

Christopher K. West

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EDUCATION

Ph.D., Palaeobotany & Geology, University of Saskatchewan, Department of Geological Sciences, **2019**

Dissertation: The late Paleocene to early Eocene polar forests of Canada: a paleobotanical reconstruction of climate and ecosystems.

BSc. High Honours, Palaeobiology, University of Saskatchewan, Department of Geological Sciences, **2013**

BSc. Earth Science, University of Winnipeg, Department of Geography, **2008**

APPOINTMENTS & RESEARCH EXPERIENCE

Postdoctoral Research Fellow, Dept. of Earth and Atmospheric Sciences, University of Alberta, **2020–Present**

- Field and collections research on Late Cretaceous and Palaeogene plant fossils from Yukon, Alberta, and Saskatchewan
- Reconstruct palaeoenvironments in Yukon, Alberta, Saskatchewan
- Plant taxonomy and developing micro-CT methods for investigating fossil plants
- Starting May 1st 2022, my research will focus on the Livingston fossil flora from northwest Calgary for the Royal Tyrrell Museum of Palaeontology, supported by the Royal Tyrrell Museum Cooperating Society through the MITACS Accelerate program.

Postdoctoral Research Fellow, Dept. of Geological Sciences, University of Saskatchewan, **2019–2020**

- Field research on middle Eocene fossil floras from Axel Heiberg Island, Nunavut
- Reconstruct past High Arctic palaeoenvironments using fossil plants
- Plant taxonomy and systematics
- Assist in the curation and management of the Univ. of Saskatchewan Palaeobotanical Collection.
- Prepare, label, organize, and photograph specimens.

APPOINTMENTS & RESEARCH EXPERIENCE CONTINUED

Ph.D. research and Research Assistant, Dept. of Geological Sciences, University of Saskatchewan, **2013-2019**

- Palaeoenvironment reconstruction of early Eocene High Arctic forests in Canada
- Taxonomic description of early Eocene High Arctic fossil floras
- Assist in the curation and management of the Univ. of Saskatchewan Palaeobotanical Collection.
- Prepare, label, organize, and photograph specimens.

AWARDS & HONOURS

Governor General's Gold Medal	2020
Western Inter-University Geoscience Conference: Best Overall Presentation	2014
University of Saskatchewan Arts & Science Convocation Award	2013

SCHOLARSHIPS & FELLOWSHIPS

MITACS Accelerate Postdoctoral Internship (begins May 1 st ; \$90,000)	2022
University of Alberta Climates of the Canadian North Fellowship (\$72,000)	2020-22
NSERC CGS-D Alexander Graham Bell Scholarship (\$35,000)	2018-19
NSERC PGS-D Doctoral Scholarship (\$42,000)	2016-18
University of Saskatchewan Dean's Scholarship (\$48,000)	2015-16, '19
University of Saskatchewan Graduate Teaching Fellowship (\$56,000)	2013-15

RESEARCH FUNDING

Botanical Society of America Conference Travel Award (\$3300)	2018
Univ.of Saskatchewan Global Ambassador Visiting Researcher Grant (\$5000)	2017
Geological Society of America Student Research Grant (\$1660)	2017
Northern Scientific Training Program (\$4000)	2017
International Organisation of Palaeobotany Conference Travel Award (\$5400)	2016

SCHOLARLY CONTRIBUTIONS*students mentored are underlined*

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Papers in refereed journals:

