

**CURRICULUM VITAE OF STEPHEN DAVID MURPHY, BSc., PhD.**

Professor and Chair, [Department of Environment and Resource Studies \(ERS\)](#),  
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Editor-In-Chief, [Restoration Ecology](#)  
Director, [Centre for Ecosystem Resilience & Adaptation \(ERA\)](#)  
Chair, [Centre for Applied Science in Ontario Protected Areas \(CASIOPA\)](#)  
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**HONOURS:**

- Teaching Award, Faculty of Environment, 2012
- Fellow, Restoration Institute, 2007-present
- Meritorious Service Award, Society for Ecological Restoration, 2001; 2013
- Teaching Award, Queen's University, 1990, 1991, 1992
- Gowan II Prize for Plant Taxonomy, Queen's University, 1988

**SCHOLARLY AND PROFESSIONAL ACTIVITIES:**

- 2014- Editor in Chief, Restoration Ecology
- 2010- Multi-Stakeholder Advisory Committee, Office of the Environment Commissioner of Ontario
- 2009-2010 Interim Director, University of Waterloo - Huntsville, Summit Centre for the Environment
- 2009- Director Waterloo Centre for Ecosystem Resilience and Adaptation
- 2009- Member, Ontario Weed Committee
- 2009- Board, Canadian Weed Committee / Canadian Weed Science Society
- 2008- Chair, Centre for Applied Science in Protected Areas of Ontario
- 2008-2014 Associate Editor, Restoration Ecology
- 2007- Board Ontario Terrestrial Invasive Plant Council (Research/Control Chair until 2009)
- 2006- Advisory Group, Parks Canada, National Ecological Restoration Strategy Plan
- 2006-2008 Chair, Parks Research Forum of Ontario
- 2006-2014 Associate Editor, Weed Science

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- 2006-2009 North American Regional Editor, Allelopathy Journal
- 2006-2009 Advisory Group, Sir Sandford Fleming/Trent Ecological Restoration Program
- 2006-2009 Technical Advisory, Ontario Ministry of Natural Resources Oak Ridges Moraine
- 2005-2011 Chair, Society for Ecological Restoration (Ontario Chapter)
- 2004-2011 Advisory Group, Canadian Invasive Species Strategy
- 2004-2011 Vice-Chair, Heritage Resources Center (University of Waterloo)
- 2004-2014 Editor, Journal of Food, Agriculture and Environment
- 2004-2005 Co-Chair, Parks and Protected Areas Research Forum of Ontario
- 2004-2005 Vice-Chair, Society for Ecological Restoration (Ontario Chapter)
- 2003- Board, Centre for Core Area Research and Design (University of Waterloo)
- 2002- Co-Director of Research of “rare” – a Research Reserve in Cambridge ON
- 2001 Program Chair, Society for Ecological Restoration International Conference 2001- Assessor for Ontario Postsecondary Education Quality Assessment Board
- 2000- Reviewer for 74 peer reviewed journals and all major granting agencies in the USA, Canada, European Union, Japan and the United Nations.

### **RESEARCH CONTRIBUTIONS (bold = HQP; 2nd author = 50% of effort; 3rd author+ = < 33% of effort).**

#### *Lifetime Count*

- Books authored: 4
- Books edited: 2
- Chapters in (refereed) books: 34
- Papers in refereed journals: 92
- Papers in refereed conference proceedings: 189
- Technical and consulting reports: 462
- Abstracts and /or papers read: 347
- Other (workshops presented): 203

#### *Detailed refereed publications in journals (last 6 years); endnote omitted if no funding support existed*

- Murphy S. 2015. Fidelity begets death in restoration ecology. Restoration Ecology 23:In press.
- Murphy S. 2015. Rethinking restoration ecology. Restoration Ecology 23:In press. (NSERC-SPG).
- **Parker, S.** Truscott J, Harpur C, Murphy S. 2015. Exploring a resilience-based approach to spatial planning in Fathom Five National Marine Park, Lake Huron, Canada, using Marxan with zones . Natural Areas Journal 35:In press. (Parks Canada)
- **Parker, S.** Truscott J, Harpur C, Murphy S. 2015. Monitoring for resilience within the coastal wetland fish assemblages of Fathom Five National Marine Park, Lake Huron, Canada. Natural Areas Journal 35:In Press. (Parks Canada)
- **Cray H,** Pollard W, Murphy S. 2015. Succession in tundra landscapes and its implications for polar restoration efforts: case study of Herschel Island, YT, Canada. GeoQuebec: In press. (NSERC-SPG)
- **Bhattacharyya J,** Murphy S. 2015. Assessing the role of free-roaming horses in a social–ecological system. Environmental Management 10.1007/s00267-015-0508-y (SSHRC-Insight)

