

Dr. Jeffery M. Welker

Director, Environment and Natural Resources Institute

Professor of Biology

University of Alaska Anchorage

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EDUCATIONAL BACKGROUND

- Ph.D. Department of Rangeland Ecology and Management, Texas A&M, University, College Station, TX, 1985. Carbon and nitrogen cycling in native bunchgrass plants.
- M.S. Range Science, Range and Animal Science Department, Montana State University, Bozeman, MT, 1982. Climate change affects on prairie vegetation.
- B.S. Agriculture-Range Science Major, Range and Animal Science Department, Montana State University, Bozeman, MT, 1980.

PROFESSIONAL EXPERIENCE

Academic Appointments

- Professor of Biology, University of Alaska Anchorage, August 2004-present
- Director, Environment and Natural Resources Institute, University of Alaska Anchorage, August 2004-present
- Director, 2002-2004. CSU Stable Isotope Laboratory, Natural Resource Ecology Lab.
- Sr. Research Scientist, 2001-2004. Natural Resource Ecology Laboratory, Colorado State University.
- Associate Professor, 1996-2001. Department of Renewable Resources, University of Wyoming (Tenured 2000).
- Research Scientist, 1993-2001. Natural Resource Ecology Laboratory, Colorado State University.
- Senior Scientific Officer, 1990-1993. Institute of Terrestrial Ecology, Merlewood Research Station, Cumbria, England, Natural Environment Research Council, UK.
- Research Assistant Professor, 1988-1990. Department of Agronomy and Range Science, University of California, Davis.
- Post-doctoral Research Associate, 1986-1988. Department of Agronomy and Range Science, University of California, Davis.

National Activities

Editorial Responsibilities

- Associate Editor, Arctic, Antarctic and Alpine Research, 2006-present
- Corresponding Editor, EOS, American Geophysical Union, 2005-present

Advisory Appointments

- Advisory Panelist, 2006, Office of Polar Programs, National Science Foundation
- Advisory Panelist, 2005, Office of Polar Programs, National Science Foundation
- Advisory Panelist, 2004, IGERT, National Science Foundation
- Advisory Panelist, 2001. Biocomplexity in the Environment, National Science Foundation.
- Advisory Panelist, 1999 & 2000. Ecosystem Studies Program, National Science Foundation.
- Advisory Panelist, 2000. NEON Instrumentation, National Science Foundation.

Infrastructure Planning

NEON Taiga Regional Representative, 2006, 2007, 2008
Organization of Taiga domain information and site determination

International Activities

Research Program Participation

International Polar Year, 2006-2008-2 NSF IPY projects
International Tundra Experiment (ITEX) PI-1994-present
International Conference of Arctic Research Planning Meeting, Copenhagen, March 2006
SwedArc-Swedish-Russian Expedition in the Eastern Arctic, 1998
Terrestrial Initiative of Global Change Research (TIGER), National Environment Research Council, England (1996-1998)
Arctic Special Topic, National Environment Research Council, England (1990-1993)

University Appointments

UAA Research Cabinet, Vice Provost for Research and Graduate Studies Office, Fall 2007
UA IPY Scientific Subcommittee, August 2007-present
IPY Organizing Committee, Vice Provost for Research and Graduate Education, 2007-present.
Vice President for Research and Graduate Education Council-University of Alaska Anchorage, September 2004-2007.
Integrated Sciences Building Space and Planning Committee, UAA, 2006-present
Chancellors Council on Budget and Planning-University of Alaska Anchorage, 2004-2005.
Dean's Council of Chairs and Directors-University of Alaska Anchorage, September 2004-present.
Goldwater Scholarship Committee, University of Wyoming-1998-2001.
Dean's Five Year Review committee, University of Wyoming, 1998-1999.
Cross-college Life Sciences Program, University of Wyoming, 1999.
Faculty Senator, University of Wyoming, 1997-2001.
Dean's Council, College of Agriculture, 1998-2001.

Leadership Training

UAA Effective Leadership Module, Human Resources Department, November 2007
UA Presidential Leadership Forum, October 2007
UA Presidential Leadership Forum, September 2005

Public Outreach and Education (recent examples)

Norwegian Parliamentarians, Energy and Environment Committee: Opportunities and challenges for Alaska & Norway under changing climates and increasing energy demands, Dinner speaker, September, 2007
Anchorage Channel 2 television commentary & interview: United Nations and Bush Administration Climate Change Sessions, September, 2007
UAA Sustainability Workshop, Arctic Climate Change: Today's perspective, September 2007
Anchorage School District Science Teacher Training, Climate Change Science in the Classroom, August 2007
Alaska Newspaper Featured Article on Greenland Climate Change, August 2007
DOD Stars & Stripes Newspaper Featured Arctic on field research in NW Greenland, July 2007
UAA "Witness the Arctic" featured insert, ARCUS Winter 2006
US Arctic Research Commission, ENRI Arctic Studies, June 2005 & 2006
North Pacific Research Board meeting-ENRI & UAA Research trajectories for 2010: June 2006

Mayor of Anchorage “Trade Mission” meeting with Seattle Mayor Greg Nickels-Presentation on Climate Change in the Arctic-July 2006
“Strengthening our Cities: Mayors Responding to Global Warming” sponsored by Mayor Mark Begich, Field trip leader and speaker, September 2006
KUAC Public Radio, “Alaska News Nightly” interview and commentary on the changing Arctic. June, 2006
Invited Presentation to the Alaska Conservation Alliance Annual Meeting on Climate Change in the Arctic, September 2005
Dr. A. Bement, Director of the National Science Foundation and Chancellor Maimon: An ENRI Overview, September 2005

GRANTSMANSHIP

(29 awards-exceeding \$7,000,000)

1. **Welker, J. M.**, Sveinbjornsson, B., Sullivan, P. 2006. Mechanisms and feedback consequences of shrub expansion following long-term increases in winter snow depth in northern Alaska: a legacy for IPY. Office of Polar Programs, National Science Foundation (\$622,000).
2. **Welker, J. M.**, Sveinbjornsson, B., Sullivan, P. and Boggs, K. 2006. IPY: Collaborative Research: Study of arctic ecosystem changes in the IPY using the International Tundra Experiment. Office of Polar Programs, National Science Foundation (\$257,000).
3. **Welker, J. M.**, Sveinbjörnsson, B., Peterson, K., Olsson, P., Boggs, K, and Carlson, M. 2005. The UAA Boreal Forest Environmental Observatory (BFEO): A campus-based education and research platform that engages undergraduates and strengthens national funding competitiveness. . UAA Enhancement Fund, \$130,000.
4. **Welker, J. M.**, Wipfli, M., and Rinella, D. 2005. UAA & UAF Collaborative Research: Comparative marine-terrestrial nitrogen linkages in streams of the Kenai Peninsula. UAA’s Chancellor’s Fund, \$24,500.
5. **Welker, J. M.**, Hallet, B., Sletten, R., Schimel, J., and Fahnestock, J. T. 2002. . Coupling of carbon and water cycles in a cold, dry ecosystem: Integrative physical, chemical and biological processes and their controls on CO₂ exchange. Biocomplexity in the Environment, National Science Foundation (\$1,700,000).
6. **Welker, J. M.** and Fahnestock, J. T. 2001. Mixedgrass Prairie Responses to Simultaneous Increases in Winter Snow Depth and Changes in Summer Rainfall: C, N and H₂O dynamics. National Institute of Global Climate Change, Great Plains Region, Department of Energy (\$360,000).
7. **Welker, J. M.**, Vance, G., Stahl, P. and Fahnestock, J. T. 2001. Controls of C sequestration on Northern Rocky Mountain Rangelands. USDA-NRI (\$180,000).
8. **Welker, J. M.** 2000. Isotopic ($\delta^{18}\text{O}$ & δD) characteristics of precipitation across the U. S.: Temporal patterns and controlling processes. Earth System History Program, National Science Foundation (\$465,000).
9. Lockwood, J., **Welker, J. M.**, and Kazmer, D. 2000. The Pied Piper IPM Strategy: Attracting rangeland grasshoppers with plant oils. USDA CSREES (\$200,000).

