

Cassandra Elphinstone

Natural History Museum, University of Oslo, Norway

cassandra.elphinstone@gmail.com | <https://cassandraelphinstone.wixsite.com/celphinstone>

Citizenship: Canadian

BIOGRAPHY

I'm driven by a curiosity to understand the natural world and how life adapts to extreme environments. I fell in love with the Arctic in 2011 during a scholarship-funded Students on Ice (SOI) expedition to Iceland, Greenland, and Northern Canada. Since this first trip north, my life has been centred on the North, research and the outdoors. My research focuses on Arctic and alpine plants, using genomic tools to investigate how these species respond and adapt to climate change. I have spent six summers conducting fieldwork on Ellesmere Island (79°N) and three summers in British Columbia's Coastal Mountains, studying tundra plant responses to shifting environmental conditions. Currently, I'm working in Norway and learning from world leaders in Arctic plant genetics. I am particularly interested in how genome structure shapes adaptation to polar environments, and whether it enables or constrains species facing a rapidly changing climate. I also love bioinformatics and enjoy building open-source tools to help everyone better understand and visualize genomes (e.g. RepeatObserver).

GENERAL SUMMARY

Peer-reviewed, scientific articles

[Google Scholar Page](#)

H-index 10

I10-index 10

Total citations 550

Total # of publications 17

First author publications 3

Senior author publications 1

Teaching

10 Instructional skill workshops (ISW)

2 Co-taught undergrad courses

3 Bioinformatics workshops

Supervision

Across 5 institutions in 3 countries

1 PhD student

3 MSc students

14 BSc students

Funding

~\$780,000 CAD obtained in grants and scholarships that I applied for

Conferences

10 Talks at national and international meetings

2 Best Talk awards

1 International conference organized

EDUCATION and EXPERIENCE

Oct 2025 - present	NSERC Postdoctoral Fellow , University of Oslo Research topic: Arctic plant genome structural variation Supervisor: Siri Birkeland	Oslo, Norway
Jun 2019 – July 2025	Doctor of Philosophy in Botany (PhD) , University of British Columbia (UBC) Thesis title: Arctic plant genomics: biogeography, comparative genomics, DNA methylation, gene expression and centromeres Supervisors: Loren Rieseberg and Greg Henry	Vancouver, Canada
Sept 2017 - Jul 2019	Master of Science in Botany , UBC (transferred to PhD) Supervisors: Loren Rieseberg and Greg Henry	Vancouver, Canada
Sept 2012 – Dec 2016	Honours Bachelor of Science, Conservation Biology , UBC Supervisor: Greg Henry	Vancouver, Canada

ACADEMIC AWARDS

2027 -2025	Natural Sciences and Engineering Research Council of Canada (NSERC) Postdoctoral Fellowship (PDF)	\$140,000 CAD
2025-2022	Weston Family Doctoral Award in Northern Research	\$90,000 CAD
2023-2019	Four Year Fellowships (FYF) For PhD Students	(declined funds)
2022-2019	NSERC Vanier Scholarship	\$150,000 CAD
2021-2019	Izaak Walton Killam Memorial Pre-Doctoral Fellowship	(declined funds)
2018	Garfield Weston Award in Northern Research (Master's)	\$15,000 CAD
2017	NSERC (CGSM) Canada Graduate Scholarship Master's	\$17,500 CAD
2017	Carl Bradford Robertson, Premier Undergraduate Scholar	\$10,800 CAD
2017, 2016, 2015	NSERC Undergraduate Student Research Award (USRA)	\$4,500 CAD per year
2016	Mary Ellen Narod Memorial Scholarship	\$1,650 CAD
2016	University of BC Scholarship	\$2,000 CAD
2016	Joseph E Bryant Scholarship in Science	\$1,300 CAD
2016	University of British Columbia Wesbrook Scholar	\$1,000 CAD
2016, 2015	Guy Chance Scholarship in Conservation Biology	\$2,650 CAD
2015-2012	UBC Schulich Leader Scholarship	\$60,000 CAD
2013	GoGlobal International Service Learning Award for internship in Costa Rica	\$1,500 CAD
2011	Leacross-Berne Students on Ice Scholarship for Arctic Expedition to Iceland, Greenland and Northern Canada	\$10,000 CAD

RESEARCH FUNDING

Where I was the leader or a main author of the grant

2024-2022	Lead co-applicant: "Alpine plant responses to climate change and increasing recreational traffic in the Nch'kay region (Garibaldi Provincial Park) "	\$25,000 CAD
	BC Parks Living Lab for Climate Change and Conservation Grant	\$25,000 CAD
	I wrote the initial application in 2022. In the second year (2023), I co-wrote the application with Courtney Collins and Nina Hewitt. In the third year, several professors co-wrote the application to carry the project on. For the first two years, Courtney and I hired and mentored several students, managed the budget, setup OTCs, and ran two seasons of fieldwork resulting in multiple publications. Website: https://garibaldialpine.wixsite.com/garibaldialpine Video: https://www.youtube.com/watch?v=qEefOJXaK1A	\$21,000 CAD

2024	<p>Co-applicant and meeting planner: BC Alpine Research Network Biodiversity Research Centre Cluster Fund</p> <p>I helped Courtney Collins apply for funding to run a 3-day meeting with the goal of drafting a grant application to the NSERC Alliance Program. The purpose of this project was to expand our work in Nch'kay region to more of BC. We invited professors from three universities (UBC, SFU, UVic), the local parks management and the Squamish Nation. This meeting was the start of this project which got \$2M CAD from the NSERC Alliance program: https://alpinehorizons.ca/</p>	\$25,000 CAD
2023-2022	<p>Lead applicant: Funding for an Alpine Plant Research Assistant UBC Work Learn Program</p> <p>I applied for funding three years in a row to support undergraduate student salaries to work with me on bioinformatics projects, fieldwork and lab work.</p>	\$18,000 CAD
2023-2022	<p>Lead applicant: Funding for Alpine Plant Research Assistant Biodiversity Undergraduate Diversity in Research (BUDR)</p> <p>This grant supported two undergraduate students (who self-identified as BIPOC) to work part time for the summer in the field and learn about the research process.</p>	\$6000 CAD
2019	<p>Co-applicant: "Epigenetic adaptations of plants to climate change" Genome BC's Sector Innovation Program</p> <p>I wrote the initial application and carried out the project all with the support of my PhD supervisors Loren Rieseberg and Greg Henry.</p>	\$125,000 CAD
2015-2020	<p>Northern Scientific Training Program (NSTP)</p> <p>I wrote the applications with support from Greg Henry. This helped fund six summers of my fieldwork at Alexandra Fiord on Ellesmere Island.</p>	\$18,000 CAD

