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March 1, 2024

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# EDUCATION

## University

PhD (Geography), Environmental Studies, University of Waterloo, 2006

Dissertation: Remote Sensing for Large-area, Multi-jurisdictional Habitat Mapping

MSc (Geography), Remote Sensing, University of Calgary, 1993

Thesis: Remote Sensing of Slope Processes

BSc (Honours Geography), University of Calgary, 1991

Focus: Physical Geography

## Awards and Recognition

University of Calgary Nomination, Teaching Award in Graduate Supervision, 2024

Faculty of Arts Nomination, Killam Graduate Supervision and Mentorship Award, 2020

Fellow, Centre for Advanced Studies, Ludwig Maximillian University Munich,

Germany, 2017

Faculty Award, Geography Graduate Students Association, 2016

Research Fellow, Alberta Biodiversity Monitoring Institute, 2013

Distinguished Academic Early Career Award, Confederation of Alberta Faculty Associations, 2012

Distinguished Research Award, Faculty of Arts, University of Calgary, 2011

ERDAS Best Scientific Paper in Remote Sensing (3rd place), American Society for Photogrammetry and Remote Sensing, 2010

Offer of Employment for Tenure-track Position, Department of Geography, University of Iowa (declined), 2005

Emerald Award for Research and Innovation (team award, Foothills Model Forest Grizzly Bear Research Project), Alberta Emerald Foundation, 2004

# ACADEMIC APPOINTMENTS

Professor of Geography, University of Calgary, 2017-present

Graduate Program Director, Geography, University of Calgary, 2015-2020

Associate Professor of Geography, University of Calgary, 2011-2017

Adjunct Associate Professor of Geography, University of Waterloo, 2016-2020

Assistant Professor of Geography, University of Calgary, 2005-2011

Sessional Lecturer, Department of Geography, University of Calgary, 2003-2005

# STUDENT SUPERVISION AND TEACHING

## Supervisor, Co-supervisor (C), or Mentor (M)

Student Program, Research Area, Year Completed

Xue Yan Chan[[1]](#footnote-2) MSc, Remote sensing plant functional traits, continuing

Nicole Byford1 MSc, Remote sensing boreal restoration, continuing

Yusif Abdullai MSc, Boreal restoration, continuing

Colette Shellian PhD, Boreal restoration, continuing

Tori Green-Harrison (C) MSc, Soil moisture and fire risk, continuing

Hannah Posonby (C) MSc, Boreal hydrologic connectivity, continuing

Tanya Yeomans MSc, Satellite time series analysis, 2024

Lelia Weiland (C) MSc, Boreal hydrology and seismic lines, 2024

Emily Lambert (C) MSc Coastal disturbance ecology, 2023

Alissia Paluck MGIS, Thermal remote sensing of alpine environments, 2023

Colette Shellian MSc, Conifer seedling growth, 2022

Taylor McKeeman[[2]](#footnote-3) MSc, UAV thermography, 2022

Silvia Losada MSc, Forest understory mapping, 2021

Ian Perry MSc, UAV burn-severity mapping, 2021

Lucy Poley[[3]](#footnote-4) PhD, Bison habitat modelling, 2020

Gustavo Lopes-Queiroz[[4]](#footnote-5)[[5]](#footnote-6) MSc, Remote sensing of boreal coarse woody debris, 2019

Man Fai Wu, MSc, Conifer seedling detection, 2019

Sarah Cole [[6]](#footnote-7)[[7]](#footnote-8) MSc, Seismic line mapping, 2019

Shannon Blackadder[[8]](#footnote-9) MSc, Species distribution modeling, 2019

Kirandeep Basran MGIS, Mapping water table in wetlands, 2019

Annie He MSc, Mapping shrub biomass, 2018

Julie Lovitt MSc Peatland microtopography and methane flux, 2017

Shijuan Chen MSc UAV photogrammetry, 2017

David Laskin[[9]](#footnote-10) [[10]](#footnote-11) [[11]](#footnote-12) PhD Remote sensing of understory plant phenology, 2016

Corey Feduck MGIS UAV seedling mapping, 2016

Adam McLane[[12]](#footnote-13) PhD Agent-based modelling of Clark's nutcracker, 2015

Tania Garcia Bravo (C) MSc Peatland restoration, 2015

Tariq Munir (C) PhD Peatland functioning, 2014

Nils Kaplan[[13]](#footnote-14) (C) MSc Habitat modelling of bull and cutthroat trout, 2014

Raul Wood[[14]](#footnote-15) (C) MSc Climate change impacts on hydrology, 2014

Brent Smith MSc Grasslands mapping, 2013

Allison Zimmer MGIS Habitat modelling of cattle, 2013

Chunhua Zhang MGIS Object-based accuracy assessment, 2012

Jeff Wielki MGIS Fire severity mapping, 2012

William McInnis MGIS Native grasslands mapping, 2012

Adrian Faraguna MSc Mountain pine beetle susceptibility, 2011

David Birkigt MGIS Aquatic biomass estimation, 2011

Andrea Ram MGIS Changes in Alberta grizzly bear habitat, 2011

Julia Linke[[15]](#footnote-16) [[16]](#footnote-17) [[17]](#footnote-18) PhD Grizzly bear habitat monitoring, 2010

Erin Latham MGIS Changes in Sierra-Nevada sheep habitat, 2010

Aleksandra Sobol MGIS Grizzly bear home range delineation, 2009

Ben Curry MGIS Forest disturbance mapping and detection, 2008

Shadan Sanii MGIS LiDAR data processing, 2008

Jennifer Hird[[18]](#footnote-19) [[19]](#footnote-20) MSc Analysis of NDVI time series for phenology, 2008

Iain Smith MGIS Mapping whitebark pine in Waterton Lakes, 2007

Sarah Miall MGIS Knowledge formulation: pixels vs objects, 2007

Adam McLane MGIS Processing LiDAR data for canopy closure, 2007

Katie Yalte MGIS Relative change detection, 2007

David Laskin (M) MGIS Marine GIS: Grey whale habitat modeling, 2007

Sangeeta Guha (C) MGIS Quantification of depression storage, 2007

Dan Austin MGIS Object and pixel-based classification, 2006

Prasanna Man Shrestha MGIS Spatial modeling of vegetation structure, 2006

## Postdoctoral Fellows, Research Associates, and Staff

Jiaao Guo Research Coordinator, 2022-present

Maverick Fong Research Technician, 2022-present

Dr. Irina Terenteva[[20]](#footnote-21) Postdoctoral Fellow, 2022-present

Dr. Julia Linke Science Coordinator, BERA[[21]](#footnote-22), 2016-present

Richard Zeng Research Associate, BERA[[22]](#footnote-23), 2020-present

Claudia Maurer Administrative Coordinator, 2020-present

Jennifer Hird Research Associate, biodiversity monitoring, 2009-2022

Dr. Eleanor Bash Postdoctoral Fellow, SfM workflows, 2019-2022

Dr. Jordan Eamer Research Associate, CloudUAV[[23]](#footnote-24), 2016-2017

Dr. Mustafizur Rahman Research Associate, biodiversity monitoring, 2014-2021

Shannon Blackadder Research Associate, ecological indicators, 2013-2017

Alessandro Montaghi[[24]](#footnote-25) Postdoctoral Fellow, LiDAR remote sensing, 2014-2016

Dr. Guillermo Castilla Postdoctoral Fellow, biodiversity monitoring, 2009-2014

Will McInnes Research Associate, ecological indicators, 2012-2013

Deep Mazumdar Research Associate, biodiversity monitoring, 2011-2012

Tracy Timmins Research Associate, ecological indicators, 2011-2012

Dr. Ana Hernando Postdoctoral Fellow, object-based analysis, 2011

David Laskin Research Associate, bear habitat modelling, 2006-2009

Adam McLane Research Associate, caribou habitat modelling, 2007-2009

## International and Visiting Students

Sophia Kanthak[[25]](#footnote-26) MSc Ludwig Maximilians University of Munich, 2024

Gereon Seeberg[[26]](#footnote-27) MSc Ludwig Maximilians University of Munich, 2024

Felix Weimer[[27]](#footnote-28) MSc Ludwig Maximilians University of Munich, 2023

Lauren Rawlins PhD, University of York, UK, 2022

Marlis Hegels[[28]](#footnote-29) MSc, Ludwig Maximilians University of Munich, 2022

Niklas Heiss[[29]](#footnote-30) MSc, Ludwig Maximilians University of Munich, 2022

Patrick Klotz[[30]](#footnote-31) MSc, Ludwig Maximilians University of Munich, 2022

Jasper Koch[[31]](#footnote-32) MSc, Ludwig Maximilians University of Munich, 2022

