, Dean Adams
- Poster board #116 **How to stick thousands of insect eggs on a phylogenetic tree**
Bruno de Medeiros, Samuel Church, Seth Donoughe, Cassandra Extavour

Topic Posters: Phylogenetic method development/theory

- Poster board #117 **The empirical evaluation on the performance and the accuracy of Median-Joining networks and comparisons with Bayesian phylogenies**
Sungsik Kong, Robert Murphy
- Poster board #118 **Fast inference of metric species trees from topological gene trees**
Samaneh Yourdkhani, John Rhodes
- Poster board #119 **Insights from a general, full-likelihood Bayesian approach to inferring shared evolutionary events from genomic data**
Kerry Cobb, Jamie Oaks

Topic Posters: Pollination

- Poster board #120 **Why Clarkia flowers have two types of anthers: the conflicting role of bees as pollinators and pollen consumers**
Diana Tataru, Kathleen Kay, Tania Jogesh
- Poster board #121 **Pollination-herbivory tradeoffs across clades**
Michael Foisy, Marjorie Weber
- Poster board #122 **On the range edge of bird-plant specialized relationships: pollination by generalist passerines in *Aeschynanthus acuminatus* (Gesneriaceae) in Taiwan**
Jing-Yi Lu, Kai-Hsiu Chen, Chun-Neng Wang
- Poster board #123 **Patterns of wild radish pollen deposition on bees and flies**
Andrew Lacina, Anne Royer
- Poster board #124 **Alignment Of Interests In The Joshua Tree - Yucca Moth Pollination Mutualism**
Albert Dang
- Poster board #125 **The effect of the pollinator environment on plant reproductive strategies**
Anahi Espindola, Urs Weber
- Poster board #126 **Structure of pollination networks along a latitudinal gradient**
Giancarlo Gomez, Jeremy Yoder

Topic Posters: Artificial selection/experimental evolution

- Poster board #12 **Predictability and Parallel Genetic Evolution using Evolve and Resequence in *Drosophila***
Luke Jones
- Poster board #13 **Heritability of resistance against ectoparasitism in the *Drosophila*-*Gamasodes* system**
Harmanpreet Singh, Joy Bose, Michal Polak, Joshua Benoit
- Poster board #14 **The evolution of virulence within heterogeneous host populations: an experimental approach**
P. Signe White, Arthur Menezes, Angela Choi, Rishika Pandey, McKenna Penley, Jacobus de Roode, Levi Morran
- Poster board #15 **Rapid evolution of tissue-like traits during a multicellular transition**
Rodrigo Zorrilla Gonzalez, Beatriz Baselga Cervera, Michael Travisano
- Poster board #16 **Life-history evolution in *Daphnia*: Is density-dependence as important as size selection?**
Kelsey Lyberger, Sebastian Schreiber, THOMAS SCHOENER
- Poster board #17 **Does surviving heatwaves future-proof populations?**
Jennifer Cocciardi, Conrad Hoskin, Eleanor O'Brien, Megan Higgie
- Poster board #18 **Dispersal and cheating in a social amoeba**
James Medina, Joan Strassmann, David Queller, Fred Inglis
- Poster board #19 **The fitness cost of mismatch repair mutators in *Saccharomyces cerevisiae*: partitioning the mutational load** **withdrawn 2019-06-22 14:10:39.0**
Ben Galeota-Sprung

Topic Posters: Population genetics: inference of selection

- Poster board #127 **Genetic basis of differentiation between Galapagos Island wild tomato species**
Jacob Barnett, Ana Caicedo
- Poster board #128 **A genome scan for adaptation to high altitude in wild rhesus macaques**
Zachary Szpiech, Laurie Stevison
- Poster board #129 **Uncovering genes potentially under natural selection in Patagonian olive mouse (*Abrothrix olivacea*)**
Facundo Giorello, Enrique Lessa
- Poster board #130 **Mating system variation and the evolution of male reproductive traits and genes in deer mice (*Peromyscus*)** **withdrawn 2019-06-17 15:11:52.0**
Erin Voss, Michael Nachman
- Poster board #131 **Using high resolution SNP genotyping in wild chimpanzees to understand targets of natural selection across an active speciation zone.**
Dana Venditti
- Poster board #132 **Inferring parameters of selective sweeps through supervised learning**
Ian Vasconcellos Caldas, Andrew Clark, Philipp Messer
- Poster board #133 **Archaic and modern ancestry contributions to admixed American populations**
Alyssa Funk, Kelsey Witt-Dillon, Lesly Lopez, Emilia Huerta-Sánchez
- Poster board #134 **Signals of synergistic epistasis in *Capsella grandiflora***
Georgy Sandler
- Poster board #135 **Inferring adaptive introgression using Hidden Markov Models**
Jesper Svedberg, Vladimir Shchur, Rasmus Nielsen, Russell Corbett-Detig

Topic Posters: Population genetics: molecular ecology 1

- Poster board #136 **Population structure and diversity of parasitic dodder in Massachusetts cranberry bogs**
Jacob Scott, Katherine Ghantous, Hilary Sandler, Ana Caicedo
- Poster board #137 **Population genomics reveals evolutionary key in widespread species in South American grasslands**
Giovanna Giudicelli, Caroline Turchetto, Aureliano Bombarely, Loreta Freitas
- Poster board #138 **The tetrodotoxin resistance gene *SCN4A* is sex-linked in *Thamnophis sirtalis* snakes**
Kerry Gendreau, Michael Hague, Butch Brodie, Joel McGlothlin
- Poster board #139 **Historical stability impacts population dynamics of two Brazilian palm tree species**
Kathryn Mercier, Mariana Vasconcellos, Euder Glendes Andrade Martins, José Rubens Pirani, Fabian Michelangeli, Ana Carnaval
- Poster board #140 **Genomic divergence in sympatric Lake Tanganyika cichlid color morphs**
Alexander Lewanski, Catherine Wagner
- Poster board #141 **Sexually dimorphic and temperatural gene expression differences of the Great Bustard**
Gang Liu, Scott Edwards, Sangeet Lamichhaney, Lu Dong
- Poster board #142 **Fine-scale genetic structure of a marine mollusk: does larval dispersal shapes the connectivity along the Brazilian coast?**
Thainá Cortez, Sônia Andrade
- Poster board #143 **Landscape-level ecological genomics of a neotropical canopy tree, *Handroanthus guayacan*, on Barro Colorado Island, Panama**
John Burley, James Kellner, Brant Faircloth
- Poster board #144 **Understanding the impacts of sewage effluent on the genomic diversity and population connectivity of the fiddler crab (*Uca rapax*)**
Amaelia Zyck, Pavel Dimens, Stuart Willis, David Portnoy, Jonathan Puritz

Topic Posters: Reproductive isolation/hybridization

- Poster board #145 **An updated genetic map for *Silene latifolia* shows sex-specific selection**
Paris Veltsos, Lynda Delph
- Poster board #146 **Temporal reproductive isolation uncovers cryptic speciation in a common Caribbean brain coral**
Matias Gomez-Corrales, Valérie Chamberland, Mark Vermeij, Juan Sanchez
- Poster board #147 **Do immigrants have lower reproductive success than residents? A test with Trinidadian guppies**
José Jonathas Lira, Léa Blondel, Ashlee Prevost, Paul Bentzen, Dylan Fraser, Andrew Hendry
- Poster board #148 **Genetic basis of variation in circadian rhythm in the European corn borer (*Ostrinia nubilalis*)**
Yue Yu, Erik Dopman
- Poster board #149 **The efficacy of Dobzhansky-Muller incompatibilities as transient barriers to gene flow**
Tianzhu Xiong, James Mallet
- Poster board #150 **Mate-guarding behavior and prezygotic isolation between the tidepool copepod species, *Tigriopus californicus* and *Tigriopus japonicus***
Satomi Tsuboko-Ishii, Ron Burton
- Poster board #151 **Stable selection on a pleiotropic locus underlying divergent plumage traits between two warbler species**
Silu Wang, Sievert Rohwer, Darren Irwin
- Poster board #152 **Estimating premating isolation among allopatric *Anolis sagrei* populations**
Emmanuel D'Agostino, Anthony Geneva, Colin Donihue, Jonathan Losos
- Poster board #153 **Female mate preference in an incipient species of *Drosophila*** **withdrawn 2019-06-04**
21:24:47.0
Jenn Coughlan

Topic Posters: Reproductive systems

- Poster board #154 **Disentangling the effects of asexuality and hybridization on plant growth and defense**
Catherine Rushworth
- Poster board #155 **Self-incompatibility haplotypes can diversify through sequential mutation and gene conversion**
Alexander Harkness
- Poster board #156 **Differential strategies of *Myriophyllum spicatum* (Eurasian Watermilfoil) invasion in North America**
Anastasia Mozharova, Stuart Morey, Michie Yasuda, Rick Kesseli
- Poster board #157 **The transcriptomics of brain and gonadal tissue in sex changing Serranid fishes.**
Dakota Jackson, Micaela Colmenarez, Nathaniel Jue
- Poster board #158 **LATITUDINAL TREND IN THE REPRODUCTIVE MODE OF THE APHID *ACYRTHOSIPHON PISUM* (HARRIS)**
Sebastian Martel, Carmen Ossa, Christian Figueroa, jorge zamorano

Topic Posters: Sexual conflict

- Poster board #159 **Intralocus sexual conflict - a capacitor for genetic variance?**
Harshavardhan Thyagarajan
- Poster board #160 **Conflict and the Evolution of Sexual Dimorphism in the Trinidadian Guppy**
Alex Landy

- Poster board #161 **The fate of sexually antagonistic variation in finite populations with operational sex ratio bias**
Julio Rincones-Gamboa, Heath Blackmon
- Poster board #162 **An individual-based model to test quantitative genetic theory for the role of X-linked effects in the evolution of sexual dimorphism**
Maria Janeiro, Matthew Wolak

Topic Posters: Sexual selection

- Poster board #163 **Color as a predictor of success during male-male competition in the Trinidadian guppy, *Poecilia reticulata***
Alexa Guerrera
- Poster board #164 **Temperature shapes the costs, benefits, and geographic diversification of sexual coloration in a dragonfly**
Michael Moore, Cassandra Lis, Iulian Gherghel, Ryan Martin
- Poster board #165 **Testing reproductive tract toxicity as a mechanism of cryptic female choice in *Drosophila***
Brooke Peckenpaugh, Dean Castillo, Leonie Moyle
- Poster board #166 **Structurally assisted super black in colorful peacock spiders**
Dakota McCoy, Victoria McCoy, Nikolaj Mandsberg, Anna Shneidman, Joanna Aizenberg, Richard Prum, David Haig
- Poster board #167 **Optimal mate choice behavior determines the density dependence of sexual selection**
James Watts, Eileen Hebets, Brigitte Tenhumberg
- Poster board #168 **Male sex comb size in *Drosophila simulans* does not impact mating success**
Frederick Xu, Mohamed Noor

Topic Posters: Systematics/species delimitation

- Poster board #169 **Multilocus phylogenetic analysis and species delimitation of neotropical true frogs (Anura: Ranidae: *Rana*)**
daniel dudek, Josiah Townsend
- Poster board #170 **A demonstration of unsupervised machine learning in species delimitation**
Shahan Derkarabetian, Stephanie Castillo, Peter Koo, Sergey Ovchinnikov, Marshal Hedin
- Poster board #171 **Phylogenomic species delimitation and the reduction of species diversity in Antarctic Plunderfishes (Notothenioidei: Artedidraconidae)**
Elyse Parker, Alex Dornburg, Dan MacGuigan, Edgar Benavides, Thomas Near
- Poster board #172 **Morphological and genetic evidence support a hybridization event in baskettail dragonflies (Corduliidae: *Epitheca*)**
Rebecca Johnson, Nicholas Block
- Poster board #173 **Species delimitation in a genus of South American trees using phenotypic and genotypic data.**
Sarah Jacobs, Felipe Zapata
- Poster board #174 **Mitogenomics as a new approach to solve old problems in cestode systematics**
Bruna Trevisan, Fernando Marques
- Poster board #175 **Morphological assessment reveals candidate species of *Anolis* lizards to be truly cryptic**
Tanner Myers, Pietro Longo Hollanda de Mello, Richard Glor

Topic Posters: Undergraduate diversity at Evolution

- Poster board #176 **The effects of diet on aspects of body size in mice from different climates**
Sebastian Vera, Megan Phifer-Rixey, Summer Shaheed, Tiffany Longo Longo

- Poster board #177 **Molecular Branch Lengths Fit Trait Evolution Better than Does Time**
Kevin Surya, Chris Organ
- Poster board #178 **Assessing the species boundaries of the *Lonicera alpigena* species complex through species distribution modeling**
Nicole Tineo, Wendy Clement
- Poster board #179 **Studying the potential distribution for two evolutionary units associated to *Philisca tripunctata* (Anyphaenidae)**
María Pía Pacheco, Eduardo Soto
- Poster board #180 **Assessing Phenotypic Effects of Heat Stress and Starvation in the Economically Important Red Abalone, *Haliotis rufescens***
Carissa Romero, Danielle Nestler, Cristina Rodriguez, Lani Gleason
- Poster board #181 **Outcrossing of a wildflower with mixed mating systems may lead to outbreeding depression**
Kristin Schepke, Lauren Carley, Thomas Mitchell-Olds
- Poster board #182 **Recently diverged populations: Has mating preference evolved between host races?**
Alyssa Murray, Alycia Lackey, Thomas Powell
- Poster board #183 **How many ecotypes make up the world's most abundant photosynthetic organism?**
Maike Morrison, Mark Kirkpatrick
- Poster board #184 **Does climate limit arboreality in lungless salamanders?**
Lauren Mellenthin, Erica Baken, Dean Adams
- Poster board #185 **Uncoupling the mitochondria as a cellular defense mechanism**
Jia Yin Sum, Omera Matoo, Kristi Montooth
- Poster board #186 **The genetics of parallel evolution of hybrid male sterility in *Mimulus***
Andrea Sotelo, Andrea Sweigart
- Poster board #187 **Beetle, it's cold outside! Using the Research Experience for Teachers to develop and implement high school curriculum**
Nicoline Chambers

Topic Posters: Behavior 1

- Poster board #20 **The evolution of color polymorphism at multiple evolutionary scales**
Kinsey Brock, Danielle Edwards
- Poster board #21 **Fluctuating environmental stress and the maintenance of trioecy in nematodes**
Louis Bubrig
- Poster board #22 **Characterizing evolutionary strategies in wild *Drosophila* thermal preference via high resolution temporal sampling and broad geographic collections**
Denise Yoon, Jamilla Akhund-Zade, Alyssa Bangerter, Matthew Campbell, Nikolaos Polizos, Eric Wice, Julia Saltz, Mason Klein, Alan Bergland, Benjamin de Bivort
- Poster board #23 **Preliminary observations of the 'sleep-like' resting state in the broadclub cuttlefish, *Sepia latimanus***
Teresa Iglesias, Fabienne Ziadi, Gutnick Tamar, Lajbner Zdenek, Jonathan Miller, Michael Kuba
- Poster board #24 **Female Resistance to Sexual Coercion**
Samuel Snow, Suzanne Alonzo, Maria Servedio, Richard Prum
- Poster board #25 **Natural and anthropogenic sources of habitat variation influence exploration behavior, stress response, and brain morphology in a coastal fish**
Matthew Jenkins, Brian Langerhans, Kaj Hulthen, Nils Peterson, John Cummings, Alex Cabe
- Poster board #26 **Mate Preferences in Wild Caught Betta Splendes **withdrawn 2019-06-13 13:14:04.0****
Rachel Fay
- Poster board #27 **Fight without Flight: The nervy gene mutation causes hyperaggressive phenotypes in *Drosophila***
Kenichi Ishii, Kenta Asahina

Topic Posters: Biogeography 1

Poster Evolutionary inferences from ecological niche models
board *Tom Radomski, Kenneth Kozak*
#28

Poster Climate underlying species distribution in the Brazilian Dry Diagonal
board *Rafael Vergílio, João Claudio de Nascimento, Millke Morales, Wendy Arroyo Perez, Vera Solferini*
#29

Poster Gene flow and Population Structure in The Louisiana Iris Species Complex
board *Alex Zalmat, Noland Martin*
#30

Poster The origin and assembly of the alpine biome in the Hengduan mountains
board *Wenna Ding, Richard Ree, Yao-Wu Xing*
#31

Poster Arboreal plethodontid salamanders live in wetter, warmer climates than terrestrial species
board *Erica Baken, Lauren Mellenthin, Dean Adams*
#32

Poster Can environmental variables predict population sex ratios across a species range?
board *Tony Miller, Andrea Case, Oscar Valverde-Barrantes*
#33

Topic Posters: Bioinformatics 1

Poster Reference genome choice and filtering pipeline jointly impact phylogenetic analyses
board *Jessica Rick, Chad Brock, Catherine Wagner*
#34

Poster PHIIM: Scalable Statistical Introgression Mapping Using Approximate Coalescent-Based
board Inference and Resampling
#35 *Qiqige Wuyun*

Poster Divergence and positive selection of lineage-specific duplicate genes in dictyostelids
board *Saara Luna, Frederic Chain*
#36

Poster Transcriptome Sequencing of 100 Fishes from the Yangtze River
board *Yu Huang, Guillermo Orti, Lily Hughes, Xinhui Zhang, Min Wang, Qiong Shi*
#37

Topic Posters: Coevolution 1

Poster Using herbarium specimens to understand coevolution between legumes and nitrogen fixing
board bacteria
#38 *Renee Petipas, Maren Friesen*

Poster What to expect when you are expecting coevolutionary arms races.
board *Mark Zimmerman, Brian Langerhans*
#39

Poster Have the support and adhesive components of orb weaver capture thread coevolved?
board *Sean Kelly, Brent Opell, Hannah Elmore*
#40

Poster A Tale of Two Genomes: The population genomics of *Ensifer meliloti* and *Medicago truncatula*
board in the native range of *M. truncatula*
#41 *Alex Riley, Michael Grillo, Brendan Epstein, Peter Tiffin, Amy Marshall-Colon, Katy Heath*

Topic Posters: Comparative biology

- Poster board #42 **200 million years of anuran body size evolution in relation to geography, ecology, and life history**
Molly Womack, Rayna Bell
- Poster board #43 **Comparative Anatomy of the Submandibular Musculature of Trachycephalus (Anura: Lophohylini) with Comments on Vocal Sac Evolution in Lophohylini**
Pedro Henrique Moura, Ivan Sérgio Silva Filho
- Poster board #44 **3D geometric morphometrics of the braincases of flap-footed lizards (Gekkota: Pygopodidae) using microCT data**
Rebecca Laver, Juan Daza, Eric Pianka, Ian Brennan, Mark Hutchinson, Aaron Bauer
- Poster board #45 **Evolution of Diet Specialization across Neotropical Anurans: Alkaloid Sequestration and Environment**
Juan Santos, Tiffany Cheng, Taylor Lorea, David Cannatella, Rebecca Tarvin
- Poster board #46 **Life History Traits and Mitochondrial Protein Mutation Across Amphibia: Increased Diversification in Smaller Species with Small Families and Short Lives**
Benjamin de Leon III, Christopher Rivera, Priyangi Jaiyasuriya, Maryna Vicinanza, David Cannatella, Rebecca Tarvin, Juan Santos
- Poster board #47 **Concordance in a phylogeny of Hawaiian Drosophilidae flies**
Samuel Church, Cassandra Extavour
- Poster board #48 **Combining complex performance surfaces to explain patterns of morphological diversification in turtle shells**
C. Tristan Stayton
- Poster board #49 **A framework for high-resolution inference of natural selection through comparative population genomics of 100x100 Drosophila genomes**
Bernard Kim, Dmitri Petrov
- Poster board #50 **Hybridization propensity and determinants of hybrid fertility in Galliformes**
James Alfieri
- Poster board #51 **Genome size evolution in grasshopper family Acrididae**
Huateng Huang, Kuo Sun

Topic Posters: Conservation biology 1

- Poster board #52 **Using an integrative approach to settle whether two endemic East Texas mussels are different or synonymous**
Ava Laszlo, Ashley Broadbent, John Placyk, Lance Williams, Marsha Williams, Kate Hertweck, Joshua Banta
- Poster board #53 **Immunogenetic diversity across an imperiled rabbit and its invasive congener**
Kimberly Neil, T.J. McGreevy, David Rand
- Poster board #54 **Population genomics of an endemic Hawaiian bird and the effect of habitat fragmentation on 'elepaio demography**
Luke Campillo
- Poster board #55 **Genomic divergence, population structure, and admixture in the smallmouth basses (Micropterus dolomieu)**
Joseph Gunn, Leah Berkman, Lori Eggert
- Poster board #56 **Unexpected ecological consequences due to the presence of cry and cp4-epsps, in wild cotton plants in Yucatan Peninsula, Mexico**
Valeria Vázquez, Ana Wegier, Tania Sosa Fuentes, Universidad Nacional de México, Martin Heil, Karina Boege, Patricia Rojas-Fernández

Topic Posters: Diversification

- Poster board #57 **Taxonomic ranking and time of diversification in the Neotropics**
Vera Solferini, João Claudio de Nascimento
- Poster board #58 **CT-Scanning Reveals that Guild Shapes Skull Evolution in Malagasy Gernsnakes**
Phillip Skipwith, Frank Burbrink

Poster board #59 **speciesRater: a platform in R for integrating species ranges, morphology and phylogeny.**
Pascal Title, Miriam Zelditch

Poster board #60 **Ecological diversification of *Vibrio fischeri* during the free-living phase and the subsequent consequences of this microbe to grow along a salinity gradient**
Nicholas Rosen, William Soto

Poster board #61 **Whether divergence time is a proxy for phylogeographic concordance: a case from Mountains of Southwest China vertebrate community**
Tao Wan, Huateng Huang, Jamie Oaks, Lacey Knowles

Poster board #62 **Upregulated Wnt signaling improves suction feeding in zebrafish**
Dave Matthews, Terry Dial, George Lauder

Poster board #63 **Did climate change drive diversification in Southern Appalachian salamanders?**
Kara Jones, David Weisrock

Session Evolution film festival

Saturday - 19:30 - 21:00

Room Ball_BC

One of the social highlights of the conference that should not be missed! We asked the science and science education communities to tell a story about evolution in 3 minutes or less using animation, art, music, dance, etc. Join us for an evening of terrifically informative and entertaining videos, while enjoying free popcorn and beer/wine/soda. To learn more and see past years' entries, go to evolutionfilmfestival.org and follow #evofilmfest on Twitter.

Session

Sunday - 8:20 - 9:20

Room ExHallA

SSB Presidential address: Susana Magallón - The timing of angiosperm evolution, and the complex science behind "including fossils"
Susana Magallón

Session ASN VP symposium: Politics, the public, and science: navigating the new reality 1

Sunday - 9:30 - 10:45

Room ExHallD

9:30 Science Reporting in the Age of Fake News
Carl Zimmer

10:00 Preaching to the choir, composing new verses, and recruiting new members: lessons learned from communicating science with diverse audiences
Meghan Duffy

Session The bright side of phylogenetics 1

Sunday - 9:30 - 10:45

Room Ball_A

Organizers: Michael Landis (Yale U.) and Rosana Zenil-Ferguson (U. Hawai'i Mānoa)

Host: SSB

Topic: Five years ago during Evolution 2014 in Raleigh, NC, Dr. Natalie Cooper organized an influential spotlight session called "The Dark Side of Phylogenetics". Dr. Cooper's symposium brought attention to ways that trusted phylogenetic comparative methods may produce misleading inferences, especially when models were faced with the complexities of biological traits or fitted to clades with rare and eccentric evolutionary histories.

Five years later, we propose a reflective exercise. How much have we learnt from failure? Are we overcoming difficulties? Can we make inferences despite technical difficulties? The Bright Side of Phylogenetics spotlight symposium will highlight research that has overcome certain known (and terrifying) phylogenetic pitfalls by different means, including the careful application of methods, the integration of natural history into studies, and the innovation of useful phylogenetic theory given that some models are useful. We characterize the symposium presenters as a group of cautiously optimistic scientists who are willing to advance the field of phylogenetics, despite the technical challenges that the community has encountered when designing and applying evolutionary models to biological data.

- 9:30 Drivers of chromosome evolution across the tree of life**
Heath Blackmon, Emma Goldberg, Joshua Justison
- 9:45 Functional correlations between traits and the inference of ancestral states: fruit syndromes in the plant clade *Viburnum***
Miranda Sinnott-Armstrong, Michael Donoghue
- 10:00 The role of geography and climate in the global diversification of turtles**
Robert Thomson
- 10:15 Embracing the hidden strengths of comparative methods: examples from models of trait-dependent diversification**
Jeremy Beaulieu
- 10:30 Evaluating identifiability and estimability of diversification models using data cloning**
Natya Hans, John Burleigh, Jose Ponciano

Session Gene Flow 1

Sunday - 9:30 - 10:45

Room 551

- 9:45 Crayfish populations genetically fragmented in streams impounded for 36-104 years**
Zanethia Barnett, Susan Adams, Clifford Ochs, Ryan Garrick
- 10:00 Parallel selection on introgression into maize from a highland endemic wild relative**
Erin Calfee, Daniel Gates, Anne Lorant, Graham Coop, Jeffrey Ross-Ibarra
- 10:15 The phylogenetic context of herbicide resistance in *Amaranthus* shows minimal spread through introgression**
Sandra Hoffberg
- 10:30 Spatial scale and gene flow in landscape genetics processes**
Van Wishingrad, Robert Thomson

Session Molecular Ecology 2

Sunday - 9:30 - 10:45

Room 552

- 9:30 Assessing the evolutionary response of eastern oyster larvae to exposure to coastal acidification and sewage effluent: a CASE study**
Jonathan Puritz, Johanna Harvey, Kathleen Lotterhos
- 9:45 Urbanization influences gene flow and genetic drift**
Lindsay Miles, Ruth Rivkin, Jason Munshi-South, Marc Johnson, Brian Verrelli
- 10:00 Parallel population structure in South American flies: Host, geography, or both?**
Robin Bagley, Heather Widmayer, Dacia Lipkea, marty Condon, Andrew Forbes
- 10:15 Interactions between host associations and geography drive diversification in a specialist herbivore**
Amanda Driscoe, Chris Nice, Robert Busbee, Glen Hood, Scott Egan, James Ott
- 10:30 Inferring landscape connectivity from genetic and environmental data in the yellow fever mosquito (*Aedes aegypti*)**
Evelyn Pless, Giuseppe Amatulli, Norah Saarman, Jeffrey Powell

Session Reproductive Biology 1

Sunday - 9:30 - 10:45

Room 553

- 9:30 Dynamic sex chromosomes in a recently-diverged clade of dwarf geckos (*Sphaerodactylidae*)**
Brendan Pinto, Juan Daza, Shannon Keating, Stuart Nielsen, Tony Gamble
- 9:45 Adaptive evolution of recombination rate in *Drosophila pseudoobscura***
Kieran Samuk, Mohamed Noor
- 10:00 Divergence at a post-mating, pre-zygotic interface in the Cabbage White butterfly**
Melissa Plakke
- 10:15 Form and function of the dolphin clitoris and why it matters**
Patricia Brennan, Dara Orbach
- 10:30 Evolutionary genomics of reproductive modes in pit vipers**
Margaret Lazzeroni

Session Reproductive Isolation 1

Sunday - 9:30 - 10:45

Room 554

- 9:30 Evidence for reinforcement in Willow and Alder flycatchers (genus Empidonax) from southern Ontario**
Ashley Bramwell, Jason Weir
- 9:45 Intraspecific divergence in floral-tube length promotes asymmetric pollen movement and reproductive isolation**
Bruce Anderson, Corniele Minnaar, Marinus de Jager
- 10:00 Reproductive isolation between a widespread and range-limited *Ranunculus* species**
Jessica Persinger, Pamela Thompson, Nicolas Diaz, Elizabeth Hendrickson, Katie Gerloff, Katie Kline, Mitch Cruzan
- 10:15 Patterns of hybrid seed inviability suggest parental conflict as an underlying driver of reproductive isolation in *Mimulus***
Jenn Coughlan, John Willis
- 10:30 Wing pheromones in *Heliconius* butterflies: neuroethology, genetics, and reproductive isolation**
Kelsey Byers

Session Ecology 1

Sunday - 9:30 - 10:45

Room 555

- 9:30 Testing competition hypothesis in Darwin's Finches**
Jose Barreiro Sanchez, Lucinda Lawson, Ken Petren
- 9:45 Defective interfering particles: a competition-based therapy against viruses**
Elsa Rousseau, Simone Bianco, Raul Andino
- 10:00 Differential responses of avian and mammalian predators to phenotypic variation in Australian Brood Frogs**
J.P. Lawrence, Michael Mahony, Brice Noonan
- 10:15 Stickleback armor genotype is correlated with predator presence and ecosystem size in intermittently-open estuaries in California**
Ben Wasserman, Antoine Paccard, Travis Apgar, Simone Des Roches, Rowan Barrett, Andrew Hendry, Eric Palkovacs
- 10:30 Mountaintop endemics and climate change: is warming always a problem?**
Vincent Farallo, Martha Muñoz

Session Speciation 1

Sunday - 9:30 - 10:45

Room 556

- 9:30 Adaptive radiations in the sea: What the flock?**
Brian Bowen
- 9:45 An asymmetric loss of reproductive isolation**
Kate Ostevik, Mark Rausher
- 10:00 QTL Mapping of Seed Dormancy, a Habitat Choice Trait Driving Species Divergence in *Mimulus***
Haley Arnold
- 10:15 The genetic basis of reproductive isolation between sympatric *Mimulus* species**
Samuel Mantel, Andrea Sweigart
- 10:30 Genome sorting during an adaptive radiation of monkeyflowers**
Thomas Nelson, Angela Stathos, Colette Berg, Yaowu Yuan, Lila Fishman

Session Education

Sunday - 9:30 - 10:45

Room 557

- 9:30 Incorporating discussions of diversity and equity into the classroom following undergraduate survey results highlighting importance of inclusion**
Lisa Walsh
- 9:45 Yearlong changes in evolution acceptance in a general student cohort**
Ryan Dunk, Jason Wiles
- 10:00 When science becomes political: studying NIDA's Cannabis**
Daniela Vergara, Ezra Huscher, Kyle Keepers, Nolan Kane
- 10:15 yEvo: teaching eukaryotic genetics and evolution with yeast**
Bryce Taylor, Maitreya Dunham, Alexa Warwick, Ryan Skophammer
- 10:30 What makes biology questions hard?**
Sarah Marion

Session Genomics 3

Sunday - 9:30 - 10:45

Room Ball_BC

- 9:30 Tempo and Mode of Gene Expression Evolution in the Brain Across the Primate Tree**
Courtney Babbitt
- 9:45 Effect sizes of somatic mutations: the selective advantage that each mutation confers to cancer cells**
Vincent Cannataro, Stephen Gaffney, Jeffrey Townsend
- 10:00 Modeling the role of LINE-1 transposable element activity in cancer genome evolution**
Jack LeBien, Gerald McCollam, Manisha Panta, Joel Atallah
- 10:15 Modeling maintenance of functional redundancy using tRNA genes**
Bryan Thornlow, Trevor Ridgley, James Casaletto, Todd Lowe, Russell Corbett-Detig
- 10:30 Cancer control is a key functionality underlying the evolution of extended lifespan in mammals**
Amanda Kowalczyk, Raghavendran Partha, Nathan Clark, Maria Chikina

Session Adaptation 3

Sunday - 9:30 - 10:45

Room Ball_DE

- 9:30 Opossums vs. vipers: molecular and functional characterization of a coevolving trait**
Danielle Drabek, Sharon Jansa, Antony Dean
- 9:45 Experimental evolution reveals a loss of physiological plasticity following rapid adaptation to greenhouse conditions**
Reid Brennan, Melissa Pespeni
- 10:00 The genomics of multivariate trait combinations and their influence on the predictability of evolution**
McCall Calvert, Meredith Doellman, Glen Hood, Scott Egan, Thomas Powell, Dan Hahn, Jeffrey Feder, Gregory Ragland
- 10:15 Lizards rocked by a hurricane: The ecological and evolutionary aftermath of Hurricane Maria across natural and urban habitats in Puerto Rico**
Kevin AvilesRodriguez, Liam Revell
- 10:30 Genetics and ecology of warning coloration variation in pine sawfly larvae**
Catherine Linnen, Robin Bagley, Claire O'Quin, Carita Lindstedt-Kareksela

Session Coffee break

Sunday - 10:45 - 11:15

Room ExHallB/C

Sponsored by:

[Nature Ecology & Evolution](#)

Session Evolutionary biologists with disabilities/allies coffee mixer

Sunday - 10:45 - 11:15

Room Rotunda

Open to all attendees; prior registration is not required.