10. **Welker, J. M.**, Fahnestock, J. T. and Bilbrough, C. 1999. Species responses to changes in climate across arctic gradients using the North American ITEX network (NATEX): influences on community and ecosystem processes. Office of Polar Programs, National Science Foundation (\$475,000).
11. Molau, U., Henry, G. and **Welker, J. M.** 1998. Climatic impacts on annual growth and physiology in *Cassiope tetragona*. Swedish Royal Academy of Science, Polar Directorate, Tundra Northwest Expedition 1999 (\$150,000).
12. **Welker, J. M.**, Poulson, S. Smith, W. K., Drever, T., Jackson, S. 1998. A stable isotope facility to study terrestrial processes and their interactions with climate and the environment. Major Research Instrumentation, National Science Foundation (\$335,000).
13. **Welker, J. M.**, Fahnestock, J. T., and Jones, M. H. 1997. Winter C flux in arctic ecosystems under changing climate: Effects of soil carbon and active layer dynamics. Office of Polar Programs, National Science Foundation (\$450,000).
14. Smith, W. K., Kelly, R. D., **Welker, J. M.**, Hunt, E. R., and Reiners, W. A. 1997. Quantification of carbon sources and sinks for northern plains and mountain landscapes using simultaneous aircraft, tower and leaf measurements of CO₂ and H₂O vapor flux and stable isotopes. Joint Program on Terrestrial Ecology and Global Climate Change (TECO), National Science Foundation (\$1,200,000).
15. Jackson, S. E., and **Welker, J. M.** 1997. Aquatic plant cellulose isotopic abundances as a climate proxies. Earth System History, Short-term Grant for Exploratory Research (SGER), National Science Foundation (\$49,000).
16. Jackson, S. E., and **Welker, J. M.** 1997. Vegetation and stable isotopes as paleoclimate proxies. Faculty grant-in-aid program, Office of Research, University of Wyoming, (\$5,000).
17. Schimel, D., Kelly, E., **Welker, J. M.**, Elliott, T. and Valentine, D. 1994. A stable isotope facility to study atmosphere-biosphere interactions. Major Research and Instrumentation, National Science Foundation, (\$255,000).
18. **Welker, J. M.** 1994. Comparative responses of moist and dry tundra to altered snow cover and warmer summer temperatures. Office of Polar Programs, National Science Foundation (\$700,000).
19. **Welker, J. M.** 1994. International Tundra Experiment, (ITEX) Travel Supplement. Office of Polar Programs, National Science Foundation (\$16,000).
20. **Welker, J. M.** 1995. Winter CO₂ flux in Arctic systems. Office of Polar Programs, National Science Foundation (\$96,000).
21. Singer, F., **Welker, J. M.**, Coughenour, M., Valentine, D., and Elliott, T. 1994. Ungulate-plant interactions in 5 Rocky Mountain National Parks, National Biological Survey, United States Geological Survey (\$800,000).
22. Callaghan, T. V. and **Welker, J. M.** 1992. Interactions between species at community boundaries in the uplands: responses to simulated changes in climate and the environment. The Initiative for Global Environmental Research (TIGER), Natural Environmental Research Council, (UK) (\$375,000).

23. Callaghan, T. V., Press, M. C., Lee, J. A. and **Welker, J. M.** 1991. Arctic ecosystems and Climate Change. Natural Environmental Research Council (UK), Arctic Special Topic (\$400,000).
24. **Welker, J. M.** 1991. Ungulate use of winter ranges in the High Arctic. The British Council, England. Travel Grant to Canada (\$2,000).
25. **Welker, J. M.** 1991. Studies in arctic and alpine ecophysiology. The British Council, Travel Grant, England. Travel Grant to Switzerland (\$2,000)
26. **Welker, J. M.** 1991. Correlation between δD and $\delta^{13}C$ in Arctic clonal plants: A retrospective analysis of climate and physiological isotopes. Natural Environmental Research Council/Isotope Geosciences program. (\$30,000).
27. Rice, K. J. and **Welker, J. M.** 1990. Ecological genetics of blue oak responses to drought and herbivory. University of California Integrated Hardwood Range Management Competitive Grant Program (\$85,000).
28. Demment, M., Jones, M., Rice, K. J., **Welker, J. M.** 1989. Sustained plant and animal productivity in grass-clover ecosystems of California. University of California Sustainable Agriculture Competitive Grant Program (\$130,000).
29. Rice, K. J., **Welker, J. M.**, and Menke, J. W. 1987. Ecology and regeneration of Hardwood Rangelands: The influence of water, herbivory and competition on stability, productivity and management options. University of California Integrated Hardwood Range Management Competitive Grant Program. (\$150,000).
30. Menke, J. W. and **Welker, J. M.** 1986. Ecological limitations to sustained production on woodland and savanna ranges. USDA Rangeland Resource Competitive Grant Program. (\$77,000).
31. **Welker, J. M.** 1981. Grassland responses to supplemental water: Effects on domestic animal forage digestibility. Montana State University Research Creativity Program. (\$1,000).

Pending Proposals:

32. **Welker, J. M.**, Sullivan, P., Spalinger, D., Collins, W., Schimel, J. and Liston, G. 2008. The changing seasonality of Arctic snowpack development: implications for element cycling and caribou-vegetation interactions. NSF Office of Polar Programs, \$1,405,000.
33. Oberbauer, S., **Welker, J. M.**, Sullivan, P., Tweedie, C. And Hollister, R. 2008. Collaborative Research: Sustaining and amplifying the ITEX AON through automation and increased interdisciplinarity of observations. NSF Office of Polar Programs, Arctic Observing Network, \$1,233,000.
34. Doskey, P., Chimner, R., Pypker, T, Welker, J. M., Sullivan, P. and Song, J. 2008. Process-Scale Investigation and Modeling Study of CO₂ and CH₄ Exchange in Arctic Tundra Ecosystems. NASA, \$1,344,000

PUBLICATIONS (92)

