

Curriculum Vitae
of
Kathryn M. Jacobson

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Education

B.A. - Biology. 1985. Washington University, St. Louis, Missouri.

M.S. - Biology. 1990. Virginia Polytechnic Institute & State University, Blacksburg, Virginia.
"Physiological and Morphological Variation Within and Between Populations of *Suillus granulatus*, as Determined by Mycorrhizal Synthesis Experiments". Advisor: Dr. Orson K. Miller, Jr.

Ph.D. - Biology. 1992. Virginia Polytechnic Institute & State University, Blacksburg, Virginia.
"Factors affecting VA-Mycorrhizal Community Structure in the Namib Dune Field; and the Population Biology of an Ectomycorrhizal Basidiomycete: *Suillus granulatus*." Advisor: Dr. Orson K. Miller, Jr.

Professional Experience

Full Professor – Biology Department, Grinnell College, 2016 – Present

Associate Professor – Biology Department, Grinnell College, 2003 – 2016

Department Chair - Biology Department, Grinnell College, 2007- 2011

Assistant Professor - Biology Department, Grinnell College. 1997 - 2003

Visiting Assistant Professor - Biology Department, Virginia Tech. 1996 - 1997.

Post-Doctoral Research Associate - Desert Research Foundation of Namibia. 1993 - 1996.
(Basic and applied fungal ecology in arid ecosystems). Advisor: Dr. Mary K. Seely

Acting Assistant Director - Desert Research Foundation of Namibia: Gobabeb. 1993 - 1994.
(Arid zone research and education)

Coordinator of Biology Laboratory Teaching Assistants - General and Principles of Biology Laboratory, Virginia Tech. 30 Teaching Assistants teaching 2000 students. 1987 - 1989

Research Associate - Dr. O.K. Miller, Jr., Flathead Lake Biological Station, University of Montana. Summer 1987. (Mycorrhizal associations of western white pine -

BIO 325: Fungal Biology: Grinnell College, Spring & Fall 1998, Fall 2002, 2004, 2006, 2010, 2012, 2014, 2016, 2017, 2019, 2020, 2021

ENV/GDS 295: Issues relating to Community-based Conservation: Grinnell College, a one year sequence including Spring 1999 Guided Reading, 10 week Field Research in Namibia, and Fall 1999 Final Seminar. (co-taught with Peter Jacobson)

BIO 236 Cell Biology Lab: Grinnell College, Spring 1999, Spring 2001

BIO 136 Ecology and Evolution: Grinnell College, Spring 1998 and 1999

BIO 135 Structure and Function of Organisms: Grinnell College, Fall 1997 and 1998

BIO 101 Introductory Biology I and II for Science Majors: Virginia Tech (1996-1997); Lecture and Lab.

Supervisor of Undergraduate and Graduate Research Projects - Desert Research Foundation of Namibia; 1993 - 1995.

Environmental Issues in Namibia: 8-week summer research project for undergraduates. Team taught with P.J. Jacobson; Desert Research Foundation of Namibia; November 1993 - January 1994.

Ecological Methods – 2-week lab and field course for third year botany and zoology students. Team taught with P.J. Jacobson and M.K. Seely; Desert Research Foundation of Namibia; April 1993.

BIO 387 Plant Systematics Laboratory - Teaching Assistant, Virginia Tech. Spring 1992

BIO 101 Principles of Biology Laboratory - Teaching Assistant, Virginia Tech. Spring and Fall 1992

BIO 485 Introductory and Advanced Mycology - Teaching Assistant, Virginia Tech. Fall 1989, 1991, Spring 1990.

BIO 125 Freshman Seminar in Biology - Teaching Assistant, Washington University. Fall 1982 - 1985.

