Jill A. Hamilton, Ph.D.

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EDUCATION

2008-2012 **PhD**, Department of Forest Science, Faculty of Forestry, University of British Columbia, Vancouver, BC, Canada
Thesis: Genomic and phenotypic architecture of a spruce hybrid zone (*Picea sitchensis x P. glauca*).
Advisor: Dr. Sally N. Aitken

2002-2005 **MSc**, Department of Biology, Queen's University, Kingston, ON, Canada.
Thesis: Population genetic consequences of geographic disjunction in a prairie plant species isolated on Great Lake alvars. *Advisor:* Dr. Christopher G. Eckert

1997-2002 **BSc Honours**, Department of Biology, University of Winnipeg, Winnipeg, MB, Canada.
Thesis: The ecology of big bluestem (*Andropogon gerardii* Vitman) in Riding Mountain National Park.
Advisor: Dr. Richard J. Staniforth

PROFESSIONAL EXPERIENCE

2021 – present **Associate Professor, Director of the Schatz Center in Tree Molecular Genetics and Ibberson Chair of Silviculture Research,** Department of Ecosystem Science and Management, Pennsylvania State University, State College, PA, USA

2015 – 2021 **Assistant Professor**, Department of Biological Sciences, North Dakota State University, Fargo, ND, USA

2014 – 2015 **Postdoctoral Fellow**, Department of Evolution and Ecology, University of California, Davis, CA, USA, 2014 – 2015, *Advisor:* Dr. Johanna Schmitt

- Local adaptation across environments: teasing apart the genetic basis of complex traits in model and non-model systems

2012 – 2014 **Postdoctoral Fellow**, Department of Biology, University of Alberta, Edmonton, Alberta, Canada, *Advisor*: Dr. Janice E. K. Cooke

- **TRIA – Mountain Pine Beetle System Genomics & SMarTForests**

2005 – 2007 **Research Assistant**, Cereal Research Centre, Agriculture & Agri-Food Canada, Winnipeg, MB, Canada, *Advisors:* Dr. Daryl Somers & Dr. Jeannie Gilbert

- Molecular breeding for disease resistance, molecular mapping, quantitative genetics and plant pathology in wheat

PEER-REVIEWED PUBLICATIONS ([g]graduate student, [u]undergraduate student, [p]postdoc)

Bolte, C.E.[p], Phannareth, T., Zavala-Paez, M.[g], Sutara, B.[u], Can, F., Fitzpatrick, M., Holliday, J., Keller, S., and **J.A. Hamilton** (2024) Genomic insights into hybrid zone formation: the role of climate, landscape, and demography in the emergence of a novel hybrid lineage. *Molecular Ecology*. 14: e17430.

Sullivan, L, Portlas, Z.[u], Jaeger, K. Hoffner, M.[u], and **J.A. Hamilton** (2024) The evolution of dispersal across a discontinuous landscape. *Ecology and Evolution* 14: e11231.

Zavala-Paez, M[g], J.A. Holliday, and **J.A. Hamilton** (2024) Leveraging whole-genome sequencing to estimate telomere length in plants. *Molecular Ecology Resources.* 2: e13899.

Lindstrom, J.[g], Ahlering, M., and **J.A. Hamilton** (2023) Seed sourcing for climate-resilient grasslands: the role of seed source diversity during early restoration establishment. *Ecology and Evolution*. 13: e10756.

Kulbaba, M., Yoko, Z[g], and **J.A. Hamilton** (2023) Chasing the fitness optimum: temporal variation in the genetic and environmental expression of life-history traits for a perennial plant. *Annals of Botany*. 132: 1191-1204.

Keagy, J., Drummond, C., Gilbert, K., Grozinger, C., **Hamilton, J.A.,** Hines, H., Lasky, J., Logan, C., Sawers, R., Wagner, T. (2023) Landscape transcriptomics as a tool for addressing global change effects across diverse species. *Molecular Ecology Resources*

Di Santo, L.[g], Hoban, S.M., Parchman, T.L., Wright, J.W. and **J.A. Hamilton** (2022) Reduced representation sequencing to understand the evolutionary history of Torrey pine (*Pinus torreyana*) with implications for rare species conservation. *Molecular Ecology*. 31: 4622–4639.

Volk, J.[g], Braasch, J.[p], Ahlering, M., and **J.A. Hamilton** (2022) Environmental contributions to the evolution of trait differences in *Geum triflorum*: implications for restoration. *American Journal of Botany* 109:1822-1837 **Special Issue: Approaches to the study of quantitative fitness-related traits**

Benomar, L. Elferjani, R., **Hamilton, J.A**., O'Neill, G.A., Echchakoui, S., Bergeron, Y., and L. Mebarek (2022) Bibliometric analysis of the structure and evolution of research on assisted migration. 8: 199-213.

VanWallendael, A., Lowry, D.B., and **J.A. Hamilton** (2022) One hundred years into the study of ecotypes, new advances are being made through large-scale field experiments in perennial plant systems. *Current Opinion in Plant Biology*. 66: 102152.

Galla, S.J., Brown, L., Cubrinovska, I. Eason, D., Gooley, R.M., **Hamilton, J.A.,** Heath, J.A., Hauser, S.S., Hogg, C.J., Latch, E.K., Matocq, M.D., Richardson, A., Santure, A.W., Winters, D.J., Wold, J.R., and T.E. Steeves (2021) The relevance of pedigrees in the conservation genomics era. *Molecular Ecology*. 31: 41-54.