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- Hobbs, RJ, et al. 2014. Managing the whole landscape: historical, hybrid and novel ecosystems. *Frontiers in Ecology and Environment* 12:557-564. (NSERC-CRD)
- **McGrath D**, Murphy S. 2013. Enhancing biodiversity by restoring wetland vegetation communities in irrigation ponds. *Journal of Biodiversity Management & Forestry* 2:1-8. (Ag Canada)
- **Parker SJ**, Murphy SD. 2013. Resilience in a Protected Area: Prospects for Fathom Five National Marine Park, Lake Huron, Canada. *The George Wright Forum* 30:50-66. (Parks Canada)
- **McGrath D**, Murphy S. 2012. Double-crested cormorant (*Phalacrocorax auritus*) nesting effects on understory composition and diversity on island ecosystems in Lake Erie. *Environmental Management* 50:304-314. (Parks Canada)
- **Yates CN**, Wootton, BC, Murphy SD. 2012. Performance assessment of arctic tundra municipal wastewater treatment wetlands through an arctic summer. *Ecological Engineering* 44:160–173. (funder CFI to Murphy; Environment Canada to Wootton)
- **Gaudreau K**, Fraser R, Murphy S. 2012. The characteristics of the exergy reference environment and its implications for sustainability-based decision-making. *Energies* 5:2197-2213 (CFI)
- **McAllister C**, Lewis J, Murphy SD. 2012. The green grass grew all around: Rethinking urban natural spaces with children in mind. *Children, Youth and Environments* 22:164-193.
- **Bhattacharyya J**, Slocombe S., Murphy S. 2011. The “Wild” or “Feral” Distraction: Effects of Cultural Understandings on Management Controversy Over Free-Ranging Horses (*Equus ferus caballus*). *Human Ecology*. DOI: 10.1007/s10745-011-9416-9. (SSHRC-Insight)
- **Gaudreau K**, Fraser R, Murphy S. 2010. The tenuous use of exergy as a measure of resource value or waste impact. *Sustainability* 1:1444-1463 (NSERC-Discovery via Fraser; CRD via Murphy)
- Murphy SD, **Sherr I**, **Bullock C**. 2009. Testing for allelopathic pollen in Brassicaceae: A comparison of two species invasive in Canada (*Alliaria petiolata* and *Hesperis matronalis*). *Allelopathy Journal* 23: 21-37. (CFI/ORDCF)
- Murphy SD, **Flegel S**, **Smedes J**, **Finney N**, **Zhang B**, **Walton K**, **Henstra S**. 2009. The mechanism of allelopathy in *Hieracium x dutillyanum* Lepage & its ecological impacts. *Allelopathy Journal* 23: 38-48. (CFI/ORDCF)
- Arya N, Waltner-Toews D, Rapport D, Murphy S, McAllister ML, Last J. 2009. Time for an ecosystem approach to public health? *Global Public Health* 4:1-9.

*Refereed books, and chapters in books; followed by a gap that portends refereed conference proceedings (there are another 73 proceedings in years 3-6 that cannot fit the length restrictions).*

- Allison S, Murphy SD. In press. *Advanced Practices in Restoration Ecology*, Routledge. 391 pp.
- Falk D, Nelson C, Higgs E, Murphy SD. In press. *Changing Restoration Ecology*, Sinauer. 378 pp.
- Murphy SD. 2013. Perspective: Plus ça change, plus c’est la même chose. Pages 150-151 in Hobbs R, Higgs E, Hall C (eds.). *Novel Ecosystems: Intervening in the New Ecological World Order*, Wiley.
- Murphy SD. 2013. The management framework in practice – making decisions in Atlantic Canadian meadows: Chasing the elusive reference state. Pages 172-175 in Hobbs R, Higgs E, Hall C (eds.). *Novel Ecosystems: Intervening in the New Ecological World Order*, Wiley.
- Murphy SD. 2013. The management framework in practice – designer wetlands as novel ecosystems. Pages 189-191 in Hobbs R, Higgs E, Hall C (eds.). *Novel Ecosystems: Intervening in the New Ecological World Order*, Wiley.

