01/16/2018

CURRICULUM VITAE

David Alan Wedin

University Address: School of Natural Resources
University of Nebraska
411 Hardin Hall
Lincoln, NE 68583-0974
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dwedin1@unl.edu

Degrees:

B.A.	Biology, St. Olaf College, Northfield, MN 1977 - 1981 Supervisor: Eugene Bakko
Ph.D	Ecology, University of Minnesota, Minneapolis, MN 1983 - March 1990 Thesis Title: Nitrogen Cycling and Competition Among Grass Species Supervisor: David Tilman

Employment:

2008-pres	Full Professor SNR/UNL
2000-2008	Associate Professor SNR / UNL
1998-2000	Assistant Professor (as of May 1, 1998) and Graduate Faculty Fellow SNR / UNL
1997-1998	Associate Professor (tenured) Department of Botany, University of Toronto
1992-1997	Assistant Professor Department of Botany, University of Toronto
1992	Visiting Scientist (with William Parton) Natural Resource Ecology Laboratory, CSU, Ft. Collins, Colorado
1990-1992	Post-doctoral Research Associate (with John Pastor) Natural Resources Research Institute, University of Minnesota - Duluth
1985-1989	Graduate Research and Teaching Assistant General Biology and Ecology Departments, University of Minnesota
1979-1981	Research and Teaching Assistant Biology Department, St. Olaf College

Honors:

2014	Senior Faculty Holling Family Award for Teaching Excellence (CASNR/UNL)
1999	Junior Faculty Excellence in Research Award, Ag. Research Div., UNL
99, 07, 14	Certificate of Recognition for Contributions to Students (UNL Parents Association and the UNL Teaching Council)
1983-1987	National Science Foundation Graduate Fellow
1981	Ken Bonde Award (St. Olaf College, for outstanding Paracollege senior)

1981 Phi Beta Kappa
1981 Departmental Distinction (St. Olaf College, Biology)

Professional Affiliations:
Ecological Society of America, AAAS, Society for Range Management

Research Interests:
Ecology and conservation of grasslands & savannas; carbon & nitrogen cycling in terrestrial ecosystems; Great Plains forestry; ecohydrology; fire ecology; conservation management of grasslands & woodlands.

Funded Research Grants (external):
2016-2020 "Prairie Corridor Phase II", NE Environmental Trust (via City of Lincoln). D. Wedin, W. Schacht, and J. Wu-Smart. $191,701.
2016-2020 "Ponderosa Pine on the Edge: Fire, Ecological Resilience and the Future of Nebraska's Pine Landscapes", USDA McIntire-Stennis, D.Wedin and D. Twidwell Jr. $375,000.
2014-2015 "Development of a model of American Burying Beetle Occurrence in the Plains Ecoregion of Nebraska", NE Dept of Roads. D. Wedin, L. Higley, W. Hoback (OSU). $74,148. (8/2014 – 12/2015)
2013-2014 "Learning from the 2012 Niobrara Fires", NE Environmental Trust (via The Nature Conservancy). D. Wedin, W. Schacht, and D. Twidwell Jr. $165,550 (5/2013 – 6/2016)
2011-2015 "Trees, shrubs, grasses and the Nebraska Sandhills: experimental ecohydrology and belowground ecology" USDA McIntire-Stennis Program. D. Wedin. $250,000. (1/2011 – 12/2015)
2011-2015 "Methane uptake by grassland soils: biogeochemistry, microbial ecology and integrative modeling", National Science Foundation. J. vonFischer, S. Matzner, W. Parton, C. Webb, D. Wedin. $1,392,000. (4/2011 – 3/2015)
2005-2010 "Trees, shrubs, grasses and the Nebraska Sandhills: experimental ecohydrology and belowground ecology" USDA McIntire-Stennis Program. D. Wedin. $200,000.
2003-2007 "Sand Hills biocomplexity: integrating biogeophysical processes across space and time", National Science Foundation (Biocomplexity in the Environment Grant). D.A.Wedin, G. M. Henebry and D.Loope. $1,800,000
2000-2001 "Spatiotemporal coupling of ecological and geological dynamics in the Nebraska Sand Hills", National Science Foundation (Biocomplexity Incubation Grant). D.A.Wedin, T.J. Arkebauer, S.C. Fritz, G. M. Henebry and D.Loope. $100,000
2000-2006 "Biodiversity, disturbance and ecosystem functioning at the prairie-forest border." National Science Foundation (Long Term Ecological Research), D. Tilman, S. Hobbie, P.Reich, M. Davis, J. Knops, S. Naeem, M. Ritchie, D. Wedin, C. Lehman. $4,200,000.
1999-2003 "Interaction of biodiversity, CO_2 and N on ecosystem functioning", Department of Energy. P. Reich, D. Tilman, S. Naeem, J. Knops, D.A. Wedin and D. Ellsworth, $1,590,000.
1994-2000 "Succession, biodiversity and ecosystem functioning at the prairie-forest border", National Science Foundation (Long Term Ecological Research), D. Tilman, P. Reich, M. Ritchie, R. Inouye and D.A. Wedin; Wedin subcontract = $34,000 per annum, total grant = $3,780,000 US.
1992 – 1999 Participated in 8 funded research grants totaling $2,112,000

