

**John (“Jay”) A. Arnone III**

Division of Earth and Ecosystem Sciences  
Desert Research Institute

2215 Raggio Parkway, Reno NV 89512

(E) [jarnone@dri.edu](mailto:jarnone@dri.edu) · (T) 775.673.7445 · (F) 775.673.7485

<b>Education</b>	1988	<b>Yale University, Ph.D.</b> School of Forestry and Environmental Studies Field: Plant Physiological Ecology	New Haven, CT
	1985	<b>Yale University, M. Phil.</b> School of Forestry and Environmental Studies Field: Tree Physiology / Plant Physiological Ecology	New Haven, CT
	1981	<b>Yale University, M.F.S.</b> School of Forestry and Environmental Studies Field: Tree Physiology / Plant Physiological Ecology	New Haven, CT
	1979	<b>University of Vermont, B.S.</b> School of Natural Resources Field: Forestry / Forest Science	Burlington, VT

**Experience**

***Work and Research (Supervisor)***

2004- Present	Desert Research Institute (DRI) <b>Research Professor</b> Division of Earth and Ecosystem Sciences  University of Nevada Reno (UNR) <b>Professor</b> Graduate Program in Hydrologic Sciences  UNR <b>Adjunct Professor</b> Natural Resources and Environmental Sciences and Ecology, Evolution and Conservation Biology faculty	Reno, NV
2000- 2004	DRI <b>Associate Research Professor</b> Plant and Terrestrial Ecosystem Ecology  UNR <b>Associate Professor</b> Hydrologic Sciences Ecology, Evolution and Conservation Biology	Reno, NV

2001- 2004	UNR <b>Adjunct Associate Professor</b> Ecology, Evolution and Conservation Biology Natural Resources and Environmental Sciences	Reno, NV
1999- 2001	DRI <b>Director</b> Frits Went Laboratory (EcoCELL facility)	Reno, NV
1998- 2000	UNR and DRI <b>Assistant Research Professor</b> Plant and Terrestrial Ecosystem Ecology Hydrologic Sciences	Reno, NV
1994- 1998	University of Basel <b>Assistant Professor</b> (Non-tenure track, "PD: Privat Dozent")	Basel, Switzerland
1990- 1993	University of Basel <b>Postdoctoral</b> Project leader and Co-PI for several studies on the long-term effects of elevated atmospheric CO <sub>2</sub> on plant community ecology, ecophysiology and ecosystem function. (See also teaching experience below.) [Prof. Ch. Kömer]	Basel, Switzerland
1988- 1990	Yale University <b>Postdoctoral Associate</b> [Profs. J. Gordon and D. Baker]	New Haven, CT
1984- 1988	Yale University <b>Doctoral Research Assistant</b> [Prof. J. Gordon]	New Haven, CT
1981- 1982	Universität München <b>Research Assistant</b> [Prof. P. Schütt]	Munich, Germany
1980- 1981	Harvard Forest, Harvard University Master's thesis <b>Research Assistant</b> [Prof. C. Schwintzer]	Petersham, MA
1979- 1980	Yale University <b>Research Assistant</b> [Prof. G. Berlyn]	New Haven, CT
1979 Summer	USDA Forest Service Northeastern Station Insect and Disease Laboratory <b>Research Technician</b> [Dr. H. Valentine]	Hamden, CT

1976 Connecticut Agricultural Experiment Station New Haven, CT  
and Department of Ecology and Climatology  
1978 **Research Assistant**  
Summer [Drs. D. Aylor and G. Stephens]

**Teaching: DRI and UNR**

2010 UNR Reno, NV  
Atmospheric Sciences Program  
Physics Department

**Professor**

“Climate Change and its Environmental Impacts”  
(lecture and lab, ATMS 121)

2000- **Mentor** for Nevada high school and middle school  
2005 science teachers.  
NSF-funded IRCEB project (see Grants below)

1998- **Major Professor/Mentor** of 1 Ph.D. student (D.  
Present Obrist), 6 Master's students (H. Weatherly, G.  
Royce, C. Batts, A. Lucchesi, J. Larsen, A.  
Darouzett-Nardi), and 15 undergraduate or high  
school honor student interns from within the  
Nevada System of Higher Education, and outside  
(e.g. M. Thomey, P. Zed, N. Chellman, C. Irschick).  
Supervisor of two postdocs (L. Tarnay, R. Jasoni).

**Mentor** to Washoe County School District,  
O'Brien Middle School science teachers (M.  
Johnson, P. Fendelander, and L. Newton) in Reno,  
NV; L. Kimpton, science teacher, Dawson  
Elementary School, Las Vegas, NV); “Climate  
Change Ecology” mentor to community college  
faculty chemistry professor M. Sady (Western  
Nevada College, Carson City, NV) in 2009 to set up  
wildfire x climate change hands-on field  
experiments to evaluate post-fire restoration  
treatments by his students.

**Teaching: University of Basel\***

1995- **Lecturer**, “Ecology of Plant Nutrition: extension  
1998 and integration of the basic principles of plant  
nutrition to the ecology (structure and function)  
of plant communities and ecosystems”

1991- **Leader of Field Course** in Plant and Ecosystem  
1997 Ecology with emphasis on quantitative methods

**Instructor of seminar courses** in plant ecology which emphasizes critical evaluation of scientific papers, as well as experimental design, through class discussions and oral and written assignments

**Major Professor/Advisor** to 1 Ph.D. student (J. Zaller); 8 Master's students (A. Kocian, W. Hilti, M. Würth, M. Gruber, R. Stocker, C. Hufschmid, G. Hofer, D. Obrist) and numerous undergraduate project students

*\*All courses and lectures in Switzerland were given in German*

**Teaching: Yale University**

1988-1990	<b>Project Advisor</b> for Masters and undergraduate students	New Haven, CT
1989	<b>Lecturer</b> for team-taught course in Ecology of Agroforestry Systems	