THIRD PARTY RESEARCH FUNDING

I contributed to a part of the application

2024-2026	<p>Team member: Genomics of Plant Adaptation Digital Research Alliance of Canada RRG application</p> <p>Contribution: I helped draft the application to get more computational resources for our lab and wider research network.</p>	250 core years, 300 Tb storage
2025-2022	<p>Collaborator: KelpGen: Genomic Tools for Preserving and Restoring Canada's Kelp Forests GenomeBC: Genomic Innovation for Regenerative Agriculture, Food and Fisheries (GIRAFF)</p> <p>Contribution: I proposed machine learning centromere and gene annotation methods to annotate the kelp genome for Greg Owen's GIRAFF grant.</p>	\$249,964 CAD
2023-2021	<p>Team member: Immersive Tools for Field-Based Geoscience Education in Large Undergraduate Courses: Pacific Spirit Forest Augmented Reality field trip and Alpine Ecosystem Virtual Reality tours UBC Teaching and Learning Enhancement Fund (TLEF)</p> <p>I was added to Nina Hewitt's TLEF application as a team member and mentored two undergraduate assistants in building this Virtual Reality Tour of Garibaldi (Nch'Kay) Park: https://object-arbutus.cloud.computecanada.ca/garibaldivrt/index.htm</p>	\$28,996 CAD

2017	<p>Co-applicant: Converting food waste into bioplastics for 3D printing in Cambridge Bay</p> <p>Students on Ice POLAR Inspiration Grant</p> <p>Contribution: I helped design an application for 3D printing food waste in Cambridge Bay and Hay River. Three Inuit students, a material engineer and I decided to create a proof of concept for 3D printing from waste in Arctic communities.</p>	\$5,000 CAD
------	---	-------------

PEER-REVIEWED PUBLICATIONS

“Senior” denotes papers where I am senior author
 “Corresp.” denotes a paper where I am the corresponding author
 Students’ names that I helped supervise are underlined
ORCID 0000-0002-2968-1431

2025

- 17 Brochmann, C., **Elphinstone, C.**, Birkeland, S., Ikeda, H., Eidesen, P. B., Alsos, I. G., & Westergaard, K. B. (2025). Phylogeography of Arctic plants: Where are we after 35 years, and where to go? *Plant Ecology & Diversity*, 0(0), 1–25. <https://doi.org/10.1080/17550874.2025.2571098>
- Contribution:** Co-writing section on future directions and reduced representation sequencing, designed meta-analysis table of past studies
-
- 16 **Elphinstone, C.**, Elphinstone, R., Todesco, M., & Rieseberg, L. H. (2025). RepeatOBserver: Tandem Repeat Visualisation and Putative Centromere Detection. *Molecular Ecology Resources*, **From the Cover Article**, e14084. <https://doi.org/10.1111/1755-0998.14084>
- Corresp **Contribution:** First author. Conceptualized the idea, wrote code, ran analyses, drafted manuscript, edited manuscript.
-
- 15 Wilkinson, M. J., McLay, K., Kainer, D., **Elphinstone, C.**, Dillon, N. L., Webb, M., Wijesundara, U. K., Ali, A., Bally, I. S. E., Munyengwa, N., Furtado, A., Henry, R. J., Hardner, C. M., & Ortiz-Barrientos, D. (2025). Centromeres are hotspots for chromosomal inversions and breeding traits in mango. *New Phytologist*, 245(2), 899–913. <https://doi.org/10.1111/nph.20252>
- Contribution:** Determined the centromere positions in the mango genome (a key component of the manuscript), helped write and edit the manuscript.
-
- 14 Kreiner, J. M., Montgomery, J. S., Todesco, M., Bercovich, N., Gong, Y., **Elphinstone, C.**, Tranel, P. J., Rieseberg, L. H., & Wright, S. I. (2025). The evolution of separate sexes in waterhemp is associated with surprising chromosomal diversity and complexity. *PLOS Biology*, 23(6), e3003254. <https://doi.org/10.1371/journal.pbio.3003254>
- Contribution:** Centromere identification, writing
-
- 13 Collins, C. G., Angert, A. L., Clark, K., Elmendorf, S. C., **Elphinstone, C.**, & Henry, G. H. R. (2025). Flowering time responses to warming drive reproductive fitness in a changing Arctic. *Annals of Botany*, 135(1–2), 255–268. <https://doi.org/10.1093/aob/mcae007>
- Contribution:** Helped with methodology design, data collection, data analyses. Edited the final manuscript
-
- 12 Bemmels, J. B., Starko, S., Weigel, B. L., Hirabayashi, K., Pinch, A., **Elphinstone, C.**, Dethier, M. N., Rieseberg, L. H., Page, J. E., Neufeld, C. J., & Owens, G. L. (2025). Population genomics reveals strong
-

impacts of genetic drift without purging and guides conservation of bull and giant kelp. *Current Biology*, 35(3), 688-698.e8. <https://doi.org/10.1016/j.cub.2024.12.025>

