

ABBREVIATED CURRICULUM VITAE

ROSS A. VIRGINIA

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Environmental Studies Program and Institute of Arctic Studies
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Complete CV at
<http://www.dartmouth.edu/~ravirg/index.htm>

EDUCATION

- B.S. SUNY College of Environmental Science and Forestry,
Syracuse, New York. Forest Biology *magna cum laude*, 1972
- M.S. University of California, Davis. Ecology, 1974
- Ph.D. University of California, Davis. Ecology, 1980
- A.M. Dartmouth College (Honorary), 1992

EXPERIENCE

- 2017-2019 Global Fellow, Polar Initiative, Woodrow Wilson Center for
International Scholars, Washington D.C.
- 2016 Elected Fellow, American Association for the Advancement of Science
(AAAS), Biological Sciences
- 2008- Myers Family Professor of Environmental Science
- 2003- Director, Institute of Arctic Studies, within the John Sloan Dickey Center for
International Understanding
- 1997-2004 Albert Bradley 1915 Third Century Professor in the Sciences
- 1992- Professor of Environmental Studies (Chair, 1992-2000)
- 1992- Adjunct Professor of Biological Sciences and Earth Sciences
- 1985- 1992 Professor (1988-1992), Associate Professor (1985-1988)
Department of Biology, San Diego State University, San Diego, CA

1985- 1992 Associate Director/Director
Systems Ecology Research Group, San Diego State University

1980-1985 Assistant Research Scientist (1982-1985), Postdoctoral Res. Sci. (1980-1982), Dept. of Soil and Environmental Science, Univ. California, Riverside

1974-1980 Graduate Research and Teaching Assistant
Dept. of Land, Air & Water Resources, Univ. California, Davis

RESEARCH INTERESTS

Polar environmental change, Arctic policy, Soil biodiversity and biogeochemical cycling in polar systems, Ecosystem ecology and its relationships with environmental law and policy

PROFESSIONAL ORGANIZATIONS/SERVICE/AFFILIATIONS

Distinguished Co-Lead Scholar, Fulbright Arctic Initiative, US Department of State Bureau of Educational and Cultural Affairs, 2014-2016, round two, 2017-19
<http://www.cies.org/program/fulbright-arctic-initiative>

Board of Governors, Ilisimatusarfik (University of Greenland), 2016-2020

Co-Director, University of the Arctic Institute for Arctic Policy, 2012- present, with Michael Sfraga, University of Alaska Fairbanks

University of the Arctic (UArctic) Council Member, 2004-present

Co-Chair, U. S. National Committee for the Arctic Science Summit Week (ASSW) 2007

Associated Scientist, Stefansson Arctic Institute, Akureyri, Iceland, 2014- present

ARCUS, Arctic Research Consortium of the United States, Dartmouth Institutional Representative, 1995- present

External Advisory Board, The Institute for Environmental Diplomacy and Security (IEDS), University of Vermont, 2010- present

Trustee, Sterling College (Craftsbury Common, Vermont) and member of the Advisory Board for the Center for Northern Studies at Sterling College, 2005-2010

Professional Affiliations: American Association for the Advancement of Sciences, American Institute of Biological Sciences, American Geophysical Union-Biogeosciences, American Polar Society, Ecological Society of America, Geological Society of America, International Arctic Social Sciences Association, Old Antarctic Explorers Association, Soil Science Society of America

HONORS AND AWARDS

Graduate Faculty Mentor Award, Dartmouth College Graduate Student Association, 2005
"Virginia Valley" named in 2004 by the U.S. and New Zealand Advisory Committees on Antarctic Names in honor of my research in soil biology conducted in the McMurdo Dry Valleys starting in 1989. Location: 77°29'S, 160°56'E, Olympus Range, Southern Victoria Land, Antarctica, feature ID 18694
CHOICE, Outstanding Academic Title for 2003: *Law and Ecology: The Rise of the Ecosystem Regime*, *CHOICE*: Current Reviews for Academic Libraries, 2003 Sep issue 41-0296
Salzburg Seminar Presidential Fellow, Environment and Diplomacy, 1994
Antarctic Service Medal, U.S. Congress, awarded 1994

SELECTED PUBLICATIONS

Authored Books, Edited Works:

Angelo, M. J. 2013. *The Law and Ecology of Pesticides and Pest Management*. Ashgate Publishers Ltd.: Surrey UK, Burlington USA, xxvii + 334 pgs. For the Series: Ecology and Law in Modern Society, edited by R. O. Brooks and R. A. Virginia

