Dr. Patrick H. Martin

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Director of the Chester M. Alter Arboretum
Edna Biggs Kurtz Endowed Chair in Botany
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EDUCATION

Ph.D., *Cornell University*, Ecology, 2005.
M.S., *Yale University* – School of Forestry & Environmental Studies, Forest Science, 1998.
M.A. & B.A., *St. Andrews University* (Scotland), Joint Honours, International Relations and Modern History, *summa cum laude*, 1994.

RESEARCH EXPERTISE & INTERESTS

Plant ecology, montane & landscape ecology, tropical ecology, likelihood & quantitative methods, neighborhood theory and simulation modeling, drivers of vegetation dynamics including climate change, disturbance, and exotic invasive species.

PROFESSIONAL EXPERIENCE

Professor, Kurtz Chair in Botany & Director Alter Arboretum, Department of Biological Sciences, University of Denver. September 2019–present.
Associate Professor, Kurtz Chair in Botany & Director Alter Arboretum, Department of Biological Sciences, University of Denver. September 2017–August 2019.
Associate Professor, Horticulture & Landscape Architecture, Colorado State University. July 2012–August 2017.
Assistant Professor, Horticulture & Landscape Architecture, Colorado State University. September 2006–June 2012.
Post-Doctoral Fellow, Institute of Ecosystem Studies. September 2003–February 2006.
Lecturer, Summer Field Modules, Yale School of Forestry & Environmental Studies. 1998-2005.
Teaching Assistant, Cornell University. 1998–2002.
Teaching Assistant, Yale School of Forestry & Environmental Studies. 1996–1998.
Researcher, Hubbard Brook Experimental Forest. Summers 1997-98.

GRANTS & PROFESSIONAL HONORS

(2019) RCN-UBE Incubator: Enhancing undergraduate biology education through science communication in our communities. Murphy, S., A. Sher, **P.H. Martin**, R. Tinghitella, and

E. Larson. *Undergraduate Biology Education – National Science Foundation*, **$74,787**.

(2014-2020) RCN: Towards a unified ecology of tropical montane cloud forests. **Martin, P.H. (lead PI)**, H. Asbjornsen, F. Scatena, T. Giambelluca and K. Young. *National Science Foundation–Ecosystem Science*, **$499,998**.

(2015-2017) Research to Improve Fruit Yield and Quality Using Spatial Statistics Techniques. **P.H. Martin (lead PI)**. *Rural Development Administration – NIHHS Republic of Korea*, **$210,000**.

(2014-2017) Climate and forest dynamics in the Rocky Mountains. **P.H. Martin (lead PI)**. *USDA's Colorado Forest Restoration Institute*, **$152,128**.

(2015-2016) Montane Tree Interception of UV Radiation and Its Demographic Consequences. **P.H. Martin (lead PI)**. *USDA UV-B Monitoring and Research Program*, **$35,000**.

(2014-2015) Future forests in a changing climate: the dynamics of tropical montane cloud forests in a warming world. **P.H. Martin (lead PI)**. *National Geographic Society's Committee for Research and Exploration*, **$17,614**.

(2013-2014) Integrating modeling and empirical approaches to improve predictions of tropical forest responses to global warming. Reed, S., T. Wood, M. Cavaleri, **P.H. Martin (senior personnel)**, and others. *USGS-John Wesley Powell Center for Analysis and Synthesis*, **$112,858**.

(2010-2013) Landscape soil resource inventory of the National Parks. Kelly, E. and **P.H. Martin (co-PI)**. *National Park Service*, **$655,000**.

(2010-2013) Shortgrass Steppe Long Term Ecological Research LTER VI: Examining Ecosystem Responses to Global Change. Moore, J. and others (**P.H. Martin**, senior personnel). *National Science Foundation*, **$1,880,000**.

(2010-2011) PASI: Interdisciplinary studies on global climate change and the ecology and management of tropical montane ecosystems. **Martin, P.H. (lead PI)**, H. Asbjornsen and T.J. Fahey. *National Science Foundation*, **$85,900**.

(2009-2010) The effects of multiple disturbance interactions on tropical montane forests in the Dominican Republic. **Martin, P.H. (lead PI)** and K. Kaczynski. *National Science Foundation*, **$11,195**.

(2008-2010) Shortgrass Steppe Long Term Ecological Research V. Antolin, M. and others (**P.H. Martin**, Senior Personnel). *National Science Foundation*, **$1,900,000**.

(2007) Environmental literacy at Colorado State University: linking state of the art undergraduate education with graduate studies at a Land Grant Institution. Burke, I., **P.H. Martin (co-PI)** and J. Von Fischer. The Institute for Learning and Teaching (TILT), *Colorado State University*, **$5,500**.

(2006-2007) Response of tropical montane cloud forests to severe fires, Cordillera Central, Dominican Republic. Fahey, T.J., **P.H. Martin (co-PI)** and R.E. Sherman. *National Science Foundation*, **$57,477**.

(2003-2005) Invasion of Northeastern Forests by Exotic Tree Species, Canham, C.D., P.L. Marks and **P.H. Martin (co-PI)**. *USDA-NRI*, **$250,000**.

(2003-2004) The role of environment and natural disturbances in plant community pattern and dynamics in a neotropical cloud forest. **P.H. Martin (lead PI)**. *Garden Club of America*, Award in Tropical Botany. **$5,500**.

(2003) Morphological and physiological variation in the Dominican endemic pine, *Pinus occidentalis*, across gradients of elevation, precipitation, soil fertility and disturbance.