B) SCHOLARLY AND PROFESSIONAL WORK
Publications (Google Scholar H-Index Aug 2017 = 42):
Jan 2017 - 3 manuscripts in review:

Adane, Z., P. Nasta, V. Zlotnik, & D. Wedin. *In press.* Impact of grassland conversion to forest on groundwater recharge in the Nebraska Sand Hills. Journal of Hydrology: Regional Studies.
Arterburn, J., D. Twidwell, W.H. Schacht, C.L. Wonkka, & D.A. Wedin. 2018. Resilience of Sandhills

grassland to wildfire during drought. Rangeland Ecology and Management, 71:53-57.
Liang, Z.B., D.J. Lee, I.M. Dweikat, D.A. Wedin, G.Y. Yuen and R.A. Drijber. 2017. Molecular diversity of arbuscular mycorrhizae in roots of *Juniperus virginiana* invasive to grasslands. Soil Science Society of America Journal 81:526-536.
Msanne, J., T. Awada, N. Bryan, W. Schacht, R. Drijber, Y. Li, X. Zhou, J. Okalebo, D. Wedin, J. Brandle, and J. Hiller. 2017. Ecophysiological responses of native invasive woody *Juniperus virginiana* l. to resource availability and stand characteristics in the semi-arid grasslands of the Nebraska Sandhills. Photosynthetica 55:219-230.
Wedin, D. 2016. The 2016 Stubbendieck Great Plains Distinguished Book Prize winner: Michel Hogue's Metis and the Medicine Line. Great Plains Quarterly 36:253-257.
Durso, L. M., Wedin, D. A., Gilley, J. E., Miller, D., Marx, D. 2016. Assessment of Selected Antibiotic Resistances in Ungrazed Native Nebraska Prairie Soils. Journal of Environmental Quality, *45 (2):454-462.*
Fay, P.A., and NUTNET (38 additional authors including D.A. Wedin). 2015. Grassland productivity limited by multiple nutrients. Nature Plants *online doi: 10.1038/nplants.2015.80.*
Wang, T., D.A. Wedin, T.E. Franz, and J. Hiller. 2015. Effect of vegetation on the temporal stability of soil moisture in grass-stabilized semi-arid sand dunes. Journal of Hydrology 521:447-459.
Wang, T., E. Istanbulluoglu, D. Wedin, and P. Hanson. 2015. Impacts of devegetation on the temporal evolution of soil saturated hydraulic conductivity in a vegetated sand dune area. Environmental Earth Sciences, 73:7651-7660.
Nemec, K, C. Allen, D.A. Wedin and C. Helzer. 2013. Influence of diversity and seeding density on invasion resistance in experimental tallgrass prairie restorations. Ecological Restoration 31:168-185