Contribution: Gene annotation for kelp, bioinformatics, writing

-
- 11 Gallois, E. C., Myers-Smith, I. H., Iversen, C. M., Salmon, V. G., Turner, L. L., An, R., Elmendorf, S. C., Collins, C. G., Anderson, M. J. R., Young, A., Pilkinton, L., Blume-Werry, G., Grenier, M., Fälthammar-de Jong, G., Althuisen, I. H. J., Christiansen, C. T., Lang, S. I., **Elphinstone, C.**, Henry, G. H. R., ... Hollister, R. D. (2025). Tundra Vegetation Community Type, Not Microclimate, Controls Asynchrony of Above- and Below-Ground Phenology. *Global Change Biology*, 31(4), e70153. <https://doi.org/10.1111/gcb.70153>

Contribution: Collected data from our alpine field site in Garibaldi Park for this paper, writing

-
- 10 Walker, D., Schaepman-Strub, G., Breen, A., Bültmann, H., Dance, M., **Elphinstone, C.**, Elmendorf, S., Epstein, H., Ermokhina, K., Frost, G., Harding, M., Heim, R., Hollister, R., Ickert-Bond, S., Kasanke, S., Khitun, O., MacKenzie, W., McClennan, D., McNeal, B., ... Ambrose, K. (2025). The Circumpolar Arctic Vegetation Science Initiative (CAVSI) White Paper: A framework to help guide the next decade of Arctic vegetation research (2025). <https://doi.org/10.18739/A2T43J49W>

Contribution: Participation in discussions at CAVSI meeting, writing

2024

-
- 9 **Elphinstone, C.**, Hernández, F., Todesco, M., Légaré, J.-S., Cheung, W., Sokoloff, P. C., Hofgaard, A., Christiansen, C. T., Frei, E. R., Lévesque, E., Daskalova, G. N., Thomas, H. J. D., Myers-Smith, I. H., Harris, J. A., Saarela, J. M., May, J. L., Obst, J., Boike, J., Clark, K., ... Rieseberg, L. H. (2024). Multiple Pleistocene refugia for Arctic Bell-Heather revealed with genomic analyses of modern and historic plants. *Journal of Biogeography*, n/a(n/a). <https://doi.org/10.1111/jbi.14961>

Corresp

Contribution: First author. Designed experiment with guidance from supervisors, helped with funding acquisition, coordinated data collections from around the world, conducted lab work, ran data analyses, wrote initial draft of manuscript, edited manuscript

2023

-
- 8 Chardon, N. I., Stone, P., Hilbert, C., Maclachlan, T., Ragsdale, B., Zhao, A., Goodwin, K., Collins, C. G., Hewitt, N., & **Elphinstone, C.** (2023). Species-Specific Responses to Human Trampling Indicate Alpine Plant Size Is More Sensitive than Reproduction to Disturbance. *Plants*, 12(17), Article 17. <https://doi.org/10.3390/plants12173040>

Senior

Contribution: Senior author. Led conceptualization, helped with supervision, led project administration, led funding acquisition, helped with methodology design, writing— original draft preparation, review, and editing

-
- 7 Bock, D. G., Cai, Z., **Elphinstone, C.**, González-Segovia, E., Hirabayashi, K., Huang, K., Keais, G. L., Kim, A., Owens, G. L., & Rieseberg, L. H. (2023). Genomics of plant speciation. *Plant Communications*, 100599. <https://doi.org/10.1016/j.xplc.2023.100599>

Contribution Wrote the initial draft of the section on "Sources of genetic variation underlying reproductive isolation" and helped edit the final manuscript

2022

- 6 Henry, G. H. R., Hollister, R., Klanderud, K., Björk, R., Bjorkman, A., **Elphinstone, C.**, Jónsdóttir, I., Molau, U., Petraglia, A., Oberbauer, S., Rixen, C., & Wookey, P. (2022). The International Tundra Experiment (ITEX): 30 years of research on tundra ecosystems. *Arctic Science*, 8, 550–571. <https://doi.org/10.1139/as-2022-0041>

Contribution: Wrote part of the future directions section and edited final manuscript

- 5 Hollister, R. D., **Elphinstone, C.**, Henry, G., Bjorkman, A., Klanderud, K., Björk, R., Björkman, M., Bokhorst, S., Carbognani, M., Cooper, E., Dorrepaal, E., Elmendorf, S., Fetcher, N., Gallois, E., Gudmundsson, J., Healey, N., Jónsdóttir, I., Klarenberg, I., Oberbauer, S., & Wookey, P. (2022). A review of open top chamber (OTC) performance across the ITEX Network. *Arctic Science*. <https://doi.org/10.1139/AS-2022-0030>

Contribution: Collected data for the meta-analysis, analysed data, made multiple figures, helped draft manuscript, and edited manuscript based on other authors suggestions.

- 4 Huang, K., Ostevik, K., **Elphinstone, C.**, Todesco, M., Bercovich, N., Owens, G., & Rieseberg, L. (2022). Mutation Load in Sunflower Inversions Is Negatively Correlated with Inversion Heterozygosity. *Molecular Biology and Evolution*, 39. <https://doi.org/10.1093/molbev/msac101>

Contribution: Discovered the centromere positions in the sunflower genome and compared with recombination rates, edited the manuscript.

- 3 Rixen, C., Høye, T. T., Macek, P., Aerts, R., Alatalo, J. M., Anderson, J. T., Arnold, P. A., Barrio, I. C., Bjerke, J. W., Björkman, M. P., Blok, D., Blume-Werry, G., Boike, J., Bokhorst, S., Carbognani, M., Christiansen, C. T., Convey, P., Cooper, E. J., Cornelissen, J. H. C., (... including **Elphinstone, C.**), Zong, S. (2022). Winters are changing: Snow effects on Arctic and alpine tundra ecosystems. *Arctic Science*, 8(3), 572–608. <https://doi.org/10.1139/as-2020-0058>

Contribution: Snow depth data compilation and analyses, writing.

2020

- 2 **Elphinstone, C.**, & Henry, G. (2020). Equitable transform applied to phenology and temperature in a changing climate: Scaling to maintain individuality. *Ecosphere*, 11. <https://doi.org/10.1002/ecs2.3036>

Corresp

Contribution: First author. I collected some of the data, ran the analysis, wrote and edited the paper.