Organized by Themes

Arctic Ecosystem & Physiological Ecology

1. Nowinski, N, Taneva, L., Trumbore, S., and **Welker, J. M.** 2008. Permafrost thaw in a long-term snow manipulation: Age and rates of soil respiration. *Oecologia* (submitted).
2. Czimczik, C., and **Welker, J. M.** 2008. Age and sources of soil respiration from High Arctic tundra in NW Greenland. *Geophysical Research Letters* (submitted).
3. Sullivan, P. F., Rogers M. C. , Arens S.J.T., **Welker, J.M.** 2008. Environmental controls on leaf gas exchange, growth and abundance in high arctic plant species of contrasting functional type. *Arctic, Antarctic and Alpine Research* (submitted).
4. Vachon, R., White, J. and **Welker, J. M.** 2008. Moisture source effects on the seasonality of $\delta^{18}\text{O}$ in precipitation across the US. *Hydrological Processes* (under revisions for resubmission).
5. Vachon, R., White, J. and **Welker, J. M.** 2008. Climate controls on the monthly distributions of ^{18}O in precipitation in the US Exploration Geology-Isobalance Special Issue (under revisions for resubmission).
6. Craine, J., A. Elmore, M. Aidar, R. Amundson, M. Bustamante, C. Coetsee⁶, T. Dawson, H. Hawkins, E. Hobbie, A. Kahmen, K. Koba, M. Mack, M. Makarov, K. McLauchlan, A. Michelsen, G. Nardoto, L. Pardo, J. Peñuelas, P. Reich, E. Schuur, W. Stock, R. Tateno, P. Templer, R. Virginia, **J. Welker**, I. Wright. 2008. Global patterns of foliar nitrogen isotopes and their relationships with nitrogen availability. *Oecologia* (submitted).
7. Chimner, R., **Welker, J. M.**, Morgan, J. 2008. Grazing History and Precipitation Affects on Carbon Cycling in Mixedgrass Prairie: Field Measurements and Modeling Analysis. *Oecologia* (submitted).
8. Cable, J. Ogle, K., **Welker, J. M.** and 10 additional authors. (2008). The temperature response of soil respiration: not all deserts are created equal. *Nature* (under author review).
9. Still, C.J., Riley, W.J., Biraud, S.C., Noone, D.C., Buening, N.H., Randerson J.T., Torn, M.S., **Welker, J. M.**, White, J.W.C., Vachon, R., Farquhar, G.D., and Berry, J.A. 2008. The influence of clouds and diffuse radiation on ecosystem-atmosphere CO_2 and CO^{18}O exchanges. *Biogeosciences* (in press).
10. Sjoström, D. and **Welker, J. M.** 2008. Storm-track trajectories control the isotope geochemistry of precipitation in the Eastern US. *Exploration Geology-Isobalance Special Issue* (in press).
11. Sullivan P. F., **Welker, J. M.**, Arens, S.J.T., Sveinbjörnsson, B. 2008. Continuous estimates of CO_2 efflux from arctic and boreal soils during the snow-covered season in Alaska. *Biogeosciences* (in press).
12. Walker, D. A., Epstein, H. E., and **Welker, J. M.** 2008. Introduction to the special section: Biocomplexity in Arctic Terrestrial Environments. *Journal of Geophysical Research* G03S14.

13. Sullivan PF, **Welker JM**, Steltzer H, Sletten R, Hagedorn B, Arens SJT, Horwath JL. 2008. Energy and water additions give rise to simple responses in plant canopy and soil microclimates of a high arctic ecosystem. *Journal of Geophysical Research* G03S08.
14. Arens SJT, Sullivan PF, **Welker JM**. 2008. Nonlinear responses to nitrogen and strong interactions with Nitrogen and phosphorus additions drastically alter the structure and function of a high arctic ecosystem. *Journal of Geophysical Research* G03S09.
15. Steltzer H, Hufbauer RA, Welker JM, Casalis M, Sullivan PF, Chimner RA. 2008. Frequent sexual reproduction and high intraspecific variation in *Salix arctica*: implications for a terrestrial feedback to climate change in the High Arctic. *Journal of Geophysical Research* G03S10.
16. Sullivan P. F., Arens, S.J.T., Chimner, R. A., **Welker, J.M.** 2008. Temperature and microtopography interact to control carbon cycling in a high arctic fen. *Ecosystems* 11: 61-76.
17. Blumenthal, D., Chimner, R., Welker, J. M., and Morgan, J. 2008. Increased snow facilitates plant invasion in mixedgrass prairie. *New Phytologist*, 112: 33-39.
18. Oberbauer, S, Tweedie, C., **Welker, J. M.** et al. 2007. Tundra CO₂ fluxes in response to experimental warming across latitudinal and moisture gradients. *Ecological Monographs* 77: 221-238.
19. Sullivan, P.F. and **Welker, J. M.** 2007. Variation in leaf physiology of *Salix arctica* within and across ecosystems in the High Arctic: test of a dual isotope conceptual model. *Oecologia* 151: 372-386.
20. Cornelissen, J. Bodegom, J., Aerts, R., Callaghan, T., **Welker, J. M.**, et al. 2007. Global negative vegetation feedback to climate warming responses to leaf litter decomposition rates in cold biomes. *Ecology Letters* 10: 619-627.
21. Sullivan, P.F., Sommerkorn, M., Rueth, H., Nadelhoffer, K., Shaver, G. and **Welker, J. M.** 2007. Climate and species affect fine root production with long-term fertilization in acidic tussock tundra near Toolik Lake, Alaska. *Oecologia* 153: 643-652. .
22. **Welker, J. M.**, Vachon, R., and White, J. W. 2007. A New Spatial Network of Isotopes ($\delta^{18}\text{O}$) in Precipitation Across the U. S. using a high density, long-term sampling network. EOS (submitted).
23. Steltzer, H., **Welker, J. M.** 2006. Modeling the effect of photosynthetic vegetation properties on the NDVI-LAI relationship. *Ecology* 87: 2765-2772.
24. Schimel, J., Fahnstock, J., Michaelson, G., Milkan, C., Ping, C, Romanovsky, V and **Welker, J.** 2006. Cold-season production of CO₂ in Arctic soils: Can laboratory and field estimates be reconciled through a simple modeling approach. *Arctic, Antarctic and Alpine Research* 33: 120-125.
25. Sturm, M., Schimel, J., Michaelson, G., **Welker, J. M.**, Oberbauer, S. F., Liston, G., Fahnstock, J. T., and Romanovsky, V. E. 2005. Winter biological processes could help convert arctic tundra to shrubland. *Bioscience* 55, 17-26.