Braasch, J.E.[p], Di Santo, L.N.[g], Tarble, Z.[u], Prasifka, J.R., and **J.A. Hamilton** (2021) Testing for evolutionary change in restoration: a genomic comparison between *ex situ*, native and commercial seed sources of *Helianthus maximiliani. Evolutionary Applications* 14: 2206-2220.

Di Santo, L[g], Polgar, M[u], Nies, S[u], Hodgkiss, P., Canning, C., Wright, J.W., and **J.A. Hamilton** (2021) Seed morphology and emergence variability in a conservation collection of *Pinus torreyana. AOB Plants.* 13 (5): plab058.

Di Santo, L[g] and **J.A. Hamilton** (2021) Environmental and geographic data optimize ex situ collections the and the preservation of adaptive evolutionary potential. *Conservation Biology* 35: 733-744.

Hamilton, J.A., Flint, S., Lindstrom, J.[g], Volk, K.[g], Shaw, R., and M. Ahlering (2020) Evolutionary approaches to seed sourcing for grassland restorations. *New Phytologist* 225: 2246-2248.

Yoko, Z.[g], Volk, K.[u], Dochtermann, N., and **J. A. Hamilton** (2020) The importance of quantitative trait differentiation in restoration: landscape heterogeneity and functional traits inform seed transfer guidelines. *AOB Plants*
** *Special Issue on the Ecology and Genetics of Population Differentiation in Plants*
** *Featured in BotanyONE*

Martinez-Berdeja, A., **Hamilton, J.A.,** Bontemps, A., Schmitt, J., and J.W. Wright (2019) Evidence for population differentiation among Jeffrey and Ponderosa pines in survival, growth and phenology. *Forest Ecology and Management.* 434: 40-48.

Hamilton, J.A. and Z. Tarble[u] (2018) Developing quantitative skills for ecological data: the effects of climate warming on phenological variation and species interactions. *QUBES Educational Resources*. doi:10.25334/Q44Q7G

Hamilton, J.A. and J. M. Miller (2018) From transects to transcripts: teasing apart the architecture of reproductive isolation. *Molecular Ecology*. 27: 1339-1341.
** *Invited News & Views feature commentary*

Hamilton, J.A., Royauté, R., Wright, J. W., Hodgskiss, P., and F. T. Ledig (2017) Genetic conservation and management of the California endemic, Torrey pine (*Pinus torreyana* Parry): implications of genetic rescue in a genetically depauperate species. *Ecology and Evolution* 7: 7370-7381.

Janes, J. and **J. A. Hamilton** (2017) Mixing it up: the role of hybridization in forest management and conservation under climate change. *Forests* 8 (7): 237 **Special Issue on New Insights into Climate Sensitivity of Forest Growth, Health, and Disturbance: Vulnerability, Resilience, and Change

Hamilton, J.A., El Kayal, W., Hart, A.[u], Runcie, D.E., Arango-Velez, A., and J. Cooke. (2016) Teasing apart the influence of photoperiod and temperature on growth cessation and dormancy in white spruce (*Picea glauca*). *Tree Physiology* 36 (11): 1432-1448.

Stockwell, C.A., Kinnison, M.T., Hendry, A.P. and **J.A. Hamilton** (2016) Evolutionary Restoration Ecology *in* Foundations of Restoration Ecology, edited by Falk et al., Island Press.

Hamilton, J.A., Okado, M., Korves, T. & J. Schmitt. (2016) The role of climate adaptation in colonization success in *Arabidopsis thaliana in* Invasion Genetics: The Baker and Stebbins Legacy, edited by Barrett et al., Wiley-Blackwell

Cullingham, C.I., Thiessen, C., Derocher, A., Paquet, P., Miller, J., **Hamilton, J.A.,** and D. W Coltman (2016) Population structure and dispersal of wolves in the Canadian Rocky Mountains. *Journal of Mammalogy* 97 (3): 839-851.

Miller, J. M., and **J.A. Hamilton.** (2016) Interspecies hybridization merits consideration in the conservation toolbox: response to Kovach et al. 2016. *Conservation Biology* 30: 431-433.

Hamilton, J.A., and J. M. Miller. (2016) Adaptive introgression: a resource for management and genetic conservation in a changing climate. *Conservation Biology*. 30: 33-41.
** *Featured in the Molecular Ecologist*
** *Featured in WILDLIFESNIPITS*
** *Featured in Molecular Ecology*

Hamilton, J.A., Okado, M., Korves, T. & J. Schmitt. (2015) The role of climate adaptation in colonization success in *Arabidopsis thaliana*. *Molecular Ecology* 24: 2253-2263.
** *Special Issue on Invasion Genetics: the Baker and Stebbins Legacy*

Hamilton, J.A., de la Torre, A., and S. N. Aitken. (2015) Introgression across a three-species spruce hybrid complex facilitates adaptation to diverse climates. *Tree Genetics and Genomes* 11:1-14.

Hamilton, J.A., Lexer, C. and S.N. Aitken (2013) Genomic and phenotypic architecture of a spruce hybrid zone (*Picea sitchensis x P. glauca*). *Molecular Ecology* 22: 827-841.
** *Special Issue on Evolutionary Ecological Genomics*

Hamilton, J.A., Lexer, C. and S.N. Aitken (2013) Differential introgression reveals candidates for selection across a spruce (*Picea sitchensis x P.* glauca) hybrid zone. *New Phytologist* 197: 927-938.

Hamilton, J.A., & S.N. Aitken. (2013) Genetics and morphology of a spruce (*Picea sitchensis x P. glauca*) hybrid zone along a precipitation gradient. *American Journal of Botany* 100 (8): 1651-1671.

