

## Amy Lynn Breen

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### Professional Interests

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I am interested in the effects of climate change and disturbance on high latitude and high altitude terrestrial ecosystems, and specifically the fields of plant ecology and evolution, vegetation ecology, landscape ecology, ecosystem ecology, biogeography, and land change science.

### Current Position

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University of Alaska Fairbanks, Assistant Research Professor, 2013-present

### Academic Background

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**University of Alaska Fairbanks**, Scenarios Network for Alaska & Arctic Planning, Postdoctoral Fellow in Landscape Ecology, 2010-2012.  
Postdoctoral Advisor: Dr. T. Scott Rupp

**University of Alaska Fairbanks**, Ph.D. in Botany. August 2010. Institute of Arctic Biology & Department of Biology and Wildlife.  
Dissertation: *From forest to tundra: Historical biogeography, floristic diversity and nucleotide variation in balsam poplar*  
Dissertation Advisor: Dr. Matthew Olson

**University of Missouri Columbia**, M.S. in Biology. May 2000. Division of Biological Sciences.  
Thesis: *The relationship between plant water status and floral trait expression in fireweed, Epilobium angustifolium L.*  
Thesis Advisor: Dr. Candace Galen

**College of the Atlantic**, B. A. Human Ecology with an emphasis in Plant Ecology. June 1994.  
Thesis: *Appalachian Trail hikers' perception of giardiasis risk in the backcountry*  
Thesis Advisor: Dr. Suzanne Morse

### Teaching Positions

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#### Adjunct Instructor

Biology and Wildlife Department, University of Alaska, Fairbanks, Alaska. 2007-present  
Teach various courses including *Arctic Environmental Change* (Summer 2012, 2014, 2015, 2016, 2018), *Principles of Evolution* (Spring 2011), and *Introduction to the Flora of Alaska* (Summer 2007, 2011).

### **Graduate Teaching Assistant**

Biology and Wildlife Department, University of Alaska, Fairbanks, Alaska. 2006-2010

Assisted with the teaching of various undergraduate course including *Population Ecology* (Spring 2010), *Principles of Evolution* (Fall 2009), *Principles of Genetics* (Fall 2006, Spring 2008), and *Systematic Botany* (Spring 2007).

### **Adjunct Instructor**

University of Alaska, Kuskokwim Campus, Bethel, Alaska. Summer 2008

Co-taught an *Introduction to Ethnobotany* field course to undergraduates.

### **Graduate Teaching Assistant**

Division of Biological Sciences, University of Missouri, Columbia, Missouri. 1998-2000

Assisted with the teaching of various undergraduate courses including *Plant Taxonomy* (Spring 1998, 1999, 2000), and *Introduction to Botany* (Fall 1999, 2000).

### **Graduate Teaching Assistant**

College of the Atlantic, Bar Harbor, Maine. 1993-1994

Assisted with teaching of the undergraduate courses *Biology I* and *Biology II*.

### **Research Positions**

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#### **Research Botanist**

USDA Forest Service, San Juan, Puerto Rico. Summer 2007, 2008

Sampled long-term vegetation plots in Arctic Alaska at the University of Alaska's Toolik Field Station as part of the larger collaborative effort of the International Tundra Experiment (ITEX).

#### **Graduate Curatorial Assistant**

University of Alaska Museum of the North Herbarium. 2007-2008

Curated the herbarium type collection and supervised the digitization of the botanical collection.

#### **Research Technician**

Institute of Arctic Biology, University of Alaska Fairbanks. 2000-2002

Conducted research investigating the effect of experimental warming and extended growing season on arctic plant communities at the University of Alaska's Toolik Field Station as part of the larger collaborative effort of the International Tundra Experiment (ITEX).

#### **Research Technician**

Colorado Natural Areas Program, Denver, Colorado. Summer 2000

Inventoried and mapped invasive weeds, and assisted with writing weed management plans for Colorado State Parks.

#### **Research Assistant**

Acadia National Park, Bar Harbor, Maine. Summer 1992, 1994

Assisted with a vascular plant inventory of sub-alpine habitats within Acadia National Park.

## Research Trainee, NSF's Research Experience for Undergraduates Program

Department of Ecology and Evolutionary Biology, University of Colorado Boulder. Summer 1993

Conducted a descriptive field study of the pollination ecology of two arctic-alpine plant species, *Polygonum viviparum* and *Polygonum bistortoides*.

## Funded Proposals

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6. 2016-2020 US Department of Interior USGS/UAF Alaska Climate Science Center. "*Development and Application of an Integrated Ecosystem Model for Alaska.*" Budget: \$700,000 for the first year. Lead-PI: **Amy Breen** (UAF); Co-PIs: T. Scott Rupp, Bob Bolton, Eugenie Euskerchin, Sergey Marchenko, and Vladimir Romanovsky (UAF).
5. 2014-2018 US Department of Energy. "*Next-Generation Ecosystem Experiment: NGEE Arctic Phase 2 – Advancing predictive understanding of Arctic ecosystems in response to climate change.*" Budget TBD. Lead UAF-PI: Robert Bolton; UAF Co-PIs: **Amy Breen**, Jessica Cherry, Eugenie Euskerchin, Go Iwahana, Mark Lara, Dmitry Nicolsky, and Vladimir Romanovsky.
4. 2014-2015. US Department of the Interior Bureau of Land Management. "*BLM's Unmanned Aircraft Systems (UAS) Resource Management Operations in the National Petroleum Reserve-Alaska.*" Budget: \$100,000. Lead-PI: Michael Hatfield (UAF); Co-PIs: Keith Cunningham and **Amy Breen** (UAF).
3. 2013-2016 NASA Terrestrial Ecology Program, Arctic-Boreal Vulnerability Experiment (ABOVE). "*Recovery and archiving of key Arctic Alaska vegetation map and plot data for long-term vegetation analyses.*" Budget: \$624,386. Lead-PI: Donald Walker (UAF); Co-PIs Uma Bhatt, **Amy Breen**, Gerald Frost, Martha Reynolds (UAF), Howie Epstein (UVA).
2. 2011-2016 US Department of Interior USGS/UAF Alaska Climate Science Center, and Arctic, Northwest Boreal, and Western Alaska Landscape Conservation Cooperatives. "*Development and Application of an Integrated Ecosystem Model for Alaska.*" Budget: \$1,439,751 first and second year. Lead-PI: Dave McGuire (USGS/UAF); Co-PIs: T. Scott Rupp, **Amy Breen**, Eugenie Euskerchin, Sergey Marchenko, Vladimir Romanovsky (UAF).
1. 2011-2013 US Department of the Interior U. S. Geological Survey Alaska Science Center. "*Collaborative Research: Characterizing post-fire successional trajectories in tundra ecosystems.*" Budget: \$155,250. Lead-PI: **Amy Breen** (UAF); Co-PIs: Teresa Hollingsworth. T. Scott Rupp (UAF).

## Publications

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25. Lyu, Z., H. Genet, Y. He, Q. Zhuang, A. D. McGuire, A. Bennett, **A. Breen**, J. Clein, E. S. Euskerchin, K. Johnson, T. Kurkowski, N. J. Pastick, T. S. Rupp, B. K. Wylie, and Z. Zhu. 2018. The role of environmental driving factors in historical and projected carbon dynamics of wetland ecosystems in Alaska. *Ecological Applications* In Press.

