

# Ontario Ecology, Ethology and Evolution Colloquium



May 2<sup>nd</sup> – 4<sup>th</sup> 2019  
McMaster University  
Hamilton, Ontario

## Program of Events

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# Welcome to McMaster!

We are thrilled to welcome everyone to our campus for the 49<sup>th</sup> annual Ontario Ecology, Ethology, and Evolution Colloquium (OE3C)! This year we have 11 institutions represented from across Ontario and New York. We are looking forward to two days filled with talks, poster sessions and opportunities to network!

This year, there will be 67 oral presentations, 25 poster presentations, and four plenary talks to showcase the diversity of biological research within our community. We would like to thank our four plenary speakers for taking time out of their busy schedules to join us this weekend! The speakers are Jonathan Pruitt (McMaster), Judith Mank (UBC), Maydianne Andrade (UTSC) and Ben Evans (McMaster).

We hope that you will also be able to take some time to explore McMaster University and Hamilton! On Friday morning, we will be hosting a bird walk in Coote's Paradise, wildlife sanctuary right next to campus. You can also check out our greenhouse, with over 217 species including bamboo, insect-eating cobra plants, a chocolate tree, a coffee tree, a palm tree, sugarcane, cycads, bananas and more! Volunteers will be present over the lunch break on Saturday to answer any questions you may have. On Saturday, we will also have tours of the LIVElab, a 106 seat research-based performance theatre and testing centre used to understand interactions between music, hearing, vision, movement, and learning. In addition, we hope that you will be able to enjoy some of the fantastic hikes in and around Hamilton, check out the website for some waterfall and hike recommendations!

Finally, we would like to take a moment to thank everyone who helped in the planning of this weekend! Our sponsors, volunteer judges and mentors, McMaster University and Conference Services and of course all of you for attending our event!!

We hope that you enjoy your time at McMaster this weekend!

## **The OE3C 2019 Organizing Committee**

### OE3C 2019 Co-Chairs

Adrian Forsythe  
Sarah Marzec  
Katie Pelletier

### Committee Members

Brendan McEwen · Greg Korfanty · Alex Jennings · Smruthi Venkateshan · Xue Song  
Caroline Cauret · David Fillice · Sarah Sandor · Susan Marsh-Rollo · Jo Werba  
Hannah Anderson · Matthew Salena · Audrey Wilson · Darcy Henderson · Jordan Donders  
Ronak Moftakhari-Haji-Mirzaei

## Registration

Registration will be open at the following times and locations:

Thursday - 5:00-9:00PM @ The Phoenix  
Friday - 8:00AM-6:30PM @ MDCL Lobby  
Saturday - 8:00AM-5:00PM @ MDCL Lobby

Registration includes access to all plenary sessions, talk sessions and poster session, a light breakfast, lunch, coffee breaks, one drink ticket for the poster session, admission to the mixer event and access to other events .

OE3C participants are expected to abide by McMaster University's Code of Conduct while at OE3C 2019.

## Presentation Info

### Oral Presentations:

Talks should be 12 minutes in length with 3 minutes for questions (15 minutes total). Talks will be accepted in either PDF or powerpoint format and are requested to be turned in by Wednesday, May 1st (midnight). Please send submission emails to the OE3C email: [oe3c2019@gmail.com](mailto:oe3c2019@gmail.com). The name of the file should have the presenter's name. Please remember to include any other material necessary for your power points (i.e. movies or sound clips). Presentations will be loaded on the computers for the day of the presentation. Please check the morning of or arrive 15 minutes before the start of your session to confirm your presentation is available and has the proper formatting (note: computers in rooms run Windows).

### Poster Presentations:

Poster size should be 3' by 4', either portrait or landscape. Posters should be hung on Friday morning (preferably between 8-9am, by noon at latest) and will be taken down on Saturday Afternoon at the end of the conference. Poster number and associated poster board locations will be provided at Friday morning registration along with attaching materials. Presenters will be assigned a time to stand by their posters during the poster session for judging.