**Research Grants**      **Funded and Currently Pending**

2010-2011	NSF “MRI-R2: Development of a novel integrated mega-scale automatic ecosystem flux measurement system to quantify the exchange of CO <sub>2</sub> , water vapor, and other atmospheric constituents” [Amount: <b>\$998,999</b> , for 2 years]— <b>PI</b> (with co-PI-Jasoni) NSF proposal number 0960349 PENDING
2010-2012	NSF “Collaborative Research: Accounting for unexpectedly high net ecosystem productivity in arid land ecosystems: Where is the carbon going and what is controlling it?” [Amount: <b>\$1,064,168</b> for 3 years]— <b>PI</b> (with co-PIs-Jasoni and Fenstermaker) NSF proposal number 0960349 PENDING
2010-2012	NSF “CCE: Improving high school science and math relevancy, attitudes, and performance through Web-based interdisciplinary climate change education” [Amount: <b>\$3,777,960</b> for 3 years]— <b>Co-I</b> (with Chakrabarty—PI, Garro, and Moosmüller) NSF proposal number 0950155 PENDING

- 2009-2011 Bureau of Reclamation  
 “Quantitative reassessment of the hydrologic budgets and water resources of critical zones in the State of Nevada”  
 [Amount: **\$393,900** for 2 years]—**PI**  
 (with co-PIs-Jasoni, Thomas—DRI)
- 2009-2010 EPA  
 ”The potential for plants to be used in conjunction with flood control systems to stabilize arsenic contaminated tailings around Lost Lake”  
 [Amount: **\$87,659** for 1 year]—**Co-I**  
 (with PI-Jasoni—DRI)
- 2009-2010 DOE National Renewable Energy Laboratory  
 “Construction and evaluation of a mobile weighing lysimeter facility to quantify water use efficiencies and biomass yields of alternative crop species for agriculture in Nevada”  
 [Amount: **\$101,000** for 1 year]—**PI**  
 (with Co-PIs—Jasoni and Hoekman—DRI)
- 2008-2013 NSF-EPSCoR  
 “Nevada Infrastructure for Climate Change Science, Education and Outreach”  
 [Amount: **\$15,000,000** for 5 years, with each campus of the Nevada System of Higher Education receiving \$5 million] —**Steering Committee Member** and **conceptual designer** for Ecological Change component (with G. Dana, PI—DRI)  
<http://www.nvclimatechange.org>
- 2007-2009 DOE  
 Subcontract from Gas Technology Institute  
 “Assessment of Biomass Resources of Nevada and NE California for Potential Use as Biofuels and Feedstocks”  
 [Amount: **\$250,000** for 2 years]—**PI**  
 (with Co-PIs—Verburg, Jasoni, Minor, Hoekman)
- 2006-2008 Bureau of Reclamation  
 “Walker Basin Study: Effects of Alternative Agricultural Crops on Evapotranspiration and Plant Water Use Efficiency”  
 [Amount: **\$389,000** for 3 years]—**PI**  
 (with Co-PIs—Verburg and Jasoni—DRI)
- 2007 DOE Program in Ecosystem Research:  
 “Quantification of the role of soil cryptobiotic crust surfaces to ecosystem CO<sub>2</sub> exchange in a Mojave Desert ecosystem”  
 [Amount: **\$99,000** for 1 year]—**PI**  
 (with Co-PIs—Jasoni and Fenstermaker—DRI)
- 2005-2007 International Arid Lands Consortium:  
 “Global Change and Ecosystem H<sub>2</sub>O and CO<sub>2</sub> fluxes in the Mojave and Negev Deserts”  
 [Amount: **\$100,000** for 2 years]—**PI**  
 (with Co-PIs—Jasoni, Fenstermaker—DRI, and Grünzweig—Hebrew University)

- 2004-2005 SEMPR Energy Consulting  
 “Contribution of phreatophytic vegetation to ecosystem evapotranspiration and ground water use in the Smoke Creek Desert playa: quantification of ground water use as a function of depth to ground water and season”  
 [Amount: **\$480,000** for 1 year]—**Co-I**  
 (with Co-PIs—Albright and Thomas—DRI)
- 2003-2005 NSF Division of Environmental Biology  
 “Biotic and abiotic controls on inorganic carbon biogeochemistry in an intact Mojave Desert ecosystem under global environmental change”  
 [Amount: **\$800,000** for 3 years]—**Co-I**  
 (with Co-PIs—Verburg, Marion, and McDonald—DRI)
- 2003-2005 NSF Division of Environmental Biology:  
 “Collaborative research: Responses of productivity and nutrient dynamics to elevated CO<sub>2</sub> in an intact Mojave Desert ecosystem”  
 [Amount: **\$1,300,000** for 3 years]—**PI**  
 (with Co-PIs: Smith—UNLV, Nowak—UNR, Evans—Washington State University; Reynolds—Duke University)
- 2002-2004 NSF Division of Atmospheric Sciences  
 “Quantifying the role of natural ecosystems as sources and sinks of elemental mercury”  
 [Amount: **\$464,000** for 3 years]—**Co-I**  
 (with Gustin—PI, UNR; Johnson—UNR; Gertler & Schorran—DRI)
- 2000-2005 NSF Division of Environmental Biology -IRCEB program  
 “Interannual climate variability and ecosystem processes: A quantitative assessment combining models with field and mesocosm experiments”  
 [Amount: **\$3,000,000** for 5 years]—**PI** (with Co-PIs—Verburg & Buck—DRI; Johnson—UNR; Wallace & Luo—Univ. Oklahoma; Schimel—National Center for Atmospheric Research; Braswell—Univ. New Hampshire)
- 2000-2001 Nevada NSF EPSCoR  
 “Historical records of anthropogenic impacts upon nutrient biogeochemistry at Lake Tahoe”  
 [Amount: **\$45,000** for 1 year]—**Co-I**  
 (with Poulson—PI; Karlin—UNR)
- 2000-2002 International Arid Lands Consortium:  
 “Ecosystem consequences of cheatgrass invasion in the Great Basin”  
 [Amount: **\$75,000** for 2 years]—**Co-I**  
 (with Co-PIs: Delucia—Univ. Illinois, Yakir—Weizmann Institute, Israel)