26. Chapin, F.S., Strum, M., Serreze, M., McFadden, J., Key, J., Lloyd, A., McGuire, D, Rupp T., Lynch, A., Schimel, J., Beringer, J., Epstein, H., Hinzman, L., Jia, G., Ping, C-L., Tape, K., Chapman, W., Euskirchen, E., Thompson, C., **Welker, J. M.**, Walker, D. 2005. Amplification of Arctic summer warming by terrestrial ecosystem changes. *Science* 310: 657-660.
27. Hinzeman, L., Oechel, W., Sturm, M., **Welker, J.**, Nelson, F., Romanovsky, V., Chapin, F. S., et al. 2005. Evidence for recent changes in the arctic terrestrial landscape. *Climatic Change* 72: 251-298.
28. Sullivan, P. F. and **Welker, J. M.** 2005. Warming chambers stimulate early season growth of an arctic sedge: results of a minirhizotron field study. *Oecologia* 142: 616-626.
29. **Welker, J. M.**, Fahnestock, J. T., Sullivan, P. and Chimner, R. A. 2005. Leaf mineral nutrition of arctic plants in response to long-term warming and deeper snow in N. Alaska. *Oikos* 109: 167-177.
30. **Welker, J. M.**, Rayback, S. and Henry, G. 2005. Arctic and North Atlantic Oscillation phase changes are recorded in the isotopes ($\delta^{18}\text{O}$ & $\delta^{13}\text{C}$) of *Cassiope tetragona* plants. *Global Change Biology* 11: 1-6.
31. **Welker, J. M.**, Fahnestock, J. T., G. Henry, K. O’dea, R. Chimner. 2004. CO₂ exchange in the Canadian High Arctic: Response to long-term warming. *Global Change Biology* 10: 1981-1995.
32. Schimel, J. S., Bilbrough, C. B. and **Welker, J. M.** 2004. The effect of changing snow cover on year-round soil nitrogen dynamics in Arctic tundra ecosystems. *Soil Biology and Biochemistry* 36: 217-227.
33. **Welker, J. M.**, Jonsdottir, I and Fahenstock, J. T. 2003. Isotopic ($\delta^{13}\text{C}$ and $\delta^{15}\text{N}$) characteristics of *Carex* plants and populations along the Eurasian Coastal Arctic. *Polar Biology* 27: 29-37.
34. Schimel, J. S., Bilbrough, C. B. and **Welker, J. M.** 2004. The effect of changing snow cover on year-round soil nitrogen dynamics in Arctic tundra ecosystems. *Soil Biology and Biochemistry* 36:110-119.
35. **Welker, J. M.**, Fahnestock, J. T., Henry, G., Odea, K. and Piper, R. 2002 Microbial activity discovered in previously ice-entombed Arctic ecosystems. *EOS Transactions American Geophysical Union* 83: 281 & 284.
36. **Welker, J. M.**, Fahnestock, J. T., and Jones, M. H. 2000. Annual CO₂ flux from dry and moist arctic tundra: field responses to increases in summer temperature and winter snow depth. *Climatic Change* 44: 139-150.
37. Fahnestock, J. T., Povirk, K. A. and **Welker, J. M.** 2000. Abiotic and biotic effects of increased litter accumulation in arctic tundra. *Ecography* 23: 623-631.
38. Bilbrough, C., J., **Welker, J. M.** and Bowman, W. D 2000. Early-spring N uptake by snow covered plants: A comparison of arctic and alpine plant function under snowpack. *Arctic, Antarctic and Alpine Research* 32: 404-411.
39. Jones, M. H., Fahnestock, J. T., Stahl, P. D., and **Welker, J. M.** 2000. A note on summer CO₂ flux, soil organic matter and soil microbial biomass from different high arctic ecosystem types in northwestern Greenland. *Arctic, Antarctic and Alpine Research* 32: 104-106.

40. Fahnestock, J. T., Jones, M. H., Brooks, P. D., and **Welker, J. M.** 1999. Significant CO₂ emissions from tundra soils during winter: implications for annual carbon budgets of arctic communities. *Global Biogeochemical Cycles* 13: 775-779.
41. Jones, M. H., Fahnestock, J. T. and **Welker, J. M.** 1999. Early and late winter CO₂ efflux from Arctic tundra in the Kuparuk River watershed, Alaska. *Arctic, Antarctic and Alpine Research* 31: 187-190.
42. Arft, A. M., Walker, M. D., Gurevitch, J. and **Welker J. M.** et al. 1999. Response patterns of tundra plant species to experimental warming: a meta-analysis of the International Tundra Experiment. *Ecological Monographs* 69: 491-511.
43. **Welker, J. M.**, Brown, K. B. and Fahnestock, J. T. 1999. CO₂ flux in arctic and alpine dry tundra: Comparative field responses under ambient and experimentally warmed conditions. *Arctic, Antarctic and Alpine Research* 31: 308-313.
44. Walker, M. D., Walker, D. A., **Welker, J. M.**, Arft, A. M., Bardsley, T., Brooks, P. D., Fahnestock, J. T., Jones, M. H., Losleben, M., Parsons, A. N., Seastedt, T. R. and Turner, P. L. 1999. Long-term experimental manipulation of winter snow regime and summer temperature in arctic and alpine tundra. *Hydrological Processes* 13: 2315-2330.
45. Jones, M. H., Fahnestock, J. T., Walker, D. A., Walker, M. D. and **Welker, J. M.** 1998. Carbon dioxide fluxes in moist and dry arctic tundra during the snow-free season: responses to increases in summer temperature and winter snow accumulation. *Arctic and Alpine Research* 30: 373-380.
46. Fahnestock, J. T., Jones, M. H., Brooks, P. D., Walker, D. A., and **Welker, J. M.** 1998. Winter and early spring CO₂ flux from tundra communities of northern Alaska. *Journal of Geophysical Research* 102 (D22): 29925-29931.
47. **Welker, J. M.**, Molau, U., Parsons, A. N., Robinson, C. and Wookey, P. A. 1997. Response of *Dryas octopetala* to ITEX manipulations: A synthesis with circumpolar comparisons. *Global Change Biology* 3 (suppl. 1): 61-73.
48. Walsh, N., McCabe, T., Parsons, A. N., and **Welker, J. M.** 1997. Experimental manipulations of snowdepth: Effects on mineral nutrition content of caribou forage. *Global Change Biology* 3 (suppl. 1): 158-164.
49. Robinson, C. H., Wookey, P. A., Parson, A. N., **Welker, J. M.**, Callaghan, T. V., Press, M.C., and Lee, J. A. 1995. The response of plant litter decomposition, soil nutrient release and nitrogen mineralization to simulate climate change in a high arctic polar semi-desert and a subarctic dwarf shrub heath. *Oikos* 74: 503-512.
50. Wookey, P. A., Robinson, C. H., Parsons, A. N., **Welker, J. M.**, Press, M. Callaghan, T.V., and Lee, J. A. 1995. Environmental constraints on the growth and performance of *Dryas octopetala* ssp. at a high arctic polar semi-desert. *Oecologia* 102: 478-489.
51. Parsons, A.N., Wookey, P.A., **Welker, J.M.**, Press, M.C., Callaghan T.V., and Lee, J.A. 1995. Growth of *Calamagrostis lapponica* in response to simulated environmental change in the Subarctic. *Oikos* 72: 61-66.