## Tours Events:

### Bird Walk in Coote's Paradise

Friday, meet at 7:15 at Ravine Road Trailhead

Migration is upon us! Take advantage of this wonderful time for birding by joining us for a morning birding walk in Cootes Paradise before the talks on Friday. Bring your own binoculars. **The trail will likely be muddy, plan your footwear accordingly!!**



Red-tailed Hawk



Wilson's Warbler



American Redstart

*Photos courtesy of Jo Werba*

### Mentorship Lunch

Friday 12-130, The Phoenix

You can enjoy your lunch with one of the established scientists from McMaster University - build on your own network and get to know not only the research of the scientist but also other students. Intent required before attending, inquire at the registration desk if there is still space if you have not already signed up online.



## LIVELab Tours

Saturday 12:50-1:10 or 1:10-1:30

Psychology Building, 2<sup>nd</sup> Floor

Located within the McMaster Institute for Music & the Mind (MIMM), the LIVELab is a 106 seat research-based performance theatre and testing centre. The high precision synchronization between equipment systems in the LIVELab enables cutting edge multi-faceted analysis of complex questions of human interaction related to music, hearing, vision, movement, and learning.



*McMaster Psychology Building, 2nd Floor*





## McMaster Greenhouse

Drop in anytime between 12-1:30 on Saturday

The Biology Greenhouse is a teaching and research facility in the Biology Department. Encompassing 780 square meters under glass, the greenhouse houses an important collection of plants from more than 130 genera in over 70 plant families. The plant collection contains golden bamboo, insect-eating cobra plants, a chocolate tree (with ripening cocoa pods), sugar cane, cycads, Voodoo lilies, rare Titan arums and more! While many plants are grown in the short term for research, the permanent plant collection is fundamental to the teaching of our 2nd year plant biology lab course and is used for outreach with local schools and the general public. Exciting research happens in the Biology greenhouse including plant kin recognition work by the Dudley Lab and artificial designer ecosystems combining aquaponic and vegetable production by the Kolasa Lab. Come enjoy a guided tour and explore our plant collection!



*The Titan arum*



Turn left to enter  
the Greenhouse

## Parking Information

<b>Lots A, B, C, D, I</b>	<b>Duration</b>	<b>Rate</b>
Monday – Friday 7:30am – 4:00pm	No charge within the first 15 minutes of the first hour, then first hour and all additional hours	\$6.00/hr \$20.00 Maximum
Monday – Friday 4:00pm – 6:00am	No charge within the first 15 minutes of the first hour, then Flat Rate	\$8.00 Flat Rate
Saturday – Sunday	No charge within the first 15 minutes of the first hour, then Flat Rate	\$8.00 Flat Rate

<b>Lots M and P</b>	<b>Duration</b>	<b>Rate</b>
Monday – Friday 7:30am – 4:00pm	No charge within the first 15 minutes of the first hour, then Daily Flat Rate	\$8.00 Flat Rate
Monday – Friday 4:00pm – 6:00am	No charge within the first 15 minutes of the first hour, then Daily Flat Rate	\$4.00 Flat Rate
Saturday – Sunday	No charge within the first 15 minutes of the first hour, then Daily Flat Rate	\$4.00 Flat Rate