Research Students Supervised – completing Bio 395 (mentored advanced research)

Amy Moore '99, Fall 1998 -- *Response of prairie mycorrhizal fungi to burning*

Amy Lindahl '99, Spring 1999 -- *Mycorrhizal associations of bur oak in central Iowa*

Evan Michael '99, Spring 1999 -- *Thermal optima of desert fungi*

Kirsten Anderson '00, Summer 1999 -- *Attitudes of communities in Namibia towards CBNRM*

Angela Crowley-Koch '00, Summer 1999 -- *Community participation in conservancies*

Cem Efe '01, Summer 1999 -- *Sustainable management of water by rural communities*

Mattie Johnson '01, Summer 1999 -- *Tourism as a sustainable land use option in w. Namibia*

Harmony King '00, Summer 1999--*Microeconomic influences on environmental decision-making by communities in n.w. Namibia*

Emily Mize '01, Summer 1999 -- *Guidelines for wildlife monitoring in w. Namibia*

Elizabeth Lester '00, Fall 1999 -- *Genetic diversity in Welwitschia mirabilis populations of northwestern Namibia*

Harmony King '00, Fall 1999 -- *Genetic diversity amongst morel populations in central Iowa*

Emily Lutgen '00 Spring 2000 -- *Mycorrhizal associations of bur oak in central Iowa*

Rebecca White '00 Spring 2000 -- *Mycorrhizal associations of bur oak in central Iowa*

Anna Donovan '01, Spring 2000 -- *Breeding systems of Aspergillus niger var. phoenicus, a fungal pathogen of Welwitschia mirabilis*

Lucy Gutierrez '01, Fall 2000 --*The nuclear status of morel fruiting bodies determined using randomly amplified polymorphic DNA markers*

Laurel Steinmetz '01, Fall 2000 -- *Molecular characterization of Populus fremontii mycorrhizae*

Brenda Walter '01, Spring 2001 – *Somatic compatibility within central Iowan morel populations*

Mark Lundgren '03, Spring 2003 – *Subsurface decomposition in the Chihuahuan Desert*

Micheala Meckel '05, Summer 2003 – *Macrofungal diversity in oak-hickory and riparian forests at CERA*

Alison Mynsberge '04, Summer 2003 – *Macrofungal diversity in elm and oak-hickory forests at CERA*

Elizabeth Pekarek '05, Spring & Summer 2004 – *Genetic variation amongst Aspergillus niger var. phoenicus populations associated with*

Andre, H.M., M.-

Evans, S.'05, Todd-Brown, K.E.O., Jacobson, K. and P. Jacobson. (2020). Non-rainfall moisture: A key driver of microbial respiration from standing litter in arid, semiarid, and mesic grasslands. **Ecosystems** 23, 1154–1169. <https://doi.org/10.1007/s10021-019-00461-y>

Logan, J. '13, Jacobson, K., Jacobson, P. and S. Evans '05 (2021). Fungal communities on standing litter are structured by moisture type and constrain decomposition in a hyper-arid grassland. **Frontiers in Microbiology** 12.596517. <https://doi.org/10.3389/fmicb.2021.596517>

Wennndt AJ '15, Evans SE '05, van Diepeningen AD, Logan JR '13, Jacobson PJ, Seely MK and Jacobson KM (2021) Why Plants Harbor Complex Endophytic Fungal Communities: Insights From Perennial Bunchgrass *Stipagrostis sabulicola* in the Namib Sand Sea. **Frontiers in Microbiology** 12:691584. <https://www.frontiersin.org/articles/10.3389/fmicb.2021.691584>

Refereed Book Chapters

Jurgens, N., A. Gunster, M.K. Seely, K.M. Jacobson. (1997). Chapter 10: Deserts. In: **Vegetation of Southern Africa** Ed. D. Richardson, Cambridge University Press, London.

Jacobson, K.M. (2004) Mycorrhizal associations in dryland riparian forests of the southwestern United States. Pp.275-280 In: C. Cripps (ed.) **Fungi in Forest Ecosystems: Diversity, Systematics, and Ecology**, New York Botanical Gardens, NY.