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- **Hallett LM**, Standish RJ, **Hulvey KB**, Gardener MR, Suding KN, Starzomski BM, Murphy SD, Harris JA. 2013. Towards a conceptual framework for novel ecosystems. Pages 16-28 in Hobbs R, Higgs E, Hall C (eds.). *Novel Ecosystems: Intervening in the New Ecological World Order*, Wiley.
- **Hulvey KB** Standish RJ **Hallett LM**, Starzomski BM, Murphy SD, Nelson CR, Gardener MR, Kennedy PL, Seastedt TR, Suding KN. 2013. Incorporating novel ecosystems into management frameworks. Pages 157-171 in Hobbs R, Higgs E, Hall C (eds.). *Novel Ecosystems: Intervening in the New Ecological World Order*, Wiley.
- Harris JA, Murphy SD, Nelson CR, Perring M, Tognetti P. 2013. Characterizing novel ecosystems: challenges for measurement. Pages 192-204 in Hobbs R, Higgs E, Hall C (eds.). *Novel Ecosystems: Intervening in the New Ecological World Order*, Wiley.
- Standish RJ, Thompson A, Higgs ES, Murphy SD. 2013. Concerns about novel ecosystems. Pages 296-309 in Hobbs R, Higgs E, Hall C (eds.). *Novel Ecosystems: Intervening in the New Ecological World Order*, Wiley.
- **Yates CN**, Wootton BC, Murphy SD, Jørgensen SE. 2012. Performance Testing of a Pilot Scale HSSF wetland in the Canadian Arctic. Pages 189-206 in Jørgensen SE, Chang N-B, Fuliu X (eds). *Advances in the Ecological Modelling and Ecological Engineering applied on Lakes and Wetlands*. Elsevier. (Environment Canada/Canadian Wildlife Service)
- **Yates CN**, Wootton BC, Jørgensen S, Murphy SD. 2012. Use of Wetlands for Wastewater Treatment in Arctic Regions. Pages 198-201 in Jørgensen S. (ed). *Encyclopedia of Environmental Management*. Taylor & Francis. (Environment Canada/Canadian Wildlife Service)
- Murphy SD 2012 Restoration processes for protected areas. Pages 51-70. In Keenleyside K, Dudley N, Cairns S, Hall C, Stolton S (eds). *Ecological Restoration for Protected Areas: Principles, Guidelines, and Best Practices*. IUCN/WCPA Geneva Switzerland. (Parks Canada)
- Murphy SD. The planning of ecological restoration projects. 2011. Pages 242-261 In: Greippson, S (ed.) *Restoration Ecology*. Kluwer Press.
- Booth B, Murphy SD, Swanton CJ. 2009. *Invasive species ecology*. CABI/Oxford University Press.

### *Refereed Conference Presentations.*

- **Cray HA, M.J.M. McTavish**, S.D. Murphy. 2015. Creating tallgrass prairie from retired cropland: Initial results.
- Murphy S. 2015. Managing for the forest not the trees: beyond the vertices of historical, hybrid, and novel.
- **McTavish MJM. H.A. Cray**, S.D. Murphy. 2015. Learning to live with belowground novelty: Integrating exotic earthworms into the restoration of abandoned agricultural lands.
- Murphy SD. 2015. Adding insult to injury: resilient but undesirable ecosystems are created by poor land use decisions & an ice storm.
- **Novacic A**, S. Murphy, D. McGrath. 2015. Examining best management practices for roadside ecological restoration through seed mix germination rates in fine textured soils.
- **Watkins D**, S.D. Murphy. 2015. Towards improved social and ecological urban resilience, via assessment of plant community nutrient. density in protected areas in Kitchener, Ontario.
- **Huynh P**, S. Murphy, S Courtenay. 2015. Assessing the efficacy of livestock restriction in rural creeks of the Grand River watershed to improve water quality.