# Wifi Availability

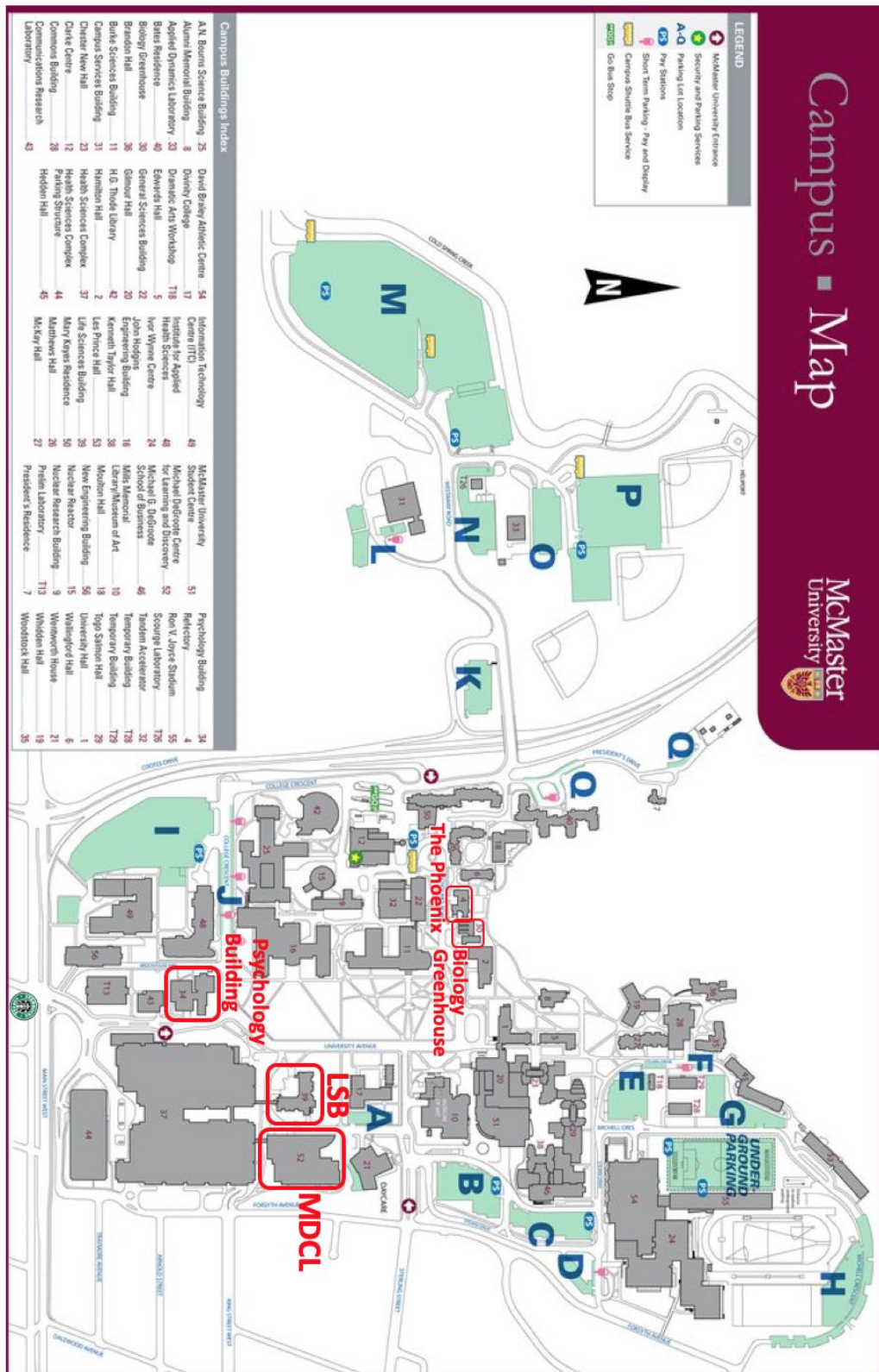
## What is eduroam?

During OE3C 2019, we will be relying on eduroam for wifi internet access. Eduroam provides roaming wireless network access for students, staff and faculty at partner institutions. Users are able to authenticate using the same credentials as they would at their home institution. Students, faculty and staff from McMaster, therefore, can use their MAC ID to gain access to the eduroam networks at affiliated institutions. Likewise, other institution members can access the McMaster eduroam network using their usual credentials.