52. Rieley, G., **Welker, J. M.**, Eglinton, G., and Callaghan, T. V. 1995. Epicuticular waxes of arctic plants: Compositional differences in relation to winter snow cover. *Phytochemistry* 38: 45-52.
53. Parsons, A.N., **Welker, J. M.**, Wookey, P. A., Press, M.C. Callaghan, T.V., and Lee, J.A. 1994. Growth responses of four dwarf shrubs to simulated climate change. *J of Ecology* 82: 307-318.
54. Wookey, P. A., **Welker, J. M.**, Parsons, A. N., Press, M. C., Callaghan, T.V., and Lee, J.A. 1994. Differential growth allocation and photosynthetic responses of *Polygonum viviparum* L. to simulated environmental change at a high arctic polar semi-desert. *Oikos* 70: 131-139.
55. Wookey, P.A., Parsons, A.N., **Welker, J.M.**, Potter, J.C., Callaghan, T.V., Lee, J.A., and Press, M.C. 1993. Comparative responses of subarctic and high arctic ecosystems to simulated climate change. *Oikos* 67:490-502.
56. **Welker, J. M.**, Wookey, P., Parsons, A. P., Callaghan, T. V., Press, M. C., Lee, J. A. 1993. Leaf carbon isotope discrimination and demographic responses of *Dryas octopetala* to water and temperature manipulations in a high arctic polar semi-desert, Svalbard. *Oecologia* 95:463-470.

Isotope Biogeochemistry

57. Vachon, R., White, J. W., Welker, J. M., Gutman. 2007. Seasonality of precipitation affects the annual isotopic ($\delta^{18}\text{O}$) values across the United States: a sensitivity study. *Geophysical Research Letters* 34 L21707.
58. Kohn, M. and **Welker, J. M.** 2005. Precipitation $\delta^{18}\text{O}$ -temperature relations: a reexamination. *Earth and Planetary Sciences Letters* 231: 87-96.
59. Dutton, A. L., Wilkinson, B.H., **Welker, J. M.**, and K. C Lohmann. 2005. Comparison of River Water and Precipitation $\delta^{18}\text{O}$ Across the 48 Contiguous United States. *Hydrological Processes* 19: 3551-3572.
60. Bowling, D. R., McDowell, N. G., **Welker, J. M.**, Bond, B. J., Law, B. E., Ehleringer, J. R. 2003. Oxygen isotope content of CO_2 in nocturnal ecosystem respiration. 1. Observations in forests along a precipitation transect in Oregon, U. S. A. *Global Biogeochemical Cycles* 17: 4, 1120.
61. Bowling, D. R., McDowell, N. G., **Welker, J. M.**, Bond, B. J., Law, B. E., Ehleringer, J. R. 2003. Oxygen isotope content of CO_2 in nocturnal ecosystem respiration. 2. Short-term dynamics of foliar and soil component fluxes in an old-growth ponderosa pine forests. *Global Biogeochemical Cycles* 17, 4, 1124.
62. Larson, R. M., Todd, L. C., Kelly, E. F., and **Welker, J. M.** 2001. Carbon isotopic analysis of bison denition. *Great Plains Research* 11: 25-64.
63. **Welker, J. M.** 2000. Isotopic ($\delta^{18}\text{O}$) characteristics of weekly precipitation collected across the United States: An initial analysis with application to water source studies. *Hydrological Processes* 14: 1449-1464.
64. Harvey, F. E. and **Welker, J. M.** 2000. Stable isotopic composition of precipitation in the semi-arid north-central portion of the US Great Plains. *J. of Hydrology* 238: 90-109.

65. Dodd, M. B., Lauenroth, W. K., and **Welker, J. M.** 1998. Differential water resource use by herbaceous and woody plants in a shortgrass steppe community. *Oecologia* 117: 504-512.
66. **Welker, J. M.**, Heaton, T.H.E., Sprio, B. and Callaghan, T.V. 1995. Indirect effects of winter climate on the $\delta^{13}\text{C}$ and the δD characteristics of annual growth segments in the long-lived, arctic clonal plant *Cassiope tetragona*. *Palaeoclimate Research* 15: 105-120.
67. **Welker, J. M.**, Gordon, D. R., and Rice, K. J. 1991. Capture and allocation of nitrogen by *Quercus douglasii* seedlings in competition with annual and perennial grasses. *Oecologia* 87:459-466.
68. **Welker, J. M.**, Rykiel, E. J., Briske, D. D. and Goeschl, J. D. 1985. Carbon import among vegetative tillers within two bunchgrasses: Assessment with carbon-11 labeling. *Oecologia* 67:209-212.

Plant-Animal Interactions

69. Ingram, L., Stahl, P. Vance, G., Schuman, G. Ganjegunte, G., K. and **Welker, J. M.** Grazing and Drought Affects on Carbon, Nitrogen and Microbial Communities in a Mixed Grass Prairie. 2007. *Soil Science Society of America J.* 72: 939-948.
70. Ganjegunte, G. K., Vance, G. F., Preston, C. M., Schuman, G. E., Ingram, L. I., Stahl, P. D., **Welker, J. M.** 2005. Soil organic carbon composition in a northern mixedgrass prairie: effects of grazing. *Soil Science Society of America Journal* 69: 1746-1756.
71. **Welker, J. M.**, Fahnestock, J. T., Povirk, K., Bilbrough, C. and Piper, R. 2004. Carbon and nitrogen dynamics in a long-term grazed alpine grassland. *Arctic, Antarctic and Alpine Research* 36: 10-19.
72. Alstad, K. P., **Welker, J. M.**, Williams, S. and Trilica, M. J. 1999. Carbon and water relations of *Salix monticola* in response to winter browsing and changes in surface water hydrology: an isotopic study using $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$. *Oecologia* 120: 375-385.
73. **Welker, J. M.** and Menke, J. W. 1990. The influence of simulated browsing on tissue water relations, growth and survival of *Quercus douglasii* (Hook and Arn.) seedlings under slow and rapid rates of soil drought. *Functional Ecology* 4: 807-817.
74. **Welker, J. M.**, Briske, D.D., and Weaver, R.W. 1987. Nitrogen-15 partitioning within a three generation tiller sequence of the bunchgrass *Schizachyrium scoparium*: Response to selective defoliation. *Oecologia* 24: 330-334.

Climate Change-Ecosystem and Organismic Responses

75. Chimner, R. A. and **Welker, J. M.** 2005. Soil respiration in a Mixedgrass Prairie: responses to changes in snow cover and summer precipitation. *Biogeochemistry* 73: 257-270.
76. Rustad, L. E., Campbell, J., G. M. Marion, Norby, R. , Mitchell, M., Hartley, A., Cornelissen, J., Gurevitch, J. and GCTE-NEWS (Network of Ecosystem Warming Studies (**Welker, J. M.** and 15 others). 2001. A meta-analysis of the response of soil respiration, net N mineralization and aboveground plant growth to experimental warming. *Oecologia* 126: 543-562.

77. **Welker, J. M.**, Bowman, W., Williams, M., and Seastedt, T. 2001. Environmental change and future directions in alpine research. In: Bowman, W. and Seastedt, T. (Eds). Structure and function of an alpine ecosystem, Oxford University Press, 304-322.

78. Werkman, B. R., Callaghan, T. V., and **Welker, J. M.** 1996. Responses of bracken to increased temperature and nitrogen availability. *Global Change Biology* 2:59-66.

79. Zhang, Y. and **Welker, J. M.** 1996. Tibetan alpine tundra responses to simulated climate change: biomass, nutrient and community responses. *Arctic and Alpine Research* 28:203-209.

80. **Welker, J. M.** and Briske, D. D. 1992. Clonal biology of the temperate caespitose graminoid *Schizachyrium scoparium*: A synthesis with reference to climate change. *Oikos* 56:357-365.

