

Linda Y. Rutledge

Adjunct Professor & Research Associate
Trent University – Environmental & Life Sciences Graduate Program / Biology Department
PO Box 941, Lakefield ON, K0L 2H0 Canada
Cell: 705-768-5377
E-mail: lrutledge@trentu.ca; Web: www.lindarutledge.ca; www.easternwolfsurvey.com

EDUCATION

2010 Ph.D. Environmental & Life Sciences, Trent University, Peterborough ON – NSERC Scholar
2000 M.Sc. Biology, University of Northern British Columbia, Prince George BC – NSERC Scholar
1994 B.Ed. Biology/Environmental Science, Western University, London ON
1993 B.Sc. Honours Zoology, Western University, London ON – Dean’s List; H.I. Battle Scholarship

ADDITIONAL FORMAL TRAINING

2017 Caron Training Centre Ottawa ON, Oral French Language Assessment – Level B (Intermediate)
2017 Edu-Inter, Two-week Intensive French Language Training, Quebec City, QC
2017 Everyday French 2 (FREN-192) & Everyday French 3 (FREN-193), Humber College, Online
2015 Restriction-site Associated DNA (RAD) Sequencing: Lab Methods & Data Analysis
Hohenlohe Lab, University of Idaho, Moscow ID USA
2011 Comparative Genomics Workshop: Bioinformatics for Genomic Data
Colorado State University, Fort Collins CO USA
2011 Canadian Bioinformatics Workshops: NGS Data Analysis; Genomic Data Analysis & Statistics in R
Ontario Institute for Cancer Research, MaRS Centre, Toronto ON

PROFESSIONAL APPOINTMENTS

2016-present Adjunct Professor, Environmental & Life Sciences, Trent University, Peterborough ON Canada
2016-present Postdoctoral Research Associate, Biology, Trent University, Peterborough ON Canada
2015-2016 Postdoctoral Research Associate, Ecology and Evolution, Princeton University, Princeton NJ USA
2015 Ontario Genomics Funded Postdoctoral Fellow, Trent University, Peterborough ON Canada
2010-2014 Post-doctoral Fellow, Trent University, Peterborough ON Canada

GRANTS & CONTRACTS

2015-16 Ontario Ministry of Natural Resources & Forestry (Eastern Wolf Genomics) - \$10,000
2015-16 Point Defiance Zoo Holly Reed Conservation Fund (with PI Bridgett vonHoldt)- \$6,680
2015 Ontario Genomics Institute SPARK Grant - \$30,000
2013-15 Ontario Species at Risk Stewardship Grants - \$29,870 (2013); \$27,288 (2014)
2013-16 Friends of Killarney Park / Friends of Algonquin Park - \$15,800
2013-14 Centre of Excellence for Goat Research & Innovation (COEGRI, with PI Brad White)- \$50,000
2011-13 Environment Canada – Eastern Wolf Status Report for COSEWIC \$13,500
2013 Québec Ministère de l’Énergie et des Ressources naturelles - \$44,000
2013 Centre of Excellence for Goat Research & Innovation (COEGRI) - \$4,000
2013 Environment Canada – STAGE Grant (with PI Brad White) - \$20,000
2012-13 Species at Risk Research Fund for Ontario (SARRFO) Grant - \$19,900
2012-13 Centre of Excellence for Goat Research & Innovation (COEGRI, with PI Brad White)- \$55,000
2012-13 Mountain Equipment Co-Op Research Grant - \$19,997
2011-13 SSHRC Insight Development Grant (with PI James Conolly) - \$70,650
2011-12 Species at Risk Research Fund for Ontario (SARRFO) Grant - \$24,000
2010-11 Ontario Ministry of Natural Resources Research Grants - \$12,100

SCHOLARSHIPS & AWARDS

2011	Canadian Bioinformatics Workshop-MITACS Travel Grant Award - \$450
2011	Subsidy for Comparative Genomics Workshop Registration & Travel - \$2,800
2011	Bioinformatics Workshop Registration Subsidies: \$1,130
2008-09	PhD Stipend, Ontario Ministry of Natural Resources - \$42,000
2008-09	Dean's PhD Scholarship - \$4,000
2005-08	NSERC Postgraduate Doctoral Scholarship - \$42,000
2006-08	Internal University Scholarship for Major Award Holders - \$2,500
2005-08	Graduate Teaching Assistantships – declined - \$12,666
1997-99	NSERC Industrial Postgraduate Scholarship - \$35,000
1992	Helen I. Battle Scholarship - \$600