Interested in meeting fellow evolutionary biologists with disabilities and interested allies? Want to discuss increasing the inclusion and representation of disabled students and staff in our diverse field? This is an informal chance to meet others interested in these topics, share experiences of disability in evolutionary biology, and hopefully increase our inclusion around issues of disability as a community. Anyone at any career stage and level of ability (including allies) is welcome to come join us.

**Session ASN VP symposium: Politics, the public, and science:
navigating the new reality 2**

Sunday - 11:15 - 12:30

Room ExHallD

11:15 Stories, Sense-Making, and the Nature of Knowledge

Liz Neeley

11:45 'Is Academia Sprinting, Strolling or Stumbling into Relevance?' (with apologies to J.J.

Selingo)

Jane Lubchenco

Session The bright side of phylogenetics 2

Sunday - 11:15 - 12:30

Room Ball_A

Organizers: Michael Landis (Yale U.) and Rosana Zenil-Ferguson (U. Hawai'i Mānoa)

Host: SSB

Topic: Five years ago during Evolution 2014 in Raleigh, NC, Dr. Natalie Cooper organized an influential spotlight session called "The Dark Side of Phylogenetics". Dr. Cooper's symposium brought attention to ways that trusted phylogenetic comparative methods may produce misleading inferences, especially when models were faced with the complexities of biological traits or fitted to clades with rare and eccentric evolutionary histories. Five years later, we propose a reflective exercise. How much have we learnt from failure? Are we overcoming difficulties? Can we make inferences despite technical difficulties? The Bright Side of Phylogenetics spotlight symposium will highlight research that has overcome certain known (and terrifying) phylogenetic pitfalls by different means, including the careful application of methods, the integration of natural history into studies, and the innovation of useful phylogenetic theory given that some models are useful. We characterize the symposium presenters as a group of cautiously optimistic scientists who are willing to advance the field of phylogenetics, despite the technical challenges that the community has encountered when designing and applying evolutionary models to biological data.

11:15 Inferring lineage-specific birth and death rates in phylogenies

Joelle Barido-Sottani

11:30 A morphospeciation model for integrating fossil character evolution with stratigraphic range data

Walker Pett

11:45 Accuracy and precision in phylogenomic divergence-time estimates

Michael Matschiner

12:00 Sympatric congeners as a selective force: Using phylogenies, climate and geographic data to infer the evolutionary history of species assemblages

Emilia Martins

Session Gene Flow 2

Sunday - 11:15 - 12:30

Room 551

11:15 Mito-nuclear genetic complexes in ancient hybrid warbler populations

Silu Wang, Madelyn Ore, Else Mikklesen, Sievert Rohwer, Darren Irwin

11:30 The timing and geography of adaptive Neanderthal introgression in modern humans

Sivan Yair, Kristin Lee, Iain Mathieson, Graham Coop

11:45 Integrating genetic and ecological data to model and forecast gene flow and habitat use in the major insect vector of sleeping sickness in Uganda (*Glossina fuscipes*)

Norah Saarman, Evlyn Pless, Giuseppe Amatulli, Adalgisa Caccone

12:00 Hiding in plain sight: genomics reveals potential cryptic homoploid hybrid speciation in a major global agricultural pest

Michael San Jose

12:15 Leveraging Both Ancestral and Derived Information to Detect Local Introgression

Lesly Lopez, Diego Ortega Del Vecchyo, Emily Jane McTavish, Emilia Huerta-Sánchez

Session Molecular Ecology 3

Sunday - 11:15 - 12:30

Room 552

- 11:15 Distribution and population genomics of groundwater amphipods in NW Montana**
Megan Ritter, Steve Jordan
- 11:30 Patterns of genomic diversity and dispersal among island populations of a fig wasp associated relative of *C. elegans***
Gavin Woodruff, John Willis, Patrick Phillips
- 11:45 Conservation Genomics: Using RAD-seq to Assess and Improve Species Translocations**
Samantha Capel
- 12:00 Evolution takes flight: population genetics of feral pigeons (*Columba livia*) in the Northeastern United States**
Elizabeth Carlen
- 12:15 Genotyping-in-Thousands by sequencing reveals marked population structure in Western Rattlesnakes to inform conservation status**
Danielle Schmidt, Nathan Campbell, Purnima Govindarajulu, Karl Larsen, Michael Russello

Session Reproductive Biology 2

Sunday - 11:15 - 12:30

Room 553

- 11:15 Rapid evolution of novel and diverse floral traits in recently-radiating *Jaltomata* (Solanaceae)**
Jamie Kostyun
- 11:30 Transcriptional analysis of post-copulatory interactions in cactophilic *Drosophila***
Luciano Matzkin, Fernando Diaz, Jeremy Bono
- 11:45 Heterogenous evolution of female reproductive tissues**
Caitlin McDonough, Kirill Borziak, Scott Pitnick, Steve Dorus
- 12:00 Functional effects of *Drosophila arizonae* male reproductive genes on female fertility**
Jeremy Bono, Jeff Callan, Erin Jordan, Luciano Matzkin
- 12:15 Fitness consequences of sexual signal loss in the Pacific field cricket (*Teleogryllus oceanicus*)**
Justa Heinen-Kay, Marlene Zuk

Session Reproductive Isolation 2

Sunday - 11:15 - 12:30

Room 554

- 11:15 Cascading reproductive isolation: Plant phenology drives temporal isolation among populations of a host-specific herbivore**
Glen Hood, Linyi Zhang, Elaine Hu, James Ott, Scott Egan
- 11:30 A tangled web: why do some individuals mate with the wrong species?**
Ginny Greenway, Jen Hamel, Christine Miller
- 11:45 Reproductive isolation in Hawaiian picture wing *Drosophila***
Donald Price, M Renee Bellinger, Elizabeth Stacy, Thomas Fezza, Andrea Moss
- 12:00 Divergent host use drives multiple premating reproductive barriers in pine sawflies**
Megan Thomas, Catherine Linnen
- 12:15 The evolution of reproductive isolation and recombination on the dwarf hamster X chromosome**
Emily Moore, Thomas Brekke, Jeffrey Good

Session Ecology 2

Sunday - 11:15 - 12:30

Room 555

- 11:15 Plant polyploidy promotes resilience to stress**
Thomas Anneberg, Shengpei Wang, David Althoff, Kari Segraves
- 11:30 The role of stomatal trait evolution in *Pooideae* (Poaceae) stress tolerance**
Aayudh Das, Jill Preston
- 11:45 Environmental and community turnover in Brazilian Dry Diagonal**
Millke Morales, Rafael Vergilio, Wendy Arroyo Perez, Vera Solferini

12:00 The diversity of bacterial biosynthetic gene clusters across turtle ants
Anaïs Chanson, Corrie Moreau, Christophe Duplais

12:15 Evolutionary history predicts microbiome composition for orders, but not species, of co-occurring mammals
Bianca Brown, Tyler Kartzinel, Jacob Goheen, Leo Malingati, Todd Palmer

Session Speciation 2

Sunday - 11:15 - 12:30

Room 556

11:15 Evolutionary history of an adaptive radiation of desert plants (Encelia)
Sonal Singhal

11:30 Parallel ecological divergence rather than progenitor-derivative speciation in an Amazonian palm species complex
Julissa Roncal, Christine Bacon, Tobias Anderman, Christopher Barnes, Henrik Balslev, Natalia Gutiérrez-Pinto, Hernán Morales, Luis Núñez-Avelleneda, Natalia Tunarosa, Alexandre Antonelli

11:45 Rapid evolution of postzygotic isolation among Mimulus tilingii groups
Gabrielle Sandstedt, Andrea Sweigart

12:00 Gene regulatory effects of hybrid sterility in Mimulus
Andrea Sweigart

12:15 Ecological divergence in sympatry causes hybrid gene misregulation
Joseph McGirr, Christopher Martin

Session Outreach/ Sp Interactions

Sunday - 11:15 - 12:30

Room 557

11:15 Tips for writing a successful research paper
Elliot Shubert

11:30 Pavement ants to population genomics: using citizen science to benefit invasion science
Andrea Lucky

11:45 Tasting the Tree of Life: A collaborative, cross-campus, science communication event
Wendy Clement, Kathryn Elliott, Okxana Cordova-Hoyos, Isabel Distefano, Kate Kearns, Raagni Kumar, Ashley Leto, Janis Tumaliuan, Evelyn Kulesza, Nicole Tineo, Jeffrey Osborn

12:00 Association with a novel beneficial microbe facilitates host adaptation to a stressful environment
Kim Hoang, Levi Morran, Nicole Gerardo

12:15 Priority effects in the plant root microbiome: does the order of arrival of two plant symbionts change infection outcomes?
Corlett Wood, Audrey Burr, Steven Cassidy

Session Genomics 4

Sunday - 11:15 - 12:30

Room Ball_BC

11:15 Return to the sea, get huge, beat cancer: cetecean genomes reveal the evolution of cancer suppression
Marc Tollis, Jooke Robbins, Per Palsbøll, Carlo Maley

11:30 Mitogenomics elucidates the true identity of Relicanthus daphneae
Madelyne Xiao, Mercer Brugler, Estefanía Rodríguez, Michael Broe, Luciana Gusmao, Marymegan Daly

11:45 The genomics of Hydractinia: understanding regeneration, allorecognition, and stem cell biology
*Christine Schnitzler, Anh-Dao Nguyen, Sergey Koren, James Gahan, Steven Sanders, Sebastian Gornik, Elizabeth Chang, Paul Gonzalez, Sofia Barreira, Nicola Wong, Oleg Simakov, Adam Phillippy, James Mullikin, Pauly Cartwright, Matthew Nicotra, Uri Frank, **Andreas Baxevanis***

12:00 Phylostratigraphic approaches reveal diverse patterns of human disease gene emergence across metazoans
Elizabeth Chang, Paul Gonzalez, Christine Schnitzler, Andreas Baxevanis

12:15 Exceptional copy number variation between and among populations of the eastern oyster (Crassostrea virginica).
Tejashree Modak, Marta Gomez-Chiarri, Rachel Schwartz

Session Adaptation 4

Sunday - 11:15 - 12:30

Room Ball_DE

11:15 Sex-specific adaptation to environmental change

Carla Sgro, Sandra Hangartner, Clementine Lasne, Keyne Monroe, Tim Connallon

11:30 Balancing selection in the native range promotes rapid parallel adaptation during invasions

David Stern, Carol Lee

11:45 Inversion polymorphisms suppress recombination across megabase-scale genomic blocks between locally adapted populations of the Atlantic silverside

Maria Akopyan, Arne Jacobs, Anna Tigano, Aryn Wilder, Hannes Baumann, Nina Therkildsen

12:00 The genetics of environmental adaptation in house mice

Megan Phifer-Rixey, Ke Bi, Felipe Martins, Michael Nachman

12:15 Genomic signatures of selection across the oxygen transport cascade in high-altitude deer mice

Rena Schweizer

Session Lunch

Sunday - 12:30 - 14:30

Room OnTheTown

Lunch is not provided for conference attendees (except for a few optional events that required pre-registration or council/editorial board meetings).

Session Meet the editors lunch

Sunday - 13:15 - 14:15

Room 553

Open to all attendees; prior registration is not required. Lunch is not provided but you can bring your own.

An informal question and answer session with a panel of editors/associate editors from the leading society-sponsored journals in our field:

- *American Naturalist*
- *Ecology and Evolution*
- *Evolution*
- *Evolution Letters*
- *Systematic Biology*

Session NSF information session

Sunday - 13:15 - 14:15

Room 554

Open to attendees; prior registration is not required. Lunch is not provided but you can bring your own.

An information session on NSF funding opportunities and program changes hosted by Samuel Scheiner & George Gilchrist (NSF Program Directors).

Session SSB society members business meeting

Sunday - 13:15 - 14:15

Room 557

Open to all SSB members. Lunch is not provided (you can bring your own). No registration required.

Session New measures of phylogenetic support for the genomic era 1

Sunday - 14:30 - 15:45

Room ExHallD

Organizers: Jeremy M. Brown (Louisiana State U.), Bob Thomson (U. Hawaii), Rob Lanfear (Australian National U.)

Sponsor: SSB

Topic: High-throughput sequencing has revolutionized the nature of genetic datasets used for phylogenetic inference, both in terms of the amount of sequence obtained per sample and the number of tips in the inferred trees. Many studies have now shown that traditional approaches (e.g., nonparametric bootstrapping, posterior probabilities, etc.) for assessing support across branches and trees have limited utility for modern datasets. Due to the amount of sequence data now common in phylogenomic studies, these measures often reach their maximum values and limit meaningful comparisons across genes, datasets, and analyses. Recently, a variety of alternative approaches have been proposed to more meaningfully assess support in the context of studies utilizing high-throughput sequencing. Creative application and comparison of these approaches has the potential to resolve long-standing phylogenetic debates and to clarify enigmatic relationships. To our knowledge, no concerted effort has been made to discuss and compare these approaches in a unified context, despite their importance across a wide variety of biological disciplines. In this symposium, we will bring together researchers from around the world who have been developing new approaches to assessing phylogenetic support. We aim to discuss the relative merits and drawbacks of these approaches and to highlight common themes.

14:30 Symposium introduction

Jeremy Brown

14:45 An evolving view of phylogenetic support

Chris Simon

15:00 Gene genealogy interrogation advances resolution of recalcitrant groups in the Tree of Life

DAHIANA ARCILA, Guillermo Orti, Ricardo Betancur-R.

15:15 Site- and gene-concordance measures of branch support for phylogenomic datasets

Minh Bui, Matthew Hahn, Robert Lanfear

15:30 Comparing genome-wide measures of phylogenetic support in squamates

Genevieve Mount

Session Origins, stability, and benefits of interspecific cooperation in a changing world 1

Sunday - 14:30 - 15:45

Room Ball_A

Organizer: Jeremy Yoder (California State U., Northridge)

Host: ASN

Topic: Research on the evolution and ecology of mutualism has diversified dramatically since its original focus on how cooperation between different species can be stabilized against the apparent selective advantages of noncooperation. Current empirical studies and theory of mutualism examine how the costs and benefits of cooperative interactions shift with environmental or community context, how multiple genes and traits may contribute to mutualism outcomes, and how variation in outcomes evolves. This Spotlight Session brings together research on the contextual benefits and stability of mutualism across a wide variety of empirical systems and modeling frameworks.

14:30 Floral symmetry and the structure of pollination networks

Jeremy Yoder, Colin Carlson

14:45 Nectar, pesticides, and bees: Fitness consequences of multiple dietary chemicals

Sarah Richman, Denyse Marquez Sanchez, Angela Smilanich, Anne Leonard

15:00 What makes a good partner? Genetic underpinnings of partner quality variation in the model legume-rhizobium mutualism.

Hanna Lindgren, Alex Riley, Katy Heath

15:15 Do symbionts benefit from symbiosis?: fitness of facultative symbionts in host and non-host environments under different contexts

Justine GARCIA, Tyler Larsen, David Queller, Joan Strassmann

Session Phylogenetic Methods 1

Sunday - 14:30 - 15:45

Room 551

14:30 Comparative analyses of phenotypic sequences: a case study using cricket songs

Daniel Caetano, Jeremy Beaulieu

14:45 Modeling phylogenetic biome shifts on a planet with a past

Michael Landis, erika edwards, Michael Donoghue

15:00 Incorporating prior information of developmental genetics in trait evolution with the Threshold Model: The Umbel-ivable Amaryllis Umbel as a case study.

Jesus Martinez-Gomez, Chelsea Specht, Irving Rose

- 15:15 Evolution of diet and feeding in Neotropical freshwater fishes**
Matthew Kolmann, Lily Hughes, L Patricia Hernandez, Hernan Lopez-Fernandez, Guillermo Orti
- 15:30 Macroevolutionary trends of microhabitat specialization in beardtongues**
Ben Stone, Andrea Wolfe

Session Molecular Ecology 4

Sunday - 14:30 - 15:45 **Room 552**

- 14:30 To stay home or go? Genomic and environmental correlates of life history variation in an amphidromous Hawaiian goby fish.**
Kristine Moody, Peter Lisi, J Hogan, Peter McIntyre, Michael Blum
- 14:45 Incipient speciation and secondary contact in the São Tomé caecilian**
Kyle O'Connell, Lauren Scheinberg, Kevin Mulder, Ivan Prates, Rayna Bell
- 15:00 Divergent signatures of genomic divergence during sympatric speciation in crater lake cichlid fish**
Axel Meyer, Andreas Kautt
- 15:15 Sexual signal diversity and population genetic structure in Amazonian anole lizards**
Ivan Prates, Annelise D'Angiolella, Paulo Melo-Sampaio, Miguel Rodrigues, Kevin de Queiroz, Rayna Bell
- 15:30 Evidence of genetic erosion in a peripheral population of a North American game bird: the Montezuma quail (*Cyrtonyx montezumae*)**
Samarth Mathur

Session Sexual Conflict

Sunday - 14:30 - 15:45 **Room 553**

- 14:30 The effect of sexual conflict in diversification rates of Acraeini butterflies (Nymphalidae)**
Ana Paula Carvalho, Akito Kawahara
- 14:45 The genomic architecture of sex-biased gene expression in *Xenopus***
Xue Ying Song, Benjamin Furman, Martin Knytl, Ian Dworkin, Ben Evans
- 15:00 Signs of sexually antagonistic selection on stickleback sex chromosomes**
Mark Kirkpatrick, Andrius Dagilis, Jason Sardell, Changde Cheng, Catherine Peichel
- 15:15 Mode of maternal provisioning builds a bridge between microevolution and macroevolution**
David Reznick
- 15:30 Limits to Genomic Divergence Between the Sexes: Theory and Empirical Tests**
Katja Kasimatis, Andrew Kern, Peter Ralph, Patrick Phillips

Session Convergent Evolution 1

Sunday - 14:30 - 15:45 **Room 554**

- 14:30 The Global Urban Evolution Project: Parallel Adaptation To The World's Urban Jungles**
James Santangelo, Global Urban Evolution Project
- 14:45 Finding genetic signatures of convergent evolution among three species of fish**
James Reeve
- 15:00 Convergence of Body Depth and Jaw Length of the Skeleton in Flatfishes (Pleuronectiformes)**
Corinthia Black, Peter Berendzen
- 15:15 Convergent polygenic evolution in African and Asian rainforest hunter-gatherers**
Christina Bergey, Marie Lopez, Genelle Harrison, Etienne Patin, Yair Field, Arbel Harpak, Jacob Cohen, Jonathan Pritchard, Lluís Quintana-Murci, Luis Barreiro, George Perry
- 15:30 The nature of parallel evolution in an Australian wildflower**
Maddie James, Melanie Wilkinson, Henry North, Jan Engelstaedter, Daniel Ortiz-Barrientos

Session Invasive Species

Sunday - 14:30 - 15:45 **Room 555**

- 14:30 Biological invasions on a large scale: Investigating population structure and life history traits of invasive baby's breath (*Gypsophila paniculata*) from two distinct ecosystems.**
Sarah Lamar, Charlyn Partridge
- 14:45 Morphological adaption to hypoxia in a range expanding African cyprinid**
David Hunt, Audrey Normand, Igor Mitrofanov, Andrew Hendry, Lauren Chapman
- 15:00 Invasive rat colonization history and movement dynamics in the Haida Gwaii archipelago**
Bryson Sjodin, Robyn Irvine, Emily Puckett, Jason Munshi-South, Adam Ford, Gregg Howald, Michael Russello
- 15:15 Herbarium genomics of a plant invasion**
Kathryn Turner
- 15:30 Invasion pathway of a parasitic nest fly of Darwin's finches**
Jennifer Koop, George Heimpel, Charlotte Causton, Sarah Knutie

Session Speciation/Systematics

Sunday - 14:30 - 15:45

Room 556

- 14:30 Sexual isolation accompanies divergent cuticular chemistry among species in the *Drosophila americana* group**
Jeremy Davis, Joanne Yew, Leonie Moyle
- 14:45 Does centromere drive underlie hybrid inviability in stickleback?**
Matthew Zuellig, Catherine Peichel
- 15:00 Diversification and species limits in the Lake Baikal sculpin radiation**
Andres Aguilar, Frank Gutierrez, Carl St. John, Michael Sandel, David Neely, Sergei Kirilchik, Bakhtiar Bogdanov
- 15:15 Comparison of species divergence time estimation using morphological and molecular characters**
Jose Barba-Montoya, Qiqing Tao, Sudhir Kumar
- 15:30 Phylogenomics, Electric Organ Discharge, and Cranial Evolution in Electric Fish (Mormyridae)**
Rose Peterson, Lily Hughes, Guillermo Orti

Session Life History 1

Sunday - 14:30 - 15:45

Room 557

- 14:30 The effect of overwintering length on the covariance among diapause developmental modules and seasonal timing in *Rhagoletis pomonella***
Pheobe Deneen, Thomas Powell
- 14:45 Local Environment Influences Reproduction, Parental Care, and Larval Traits in the Clownfish (*Amphiprion percula*)**
Tina Barbasch, Theresa Rueger, Maya Srinivasan, Sadie Thompson, John Majoris, Cara Johnson, Tane Sinclair-Taylor, Michael Berumen, Hugo Harrison, Marian Wong, Geoffrey Jones, Peter Buston
- 15:00 Variable selection on metabolic rate in the field**
Lukas Schuster, Craig White, Dustin Marshall
- 15:15 Public goods games and life history strategies in *Wolbachia* infected pharaoh ant colonies**
Bryce Morsky, Erol Akcay, Rohini Singh, Marco Smolla, Tim Linksvayer
- 15:30 Testing the adaptive decoupling hypothesis using transcriptomes of a hypermetaphorphic insect**
Danielle Herrig, Catherine Linnen

Session Genomics 5

Sunday - 14:30 - 15:45

Room Ball_BC

- 14:30 Beyond the cave: the genetic basis of troglomorphy across highly divergent fish lineages**
Liz Alter, Matthew Aardema, Martine Zilversmit, Melanie Stiasny
- 14:45 Comparative genomics and the evolution of lifestyle innovations in Labyrinthulomycete protists**
Joshua Rest, Mariana Rius, Jackie Collier
- 15:00 The evolutionary history of a unique photosynthetic protein in cryptophyte algae**
Matthew Greenwold, Patrick Mckenzie, Tammi Richardson, Jeff Dudycha

15:15 Supergene convergent evolution in fungal mating-type chromosomes

*Sara Branco, Fantin Carpentier, Ricardo Rodríguez de la Vega, Helene Badouin, Marco Coelho, Dominik Begerow, Michael Hood, Tatiana Giraud, **Anna Bazzicalupo***

15:30 Genomic Diversity of Heterocephalus glaber

Kevin Wright, J Ruby

Session Adaptation 5

Sunday - 14:30 - 15:45

Room Ball_DE

14:30 Fitness and environmental patterns identify beneficial alleles in maize landraces

Daniel Gates, Jeffrey Ross-Ibarra, Dan Runcie, Ed Buckler, Matthew Hufford, Sarah Hearne

14:45 A genomics perspective on climate adaption of loblolly pine: Past, present, and future

Mengmeng Lu

15:00 Adaptation to climate in the native and introduced range of Trifolium repens

Simon Innes

15:15 Adaptation and reproductive isolation in Yellowstone monkeyflowers

Lila Fishman, Thomas Nelson, Kory Kolis, Findley Finseth, Peter Breigenzer

15:30 Introgression fuels adaptive evolution in range margin populations of Pinus strobiformis

MITRA MENON, Page Gerald, Justin Bagley, Samuel Cushman, Kristen Waring, Amy Whipple, Lluvia Flores-Renteria, Christopher Still, Christian Wehenkel, Andrew Eckert

Session Coffee break

Sunday - 15:45 - 16:15

Room ExHallB/C

Sponsored by:

[Nature Ecology & Evolution](#)

Session New measures of phylogenetic support for the genomic era 2

Sunday - 16:15 - 17:30

Room ExHallD

Organizers: Jeremy M. Brown (Louisiana State U.), Bob Thomson (U. Hawaii), Rob Lanfear (Australian National U.)

Sponsor: SSB

Topic: High-throughput sequencing has revolutionized the nature of genetic datasets used for phylogenetic inference, both in terms of the amount of sequence obtained per sample and the number of tips in the inferred trees. Many studies have now shown that traditional approaches (e.g., nonparametric bootstrapping, posterior probabilities, etc.) for assessing support across branches and trees have limited utility for modern datasets. Due to the amount of sequence data now common in phylogenomic studies, these measures often reach their maximum values and limit meaningful comparisons across genes, datasets, and analyses. Recently, a variety of alternative approaches have been proposed to more meaningfully assess support in the context of studies utilizing high-throughput sequencing. Creative application and comparison of these approaches has the potential to resolve long-standing phylogenetic debates and to clarify enigmatic relationships. To our knowledge, no concerted effort has been made to discuss and compare these approaches in a unified context, despite their importance across a wide variety of biological disciplines. In this symposium, we will bring together researchers from around the world who have been developing new approaches to assessing phylogenetic support. We aim to discuss the relative merits and drawbacks of these approaches and to highlight common themes.

16:15 New graphical and statistical tools for testing the source of gene tree discordance

John Rhodes, Elizabeth Allman, Jonathan Mitchell

16:30 Can phylogenomics end incongruence?

Xingxing Shen, Chris Hittinger, Antonis Rokas

16:45 Using gene tree conflict to infer and analyze support for contentious relationships

Joseph Walker, Stephen Smith

17:00 Panel discussion: How should we assess support in phylogenomic studies?