Stutz, J.C., V.B. Beauchamp, J. Johnson, L. J. Kennedy, B. S. Richter & K.M. Jacobson. (2009) Mycorrhizal Ecology. Pp. 73-88 In: **Ecology and Conservation of The San Pedro River**. Eds. J.C. Stromberg and B. Tellman. University of Arizona Press.

Other Books & Book Chapters

Jacobson K.M. & Haley C. (1989). **Supplement to Biology Laboratory**. Hunter Textbooks Inc., Winston-Salem, N.C.

Jacobson P.J., Jacobson K.M. & Seely M.K. (1995). **Ephemeral Rivers and their Catchments: Sustaining People and Development in Western Namibia**. Desert Research Foundation of Namibia and Department of Water Affairs, Windhoek. 160 pp.

Pallet, J. (ed.) (1995). **The Sperrgebiet: Namibia's least known wilderness**. DRFN and NAMDEB, Windhoek. Contributing author: Vegetation.

Mannheimer, C. & K.M. Jacobson. (1998) Fungal diversity in Namibia. In: Barnard, P. (ed). **Biological Diversity in Namibia: a Country Study**. Windhoek: Namibian National Biodiversity Task Force. 332 pp.

Meeting Abstracts

Jacobson K.M. & O.K. Miller Jr. (1990). Physiological variation within and between populations of *Suillus granulatus*. Mycological Society of America, Madison, WI. May, 1990.

Jacobson K.M. (1992). The nuclear status of *Suillus granulatus* spores and implications for dispersal and colonization. Mycological Society of America, Portland, OR. August 1992. **Inoculum** 1(2):37.

Jacobson K.M. (1992). The effects of biotic and abiotic factors on the distribution of VAM fungi in the Namib dunes. Mycological Society of America, Portland, OR. August 1992. **Inoculum** 1(2):37.

Jacobson, K.M. (1996). Reassessing the role of fungi in subsurface decomposition in arid environments. Ecological Society of America, Providence, Rhode Island, August 1996. **Bulletin of the Ecological Society of America** 77(3):214.

Jacobson, P.J., K.M. Jacobson & M.K. Seely. (1996). Integrating research and management of rivers through ecological education in a developing African country. Ecological Society of American, Providence, Rhode Island, August 1996. **Bulletin of the Ecological Society of America** 77(3):214.

Seely, M.K, K.M. Jacobson, P.J. Jacobson, K. Leggett, T. Nghitila, D. Eldridge, D. Freudenberger. (1999) Understanding integrated natural resource management at a catchment scale: the case of Namibia's ephemeral rivers. **People and rangelands: building the future. Proceedings of the VI International Rangeland Congress**, Townsville, Queensland, Australia, 19-23 July, 1999. Volumes 1 and 2: 714-716. International Rangeland Congress, Inc

Lester, E.A. '00 & K.

L. Steinmetz '01 & K.M. Jacobson. (2001). Using molecular techniques to identify mycorrhizae in dryland riparian forests: initial studies with *Tricholoma populinum*. **Proceedings - Iowa Academy of Science Meeting, Des Moines, 20 April 2001.**

K.M. Jacobson & P.J. Jacobson. (2002). The effects of flood frequency on mycorrhizal associations of *Populus fremontii* var. *wislizenii* in dryland riparian forests. **Mycological Society of America 2002 Conference, Corvallis, Oregon, Inoculum: 10(2):19.**

M. Lundgren, P.J. Jacobson & K.M. Jacobson (2003). Precipitation is the primary control of subsurface decomposition in the northern Chihuahuan Desert. **Proceedings – Iowa Academy of Science Meeting, Des Moines, 19 April 2003.**

S. Evans & K. Jacobson (2005). Intrapopulation genetic variation of *Morchella esculenta* populations in central Iowa. **HHMI Symposium: Undergraduate Research in Biology and Chemistry in Iowa. April 30, 2005. Grinnell College.**