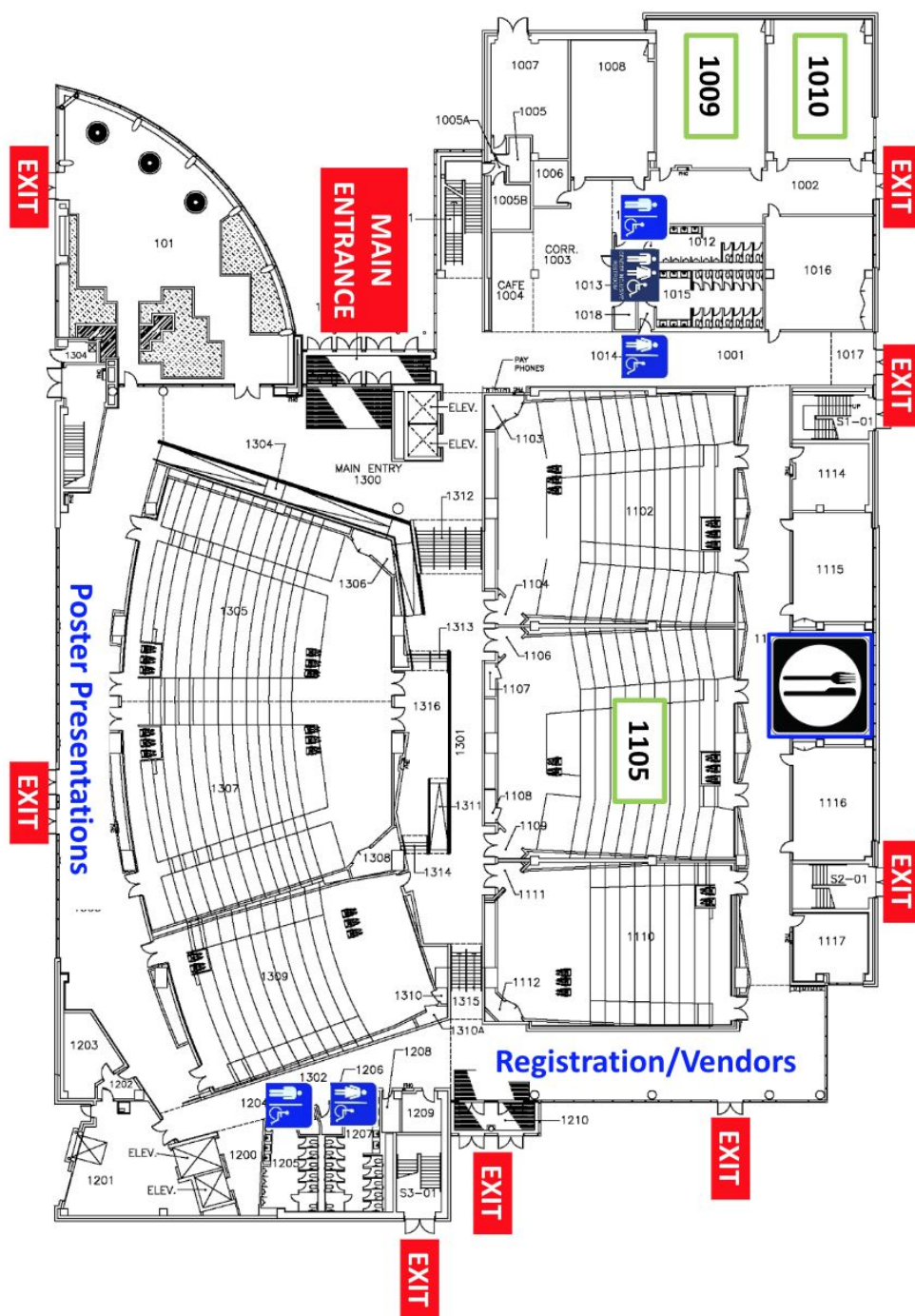
When logging into eduroam users must attach a realm name in order to identify their home institution. McMaster users would append @mcmaster.ca to their MAC ID when logging into any eduroam network. For example enter johndoe@mcmaster.ca if johndoe was the MAC ID. Realm identifiers must always be included when using eduroam.



# McMaster Campus



# MDCL Map



## Plenary Speakers



Dr. Jonathan Pruitt  
Friday, 9:15AM MDCL 1105

Dr. Pruitt completed his Ph.D. at University of Tennessee, Knoxville, and performed his postdoctoral work at University of California Davis. He made his first stop as a professor at the University of Pittsburgh, after which he moved to the University of California Santa Barbara. Dr. Pruitt is now a professor at McMaster University in the Department of Psychology, Neuroscience, and Behaviour, where he is the Canada 150 Research Chair in Biological Dystopias. Dr. Pruitt is a world leader in the field of Behavioural Ecology and focuses his research on the underpinnings of success –and failure– of social groups. Using experimentally created groups of contrasting behavioural and organizational attributes, Dr. Pruitt evaluates what allows certain groups to succeed and flourish while others collapse and perish.





Dr. Judith Mank

Friday, 3:15PM MDCL 1105

Dr. Mank is a Professor in the Department of Zoology at the University of British Columbia, and holds a Canada 150 Research Chair in Evolutionary Genomics. She completed her Ph.D. at the University of Georgia in the Department of Genetics. Dr. Mank's research focuses on how selection produces variation in form, behaviour and reproductive patterns. At UBC, her lab uses evolutionary, genomic, and ecological tools with a variety of animals systems to study the relationship between genotype and complex phenotypes. They integrate data from genomes, transcriptomes and natural history to study the ways that selection navigates the restrictions imposed by genetic constraints and conflicts to create phenotypic diversity.