Martin, P.H. (lead PI) and T.J. Fahey. Biogeochemistry Award, Research & Training Grant, *National Science Foundation*, **$3954**.

(2002) The shade tolerant invader of forest ecosystems: modeling the pattern and impacts of Norway maple (*Acer platanoides*) invasions in Adirondack and north hardwood forests. **Martin, P.H. (lead PI)**. *Kieckhefer Award*, **$3275**.

(2001) The role of disturbance in community organization in a tropical montane forest. **Martin, P.H. (lead PI)** and T.J. Fahey. *Andrew W. Mellon Research Grant*, **$6540**.

(1999-2002) Vegetation-environment relationships in forest ecosystems of the Madre de la Aguas Conservation Area, Dominican Republic. Fahey, T.J., R.E. Sherman and **P.H. Martin (co-PI)**. *The Nature Conservancy and Andrew W. Mellon Ecosystem Research Program*, **$150,000**.

(1998-2000) Research & Training Grant – Sustainability Fellow, NSF Graduate Fellowship. *National Science Foundation*, **$60,000**.

(1997) Developing a sustainable harvest protocol for a tropical thatch palm, *Sabal mauritiiformis*, using eco-physiological indices. **Martin, P.H. (lead PI)**. *Tropical Research Institute*, Yale University, **$4000**.

(1997) Developing a sustainable harvest protocol for a tropical thatch palm, *Sabal mauritiiformis*, using eco-physiological indices. **Martin, P.H. (lead PI)**. *Klemme Award in Forest Ecology*, Yale University, **$3500**.

(1994) Assessing environmental impacts of free trade: NAFTA and sustainability in North America. **Martin, P.H.** *Wong Prize - International Relations*, St. Andrews University. **$350**.

PUBLICATIONS

- *An asterisk* ***'*'*** *denotes lead author was a graduate student or post-doc mentored by P.H. Martin as primary advisor*
- *'**Times cited**' per Google Scholar*
- *Google Scholar i10-index* = **19**; *Total citations* = **1346**; *Average citation per item* = **58**.

37. *Buechling, A. and **P.H. Martin**. *Submitted*. Millennial scale models of historical temperature reconstructions from tree rings are improved by incorporating covariates of basal area, differentiated growth processes, and likelihood estimation techniques. ***Climate of the Past***.
36. *Foster, A.C., **P.H. Martin**, and M.D. Redmond. *Submitted*. Soil moisture strongly limits Douglas-fir seedling establishment near the leading edge of its distribution in the southern Rocky Mountains. ***Canadian Journal of Forest Research.***
35. *Looby, C. and P.H. Martin. *Submitted*. Diversity of soil microbes on mountains: the state of knowledge in a changing world. ***Frontiers in Ecology and the Environment***.
34. *Carroll, C.J.W., **P.H. Martin**, and A.K. Knapp. *Submitted*. Growth and survivorship of the tree species respond positively to hotter temperatures in Rocky Mountain ecosystems. ***Ecology***.
33. **Martin, P.H.** and C.D. Canham. *In revision*. Peaks in frequency, but not relative abundance, are coincident with the center of tree species distributions along climate gradients in the Rocky Mountains. ***Global Ecology and Biogeography***.

32. *Salley, S.W., **P.H. Martin**, R. Bergstrom, O.A. Chadwick, A.K. Knapp, and E.F. Kelly. *In revision*. Biologically available water varies as a function of soil development in dryland ecosystems. ***Catena***.
31. *Cho, J.G., **P.H. Martin**, S. Kumar, S.H. Kim, and J.-H. Han. *In revision*. Apple phenology responds more strongly to precipitation and topography than to rising temperature across South Korea. ***International Journal of Biometeorology***.
30. *Gannon, B. and **P.H. Martin**. *In revision*. Diversity and response of tropical montane floristics to frequent hurricane disturbance in Dominican Republic. ***Ecosphere (special issue on hurricanes)***.
29. Copenhaver-Parry, P.E., Carroll C.J.W., **P.H. Martin**, and M.V. Talluto. *In press*. Multi-scale integration of tree recruitment and range dynamics in a changing climate. ***Global Ecology and Biogeography***.
28. Van Bloem, S.J. and **P.H. Martin**. *In press*. Hurricane Georges: ecological and social effects of an island hopper. ***Ecosphere (special issue on hurricanes)***.
27. *Carroll, C.J.W., **P.H. Martin**, A.K. Knapp, and T.W. Ocheltree. 2018. Temperature-induced shifts in leaf water relations and growth efficiency indicate climate change may limit aspen growth in the Colorado Rockies. ***Environmental and Experimental Botany***, DOI: 10.1016/j.envexpbot.2018.12.014
26. Bergstrom, R.M., T. Borch, **P.H. Martin**, S. Melzer, C.C. Rhoades, S.W. Salley, and E.F. Kelly. 2018. The generation and redistribution of soil cations in high elevation catenas in the Fraser Experimental Forest, Colorado, U.S. ***Geoderma*** 333: 135-144.
25. Bellingham, P.J., E.V.J. Tanner, **P.H. Martin**, J.R. Healey, and O.R. Burge. 2018. Native tree diversity in Jamaican montane rain forests declines as a non-native tree increases in dominance. ***Biological Conservation*** 217: 47–53.
24. *Carroll, C.J.W., A.K. Knapp, and **P.H. Martin**. 2017. Dominant tree species of the Colorado Rockies have divergent physiological and morphological responses to warming. ***Forest Ecology and Management*** 402: 234–240. **Cited 3 times**.
23. *Buechling, A., **P.H. Martin**, and C.D. Canham. 2017. Climate and competition effects on tree growth in Rocky Mountain forests. ***Journal of Ecology*** 105: 1636–1647. **Cited 20 times**.
22. **Martin, P.H.** and P. Bellingham. 2016. Towards integrated ecological research in tropical montane cloud forests. ***Journal of Tropical Ecology*** 32:345–354. **Cited 7 times**.
21. *Crausbay, S.D. and **P.H. Martin**. 2016. Natural disturbance, vegetation patterns and ecological dynamics in tropical montane forests. ***Journal of Tropical Ecology*** 32: 384–403. **Cited 8 times**.
20. *Buechling, A., **P.H. Martin**, C.D. Canham, W.D. Shepperd, and M.A. Battaglia. 2016. Climate drivers of seed production in *Picea engelmannii* and response to warming temperatures in the southern Rocky Mountains. ***Journal of Ecology*** 104:1051–1062. **Cited 24 times**.
19. *Salley, S.W., R.O. Sleezer, R. Bergstrom, **P.H. Martin**, and E.F. Kelly. 2016. A long-term analysis of the historical dry boundary for the great plains of North America: implications of climatic variability and climatic change on temporal and spatial patterns in soil moisture. ***Geoderma*** 274:104–113. **Cited 12 times**.
18. *Crausbay, S.D., **P.H. Martin** and E.F. Kelly. 2015. Tropical montane vegetation