PEER-REVIEWED PUBLICATIONS

22. Hohenloe PA*, **Rutledge LY***, Waits LP, Andrews KR, Adams JR, Hinton JW, Nowak RM, Patterson BR, Wydeven AP, Wilson PA, White BN. 2017. Whole-genome data do not support recent hybrid origins of red wolves and eastern wolves. *Science Advances*. 3(6): e1602250, [doi: 10.1126/sciadv.1602250](https://doi.org/10.1126/sciadv.1602250) * shared first authorship
21. vonHoldt B, Heppenheimer E, Petrenko V, Croonquist P, **Rutledge LY**. 2017. Ancestry-specific methylation patterns in admixed offspring from an experimental coyote and gray wolf cross. *Journal of Heredity*. [108: 341-348](https://doi.org/10.1093/jhered/108.341-348).
20. vonHoldt BM, Brzeski K, Wilcove DS, **Rutledge LY**. 2017. Redefining the role of admixture and genomics in endangered species conservation. *Conservation Letters*. [DOI: 10.1111/conl.12371](https://doi.org/10.1111/conl.12371).
19. Otis, J-A, Thornton D, **Rutledge LY**, Murray DL. 2017. Ecological niche differentiation across a wolf-coyote hybrid zone in eastern North America. *Diversity and Distributions*. 23: 529-539. [DOI: 10.1111/ddi.12543](https://doi.org/10.1111/ddi.12543).
18. Benson JF, Loveless KM, **Rutledge LY**, Patterson BR. 2017. Ungulate predation and ecological roles of wolves and coyotes in eastern North America. *Ecological Applications*. 27: 718 – 733. [DOI: 10.1002/eap.1499](https://doi.org/10.1002/eap.1499)
17. **Rutledge LY**, Coxon A, White BN. 2017. Genetic assessment of the San Clemente Island loggerhead shrike reveals evidence of historical gene flow with Santa Catalina Island. *Global Ecology and Conservation*. [11: 42-52](https://doi.org/10.1016/j.gecco.2017.04.002).
16. **Rutledge LY**, Desy G, Fryxell J, Middel K, White BN, Patterson BR. 2017. Patchy distribution and low effective population size raise concern for an at-risk top predator. *Diversity & Distributions*. [23: 79 – 89](https://doi.org/10.1111/ddi.12543).
 - *Diversity & Distributions* Cover Article
 - *Cottage Life Magazine* Feature by Conor Mihell. “Neither big, nor bad: Eastern wolves in Ontario are threatened, but are they being protected?”
15. **Rutledge LY**, Devillard S, Hohenlohe PA, White BN. 2016. Considering all the evidence: a reply to Sefc and Koblmüller. *Biology Letters*. 12:20151009. [doi: 10.1098/rsbl.2015.1009](https://doi.org/10.1098/rsbl.2015.1009).
14. **Rutledge LY**, Devillard S, Boone JQ, Hohenlohe PA, White BN. 2015. RAD sequencing and genomic simulations resolve hybrid origins within *Canis*. *Biology Letters*. [Doi: 10.1098/rsbl.2015.0303](https://doi.org/10.1098/rsbl.2015.0303)
 - *Biology Letters* Cover Article
 - *Nature Conservancy: Cool Green Science* Feature by Matt Miller. “Understanding Wolf Hybrids”
 - Top 5% of all articles scored by Altmetric for attention in the popular and social media.
 - Trent University News: “Trent Researchers use Genomics to Clarify Evolutionary Origins of Wolves and Coyotes.”
13. McAlpine DF, Soto DX, **Rutledge LY**, Wheeldon TJ, White BN, Goltz JP, Kennedy J. 2015. Recent wild-origin occurrences of wolves in Canada south of the St. Lawrence River revealed by stable isotopes. *Canadian Field Naturalist*. 129: 386 – 394.
12. Wheeldon TJ, **Rutledge LY**, Patterson BR, White BN, Wilson, PJ. 2013. Y-chromosome evidence for dog introgression in eastern coyotes. *Ecology and Evolution* [3:3005-3020](https://doi.org/10.1371/journal.pone.0198888).
11. **Rutledge LY**, Wilson PJ, Klütsch CFC, Patterson BR, White BN. 2012. Conservation genomics in perspective: a holistic approach to understanding *Canis* evolution in North America. *Biological Conservation*. [155:186-192](https://doi.org/10.1016/j.biocn.2012.05.010).
10. Wilson PJ, **Rutledge LY**, Wheeldon TJ, Patterson BR, White BN. 2012. Y-Chromosome evidence supports widespread signatures of three-species *Canis* hybridization in eastern North America. *Ecology and Evolution*. [2:2325-2332](https://doi.org/10.1371/journal.pone.0198888).
9. **Rutledge LY**, White BN, Row JR, Patterson BR. 2012. Intense harvesting of eastern wolves facilitated coyote introgression. *Ecology and Evolution*. [2:19-33](https://doi.org/10.1371/journal.pone.0198888).