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- Murphy SD, V Amaral. 2015. Getting published in Restoration Ecology: A workshop for students and early career professionals.
- Hughes M, SD Murphy, E Higgs. 2015. Teaching restoration: global perspectives to local outcomes.
- Murphy SD, **Cray H, Parker S, Balsdon J, McGrath D, Rayome D, McTavish M, Moores K, McLeod K, Govers G, Crosby J, Lukey N, Yates C, Bhattacharyya J, Ashpole S.** 2014. Regime changes, resilience, and restoration: No reverse gear. Conference on Ecological and Ecosystem Restoration New Orleans LA. Invited.
- **McTavish M**, Murphy SD. 2014. Impacts of exotic earthworms on plant communities: implications for restoration and invasive species management. Conference on Ecological and Ecosystem Restoration New Orleans LA.
- **Govers G**, Smith MA, Murphy SD. 2014. Bloodroot (*Sanguinaria canadensis*) as a deterrent to the spread of invasive garlic mustard (*Alliaria petiolata*). Conference on Ecological and Ecosystem Restoration New Orleans LA.
- **Moores KD**, Murphy SD. 2014. Forest health based scenario building as an accessible tool for climate change management in Bruce Peninsula National Park. Conference on Ecological and Ecosystem Restoration New Orleans LA.
- **Cray H**, Pollard WH, Murphy SD. 2014. Succession in tundra landscapes and its implications for polar restoration efforts: case study of Herschel Island, YT, Canada. Conference on Ecological and Ecosystem Restoration New Orleans LA.
- **Rayome DD**, Murphy SD, Harris JA, Rooney R, McAllister ML. 2014. Novel ecosystem management strategies in Borneo. Conference on Ecological and Ecosystem Restoration New Orleans LA.
- Murphy SD, **Cray H, McLeod K.** 2014. Hitching a ride: When restoring habitats bring unexpected conservation benefits. North American Congress on Conservation Biology Missoula MT. Invited.
- **McTavish M**, Murphy SD, Smith SA. 2014. Assessing impacts of exotic earthworms on garlic mustard. 10th International Symposium on Earthworm Ecology, Athens GA.
- **McTavish M**, Murphy SD, Smith SA. 2014. Should exotic earthworms be managed as part of novel ecosystems? Terrestrial Invasive Plants Symposium. Toronto, ON.
- **Govers G**, Murphy SD, Smith MA. 2014. How spring ephemerals interact with invasive ants. Terrestrial Invasive Plants Symposium. Toronto, ON.
- Murphy SD. 2013. The future of restoration ecology: Novel ecosystems. Closing plenary. Society for Ecological Restoration Conference Madison WI. Invited.
- Murphy SD, Nelson CR, Suding K, Hobbs R, Harris J, Falk D. 2013. Rethinking ecological and social resilience. Keynote. Society for Ecological Restoration Conference Madison WI. Invited.
- Murphy SD. 2013. Novel ecosystems in practice: Atlantic Canadian meadows. Invited symposium. Society for Ecological Restoration Conference Madison WI.
- **McLeod K**, Murphy SD. 2013. Native bee diversity and pollination function in restored wet meadows. Society for Ecological Restoration Conference Madison WI. Invited.
- **McTavish M**, Murphy SD. 2013. Interactions of garlic mustard (*Alliaria petiolata*) with the common nightcrawler earthworm (*Lumbricus terrestris*): Predicting the susceptibility of forest ecosystems to invasion. Society for Ecological Restoration Conference Madison WI. Invited.
- **Govers G**, Murphy SD. 2013. Bloodroot (*Sanguinaria canadensis*) as a deterrent to garlic mustard (*Alliaria petiolata*) invasion in deciduous forests. Society for Ecological Restoration Conference Madison WI. Invited.