Brooks, Richard O., Ross T. Jones and Ross A. Virginia. 2002. *Law and Ecology: The Rise of the Ecosystem Regime*. Ashgate Publishers Ltd.: Surrey UK, Brookfield USA, Singapore, Sydney, 430 pp. For the Series: Ecology and Law in Modern Society, edited by R. O. Brooks and R. A. Virginia

Milne, J. E., J. LaMense, and R. A. Virginia (editors). 2009. *Mountain Resorts: Ecology and the Law*. Ashgate Publishers Ltd.: Aldershot, Brookfield USA, Singapore, Sydney, 490 pp. For the Series: Ecology and Law in Modern Society, edited by R. O. Brooks and R. A. Virginia

Selected Professional Articles, Chapters, Reports

ISI h-index, 45; Google Citation h-Index, 59

Gooseff, M. N., J. E. Barrett, B. J. Adams, P. T. Doran, A. G. Fountain, W. B. Lyons, D. M. McKnight, J. C. Priscu, E. Sokol, C. Takacs-Vesbach, M. L. Vandegehuchte, R. A. Virginia, and D. H. Wall. 2017. Decadal ecosystem response to an anomalous melt season in a polar desert in Antarctica. *Nature Ecology and Evolution* 1:1334-1338, doi:10.1038/s41559-017-0253-0

Hansen, A. M., R. A. Virginia, A. D. Tepecik, S. Chatwood, T. Lantz, G. Holdmann, and L. Chamberlain. 2017. Community wellbeing and infrastructure in the Arctic: Workshop Report. The Danish Centre for Environmental Assessment, Department of Planning and Development, Aalborg University, http://vbn.aau.dk/files/260297296/Community_Wellbeing.pdf

Heindel, R. C., L. E. Culler, and R. A. Virginia. 2017. Rates and processes of aeolian erosion in West Greenland. *The Holocene* 1-10, DOI: 10.1177/0959683616687381

Heindel, R. C., A. M. Spickard, and R. A. Virginia. 2017. Landscape-scale soil phosphorus variability in the McMurdo Dry Valleys, Antarctica. *Antarctic Science* 29:252-263, DOI: <https://doi.org/10.1017/S0954102016000742>

- Urbanowicz, C. M., R. A. Virginia, and R. E. Irwin. 2017. The response of pollen transport networks to landscape-scale climatic variation. *Polar Biology*, DOI 10.1007/s00300-017-2138-8
- Virginia, R. A. 2017. The Arctic environment in the age of man. *The Wilson Quarterly*, Vol 41, No. 3, Summer, 2017, <https://wilsonquarterly.com/quarterly/into-the-arctic/the-arctic-environment-in-the-age-of-man/>
- Bradley-Cook, J. I. and R. A. Virginia. 2016. Soil carbon storage and respiration potential across an age and climate gradient in western Greenland. *Polar Biology* 39:1283-1295, DOI 10.1007/s00300-015-1853-2
- Foley, N., S. Tulaczyk, E. Auken, C. Schamper, H. Dugan, J. Mikulcki, R. Virginia and P. Doran. 2016. Helicopter borne transient electromagnetics in high latitude environments: An application in the McMurdo Dry Valleys, Antarctica. *Geophysics* 81(1), DOI 10.1190/GEO2015-0186.1
- Virginia, R. A. and M. Sfraga. 2016. How to create policy-relevant research for a sustainable Arctic future. *Arctic Deeply* opinion-editorial, September 20, 2016, <https://www.newsdeeply.com/arctic/community/2016/09/20/how-to-create-policy-relevant-research-for-a-sustainable-arctic-future>
- Virginia, R. A., M. Sfraga, T. Arnbom, L. Chamberlain, S. Chatwood, A. T. Dis, G. H. Gjørv, T. K. Harms, A. Hansen, G. Holdmann, N. Johnson, T. Lantz, B. Magnússon, I. S. Neuhaus, G. Poelzer, L. Sokka, M. Tysiachniouk, O. Varpe, and N. Vestergaard. 2016. The Fulbright Arctic Initiative: An innovative model for policy relevant research and public outreach. *Arctic Yearbook* 2016: 180-193, http://www.arcticyearbook.com/images/Articles_2016/briefing-notes/5-AY2016-Virginia.pdf
- Ball, B. A. and R. A. Virginia. 2015. Controls on diel soil CO₂ flux across moisture gradients in a polar desert. *Antarctic Science*, available on CJO2015. doi: 10.1017/S0954102015000255
- Ball, B. A., C. R. Tellez, and R. A. Virginia. 2015. Penguin activity influences soil biogeochemistry and soil respiration in rookeries on Ross Island, Antarctica. *Polar Biology*, DOI 10.1007/s00300-015-1699-7
- Collins, J. F., R. A. Virginia, and K. S. Yalowitz. 2015. Diplomacy at the top of the world. *Project Syndicate*, August 26, 2015, Opinion-Editorial
- Collins, J. F., M. Sfraga, R. A. Virginia, and K. S. Yalowitz. 2015. How America can step up its leadership role in the Arctic. *The National Interest*, April 21, 2015, Opinion- Editorial
- Culler, L. E., M. P. Ayres, and R. A. Virginia. 2015. In a warmer Arctic, mosquitoes avoid increased mortality from predators by growing faster. *Proceedings of the Royal Society B* 282: 20151549. <http://dx.doi.org/10.1098/rspb.2015.1549>

