

CURRICULUM VITAE

Natalie T. Boelman

EDUCATION

Ph.D., Earth and Environmental Sciences <i>Columbia University</i>	September 2004 <i>New York, USA</i>
M.A., Earth and Environmental Sciences <i>Columbia University</i>	2001 <i>New York, USA</i>
B.Sc., Physical Geography <i>McGill University</i>	1999 <i>Montreal, Canada</i>

PROFESSIONAL APPOINTMENTS

Lamont Assistant Research Professor <i>Lamont-Doherty Earth Observatory, Columbia University</i>	July 1, 2010 to present <i>New York, USA</i>
Storke Doherty Lecturer <i>Dept. of Earth and Environmental Sciences & Lamont-Doherty Earth Observatory, Columbia University</i>	July 1, 2008 to present <i>New York, USA</i>
Doherty-Associate Research Scientist <i>Lamont-Doherty Earth Observatory, Columbia University</i>	July 1, 2006 to June 30, 2010 ¹ <i>New York, USA</i>
Postdoctoral Fellow <i>Department of Global Ecology, Carnegie Institution</i>	January 18, 2005 to June 30, 2006 <i>Stanford, California, USA</i>

MAJOR RESEARCH INTERESTS

- 1) Multi-trophic impacts of climate warming and changing seasonality on Arctic tundra ecosystems
- 2) Use of remote sensing to study shifts in species dominance in Arctic tundra & for assessment of burn severity following tundra fire.
- 3) Remote sensing & bioacoustics: novel techniques for scaling-up ecological form and function

TEACHING EXPERIENCE

Primary Doctoral Thesis Advisor: Shannan Sweet <i>Department of Earth and Environmental Science, Columbia University</i>	present
Senior Thesis Advisor: Victoria Diaz-Bonilla <i>Department of Earth and Environmental Science, Columbia University</i>	present
Guest lecturer: 'Plant Physiological Ecology' <i>Department of Earth and Environmental Sciences, Columbia University</i>	2009, 2010
Guest lecturer: 'Introduction to Remote Sensing' <i>Department of Earth and Environmental Sciences, Columbia University</i>	2008
Senior Thesis Advisor: Elizabeth Tupper <i>Department of Environmental Science, Barnard College</i>	2007- 2008

¹ Please note that I was on full-time parental leave twice (one year total): November 1, 2006 to May 1, 2007, and, April 1, 2009 to September 20, 2009. In between these leaves, I worked 60% in order to care for my daughter. I am now working 75% in order to care for my children.

Guest lecturer: ‘Fundamentals of Remote Sensing’ 2002
Department of Geography, Rutgers University

Teaching Assistant: ‘Plant Physiological Ecology’ 2002
Department of Earth and Environmental Sciences, Columbia University

Teaching Assistant: ‘Physical Oceanography’ 2000
Department of Earth and Environmental Sciences, Columbia University

FUNDED RESEARCH GRANTS

\$8,000 Climate Center of Lamont-Doherty Earth Observatory, *Collaborative Research: Using ancient DNA to explore co-variation between migratory songbirds, climate and shrub abundance in Arctic tundra ecosystems from LGM to present*, PIs: N.T. Boelman & D. Petzet. 2011

\$1,308,858 5-year duration, NSF-Office of Polar Programs, Arctic Natural Sciences, *Collaborative Research: Effects of warming-induced increases in shrub abundance and changing seasonality on migratory songbirds in Alaskan arctic tundra*, PIs: N.T. Boelman, L. Gough, and J. Wingfield. 2009 - 2014

\$911,715.00 3-year duration, NSF-Office of Polar Programs, *Fire In the Arctic Landscape: Impacts, Interactions And Links to Global and Regional Environmental Change*, PIs: G.R. Shaver, plus N.T. Boelman, M.S. Bret-Harte, W.B. Bowden, L.A. Deegan, A.E. Giblin, C.R. Johnson, G.W. Kling, M.C. Mack, E.B. Rastetter, A.V. Rocha. 2009 - 2012

\$5,247 Climate Center of Lamont-Doherty Earth Observatory, *Ecological Impacts of the Alaskan Tundra Fire of 2007 via Remote Sensing & Field Surveys*, PI: N.T. Boelman. 2008

\$5,000 1-year duration, Black Rock Forest Small Grant Consortium Small Grants Program, *Effects of urbanization on tree physiology using remote sensing*. 2008

\$5,376 ADVANCE Program Transition Support Grant, Earth Institute, Columbia University, to hire a Barnard graduate to assist in Black Rock Forest based fieldwork during the growing season of 2008, PI: N.T. Boelman. 2008

\$6,000 Climate Center of Lamont-Doherty Earth Observatory, *Using Bioacoustics to Assess Relationships among Canopy Structure, Temperature and Avian Community Characteristics in Hawaii*, PI: N.T. Boelman. 2006