Robert Thomson, Jeremy Brown, Robert Lanfear

Session Origins, stability, and benefits of interspecific cooperation in a changing world 2

Sunday - 16:15 - 17:30

Room Ball_A

Organizer: Jeremy Yoder (California State U., Northridge)

Host: ASN

Topic: Research on the evolution and ecology of mutualism has diversified dramatically since its original focus on how cooperation between different species can be stabilized against the apparent selective advantages of noncooperation. Current empirical studies and theory of mutualism examine how the costs and benefits of cooperative interactions shift with environmental or community context, how multiple genes and traits may contribute to mutualism outcomes, and how variation in outcomes evolves. This Spotlight Session brings together research on the contextual benefits and stability of mutualism across a wide variety of empirical systems and modeling frameworks.

16:15 The evolution of transmission mode in variable environments

Alexandra Brown, Erol Akcay

16:30 Testing the environment dependence of fitness alignment in the legume-rhizobia symbiosis

Liana Burghardt, Brendan Epstein, Peter Tiffin

16:45 Mutualism and adaptation in Lemna minor microbiome

Jason Laurich, Megan Frederickson, Anna O'Brien, Emma Lash

17:00 Ant farmers and their fungal crop: coevolution in an ancient agricultural system

Lily Khadempour

17:15 When bad partners do good: Maintenance of partner quality variation in multispecies mutualism

Holly Moeller, Michael Neubert, Kristen Klitgaard

Session Phylogenetic Methods 2

Sunday - 16:15 - 17:30

Room 551

16:15 Modeling resource use evolution on phylogenetic trees using multivariate count data

Michael Grundler, Daniel Rabosky

16:30 Coalescent-informed Brownian motion models for phylogenetic comparative analysis of quantitative traits

Fabio Kuriki Mendes

16:45 On the effect of asymmetrical trait inheritance in models of trait evolution

Pablo Duchon

17:00 "Using empirical data to investigate the influence of species choice on the stability of phylogenetic reconstruction

Ashley Superson

17:15 Testing the role of model selection in phylogenetic accuracy

Stephanie Spielman

Session Molecular Ecology 5

Sunday - 16:15 - 17:30

Room 552

16:15 Drift-selection interactions drive the diversification of *Pitcairnia lanuginosa* (Bromeliaceae) across its wide-range and structured Neotropical distribution

Clarisse Palma-Silva, Bárbara Leal, Myriam Heuert, Cleber Chaves, Vanessa Graciano, Luis Huacre

16:30 Molecular ecology of the arctic moist tundra sedge, tussock cottongrass (*Eriophorum vaginatum*), in the context of local adaptation and climate change

Elizabeth Stunz, Jonathon Mohl, Philip Lavretsky, Ned Fetcher, Jim Tang, Michael Moody

16:45 Geography and environment shape genome and phenotype variation in a foundational plant of the Great Basin

Trevor Faske, Lana Sheta, Alison Agneray, Elizabeth Leger, Thomas Parchman

17:00 Population genomics reveals evolutionary key in widespread species in South American grasslands

Giovanna Giudicelli, Caroline Turchetto, Aureliano Bombarely, Loreta Freitas

17:15 Divergent selection and gene flow shape incipient speciation of the riparian tree, *Metrosideros polymorpha* var. *newellii*, on Hawaii Island

Jae Young Choi, Michael Purugganan, Elizabeth Stacy

Session Sexual Selection 3

Sunday - 16:15 - 17:30

Room 553

- 16:15 High-resolution characterization of male coloration in guppies: individual and population**
Jake Morris, Judith Mank
- 16:30 Reinforcement, introgression, and their impacts on the diversification of mate choice and sexual signals.**
Gina Calabrese, Karin Pfennig
- 16:45 How do new conversations begin? The evolution of a novel sexual signal**
Robin Tinghitella, Dale Broder
- 17:00 Can females differentially allocate resources to offspring sired by different males?**
Samantha Levell, David Reznick
- 17:15 The evolution of highly exaggerated traits: Dual function of nuchal humps in Midas cichlids (Amphilophus citrinellus complex)**
Sina Rometsch, Julián Torres-Dowdall, Gonzalo Machado-Schiaffino, Nidal Karagic, Axel Meyer

Session Convergent Evolution 2

Sunday - 16:15 - 17:30

Room 554

- 16:15 The evolution of sperm gigantism in Caenorhabditis nematodes – Causes and Consequences**
Rebecca Schalkowski, Asher Cutter
- 16:30 The genetic origin and evolutionary history of aposematic coloration in Phyllobates poison frogs**
Roberto Márquez, Marcus Kronforst
- 16:45 Genomics of parallel divergence and local adaptation in two North American woodpeckers**
Lucas Rocha Moreira, Brian Smith
- 17:00 Ecological and genomic drivers of the repeated evolution of wing dimorphism in carabids**
Zoë De Corte, Katrien De Wolf, Carl Vangestel, Steven Van Belleghem, Frederik Hendrickx
- 17:15 Effects of predation risk on egg steroid profiles across multiple populations of stickleback**
Katie McGhee, Ryan Paitz, John Baker, Susan Foster, Alison Bell

Session Evolutionary Ecology 5

Sunday - 16:15 - 17:30

Room 555

- 16:15 Evolution of intrinsic rates: can adaptation counteract environmental change?**
Andis Arietta, David Skelly
- 16:30 Investigating the underlying genetic architecture of Mullerian mimicry in poison frogs**
Adam Stuckert
- 16:45 Can land use buffer the evolutionary responses of terrestrial salamanders to climate change?**
Annette Evans, Elizabeth Jockusch, Mark Urban, Brenna Forester, Caitlin Fisher-Reid, Bradley Cosentino
- 17:00 Niche width and range size predict host shifts across North American leaf beetles**
Scott Egan, Claire Boschert, Mattheau Comerford, Madeline Burns, Jennifer Drummond, Eslam Elshahat, James Fordyce, Matthew Forister, Allie Graham, Glen Hood, Lauren Howe-Kerr, Pedro Pinto, Shih Shzu, Eric Wice, Linyi Zhang
- 17:15 How habitat structure influences multilevel selection in experimental populations of forked fungus beetles**
Robin Costello, Phoebe Cook, Vincent Formica, Butch Brodie

Session Systematics 1

Sunday - 16:15 - 17:30

Room 556

- 16:15 Phylogenetic analysis of Amphipoda supports monophyly of the pelagic suborder Hyperiidea**
Leann Biancani

- 16:30 Untangling the correlation of unique foreleg morphology and spider-web association in thread-legged assassin bugs (Emesinae: Reduviidae)**
Samantha Smith, Junxia Zhang, Dimitri Forero, Christiane Weirauch
- 16:45 Mitochondrial theft: inferring ancient hybridization in New Zealand cicadas using whole mtDNA genomes from hybrid capture by-catch**
Mark Stukel, Eric Gordon, Diler Haji, Thomas Buckley, Alan Lemmon, Emily Moriarty Lemmon, Chris Simon
- 17:00 Phylogenomics of portunid swimming crabs and a comparative analyses of osmoregulation genes **withdrawn 2019-06-17 11:22:20.0****
Nathaniel Evans
- 17:15 Dating fossils with molecules – innovative approach to determine the age of Baltic amber**
Dagmara Zyla

Session Life History 2

Sunday - 16:15 - 17:30

Room 557

- 16:15 Same same but different: comparing amphibian chytrid fungus genetics across two iconic declines**
Andrew Rothstein, Erica Rosenblum, Roland Knapp
- 16:30 Evolution of host plant associations in sack-bearer moths (Mimallonidae)**
Ryan St Laurent, Akito Kawahara
- 16:45 Seed masting causes fluctuations in optimum litter size and lag load in red squirrels**
Andrew McAdam, Stan Boutin, Ben Dantzer, Jeffrey Lane
- 17:00 Trade-offs across life stages can constrain larval immune defenses and enable maladaptation in dragonflies**
Michael Moore, Ryan Martin
- 17:15 Integrating energy balance and social contextual cues in singing mouse vocalization decisions: a role for leptin**
Erin Giglio, Phelps Steven

Session Genomics 6

Sunday - 16:15 - 17:30

Room Ball_BC

- 16:15 Introgression and the demise of a polyploid population of Tragopogon (Asteraceae)**
Jennifer Tate, Richard Winkworth, Joel Sharbrough, Douglas Soltis, Pamela Soltis
- 16:30 Genome sequences of the Mimulus lewisii species complex, a model system for plant evolution, genetics, and development**
Qiaoshan Lin, Thomas Nelson, Foen Peng, Angela Stathos, Lila Fishman, Jill Wegrzyn, Yaowu Yuan
- 16:45 The adaptive power of controlled TE mobilization in plants**
Marta Robertson
- 17:00 Whole-exome sequencing reveals a long-term decline of red spruce (Picea rubens) populations**
Thibaut Capblancq, Stephen Keller
- 17:15 Differential gene expression of invasive baby's breath (Gypsophila paniculata) populations found in distinct ecoregions**
Charlyn Partridge, Sarah Lamar

Session Adaptation 6

Sunday - 16:15 - 17:30

Room Ball_DE

- 16:15 Evolution of responses to drought and sudden frost within the grass sub-family Pooideae: Can drought tolerance be a preadaptation to frost tolerance?**
Siri Fjellheim, Sylvia Stolsmo, Jill Preston
- 16:30 An integrative perspective of adaptation to different altitudes in an alpine plant**
Aglaia Szukala, Arezoo Fani, Bozo Frajman, Peter Schönswetter, Ovidiu Paun
- 16:45 Auxin mediates parallel evolution and speciation in an Australian wildflower**
Melanie Wilkinson, Federico Roda, Greg Walter, Maddie James, Scott Allen, Diana Bernal, Henry North, Christine Beveridge, Daniel Ortiz-Barrientos

17:00 Local adaptation is stronger in thermally extreme sites but weaker at high latitudes
Megan Bontrager, Daniel Anstett, Haley Branch, Anna Hargreaves, Julie Lee-Yaw, Takuji Usui, Amy Angert

17:15 Maladaptive shifts in life history in a changing environment
Olivier Cotto, Linnea Sandell, Luis-Miguel Chevin, Ophelie Ronce

Session iEvoBio Software bazaar

Sunday - 17:30 - 19:30 **Room ExHallB/C**

An optional event during the conference. Prior registration required (during conference registration).

iEvoBio is a satellite event bringing together evolutionary biologists who work on a broad spectrum of problems involving computation, mathematics and statistics. More information at the [iEvoBio website](http://iEvoBio.org). Registration for iEvoBio includes two events: the software bazaar and a post-conference workshop. The software bazaar is similar to a poster session, but presenters have laptops instead of posters. The software bazaar will be in the same room as the main conference poster session. More exposure for your software! Presenters are expected to bring their own laptops.

Additional details on the software bazaar here:

https://github.com/iEvoBio2019/2019-iEvoBio/blob/master/software_bazaar.md

Topic Posters: Adaptation 2

Poster board #1 **The genetic basis of phenotypical variation in Stickleback's resistance to tapeworm parasite**
Foen Peng, Daniel Bolnick, Jesse Weber, Natalie Steinel

Poster board #2 **Horizontal gene transfer potentiates adaptation to antibiotics in *Helicobacter pylori***
withdrawn 2019-06-18 22:19:40.0
Laura Woods, Rebecca Gorrell, Thi Nguyen, Linda Taylor, Imogen Scott, Michael McDonald

Poster board #3 **Local adaptation in maize landraces**
Garrett Janzen, Matthew Hufford

Poster board #4 **Carnivory within Carnivora: A proposal to identify diet-specific signatures of selection using comparative genomics**
Matthew Pollard, Emily Puckett

Poster board #5 **An Analysis of Population Structure, Genetic Variation and Outlier SNPs in the Eastern Oyster, *Crassostrea virginica***
Keegan Weedop, Kevin Freeman, Erin Roberts, Dina Proestou, Jonathan Puritz, Marta Gomez-Chiarri, Kathleen Lotterhos

Poster board #6 **Effects of landscape spatial and temporal autocorrelation on likelihood of population recovery following environmental change**
Jared Homola, Timothy Waring, Cynthia Loftin, Michael Kinnison

Poster board #7 **Investigating population differentiation in red spruce (*Picea rubens* Sarg.) due to climate change.**
Anoob Prakash, Thibaut Capblancq, Helena Munson, Stephen Keller

Poster board #8 **Experimental Selection of Big Bluestem Grass Ecotypes Across the Great Plains Climate Gradient**
Loretta Johnson, Matthew Gallart, Nora Bello, Sara Baer, Brian Maricle, Jesse Poland

Poster board #9 **Testing Candidate Color Genes in the Mimic Poison Frog: *mc1r***
Mikayla Johnson, Matthew Pahl, Kyle Summers, Emily White, Adam Stuckert, Matthew MacManes, Tyler Linderoth, Rasmus Nielsen

Poster board #10 **The effect of urbanization on white clover (*Trifolium repens*) in Los Angeles**
Nicholas Poulos, Jeremy Yoder

Poster board #11 **Interaction of arsenic toxicity, food quality, and food quantity on *Daphnia pulex***
Joseph Owens, Anthony Schultz, Priya Roy

Poster board #12 **Linking phenotype and genotype for understanding local adaptation in serpentine soils**
Carolina Carvalho, Luciana Resende-Moreira, Leonardo Trevelin, Simone Mitre, Markus Gastauer, Rodolfo Jaffé

Poster board #13 **Recent duplications and ancestral gene expression biases co-option among PEPC gene lineages across multiple origins of C4 and CAM photosynthesis.**
Jose Moreno-Villena, erika edwards

Topic Posters: Macroevolution

- Poster board #89 **Exploring the biotic interactions hypothesis through the lens of extrafloral nectary morphology**
Bruce Martin, Marjorie Weber
- Poster board #90 **Selection and constraint in the ecomorphological adaptive evolution of the skull of living Canidae (Carnivora, Mammalia)**
Fabio Machado
- Poster board #91 **Evolution of body shape in true toads: Sexual dimorphism and selective mechanisms**
Renato Nali, Alexander Kupfer, Tiana Kohlsdorf
- Poster board #92 **Exploring the effects of multiple sources of uncertainty when investigating the link between ecological roles and rates of diversification**
Gustavo Burin Ferreira, Paulo Guimarães Jr., Tiago Quental
- Poster board #93 **Can rate of stomatal closure predict drought survival and contemporary niche of Pooideae grasses?**
Anoob Prakash, Aayudh Das, Jill Preston
- Poster board #94 **Linking population-level processes and macroevolutionary patterns to understand explosive radiations**
Laura Alencar, Tiago Quental
- Poster board #95 **Environmental prevalence: a missing concept in the understanding species diversity gradients?**
Marcio Pie, Andreas Meyer
- Poster board #96 **Color Pattern Evolution in Reef Fishes**
Katerina Zapfe, Samantha Price
- Poster board #97 **Ecomorphological diversity patterns in natricine snakes**
Deepak Veerappan, David Gower, Natalie Cooper
- Poster board #98 **DateLife: leveraging databases and analytical tools to reveal the dated tree of life.**
Luna Sanchez Reyes, Brian O'Meara
- Poster board #99 **Why the long face? A comparative genomics approach to the derived craniofacial morphology of seahorses, pipefishes, and seadragons**
Martin Stervander, Jason Sydes, Peter Batzel, John Postlethwait, William Cresko

Topic Posters: Molecular evolution

- Poster board #100 **Site-specific detection of adaptive evolution in protein-coding genes using a Bayesian mutation-selection model of codon substitution**
Nicolas Rodrigue, Nicolas Lartillot
- Poster board #101 **Chromosomal Rearrangements during Turtle Evolution Altered the Synteny of Genes Involved in Vertebrate Sex Determination**
LingSze Lee, Eugenia Montiel, Beatriz Navarro-Domínguez, Nicole Valenzuela
- Poster board #102 **Chitin is synthesized within the electrosensory organs of cartilaginous fish**
Molly Phillips, Daniel Ocampo Daza, Chris Amemiya
- Poster board #103 **Genetic basis of ommochrome pigmentation in butterfly wings**
Benjamin Brack, Robert Reed
- Poster board #104 **Molecular evolution analyses of RAG1 and RAG2 genes suggest different evolutionary rates for Cetacea lineage**
Bruna Dias, Mariana Nery
- Poster board #105 **Hearing genes behind the evolution of echolocation in dolphins**
Letícia Estevão, Mariana Nery, Elisa Ramos, Flávia Fernandes
- Poster board #106 **How to make a chelonian: molecular signatures of positive selection on turtles from different habitats**
Elisa Ramos, Lucas Freitas, Mariana Nery

Poster board #107 **The divergence of maize NAM founders revealed by syntenic LTR retrotransposons**
Shujun Ou, Candice Hirsch, R. Dawe, Matthew Hufford

Poster board #108 **Evolution of herbivory and endogenous glycoside hydrolases in crustaceans: a transcriptomic and genomic perspective**
Ka Yan Ma, Jing Qin, Lefei Yi, Ling Ming Tsang, Ka Hou Chu

Poster board #109 **Widespread rate-by-branch effects in insect protein evolution.**
Barbara Dobrin, Michael Sanderson

Poster board #110 **Ancient polyploidy in water lilies**
Rolf Lohaus, Zhen Li, Liangsheng Zhang, Fei Chen, Xingtang Zhang, Haibao Tang, Yves Van de Peer

Poster board #111 **Carotenogenesis inherited by horizontal gene transfer in the heterotrophic marine protist, *Aurantiochytrium limacinum***
Mariana Rius, Joshua Rest, Jackie Collier

Topic Posters: Parallel/convergent evolution

Poster board #112 **Convergent evolution of seed shattering in weedy rice populations from morphological and genetic perspectives**
Xiang Li

Poster board #113 **Multi-level convergence in vertebrate melanism: raptors as avian exemplars**
Fabio Raposo do Amaral, Julia Montesanti, Katia Pellegrino, Frederick Sheldon, Tiana Kohlsdorf, Cristina Miyaki, Lorian Straker

Poster board #114 **A relative branch length statistic for identifying genomic convergence**
Jason Sardell, Andrius Dagilis, Mark Kirkpatrick

Poster board #115 **Distinguishing between single and multiple origins in light of demographic information**
Jeff Groh, Maddie James, Henry Arenas-Castro, Daniel Ortiz-Barrientos

Topic Posters: Phylogenetic methods development

Poster board #116 **Phy2HTML: A simple method for displaying phylogenies in webpages**
Michael Rosenberg

Poster board #117 **Convergent turnovers in gene-families size and their role on the blood-feeding diet in Insecta lineages**
Lucas Freitas, Mariana Nery

Poster board #118 **Visualizing the shape of the coalescent in tree space**
Joshua Justison, Tracy Heath

Poster board #119 **Optimal rates for phylogenetic inference and experimental design in the era of genome-scale data sets**
Jeffrey Townsend, Alex Dornburg

Poster board #120 **A Universal Probe Set for Targeted Sequencing of 353 Nuclear Genes from Any Flowering Plant Designed Using k-Medoids Clustering**
Matthew Johnson, Lisa Pokorny, Steven Dodsworth, Alison Devault, Laura Botigué, Robyn Cowan, Wolf Eiserhardt, Niroshini Epitawalage, Felix Forest, Paul Kersey, Jan Kim, James Leebens-Mack, Ilia Leitch, Olivier Maurin, Douglas Soltis, Pamela Soltis, Gane Wong, William Baker, Norman Wickett

Poster board #121 **Scalable Bayesian phylodynamics with fixed-topology variational inference**
Christiaan Swanepoel

Topic Posters: Phylogenomics / systematics

- Poster board #122** **The implications of over-estimating gene tree discordance on a rapid-radiation species tree**
Dominic Evangelista, Brian O'Meara, Michael Gilchrist, Frederic Legendre
- Poster board #123** **Phylogenomics of New World milkweed vines (Apocynaceae, Gonolobinae)**
Angela McDonnell, Mark Fishbein
- Poster board #124** **Using flow cytometry and low-copy nuclear DNA sequences to identify new taxa in Isoëtes**
Peter Schafran
- Poster board #125** **Phylogenomics of the venomous assassin flies using ultraconserved elements**
Chris Cohen, Timothy Cole, Michael Brewer
- Poster board #126** **Uncovering novel biodiversity in photosynthetic stramenopiles using phylogenomics**
Kristina Terpis, Matthew Brown, Heroen Verbruggen, Jeffrey Bailey, Chris Lane
- Poster board #127** **Phylogeny of lower Cyclorrhapha - longstanding challenges in Diptera**
Andrew Young, Jeffrey Skevington, Bradley Sinclair, Jeffrey Cumming, Keith Bayless, Scott Kelso, Bernhard Misof, Brian Wiegmann, Emily Moriarty Lemmon, Alan Lemmon
- Poster board #128** **The promises and pitfalls of herbarium phylogenomics: A case study in a Neotropical plant radiation**
Lauren Frankel, Simon Uribe-Convers, Nathan Muchhala, Laura Lagomarsino
- Poster board #129** **Developing and testing a sequence capture probe set for Malpighiales: a phylogenomic case study from the genus *Kielmeyera* Mart. & Zucc. (Calophyllaceae)**
Rafaela Jorge Trad, Cláudio Cardoso-Silva, Zhenxiang Xi, Volker Bittrich, Maria do Carmo Amaral, Peter Stevens, Charles Davis
- Poster board #130** **The Teratognathini: phylogenomics sheds light on the last great mystery in Apidae phylogeny**
Felipe Freitas, Eduardo Almeida, Terry Griswold, Michael Branstetter

Topic Posters: Population genetics: molecular ecology 2

- Poster board #131** **Adaptation to extreme environment by adoption of ancient inversions in wild sunflower**
Kaichi Huang, Kate Ostevik, Gregory Owens, Rose Andrew, Loren Rieseberg
- Poster board #132** **Genetic analysis of a cryptic contact zone between mitochondrial clades of the Eastern Red-Backed Salamander, *Plethodon cinereus***
Brian Waldron, Shawn Kuchta, Maggie Hantak, Cari Hickerson, Carl Anthony
- Poster board #133** **Uncovering cryptic speciation in Gentoo penguins along the Southern Ocean based on genomic data and ecological niche models**
Juliana VIANNA, Luis Pertierra, Nicolás Segovia, Elie Poulin, Wang-Claypool Cynthia, Ke Bi, Daly Noll, Francesco Bonnadonna, Pierre Pistorius, Céline Le Bohec, Andrea Raya Rey, Philip Trathan, Gisele Dantas, Patricio Plischoff, Pedro Aragon, Andrés Barbosa, Rauri Bowie
- Poster board #134** **Genomic signatures of selfing, historic bottlenecks, and range expansion in a cleistogamous North American herb**
Colette Berg, Jennifer Weber, Olivia Lopez
- Poster board #135** **Genomics of introgression in ecologically divergent Amazonian tree species**
Rowan Schley, Andrew Helmstetter, Renato Valencia, Ben Turner, Timothy Barraclough, Felix Forest, Bente Klitgaard
- Poster board #136** **Invasive Sitka black-tailed deer population structure and movement dynamics in Haida Gwaii to support ecosystem restoration**
Brock Burgess, Robyn Irvine, Michael Russello
- Poster board #137** **Development and testing of a Genotyping-in-Thousands by sequencing (GT-seq) SNP panel to inform British Columbia-wide Kokanee salmon (*Oncorhynchus nerka*) stock assessment**
Sarah Chang, Michael Russello
- Poster board #138** **Range-wide distribution of locally adaptive standing genetic variation in balsam poplar**
Vikram Chhatre, Karl Fetter, Andy Gougherty, Matthew Fitzpatrick, Raju Soolanayakanahally, Stephen Keller
- Poster board #139** **Genetic and environmental analysis for conservation purposes for *Mammillaria haageana* subsp. *san-angelensis***
Brenda Gonzalez Calderon, Ana Wegier, Rafael Cervantes Salcedo, Salvador Arias, Teresa Valverde

Topic Posters: Quantitative genetics

- Poster board #140 **Sex ratio heritability in the common snapping turtle**
Kyle Hilliard, Turk Rhen, Sunil Singh
- Poster board #141 **The Genetic Basis of Deer Mouse Burrowing Behavior**
Olivia Meyerson, Hillery Metz, Hopi Hoekstra
- Poster board #142 **Epistatic interaction among adaptive variants in *D. melanogaster***
Tiago da Silva Ribeiro
- Poster board #143 **Selection on shared traits between male Alternative Reproductive Tactics in a wild population of the swordtail fish *Xiphophorus multilineatus***
Melissa Liotta, Jessica Abbott, Oscar Rios-Cardenas, Molly Morris
- Poster board #144 **Shifts in microbial communities in response to Shellfish culture in Ninigret Pond, RI**
Josh Stevens, Priya Roy, Robinson Fulweiler
- Poster board #145 **The evolutionary consequences of cultivar gene escape in *Cornus florida***
Jane Remfert, Rodney Dyer
- Poster board #146 **Is your Forensic Profile Giving Away Your Medical Information?**
Mayra Banuelos, Rori Rohlf, Emilia Huerta-Sánchez
- Poster board #147 **Changes in the G matrix in multiple environments in a maize population**
Asher Hudson, Jeffrey Ross-Ibarra
- Poster board #148 **Origins and evolution of extreme longevity in the adaptive radiation of Pacific rockfish**
Peter H Sudmant
- Poster board #149 **Seeing things in a new light: Finding the genetic basis of visual plasticity in African cichlids**
Miranda Yourick, Sri Pratima Nandamuri, Sahana Chakravarti, Rebecca Chen, Karen Carleton
- Poster board #150 **Using a mitochondrially-targeted endonuclease to screen for modifiers of mtDNA defects influencing flight performance in *Drosophila***
Adam Spierer, Jim Mossman, David Rand

Topic Posters: Sex/recombination

- Poster board #151 **Little evidence of antagonistic selection in the evolutionary strata of fungal mating-type chromosomes (*Microbotryum lychnidis-dioicae*)**
Anna Bazzicalupo, Fantin Carpentier, Sarah Otto, Tatiana Giraud
- Poster board #152 **Differential gene expression is associated with degeneration of mating-type chromosomes in the absence of sexual antagonism**
Wen-Juan Ma, Fantin Carpentier, Tatiana Giraud, Michael Hood
- Poster board #153 **Leveraging long read sequencing data to detect meiotic gene conversion events.**
Shivangi Nath, Michael White
- Poster board #154 **Fast Estimation of Recombination Rates Using Topological Data Analysis**
Michael Miyagi, Melissa McGuirl, Devon Humphreys, Andrew Blumberg
- Poster board #155 **Identification of ZZ/ZW sex chromosomes in *Aristelliger* geckos**
Shannon Keating, Aaron Griffing, Stuart Nielsen, Tony Gamble
- Poster board #156 **Understanding the relationship between meiotic transcription and recombination in the presence of PRDM9**
Enrique Jimenez Schwarzkopf
- Poster board #157 **Strata of recombination suppression in a new plant sex chromosome**
Joanna Rifkin, Stephen Wright, Felix Beaudry, Zoe Humphries

Poster board #158 **Divergent Mechanisms of Sex Determination in Sister Species of Killifish**
Noah Reid

Poster board #159 **Asexual bdelloid rotifers have been coevolving with virulent pathogens for fifty million years**
Christopher Wilson, Antonios Kriezis, Joshua Potter, Timothy Penny, Constantinos Xenophontos, John Paterson, Nicholas Tew, Sophie Gresham, Cuong Tang, Isobel Eyres, Timothy Barraclough

Poster board #160 **Identification and assembly of an anole sex-chromosome: Rapid degeneration since autosomal fusion?**
Pietro Longo Hollanda de Mello, Paul Hime, Richard Glor

Poster board #161 **Chromosome number evolution in the insect clade Polyneoptera**
Terrence Sylvester, Heath Blackmon

Poster board #162 **Genome evolution in Potamopyrgus snails: sex, size & duplication**
John Logsdon, Laura Bankers, Jeffrey Boore, Peter Fields, Joseph Jalinsky, Kyle McElroy, Maurine Neiman, Joel Sharbrough, Peter Wilton

Topic Posters: Species delimitation

Poster board #163 **Incorporating deep learning in species delimitation of highly fragmented systems**
Manolo Perez, Isabel Bonatelli, Monique Brito, Evandro Moraes

Poster board #164 **Estimating levels of cryptic diversity within class Mammalia**
Danielle Parsons, Tara Pelletier, Drew Duckett, Jamin Wieringa, Bryan Carstens

Poster board #165 **Distinguishing two closely related Daphnia species via an amplified genetic polymorphism**
Sarah Cargill, Brooks Miner

Poster board #166 **Neopolyploidy in plants and the impact on associated insect herbivore communities**
Anne Curé, Laura Porturas, Bailey Powers, Kari Segraves

Poster board #167 **Delimiting species in the mountaintops: using repeats to improve species delimitation in non-model groups**
John Sproul, David Maddison

Poster board #168 **Genetics of Maine's freshwater snails**
Judith Roe, Alexander Kimball, Kenneth Hotopp, Derek Yorks

Topic Posters: Undergraduate diversity at Evolution - teachers

Poster board #170 **Agricultural Weed Adaptations - Research Experience for Teachers**
Ashley Carroll

Poster board #171 **Factors that predict reproductive mode in snakes**
Elsie Carrillo

Poster board #172 **Sources of Striped Bass (*Morone saxatilis*) in the Mixed-stock Recreational Fishery in Northern Ocean County, New Jersey**
Carleigh Engstrom