15. Greenwood, D. R., Conran, J. G., and **West, C. K.** 2022. Palm fronds from western Canada are the northernmost palms from the Late Cretaceous of North America and may include the oldest Areaceae. *Review of Palaeobotany and Palynology*, 302: 104641, 20 pp.
14. Reinhardt, L., von Gosen, W., Lückge, A., Blumenberg, M., Galloway, J.M., **West, C.K.**, Sudermann, M., and Dolezych, M. 2022. Geochemical indications for the Paleocene-Eocene Thermal Maximum (PETM) and Eocene Thermal Maximum 2 (ETM-2) hyperthermals in terrestrial sediments of the Canadian Arctic. *Geosphere*, 18: 327–349.
13. **West, C.K.**, Reichgelt, T. and Basinger, J.F. 2021. The Ravenscrag Butte flora: Paleoclimate and paleoecology of an early Paleocene (Danian) warm-temperate deciduous forest near the vanishing inland Cannonball Seaway. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 576: 110488, 14 pp.
12. Sudermann, M., Galloway, J.M., Greenwood, D.R., **West, C.K.** and Reinhardt, L. 2021. Palynostratigraphy of the lower Paleogene Margaret Formation at Stenkul Fiord, Ellesmere Island, Nunavut, Canada. *Palynology*, 45: 459–476.
11. Greenwood, D.R., **West, C.K.** and Basinger, J.F. 2020. The Miocene Red Lake macroflora of the Deadman River Formation (Chilcotin Group), Interior Plateau, British Columbia, Canada. *Acta Palaeobotanica*, 60: 213–250.
10. **West, C.K.**, Greenwood, D.R., Reichgelt, T., Lowe, A.J., Vachon, J.M. and Basinger, J.F. 2020. Paleobotanical proxies for early Eocene climates and ecosystems in northern North America from mid to high latitudes. *Climate of the Past*, 4: 1387–1410.
9. Schlanser, K.M., Diefendorf, A.F., **West, C.K.**, Greenwood, D.R., Basinger, J.F., Meyer, H.W., Lowe, A.J. and Naake, H.H. 2020. Conifers are a major source of sedimentary leaf wax n-alkanes when dominant in the landscape: case studies from the Paleogene. *Organic Geochemistry*, 147: 104069, 17 pp.
8. Schlanser, K.M., Diefendorf, A.F., Greenwood, D.R., Mueller, K.E., **West, C.K.**, Lowe, A.J., Basinger, J.F., Currano, E.D., Flynn, A.G., Fricke, H.C., Geng, J., Meyer, H.W. and Peppe, D.J. 2020. On geologic timescales, plant carbon isotope fractionation responds to precipitation similarly to modern plants and has a small negative correlation with pCO₂. *Geochimica et Cosmochimica Acta*, 270: 264–281.
7. **West, C.K.**, Greenwood, D.R. and Basinger, J.F. 2019. The late Paleocene and early Eocene Arctic megaflora of Ellesmere and Axel Heiberg islands, Nunavut, Canada. *Palaeontographica Abteilung B*, 300: 47–163.

6. Lowe, A.J., Greenwood, D.R., **West, C.K.**, Galloway, J.M., Sudermann, M. and Reichgelt, T. 2018. Plant community ecology and climate on an upland volcanic landscape during the Early Eocene Climatic Optimum: McAbee Fossil Beds, British Columbia, Canada. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 511: 433–448.
5. Lowe, A.J., **West, C.K.** and Greenwood, D.R. 2018. Volcaniclastic lithostratigraphy and paleoenvironment of the lower Eocene McAbee fossil beds, Kamloops Group, British Columbia, Canada. *Canadian Journal of Earth Sciences*, 55: 923–934.
4. Reichgelt, T., **West, C.K.** and Greenwood, D.R. 2018. The relation between global palm distribution and climate. *Scientific Reports*, 8: 4721, 11 pp.
3. Greenwood, D.R. and **West, C.K.** 2017. A fossil coryphoid palm from the Paleocene of western Canada. *Review of Palaeobotany and Palynology*, 239: 55–65.
2. Gushulak, C.A.C., **West, C.K.** and Greenwood, D.R. 2016. Paleoclimate and seasonality of the Early Eocene McAbee megaf flora, Kamloops Group, British Columbia. *Canadian Journal of Earth Sciences*, 53: 591–601.
1. **West, C.K.**, Greenwood, D.R. and Basinger, J.F. 2015. Was the Arctic Eocene ‘rainforest’ monsoonal? Estimates of seasonal precipitation from early Eocene macrofloras from Ellesmere Island, Nunavut. *Earth and Planetary Science Letters*, 427: 18–30.