dynamics near the upper cloud belt strongly associated with a shifting ITCZ and fire. ***Journal of Ecology*** 103:891–903. **Cited 4 times**.

17. **Martin, P.H.** and T.J. Fahey. 2014. Mesoclimatic patterns shape the striking vegetation mosaic in the Cordillera Central, Dominican Republic. ***Arctic, Antarctic, and Alpine Research*** 46: 755–765. **Cited 7 times**.
16. *Gannon, B. and **P.H. Martin**. 2014. Reconstructing hurricane disturbance in a tropical montane forest landscape in the Cordillera Central, Dominican Republic: Implications for vegetation patterns and dynamics. ***Arctic, Antarctic, and Alpine Research*** 46:767–776. **Cited 9 time**s.
15. Sherman, R.E., T.J. Fahey, **P.H. Martin**, and J.J. Battles. 2012. Patterns of growth, recruitment, mortality and biomass across an altitudinal gradient in a neotropical montane forest, Dominican Republic. ***Journal of Tropical Ecology*** 28: 483–495. **Cited 12 times**.
14. **Martin, P.H.**, T.J. Fahey, and R.E. Sherman. 2011. Vegetation zonation in a Neotropical montane forest: environment, disturbance and ecotones. *Biotropica* 43:533–543. **Cited 43 times**.
13. Laurance, W.F., D.C. Useche, **P.H. Martin**, and others. 2011. Global warming, elevational ranges and the vulnerability of tropical biota. ***Biological Conservation*** 144:548–557. **Cited 174 times**.
12. **Martin, P.H.**, C.D. Canham, and R.K. Kobe. 2010. Divergence from the growth-survival trade-off and extreme high growth rates drive patterns of exotic tree invasions in closed-canopy forests. ***Journal of Ecology*** 98:778–789. **Cited 65 times**.
11. **Martin, P.H.** and C.D. Canham. 2010. Dispersal and recruitment limitation in native versus exotic tree species: life-history strategies and Janzen-Connell effects. ***Oikos*** 119:807–824. **Cited 62 times**.
10. **Martin, P.H.**, C.D. Canham, and P.L. Marks. 2009. Why forests appear resistant to exotic plant invasions: intentional introductions, stand dynamics, and the role of shade tolerance. ***Frontiers in Ecology and the Environment*** 7:142–149. **Cited 363 times**.
9. Sherman, R.E., **P.H. Martin**, T.J. Fahey, and S.D. DeGloria. 2008. Fire and vegetation dynamics in high-elevation neotropical montane forests of the Dominican Republic. ***Ambio*** 37:535–541. **Cited 25 times**.
8. Gómez-Aparicio, L., C.D. Canham, and **P.H. Martin**. 2008. Neighborhood models of the effects of the invasive *Acer platanoides* on tree seedling dynamics: linking impacts on communities and ecosystems. ***Journal of Ecology*** 96:78–90. **Cited 30 times**.
7. Perkins, S., S. Altizer, O. Bjornstad, J. Burdon, K. Clay, L. Gomez, J. Jeschke, P. Johnson, K. Lafferty, C. Malstrom, **P.H. Martin**, A. Power, P. Thrall, D. Strayer, and M. Uriarte. 2008. Infectious Disease in Invasion Biology. In: *Ecology of Infectious Diseases*: *Effects of Ecosystems on Disease and of Disease on Ecosystems* (eds. R.S. Ostfeld, F. Keesing & V.T. Eviner), pp 179–204. Princeton University Press, Princeton, NJ. **Cited 24 times**.
6. **Martin, P.H.**, R.E. Sherman, and T.J. Fahey. 2007. Tropical montane forest ecotones: climate gradients, natural disturbance, and vegetation zonation in the Cordillera Central, Dominican Republic. ***Journal of Biogeography*** 34:1792–

1806. **Cited 76 times**.