Topic Posters: Behavior 2

Poster board #14 **Investigating the genetic basis of color pattern signals of individual identity in northern paper wasps (*Polistes fuscatus*)**
James Tumulty, Michael Sheehan

- Poster board #15 **Phylogenetic non-stationarity and the social brain hypothesis in New World monkeys (Platyrrhini)**
Laura Schaedler, Luiz Varzinczak
- Poster board #16 **Temperature effects on *Oncorhynchus mykiss* latency behavior**
Erin Wiese, Nick Rapoport, Patrick Carter
- Poster board #17 **The role of circadian rhythms on the temporal organization of foraging behavior in a guild of carpenter bees**
Carlos Ortiz-Alvarado
- Poster board #18 **Correlated variation of egg shape and migratory behavior in Fork-tailed flycatchers (*Tyrannus savana*)**
Valentina Gómez
- Poster board #19 **Connecting brain size, behavioral flexibility, and dispersal in Trinidadian killifish**
Kaitlyn Howell, Matthew Walsh
- Poster board #20 **Sensory ecology of cooperation in guppies, *Poecilia reticulata***
Hannah Gross, Airika Laguerre, Apsara Gurung, Brian Haney, Joseph Monteiro, Zachary Fanara, Junior Andrade, Bronwyn Bleakley
- Poster board #21 **Effects of reproductive strategy on sexually dimorphic gene expression in the brains of dendrobatid poison frogs**
Emily White, Kyle Summers, BreAnn Geraldts, Peter Kann, Adam Stuckert
- Poster board #22 **Chemical communication in a hybridizing chickadee system: olfaction and reproductive isolation**
Alex Huynh, Amber Rice

Topic Posters: Undergraduate diversity at Evolution- students

- Poster board #173 **Experimentally Imposed Evolution of *Drosophila athabasca***
James LaGraff, Roman Yukilevich
- Poster board #174 **Effects of urbanization on toe pad shape and lamellae size in *Anolis cristatellus***
Bailey Howell, Travis Hagey, Kristin Winchell
- Poster board #175 **Using RNA-sequencing to study regional differences during heat stress recovery in the marine snail *Chlorostoma funebris***
Lizvette Ayala-Valdez, Amanda Bedolla, Lourdes Calisa, Lani Gleason
- Poster board #176 **Role of nasal cavity morphology with diet and olfactory activity in bats**
Daniela Lee, Laurel Yohe
- Poster board #177 **Developing Methods to Study Genetic Mechanisms of Population and Life-Stage Specific Thermal Tolerance in the Marine Snail *Chlorostoma funebris***
Amanda Bedolla, Lizvette Ayala-Valdez, Lani Gleason, Lourdes Calisa
- Poster board #178 **Population Genetic Structure of the Treehopper Species *Publilia concava***
Sehwheat Manna, Luana Maroja, Manuel Morales
- Poster board #179 **The Genetic Basis of Speciation Loci in the *Drosophila athabasca* Complex**
Se Rin Kim, Luana Maroja, Roman Yukilevich, James LaGraff
- Poster board #180 **DAPC plus STRUCTURE: a composite approach to population structure analysis in the *Ambystoma tigrinum* species complex.**
Angela Jones, Levi Gray, Kathryn Everson, David Weisrock
- Poster board #181 **TBDMorphometric Comparative Analysis of Reptilian Cranial Structures**
Stefan D'Sa
- Poster board #182 **Density dependent provisioned immunity: does size matter?**
Felicia Ebot-ojong
- Poster board #183 **Testing the forest refuge hypothesis: comparative phylogeography of three African rocket frog (*Ptychadena*) species.**
Toni Hayes, Gregory Jongsma, David Blackburn

Topic Posters: Bioinformatics 2

- Poster board #23 **Metagenomic analysis of the fermentation process in theobroma cacao** **withdrawn**
2019-06-10 13:52:39.0
Kaija Broders
- Poster board #24 **SERES: Sequentially Resampled Support Measures for Multiple Sequence Alignment**
Wei Wang, Kevin Liu, Jack Smith, Hussein Hejase
- Poster board #25 **Constructing a high-density linkage map for lodgepole pine (Pinus contorta)**
Tegan McDonald, Sam Yeaman
- Poster board #26 **A microbiome study of Kentucky native freshwater mussels and the invasive clam (Corbicula fluminea)**
Mary Foley, Audrey Law, Wendell Haag, Steven Price, Luke Moe, David Weisrock
- Poster board #27 **Development of an open-source, web-based database module for the Tripal framework to improve the quality of non-model eukaryotic genome annotation**
Alyssa Ferreira, Sumaira Zaman, Sean Buehler, Madison Caballero, Jill Wegrzyn
- Poster board #28 **Unlocking the exome: exploring de novo assembly options for expressed exome capture sequencing**
Jacob Green, Jonathan Puritz
- Poster board #29 **Towards a unified statistical model of protein evolution**
Sergey Ovchinnikov

Topic Posters: Computational biology

- Poster board #30 **Evolution of Social Cooperation of Microorganisms**
Zhijun Wu
- Poster board #31 **Cancer control is a key functionality underlying the evolution of extended lifespan in mammals**
Amanda Kowalczyk, Raghavendran Partha, Nathan Clark, Maria Chikina
- Poster board #32 **Unifying Phenotypic and Molecular Data for Phylogenetic Estimation**
Tyler Tran, Christina Kolbmann, April Wright, Courtney Grigsby
- Poster board #33 **Reconstruction of complex fitness landscapes using high-throughput experimental data**
Juannan Zhou, David McCandlish
- Poster board #34 **Predictive traits for cacti occurrence on the Dry Diagonal of South America**
Monique Brito, Evandro Moraes, Isabel Bonatelli
- Poster board #35 **The evolution of curiosity: modeling and analyzing the interactions between vocal mimicry and birdsong elaboration**
Parker Rundstrom, Nicole Creanza
- Poster board #36 **Sweet genomes: sequencing, assembling, and annotating two maples**
Susan McEvoy, Jill Wegrzyn, Alex Trouern-Trend, Nate Swenson
- Poster board #37 **Experimental test of genomic islands of differentiation under divergent selection with and without sexual reproduction and migration**
Ousseini Issaka Salia, Martyna Lukaszewicz

Topic Posters: Ecological genetics

- Poster board #38 **Accounting for multiple mergers in a structured coalescent with a flushing founder population**
Richard Kliman

- Poster board #39** Is genomic diversity a useful proxy for census population size? Evidence from a species-rich community of desert lizards
Maggie Grundler, Sonal Singhal, Mark Cowan, Daniel Rabosky
- Poster board #40** Patterns of genetic diversity in a genus of ecologically diverse riffle beetles
William Coleman, Katherine Bell, James Gibson, Benjamin Schwartz, Chris Nice
- Poster board #41** Detecting genomic variation underlying phenotypic characteristics of Coho salmon in the Wenatchee River
Rebekah Horn, Cory Kamphaus, Keely Murdoch, Shawn Narum

Topic Posters: Education/outreach 2

- Poster board #42** Internationalizing CURE: connecting the biology classroom with the outside world
Ginny Greenway
- Poster board #43** Five years of evolution acceptance– How do general students differ from biology students?
Ryan Dunk, Jason Wiles
- Poster board #44** Using semester-long case studies to structure an undergraduate evolution class
Gregory Haenel, Bonnie Bloxom, Emily Cooper
- Poster board #45** Unwelcome behaviors at the Evolution meetings: Survey results
Brian O'Meara, Andrea Case, **JODIE WIGGINS**, Kelly Zamudio, Regina Baucom, Sharon Strauss
- Poster board #46** Together Under the Sea: Microbiomes in Atlantic and Pacific Octocorals
Diana Vergara, Juan Sanchez
- Poster board #47** Genomic analysis of eastern fence lizard (*Sceloporus undulatus*) morphological adaptation to human-mediated fire ant invasion
Alexis Sullivan, Christina Bergey, Tracy Langkilde, George Perry
- Poster board #48** Fitness benefits of dispersal in headwater populations of Trinidadian guppies
Jillian Gerberich, **Isabela Lima Borges**, Sarah Fitzpatrick, Chris Funk
- Poster board #49** Generalist species drive microbial dispersion and evolution.
Wataru Iwasaki
- Poster board #50** Fine-scale phenotypic and genomic divergence of Atlantic cod ecotypes
Sara Schaal, Kathleen Lotterhos
- Poster board #51** Maternal effect of light condition in *Arabidopsis thaliana*: who is in charge?
Britany Morgan, Kathleen Donohue
- Poster board #52** Rapid morphological evolution in an introduced salamander species
David Beamer, Samantha Gaskins, Brittany Shearin
- Poster board #53** Landscape genomics of *Craugastor* frogs along a tropical elevation gradient
Ruth Percino-Daniel, David Weisrock, Daniel Piñero Dalmau

Topic Posters: Expression studies/transcriptomics

- Poster board #54** Differential expression and multiple alternative splicing of *Dmrt1* during gonadal development in the painted turtle, *Chrysemys picta*
Beatriz Akemi Mizoguchi, Nicole Valenzuela
- Poster board #55** Trans-generational transcriptomic response to natural variation in host plant toxicity and insecticides in a specialist insect.
Stephanie Birnbaum, **Patrick Abbot**
- Poster board #56** Urbanization shapes differential transcriptomic patterns across populations of a human health pest, the western black widow spider
Lindsay Miles, Robert Haney, Jessica Garb, Nadia Ayoub, Brian Verrelli

- Poster board #57** **Phenotypic and transcriptional responses to different light regimes in allopatric populations of *Tigriopus californicus*.**
Daniel Schneck
- Poster board #58** **Evolution of visual pigments and opsin genes in frogs with distinct life histories**
Ryan Schott, Maya Woolfolk, Kate Thomas, Ellis Loew, Jeffrey Streicher, David Gower, Matthew Fujita, Rayna Bell
- Poster board #59** **Comparative gill transcriptome analyses in natural populations of *Odontesthes argentinensis* exposed to different salinities**
Alejandro D'Anatro, Javier Calvelo, Facundo Giorello, Matías Feijoo
- Poster board #60** **Identifying Genes Responsible for the Origin of Obligate Parthenogenesis: A Transcriptomic Approach in *Daphnia pulex***
Marelize Snyman, Sen Xu
- Poster board #61** **Unveiling eye molecular evolution by gene-duplication analysis in Lepidoptera**
J.P. Lawrence, Aline Rangel Olguin, Adriana Briscoe
- Poster board #62** **Local adaptation shapes poison frog chemical defenses**
Stephanie Caty, Luis Coloma, Lauren O'Connell
- Poster board #63** **Dolichospermum evolution during during cyanobacterial bloom: insights from metatranscriptomics.**
Sebastien Renaut, Nathalie Fortin, Charles Greer, B. Jesse Shapiro
- Poster board #64** **Alternative Splicing Patterns Vary Between *Daphnia pulex* Populations in Response to Acute Copper Exposure.**
Sneha Suresh, Frederic Chain
- Poster board #65** **Conserved regulatory network for the production of spots in three distantly related *Clarkia* species**
Kimmy Stanton
- Poster board #66** **The maternal-zygotic transition in two Hawaiian fly lineages**
Madeline Chenevert, Bronwyn Miller, Anna Rusnak, Ahmad Karkoutli, Kristen Latour, Bianca Canizares, Joel Atallah
- Poster board #67** **CASE-ing out the transcriptomics of multiple coastal stressors**
Margaret Schedl, Kathleen Lotterhos, Johanna Harvey, Jonathan Puritz

Topic Posters: Geographic variation

- Poster board #68** **Venom-gland transcriptomics and venom proteomics of the cottonmouth (*Agkistrodon piscivorus*)**
Kylie Lawrence
- Poster board #69** **Molecular analysis of a tetraploid gray treefrog contact zone and a bioinformatics workflow for development of novel nuclear genomic markers**
Christopher Zdyrski
- Poster board #70** **Microgeographic variation in morphology and genotype within threespine stickleback populations**
Meghan Maciejewski, Cynthia Jiang, Yoel Stuart, Daniel Bolnick
- Poster board #71** **Unraveling cryptic morphological diversity in a marine snail species complex using nuclear sequence data**
Peter Cerda, Trevor Hewitt, Amanda Haponski, Thomas Duda, Jr.
- Poster board #72** **The effects of volcanic activity on the phylogeographic history of the Plymouth Anole, *Anolis lividus*, on Montserrat**
Catherine Jung, Michael Yuan, Ian Wang, Jeffrey Frederick
- Poster board #73** **Evidence for rapid phenotypic and behavioral change in a recently established cave population of *Astyanax mexicanus***
Samuel Weaver, Suzanne McGaugh
- Poster board #74** **Emergence of highly-divergent SNPs along clines from lake to stream stickleback**
Mariah Kenney, Daniel Bolnick

Topic Posters: Hybridization

- Poster board #75** **Sexual dimorphism in copepod gene expression in the absence of sex chromosomes**
Ning Li, Benjamin Flanagan, Suzanne Edmands
- Poster board #76** **Diversification of lizards (Leiosauridae) in Neotropical biomas**
Marina Monjardim, Frank Burbrink, Fernanda Werneck, Sarah Vargas
- Poster board #77** **Molecular basis of hybrid sterility in Heliconius butterflies**
Nathaniel Edelman, Neil Rosser, James Mallet, Kanchon Dasmahapatra
- Poster board #78** **Genomic introgression between *Mus musculus domesticus* and *Mus spretus***
Sarah Banker, Michael Nachman
- Poster board #79** **Absence of advanced-stage hybrids and heterogeneous patterns of differentiation in a woodrat hybrid zone**
Joshua Jahner, Thomas Parchman, Marjorie Matocq
- Poster board #80** **Mitochondrial genotype has strong selective effects across the nuclear genome of hybrids**
Ron Burton, Tim Healy
- Poster board #81** **Hybrid melanoma is associated with xmrk and ADGRE5 genes**
Mackenzie Keegan
- Poster board #82** **Introgression greatly increases the probability of hemiplasy in phylogenetic inference**
Mark Hibbins, Matthew Gibson, Rafael Guerrero, Matthew Hahn
- Poster board #83** **Machine learning and demographic model selection reveal multiple cryptic species of *Cryptobranchus* salamanders**
Paul Hime
- Poster board #84** **Ecological speciation in the Neotropical Sandy Coastal Plains: gene expression variation in hybrid zones between *Epidendrum fulgens* and *E. puniceoluteum* (Orchidaceae)**
Bárbara Leal, Marcelo Brandão, Clarisse Palma-Silva, Fabio Pinheiro
- Poster board #85** **Dispersal predicts hybrid zone widths across animal diversity: Implications for species borders under incomplete reproductive isolation**
Jay McEntee, John Burleigh, Sonal Singhal
- Poster board #86** **Genomic Admixture of Africanized Honey bees Across the Americas**
Daniela Zarate, Thiago Lima, Joshua Kohn
- Poster board #87** **Characterizing the placental microbiome in mouse (*Mus*) hybrids: preliminary results and next steps**
Sarah Gardner, Polly Campbell
- Poster board #88** **The mating system of the wild-to-domesticated complex of *Gossypium hirsutum* L. is mixed**
Ana Wegier, Francisco Javier Pérez-López, Valeria Vázquez, Valeria Alavez, Rebeca Veázquez, Alejandro Ponce-mendoza, Bill Kunin

Session Story Collider presents 'Stories from Outside the Distribution'

Sunday - 19:30 - 21:30

Room Ball_BC

An optional pre-conference event. Prior registration required (during conference registration).

The ASN/SSB/SSE are partnering with [The Story Collider](#), a nonprofit that is dedicated to sharing true, personal stories about science. Story Collider works with storytellers from both inside and outside science to develop these stories and share them through their weekly podcast and live shows around the world. Since 2010, The Story Collider has produced 200+ shows and published 350+ episodes which now averages 130,000 monthly listens and has been download over nine million times! Stories from Outside the Distribution features personal accounts from a diverse group of evolutionary biologists.

Session

Monday - 8:20 - 9:20

Room ExHallA

SSE Presidential address: Mark Rausher - Manifold effects of secondary contact
Mark Rausher

Session Bridging evolution, ecology, and conservation through the study of small populations 1

Monday - 9:30 - 10:45 **Room Ball_A**

Organizer: Sarah Fitzpatrick (Michigan State U., Kellogg Biological Station)

Host: ASN

Topic: Small populations have long fascinated evolutionary biologists. Small populations should be overwhelmed by genetic drift and show reduced capacity to adapt, yet empirical support for this prediction is mixed. In addition, consequences of gene flow into small, demographically unstable populations may be different than gene flow between large and stable ones. Genomic and statistical tools are rapidly advancing our understanding of genetic processes that determine population viability of small populations in the wild, including the roles of genetic drift, gene flow, and extent and severity of inbreeding depression. Determining the genetic and demographic processes that underlie persistence versus extinction in small populations is a central and urgent concern in conservation biology, but the tools to fully address this concern have only recently become available. This symposium brings together biologists at the front-edge of this exciting wave of research to elucidate links among evolution, demography, and conservation of small populations.

9:30 Effects of the genomic architecture of fitness on population viability in rapidly changing environments
Marty Kardos

10:00 Using knowledge of local adaptation to inform reintroduction in the face of climate change
Maybellene Gamboa, T Sillett, Chris Funk, Scott Morrison, Cameron Ghalambor

10:15 Immigration may decouple heterozygosity and inbreeding in declining populations of Florida Scrub-Jays (*Aphelocoma coerulescens*)
Tram Nguyen, Nancy Chen, Reed Bowman, John Fitzpatrick, Andrew Clark

10:30 Dynamics of additive genetic variance during population admixture in guppies
Brendan Reid, Sarah Fitzpatrick

Session Integrating ecological interactions into macroevolution 1

Monday - 9:30 - 10:45 **Room ExHallD**

Organizers: David Hembry (Cornell U.) and Marjorie Weber (Michigan State U.)

Sponsor: SSE

Topic: Ecological interactions have been long invoked as important mechanisms in macroevolution. Many influential concepts in the field— including adaptation and natural selection, competition and ecological opportunity, escape-and-radiate coevolution, endosymbiosis, and escalation—describe evolutionary phenomena driven by interactions among species, lineages, and clades. However, these concepts have been notoriously difficult to test directly, and for most of the modern history of evolutionary biology, the role of interactions in driving evolution has been tested primarily via mathematical modeling or the empirical study of microevolution. Over the last decade the development of phylogenetic comparative methods (PCMs), increased availability of molecular phylogenies, and growing access to biological databases has facilitated a growing interest in linking species interactions with macroevolutionary patterns. This symposium spotlights research at the bleeding-edge of investigations linking ecological interactions and macroevolution. By hosting this symposium, we hope to provide to the SSE community a range of perspectives on how to incorporate the study of ecological interactions into macroevolution and highlight this exciting wave of research.

9:30 Ecological interactions in classical and contemporary macroevolution
David Hembry, Marjorie Weber

10:00 Ecological interactions and adaptive radiation
Catherine Wagner

10:30 Phylogenetic community ecology 3: rise of the machines
Luke Harmon

Session Biogeography 1

Monday - 9:30 - 10:45 **Room 551**

9:30 Quite possibly the most ambitious continental-scale study of the genetics of local adaptation ever conducted
David Lowry

9:45 Population genomics, lineage boundaries, and life histories in the tiger salamander complex
Levi Gray, Kathryn Everson, David Weisrock, Angela Jones, Brad Shaffer, Gabriela Parra-Olea

10:00 Understanding species limits and genetic connectivity, and modelling range shifts of marmots in the Indian Trans-Himalayas.
Nandini Rajamani, Senan D'Souza, Swati Udayraj

10:15 Biogeographic patterns of the damselfishes and clownfishes (Pomacentridae) using occurrence and trait based regionalization methods

Chloe Nash, Mark Westneat

10:30 Another Kettle of Fish: Molecular Phylogeny of the Neotropical Freshwater Stingrays Reveals Recent Diversification and Geographically Determined Paraphyletic Lineages

Joao Pedro Fontenelle, Matthew Kolmann, Fernando Marques, Nathan Lovejoy

Session Ecological Genetics 1

Monday - 9:30 - 10:45

Room 552

9:30 Genome-wide associations are highly repeatable for a rapidly evolving, polygenic trait
Gregory Ragland, Edwina Dowle, McCall Calvert, Pete Meyers, Meredith Doellman, Thomas Powell, Jeffrey Feder, Dan Hahn

9:45 Adaptational lag to temperature in valley oak (*Quercus lobata*) can be mitigated by genome-informed assisted-gene flow

Luke Browne, Jessica Wright, Sorel Fitz-Gibbon, Paul Gugger, Victoria Sork

10:00 Massive behavioral and genomic variation in *Aedes aegypti* across sub-Saharan Africa

Noah Rose, Massamba Sylla, Diego Ayala, Athanase Badolo, Jewelna Akorli, Ogechukwu Aribodor, Joel Lutomiah, Nnenna Ibe, John-Paul Mutebi, Rosemary Sang, Jacob Crawford, Bradley White, Carolyn McBride

10:15 Growth Patterns and Genetic Expression of the HIPPO Growth-Signaling Pathway in the Endangered Coral Species *Orbicella faveolata*

Deanna Soper, John Paul Dieffenthaler, Hayden Tompkins, Sarah Hamlyn, David Vaughan, Drew Stenesen

10:30 Silencing of symbiont trait differences inside hosts may prevent evolutionary rescue on coral reefs

Casey terHorst, Chelsea Brisson, Jennica Moffat, Mary Alice Coffroth

Session Bioinformatics 1

Monday - 9:30 - 10:45

Room 553

9:30 Combining exome capture and pool-seq: Lessons from three conifer species
Brandon Lind

9:45 Food safety and the allergen-producing genus *Carya*: design of detection methods with novel phylogenetic tools utilizing raw and annotated genomic data from FDA's GenomeTrackrCP
Sara Handy, Brittany Ott, Shahabeddin Sarmashghi, Metin Balaban, Caroline Puente-Lelievre, Ning Zhang, Alexandra Greenbaum, Amanda Windsor, Jun Wen, Siavash Arabbaygi, Vineet Bafna, Ruth Timme

10:00 Tracking plant phenology and genetic diversity during environmental change using contemporary and historical samples

Patricia Lang, Franziska Willems, Oliver Bossdorf, Hernán Burbano

10:15 The Popgen Pipeline Platform: A Software Platform for Facilitating Population Genomic Analyses

Andrew Webb, Jared Knoblauch, Nitesh Sabankar, Apeksha Sukesh Kallur, Jody Hey, Arun Sethuraman

10:30 Relative Rate Framework for efficient, reliable, and relaxed clock dating in MEGA

Sudhir Kumar, Koichiro Tamura

Session Inbreeding

Monday - 9:30 - 10:45

Room 554

9:30 Genomic consequences of severe inbreeding and the rapid decline of Isle Royale wolves
Jacqueline Robinson, Kirk Lohmueller, Robert Wayne

9:45 Island area, body size, and demographic history shape genomic diversity and inbreeding levels in Darwin's finches and related tanagers

Anna Brüniche-Olsen, Kenneth Kellner, J. Andrew DeWoody

10:00 The Genomic Architecture of Inbreeding and Recovery in *Caenorhabditis remanei*

Paula Adams, Janna Fierst, Patrick Phillips

10:15 Heterozygosity and the expression of genetic load across multiple life history stages in multiple species of iguanas.

Mark Welch, Jen Moss, Jessica Judson, Giuliano Colosimo, Jamen Berk

10:30 Correlated evolution of dispersal and mating-systems: an experimental analysis in a hermaphroditic marine invertebrate

Scott Burgess

Session Speciation 3

Monday - 9:30 - 10:45

Room 555

9:30 Experimental field evidence for stasis in a multi-peak fitness landscape driving adaptive radiation in the wild

Christopher Martin

9:45 Genomic signatures of speciation in hydrothermal environment

Camille Thomas-Bulle, Eric Bonnivard, Didier Jollivet

10:00 The scent of speciation: Reversed neurosensory processing between the races of the apple maggot (*Rhagoletis pomonella*)

Cheyenne Tait, Hinal Kharva, Marco Schubert, Jeffrey Feder, Shannon Olsson

10:15 The role of male courtship song evolution in species recognition signals and speciation among *Drosophila*

Roman Yukilevich

10:30 The effects of heterospecific mating frequency on conspecific sperm precedence

Erica Larson, Merrill Peterson

Session Systematics 2

Monday - 9:30 - 10:45

Room 556

9:30 Patterns of phylogenetic MCMC convergence across empirical datasets

Sean Harrington, Robert Thomson

9:45 Using archival DNA to elucidate anole phylogeny

Gregory Mayer, Tony Gamble

10:00 Rapid radiation and complex genome size evolution in a clade of holocentric sedges

Tammy Elliott, Petr Bures, Simon Joly, Muthama Muasya

10:15 Repetitive DNA profiles reveal evidence of rapid genome evolution and reflect species boundaries in ground beetles

John Sproul, David Maddison

Session Host-Parasite 1

Monday - 9:30 - 10:45

Room 557

9:30 Evolutionary and ecological determinants of functional diversification in antigen gene families

Qixin He, Mercedes Pascual

9:45 A new method for inferring pathogen timetrees from temporally sampled molecular sequences

Sayaka Miura, Sudhir Kumar, Koichiro Tamura

10:00 Long-term consequences of vaccine-induced immune responses on HIV-1 diversification

Eric Lewitus, Eric Sanders-Buell, Meera Bose, Anne O'Sullivan, Kultida Poltavee, Yifan Li, Bonnie Slike, Gina Donofrio, Shana Miller, Jenica Lee, Bahar Ahani, Steven Lepore, Sevan Muhammad, Rebecca Grande, Ursula Tran, Vincent Dussupt, Letzibeth Mendez-Rivera, Sorachai Nitayaphan, Jaranit Kaewkungwal, Punnee Pitisuttithum, Supachai Rerks-Ngarm, Robert O'Connell, Holly Janes, Sandhya Vasan, Robert Gramzinski, Merlin Robb, Nelson Michael, Jerome Kim, Shelley Krebs, Sodsai Tovananubutra, Morgane Rolland

10:15 Development but not diet alters bacterial communities in the Neotropical arboreal trap jaw ant *Daceton armigerum*

Manuela Ramalho, Christophe Duplais, Jérôme Orivel, Joshua Gibson, Andrew Suarez, Corrie Moreau

10:30 Pathogen exposure disrupts an organism's ability to cope with thermal stress

Tobias Hector, Carla Sgro, Matthew Hall

Session Phylogenomics 1

Monday - 9:30 - 10:45

Room Ball_BC

- 9:30 Heuristic approaches for unranked and ranked anomaly zones**
Anastasiia Kim, James Degnan
- 9:45 Phylogenomic analysis of Reduvidae (Insecta: Hemiptera) with emphasis on data processing strategies**
Alexander Knyshov, Hoey-Chamberlain Rochelle, Alan Lemmon, Emily Moriarty Lemmon, Christiane Weirauch
- 10:00 Global domination by crazy ants: Phylogenomics reveals biogeographic history and invasive species relationships in the genus *Nylanderia* (Hymenoptera, Formicidae)**
Jason Williams, Miles Zhang, Michael Lloyd, John LaPolla, Ted Schultz, Andrea Lucky
- 10:15 Gene content evolution across the viral world**
Jason Shapiro, Catherine Putonti

Session Adaptation/Genomics 1

Monday - 9:30 - 10:45

Room Ball_DE

- 9:30 Differential expression of genes associated with color pattern in the green and black poison frog (*Dendrobates auratus*)**
Kyle Summers, Adam Stuckert, Emily Moore, Kate Coyle, Ian Davison, Reade Roberts, Matthew MacManes
- 9:45 Exploring the gene regulatory response to growth factors underlying short-stature in African rainforest hunter-gatherers**
Kathleen Grogan, Christina Bergey, Genelle Harrison, Vania Yotova, Luis Barreiro, George Perry
- 10:00 Butterfly mimicry evolved via parallel evolution of ancient, pleiotropic enhancers**
James Lewis
- 10:15 The genomic basis of plumage variation in antbirds**
Gustavo Bravo, Scott Edwards
- 10:30 Breaking down color pattern evolution**
Steven Van Belleghem, Heriberto Carbia Gutierrez, Brian Counterman, Riccard Papa

Session Coffee break

Monday - 10:45 - 11:15

Room ExHallB/C

Session Bridging evolution, ecology, and conservation through the study of small populations 2

Monday - 11:15 - 12:30

Room Ball_A

Organizer: Sarah Fitzpatrick (Michigan State U., Kellogg Biological Station)

Host: ASN

Topic: Small populations have long fascinated evolutionary biologists. Small populations should be overwhelmed by genetic drift and show reduced capacity to adapt, yet empirical support for this prediction is mixed. In addition, consequences of gene flow into small, demographically unstable populations may be different than gene flow between large and stable ones. Genomic and statistical tools are rapidly advancing our understanding of genetic processes that determine population viability of small populations in the wild, including the roles of genetic drift, gene flow, and extent and severity of inbreeding depression. Determining the genetic and demographic processes that underlie persistence versus extinction in small populations is a central and urgent concern in conservation biology, but the tools to fully address this concern have only recently become available. This symposium brings together biologists at the front-edge of this exciting wave of research to elucidate links among evolution, demography, and conservation of small populations.