- 1997-1998 Swiss National Science Foundation (NSF)  
Continuation of funding to study the interactive effects of grassland plant community species composition, earthworm population density and activity, and elevated CO<sub>2</sub> on N production in the field (see grant title immediately below)  
[Amount: **\$51,000** for 1 year]—sole **PI**
- 1995-1998 Swiss NSF  
“Fine roots and earthworms in grassland communities: functional relationships and feedbacks on nutrient cycling and plant community structure”  
[Amount: **\$290,000** for 3 years]— sole **PI**
- 1993-1996 Swiss NSF  
“Plant species diversity in complex grassland ecosystems under elevated CO<sub>2</sub>”  
[Amount: **\$1,275,000** for 3 years]—**Co-I**  
(with Körner, PI; Schmid—Univ. Basel)
- 1992-1995 Swiss NSF  
“Consequences of global environmental change for alpine vegetation”  
[Amount: **\$1,700,000** for 3 years]—**Co-I**  
(with Körner, PI—Univ. Basel)

#### Awards / Honors

- 2009 *Faculty of 1000 Biology* for the paper: Arnone *et al.* (2008)  
Prolonged suppression of ecosystem carbon dioxide uptake following an anomalously warm year. *Nature* 455:383-386
- 2005-2006 One year sabbatical at the Institut für Ökologie of the University of Innsbruck, Austria
- 1998 Harvard University, Charles Bullard Fellowship in Forest Research for Advanced Study and Research (awarded but declined in lieu of DRI position).
- 1997 "Habilitation" in Plant Ecology: Award to become a “Privat Dozent” (*Venia docendi*), or a licensed faculty member; an advanced degree in the germanic academic system; equivalent to an Assistant Professor in the U.S.
- 1997-1998 Grant from the Treubel Foundation of Basel, Switzerland to complete my studies on the effects of global change on the dynamics of fine root populations in native grasslands
- 1986-1987 Duke University, Department of Botany, "Friends of the Phytotron" student grant in support of research. [Prof. B. R. Strain]
- 1984-1988 Yale University, A. W. Mellon Graduate Research Fellow in Forest Microbiology
- 1985 Sigma Xi, Yale University
- 1979 University of Vermont, Department of Natural Resources, Honors Research Project

- 1978 Xi Sigma Pi, University of Vermont, School of Natural Resources  
(forestry honor society)
- 1975-1979 Dean's List, University of Vermont

## Memberships

### **Professional Organizations**

1. Ecological Society of America
2. American Geophysical Union
3. Association of Ecosystem Research Centers—Board of Directors (2008-Present)

## Professional Service

### **Editorial Responsibilities**

- 2009 - *Ecology Letters*  
Ongoing **Editor**
- 1996-2000 *Plant and Soil*  
**Board of Consulting Editors**
- 1994-Present **Referee** for:  
*Science; Oecologia; Ecology; Global Change Biology; New Phytologist; Journal of Arid Environments; Plant and Soil; Biogeochemistry; Biogeosciences; Ecological Applications; Functional Ecology, Soil Biology and Biochemistry; Agriculture Ecosystems and Environment*

### **Grant proposal reviews and panel service**

- 2009 NOAA Global Carbon Cycle Program, *ad hoc* reviewer
- 2004-Present NSF Ecosystems program, *ad hoc* reviewer
- 2004 AAAS Canon National Parks Science Scholar Program for the Americas review panel
- 2003 NSF Review Panel member for Division of Environmental Biology's Frontiers in Biological Research (FIBR)
- 2002 NSF Review Panel member for Division of Environmental Biology's Integrated Research Challenges in Environmental Biology (IRCEB) Program (1-3 May 2002)
- 2002 NSF Ecosystems, *ad hoc* reviewer
- 1999-2000 International Arid Lands Consortium
- 1998 USDA Plant Responses to the Environment Program

### **Advisory / Research Review Committee**

- 2009 Member of the Ecotron International Scientific Committee to advise and coordinate international research efforts using large-scale controlled environment facilities (advisory group member; one of nine people selected by J. Roy, CNRS, June 2009)
- 2008 U.S. Congressional Briefing on Carbon Sequestration in Deserts (invited by T. Jordan, 25 September 2008)
- 2008 DOE Workshop on Exploring Science Needs for the Next Generation of Climate Change and Elevated CO<sub>2</sub> Experiments in Terrestrial Ecosystems (invited by P. Hanson, 14-18 April 2008)
- 2006 Texas Higher Education Coordinating Board, reviewer for the Research Assessment Program, Chihuahuan Desert Research program at Sul Ross State University (invited by B. Broaddus, October 2006)
- 2005 National Academy of Sciences review panel: "Meeting to Assess the Potential Use of Infrastructure at Biosphere 2 Center for Scientific Research and Education" (chaired by P. Raven, invited by B. Osmond, March 2005)
- 2001 National Phytotron Strategic Planning Workshop at Duke University, (24-27 October 2001)
- 1999 Panama FACE facility and experiment (invited by C. Potvin, 29 June-3 July 1999)
- 1999 Columbia University's Biosphere 2 (invited by J. Melillo, 10-13 May 1999)
- 2000- Present Washoe County School District, Nevada; Science fair advisor and judge

### **Publications and Presentations**

#### **Refereed Publications**

- 55. Lucchesi AJ, **Arnone JA III**, Sherry RA, Wallace LL, Luo Y, Verburg PSJ (2010) Immediate and lagged responses to an anomalously warm year of intact tallgrass prairie ecosystems in the EcoCELLs: impacts on plant community composition and species diversity and their ecological and environmental controls? *Global Change Biology* (in preparation)
- 54. Larsen JD, Jasoni RL, Wallace LL, Luo Y, Verburg PSJ, **Arnone JA III** (2010) Effects of an anomalously warm year on plant canopy dynamics and size in large intact native tallgrass prairie soil-vegetation monoliths in the EcoCELLs. *Global Change Biology* (in preparation)
- 53. Verburg PSJ, Young A, **Arnone JA III** (2010) Do increased summer precipitation and N deposition alter fine root dynamics in a Mojave Desert ecosystem? *Global Change Biology* (in review)

