

Department of Geography and Planning  
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## EDUCATION

Ph.D. in Environmental Sciences (Ecology), University of Virginia, Charlottesville, VA, May 2003. Dissertation: *'The boreal forest of interior Alaska: patterns, scales, and climate change.'* Advisors: H.H. Shugart and H.E. Epstein

M.S. Environmental Studies (Environmental Monitoring), Ohio University, Athens, OH, 1996. Thesis: *'Gradient analysis of forest composition in West Virginia'*

B.A. Geography and German (Minor in Biology), Augustana College, Sioux Falls, SD, 1993.

*Vordiplom* in Geography (Minors in Geology, Zoology and Botany), Universität Regensburg, Germany, 1991

## ACADEMIC POSITION

**Assistant Professor**, joint appointment between the Dept. of Geography and Planning and the Dept. of Informatics and adjunct position with the Dept. of Biological Sciences, University at Albany, SUNY. Teach Environmental Studies, Ecological Modeling, GIS, Advanced GIS, and Biogeography to graduate and advanced undergraduate students; and Introduction to the Physical Environment to freshmen. --- Since 2005.

## RESEARCH EXPERIENCE

**Postdoctoral Research Associate**, Inst. of Arctic Biology, Univ. of Alaska (UAF), Fairbanks, AK. As part of an interdisciplinary project, use GIS to analyze the human footprint on fire in Interior Alaska and development of a fire prediction model. --- Supervisors: A.D. McGuire and F.S. Chapin III, 2003-2005.

**Technician**, Inst. of Arctic Biology, UAF. Used GIS and logistic regression to model dynamic land cover in the Western Arctic from 1950 to 2000 as part of a multi-institutional model linkage experiment. --- Supervisor: A.D. McGuire, 2002-2003.

**Graduate Research Assistant**, Dept. of Environmental Sciences, Univ. of Virginia. Modeled tundra vegetation response to two climate change scenarios using ArcVeg as comparison with ITEX field studies; assisted other students with GIS issues; sampled biomass, NDVI and LAI in Alaskan tundra. --- Supervisors: H.H. Shugart and H.E. Epstein, 1998-2001.

## TEACHING EXPERIENCE

**Teaching Assistant**, Dept. of Biology, Univ. of Virginia (UVA), Charlottesville, VA. Introduction to Biology, BIOL 203. Taught lab sections, helped design exams, graded exams

and lab reports, and directed undergraduate assistant. --- Summer & Fall 2000 (2 sections), Summer 2001.

**Teaching Assistant**, Dept. of Environmental Sciences, UVA. Fundamentals of Ecology, EVSC 320. Taught lab sections, conducted field trips, graded exams and lab reports. --- Fall 1998, Spring 1999.

**Teaching Assistant**, Dept. of Biological Sciences, Fordham University, Bronx, NY. Introductory Biology I, BIRU 1413. Assisted in teaching lab section for majors and a section for non-majors. --- Fall 1996.

## PROFESSIONAL GIS EXPERIENCE

**Data & GIS Specialist**, Inst. for Local Government Administration and Rural Development (ILGARD), Ohio University (OU), Athens, OH. Produced maps and GIS databases for several watershed restoration groups and small towns; supervised and trained students on GIS projects. --- 1997-1998.

**Public Services Associate**, ILGARD, OU. Produced an automated mapping program for the Monday Creek Watershed Restoration group and two maps for the village of Crooksville. --- 1994-1996.

**Independent Consultant**, UNEP/GRID, EROS Data Center, Sioux Falls, SD. As part of a team, updated hydrological information in GIS to produce a global 30 arc minute digital elevation model. --- 1993-1994.

**GIS Technician**, City of Sioux Falls Engineering Dept., Sioux Falls, SD. Expanded and revised the city GIS database by digitizing and managing data in GIS. --- 1993.

## AWARDS since 2005

NY State Dec. Wildlife Grants (Co-PI), \$71,000 for 'Wildlife Conservation Analysis for Montgomery County, NY,' 2008-2009.

College of Arts and Sciences Release-Time Program award, University at Albany, 2007.

Faculty Research Awards Program (FRAP A) at University at Albany, \$10,000 for 'Historic Land Use and Environmental Change in Eastern New York State' 2006-2007.

College of Arts and Sciences Travel Award, University at Albany, \$500, 2006, 2007.

Individual Development Award by United University Professions, University at Albany, 2006.