2019

- 1 Chen, D., Garmulewicz, A., Merner, C., **Elphinstone, C.**, Leggott, C., & Dewar, H. (2019). Encouraging youth engagement in marine protected areas: A survey of best practices in Canada. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 29, 223–232. <https://doi.org/10.1002/aqc.3094>

Contribution: Participated in discussions and writing.

PREPRINTS

- 2026 Anderson, E., Collins, C. G., **Elphinstone, C.**, Norton, C., Yerex, S., & Chartrand, S. (2025). *Mapping postglacial succession of coniferous tree species in high elevation ecosystems of British Columbia*. Research Square. <https://doi.org/10.21203/rs.3.rs-7633992/v1>
In review at Arctic, Antarctic, and Alpine Research

Contribution: Partial funding, experimental design, data collection, mentored students, writing.

JOURNAL COVERS

- 2025 *Molecular Ecology Resources: Volume 25, Issue 7* title article: RepeatOBserver: Tandem Repeat Visualisation and Putative Centromere Detection. Oct 2025.
Contribution: First author. Conceptualized the idea, wrote code, ran analyses, drafted manuscript, edited manuscript.
-

THESES

- 2025 **Arctic plant genomics: biogeography, comparative genomics, DNA methylation, gene expression and centromeres.**
PhD thesis
University of British Columbia
Supervisor: Greg Henry and Loren Rieseberg
<https://open.library.ubc.ca/soa/cIRcle/collections/ubctheses/24/items/1.0449629>
-
- 2016 **Spatial and temporal patterns in temperature, snowfall, and phenology and the resulting effects on High Arctic plant communities.**
Bachelor's Honours Thesis, University of British Columbia
Supervisor: Greg Henry
-
- 2013 **Modelling macronuclear DNA regulation in two ciliates: *Paramecium tetraurelia* and *Tetrahymena thermophila***
UBC Science One thesis, University of British Columbia
Supervisor: James D. Berger
<https://open.library.ubc.ca/soa/cIRcle/collections/undergraduateresearch/51869/items/1.0107237>
-

NON-PEER REVIEWED PUBLICATIONS

- 6 **Elphinstone, C., Collins, C., Norton, C., Yerex, S., Douglas, E., Maclachlan, M., Damude, A., Keinanen, A., Krause, N., Chardon, N., Stone, P., Boulanger-Lapointe, N., Henry, G., and Hewitt, N.** (2023). Understanding above- and below-ground alpine plant responses to climate change and increasing recreational traffic in the coastal mountains of British Columbia using observational and experimental methods. BC Parks Report. <https://bcparks.ca/conservation/living-lab-program/2023-24-research-projects/#understanding-above-and-below-ground-alpine-plant-responses-to-climate-change-and-increasing-recreational-traffic-in-the-coastal-mountains-of-british-columbia-using-observational-and-experimental-methods>
-
- 5 **Elphinstone, C., Collins, Chardon, N., Boardman, A., Chai, T., Zhao, A., Stone, P., Boulanger-Lapointe, N., Hewitt, N. and Henry, G.** (2022). Understanding above- and below-ground alpine plant responses to climate change and increasing recreational traffic in the Coastal Mountains of British Columbia using observational and experimental methods. BC Parks Report. <https://bcparks.ca/conservation/living-lab-program/2022-23-research-projects/#understanding-above-and-below-ground-alpine-plant-responses-to-climate-change-and-increasing-recreational-traffic-in-the-coastal-mountains-of-british-columbia-using-observational-and-experimental-methods>
-
- 4 **Elphinstone C.** (2014) Seismic Testing in the Arctic, Youth Arctic Coalition Draft Policy Document.
-

-
- 3 **Elphinstone C.** (2014) Indigenous Rights, Youth Arctic Coalition Draft Policy Document.
-
- 2 **Elphinstone C.** (2013) Playa Buena Vista and Tea Mangroves, Guanacaste, Costa Rica, Final Report, UBC ISL ASVO, June - August 2013.
-
- 1 **Elphinstone C.** (2012) Navigating from Rio+20 to Polar Sustainability: Solutions for Sustainable Development in the Arctic and Antarctic, Students on Ice Alumni Delegation, Recommendation paper to Rio+20 Summit, pp. 1-33. Author and research reviewer.
<https://www.scribd.com/document/94003752/Navigating-From-Rio-20-to-Polar-Sustainability-Students-on-Ice-Alumni-Delegation>
-

STUDENT MENTORSHIP and (CO)-SUPERVISION

Supervision of 13 student led projects at 4 universities in 3 different countries (Norway, Sweden, Canada)

2026-2029	César Herrero - PhD (Exact thesis title: TBD) César will be studying Arctic plant population and comparative genomics.	Co-supervised with Siri Birkeland (University of Oslo)
2026-2028	Teagan Maclachlan – BSc and soon MSc (Exact MSc thesis title: TBD) In 2022, Teagan was a field assistant and completed her first summer of fieldwork in the alpine in Garibaldi Park under the supervision of myself and Nathalie Chardon. In 2023, Teagan returned to work with us again and led the fieldwork studying the effects of recreation on alpine plant communities. In 2024, Teagan began working on a directed studies project looking at the genetic basis of the hybridization between <i>P. empetrifloris</i> and <i>P. glanduliflora</i> using PCR. Teagan published her first manuscript with us in 2023 on the results the previous summer's fieldwork (Chardon et al. 2023).	MSc will be co-supervised with Jeannette Whitton (University of British Columbia)
2025-2027	Pepe Bergmann - MSc (Exact thesis title: TBD) Pepe is expanding on datasets from my PhD and comparing DNA methylation and gene expression of <i>Dryas octopetala</i> and <i>Fragaria vesca</i> (strawberry) disease resistance genes under warming.	Co-supervised with Kirsten Krause (University of Tromsø)
2026	Sofie Kedbäck – MSc (Exact thesis title: TBD) Sofie is working to determine the phylogenetic relationship between populations of Mountain Sorrel across Europe.	Co-supervised with Christine Bacon (University of Gothenburg)
2025-2026	Fenna Sonnsdorp- BSc Internship (Exact thesis title: TBD) Fenna is building a genome assembly for <i>Draba nivalis</i> from Norway.	Co-supervised with Siri Birkeland (University of Oslo)
2023-2024	Ciara Norton – BSc Directed Studies Mapping the spatial distribution of alpine plant communities in Garibaldi Park, BC, Canada I co-supervised Ciara with Paul Pickell. We used satellite	Co-supervised with Paul Pickell (UBC)