Gornish, E.S., **Hamilton, J.A**., Barberan, A., Benito, B.M., Binzer, A., DeMeester, J.E., Gruwez, R., Moreira, B., Taheri, S., Tomiolo, S., Vinagre, C., Vuarin, P., and Weaver, J. (2013) Interdisciplinary climate change collaborations are essential for early-career scientists. *EOS: Transactions of the American Geophysical Union* 94 (16): 151.

Hamilton, J.A. and C.G. Eckert (2007) Population genetic consequences of geographic disjunction: a prairie plant species isolated on Great Lakes alvars. *Molecular Ecology* 16: 1649-1660.

SUBMITTED

McLaughlin, C.M., Hinshaw, C., Sandoval-Arango, S., Zavala-Paez, M[g], and **J.A. Hamilton** (*In Revision*) Redlisting genetics: towards incorporation of genomic data in conservation assessments. *Conservation Genetics*.

Di Santo, L. N.[g], Mead, A.[p], Wright, J. W., and **J.A. Hamilton** (*In Revision*) Genomic signatures of reproductive isolation between two remnant native populations of Torrey pine (*Pinus torreyana* Parry)

Rana, S. K.[p], Lindstrom, J.[g], Lehrer, M.A.[p], Alhering, M., and **J.A. Hamilton** (*Submitted*) Forecasting resilient hotspots of suitable grassland habitat under global change: insights to facilitate restoration.

Melton, A. E.[p], Faske, T. M., Sniezko, R., Thibault, T., Williams, W., Parchman, T. L., and **J.A. Hamilton** (*Submitted to Special Issue: Molecular Ecology*) Genome-driven monitoring of Oregon ash (*Fraxinus latifolia*) for conservation and EAB-resistance breeding.

NON PEER-REVIEWED PUBLICATIONS

Hamilton, J.A. (2009) Evaluation of genetic issues *in* Guidelines for Translocation of Plant Species at Risk in British Columbia, BC Ministry of the Environment, Victoria, BC.

Lehrer, M.A.[p] and **J.A. Hamilton** (2023) Preserving range-wide genetic diversity of Fraxinus nigra. *Tree Seed Working Group News Bulletin*, Canadian Forest Genetics Association 74: 17-21.

GRANTS

2024 PI: USDA-McIntire-Stennis – Adaptive conservation strategies for Black ash (*Fraxinus nigra*) in response to climate change and the Emerald Ash Borer: leveraging genetic variation and environmental insights (*Pending*)
2023 co-PI USDA-McIntire-Stennis - Climate-Smart Forestry: providing a foundation for assisted population migration in northeastern forests ($194,244)
2022 PI: USDA-McIntire-Stennis – Ex-situ conservation collections and development of genecology trial for black ash pre-breeding resources ($193,554)
2022 co-PI The Nature Conservancy – Tree Species in Peril: American Beech, Eastern Hemlock, and Three Eastern Ash Species ($4,714,234, Hamilton Lab $224,251)
2022 PI: The American Chestnut Foundation – American Chestnut Breeding Program Support ($362,182)
2021 PI: USDA-McIntire-Stennis – Genomics-driven monitoring of Oregon Ash for gene conservation and development of pre-breeding resources ($192,132)
2021 co-PI: SNIP-Level II Pursuit Grant Proposal – Landscape transcriptomics as a new tool for natural and agricultural resource management ($25,000)
2021 co-PI: Penn State Huck Institutes of the Life Sciences – Predoctoral Fellowship Preparation Course/Workshop – USDA Predoctoral Applications.
2019 PI: North Dakota Dept of Agriculture – Specialty Crop Block Grant: Creating a predictive framework for cold tolerance in North Dakota grape cultivars ($105,126)
2019 co-PI: NSF-PGRP: Genomic architecture of porous species boundaries: implications for climatic adaptation and hybrid breeding ($2.5 million, Hamilton Lab $750,000)
2019 co-PI: New Phytologist Trust: 'Towards a Unified Research Agenda on Local Adaptation' Workshop (£1,000)
2019 PI: USDA-Forest Service: Incorporating a climate-based adaptation approach for post-fire reforestation - cold tolerance: continuing award ($7,000)
2019 PI: The Nature Conservancy – Cooperative Agreement: Restoring forb diversity to combat invasive species and improve habitat quality for grassland birds: evaluating the role of seed source diversity ($45,527)
2018 PI: XSEDE Startup (MCB180060): The role of whole genome duplications in niche divergence (estimated value: $1,157.50 – advanced computing allocation)
2018 PI: USDA-Forest Service: White bark pine (*Pinus albicaulis*) cold hardiness testing ($6,365)
2017 PI: Morton Arboretum: Ground-truthing ex situ conservation collections: population genetic structure in the rare, California endemic Torrey pine (*Pinus torreyana*) ($15,900)
2017 PI: USDA-NACA: Intraspecific variation and possible effects on the utility of non-crop Asteraceae ($23,000)
2017 PI: NIH INBRE/NDSU Bioinformatics Seed Grant: The impact of polyploidy and hybridization in evolutionary diversification ($24,160)
2017 PI: USDA-Forest Service: Incorporating a climate-based adaptation approach for post-fire reforestation - cold tolerance ($5,000)
2016 PI: NSF-DEB RAPID: Evolution of reproductive barriers in long-lived conifers ($14,752)

2016 PI: USDA-Forest Service: Ex-situ conservation for the rare Californian endemic Torrey Pine (*Pinus torreyana* Parry) ($21,800)
2016 PI: NDSU Seed Grant: Mechanisms of local adaptation in divergent environments: the impact of polyploidy and hybridization in evolutionary diversification ($5,000)
2016 Pacific Rim Tonewoods – Genomic ancestry of spruce in the Nass River region ($8,000)
2015 NDSU Department of Biological Sciences Faculty Travel Grant ($500)
2015 NDSU College of Science and Math Faculty Travel Grant ($625)