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- **Moore K**, Murphy SD. 2013. Using scenario building to assess the needs for ecological restoration in protected areas under a changing climate: A case study at Bruce Peninsula National Park. Society for Ecological Restoration Conference Madison WI. Invited.
- **Balsdon J**, Murphy SD. 2013. Meadow restoration on former agriculture land in southwestern Ontario, Canada. Society for Ecological Restoration Conference Madison WI. Invited.
- **Harrington A**, Murphy SD. 2013. An inventory and recommendations for management of invasive alien plants in Point Pelee National Park. Society for Ecological Restoration Conference Madison WI.
- **Richardson P**, Murphy SD. 2013. Determining the timespan and ecological conditions necessary for afforested farmlands to function like old-growth forests. Ecological Society of America Conference, Minneapolis MN.
- **Roulston H**, Murphy SD. 2013. Large mammal management in Algonquin Provincial Park: relation to logging road ecology. International Conference on Ecology and Transportation. Phoenix AZ.
- Murphy SD. 2012. Ecological and Environmental Impacts of Invasives: Measuring Effect Size Can Reveal When Not to Act. Terrestrial Invasive Plant Workshop. Sault Ste Marie ON.
- Nelson CR, Murphy S, Harris J, Hulvey K, Hallett L, Starzomski B, Tognetti P. 2012. Novel Ecosystems: Role of Function and History. Society for Ecological Restoration European Congress. Prague, Czech Republic. (Parks Canada)
- Myers J, Murphy S, Yan N, Smith A. 2012. Managing Northward-Bound Species: Which Will Become Invasive? AAAS. Vancouver BC.
- **Ashpole S**, Bishop C, Murphy SD. 2012. Cumulative effects on wetland landscapes: Can we reconnect amphibian habitat through small pond creation on private land? World Congress of Herpetology. Vancouver BC. (Canadian Wildlife Service)
- **Kastner M**, Murphy SD. 2012. Testing the relative role of biochar in meadow restoration. Natural Areas Association Conference. Norfolk, VA.
- **Basdeo M**, Murphy SD. 2012. Hunting and Conservation: Navigating the Social Landscape. National Fish and Wildlife Conservation Congress. Ottawa ON. (Canadian Wildlife Service)
- **Crosby JE, Ashpole SL**, Murphy SD, Persello B 2012. Investigating road permeability strategies and amphibian movement within British Columbia's South Okanagan: A landscape level approach. World Congress of Herpetology. Vancouver, BC. (Canadian Wildlife Service)
- **Lukey N, Ashpole S**, Cunnington D, Govindarajulu P, Murphy S. 2012. Where do we go from here? Long-term, Adaptive Management of Invasive American Bullfrogs (*Lithobates catesbeiana*) in the South Okanagan Valley, British Columbia. World Congress of Herpetology. Vancouver, BC.
- **Balsdon JL**, Murphy SD. 2012. Restoration of abandoned agriculture fields into native meadows in southern Ontario. Northeast Natural History Conference. Syracuse NY. (ON Min Nat Res)
- **Lukey NL, Ashpole SL**, Murphy SD, Govindarajulu, PP. 2011. Adaptive Management of Invasive American Bullfrogs (*Rana catesbeiana*) in the South Okanagan Valley, Canada. Proceedings of The Society of Environmental Toxicology and Chemistry Annual Meeting, Boston MA.
- **Yates C**, Wootton B, Jørgensen SE, Santiago V, Murphy S. 2010. Natural Wetlands for Treating Municipal Wastewater in the Canadian Arctic: A Case Study of the Chesterfield Inlet, Nunavut Wetland. 12th International Conference on Wetland Systems for Water Pollution Control, Venice, Italy. (Environment Canada)

## **SUMMARY OF MAJOR RESEARCH CONTRIBUTIONS**

**Contributions to the Training of Highly Qualified Personnel (HQP).** At the risk of being supercilious, my record speaks for itself. In 19 years, I have trained 132 Master's, 33 Doctoral, 5 PDF and 312 4th year students in direct thesis supervision. The last number does reflect a mandatory thesis requirement but my lab group attracts HQP. All students who have graduated are all employed in the ecological field (67% private industry, 21% NGO, 13% government) with 3 on mat leave as of now. HQP mentoring is one of the main roles of a professor and the evidence suggests that I deliver.