imagery and field surveys to map the vegetation communities in Sphinx and Sentinel Bays, Garibaldi Provincial Park. To analyse the satellite imagery, we used supervised machine-learning models to classify 3-meter resolution Planet Scope multispectral imagery into varying numbers of vegetation classes (thematic resolution). In the field, we collected detailed plant composition data from 40 waypoints across the two glacial bays. Finally, we compared the predictions from the imagery and the field surveys to determine how to best sample plant composition in remote tundra locations. Ciara presented this work at the ITEX meeting in April 2024 as well as at the UBC GIS conference.

2022-2024 **Marie Sandler – BSc Work Learn Position**

For two years, I mentored Marie Sandler, a computer science undergraduate student, on a series of bioinformatics projects and helped her with graduate school applications. She is now working on a Masters in Bioinformatics at McGill with Mathieu Blanchette.

2023 **Sebastian Yerex - BSc Work Learn Position**

Sebastian collected high resolution drone imagery of Sphinx and Sentinel Bays in Garibaldi Provincial Park in the summer of 2023. The imagery of these glacial forelands is included in a manuscript we recently submitted to the journal of Arctic, Antarctic, and Alpine Research.

Co-supervised with Noemie Boulanger-Lapointe (UVic) and Courtney Collins (UBC)

2023 **Emma Douglas - BSc Work Learn Position**

Nina Hewitt and I supervised Emma in building an interactive virtual 3D field tour of our research in Sphinx and Sentinel Bays and up near Taylor Meadows. We obtained 360 photos of the experimental sites and of the surrounding landscapes and built a tour guiding students through the field site. We embedded media (audio, video, text and high quality 2D imagery) to tell a story about the fieldwork and its implications for recreation and conservation. The tour was presented in April 2024 at the ITEX meeting. The tour and a story map can be found here:
<https://storymaps.arcgis.com/stories/1d2d72081b4f45bf91a35c6fecef47d9>

Co-supervised with Nina Hewitt (UBC)

2023 **Aino Keinanen - BSc Work Learn Position**

In 2023, Aino and Ciara worked to build an interactive but private map for the Squamish Nation that worked somewhat like i-naturalist. The goal of the map was to create a private and protected platform for the community to share culturally important information with each other but not beyond.

Co-supervised with Noemie Boulanger-Lapointe (UVic) and Renata (Squamish Nation)

2022 **Brianna Ragsdale, Teagan Maclachlan, and Carly Hilbert**

In the summer of 2022, Brianna, Teagan, and Carly studied the effects of human trampling on alpine vegetation. Over the next year, I helped coordinate the writing of a manuscript with the undergraduate students (see Chardon et al. 2023).

Co-supervised with Nathalie Chardon (UBC)

2022 **Allen Zhao and Tyler Chai - BSc Work Learn Positions**

In the summer of 2022, I supervised Allen and Tyler while we established 24 (1 x 1 m) plots for long term monitoring of alpine plant communities in Sphinx and Sentinel Bays across three major plant community types: dry-mesic heather dominated heaths, mesic willow dominated sites and wet sedge meadows. In half of these plots, Allen, Tyler, and I built and installed open top plexiglass warming chambers (OTCs), to experimentally test the effect of warming temperatures (passively warm to 1-3 C) on alpine plant communities above and belowground. Above all plots, Allen and I installed tripods and automatic time lapse cameras (phenocams) to record timing of plant phenology (green-up, flowering, senescence) and determine changes

in vegetation greenness throughout the season. Allen processed and analyzed all of this data and with Tyler's help presented a poster at the BC Protected Areas Research Forum (PARF) in December 2022.

2022	Anya Boardman - BSc Work Learn Position Anya helped with fieldwork planning, ordering supplies, writing protocols in our first year of the Garibaldi Research Project. I helped her setup a tea bag decomposition experiment. Since this job, Anya has helped multiple labs and now consulting firms with fieldwork planning.	Co-supervised with Courtney Collins, UBC
2017- 2019	Arctic fieldwork: Mentored seven undergraduate student field assistants in fieldwork protocols including packing, plant trait measurements, and seed collections.	Co-supervised with Greg Henry (UBC)

VOLUNTEER SERVICE TO COMMUNITY

2018- present	Steering Committee member of the International Tundra Experiment https://www.gvsu.edu/itex/about-us-2.htm	International
2024- present	Chair of the Arctic & Alpine plants section of the Canadian Biogenomes Project https://earthbiogenome.ca/species.mhtml	Canada
2026	Co-organization of a journal club on new papers in evolutionary biology (~15 participants; University of Oslo)	Oslo, Norway
2022- 2024	Co-founder: Bioinformatics discussion group at UBC I founded and co-led bi-weekly bioinformatics discussion group for the UBC Biodiversity Research Center. This discussion group community has grown to over 150 members on Slack.	Vancouver, Canada
2021- 2025	Committee Member: Federation of Mountain Clubs of British Columbia Recreation and Conservation Committee This group advocates for self-propelled access to recreational huts and trails in Southwest BC. Over the years, I have attended many meetings with Squamish and Lil'wat Nations, BC Parks and the Ministry of Forests, Lands, and Natural Resources to discuss land use planning.	Vancouver, Canada
2020- 2021	President: UBC Varsity Outdoor Club I organized an executive of 20 people for a club of over 1000 members during the COVID-19 pandemic.	Vancouver, Canada