- 11:15 Genetic and fitness consequences of dispersal in a small pedigreed population**
Nancy Chen
- 11:45 Life stage-dependent selection maintains a unique subspecies in the face of gene flow**
April Goebel, Nolan Kane, Kate Ostevik, Loren Rieseberg, Daniel Doak
- 12:00 Outfoxing Cancer: Genetic isolation and a unique disease threatening the island fox.**
Sarah Hendricks, Paul Hohenlohe, Winston Vickers, Jacqueline Robinson, Brian Davis, Julie King, Calvin Duncan

12:15 Small population size and responses to environmental change: cool perspectives from a coldwater fish

Dylan Fraser, Matthew Yates, Jacquelyn Wood, Thais Bernos

Session Integrating ecological interactions into macroevolution 2

Monday - 11:15 - 12:30

Room ExHallD

Organizers: David Hembry (Cornell U.) and Marjorie Weber (Michigan State U.)

Sponsor: SSE

Topic: Ecological interactions have been long invoked as important mechanisms in macroevolution. Many influential concepts in the field— including adaptation and natural selection, competition and ecological opportunity, escape-and-radiate coevolution, endosymbiosis, and escalation—describe evolutionary phenomena driven by interactions among species, lineages, and clades. However, these concepts have been notoriously difficult to test directly, and for most of the modern history of evolutionary biology, the role of interactions in driving evolution has been tested primarily via mathematical modeling or the empirical study of microevolution. Over the last decade the development of phylogenetic comparative methods (PCMs), increased availability of molecular phylogenies, and growing access to biological databases has facilitated a growing interest in linking species interactions with macroevolutionary patterns. This symposium spotlights research at the bleeding-edge of investigations linking ecological interactions and macroevolution. By hosting this symposium, we hope to provide to the SSE community a range of perspectives on how to incorporate the study of ecological interactions into macroevolution and highlight this exciting wave of research.

11:15 How is the origin and maintenance of species diversity linked with the evolution of species-interactions traits? A case study using plant-insect interactions

Marjorie Weber

11:30 The evolution of mutualistic dependence: insights from ant/plant symbioses

Guillaume Chomicki

12:00 Understanding rapid plant evolution in the Andes via the integration of data from pollination ecology, geology, and museums

Laura Lagomarsino

Session Biogeography 2

Monday - 11:15 - 12:30

Room 551

11:30 Biogeography of *Bulbophyllum* sect. *Didactyle* and the orchid diversification conundrum

Cecilia Fonseca Fiorini, Luciana Resende-Moreira, Eric Smidt, Eduardo Leite Borba, Lacey Knowles

11:45 Thermal tolerance across latitudinal and elevational gradients in Neotropical plethodontid salamanders

Sean Rovito, Mayela Ornelas Morin

12:00 Merging micro-topographic data and machine learning to create high resolution niche models globally

Jason Brown, Brian Widmer

12:15 Niche conservatism and topographic complexity explain divergence among squamates in Madagascar.

Laura Nunes, Mark Wilkinson, Richard Pearson

Session Ecological Genetics 2

Monday - 11:15 - 12:30

Room 552

11:15 The Sources of Fitness in Experimental Guppy Populations

Joseph Travis, David Reznick, Alex Landy, Ronald Bassar, Paul Bentzen

11:30 Forest cover drives genetic diversity in a tropical tree

Zoe Diaz-Martin, Jordan Karubian

11:45 The genetic basis of copper resistance in *Drosophila melanogaster*

Elizabeth Everman, Kristen Cloud-Richardson, Stuart Macdonald

12:00 Tinkering outside the Hox: How did bumble bees get their colors?

Sarthok Rasique Rahman, Li Tian, Heather Hines

12:15 Comparative genomics of desert adaptation in *Peromyscus* rodents

Matthew MacManes, Anna Tigano, Adam Stuckert

Session Bioinformatics 2

Monday - 11:15 - 12:30

Room 553

- 11:15 Are horns and antlers homologous? High-throughput-transcriptomic tests of cranial appendage evolutionary origins**
Zachary Calamari, John Flynn
- 11:30 A Computational Approach to Revealing the Role of Prophage in Staphylococcus aureus**
Tyrome Sweet, Mark Sstrom, Suzanne Sindi
- 11:45 Dark tales from the de novo transcriptome**
Adam Freedman, Michele Clamp, Timothy Sackton
- 12:00 Exploration of the impact of bacterial endosymbionts on symbiotic spectrum transitions in the clinically significant phylum Apicomplexa**
Elizabeth Hunter, Christopher Paight, Chris Lane
- 12:15 Sequencing Disparity in the Genomic Era**
Kyle David, Alan Wilson, Kenneth Halanych

Session Reproductive Systems

Monday - 11:15 - 12:30

Room 554

- 11:15 What is the adaptive value of males in a self-fertilizing hermaphroditic fish?**
Jennifer Gresham, Ryan Earley
- 11:30 Cleistogamous self-pollination and floral specialization: Testing Darwin's hypothesis**
Simon Joly, Daniel Schoen
- 11:45 At least two loci involved in the loss of self-incompatibility in Arabidopsis lyrata**
Marc Stift, Yan Li, Mark van Kleunen
- 12:00 Male evolution under relaxed selection: evidence for degeneration in sperm produced by male snails from asexual lineages**
Joseph Jalinsky
- 12:15 Consequences of recombination for the evolution of the mating type locus in Chlamydomonas reinhardtii**
Ahmed Hasan, Jaspreet Duggal, Rob Ness

Session Speciation 4

Monday - 11:15 - 12:30

Room 555

- 11:15 Ancient and recent diversification in a specious clade of social wasps**
Sara Miller, Michael Sheehan
- 11:30 The phylogeny of genus *Strauzia* (Diptera: Tephritidae) reveals histories of host shifting, including repeated shifts onto the same plant hosts**
Alaine Hippee, Marc Beer, Robin Bagley, marty Condon, Edward Lisowski, Allen Norrbom, Andrew Forbes
- 11:45 Speciation and Gene Network Evolution**
Chia-Hung Yang, Samuel Scarpino
- 12:00 Haldane's rule and placental misexpression in hybrid mice**
Polly Campbell, Lena Arévalo
- 12:15 Characterizing the genomic architecture of divergence along the speciation continuum in the *Rhagoletis pomonella* species complex**
Meredith Doellman, Katherine Inskip, Stewart Berlocher, Jeffrey Feder

Session Experimental Evolution 1

Monday - 11:15 - 12:30

Room 556

- 11:15 Consequences of cryopreservation in diverse strains of *Saccharomyces cerevisiae***
Kieslana Wing, Molly Burke

- 11:30 Precise Measurement of Distribution of Fitness Effects of Spontaneous Mutations in *Burkholderia cenocepacia* HI2424 by Droplet Digital PCR**
Anita Rana, David Patton, Nathan Turner, Way Sung
- 11:45 First-step mutations reveal a multitude of evolutionary pathways to antibiotic resistance**
Erik Wright, Ann Donnelly
- 12:00 Fluctuating exposures to UV and erythromycin results in greater pre-adaptation in *E.coli***
Selveshwari S, Kasturi Lele, Sutirth Dey
- 12:15 Effects of population bottlenecks on rate of adaptation in experimental evolution with *Escherichia coli***
Minako Izutsu, Misty Thomas, Joseph Graves, Richard Lenski, Devin Lake

Session Host-Parasite 2

Monday - 11:15 - 12:30

Room 557

- 11:15 A keeper of many crypts: evidence that an ostensible specialist parasitoid can manipulate the behavior of several different insect species**
Anna Ward, Omar Khodor, Scott Egan, Kelly Weinersmith, Andrew Forbes
- 11:30 Quantitative global-fit analysis reveals variable coevolutionary signal within the Streblid bat flies**
Alexis Brown, Kelly Speer, Tiago Teixeira, Elizabeth Clare, Juan Balbuena, Nancy Simmons, Susan Perkins
- 11:45 Host taxonomic and dietary signal in microbial communities varies across the gastrointestinal tract in wild rodents**
Mark Swanson, Anang Achmadi, Heru Handika, Syahfitri Anita, Michael Henson, Jonathan Nations, Kevin Rowe, J. Cameron Thrash, Jacob Esselstyn
- 12:00 Distribution of antifungal bacteria in the cutaneous microbiomes of San Francisco Bay Area salamanders**
Shannon Buttimer, Obed Hernandez-Gomez, Erica Rosenblum
- 12:15 Lyme disease agent *Borrelia burgdorferi* sensu stricto directly affects larval bloodmeal engorgement and survival of *Ixodes scapularis***
Jannelle Couret, Seungeun Han, Megan Dyer, Jean Tsao, Jjay Stallworth, Thomas Mather, Roger Lebrun, Howard Ginsberg

Session Phylogenomics 2

Monday - 11:15 - 12:30

Room Ball_BC

- 11:15 Complex origin and reference-sequence effect of *Brassica napus***
Hong An, Xinshuai Qi, Michelle Gaynor, Yue Hao, Sarah Gebken, Makenzie Mabry, Gavin Conant, Michael Barker, Tingdong Fu, Bin Yi, Chris Pires
- 11:30 Reconstructing patterns of hybridization and the origins of parthenogenesis in whiptail lizards (*Aspidoscelis*)**
Anthony Barley, Robert Thomson, Adrián Montes de Oca, Norma Manríquez Morán
- 11:45 Phylogenomic analysis of color pattern evolution in *Ranitomeya* poison frogs (Amphibia: Dendrobatidae)**
Morgan Muell, Jason Brown
- 12:00 The role of model testing and evaluation in phylogenomics**
Jeremy Brown, Robert Thomson, Lyndon Coghill, Ashley Schoonmaker, Lauren Rodriguez
- 12:15 Ignore at your own peril: synonymous rate variation among sites in protein coding sequences.**
Sadie Wisotsky, Sergei Kosakovsky Pond, Spencer Muse

Session Adaptation/Genomics 2

Monday - 11:15 - 12:30

Room Ball_DE

- 11:15 Protein quantitative traits loci (pQTL) expression of the stonefly *Nemoura ovocercia* (Plecoptera) along nationwide region of Japan**
Maribet Gamboa, Maria Tsuchiya, Shunsuke Yamano, Thaddeus Carvajal, Hisato Iwata, Kozo Watanabe

11:30 Holistic approach to understand the genomic and physiological basis of adaptation to deserts.
Anna Tigano, Matthew MacManes

11:45 Molecular signatures of adaptation to high elevation in house mice from the Andes.
Elizabeth Beckman, Michael Nachman, Taichi Suzuki, Felipe Martins

12:00 Identifying Lineage-specific Targets of Natural Selection by a Bayesian Analysis of Genomic Polymorphisms and Divergence from Multiple Species.
Hua Chen

12:15 Evolution of heavy metal tolerance in a mycorrhizal fungus
Anna Bazzicalupo, Yi-Hong Ke, Joske Ruytinx, Laura Coninx, Jan Colpaert, Nhu Nguyen, Rytas Vilgalys, Sara Branco

Session Evolution editorial board meeting
Monday - 12:30 - 14:30 **Room 550B**

Session Executive joint council exit meeting
Monday - 12:30 - 14:30 **Room 550A**

Session Lunch | Student/faculty and postdoc networking lunches
Monday - 12:30 - 14:30 **Room OnTheTown**

Lunch is not provided for conference attendees (except for a few optional events that required pre-registraiton or council/editorial board meetings).

Student/faculty and postdoc networking lunches: The SSE Graduate Student Advisory Council organized small group networking lunches to facilitate interactions between i) students and faculty; and ii) postdocs and faculty. To participate, you had to indicate your interest during main conference registration. Groups are responsible for meeting up and finding their own lunch venues.

Session New Phytologist Evolution Section editorial board meeting
Monday - 12:30 - 14:30 **Room WLounge**

Session Diversification through time, space and lineages: relationships between data quality and good inferences 1
Monday - 14:30 - 15:45 **Room ExHallD**

Organizer: Luna L. Sánchez-Reye (U. Tennessee)

Sponsor: SSB

Topic: The widespread interest to understand and predict patterns of species diversification has fostered the development and tuning of exciting new tools. The adequacy of Birth-Death models and all derived developments to accurately estimate diversification rates (DR) from dated phylogenies and fossil information has been tested profoundly in relation to the shape and size of trees. However, the effect of uncertainty underlying the data used to study the diversification process has seldom been considered. In this symposium, the speakers will specifically address the effect of uncertainty from divergence time estimates on DR expectations in methods used to test diversification hypothesis within a temporal (change-through-time), spatial (biogeographic) and phylogenetic (lineage-specific) context, through the analyses of both empirically derived dated phylogenies and simulations. The speakers will try to detect general trends on divergence time uncertainty and to relate these trends to the quantified sensitivity and robustness of DR estimators, so that a broader sense on the stability of diversification inferences from various types of uncertainty from divergence time estimates can be established for the general use of the field.

14:30 Age uncertainty estimates from the fossilized birth-death and its effect on diversification rate inferences in Malvales, a tropical order of angiosperms
Rebeca Hernandez-Gutierrez, Susana Magallón

14:45 Incorporating fossil uncertainty is essential to macroevolutionary inferences: Combined evidence dating of Australian macropods

Ian Brennan

15:00 Biogeographical dynamics from higher-level phylogenies: avoiding biases through randomizations

Pierre Arnal, Fabien Condamine, Marianne Elias, Astrid Cruaud, Jean-Yves Rasplus, Rodolphe Rougerie

15:15 How Phylogenetic Sampling Affects Our Understanding on Evolutionary Radiations.

Eren Ada, Rachel Schwartz

15:30 Divergence time estimation using time-heterogeneous fossilized birth-death models in Formicidae

Christina Kolbmann, April Wright

Session Evolutionary Biomechanics: Form, function and ecological interactions in animals and plants 1

Monday - 14:30 - 15:45

Room Ball_A

Organizer: Mario Vallejo-Marin (U. Stirling)

Host: SSE

Topic: In this Spotlight session we will provide a forum for studies investigating how the mechanical properties of biological systems influence their function and evolution. The main focus is on organism-level studies in animal and plant systems, that can benefit on integrating a biomechanical perspective to understand functional, ecological and evolutionary interactions. The session includes a diverse collection of topics and researchers studying how biomechanics can help us understand the ecology and evolution of a variety of systems and biological interactions, including animal communication, habitat use in lizards, mice locomotion, walking in fishes, bite force in ants, wind pollination, and the interaction between bees and flowers.

14:30 Evolutionary biomechanics of vibrational communication: Vibration generation in bugs

Leonidas Davranoglou, Graham Taylor, Beth Mortimer

14:45 Bite force and scaling in ants (Formicidae)

Michael Rivera, Andrew Suarez

15:00 Sonicating bees demonstrate flexible pollen extraction without instrumental learning

Callin Switzer, Avery Russell, Daniel Papaj, Stacey Combes, Robin Hopkins

15:15 Evolution and optics of flower surfaces

Casper VAN DER KOOI

15:30 Walking fishes and the evolution of the tetrapod pelvic girdle

Callie Crawford, Brooke Flammang

Session Biogeography 3

Monday - 14:30 - 15:45

Room 551

14:30 Little support for the Island Rule from the birds of New Zealand, Australia and Antarctica

Adrian Paterson

14:45 Biogeography of shell morphology in over-exploited shellfish suggests adaptation on human-inhabited islands and incipient lineage bifurcation

Ashley Hamilton, Jason Selwyn, Chris Bird, Rebecca Hamner

15:00 Reconstructing historical shifts in suitable habitat using phylogenetic niche modeling and fossil data for individual species.

Julio Rivera, A. Lawing, Emilia Martins

15:15 Inferring tumor migration routes by using biogeographic methods

Antonia CHRONI, Sayaka Miura, Sudhir Kumar

15:30 Immigrant selection on Pacific land snail body size

Teresa Rose Osborne

Session Ecological Genetics 3

Monday - 14:30 - 15:45

Room 552

14:30 Comparative landscape genetics and epigenetics of two trunk-ground anoles

Ian Wang, Guinevere Wogan, Michael Yuan, Luke Mahler

- 14:45 How do sex and migration from the past impact the diversity of resistance?**
Katherine McLean, Meghan Duffy, Camden Gowler
- 15:00 Ancient hybridization in the adaptive radiation of Anolis lizards on Puerto Rico **withdrawn****
2019-06-22 15:59:23.0
Guinevere Wogan, Michael Yuan, Ian Wang
- 15:15 Null alleles at AP3-3 underlie selection for a naturally occurring floral homeotic mutant and assortative mating in *Aquilegia coerulea*.**
Zac Cabin, Scott Hodges
- 15:30 Measuring selection on polygenic traits in heterogeneous environments**
Zachariah Gompert, Lauren Lucas

Session Bioinformatics 3

Monday - 14:30 - 15:45

Room 553

- 14:30 Intraspecific Polymorphism and Recombination of the Mitochondrial Genomes in *Silene noctiflora***
zhiqiang wu, Daniel Sloan
- 14:45 The tumultuous evolutionary history of mitochondrial genome architecture in parasitic bird lice**
Andrew Sweet, Stephen Cameron
- 15:00 Sex-biased longevity under hybridization in a marine copepod**
Benjamin Flanagan, Ning Li, Suzanne Edmands
- 15:15 Effects of mitochondria and aging on sex-specific gene expression indicated by RNA-seq in the copepod *Tigriopus californicus***
Ning Li, Benjamin Flanagan, Suzanne Edmands
- 15:30 A systematic search for introner elements**
Landen Gozashti, Russell Corbett-Detig

Session Sex/Recombination 1

Monday - 14:30 - 15:45

Room 554

- 14:30 The evolutionary significance of crossover patterning**
Carl Veller, Nancy Kleckner, Martin Nowak, Shunxin Wang, Liangran Zhang
- 14:45 Extreme heterogeneity in sex chromosome differentiation and dosage compensation in livebearers**
Julia Darolti, Alison Wright, Benjamin Sandkam, Jake Morris, Natasha Bloch, Marta Farre, Becky Fuller, Godfrey Bourne, Denis Larkin, Felix Breden, Judith Mank
- 15:00 Insurrections of sex determination in the frog family Pipidae**
Caroline Cauret, Marie-Theres Gansauge, Andrew Tupper, Benjamin Furman, Martin Knytl, Xue Ying Song, Eli Greenbaum, Matthias Meyer, Ben Evans
- 15:15 Excess movement out of the X chromosome throughout Diptera**
Melissa Toups, Beatriz Vicoso
- 15:30 Meiotic drive associated inversions shape the evolution of the X chromosome in stalk-eyed flies**
Josephine Reinhardt, Richard Baker, Chloe Ladas, Kimberley Paczolt, Aleksey Zimin, Gerald Wilkinson

Session Speciation 5

Monday - 14:30 - 15:45

Room 555

- 14:30 How small an Island? Minimum area for speciation in vertebrates**
Scott Stepan, Shai Meiri, Jason Ali, Max Bangs, Lawrence Heaney
- 14:45 Wolbachia induced cytoplasmic incompatibility in Rhagoletis**
Daniel Bruzese, Hannes Schuler, Jeffrey Feder
- 15:00 Genome-wide SNP data reveal history of divergence, expansion and introgression in North Atlantic *Asterias* sea-stars**
Melina Giakoumis, Michael Hickerson

15:15 How predictable is the genomics of diapause life history adaptation in allochronically isolating host races and species of *Rhagoletis* flies?

jeffrey feder, Pete Meyers, Meredith Doellman, Glen Hood, Scott Egan, Gregory Ragland

15:30 Searching for song genes: genetic basis of premating signals in an insect cryptic species group

Katherine Taylor, Elizabeth Wade, Marta Wells, Charles Henry

Session Experimental Evolution 2

Monday - 14:30 - 15:45

Room 556

14:30 Symbiont evolution during the free-living phase can improve host colonization

William Soto

14:45 Migration promotes mutator alleles in subdivided populations

Yevgeniy Raynes, Paul Sniegowski, Daniel Weinreich

15:00 Genotype and Environment Impact the Long-term Evolution of a Complex Microbial Eukaryote

Jason Tarkington, Rebecca Zufall Zufall

15:15 The effect of Horizontal Gene Transfer on genome modularity and evolvability

Michael Wiser, Roangela Canino-Koning, Charles Ofria

15:30 The fitness cost of mismatch repair mutators in *Saccharomyces cerevisiae*: partitioning the mutational load

Ben Galeota-Sprung

Session Host-Parasite 3

Monday - 14:30 - 15:45

Room 557

14:30 Facultative bacteria may be conserved within the microbiomes of ectoparasite species

Kelly Speer, Alexis Brown, Daniel Becker, Susan Perkins, Nancy Simmons

14:45 Landscape-specific effects of host relatedness and connectivity in shaping viral spread and evolution

Nicholas Fountain-Jones

15:00 Comprehensive time tree analysis identifies bats as key to the radiation of mammal-associated *Bartonella* bacteria

Clifton McKee, Ying Bai, Colleen Webb, Michael Kosoy

15:15 Asymmetric matching alleles models with imperfect matching: a host-parasite coevolution model

Michael Williamson

15:30 The slow gradual action of the Great American Biotic Interchange (GABI) on nematode phylogenies

Francisco Jiménez, Scott Gardner, Juliana Notarnicola

Session Phylogenetic Methods 3

Monday - 14:30 - 15:45

Room Ball_BC

14:30 Confidence intervals for RelTime estimates of divergence times from molecular data

Qiqing Tao, Sudhir Kumar, Koichiro Tamura, Beatriz Mello

14:45 Estimation of Speciation Times Under the Multispecies Coalescent

Jing Peng, David Swofford, Laura Kubatko

15:00 Inferring species networks from gene trees

Elizabeth Allman, John Rhodes, Hector Banos, Jonathan Mitchell

15:15 Bayesian model for detecting convergent rate changes of conserved noncoding elements on phylogenetic trees

zhirui hu, Timothy Sackton, Scott Edwards, JUN LIU

15:30 Alternative Approach of Discretizing the Gamma Distribution to Accommodate Among-Site-Rate Variation: Impact on Bayesian Phylogenetic Inferences

Jiansi Gao, Michael May, Brian Moore

Session Adaptation/Genomics 3

Monday - 14:30 - 15:45

Room Ball_DE

14:30 Lateral gene transfer throughout the grass family

Luke Dunning

14:45 Dispersal limitation and environment drive genomic differentiation among rice landraces

Rafal Gutaker, Simon Groen, Emily Bellis, Jae Young Choi, Ronald Bocinsky, Emma Slayton, Jade d'Alpoim Guedes, Jesse Lasky, Michael Purugganan

15:00 Revealing the dynamics of sunflower domestication with archaeological DNA

Benjamin Blackman, Nathan Wales, Melis Akman, Gregory Owens, Kristen Gremillion, Bruce Smith, M. Thomas Gilbert

15:15 Genetics of parallel leaf shape evolution in the *Mimulus guttatus* species complex

Kathleen Ferris, Graham Coop, Johanna Schmitt

15:30 The role of hybridisation in the adaptive radiation of the clownfishes **withdrawn 2019-06-18**

11:13:35.0

Schmid Sarah, Nicolas Salamin

Session Coffee break

Monday - 15:45 - 16:15

Room ExHallB/C

Session Diversification through time, space and lineages: relationships between data quality and good inferences 2

Monday - 16:15 - 17:30

Room ExHallD

Organizer: Luna L. Sánchez-Reye (U. Tennessee)

Sponsor: SSB

Topic: The widespread interest to understand and predict patterns of species diversification has fostered the development and tuning of exciting new tools. The adequacy of Birth-Death models and all derived developments to accurately estimate diversification rates (DR) from dated phylogenies and fossil information has been tested profoundly in relation to the shape and size of trees. However, the effect of uncertainty underlying the data used to study the diversification process has seldom been considered. In this symposium, the speakers will specifically address the effect of uncertainty from divergence time estimates on DR expectations in methods used to test diversification hypothesis within a temporal (change-through-time), spatial (biogeographic) and phylogenetic (lineage-specific) context, through the analyses of both empirically derived dated phylogenies and simulations. The speakers will try to detect general trends on divergence time uncertainty and to relate these trends to the quantified sensitivity and robustness of DR estimators, so that a broader sense on the stability of diversification inferences from various types of uncertainty from divergence time estimates can be established for the general use of the field.

16:15 Do latex and resin canals spur plant diversification? Re-examining a classic example of escape and radiate coevolution

Michael Foisy, Loren Albert, Daniel Hughes, Marjorie Weber

16:30 Latitudinal diversity and diversification in mammals

Nathan Upham, Daniel Caetano, Walter Jetz

16:45 Leveraging databases to reveal the dated Tree of Life: can we use it to understand diversification of life on Earth?

Luna Sanchez Reyes, Brian O'Meara

Session Evolutionary biomechanics: Form, function and ecological interactions in animals and plants 2

Monday - 16:15 - 17:30

Room Ball_A

Organizer: Mario Vallejo-Marin (U. Stirling)

Host: SSE

Topic: In this Spotlight session we will provide a forum for studies investigating how the mechanical properties of biological systems influence their function and evolution. The main focus is on organism-level studies in animal and plant systems, that can benefit on integrating a biomechanical perspective to understand functional, ecological and evolutionary interactions. The session includes a diverse collection of topics and researchers studying how biomechanics can help us understand the ecology and evolution of a variety of systems and biological interactions, including animal communication, habitat use in lizards, mice locomotion, walking in fishes, bite force in ants, wind pollination, and the interaction between bees and flowers.