24. Walker, D. A., Epstein, H. E., J. Sibik, U. Bhatt, V. E. Romanovsky, **A. L. Breen**, S. Chasníková, R. Daanen, L. A. Druckenmiller, K. Ermokhina, B. C. Forbes, G. V. Frost, J. Geml, E. Kaärlejarvi, O. Khitun, A. Khomutov, T. Kumpula, P. Kuss, M. O. Leibman, G. Matyshak, N. Moskalenko, P. Orekhov, J. Peirce, M. K. Reynolds, and I. Timling. 2018. Vegetation of the Eurasia Arctic Transect, Yamal Peninsula and Franz Josef Land, Russia. *Applied Vegetation Science*. In Press.
23. Genet, H., Y. He, Z. Lyu, A. D. McGuire, Q. Zhuang, J. Clein, D. D'Amore, A. Bennet, **A. Breen**, F. Biles, E. Euskirchen, K. Johnson, T. Kurkowski, S. Schroder, N. Pastick, T. S. Rupp, Y. Zhang, and Z. Zhu. 2017. The role of driving factors in historical and projected carbon dynamics of upland ecosystems in Alaska. *Ecological Applications* doi.org/10.1002/eap.1641
22. Euskirchen, E., A. Bennett, **A. Breen**, H. Genet, M. Lindgren, T. Kurkowski, A. D. McGuire and T. S. Rupp. 2016. Consequences of changes in vegetation and snow cover for climate feedbacks in Alaska and northwest Canada. 11: 105003 *Environmental Research Letters* doi:10.1088/1748-9326/11/10/105003
21. Ackerman, D. & **A. L. Breen**. 2016. Infrastructure development may accelerate range expansion of trembling aspen (*Populus tremuloides*, Salicaceae) into the Arctic. *Arctic* 69:130-136.
20. Walker, D. A., F. J. A. Daniëls, I. Alsos, U. S. Bhatt, **A. L. Breen**, M. Buchhorn, H. Bültmann, L. A. Druckenmiller, M. E. Edwards, D. Ehrich, H. E. Epstein, W. A. Gould, R. A. Ims, H. Meltofte, M. K. Reynolds, J. Sibik, S. S. Talbot, and P. J. Webber. 2016. Circumpolar Arctic vegetation: A hierarchic review and roadmap toward an internationally consistent approach to survey, archive and classify tundra plot data. *Environmental Research Letters* 11: 055005
19. Walker, D. A.; **A. L. Breen**; L. A. Druckenmiller; L. W. Wirth; W. Fisher; M. K. Reynolds; J. Šibík; M. D. Walker; S. Hennekens; K. Boggs; T. Boucher; M. Buchhorn; H. Bültmann; D. J. Cooper; F. J.A Daniëls; S. J. Davidson; J. J. Ebersole; S. C. Elmendorf; H. E. Epstein; W. A. Gould; R. D. Hollister; C. M. Iversen; M.T. Jorgenson; A. Kade; M. T. Lee; W. H. MacKenzie; R. K. Peet; J. L. Peirce; U. Schickhoff; V. L. Sloan; S. S. Talbot; C. E. Tweedie; S. Villarreal; P. J. Webber; and D. Zona. The Alaska Arctic Vegetation Archive. 2016. *Phytocoenologia* doi: <http://dx.doi.org/10.1127/phyto/2016/0128>
18. Abbott, B. W., J. B. Jones, E. A. G. Schuur, F. S. Chapin III, W. B. Bowden, M. S. Bret-Harte, H. E. Epstein, M. D Flannigan, T. K. Harms, T. N Hollingsworth, M. C. Mack, A. David McGuire, S. M. Natali, A. V Rocha, S. E. Tank, M. R. Turetsky, J. E Vonk, K. P. Wickland, G. R Aiken, H. D Alexander, R. M. W. Amon, B. W. Benscoter, Y. Bergeron, K. Bishop, O. Blarquez<sup>2</sup>, B. Bond-Lamberty, **A. L. Breen**, I. Buffam, Y. Cai, C. Carcaillet, S. K. Carey J. M. Chen, H. Y. H. Chen, T. R Christensen, L. W. Cooper, J. H. C. Cornelissen, W. J. de Groot, T. H. DeLuca, E. Dorrepaal, N. Fetcher, J. C. Finlay, B. C. Forbes, N. H. F. French, S. Gauthier, M. P Girardin, S. J. Goetz, J. G. Goldammer, L. Gough, P. Grogan, L. Guo, P. E. Higuera, L. Hinzman F. S. Hu, G. Hugelius, E. E. Jafarov, R. Jandt, J. F. Johnstone, J. Karlsson, E. S. Kasischke, G. Kattner R. Kelly, F. Keuper, G. W. Kling, P. Kortelainen, J. Kouki, P. Kuhry, H. Laudon, I. Laurion, R. W. Macdonald, P. J. Mann, P. J. Martikainen, J. W. McClelland, U. Molau, S. F Oberbauer, D. Olefeldt, D. Paré, M.-A. Parisien, S. Payette, C. Peng, O. S. Pokrovsky, E. B. Rastetter, P. A. Raymond, M. K. Reynolds, G. Rein, J. F. Reynolds, M. Robards, B. M. Rogers, C. Schädel, K. Schaefer, I. K. Schmidt, A. Shvidenko, J.

- Sky, R. G. M. Spencer, G. Starr, R. G. Striegl, R. Teisserenc, L. J. Tranvik, T. Virtanen, J. M. Welker, & S. Zimov. 2016. Biomass offsets little or none of the permafrost carbon release from soils, streams, and wildfire: an expert assessment. *Environmental Research Letters* 11: 034014
17. Stewart, L., I. G. Alsos, C. Bay, **A. Breen**, C. Brochmann, N. Boulanger-Lapointe, O. Broennimann, H. Bueltmann, P. K. Bøcher, C. Damgaard, F. Daniels, D. Ehrich, P. Bronken Eidesen, A. Guisan, S. Hennekens, I.-S. Jónsdóttir, J. Lenoir, P. C. le Roux, E. Lévesque, M. Luoto, J. Nabe-Nielsen, P. Schönswetter, A. Tribsch, L. U. Tveraabak, R. Virtanen, D. A. Walker, K. B. Westergaard, N. G. Yoccoz, J.-C. Svenning, M. Wisz, N. M. Schmidt & L. Pellissier. 2016. Species richness and genetic diversity of arctic vegetation reflect past glaciations and current climate. *Global Ecology and Biogeography*. doi: 10.1111/geb.12424
16. Hewitt, R. E., A. P. Bennett, **A. L. Breen**, T. N. Hollingsworth, D. L. Taylor, F. S. Chapin III & T. S. Rupp. 2015. Getting to the root of the matter: Landscape implications of plant-fungal interactions for tree migration in Alaska. *Landscape Ecology* DOI 10.1007/s10980-015-0306-1
15. Lara, M. J., H. Genet, A. D. McGuire, E. S. Euskirchen, Y. Zhang, D. Brown, M. T. Jorgenson, V. Romanovsky, **A. L. Breen** & W. R. Bolton. 2016. Thermokarst rates intensify due to climate change and forest fragmentation in an Alaskan boreal forest lowland. *Global Change Biology* doi: 10.1111/gcb.13124
14. Wullschleger S. D., **A. L. Breen**, C. M. Iversen, M. S. Olson, T. Näsholm, U. Ganeteg, M. D. Wallenstein & D. J. Weston. 2015. Genomics in a changing arctic: critical questions await the molecular ecologist. *Molecular Ecology* 24(10): 2301-2309.
13. **Breen, A. L.** 2014. Balsam poplar plant communities on the Arctic Slope of Alaska. *Phytocoenologia* 44(1-2): 1-17.
12. Gray, S. T., A. Bennett, W. R. Bolton, **A. L. Breen**, T. Carman, E. Euskirchen, H. Genet, E. Jafarov, J. Jenkins, T. Kurkowski, M. Lindgren, P. Martin, S. McAfee, A. D. McGuire, S. Marchenko, R. Muskett, S. Panda, J. Reynolds, A. Robertson, V. Romanovsky, T. S. Rupp, K. Timm, & Y. Zhang. 2013. Using Integrated Ecosystem Modeling to understand climate change. *Alaska Park Science* 12(2): 12-17.
11. Genet H., A. D. McGuire, K. Barrett, **A. L. Breen**, E. S. Euskirchen, J. F. Johnstone, E. S. Kasischke, A. M. Melvin, A. Bennet, M. C. Mack, T. S. Rupp, A. E. G. Schuur, M. R. Turetsky & F. Yuan. 2013. Modeling the effects of fire severity and climate warming on active layer thickness and soil carbon storage of black spruce forests across the landscape in Interior Alaska. *Environmental Research Letters* 8: 045016. doi:10.1088/1748-9326/8/4/045016
10. Jones, B. M., **A. L. Breen**, B. V. Gaglioti, D. H. Mann, Adrian V. Rocha, G. Grosse, C. D. Arp & D. A. Walker. 2013. Identification of unrecognized tundra fire events on the North Slope of Alaska. *Journal of Geophysical Research* 118: doi:10.1002/jgrg.20113
9. Walker, D. A., I. G. Alsos, C. Bay, N. Boulanger-Lapointe, **A. L. Breen**, H. Bültmann, T. Christiansen, C. Damgaard, F. J. A. Daniëls, S. Hennekens, M. K. Reynolds, P. C. Le Roux, M. Luoto, L. Pellissier,

