

# Drew Sauve

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PhD Student

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## Education

Queen's University, MSc. Evolutionary and Ecological Genetics 2018

Queen's University, B.Sc. (Hons) Biology 2016

## Research Experience

### *Statistics and Bioinformatics*

I have used R throughout my academic career and I am comfortable with generalized linear models, mixed models, and non-linear models. I am proficient in basic bioinformatics (filtering and preparing ddRADseq or whole genome data) and comfortable navigating and submitting jobs on a UNIX computer cluster. I have done basic programming in Python and have run non-linear and custom Bayesian models using STAN. I am happy and eager to learn and work with the best statistical software for any given analysis.

### *Fieldwork*

I have spent three field seasons of working with numerous seabird species in Northern Alaska, Newfoundland, and in the Gulf of Alaska. I have worked with both small and large teams under difficult weather conditions to collect blood samples, make field observations, and capture and record morphometrics. I was in charge of the field team on Middleton Island for part of the 2019 field season. I have worked with teams in France to help maintain long-term data sets on great and blue tits near Montpellier and in Corsica.

### *Labwork*

I am proficient in DNA extraction, PCR, microsatellite analysis, and preparing DNA samples for next-generation sequencing.

### *Awards*

NSERC Michael Smith Foreign Study Supplement **\$6,000CAD**

NSERC Alexander Graham Bell Canada Graduate Scholarship – Doctoral **\$105,000CAD**

Haldane Prize Shortlist - Best Early Career Paper in Functional Ecology 2020

TD Fellowship in Arctic Environmental Issues 2019-2020 **\$30,000CAD**

Northern Studies Training Program. Canadian Polar Commission. 2019. **\$2,343CAD**

Northern Studies Training Program. Canadian Polar Commission. 2018. **\$2,890CAD**

Society for the Study of Evolution Travel Grant. Society for the Study of Evolution. 2018. **\$500USD**

Northern Studies Training Program. Canadian Polar Commission. 2017. **\$2,263CAD**

Canadian Society for the Study of Ecology and Evolution Travel Grant. 2016. **\$750CAD**

Undergraduate Student Research Award. NSERC. 2016. **\$4,500CAD**

North American Bluebird Society Grant. North American Bluebird Society. 2015. \$1,000USD

## Teaching Assistantships

I've helped to teach five biology courses at Queen's University. Topics included introductory genetics, evolutionary genetics, conservation biology, and evolutionary biology. I designed and taught a custom tutorial on quantitative genetics for an upper-year genetics course. I've helped co-supervise three honours thesis students at Queen's University on effective population size, phenotypic plasticity, and measuring selection in captivity.

## Publications

### Journal Articles

#### In prep or review

**Sauve, D.**, Friesen, V.L., A, Hatch, S.A., Elliott, K.H., Charmantier A. Shifting environmental predictors of phenotypes under climate change: a case study of growth in high latitude seabirds. *in review for Journal of Avian Biology*

**Sauve, D.**, Friesen, V.L., A, Hatch, S.A., Teplitsky, C., Charmantier A. Variation in natural selection across time, space, and ontogeny *In review Evolution Letters*

#### 2022

**Sauve, D.**, Hudecki, J., Steiner, J., Wheeler, H., Chabot, A.A. Improving species conservation plans under IUCN's One Plan Approach using quantitative genetic methods. *Peer Community Journal* 2, e50.

**Sauve, D.**, Charmantier, A, Hatch, S.A., Friesen V.L. Environmental conditions variably affect growth across the breeding season in a subarctic seabird. *Oecologia* 198, 307-318.

#### 2021

**Sauve, D.**, Friesen, V.L., Charmantier, A. 2021. The effects of weather on avian growth and implications in the context of climate change. *Frontiers in Ecology and Evolution* 9.

Friesen, V.L., Brunt, R., Morris-Pocock, J.A., **Sauve, D.**, Baker, A.J., Birt, T.P., Davidson, W.S., Elliott, K.H., Montevecchi, W.A. 2021. A test of mechanisms of population differentiation in gannets (genus *Morus*) using comparative phylogeography and morphometrics. *Marine Ornithology* 49, 275-291.