Samantha Gomes MSc, Universidade Federal de Lavras, Brazil, 2020

Inacio Bueno[[32]](#footnote-33) PhD, Universidade Federal de Lavras, Brazil, 2020

Marko Dejanovik[[33]](#footnote-34) BSc, Ludwig Maximilians University of Munich, 2019

Olympia Birkis MSc, Ludwig Maximilians University of Munich, 2018

Annette Dietmaier MSc, Ludwig Maximilians University of Munich, 2018

M. Kumari Heenkenda PhD, Charles Darwin University, Australia, 2015

Nils Kaplan MSc, Ludwig Maximilians University of Munich, 2014

Raul Wood MSc, Ludwig Maximilians University of Munich, 2014

Gustavo Quieroz-Lopes[[34]](#footnote-35) BSc, Universidade Federal do Paraná, Brazil, 2014

Inacio Bueno[[35]](#footnote-36) BSc, Universidade Federal de Lavras, Brazil, 2012

Martina Folkers MSc, Leibniz University of Hanover, Germany, 2010

Antonio Couto[[36]](#footnote-37) MSc, Universidade Federal de Lavras, Brazil, 2010

## Honours Students and Undergraduate Research Assistants

Seth Albright[[37]](#footnote-38) BSc Ecology, 2024

Sean Hillson[[38]](#footnote-39) BSc Geography, 2023

Alejandro Caguao BSc Geography, 2022

Sara Heerema BSc Geography, 2022

Sean Hillson BSc Earth Science, 2022

Hunter Jackson BSc Ecology, 2022

Cameron Torrance BSc Ecology, 2022

Alexa Romano BSc Biology (Western), 2021

Alistair Baron BSc Ecology, 2021

Maverick Fong BGIS (SAIT), 2021

Joshua Evans BSc Environmental Science, 2021

Colette Shellian[[39]](#footnote-40) BSc Biological Sciences, 2020

Ian Perry Open Studies, 2019

Mikayla Donovan BSc Geography, 2019

Keifer Biddle BSc Geography, 2019

Alex Hamilton BSc Environmental Science, 2018

Keifer Biddle BSc Geography, 2018

Jack Sugden BSc Geography, 2018

Michael Wrubleski [[40]](#footnote-41) BSc Geography, 2017

Marieke Maas BSc Geography, 2017

Jorden Fanson BSc Environmental Science, 2017

Brett Collins BSc Geogaphy, 2017

Ben Arlt BSc Geography, 2017

Jaren Koning BSc Geography, 2016

Vince Zafra BSc Environmental Science, 2016

Christina Braybrook[[41]](#footnote-42),[[42]](#footnote-43) BSc Geography, 2015-2016

Jessica Theoret[[43]](#footnote-44) BSc Environmental Science, 2015

Jessica Zawalykut BSc Biological Sciences, 2015

Taylor McKeeman[[44]](#footnote-45) BSc Geography, 2014-2015

Shea Gouthro BSc Geography, 2013-2014

Riley Iwamoto BSc Urban Studies, 2012-2013

Lauren Peters BA Geography, 2012

Ben Ference BSc Geography, 2012

Morgan Ostrander BSc Geography, 2011

Andrew Foster BSc Geography, 2011

Graham Pendray BSc Geography, 2011

Jill Rajewicz[[45]](#footnote-46) BSc Geography, 2010

Jackie Puff BSc Geography, 2007

Nivea DeOliveira BSc Honours Geography, University of Sherbrooke, 2005

Carrie Spavor BSc Environmental Science, 2005

Andrew Befus BSc Geography, 2004-2005

Alysha Pape (M) BSc Honours Geography, 2003

David Couroux (M) BSc Honours Environmental Science, 2003

## Examiner and Committee Member

Internal

Andrew Clark PhD Geography, 2024

Kenny Wong MGIS Geography, 2023

Jeesmon Jacob MGIS Geography, 2023

Elijah Yu MGIS Geography, 2023

Fereshteh Rezaei MGIS Geography, 2023

Beryl Wang MGIS Geography, 2023

Yasmin Injoque MGIS Geography, 2023

Negin Roughi MGIS Geography, 2023

Reid Stranger MGIS Geography, 2023

Shayan Soodbar MGIS Geography, 2023

Alissia Paluck MGIS Geography, 2023

Zoe Walker MSc Geography, 2023

Hawjin Falahatkar MSc Geography, 2022

Kiledar Tomar PhD Geography, 2022

Camelot Radlof MSc Geography, 2021

Phillip Burrows MGIS Geography, 2021

Mallik Mahmud PhD Geography, 2021

Zoe Walker MSc Geography, 2020

Salar Ghaffarian MSc Geography, 2019

Prakash Guatam MGIS Geography, 2019

Jiaao Guo MGIS Geography, 2019

Eleanor Bash PhD Geography, 2019

Mallik Mahmud PhD Geography, 2017

Wenyu Wang MGIS Geography, 2017

Jesse Fraser MGIS Geography, 2016

Malinee Kongwongthai MGIS Geography, 2016

Gary Mason PhD Geography, 2016

Eleanor Bash PhD Geography, 2015

Justin Bumstead MGIS Geography, 2015

Ben McWilliams MSc Geography, 2015

Laurie Hamilton MSc Geography, 2014

Melissa Peters MSc Geography, 2013

Yilong (Billy) Zhang MGIS Geography, 2013

Golnoush Hassanpour MSc Geography, 2012

Narendra Adhikari MGIS Geography, 2012

Sulakshmi Das MGIS Geography, 2012

Ahmed Yousif MGIS Geography, 2012

Karl Zimmer MGIS Geography, 2012

Gary Mason PhD Geography, 2012

Stephanie Lapka MSc Geography, 2012

Gang Chen PhD Geography, 2011

Allison Robbins MSc Geography, 2011

Shantel Koenig MGIS Geography, 2011

John Statham MGIS Geography, 2010

Nidhi Bishnoi MGIS Geography, 2010

Yoseph Zuback MSc Geography, 2010

Duan Lian MGIS Geography, 2010

Douglas Hagedorn MSc Geography, 2009

JinHong Li MGIS Geography, 2009

Teresa Chung MGIS Geography, 2009

Terry Beaulieu MGIS Geography, 2009

Christopher Kyle MGIS Geography, 2009

Gary Mason PhD Geography, 2008

Kate McAnally MGIS Geography, 2008

Tony Viveiros MGIS Geography, 2007

Nick Manklow MGIS Geography, 2007

David Laskin MGIS Geography, 2007

Joshua Ben-Arie MGIS Geography, 2007

Jason Kang MGIS Geography, 2007

Davor Gugolj MGIS Geography, 2007

Man-ha Au MGIS Geography, 2006

Tony Viveiros MGIS Geography, 2006

Heather Rudd MGIS Geography, 2006

Carmen ReMartinez MGIS Geography, 2006

Erin Baird MGIS Geography, 2006

Nick Hauk MGIS Geography, 2005

External

Shaghayegh Akbarpour PhD Civil and Environmental Engineering, University of Waterloo