- Dugan, H. A., P. T. Doran, S. Tulaczyk, J. A. Mikucki, S. A. Arcone, E. Auken, C. Schamper, and R. A. Virginia. 2015. Subsurface imaging reveals a confined aquifer beneath an ice-sealed Antarctic lake. *Geophysical Research Letters*, 42, DOI:10.1002/2014GL062431
- Heindel, R. C., J. Chipman, and R. A. Virginia. 2015. The spatial distribution and ecological impacts of aeolian soil erosion in Kangerlussuaq, West Greenland. *Annals of the Association of American Geographers* 105(5):875-890, DOI: 10.1080/00045608.2015.1059176
- Mikucki, J., E. Auken, S. Tulaczyk, R. A. Virginia, C. Schamper, K. I. Sorensen, P. T. Doran, H. Dugan, and N. Foley. 2015. Ancient groundwater and potential deep subsurface habitats beneath an Antarctic dry valley. *Nature Communications* 6, Article number:6831, doi:10.1038/ncomms7831
- Ball, B. A. and R. A. Virginia. 2014. The ecological role of moss in a polar desert: implications for aboveground- belowground and terrestrial- aquatic linkages. *Polar Biology* 37:651-664, DOI 10.1007/s00300-014-1465-2
- Ball, B. A. and R. A. Virginia. 2014. Microbial biomass and respiration responses to nitrogen fertilization in a polar desert. *Polar Biology* 37(4):573-585, doi 10.1007/s00300-014-1459-0
- Virginia, R. A., J. F. Collins, M. Sfraga, and K. S. Yalowitz. 2014. The US and a peaceful Arctic future. *The Hill*, August 8, 2014, Opinion-Editorial
- Collins, J. F., M. Sfraga, R. A. Virginia, and K. S. Yalowitz. 2013. *A Euro-Atlantic Action Plan for Cooperation and Enhanced Arctic Security. Conference Report and Recommendations to the Arctic Council and Interested Parties*. February 11-12, 2013, Carnegie Endowment of International Peace, Washington, D. C. and the University of the Arctic Institute for Applied Circumpolar Policy, Dartmouth College and the University of Alaska Fairbanks. <http://carnegieendowment.org/2013/05/14/euro-atlantic-action-plan-for-cooperation-and-enhanced-arctic-security/g3i8>
- Collins, J. F., R. A. Virginia, and K. Yalowitz. 2013. Hands across the melting ice. *The New York Times* and *International Herald Tribune*, May 13, 2013, Opinion-Editorial
- Virginia, R. A. and D. H. Wall. 2013. Ecosystem Function, Principles of. *In: Levin, S. A. (ed.) Encyclopedia of Biodiversity, second edition, Volume 3*, pp. 90-95. Waltham, MA: Academic Press
- Levy, L. M. A. Kelly, J. A. Howley, and R. A. Virginia. 2012. Age of the Ørkendalen moraines, Kangerlussuaq, Greenland: Constraints on the extent of the southwestern margin of the Greenland Ice Sheet during the Holocene. *Quaternary Science Reviews* 52:1-5, <http://dx.doi.org/10.1016/j.bbr.2011.03.031>
- Virginia, R. A. and K. S. Yalowitz (Editors). 2012. *A New Paradigm for Arctic Health: Challenges and Responses to Rapid Climate, Environmental and Social Change*. Workshop Report of an International Conference, May 23-25, 2011, Dartmouth College, Hanover, NH and the University of the Arctic Institute for Applied Circumpolar Policy,