52. Sherry RA, Wallace LL, **Arnone JA III**, Schimel DS, Verburg PSJ, Luo Y (2010) Rapid shifts in plant community structure and species abundances in response to extreme temperature and precipitation anomalies in an Oklahoma tallgrass prairie. *Global Change Biology* (in review, submitted on 19 September 2009)
51. **Arnone JA III**, Jasoni RL, Larsen JD, Irschick C, Miller WW, Davison J, Thomas JM, Leger EA, Verburg PSJ (2010) Water use efficiency and productivity of alternative crops for agriculture in Nevada U.S.A. under conditions of low water availability. *Plant and Soil* (in review, submitted on 10 September 2009)
50. Cheng XL, Luo Y, Su B, Verburg PSJ, Hui D, Obrist D, **Arnone JA III**, Johnson DW, Evans RD (2009) Responses of net ecosystem CO<sub>2</sub> exchange to nitrogen fertilization in experimentally manipulated grassland ecosystems. *Agricultural and Forest Meteorology* 149:1956-1963
49. Wohlfahrt G, Haslwanter A, Hörtnagl L, Jasoni RL, Fenstermaker LF, **Arnone JA III**, Hammerle A (2009) On the consequences of the energy imbalance for calculating surface conductance to water vapour. *Agricultural and Forest Meteorology* 149:1556-1559
48. Verburg PSJ, Johnson DW, Schorran DE, Wallace LL, Luo Y, **Arnone JA III** (2009) Impacts of an anomalously warm year on soil nitrogen availability in experimentally manipulated intact tallgrass prairie ecosystems. *Global Change Biology* 15:888-900
47. **Arnone JA III**, Verburg PSJ, Johnson DW, Larsen JD, Jasoni RL, Lucchesi AJ, Batts CM, von Nagy C, Coulombe WG, Schorran DE, Buck PE, Braswell BH, Coleman JS, Sherry RA, Wallace LL, Luo Y, Schimel DS (2008) Prolonged suppression of ecosystem carbon dioxide uptake following an anomalously warm year. *Nature* 455:383-386
46. Sherry RA, Weng E, **Arnone JA III**, Johnson DW, Schimel DS, Verburg PSJ, Wallace LL, Luo Y (2008) Lagged effects of experimental warming and doubled precipitation on annual and seasonal aboveground biomass production in tallgrass prairie. *Global Change Biology* 14:2923-2936
45. Marion GM, Verburg PSJ, Stevenson B, **Arnone III JA** (2008) Soluble element distributions in a Mojave Desert soil. *Soil Science Society of America Journal* 72:1815-1823
44. Wohlfahrt G, Fenstermaker LF, **Arnone JA III** (2008) Large annual net ecosystem CO<sub>2</sub> uptake of a Mojave Desert ecosystem. *Global Change Biology* 14:1475-1487.
43. Marion GM, Verburg PSJ, McDonald EV, **Arnone III JA** (2008) Modeling salt movement through a Mojave Desert soil. *Journal of Arid Environments* 72:1009-1030
42. Stamenkovic J, Gustin MS, **Arnone JA III**, Johnson DW, Larsen JD, Verburg PSJ (2008) Atmospheric mercury exchange with a tallgrass prairie ecosystem housed in mesocosms. *Science of the Total Environment* 406:227-238

41. Sherry RA, Zhuo XH, Gu SL, **Arnone JA III**, Schimel DS, Verburg PSJ, Wallace LL, Luo Y (2007) Divergence of reproductive phenology under climate warming. *Proceedings of the National Academy of Sciences* 104:198-202
40. Prater MR, Obrist D, **Arnone JA III**, Delucia EH (2006) Net carbon exchange and evapotranspiration in post-fire and intact sagebrush communities in the Great Basin. *Oecologia* 146:595-607
39. Verburg PSJ, Larsen JD, Johnson DW, Schorran DE, **Arnone JA III** (2005) Impacts of an anomalously warm year on soil CO<sub>2</sub> efflux in experimentally manipulated intact tallgrass prairie ecosystems. *Global Change Biology* 11:1720-1732
38. Jasoni RL, Smith SD, **Arnone JA III** (2005) Net ecosystem CO<sub>2</sub> exchange in Mojave Desert shrublands after eight years of exposure to elevated CO<sub>2</sub>. *Global Change Biology* 5:749-756
37. Obrist D, Gustin MS, **Arnone JA III**, Johnson DW, Schorran DE, Verburg PSJ (2005) Measurement of gaseous elemental mercury fluxes over intact tallgrass prairie monoliths during one full year. *Atmospheric Environment* 39:957-965
36. Johnson DW, Verburg PSJ, **Arnone JA III** (2004) Soil extraction, ion exchange resin, and ion exchange membrane measures soil mineral N during incubation of a tallgrass prairie soil. *Soil Science Society of America Journal* 69:260-265
35. Obrist D, Yakir D, **Arnone JA III** (2004) Temporal and spatial patterns of soil water following wildfire-induced changes in plant communities in the Great Basin. *Plant and Soil* 262:1-12
34. Weatherly HE, Zitzer SF, Coleman JS, **Arnone JA III** (2003) In situ litter decomposition and litter quality in a Mojave Desert ecosystem: effects of elevated CO<sub>2</sub> and interannual climate variability. *Global Change Biology* 9:1223-1233
33. Verburg PSJ, **Arnone JA III**, Evans RD, Leroux-Swarthout D, Obrist D, Johnson DW, Schorran DE, Luo Y, Coleman JS (2003) Net ecosystem carbon exchange in two model grassland ecosystems. *Global Change Biology* 10:498-508
32. Obrist D, Verburg PSJ, Young MH, Coleman JS, Schorran DE, **Arnone JA III** (2003) Quantifying the effects of phenology on ecosystem evapotranspiration in planted grassland mesocosms using EcoCELL technology. *Agricultural and Forest Meteorology* 118:173-183
31. Obrist D, **Arnone JA III** (2003) Root development, soil water use, and root proliferation into water-enriched soil patches by *Larrea tridentata*: effects of atmospheric CO<sub>2</sub>. *New Phytologist* 159:175-184
30. **Arnone JA III**, Obrist D (2003) A large daylight geodesic dome for quantification of whole-ecosystem CO<sub>2</sub> and water vapor fluxes in arid shrublands. *Journal of Arid Environments* 55:629-643