PROFESSIONAL WORKSHOPS AND COURSES ATTENDED

- 2024 – Future of Brown Ash: Weaving Indigenous Knowledge and Western Science to promote resilience amidst Emerald Ash Borer invasion
- 2024 – PopUp Poplars Meeting (Co-organizer)
- 2023 – Emerald Ash Borer and Ash Resilience Research Webinar (APCAW)
- 2022 – North American Forest Genetics Society – Conservation and Restoration Working Group
- 2022 - Conservation of rare species: integrating field and molecular approaches to advance plant conservation, Hawaii (Invited speaker - Virtual)
- 2021 – Forest Genetics Student Symposium (Virtual) – Invited Career Perspectives Panel
- 2020 – Conservation of rare species: integrating field and molecular approaches to advance plant conservation, Hawaii (Invited panelist – rescheduled online for 2022)
- 2019 – Towards a unified research agenda on local adaptation that applies evolutionary approaches to seed sourcing for grassland restorations in the upper Midwest and Great Plains – University of Minnesota, St. Paul, MN (Co-organizer)
- 2019 – Plant Conservation Genetics, San Diego Zoo, San Diego, CA (Invited Speaker)
- 2019 – Using Digitized Collections-Based Data in Research: Applications for Ecology, Phylogenetics, and Biogeography (Botany Meeting, Tucson, AZ)
- 2019 – The State of Biodiversity, San Diego Natural History Museum, San Diego, CA (Invited Panelist)
- 2018 - DIG into Data for the Biology Classroom Faculty Mentoring Network (ESA-QUBES partnership, selected participant)
- 2017-18 GatewaysND - Learner-Focused STEM Instructional Cohorts, Fargo, ND (selected participant)
- 2017-18 Gear up for Grants: NSF CAREER Proposal Development Program
- 2017 Species Distribution Modeling in R: From Start to Finish, Portland, OR
- 2016 National Academies Special Topics Summer Institute on Course-based Undergraduate Research Experiences, Austin, TX (selected participant)
- 2015 NGS for evolutionary biologists: from basic scripting to variant calling, Rome, Italy (selected participant)
- 2014 Evolutionary Quantitative Genetics, National Institute for Mathematical and Biological Synthesis, Knoxville, TN (selected participant)
- 2013 Instructional Strategies for Student Learning and Assessing Student Learning, Edmonton, Alberta
- 2012 Ecological Consequences of Climate Change: Integrating Research Approaches Workshop, Donana National Park, Sevilla, Spain (selected participant)
- 2011 Visiting PhD Candidate – Dr. C. Lexer, University of Fribourg, Fribourg, Switzerland
- 2010 Summer Institute in Statistical Genetics, University of Washington
  Courses: Computing for Statistical Genetics, MCMC for Genetics and Plant and Animal Association Mapping
- 2004 Summer Institute in Statistical Genetics, North Carolina State University
  Courses: Introduction to Regression and ANOVA, Principles of Quantitative Genetics

SELECTED PRESENTATIONS

(*presenter, [u]undergraduate student, [g]graduate student, [p]post-doctorate)

Hamilton, J. A.* (2023) Hybrid zones as model systems to examine the genomic basis for climate adaptation. EvolTREE, Brasov, Romania *Keynote Speaker*

Hamilton, J. A.* (2023) Natural hybrid zones as model systems to examine the genomic basis for climate adaptation for forest trees. Botanical Society of America, Boise, ID.

Rana Magar, S.*[p], Lindstrom, J. [g], Aherling, M., and **J.A. Hamilton** (2023) Grassland habitat suitability in North America for long-term restoration success. Botanical Society of America, Boise, ID

Sutara, B.*[u], Zavala-Paez, M., and **J.A. Hamilton** (2023) Chloroplast capture in a natural hybrid zone between *Populus trichocarpa* and *P. balsamifera*. Botanical Society of America, Boise, ID

LoPiccolo, K.*[g], Rana Magar, S.[p], Ahlering, M, and **J.A. Hamilton** (2023) Population genetic consequences of fragmentation across native prairie remnants: a case study using *Helianthus maximiliani.* Botanical Society of America, Boise, ID

Lehrer, M.*[p], Anderson, L.*[u], and **J.A. Hamilton** (2023) Evaluating population-specific variability in reproductive investment in Fraxinus nigra across its North American range. Botanical Society of America, Boise, ID

Lehrer, M.*[p], Anderson, J. [u], and **J.A. Hamilton** (2023) Beyond the Forest: Preserving range-wide genetic diversity of Fraxinus nigra (Black ash) through ex situ collections. Northern Hardwood Conference, Fredericton, NB.

Bolte, C.*[p], Phannareth, T., Fitzpatrick, M., Keller, S., Holliday, J., and **J.A. Hamilton** (2023) Exploring the genomic architecture of porous species boundaries: implications for climatic adaptation and hybrid breeding. Plant and Animal Genome Meeting, San Diego, CA.

Zavala-Paez, M.*[g], Kittilson, J., Holliday, J., and **J.A. Hamilton** (2023) Leveraging whole genome sequencing data to measure telomere length in plants. Plant and Animal Genome Meeting, San Diego, CA.

Zavala-Paez, M.*[g], Sutara, B. [u], Bolte, C. [p], Holliday, J., Fitzpatrick, M., Keller, S., and **J.A. Hamilton** (2023) Exploring cytonuclear interactions their phenotypic outcomes in a poplar hybrid zone. Southern Forest Tree Improvement Cooperative, Knoxville, TN.