Awada, T., R. El-Hage, G. Makram, D.A. Wedin, J. Huddle, J. Msanne, R. Sudmeyer, D. Martin, and J. Brandle. 2013. Intra-annual variability and environmental controls over transpiration in a 58 year-old even-aged stand of invasive woody Juniperus virginiana L. in the Nebarska Sandhills. Ecohydrology. 6:731-740.
Wingeyer, A.B., D.T. Walters, R. A. Drijber, D.C. Olk, T.J. Arkebauer, S.B. Verma, D.A. Wedin, and C.A. Francis. 2012. Fall conservation deep tillage stabilizes maize residues into soil organic matter. Soil Science Society of America Journal 76:2154-2163.
Istanbulluoglu E., T. Wang, and D.A. Wedin. 2012. Evaluation of Ecohydrologic Model Parsimony at Local and Regional Scales in a Semiarid Grassland Ecosystem. Ecohydrology 5:121-142.
Knops, J.M.H., D.A. Wedin, and S. Naeem. 2010. The role of litter quality feedbacks in terrestrial nitrogen and phosphorus cycling. The Open Ecology Journal 3:14-25.
Schmeisser, R.L., D.B. Loope, and D. A. Wedin. 2009. Clues to the Medieval destabilization of the Nebraska Sand Hills, USA, from ancient pocket gopher burrows. Palaios 24:809-817.
Sridhar, V. and D.A.Wedin. 2009. Hydrological behavior of grasslands of the Sandhills of Nebraska: Water and energy-balance assessment from measurements, treatments, and modelling. Ecohydrology 2:195-212.
Wang, T., D. A. Wedin and V.A. Zlotnik. 2009. Field evidence for a negative correlation between saturated hydraulic conductivity and soil carbon in a sandy soil. Water Resources Research, Vol 45:W07503, doi:10.1029/2008WR006865.
Sanderson, M.A., D. Wedin, and B. Tracy. 2009. Grassland: definition, origins, extent, and future. Pages 57-74 in W.F.Wedin and S.L. Fales (eds.) Grassland: Quietness and Strength for a New American Agriculture. ASA, CSSA, SSSA. Madison, WI.
Eggemeyer, K.D., T. Awada, F.E. Harvey, D.A. Wedin, X. Zhou, and C.W. Zanner. 2008. Seasonal changes in depth of water uptake for encroaching trees *Juniperus virginiana* and *Pinus ponderosa* and two dominant C_4 grasses in a semi-arid grassland. Tree Physiology 29:157-169.
Wang, T., Zlotnik, V.A., Wedin, D., Wally, K.D. 2008. Spatial trends in saturated hydraulic conductivity of vegetated dunes in the Nebraska Sand Hills: effects of depth and topography. Journal of Hydrology 349:88-97.
Liang, Z, Drijber, R.A., Lee, D.J., Dwiekat, I.M., Harris, S.D., Wedin, D.A. 2008. A DGGE-cloning method to characterize arbuscular mycorrhizal community structure in soil. Soil Biology &