E. Pekarek & K. Jacobson (2005). Genetic variability and parasexuality in *Aspergillus niger* infecting three populations of *Welwitschia mirabilis* Hook. **HHMI Symposium: Undergraduate Research in Biology and Chemistry in Iowa. April 30, 2005. Grinnell College.**

D. Honig & K. Jacobson (2006) Macrofungal diversity in riparian forests differs from that in adjacent oak-hickory forest. **HHMI Symposium: Undergraduate Research in Biology and Chemistry in Iowa. April 24, 2006. Grinnell College.**

M. Salander & K. Jacobson (2008). Comparing macrofungal diversity in oak-hickory and riparian forests in the prairie biome. **HHMI Symposium: Undergraduate Research in Biology and Chemistry in Iowa. April 22, 2008. Grinnell College.**

C. Zimmerman, C. Grummon, K. Jacobson & L. (2011). The effects of rotational goat browsing to control multiflora rose on the understory in Iowa woodlands. **Midwest Ecology and Evolution Symposium, Carbondale, IL. April 2-3, 2011.**

K. Jacobson, S. Evans & P. Jacobson (2015). Below-ground and surface decomposition in the Namib Sand Sea. Presentation at the **2nd International FogLife Colloquium, Gobabeb Research & Training Centre, Namibia. June 15-19, 2015.**

P. Jacobson & K. Jacobson. (2015). Moisture in the Namib Desert: forms, sources and their measurement – a biologist's perspective. Presentation at the **2nd International FogLife Colloquium, Gobabeb Research & Training Center, Namibia. June, 2015.**

S. Evans '05, K Jacobson, P. Jacobson, M. Seely. (2015). Rewetting without rain: cryptic controls on dryland decomposition in a hyperarid desert. **ESA- Baltimore, MD. August 9-14, 2015.**

R. Logan '13, S. Evan '05, K Jacobson, P. Jacobson (2017) Decomposition of standing litter in arid grasslands: Interactions between sunlight, non-rainfall moisture, microbes, and plant traits. **AGU- New Orleans, LA. December 11-15, 2017.**

J. Logan '13, Jacobson, K. M., Jacobson, P. J., & Evans, S. E '05. (2018). The effects of non-rainfall moisture on fungal communities and standing litter decomposition in a hyper-arid desert. **AGU - Washington DC, December, 10-14, 2018**

Evans, SE '05, R Logan '13, K Jacobson, F Getahun '21, ME Dueker, K Weathers. (2020) From ocean to desert via fog: microbial movement, colonization, and activity in the Namib Desert, Namibia. Ecological Society of America Annual Meeting. Virtual. August 2-7, 2020. <https://eco.confex.com/eco/2020/meetingapp.cgi/Paper/85368>

Unpublished Reports

Jacobson, K.M. 1996. **An overview of research issues to guide the development of Namibia's Desertification Research Programme.** Prepared for Namibia's Action Plan to Combat Desertification (NAPCOD): Ministry of Environment & Tourism; Ministry of Agriculture, Water and Rural Development; Desert Research Foundation of Namibia, Windhoek. 146 pp.

Jacobson, P.J. & K.M. Jacobson. 1999. **An evaluation of Swedish International Development Cooperation (SIDA) support to the 'Ephemeral Rivers Project'.** Desert Research Foundation of Namibia, Windhoek. 61 pp.

Popular Literature

Jacobson, K.M. (1994). Sand dunes, grasses and fungi. In: **The Illustrated Library of the Earth: Deserts** Ed. M.K. Seely, Weldon Owen Publishers, Sydney.

Jacobson, K.M. (1995) Functional fungi. **Seeds** 1(1):15.

Jacobson, K.M. (1995) Indicators of soil degradation in arid rangelands. **Namib Bulletin** (12):12-13.