29. Billings SA, Zitzer SF, Weatherly HE, Schaeffer SM, Charlet T, **Arnone JA III**, Evans RD (2003) Effects of elevated CO<sub>2</sub> on green leaf tissue and litter quality in an intact Mojave Desert ecosystem. *Global Change Biology* 9:729-735
28. Obrist D, DeLucia EA, **Arnone JA III** (2003) Consequences of wildfire on ecosystem CO<sub>2</sub> and water vapor fluxes in the Great Basin. *Global Change Biology* 9:563-574
27. Goverde M, **Arnone III JA**, Ehardt A (2002) Species-specific reactions to elevated CO<sub>2</sub> and nutrient availability in four grass species. *Basic and Applied Ecology* 3:221-227
26. Obrist D, **Arnone III JA**, Körner Ch (2001) In situ effects of elevated atmospheric CO<sub>2</sub> on leaf freezing resistance and carbohydrates in a native temperate grassland. *Annals of Botany* 87:839-844
25. Marsh AS., **Arnone JA III**, Bormann BT, Gordon JC (2000) The role of Equisetum in nutrient cycling in an Alaskan shrub wetland. *Journal of Ecology* 88:999-1011
24. **Arnone, JA III**, Zaller JG, Spehn EM, Niklaus PA, Wells CE, Körner Ch (2000) Dynamics of root systems in intact native grasslands: effects of elevated atmospheric CO<sub>2</sub>. *New Phytologist* 147:73-86
23. **Arnone JA III** (1999) Symbiotic N<sub>2</sub> fixation in high alpine grassland: effects of four growing seasons of elevated CO<sub>2</sub>. *Functional Ecology* 13:383-387
22. Zaller JG, **Arnone JA III** (1999) Earthworm responses to plant species' loss and elevated CO<sub>2</sub> in calcareous grassland. *Plant and Soil* 208:1-8
21. Zaller JG, **Arnone JA III** (1999) Interactions between earthworm casts and plant species in a calcareous grassland under elevated CO<sub>2</sub>. *Ecology* 80:873-881
20. Zaller JG, **Arnone JA III** (1999) Earthworm and soil moisture effects on the productivity and structure of grassland communities. *Soil Biology and Biochemistry* 31: 517-523
19. **Arnone JA III**, Bohlen PJ (1998) Stimulated N<sub>2</sub>O flux from intact grassland monoliths after two growing seasons under elevated atmospheric CO<sub>2</sub>. *Oecologia* 116:331-335
18. **Arnone JA III** (1997) Indices of plant nitrogen availability in an alpine grassland under elevated atmospheric CO<sub>2</sub>. *Plant and Soil* 190:61-66
17. Zaller JG, **Arnone JA III** (1997) Activity of surface casting earthworms in a calcareous grassland under elevated atmospheric CO<sub>2</sub>. *Oecologia* 111:249-254
16. **Arnone JA III** (1997) Temporal responses of community fine root populations to long-term elevated atmospheric CO<sub>2</sub> and soil nutrient patches. *Acta Oecologica* 18:367-376

15. **Arnone JA III**, Hirschel G (1997) Does fertilizer application alter the effects of elevated CO<sub>2</sub> on leaf litter quality and in situ decomposition in an alpine grassland? *Acta Oecologica* 18:201-206
14. Körner Ch, Diemer M, Schächli B, Niklaus P, **Arnone JA III** (1997) The responses of alpine grassland to four seasons of CO<sub>2</sub> enrichment: a synthesis. *Acta Oecologica* 18:165-177
13. **Arnone JA III**, Kestenholtz C (1997) Root competition and elevated CO<sub>2</sub>: effects on seedling growth in *Linum usitatissimum* populations and *Linum-Silene cretica* mixtures. *Functional Ecology* 11:209-214
12. Hirschel G, Körner Ch, **Arnone JA III** (1997) Will rising atmospheric CO<sub>2</sub> affect leaf litter quality and in situ decomposition rates in native plant communities? *Oecologia* 110:387-392
11. **Arnone JA III**, Körner Ch (1997) Temperature adaptation and acclimation potential of leaf dark respiration in two species of *Ranunculus* from warm and cold habitats. *Arctic and Alpine Research* 29:122-125
10. **Arnone JA III** (1996) Predicting responses of tropical plant communities to elevated CO<sub>2</sub>: lessons from experiments with model ecosystems. In: *Carbon dioxide, populations and communities* (eds Körner Ch, Bazzaz FA), Physiological Ecology Series, Academic Press, San Diego, pp. 101-121
9. **Arnone JA III**, Körner Ch (1995) Soil and biomass carbon pools in model communities of tropical plants under elevated CO<sub>2</sub>. *Oecologia* 104:61-71
8. **Arnone JA III**, Zaller JG, Ziegler C, Zandt H, Körner Ch (1995) Leaf quality and insect herbivory in model tropical plant communities after long-term exposure to elevated CO<sub>2</sub>. *Oecologia* 104:72-78
7. **Arnone JA III**, Blot M, Leadley PW, Matthies D, Sanders I (1994) Biodiversity in Switzerland. *Nature* 370:500
6. **Arnone JA III**, Kohls SJ, Baker DD (1994) Nitrate effects on nodulation and nitrogenase activity of actinorhizal *Casuarina* studied in split-root systems. *Soil Biology and Biochemistry* 26:599-606
5. Körner Ch, **Arnone JA III**, Hilti W (1994) The utility of artificial ecosystems in CO<sub>2</sub> research. In: *Design and execution of experiments on CO<sub>2</sub> enrichment* (eds Schulze E-D, Mooney HA), Commission of the European Communities, Brussels, pp. 185-198
4. **Arnone JA III**, Körner Ch (1993) Influence of elevated CO<sub>2</sub> on canopy development and red:far-red ratio in two-storied stands of *Ricinus communis*. *Oecologia* 94:510-515
3. Körner Ch, **Arnone JA III** (1993) Global change: the important difference between lettuce and forests. *Plant Sciences Bulletin* 39:8
2. Körner Ch, **Arnone JA III** (1992) Responses to elevated carbon dioxide in artificial tropical ecosystems. *Science* 257:1672-1675
1. **Arnone JA III**, Gordon JC (1990) Effect of nodulation, nitrogen fixation and CO<sub>2</sub> enrichment on the physiology, growth and dry mass allocation of seedlings of *Alnus rubra* Bong. *New Phytologist* 116:55-66