Biochemistry 40:956-966.
Mousel, E.M., W.H. Schacht, C.W. Zanner, and D.A. Wedin. 2007. Comparison of botanical composition, soil carbon content, and root distribution of subirrigated meadows in the Nebraska Sandhills. Great Plains Research 17:47-60.
Wedin, D.A. and M. P. Russelle. 2007. Nutrient cycling in forage production systems. Pages 137-148 in R.F. Barnes, C.J. Nelson, K.J. Moore, and M. Collins (eds.) Forages Volume II: the Science of Grassland Agriculture. Blackwell Publishing, Ames, IA.
Sridhar, V., K.G. Hubbard, and D.A. Wedin. 2006. Assessment of soil moisture dynamics of the Nebraska Sandhills using long-term measurements and a hydrology model. J. of Irrigation and Drainage Engineering. 132:463-473.
Eggemeyer, K.D., T. Awada, D.A. Wedin, F.E. Harvey and X. Zhou. 2006. Ecophysiology of two native invasive woody species and two dominant warm-season grasses in the semiarid grasslands of the Nebraska Sandhills. International Journal of Plant Science 167:991-999.
Tjoelker, M.G., J.M. Craine, D. Wedin, P.B. Reich and D. Tilman. 2005. Linking leaf and root trait syndromes among 39 grassland and savannah species. New Phytologist, 167:493-508.
Wedin, D.A. 2004. C_4 Grasses: Resource use, ecology and global change. Pages 15-50 in Moser, L.E., B.L. Burson, and L.E. Sollenberger (eds.) Warm-Season (C_4) Grasses. Monograph No. 45. ASA, CSSA, SSSA. Madison, WI.
Sanderson, M.A., R.H. Skinner, D.J. Barker, G.R. Edwards, B.F. Tracy, and D.A. Wedin. 2004. Plant species diversity and management of temperate forage and grazing land ecosystems. Crop Science 44:1132-1144.
Reich, P.B., D. Tilman, S. Naeem, D.S. Ellsworth, J. Knops, J. Craine, D. Wedin, and J. Trost. 2004. Species and functional group diversity independently influence biomass accumulation and its response to CO_2 and N. Proceedings of the National Academy of Sciences (PNAS) 101:10101-10106.
Craine, J.M., D.A.Wedin, F.S. Chapin III, and P.B.Reich. 2003. The dependence of root system properties on root system biomass of 10 North American grassland species. Plant and Soil 250:39-47.
Craine, J. M., D. G. Tilman, D. A. Wedin, P. B. Reich, M. J. Tjoelker, and J. M. H. Knops. 2002. Functional traits, productivity and effects on nitrogen cycling of 33 grassland species. Functional Ecology 16:563-574.
Craine, J.M., D.A. Wedin, F.S. Chapin and P.B. Reich. 2002. Relationship between the structure of root systems and resource use for 11 North American grassland plants. Plant Ecology 165:85-100.
Craine, J. M., D. A. Wedin, and D. Tilman. 2002. Determinants of growing season soil CO_2 flux in a Minnesota grassland. Biogeochemistry 59:303-313.
Knops, J.M.H., K.L. Bradley, and D.A. Wedin. 2002. Mechanisms of plant species impacts on ecosystem nitrogen cycling. Ecology Letters 5:454-466.
Murphy, K.L., I.C. Burke, M.A. Vinton, W.K. Lauenroth, M.R. Aguiar, D.A. Wedin, R.A. Virginia, P.N. Lowe. 2002. Regional analysis of litter quality in the central grassland region of North America. Journal of Vegetation Science 13:395-402.
Tilman, D., J. Knops, D. Wedin, P. Reich. 2002. Experimental and observational studies of diversity, productivity and stability. pp. 42-70. In: The functional consequences of biodiversity (A. Kinzig, S Pacala and D Tilman, eds), Monographs in Population Biology, Princeton University Press.
Tilman, D, J. Knops, D. Wedin & P. Reich. 2002. Plant diversity and composition: effects on productivity and nutrient dynamics of experimental grasslands. Pages 21-35 in M. Loreau, S. Naeem and P. Inchausti (eds). Biodiversity and Ecosystem Functioning: Synthesis and Perspectives. Oxford U. Press.
Craine, J. M., J. Froehle, D. G. Tilman, D. A. Wedin, and F. S. Chapin, III. 2001. The relationships among root and leaf traits of 76 grassland species and relative abundance along fertility and disturbance gradients. Oikos 93:274-285.
Craine, J. M., D. A. Wedin, and P. B. Reich. 2001. The response of soil CO_2 flux to changes in atmospheric CO_2, nitrogen supply, and plant diversity. Global Change Biology 7:947-953.
Craine, J.M., D.A. Wedin, and P.B. Reich. 2001. Grassland species effects on soil CO_2 flux track the

effects of elevated CO2 and nitrogen. New Phytologist 150:425-434.

Knops, J.M.H., D. Wedin & D. Tilman. 2001. Biodiversity and decomposition in experimental grassland ecosystems. Oecologia 126:429-433.

Reich, P., J. Knops, D. Tilman, J. Craine, D. Ellsworth, M. Tjoelker, T. Lee, D. Wedin, S. Naeem, D. Behauddin, G. Hendrey, S. Jose, K. Wrage, J. Goth & W. Bengston. 2001. Plant diversity enhances ecosystem responses to elevated CO2 and nitrogen deposition. Nature 410:809-812.

Reich, P.B., D.W. Petersen, D.A. Wedin and K. Wragge. 2001. Fire and vegetation effects on productivity and nitrogen cycling across a forest-grassland continuum. Ecology 82:1703-1719.