Hamilton, J. A.* (2022) Leveraging the conservation genetics toolkit: applying genomic and phenotypic data to rare species conservation and management. Hawaii Rare Plant Genetics Workshop (Virtual)

Ahlering, M*, Hill, N., **Hamilton, J.A**., and J. Lindstrom [g] (2022) Sourcing seed for climate-adapted grassland restoration. Natural Areas Conference, Duluth, Minnesota.

Hamilton, J. A.*, Ledig, F. T., Hodgkiss, P., Di Santo, L[g], and J. Wright (2021) Genomics for rare species conservation: teasing apart evolutionary history and adaptation. Invited Schatz Symposium at the Southern Forest Tree Improvement Conference (Virtual)

Di Santo, L.*[g], Hoban, S., Parchman, T., Wright, J., and **J. A. Hamilton** (2021) Genome-wide sequencing to understand the demographic and evolutionary history of *Pinus torreyana* with implication for rare species conservation. 2021 Forest Genetics Student Symposium (Virtual)

Zavala-Páez, M. *[g], Hainlen, D.[u], Kittilson, J. and **J. A. Hamilton** (2021) Identifying biomarkers for stress in long-lived trees: the role of telomere length. 2021 Forest Genetics Student Symposium (Virtual)

Braasch, J. .*[p] and **J. A. Hamilton** (2021) PopUp Poplars: Common Gardens for Science Education. 2021 Forest Genetics Student Symposium (Virtual)

Lindstrom, J. *[g], Ahlering, M., and **J. A. Hamilton** (2021) Seed sourcing for climate-resilient grasslands: the role of genetic variation in restoration. Botany 2021 (Virtual)

Volk, K. *[g], Ahlering, M., and **J. A. Hamilton** (2021) Physiological trait response to changing water availability for a prairie forb sourced from different soil types and its implications to seed transfer in restoration. Botany 2021 (Virtual)

Hamilton, J. A.*, Ledig, F. T., Hodgkiss, P., Di Santo, L[g], and J. Wright (2019) Preserving evolutionary potential in the face of rapidly changing conditions: the role of genetic rescue. Keynote presentation at the Western Forest Genetics Association, Placerville, CA.

Di Santo, L.*[g], Parchman, T., Wright, J., and **J. A. Hamilton** (2019) Using genome-wide sequencing to assess fine-scale genetic connectivity, inbreeding and demographic history of North America's rarest pine. Poster presentation at the Western Forest Genetics Association, Placerville, CA.

Hamilton, J. A.*, Waraniak, J., Tarble, Z[u]., Stockwell, C., and J. Prasifka (2019) Evolutionary change during restoration: a genomic comparison between ex situ, native, and commercial seed sources in *Helianthus maximiliani*. Presentation at the Botanical Society of America, Tucson, AZ and Society for Ecological Restoration, Cape Town, SA.

Di Santo, L.*[g], Kittilson, J., Dlugosch, K., Barker, M, and **J. A. Hamilton** (2019) Niche evolution following whole genome duplication (WGD). Presentation at Botanical Society of America, Tucson, AZ

Volk, K*[u], Yoko, Z.[g], and **J. A. Hamilton** (2019) Trait evolution across heterogeneous environments: water-use efficiency in *Geum triflorum*. Presentation at Botanical Society of America, Tucson, AZ

Yoko, Z.*[g], and **J. A. Hamilton** (2019) Teasing apart the scale of quantitative trait differences across heterogeneous landscapes. Presentation at Botanical Society of America, Tucson, AZ

Sullivan, L., Portlas, Z[u]. and **J. A. Hamilton*** (2018) Evolution of dispersal across a discontinuous landscape. Presentation at Botanical Society of America, Rochester, MN

Puppo, P.*[p], Di Santo, L.[g], and **J. A. Hamilton** (2018) The role of polyploidy in evolutionary niche divergence across the range of *Geum triflorum* Pursh. Presentation at Botanical Society of America, Rochester, MN

Di Santo, L*[g]. and **J. A. Hamilton** (2018) The relationship between environmental and genetic variation: Can environmental differences among populations be used as a proxy for population genetic differentiation? Poster presentation at Botanical Society of America, Rochester, MN