## PUBLICATIONS

Chapin, F.S. III, S.F. Trainor, O. Huntington, A.L. Lovecraft, E. Zavaleta, D.C. Natcher, A.D. McGuire, J. Nelson, L. Ray, **M. Calef**, N. Fresco, H. Huntington, T.S. Rupp, L. DeWilde, and

R.A. Naylor (2008). Increasing wildfire in the boreal forest: causes, consequences, and pathways to potential solutions of a wicked problem. *Bioscience* 58(6):531-540.

**Calef, M.P.**, A.D. McGuire, and F.S. Chapin III (2008). Human influences on wildfire in Alaska from 1988 through 2005: An analysis of the spatial patterns of human impacts. *Earth Interactions* 12(1):1-17. DOI: 10.1175/2007EI220.1

Lapenis, A.G., G. B. Lawrence, S. Baily, B. Aparin, A. Shiklomanov, N. Speranskaya, M.S. Torn, and **M. Calef** (2008). Climatically driven loss of calcium in steppe soil as a sink for atmospheric carbon. *Global Biogeochemical Cycles* 22, GB2010, DOI: 10.1029/2007GB003077

McGuire, A.D., J. Walsh, J. Kimball, J. Clein, S. Euskirchen, S. Drobot, U. Herzfeld, J. Maslanik, R. Lammers, M. Rawlins, C. Vorosmarty, T. Rupp, W. Wu, and **M. Calef** (2008). The Western Arctic Linkage Experiment (WALE): Overview and synthesis. *Earth Interactions* 12(7): 13 pp., DOI: 10.1175/2008EI239.1.

Clein, J.S., A.D. McGuire, E.S. Euskirchen, and **M. Calef**. (2007) The effects of different climate input data sets on simulated carbon dynamics in the Western Arctic. *Earth Interactions* 11(12):1-24 DOI: 10.1175/EI229.1.

Natcher, D. C., **M. Calef**, O. Huntington, S. Trainor, H. Huntington, L. DeWilde, S. Rupp, and F. S. Chapin III (2007). Factors contributing to the cultural and spatial variability of landscape burning by Native Peoples of Interior Alaska. *Ecology and Society*, Special Issue: Crossing Scales and Disciplines to Achieve Forest Sustainability 12(1): 7.

Kimball, J.S., M. Zhao, A.D. McGuire, F.A. Heinsch, J. Clein, **M. Calef**, W.M. Jolly, S. Kang, S.E. Euskirchen, K.C. McDonald, and S.W. Running (2007). Recent climate-driven increases in vegetation productivity for the Western Arctic: evidence of an acceleration of the Northern terrestrial carbon cycle. *Earth Interactions* 11(4):1-30 DOI: 10.1175/EI180.1.

Walker, M., H. Wahren, L. Ahlquist, J. Alatalo, S. Bret-Harte, **M. Calef**, T. Callaghan, A. Carroll, C. Copass, H. Epstein, G. Henry, R. Hollister, I. S. Jonsdottir, J. Klein, B. Magnusson, U. Molau, S. Oberbauer, S. Rewa, C. Robinson, G. Shaver, K. Suding, A. Tolvanen, Ø. Totland, P.L. Turner, C. Tweedie, P. Webber, and P. Wookey (2006). Tundra plant community response to experimental warming: sensitivity in a rapidly changing environment. *Proceedings of the National Academy of Sciences* 103(5):1342-1346.

**Calef, M.P.**, A.D. McGuire, T.S. Rupp, H.E. Epstein, and H.H. Shugart (2005). Analysis of vegetation distribution in Interior Alaska and sensitivity to climate change using a logistic regression approach. *Journal of Biogeography* 32:863-878.

Riedel, S. M., H.E. Epstein, D.A. Walker, D.L. Richardson, **M.P. Calef**, E. Edwards, and A. Moody (2005). Spatial and temporal heterogeneity of vegetation properties among four tundra plant communities at Ivotuk, Alaska. *U.S.A. Arctic, Antarctic and Alpine Research* 37(1):25-33.

Epstein, H.E., **M.P. Calef**, M.D. Walker, F.S. Chapin III, and A.M. Starfield (2004). Detecting changes in arctic plant communities in response to warming over decadal time scales. *Global Change Biology* 10:1325-1334.