Reich, P.B., D.Tilman, J. Craine, D. Ellsworth, M.G. Tjoelker, J. Knops, D. Wedin, S. Naeem, D. Bahauddin, J. Goth, W. Bengston, and T.D. Lee. 2001. Do species and functional groups differ in acquisition and use of C, N and water under varying atmospheric CO2 and N availability regimes? A field test with 16 grassland species. New Phytologist 150:435-448.

Tilman, D., P.B. Reich, J. Knops, D.Wedin, T. Mielke and C. Lehman. 2001**.** Diversity and productivity in a long-term grassland experiment. Science 294:843-845.

Gholz, H.L., D. A. Wedin, S. Smitherman, M. Harmon and W.J. Parton. 2000. Long-term dynamics of pine and hardwood litter in contrasting environments: toward a global model of decomposition. Global Change Biology 6:751-766.

Plus 19 journal articles and 7 book chapters or conference proceedings prior to 2000.

Papers Presented or Co-Authored at Meetings and Symposia:

A stand scale assessment of Nebraska Wildcat Hills forests, woodlands and mixed-grass prairie; Nebraska Natural Legacy Conference, Nebraska City, October 2017 (A. Schiltmeyer & D.A. Wedin)

The impacts of management decisions on plant diversity in tall grass prairies, Nebraska Natural Legacy Conference, Nebraska City, October 2017 (E. Freese, D.A. Wedin & W. Schacht)

Impact of grassland plantations on groundwater recharge under historical and projected climate conditions, Geological Society of America, Denver CO, Sept 2016 (Z.A. Adane, V.A. Zlotnik, P. Nasta, D. Wedin & J.B. Gates)

Regeneration of ponderosa pine woodland following severe wildfire in the Niobrara River Valley. Society for Range Management, Corpus Cristi, TX, Feb 2016 (A.M. Hefner, & D.A. Wedin)

Grassland Resilience and the Stability of the Nebraska Sandhills, Doane/Wesleyan Freshman Research Symposium, Crete, NE, March 2015

Resilience of Sandhills grassland to an extreme wildfire and drought event, Society for Range Management, Sacramento, CA, Jan 2015 (J.R. Arterburn, D. Twidwell, D.A. Wedin & W.H. Schacht)

Plant diversity affects success of invasive thistles in restored Nebraska Grassland, Society for Range Management, Sacramento, CA, Jan 2015 (K. Price, D. Wedin, S. Young, & C. Helzer)

Resource use of *Poa pratensis* in Midwestern tallgrass prairies: consequences for soil carbon and nitrogen, Society for Range Management, Orlando, FL, Feb 2014

Climate Change and the Stability of the Nebraska Sandhills, Nebraska Natural Resources Commission, July 2008

Global change and the Nebraska landscape, Partnerships in Climate Change Research (USGS), UNL, October 2007

Using process-based models and pedotransfer functions for soil hydraulic characteristics to estimate groundwater recharge in semi-arid regions: is this a right approach? Geological Society of America Annual Meeting, Denver, CO, October 2007 (T. Wang, V.A. Zlotnik, J. Simunek, D. Wedin)

Was Weaver wrong? Soil moisture dynamics and rooting depths of sandhills grasslands. Ecological Society of America, San Jose, CA, August 2007 (D.A. Wedin, W.H. Schacht, J.D. Volesky, J.T. Hiller and N. Dobesh)

Geomorphic and ecological stability in the Nebraska Sand Hills, Ecological Society of America, San Jose, CA, August 2007 (K.R. Payne, D.A. Wedin, R.A. Drjber, and J.T. Hiller)

Tree canopy LAI thresholds affecting grassland herbaceous production in Nebraska's Sandhills, Ecological Society of America, San Jose, CA, August 2007 (N.M. Bryan, W.H. Schacht, T. N.