### ***Project Reports (locally peer-reviewed)***

1. **Arnone JA III**, Jasoni RL, Larsen JD, Fenstermaker LF, Wohlfahrt G, Cratt CB, Lyles BF, Healey J, Young MH, Thomas JM (2008) Variable evapotranspirative water losses from lowland agricultural and native shrubland ecosystems in the Great Basin of Nevada, U.S.A. *DRI Publication* No. 655.7250
2. Jasoni RL, Thomas JM, Cablk M, Decker D, Lyles BF, **Arnone JA III**, Albright W (2006) Evapotranspiration in Smoke Creek Desert, Nevada. *DRI Publication* No. 41224R
3. Jasoni RL, Lyles BF, Thomas JM, Larsen JD, **Arnone JA III** (2009) Comparison of evapotranspiration rates measured in the Great Basin using the eddy covariance, Bowen ratio energy balance and static chamber dome methods. *DRI Publication* No. 656.9020

### ***Invited Seminars***

- 2010 **Arnone JA III** et al. (2010) Using intact soil-vegetation mega-cosms to quantify ecosystem responses to anomalous climatic events. Contribution to a Symposium entitled: "Extreme Climatic Events: Perspectives on their Ecological Role and Approaches for Future Research" (Invited by M. Smith & A. Knapp (Annual Meeting of the Ecological Society of America, Pittsburgh, PA, 1-6 August 2010)
- 2009 **Arnone JA III**, Ecosystem CO<sub>2</sub> uptake: prolonged after effects of an extremely warm year. Kiwanis Club of Reno, NV (27 May 2009)
- Arnone JA III** Climate Change, Ecosystems and Research Agendas in the Lower Colorado River Basin, Symposium Panelist, American Association of Geographers, Annual Meeting, Las Vegas, NV (22-25 March, invited by W. Smith, UNLV, panel 5208)
- Arnone JA III**, Jasoni RL, Larsen JD, Fenstermaker LF, Wohlfahrt G (2009) Evapotranspiration from lowland native shrub ecosystems in Nevada's eastern Great Basin and its relationship to remotely sensed measures of vegetation. Annual Meeting of the European Geosciences Union (EGU), Vienna, Austria (19-24 April), abstract number EGU2009-10643
- 2008 **Arnone JA III** (2008) Carbon dioxide uptake by arid ecosystems: What we know about today's situation and how global change may affect this. Annual Association of Ecosystem Research Centers' (AERC) Symposium entitled: Responding to Climate Change: A Role for Ecosystems (25 September 2008, invited by T. Jordan)
- 2006 **Arnone JA III**, (2006) Reaktionen von Prairie-Ökosystemen auf jährliche Klimaschwankungen: Experimente in den EcoCELLs. Institut für Integrative Biologie und Biodiversitätsforschung, Universität für Bodenkultur (BOKU), Vienna, Austria (24 April 2006, invited by J. Zaller)

- 2005 **Arnone JA III**, (2005) Ecosystem and plant community responses to experimental interannual climate variability in tallgrass prairie in the EcoCELLs. Botanisches Kolloquium, Institut für Botanik, Universität Innsbruck, Austria (12 October 2005, invited by M. Bahn)
- 2004 **Arnone JA III** (2004) How earthworms modulate responses of native grassland ecosystems to rising atmospheric CO<sub>2</sub> and declining plant species diversity. University of Missouri, Department of Ecology and Evolution, (12-14 October 2004; invited by J. Coleman)
- Arnone JA III**, Wallace LL. (2004) Interannual climate variability: How temporal signatures can drive ecosystem processes. Annual Meeting of the Ecological Society of America, Portland, Oregon (3-8 August 2004), **Co-chair** of Organized Oral Session
- 2003 **Arnone JA III** (2003) Working with ecosystem processes in recovery: atmospheric CO<sub>2</sub> influences on recovery potential. California Invasive Plant Council Symposia: "Planning Weed Management for Ecosystem Recovery" (organizer: T. Dudley, USDA-ARS, Reno held at Kings Beach at Lake Tahoe, Nevada)
- 2002 **Arnone JA III** (2002) Interannual climate variability and ecosystem processes: a quantitative assessment combining modeling with field and mesocosm experiments. Workshop entitled: From transient to steady state response of ecosystems to CO<sub>2</sub> enrichment and global warming. Terrestrial Ecosystem Responses to Atmospheric and Climate Change (TERACC) Durham, New Hampshire (28 April to 1 May 2002; organizer L. Rustad)
- 1999 **Arnone JA III** (1999) Fine root dynamics under elevated CO<sub>2</sub> in a temperate calcareous grassland. Global Change and Terrestrial Ecosystems (GCTE) Program of the IGBP Workshop on: Effects of Global Change on Fine Root Physiology and Turnover. Townsend, Tennessee (20-22 October 1999; organizers: R. Norby and A. Fitter)
- 1998 **Arnone JA III** (1998) Global Change and Terrestrial Ecosystems (GCTE-Focus 1) Program of the IGBP Workshop on: "Litter quality and decomposition under elevated CO<sub>2</sub>". Capri, Italy (24-27 September 1998; organizers: F. Cotrufo, R. Norby & J. Canadell)
- 1996 **Arnone JA III** (1996) Belowground responses of high alpine grassland ecosystems to elevated CO<sub>2</sub> and fertilizer addition: effects on symbiotic N<sub>2</sub> fixation. Arctic Terrestrial Ecosystems Research Initiative Workshop on: "Europe's Cold Regions: Scenarios for Ecosystem Responses to Global Change". Copenhagen, Denmark (8-10 November 1996; organizers: TV Callaghan, Ch Körner, OW Heal)
- Arnone JA**, Zaller JG (1996) Hydrologic feedback effects on N and C cycling due to enhance earthworm casting activity in lowland grassland ecosystems under elevated atmospheric CO<sub>2</sub>. COST 619 and Global Change and Terrestrial Ecosystems (GTCE) Program of the IGBP Focus I. Conference on: "Interactions between elevated CO<sub>2</sub> and water in grassland". Davos, Switzerland (1-5 June 1996; organizer: J. Nösberger)