8. **Rutledge LY**, Patterson BR, Mills KM, Loveless KM, Murray DL, White BN. 2010. Protection from harvesting restores natural social structure of eastern wolf packs. *Biological Conservation*. [143:332-339](#).
 - *New Scientist* Feature Article by Sharon Levy. "Wolf Family Values"
 - *Conservation Magazine: Journal Watch* Online Article. "Back in the Family: Wolf Pack Structure Recovers after Hunting Ban."
7. **Rutledge LY**, Garroway CJ, Loveless KM, Patterson BR. 2010. Genetic differentiation of eastern wolves despite bridging gene flow between coyotes and grey wolves. *Heredity*. [105:520-531](#).
6. **Rutledge LY**, Patterson BR, White BN. 2010. Analysis of *Canis* mitochondrial DNA shows high concordance between the control region and ATPase genes. *BMC Evolutionary Biology* [10:215](#).
5. **Rutledge LY**, Bos KI, Pearce RJ, White BN. 2010. Genetic and morphometric analysis of 16th century *Canis* skull fragments: implications for historic eastern and gray wolf distribution in North America. *Conservation Genetics*. [11:1273-1281](#).
4. Way J, **Rutledge LY**, Wheeldon T, White BN. 2010. Genetic characterization of northeastern coyotes in eastern Massachusetts. *Northeastern Naturalist*. 17(2):189-204.
3. **Rutledge LY**, Wilson PJ, Kyle CJ, Wheeldon TJ, Patterson BR, White BN. 2009. How the gray wolf got its color. *Science*. Letter to Editor [325: 33-34](#).
2. **Rutledge LY**, Holloway J, Patterson BR, White BN. 2009. An improved field method to obtain DNA for individual identification from wolf scat. *Journal of Wildlife Management*. [73:1430-1435](#).
 - *The Wildlife Professional*: Highlight. "Easier Wolf Scat Sampling"
1. Pagnotta A, **Brooks LY**, Milligan L. 1994. The potential regulatory roles of cortisol in recovery from exhaustive exercise in rainbow trout. *Canadian Journal of Zoology*. 72: 2136-2146.

RECENT REPORTS

1. **Rutledge LY**. 2014. Eastern Wolf Status Assessment for the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). Environment Canada.
2. Simpkins S, Wilson PJ, Kyle C, Klütsch C, **Rutledge LY**, Morris-Pocock J, White BN. 2013. Analysis of the Application of Genomic Tools and Techniques in Environmental Protection and Conservation. Environment Canada STAGE Report.

INVITED SEMINARS & TALKS

2017	Wildlife70 Symposium: Invited Speaker and Panel Member, Trent University, Peterborough, ON.
2017	Canadian Society for Ecology and Evolution Annual Conference, Session Moderator, Victoria, BC.
2017	Algonquin Wolf Recovery Strategy Workshop 2: Stakeholders Consultation, Peterborough, ON.
2017	Algonquin Wolf Recovery Strategy Workshop 1: Research & Academic Review, Peterborough, ON.
2016	The Wildlife Society Conference. Invited member of red wolf panel. Raleigh, NC.
2016	Canadian Club of Halton-Peel, Oakville, ON.
2016	North Carolina State University, Invited member of expert panel on red wolf recovery, Atlanta, GA.
2016	Eastern Wolf Education Summit, Invited member of eastern wolf recovery panel, Mt. Kisco, NY.
2016	Northeast Natural History Conference. Session Moderator, Springfield, MA.
2015	Algonquin Park Special Wolf Presentation, Outdoor Theatre, Algonquin Provincial Park, ON.
2015	Friends of Killarney Park Guest Speaker, Winter Weekend in Killarney Provincial Park, ON.
2014	Peterborough Field Naturalists, Peterborough ON.
2014	Canadian Parks & Wilderness Society (CPAWS), Ottawa ON.
2014	Hastings Stewardship Council, Thurlow ON.