Dr. Maydianne Andrade

Saturday, 9:00AM MDCL 1105

Professor Andrade earned her Ph.D. in Neurobiology and Behavior at Cornell University and is a Professor in the Department of Biological Sciences at the University of Toronto Scarborough(UTSC) and Research Associate of the Royal Ontario Museum. A Canada Research Chair in Integrative Behavioural Ecology from 2007 through 2018, Professor Andrade's fundamental research has a primarily focus on the evolution of behaviour and species diversity. Professor Andrade is an internationally-recognized expert on spider behaviour who uses cannibalistic widow spiders as models for understanding how selection shapes mating behaviours. She is the recipient of numerous research awards and is adept at explaining science to broad audiences. Since 2010, she has also been engaged in knowledge translation with respect to the effects of Unconscious Bias on fair assessment and career progression in academia. As Vice-Dean Faculty Affairs and Equity at the University of Toronto Scarborough since January of 2017, she works to promote the hiring, retention and success of a diverse and inclusive faculty.





Dr. Ben Evans

Saturday, 3:15PM MDCL 1105

Dr. Evans received his Ph.D. in Biological Sciences from Columbia University in 1998 where he worked with Darcy Kelley and Don Melnick on hybrid zones in South Africa and Indonesia. After this, he did a postdoc at the University of Texas at Austin with Dave Cannatella, where he explored phylogenetics and phylogeography of fanged frogs in Southeast Asia. He moved to McMaster in 2004, where he's carried on with some of these projects and also initiated new research directions on duplicate genes, sex chromosomes, and transposable elements. The Evans' lab focuses preliminary on frogs, primates and rats. They use genomics, transcriptomics, genome editing techniques to answer various evolutionary questions including how sex-determination evolve.

# Conference Schedule

We will be hosting a social event and registration Thursday night from 4:30 – 8:45 PM at the Phoenix

Time	FRIDAY, MAY 3, 2019 SCHEDULE		
7:45			GUIDED BIRD WALK IN COOTES PARADISE <b>MEET @ MDCL 7:15AM</b>
8:00	REGISTRATION <b>MDCL</b>	BREAKFAST <b>MDCL</b>	
8:15			
8:30			
8:45			
9:00			
9:15	PLENARY SPEAKER DR. JONATHAN PRUITT (MCMASTER) <b>MDCL 1105</b>		
9:30			
9:45			
10:00			
10:15			
10:30	Behaviour 1 <b>MDCL 1105</b>	Conservation 1 <b>MDCL 1009</b>	Evolution/Ecology 1 <b>MDCL 1010</b>
10:45			
11:00			
11:15			
11:30			
11:45			
12:00	Lunch & Mentor Lunch The Phoenix		
12:15			
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14:15			
14:30			
14:45			
15:00	COFFEE BREAK		
15:15	PLENARY SPEAKER DR. JUDITH MANK (UBC) <b>MDCL 1105</b>		
15:30			
15:45			
16:00			
16:15 – 18:30	POSTER SESSION <b>MDCL</b>		
<b>Time</b>	<b>SATURDAY, MAY 4, 2019 SCHEDULE</b>		
8:00	REGISTRATION <b>MDCL</b>	BREAKFAST <b>MDCL</b>	
8:15			
8:30			
8:45			
9:00	PLENARY SPEAKER DR. MAYDIANNE ANDRADE (UTSC) <b>MDCL 1105</b>		
9:15			
9:30			
9:45			
10:00	COFFEE BREAK		
10:15	Population Genetics <b>MDCL 1105</b>	Stress and Environment <b>MDCL 1009</b>	Behaviour 3 <b>MDCL 1010</b>
10:30			
10:45			
11:00			
11:15			
11:30			
11:45			
12:00	LUNCH – LSB Patio OPEN LIVE LAB – Psychology Building GREENHOUSE TOURS – See Map		
12:15			
12:30			
12:45			
13:00			
13:15			