5. **Martin, P.H.** and P.L. Marks. 2006. Intact forests provide only weak resistance to a shade tolerant invasive Norway maple (*Acer platanoides* L.). ***Journal of Ecology*** 94:1070–1079. **Cited 95 times**.
4. **Martin, P.H.** and T.J. Fahey. 2006. Fires above the clouds: fire history along environmental gradients in the subtropical pine forests of the Cordillera Central, Dominican Republic. ***Journal of Tropical Ecology*** 22:289–302. **Cited 29 times**.
3. Sherman, R.E., **P.H. Martin**, and T.J. Fahey. 2005. Vegetation-environment relationships in forest ecosystems of the Cordillera Central, Dominican Republic. ***Journal of the Torrey Botanical Society*** 132:293–310. **Cited 24 times**.
2. **Martin, P.H.**, R.E. Sherman, and T.J. Fahey. 2004. 40 years of tropical forest recovery from agriculture: structure and floristics of secondary and old growth riparian forests in the Dominican Republic. ***Biotropica*** 36:297–317. **Cited 98 times**.
1. **Martin, P.H.** 1999. Norway maple (*Acer platanoides*) invasion of a natural forest stand: the pattern of colonization and understory consequences. ***Biological Invasions*** 1:215–222. **Cited 109 times**

PROFESSIONAL ACTIVITIES

Associate Editor:

- *Frontiers in Ecology and the Environment*, 2017-present (2016 Impact Factor: 8.302, 2017 ISI Ranking: 6/158 for Ecology and 5/241 Environmental Sciences);
- *Journal of Tropical Ecology*, Special Feature, 2015-2017 (2016 Impact Factor: 1.041, 2016 ISI Ranking: 115/153 for Ecology);

Ad-hoc *Journal Reviewer*:

American Midland Naturalist (1), Biological Invasions (12), Biotropica (11), Ecography (3), Ecological Applications (4), Ecology (9), Ecological Monographs (7), Frontiers in Ecology and the Environment (5), Journal of Biogeography (3), Journal of Ecology (21), Journal of Forest Ecology and Management (28), Landscape Ecology (4), Journal of the Torrey Botanical Society (2), Journal of Tropical Ecology (22), Natural Areas Journal (1), Oikos (7), Plant Ecology (16), Perspectives in Plant Ecology, Evolution and Systematics (1), Urban Ecosystems (1), and Springer Life Science Books (1).

Proposal Panelist and* Ad-hoc *Reviewer:

EPA-STAR, NSF-Population & Community Ecology, NSF-Ecosystems, NSF-Geography & Spatial Sciences, NSF-GFRP, USDA-NRI, and NASA-NSPIRES.

LEADERSHIP– MEETINGS, WORKSHOPS, RESEARCH INITIATIVES, SPECIAL COURSES & INTERNATIONAL ACTIVITIES

- ***Lead PI*** – 2017-2020 – Research Initiative, *Cloud-Drought-Net: Experimental Climate Drivers in Tropical Montane Forests*. International, long-term tropical research initiative started by P.H. Martin to be replicated in tropical countries via the RCN-*CloudNet*.

- ***Co-Organizer*** – 2019 – Annual Meeting*, Urban Tree Diversity Conference*, Denver, CO. ~100 person meeting for landscape ecologists. **Link**
- ***Co-Organizer*** – 2019 – Annual Meeting*, IALE International Association for Landscape Ecology*, Fort Collins, CO, April 7th-11th. ~500 person international meeting of landscape and conservation ecologists. **Link**
- ***Co-Organizer*** – 2018 – Annual Meeting*, Urban Tree Diversity Conference*, Denver, CO. ~100 person meeting for landscape ecologists.
- ***Lead Organizer & Co-Instructor*** – 2017 – Advanced Statistical Workshop*, Maximum Likelihood & Information Theory*, Fort Collins, CO. May 28th-June 6th. 20 participants from 9 countries.
- ***Lead PI*** – 2015-present – Research Initiative, *Long-term forest dynamics in Rocky Mountain Ecosystems*. Long-term research initiative started by P.H. Martin, with cooperation from the US Forest Service, the Colorado Forest Restoration Institute, and faculty at Colorado State University, CU-Boulder, and the University of Wyoming.
- ***Lead Organizer*** – 2015 – Meeting & Workshop*, CloudNet Tropical Montane Ecological Research Network*, Gamboa, Panama. May 31st-June 10th. 33 attendees from 14 countries.
- ***Lead Editor & Organizer*** – 2015-2016 – Special Issue, *The Ecology of Tropical Montane Cloud Forests: A Global Synthesis*. Journal of Tropical Ecology, Vol. 32, Issue 5, eight review articles on state of the science in the field, initiated by P.H. Martin and a Co-PI. **Link**
- ***Lead Organizer*** – 2013 – Special Session at Annual Meeting*, Towards a Unified Ecology of Tropical Montane Cloud Forests*, Association for Tropical Biology and Conservation, San Jose, Costa Rica, June 23-27th. Large international meeting for tropical ecologists.
- ***Lead Organizer*** – 2013 – Meeting & Workshop*, CloudNet Tropical Montane Ecological Research Strategic Planning*, Pingree Park, CO, October 11th-15th. 33 attendees from 6 countries.
- ***Co-Organizer & Visiting Scholar*** – 2013-2015 – *Advanced Curriculum Program at the Vietnam Forestry University*, Xuan Mai, Vietnam. Developed curricula and taught 3 classes for undergraduate students in Xuan Mai at the National Forestry University. The Advanced Curriculum Program is a cooperative initiative with Colorado State University and the Vietnam Forestry University to train undergraduates in state-of-the-science coursework using the English language. 90 Vietnamese students took part in the courses taught by P.H. Martin.
- ***Founder*** – 2013-present – *Network Tropical Montane Ecological Research Network*, Worldwide membership of 200+ researchers. **Link**
- ***Lead Organizer*** – 2012 – Special Session at Annual Meeting*, Towards a Unified Ecology of Tropical Montane Cloud Forests*, Ecological Society of America, Portland, OR, August 5th-10th. Large international meeting for ecologists.
- ***Lead Organizer*** – 2010 – Conference & Workshop*, PASI - Interdisciplinary Studies on Global Climate Change and the Ecology and Management of Tropical Montane Ecosystems,* Jarabacoa, Dominican Republic, March 6th-14th. 42 attendees from 17 countries.
- ***Lead PI*** – 2006-present – Research Initiative, *Diversity, Climate and Function in the Tropical Montane Landscapes of the Cordillera Central, Dominican Republic*. Long-term, permanent research initiative started by P.H. Martin and Co-PIs.