<http://iacp.dartmouth.edu/news/17-arctic-health-challenges-and-responses-to-rapid-climate-environmental-and-social-change>

Nielsen, U. N., D. H. Wall, B. J. Adams, R. A. Virginia, B. A. Wall, M. N. Gooseff, and D. McKnight. 2012. The ecology of pulse events: insights from an extreme event in a polar desert ecosystem. *Ecosphere* 3(2):17.doi.org/10.1890/ES11-00325.1

Forest, Pierre-Andre, L. Heininen, M. Sfraga, R. A. Virginia and K. S. Yalowitz. 2011. *Climate Change and Human Security*, Final Report and Main Findings of the 3rd Workshop of the University of the Arctic Institute of Applied Circumpolar Policy, September 3-6, 2010, University of Lapland, Rovaniemi, Finland

Holm, L. K., L. A. Grenoble, and R. A. Virginia. 2011. A praxis for ethical research and scientific conduct in Greenland. *Études/Inuit/Studies*, Vol. 35 (1-2): 187-200, for the issue on "Intellectual Property and Ethics"

Smith, T. E., D. H. Wall, I. D. Hogg, U. N. Nielsen, and R. A. Virginia. 2011. Thawing permafrost alters nematode populations and soil habitat characteristics in an Antarctic polar desert ecosystem. *Pedobiologia* 55:75-81, doi:10.1016/j.pedobi.2011.11.001

Virginia, R. A. 2011. Foreword. *In: P. D. Miller, The Book of Ice*. Mark Batty, Publisher, Brooklyn, NY

Virginia, R. A. 2010. Foreword, *In: H. C. Petersen*, pgs 13-15 (Greenlandic) and 267-268 (English), *In: Local Knowledge, Living Resources and Natural Assets in Greenland*. Univ Press of New England and International Polar Institute Press, Hanover, NH, USA.

Yalowitz, K. S. and R. A. Virginia. 2010. The Arctic Region: Prospects for a Great Game or International Cooperation, Section 2.4B, Pgs. 125-130, *In: Perspectives on Political and Social Regional Stability Impacted By Global Crises - A Social Science Context*. White Paper published jointly by Strategic Multi-Layer Assessment (SMA) and U.S. Army Corps of Engineers R&D Directorate. H. Cabayan, B. Sotirin, R. Davis et al., Editors

Yalowitz, K. S. and R. A. Virginia. 2010. The Arctic Region: Prospects for a Great Game or International Cooperation. The Atlantic Community, April 2010

Virginia, R. A. 2009. An ecosystem approach to mountain resorts. Pgs. 24-38, *In: Milne, J. E., J. LaMense, and R. A. Virginia (editors). Mountain Resorts: Ecology and the Law*. Ashgate Publishers Ltd.: Aldershot, Brookfield USA, Singapore, Sydney. For the Series: Ecology and Law in Modern Society, edited by R. O. Brooks and R. A. Virginia

Yalowitz, K. S., J. F. Collins, and R. A. Virginia. 2009. *The Arctic Climate Change and Security Policy Conference- Final Report and Findings*. Carnegie Endowment for International Peace, Washington D.C., 36 pgs

Virginia, R. A., K. S. Yalowitz, and I. Krupnik. 2007. Introduction: Perceptions of Climate Change. *In: Stuckenberger, N. (ed.). Thin Ice: Inuit Traditions within a Changing Environment*. Pp. 12-15. Univ. Press of New England, Hanover, NH.

- Chapin, F. S. III, M. Berman, T. V. Callaghan, P. Convey, A-S Crépin, K. Danell, H. Ducklow, B. Forbes, G. Kofinas, A. D. McGuire, M. Nuttall, R. Virginia, O. Young, and S. A. Zimov. 2005. Polar Systems. Chapter 25, pp. 717-743. In: *Ecosystems and Human Well-Being: Current State and Trends. The Millennium Ecosystem Assessment Series, Vol 1.* R. Hassan, R. Scholes and N. Ash (eds.). Island Press, Washington D.C.
- Doran, P. T, J. C. Prisco, W. B. Lyons, J. E. Walsh, A. G. Fountain, D. M. McKnight, D. L. Moorhead, R. A. Virginia, D. H. Wall, G. D. Clow, C. H. Fritzen, C. P. McKay, and A. N. Parsons. 2002. Antarctic climate cooling and terrestrial ecosystem response. *Nature* 415:517-520
- Wall, D. H. and R. A. Virginia. 2000. The world beneath our feet: Soil biodiversity and ecosystem functioning. Pp. 225-241, In: P. Raven and T. A. Williams (eds). *Nature and Human Society: The Quest for a Sustainable World.* National Academy of Sciences Press, Washington D.C. 644pp.
- Virginia, R. A., and D. H. Wall. 1999. How soils structure communities in the Antarctic Dry Valleys. *BioScience* 49:973-983
- Schlesinger, W. H., J. F. Reynolds, G. L. Cunningham, L. F. Huenneke, W. M. Jarrell, R. A. Virginia, and W. G. Whitford. 1990. Biological feedbacks in global desertification. *Science* 247:1043-1048