Awada, and D.A. Wedin)
Saturated hydraulic conductivity of vegetated dunes in the Nebraska Sand Hills, Geological Society of America, Philadelphia, October 2006 (T. Wang, V. Zlotnik, and D. Wedin)
Soil moisture measurement and estimation for drought assessment in Nebraska, Geological Society of America, Longmont, CO, September 2006 (V. Sridhar, K. Hubbard, D. Wedin, J. You, and S. Korner).
The Sandhills Biocomplexity Project, Chinese National Academy of Science, Institute of Applied Ecology, Shenyang, China, July 2005
Initial Results from the Grassland Destabilization Experiment (GDEX), National Science Foundation, Biocomplexity in the Environment Meeting, Washington, DC, March 2005
The Nebraska Sand Hills Biocomplexity Project, Regional Conference on Biocomplexity, Sioux Falls, SD, August 11, 2004 (invited keynote address by D. Wedin)
Stable oxygen and hydrogen isotopes indicate stratification of soil water by trees and grasses in the Nebraska Sandhills. Ecological Society of America, Portland, OR, August 2004 (K. Eggemeyer, F.E. Harvey, T. Awada, C.W. Zanner and X. Zhou).
41 additional conference presentations, 1987-2003.
37 invited academic lectures (US, Canada, Europe, China), 1989 – present.

C) SERVICE TO THE ACADEMIC COMMUNITY
Director, Nine-Mile Prairie (2007-2018), UNL
Director, ARDC Agroforestry Farm (2015-2018), UNL
Instructor for Principles of Ecology (1998-2015, NRES220&222, enrollment 140), Grassland Conservation (2014-pres, NRES438, enrollment 15), Intro to Forest Management (2016-pres, NRES310 enrollment 15), Forest Ecology (1998-pres, NRES424, enrollment 25), UNL (not all class taught all years)
Ecosystems Panel Member (2008-2009), National Science Foundation
Reviewer for "Ecological Impacts of Climate Change", National Research Council
Natural Resources Undergraduate Curriculum Committee (1998-2018, Chair from 1999-2007), UNL
Coordinator, Undergraduate Scholarships for Natural Resources (2000-2018), UNL
Participant, NSF workshops: "Linking Ecological Biology and Geoscience" (Madison, 8/2001), "Biocomplexity in the Environment" (Washington DC, 10/2001, 9/2003)
Lead author, NSF site review team, Niwot Ridge LTER Site, University of Colorado, 7/2001.
Course instructor (April 1999), "Interactions between element cycles and ecosystems", Wageningen Agricultural University, The Netherlands.
Associate Editor (1997-2000), American Naturalist.
Panel Member (1997), Ontario Graduate Scholarships Review Panel.
Panel Member (1996), Conservation and Restoration Biology Grant Review Panel, NSF
Reviewer of manuscripts (5 to 10 per year) for 30 journals: Acta-Oecologia, Agronomy J., American J. of Botany, American Midland Naturalist, American Naturalist, Arctic and Alpine Research, Aust. J. of Soil Science, Austral Ecology, Biogeochemistry, Botanical Gazette, Canadian J. of Botany, Ecology, Ecology Letters, Ecological Monographs, Ecological Applications, Ecoscience, Ecosystems, Functional Ecology, Global Change Biology, Great Plains Research, J. of Ecology, J. of Range Management, Journal of Vegetation Science, Oecologia, Plant Ecology, Plant and Soil, Prairie Naturalist, Science, Vegetatio
Reviewer of research proposals (average of 5 per year) for NSF, DOE, USDA, NSERC (Canada), Nebraska Environmental Trust
Reviewer for the United Nations Environment Program - Global Biodiversity Assessment (1995)

D) Graduate students advised and co-advised: Heather Peat (MSc, 1997, U of Toronto), Christina Heidorn (MSc, 2000, U of T), William Draper (MSc, 2000, U of T), Joe Craine (PhD, 2000, UC-Berkeley), Xiaoping Ding (MS, 2002, UNL), Cullen Robbins (MS, 2005, UNL), Phil Dobesh (MS, 2007, UNL), Kimberly Payne (MS, 2009, UNL), Kristine Nemec (PhD, 2012, UNL), Ilonka Zlatar (MS, 2014, UNL), Kelly Willemssens (MS, 2015, UNL), Kati Price (MS, 2015, UNL), Jeff Hartman (PhD, 2015,

UNL), Amanda Hefner (MS, 2016, UNL), Allie Schiltmeyer (MS, 2018, UNL).
Postdoctoral Scholars: Michael M.-R. Li (U of Toronto), Tamara Minnick (UNL), Tala Awada (UNL), Venkataramana Sridhar (UNL)
Totals: 15 graduate students advised, 4 post-docs