**PUBLICATIONS IN PREP**

Huntington, H., **M.P. Calef**, F.S. Chapin III, A. Lovecraft, T.S. Rupp, S.F. Trainor. Long-Term Implications of Maintaining Current Fire Management Policies and Practices in Interior Alaska under a Changing Climate. *Climatic Change* (in prep).

**Calef, M.P.**, F.S. Chapin III, A.D. McGuire. Large fires in Interior Alaska: variability and suppression effects at two spatial scales from 1988 through 2006. *International Journal of Wildland Fire* (submitted).

Trainor, S.F., F.S. Chapin, A.D. McGuire, M. Calef, N. Fresco, M. Kwart, P. Duffy, A.L. Lovecraft, T.S. Rupp, L. DeWilde, O. Huntington, D. Natcher. Vulnerability and adaptation to climate-related fire impacts in rural and urban Interior Alaska. *Polar Research* (submitted).

**PRESENTATIONS since 2000** (\* denotes UAlbany student)

**Calef, M.P.** Population redistribution and disappearing farmland in the Capital District, NY. Annual Meeting of the Association of American Geographers, Boston, MA, Apr 08.

**Calef, M.P.** The story of population distribution, changing land use and disappearing farmland in the Capital District since 1900: what does the future hold? New York State GIS Conference, Albany, NY, Oct 07.

Bried\*, L., **M. Calef**, G. Kleppel. The effect of land use change on rare plants in Eastern New York State. New York State GIS Conference, Albany, NY, Oct 07.

Peterson\*, M.C., G.R. Robinson, C. Smith\*, and **M. Calef**. Twenty-year trends in avian biodiversity in the Hudson River Valley Ecozone. Ecological Society of America, San Jose, CA, 8/07.

DeWilde, L., **M.P. Calef**, F.S. Chapin III. Human impacts on fire regime in the Alaskan boreal forest. 3<sup>rd</sup> International Fire Ecology & Management congress, San Diego, CA, Nov 06.

**Calef, M. P.**, A.D. McGuire, F.S. Chapin III, L. DeWilde. Human influence on fire at a regional scale in Alaska. 14<sup>th</sup> Int. Conference of the Society for Human Ecology, Bar Harbor, ME, Oct 06.

Chapin, F.S. III, S.F. Trainor, D. Natcher, H. Huntington, O. Huntington, S. Rupp, **M. Calef**, A.D. McGuire, A. Lovecraft. Impacts of global and national processes on local human-fire interactions in Interior Alaska: constraints on future options. 14<sup>th</sup> Int. Conference of the Society for Human Ecology, Bar Harbor, ME, Oct 06.

Natcher, D., **M. Calef**, S. Trainor, F.S. Chapin III. 2006. Factors contributing to the spatial variability of landscape burning by Native peoples in Interior Alaska. 14<sup>th</sup> Int. Conference of the Society for Human Ecology, Bar Harbor, ME, Oct 06.

Trainor, S., F.S. Chapin III, M. Bifelt, **M. Calef**, L. DeWilde, N. Fresco, A.D. McGuire, H. Huntington, O. Huntington, A. Lovecraft, D. C. Natcher, J. Nelson, T.S. Rupp, A. Starfield, E. Zavaleta. 2006. Human-Fire Interactions in the Boreal Forest of Alaska. AAAS Arctic Division meeting, Fairbanks, AK Oct 06.