Rowan Rampton MSc Biological Sciences, University of Calgary, 2023

Brendan Casey PhD Biological Sciences, University of Alberta, 2023

Adam Sprott MSc Biological Sciences, University of Calgary 2023

Karim Malik PhD Geography, Western University, 2021

Chris Cahill PhD Biological Sciences, 2021

Brendan Casey PhD Biological Sciences, University of Alberta, 2020

David Milley MA Archaeology/Anthropology, 2019

Kyle Wilson PhD Biological Sciences, 2018

Rianne Diepstraten MSc Environmental Design, University of Calgary, 2017

Saraswati PhD Geography, University of Waterloo, 2016

Chris Stockdale PhD Natural Resource Management, University of Alberta, 2016

Tyler Jessen PhD Veterinary Medicine, University of Calgary, 2017

L. Amundsen-Meyers PhD Archaeology, University of Calgary, 2014

Han-Fang Tsai MSc Geomatics Engineering, University of Calgary, 2014

Brian Kopach PhD Biological Sciences, University of Calgary, 2014

Fiona Stanners MSc Geoscience, University of Calgary, 2013

Janna So MEDS Environmental Design, University of Calgary, 2013

Benn Edwards MSc Biological Sciences, University of Calgary, 2013

Madison Kobryn MSc Biological Sciences, University of Calgary, 2013

Dale Paton MSc Environmental Design, University of Calgary, 2012

Cora Shea PhD Geoscience, University of Calgary, 2011

Kai Wang PhD Geography, University of Saskatchewan, 2011

Tyler Muhly PhD Environmental Design, University of Calgary, 2010

Morshed Anwar PhD Geomatics Engineering, University of Calgary, 2010

Chengqian Zhang PhD Geomatics Engineering, University of Calgary, 2010

Bianca Wohlfarht PhD Biology, University of Calgary, 2010

John Jackson MSc Environmental Design, 2008

Andrew Teucher MSc Biology, University of Calgary, 2007

Alex Zeller MSc Biology, Lakehead University, 2006

Ramona Maraj PhD Environmental Design, University of Calgary, 2006

Wen Ya Chiu MSc Geomatics Engineering, University of Calgary, 2005

Neutral Chair

Camelot Radloff MSc Geography, University of Calgary 2021

Aida Nciri PhD Geography, University of Calgary, 2018

Elena Favaro PhD Geography, University of Calgary, 2017

Samaneh Ebrahimi PhD Geography, University of Calgary, 2016

Chris Fuller PhD Geography, University of Calgary, 2015

Adam LeClair MSc Geography, University of Calgary, 2015

Wendy Wood PhD Geography, University of Calgary, 2014

Bastoki, Rishi PhD Geography, University of Calgary, 2013

Douglas Hagedorn MSc Geography, University of Calgary, 2012

Tariq Munir PhD Geography, University of Calgary, 2012

Tara Moran PhD Geography, University of Calgary, 2011

Nicole Shaffer MSc Geography, University of Calgary, 2010

Cora Shea PhD Geoscience, University of Calgary, 2010

## Courses Taught

Undergraduate Courses (Number of Offerings)

Geog 231: Introduction to Geospatial Methods (6)

Geog 333: Remote Sensing I (6)

Geog 339: Analytical Methods in Geography I (3)

Geog 357: Concepts of GIS (7)

Geog 380: Geospatial Communication (2)

Geog 433: Remote Sensing II (3)

Geog 485: Quantitative Analysis (1)

Geog 584: Advanced Remote Sensing (1)

Graduate Courses (Number of Offerings)

Geog 601: Graduate Research Seminar (10)

Geog 603: Remote Sensing – Basics and Beyond (3)

Geog 607: GIS – Basics and Beyond (2)

Geog 633: Research and Applications in Remote Sensing (6)

Geog 683: Geographic Information Systems Project: Application (1)

Geog 699.33: Remote Sensing and Image Processing (1)

Field Courses (Number of Offerings)

Geog 391: Geographic Field Studies (3)

Geog 531: Remote Sensing in Forest Ecology (4)

Geog 537: GIS in Forest Ecology (5)

# SCHOLARSHIP

h-index: 33; i10-index: 61; citations: 5096.

Students and other HQP underlined.

## Refereed Journal Publications

1. Yeomans, T., G.J. McDermid, A. Mac Namara. Big Pixel – Bringing satellite sensor data into the boreal. Cultural Geographies, in review.
2. Weiland, L., S. Ketcheson, M. Strack, and G.J. McDermid. 2024. The Influence of Seismic Lines on Local Hydrology and Snow Accumulation in the Boreal Region of Northern Alberta. Hydrological Processes 38 (12), e70032.
3. Shellian, C.A., J. Linke, G.J. McDermid, M. Cody, and S.E. Nielsen. 2024. Silvicultural treatments hasten seedling growth on seismic disturbances in boreal treed fens. *Restoration Ecology,* e14086.
4. Sabrekov, A., I.E. Terentieva, G.J. McDermid, Y.C. Litti, A.S. Prokushkin, M.V. Glagolev, A.V. Petrozhitskiy, P.N. Kanlinkin, D.V. Kuleshov, and E.V. Parkhomshuk. 2023. Methane in West Siberia terrestrial seeps: origin, transport, and metabolic pathways of production. *Global Change Biology*, 2023;00:1–18.
5. Bueno, I.A., J.N. Hird, G.J. McDermid, L.S. Galvao, and F.W. Acerbi Jr. 2023. A large-scale disturbance mapping ensemble through data-driven regionalization. *International Journal of Remote Sensing*, 44:12, 3700-3725
6. Bash, E.A., L. Wecker, M.M. Rahman, C. Dow, G.J. McDermid, F. Samavati, K. Whitehead, B. Moorman, D. Medrzycka, and L. Copeland. 2023. A multi-resolution approach to point cloud registration without control points. *Remote Sensing*, 15(4), 1161.
7. Bash, E.A., C. Shellian, C. Dow, and G.J. McDermid. 2022. A framework for supervised mapping of supraglacial hydrology. *Journal of Glaciology,* 1–15. https://doi.org/10.1017/jog.2022.92.
8. Hird, J.N., J. Kariyeva, and G.J. McDermid. 2021. Satellite time series and Google Earth Engine democratize the process of forest-recovery monitoring over large areas. *Remote Sensing*, 13(23), 4745.
9. Lopes Queiroz, G., G.J. McDermid, M.M. Rahman, and J. Linke. 2020. The Forest Line Mapper: a semi-automated tool for mapping linear disturbances in forests. *Remote Sensing*, 12, 4176.
10. Bueno, I.A., G.J. McDermid, E.M.O. Silveira, J.N. Hird, B. I. Domingos, and F.W. Acerbi Jr. 2020. Spatial agreement among vegetation disturbance maps in tropical domains using Landsat time series. *Remote Sensing*, 12, 2948.
11. Castilla, G., M. Filiatrault, G.J. McDermid, M. Gartrell. 2020. Estimating individual conifer seedling height using drone-based image point clouds. *Forests*, 11, 924.
12. Poley, L.G. and G.J. McDermid. 2020. Quantifying aboveground biomass of shrubs using spectral and structural metrics derived from UAS imagery. *Remote Sensing*, 12(14), 2199.
13. Poley, L.G. and G.J. McDermid. 2020. A systematic review of the factors influencing the estimation of vegetation aboveground biomass using unmanned aerial systems. *Remote Sensing*, 12(7), 1052.
14. Saraswati, S., R. Petrone, M.M. Rahman, G.J. McDermid, B. Xu, and M. Strack. 2020. Hydrological effects of resource-access road crossings on boreal forested peatlands. *Journal of Hydrology*, 584, 124748.
15. Lopes-Queiroz, G., G.J. McDermid, J. Linke, C. Hopkinson, and J. Kariyeva, 2020. Estimating Coarse Woody Debris Volume Using Image Analysis and Multispectral LiDAR. *Forests*, 11(2), 141.
16. Fromm, M., M. Schubert, G. Castilla, J. Linke, and G.J. McDermid, 2019. Automated detection of conifer seedlings in drone imagery using convolutional neural networks. *Remote Sensing*, 11 (21), 2585.
17. Dietmaier, A., G.J. McDermid, M.M. Rahman, J. Linke, and R. Ludwig, 2019. Comparison of LiDAR and digital aerial photogrammetry for characterizing canopy openings in the boreal forest. *Remote Sensing*, 11 (16), 1919.
18. Strack, M., S. Hayne, J. Lovitt, G.J. McDermid, M.M. Rahman, S. Saraswati, and Bin Xu, 2019: Petroleum exploration increases methane emissions in northern peatlands. *Nature Communications*, 10 (1): 2804.
19. Lopes-Queiroz, G., G.J. McDermid, G. Castilla, J. Linke, and M.M. Rahman, 2019. Mapping coarse woody debris with random forest classification of centimetric aerial imagery. *Forests*, 10(6), 471.
20. Laskin, D.N., G.J. McDermid, S.E. Nielsen, S.J. Marshall, D.R. Roberts, and A. Montaghi, 2019: Advances in phenology are conserved across scale in present and future climates. *Nature Climate Change*, 9: 419–425.
21. Rahman, M.M., G.J. McDermid, T. McKeeman, J. Lovitt, 2019: A workflow to minimize shadows in UAV-based orthomosaics. *Journal of Unmanned Vehicle Systems*, 7(2): 107-117.
22. He, A., G.J. McDermid, M.M. Rahman, M. Strack, S. Saraswati, and B. Xu, 2018: Developing allometric equations for estimating shrub biomass in a boreal fen. *Forests*, 9, 569.
23. Feduck, C., G.J. McDermid, and G. Castilla, 2018: Detection of coniferous seedlings in UAV imagery. *Forests*, 9(7), 432.
24. Lovitt, J., M. Rahman, S. Saraswati, G.J. McDermid, M. Strack, and B. Xu, 2018: UAV remote sensing can reveal the effects of low‐impact seismic lines on surface morphology, hydrology and methane (CH4) release in a boreal treed bog. *Journal of Geophysical Research: Biogeosciences*, 123, 1117–1129.
25. Hird, J.N., E. R. DeLancey, G.J. McDermid, and J. Kariyeva, 2017: Google Earth Engine, open-access satellite data, and machine learning in support of large-area, probabilistic wetland mapping in Alberta, Canada. *Remote Sensing* 9(12): 1315.
26. Chen, S., G. J. McDermid, G. Castilla, and J. Linke, 2017: Measuring vegetation height in linear disturbances in the Boreal forest with UAV photogrammetry. *Remote Sensing*, 9(12): 1257.
27. Rahman, M.M., G.J. McDermid, M. Strack, J. Lovitt, 2017: A new method to map groundwater table in peatlands using unmanned aerial vehicles. *Remote Sensing*, 9(10): 1057.
28. Lovitt, J., M.M. Rahman, and G.J. McDermid, 2017: Assessing the value of UAV photogrammetry for characterizing terrain in complex peatlands. *Remote Sensing*, 9(7): 715.
29. McLane, A.J., C Semeniuk, G.J. McDermid, D.F. Tomback, T. Lorenz, and D.J. Marceau, 2017: Energetic behavioural-strategy prioritization of Clark’s Nutcrackers in Whitebark Pine communities: An agent-based modelling approach. *Ecological Modelling*, 354:123-139.
30. Hird, J.N., A. Montaghi, G.J. McDermid, J. Kariyeva, B Moorman, and A. McIntosh, 2017: Use of unmanned aerial vehicles for monitoring recovery of forest vegetation on petroleum well sites. *Remote Sensing*, 9(5), 413.
31. Laskin, D.N., A. Montaghi, and G.J McDermid, 2017: An open-source method of constructing cloud-free composites of forest understory temperature using MODIS. *Remote Sensing Letters*, 8(2): 165-174.
32. Laskin, D.N., A. Montaghi, Scott Nielsen, and G.J McDermid, 2016: Estimating understory temperatures using MODIS LST in mixed cordilleran forests. *Remote Sensing*, 8(8), 658.