Papers submitted:

West, C.K., Greenwood, D.R., Reyes, A.V., Reinhardt, L., and Basinger, J.F. Photoperiod limits poleward range shifts of forests during periods of greenhouse climate. *Submitted to the Proceedings of the Royal Society: B on April 6, 2022.*

Papers in-prep (manuscript drafts available upon request):

West, C.K., Reichgelt, T., Reyes, A.V., Buryak, S., Staniszewska, K., and Basinger, J.F. Mediterranean climates in paleoarctic Yukon during the Middle Eocene Climatic Optimum. *Planned submission to Earth and Planetary Science Letters May 2022.*

Buryak, S., **West, C.K.**, Reyes, A.V., Jensen, B.J.L., Madsen, F.C., Reichgelt, T., DuFrane, S.A., Siver, P.A., Koppelhus, E.B., Galloway, J.M., Dating of the Wombat and Giraffe Maar sedimentary sequences, Lac De Gras, Canada: a multidisciplinary approach. *Planned submission to the Geological Society of America Bulletin June 2022.*

West, C.K., Hoffman, G.L., Reyes, A.V., Reichgelt, T., Greenwood, D.R. The palaeoclimate and palaeoecology of the late Paleocene macroflora from Blindman River, Red Deer, Alberta. *Planned submission to Palaeogeography, Palaeoclimatology, and Palaeoecology August 2022.*

Non-refereed contributions:

Greenwood, D.R., and **West, C.K.** 2022. When Canada had palm tree fringed tropical beaches. Research Connection, Brandon University. <http://www.brandonu.ca/research-connection>.

Galloway, J.M., Bringué, M., Buryak, S.D., Reyes, A.V., **West, C.K.**, and Siver, P.A. 2022. Palynological analyses of maar lake sediments from core samples of Wombat Kimberlite Pipe, Northwest Territories, Canada. Geological Survey of Canada Open File, Natural Resources Canada, 8864: 29 pp.

West, C.K., Lowe, A.J., Galloway, J.M., Sudermann, M. and Greenwood, D.R. 2018. Summary of Field Activities and Initial Results: McAbee Fossil Bed Heritage Site. Permit No. 2017-01. Prepared for the Ministry of Forests, Lands, and Natural Resource Operations of British Columbia.

Galloway, J.M., Reinhardt, L., von Gosen, W., Piepjohn, K., Dolezych, M., Lückge, A., Gaedicke, C., Sudermann, M., **West, C.K.** and Greenwood, D.R. 2018. Multidisciplinary study of Paleogene-Neogene strata on Ellesmere Island, Nunavut: GEM-2 Western Arctic Project, Pearya Terrane activity. Geological Survey of Canada Open File, Natural Resources Canada, 8330: 11 pp.

Selected conference presentations (of 26 total, 2013 to present)

***presenter**

13. **West, C.K.***, Staniszewska, K.J., Reyes, A.V. 2021. Quantitative paleoclimate estimates from an early Paleogene macroflora from subarctic Yukon, Canada. *American Geophysical Union Fall Meeting, New Orleans, LA. Poster presentation.*
12. Reichgelt, T.* , D’Andrea, W., **West, C.K.** 2021. Return to a greener day: Miocene plant fossils and primary productivity in a high CO₂ world. *Geological Society of America Annual Meeting, Portland, OR. Invited Oral Presentation.*
11. **West, C.K.***, and Reichgelt, T. 2020. Cenozoic temperature and precipitation trends from fossil leaf morphology. *Midcontinent Paleobotanical Colloquium – Virtual Conference, Seattle, WA. Poster presentation.*
10. **West, C.K.***, Greenwood, D.R., Sudermann, M., Reinhardt, L., Galloway, J.M. and Basinger, J.F. 2019. High Arctic forest diversity and floristic change during early Eocene hyperthermal events. *Geological Society of America Annual Meeting, Phoenix AZ. Oral presentation.*
9. **West, C.K.***, Greenwood, D.R., Lowe, A.J., Sudermann, M., Vachon, J. and Basinger, J.F. 2018. Early Eocene climates from mid-latitude upland and high-latitude Arctic environments in Canada: insights from palaeobotanical proxies. *American Geophysical Union Fall Meeting, Washington D.C. Poster presentation.*
8. **West, C.K.***, Greenwood, D.R. and Basinger, J.F. 2018. The Early Paleogene forests of Ellesmere and Axel Heiberg islands, Nunavut, Canada. *The Canadian Paleontology Conference, Saskatoon, Saskatchewan, Canada. Oral presentation.*