- Calef, M.P.**, A.D. McGuire, T.S. Rupp. 2006. Do people matter? I: the short-term view. Recent human impacts on fire regime. Symposium on Human-Fire Interactions in the Boreal Forest of Interior Alaska, Fairbanks, AK, Aug 06.
- Rupp, T.S., M. Olson, **M.P. Calef**. 2006. Does fire management make a difference? Short- and long-term effects of fire suppression. Symposium on Human-Fire Interactions in the Boreal Forest of Interior Alaska, Fairbanks, AK, Aug 06.
- Calef, M.P.**, A. D. McGuire, F.S. Chapin III. 2006. When fire suppression fails: a GIS-based analysis. Ecological Society of America 91<sup>st</sup> annual meeting, Memphis, TN, Aug 06.
- Sargis\*, G., **M. Calef**, A. Lapenas, G. Robinson. 2006. Prediction of invasive plant species distribution in the Catskill region, NY, using logistic regression. Northeast Natural History Conference, Albany, NY, Apr 06.
- Calef, M.P.**, A.D. McGuire, F.S. Chapin III, L. DeWilde. 2005. The human footprint on wildfire in the boreal forest of Interior Alaska. Ecological Society of America 90<sup>th</sup> annual meeting, Montreal, Canada, Aug 05.
- Calef, M.P.**, A.D. McGuire, T.S. Rupp. 2004. Human impacts on fire in the Western Arctic: a statistical assessment at the regional scale. American Geophysical Union meeting, San Francisco, CA.
- Calef, M.P.**, A.D. McGuire, T.S. Rupp. 2004. Human impacts on fire in the Western Arctic: a statistical assessment at the regional scale. International Boreal Forest Research Association 12<sup>th</sup> annual meeting, Fairbanks, AK.
- Chapin, F.S. III, L. DeWilde, P. Duffy, T.S. Rupp, A.D. McGuire, E. Kasischke, D. Mann, D. Verbyla, S.F. Trainor, **M.P. Calef**. 2004. Scale-dependency of human-fire interactions in the Alaska boreal forest. International Boreal Forest Research Association 12<sup>th</sup> annual meeting, Fairbanks, AK.
- Trainor, S.F., F.S. Chapin III, J. Wisniewski, L. DeWilde, D. Natcher, **M.P. Calef**, T.S. Rupp. 2004. A history of human-fire interactions in the Alaskan boreal forest. American Society for Environmental History.
- Chapin, F.S. III, L. DeWilde, S.F. Trainor, **M.P. Calef**, A.D. McGuire, T.S. Rupp and A. Lovecraft. 2004. Vulnerability and resilience: Changing fire regime in interior Alaska. Ecological Society of America 89<sup>th</sup> annual meeting.
- Calef, M.P.**, D.L. Verbyla, T.S. Rupp, A.D. McGuire, H.E. Epstein, H.H. Shugart. 2003. Land cover estimates across classifications and resolutions in Interior Alaska. Ecological Society of America 88<sup>th</sup> annual meeting.
- Calef, M.P.**, A.D. McGuire, T.S. Rupp, H.E. Epstein, H.H. Shugart. 2003. Controls on vegetation distribution and implications for climate change in Alaska. NASA Land Cover Land Use Change (LCLUC) meeting, Washington, DC.
- Epstein, H.E., **M.P. Calef**, M.D. Walker, F.S. Chapin III, A.M. Starfield. 2002. Detecting changes in arctic tundra plant communities in response to warming over decadal time scales. 11<sup>th</sup> International Tundra Experiment (ITEX) workshop.

**Calef, M.P.**, H.E. Epstein, and H.H. Shugart. 2002. Vegetation succession and fire patterns in Interior Alaska. American Geophysical Union meeting, San Francisco, CA.

**Calef, M.P.**, A.D. McGuire, T.S. Rupp, H.E. Epstein, H.H. Shugart. 2002. Factors controlling vegetation distribution in Interior Alaska and implications for climate change: a hierarchical logistic regression approach. 53<sup>rd</sup> Arctic System Science conference, Fairbanks, AK.

**Calef, M.P.**, A.D. McGuire, T.S. Rupp, E.M. Debevec, H.E. Epstein, H.H. Shugart. 2002. Land cover change in the Western Arctic: Development of a logistic regression model. Ecological Society of America 87<sup>th</sup> annual meeting, Tucson, AZ.

**Calef, M.P.**, A.D. McGuire, T.S. Rupp, E.M. Debevec, H.E. Epstein, H.H. Shugart. 2002. Land cover change in the Western Arctic: development of a logistic regression model. NSF Arctic System Science (ARCSS) All-hands meeting, Seattle, WA.

**Calef, M.P.**, H.E. Epstein, and H.H. Shugart. 2001. Fire patterns in Interior Alaska. NSF Land Atmosphere Ice Interactions (LAI) All-hands meeting, Salt Lake City, UT.

**Calef, M.P.**, H.E. Epstein, and H.H. Shugart. 2001. Analysis of the distribution of vegetation classes in Interior Alaska. Ecological Society of America 86<sup>th</sup> annual meeting, Madison, WI.

Epstein, H.E., **M.P. Calef**, M.D. Walker, A.M. Starfield, F.S. Chapin III. 2001. Spatial and short-term temporal heterogeneity of arctic tundra vegetation: comparing field and model data. Ecological Society of America 86<sup>th</sup> annual meeting, Madison, WI.

Epstein, H.E., and **M.P. Calef**. 2001. Using ArcVeg to simulate point-frame responses. International Tundra Experiment (ITEX) workshop, Finse, Norway.