- 1994 **Arnone JA III** (1994) Plant community and species responses to elevated CO<sub>2</sub> in model moist tropical ecosystems. Global Change and Terrestrial Ecosystems (GTCE) Program of the IGBP Focus I. Conference on: "Community and Evolutionary Implications of Rising Atmospheric CO<sub>2</sub>". Leuvenberg, Switzerland (14-19 August 1994; organizers: Ch. Körner, FA Bazzaz)
- 1993 **Arnone JA III, Körner Ch** (1993) Above and belowground responses of model tropical ecosystems to elevated atmospheric CO<sub>2</sub>. XV. International Botanical Congress. Yokohama, Japan (28 August – 3 September, invited by R. Luxmoore)
- Arnone JA III, Körner Ch** (1993) Fine root responses to elevated atmospheric CO<sub>2</sub> in model tropical ecosystems. International workshop on "Belowground Responses to Rising Atmospheric CO<sub>2</sub>: Implications for Plants, Soil Biota and Ecosystem Processes. Pellston, Michigan (29 May - 2 June 1993; organizer: J. Teeri)
- Arnone JA III, Gordon JC** (1993) Positive feedbacks between photosynthesis and symbiotic N<sub>2</sub> fixation in *Alnus rubra* demonstrated under elevated atmospheric CO<sub>2</sub>. Ninth International Conference on *Frankia* and Actinorhizal Plants. Waikato, New Zealand (4-7 April 1993; organizer W. Silvester)
- 1986 **Arnone JA III, Gordon JG** (1986) Effects of elevated atmospheric CO<sub>2</sub> on nodulation and nitrogenase activity in *Alnus rubra*. International Meeting on *Frankia* and Actinorhizal Plants. Umeå, Sweden (17-20 August 1986)

#### **Other Presentations at Scientific Meetings / Workshops**

- 2009 **Arnone JA III, Jasoni RL, Larsen JD, Coulombe WG, Darrouzet-Nardi A, Luo Y, Verburg PSJ** (2009) Ecosystem respiratory responses to interannual and seasonal temperature variability in intact tallgrass prairie ecosystems in the EcoCELLs. *EOS Trans. AGU Fall Meeting Suppl.*, San Francisco, CA
- 2008 **Arnone JA III, Jasoni RL, Larsen JD, Fenstermaker LF, Wohlfahrt G** (2008) Atmospheric-ecosystem CO<sub>2</sub> exchange in sparse arid shrublands across the Great Basin USA over multiple years: identifying patterns and mechanisms. *EOS Trans. AGU, Fall Meeting Suppl.*, Abstract B31A-0285, San Francisco, CA
- 2007 Verburg PSJV, Johnson DW, Schorran DE, Wallace LL, Luo Y, **Arnone JA III** (2007) Impacts of an anomalously warm year on soil nitrogen availability in experimentally manipulated intact tallgrass prairie ecosystems. *EOS Trans. AGU, Fall Meeting Suppl.*, Abstract B31B-0323, San Francisco, CA
- 2006 Cablk M, Zhu J, Kratt C, Jasoni R, Young M, Thomas J, **Arnone JA III** (2006) Multi-scale remote sensing observations as a basis for estimating evapotranspiration across the eastern Great Basin Desert, Nevada, USA. *EOS Trans. AGU, Fall Meeting Suppl.*, Abstract H23E-1551, San Francisco, CA

- 2003 Obrist D, Gustin MS, **Arnone JA III**, Schorran DE, Verburg PSJ, Johnson DW (2003) Vegetated terrestrial ecosystems are large sources of Hg to the atmosphere. *EOS Trans. AGU, Fall Meeting Suppl.*, Abstract B51D-1002, San Francisco, CA
- Arnone JA III**, Schorran DE, Johnson DW, Wallace LL, Luo Y, Coleman JS, Schimel DS. (2003) NSF-I.R.C.E.B. Interannual climate variability and ecosystem processes in tallgrass prairie: Effects on ecosystem CO<sub>2</sub> fluxes. Annual Meeting of the Ecological Society of America, Savannah, GA (3-8 August 2003)
- Johnson DW, **Arnone JA III**, Verburg PJS, Wallace LL, Luo Y, Royce G, Zerbach N. (2003) Interannual climate variability and ecosystem processes in tallgrass prairie: non-destructive measures of soil nutrients. Annual Meeting of the Ecological Society of America, Savannah, GA (3-8 August 2003)
- Prater MR, **Arnone JA III**, Delucia EH. (2003) Conversion of sagebrush to non-native communities following fire: impacts of ecosystem carbon and water exchange. Annual Meeting of the Ecological Society of America, Savannah, GA (3-8 August 2003)
- Royce G, Weatherly HE, **Arnone JA III**. (2003) NSF-I.R.C.E.B. Interannual climate variability and ecosystem processes in tallgrass prairie: controls on root length density. Annual Meeting of the Ecological Society of America, Savannah, GA (3-8 August 2003)
- Weatherly HE, Su B, Wallace LL, **Arnone JA III**. (2003) NSF-I.R.C.E.B. Interannual climate variability and ecosystem processes in tallgrass prairie: controls on litter decomposition. Annual Meeting of the Ecological Society of America, Savannah, GA (4-9 August 2003)
- Verburg PJS, **Arnone JA III**, Schorran DE. (2003) NSF-I.R.C.E.B. Interannual climate variability and ecosystem processes in tallgrass prairie: effects on soil respiration. Annual Meeting of the Ecological Society of America, Savannah, GA (3-8 August 2003)
- 2002 Obrist D, **Arnone JA III** (2002) Effects of wildfire-induced changes in plant community composition on ecosystem CO<sub>2</sub> and water vapor fluxes. Annual Meeting of the Ecological Society of America, Tucson, Arizona (4-9 August 2002)
- Zitzer S, **Arnone JA III**, Billings S, Fenstermaker LF, Nowak R, Smith SD, Weatherly H (2002) Effects of elevated CO<sub>2</sub> on desert shrub litter production at the Nevada Desert FACE facility. Annual Meeting of the Ecological Society of America, Tucson, Arizona (4-9 August 2002)