**Most Significant Contributions.** My work has evolved and broadened as my career has progressed from pollination through to work with weed communities and thence to management of invasive species especially in the context of restoration ecology and further into socio-ecological approaches to restoration and novel ecosystems. Despite my administrative role as Department Chair, my work has progressed apace as I have most recently focused on new measures of impacts on ecosystems and novel ecosystems (all of my 2010-2012 papers listed below; the biggest impact ones will be from the Hobbs et al. Novel Ecosystems book - I was one of the more prolific authors therein because the editors trusted my writing and insight). I have been working more fully in the ecological assessment of terrestrial, aquatic, and riparian ecosystems - whereas I had been more terrestrially focused previously. I have been engaged in advancing measures for aquatic ecology that allow for cross-comparisons of ecosystem function and restoration success (linked to Ecological Land Classification, Ontario Benthos Bio-monitoring Network, and the Ontario Stream Assessment Protocol). My substantial lab group - both in numbers of students (over 140 HQP in the last 6 years) and impact - led to the numerous conference invitations and leadership roles in professional societies. I would be less visible without this team though I think I am justified in claiming credit for creating and leading the team.

None of this is not a radical shift from my previous work in the sense that I was interested in cross-scalar phenomena that focused on better management of ecosystems – the agroecosystem and ecological restoration approaches. They tie in well with my early professorial career developing applied approaches to using the new ideas coming from my collaboration with Clarence Swanton in the service of the developing field of ecological restoration. This required long-term experiments but it was been worth it as the weed management and soil management approaches from agriculture have made restoration ecology more systematic, replicable (in spite of environmental variation) and successful. I have concentrated on the practical applications first because so many habitats and ecosystems are threatened it is risky and perhaps foolish not to mitigate damage through restoration practice. The disadvantage is that one risks having these applications becoming isolated case-studies – although there are general implications that may be drawn even from a series of different cases. This approach did cause people to take some notice of my 2nd major group of contributions - especially in a 2005 paper in *Restoration Ecology* (13:584-593) and a series of papers in *Weed Science* (1997 45:120-126; 488-496; 684-690 and 1999 47:147-155; 184-194; 551-556). Another capstone product was the Booth et al. book (both editions - 2003 and the 2009 one listed herein). The impact there was reflected in census statistics like the increased use of no-tillage in Ontario (rising from 15% of all cash crop farms in 1993 to 60% by 2000 largely because of role in that area of research and application). My focus on weedy and invasive species that arose initially from this period also led to recognition of

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my work, e.g. I am expert panels, most recently the new Ontario Council on Terrestrial Invasive Species. I also am an Associate Editor of Weed Science – arguably the most important peer reviewed journal in this field.

These experiences combined with the influence of my 3rd major group of contributions on pollination (New Phytol 112:295-305; Can J Bot 73:1417-1422; Am J Bot 82:37-45; 83:1168-1174; Int J Plant Sci 156 425-434; 435–444; Ecoscience 3:205-210) led to a reputation as a scientist who fused (successfully) different sub-fields and led to a major role in the Canadian Pollination Network as a team leader (the publications are forthcoming in 2013). It also led to my roles in the Society for Ecological Restoration Ontario (as past-Chair), Centre for Applied Science in Ontario Protected Areas (as Chair), and invitations to contribute to such publications as the UNESCO series. I am on many national and provincial committees. As of April 2014, I am Editor in Chief of the major journal in the field – Restoration Ecology - and my influence on the field led me to the chair-ship of the 25th anniversary International Conference for the Society for Ecological Restoration (October 2013).

**EXTERNAL RESEARCH FUNDING (last seven years; lifetime: \$45,789,016):**

Year	Source	Amount/year	Principal Investigators	Purpose
2014	Communitech	\$10,000	<b>S. Murphy</b>	New Approaches to Data Acquisition in Ecosystem Monitoring
2013-2016	SSHRC-Insight	\$41,089	S. Quilley, D. McCarthy, <b>S. Murphy</b>	Research: A Multi-Criteria Assessment Of Social-Ecological Innovation and Novel Ecosystems
2012-2015	SSHRC-Partnerships	\$183,624	J. Lewis, <b>S. Murphy</b>	Research: Interactive technology for environmental participatory management
2012-2016	SSHRC-Insight	\$192,670	D. McCarthy, <b>S. Murphy</b>	Research: Anishanaabe Maamwaye Aki Kiigayewin: Fostering Innovations in Intercultural, Corporate-Indigenous Relations and Mine Restoration



