



## RESEARCH HIGHLIGHT

Canadians are known for their tolerance of harsh winters. But as the frequency and severity of inclement winter weather increases, how do our fine feathered friends cope? This was the primary aim in a [study](#) by recent PhD graduate Andrea Boyer; as severe winter weather events become more commonplace, a phenomenon linked to climate change, are birds' physiological and behavioural coping mechanisms able to keep up? Dr. Boyer used a hypobaric climatic wind tunnel to expose white-throated sparrows to either a high (one per-week) or low (two per week) frequency of simulated winter storms, then measured behavioral responses, body composition, and baseline corticosterone levels (related to stress response). Boyer found that while birds exposed to simulated storms at a low frequency were able to cope by increasing energy stores, exposure at a high frequency depleted the birds ability to build and utilize these reserves. Results from this study show that the sparrows could both detect and respond to storm-related cues, and that these cues have a direct effect on energy reserves, even in the absence an actual storm.

For more information on this and other interesting research in Biology, click [here!](#)



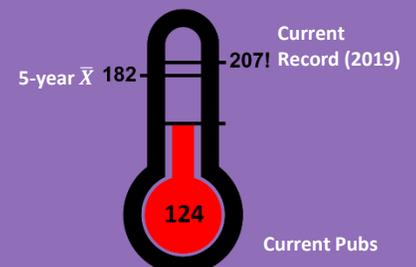
## NEW AND NOTEWORTHY

A warm welcome to the 25 new BioGrad students starting this fall!

Keep an eye out for an upcoming bios page to learn a little more about these fresh faces!

C	O	V	I	D
<b>B</b>	<b>I</b>	<b>N</b>	<b>G</b>	<b>O</b>
Isolation publication	Grew a beard / armpit hair	Lost data from a computer crash	Postponed travel indefinitely	Peer-reviewed a paper
Ate pizza everyday for a week	Survived global pandemic	Learned R	Presented at an online conference	Watched <i>Contagion</i>
Cleaned your kitchen out of boredom	Missed drinking at the Grad Club		Wore the same socks for a week	Had a bad dream where you coughed in public
Picked up a new hobby	Fifth walk of the day	Growing cultures in your kitchen	Changed zoom background to someplace more interesting	COVID or just a bad hangover?
Zoom-bombed by a furry friend	Oral exam in pajama bottoms	Forgot what day it was twice in the	Got married	Slept in every day for a week

## UWO-Biology Publications



Lets top 207 publications in 2020

## Grad Student Highlight



Name: Carlos de Araujo Barreto  
Supervisor(s): Dr. Lindo  
Degree: PhD

Food webs are understudied in belowground systems, although soils are biodiverse and responsible for important processes like carbon storage, decomposition, and nutrient cycling. My research focuses on the response of peatland soil food webs to global change factors and the outcomes of altered food web structure on ecosystem-level processes.



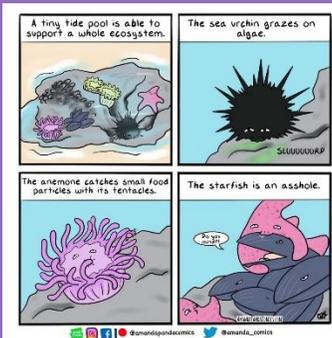
Name: Yanira Jimenez Padilla  
Supervisor(s): Dr. Sinclair  
Degree: PhD

Gut-microbes influence host physiology. There are various types of microbes living inside animals, including fungi, but most of the published research has been bacteria-focused. My research focuses on gut yeasts and how they affect *Drosophila melanogaster* physiology, particularly the development time and cold tolerance of the fly — shedding light on one of the overlooked microbes.



Name: Muhammed Tahir  
Supervisor(s): Drs. Tian & Karagiannis  
Degree: PhD

My name is Muhammad Sufyan Tahir. I did my Master's degree from Pakistan. In 2017, I joined UWO for the PhD studies. Currently, I am working as a PhD-Candidate on my thesis research work where I am doing research on four different plant specific proteins of the same family (HD2 family).