INVITED SEMINARS

Waynesboro Tree Care Workshop (2024) ***Invited speaker***
Harvard Forest (2024)
Canadian Forest Service – Laurentian Forestry Centre Lectures Series (2024)
Oak Ridge National Lab – Plant Microbe Interfaces Group (2023)
Purdue University - Botany and Plant Pathology Research Seminar Series (2023)
Southern California Botanic Symposium (2023) ***Invited symposium speaker***
Pennsylvania State University – Plant Sciences Seminar Series (2023)
EVOLTREE Conference, University of Brasov, Romania (2023) ***Keynote speaker***
APCAW - Emerald Ash Borer and Ash Resilience Research Webinar ***Speaker and panelist***
Pennsylvania State University – Plant Biology Program (2023)
Virginia Commonwealth University (2023)
Forest Resources Association – Appalachian Region (2022)
Southern Forest Tree Improvement Conference (2021 – Virtual) ***Invited symposium speaker***
Pennsylvania State University, State College, PA (2020)
University of Müenster, Müenster, Germany (2020)
Michigan State University (2019)
University of Missouri (2019)
Western Forest Genetics Association Meeting (2019) ***Plenary speaker***
University of Arizona, Tucson, AZ (2019)
The State of Biodiversity, San Diego Natural History Museum, San Diego, CA (2019) ***Panelist***
University of California, Davis, CA (2018)
Manitoba's Ecological Restoration Workshop, Winnipeg, MB, Canada (2018)
South Dakota State University, Brookings, SD (2018)
University of Manitoba, Winnipeg, MB, Canada (2018)
CPB/CBA Western Regional Meeting, Winnipeg, MB (2017) ***Keynote speaker***
Minnesota Phenology Network Annual Meeting, Itasca, MN (2017) ***Keynote speaker***
Torrey Pines State Reserve, La Jolla, CA (2017)
Torrey Pines Golf Course, La Jolla, CA (2017)
Northern Arizona University, Flagstaff, AZ (2017)
US Fish & Wildlife Service – Advanced Topics in Conservation Genetics Webinar (2016)
USGS Northern Prairie Research Station, Jamestown, ND (2016)
University of Winnipeg, Winnipeg, MB, Canada (2016)
Nature Conservancy of Canada – Manitoba, Winnipeg, MB, Canada (2016)
Pacific Rim Tonewoods, Bellingham, WA (2016)
University of Minnesota, Minneapolis, MN (2016)
Santa Barbara Botanic Garden, Santa Barbara, CA (2016)
North Dakota State University – ECS Greenbag Seminar (2016)
University of Minnesota – Duluth, MN (2015)
Northern Central Research Station USDA Forest Service – Grand Rapids, MN (2015)
University of California – Davis, CA (2015)
California State University, Sacramento, CA (2014)
North Dakota State University, ND (2014)
University of California - Merced, CA (2014)
University of Lethbridge, AB, Canada (2014)
University of Alberta, AB, Canada (2014)
University of Winnipeg, MB, Canada (2012)
University of British Columbia, BC, Canada (2012)
University of Manitoba, Winnipeg, MB, Canada (2011)
University of Fribourg, Fribourg, Switzerland (2011)

AWARDS (*All awards in Canadian funds, unless otherwise noted)

2019	3rd highest number of citations in 2016 – Conservation Biology
2016	Annual Alumnus Speaker Award – The University of Winnipeg
2016	Jim Pojar Award from the Bulkley Valley Research Centre (Nominated)
2011	Canadian Society for Ecology and Evolution Travel Award ($500)
2011	UBC Four Year Doctoral Fellowship ($16,000)
2010	Scholarship to Summer Institute in Statistical Genetics ($1200*)
2010	2010 Faculty of Forestry Research Poster Event ($100)
2010	UBC Four Year Doctoral Fellowship ($16,000 – declined)
2008-2011	UBC Forestry Strategic Recruitment Fellowship ($16,000)
2008-2010	NSERC Canada Graduate Scholarship ($105,000)
2005	Queen's Graduate Student Bursary ($3,000)
2005	Queen's Conference Travel Award ($400)
2004	Scholarship to Summer Institute in Statistical Genetics ($800*)
2002-2004	Queen's Graduate Award ($12,000)
2003	Queen's Graduate Student Bursary ($2,800)
1997	Florence D. Methereal Scholarship ($1,000)
1997	Public Works Employees Scholarship ($350)
1997	University of Winnipeg Entrance Scholarship ($800)

TEACHING EXPERIENCE

Professor	
Conservation Genetics (Undergraduate, Pennsylvania State University)	2022-
Conservation Genetics (Graduate, Pennsylvania State University)	2022-
General Ecology (North Dakota State University)	2017-2020
Environment and Adaptation (North Dakota State University)	2016, 2019
Plant Physiology (North Dakota State University)	2016-2018
Genetic Analysis of Populations (University of Alberta – co-taught)	2014
Teaching Assistant	
Forest Plant Biology I & II (University of British Columbia)	2008-2010
Population and Evolutionary Ecology (Queen's University)	2003-2005
Plant Reproduction Biology Field Course (Queen's University)	2004
Introductory Biology of Organisms (Queen's University)	2003-2005
Conservation Biology (Queen's University)	2002-2003
Mendelian and Molecular Genetics (Queen's University)	2002-2003
Laboratory Demonstrator	
Principles of Ecology (University of Winnipeg)	2000-2002
Biology of Vascular Plants (University of Winnipeg)	2001-2002
Invited Guest Lecturer	
Conservation Biology (North Dakota State University)	2015
Population Biology Core (University of California – Davis)	2015
Plant Ecology (University of Alberta)	2013
Genetic Analysis of Populations (University of Alberta)	2013
Conservation Biology (Queen's University)	2004

SUPERVISORY EXPERIENCE

Postdoctoral Scholars

Dr. Melina Krautwurst 2024 -
Dr. Alayna Mead 2023 - present
Dr. Anthony Melton 2023 – 2024 -- Assistant Professor – University of Montevallo
Dr. Constance Bolte 2022 – 2024 -- AAAS Science and Technology Policy Fellow - NSF
Dr. Melissa Lehrer 2022 – 2024 -- Teaching Assistant Professor – University of Pittsburgh
Dr. Santosh Rana 2022 – 2024 -- Postdoctoral Research Associate – Arkansas State University
Dr. Joseph Braasch 2020 – 2021 -- Postdoctoral Scholar – Rutgers University
Dr. Pamela Puppo 2018 – 2019 -- Assistant Professor – Marshall University

Graduate Students

Diego del Orbe (PhD, rotating) 2024 -
Olivia Degreenia (PhD, rotating) 2024 -
Kyra LoPiccolo (PhD student) 2022 - present
Michelle Zavala-Paez (PhD candidate) 2021 - present
Kate Volk (MS) 2019 – 2022
Jessica Lindstrom (MS) 2019 – 2022
Zebadiah Yoko (MS) 2017 – 2019
Lionel Di Santo (PhD) 2016 – 2021