1. Laskin, D.N. and G.J McDermid, 2016: Evaluating the level of agreement between human and time-lapse camera observations of understory plant phenology at multiple scales. *Ecological Informatics*, 33, 1-9.
2. Hird, J.N., G. Castilla, G.J. McDermid, and I.T. Bueno, 2016: A simple transformation for visualizing non-seasonal landscape change from dense time series of satellite data. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 9(8): 3372-3383.
3. McInnes, W., B. Smith, and G.J. McDermid, 2015: Discriminating native and non-native grasses in the Dry Mixedgrass prairie with MODIS NDVI time series. *IEEE Journal on Selected Topics in Applied Earth Observation and Remote Sensing*, 8(4): 1395-1403.
4. Piwowar, J.M., Y. Ban, G.J. McDermid, and L. Bruzzone, 2014: Forward to the special issue on the analysis of remote sensing images. *IEEE Journal of Selected Topics in Applied Earth Observation and Remote Sensing*, 7(8), 3187-3189.

39. Castilla, G., A. Hernando, C. Zhang, F. Mauro, G.J. McDermid, 2014: POLS: A versatile tool for sampling polygon GIS layers. *Computers & Geosciences* 67, 139-149.

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## Book Chapters

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## Conference Contributions, Presentations, Workshops, and Non-peer-reviewed Articles (Selected)