7. **West, C.K.***, Greenwood, D.R. and Basinger, J.F. 2018. The late Paleocene and early Eocene Arctic megaflora of Ellesmere and Axel Heiberg islands, Nunavut, Canada. *European Paleobotany and Palynology Conference X, Dublin, Ireland. Oral presentation.*
6. **West, C.K.***, Greenwood, D.R., Sudermann, M., Reinhardt, L. and Basinger, J.F. 2017. Polar heat: evaluating the impact of an early Eocene hyperthermal event on Arctic forests from Ellesmere Island, Nunavut, Canada. *Climatic & Biotic Events of the Early Paleogene, Salt Lake City, UT. Oral presentation.*
5. **West, C.K.***, Greenwood, D.R., Peppe, D.J. and Basinger J.F. 2016. The Ellesmere Island flora: a diverse assemblage of early Eocene flora from the Canadian Arctic. *International Organisation of Paleobotany Conference, Salvador, Brazil. Oral presentation.*
4. **West, C.K.***, Greenwood, D.R. and Basinger, J.F. 2014. Floristic change and diversity using fossil macroflora from early Paleogene (Ca. 59-50 Ma) Arctic rainforests. *Geological Society of America Annual Meeting, Vancouver, B.C. Invited oral presentation.*
3. **West, C.K.*** 2014. Polar Monsoons? An Early Eocene climate reconstruction of a high Arctic 'rainforest' from Ellesmere Island. *Western Inter-University Geoscience Conference, Calgary, AB. Oral presentation.*
2. **West, C.K.***, Greenwood, D.R., and Basinger, J.F. 2013. Was the Arctic Eocene 'rainforest' monsoonal? Estimates of seasonal precipitation from early Eocene macrofloras from Ellesmere Island, Nunavut. *Geological Society of America Annual Meeting, Denver, CO. Oral presentation.*
1. **West, C.K.*** 2013. Early Eocene Arctic seasonal precipitation reconstructed using fossil leaves from Ellesmere Island, Nunavut. *Prairie University Biology Symposium, Winnipeg, MB. Poster presentation.*

Invited lectures and colloquia:

Kamloops Exploration Group, Kamloops BC, Canada (2020, 2021)

Saskatchewan Geological Society, Regina SK, Canada (2021)

Department of Earth and Atmospheric Sciences, University of Alberta, Canada (2021)

Western Inter-University Geoscience Conference, Univ. of Saskatchewan, Canada (2020)

Department of Geological Sciences, University of Saskatchewan (2015, 2019)

Department of Biology, Brandon University, (2018)

Geological Society of America Annual Meeting, Vancouver, BC, Canada (2014)

CONSULTING, PUBLIC EDUCATION, & OUTREACH

Edmonton Public Library "On the Edge" Speaker Series (May 2021): Public outreach event.
Exploring the 56-million-year-old fossil forests of the Canadian High Arctic.

Palaeontological and Geological Consultant (2018–2020): Heritage Branch FLRNO Branch of Forest, Lands, Resources and Natural Operations for the Provincial Government of British Columbia.

Consulted on the development of the McAbee Research and Interpretation Center and the development of fossil displays, education, and programming. Assisted in the training of interpreter staff for the McAbee Fossil Beds. Consulted on the planned conservation and stewardship of the McAbee Fossil Beds.

Palaeobotanical and Scientific Advisor (2019): PBS Nova Documentary “Polar Extremes”, release date 2020-02-05.

Palaeontological Education Program Consultant & Developer for the Saskatoon Fossil Safari Program

Assisted in the development of the Saskatoon Fossil Safari program, teaching materials, volunteer training, and hands-on activities. Led school group tours on the ‘Fossil Safari’ as well as through the Earth Science Museum at the University of Saskatchewan. **This program was the winner of the 2017 Lieutenant Governor’s Heritage Education Award.**

Elementary School Palaeontology School Educational Outreach (2014-2020):

Visited or skyped/zoomed with elementary and high schools in British Columbia, Alberta, and northern Manitoba, and gave presentations to various grades on geology, palaeontology, and palaeobotany.

Logan Lake Elementary School (K-5), 2020, Logan Lake, British Columbia

Leaf Rapids Education Centre (K-12) and the Granville Lake First Nation, the O-Pipon-Na-Piwin Cree Nation, and the Nisichawayasihk Cree Nation, 2014-2016, Leaf Rapids, Manitoba

E.G Wahlstrom Elementary School (K-12), 2017, Slave Lake, Alberta

Carman Elementary (K-6), 2018, Carman, Manitoba

MEDIA INTERVIEWS

Print/Online interviews (re: West et al. 2019) – CBC Nunavut, USask News, Science Daily, Atlas Obscura (Nov 2019 – Jan. 2020). PDFs and URLs available upon request.