Fungal Ecology in Namibia's Arid Ecosystems. To Mr. I. Carlsson, Prime Minister of Sweden, and Swedish contingency. Desert Research Foundation of Namibia, Gobabeb. February 1995.

The Relevance of Environmental Research on Ephemeral River Ecosystems to Namibia's Economic and Social Development. Visit to the Namibian State House hosted by Minister N. Mbumba, Ministry of Agriculture, Water and Rural Development to present Dr. S. Nujoma, President of Namibia, with a book, map, poster and video from the Ephemeral Rivers Project. Windhoek, July 1995.

Fungi in the Namib Desert: Integral Components or Interesting Anomalies? Ecology Seminar Series, Duke University, Durham, NC. January 1997.

Structure and Function of Macrofungal Communities in Temperate Forest and Desert Ecosystems. Interview Seminar for appointment as Assistant Professor, Grinnell College, Grinnell, IA. May 1997.

Macrofungal ecology in the Namib Desert. Key-note Speaker. Missouri Mycological Society, St. Louis, MO. 6 February 2000.

Effects of environmental constraints and opportunities on development in Namibia. Environmental Sciences Seminar Series, Creighton University, Omaha, NE. 7 October, 2003.

Water, wilderness, wildlife and : linking Grinnellians with arid southern Africa. Alumni College Lecture, Grinnell College, 2 June 2004.

Environmental and historical constraints affecting Namibia's future. Southern African History (History 261), G. Drake. September 1998, September 1999, February 2001, November 2001, September 2002, September 2003, September 2005, September 2008, September 2010.

Professional Service

Presentation and discussion with Namibian Nature Conservation Officers - Fungi at the Waterberg. Waterberg Plateau Park, Namibia. February, 1991.

Classroom Presentation and Outdoor Foray: The Wild and Wonderful Fungal Kingdom. 6th Grade Blacksburg, VA Middle School. October, 1991.

Research Consultant - Drafting of National Desertification Programme, by Desert Research Foundation of Namibia for Ministry of Wildlife, Conservation and Tourism, Namibia. May - October 1993.

Environmental Consultant - Consolidated Diamond Mining Company, Oranjemund, Namibia Division: Mine Spoils Reclamation Project. May - November 1993.

Rapoteur - Desertification and Environmental Issues: Desertification Conference, Windhoek Namibia, July 1994.

Executive Briefing - Planned, prepared and hosted a 3-day tour to familiarize Minister of Agriculture, Water and Rural Development, N. Mbumba, with ecological diversity, conservation significance and current development trends concerning Namibia's western ephemeral rivers. In preparation for his authorship of the Foreword to the Ephemeral Rivers book. September 1994.

Research Consultant - Namibia's Action Plan to Combat Desertification of the opmind cfication of research issues and design of research programme. January - September 1996.

Research Advisor - Missouri Mycological Society Research Committee: Macrofungal diversity of Washington University's Tyson Research Center. March 1997 – June 2000.

Research Advisor – Gobabeb Training and Research Center. Assist with definition of Gobabeb's research agenda. Fall 1997 – present.

Committee Member: Global Development Studies Concentration, Grinnell College (Fall 1998 – present).

Co-author of proposal: to launch the Grinnell Corp Program in Namibia (Spring 1999).

Advisor: Grinnell Corp Program in Namibia (2000-2017)

Advisory group Member: Center for Prairie Studies, Grinnell College (Fall 2002 - Spring 2005)

Advisory Group Member:

Sigma Xi

Review Activities

Grant proposals for: Environment Canada, National Geographic, National Research Foundation – South Africa, National Science Foundation – United States. Manuscripts for Biological Conservation, Ecology, Journal of Arid Environments, Journal of Heredity, Madoqua, Mycologia, Mycological Progress, Fungal Biology, New Phytologist, Nowa Hedwegia, WIREs Water, PLoS ONE, Functional Ecology, Ecosystems, FEMS Microbiology Ecology, Nature: Scientific Reports.