CONTRIBUTED TALKS & POSTERS[§]

- 2017 Canadian Society for Ecology and Evolution (CSEE) Annual Conference, Ecological Epigenetics, Victoria, BC.
 2015 Centre for Applied Science in Ontario Protected Areas (CASIOPA) Annual Conference, University of Waterloo Summit Centre for the Environment, Huntsville, ON.
- 2014 * Canadian Society for Ecology and Evolution: Genomes to Biomes, Montreal, QC. (1st place poster award)[§]
 2014 * Northeast Natural History Conference, Springfield MA.
 2013 Trent University Life Sciences Seminar, Peterborough, ON.
 2011 Indigenous Research Day Seminar. Trent University, Peterborough, ON.
 2010 Midwest Wolf Stewards Conference. Leslie Frost Centre, Dorset, ON.
 2009 Canadian Society for Ecology and Evolution (CSEE) Conference, Dalhousie University, Halifax, NS.
 2009 Trent University Seminar Series. Trent University, Peterborough ON.
 2008 Society for Conservation Biology 22nd Annual Meeting, Chattanooga, TN.
 2008 Northeast Natural History Conference X, Albany, NY.
- * Presented by collaborator

POST-SECONDARY TEACHING & CURRICULUM DEVELOPMENT

- 2014 Population Genetics* (BIOL-FRSC 3620H-A & Web), Trent University (Fall & Winter Terms)
 2014 Current Issues in Biology* (BIOL 1020H-Web), Trent University (Fall Term)
 2015 Population Genetics (BIOL-FRSC 3620H-Web), Trent University (Winter Term)
 2015 Current Issues in Biology (BIOL 1020H-Web), Trent University (Spring Term)
 2015 Introduction to Genetics (BIOL-FRSC 2050H-Web), Trent University (Spring Term)
 2014 Introduction to Genetics (BIOL-FRSC 2050H-Web), Trent University (Winter Term)
 2013 Introduction to Genetics (BIOL-FRSC 2050H-A), Trent University (Fall Term)
 2014/15 Trent University Guest Lectures, Species-at Risk Policy (BIOL4510); Current Issues In Biology (BIOL1020)
 1999 Fish Ecology (BIOL406)*, University of Northern British Columbia
- * Curriculum development included

MENTORING, TRAINING & SUPPORT

As a Postdoctoral Fellow:

- 2016 Sarah Dolynskij, Forensic Lab Technician, Trent University, Peterborough, ON.
 2016 Scott Carpenter, Undergraduate Thesis Student, Princeton University, Princeton, NJ.
 2015-2016 Elizabeth Heppenheimer, PhD Candidate, Princeton University, Princeton, NJ.
 2015-2016 Alexandra DeCandia, PhD Candidate, Princeton University, Princeton, NJ.
 2015 Adrien Faure, PhD Candidate, Visiting student from France at Nipissing University, North Bay, ON.
 2013-2015 Josée-Anne Otis, Masters Candidate, Princeton University, Princeton, NJ.
 2013-2015 Christine Ouellet, Forensic Lab Technician, Trent University, Peterborough, ON.
 2013-2015 Nguyen Thi Xuan Nguyen, Molecular Genetics Technician, Trent University, Peterborough, ON.
 2013-2014 Hannah Barron, Eastern Wolf Survey Project Coordinator, Trent University, Peterborough, ON.
 2010-2013 Tasnova Khan, Forensic Lab Technician, Trent University, Peterborough, ON.
 2010-2015 Tyler Wheeldon, PhD Candidate, Trent University, Peterborough, ON.

As a Graduate Student:

- 2007-2009 Tyler Wheeldon, MSc Candidate, Trent University, Peterborough, ON.