\* Invited

\*\* Keynote addresses

1. \* McDermid, G.J. and J. Linke. 2024. A remote sensing strategy for seismic line restoration planning. Alberta Environment and Protected Areas Modelling Community of Practice Monthly Webinar. Edmonton, Alberta.
2. \* McDermid, G.J., I. Terenteva, and J. Tigner. 2024. Modern remote sensing technologies support a two-eyed seeing approach to ecological restoration assessment in the traditional lands of the Blueberry River First Nation. Society for Ecological Restoration 2024 North American Conference. Vancouver, British Columbia.
3. \* McDermid, G.J. 2024. Supporting Industrial Disturbance Restoration in the Western Boreal. Medium-long Range Aircraft Platform for Environmental Research (MAPLE) Community Workshop. National Research Council of Canada Aerospace Research Centre. Ottawa, Ontario.
4. Byford, N.[[47]](#footnote-48), I. Terenteva, J. Linke, and G. J. McDermid. 2024. Tree Seedling Detection from Remotely Piloted Aircraft System Imagery using Convolutional Neural Networks in Boreal Peatlands. 45th Canadian Symposium on Remote Sensing. Halifax, Nova Scotia.
5. McDermid, G.J. and I. Terenteva. 2024. Mapping Linear Features in the Boreal Forest with LiDAR and Convolutional Neural Networks. 45th Canadian Symposium on Remote Sensing. Halifax, Nova Scotia.
6. Abdullai, Y., J. Linke, C. Shellian, T. Yeomans, and G. J. McDermid. 2024. LiDAR Change Detection Along Linear Disturbances in the Boreal Forest – A Comparison of Pixel- and Point Cloud-based Approaches. 45th Canadian Symposium on Remote Sensing. Halifax, Nova Scotia.
7. Chen, X.Y., A. Dabros, I. Terenteva, and G. J. McDermid. 2024. Characterizing effects of repeated seismic activity in boreal peatlands using remotely piloted aircraft systems (RPAS). 45th Canadian Symposium on Remote Sensing. Halifax, Nova Scotia.
8. Chan, X.Y.[[48]](#footnote-49), A. Dabros, I. Terentieva, G.J. McDermid, 2023. Characterizing effects of repeated seismic activity in boreal peatlands using remotely piloted aircraft systems (RPAS). AGU Annual General Meeting – Wide Open Science. San Francisco, California.
9. Byford, N., I. Terentieva, G.J. McDermid, J. Linke, 2023. Seedling detection for seismic line restoration in boreal peatlands using airborne imagery and convolutional neural networks. AGU Annual General Meeting – Wide Open Science. San Francisco, California.
10. Hilson, S., G.J. McDermid, J. Linke, F. Weimer, 2023. Assessing the hydrological and pedological impacts of mechanical mounding techniques on wetland ecosystems in northeastern Alberta: implications for successful restoration efforts. AGU Annual General Meeting – Wide Open Science. San Francisco, California.
11. \*\* McDermid, G.J. 2023. Boreal Ecosystem Recovery and Assessment: Past and Future. Alberta Biodiversity Monitoring Institute Annual General Meeting, Calgary, Alberta.
12. \* McDermid, G.J. 2023. Restoration Assessment of Seismic Lines in Alberta's Boreal Forest. RE3 Conference – Reclaim, Restore, Rewild. Society for Ecological Restoration and the Canadian Land Reclamation Association, Quebec City, Quebec.
13. \* Yeomans, T.[[49]](#footnote-50), G.J. McDermid, J. Guo, H. Jackson, and J.N. Hird, 2023. Assessing Boreal Forest Disturbance Recovery Using Satellite Imagery. RE3 Conference – Reclaim, Restore, Rewild. Society for Ecological Restoration and the Canadian Land Reclamation Association, Quebec City, Quebec.
14. \* McDermid, G.J. 2023. BERA Tools: A GIS toolset for mapping and attributing forest footprint features. RE3 Conference – Reclaim, Restore, Rewild. Society for Ecological Restoration and the Canadian Land Reclamation Association, Quebec City, Quebec.
15. Shellian, C.[[50]](#footnote-51), J. Linke, G.J. McDermid, M. Cody, and S. Nielsen. 2023. Silviculture treatments hasten seedling and sapling growth on seismic disturbances in boreal treed fens. RE3 Conference – Reclaim, Restore, Rewild. Society for Ecological Restoration and the Canadian Land Reclamation Association, Quebec City, Quebec.
16. Terenteva, I., G.J. McDermid, and J. Linke. 2023. Artificial Intelligence for Forest Restoration: An Automated Approach for Assessing Tree-regeneration Status on Industrial Disturbances. RE3 Conference – Reclaim, Restore, Rewild. Society for Ecological Restoration and the Canadian Land Reclamation Association, Quebec City, Quebec.
17. \*\* McDermid, G.J. 2023. Key RPAS targets for restoration monitoring and assessment in the boreal forest. Canadian Conservation and Land Management Knowledge Network.
18. Shellian, C., J. Linke, G.J. McDermid, M. Cody, and S.E. Nielsen. 2022. Restoration treatments enhance conifer seedling and sapling growth on seismic lines in boreal fens. Ecological Society of America Conference.
19. Hird, J.N., J. Kariyeva, and G.J. McDermid. 2021. Use of long-running satellite image archives to examine spectral regeneration on human footprint features in northwestern Alberta, Canada. 42nd Canadian Symposium on Remote Sensing.
20. Hird, J.N., G.J. McDermid, and C. McClain. 2022. Capturing post-disturbance spectral recovery in forested areas of Alberta, Canada using Landsat time series and a Google Earth Engine workflow. ForestSAT 2022.
21. Bash, E, L. Wecker, M.M. Rahman, C. Dow, G.J. McDermid, B. Moorman, and K. Whitehead. 2021. Toward 4D automated change detection in cryospheric systems: A multi-resolution approach to point cloud registration without control points. AGU Fall Meeting Abstracts. C55B-0596.
22. \* McDermid, G.J. 2021. Findings from the Boreal Ecosystem Recovery and Assessment (BERA) project. AER-COSIA Wetland Technical Sharing Sessions. Calgary, November 2021.
23. Hird, J.N., J. Kariyeva, and G. J. McDermid. 2020. Forest regeneration from space: leveraging the Landsat archive and Google Earth Engine for a provincial-scale view of post-harvest trends in Alberta, Canada. 41st Canadian Symposium on Remote Sensing.
24. Bash, E., C. Dow, and G.J. McDermid. 2020. Dealing with "too much data": Automated Structure-from-Motion Processing of Time Lapse Imagery at Nùłàdäy Glacier, Yukon, Canada. EGU General Assembly Conference Abstracts, 12949.
25. McDermid, G.J., D.N. Laskin, S.E. Nielsen, S.J. Marshall, D. Roberts, and A. Montaghi. 2019. Flowers to Fruits: A Novel Framework for Predicting Understory Phenology. AGU Fall Meeting Abstracts 2019, B33K-2633.
26. S. Losada, G.J. McDermid, M.M. Rahman, and J. Linke. 2019. Charactering understory structure with multi-band LiDAR data. AGU Fall Meeting Abstracts 2019, B11E-2377.
27. McDermid\*, G.J. and M. Strack 2019. Learning to tread lightly in the boreal forest. University of Calgary “Explore UCalgary” webinar. <https://explore.ucalgary.ca/learning-tread-lightly-boreal-forest>.
28. \*\* McDermid, G.J. 2019. Alberta grizzly bears will feel the effects of climate change. Featured Research Talk. Biogeoscience Institute Open House.
29. McDermid, G.J. and M. Strack. 2019. Methane emissions from oil and gas exploration are under-reported. The Conversation. <https://theconversation.com/methane-emissions-from-oil-and-gas-exploration-are-under-reported-116314>.
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31. Rahman, M.M., G.J. McDermid, J. Linke, G. Lopez-Quiroz, M.F. Wu. 2019. Airborne (manned/unmanned) remote sensing for mapping, monitoring, and recovery analysis of seismic lines in the boreal region of Alberta. 2019 Oil Sands Innovation Summit, Calgary, Alberta.
32. \*\* McDermid, G.J. 2019. The emerging role of UAVs in restoration of seismic lines. Canadian Institute of Forestry Technical Session on UAVs.Edmonton, Alberta.
33. Dietmaier, A., G. Castilla, J. Linke, R. Ludwig, G.J. McDermid, M.M. Rahman, 2019. Comparison of airborne laser scanning and digital stereo imagery for characterizing forest canopy gaps in boreal forests in Alberta, Canada. American Association of Geographers Annual Meeting, Washington, D.C.
34. Wu, M.F., M.M. Rahman, G.J. McDermid, J. Linke, G. Castilla, S. Losada, G. Lopez-Queiroz. 2019. Airborne Remote Sensing Technologies for Coniferous Stocking Assessment on Boreal Seismic Lines. American Association of Geographers Annual Meeting, Washington, D.C.
35. Lopez-Queiroz, G., G.J. McDermid, M.M. Rahman, J. Linke, G. Castilla. 2019. Airborne Remote Sensing of Coarse Woody Debris in Caribou Habitat. American Association of Geographers Annual Meeting, Washington, D.C.
36. G.J. McDermid, J. Lovitt, M.M. Rahman, S. Saraswati, M. Strack, B. Xu. 2019. UAVs Reveal the Effects of Seismic Lines on Surface Morphology, Water Table Position, and Methane Emissions in Boreal Peatlands. American Association of Geographers Annual Meeting, Washington, D.C.
37. M.M. Rahman, G.J. McDermid, M. Strack. 2019. A remote sensing based technique to illustrate changes in the land cover due to construction of roads in boreal peatland. American Association of Geographers Annual Meeting, Washington, D.C.
38. Hird, J.N., J. Kariyeva, G.J. McDermid. 2019. Leveraging open-access Earth observation data streams and web-based cloud computing for the characterization of forest harvest area regeneration in Alberta, Canada. American Association of Geographers Annual Meeting, Washington, D.C.
39. Basran, K., G.J. McDermid, M.M. Rahman. 2019. Mapping Groundwater Table in Alberta’s Boreal Region Using Remote Sensing Techniques. American Association of Geographers Annual Meeting, Washington, D.C.
40. Saraswati, S., M Strack, RM Petrone, MM Rahman, G Mcdermid, B Xu. 2018. Impacts of access road on the hydrological connections of forested boreal peatlands. AGU Fall Meeting, Washington, D.C.
41. \*\* McDermid, G.J., J. Linke, M.M. Rahman, M.F. Wu, G. Castilla, M. Fromm, M. Schubert. 2018. Remote Sensing Tools for Conifer Stocking Assessment on Boreal Seismic Lines. Remote Sensing for Forest Practitioners Conference, Edmonton, Alberta.
42. Castilla, G., M. Filiatrault, M. Gartrell, M.F. Wu, G.J. McDermid. 2018. Estimating the height of conifer seedlings in seismic lines with UAV photogrammetry. ForestSAT 2018, College Park, Maryland.
43. Wu, M.F[[51]](#footnote-52)., G. J. McDermid, J. Linke, M.M. Rahman. 2018. Airborne remote sensing technologies for coniferous stocking assessment on boreal seismic lines. 39th Canadian Symposium on Remote Sensing. Saskatoon, Saskatchewan.
44. Rahman, M.M. and G. J. McDermid. 2018. UAV data processing – a strategy to improve point cloud and orthomosaic by removing shadow. 39th Canadian Symposium on Remote Sensing. Saskatoon, Saskatchewan.
45. McDermid, G.J., J. Lovitt, M.M. Rahman, M. Strack, S. Saraswati, B.Xu. 2018. UAVs Reveal the Effects of Seismic Lines on Surface Morphology, Water Table Position, and Methane Emissions in Boreal Peatlands. 39th Canadian Symposium on Remote Sensing. Saskatoon, Saskatchewan.
46. Castilla, G., M. Filiatrault, M. Gartrell, M.F. Wu, G.J. McDermid. 2018. Estimating the height of conifer seedlings in seismic lines with UAV photogrammetry. 39th Canadian Symposium on Remote Sensing. Saskatoon, Saskatchewan.
47. Saraswati, S., M. Strack, M.M. Rahman, G.J. McDermid, B.Xu. 2018. Comparing access road impacts on boreal peatlands’ hydrological connections between wet and dry years. Joint Meeting of the Canadian Geophysical Union, Canadian Soil Sciences Society, Computational Infrastructure in Geodynamics, Eastern Society of Seismological Society of America, and Canadian Society for Agricultural and Forest Meteorology. Niagara Falls, Ontatio.
48. Strack, M., A. Kostic, J. Lovitt, G.J. McDermid, M.M. Rahman, S. Saraswati, B.Xu. 2018. Impact of Seismic Lines on Boreal Peatland Methane Emissions. Joint Meeting of the Canadian Geophysical Union, Canadian Soil Sciences Society, Computational Infrastructure in Geodynamics, Eastern Society of Seismological Society of America, and Canadian Society for Agricultural and Forest Meteorology. Niagara Falls, Ontatio.
49. \*McDermid, G.J., M.F. Wu, J. Linke, G. Castilla, M. Fromm, M. Schubert. 2018. Remote Sensing Tools for Conifer Stocking Assessment on Boreal Seismic Lines. Canadian Oil Sands Innovation Alliance 2018 Innovation Summit. Calgary, Alberta.
50. \*McDermid, G.J., J. Lovitt, M.M. Rahman, M. Strack, S. Saraswati, B.Xu. 2018. UAVs Reveal the Effects of Seismic Lines on Surface Morphology, Water Table Position, and Methane Emissions in Boreal Peatlands. Canadian Oil Sands Innovation Alliance 2018 Innovation Summit. Calgary, Alberta.
51. He, A., G.J. McDermid, M.M. Rahman, M. Strack, B.Xu. 2018. Allometric equations for estimating the aboveground biomass in a boreal continental fen. Canadian Oil Sands Innovation Alliance 2018 Innovation Summit. Calgary, Alberta.
52. Hird, J.N., E.R. Delancey, G.J. McDermid, J. Kariyeva. 2018. Remote Sensing and shifting geospatial approaches: How new trends and tools are supporting large-area wetland occurrence modeling in Alberta, Canada. Annual Meeting of the Ecological Society of America, New Orleans, Louisiana.
53. Rahman, M.M. and G.J. McDermid. 2018. A new workflow to remove shadow from UAV imagery with a view to improve vegetation structure delineation in a classical bog. Annual Meeting of the Ecological Society of America, New Orleans, Louisiana.
54. He, A., M.M. Rahman, and G.J. McDermid. 2018. Mapping aboveground biomass using unmanned aerial vehicles in a boreal continental peatland. Annual Meeting of the Ecological Society of America, New Orleans, Louisiana.
55. \*\*McDermid, G.J. 2017. Rocky Mountain Grizzly Bears in a Changing World. Association of Public and Land-grant Universities CII Summer Meeting, Kananaskis, Alberta.
56. Strack, M., S. Saraswati, M. Rahman, J. Lovitt, G.J. McDermid, M. Brummell, A. Engering, B. Xu. 2017. Land-use change greenhouse gas emissions related to resource extraction in boreal Canada. Carbon Cycling in Boreal Peatlands and Climate Change II Workshop. Hyytiälä, Finland.
57. McDermid, G.J., B. Else, M.M. Rahman, T. McKeeman, and G. Castilla, 2017: The Role of UAVs in the Early Detection of Mountain Pine Beetle Mortality. Earth Observation Summit 2017, Montreal, Quebec.
58. Hird, J., E. DeLancey, G.J. McDermid, and J. Kariyeva, 2017: Toward the Use of Topographic, RADAR, and Optical Inputs for a Probabilistic Wetland Classification Model in Northeastern Alberta, Canada. Earth Observation Summit 2017, Montreal, Quebec.
59. Chen, S., G.J. McDermid, G. Castilla, and J. Linke, 2017: Estimating Vegetation Parameters on Seismic Lines with UAV-based Point Clouds. Earth Observation Summit 2017, Montreal, Quebec.
60. Rahman, M.M., J. Lovitt, G.J. McDermid, M. Strack and B. Xu, 2017: Mapping Peat Groundwater Table Dynamics using Unmanned Aerial Vehicles and Phorogrammetric Techniques. Earth Observation Summit 2017, Montreal, Quebec.