Carbon Cycling

81. Hunt, E. R., Kelly, R. D., Fahnestock, J. T., Smith, W. K., **Welker, J. M.** and Reiners, W. A. 2004. Estimation of carbon sequestration by combining remote sensing and net ecosystem exchange data for northern mixedgrass prairie and sagebrush-steppe ecosystems. *Environmental Management (in press)*.

82. Smith, W. K., Kelly, R. D., **Welker, J. M.**, Fahnestock, J. T., Reiners, W. A., and Hunt, E. R., Jr. 2002. Leaf-to-aircraft measurements of net CO₂ exchange in a sagebrush steppe ecosystem, *J Geophysical Research - Atmospheres*, 108(D3):9.1-9.9 DOI: 10.1029/2002JD002512.

83. Kelly, R. D., Hunt, E. R., Reiners, W. A., Smith, W. K., and **Welker, J. M.** 2002. Relationships between daytime carbon dioxide flux and absorbed photosynthetically active radiation for four different mountain/plains ecosystems. *J. Geophysical Research – Atmospheres*, 107: D14 1029/2001JD001181.

84. Hunt, E. R., Jr., Fahnestock, J. T., Kelly, R. D., **Welker, J. M.**, Reiners, W. A., and Smith, W. K. 2002. Carbon sequestration from remotely sensed NDVI and net ecosystem exchange, p.161-174, In: Muttiah, R. S. (Ed.), *From Laboratory Spectroscopy to Remotely Sensed Spectra of Terrestrial Ecosystems*, Kluwer, Dordrecht, The Netherlands.

85. Povirk, K. A., **Welker, J. M.** and Vance, G. W. 2001. Carbon sequestration in arctic and alpine tundra and mountain meadow ecosystems, In: Follet, R., Kimble, J., and Lal, R. (Eds). *The potential of U. S. grazing lands to sequester C and mitigate the greenhouse effect*, Lewis Publishers, 189-228.

86. Zeller, K., Zimmerman, G., Hehn, T., Donev, E., Denny, D., **Welker, J. M.** 2001. Analysis of in advertent microprocessor lag time on eddy covariance results, *J Applied Meteorology* 40: 1640-1646.

Plant and Soil Water Relations

87. McGuire, K.J., McDonnell, J.J., Weiler, M., McGlynn, B.L., Kendall, C., **Welker, J.M.**, Seibert, J. 2005. The role of topography on catchment-scale water residence time. *Water Resource Research* 41: 1-14.

88. Momen, B., Menke, J. W., **Welker, J. M.**, Rice, K. J., and Chapin, F. S. 1994. Blue oak regeneration and seedling water relations in four sites within a California oak savanna. *Int. J. Plant Sciences* 155: 744-749.

89. Rice, K.J., Gordon, D.R., Hardison, J.L. and **Welker, J.M.** 1993. Phenotypic variation in seedlings of a "keystone" tree species (*Quercus douglasii*): the interactive effects of acorn source and competitive environment. *Oecologia* 96:536-547.
90. Momen, B., Menke, J. W., and **Welker, J. M.** 1992. Tissue water relations of *Quercus wislizenii* seedlings in response to drought. *Acta Oecologica* 13: 127-136.
91. **Welker, J. M.**, McClelland, S., and Weaver, T. W. 1991. Soil water retention after natural and simulated rainfall on a temperate grassland. *Theoretical and Applied Climatology* 44: 447-453.
92. Gordon, D. R., **Welker, J. M.**, Menke, J. W., and Rice, K. J. 1989. Competition for soil water between blue oak seedlings and annual plants. *Oecologia* 79:533-541.

TEACHING AND INSTRUCTION

Isotope Biogeochemistry, University of Alaska Anchorage, Spring, 2005
 Physiological Plant & Ecosystem Ecology, University of Wyoming, 1999 - 2000.
 Principles of Rangeland Ecology and Management, University of Wyoming, 1996 - 1999.
 Stable Isotopes in the Biological and Earth Sciences, 1997 & 1999.
 Ecophysiology and Biogeochemistry, Colorado State University, 1995.

Guest lectures and presentations (recent examples)

An overview of Biocomplexity in the High Arctic, Thule Air Base, Greenland. August 2003.
 Northern rangeland responses to changing climates: Examples from AK and Scandinavia. Rangeland Ecosystem Science Department, Colorado State University, 2002.
 The Global Carbon Cycle and Isotopic Applications, Geology and Geophysics Department, University of Wyoming, 2001.
 Isotopes in Terrestrial Ecosystem Biogeochemistry, Botany Department, University of Wyoming, Spring 1999.
 Our Changing Climate: How Will it Effect Rangelands. Laramie Sunrise Rotary Club, December 1997.
 The Causes and Consequences of Global Climate Change. Department of Plant, Soil and Insect Sciences, University of Wyoming, Soil Microbial Ecology Class, Fall 1997.
 Climate Change in High and Mid-Latitudes: What can we expect? Institute of Environment and Natural Resources, University of Wyoming, Fall 1997.

MENTORED UNDERGRADUATE STUDENTS (recent examples)

1. Heidi Kristinsen, University of Alaska Fairbanks, REU student-2007
2. Jeremy Chignell, University of Alaska Anchorage, REU student-2007
3. Katy Nagel, University of Minnesota, 2007
4. Haley Ohms, Biology, University of Alaska Anchorage 2006
5. Meg Olson, University of Alaska Anchorage 2004
6. Kara Bastin, Life Sciences Program, CSU. 2002-present
7. Travis Davis, Resource Management, CSU, 2003

8. Nick Levitt, Chemistry, Texas A&M University-2003
9. Kristy Olin, Natural Resources, Colorado State University, 2003
10. Vanessa Thames, Natural Resource Management, CSU. 2002-present.
11. Brad Holliday, Renewable Resources, University of Wyoming. 1999-2000.
12. Todd Spivey, Renewable Resources, University of Wyoming. 1999-2001.
13. Tom Antionti, Renewable Resources, University of Wyoming. 1999-2001.
14. Mark McNeal, Botany Department, University of Wyoming. 1999-2000.
15. Jason Thomas, Botany Department, University of Wyoming. 1999-2001.
16. Judd Hill, Biology Department, Wake Forest University. 1999.
17. Mary Clever, Renewable Resources, University of Wyoming. 1999.
18. Jessick Surlock, Renewable Resources, University of Wyoming. 1998-1999.
19. Kyra Povirk, Renewable Resources, University of Wyoming. 1996-1997.
20. Robert Piper, Renewable Resources, University of Wyoming. 1996-1998.
21. Amy Davison, Rangeland Ecology and Watershed Mgmt, UW, 1996-1997
22. Megan Ordway, Rangeland Ecosystem Science Department, CSU, 1995-1996.
23. Amy Oscarson, Rangeland Ecosystem Science Department, CSU, 1994-1995.
24. Jeff Leonard, Rangeland Ecosystem Science Department, CSU, 1993-1994.