- R. K. Peet, N.-M. Schmidt, L. Stewart, R. Virtanen, N. G. Yoccoz & M. S. Wisz. 2013. Rescuing valuable Arctic vegetation data for biodiversity models, ecosystem models and a Panarctic vegetation classification. *Arctic: InfoNorth* 66(1): 133-137.
8. **Breen, A. L.**, D. F. Murray & M. S. Olson. 2012. Genetic consequences of glacial survival: the late Quaternary history of balsam poplar (*Populus balsamifera* L.) in North America. *Journal of Biogeography* 39(5): 918-928.
7. Rocha, A. V., M. M. Loranty, P. E. Higuera, M. C. Mack, F. Sheng-Hu, B. M. Jones, **A. L. Breen**, E. B. Rastetter, S. J. Goetz & G. R. Shaver. 2012. The footprint of Alaskan tundra fires during the past half-century: implications for surface properties and radiative forcing. *Environmental Research Letters* 7: 044039. doi:10.1088/1748-9326/7/4/044039
6. **Breen, A. L.**, E. Glenn, A. Yeager & M. S. Olson. 2009. Nucleotide diversity among natural populations of a North American poplar (*Populus balsamifera* L., Salicaceae). *New Phytologist* 182(3): 763-773.
5. Afonina, O. & **A. L. Breen**. 2009. *Dicranum dispersum* (Dicranaceae) and *Sciuro-hypnum ornellanum* (Brachytheciaceae), new to Arctic North America. *The Bryologist* 112(2): 268-272.
4. Walker, M. D., C. H. Wahren, R. D. Hollister, G. H. R. Henry L. E. Ahlquist, J. M. Alatolo, M. S. Bret-Harte, M. P. Calef, T. V. Callaghan, **A. B. Carroll**, H. E. Epstein, I. S. Jonsdottir, J. A. Klein, B. Magnusson, U. Molau, S. F. Oberbauer, S. P. Rewa, C. H. Robinson, G. R. Shaver, K. N. Suding, C. C. Thompson, A. Tolvanen, O. Totland, P. L. Turner, C. E. Tweedie, P. J. Webber, P. A. Wookey. 2006. Plant community responses to experimental warming across the tundra biome. *Proceedings of the National Academy of Sciences* 103(5): 1342-1346.
3. Diggle, P. K., M. M. Meixner, **A. B. Carroll** & C. F. Aschwenden. 2002. Barriers to sexual reproduction in *Polygonum viviparum*: A comparative developmental analysis of *Polygonum viviparum* and *Polygonum bistortoides*. *Annals of Botany* 89(2): 145-156.
2. **Carroll, A. B.**, S. G. Pallardy & C. Galen. 2001. Drought stress, plant water status and floral trait expression in fireweed, *Epilobium angustifolium* (Onagraceae). *American Journal of Botany* 88(3): 348-446.
1. Galen, C., R. A. Sherry & **A. B. Carroll**. 1999. Are flowers physiological sinks or faucets? Costs and correlates of water use by flowers of *Polemonium viscosum*. *Oecologia* 118(4): 461-470.

## Publications in Prep

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Euskirchen, E., **A. L. Breen**, K. Timm, S. Gray, T. S. Rupp, P. Martin· J. Reynolds, A. Sessler, K. Murphy, J. S. Littell, A. Bennett, W. R. Bolton, T. Carman, H. Genet, B. Griffith, T. Kurkowski, M. J. Lara, S. Marchenko, D. Nicosky, S. Panda, V. Romanovsky, R. Rutter, C. L. Tucker, A. D. McGuire. Co-production of knowledge: Developing the Integrated Ecosystem Model to inform resource management decisions in Arctic Alaska. In review for a *Frontiers in Ecology and the Environment* special issue focused on UAF's EPSCoR Northern Test Case.

- Langford, Z., J. Kumar, F. Hoffman, **A. Breen**, and C. Iversen. Integrating Optical and SAR Datasets for Field-Scale Arctic Vegetation Mapping at the Seward Peninsula, Alaska. In Review with *Remote Sensing* for a special issue titled, 'Remote Sensing of Arctic Tundra.'
- Breen, A. L.**, Torn, M., H. Epstein, E. Euskirchen, H. Genet, C. Iversen, Z. Mekonnen, I. Myers-Smith, W. Riley, V. Salmon and S. Wullschleger. Controls and rates of change of shrub cover in the Arctic: How do arctic dynamic vegetation models differ in their results for future scenarios? In prep to submit to *Global Change Biology*.
- T. N. Hollingsworth, **A. Breen**, R. Hewitt & M. Mack. Does fire accelerate shrub expansion in Arctic Alaska tundra? Examining the complex effect of fire history on vegetation and ecosystem dynamics on the Seward Peninsula. In prep to submit to *Ecoscience*.
- Pellissier, L., R. Rohr, C. Damgaard, **A. L. Breen**, M. K. Reynolds, J. A. Mercado-Díaz, M. D. Walker, M. Luoto, M. S. Wisz, W. A. Gould & D. A. Walker. Two decades of Arctic tundra changes linked to hydrological processes. In prep to submit to *Global Change Biology*.
- Rocha, A., **A. L. Breen**, Y. Jiang, J. Drysdale, et al. Title to be determined. Invited paper for the Tansley Review Series on the topic of 'Advances in our understanding of how carbon and energy fluxes in the Arctic are being affected by increasing frequency of fires associated with climate warming.' In prep for *New Phytologist*

## Book Chapters

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- Breen, A. L.**, M. K. Reynolds, I. Timbling, D. F. Murray & D. A. Walker. 2014. Ecology and Evolution of Plants in Arctic and Alpine Environments. Pp. 149-178. In: Rajakaruna, N., B. Boyd & T. Harris. (Eds.) *Plant Ecology and Evolution in Harsh Environments*. Nova Science Publishers, Hauppauge, New York.