INVITED & CONTRIBUTED PRESENTATIONS, ABSTRACTS & PROCEEDINGS

Looby, C. and **P.H. Martin**. 2018. *Foggy futures: How drought affects soil microbes in tropical in a montane cloud forests*. American Geophysical Union Annual Meeting, Washington, DC, December 10th-14th.

Martin, P.H. 2018. *Climate and forest dynamics in tropical montane forests*. Ecological Society of America Annual Meeting, New Orleans, LA, August 5-10th.

Carroll, C.J.W., **P.H. Martin**, and A.K. Knapp. 2018. *Tree growth responds strongly to warming temperatures through time despite static spatial patterns*. Ecological Society of America Annual Meeting, New Orleans, LA, August 5-10th.

Foster, A.C, **P.H. Martin** and M.D. Redmond. 2018. *Effects of dispersal and recruitment limitations on the regeneration dynamics of the dominant tree species of the Colorado Rockies*. Ecological Society of America Annual Meeting, New Orleans, LA, August 5-10th.

Martin, P.H. and C.D. Canham. 2018. *Climatic drivers of tree mortality patterns in temperate and tropical montane forests: using networks of forest inventory data*. European Geosciences Union Annual Meeting, Vienna, Austria, April 8-13th.

Martin, P.H. 2017. *Climate drivers of population dynamics and niche patterns in the forests of the Rocky Mountains*. 10th Annual Meeting, Guild of Rocky Mountain Ecologists and Evolutionary Biologists. September 22-24th.

Buechling, A., **P.H. Martin** and C.D. Canham. 2017. *Climate drivers of population dynamics and niche patterns in the forests of the Rocky Mountains*. Ecological Society of America Annual Meeting, Portland, OR, August 7-11th.

Martin, P.H. 2016. *Fires above the clouds: climate and disturbance controls on forest dynamics in the montane forests of the Dominican Republic*. Ecological Society of America Annual Meeting, Ft Lauderdale, FL, August 7-12th.

Heineman, K.D., Z.C. Berry, H. Tseng, R. Ostertag, and **P.H. Martin**. 2016. *Evaluating the influence of fog moisture inputs on tree species distributions and forest structure in a global network of tropical montane forest research plots*. Ecological Society of America Annual Meeting, Ft Lauderdale, FL, August 7-12th.

Carroll, C.J.W., **P.H. Martin**, and A.K. Knapp. 2016. *Coping with climate change: acclimation strategies and the future of Colorado's forests*. Ecological Society of America Annual Meeting, Ft Lauderdale, FL, August 7-12th.

Tseng, H., K. Heineman, Z.C. Berry, R. Ostertag, **P.H. Martin**, T.W. Giambelluca and CloudNet Database Contributors. 2016. *Fog immersion is a key factor linking patterns in vegetation structure and composition in tropical montane cloud forests: preliminary results of CloudNet meta-analysis*. American Geophysical Union, Chapman Conference on Emerging Issues in Tropical Ecohydrology, Cuenca, Ecuador June 5-9th.

Moore, G., H. Asbjornsen, L.A. Bruijnzeel, Z. Berry, T Giambelluca, **P.H. Martin**, and M. Mulligan. 2015. *Building a Global Network of Hydro-climatology Sites in Cloud-affected Tropical Montane Forests*. American Geophysical Union, Annual Meeting, San Francisco, CA December 14-18th.

Martin, P.H. 2015. *Cross-cutting studies in tropical mountains around the world*. Frontiers in TMCF Research, CLOUDNET Meeting, Gamboa, Panama, June 3rd.

Martin, P.H. and C.D. Canham. 2014. *Distribution and abundance of tree species along climate gradients in the Rocky Mountains*. Ecological Society of America Annual Meeting, Sacramento, CA, August 10-15th.

Martin, P.H. and C.D. Canham. 2014. *Climate and forest dynamics in tropical montane forests*. Association for Tropical Biology and Conservation Annual Meeting, Cairns, Australia, July 20-24th.

Martin, P.H. 2013. *Ecology themes for the 21st Century in Cloud Forests*. CLOUDNET Meeting, Portland, Oregon, August 7th.

Martin, P.H. and S.D. Crausbay. 2013. *6000 years of high elevation vegetation dynamics in the Cordillera Central, Dominican Republic*. Association for Tropical Biology and Conservation Annual Meeting, San Jose, Costa Rica, June 23-27th.

Martin, P.H. 2012. *Towards a Unified Ecology of Tropical Montane Cloud Forests*. Ecological Society of America Annual Meeting, Portland, OR, August 6-12th.