- 16:15 The biomechanical adaptations of stamens for wind pollination in *Thalictrum* (Ranunculaceae)**
David Timerman, Spencer Barrett
- 16:30 Shaking off old assumptions: How bees efficiently collect pollen helps explain evolution to poricidal flower morphology**
Avery Russell, Andrea Fetters, Tia-Lynn Ashman
- 16:45 Functional significance of the repeated evolution of long tails in forest deer mice**
Emily Hager, Hopi Hoekstra
- 17:00 Texture and Arboreal Lizard Habitat Use**
Travis Hagey, John Philips, Eben Gering
- 17:15 Buzz pollination: Studying bee vibrations on flowers**
Mario Vallejo-Marin

Session Phylogeography 2

Monday - 16:15 - 17:30

Room 551

- 16:15 Environment predicts body size shifts in a young radiation of Australian mammals**
Jonathan Nations, Emily Roycroft, Kevin Rowe
- 16:45 No land for paradoxical frogs: rivers explain genetic structure and differentiation in the highly aquatic frog *Pseudis tocantins* (Anura, Hylidae)**
Emanuel Fonseca
- 17:00 A dynamic history in the Tropical Andes: phylogeography and systematics of the *Ameerega petersi* group (Dendrobatidae)**
Connor French, Jason Brown
- 17:15 Phylogeography and color evolution of an Andean tanager**
Jonathan Schmitt, Scott Edwards

Session Ecological Genetics 4

Monday - 16:15 - 17:30

Room 552

- 16:15 Ecological genetics of a classic allozyme polymorphism: *Mpi* in intertidal barnacles**
Joaquin Nunez, Patrick Flight, Kimberly Neil, David Ferranti, Magnus Rosenblad, Anders Blomberg, David Rand
- 16:30 Genomic Prediction in a wild mammal population**
Jon Slate
- 16:45 The effects of bacteria on microalgal symbionts**
Chelsea Brisson, Casey terHorst, Mary Alice Coffroth
- 17:00 Population genetic structure of early-stage parapatric ecological speciation in the Atlantic song sparrow**
Jonathan Clark, Haw Lim, David Luther, Jesus Maldonado
- 17:15 Multiple parasitism, intraguild predation, and time-partitioning between parasitoids of *Rhagoletis pomonella* (Diptera:Tephritidae) **withdrawn 2019-06-22 08:44:08.0****
Seth Van Dexter, Glen Hood, Jeffrey Feder

Session Genomics 7

Monday - 16:15 - 17:30

Room 553

- 16:15 Origins and evolution of extreme longevity in the adaptive radiation of rockfish**
Sree Rohit Raj Kolora, Alexander Stubbs, Kamalakar Chatla, Conner Jainese, Katelin Seeto, Milton S Love, Peter H Sudmant
- 16:30 Methylation and expression divergence of young duplicate genes**
Frederic Chain
- 16:45 Comparative genomics and the evolution of lifespan in ray-finned fishes**
Jonathan Chang, Matthew McGee
- 17:00 Speciation events, not time, explain patterns of gene loss following whole genome duplication in catostomid fishes**
Trevor Krabbenhoft, Tianying Lan, Thomas Dowling

17:15 Genome-wide patterns of introgression across clinal hybrid zones in swordtails (Teleostei: Xiphophorus)
Gastón Jofre-Rodríguez, Gil Rosenthal, Molly Schumer, Peter Andolfatto

Session Sex/Recombination 2

Monday - 16:15 - 17:30

Room 554

- 16:15 The evolution of sex-specific recombination and chromatin structure**
Alice Shanfelter, Michael White
- 16:30 Evolution of chromatin accessibility on threespine stickleback fish sex chromosomes**
Daniel Shaw, Michael White
- 16:45 Selection interference and haploid purging on Y chromosomes of Rumex**
Felix Beaudry, Stephen Wright, Spencer Barrett
- 17:00 Does loss of sex lead to increased transposable element accumulation? Comparative analysis from the evening primrose genus Oenothera** **withdrawn 2019-06-20 13:21:37.0**
David Carlson, Jesse Hollister
- 17:15 Genomic consequences of UV sex chromosomes**
Sarah Carey, Stuart McDaniel

Session Speciation 6

Monday - 16:15 - 17:30

Room 555

- 16:15 Widespread introgression across continental islands in an alpine specialist**
Erik Funk, Garth Spellman, Kevin Winker, Jack Withrow, Kristen Ruegg, Erika Zavaleta, Scott Taylor
- 16:30 Sex-specific effects in cytonuclear hybrid lines of the copepod Tigriopus californicus**
Mackenzie Partridge, Eric Watson, Benjamin Flanagan, Suzanne Edmands
- 16:45 Assembling an adaptive radiation: the spatiotemporal distribution of genetic variation underlying a radiation of trophic specialist pupfishes**
Emilie Richards
- 17:00 Fission and fusion of lineages can promote repeatability of hybridization-driven adaptive radiation**
Kotaro Kagawa, Ole Seehausen
- 17:15 Climate change shifts life cycles and increases gene flow between diverging host races of Rhagoletis pomonella with cascading effects on wasp parasitoids**
Alycia Lackey, Gregory Ragland, Dan Hahn, Jeffrey Feder, Thomas Powell

Session Experimental Evolution 3

Monday - 16:15 - 17:30

Room 556

- 16:15 The evolution of specialization to host genotype in an insect pathogen**
Elisa Visher, Mike Boots
- 16:30 Rapid evolution in multicellular yeast**
Josie Griffin, Michael Travisano
- 16:45 Genomic scan for mitonuclear incompatibilities associated with slow development in hybrids of Tigriopus californicus**
Kin Han, Felipe Barreto
- 17:00 Mating preference in an experimental hybrid zone between two subspecies of house mouse.** **withdrawn 2019-06-19 03:03:59.0**
David Manahan, Michael Nachman
- 17:15 Selfish mitochondrial genomes propagate by exploiting nutrient-sensing mechanisms**
Bryan Gitschlag, Maulik Patel

Session Host-Parasite 4

Monday - 16:15 - 17:30

Room 557

- 16:15 Climate, elevation and host association of avian malaria parasites**
Johanna Harvey, Taylor Verrett, Giovanni Boano, Marco Pavia, Gary Voelker
- 16:30 Deeply conserved susceptibility in a multi-host, multi-parasite system**
Lisa Barrow, Sabrina McNew, Nora Mitchell, Spencer Galen, Holly Lutz, Heather Skeen, Thomas Valqui, Jason Weckstein, Christopher Witt
- 16:45 Adaptation of sorghum landraces across gradients of parasitic plant occurrence**
Emily Bellis, Victoria DeLeo, Elizabeth Kelly, Claire Lorts, Germinal Rouhan, Andrew Budden, Govinal Bhaskara, Zhenbin Hu, Robert Muscarella, Tom Juenger, Michael Timko, Geoffrey Morris, Claude dePamphilis, Jesse Lasky
- 17:00 Barriers to Wolbachia invasion in two Drosophila sister species**
Paul Ginsberg, Kelly Dyer
- 17:15 Back to the roots: on the origin of the molecular armory of hemostasis inhibition in leeches**
Rafael Iwama, Sebastian Kvist, Mark Siddall, Michael Tessler

Session Phylogenetic Methods 4

Monday - 16:15 - 17:30

Room Ball_BC

- 16:15 Six-state recoding is not an effective phylogenetic strategy to offset the effects of saturation and compositional heterogeneity**
Alexandra Hernandez, Joseph Ryan
- 16:30 Edge-based likelihood analyses are consistent with the coalescent**
Richard Hodel, Joseph Walker, Lacey Knowles, Stephen Smith
- 16:45 SelON: A spatially-explicit model of stabilizing selection on UCEs for improving phylogenetic inference**
Michael Gilchrist, Brian O'Meara, Jeremy Beaulieu
- 17:00 Building a new model for treespace: progress and pitfalls**
Graeme Lloyd
- 17:15 Comparing rate across sites models with a cumulative distribution function**
Klaus Schliep

Session Adaptation 7

Monday - 16:15 - 17:30

Room Ball_DE

- 16:15 Surprisingly static gene family evolution in a pair of ecological specialists**
Kim Vertacnik, Catherine Linnen
- 16:30 No HIF, No problem: Transcriptional response to hypoxia in an organism without the Hypoxia Inducible Factor (HIF) pathway**
Allie Graham, Felipe Barreto
- 16:45 Comparative transcriptome analyses reveal different low-salinity adaptive mechanisms between freshwater and euryhaline crabs**
Jiaojiao Niu, Ka Yan Ma, Ling Ming Tsang, Jing Qin, Ting Chan, Ka Hou Chu
- 17:00 Clinal genetic variation in the D. melanogaster ADH enzyme affects alcohol catabolism and organismal fitness without temperature-mediated tradeoffs**
Mohammad Siddiq, Joseph Thornton
- 17:15 Comparison of toxin tolerance mechanisms in the Drosophila quinaria species group**
Clare Scott Chialvo, Fariba Tayyari, Pablo Chialvo, Arthur Edison, Thomas Werner, Laura Reed

Poster Session Posters: Adaptation/evolutionary ecology

Monday - 17:30 - 19:30

Room ExHallBC_01

- Poster board **The role of stomatal trait evolution in Pooideae (Poaceae) stress tolerance** **withdrawn**
2019-06-10 10:18:04.0
#1 *Aayudh Das*
- Poster board **Looking out for lag in a widespread annual**
Anna Scharnagl, Nic Kooyers
#2

- Poster board #3 **Bates Revisited: The wing pattern variation in the Amazon**
Ananda Regina Pereira Martins
- Poster board #4 **Phenotypic selection and rapid evolution in experimentally introduced *Brassica rapa* in a novel environment**
Michael Sekor, Steven Franks
- Poster board #5 **Land use affects diet & toxicity in the Little Devil Frog**
Nora Moskowitz, David Donoso, Lauren O'Connell
- Poster board #6 **Local adaptation to drought in *Pinus pinceana*, based on transcriptome derived genotypes and differential expression patterns along a climatic gradient.**
laura figueroa corona, Jill Wegrzyn, Daniel Piñero Dalmau
- Poster board #7 **Urban adaptation in anole lizards of the Greater Antilles**
Kristin Winchell
- Poster board #8 **Histological structure of coloration in throat dermal tissue across Threespine Stickleback**
Christopher Anderson, Jeffrey McKinnon, Thomas Fink
- Poster board #9 **Trait convergence in photosynthetic nutrient-use efficiency along a 2-million year dune chronosequence in a global biodiversity hotspot**
Caio Guilherme Pereira, Patrick Hayes, Odhran S. O'Sullivan O'Sullivan, Lasantha Weerasinghe, Peta Clode, Owen Atkin, Hans Lambers
- Poster board #10 **Evolutionary Adaptation of *Medicago Truncatula* Due to Climate Change**
DAISY LOPEZ

Topic Posters: Expression studies/transcriptomics/genomics

- Poster board #63 **Transcriptional dimorphism in *Ceratodon purpureus* largely driven by giant sex chromosomes**
Sarah Carey, Stuart McDaniel
- Poster board #64 **Hints of evolutionary history when naïve social amoebae are introduced to their facultative bacterial symbionts**
Suegene Noh, Susanne DiSalvo, David Queller, Joan Strassmann
- Poster board #65 **Olfactory receptor subgenome and expression in a highly olfactory procellariiform seabird**
withdrawn 2019-06-20 06:57:39.0
Simon Sin, Alison Cloutier, Brian Hoover, Gabrielle Nevitt, Scott Edwards
- Poster board #66 **Evolution of genomic structural variations and topologically associating domains (TADs) in *Drosophila pseudoobscura***
Yi Liao, Mahul Chakraborty, J.J. Emerson
- Poster board #67 **Evidence for co-option of core DNA processing pathways in copepod programmed DNA excision**
Grace Wyngaard, Maxim Zagoskin, Brian Walton, Cheng Sun, Rachel Lockridge Mueller
- Poster board #68 **Mitochondrial genomic variation drives differential nuclear gene expression in discrete regions of *Drosophila* gene and protein interaction networks**
Jim Mossman, Leann Biancani, David Rand

Topic Posters: Floral

- Poster board #69 **The molecular basis of transgressive segregation of flower color in *Mimulus* (monkeyflowers)**
zheng xiao, Yaowu Yuan
- Poster board #70 **Duplication and expression of CYCLOIDEA-like genes in Campanulaceae**
Jingjing Tong, Eric Knox, Clifford Morden, Nico Cellinese, Dianella Howarth
- Poster board #71 **Knockdown of floral symmetry genes in *Fedia graciliflora***
Theresa Mustacchio, Jingjing Tong, Brent Berger, Vincent Ricigliano, Yolanda Savriama, Aedric Lim, Veronica Thompson, Dianella Howarth

Poster Evolution and development of corolla tubes in *Mimulus*.
board **Vandana Gurung**, Yaowu Yuan, Pamela Diggle
#72

Poster The regulation of carotenoid accumulation in monkeyflowers (*Mimulus*): Implications for
board flower color evolution
#73 **Lauren Stanley**, Yaowu Yuan

Topic Posters: Gene flow

Poster Human land use impacts gene flow in the biodiversity hotspot Cape Floristic Region, South
board Africa
#74 **Lindsay Miles**, Erica Tassone, Michael Rosenberg, Rodney Dyer, **Brian Verrelli**

Poster Landscape genetics of an invasive species in an urban-rural landscape
board **Emily Reed**
#75

Poster Inferring historical introgression using machine learning on phylogenetic invariants
board **Patrick McKenzie**, Deren Eaton
#76

Poster Extensive reticulation in a sympatric species pair of *Heliconius* butterflies?
board **Fernando Seixas**, Nathaniel Edelman, Neil Rosser, Kanchon Dasmahapatra, James Mallet
#77

Topic Posters: Genomics 2

Poster Genome-level evolution of a large venom multi-gene family in pit vipers: organization and
board expression
#78 **Michael Broe**, Vincent Viala, Inacio de Azevedo, Darin Rokyta, Harold Gibbs

Poster Insights from the whole genome analysis of manatees (*Sirenia*)
board **Érica Martinha de Souza**, Lucas Freitas, Mariana Nery
#79

Poster Mitochondrial Genomes as Tools for Teaching of Comparative Genomics and Evolution
board **Cloe Pogoda**, Nolan Kane, Kyle Keepers, Jacob Stanley
#80

Poster Plasticity and constraints on human stature: a 9,000 year perspective from ancient DNA and
board skeletal data
#81 **Stephanie Marciniak**, Christina Bergey, Ana Maria Silva, Agata Hałuszko, Mirosław Furmanek, Barbara Veselka, Petr Velemínský, Joachim Wahl, Krisztián Kiss, Tamás Hajdu, Giuseppe Vercellotti, Noreen von Cramon-Taubadel, Ron Pinhasi, George Perry

Poster Range-wide landscape genomic structure of rubber rabbitbrush (*Ericameria nauseosa*) and
board the potential for reproductively isolated lineages
#82 **Lana Sheta**, Trevor Faske, Alison Agneray, Bryce Richardson, Elizabeth Leger, Thomas Parchman

Poster Functional and structural genomics of *Sphagnum* niche differentiation
board **Travis Lawrence**, Bryan Piatkowski, David Weston, Matthew Johnson, Adam Healey, Jeremy Schmutz,
#83 Jonathan Shaw

Poster Genome evolution of the obligate endosymbiont *Buchnera aphidicola*
board **Rebecca Chong**, Hyunjin Park, Nancy Moran
#84

Poster Population genomic analysis of speciation among threatened desert tortoises
board **Greer Dolby**, Timothy Webster, Dale DeNardo, Melissa Wilson, Kenro Kusumi
#85

Poster The genome of *Corella inflata* and tunicate phylogenomics: progress towards reconstructing
board the ancestral Enterogona
#86 **Melissa DeBiase**, William Colgan, Lincoln Harris, Bradley Davidson, Joseph Ryan

Poster Genome size evolution differs between *Drosophila* subgenera with evidence for more shifts
board of sex differences in *Sophophora*
#87 **Carl Hjelman**, Heath Blackmon, V. Renee Holmes, Crystal Burrus, J. Spencer Johnston

Poster Using hybrid genome assemblies to detect ultra-conserved elements (UCEs) loci for the
board phylogenomics of Argyrodinae (Araneae: Theridiidae)
#88 **Yong-Chao Su**, Han-Yun Li, Yi-Fan Chiu, Jer-Min Tsai

Poster board #89 **Genomics of Imidacloprid pesticide-remediating bacteria**
Mercedes Lam, Rahil Ryder, Dominique Scott, Katarina Wildermuth, Arlene Haffa, Nathaniel Jue

Topic Posters: Invasive/invasion

Poster board #90 **Rapid evolution of selection against interspecific mating in female mosquitoes**
Martha Burford Reiskind

Poster board #91 **Biodiversity and Invaders on Marine Artificial Structures**
Sofia Tschijevski

Poster board #92 **Plasticity as an Explanation of Invasion Success**
Madison Armstrong, Mark Smithson, Mark Dybdahl

Poster board #93 **Population structure and genetic diversity of Mediterranean geckos (*Hemidactylus turcicus*) at three separate invasions in central Oklahoma**
Gary Thomas, Samah Houmam, Emily Falcon, Laura Kimmel, Allyson Fenwick

Poster board #94 **Genetics of the invasion of Lionfish in the Gulf of Mexico and the Caribbean Sea.**
Irán Guzmán, Renata Rivera, Serge Planes, Aldo Croquer, Horacio Perez, Carlos Gándara, Jesus Arias

Poster board #95 **Population genomic patterns of invasion in the globally distributed cane toad, *Rhinella marina***
Cinnamon Mittan, Kelly Zamudio

Poster board #96 **Host specific gene expression and invasiveness in parthenogenetic weevils**
Ava Mackay-Smith, Rosalind Lucier, Analia Lanteri, Viviana Confalonieri, Marcela Rodriguez, Andrea Sequeira

Poster board #97 **Cities in the Spotlight: Does Tolerance of Artificial Light at Night Promote Urban Invasions?**
Christopher Thawley, Jason Kolbe

Topic Posters: Life history

Poster board #98 **Age is a good proxy for residual reproductive value in predicting turtle investment behavior**
David Delaney, Luke Hoekstra, Fredric Janzen

Poster board #99 **Mycoparasitism does not correlate with changes in the chloroplast genome in the orchid *Epipactis helleborine***
Janice Valencia, Kierstin Iipe, Kurt Neubig, W. Whitten

Poster board #100 **Physiological Effects of Summer Temperature and Photoperiod in *Drosophila mojavensis***
Tierney Shaible, Luciano Matzkin

Poster board #101 **Education and longevity in 19th century cohorts**
Ioanna Visviki, Kaylin Dominguez, Isabel Soriano, Amir Niknejad

Poster board #102 **Sex-specific mortality and senescence in a wild population of brown anole lizards**
Aaron Reedy, Ariel Kahrl, Heidi Seears, Tyler Wittman, Rachana Bhawe, Robert Cox, Tonia Schwartz

Poster board #103 **Life history adaptation along a climatic gradient in European Corn Borer moths**
Henry Kunerth, Erik Dopman, Genevieve Kozak, Jeremy Searle

Topic Posters: Mutation

Poster board #104 **Analyzing structural variation in *Drosophila pseudoobscura* using long-read sequence data**
withdrawn 2019-06-11 07:06:04.0
Shannon McDermott

- Poster board #105 **Mutation accumulation experiments in natural populations of *Arabidopsis thaliana***
Mao-Lun Weng
- Poster board #106 **Identifying the genetic basis and distribution of lethal mutations in a natural population of *Drosophila melanogaster***
Iman Hamid, Sarah Marion, Emma Glenn, Mohamed Noor
- Poster board #107 **Mutation Accumulation in a Microfluidics Platform**
Nathan Turner
- Poster board #108 **Direct estimate of the per generation mutation rate in the Rhesus macaque**
Richard Wang, Gregg Thomas, Matthew Hahn

Topic Posters: Mutualism

- Poster board #109 **Defensive bacteriophage - hypothesized drivers of antagonistic coevolution – are diverse and dynamic associates of endosymbionts in North American pea aphids**
Jacob Russell, Stephanie Weldon, Melissa Carpenter, Jonah Joffe, Andrew Smith, Kerry Oliver
- Poster board #110 **Context-dependent mutualism evolution: Light and nutrients alter selection in plant-microbe multiple mutualisms** **withdrawn 2019-06-16 17:21:00.0**
Katy Heath, Julia Ossler
- Poster board #111 **Spatial metacommunity dynamics in guilds of mutualists**
Christopher Moore

Topic Posters: Phenotypic plasticity/GxE 2

- Poster board #112 **Geographic dependence of the genetic architecture of resistance to leaf rust in locally adapted ecotypes of switchgrass (*Panicum virgatum*)**
Acer VANWALLENDIAEL, David Lowry, Gary Bergstrom, Shawn Kenaley, Tom Juenger
- Poster board #113 **How within- and trans-generational plasticity interact to shape the response to environmental stress**
Katlyn Nielsen, Mark Dybdahl, Abigail Hudak
- Poster board #114 **Transgenerational plasticity mediates fitness loss under rapid environmental change**
Dale Clement, Isabelle Nylan, Nicholas Roberts, Sebastian Schreiber, Andrew Sih, Pete Trimmer
- Poster board #115 **Acclimation to low temperature in *Daphnia* from contrasting habitats**
Alyssa Meta, Katrina Webster, Brooks Miner
- Poster board #116 **Intergenerational effects of parental exposure to ocean acidification on *Crassostrea virginica* larvae**
Ffion Titmuss, Elise McNally, Alan Downey-Wall, Justin Ries, Kathleen Lotterhos
- Poster board #117 **A novel form of 'nongenetic inheritance'? Dead tadpoles adaptively modify development in future generations**
David Pfennig, Katrina Pfennig
- Poster board #118 **Genetic variation in drought resistant traits in Alberta's lodgepole pine and white spruce populations**
Xiaojing Wei
- Poster board #119 **Growth traits made easy: a how-to guide for quantifying bacterial life history phenotypes in batch culture**
Ana-Hermina Ghenu, Isabel Gordo, Claudia Bank
- Poster board #120 **Old typologies must die: Phenotypic plasticity produces traditional specialists and generalists, plus unique integrated strategies**
Thomas DeWitt
- Poster board #121 **Local advantage within seagrass meadows: how do source depth, soil conditioning, and outplant depth affect seedling performance?**
Torrance Hanley, Forest Schenck, Cynthia Hays, A. Randall Hughes

Topic Posters: Phylogenomics

- Poster board #122 **Phylogeny and Microbial communities associated to the Caribbean octocoral genus *Eunicea***
Adriana Sarmiento
- Poster board #123 **The potential of genome-wide RAD sequences in resolve phylogenies facing radiations: target Cactaceae species as a case study**
Fernando Franco, Juliana Bombonato
- Poster board #124 **Biogeographic history of seahorses, dragonets, goatfishes, and allies (Teleostei: Syngnatharia) using phylogenomics**
Aintzane Santaquiteria, Ricardo Betancur-R.
- Poster board #125 **Chromosome evolution in the carnivorous plants sundews (*Drosera*, Droseraceae)**
Rebekah Mohn, Rosana Zenil-Ferguson, Ya Yang
- Poster board #126 **Estimate mutation rate from Sahul mitochondrial genome with ancient DNA **withdrawn****
2019-06-22 08:28:30.0
Walter Xie
- Poster board #127 **Phylogenomics and investigation of horizontal gene transfer in secondarily free-living diplomonads**
Eric Salomaki, Agnieszka Pelesz, Monika Wiśniewska, Petr Taborsky, Eva Mazancová, Vasana Jinatham, Eleni Gentekaki, Ivan Čepicka, Martin Kolísko
- Poster board #128 **How many species in Asian honeybees? RAD-seq species delimitation of the *Apis* species in Asia.**
Yi-Fan Chiu, Yong-Chao Su, Deborah Smith
- Poster board #129 **RADseq sheds light underground: genetic divergence in the Hottentot golden mole species complex from South Africa**
Samantha Mynhardt, Nigel Bennett, Paulette Bloomer
- Poster board #130 **Assessing the utility of Hyb-Seq for resolving phylogeny and introgression in rapid angiosperm radiations: a pilot study in *Burmeistera* bellflowers**
Justin Bagley, Simon Uribe-Convers, Monica Carlsen, Nathan Muchhala

Topic Posters: Biogeography 2

- Poster board #11 **Shifts to multiple optima underlie the evolution of climatic niches in New World phyllostomid bats**
Luiz Varzinczak, Mauricio Moura, Fernando Passos
- Poster board #12 **PaleoClim.org: high spatial resolution paleoclimate surfaces for global land areas**
Jason Brown, Ana Carnaval, Daniel Hill, Alan Haywood
- Poster board #13 **Molecular Patterns of diversification of Dolichothele (Araneae: Theraphosidae) along the Brazilian Dry Diagonal**
Wendy Arroyo Perez, José Leite Guadanucci, Vera Solferini
- Poster board #14 **Disentangling the lineages of *Trema micrantha* using phylogenetics, morphometrics, and biogeography**
Breanna Whitley, Kurt Neubig, Nancy Garwood
- Poster board #15 **Phylogenetic and functional trait structure of tropical mammal assemblages is shaped by late Quaternary climate change and human impacts**
John Rowan, Lydia Beaudrot, Janet Franklin, Kaye Reed, Andrew Zamora, Irene Smail, Jason Kamilar
- Poster board #16 **The origin and diversification of the hyperdiverse flora in the Chocó biogeographic region**
Sarah Morris, Oscar Pérez Escobar, Bente Klitgaard, Monica Carlsen, Alejandro Zuluaga Trochez, Steven Dodsworth, Olivier Maurin, Grace Brewer, Robyn Cowan, Eve Lucas, Ilia Leitch, Felix Forest, William Baker, Alexandre Antonelli
- Poster board #17 **Caenorhabditis nematode diversity in a neotropical rainforest**
Jacqueline Jackson, Matthew Rockman, Solomon Sloat
- Poster board #18 **Exploring phylogenetic diversity of afrobatrachian frogs in Central Africa**
Gregory Jongsma, Julie Allen, David Blackburn

- Poster board #19 **Phylogenomics and diversification dynamics of the Gondwanan vicariant harvestman family Pettalidae (Arachnida, Opiliones, Cyphophthalmi)**
Caitlin Baker, Sarah Boyer, Gonzalo Giribet
- Poster board #20 **Phenotypic and ecological variation across the Pacific swallow species complex**
Elizabeth Scordato

Topic Posters: Phylogeography

- Poster board #131 **Does microhabitat influence cryptic diversity?: An investigation using microsnailes (*Punctum randolphi*) from the Pacific Northwest rainforests.**
David Sneddon, Megan Smith, Bryan Carstens
- Poster board #132 **Phylogeography of sand-burrowing amphipods (Haustoriidae) supports an ancient suture zone in the Gulf of Mexico**
Zachary Hancock
- Poster board #133 **Population structure of the Virginia opossum (*Didelphis virginiana*): Insights within a range expansion**
Lisa Walsh
- Poster board #134 **Comparative phylogeographic methods to inform conservation of endemic Pedicularis (*Orobanchaceae*) in the Hengduan Mountains of China**
Jared Meek, Richard Ree, Deren Eaton
- Poster board #135 **Differences among fish populations confirmed using nuclear DNA**
Bianca Pappacoda
- Poster board #136 **Genomic data reveal deep lineage divergence and molecular adaptation in the Texas horned lizard (*Phrynosoma cornutum*)**
Christopher Blair, Nicholas Finger, Tereza Jezkova, Olivier Francois, Dean Williams, Adam Leache, Tristan Charran, Keaka Farleigh, Jason Bracken
- Poster board #137 **Molecular dating for phylogenies containing a mix of populations and species**
Beatriz Mello, Qiqing Tao, Sudhir Kumar
- Poster board #138 **Evolutionary history of small populations of Brook trout from Cape Race, Newfoundland.**
Hyung-Bae Jeon, Matthew Yates, Dylan Fraser

Topic Posters: Plant reproductive biology

- Poster board #139 **Convergent evolution in floral morphology in a plant ring species**
Ivalu Cacho, Maria José Monteverde, Patrick McIntyre
- Poster board #140 **Genetic and Seasonal Structure of Weedy Dandelions in Three Massachusetts Populations**
Lisa Mazumder, Rick Kesseli
- Poster board #141 **Mate preferences and non-random mating in the monkey flower *Mimulus guttatus***
Karine Leydet, Jannice Friedman
- Poster board #142 **Earlier reproductive phenology of winter annual gladiolus (*Leavenworthia stylosa*) in a cooler, wetter climate**
Caitlin Banaszak, Joshua Grinath, Chris Herlihy

Topic Posters: Population genetics: molecular ecology 3

- Poster board #143 **Whole-genome resequencing as a tool for monitoring gray whale population dynamics**
Anna Brüniche-Olsen, J. Andrew DeWoody

- Poster board #144 **Ecological differences shape phylogeographic patterns in the morphologically cryptic genus *Elaenia* (Aves: Tyrannidae)**
Eliane Luiz de Freitas, Leonardo Campagna, Bronwyn Butcher, irby Lovette, Renato Caparroz
- Poster board #145 **RADseq reveals fine-scale genomic patterns of lake-stream divergence between two darter species (*Etheostoma perlongum* and *E. olmstedii*)**
Dan MacGuigan, Trevor Krabbenhoft, Tianying Lan, Thomas Near
- Poster board #146 **Illuminating evolutionary processes of Lamprologine cichlid fishes in the lower Congo River**
Naoko Kurata, Melanie Stiasny, Liz Alter, Michael Hickerson
- Poster board #147 **Urban coyotes are genetically distinct from and less diverse than coyotes in natural habitats**
Anthony Adducci II, Jeremy Jasperse, Seth Riley, Justin Brown, Rodney Honeycutt, Javier Monzon
- Poster board #148 **Comparative population genomics of marine worms in the Brazilian coast - a case study between different development types and reproductive strategies**
Cecili Mendes, Cinthya Santos, Sônia Andrade
- Poster board #149 **Sampling ancient DNA from fossil tree pollen to directly analyze how shifting range limits impacted population abundance and connectivity**
Ethan Thibault, David Nelson, Matthew Fitzpatrick, Laura Parducci, Stephen Keller

Topic Posters: Population genetics: theory and methods

- Poster board #150 **Population clustering based on k-mer frequencies from unassembled reads **withdrawn****
2019-06-10 09:31:55.0
Yana Hrytsenko, Rachel Schwartz
- Poster board #151 **Expressed exome capture sequencing: a method for cost-effective exome sequencing for all organisms**
Jonathan Puritz, Kathleen Lotterhos
- Poster board #152 **When good mutations go bad: Population size can change the direction of natural selection**
Daniel Weinreich, Yevgeniy Raynes, Christina Burch
- Poster board #153 **Contemporary demographic reconstruction methods are robust to genome assembly quality: A case study in Tasmanian Devils**
Austin Patton, Mark Margres, Amanda Stahlke, Sarah Hendricks, Kevin Lewallen, Rodrigo Hamede, Manuel Ruiz-Aravena, Oliver Ryder, McCallum Hamish, Menna Jones, Paul Hohenlohe, Andrew Storfer
- Poster board #154 **Rampant heterozygote advantage on the fitness landscape in a biophysical model of regulatory genetic interactions: conditions for the maintenance of polymorphism**
Adam Porter, Norman Johnson, Alexander (Sasha) Tulchinsky

Topic Posters: RNA

- Poster board #155 **Natural variation affecting local chromatin conformation in *Drosophila melanogaster***
Michael Palopoli, Emma Laprise, Eric Link
- Poster board #156 **A code-message coevolution model of the aminoacyl-tRNA-synthetase and tRNA interaction network reveals the dynamics of translation leading up to the establishment of a genetic code.**
Andrea Collins-Hed, David Ardell
- Poster board #157 **Next-generation sequencing approaches elucidate the ancient relationships between tiger beetles (Cicindelinae) and other Adephagan lineages**
Harlan Gough
- Poster board #158 **Understanding the modus operandi of microRNA regulatory clusters**
Danillo Pinhal, Arthur Oliveira, Luiz Bovolenta, Lucas Figueiredo, Amanda Ribeiro, Vinícius Campos, Ney Lemke, Lucas Silva
- Poster board #159 **Parasite manipulation of host phenotypes: infection of a salt marsh amphipod by a trematode is associated with the down regulation of immune genes**
David Rand, Joaquin Nunez, Shawn Williams, Bianca Brown, John Burley, Stephen Rong, David Morgan, Kimberly Neil, Adam Spierer, David Ferranti, Maya Greenhill, Naima Okami, Amanda Lyons, David Johnson

- Poster board #160** **Molecular evolution of novel silk proteins in Caerostris bark spiders underlying the toughest silks**
Molly Dawson, Robert Haney, Matjaz Gregoric, Matjaž Kuntner, Ingi Agnarsson, Todd Blackledge, Jessica Garb
- Poster board #161** **Mutational bias and purifying selection on the protein code shape the evolution of splicing regulatory elements**
Stephen Rong, Christy Rhine, Jing Wang, Kamil Cygan, Luke Buerer, William Fairbrother