BEST TALK AWARDS

Oct 2025	MSc, PhD and Postdoc Days 2025. Arctic Plant Genomics Won the Best Postdoctoral Talk Award (2,000 NOK).	Oslo, Norway
Dec 2022	BC Parks Forum The influence of climate change and increased recreation on alpine plants in the Nch'kay region (Garibaldi Provincial Park, British Columbia). Won the Tori Stevens student award for biological science excellence.	Nanaimo, BC, Canada

CONFERENCES

10 talks at National and International conferences in 5 countries (Italy, Norway, Sweden, UK, USA, Canada)

2 Best Talk awards

*Denotes presenting authors

Oct 2025	<p>MSc, PhD and Postdoc Days 2025. Arctic Plant Genomics Elphinstone, C. *, Todesco, M., <u>Sandler, M.</u>, Rieseberg, L.H., Henry, G.H.R., and Birkeland, S.</p>	Oslo, Norway
Oct 2025	<p>International Tundra Experiment (ITEX) Meeting Genome-wide changes associated with 24 years of warming in tundra plants. Elphinstone, C. *, Todesco, M., <u>Sandler, M.</u>, Björkman, M. P., Macek, P., May, J. L., Rieseberg, L.H., Henry, G.H.R., and Birkeland, S.</p>	Gothenburg, Sweden
Mar 2025	<p>Arctic Science Summit Week- Circumpolar Arctic Vegetation Science Initiative (CAVSI) Learning from vegetation-focused Arctic networks or projects. Elphinstone, C.* and Epstein, H.*. Invited to design and co-moderate a panel discussion planning for the next International Polar Year (2032-2033).</p>	Boulder Colorado, USA
May 2024	<p>Canadian Society for Ecology and Evolution (CSEE) Genome-wide changes induced by long term warming in tundra plants. Elphinstone, C. *, Todesco, M., <u>Sandler, M.</u>, Björkman, M. P., Macek, P., May, J. L., Rieseberg, L.H., Henry, G.H.R., and Birkeland, S.</p>	Vancouver, BC, Canada
Apr 2024	<p>International Tundra Experiment Meeting Genome-wide changes induced by long term warming in tundra plants. Elphinstone, C. *, Todesco, M., <u>Sandler, M.</u>, Björkman, M. P., Macek, P., May, J. L., Rieseberg, L.H., Henry, G.H.R., and Birkeland, S.</p>	Loon Lake, BC, Canada
Dec 2022	<p>BC Parks Forum The influence of climate change and increased recreation on alpine plants in the Nch'kay region (Garibaldi Provincial Park, British Columbia). Elphinstone, C.*, Collins, C. G., Chardon, N., <u>Boardman, A.</u>, <u>Zhao, A.</u>, <u>Chai, T.</u>, Hewitt, N., Henry, G.</p>	Nanaimo, BC, Canada
Jul 2022	<p>Botany 2022 Arctic plant epigenomics in response to warming. Elphinstone, C. *, M. Todesco, L. Rieseberg, and G. Henry. *Ended up a virtual presentation because I needed to stay home with my dad who had terminal cancer</p>	Anchorage, Alaska, USA.
Jan 2020, 2021 and 2022	<p>UBC Center for Teaching and Learning. Leading discussions with students... When should I? How should I? Interactive Workshop. Invited to lead three years in a row. Elphinstone C. *, Johnson A.*, and Grin P.M.*</p>	Vancouver, BC, Canada
Dec 2020	<p>ArcticNet Annual Scientific Meeting (ASM) Synchronicity and adaptive plasticity: results from <i>Dryas integrifolia</i> phenology in the High Arctic. Elphinstone, C. *, and G. Henry.</p>	Virtual presentation

Sept 2019	International Tundra Experiment Conference Biogeography of Arctic White Heather (<i>Cassiope tetragona</i>). Elphinstone, C. *, M. Todesco, L. Rieseberg, and G. Henry.	Parma, Italy
Dec 2018	ArcticNet ASM Biogeography of Arctic White Heather (<i>Cassiope tetragona</i>). Elphinstone, C. * , M. Todesco, L. Rieseberg, and G. Henry.	Ottawa, ON, Canada
Dec 2017	ArcticNet ASM Maintaining individuality through scaling with equitable transformation: Applications to long-term phenology rates in tundra plants. Elphinstone, C. * and G. Henry.	Quebec City, ON, Canada
Apr 2017	International Tundra Experiment Meeting Maintaining individuality through scaling with equitable transformation: Applications to long-term phenology rates in tundra plants. Elphinstone, C. * and G. Henry.	Stirling, UK
Dec 2015	ArcticNet ASM Temporal and spatial patterns in snow depth, snow melt, temperature, and solar insolation at a High Arctic site. Elphinstone, C. * and G. Henry.	Vancouver, Canada

DEPARTMENTAL SEMINARS

Apr 2026	Centre for Ecological and Evolutionary Synthesis Late Lunch Talk: RepeatOBserver: tandem repeat visualization and centromere detection Host: José Cerca	UiO, Oslo, Norway
Feb 2026	NMBU: Genome-wide changes associated with 24 years of experimental warming in tundra plants Host: Siri Lie Olsen	NMBU, Os, Norway
Nov 2024	Botany department seminar: Arctic plant genomics: biogeography, genome assembly, gene expression and epigenomics of tundra plants in a changing climate Host: Loren Rieseberg	UBC, Vancouver, Canada
Feb 2024	BLISS talk: RepeatOBserver: tandem repeat visualization and centromere detection Host: Fernando Hernandez	UBC, Vancouver, Canada
Nov 2023	BLISS talk: Multiple Pleistocene refugia for Arctic White Heather (<i>Cassiope tetragona</i>) supported by population genomics analyses of contemporary and little-ice-age samples Host: Fernando Hernandez	UBC, Vancouver, Canada