#### 2020

**Sauve, D.**, Dale, C.A., Tigano, A., Ratcliffe, L.M., and Friesen V.L. 2021. Do candidate genes for migration and behaviour explain migratory variation in bluebirds (*Sialia spp.*)? *The Wilson Journal of Ornithology* 132, 820-829.

#### 2019

**Sauve, D.**, Divoky, G., and Friesen V.L. Phenotypic plasticity or evolutionary change? An examination of the phenological response of an Arctic seabird to climate change. 2019. (*Cephus grylle mandtii*) *Functional Ecology* 33, 2180-2190.

**Sauve, D.**, Patirana, A., Chardine, J., and Friesen V.L. 2019. Mitochondrial DNA reveals genetic structure within Atlantic but not Pacific populations of a holarctic seabird *Marine Ornithology* 47, 199-208.

#### *Presentations*

**Sauve, D.**, Friesen, V.L., Teplitsky, C., Hatch, S.A., Charmantier, A. 2021. Impacts of fluctuating environmental conditions and experimental feeding on selection of growth in black-legged kittiwakes. *Virtual Evolution*. Presentation.

**Sauve, D.**, Friesen V.L., Divoky G.J., Hatch, S.A., Elliott, K.H., Gaston, A.J., Charamantier, A. 2020. Ecological and evolutionary impacts of climate change on the phenology and growth of seabirds. Presentation. *Seminars in Ecology and Evolution*. Presentation. Centre d'Ecologie Fonctionnelle & Evolutive, Montpellier, France.

**Sauve, D.**, Chabot, A. The value of quantitative genetics for managing captive breeding populations. 2019. *Loggerhead Shrike Recovery Meeting* Presentation. African Lion Safari, Cambridge, Ontario.

**Sauve, D.**, Charmantier, A., Divoky, G., Hatch, S., Elliott, K., Gaston, T., Friesen V. 2019. *Evolution*. Variation in chick growth in response to climate change in three high latitude seabird species. Poster. Providence, Rhode Island.

**Sauve, D.**, Divoky, G., and Friesen V. 2018. Queen's University. *Biology Graduate Student Day*. Phenological change in Mandt's Black Guillemot is driven by phenotypic plasticity. Presentation. Kingston, Ontario.

**Sauve, D.**, Divoky, G., and Friesen V. 2018. Queen's University. *American Genetics Associations: Quantitative Genetics in the Wild*. Phenological change in Mandt's Black Guillemot is driven by phenotypic plasticity. Presentation. Toronto, Ontario.

**Sauve, D.**, Divoky, G., and Friesen V. 2017. Disentangling evolutionary and plastic change in the laying date of an Arctic seabird. *Wild Animal Modelling Biennial Meeting*. Presentation. Saint-Michel-Des-Saints, Quebec.

**Sauve, D.**, Divoky, G., and Friesen V. 2017. Phenotypic plasticity drives phenological change in Mandt's Black Guillemot. *ArcticNet*. Poster. Quebec City, Quebec.

#### *Media*

Sixty Second Seabird Science Youtube Series <https://www.youtube.com/watch?v=sNLRIqPfNFE>

Spotlight Article in Functional Ecology <https://besjournals.onlinelibrary.wiley.com/doi/full/10.1111/1365-2435.13430?af=R>

National Geographic Coverage of 2019 Functional Ecology Paper <https://www.nationalgeographic.com/environment/2019/08/many-animals-can-adapt-climate-change-just-not-fast-enough/>

Blog post on Proteus (Storytelling for a blue planet). <https://proteussciomm.org/2018/08/15/long-term-data-collection-serves-many/>

#### **Service**

*Graduate Student Advisor for Creation of an Online Resource Library for Inclusive Science Communication* 2021-2022

*SciNapse Undergraduate Case Study Judge 2021-2022*

**Certifications**

*Pleasure Craft Operator Card:18032589508* 2016

*Canadian Firearms Safety Course* 2016