Martin, P.H., R.E. Sherman and T.J. Fahey 2012. *The trade-wind inversion, climate-elevation discontinuities, and the tropical–temperate ecotone in the tropical mountains of the Dominican Republic*. Vulnerable Islands in the Sky: Science and Management of Tropical Island Alpine & Sub-Alpine Ecosystems, Waimea, HI, August 4-7th.

Salley, S.W., **P.H. Martin**, A.K. Knapp, and E.F. Kelly. 2012. *Soil landscape development in the Shortgrass Steppe Ecosystem: assessing the vulnerability of soils to climate change*. Ecological Society of America Annual Meeting, Portland, OR, August 6-12th.

Martin, P.H., and C.D. Canham. 2011. *Life-histories, natural disturbance and human land use determine long-term invasion dynamics of forests by exotic invasive tree species*. Ecological Society of America Annual Meeting, Austin, TX, August 8-12th.

Gannon, B. and **P.H. Martin**. 2011. *Hurricane impacts to tropical montane forests in the Cordillera Central, Dominican Republic*. US Association for Landscape Ecology Annual Symposium, Portland, OR, April 3-7th.

Martin, P.H., C.D. Canham, and J. Murgel. 2010. *Climate change and forest dynamics in the Rocky Mountains*. Ecological Society of America Annual Meeting, Pittsburgh, PA, August 1-6th.

Martin, P.H. 2010. *Saplings dynamics on latitudinal gradients*. Guild of Rocky Mountain Ecologists and Evolutionary Biologists (GREEBs), Pingree Park, CO, September 10-12th.

Martin, P.H., R.E. Sherman, and T.J Fahey. 2010. *Climate change and the future of forests in the Cordillera Central, Dominican Republic*. Pan-American Advanced Studies Institute, Global Climate Change and the Ecology and Management of Tropical Montane Ecosystems, Jarabacoa, Dominican Republic, March 6-14th.

Martin, P.H. and C.D. Canham. 2009. *Life-history trade-offs in growth & survivorship drive patterns of exotic tree invasions of closed-canopy forests*. Ecological Society of America Annual Meeting, Albuquerque, NM, August 2-7th.

Martin, P.H., B.H. Kao, and C. Gibson. 2009. *Using NEON to Measure Adaptation of Vegetation to Changes in Environmental Forcing*. American Geophysical Union Annual Meeting, San Francisco, CA, December 14-18th.

Gibson, C., B.H. Kao, and **P.H. Martin**. 2009. *The Fundamental Sentinel Unit: Organismal measurements and DNA barcoding in a national network*. Third International Barcode of Life, Mexico City, Mexico, November 9-13th.

Kao, B.H., H. Powell, and **Martin, P.H.** 2009. *Fundamental Sentinel Unit: Organismal measurements in a national network*. The LTER Long Term Ecological Research Network All Scientists Meeting, Estes Park, CO, September 14-16th.

Martin, P.H. 2008. *Patterns and causes of species richness, structural complexity, and*

functional diversity in tropical forests. Pan-American Advanced Studies Institute, Chemical Biology of the Tropics, Tambopata, Peru, May 21-30th.

Sherman, R.E., **Martin, P.H.**, T.J. Fahey, and S.D. DeGloria. 2007. *Fire and vegetation dynamics in high-elevation neotropical montane forests of the Dominican Republic*. Caribbean Fire Ecology & Management Symposium, San Juan, Puerto Rico, April 18th.

Martin, P.H. and C.D. Canham. 2006. *Invasion of northeastern forests by exotic tree species*. Ecological Society of America Annual Meeting, Memphis, TN, August 6-11th.

Martin, P.H. 2006. *The potential of Norway maple as a forest invader*. Vermont Department of Forests, Parks & Recreation, Forest Health Conference, White River Junction, VT, April 12th.

Martin, P.H. 2005. *Methods for predicting the spread and impact of exotic plants*. Department of Forestry & Environmental Studies, Yale University, New Haven, CT, November 19th.

Martin, P.H. 2005. *Modeling invasions of northeastern forests*. Department of Natural Resources Science Seminar Series, University of Rhode Island, Kingston, RI, October 22nd.

Martin, P.H. 2005. *Life-history strategies of exotic invasives in northeastern forests*. Department of Ecology, Evolution and Environmental Biology, Columbia University, New York, NY, September 3rd.

Martin, P.H. 2005. *Patterns and effects of exotic tree species invasions of northeastern forests*. Keynote Address Annual Award Ceremony, Institute of Ecosystem Studies, Millbrook, NY, April 21st.

Martin, P.H. 2004. *Invasion of northeastern forests by exotic tree species: interactions between population dynamics and disturbance ecology*. Harvard Forest Seminar Series, Harvard University, Petersham, MA, October 9th.

Martin, P.H. 2004. *Invasion ecology of Norway maple*. Department of Biology, University of Montreal, Montreal, Canada, April 2nd.

Martin, P.H. and T.J. Fahey. 2004. *Fire ecology in the montane pine forests of the Dominican Republic*. Nature Conservancy Conservation Conference, Constanza, Dominican Republic, March 16-22nd.

Martin, P.H. and C.D. Canham. 2003. *Norway maple invasion of forest stands: 4-years of seedling establishment and demography in small gaps and deep shade*. Joint Conference: Weed Science Society of America and the Ecological Society of America on Invasive Plants (IPINAMS), Fort Lauderdale, FL, November 11-15th.