13:30			
13:45	Evolutionary Biology / Molecular Evolution <b>MDCL 1105</b>	Evolution/Ecology 2 <b>MDCL 1009</b>	
14:00			
14:15			
14:30			
14:45			
15:00	COFFEE BREAK		
15:15	PLENARY SPEAKER DR. BEN EVANS (MCMASTER) <b>MDCL 1105</b>		
15:30			
15:45			
16:00			
16:15 – 17:00	CLOSING REMARKS AND AWARDS <b>MDCL 1105</b>		

# Oral Presentations

## Behaviour I – Friday, May 3, 2019 – MDCL 1105

Time	Speaker	Talk Title
10:30	Blaine Landsborough	Costs and benefits of clutch synchronization in joint-female nests
10:45	Ethan Hermer	The relationship between spatial memory and elevation in a non-food hoarding great tit ( <i>Parus major</i> )
11:00	Jessica Ostrega	No-evidence for adaptation effects of voice-pitch on attractiveness judgements
11:15	Tanya Shoot	Avian incubation: how previous hatchling success and ambient temperature can affect behaviour
11:30	Noah Houpt	Physiological and behavioural effects of hypoxia and air exposure on an intertidally caring fish
11:45	Hayden Davies	Connecting female cognitive strategies to motivation and accuracy when prospecting for nests

## Conservation 1 – Friday, May 3, 2019 – MDCL 1009

Time	Speaker	Talk Title
10:30	Jen Baron	Secondary invasion? Interacting effects of the emerald ash borer ( <i>Agrilus planipennis</i> ) and ecological integrity on invasive shrub establishment
10:45	Melina Damian	Accumulation rates of marine debris on an important marine turtle nesting beach in Costa Rica
11:00	Lisa Horn	How a changing climate in the tropics affects songbirds during their fat-fuelled migrations
11:15	Molly Bradford	Reserving suitable nesting sites for common terns in a mixed-species colony: An investigation of habitat quality and reproductive success
11:30	Caitlyn Synyshyn	Hamilton Harbour round goby population characteristics and trapping method bias
11:45	Lila Colston-Nepali	Using genomic tools to answer conservation questions in the northern fulmar

Evolution/Ecology 1 – Friday, May 3, 2019 – MDCL 1010

Time	Speaker	Talk Title
10:30	Maria Pesevski	How does condition dependence for sexually dimorphic traits evolve during rapid adaptation?
10:45	Regan Cross	Long-term persistence of a species beyond its natural range
11:00	Michael Dungey	Impacts of altered metapopulation dynamics and dispersal limitation on the northern range limit of a Pacific coastal dune plant
11:15	Julia Muuse	Melanin pigmentation predicts survival of <i>Daphnia melanica</i> following UV-B radiation exposure
11:30	Jory Griffith	Is within-brood variation in progeny dispersal a bet-hedging strategy against habitat heterogeneity?
11:45	Zachary Teitel	Evolution of three herbicide defence strategies: Trade-offs between glyphosate escape, resistance, and tolerance in <i>Amaranthus palmeri</i>

Behaviour 2 – Friday, May 3, 2019 – MDCL 1105

Time	Speaker	Talk Title
13:30	Leanne Grieves	Odour-based discrimination of similarity and diversity at the major histocompatibility complex in songbirds
13:45	Gavin Hossack	Learning how they let go: Lamellar autotomy performance in live damselfly larvae
14:00	Lucas Khodaei	Kin recognition and co-operative foraging in <i>Drosophila melanogaster</i> larvae
14:15	David Filice	Live fast, die young: Males that perceive competition alter the fitness of their mates
14:30	Marc-Antoine Poirier	«General» cognitive abilities and risks associated with dimensionality reduction
14:45	Janice Yan	Artificial selection on forced copulation success in <i>D. melanogaster</i>



Conservation 2 – Friday, May 3, 2019 – MDCL 1009

Time	Speaker	Talk Title
13:30	Russell Turner	Getting one's ducks in a row: Conservation units of common eiders ( <i>Somateria mollissima</i> ) throughout North America
13:45	Jonas Hamberg	Relative surface temperature measurements from satellites can be used to monitor terrestrial restoration projects
14:00	Anamaria Mihai	Dispersal and fecundity across an invasion front in brown widow spiders
14:15	Catherine Jarjour	Neophobia is affected by habitat urbanization in wild black-capped chickadees
14:30	Alyson Van Natto	Conservation genetics of geographically disjunct populations
14:45	Hana Thompson	Has island colonization altered the mating system and population genetics of a coastal dune plant?