GRADUATE STUDENT SUPERVISION

Major Professor and or Co-advisor

1. Ken Tape, PhD student, UAA-UAF Joint PhD program, NSF EPSCoR fellowship, 2008
2. Seth Arnes, MS student, University of Alaska Anchorage, 2005-2007 (*currently PhD student at the University of Utah*)
3. Matt Rogers, MS student, University of Alaska Anchorage, 2006-2008
4. Allison Sayer, MS student, University of Alaska Anchorage, 2005-2007-graduates May 2008
5. Paddy Sullivan, Francis Clark Fellow, CSU, Graduate Degree Program in Ecology, PhD awarded 2005 (*Currently a NSF OPP Postdoctoral Fellow*)
6. Derek Esposito, CNR 3F Fellow, CSU, Graduate Degree Program in Ecology, MS, 2002.
7. Kevin O'dea, UW Renewable Resources, MS 2000-present.
8. Robert Piper, UW Renewable Resources Department, MS, 1999-2001 (*Currently a Soil Scientist at North Wind Env. Corp*).
9. Ted Hehn, UW Renewable Resources Department, MS, 1997-1999 (*Currently a Research Associate at UC Berkeley*).
10. Karla Brown, CSU Rangeland Ecosystem Science Department, MS, 1994-1996 (*Currently a CSU Extension Agent*).
11. Karrin Alstad, CSU Rangeland Ecosystem Science Department, MS, 1995-1998 (*Currently a PhD student at Northern Arizona University*).
12. Andrea Rayte, CSU Rangeland Ecosystem Science Department, MS, 1994-1996.

Graduate Committee Member

1. Dan Rinella, PhD student, University of Alaska Anchorage, 2005-present
2. Ryan Vachon, PhD student, University of Colorado, Boulder, 2002-2007 (*Currently a Postdoctoral Associate with CIRES, CU Boulder*)
3. Steven Bleckler, GDPE, Colorado State University, PhD, 2001-2004.
4. Danielle Bilyeu, GDPE, Colorado State University, PhD, 2002-2004.
5. John Stark, GDPE, Colorado State University, PhD, 2002-2004.
6. Mark Lyford, UW Botany Department, PhD, 1999-2001 (*Currently an instructor at the University*)

of Wyoming).

7. Brenda Greer, UW Geology and Geophysics, PhD, 2000.
8. Michele Slayton, UW Botany Department, PhD, 1999-2000 (*Currently an Assistant Professor at Gunnison College, CO*).
9. Jerry Winslow, UW Botany Department, PhD, 1996-1999 (*Currently an Assistant Professor, Texas Tech University*).
10. Rachel Torner, UW Geology and Geophysics, MS, 1997-2000.
11. Matt Germino, UW Botany Department, PhD, 1997-2000 (*Currently an Assistant Professor, Idaho State University*).
12. Cynthia Wilson, UW Botany Department, MS, 1997-1999 (*Currently a PhD student at Duke University*).
13. Nicole Waginspock, UW Anthropology Department, MS, 1997-1999 (*Currently a PhD student at the University of Arizona*).
14. Mike Dodd, CSU Rangeland Ecosystem Science, PhD, 1994-1997 (*Currently a Research Scientist in New Zealand*).
15. Rich Alward, CSU Biology Department and GDPE, PhD, 1996-1999 (*Currently an Associate Director of a University of Nebraska Field Station*).
16. Byran Stevenson, CSU Soil and Crop Sciences Department, 1995-1998 (*Currently a Research Scientists with ARS*).
17. Jace Fahnestock, CSU Biology Department, 1997-1999, (*Currently a VP for Natural Resources, North Wind, Env. Consulting Firm, Idaho*).

SUPERVISED POSTDOCTORAL FELLOWS

1. Dr. Lina Tavena, NSF IPY Project Postdoctoral Fellow, 2007-present
2. Dr. Robert Pattison, NSF IPY Project Postdoctoral Fellow, 2007-present
3. Dr. Paddy Sullivan, Biocomplexity Project, 2004-2005 (*currently NSF-OPP Postdoctoral Fellow*)
4. Dr. Heidi Steltzer, 2003-2005 NREL, Colorado State University (*Currently a Research Scientist at NREL*).
5. Dr. Rod Chimner, 2003-2005, NREL, Colorado State University (*Currently Term Assistant Professor, Michigan Technology University*).
6. Dr. Jace Fahnestock, 1999-2002, Colorado State University (*Currently the VP for Natural Resources, North Wind Inc*).
7. Dr. Carol Bilbrough, 1998-2000, University of Wyoming (*Currently a Research Scientist with Wyoming Department of Environmental Quality*).
8. Dr. M. Jones, 1995-1998 (*Currently the Co-Director of the CO₂ meta-analysis project, The Ohio State University*).
9. Dr. A. N. Parsons, 1994-1996 (*Currently a Program Officer, Natural Environment Research Council, UK*).
10. Dr. P. A. Wookey, 1991-1993, (*Currently, Professor, Uppsala University, Stockholm, Sweden*).

SUPERVISED RESEARCH ASSOCIATES

1. Brian Cohn, Isotope Analyst, UAA Stable Isotope Laboratory, 2007-present.
2. D. Reuss, Laboratory Manager, CSU Stable Isotope Facility, Colorado State University.
3. D. Espisoto, NREL, Colorado State University, 2001-2002. (*Currently a GDPE student at CSU*).
4. L. Walsh, NREL, Colorado State University, 2003.
5. K. Povirk, University of Wyoming, Fall 1999-2000 (*Currently an Environmental Consultant with*

North Wind, Inc.).

6. M. Larson, University of Wyoming, Stable Isotope Facility, 1998-2000. (*Currently Isotope Lab Manager at the University of Wyoming*).

PROFESSIONAL SERVICE

International External Examiner

Jean Birks, PhD exam, University of Waterloo, Canada. December 2003. Water isotopes in precipitation and climate proxies of the Central Great Plains, Canada.

International Program Participation

1. International Tundra Experiment (ITEX). A network of Arctic & Alpine Climate Warming Studies. 1991-present.
2. Global Network for Isotopes in Precipitation (GNIP). A network of national programs sponsored by the IAEA (International Atomic Energy Agency) for the study of water isotopes in precipitation as applied to freshwater processes. 1994-present.
3. FLUXNET, A Network of sites that are quantifying the exchange of mass and energy between the biosphere and the atmosphere. 1996-present.
4. GCTE-NEWS (IGBP-Global Change and Terrestrial Ecology, Network of Environmental Warming Studies). A consortium of studies examining the effects of changes in climate on soil N mineralization, respiration and primary production. 1998-present.
5. GLDN (Global Litter Decomposition Network). A network of studies examining how land use and climate change affect litter decomposition under common conditions. 1996-present.
6. University of the Arctic Field Course. A 4-week modular field course designed to instruct U. S. and foreign students on the complexity and sustainability of Arctic Ecosystems (approved and under development as part of my NSF-BE project)
7. TIGER (Terrestrial Initiative for Global Environmental Research). A consortium program addressing climate change processes in Western Europe. 1995-1998.