Martin, P.H. 2003. *Plant invasion dynamics and the regeneration of native trees*. Regional Water Authority Association Conference, New Haven, CT, October 8th.

Martin, P.H. 2002. *Does species richness recover in tropical secondary forests in the Dominican Republic?* Department of Natural Resources, Cornell University, Ithaca, NY, March 27th.

Martin, P.H. 2000. *The ecology and dendrochronology of a subtropical pine*. Lab of Tree Ring Research, University of Arizona, Tucson, AZ, Sept. 11th.

Martin, P.H. 1999. *Norway maple (Acer platanoides) invasion of a natural forest stand: understory consequence and regeneration pattern*. Greater New England Research Symposium on the Ecology of Invasive Species, New Haven, CT, February 27th.

Invited Seminars/Presentations

(4/16/2014) Long term ecological patterns and processes in the Cordillera Central, Dominican Republic. Biology Seminar Series, **Martin, P.H**. Kingston, Jamaica.
(11/26/2012) Demographic determinants of invasiveness: life-histories, biotic resistance, and disturbance drive invasion dynamics of forests by exotic invasive tree species. Syracuse University, Department of Biology Seminar Series, **Martin, P.H**. Syracuse, NY.
(3/20/2011) The role of succession in plant community dynamics. Graduate Degree Program in Ecology, Colorado State University, **Martin, P.H.** Fort Collins, CO.
(10/15/2010) Parameterizing forest dynamics for climate change in the Rocky Mountains. Mega-Lab Department of Biology, Colorado State University, **Martin, P.H.** Fort Collins, CO.
(9/11/2010) Climate change and forest dynamics in the Rocky Mountains. Guild of Rocky Mountain Ecologists and Evolutionary Biologists, **Martin, P.H.** Pingree Park, CO.
(3/17/2010) Succession. Graduate Degree Program in Ecology, Colorado State University, **Martin, P.H.** Fort Collins, CO.
(12/8/2009) The dynamics of tropical and temperate landscapes: disturbance, invasions and global change. Foundations of Ecology, Graduate Degree Program in Ecology, Colorado State University, **Martin, P.H.** Fort Collins, CO.
(4/27/2009) Why forests appear resistant to exotic plant invasions: intentional introductions, stand dynamics, and the role of shade tolerance. Forest, Rangeland & Watershed Stewardship, Colorado State University, **Martin, P.H.** Fort Collins, CO.
(3/21/2009) Successional drivers of in plant community dynamics. Graduate Degree Program in Ecology, Colorado State University, **Martin, P.H.** Fort Collins, CO.
(2/3/2009) The dynamics of tropical and temperate landscapes: disturbance, invasions and global change. Department of Biology, Smith College, **Martin, P.H.** Northampton, MA.
(12/12/2008) Alternative approaches to modeling climate change impacts on forest dynamics in the Rocky Mountains. Forest Management Service Center, US Forest Service, **Martin, P.H.** Fort Collins, CO.
(10/24/2008) Causes and long-term patterns of invasions dynamics by exotic invasive trees into closed canopy forests. Department of Geography Colloquium, University of Colorado, **Martin, P.H.** Boulder, CO.
(10/2/2008) Realized vs. fundamental niches: the problem with climate envelope modeling for predicting forest dynamics in a changing climate. Department of Soils and Crop Sciences, Colorado State University, **Martin, P.H.** Fort Collins, CO.
(5/28/2008) Patterns and causes of species richness, structural complexity, and functional diversity in tropical forests. Pan-American Advanced Studies Institute, Chemical Biology of the Tropics, **Martin, P.H.** Tambopata, Peru.
(4/29/2008) Fire history and ecology in the montane forests of the Cordillera Central, Dominican Republic. Fire Ecology Lab, CSU, **Martin, P.H.** Fort Collins, CO.
(10/12/2007) Modeling forest dynamics in changing climates. Short Grass Steppe Long-Term Ecological Research, Colorado State University, **Martin, P.H.** Fort Collins, CO.
(4/20/2007) Ecology and conservation of tropical montane forests. Botany Department Seminar Series, University of Wyoming, **Martin, P.H.** Laramie, WY.
(4/16/2007) Spatially-explicit ecosystem modification by exotic trees as a mechanism of invasion of eastern forests. Natural Resource Ecology Lab Seminar Series, Colorado State University, **Martin, P.H.** Fort Collins, CO.

(12/1/2006) Tropical montane forest ecotones: climate gradients, natural disturbance, and vegetation zonation in the Cordillera Central, Dominican Republic. Department of Geography, University of Colorado, **Martin, P.H.** Boulder, CO.

(4/12/2006) Norway maple as a forest invader. Forest Health Annual Planning Meeting, Vermont Department of Forests, Parks & Recreation, **Martin, P.H.** White River Junction, VT.

PROFESSIONAL AFFILIATIONS

Ecological Society of America; British Ecological Society; Association for Tropical Biology & Conservation.

TEACHING EXPERIENCE

Primary Instructor – BIOL3055 Ecology of the Rockies, *University of Denver*, Fall Quarter 2018. Enrollment 16. 4-credit-hour undergraduate course. This ecology course employs field trips, field methods and data collection, and research projects to explore ecological concepts, the scientific process (research methods, data analysis, scientific writing, literature review), and the natural history of the Colorado Front Range. Projects are conducted during a weeklong stay at the Mt. Evans Field Station. Data analysis, scientific writing and literature review are conducted during the fall term as part of weekly 3-hour meetings.