Radio interview (re: West et al. 2019) – CBC Radio North (Dec. 2019)

Documentary interview (re: McAbee Fossil Beds) – Dino Trails (June 2019)

Radio interview (re: Reichgelt et al. 2018) – CBC Radio (Regina & Saskatoon 2018) News media interview (re: Greenwood and West 2017) – CBC (2017)

News media interview (re: Gushulak et al. 2016) – Brandon Sun (2016)

TEACHING EXPERIENCE

Guest lecturer, University of Saskatchewan	2019, 2020
<i>Course: Palaeontology (GEOL 247)</i>	
Guest lecturer & teaching assistant, Brandon University	2014-2018
<i>Course: Fossil Plants & Palaeoenvironments (Course Number: 15:467 / 42:467)</i>	
Guest lecturer, Brandon University	2018, 2021
<i>Course: The World of Dinosaurs (Course Number: 15:180 / 42:180)</i>	
Teaching Assistant, University of Saskatchewan	2013-2019
<i>Courses: Introductory Geology (GEOL 121), Historical Geology (GEOL 122), Palaeontology (GEOL 247), Sedimentology (GEOL 245), Field Mapping (GEOL 308)</i>	

MENTORING EXPERIENCE

Serhiy Buryak, University of Alberta Mentoring during PhD project. Current status: PhD student at University of Alberta	2020–Current
Matthew Nadeau, University of Saskatchewan Mentored during MSc thesis project. Current status: PhD student at Princeton University	2017–2019
Brittany A. Laing, University of Saskatchewan Mentored during MSc thesis project. Current status: PhD candidate at Macquarie University	2015–2018
Brayden S. McDonald, University of Saskatchewan Mentored during MSc and PhD thesis project. Current status: PhD candidate at University of Saskatchewan	2015–2019
Alexander J. Lowe, Brandon University Mentored during MSc thesis project. Current status: PhD candidate at University of Washington	2016–2018
Matthew Tsui, University of Saskatchewan Mentored during senior BSc thesis project. Current status: Geologist, Areva Resource Canada Inc.	2016
Kristen Ens, University of Saskatchewan Mentored during senior BSc thesis project. Current status: Exploration Geology, SSR Mining Inc.	2016

- Markus Sudermann, Brandon University 2016, 2017–2019
Mentored during BSc Honours and MSc thesis project.
Current status: Geologist, SRV Petroleum Exploration
- Cale A.C Gushulak, Brandon University 2015
Mentored during BSc Honours thesis project.
Current status: Postdoctoral Research, University of Regina

SERVICE

Reviewer:

Manuscript referee: *Acta Palaeobotanica*; *Canadian Journal of Earth Sciences*; *Climates of the Past*; *Cretaceous Research*; *Earth-Science Reviews*; *Palaeogeography*; *Palaeoclimatology*; *Palaeoecology*; *Palaios*; *Palaeobiology*; *Palaeontographica Canadiana*.

Grant proposal reviewer: The German Research Foundation (Die Deutsche Forschungsgemeinschaft).

Seminars, conferences, and other service activities:

Session convener: “Turning up the amplifier: proxy and model reconstructions of high latitude climate, environments, forcings, and feedbacks during past globally warm intervals”, Fall Meeting of the American Geophysical Union, New Orleans, USA (forthcoming December 2021).

Organizer: International Organisation of Palaeobotany, social media manager (2018–2020).

Organizer: Planning committee, recruitment, and advertisement for Western Inter-University Geoscience Conference 2016.

Government Service: Review of the McAbee Fossil Bed Management Protocols document for B.C Heritage Branch FLRNO (March 2017).

Member: Student Representative, North America Division, International Organisation of Palaeobotany (2018-2019).

Member: Academic Advisor and Geological Sciences Representative to University of Saskatchewan Graduate Student Association (2013–2018).

Member: Academic Councilor, University of Saskatchewan Biology Student Association (2012–2013).

PROFESSIONAL AFFILIATIONS

Geological Association of Canada (Member); Geological Society of America (Member); Canadian Botanical Association (Member); Botanical Society of America (Paleobotanical section – Member); International Organisation of Palaeobotany (Member); The Paleontological Society (Member); American Geophysical Union (Member).

REFERENCES

Alberto V. Reyes
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James F. Basinger
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David R. Greenwood
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Steven R. Manchester
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