Riedel, S., H.E. Epstein, D.A. Walker, D.L. Richardson, **M.P. Calef**. 2000. Spatial and temporal heterogeneity of vegetation properties for four tundra types in northern Alaska. Ecological Society of America 85<sup>th</sup> annual meeting, Snowbird, UT.

## PROFESSIONAL SERVICE

**Proposal Reviews** for NSF Geography and Regional Science, NSF Long Term Research in Environmental Biology, WWF Kathryn Fuller Fellowship, and Global Change Student Research Grant Competition by the Center for Global Change and Arctic System Research (UAF).

**Manuscript Reviews** for Southeast Geographer, The Professional Geographer, Austral Ecology, Global Change Biology, and Mitigation and Adaptation Strategies for Global Change.

**Session Chair** for Biogeography and Co-Chair for Ecological Modeling at the Ecological Society of America meeting in Memphis, TN, 2006.

**Organized and Chaired** two Sessions on Land Use Change for the Association of American Geographers Meeting in Boston, MA, 2008.

**Conference coordinator**, 12<sup>th</sup> annual International Boreal Forest Research Association (IBFRA) meeting in Fairbanks, Alaska, May 2004. Organized conference for 200 participants, made travel arrangements for 13 invited Russian speakers, assisted with visa issues,

corresponded with everyone interested in attending, managed budget, organized poster display boards and designed poster session layout, ordered and assembled conference materials, coordinated with local organizing committee and program committee, ran conference check-in desk and supervised student helpers. --- spring 2004.

### **SERVICE AT UNIVERSITY AT ALBANY**

**College of Arts & Sciences:** Departmental Representative to Faculty Council, Member of Academic Programs Committee and 3 grievance committees, and Speaker for College of Arts & Sciences Fellows event around the university book project.

**Department of Geography and Planning:** Member of Department Chair Search Committee 2006, Academic Advisor of Geography Graduate Student Association since 2006, and Geography Students Alumni Coordinator since 2006.

**Department of Informatics:** informal mentoring of CCI women faculty and students.

**University:** Presentation 'Worldwide impacts of global warming from Alaska to Long Island' as part of panel discussion 'Are you ready for the challenges of global warming?' organized by UAlbany's task force on environmental sustainability. Fall 06.

### **SUPERVISION OF GRADUATE STUDENTS**

- (1) Jinguo Gao 'Habitat modeling for exotic earthworm species in New York State' - MS in Ecology, Member - Dec 2006 (Ph.D. program at Ohio State)
- (2) Melissa Peterson 'Trends in avian populations in the Hudson River Valley estimated from the NYS Breeding Bird Atlas' - MS in Biodiversity, Member - Aug 2007 (Windustry)
- (3) Chris Tran 'The Impacts of Land Use on New York State Streams' - MS in Biodiversity, Member - Aug 2007
- (4) John Davis 'Comparison of land conservation models in Montgomery County, NY' - MS in Biodiversity, Member - Dec 2007 (postdoc at UAlbany)
- (5) Cally Miklasz 'Application of GIS for natural resource planning - case study: Erie County forest management plan' - MA in Geography, Member - Dec 2007
- (6) Kathie Dello 'Trends in climate in northern New York and Western Vermont' - MA in Geography, Chair - Dec 2007
- (7) Laura Bried 'The effect of land use change on rare plants in eastern New York State' - MS in Biodiversity, Chair - exp. 2008
- (8) Gregory Sargis 'Prediction of invasive plant species distribution in the Catskill region, NY, using logistic regression' - MA in Geography, Chair - exp. 2008 (The Nature Conservancy)
- (9) Anne Duperault 'Vernal Pools Communities' - MS in Biodiversity, Member - expected May 2009

- (10) Shannon Rauch 'Blanding turtle's habitat use in Duchess County: current and future trends' – MS in Biodiversity, Member – expected May 2009

**ADDITIONAL TRAINING**

Principles of modeling workshop, BLM Sacramento. Instructor: A. Starfield, Jan 2006.

Summer school on the modeling of arctic climate, International Arctic Research Center (IARC), University of Alaska, Fairbanks. Main instructors: J. Walsh, V. Alexeev, July 2003.

**PROFESSIONAL MEMBERSHIPS**

Ecological Society of America (ESA) since 2001.

Association of American Geographers (AAG) since 2006.