Community Ecology – Friday, May 3, 2019 – MDCL 1010

Time	Speaker	Talk Title
13:30	Heather Cray	Weed versus tallgrass prairie seedmix: Seed preferences of <i>Lumbricus terrestris</i> L exotic earthworms
13:45	Dovid Kozlovsky	Urbanization is associated with differences in age class structure in chickadees
14:00	Julie Trus	Moss succession and biotic interactions following boreal wildfires in Canada's Northwest Territories
14:15	Raul Costa-Pereira	Competition and resource breadth shape niche variation and overlap in multiple dimensions
14:30	Bernal Arce	Habitat structure as a driver of arthropod communities
14:45	Ariana Longley	Could urbanization affect the evolution of reproductive traits of the wildflower <i>Linaria vulgaris</i> ?

Population Genetics – Saturday, May 4, 2019 – MDCL 1105

Time	Speaker	Talk Title
10:15	Felix Beaudry	Selection interference and haploid purging on plant Y chromosomes
10:30	Himeshi Samarasinghe	Fantastic yeasts and where to find them: Isolation of the pathogenic yeast <i>Cryptococcus neoformans</i> from Saudi Arabian soil, a novel niche
10:45	Katie Birchard	Using population genomics to disentangle the Leach's storm-petrel species complex ( <i>Hydrobates</i> spp.)
11:00	Eugene Sit	Examining phenological variation of an invasive plant using a developmental model
11:15	Andrew Scott	Uncovering the genetic basis of natural variation in sociability
11:30	Arshad Imrit	Negative selection in social insects
11:45	Christopher Eckert	Interannual variation in season length is linked to strong co-gradient plasticity of phenology in a montane annual plant

Stress and Environment – Saturday, May 4, 2019 – MDCL 1009

Time	Speaker	Talk Title
10:15	Nicole Yee	Intertidal elevation and parental care in plainfin midshipman
10:30	Katrina Cantera	Tracking changes in stable isotope signatures and total mercury levels in aquatic environments in proximity to municipal wastewater treatment plants in Hamilton and Dundas
10:45	Emily Agar	Investigating the chronic effects of environmental stressors on populations of wild bees using spatial analysis
11:00	Michael McTavish	Exploring the role of insect defoliators (gypsy moth) in the restoration of industrially degraded landscapes
11:15	Winona Platt	Resource limitation reduces tolerance to ultraviolet radiation via multiple mechanisms
11:30	Gursimran Bahia	Can honey bees detoxify Neonicotinoids?
11:45	Miranda Bandeli	Why do naturally wide-ranging Carnivora pace in zoos?

Behaviour 3 – Saturday, May 4 – MDCL 1010

Time	Speaker	Talk Title
10:15	Isabel Rojas-Ferrer	The developmental effects of information-acquisition on cognition and behavior: An experiment with passerine birds
10:30	Lucas Greville	Seasonal variation in estradiol transfer among male and female big brown bats
10:45	Aimee Adcock	The effects of barren housing on mouse sociability and attractiveness
11:00	Christine Scharf	Analysis of living social networks: Insights from a <i>Drosophila</i> model
11:15	Michelle Lavery	Identifying enriched housing conditions for zebrafish ( <i>Danio rerio</i> ) that vary along a scale of preference
11:30	Nanxi Huang	Sex-specific performance of an allocentric spatial memory task in brown-headed cowbirds
11:45	Jim Quinn	Nocturnal incubators in communal nesting cuckoos: Risks and rewards

Evolutionary Biology/Molecular Evolution – Saturday, May 4, 2019 – MDCL 1105

Time	Speaker	Talk Title
13:45	XI Zhang	Sequencing and assembling the nuclear genome of the Antarctica psychrophilic green alga <i>Chlamydomonas</i> sp. UWO241: Unravelling the evolution of cold adaptation
14:00	Daniella Lato	Spatial patterns of substitutions in bacterial genomes
14:15	Caroline Cauret	Insurrections of sex determination in the frog family Pipidae
14:30	Xue Ying Song	The genomic architecture of sex-biased gene expression in <i>Xenopus</i>
14:45	Emil Karpinski	The role of Pleistocene glacial/interglacial cycles on the phylogeography of the American mastodon.