## Conference Abstracts

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- Mekonnen, Z. A., W. J Riley, R. F. Grant, V. G Salmon, C. M. Iversen, S. Biraud and **A. L. Breen**. Modeling hydrological controls on vegetation distribution across topography in Seward Peninsula, Alaska. Abstract #B41A-1932. 2017 Fall Meeting, American Geophysical Union. San Francisco, California. December 2017.
- Timm, K., J. Reynolds, J. S Littell, K. Murphy, E. S. Euskirchen, **A. L. Breen**, S, T Gray, A. D. McGuire, S. T Rupp and The Integrated Ecosystem Model for Alaska and Northwest Canada Team. Co-production and modeling landscape change – success and challenges in developing useful climate science. Abstract #GC31A-0991. 2017 Fall Meeting, American Geophysical Union. San Francisco, California. December 2017.
- Salmon, V. G., C. M. Iversen, **A. L. Breen**, P. E Thornton and S. Wullschleger. Belowground plant dynamics across and Arctic landscape. Abstract #B41A-1938. 2017 Fall Meeting, American Geophysical Union. San Francisco, California. December 2017.

- Marchenko, S. S., H. Genet, E. S. Euskirchen, **A. L. Breen**, A. D. McGuire, S. T Rupp, V. E Romanovsky and J. E Walsh. Historical and possible future changes in permafrost and active layer thickness in Alaska: Implications for landscape changes and the permafrost carbon pool. Abstract #C23F-03. 2017 Fall Meeting, American Geophysical Union. San Francisco, California. December 2017.
- Lyu, Z., H. Genet, Y. He, Q. Zhuang, A. D. McGuire, A. Bennett, **A. Breen**, J. Klein, E. S. Euskirchen, K. Johnson, T. Kurkowski, N. J. Pastick, T. S. Rupp, B. K. Wylie, and Z. Zhu. The role of driving factors in historical and projected carbon dynamics of wetland ecosystems of Alaska. Abstract #B41G-2057. 2017 Fall Meeting, American Geophysical Union. San Francisco, California. December 2017.
- Hatfield, M. C., **A. L. Breen** and R. Thureau. BLM Unmanned Aircraft Systems (UAS) Resource Management Operations. Abstract #B53H-0609. 2016 Fall Meeting, American Geophysical Union. San Francisco, California. December 2016.
- Euskirchen, E., **A. L. Breen**, A. Bennet, H. Genet, M. Lindgren, T. Kurkowski, A. D. McGuire and T. S. Rupp. Consequences of changes in vegetation and snow cover for climate feedbacks in Alaska and northwest Canada. Abstract #B54F-04. 2016 Fall Meeting, American Geophysical Union. San Francisco, California. December 2016.
- Marchenko, S. S., H. Genet, E. S. Euskirchen, **A. L. Breen**, A. D. McGuire, S. T Rupp, V. E Romanovsky, W. R. Bolton and J. E Walsh. Estimating rates of permafrost degradation and their impact on ecosystems across Alaska and Northwest Canada using the process-based permafrost dynamics model GIPL as a component of the Integrated Ecosystem Model. Abstract GC24A-07. 2016 Fall Meeting, American Geophysical Union. San Francisco, California. December 2016.
- Breen, A. L.**, J. Šibík, L. Druckenmiller, K. Boggs, T. Boucher, S. Chasníková, D. J. Cooper, J. J. Ebersole, H. E. Epstein, W. Gould, S. M. Hennekens, M. T. Jorgenson, A. Kade, M. Lee, R. Peet, M. K. Reynolds, U. Schickhoff, S. Talbot, C. Tweedie, S. Villarreal, L. Wirth, M. D. Walker, P. J. Webber & D. A. Walker. The Alaska Arctic Vegetation Archive: A report on the status of the Arctic Vegetation Archive and an application in northern Alaska, focusing along the Dalton Highway. 58<sup>th</sup> Annual Symposium of the International Association of Vegetation Science. Brno, Czech Republic. July 2015.
- Breen, A. L.**, T. N. Hollingsworth, M. C. Mack and B. M. Jones. Succession stages of tundra plant communities following wildfire disturbance in Arctic Alaska. Abstract #B31C-0567. 2015 Fall Meeting, American Geophysical Union. San Francisco, California. December 2015.
- Lara, M. J., H. Genet, A. D. McGuire, E. S. Euskirchen, Y. Zhang, D. Brown, M. T. Jorgenson, V. Romanovsky, **A. L. Breen** & W. R. Bolton. Thermokarst rates intensify due to climate change and forest fragmentation in an Alaskan boreal forest lowland. Abstract #B51G-0510. 2015 Fall Meeting, American Geophysical Union. San Francisco, California. December 2015.



- Walker, D. A., F. J. A. Daniëls, I. Alsos, U. S. Bhatt, **A. L. Breen**, M. Buchhorn, H. Bültmann, M. E. Edwards, D. Ehrich, H. E. Epstein, W. A. Gould, R. A. Ims, H. Meltofte, D. F. Murray, M. K. Raynolds, and S. S. Talbot. A hierarchic approach to examining panArctic vegetation with a focus on the linkages between remote sensing and plot-based studies. Abstract #B53C-0577. 2015 Fall Meeting, American Geophysical Union. San Francisco, California. December 2015.
- Hewitt, R. E., A. P. Bennett, **A. L. Breen**, T. N. Hollingsworth, D. L. Taylor, F. S. Chapin III & T. S. Rupp. Getting to the root of the matter: Landscape implications of plant-fungal interactions for tree migration in Alaska. Abstract #GC13K-03. Abstract #B53C-0577. 2015 Fall Meeting, American Geophysical Union. San Francisco, California. December 2015.
- Genet, H. Y. Zhang, A. D. McGuire, Y. He, K. D. Johnson, D. V. D'Amore, X. Zhou, A. Bennett, **A. L. Breen**, F. E. Biles, N. B. Bliss, E. S. Euskirchen, T. A. Kurkowski, N. Pastick, S. T. Rupp, B. K. Wylie, Z. Zhu & Q. Zhuang. The Importance of Permafrost Thaw, Fire and Logging Disturbances as Driving Factors of Historical and Projected Carbon Dynamics in Alaskan Ecosystems. Abstract #B53H-05. 2014 Fall Meeting, American Geophysical Union. San Francisco, California. December 2014.
- Tucker, C., E. S. Euskirchen, H. Genet, A. D. McGuire, S. T. Rupp, **A. L. Breen**, T. A. Kurkowski, A. Bennett & G. Kofinas. Modeled changes in terrestrial C storage on the Arctic coastal plain of Alaska suggest a mid-century 21st shift from C sink to source. Abstract #B43J-07. 2014 Fall Meeting, American Geophysical Union. San Francisco, California. December 2014.
- Hollingsworth, T. N., M. C. Mack & **A. L. Breen**. Evaluating post-fire ecosystem effects in tussock tundra of the Seward Peninsula: Characterizing above-ground biomass accumulation, soil nutrient pools, and foliar nitrogen. Abstract #B41E-0122. 2014 Fall Meeting, American Geophysical Union. San Francisco, California. December 2014.
- Breen, A. L.** 2014. Balsam poplar plant communities in Arctic Alaska. *In* Walker, D.A. (Ed). Alaska Arctic Vegetation Archive Workshop, Boulder, Colorado, October 14-16, 2013. CAFF Proceedings Report #11. Akureyri, Iceland. ISBN: 978-9935-431-29-5.
- Breen, A. L.**, L. A. Druckenmiller, M. K. Raynolds, S. Hennekens, M. D. Walker & D. A. Walker. 2014. Progress toward an Alaskan prototype for the Arctic Vegetation Archive: Work flow and data dictionary. *In* Walker, D.A. (Ed). Alaska Arctic Vegetation Archive Workshop, Boulder, Colorado, October 14-16, 2013. CAFF Proceedings Report #11. Akureyri, Iceland. ISBN: 978-9935-431-29-5.
- Genet, H., A. D. McGuire, **A. L. Breen**, E. S. Euskirchen, M. C. Mack, A. M. Melvin, T. S. Rupp, E. A. Schuur & F. Yuan. Modeling post-fire vegetation succession and its effect on permafrost vulnerability and carbon balance. Abstract B331-0585. 2013 Fall Meeting, American Geophysical Union. San Francisco, California. December 2013.
- Walker, D. A., **A. L. Breen**, D. Broderman, H. E. Epstein, W. Fisher, J. Grunblatt, T. Heinrichs, M. K. Raynolds, M. D. Walker & L. Wirth. Recovery and archiving key Arctic Alaska vegetation map and

plot data for the Arctic-Boreal Vulnerability Field Experiment (ABOVE). Abstract B33I-0580. 2013 Fall Meeting, American Geophysical Union. San Francisco, California. December 2013.