OUTREACH, LEADERSHIP, & SERVICE

- 2015-present North American Canine Ancestry Project (<http://canineancestry.princeton.edu>; @K9Ancestry). Project Leader. Ancestry Genomics of North American *Canis* Species.
 2012-present Eastern Wolf Survey (<http://www.easternwolfsurvey.com>; @EastWolfSurvey). Principal Investigator. Outreach & Education for Improved Wolf Conservation.
 2015 Eastern Wolf Survey Citizen Science, Killarney Provincial Park Winter Weekend, Killarney, ON.
 2013/2015 Eastern Wolf Survey Youth Outreach Program, Summit Centre for the Environment, Huntsville, ON.
- Trent University News Coverage. "Trent Researchers Engage Youth in Wolf Conservation Activities."

- 2010-2015 Ancient DNA Lab Coordinator, Trent University, Peterborough ON.
2005-2015 Genetic Database Administrator for Wolf & Goat Research Projects, Trent University, Peterborough, ON.
2012 Developed Goat DNA Bank at Trent University website (<http://goat.nrdpfc.ca>).
2011 Developed Wolf & Coyote DNA Bank at Trent University website (<http://wolf.nrdpfc.ca/>).
1997-2000 Fish Ecology Project Coordinator, University of Northern British Columbia, Prince George BC.

Peer-Reviewing (Manuscripts)

Biological Conservation; Biological Journal of the Linnean Society; BMC Evolutionary Biology; Canadian Journal of Zoology; F1000 Research, Genome Research; Molecular Ecology; Molecular Ecology Resources; Royal Society Open Science; Wildlife Biology

Peer-Reviewing (Book Chapters)

- 2014 Unit 8 Ecology: Make Connections IN *Campbell Biology Canadian Edition*, by Sandy Walde, Pearson Education Inc., New Jersey, USA.
2013 *Tracing the Origins of Red Wolves* IN *The Secret World of Red Wolves: The Fight to Save North America's Other Wolf* by DeLene Beeland. University of North Carolina Press, Chapel Hill.

PROFESSIONAL MEMBERSHIPS

Canadian Society for Ecology and Evolution
Society for Conservation Biology
Canadian Science Writers' Association

MEDIA INTERVIEWS & FEATURES

- 2016 *Cottage Life Magazine*. Article by Conor Mihell. "Wolves in Crisis".
2016 *The New York Times*. Article by Moises Velasquez-Manoff, "A Natural Cure for Lyme Disease."
2016 *The New York Times*. Article by Carl Zimmer, "DNA Study Reveals the One & Only Wolf Species in North America."
2016 *Science News*. Article by Virginia Morell, "How do you save a wolf that's not really a wolf?".
2016 *Smithsonian.com*, Article by Charlie Northcott, "Rare Wolf or Common Coyote? It Shouldn't Matter, But it Does."
2015 Global News: Feature Segment by Christina Stevens. Aired March 10, 2016.
2015 *Canadian Wildlife Magazine*. Article by David Hayes, "In the Company of Wolves".
2014 *Campbell Biology, Canadian Edition*. Unit 8: Make Connections: An Ecological Problem, Pearson Education Inc. Upper Saddle River, NJ. pp. 1222-23.
2014 *University Affairs Magazine*. Article by David Hayes. "A Peek Inside Trent's Forensic Wildlife DNA Lab".
2014 *Ottawa Citizen*, Article by Tom Spears, "Biologist Describes Wolf Research in Ottawa".
2014 CBC Radio Ottawa. Reported by Andrew Foote. "Biologist Describes Wolf Research in Ottawa".
2013 *Trent Magazine*. Feature Article: Young Professionals.
2013 *Trent Showcase Magazine*. Feature Article: From Dolphin DNA to Goat Genomics.
2013 *A Park for All Seasons – Killarney Provincial Park* by Oasis HDTV Spring 2013
2013 *The Secret World of Red Wolves: The Fight to Save North America's Other Wolf* by DeLene Beeland. University of North Carolina Press.
2010 *New Scientist*. Article by Sharon Levy. "Wolf Family Values".
2010 *The Wildlife Professional: Method Highlight*. "Easier Wolf Scat Sampling".
2009 *Conservation Magazine: Journal Watch Online Article*. "Back in the Family: Wolf Pack Structure Recovers..."