1. Lovitt, J., M.M. Rahman, G.J. McDermid, M. Strack and B. Xu, 2017: Mapping Micro-Topography of Peatlands within Alberta: Applications for Unmanned Aerial Vehicle (UAV) Technology. Earth Observation Summit 2017, Montreal, Quebec.
2. Eamer, J., G.J. McDermid, and S. Liang, 2017: CloudUAV: a new CANARIE Network-enabled Cloud-based Open-Source Software Platform for UAV Researchers. Earth Observation Summit 2017, Montreal, Quebec.
3. \*McDermid, G.J., S. Chen, C. Feduck, M.F. Wu, J. Hird, T. Tan, S.E. Nielsen, J. Linke, and G. Castilla, 2016: The Role of UAVs in Linear Disturbance Restoration and Monitoring, Contributions from the BERA Project. 11th North American Forest Ecology Workshop, Edmonton, Alberta.
4. Eamer, J., G.J. McDermid, and S. Liang, 2017: CloudUAV: a new CANARIE Network-enabled Cloud-based Open-Source Software Platform for UAV Researchers. 2017 COSIA Oil Sands Innovation Summit, Calgary, Alberta.
5. G.J. McDermid, 2017: Critical remote sensing targets for research and management in the boreal forest. 2017 COSIA Oil Sands Innovation Summit, Calgary, Alberta.
6. \*McDermid, G.J., G. Castilla, S. Liang, E. Bayne, S. Nielsen, and S.E. Franklin, 2016: The Boreal Ecosystem Recovery and Assessment (BERA) Project: Developing Geospatial Tools for Monitoring Vegetation Recovery on Human Disturbance Features in Alberta’s Boreal Forest. 2016 Oil Sand Science Symposium, Calgary, Alberta.
7. Chen, S., G.J. McDermid, G. Castilla, J. Linke, J. Hird, C. Feduck, 2016. Characterizing vegetation structure on anthropogenic features in Alberta’s Boreal Forest with UAVs. Unmanned Systems Canada, Edmonton, Alberta.
8. McDermid, G.J., A. Montaghi, T. McKeeman, G. Quieroz-Lopes, J. Kariyeva, B. Moorman, and S. Nielsen, 2016. The Influence of Atmosphere and Illumination Conditions on the Stability of Photogrammetric Point Clouds from Stereo UAV Imagery. American Association of Geographers Annual Meeting, San Francisco, California.
9. Feduck, C. and G.J. McDermid, 2016. Object oriented classification of high resolution true-color and near-infrared unmanned aerial vehicle imagery. American Association of Geographers Annual Meeting, San Francisco, California.
10. Hird, J., A. Montaghi, G.J. McDermid, A. McIntosh, and J. Kariyeva, 2016. Assessing the Use of Unmanned Aerial Vehicles for Surveying Vegetation Recovery at Reclaimed Wellsites in Canada's Western Boreal Forests. American Association of Geographers Annual Meeting, San Francisco, California.
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2. Blackadder, S., G.J. McDermid, and E. Sexton, 2015. Human modification: concepts, methods, and a call for standard terminology. North America Congress for Conservation Biology, Missoula, Montana.
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# GRANTS AND CONTRACTS