**Breen, A.L.**, A. Bennett, R. Hewitt, T. N. Hollingsworth, H. Genet, E. S. Euskirchen, T. S. Rupp & A. D. McGuire. Tundra fire and vegetation dynamics: simulating the effect of climate change on fire regimes in Arctic ecosystems. Abstract B33I-0592. 2013 Fall Meeting, American Geophysical Union. San Francisco, California. December 2013.

Raynolds, M. K., **A. L. Breen**, D. A. Walker, R. Elvan, R. Belland, N. Konstantinova, H. Kristinsson & S. Hennekens. 2013. The Pan-Arctic Species List (PASL). *In* Walker, D.A., A. L. Breen, M. K. Raynolds & M. D. Walker, M.D. (Eds). 2013. Arctic Vegetation Archive (AVA) Workshop, Krakow, Poland, April 14-16, 2013. CAFF Proceedings Report #10. Akureyri, Iceland. ISBN: 978-9935-431-24-0.

**Breen, A. L.**, M. K. Raynolds, S. Hennekens, M. D. Walker & D. A. Walker. 2013. Toward an Alaskan prototype for the Arctic Vegetation Archive. *In* Walker, D.A., A. L. Breen, M. K. Raynolds & M. D. Walker, M.D. (Eds). 2013. Arctic Vegetation Archive (AVA) Workshop, Krakow, Poland, April 14-16, 2013. CAFF Proceedings Report #10. Akureyri, Iceland. ISBN: 978-9935-431-24-0.

Jones, B. M., **A. Breen**, B. Gaglioti, D. H. Mann, M. L. Kunz, D. Selkowitz, G. Grosse, C. D. Arp, P. E. Higuera, D. Verbyla, V. E. Romanovsky & D. A. Walker. Identification of previously unrecognized tundra fire events on the Arctic Slope of Alaska. Abstract B23F-0524. 2012 Fall Meeting, American Geophysical Union. San Francisco, California. December 2012.

McGuire, A. D., S. T. Rupp, A. Bennett, W. R. Bolton, **A. Breen**, E. S. Euskirchen, T. Kurkowski, S. Marchenko, V. E. Romanovsky, M. P. Waldrop & F. M Yuan. The Alaska Integrated Ecosystem Model: An interdisciplinary tool to assess the responses of natural resources in Alaska to climate change. Abstract B33E-0562. 2012 Fall Meeting, American Geophysical Union. San Francisco, California. December 2012.

Yuan, F. M., A. D. McGuire, S. H. Yi, E.S. Euskirchen, T. S. Rupp, **A. Breen**, T. Kurkowski, E. Kasischke & J. Harden. Effects of Future Warming and Fire Regime Change on Boreal Soil Organic Horizons and Permafrost Dynamics in Interior Alaska. Abstract GC43C-0947. 2011 Fall Meeting, American Geophysical Union. San Francisco, California. December 2011.

## Technical Reports

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**Breen, A. L.**, A. Bennett, T. Kurkowski, M. Lindgren, J. Schroder, A. D. McGuire, and T. S. Rupp. 2016. Projecting vegetation and wildfire responses to changing climate and fire management in Interior Alaska. Alaska Fire Science Consortium, Research Summary 2016-1. University of Alaska Fairbanks.

Rupp, T. S., P. Duffy, M. Leonawicz, M. Lindgren, **A. Breen**, T. Kurkowski, A. Floyd, A. Bennett, and L. Krutikov. 2016. Climate Scenarios, Land Cover, and Wildfire in Alaska. Pp. 17-52 *In*: Zhiliang, Z. and A. D. McGuire (Eds.) *Baseline and projected future carbon storage and greenhouse gas fluxes in ecosystems in Alaska*. USGS Professional Paper 1826.

McGuire, A. D. and the IEM Team. 2015. Interim Progress Report for the Integrated Ecosystem Model for Alaska and Northwest Canada. Fairbanks, AK: Scenarios Network for Alaska and Arctic Planning. 39 pp.

**Breen, A. L.**, T. N. Hollingsworth & T. S. Rupp. Collaborative research on characterizing post-fire successional trajectories in tundra ecosystems. 2013 Final Report. Research Work Order #195, USGS Alaska Science Center. 13 pp.

McGuire, D. A., T. S. Rupp, V. Romanovsky, E. Euskirchen, S. Marchenko, **A. Breen**, H. Genet, S. McAfee, R. Muskett, Y. Zhang, E. Javarov, T. Kurkowski, M. Lindgren, A. Bennett & T. Carman. 2013. Annual 2012 Progress Report on the Integrated Ecosystem Model for Alaska and Canada Project: A collaborative project for the USGS/UAF Alaska Climate Science Center and the Arctic, Western Alaska and Northwest Boreal Landscape Conservation Cooperatives. USGS/UAF Alaska Climate Science Center. 27 pp.

Walker, D.A., **A. L. Breen**, M. K. Reynolds & M. D. Walker, M.D. (Eds). 2013. Arctic Vegetation Archive (AVA) Workshop, Krakow, Poland, April 14-16, 2013. CAFF Proceedings Report #10. Akureyri, Iceland. ISBN: 978-9935-431-24-0.

Strauss, J., Y. Shur, M. Kanevskiy, D. Fortier, K. Bjella, **A. Breen** & C. Johnson. 2012. Expedition Itkillik 2012. *In Expeditions to permafrost 2012: Alaska North Slope/Itkillik, Thermokarst in Central Yakutia, and EyeSight-NAAT-Alaska. Reports on Polar and Marine Research* Alfred Wegener Institute for Polar and Marine Research. 655: 3-28.

Rupp, T.S, D. McGuire, V. Romanovsky, E. Euskirchen, S. Marchenko, **A. Breen**, F-M. Yuan, S. McAfee, R. Muskett & T. Kurkowski. 2012. Integrated Ecosystem Model for Alaska: A collaborative project for the Arctic Landscape Conservation Cooperative. Final Report, CESU agreement #701817K403, FWS #0002/701819T060 Task Order #2. 30 pp.

Parker, Carolyn, **A. B. Carroll**, K. Beattie & T. Craig. 2007. Toolik Lake Research Natural Area/ACEC Rare Plant Inventory: 2002-06 Final Report. BLM-Alaska and University of Alaska Museum Herbarium, Fairbanks. 26 pp.

**Carroll, A. B.**, J. Schneiderheinze & C. Parker. 2006. Toolik Lake Research Natural Area/ACEC Rare Plant Inventory. 2005 Annual Report. BLM-Alaska and University of Alaska Museum Herbarium, Fairbanks. 10 pp.

**Carroll, A. B.**, C. Parker & T. Craig. 2003. Toolik Lake Research Natural Area/ACEC Rare Plant Inventory. 2002 Annual Report. BLM-Alaska Open File Report 90. 15 pp.