Primary Instructor – BIOL3700 Forest Ecology, *University of Denver*, Spring Quarter 2018. Enrollment 30. 4-credit-hour undergraduate course. This course provides an overview of the distribution, structure, function, and dynamics of forest ecosystems. Topics include concepts central to forest ecology: past history (paleoecology), adaptation (ecophysiology), populations, community analysis, succession, disturbance, forest hydrology, primary productivity, and nutrient cycling. Throughout, we maintain an emphasis on the scientific process and how it is used to study the controls on the distribution and abundance of organisms.

Primary Instructor – LAND/LIFE 220 Fundamentals of Ecology, *Colorado State University*, Fall Semesters 2007-2017. Enrollment 140-150. 3-credit-hour undergraduate course. Course objectives are to introduce the discipline of ecology to beginners, including methods, limitations and current debates. to global change issues. Students are acquainted with complexity of ecological factors and processes.

Primary Instructor – LAND 444 Ecology of Landscapes, *Colorado State University*, Fall Semesters 2007-2017. Enrollment 20-40. 3-credit-hour undergraduate course. Course objectives are to explore the principles of landscape ecology as a framework for landscape research, analysis and management. This course covers the dominant themes of landscape ecology, familiarizes students with current trends and methods including GIS; and addresses landscape management issues. Includes 3 field trips

Primary Instructor – NRS 520 Ecological Statistics, *University of Rhode Island*, Spring Semester 2006. Enrollment 22. 4-credit-hour graduate course. Course objectives are to introduce data analysis techniques, interpretation and presentation of statistical results commonly used in natural resource research. The course provides hands-on experience of analytical techniques, current statistical software, and data analysis specific to the students' graduate research.

Primary Instructor – F&ES Field Modules – Principals Navigation and Mapping, *Yale School of Forestry & Environmental Studies*, Augusts 1998-2005. Enrollment 130-140. 1-credit-hour

graduate course. The course introduces the principles of navigation, cartography, aerial photograph interpretation, GIS and spatial analysis. Students learn how to make and interpret maps, use a compass and GPS, conduct a survey of forested stands, and a complete orienteering geocache exercise.

Teaching Assistant – NTRES 201 Environmental Conservation, *Cornell University*, 2003.
Teaching Assistant – NTRES 210 Field Biology, *Cornell University*, 2002.
Teaching Assistant – NTRES 420 Forest Ecology, *Cornell University*, 1999-2001.
Teaching Assistant – F&ES 220 Local Flora, *Yale School of Forestry & Environmental Studies*, 1997.
Teaching Assistant – F&ES 320 Forest Hydrology, *Yale School of Forestry & Environmental Studies*, 1996-1997.

GRADUATE STUDENTS & POST-DOCS – Advisor or Co-Advisor

In Progress: Alex Goke (M.S.), Dan Swann (M.S.),

Completed: Dr. Arne Buechling (Post-Doctoral Scientist), Dr. Caitlin Looby (Post-Doctoral Scientist), Dr. Katie Heineman (Post-Doctoral Scientist), Dr. Shelley Crausbay (Post-Doctoral Scientist), Jeff Carroll (Ph.D.), Arne Buechling (Ph.D.), Jung Cho (Ph.D.), Shawn Salley (Ph.D.), Alison Foster (M.S.), Ben Gannon (M.S.), Zigeng Chen (M.S.), John Murgel (M.S.).

GRADUATE STUDENT COMMITTEES – Minor Member

In Progress: Alex Goetz (Ph.D., Sher lab)

Completed: David Francis (M.S. *completed*, Forestry), Kristen Pelz (Ph.D. *completed*, Ecology), David Barnard (Ph.D. *completed*, Horticulture), Robert Bergstrom (Ph.D. *completed*, Soils and Crops), Byamba Suran (Ph.D. *completed*, Ecology), Meg Dudley (Ph.D. *completed*, Plant Sciences), DeAna Nasseth (Ph.D. *completed*, Ecology), Ahmed Getlawi (Ph.D. *completed*, Horticulture), Joseph Bowden (Ph.D. *completed* Horticulture), Michael McCabe (Ph.D. *completed*, Horticulture), Jennifer Rains Jones (Ph.D. *completed*, Ecology), Kristen Pelz (M.S. *completed*, Ecology), Steve Hasstedt (Ph.D. *completed*, Forestry), Meg Dudley (M.S. *completed*, Plant Sciences), Joel Silverman (M.S. *completed*, Forestry), Moussa Masoud (M.S. *completed*, Forestry), Jingyi Nie (M.S. *completed*, Horticulture), Amanda Broz (Ph.D. *completed*, Horticulture), Ian Leinwand (M.S. *completed*, Ecology), Kellen Nelson (M.S. *completed*, Ecology), Traci Burd (M.S. *completed*, Horticulture), Bryon Collins (M.S. *completed*, Forestry).

DEPARTMENT SERVICE ACTIVITIES

Director – Chester M. Alter Arboretum, University of Denver, 2017–present.
Member – Graduate Admissions Committee, University of Denver, 2017–present.
Manager – Greenhouse & Garden Management, University of Denver, 2017–present.
Member – Advance in Rank and Tenure Committee, Colorado State University, 2012–2017.
Member – Graduate Admissions and Studies, Colorado State University, 2009–2017.
Member – Departmental Faculty Search Committee, Colorado State University, 2010.
Member – Student Affairs & Social Committee, Colorado State University, 2006–2008.
Member – Departmental Faculty Search Committee, Colorado State University, 2006–2007.