## External Awards

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| --- | --- | --- | --- |
| **Project (Grant Holders)** | **Funding Agency/ Program** | **Funding Amount (Share)** | **Time**  **Period** |
|  |  |  |  |
| Geospatial Tools for Boreal Restoration Supplement | Alberta Innovates/NSERC Alliance - Alberta Innovates Advance Program | $20,000 (100%)  $20,000 (100%) | 2025  2026 |
| Life Cycle Assessment and Remote Monitoring of Emissions of Potential North American LNG Options (Bergerson and McDermid) | New Frontiers in Research Fund - Global | $250,000  $250,000 | 2023  2024 |
| Remote Sensing for Boreal Restoration (McDermid) | NSERC/Discovery | $39,000 (100%)  $39,000 (100%)  $39,000 (100%)  $39,000 (100%)  $39,000 (100%) | 2023  2024  2025  2026  2027 |
| Boreal Ecosystem Recovery and Assessment (BERA) Project Phase 2 (McDermid, Nielsen, Strack, Bayne, and Ketcheson) | NSERC/Alliance (partners Alberta-Pacific Forest Industries, Natural Resources Canada, ConocoPhillips Canada, Cenovus Energy, Alberta Biodiversity Monitoring Institute, and Imperial Oil Resources) | $ 604,734 (30%)  $1,190,889 (30%)  $1,042,198 (30%)  $ 843,317 (30%)  $ 620,863 (30%) | 2020  2021  2022  2023  2024 |
| Quantifying the effect of in situ oil sands development on wetland function: Managing to mitigate impact and optimize reclamation outcomes (Ketcheson, Strack, McDermid) | NSERC/Alliance (partners Imperial Oil resources and Ducks Unlimited Canada) | $212,657 (20%)  $196,922 (20%)  $214,673 (20%)  $140,828 (20%)  $ 64,853 (20%) | 2022  2023  2024  2025  2026 |
| Lightweight Unmanned Aerial Vehicles (UAVs) for Forestry and Ecological Applications (McDermid) | NSERC/Discovery | $33,000 (100%)  $33,000 (100%)  $33,000 (100%)  $33,000 (100%)  $33,000 (100%)  $33,000 (100%)  $33,000 (100%) | 2016  2017  2018  2019  2020  2021  2022 |
| Multi-Institutional Alberta-Bavaria Research Network (ABBY-Net) Operational Funds (McDermid, Bergerson, Mayer) | University of Calgary (Faculties of Arts, Science, and Engineering; and International Office) | $39,000 (33%)  $39,000 (33%)  $39,000 (33%)  $39,000 (33%)  $39,000 (33%) | 2019  2020  2021  2022  2023 |
| Remote Sensing for Biodiversity Monitoring (McDermid) | Alberta Biodiversity Monitoring Institute | $100,182 (100%)  $175,000 (100%)  $144,000 (100%)  $100,000 (100%)  $110,000 (100%)  $120,000 (100%)  $85,000 (100%)  $85,000 (100%)  $85,000 (100%)  $85,000 (100%)  $85,000 (100%)  $85,000 (100%)  $85,000 (100%)  $95,000 (100%)  $95,000 (100%) | 2008  2009  2010  2011  2012  2013  2014  2015  2016  2017  2018  2019  2020  2021  2022 |
| Cloud UAV: A Network Enabled Platform for Unmanned Aerial Vehicles (McDermid) | CANARIE Research Software Program | $200,000 (100%)  $200,000 (100%) | 2016  2017 |
| Geospatial Technologies for Monitoring Vegetation Recovery on Human Disturbance Features in Alberta’s Boreal Forest (McDermid and 5 others) | NSERC/Collaborative Research and Development (industrial partners: Alberta-Pacific Forest Industries, Conoco Phillips, Cenovus, Devon Energy) | $325,997 (20%)  $525,128 (20%)  $552,531 (20%)  $504,577 (20%)  $393,842 (20%) | 2015  2016  2017  2018  2019 |
| Improved construction of roads and pipelines to minimize impact on peatland greenhouse gas emissions (Strack, McDermid, and Xu) | Emissions Reduction Alberta (previously Climate Change and Emissions Management Corporation) and Canadian Oil Sands Alliance (COSIA) | $209,300 (30%)  $184,000 (30%)  $169,000 (30%) | 2015  2016  2017 |
| Multi-Institutional Alberta-Bavaria Research Network (ABBY-Net) Partnership Grant (Nascimento, McDermid, Kienzle, Bergerson) | Alberta Innovates, Technology Futures  University of Calgary International | $201,000 (33%)  $12,000 (100%) | 2012-17  2018 |
| Remote Sensing of Plant Phenophases and Pulsed Ecosystem Dynamics for Wildlife Ecological Applications (McDermid) | NSERC/Discovery | $22,000 (100%)  $22,000 (100%)  $22,000 (100%)  $22,000 (100%)  $22,000 (100%) | 2011  2012  2013  2014  2015 |
| A Landscape Analysis and Monitoring Program for the Crown of the Continent Ecosystem (McDermid and Sexton) | Great Northern Landscape Conservation Cooperative, US National Parks Service, Alberta Environment and Parks, Crown Managers Partnership, Kresge Foundation | $50,000 (100%)  $51,225 (100%)  $85,000 (100%)  $65,000 (100%)  $65,250 (100%)  $65,250 (100%)  $75,250 (100%) | 2010  2011  2012  2013  2014  2015  2016 |
| Full-coverage mapping and updating of habitat characteristics for regional biodiversity monitoring and integrated landscape management (McDermid, Boutin, and Castilla) | NSERC/Collaborative Research and Development (industrial partner: Alberta-Pacific Forest Industries) | $188,434 (100%)  $219,339 (100%)  $192,230 (77%) | 2011  2012  2013 |
| Geo-Expert Training Program (McDermid) | TECTERRA | $20,000 (100%) | 2011 |
| A scenario-planning model to forecast land-use intensification and mitigation measures on Albertan woodland caribou (Marceau, Musiani, McDermid, and Hebblewhite) | GEOIDE, ConocoPhillips, TECTERRA/  GEOIDE Strategic Investment Initiative | $148,000 (20%) | 2011 |
| Mapping the Distribution of Endangered Whitebark and Limber Pine, and Understanding Their Role in Alberta’s High-elevation Ecosystems (McDermid) | Parks Canada; Alberta Sustainable Resource Development; and Alberta Tourism, Parks, and Recreation | $96,000 (100%) | 2010 |
| Remote Sensing of Vegetation and Landscape Dynamics for Wildlife Ecological Applications (McDermid) | NSERC/Discovery | $20,000 (100%) | 2009 |
| Mapping Vegetation and Land Cover in Support of Northern Woodland Caribou Research and Management (McDermid) | Taku River Tlingit First Nations | $12,250 (100%) | 2008 |
| Grizzly Bear/Mountain Pine Beetle Interactions: Remote Sensing Monitoring and Modeling (Wulder, Coops, and McDermid) | Foothills Research Institute | $150,000 (33%)  $150,000 (33%) | 2008  2009 |
| Understanding and Tracking Landscape Change and Animal Health for Effective Management and Conservation of Species at Risk (Franklin and 5 others) | NSERC/Collaborative Research and Development | $226,829 (15%)  $257,593 (15%)  $255,355 (15%)  $253,924 (15%)  $252,924 (15%) | 2006  2007  2008  2009  2010 |
| Grizzly Bear Habitat Mapping (Stenhouse and 7 others) | Alberta Innovation and Science/Unleashing Innovation | $700,000 (15%)  $700,000 (15%) | 2006  2007 |
| Montane Bioregion Landcover Mapping (McDermid) | Parks Canada | $75,000 (100%)  $25,000 (100%) | 2005  2006 |

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## Internal Awards

|  |  |  |  |
| --- | --- | --- | --- |
| **Project/Grant Holders** | **Funding Agency/ Program** | **Total**  **Amount** | **Time**  **Period** |
| University of Calgary International Activity Grant | University of Calgary International | $12,500 (100%) | 2017 |
| Eyes High Postdoctoral Scholars Program (McDermid) | University of Calgary | $100,000 (100%) | 2013-14 |
| Establishing a Multi-Disciplinary Field School in the British Virgin Islands (McDermid, Moorman, Longair) | University of Calgary International, UofC Faculty of Arts, UofC Department of Geography, UofC Department of Biological Sciences | $11,000 (100%) | 2012 |
| New Faculty Start Up (McDermid) | Faculty of Social Sciences | $33,000  $15,000 | 2005  2006 |

## Consulting

Newfoundland Department of Environment and Conservation

Crown Managers Partnership

Alberta Research Council

Alberta Tourism, Parks, Recreation, and Culture

Canadian Forest Service

Foothills Model Forest

Parks Canada

# ACADEMIC AND PROFESSIONAL ACTIVITIES

## Membership in Professional Organizations

Society for Ecological Restoration

American Geophysical Union

American Association of Geographers

Canadian Remote Sensing Society

American Society for Photogrammetry and Remote Sensing

## Executive Responsibilities

Alberta-Bavaria Research Network (ABBY-Net) Academic Board, 2011-2024

Alberta Human Footprint Monitoring Program Steering Committee, 2014-2016

Crown Managers Partnership Steering Committee, 2013-2016

Canadian Remote Sensing Society Regional Chair, Prairies, 2010-2014

## Conference and Workshop Responsibilities

Organizer and Chair, Boreal Ecosystem Recovery and Assessment (BERA) Project Annual Workshop, Calgary, Alberta, 2024

Organizer and Chair, Boreal Ecosystem Recovery and Assessment (BERA) Project Stakeholder Engagement Workshop, Edmonton, Alberta, 2023

Convener, Carbon Cycling, Ecosystem Functioning, and Restoration in Global Peatlands. AGU 2023 – Annual Meeting of the American Geophysical Union, San Francisco, California.

Symposium Co-Organizer and Session Chair, Restoration Assessment and Monitoring for Seismic Line Recovery in Alberta's Boreal Forest. RE3 Conference – Reclaim, Restore, Rewild. Society for Ecological Restoration and the Canadian Land Reclamation Association, Quebec City, Quebec, 2023.

Organizer and Chair, Boreal Ecosystem Recovery and Assessment (BERA) Project Stakeholder Engagement Workshop, Calgary, Alberta, 2022

Organizer and Chair, Boreal Ecosystem Recovery and Assessment (BERA) Project Final Synthesis Workshop, Calgary, Alberta, 2020

Organizer and Chair, Boreal Ecosystem Recovery and Assessment (BERA) Project Annual Workshop, Calgary, Alberta, 2018

Session Chair, Earth Observation Summit, Montreal, Quebec, 2017

Scientific Committee, MultiTemp 2017: 9th International Workshop on the Analysis of Multi-Temporal Remote Sensing Images, Brussels, Belgium, 2017

Organizer and Chair, Boreal Ecosystem Recovery and Assessment (BERA) Project Annual Workshop, Edmonton, Alberta, 2017

Organizer and Chair, Boreal Ecosystem Recovery and Assessment (BERA) Project Annual Workshop, Edmonton, Alberta, 2016

Scientific Committee, IEEE Geoscience and Remote Sensing Society (IGARSS) 2015 International Remote Sensing Symposium, Milan, Italy 2015

Scientific Committee, MultiTemp 2015: 8th International Workshop on the Analysis of Multi-Temporal Remote Sensing Images, Annecy, France, 2015

Organizer and Chair, Boreal Ecosystem Recovery and Assessment (BERA) Project Annual Workshop, Calgary, Alberta, 2015

Organizer and Co-Chair, Alberta-Bavaria Research Network (ABBY-Net) Summer School, Kananaskis, Alberta, 2014

Co-Organizer and Chair, Technical Program and Science Committees, Multi-Temp 2013: 7th International Conference on the Analysis of Multi-Temporal Remote Sensing Images, Banff, Alberta, 2013

Session Chair, MultiTemp 2013: 7th International Conference on the Analysis of Multi-Temporal Remote Sensing Images, Banff, Alberta, 2013

Co-Organizer, Alberta-Bavaria Research Network (ABBY-Net) Summer School, Kloster Banz, Germany, 2013