Topic Posters: Speciation

- Poster board #162** **Cuticular hydrocarbon variation in the *Rhagoletis pomonella* sibling species complex**
William Etges, Glen Hood, Jackson Jennings, Melanie Beehler, Joanne Yew, Jeffrey Feder
- Poster board #163** **Cryptic speciation in *Aphaenogaster* Ants**
Gabriella Quartuccia, Thomas Powell, Kirsten Prior, Carmela Buono
- Poster board #164** **Evolutionary origins of the allotetraploid *Mimulus sookensis***
Makenzie Whitener, Andrea Sweigart
- Poster board #165** **Adaptation at a cost: serpentine endemism is associated with loss of competitive ability across the California flora**
Shelley Sianta, Kathleen Kay
- Poster board #166** **Evaluation of introgression and incomplete lineages sorting among tuco-tucos (genus *Ctenomys*) using transcriptomes**
Ivanna Tomasco, Nicolás Boullosa, Matías Feijoo, Enrique Lessa
- Poster board #167** **On the evolution of gametic interactions during speciation**
Henry Arenas-Castro, Daniel Ortiz-Barrientos, Jan Engelstaedter
- Poster board #168** **A genomic investigation of despeciation in the Spectacled Tetraka (*Xanthomixis zosterops*), a passerine bird from Madagascar**
Nicholas Perry, Nicholas Block, Jane Younger, Sushma Reddy
- Poster board #169** **Genomic studies of seasonal isolation in the European corn borer moth**
Genevieve Kozak, Brad Coates, Erik Dopman
- Poster board #170** **The evolutionary history and genetic diversity of three closely related *Aulacomnium* species**
Chathurani Ranathunge, Julia Butler, Juan Contreras, Angela Roles, Stuart McDaniel
- Poster board #171** **The combined role of dispersal and niche evolution in the diversification of Neotropical lizards**
Fernanda Werneck, Yumi Sheu, Juan Zurano, Marco Ribeiro-Junior, Teresa Ávila-Pires, Miguel Rodrigues, Guarino Colli
- Poster board #172** **Epistasis and the quantitative genetics of species differences**
Charles Goodnight
- Poster board #173** **Songs of Speciation: finding the genetic causes of speciation in green lacewings**
Elizabeth Wade, Katherine Taylor, Marta Wells, Charles Henry
- Poster board #174** **Diversity and evolution of brittle stars across the world ocean: revisionary systematics of ophirolepidids**
Tania Pineda Enriquez, Gustav Paulay, Timothy O'Hara

Topic Posters: Systematics

- Poster board #175** **Systematics and Biodiversity: an international peer-reviewed journal**
Elliot Shubert
- Poster board #176** **Preliminary higher level phylogeny of the swifts (Aves: Apodidae)**
Jesse Holmes, Robert Moyle

Poster board #177 **Phylogenomics, phylogeography, and landscape genetics in the snake tribe Thamnophiini**
Derek Filipek, David Weisrock

Poster board #178 **Phylogenetics and population genetics of Plethodon salamanders in the Coastal Plain**
Catherine Newman, Christopher Austin

Poster board #179 **Phylogenetic approach to mobilize the palaeoecological potential of rove beetle fossils in Baltic amber**
Amalia Bogri, Dagmara Zyla, Alexey Solodovnikov, Sina Baier

Poster board #180 **Using variable rate models to study the evolution of ectomycorrhizal fungi through time**
Sanea Sheikh, Faheema Kalsoom, Mohammad Bahram, Martin Ryberg

Poster board #181 **Revisiting the North American Agalinis**
Shawn Boss, Benjamin Bashaw, Tien-Hao Chang, Tilottama Roy

Poster board #182 **Investigating morphological complexes using phylogenetic dissonance and bayes factors: a case study in corbiculate bees.**
Diego Porto, Eduardo Almeida, Matthew Pennell

Poster board #183 **Fast radiations and slow genes: uncovering the root of living canids**
Alessandra Lamarca, Carlos Schrago

Topic Posters: Coevolution 2

Poster board #21 **Convergence of glandular trichome morphology and chemistry in two alpine monkeyflower species**
Sofia Bustamante Eguiguren, Carrie Wu, Kristine Nolin

Poster board #22 **Loss of symbiotic adaptations during experimental evolution suggests antagonistic evolutionary past in a social amoeba/bacteria symbiosis withdrawn 2019-06-17 16:44:19.0**
Tyler Larsen, Justine GARCIA, Cara Jefferson, Anthony Bartley, Joan Strassmann, David Queller

Poster board #23 **Stuck on You: Macro and Micro Examination of Genital Morphology in Leucoraja Skate Species**
Patricia Brennan, Pearl Schleinig, Louise Tanner

Poster board #24 **Selection on the three dimensional gall morphology of Eurosta solidaginis by natural enemies**
Timothy Craig, Joanne Itami

Poster board #25 **A small tiled geographic mosaic of coevolution in gallmakers and their natural enemies on goldenrod**
Joanne Itami, Timothy Craig

Poster board #26 **Fisher's geometric model and the genetic architecture of conflict**
Trey Scott, David Queller

Poster board #27 **Host-virus coevolution drives a rock-paper-scissors sequence in yeast experimental evolution**
Sean Buskirk, Alecia Rokes, Gregory Lang

Poster board #28 **Coevolution as the Driver of Specificity in Host Pathogen Interactions**
Rachel Cohen

Poster board #29 **Stream-Lake Divergence and Convergence in the Carolina Bay Fundulus Species Complex**
Lucas A Cortes, Jeffrey McKinnon, Michael Brewer, Zachary Harrison, Tyler Walston

Topic Posters: Conservation biology 2

Poster board #30 **Barcoding at the border: on-the-go genetic tests to stop illegal wildlife trafficking**
Marisa Lim, Adeline Seah, Stefan Prost, Stephen Harris, Paola Dolcemascolo, Robert O'Brien, Denise McAloose, Tracie Seimon

Poster board #31 **Assessment of Subspecies Status for the Candidate Endangered Population Tamias minimus atristriatus Using Exon Capture from Museum Specimens**
Emily Puckett, Sean Murphy, Gideon Bradburd

- Poster board #32 **Genetic structure and the history of chub in the Alvord Basin**
Christian Smith, Jennifer Von Bargen, Patrick DeHaan, Paul Scheerer, Michael Meeuwig
- Poster board #33 **Structure and connectivity of an endangered cryptic freshwater mussel (*Parvaspina collina*)**
Bonnie Roderique, Rodney Dyer, Brian Watson
- Poster board #34 **Genome-wide population structure at microgeographic scales in the endangered Bluemask Darter (*Etheostoma akatulo*) from the Caney Fork River System**
Edgar Benavides, Liam Taylor, Dan MacGuigan, Elyse Parker, Dae-Min Kim, Jeffrey Simmons, Thomas Near

Topic Posters: Development

- Poster board #35 **Investigating serial homology of the adhesive structures of diplodactylid lizards (Reptilia: Gekkota)**
Aaron Griffing
- Poster board #36 **RNaseq reveals developmental differences between ecotypes of *mimulus guttatus***
Jason Olsen
- Poster board #37 **The genetic and developmental basis of natural pigment pattern diversity in *Danio kyathit***
Braedan McCluskey
- Poster board #38 **Gene network co-option in the evolution and development of the cephalopod lens**
Kyle McCulloch, Stephanie Neal, Christina Daly, James Coleman, Kristen Koenig
- Poster board #39 **SP6-9 paralogs expressed in the developing squid visual system are part of an expansion of this gene family in Lophotrochozoa**
Kyle McCulloch, Kristen Koenig
- Poster board #40 **Identifying the Ancestral Ligand behind Uterine Decidual Stromal Cell Differentiation**
Daniel Stadtmauer

Topic Posters: Disease

- Poster board #41 **Predicting clone phylogenies from bulk sequencing data of tumor tissues**
Sayaka Miura, Sudhir Kumar
- Poster board #42 **Variation in tolerance to parasites affects vectorial capacity of natural Asian tiger mosquito populations**
Guha Dharmarajan, Kathryne Walker, Erik Neff, Tovi Lehmann
- Poster board #43 **Evolutionary patterns of conservation at schizophrenia GWAS loci reveal varying histories of natural selection**
Mariam Sankoh, Brian Verrelli
- Poster board #44 **Host and Environmental Factors Differentially Affect Parasite Community Structure and Infection Dynamics in a Montane Biodiversity Hotspot**
Pooja Gupta, CK Vishnudas, Uma Ramakrishnan, VV Robin, Guha Dharmarajan

Topic Posters: Ecology

- Poster board #45 **SPARCnet Year 2.5: Mark-recapture reveals variation in abundance of *Plethodon cinereus* within a suburban forest**
Caitlin Fisher-Reid, Elena Babicz, Alexandra Bebko, Sarah Couto, Sean King, Alexander O'Roak, Emma Perry, Julia Whalen
- Poster board #46 **Predicting global insect diversity**
Connor French, Laura Bertola, Michael Hickerson

- Poster board #47 **Host range and preference in the hemiparasite *Agalinis tenuifolia* (Orobanchaceae) using DNA barcoding**
Keegan Shults, Daniel Nickrent, Kurt Neubig
- Poster board #48 **Evolutionary Consequences In The Reproductive Dynamics of Mediterranean Pines**
Marta Callejas-Díaz, José M. Climent Maldonado
- Poster board #49 **Purple pitcher protist preference for bacteria**
Leslie Rivas Quijano, Lily Khadempour, Casey terHorst
- Poster board #50 **Insecticidal transgenes in wild cotton modify associated arthropod communities**
Francisco Javier Pérez-López, Ana Wegier, Francisco Javier Pérez-López

Topic Posters: Education/outreach 3

- Poster board #51 **Students reason similarly about bacteria and birds: a case study**
Michael Wiser, Anna Bowling, Louise Mead, James Smith, Robert Pennock
- Poster board #52 **Unwelcome behaviors at the Evolution meetings: Survey results**
Brian O'Meara, Andrea Case, JODIE WIGGINS, Kelly Zamudio, Regina Baucom, Sharon Strauss
- Poster board #53 **Avida-ED 4 - Ecology**
Diane Blackwood, Robert Pennock
- Poster board #54 **Into the 21st century: stabilization and updating the Roosevelt Wild Life Collections**
Emlyn Clark, David Bullis

Topic Posters: Evolutionary ecology 3

- Poster board #55 **Transgenerational Effects of Paternal Nutrition on Offspring Behavioral Susceptibility to Ectoparasitic Infection**
Parker Young, Michal Polak
- Poster board #56 **Dynamic sex-ratios in *Caenorhabditis***
Solomon Sloat
- Poster board #57 **Same-sex sexual behavior in animals: a novel evolutionary hypothesis**
Max Lambert, Julia Monk, Erin Giglio, Ambika Kamath, Caitlin McDonough
- Poster board #58 **Phylogenetic relationships among sea anemones reveals at least four independent origins of symbiosis with clownfish**
Charlotte Benedict
- Poster board #59 **Exploring the Evolution of Color Vision via Adaptive Walks**
David Morris, David Outomuro Priede, Nathan Morehouse
- Poster board #60 **Population genomics of Pacific abalone species complex in early phase of marine speciation**
Shotaro Hirase, Masashi Sekino, Minoru Ikeda, Motoyuki Hara, Kiyoshi Kikuchi
- Poster board #61 **Testing the reinforcement hypothesis under asymmetric gene flow**
Jonathan Colen
- Poster board #62 **Erythrocyte enucleation and genome size in Neotropical salamanders.**
Paul Decena, Sean Rovito, Mayela Ornelas Morin

Session LGBTQ and allies mixer and happy hour
Monday - 19:00 - 20:00 **Room Rotunda**

Open to all attendees; prior registration is not required.

Meet up with colleagues who identify as lesbian, gay, bi, trans, and otherwise queer colleagues, and discuss LGBTQ experiences and representation in evolutionary biology. Networking mixer in the Rotunda from 7-8 PM, after which participants are invited to join the group in exploring LGBTQ-friendly bars near the convention center.

Session SSE Executive council exit meeting

Tuesday - 7:45 - 9:00

Room 550A

Session ASN Executive council exit meeting

Tuesday - 8:00 - 9:30

Room 550B

Session Genetic control of populations 1

Tuesday - 9:00 - 10:30

Room Ball_A

Organizer: Florence Débarre (CNRS Paris)

Host: SSE

Topic: Genetic control consists in the "dissemination, by mating or inheritance, of factors that reduce pest damage" (Alphey 2014). The most widely used method consists in the mass release of sterile males. The development of the CRISPR-Cas gene editing technology has led to a renewed interest for another kind of genetic control, involving genetic constructs with biased inheritance (i.e., gene drive). This spotlight symposium will provide an overview of recent research -- models and empirical work -- on genetic control of populations.

9:00 Evaluating new methods for genetic control of insect pests

Tracey Chapman

9:30 Impacts of a naturally occurring selfish sex ratio distorter on population biology and genetics in a booklouse

Christina Hodson, Steve Perlman

9:45 Genetic swamping and the maintenance of engineered genes

Nathan Layman, Scott Nuismer

10:00 Gene drives across engineered fitness valleys

Freek de Haas

10:15 Ethics, Efficacy, and Evolutionary Forces: Gene Drive and Related Approaches to Pest Control

Rey Edison

Session Young Investigator / Dobzhansky Awards symposium 1

Tuesday - 9:00 - 10:30

Room ExHallD

SSE Theodosius Dobzhansky Prize

The Theodosius Dobzhansky Prize is awarded annually by the Society for the Study of Evolution to recognize the accomplishments and future promise of an outstanding young evolutionary biologist. The prize was established in memory of Professor Dobzhansky by his friends and colleagues, and reflects his lifelong commitment to fostering the research careers of young scientists.

The 2017 winner is Matthew Pennell (U. British Columbia).

ASN Jasper Loftus-Hills Young Investigators Award

The Jasper Loftus-Hills Young Investigators Award was established in 1984 to recognize outstanding and promising work by investigators who received their doctorates in the three years preceding the application deadline or who are in their final year of graduate school. Jasper Loftus-Hills (1946-1974) was an Australian biologist of exceptional promise, whose career was cut short just three years after receiving his degree when he was killed by a hit-and-run driver while tape-recording frog calls along a Texas highway. The award includes presentation of a research paper at the annual meeting of the American Society of Naturalists, an award of \$500, a travel allowance of \$700, the cost of registration at the meetings, and a supplement of \$500 in case of intercontinental travel.

The 2019 winners are Elanor Caves (Duke U.), Jean Philippe Gibert (Duke U.), Ambika Kamath (UC Berkley) and Stilianos Louca (U. Oregon).

9:00 SSE Dobzhansky Prize announcement & talk: Why the past isn't past: learning from evolutionary history and the history of evolution
Matthew Pennell

10:00 ASN Young Investigator Prize talk: Vision and signaling behavior in the cleaner shrimp-client fish mutualism
Eleanor Caves

Session Behavior 1

Tuesday - 9:00 - 10:30

Room 551

9:00 Using rna-seq to characterize gene expression and pathway enrichment associated with behavioral variation in ecotypes of Lake Superior brook trout
Matt Hale, Rob McLaughlin, Rob Mackereth, Chris Wilson, Krista Nichols

9:15 Female spadefoot toads preferentially hybridize with high-quality heterospecifics
Catherine Chen, Karin Pfennig

9:30 Adaptation to reproductive competition influences male parental care but not mating behavior in the burying beetle
Matthew Schrader, Garrett Lucey, Maddy Keller

9:45 Contemporary loss of migration in monarch butterflies
Ayse Tenger-Trolander, marcus kronforst, Wei Lu, Michelle Noyes

10:00 Plasticity facilitates the diversification of communication systems
Elizabeth Tibbetts, Becky Fuller, Emilie Snell-Rood

10:15 Evolution of boldness and exploratory behavior in giant mice from Gough Island
Jered Stratton, Mark Nolte, Bret Payseur

Session Evolutionary Ecology 6

Tuesday - 9:00 - 10:30

Room 552

9:00 A selfish supergene increases dispersal in wild house mice
Jan-Niklas Runge, Andrés Bendesky, Anna Lindholm

9:15 Wolbachia Transmission In Hawaiian Drosophila
M Renee Bellinger, Renee Corpuz, Donald Price

9:30 Darwin's finches in the Anthropocene
Luis De León

9:45 Strong selection in a moving avian hybrid zone may be related to cognitive function
Dominique Wagner, Robert Curry, Nancy Chen, irby Lovette, Scott Taylor

10:00 Environmental variability shapes evolution, plasticity, and biogeographic responses to climate change
Lauren Buckley, joel Kingsolver

10:15 Flexible, realistic, fast evolutionary simulations with SLiM
Benjamin Haller, Philipp Messer

Session Development

Tuesday - 9:00 - 10:30

Room 553

9:00 POPOVICH is essential for the development of a key innovation, floral nectar spurs, in the genus *Aquilegia*
Evangelina Ballerini, Ya Min, Molly Edwards, Elena Kramer, Scott Hodges

9:15 Finding the Genetic Basis for Developmental Evolution
Christina Zakas, Matthew Rockman

9:30 Cis-regulatory architecture of butterfly wing pattern evolution.
Anyi Mazo-Vargas, Robert Reed

9:45 Contrasting patterns of heat tolerance and body size among lake populations of *Daphnia pulex*
Sarah Scherbak, Brooks Miner

10:00 Palate Morphogenesis Informs Vomeronasal Development **withdrawn 2019-06-11 13:30:43.0**
Laurel Yohe

10:15 The Evolution of Ontogeny in a Lizard Family containing Dwarf and Giant Species (Varanidae)
Carlos Joaquin Pavon Vazquez, Damien Esquerré, J. Scott Keogh

Session Hybridization 1

Tuesday - 9:00 - 10:30

Room 554

- 9:00 Temperature preference biases parental genome retention during hybrid evolution**
Caiti Smukowski Heil, Christopher Large, Cindy Yeh, Angela Hickey, Kira Patterson, Maitreya Dunham
- 9:15 Complex and repeated historical admixture in the haplochromine radiations of Lake Kivu and Lake Edward**
Chad Brock, Reid Olson, Ole Seehausen, Catherine Wagner
- 9:30 Locus-specific patterns of introgression in trout hybrids**
Elizabeth Mandeville, Catherine Wagner
- 9:45 Misregulated Gene Expression in an Obligate Parthenogen**
Sen Xu
- 10:00 The genetic basis of sexually selected traits in an avian hybrid zone**
Kevin Bennett, Haw Lim, Rebecca Dikow, Paul Frandsen, Matthew Fuxjager, Sarah Kingston, Barney Schlinger, Michael Braun
- 10:15 Multi-way hybrid zones in southern Appalachian salamanders ~~withdrawn 2019-06-03~~**
13:17:26.0
Benjamin Fitzpatrick

Session Contemporary Evolution 1

Tuesday - 9:00 - 10:30

Room 555

- 9:00 Pedal to the metal: cities power evolutionary differentiation in acorn ants by accelerating metabolic rate while diminishing its thermal sensitivity**
Sarah Diamond, Lacy Chick, James Waters
- 9:15 Plants' ecological responses to the rapid evolution in microbiome**
Jiaqi Tan, Martin Turcotte
- 9:30 Differential gene expression associated with rapid evolution to consecutive drought episodes in a Brassica rapa resurrection study**
Elena Hamann, Christopher Pauli, Nolan Kane, Steven Franks
- 9:45 Evolution of seasonal plasticity in response to climate change in Colias eurytheme butterflies**
Matthew Nielsen, joel Kingsolver
- 10:00 Native prey fail to evolve, or recover, half a century after predator introduction**
Diana Sharpe, Luis De León, Ilke Geladi
- 10:15 Host plant adaptation during global range expansion in the monarch butterfly**
Micah Freedman, Santiago Ramirez, Sharon Strauss

Session Molecular Evolution 1

Tuesday - 9:00 - 10:30

Room 556

- 9:00 Another story of database bias: Detecting protein domains beyond biomedical model-species**
Michael Tassia, Kyle David, Kenneth Halanych
- 9:15 On estimating evolutionary probabilities of population variants**
Ravi Patel, Sudhir Kumar
- 9:30 Mutation accumulation in endangered and abundant seals**
Stephen Gaughran, Matthew Aardema, Jeffrey Powell, Adalgisa Caccone, George Amato
- 9:45 Ancient and ongoing evolutionary leaps in a large gene family with roles in plant development and defense**
Madelaine Bartlett, Jarrett Man, Joseph Gallagher
- 10:00 The evolution of pigmentation genes in a sexually dimorphic fish**
Sarah Flanagan
- 10:15 Evolutionarily divergent silk proteins may explain the unrivalled toughness of Darwin's bark spider dragline for giant webs**
Jessica Garb, Robert Haney, Matjaz Gregoric, Matjaž Kuntner, Ingi Agnarsson, Todd Blackledge

Session Biogeography 4

Tuesday - 9:00 - 10:30

Room 557

- 9:00 **Strangler figs and diversification processes in the Neotropics**
Nicolas Medina
- 9:15 **Morphological, molecular, and biogeographic evidence for the recognition of *Euthamia hirtipes* and *E. scabra* (Asteraceae, Astereae)**
Marisa Szubryt, Kurt Neubig, Lowell Urbatsch
- 9:30 **Spatial overlaps between the global protected areas network and terrestrial hotspots of evolutionary diversity**
Barnabas Daru
- 10:00 **When relatives move in: non-random assemblages of closely related plant species**
Andrea Case, Lynda Delph, Douglas Schemske, Christopher Blackwood
- 10:15 **Population genomics in poison ivy, the familiar stranger**
David Haak, Aureliano Bombarely, John Jelesko

Session Population Genetics Theory 1

Tuesday - 9:00 - 10:30

Room Ball_BC

- 9:00 **A history and synthesis of the importance of genetic redundancy in evolution**
Kathleen Lotterhos, Áki Láruson, Sam Yeaman
- 9:15 **Likelihood-based inference under the isolation-migration model using present-day and ancient DNA samples**
Diego Ortega Del Vecchio, Montgomery Slatkin
- 9:30 **The effects of unsampled "ghost" populations on estimation of evolutionary history**
Arun Sethuraman
- 9:45 **Complex patterns of sex-biased demography in canines**
Tanya Phung
- 10:00 **Leveraging whole genome sequencing data for demographic inference with approximate Bayesian computation**
chris smith, Samuel Flaxman
- 10:15 **Assessing the Performance of qpAdm: A Statistical Tool for Studying Population Admixture**
Eadaoin Harney, John Wakeley

Session Comparative Biology 3

Tuesday - 9:00 - 10:30

Room Ball_DE

- 9:00 **Conservation through the lens of (mal)adaptation: concepts and meta-analysis ~~withdrawn~~**
2019-06-20 04:36:03.0
Erika Crispo, Alison Derry, Dylan Fraser, Steven Brady, Louis Astorg, Elizabeth Lawrence, Gillian Martin, Jean-Michel Matte, Jorge Negrin Dastis, Antoine Paccard, Rowan Barrett, Lauren Chapman, Jeffrey Lane, Chase Ballas, Marissa Close
- 9:15 **Rapid habit loss and fragmentation leads to local extinction and population genetic impacts across the range of a grassland-endemic bird in the Western Ghats Sky Islands**
VV Robin, M Arasumani, Abhimanyu Lele, CK Vishnudas, Uma Ramakrishnan, Samriddha Ghosh
- 9:30 **Evaluation of the Vertebrate Carrion Resources Used by the American Burying Beetle (*Nicrophorus americanus*).**
Brandon Quinby
- 9:45 **Towards the genetic prediction of bleaching response in corals**
Zachary Fuller, Julie Peng, Peter Andolfatto, Mikhail Matz, Line Bay, Molly Przeworski
- 10:00 **Population genomics of giant Galapagos tortoises: new insights into the evolution of the Santa Cruz Island lineages**
Evelyn Jensen, Joshua Miller, Nikos Poulakakis, Maud Quinzin, Adalgisa Caccone
- 10:15 **Integrative ecological genetics reveals a threat posed by genetic swamping to an East Texas endemic wildflower (*Hibiscus dasyclayx*, Malvaceae)**
Joshua Banta, Melody Sain, Julia Norrell-Tober, Katherine Barthel, Kate Hertweck, John Placyk, Randall Small, Lance Williams, Alyssa Blanton, Megan Seawright, Marsha Williams

Session Coffee break

Tuesday - 10:30 - 11:00

Room ExHallB/C

Session Young Investigator / Dobzhansky Awards symposium 2

Tuesday - 11:00 - 12:30

Room ExHallD

ASN Jasper Loftus-Hills Young Investigators Award

The Jasper Loftus-Hills Young Investigators Award was established in 1984 to recognize outstanding and promising work by investigators who received their doctorates in the three years preceding the application deadline or who are in their final year of graduate school. Jasper Loftus-Hills (1946-1974) was an Australian biologist of exceptional promise, whose career was cut short just three years after receiving his degree when he was killed by a hit-and-run driver while tape-recording frog calls along a Texas highway. The award includes presentation of a research paper at the annual meeting of the American Society of Naturalists, an award of \$500, a travel allowance of \$700, the cost of registration at the meetings, and a supplement of \$500 in case of intercontinental travel.

The 2019 winners are Elanor Caves (Duke U.), Jean Philippe Gibert (Duke U.), Ambika Kamath (UC Berkley) and Stilianos Louca (U. Oregon).

11:00 ASN Young Investigator Prize talk: Phenotypic, environmental and evolutionary determinants of food web structure and dynamics

Jean Gibert

11:30 ASN Young Investigator Prize talk: The stories we tell: Behavior, ecology, and evolution in a human world

Ambika Kamath

12:00 ASN Young Investigator Prize talk: Microbial ecology and evolution in the modern era

Stilianos Louca

Session Genetic control of populations 2

Tuesday - 11:00 - 12:30

Room Ball_A

Organizer: Florence Débarre (CNRS Paris)

Host: SSE

Topic: Genetic control consists in the "dissemination, by mating or inheritance, of factors that reduce pest damage" (Alphey 2014). The most widely used method consists in the mass release of sterile males. The development of the CRISPR-Cas gene editing technology has led to a renewed interest for another kind of genetic control, involving genetic constructs with biased inheritance (i.e., gene drive). This spotlight symposium will provide an overview of recent research -- models and empirical work -- on genetic control of populations.

11:00 Computational and experimental tests of new CRISPR gene drive strategies

Jackson Champer, Emily Yang, Isabel Kim, Yoo Lim Lee, Sam Champer, Andrew Clark, Philipp Messer

11:30 Tethered homing gene drives for localized population suppression

Sumit Dhole, Fred Gould, Alun Lloyd

11:45 Can a population targeted by an artificial gene drive be rescued?

Florence Débarre

12:00 Modelling the potential of genetic control of malaria mosquitoes at national scale

Ace North, Austin Burt, H. Godfray

Session Behavior 2

Tuesday - 11:00 - 12:30

Room 551

11:00 Epigenetic effects of chronic paternal predation risk on offspring phenotypes

Kelsey Brass, Nathan Herndon, Polly Campbell

11:15 Will individual or genetic variation in reproductive thermal tolerance allow insects to tolerate global warming?