Carnegie Institution of Washington, Postdoctoral Fellowship 2005, 2006

\$6,000 Climate Center of Lamont-Doherty Earth Observatory, *Relating Spectral Reflectance and Plant Physiology in a Podocarp Forest Ecosystem*, PIs: N.T. Boelman, K.L. Griffin, M. Steiglitz. 2003

\$6,000 Climate Center of Lamont-Doherty Earth Observatory, *Determining Optical-Physiological Relationships Via In-Situ Remote Sensing*, PIs: N.T. Boelman, K.L. Griffin, M. Steiglitz. 2001

JOURNAL PUBLICATIONS IN REVIEW

Searle, S.Y., M. H. Turnbull, N.T. **Boelman**, William S.F. Schuster, Dan Yakir and K.L. Griffin. Urban heat island effect in New York City promotes growth in Northern red oak seedlings (in review at *Tree Physiology*)

JOURNAL PUBLICATIONS

Boelman, N.T., L. Gough, J.R. McLaren and H. Greaves. Does NDVI reflect variation in the structural attributes associated with increasing shrub dominance in arctic tundra? in press at *Environmental Research Letters*, 2011.

Boelman, N.T., A.V. Rocha, and G.R. Shaver. Understanding burn severity sensing in Arctic tundra: Exploring vegetation indices, sub-optimal assessment timing and the impact of increasing pixel size, in press at *International Journal of Remote Sensing*, 2011.

Boelman, N.T., G.P. Asner, P.J. Hart, R.E. Martin, Uncovering Multi-trophic Biotic Resistance to Biological Invasion in Hawai'i using Bioacoustics, Field Surveys, and Airborne Remote Sensing *Ecological Applications*, 17(8): 2137-2144, 2007.

Whitehead D., N.T. **Boelman**, M.T. Turnbull, K.L. Griffin, D.T. Tissue, M.M. Barbour, J.E. Hunt, S.J. Richardson, D.A. Peltzer, Photosynthesis and reflectance indices for rainforest species in ecosystems undergoing progression and retrogression along a soil fertility chronosequence in New Zealand, *Oecologia*, 144: 233-244, 2005.

Boelman, N.T., M. Stieglitz, K.L. Griffin, G.R. Shaver, Inter-annual variability of NDVI in response to long-term warming and fertilization in wet sedge and tussock tundra, *Oecologia*, 143: 588-597, 2005.

Boelman, N.T., M. Stieglitz, H. Rueth, M. Sommerkorn, K.L. Griffin, G.R. Shaver, J.A. Gamon, Response of NDVI, Biomass, and Ecosystem Gas Exchange to Long-Term Warming and Fertilization in Wet Sedge Tundra, *Oecologia*, 135:414-421, 2003.

INVITED TALKS

Department of Biological and Environmental Sciences, University of Tennessee at Chattanooga	November, 2011
Québec Government Office in New York, working luncheon on Arctic/ Northern issues: Current and future perspectives on research, advocacy and collaboration	April, 2011
Lamont-Doherty Public Lecture Series	April, 2011
Department of Ecology, Evolution and Environmental Biology, Columbia University	February, 2010
Department of Geography, Concordia University, Montreal	February, 2006
Department of Geography, York University, Toronto	March, 2006
Lamont-Doherty Earth Observatory, Columbia University	September, 2005
CEA-CREST 4 th Annual Environmental Science Conference, Pasadena	May, 2003
Swiss Federal Institute for Forest, Snow and Landscape Research (WSL) of the Swiss Federal Institute of Technology (ETH) in Zurich, Switzerland	January, 2004

PRESS

New York Times 'Scientist at work': Research blog from the North Slope of Alaska while conducting fieldwork	May 26-June 8, 2011
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PH.D. ADVISORS

Marc Stieglitz, Lamont-Doherty Earth Observatory, now at Georgia Institute of Technology

Kevin Griffin, Department of Earth & Environmental Sciences, Columbia University
Christopher Small, Lamont-Doherty Earth Observatory, Columbia University

POSTDOCTORAL ADVISORS

Gregory Asner & Christopher Field, Department of Global Ecology, Carnegie Institution

COLLABORATORS

Gregory Asner, Robin Martin (Carnegie Institution), Nona Chiariello (Stanford University), Patrick Hart (Univ. of Hawai'i, Hilo), Gus Shaver, Adrian Rocha, (Marine Biological Laboratory (MBL), USA), John A. Gamon (California State Univ, USA), David Whitehead (Landcare Research, New Zealand), Matthew Turnbull (Univ. of Canterbury, New Zealand), David Tissue (Texas Tech Univ., USA), Mark van Wyjk (Univ. of Edinburgh, UK), Laura Gough (Univ. of Texas, Austin), John Wingfield (University of California, Davis), Hendrik Poinar (McMaster University, Canada), Heidi Steltzer (Fort Lewis College), Mike Weintraub (Univ. of Toledo), Patrick Sullivan (Univ. of Alaska, Anchorage).