- Su B, Hui D, Verburg PSJ, Obrist D, **Arnone JA III**, Johnson DW, Evans RD, Luo Y (2002) Canopy radiation- and water-use efficiencies of cheatgrass as affected by pulse and gradual N fertilization. Annual Meeting of the Ecological Society of America, Tucson, Arizona (4-9 August 2002)
- Prater M, Obrist D, **Arnone JA III**, Delucia EA (2002) Post-fire effects on ecosystem gas exchange patterns in northern Great Basin communities. Annual Meeting of the Ecological Society of America, Tucson, Arizona (4-9 August 2002)
- Verburg PSJ, **Arnone JA III**, Evans RD, LeRoux-Swarthout D, Obrist D, Johnson DW, Luo Y, Coleman JS (2002) The potential of short-rotation cropping systems to sequester C. Annual Meeting of the Ecological Society of America, Tucson, Arizona (4-9 August 2002)
- Weatherly H, Zitzer S, **Arnone JA III** (2002) Effects of elevated CO<sub>2</sub> on litter quality, decomposition, and their relationship in a Mojave Desert ecosystem. Annual Meeting of the Ecological Society of America, Tucson, Arizona (4-9 August 2002)
- 2001      Obrist D, **Arnone JA III** (2001) A large daylight geodesic dome for quantification of whole-ecosystem carbon dioxide and water vapor fluxes. *EOS Trans. AGU, Fall Meeting Suppl.*, Abstract B42A-0107, San Francisco, CA
- LeRoux-Swarthout D, Connin S, Verburg PJS, Johnson DW, **Arnone JA III**, Luo Y, Evans RD (2001) Effect of single versus continuous nitrogen applications on ecosystem nitrogen losses. Annual Meeting of the Ecological Society of America, Madison, Wisconsin (5-10 August 2001)
- 2000      **Arnone JA III**, Zaller JG, Spehn EM, Niklaus PA, Wells CE, Körner Ch (2000) In situ dynamics of fine root populations in a native temperate calcareous grassland: effects of elevated atmospheric CO<sub>2</sub>. Annual Meeting of the Ecological Society of America, Snowbird, Utah (6-11 August 2000)
- Obrist D, **Arnone JA III** (2000) The responses of fine roots on patches of water and nitrogen in two dominant Mojave Desert shrubs. Annual Meeting of the Ecological Society of America, Snowbird, Utah (6-11 August 2000)
- Zitzer SF, **Arnone JA III**, Coleman JS, Nowak R, Seemann J, Smith SD (2000) Litter accumulation beneath Mojave Desert shrubs exposed to predicted 21st century atmospheric CO<sub>2</sub> levels using Free Air CO<sub>2</sub> Enrichment. Annual Meeting of the Ecological Society of America, Snowbird, Utah (6-11 August 2000)
- 1999      Zaller JG, **Arnone JA III** (1999) Ecological interactions between earthworms and grassland communities in a changing environment. Annual Meeting of the Ecological Society of America, Snowbird, Utah (August 1999)

- 1997 Bohlen PJ, Zaller JG, **Arnone JA III** (1997) Earthworms amplify the stimulatory effect of elevated atmospheric CO<sub>2</sub> on N<sub>2</sub>O flux from intact grassland monoliths. *Bulletin of the Ecological Society of America* 78:55
- Zaller JG, **Arnone JA III** (1997) Earthworms affect plant species' responses to elevated atmospheric CO<sub>2</sub> in a native grassland. *Bulletin of The Soil Ecology Society* (1997 Conference, Manhattan, Kansas, 27-30 May 1997)
- 1995 Zaller JG, **Arnone JA III** (1995) Influence of elevated atmospheric CO<sub>2</sub> on earthworm cast production in a calcareous grassland in Switzerland. *Bulletin of the British Ecological Society* (Annual Winter Meeting, Sheffield, UK; 19-21 December 1995)
- Arnone JA III**, Zaller JG (1995) Fine root dynamics in species-rich calcareous meadows of the Swiss Jura under elevated atmospheric CO<sub>2</sub>. *Bulletin of the Ecological Society of America* 76:7
- 1992 **Arnone JA III**, Körner Ch (1992) Differential canopy growth responses in monospecific stands of *Ricinus communis* L. under elevated CO<sub>2</sub>. *Bulletin of the Ecological Society of America* 73:99-100
- 1991-1994 Annual Meeting of the Ecological Society of America—Presenter or Co-presenter on six oral presentations or posters
- 1991 **Arnone JA III**, Gordon JC, Bormann BT, Thilenius JF, Nay SM, Goldstein B (1991) Symbiotic nitrogen fixation: potentially important source of nitrogen for willow in wetland shrub communities of the Copper River Delta, Alaska. *Bulletin of the Ecological Society of America* 72:58
- Arnone JA III**, Körner Ch (1991) A microcosm approach to study effects of CO<sub>2</sub> enrichment on plant communities of tropical rain forest species. *Bulletin of the Ecological Society of America* 72:166 (Annual Meeting of the ESA, San Antonio, TX)
- 1988 **Arnone JA III** (1988) Evaluation of ethylene and acetylene adsorption and solubility in growth substrate at two moisture levels: implication for using the acetylene reduction assay. In: Nitrogen fixation: hundred years after (eds. Bothe H, de Bruijn, Newton). Stuttgart, Gustav Fischer Verlag, p. 805