Panelist, Large Landscapes: Working Across Boundaries, 2013 Crown Managers Forum, Cranbrook, British Columbia, 2013

Organizer and Co-Chair, Alberta-Bavaria Research Network (ABBY-Net) Summer School, Kananaskis, Alberta, 2012

Organizer and Chair, Remote Sensing for Oil Sands Monitoring Workshop, Calgary, Alberta, 2011

Organizer and Chair, New Approaches for Mapping and Monitoring Landcover and Biodiversity Workshop, Edmonton, Alberta, 2011

Organizer and Chair, Integrated Wildlife Ecology Network Workshop, Calgary, Alberta, 2011

Scientific Committee, GEOBIA Conference, Calgary, Alberta, 2008

Session Chair, ASPRS Annual Conference, Tampa, Florida, 2007

Organizer, Foothills Model Forest Grizzly Bear Research Project Partner Meeting, 2006

Session Chair, ASPRS Annual Conference, Reno, Nevada, 2006

Panelist, Canadian Institute of Foresters/Society of American Foresters, 2006

Session Chair, ASPRS Annual Conference, Kansas City, Missouri, 2004

## Peer Review

Remote Sensing

Forests

Oxford University Press

IEEE Journal of Selected Topics in Applied Earth Observation and Remote Sensing

Natural Sciences and Engineering Research Council of Canada

International Journal of Remote Sensing

Canadian Journal of Remote Sensing

Remote Sensing of Environment

Photogrammetric Engineering and Remote Sensing

Journal of Geographical Systems

Global Change Biology

Landscape and Urban Planning

Cartographica

Science of the Total Environment

## Editorial

Guest Editor, IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, Special Issue on Mutli-Temporal Image Analysis, 2014

Proceedings Editor, IEEE Xplore - Proceedings on MultiTemp 2013: 7th International Workshop on the Analysis of Multi-temporal Remote Sensing Images, 2013

## Academic Service

Faculty Tenure and Promotion Committee, Faculty of Arts, 2023-2025

Regional Industry Caribou Collaboration Technical Advisory Committee Member, 2023

NSERC Discovery Grants Evaluation Committee – Geosciences 2020-2022

Graduate Program Director, Geography, 2015-2020

Graduate Program Committee 2007-2010, 2014-2015, 2015-2020 (Chair)

Graduate Curriculum and Academic Review Committee, Faculty of Arts, 2015-2020

Graduate Studies Council, Faculty of Graduate Studies, 2015-2020

MGIS Renewal Committee, Geography, 2017-2018 (Chair)

Unit Review Committee, Department of Geography, 2015-2017

Eyes High Strategic Vision Committee: New Earth-Space Technologies, University of Calgary, 2014-2016

Infrastructure and Planning Committee, Department of Geography, 2014-2015 (Chair)

Faculty Tenure and Promotion Committee, Faculty of Arts, 2014-2015

IT Committee, Department of Geography, 2009-2011; 2013-2014, (Chair)

Student Academic Appeals Committee, Faculty of Arts, 2006-2008, 2014

Graduate Scholarship Committee, Faculty of Graduate Studies, 2007-2010, 2012-2013

Undergraduate Curriculum Re-design Workshop, Department of Geography, 2010 (Workshop Organizer and Chair)

Department Conference Committee, Department of Geography, 2009

IT Committee, Department of Geography, 2005-2009

MGIS Steering Committee, Department of Geography, 2005-2008

Library Committee, Department of Geography, 2005-2007

Search Committees:

Transdisciplinary Environmental Communication Faculty Hire, 2024

Geography Faculty Hire, 2015

Maps, Academic Data, Geographic Information Centre Unit Head, 2008

Geography Remote Sensing Technician, 2008

Geography IT Technician, 2007

1. NSERC CGS Scholar [↑](#footnote-ref-2)
2. NSERC CGS Scholar [↑](#footnote-ref-3)
3. NSERC Queen Elizabeth II Scholar [↑](#footnote-ref-4)
4. Governor General’s Gold Medal Award Winner [↑](#footnote-ref-5)
5. Chancellor’s Graduate Medal Winner [↑](#footnote-ref-6)
6. NSERC Queen Elizabeth II Scholar [↑](#footnote-ref-7)
7. Alberta Innovates-Technology Futures Scholar [↑](#footnote-ref-8)
8. NSERC Alexander Graham Bell Scholar [↑](#footnote-ref-9)
9. Vanier Canada Scholar [↑](#footnote-ref-10)
10. Alberta Ingenuity / Alberta Innovates, Technology Futures Scholar [↑](#footnote-ref-11)
11. Canadian Remote Sensing Society Best PhD Thesis Award, 2017 [↑](#footnote-ref-12)
12. NSERC Post Graduate (PGS) Scholar [↑](#footnote-ref-13)
13. Alberta-Bavaria Research Network (ABBY-NET) student from Ludwig-Maximilians-Universität München [↑](#footnote-ref-14)
14. Alberta-Bavaria Research Network (ABBY-NET) student from Ludwig-Maximilians-Universität München [↑](#footnote-ref-15)
15. NSERC Post Graduate (PGS) Scholar [↑](#footnote-ref-16)
16. Alberta Ingenuity / Alberta Innovates, Technology Futures Scholar [↑](#footnote-ref-17)
17. Canadian Remote Sensing Society Best PhD Thesis Award, 2010 [↑](#footnote-ref-18)
18. NSERC Post Graduate (PGS) Scholar [↑](#footnote-ref-19)
19. Alberta Ingenuity / Alberta Innovates, Technology Futures Scholar [↑](#footnote-ref-20)
20. Eyes High Postdoctoral Fellow [↑](#footnote-ref-21)
21. BERA (Boreal Ecosystem Recovery and Assessment) is an NSERC-funded Alliance project [↑](#footnote-ref-22)
22. BERA (Boreal Ecosystem Recovery and Assessment) is an NSERC-funded Alliance project [↑](#footnote-ref-23)
23. CloudUAV is a CANARIE-funded Research Software Development project [↑](#footnote-ref-24)
24. Eyes High Postdoctoral Fellow [↑](#footnote-ref-25)
25. Mitacs GlobaLink Scholar [↑](#footnote-ref-26)
26. Mitacs GlobaLink Scholar [↑](#footnote-ref-27)
27. Mitacs GlobaLink Scholar [↑](#footnote-ref-28)
28. Mitacs GlobaLink Scholar [↑](#footnote-ref-29)
29. Mitacs GlobaLink Scholar [↑](#footnote-ref-30)
30. Mitacs GlobaLink Scholar [↑](#footnote-ref-31)
31. Mitacs GlobaLink Scholar [↑](#footnote-ref-32)
32. Science Without Borders Scholar [↑](#footnote-ref-33)
33. Mitacs GlobaLink Scholar [↑](#footnote-ref-34)
34. Science Without Borders Scholar [↑](#footnote-ref-35)
35. Science Without Borders Scholar [↑](#footnote-ref-36)
36. Emerging Leaders in the Americas Scholar [↑](#footnote-ref-37)
37. NSERC Undergraduate Student Research Award Scholar [↑](#footnote-ref-38)
38. NSERC Undergraduate Student Research Award Scholar [↑](#footnote-ref-39)
39. NSERC Undergraduate Student Research Award Scholar [↑](#footnote-ref-40)
40. University of Calgary Program for Undergraduate Research Experience (PURE) Scholar [↑](#footnote-ref-41)
41. University of Calgary Program for Undergraduate Research Experience (PURE) Scholar [↑](#footnote-ref-42)
42. NSERC Undergraduate Student Research Award Scholar [↑](#footnote-ref-43)
43. University of Calgary Program for Undergraduate Research Experience (PURE) Scholar [↑](#footnote-ref-44)
44. NSERC Undergraduate Student Research Award Scholar [↑](#footnote-ref-45)
45. NSERC Undergraduate Student Research Award Scholar [↑](#footnote-ref-46)
46. ERDAS Best Scientific Paper in Remote Sensing (3rd place), 2010 [↑](#footnote-ref-47)
47. Best Student Presentation Award [↑](#footnote-ref-48)
48. Outstanding Student Presentation Award (OSPA) [↑](#footnote-ref-49)
49. Second Place, Best Student Oral Presentation [↑](#footnote-ref-50)
50. Winner, Melissa Berger Prize for Best Student Oral Presentation [↑](#footnote-ref-51)
51. 3rd Place, Best Student Presentation [↑](#footnote-ref-52)
52. Winner, Best Student Paper/Presentation [↑](#footnote-ref-53)
53. Winner, Best Student Paper/Presentation [↑](#footnote-ref-54)
54. Winner, Best Student Paper/Presentation [↑](#footnote-ref-55)