SCIENCE COMMUNICATION

2024	Nch'kay - Garibaldi Alpine Research Researchers Revealed - UBC. https://www.youtube.com/watch?v=qEefOJXaK1A Director: Morrison Tulloch, Producer: Derek Tan, Speakers: Cassandra Elphinstone , Courtney Collins, <u>Ciara Norton</u> , <u>Sebastian Yerex</u> , <u>Annabelle Damude</u> , <u>Teagan Maclachlan</u>	Video
2024	Virtual Reality Tour of Garibaldi (Nch'Kay) Park <u>Norton, C.</u> , <u>Douglas, E.</u> , Elphinstone, C. , and Hewitt, N. https://object-arbutus.cloud.computecanada.ca/garibaldivrt/index.htm	Virtual reality tour of our field site
2022	Alpine Plant Biodiversity and Climate Change Study with Courtney and Cassandra, UBC Teaching Video, Hewitt Lab https://www.youtube.com/watch?v=MegAfCpwAN4	Video
2021	Women in STEM Panel, Students on Ice, Students on Ice Alumni Network www.youtube.com/watch?v=XHOzBgNRols	Video
2019	As the Snow Melts Video https://www.youtube.com/watch?v=ySkQI7o8Vho My Arctic research was described in a short documentary for a film school project. I was filmed describing my PhD thesis and the Arctic in general.	Video
2016	Leader talks - Pathways, Schulich Leaders, Schulich Leaders Network https://www.youtube.com/watch?v=c7g3z3kB6Po I talked about my experiences as an undergrad and a Schulich Leader.	Video
2015	Resolute Bay, Nunavut, Canada Science Fair Spoke to elementary and high school in Resolute Bay about Arctic plant research and helped judge the science fair competition.	Science fair
2011	GAIActivism Invited World Wildlife Fund blog essay, World Wildlife Fund blog https://wwf.ca/stories/gaiaactivism/	World Wildlife Fund blog
2011	My Arctic Adventure SpotOn Magazine 2011, pg. 40-44.	Magazine article

CONTRIBUTIONS AS A GRANT REVIEWER

2018-19	Grant reviewer for the UBC Work Learn Program (60 applications reviewed)
2017-18	Grant reviewer for the Students on Ice Program (20 applications reviewed)

CONTRIBUTIONS AS A PEER REVIEWER

Total of 11 papers reviewed for 6 journals

2026 (2 papers)	Proceedings of the Royal Society B (1), Open Research Europe (1)
2025 (6 papers)	Alpine Botany (1), Arctic Science (1), Methods in Ecology and Evolution (2), Molecular Ecology Resources (1), Open Research Europe (1)
2022 (3 papers)	Arctic Science (3)

HIRING COMMITTEES

2025	Hiring committee for 1 PhD student (University of Oslo) Funding: University of Oslo
2023	Hiring committee for 8 undergraduate research assistants (University of British Columbia) Funding: BC Parks and UBC BRC Cluster grant
2022	Hiring committee for 2 undergraduate research assistants (University of British Columbia) Funding: BC Parks
2021	Hiring committee for 1 undergraduate research assistants (University of British Columbia) Funding: GenomeBC

EVENT PLANNING

2026-2027	ITEX Conference planner: “International Tundra Experiment 2027” We are just beginning to plan this meeting for next year. We expect ~80 international Arctic climate change researchers to attend and plan to host everyone at the Finse Hotel in Norway.	Finse, Norway
2024	Volunteer: Global Indigenous Leadership in Genomics Symposium I helped with the Global Indigenous Leadership in Genomics Symposium and Summer internship for Indigenous peoples in Genomics Canada (SING Canada) workshops May 6-9th, 2024. I setup rooms and food, directed people to meals and sessions, and took notes for the sessions I attended. This meeting taught me a lot more about Indigenous data sovereignty in genomics.	Vancouver, Canada
2024	ITEX Conference organizer “International Tundra Experiment 2024” (80 participants) https://itexmeeting2024.wixsite.com/itex2024 I was one of four co-organizers for a week-long conference for ~80 International researchers to come to Vancouver and discuss the Arctic tundra and climate change. I built the website, applied for funding for the meeting, helped with planning the venue, organized room assignments, organizing the program and planned outdoor excursions for participants after the meeting. During this conference I led a workshop on integrating Arctic plant ecology and genomics.	Vancouver, Canada
2023	Meeting planner: Alpine Research Network NSERC Alliance Courtney Collins and I organized a three-day meeting at UBC for alpine researchers from across BC, the Squamish and Lil'wat Nations, and BC Parks. We first applied for and received \$22,000 in funding. We had ~30 attendees. Day 1 we brainstormed what an alpine research network in British Columbia would look like and the biggest questions facing BC's	Vancouver, Canada

alpine (these included rapidly increasing recreation and climate change). Day 2 we split into groups to focus on hydrology and glaciology, plant and wildlife changes, and people's interactions with the landscape. Day 3 we found five professors across UBC, UVic and SFU as well as members of the Squamish Nation and BC Parks that were keen to begin drafting an NSERC Alliance application.