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2011	Canadian Water Network	\$15,000	<b>S. Murphy</b>	Workshop: Ecological resilience
2011-2015	CANARIE	\$1,600,000	<b>S. Murphy</b>	Research and Infrastructure: Using high speed networks for ecological research
2012-2015	MITACS	\$208,000	<b>S. Murphy</b>	Research: Restoration of aggregate landscapes
2011-2015	BC Ministry of Transportation and Canadian Wildlife Service	\$140,000	S. Ashpole and <b>S. Murphy</b>	Research: Habitat suitability and invasive species in BC
2011-2015	City of Kitchener	\$40,000	<b>S. Murphy</b>	Research: Ecological restoration of ESPAs
2011-2015	The Ontario Aggregate Resources Corporation	\$50,000	<b>S. Murphy</b>	Research: New methods of ecological restoration
2011	Canadian Wildlife Service	\$15,000	<b>S. Murphy</b>	Research: Restoring coastal wetlands
2010-2011	Agriculture and Agri-Food Canada	\$23,950	<b>S. Murphy</b>	Research: Resilience in agroecosystems
2010-2016	Ontario Parks	\$30,000	<b>S. Murphy</b>	Workshops: Best practices for protected areas
2010-2013	Parks Canada	\$30,000	<b>S. Murphy</b>	Workshops: Best practices for protected areas
2010-2011	Helen Peacock Foundation	\$10,000	<b>S. Murphy</b>	Research: Novel approaches to ecological restoration
2010-2013	Waste Management Canada	\$6,000	<b>S. Murphy</b>	Research: Advanced techniques for landfill restoration
2010-2013	NSERC CRD	\$205,000	D. Cowan; <b>S. Murphy</b>	Research: Advances in communications technology; Murphy's portion is using those advances in environmental monitoring

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2009-2014	NSERC Network Grants	\$1,350,000	P. Kevan & L. Packer; <b>S. Murphy</b>	Research: Pollination
2009-2011	City of Kitchener	\$20,000	<b>S. Murphy</b>	Research: Urban ecological restoration
2009-2011	City of Waterloo	\$5,000	<b>S. Murphy</b>	Research: Environmental monitoring in natural areas
2009-2011	Ecoplans and Stantec Inc	\$5,000	<b>S. Murphy</b>	Research: Collaborative research on best practices for mitigation of impacts near housing developments
2009-2011	Ontario Parks and Parks Canada	\$75,000	<b>S. Murphy</b>	Research: Advanced research for protected areas
2009	City of London	\$120,000	D. Stephenson and <b>S. Murphy</b>	Research: Mitigation of deer population impacts
2008-2010	Ontario Parks	\$25,000	<b>S. Murphy</b>	Research & communications: Ecosystem integrity and project progress in protected areas
2008-2009	Parks Canada	\$4,000	<b>S. Murphy</b>	Research & workshops: Human dimensions in parks
2008-2009	EJLB Foundation	\$25,000	<b>S. Murphy</b>	Research: Community based ecological restoration
2007	US National Science Foundation IGERT	\$250,000	A. Rabideau and <b>S. Murphy</b>	Research & education: International ecological restoration network
2007	Ontario Ministry of Natural Resources	\$18,000	<b>S. Murphy</b>	Research: Impacts of garlic mustard in Ontario forests
2007	Canadian Wildlife Service	\$25,000	<b>S. Murphy</b>	Research: Impact of wind farms on ecological functions

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2006-2008	Parks Canada	\$80,000	<b>S. Murphy and R. Suffling</b>	Research: Restoration in Bruce Peninsula NP
2005-2007	Ontario Ministry of Natural Resources	\$37,500	S. Strobl and <b>S. Murphy</b>	Research: Environmental informatics for restoration
2005-2007	Natural Resources Canada Geo-connections	\$187,000	S. Strobl and <b>S. Murphy</b>	Research: Environmental informatics for restoration
2004-2007	Ontario Parks / Parks Canada Joint Grants	\$50,000	<b>S. Murphy</b> G. Nelson	Research: Parks research in Ontario

**INTERNAL RESEARCH FUNDING:**

Year	Source	Amount/year	Principal Investigators	Purpose
2016	Water Institute	\$12,000	<b>S. Murphy</b>	Workshop: Best conservation and restoration practices for reptiles and amphibians
2011	Water Institute	\$15,000	<b>S. Murphy</b>	Workshop: Resilience in watersheds
2009-2014	U Waterloo	\$90,000	<b>S. Murphy</b>	Support: Seed funding for Centre for Ecosystem Resilience & Adaptation