# Western BioGrad Pubs

Ecotoxicology  
<https://doi.org/10.1007/s10646-020-02171-x>



## Food stress, but not experimental exposure to mercury, affects songbird preen oil composition

L. A. Grieves<sup>1</sup> · C. L. J. Bottini<sup>1</sup> · B. A. Branfireun<sup>1</sup> · M. A. Bernards<sup>1</sup> · S. A. MacDougall-Shackleton<sup>2</sup> · E. A. MacDougall-Shackleton<sup>1</sup>

**CLAIRE BOTTINI** (PhD candidate; Dr. S. MacDougall-Shackleton)

Oil from the preen gland in birds has several important functions, from feather maintenance and ectoparasites defence, to mate choice and other social behaviors. In a project aimed at identifying whether food stress or methylmercury pollution affect preen oil composition, Grieves, Bottini, and colleagues, analysed song sparrow (*Melospiza melodia*) preen oil before and after exposure to experimental treatments involving methylmercury, food stress, or both. The chemical composition of preen oil changed over the 8-week experiment, regardless of methylmercury exposure. However, food stress induced a stronger change in the oil composition compared to unstressed individuals. This result contradicted the author's prediction, suggesting that the wax ester composition of preen oil is robust to environmentally relevant doses of methylmercury exposure.

### Citation:

Grieves, L.A., Bottini, C.L.J., Branfireun, B.A. et al. (2020) Food stress, but not experimental exposure to mercury, affects songbird preen oil composition. *Ecotoxicology*. DOI: <https://doi-org.proxy1.lib.uwo.ca/10.1007/s10646-020-02171-x>

### More Publications from Western BioGrads

- Barreto**, C, Rillig, MC, Lindo, Z. 2020. Addition of polypropylene and polyester in soil affects decomposition rates but not microarthropod communities. *Soil Organisms*. 92: 109–119.
- Barreto**, C & Lindo, Z. (2020) Decomposition in Peatlands: Who Are the Players and What Affects Them? *Frontiers for Young Minds*. 8:107.
- de Paula, A.S., **Barreto**, C. 2020. Potential distribution of *Nysius simulans* (Stål) (Hemiptera: Lygaeidae) in soybean crops in South America under current and future climate. *Journal of Economic Entomology*.
- Jiménez-Padilla**, Y., Ferguson, L.V. and Sinclair, B.J. (2020) Comparing apples and oranges (and blueberries and grapes): fruit type affects development and cold susceptibility of immature *Drosophila suzukii* (Diptera: Drosophilidae). *The Canadian Entomologist*, 152(4): 532-545.
- Lebenzon**, J.E., Des Marteaux, L.E. and Sinclair, B.J. (2020) Reversing sodium differentials between the hemolymph and hindgut speeds chill coma recovery, but reduces survival in the fall field cricket, *Gryllus pennsylvanicus*. *Comparative Biochemistry and Physiology Part A: Molecular and Integrative Physiology*. 244: 110699.
- Martin**, R.J., Kruger, M.C., MacDougall-Shackleton, S.A., Sherry, D.F. (2020). Black-capped chickadees (*Poecile atricapillus*) use temperature as a cue for reproductive timing. *General and Comparative Endocrinology* .(287), 113348.
- Yost**, R. T. & Robinson, J.W. et al. (2020). "Abnormal Social Interactions in a *Drosophila* Mutant of an Autism Candidate Gene: Neuroigin 3. *International Journal of Molecular Sciences*. 21(13), 4601

Do you have a recent First-First? Let us know by emailing [biorescom@uwo.ca](mailto:biorescom@uwo.ca). Questions about publishing your first manuscript? Speak with your supervisor, and don't hesitate to contact any of the grad student authors above!