RECENT RESEARCH PROJECTS AND EXTERNAL FUNDING

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| 2015-2018 | Principal Investigator, NSF Division of Polar Programs, <i>A Dartmouth-JSEP Partnership for International Science Education in Greenland.</i> Co-PI's: M. Albert, M. Ayres and L. Culler, \$673,137 |
| 2008-2015 | Principal Investigator, NSF Division of Graduate Education, Integrative Graduate Education and Research Traineeship program. <i>IGERT: Polar Environmental Change.</i> \$2,999,613 |
| 2013-2015 | Co-Principal Investigator, <i>Changing Attitudes and Beliefs about Responses to Climate Change: Creating a Climate Change Game.</i> With Mary Flanagan, Dept of Film and Media Studies, Neukom Center for Computational Science Dartmouth CompX Faculty Grant, \$80,000 |
| 2011-2017 | Co-Principal Investigator, NSF Long Term Ecological Research (LTER), <i>Increased Connectivity in a Polar Desert Resulting from Climate Warming: McMurdo Dry Valley LTER Program,</i> Total \$5,640,000 |
| 2011-2013 | Co-Principal Investigator, NSF Antarctic Instrumentation and Support, <i>Resistivity Mapping of Subsurface Microbial Habitats in the McMurdo Region.</i> PI: Jill Mikucki, U Tennessee Knoxville, \$307,544 |
| 2005-2011 | Co-Principal Investigator, NSF Long-Term Ecological Research |

The Role of Resource Legacy on Contemporary Linkages between Biodiversity and Ecosystem Processes in a Cold Desert Ecosystem: The McMurdo Dry Valley LTER Program, \$4,920,000

PUBLIC OUTREACH- INTERNATIONAL POLAR YEAR EXHIBITIONS

"Polar Connections: Dartmouth and the Cold Regions", Nov. 2007-March 2008, Baker-Berry Library at Dartmouth College. This exhibit recounted the history of Dartmouth's involvement in polar research beginning with John Ledyard in the 1770's and extending into the current International Polar Year 2007-08.

"Navigating the Northwest Passage: Just Missing the Ice", May 25-July 31, 2007, Rauner Special Collections Library, Dartmouth College. This exhibition, featuring the Stefansson Special Collection, recounted the search for the fabled Northwest shipping passage through the Arctic sea ice by drawing on materials (books, letters, photographs) from the Sir John Franklin Expedition on up to the first commercial ship to navigate the passage, the Manhattan.

"Thin Ice: Inuit Traditions within a Changing Environment", Jan. 27 – May 13, 2007, Hood Museum of Art, Dartmouth College. This interdisciplinary exhibition explored traditional Inuit life through the nineteenth- and early-twentieth-century art and artifacts that indigenous Arctic peoples used to survive within this challenging environment. An illustrated catalogue accompanied this exhibition.

DARTMOUTH TEACHING EXPERIENCE RELEVANT TO THE ARCTIC

From Pole to Pole: Environmental Issues of the Earth's Cold Regions (ENVS 15)
Introduction to Environmental Science (ENVS 2)
Global Environmental Science (ENVS 30)
Seminar- Arctic Change: Traditional Knowledge and Western Science (ENVS 80)
Introduction to Polar Sciences (BIOL 138/EARS 128)
Polar Science, Ethics, and Politics (BIOL 148/ENVS 80)

RECENT COMMITTEES AND SERVICE, DARTMOUTH

Committee Advisory to the President, 2007-2010, 2013-2016 (Vice Chair, 2015-16)
Taskforce, Dartmouth School for Graduate and Advanced Studies, 2014-15
Council on Academic Freedom and Responsibility, 2013- present
Faculty Steering Committee, GRID- Gender Research Institute at Dartmouth 2013- 2016
Provost Search Committee, 2010
Ethics Institute Faculty Advisory Board, 2009-13
International Studies Minor Steering Committee, 2009- present