## **Fellowships**

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National Science Foundation Doctoral Dissertation Improvement Grant, 2006-2008

Center for Global Change and Arctic System Science Research Grant, 2003-2005

University of Alaska Graduate School Fellowship Award, 2006-2007

University of Alaska Institute of Arctic Biology Summer Research Fellowship, 2006

Alaska Quaternary Center David and Rachel Hopkins Scholarship, 2005-2006  
National Science Foundation Alaska EPSCoR Graduate Research Fellowship Award, 2005-2006  
University of Alaska Druska Carr Schaible Memorial Scholarship in Biological Sciences, 2005-2006  
University of Alaska Institute of Arctic Biology Summer Research Fellowship, 2004  
University of Alaska Druska Carr Schaible Memorial Scholarship in Biological Sciences, 2003-2004  
University of Alaska Graduate School Fellowship Award, 2002-2003

### Honors and Awards

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International Polar Year-New Generation of Polar Researchers Award, 2008  
Otto T. Geist Award, University of Alaska Museum of the North, 2005-2006  
Botanical Society of America Karling Graduate Student Research Award, 1999  
Wild Gardens of Acadia Award, 1994

### Professional Memberships and Services

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**Member** of the American Geophysical Union, 2013-present  
**Member** of the Botanical Society of America, 1998-present  
**Member** of the Association of Early Career Polar Scientists, 2008-present  
**Member** of the Editorial Board of *Phytocoenologia* - International journal for vegetation survey and classification, 2014-present  
**Steering committee member** for the Conservation of Arctic Flora & Fauna (CAFF) Arctic Vegetation Archive Working Group, 2012-present  
**Planning committee member** for the 'Opportunities to Apply Remote Sensing in Boreal/Arctic Wildlife Management and Science Workshop.' This was a 2-day meeting in April 2017 organized by the Alaska Fire Science Consortium with support from NASA.  
**Network Partner** for the Peregrine Fund Tundra Conservation Network, 2013-present  
**Co-organizer** of the 'Circumpolar Arctic Classification' Special Session at the International Association of Vegetation Science Meeting on July 25, 2018 in Bozeman, Montana.  
**Co-organizer** of the Second Arctic Vegetation Archive Workshop. This was a 2-day meeting held March 30-31, 2017 during Arctic Science Summit Week in Prague, Czech Republic with ~25 international participants.  
**Co-organizer** of the Alaska Arctic Vegetation Archive Workshop. This was a 2-day meeting held October 14-16, 2013 in Boulder, Colorado with ~15 participants.  
**Co-organizer** of the First Arctic Vegetation Archive Workshop. This was a 2-day meeting held April 14-16, 2013 during Arctic Science Summit Week in Krakow, Poland with ~30 international participants.  
**Invited workshop participant.** Climate, Conservation, and Community in Alaska and Northwest Canada, Alaska Climate Science Center and Alaska Landscape Conservation Cooperative, and University of Alaska Fairbanks Workshop, November 3-6, 2014.  
**Invited workshop participant.** Western Alaska Landscape Conservation Cooperative Science Needs Workshop, April 26-27, 2011.  
**Grant reviewer** for National Science Foundation Division of Polar Programs, National Science Foundation Division of Environmental Biology.

**Manuscript reviewer** for: American Journal of Botany, Canadian Journal of Forest Research, Journal of Biogeography, Journal of Vegetation Science, Global Change Biology.

### Professional Activities & Outreach

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**Co-Instructor** for the field course “*Arctic Environmental Change: A Field Excursion*” taught for University of Alaska’s Summer Sessions. This interdisciplinary 15-day course introduces future scientists to the Arctic environment in northern Alaska, including an in-depth examination of the physical, biological, and human responses and adaptations to ongoing climate change. The class consists of ~10 graduate students and advanced undergraduates students. Partial funding for the course is provided by the National Science Foundation’s Arctic Science, Engineering, and Education for Sustainability (ArcSEES) Program. June 2012, 2014, 2015, 2016, 2018.

**Co-Instructor** for an ethnobotany field course taught for University of Alaska’s Kuskokwim Campus. This 14-day course occurred in Quinhagak, AK and was team taught with two Yup’ik native elders emphasizing exchange of indigenous and western knowledge. The class consisted of ~10 undergraduate students. July 2008.

**K-12 Outreach.** Organizing committee and volunteer for the 30<sup>th</sup> Annual Alaska Geography Bee. April 2018.

**K-12 Outreach.** Taught a lesson and led a field trip to the tundra for middle school students at the Anvil City Science Academy in Nome, Alaska as outreach for the Arctic in the Classroom Project and the Department of Energy funded project, “*Next Generation Ecosystem Experiment: Arctic.*” October 2016.

**K-12 Outreach.** Taught an interactive lesson to a 5<sup>th</sup> grade class at Nome Elementary School about wildfire in Alaska as outreach for the Department of the Interior U. S. Geological Survey Alaska Science Center funded project “*Collaborative Research: Characterizing post-fire successional trajectories in tundra ecosystems.*” September 2013.

**Public Outreach.** Publication of a fact sheet for the project “Integrated Ecosystem Model for Alaska and Northwest Canada” for distribution to state and federal agencies in the northwest North America. June 2013. (<https://csc.alaska.edu/sites/default/files/FINAL-IEM-CSC-Fact-Sheet-7June2013.pdf> )

**Media Outreach.** Interview for Alaska News Nightly titled “Computer Model To Predict Climate-Driven Ecosystem Changes.” Alaska Public Radio audio starts at ~8:30. May 2012. (<http://www.alaskapublic.org/2012/05/02/alaska-news-nightly-may-2-2012/>)

**Public Outreach.** Volunteered as an Arctic field correspondent for the IPY-Ice Stories: Dispatches from Polar Scientists Outreach Project, Exploratorium Museum, San Francisco, CA. Summer 2008. (<http://icestories.exploratorium.edu/dispatches/arctic-projects/the-changing-arctic/>)

**Featured Scientist.** Interview for the USGS/UAF Alaska Climate Science Center. (<https://csc.alaska.edu/featured-scientists/amy-breen> )