- 2012 **Event leader: GAIAactivism 'Day of Gathering'** **Vancouver, Canada**
This was an international event designed to raise student awareness of environmental issues. High school students from many countries (in Africa, Asia, North America, and Europe) held events concerning environmental awareness. GAIAactivism was the primary organization behind this worldwide event. I was the lead organizer for this gathering worldwide. <http://www.harbourliving.ca/event/gaiaactivism-day-of-gathering/2012-03-16/>
-

TEACHING EXPERIENCE

- 2025 **Co-organizer:** Introduction to Bioinformatics and Research Applications Workshop (September in person for UBC students, November virtual for Vancouver community members) <https://rdm.ubc.ca/events/introduction-bioinformatics-and-research-applications-workshop>
-
- 2025 **Co-organizer:** Introduction to population genetic analyses (genotyping by sequencing) (10 graduate students as a part of a week-long workshop at UBC)
-
- 2024 **Teaching assistant and guest lecturer** for UBC BIOL 415 Evolutionary Processes in Plants (30 students, BSc level, UBC)
-
- 2018-2025 **Instructional Skills Workshops (ISW) at the UBC Center for Teaching and Learning**
Facilitated two three-day workshops each year for graduate students and faculty wanting to learn more about teaching pedagogy (12 learners per workshop, graduate students, staff and faculty, UBC)
-
- 2022 **Invited guest lecturer** on experimental ecology in tundra ecosystems to the UBC CONS451-Integrated Field School in Forestry (20 students, BSc level, UBC)
-
- 2017-18 **Teaching assistant** for UBC BIOL 230 –Fundamentals of Ecology (30 students, BSc level, UBC)
-

FIELDWORK and OUTDOOR EXPERIENCE

- 2025 **Co-organizer:** 5 participants, 20 days
Exploratory ski traverse across the Monarch Icefield
I skied 170km across the Monarch Icefield with four friends to better understand the Coastal Mountain glaciers and observe their rapid retreat.
Funding: Alpine Club of Canada Jenn Higgins Fund and Varsity Outdoor Club Neil Mackenzie Grant
-
- 2024 **Main organizer:** 8 participants (3 undergrads and 3 graduate students), 2 days
Canadian Biogenomes Project alpine plant sampling
I organized a two-day field trip to the alpine around Semaphore Lakes to collect alpine plant tissue for the Canadian Biogenomes Project.

2023	<p>Co-organizer: 15 participants (3 professors, 1 postdoc, 2 graduate students, 9 undergrads) – 3 weeks of fieldwork</p> <p>Nck'kay region subalpine fieldwork</p> <p>Organized and led 3 trips to Sphinx and Sentinel Bay in Garibaldi Park to map plant communities, measure plant traits and setup open top warming chambers.</p> <p>Organized logistics including boats, gear, and car rides.</p> <p>Funding: BC Parks</p>
2022	<p>Co-organizer: 15 participants (1 professors, 2 postdocs, 2 graduate students, 10 undergrads) – 1 month of fieldwork</p> <p>Nck'kay region subalpine fieldwork</p> <p>Organized 5 trips to Sphinx and Sentinel Bay in Garibaldi Park to study the effects of warming on subalpine plants in a glacial foreland. Installed root cores, time lapse cameras, climate stations, a decomposition study and warming chambers.</p> <p>Organized logistics including boats, gear, helicopter flights and car rides.</p> <p>Funding: BC Parks</p>
2021	<p>Co-organizer: 4 participants, 6 days</p> <p>Belowground phenology and phenocams</p> <p>Organized 2 field trips to three sites at Tricouni Meadows, Brandywine Meadows and Semaphore Lakes to install climate stations and root cores to study the impact of climate on phenological traits (flowering time, root growth, etc.).</p>
2021	<p>Botanist: 4 participants, 1 week of fieldwork</p> <p>Bridge Glacier succession study.</p> <p>I studied the plant diversity patterns across the Bridge Glacial Foreland working with a hydrologist (Dan Moore), glaciologist (Ben Peltó) and soil scientist (Hannah Friesen).</p>
2019-2014	<p>Co-organizer: 5 participants, 3 months of fieldwork each summer for 6 summers</p> <p>Ellesmere Island</p> <p>I studied tundra plant responses to climate change in the Canadian High Arctic at Alexandra Fiord on Ellesmere Island.</p> <p>Fieldwork included: glacial foreland surveys, climate data monitoring, phenology data collection, setting up time lapse cameras, landscape and plot community composition, common garden measurements, seed germination studies, DNA sample collection, competition experiments, and aerial muskoxen surveys.</p>
2013-2025	<p>Trip leader: Led 30+ backcountry trips for over 100 students</p> <p>Mountaineering and backcountry skiing in BC Coastal Mountains</p> <p>These trips taught me about trip planning, first aid, packing, and evaluating participants' skill levels</p>
2013	<p>Researcher: 3 months working on a remote beach in Costa Rica</p> <p>Natural Areas Management Planning- Buena Vista, Costa Rica</p> <p>I recorded the plant and animal diversity in a mangrove ecosystem and actively participated in the sea turtle conservation project at the site. Wrote a report at the end of the internship about the Tea Mangrove populations there that prevented a resort development on the beach.</p>
2011	<p>Participant: 2-week trip on an icebreaker</p> <p>Students on Ice</p> <p>I was extremely lucky to get a fully funded scholarship to travel with a wonderful group of students, scientists, and elders by icebreaker from Iceland to Greenland and then along the Northern Coast of Labrador and Quebec.</p>

GRANTS for COMMUNITY VOLUNTEER PROJECTS

2022	FMCBC grant for new canoe at Burton Hut	\$900
2021	FMCBC grant for new door handles at Brew Hut	\$750
2021	UBC AMS Sustainability grant - built a solar lighting system for Phelix Hut	\$450
2021	UBC Anti-Racism Fund Initiative to subsidize mountain safety courses (first aid, avalanche safety, etc.) to reduce the barrier for minority groups in the outdoors	\$2000
2020	FMCBC grant for a new outhouse at Brew Hut	\$2000
2019	FMCBC grant for new avalanche beacons for rental to outdoor club members	\$2500
2016	AMS Grant: funding for UBC Meditation Conference	\$1340
2016	MEC Grant: used to restore the Lizzie Creek trail on the Stein Valley traverse	\$2200
2015	FMCBC Grant to replace UBC VOC Phelix Hut door.	\$635
2010	Dover Bay Eco Club: 1st prize National STAPLES Recycle for Education Computer Lab makeover contest: used to upgrade computer laboratory at Dover Bay Secondary School	\$50 000
2010	Dover Bay Eco Club: solar heating panel from Solar BC for installation at Dover Bay Secondary School.	\$12,000
2010	Dover Bay Eco Club: runner-up prize in the BC Green Games.	\$1,000