Evolution/Ecology 2 – Saturday, May 4, 2019 – MDCL 1009

Time	Speaker	Talk Title
13:45	Tanushree Tiwari	Dissecting the genetic underpinnings of pathogen loads in the honey bee
14:00	Lydia Balogh	Temporal and demographic variation in avian malarial infections among song sparrow ( <i>Melospiza melodia</i> ) populations in southern Ontario
14:15	Ivana Schoepf	Experimental evidence of maternal haemosporidian infection effects on offspring quality in a wild passerine
14:30	Morgan Kain	Predicting bird community reservoir competence for West Nile virus using phylogenetic mixed effects models and eBird citizen science data
14:45	Greg Korfanty	Contemporary gene flow is a major force in shaping the New Zealand <i>Aspergillus fumigatus</i> population

## Poster Presentations - Friday May 2nd - MDCL

	Speaker	Title
1	Doreen Moeckel	Development of auditory sensitivity in the big brown bat ( <i>Eptesicus fuscus</i> )
2	Ellie Weir	Assessing land use impacts in mussels in the Saint John River with mercury and stable isotopes
3	Lydia Horton	Female Participation in Pair Bonding Strongly Connected to Reproductive Success
5	Sarah Marzec	Cryptic genetic variation in natural populations and its contribution to genetic assimilation in <i>Drosophila melanogaster</i>
6	Jake Kment	How does <i>Carassius auratus</i> respond when exposed to conspecific chemical alarm cues aged for different time intervals?
7	Cassandra Disanto	Behavioural Syndromes in the Invasive Round Goby
8	Riley Gridzak	Are tree species organized non-randomly with respect to their associated mycorrhizae?
9	Bandeled Morrison	Gene Expression Profiles in Honeybee Brains under the Food Search Box Protocol
10	Jasmine Veitch	Lord of the Fleas: Shedding Light on Nocturnal Hosts and Stress Hormones
11	Emma Gillesse	Using genomics to test for multiple modes of sympatric speciation in the Cape Verde storm-petrel ( <i>Hydrobates jabejabe</i> )
12	Emma Lachance Linklater	Assessing hybridization and population genomic structure of Glaucous Gull ( <i>Larus hyperboreus</i> ) in the Canadian Arctic
13	Katie Pelletier	The genetic basis of complex traits: polymorphisms affecting wing shape and size in wild populations of <i>Drosophila melanogaster</i>
14	Yue Wang	Distribution of mitochondrial introns in the <i>Cryptococcus neoformans</i> species complex
15	Taylor Byron	Effect of Flight Duration on $\beta$ -hydroxybutyrate Concentration in Blood Plasma of <i>Eptesicus fuscus</i>
16	Christina Mozzon	Surviving the concrete jungle: The physiological consequences of anthropogenic food waste on raccoons ( <i>Procyon lotor</i> ) in urban environments
17	Christopher Fleet	Testing the effects of the social environment on female reproductive decisions and male competition
18	Man You	Ploidy, Phenotypes and Mitochondrial genotypes of sexual progeny of the two human pathogenic fungi within <i>Cryptococcus</i> species complex
19	Vicki M. Zhang	Hot models: predicting the current and future distributions of two ambush bug species, <i>Phymata americana</i> and <i>pennsylvanica</i>
20	Roslyn Dakin	The Evolution of Maneuverability in Hummingbirds
21	Sarah Sandor	Mushroom-Insect Interactions: Living Together, Changing Together
22	Jessica Kowalski	Living on the edge: Soil microedges provide an ecological niche for <i>Desmodium canadense</i> (Showy tick trefoil)
23	Audrey Wilson	Do we know the conditions to experimentally evolve male weapons? A test using <i>Drosophila melanogaster</i>
24	Sophie Raymond	Environmental Conditions Driving Allochronic Speciation in Seabirds
25	Anjalika Balasuriya & Momina Asad	Effect of winter temperatures on microhabitat use by urban white-tailed deer ( <i>Odocoileus virginianus</i> ).

## Sponsors

Thank you so much to all our sponsors, without their support this event would not have been possible!



**Department of Biology  
Department of Psychology,  
Neuroscience and Behaviour**