## Oral Presentations

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- Marchenko, S. S., H. Genet, E. S. Euskirchen, **A. L. Breen**, A. D. McGuire, S. T Rupp, V. E Romanovsky and J. E Walsh. Historical and possible future changes in permafrost and active layer thickness in Alaska: Implications for landscape changes and the permafrost carbon pool. Abstract #C23F-03. 2017 Fall Meeting, American Geophysical Union. San Francisco, California. December 2017.
- Breen, A. L.**, C. Iversen, V. Salmon, V. Sloan, H. Vander Stel, S. Wullschleger & the NGEE Arctic Team. Vegetation composition and structure of High and Low Arctic NGEE Arctic sites. Ignite Talk at the NGEE Arctic All Hands Meeting. New Orleans, Louisiana. December 9, 2017.
- Breen, A. L.**, J. Šibík, L. S. Druckenmiller, H. Bültmann, F. J.A. Daniëls, K. Ermokhina, S. Hennekens, M. K. Reynolds, M. D. Walker, L. W. Wirth, D. A. Walker and the AVA-Alaska Team. Status of the Arctic Vegetation Archive and the Regional Arctic Alaska Prototype. Arctic Data and Information Science Meet System Science. Prague, Czech Republic. March 2017.
- Breen, A. L.**, D. A. Walker, L. S. Druckenmiller, J. Šibík, M. K. Reynolds, L. Wirth, M. D. Walker and S. Hennekens. Alaska Arctic Vegetation Archive (AVA-AK). Arctic Vegetation Archive Workshop, Arctic Science Summit Week Business Meeting. Prague, Czech Republic. March 2017.
- Marchenko, S. S., H. Genet, E. S. Euskirchen, **A. L. Breen**, A. D. McGuire, S. T Rupp, V. E Romanovsky, W. R. Bolton and J. E Walsh. Estimating rates of permafrost degradation and their impact on ecosystems across Alaska and Northwest Canada using the process-based permafrost dynamics model GIPL as a component of the Integrated Ecosystem Model. Abstract GC24A-07. 2016 Fall Meeting, American Geophysical Union. San Francisco, California. December 2016.
- Breen, A. L.**, A. Bennett, T. Kurkowski, M. Lindgren, J. Schroder, A. D. McGuire, and T. S. Rupp. 2016. Projecting vegetation and wildfire responses to changing climate and fire management in Interior Alaska. Alaska Wildland Fire Coordinating Group Interagency Fall Fire Review. Anchorage, Alaska. October 11-13, 2016.
- Bolton, W. R., **A. L. Breen**, A.D. McGuire, T.S. Rupp, E. Euskirchen, S. Marchenko, V. E. Romanovsky, and the IEM Team. 2016. The Integrated Ecosystem Model for Alaska and Northwest Canada: An interdisciplinary decision support tool to inform adaptation to Arctic environmental change. The Ecosystem Approach to Management International Conference. Fairbanks, Alaska. September 23-25, 2016.
- Hewitt, R. E., A. P. Bennett, **A. L. Breen**, T. N. Hollingsworth, D. L. Taylor, F. S. Chapin III & T. S. Rupp. Getting to the root of the matter: Landscape implications of plant-fungal interactions for tree migration in Alaska. Abstract #GC13K-03. Abstract #B53C-0577. 2015 Fall Meeting, American Geophysical Union. San Francisco, California. December 2015.
- D.A. Walker, U.S. Bhatt, **A.L. Breen**, M. Buchhorn, L.A. Druckenmiller, H.E. Epstein, W. Fisher, S. Hennekens, M.K. Reynolds, J. Sibik, M.D. Walker & L.M. Wirth. Alaska Arctic Vegetation and

Map Archives for ABoVE: A Pre-ABoVE project. 1<sup>st</sup> NASA Arctic and Boreal Vulnerability Experiment Science Team Meeting. Minneapolis, Minnesota. October 2015.

- Breen, A. L.**, A. D. McGuire, T. S. Rupp, E. Euskirchen, S. Marchenko, V. E. Romanovsky & the IEM Team. The Integrated Ecosystem Model for Alaska and Northwest Canada: An interdisciplinary decision support tool to inform adaptation to Arctic environmental change. 2014 Arctic Change Conference. Ottawa, Ontario. December 2014.
- Breen, A. L.**, D. A. Walker, L. Druckenmiller, S. Hennekens, M. K. Raynolds, H. Epstein, J. Sibík, L. Wirth, M. D. Walker and the AAVA Team. Progress on the northern Alaska prototype of the Arctic Vegetation Archive. 2014 Arctic Change Conference. Ottawa, Ontario. December 2014.
- Breen, A. L.** The Integrated Ecosystem Model for Alaska and Northwest Canada: An Interdisciplinary Decision Support Tool to Inform Adaptation to Rapid Environmental Change. Climate, Conservation and Community in Alaska and Northwest Canada Conference sponsored by the USGS/UAF Alaska Climate Science Center. Anchorage, Alaska. November 2014.
- Breen, A. L.**, D. A. Walker, M. K. Raynolds, R. Daanen, M. Kanevskiy, G. Kofinas, Y. Shur & W. Streever. Preparing Future Arctic Scientists: A Field Excursion to the North Slope to Study Arctic Environmental Change. 2014 Arctic Science Conference. Fairbanks, Alaska. September 2014.
- Bültmann, H. F., J. A. Daniëls, D. A. Walker, **A. L. Breen**, M. K. Raynolds, & H. Meltofte. The importance of the Circumpolar Arctic Vegetation Map (CAVM), the Arctic Biodiversity Assessment (ABA) and the Arctic Vegetation Archive (AVA) for the evaluation of future changes in flora and vegetation of the Arctic. 57<sup>th</sup> Annual Symposium of the International Association for Vegetation Science. University of Western Australia, Perth, Western Australia. September 2014.
- McGuire, A. D., T. S. Rupp, **A. Breen**, E. Euskirchen & V. Romanovsky. 2014. The Integrated Ecosystem Model (IEM) for Alaska and Northwest Canada: An interdisciplinary tool to assess the responses of natural resources to climate change. US-International Association of Landscape Ecologists Annual Symposium. Anchorage, Alaska. May 2014.
- Hollingsworth, T. N. & **A. L. Breen**. Effect of tundra fires on post-fire vegetation. Alaska Fire Science Consortium Webinar Series. University of Alaska, Fairbanks, Alaska. April 2014.
- Tape, K. & **A. L. Breen**. Tundra research in Arctic Alaska. Invited talk for the Tundra Conservation Network Workshop of the Peregrine Fund. Boise, Idaho. February 2014.
- Breen, A. L.**, L. A. Druckenmiller, M. K. Raynolds, S. Hennekens, M. D. Walker & D. A. Walker. Progress toward the Alaska Arctic Vegetation Archive. Alaska Botany Forum. University of Alaska, Fairbanks, Alaska. November 2013.
- Breen, A. L.**, L. A. Druckenmiller, M. K. Raynolds, S. Hennekens, M. D. Walker & D. A. Walker. Progress toward the Alaska Arctic Vegetation Archive. Invited talk for the Alaska Arctic Vegetation Archive Workshop. Boulder, Colorado. October 2013.

- Breen, A. L.** & T. N. Hollingsworth. Effect of tundra fires on post-fire vegetation. Invited public presentation for the National Park Service, Western Arctic National Parklands. Nome, Alaska. September 2013.
- Breen, A. L.**, A. Bennett, R. E. Hewitt, A. Springsteen, M. Lindgren, T. N. Hollingsworth & T. S. Rupp. Tundra fire and vegetation dynamics: Simulating the effects of climate change on fire regimes in Arctic ecosystems. The Changing North: Predictions and Scenarios Session, Arctic Science Summit Week. Krakow, Poland. April 2013.
- Breen, A. L.**, D. A. Walker, M. K. Reynolds & S. Hennekans. Toward an Alaskan prototype for the Arctic Vegetation Archive. Arctic Vegetation Archive Workshop, Arctic Science Summit Week Business Meeting. Krakow, Poland. April 2013.
- Breen, A. L.**, D. A. Walker, M. Reynolds & S. Hennekans. Toward an Alaskan prototype for the International Arctic Vegetation Database. IAVD-CBIONET Arctic Plant Modeling Workshop. Roskilde, Denmark. December 2012.
- Breen, A. L.**, D. A. Walker, M. Reynolds & S. Hennekans. Toward a panarctic species list for the International Arctic Vegetation Databank. Nordic Network on Climate and Biodiversity Workshop. Roskilde, Denmark. May 2012.
- Breen, A. L.**, T. S. Rupp, D. McGuire, V. Romanovsky, E. Euskirchen & S. Marchenko. An Integrated Ecosystem Model for Alaska. Alaska Center for Climate Assessment & Policy Climate Webinar Series. University of Alaska, Fairbanks, Alaska. April 2012.
- Breen, A. L.**, T. S. Rupp, D. McGuire, V. Romanovsky, E. Euskirchen & S. Marchenko. The Alaska Integrated Ecosystem Model. Alaska Cooperative Fish & Wildlife Research Unit Annual Review. Fairbanks, Alaska. March 2012.
- Breen, A. L.**, T. S. Rupp, D. McGuire, V. Romanovsky, E. Euskirchen & S. Marchenko. Alaska Integrated Ecosystem Model: the pilot year. Webinar presentation to the steering committee of the Arctic Landscape Conservation Cooperative in Fairbanks, Alaska. January 2012.
- Breen, A. L.** Vegetation change in western Alaska. Climate Change Seminar Series. University of Alaska. Fairbanks, Alaska. October 2011.
- Breen, A. L.**, T. S. Rupp, D. McGuire, V. Romanovsky, E. Euskirchen & S. Marchenko. An Integrated Ecosystem Model for Alaska. US Geological Survey Land Use and Climate Change Brown Bag Seminar. Webinar presentation in Reston, Virginia. October 2011.
- Breen, A.L.** & R. Meier. Ethnobotany: Traditional uses and knowledge of native plants. Discover Alaska Lecture Series. University of Alaska. Fairbanks, Alaska. August 2011.
- Breen, A. L.** Vegetation change in western Alaska: past, present and future. Western Alaska Landscape Conservation Cooperative Science Workshop. Anchorage, Alaska. April 2011.