Undergraduate Students

Dane Beller 2023 - present
Amber Truesdale 2023 - present
Alden Stone 2023 - present
Lucia Anderson 2023 - present
Jordan Basalyga 2022 – 2024
Bridget Reheard 2022 - 2023
Brianna Sutara 2022 - 2023
CJ Hicks 2022
Alex Hass 2020 - 2021
David Hainlen 2020 – 2021
Jackson Gentile 2020 - 2021
Bryan Carlton 2019 – 2020
Cameron Klooster 2019 – 2020
Anne Keller 2019 – 2020
Roxanne Vistada 2019 – 2020
Suemeng Vang 2018 – 2020
Monica Polgar 2018 – 2020
Storm Nies 2017 – 2020
Zach Tarble 2016 – 2020
Kate Volk 2018 - 2019
Mercedes Hoffner 2017 - 2018
Samuel Hyland 2017 – 2018
Liberty Nguyen 2017 – 2018
Stephen Johnson 2016 – 2018
Alexis Pearson 2015 – 2017
Zoe Portlas 2015 - 2017
Marissa Spear 2016 - 2017
Andy Fuchs 2016 – 2017
Aidan Resh 2015 – 2016
Tyler Stadel 2015 - 2016

Research Technologists

Amanda Penn 2023 - 2024
Nadia Garzione 2022 - 2023
Maureen Mailander 2021 – 2023

High school Students

Naomi Hegwood 2018 (North Dakota Governors School)

Committee Member

Lauren Frazee (PhD - Rutgers, Ecology & Evolution - graduated)
Maria Gabriela Tobar Pinon (MS - NDSU, Plant Sciences - graduated)
Meredith Swanson (MS - NDSU, Plant Sciences - graduated)
Carlos Federico Velasquez Villegas (MS - NDSU, Plant Sciences)
Justin Waraniak (PhD – NDSU, Environment and Conservation Sciences - graduated)
Andrew Miles (MS – PSU, Plant Biology - graduated)
Sydney Bird (MS – PSU, Ecology - graduated)
Denise Alving (PhD – PSU, Forestry)
Stephanie Szarmach (PhD – PSU, Biology)
Nicolas Locatelli (PhD – PSU, Biology)
Isabella Petitta (MS – PSU, Ecology)
Anna Calderon (PhD – PSU, Biology)
Yuxin Luo (PhD – PSU, Plant Biology)
Eleanna Vasquez-Cerda (PhD – PSU, Biology)
Nina Gropp (MS – PSU, Ecology)
Mankanwal Goraya (PhD – PSU, Plant Pathology and Environmental Microbiology)

MEDIA COVERAGE

- 2024 – Discovery of a hybrid lineage offers clues to how trees adapt to climate change – Penn State Research News - https://www.psu.edu/news/research/story/discovery-hybrid-lineage-offers-clues-how-trees-adapt-climate-change/
- 2024 – Surviving ash trees may hold key to saving multiple species of the trees – Penn State Research News - https://www.psu.edu/news/research/story/surviving-ash-trees-may-hold-key-saving-multiple-species-trees/
- 2024 – Fostering Forests 'Out of the Ashes' – Ag Science Magazine - https://agsci.psu.edu/magazine/articles/2024/spring/fostering-forests
- 2024 – Trees in Peril - https://www.nature.org/en-us/what-we-do/our-priorities/tackle-climate-change/climate-change-stories/trees-in-peril/?vu=treesinperil
- 2022 – Torrey pine genetic research may benefit efforts to save chestnut, ash trees https://www.psu.edu/news/research/story/torrey-pine-genetic-research-may-benefit-efforts-save-chestnut-ash-trees/
- 2022 – Geneticists close to grasping how plant communities may adapt to change https://www.psu.edu/news/research/story/geneticists-close-grasping-how-plant-communities-may-adapt-climate-change/
- 2021 – ArbNet Turns Ten! - https://mailchi.mp/mortonarb/xlbgago6wr-325551
- 2020 – The Union Recorder – Lockerly joins nationwide poplar project (https://www.unionrecorder.com/news/lockerly-joins-nationwide-poplar-project/article_f6fcdf96-17aa-11eb-99d8-cf106f802d58.html)
- 2020 – Northwest Missouri State News – New trees adding diversity, research to Missouri Arboretum (https://www.nwmissouri.edu/media/news/2020/10/21arboretumupdate.htm)