Kasey Fowler-Finn, Daniel Sasson

- 11:30 Genetic variance and indirect genetic effects for affiliative social behavior in a wild primate**
Emily McLean, Susan Alberts, Beth Archie
- 11:45 Sorry, not sorry. The neural basis of female aggression in *Drosophila*.**
Amanda Moehring, Andrea Bevan, Brendan Charles
- 12:00 Habituation underpins preference for mates with novel phenotypes in the guppy**
Mitchel Daniel, Kimberly Hughes, Laura Koffinas
- 12:15 Social networks uncover hidden social strategies correlated with energy use in a wild population**
Ummat Somjee, H. Arthur Woods, Gregory Khon, Duell Meghan, Christine Miller

Session Evolutionary Ecology 7

Tuesday - 11:00 - 12:30

Room 552

- 11:00 Generalist species drive microbial dispersion and evolution.**
Wataru Iwasaki
- 11:15 Evolutionary signal in the gut microbiomes of 73 bird species from Equatorial Guinea**
Darien Capunitan, Oscar Johnson, Ryan Terrill, Sarah Hird
- 11:30 Ecological drivers and evolutionary genetics of crypsis polymorphism in desert grasshoppers**
Timothy O'Connor, Noah Whiteman
- 11:45 Bacterial adaptation determine *Caenorhabditis elegans* development and the capacity to respond to environmental and life-history changes**
Josiane Santos, Ana Laranjeira, Ana Marques, Ivo Chelo
- 12:00 Resolving multiple evolutionary transitions to limb reduction in galliwasp lizards of the Americas**
Molly Schools
- 12:15 Climate change and its possible implications for ageing in ectotherms**
Pablo Burraco

Session Evolutionary Theory 1

Tuesday - 11:00 - 12:30

Room 553

- 11:00 Mutation-selection balance of regulatory circuits**
Chia-Hung Yang, Samuel Scarpino
- 11:15 Pleiotropy or linkage? Their relative contributions to the genetic correlation of quantitative traits**
Jobran Chebib, Frederic Guillaume
- 11:30 Intralocus sexual conflict on the X chromosome**
Thomas Hitchcock, Andy Gardner
- 11:45 Sexual selection modulates genetic conflicts and patterns of genomic imprinting**
Gonçalo Faria, Susana Varela, Andy Gardner
- 12:00 Evolutionary games with environmental feedbacks**
Erol Akçay, Andrew Tilman, Joshua Plotkin
- 12:15 Enforcement is central to the evolution of cooperation**
J. Arvid Ågren, Nicholas Davies, Kevin Foster

Session Hybridization 2

Tuesday - 11:00 - 12:30

Room 554

- 11:00 Genome heterogeneity in *Gryllus firmus* and *G. pennsylvanicus*: differential introgression or local adaptation?**
Luana Maroja, Francesca Barradale, Jose Andres, Steve Bogdanowicz
- 11:15 Pervasive Gene Conversion in Chromosomal Inversion Heterozygotes**
Katharine Korunes, Mohamed Noor
- 11:30 Disentangling population history and character evolution among hybridizing butterfly lineages**
Sean Mullen

- 11:45 Placental genotype affects pre- and early postpartum maternal behavior in an interspecific mouse cross**
Sarah Gardner, Polly Campbell
- 12:00 Inference of hybridization history from genomic ancestry patterns**
Megan Frayer, Leslie Turner, Bettina Harr, Diethard Tautz, John Novembre, Bret Payseur
- 12:15 Asymmetry in reinforcement between ecologically divergent host-associated populations of the gall-forming wasp, *Belonocnema treatae***
Linyi Zhang, Glen Hood, Isaac Carroo, James Ott, Scott Egan

Session Macroevolution 2

Tuesday - 11:00 - 12:30

Room 555

- 11:00 Lungless Salamander SA:V Evolution is Constrained by Region and Microhabitat**
Erica Baken, Dean Adams
- 11:15 Does functional integration affect macroevolutionary patterns of shape change? A case study focusing on the foraging system in shorebirds (Order: Charadriiformes)**
Rossy Natale
- 11:30 Repeated evolution of bloodfeeding in leeches**
Danielle de Carle, Alejandro Oceguera-Figueroa, Michael Tessler, Anna Phillips, Mark Siddall, Sebastian Kvist
- 11:45 Early partitioning of craniodental morphological variation but not post-cranial variation in Carnivora supports an inverted form of staged radiation**
Graham Slater
- 12:00 Error rates of quantitative genetics tests of matrix proportionality in a comparative phylogenetic context**
Fabio Machado
- 12:15 Evaluating alternative explanations for an association of extinction risk and evolutionary uniqueness in multiple insular lineages**
Ben Warren, Oskar Hagen, Florian Gerber, Christophe Thébaud, Emmanuel Paradis, Elena Conti

Session Molecular Evolution 2

Tuesday - 11:00 - 12:30

Room 556

- 11:00 Mutation and GC-biased gene conversion are the main drivers of human genome evolution**
Chase Nelson, Michael Dean, Leandro Colli, Mitchell Machiela, Lisa Mirabello, Danielle Karyadi, Mingyi Wang, Dan Graur, Wen-Hsiung Li, Meredith Yeager
- 11:15 Single-cell mapping of the immune system of the naked mole-rat and the evolution of natural-killer-cell receptor genes**
Nimrod Rubinstein
- 11:30 Genomics of adaptation and convergence in the diversification of murine rodents**
Emily Roycroft, Anang Achmadi, Jacob Esselstyn, Jeffrey Good, Adnan Moussalli, Kevin Rowe
- 11:45 Evolution of the Major Histocompatibility Complex Class I (MHC-I) in bats**
Diana Moreno Santillan, Jorge Ortega, Carlos Machain Williams, Georgina Hernandez Montes
- 12:00 A unified modeling framework for linking gene sequence evolution to changes in phenotype.**
Joseph Bielawski
- 12:15 Mitogenome molecular evolution in sea turtles**
Mariana Nery, Elisa Ramos, Lucas Freitas

Session Quantitative Genetics 1

Tuesday - 11:00 - 12:30

Room 557

- 11:00 The genetic basis of a shift in plant architecture: QTL mapping for the divaricating habit in the genus *Sophora* (Fabaceae)**
V Symonds, Kay Pilkington
- 11:15 Evolution in density-dependent populations**
Bernt-Erik Saether, Steinar Engen
- 11:30 Quantifying the causal structure of natural and sexual selection**
Jonathan Henshaw, Adam G Jones, Michael Morrissey, Karoline Fritzsche

- 11:45 Genomewide expression analysis of the adult female gut in the *Drosophila* Synthetic Population Resource**
Stuart Macdonald
- 12:00 Using CRISPR-Cas9 to directly test the role of *Cyp12d1* in caffeine resistance in *Drosophila melanogaster***
Dianarys Hernandez-Aquino, Stuart Macdonald
- 12:15 Genome-wide mapping of multivariate complex trait evolution across *Drosophila mojavensis* populations**
Kyle Benowitz, Luciano Matzkin

Session Population Genetics Theory 2

Tuesday - 11:00 - 12:30 **Room Ball_BC**

- 11:00 Quantifying Hybridization and Finding Introgressed Loci Using Gene Tree Branch Lengths**
Michael Miyagi, Nathaniel Edelman, Andrew Blumberg, John Wakeley
- 11:15 How does genetic architecture shape the evolution of early development?**
Matthew Rockman, Christina Zakas
- 11:30 Deep human population history inferred from autosomal blocks free of recombinant haplotypes.**
Tim McInerney, Simon Easteal, Hardip Patel
- 11:45 Genetic signatures of evolutionary rescue**
Matthew Osmond, Graham Coop
- 12:00 Determining whether geographic distance and ecological factors influence spatial genetic differentiation**
Kelsey Yule, Gideon Bradburd
- 12:15 Preferential fixation of structural or regulatory mutations depends on pathway position**
Lucas Wheeler, Stacey Smith

Session Adaptation/Behavior

Tuesday - 11:00 - 12:30 **Room Ball_DE**

- 11:00 Novel plant unmasks heritable variation in host plant preference within an insect population**
Rachel Steward, Rebecca Epanchin-Niell, Carol Boggs
- 11:15 Social immunity in the context of parental care**
Michelle Ziadie, Allen Moore
- 11:30 Human influences on Darwin's finches**
Kiyoko Gotanda
- 11:45 Evolution of human commensalism in the house sparrow**
Glenn-Peter Saetre
- 12:00 Swimming kinematics and hydrodynamics of naupliar larvae with contrasting feeding modes**
Jin Yung Wong, Benny K. K. Chan, Kit Yu Karen Chan
- 12:15 Genetic structure of prey populations underlies the geographic mosaic of arms race coevolution**
Michael Hague, Amber Stokes, Chris Feldman, Butch Brodie, Jr., Butch Brodie

Session Lunch

Tuesday - 12:30 - 14:30 **Room OnTheTown**

Lunch is not provided for conference attendees (except for a few optional events that required pre-registraiton or council/editorial board meetings).

Session SSB Executive council exit meeting

Tuesday - 12:30 - 14:30 **Room 550A**

Session ASN society members business meeting
Tuesday - 13:15 - 14:15 **Room 555**

Open to all ASN members. Lunch is not provided (you can bring your own). No registration required.

Session SSE society members business meeting
Tuesday - 13:15 - 14:15 **Room 557**

Open to all SSE members. Lunch is not provided (you can bring your own). No registration required.

Session Beyond tempo and mode: toward process-based models of macroevolutionary trait evolution 1
Tuesday - 14:30 - 15:45 **Room Ball_BC**

Organizers: Stacey Smith (U. Colorado, Boulder) and Josef Uyeda (Virginia Tech)

Host: SSE

Topic: Although of the development of comparative methods has been inspired by biology, the connection between models and biological processes is often weak. This spotlight session will bring together speakers whose work aims to create more realistic, process-based models for making macroevolutionary inferences.

14:30 Extracting meaning from phylogenetic comparative methods: The necessity of considering process

Josef Uyeda, Sergei Tarasov

15:00 Explaining the major features of the Tree of Life with process-based models

Luis Henao Diaz, Matthew Pennell, Luke Harmon

15:15 Reconstructing phylogeny and evolutionary dynamics from mosaics of quantitative traits

Caroline Parins-Fukuchi

15:30 Inferring modes and drivers of trait evolution using 'layeranalyzer', a new process-based tool

Trond Reitan, Lee Hsiang Liow Liow

Session Genomics of experimental evolution 1
Tuesday - 14:30 - 15:45 **Room Ball_A**

Organizer: Brian Hollis (École polytechnique fédérale de Lausanne)

Host: SSE

Topic: The use of experimental evolution, in which replicated populations evolve in manipulated environments and are tracked in real time, has proliferated in recent years. The approach has allowed powerful tests of predictions of evolutionary theory about adaptation, life history trade-offs, host-pathogen coevolution, sexual selection and sexual conflict, and kin selection and cooperation. Today, with affordable high-throughput sequencing, experimental evolution studies hold the promise of allowing researchers to both connect observed phenotypic change with its underlying genetic basis and assess the repeatability of evolutionary outcomes at the level of the genome. This session will bring together researchers combining experimental evolution and genomic approaches across a broad range of taxa to identify the genetic basis of adaptation, while also highlighting unique challenges in experimental design and statistical inference.

14:30 Dynamics and repeatability of genome evolution during a 30-year experiment with E. coli

Richard Lenski

15:00 Using in vitro evolution and whole genome analysis to identify next-generation antimalarial drug targets

Madeline Luth

15:15 The genomics of adaptation to chronic larval malnutrition in Drosophila melanogaster

Martin Kapun, Brian Hollis, Berra Erkosar, Craig Stillwell, Tadeusz Kawecki

15:30 Modelling Ne to infer evolutionary trajectories from genome-wide time series data

Carolina Barata, Carolin Kosiol

Session Behavior 3
Tuesday - 14:30 - 15:45 **Room 551**

14:30 Behavioral atomization, discretization, and recombination

Russell Ligon, Edwin Scholes III, Michael Sheehan

- 14:45 The evolution of auditory curiosity: modeling and analyzing interactions between interspecific vocal mimicry and birdsong elaboration**
Parker Rundstrom`
- 15:00 Evidence that cis-regulatory divergence of estrogen receptor alpha contributes to the evolution of aggression in a polymorphic sparrow**
Jennifer Merritt, Kathleen Grogan, Wendy Zinzow-Kramer, Eric Ortlund, Soojin Yi, Donna Maney
- 15:15 Why are we guilty? The evolution of the internalization of social norms**
Jeremy Van Cleve, Erol Akcay
- 15:30 Curiosity as 'An Instinct for Truth': Explicating Darwin's Thesis about the Basis of Science**
Robert Pennock

Session Phylogenomics 3

Tuesday - 14:30 - 15:45

Room 552

- 14:30 Systematic Analysis of Genome-Wide Horizontal Gene Transfer Patterns Reveals Extensive Multi-Gene Transfer in Prokaryotes**
Mukul Bansal
- 14:45 A critical look at quality: how transcriptome assembly quality affects phylogenetic inference**
Jennifer Spillane, Troy LaPolice, Matthew MacManes, David Plachetzki
- 15:00 A consensus phylogenomic approach provides insights into the historically contentious relationships of the Ericales**
Drew Larson, Joseph Walker, Oscar Vargas, Stephen Smith
- 15:15 Defining species boundaries in a four species contact zone**
Mysia Dye
- 15:30 Exploring Factors Influencing Unexpected Relationships in the Phylogenomic Analysis of Paraneoptera (Hexapoda: Insecta) and Related Insects**
Rachel Skinner, Christopher Dietrich, Kazunori Yoshizawa, Karen Meusemann, Kevin Johnson

Session Evolutionary Theory 2

Tuesday - 14:30 - 15:45

Room 553

- 14:30 Mean is not enough**
Matt Ginsberg
- 14:45 The Evolution of Division of Labor with Stochastic Interactions**
Sarah Fumagalli, Sean Rice
- 15:00 Evolution of Social Cooperation of Microorganisms**
Zhijun Wu
- 15:15 Modeling rodent tooth morphogenesis reveals constraints on mammalian tooth evolution**
Robert Burroughs
- 15:30 Nucleotide Diversity at Neutral Loci Flanking a Divergently Selected Locus**
Russell Jasper, Sam Yeaman

Session Hybridization 3

Tuesday - 14:30 - 15:45

Room 554

- 14:30 Genome dynamics and evolution after recurrent allopolyploidization in Dactylorhiza (Orchidaceae).**
Mimmi Eriksson, Thomas Wolfe, Marie Brandrud, Jamie McCann, Eva Temsch, Mikael Hedrén, Ovidiu Paun
- 14:45 Mechanisms of habitat segregation between two co-occurring monkeyflower species**
Katherine Toll, David Lowry, John Willis
- 15:00 Deleterious epistasis in A.thaliana hybrids**
Cristina Barragan
- 15:15 Putative hybridization among ecologically similar pine species distributed across the Appalachian Mountains.**
Constance Bolte, Trevor Faske, Andrew Eckert

15:30 Exploring sources of gene tree conflict in a phylotranscriptomic data set: a cautionary tale for phylogenetic network analysis
Diego Morales-Briones, Ya Yang

Session Macroevolution 3

Tuesday - 14:30 - 15:45

Room 555

- 14:30 Bryozoa, the new kid on the block in the world of macroevolution**
Helen Jenkins, Paul Taylor, Dennis Gordon, Mary Spencer Jones, Silviu Martha, Emanuela Di Martino, Natalie Cooper, Piotr Kukliński, Leandro Vieira, Joanne Porter, Björn Berning, Wayne Florence, Abigail Smith, Andrew Ostrovsky, Javier Souto, Malgorzata Krzemińska, Eckart Håkansson, Philip Bock, Heather Grant, Jean-Georges Harmelin, Olga Kotenko, Lee Hsiang Liow Liow, Russell Orr, Andrea Waeschenbach
- 14:45 Adaptive radiation in the multidimensional phenotype**
Brooke Bodensteiner, Martha Muñoz
- 15:00 Unprecedented convergence in the world's largest mimicry complex yet**
Camiel Doorenweerd, Michael San Jose, Daniel Rubinoff
- 15:15 The macroevolutionary dynamics of lichen-forming fungi**
Matthew Nelsen
- 15:30 A species-level phylogeny of extinct and extant primates yields insights into the biogeography of the Order**
Anna Wisniewski, Graham Slater, Graeme Lloyd

Session Molecular Evolution 3

Tuesday - 14:30 - 15:45

Room 556

- 14:30 Critical assessment of a machine learning approach for measuring the "genomic vulnerability" of a population to climate change**
Áki Láruson, Matthew Fitzpatrick, Benjamin Haller, Kathleen Lotterhos
- 14:45 Population genetics of the highly polymorphic RPP8 gene family**
Alice MacQueen, Dacheng Tian, Wenhan Chang, Eric Holub, Martin Kreitman, Joy Bergelson
- 15:00 Sequence-based metrics strongly predict the fitness effects of random peptides**
Luke Kosinski, Nathan Aviles, Kevin Gomez, Joanna Masel
- 15:15 The evolution of gene regulation in Peromyscus deer mice**
Andreas Kautt, Hopi Hoekstra
- 15:30 Molecular evolution of reproductive versus non-reproductive genes: do plants act like animals?**
Leonie Moyle, Meng Wu

Session Quantitative Genetics 2

Tuesday - 14:30 - 15:45

Room 557

- 14:30 Antagonistic selection and pleiotropy constrain the evolution of plant chemical defenses**
Rose Keith, Thomas Mitchell-Olds
- 14:45 Floral trait modularity in the selfing syndrome of morning glories**
Irene Liao, Mark Rausher
- 15:00 The role of cross-sex genetic covariances in the evolution of sexual dimorphism among species ~~withdrawn 2019-05-28 12:03:40.0~~**
Jacqueline Sztepanacz
- 15:15 A quantitative genetics approach to understanding sexually antagonistic selection in an ancient interaction between moss and microarthropods**
Leslie Kollar, Todd Rosenstiel, Sarah Eppley, Elliot Gall, Stuart McDaniel
- 15:30 Y-chromosome degeneration in plants: the effect of 10 million years**
Paris Veltsos, John Pannell, Lynda Delph

Session Adaptation 8

Tuesday - 14:30 - 15:45

Room Ball_DE

14:30 Phenological variation of an invasive plant as the outcome of different developmental trajectories

Eugene Sit, Robert Colautti, Christopher Eckert

14:45 The ontogeny of thermogenesis and its evolution in high-altitude deer mice

Jonathan Velotta, Cayleigh Robertson, Rena Schweizer, Grant McClelland, Zachary Cheviron

15:00 Exploiting selection at linked sites to infer the rate and strength of adaptation

Lawrence Uricchio, Dmitri Petrov, David Enard

15:15 Patterns of morphological diversity in mainland *Draconura* clade anole lizards

Jonathan Huie, Ivan Prates, Rayna Bell, Kevin de Queiroz

15:30 Functional consequences of phenotypic variation between locally adapted populations: swimming performance and ventilation in extremophile fish

Henry Camarillo, Michael Tobler

Session Coffee break

Tuesday - 15:45 - 16:15

Room ExHallB/C

Session Beyond tempo and mode: toward process-based models of macroevolutionary trait evolution 2

Tuesday - 16:15 - 17:30

Room Ball_BC

Organizers: Stacey Smith (U. Colorado, Boulder) and Josef Uyeda (Virginia Tech)

Host: SSE

Topic: Although of the development of comparative methods has been inspired by biology, the connection between models and biological processes is often weak. This spotlight session will bring together speakers whose work aims to create more realistic, process-based models for making macroevolutionary inferences.

16:15 A New Macroevolutionary Model for Genome Size

Rosana Zenil-Ferguson, Josef Uyeda, Antonio Murillo, Emma Goldberg, Luke Harmon

16:30 Testing for latitudinal gradients in interspecific competition with novel phylogenetic models

Jonathan Drury

16:45 Modelling short and long-term phenotypic evolution on phylogenetic trees

Julien Clavel

17:00 Population genetic models for phylogenetic trait evolution

Rafael Guerrero

17:15 The importance of measurement theory: revisiting the evidence for a punctuated mode of evolution in *Metrarabdotos*

Kjetil Voje, Emanuela Di Martino, Arthur Porto

Session Peer review and the journal *Evolution* - a primer for students

Tuesday - 16:15 - 17:30

Room 550B

Open to all graduate students and postdocs; prior registration is not required.

Are you a trainee who would like to get the publication/ peer review process demystified, specifically in regard to the journal *Evolution*? Come to this informal short session to get your questions answered and to chat with some of the editorial board.

Session Genomics of experimental evolution 2

Tuesday - 16:15 - 17:30

Room Ball_A

Organizer: Brian Hollis (École polytechnique fédérale de Lausanne)

Host: SSE

Topic: The use of experimental evolution, in which replicated populations evolve in manipulated environments and are tracked in real time, has proliferated in recent years. The approach has allowed powerful tests of predictions of evolutionary theory about adaptation, life history trade-offs, host-pathogen coevolution, sexual selection and sexual conflict, and kin selection and cooperation. Today, with affordable high-throughput sequencing, experimental evolution studies hold the promise of allowing researchers to both connect observed phenotypic change with its underlying genetic basis and assess the repeatability of evolutionary outcomes at the level of the genome. This session will bring together researchers combining experimental evolution and genomic approaches across a broad range of taxa to identify the genetic basis of adaptation, while also highlighting unique challenges in experimental design and statistical inference.

16:15 Breaking dioecy via experimental evolution

Jörn Gerchen, Guillaume Cossard, Xinji Li, John Pannell

16:45 Experimental evolution of multicellularity in the green alga *Chlamydomonas*

Matthew Herron, Joshua Borin, Jacob Boswell, Jillian Walker, I-Chen Chen, Charles Knox, Margrethe Boyd, Frank Rosenzweig, William Ratcliff

17:00 Using mutual information and parallel evolution to detect epistasis in experimental populations

Katie Fisher, Sergey Kryazhimskiy, Gregory Lang

17:15 The impact of high resolution time-sampling on the genomics of adaptation in experimentally evolving *Saccharomyces cerevisiae*

Mark Phillips, Ian Kutch, Anthony Long, Molly Burke

Session Behavior 4

Tuesday - 16:15 - 17:30

Room 551

16:15 Dancing drives evolution of sexual size dimorphism in manakins

Elsie Shogren, Alice Boyle

16:30 The requirement for visual signals for mating in two *Drosophila* species groups

Jennifer Gleason, Paula Roy, Kaila Colyott

16:45 Why is there sex-specificity of helpers at the nest? An empirical analysis of male and female helping in the Red Cockaded Woodpecker

Steven Orzack, Jeff Walters

17:00 Change of egg-laying in mosquito *Aedes aegypti* during local domestication in coastal Kenya

Siyang Xia, Hany Dweck, Joel Lutomiah, Nanxi Lu, Jeffrey Powell

17:15 Self-organisation does not explain convergence of individual variation in the ant *Temnothorax albipennis*

Edith Invernizzi

Session Phylogenomics 4

Tuesday - 16:15 - 17:30

Room 552

16:15 Optimized subsampling improves recovery of an empirical phylogeny under the criteria of phylogenetic synecdoche

Dominic Evangelista, Sabrina Simon, Frederic Legendre, Benjamin Wipfler, Akito Kawahara

16:30 Development of Rodent Anchored Hybrid Enrichment Probes

Max Bangs, Scott Stepan

16:45 Phylogenomics reveals relationships and biogeographic patterns of a critically imperiled group of freshwater snails (Cerithioidea: Pleuroceridae)

Nathan Whelan, Nicole Garrison, Jeffrey Garner, Paul Johnson, Ellen Strong

17:00 Systematic assessment of congruence in multi-gene data

Caesar Al Jewari, Sandra Baldauf

17:15 The origin of Neotropical *Trema* (Cannabaceae) based on phylogenetic, fossil, and biogeographic data

Kurt Neubig, Nancy Garwood, Janice Valencia, Marisa Szubryt, Aelys Humphreys, Kristina Jordan, Breanna Whitley, Steven Russell

Session Evolutionary Theory 3

Tuesday - 16:15 - 17:30

Room 553

- 16:15 Designing gene drives to avoid spillovers to non-target populations**
Gili Greenbaum, Kim Jaehee
- 16:30 Depth specialization in cichlids relates to speciation rates**
Leonel Herrera-Alsina, Wilwert Elodie, Martine Maan, Rampal Etienne
- 16:45 Drift barrier theory is the solution to the mutation load paradox**
Joseph Matheson, Joanna Masel
- 17:00 Pathogen evolution when transmission and virulence are stochastic**
Pooya Aavani, Sean Rice
- 17:15 Genetic information gain is bounded by selection load**
Ryan McGee

Session Contemporary Evolution 2

Tuesday - 16:15 - 17:30

Room 554

- 16:15 The importance of founding size and genetic variation in mediating establishment and adaptation of populations in novel environments** **withdrawn 2019-05-29 13:13:34.0**
Marianna Szucs, Brett Melbourne, Ty Tuff, Christopher Weiss-Lehman, Ruth Hufbauer
- 16:30 Evolutionary rescue from extreme chemical pollution enabled by recent adaptive introgression of highly advantageous haplotypes**
Andrew Whitehead, Elias Oziolor, Noah Reid, Sivan Yair, Kristin Lee, Miller Jeffrey, Sarah Guberman VerPloeg, Peter Bruns, Joseph Shaw, Cole Matson
- 16:45 Testing the role of dispersal polymorphism in the rapid adaptation (or maladaptation) of the red-shouldered soapberry bug**
Mattheau Comerford, Scott Carroll, Scott Egan
- 17:00 Hybridization and patterns of inheritance in the amphibian chytrid fungus**
Thomas Jenkinson, Felipe Toledo, Kelly Zamudio, Timothy James, Erica Rosenblum
- 17:15 Responses to chronic exposure to ionizing radiation in Chernobyl frogs**
Germán Orizaola

Session Macroevolution 4

Tuesday - 16:15 - 17:30

Room 555

- 16:15 Integrating fossil flowers in angiosperm macroevolutionary analyses**
Hervé Sauquet, Maria von Balthazar, Andrea Lopez-Martínez, Santiago Alejandro Ramírez Barahona, Jürg Schönenberger, Susana Magallón
- 16:30 Evolutionary rates and morphological disparity in reptiles across the Permian-Triassic extinction**
Tiago Simoes, Michael Caldwell, Oksana Vernygora, Stephanie Pierce
- 16:45 Species diversification and morphological evolution are not uniform among continental lineages of songbirds**
Tyler Imfeld, Keith Barker
- 17:00 Does habitat complexity influence the evolution of teleost fish body shape?**
Olivier Larouche, Sarah Friedman, Bailey Benton, Dominique Gross, Nicholas Hix, Mikayla Iwan, Brian Kessler, Carley Mcglinn, Sierra Rodriguez, Hannah Whelpley, Peter Wainwright, Samantha Price
- 17:15 Interpreting the strength of phylogenetic signal in multivariate datasets**
Dean Adams, Michael Collyer

Session Disease

Tuesday - 16:15 - 17:30

Room 556

- 16:15 Integrating environmental, ecological and evolutionary drivers to elucidate range expansion dynamics of disease vectors**
Guha Dharmarajan, Travis Glenn, Troy Kieran, Natalia Bayona Vasquez, Michael Yablsey
- 16:30 Eco-evolutionary dynamics of avian haemosporidian parasites in a tropical sky island archipelago of Western Ghats, India**
Pooja Gupta, CK Vishnudas, Uma Ramakrishnan, VV Robin, Guha Dharmarajan
- 17:00 Pathogen-driven selection and immunity in bats**
Hannah Frank, Elizabeth Hadly, Scott Boyd, David Enard

17:15 Horizontal gene transfer, probiotics and antibiotic resistance
Mark Sistrom

Session Phenotypic Plasticity 4

Tuesday - 16:15 - 17:30 **Room 557**

16:15 Geographic variation in genetic resistance to leaf rust in locally adapted ecotypes of switchgrass (*Panicum virgatum*)
Acer VANWALLEDAEL, David Lowry, Gary Bergstrom, Tom Juenger, Shawn Kenaley

16:30 The contribution of local adaptation to GxE
Emily Josephs

16:45 Age-dependent survival and fitness consequences across an extreme salinity gradient in a euryhaline fish, the mangrove rivulus (*Kryptolebias marmoratus*)
Shelly McCain, Tom Houslay, Alastair Wilson, Ryan Earley

17:00 The genetics of variation in phenotypic plasticity
Karin van der Burg, Robert Reed

17:15 MAGIC and complexity in rice under stress
Brook Moyers, Amelia Henry, Steve Klassen, John McKay

Session Adaptation/Plasticity

Tuesday - 16:15 - 17:30 **Room Ball_DE**

16:15 Predicting evolutionary responses to increasing availability of a micronutrient: multivariate effects of sodium on butterflies
Megan Kobiela, Emilie Snell-Rood

16:30 A single mutation with large consequences for local adaptation
Brian Sanderson, Joshua Kraft, Chris Oakley

16:45 Mechanisms of adaptive weed evolution
Ava Garrison, Jeffrey Conner

17:00 Local adaptation and parallel evolution to tidal elevation in the foundation salt marsh species, *Spartina alterniflora*
A. Randall Hughes, Robyn Zerebecki, Torrance Hanley, Erik Sotka

17:15 Understanding rapid adaptation to elevation post species introduction in the Japanese White-eye (*Zosterops japonicus*)
Madhvi Venkatraman, Kristina Paxton, Zachary Cheviron, Robert Fleischer

Session Super social

Tuesday - 18:30 - 0:00 **Room Skyline**

An optional event. Prior registration required (during conference registration).

This is the final conference dinner and social (no speeches). It will be held at the [Skyline at Waterplace](#), a riverfront indoor/outdoor venue that is only 0.3 miles (~8 min. walk) from the Rhode Island Convention Center. Music/dancing will be available later in the evening. Local foods, beer, and wine along with non-alcoholic drink options will be featured.

Session Phylogenetic comparative analysis of integrated anatomical traits

Wednesday - 9:00 - 12:00 **Room SCOmni**

Ontologies encode information about a domain of knowledge, such as how anatomical structures are related, which is crucial information for modeling character evolution. Phenoscape, in its current Semantic Comparative Analyses for Trait Evolution ([SCATE](#)) project, is developing tools that use the computable knowledge in ontologies to improve character modeling and inform analyses of trait evolution. Participants will learn how to use R packages such as RPhenoscape to access a knowledgebase of ontology-linked phenotypes (kb.phenoscape.org), build character matrices that take anatomical dependencies into account, and use these to construct stochastic character maps on a phylogeny.

More information on the workshop website: <https://scate.phenoscape.org/2019-workshop-cfp.html>

Session iEvoBio satellite workshop
Wednesday - 9:00 - 17:00 **Room Waterplace**

An optional post-conference event. Prior registration required (during conference registration).

iEvoBio is a satellite event bringing together evolutionary biologists who work on a broad spectrum of problems involving computation, mathematics and statistics. This year's event will be aimed at empowering biology researchers to meet the challenges of computational research and to computational biology in the classroom. Are you a biologist teaching computational biology or bioinformatics? A researcher developing computational tools for biologists to use? Come learn and share about how to balance research, teaching, and software development in modern biology careers. More information on the [iEvoBio website](#).

iEvoBio also hosts a Software bazaar during the Sunday poster session that is open to those registered for iEvoBio.