- Breen, A. L.**, T. S. Rupp, D. McGuire, V. Romanovsky, E. Euskirchen & S. Marchenko. An Integrated Ecosystem Model for Alaska. Webinar presentation to the steering committee of the Arctic Landscape Conservation Cooperative in Fairbanks, Alaska. December 2010.
- Breen, A. L.** From forest to tundra: Historical biogeography, floristic diversity and nucleotide variation in balsam poplar. Ph.D. defense seminar. University of Alaska. Fairbanks, Alaska. June 2010.
- Breen, A. L.**, M. S. Olson & D. F. Murray. The Late Quaternary history of balsam poplar in North America. IPY-New Generation of Polar Researchers Symposium. Colorado Springs, Colorado. May 2008.
- Carroll, A. B.** Trees among the tundra: the Late Quaternary history of balsam poplar in North America. Quaternary Quaff and Query. Alaska Quaternary Center Seminar Series. University of Alaska, Fairbanks. April 2006.
- Carroll, A. B.** The Late Quaternary history of balsam poplar in Alaska. Alaska Rare Plant Forum. Fairbanks, Alaska. April 2006.
- Carroll, A. B.** & M. S. Olson. Trees among the tundra. Biology and Wildlife Graduate Student Seminar. University of Alaska, Fairbanks. October 2005.
- Carroll, A. B.**, E. Glenn, A. Yeager & M. S. Olson. Adaptive divergence in balsam poplar across a latitudinal cline. Joint annual meeting of the Society for the Study of Evolution, the Society of Systematic Biologists, and the American Society of Naturalists. Fairbanks, Alaska. June 2005.
- Carroll, A. B.** Establishment of a satellite herbarium of the University of Alaska: A floristic resource for scientists at the Toolik Field Station. Alaska Rare Plant Forum. Fairbanks, Alaska. April 2002.
- Carroll, A. B.** Do flowers respond to drought-stress? The relationship between plant water status and floral trait expression in fireweed, *Epilobium angustifolium*. M. S. Defense Seminar. University of Missouri, Columbia, Missouri. March 2000.
- Galen, C. & **A. B. Carroll**. The abiotic environment as a template of floral evolution. XVI International Botanical Congress. Saint Louis, Missouri. August 1999.
- Carroll, A. B.** Evidence for ecological cleistogamy in the alpine plant, *Lewisia pygmaea*. Ecology Seminar. University of Missouri, Columbia, Missouri. February 1998.

### Poster Presentations

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- Breen, A. L.**, M. Torn, H. Epstein, E. Euskirchen, H. Genet, C. Iversen, Z. Mekonnen, I. Myers-Smith, W. Riley, V. Salmon and S. Wullschleger. Controls and rates of change of shrub cover in the Arctic: How do arctic dynamic vegetation models differ in their results for future scenarios? 2018 Department of Energy Environmental System Science PI Meeting. Potomac, Maryland. May 1, 2018.

- Mekonnen, Z. A., W. J. Riley, R. F. Grant, V. G. Salmon, C. M. Iversen, S. Biraud and **A. L. Breen**. Modeling hydrological controls on vegetation distribution across topography in Seward Peninsula, Alaska. Abstract #B41A-1932. 2017 Fall Meeting, American Geophysical Union. San Francisco, California. December 2017.
- Timm, K., J. Reynolds, J. S. Littell, K. Murphy, E. S. Euskirchen, **A. L. Breen**, S. T. Gray, A. D. McGuire, S. T. Rupp and The Integrated Ecosystem Model for Alaska and Northwest Canada Team. Co-production and modeling landscape change – success and challenges in developing useful climate science. Abstract #GC31A-0991. 2017 Fall Meeting, American Geophysical Union. San Francisco, California. December 2017.
- Salmon, V. G., C. M. Iversen, **A. L. Breen**, P. E. Thornton and S. Wullschleger. Belowground plant dynamics across and Arctic landscape. Abstract #B41A-1938. 2017 Fall Meeting, American Geophysical Union. San Francisco, California. December 2017.
- Lyu, Z., H. Genet, Y. He, Q. Zhuang, A. D. McGuire, A. Bennett, **A. Breen**, J. Klein, E. S. Euskirchen, K. Johnson, T. Kurkowski, N. J. Pastick, T. S. Rupp, B. K. Wylie, and Z. Zhu. The role of driving factors in historical and projected carbon dynamics of wetland ecosystems of Alaska. Abstract #B41G-2057. 2017 Fall Meeting, American Geophysical Union. San Francisco, California. December 2017.
- Hatfield, M. C., **A. L. Breen** and R. Thureau. BLM Unmanned Aircraft Systems (UAS) Resource Management Operations. Abstract #B53H-0609. 2016 Fall Meeting, American Geophysical Union. San Francisco, California. December 2016.
- Euskirchen, E., **A. L. Breen**, A. Bennet, H. Genet, M. Lindgren, T. Kurkowski, A. D. McGuire and T. S. Rupp. Consequences of changes in vegetation and snow cover for climate feedbacks in Alaska and northwest Canada. Abstract #B54F-04. 2016 Fall Meeting, American Geophysical Union. San Francisco, California. December 2016.
- Breen, A. L., D. A. Walker, L. A. Druckenmiller, L. W. Wirth, W. Fisher, M. K. Reynolds, J. Šibík, M. D. Walker, S. Hennekens, K. Boggs, T. Boucher, M. Buchhorn, H. Bültmann, D. J. Cooper, F. J. A. Daniëls, S. J. Davidson, J. J. Ebersole, S. C. Elmendorf, H. E. Epstein, W. A. Gould, R. D. Hollister<sup>1</sup>, C. M. Iversen, M. T. Jorgenson, A. Kade, M. T. Lee, W. H. MacKenzie, R. K. Peet, J. L. Peirce, U. Schickhoff, V. L. Sloan, S. S. Talbot, C. E. Tweedie, S. Villarreal, P. J. Webber, and D. Zona. Status of the Arctic Vegetation Archive and an application in northern Alaska. 2016 Department of Energy Environmental System Science PI Meeting. Potomac, Maryland. April 27, 2016.
- Breen, A. L.**, J. Šibík, L. Druckenmiller, K. Boggs, T. Boucher, S. Chasníková, D. J. Cooper, J. J. Ebersole, H. E. Epstein, W. Gould, S. M. Hennekens, M. T. Jorgenson, A. Kade, M. Lee, R. Peet, M. K. Reynolds, U. Schickhoff, S. Talbot, C. Tweedie, S. Villarreal, L. Wirth, M. D. Walker, P. J. Webber & D. A. Walker. The Alaska Arctic Vegetation Archive: A report on the status of the Arctic Vegetation Archive and an application in northern Alaska, focusing along the Dalton Highway.

58<sup>th</sup> Annual Symposium of the International Association of Vegetation Science. Brno, Czech Republic. July 2015.

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