National Program Participation

1. North American Tundra Experiment (NATEX). A network of sites in North America (N. Ellesmere Island, Barrow, AK and Toolik Lake, AK) conducting comparative studies of arctic tundra responses to similar changes in climate. 1999-present.
2. BASIN (Biosphere-Atmosphere Stable Isotope Network). A consortium of studies examining the $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$ of CO_2 and water as a means of characterizing the coupling of carbon and water processes in terrestrial ecosystems. 2000-present.
3. USNIP (United States Network for Isotopes in Precipitation). A national network that I have established examining the isotopes of water in precipitation as applied to plant water sources, niche partitioning and palaeoclimatology (<http://www.nrel.projects.usnip>). 1999-present.
4. AmeriFlux. A network of research sites quantifying the patterns of magnitudes of carbon exchange between terrestrial ecosystems and the atmosphere. 1998-present.

Reviewer for Granting Agencies and Foundations

National Science Foundation (>100 proposals reviewed to date)

USDA-NRI (5 proposals reviewed to date)

Reviewer for Professional Journals

Ecosystems-5

Ecology-5

Oikos-6

Arctic, Antarctic and Alpine Research-20

Journal of Ecology-5

Journal of Range Management-3

Oecologia-6

Landscape Ecology-2

Nature-2

Global Change Biology-2

Ecological Applications-3

**STRATEGIC PLANNING, CONSORTIUM DEVELOPMENT, PARTNERSHIPS
AND SYNTHESIS ACTIVITIES**

Strategic Planning

1. Restructuring the Environment and Natural Resources Institute and creating an operational Strategic Plan (2006-2007). Using faculty, staff and stakeholder participating, I have led the reorganizing of ENRI at UAA. We are currently in the implementation phase of the plan

Consortiums

1. Transitions in the Copper River watershed and adjoining marine system in southcentral Alaska: Workshops organization and program development leadership, 2007. Collaboration between UAA, Private, Native Corporations, Federal and State Agencies and UAF collaborators.
2. IPY Snow-shrub interactions and feedbacks. A research team of UAA faculty addressing the role of changes in snow on the processes governing shrub development and expansion in the Arctic. NSF IPY funds acquired.
3. IPY-ITEX studies in the Pan Arctic. A research team of UAA and US scientists using long-term warming experiments to identify what changes can be expected from climate warming in arctic and alpine tundra. NSF IPY funds acquired.
4. Predatory-Prey Dynamics in central Alaska: Proposal consortium of UAA and agency scientists designed to address wolf-moose interaction in central Alaska. Initial discussion with USDA have taken place and project development is underway.
5. Biocomplexity in arctic systems, University of Alaska Anchorage, University of Washington, University of California. NSF-Biocomplexity in the Environment funds acquired.
6. Coupled changes in climate on Mixedgrass Prairie, Colorado State University & Agricultural Research Service. USDA National Research Initiative funds acquired.

7. Carbon sequestration on temperate rangelands-University of Wyoming and Agricultural Research Service (USDA). USDA funding obtained under the NRI-Soil and Soil Biology Program
8. Winter C flux in tundra habitats-University of Wyoming, California and Alaska. NSF-funding obtained under OPP-ATLAS (Arctic transitions of the land-atmosphere system) program.
9. Species and tundra ecosystem responses to warming and increased snow. University of Wyoming, Florida, Alaska, Michigan, British Columbia, and Woods Hole Institute. NSF-funding obtained under the NATEX (North American Tundra Experiment) program.
10. Carbon flux on range and forested lands in Wyoming-University of Wyoming, U. S. Forest, Bureau of Land Management, and Kirkbride Cattle and Land Company. NSF, Agricultural Experiment Station and USFS funding obtained under the NSF-TECO (Terrestrial Ecology and Global Climate Change) program.
11. U. S. Network of Isotopes in Precipitation-Colorado State University, University of Colorado, Illinois State Water Survey and the National Atmospheric Deposition Program. NSF funding obtained under the Earth System History Program and the GNIP (Global Network of Isotopes in Precipitation-IAEA) program.
12. Plant-animal interactions in Rocky Mountain National Parks-University of Wyoming, Colorado State University, Rocky Mountain National Park and Wind Cave National Park. USGS-BRD funding obtained.
13. Moorland responses to climatic change. Merlewood Research Station, Manchester University, Birmingham University, and Aberdeen University. NERC (Natural Environment Research Council) funding obtained under the TIGER (Terrestrial Initiative for Global Environmental Research) program.
14. Comparative arctic tundra responses to changes in climate-Merlewood Research Station and the University of Manchester. NERC funding obtained under the Arctic Ecology Special Topic.
15. Controls on woody seedling development on Hardwood Rangelands-University of California, UC Sierra Field Station, Hopland Field Station. USDA and UC funding obtained under the UC Hardwood Range Research Initiative.

NOTE: In each one of these cases I was instrumental in developing the program vision, organizing the consortiums, developing and crafting the proposals, and implementing the projects.

Planning and Synthesis Activities

NEON Planning, Las Cruces New Mexico, February 2006

NEON-Tundra-Taiga Planning, Anchorage, AK, March 2005

NSF Land-Atmosphere Ice Interactions: Terrestrial Ecosystems in the Arctic, Seattle, WA, January 2005.

CORREO-Michigan in November of 2005) of the Consortium of Regional Representatives of NEON Community of Scientific Practice, Synthesis and Integration, National Science Foundation, Arctic System Science, Oct. 2004, Seattle, WA

Isotopic characteristics of Precipitation across North America, Biosphere-Atmosphere Stable Isotope

Network Annual Workshop, Pt. Reyes, CA
NSF Arctic System Science Webinar, November 2005. Open forum to discuss the future structure and function of the NSF ARCSS program
NEON, Isotope Workshop, Park City, UT, October 2004.
BASIN Workshop, San Francisco, CA, October 2004.
NEON, Rocky Mountain Group, Boulder, CO Spring, 2004
Isotopes in the Earth Sciences, Integrating water isotopes in General Circulation Models, National Center for Atmospheric Research, Boulder, CO, January 2004.
NIGEC (National Institute for Global Environmental Change-DOE) Soil Respiration Workshop, Boulder, CO, October 2003.
SEARCH, NSF Office of Polar Programs, Synthesis and Planning Workshop, Seattle, WA, October 2003.
Biocomplexity in the Environment, Principle Investigator Synthesis and Future Directions, Washington DC, September 2003.
North American Carbon Program, Planning and research trajectories. Washington D. C. March 2003.
International Tundra Experiment (ITEX), synthesis and future directions, Finse, Norway, October 2002.
Arctic systems in transitions, NSF-Office of Polar Programs, Victoria, Canada, October 2002.
Front Range Ecology, Systematics and Climate Observatory (FRESCO) proposal workshop for a NEON (National Environmental Observatory Network). Denver Botanical Gardens, February, 2001.
Future Arctic Research Initiatives: Planning and Implementation. LAII (Land-Atmosphere Ice Interactions) meeting, Victoria, Canada, February 2001.
Cross-College Life Sciences Program Development and Strategic Planning, University of Wyoming, 1999.
Planning for the Toolik Lake Field Station Winter Residence, February, 1997.
Toolik Lake Field Station: planning for the 21st century. Bodega Bay, CA, March 1995.
An Arctic Laboratory for British Studies: Planning and implementation of the NERC Arctic Special Topic: London, England, May 1991.
Hardwood Range Programs for the State of California. California State Department of Forestry, Sacramento, CA 1986.

PROFESSIONAL SOCIETIES

American Association for the Advancement of Science
American Geophysical Union