- 2020 – The Spectator – Trees: a study on the root of climate change (https://www.spectatornews.com/campus-news/2020/10/trees-a-study-on-the-root-of-climate-change/)
- 2020 – UWEC News – UW-Eau Claire gardens are part of National Science Foundation study (https://www.uwec.edu/news/news/uw-eau-claire-gardens-are-part-of-national-science-foundation-study-4391/)
- 2020 – WDAY/InForum – NDSU gets National Science Foundation grant to study what trees are really telling us (https://www.inforum.com/news/science-and-nature/6563908-NDSU-gets-National-Science-Foundation-grant-to-study-what-trees-are-really-telling-us)
- 2020 – ArbNet Quarterly Newsletter July: ArbNet Partners on National Science Foundation-Funded Project (https://mailchi.mp/mortonarb/xlbgago6wr-324378)
- 2020 – NDSU researchers grow a forest (https://www.ndsu.edu/news/view/detail/58738/)
- 2020 – The importance of quantitative trait differentiation in habitat restoration (https://botany.one/2020/05/the-importance-of-quantitative-trait-differentiation-in-habitat-restoration)
- 2020 – Seeds of Change: Ensuring the Future for Healthy Prairies (https://blog.nature.org/science/2020/05/05/ /seeds-of-change-ensuring-the-future-for-healthy-prairies/)
- 2018 – Field research helps student find her passion (https://www.ndsu.edu/experience/field_research_helps_student)
- 2017 – Sierra: Iconic and almost extinct (https://sierraclub.org/sierra/iconic-and-almost-extinct)
- 2017 - The Spectrum: The trees they need a savin' (http://ndsuspectrum.com/trees-need-savin/)
- 2017 – NDSU research helping save rare, iconic trees (https://www.ndsu.edu/news/view/detail/30166/)
- 2017 Minnesota Phenology Network - Citizen Science Opportunity (http://mailchi.mp/c9ee5282c08d/c8b9i9aq3m)
- 2016 Prairie Public Radio – NPR – Wood for High End Guitars (http://www.prairiepublic.org/radio/mainstreet?post=68474)
- 2016 KVRR Morning News Live (http://www.kvrr.com/news/local-news/Using-Genetics-To-Make-The-Perfect-Guitar/42402662)
- 2016 - NDSU scientist uses genetics to identify wood for high-end guitars (https://www.ndsu.edu/news/banner_stories/jillhamilton/)
- 2014 - Interview on "The Modern Forest" blog (www.blogs.ubc.ca/aitkenlab)
- 2011 - Profiled in Canadian Women in Science and Engineering – Prairies (www.cwse-prairies.ca)

PROFESSIONAL SERVICE

- 2025 – Western Forest Genetics Association & Southern Forest Tree Improvement Conference Joint Meeting – State College, PA (Lead Organizer)
- 2024 – IUFRO World Congress 2024 – The impact of introgressive hybridization on adaptive capacity of forest trees in the Anthropocene (Session Co-Organizer)
- 2023 – Western Forest Genetics Association – President
- 2023 – North American Forest Genetics Society – Multi-National Research Collaborations (US Lead)
- 2023 – Department of Ecosystem Science & Management - Promotion and Tenure Committee
- 2023 – NSF Panelist, Ad hoc Reviewer
- 2022 – Ecology IGDP Graduate Program Admissions Committee
- 2022 – Graduate Reform Committee, Department of Ecosystem Science and Management
- 2022 – North American Forest Genetics Society – Conservation and Restoration Breakout Co-Lead
- 2022 – NSF Panelist

- 2021 – Botany – PLANTs (Preparing Leaders and Nurturing Tomorrow's Scientists) Mentor
- 2021 – Forest Genetics Student Symposium – Career Perspectives Panel
- 2021 – Forest Genetics Student Symposium – Scientific Program Committee
- 2021 – NSF Panelist
- 2020 – NATURE (Nurturing American Tribal Undergraduate Research and Education) Summer Camps
- 2019 – Elected Vice President of Western Forest Genetics Association (President-Elect)
- 2019 - Botanical Society of America, Genetics Section, Award Review
- 2019 – Co-organizer Workshop 'Towards a Unified Research Agenda on Local Adaptation'
- 2019 – present Board Member: Longspur Prairie
- 2018 - NATURE (Nurturing American Tribal Undergraduate Research and Education) Sunday Academy: Adaptation and Climate Change
- 2018 – North Dakota Governors School – High School Student Mentor
- 2017 – present Associate Editor – Plant Ecology and Diversity
- 2017 – present NDSU Environment and Conservation Steering Committee
- 2017 – present Dakota Women in Conservation
- 2017 – present Co-Organizer: Behaviour Ecology & Evolution Research Seminars
- 2017 – present Ecological Society of America: Restoration Ecology
- 2016 - 2017 NDSU Biological Sciences Seminar Series (Organizer)
- 2016 - NSF Panelist
- 2015 - present NDSU Conservation Biology Curriculum Committee
- 2015 - present NDSU Biological Sciences Faculty Affairs Committee
- 2012-2014 - Biology Postdoctoral Representative – Departmental Council, University of Alberta
- Judge R.E. Peter Biology Conference 2013, PDF Research Day 2012, CSEE 2012 and 2015
- 2012 Undergraduate Diversity Mentoring - Society of Evolutionary Biology
- Manuscript Review: Molecular Ecology, New Phytologist, Evolutionary Applications, Tree Genetics and Genomes, Plant Biology, American Journal of Botany, Ecology and Evolution, Heredity, Global Change Biology, Functional Ecology, Journal of Evolutionary Biology, Journal of Applied Ecology, Restoration Ecology, Journal of Biogeography, Plant Genome , Plant Species Biology, Silvae Genetica, PLoSONE, Acta Biologica Cracoviensia Series Botanica, Scientific Reviews, G3: Genes, Genomes, Genetics, Biology Letters, Nature Communications, Evolutionary Applications, Proceedings of the Royal Society B, Conservation Genetics, Global Ecology and Conservation
- Ad hoc reviewer: NSF Dimensions in Biodiversity Program, NSF Plant Genome Research Program, NSF Division of Environmental Biology, NSF IOS - Integrative Ecological Physiology, Netherlands Organisation for Scientific Research, North American Congress in Conservation Biology Abstracts, AgreenSkills+ Fellowships (France), Fonds de recherché Nature et technologies Quebec (Canada), NSERC (Canada), LCCMR (Minnesota), and Nordic Forest Research (Sweden)
- 2014, 2018 Top Reviewer for Molecular Ecology
- Memberships: Society for Conservation Biology, Canadian Society of Ecology and Evolution, Botanical Society of America, Society for the Study of Evolution, Ecological Society of America, American Society of Naturalists, Manitoba Association of Plant Biologists
- Consultant: Pacific Rim Tonewoods
- Consultant: BBC – Green Planet Series