

CURRICULUM VITAE
James Scott Coleman

EDUCATION:

University of Maine, Orono, ME. May 1982. B.S. (with highest distinction). Major: Forestry.

Virginia Polytechnic Institute and State University, Blacksburg, VA. September, 1982- June, 1983. Dept. of Plant Pathology, Physiology and Weed Science.

Yale University, School of Forestry and Environmental Studies New Haven, CT. May, 1985 - M.S.; December, 1985- M.Phil.

Yale University, School of Forestry and Environmental Studies, New Haven, CT. May, 1987 - Ph.D.

Dissertation Title: Relationship of Ozone Exposure and Leaf Ontogeny to Susceptibility of Eastern Cottonwood to Four Pests.

Advisors: William H. Smith (Yale University) and Clive G. Jones (Institute of Ecosystem Studies).

EMPLOYMENT:

Dean, College of Humanities and Sciences, **Virginia Commonwealth University**, Richmond, VA, July 8, 2011 -

Vice Provost for Research and Professor of Ecology and Evolutionary Biology, **Rice University**, Houston, TX. September 15, 2007 – July 2, 2011.

Vice Chancellor for Research, Director of the Office of Research and Professor of Biological Sciences, **University of Missouri, Columbia**, MO. May 15, 2006 – September 14, 2007.

Vice Provost for Research, Director of the Office of Research and Professor of Biological Sciences, **University of Missouri, Columbia**, MO. May 6, 2003 – May 14, 2006.

Vice President for Research and Business Development, **Desert Research Institute**, Reno, NV. January 1, 2000 – April, 2003.

Interim Vice President for Research and Business Development, **Desert Research Institute**, Reno, NV. August 1, 1999 – Dec. 31, 1999.

Project Director, Nevada NSF-EPSCoR, **University and Community College System of Nevada**. October, 1998 – April, 2003.

Executive Director and Research Professor, Biological Sciences Center, **Desert Research Institute**, Reno, NV. July 1, 1997 – July 30, 1999.

Adjunct Associate Professor of Biology, Department of Biology, **Syracuse University**, Syracuse, NY. July 1, 1997 - July 1, 1999.

Program Officer, Panel on Ecological and Evolutionary Physiology, Division of Integrated Biology and Neuroscience, **National Science Foundation**, Arlington, VA. September, 1995 - August, 1996. Responsible for managing an approximately \$10,000,000 budget used for funding research in the ecological

and evolutionary physiology program; dissertation improvement grants; and the NSF/DOE/USDA/NASA joint program in terrestrial ecology and global change. Associate Professor, Department of Biology, **Syracuse University**, Syracuse, NY 13244. May, 1995 - July 1, 1997.

Assistant Professor, Department of Biology, **Syracuse University**, Syracuse, NY 13244. September, 1990 - May, 1995.

Postdoctoral Fellow (with Dr. F.A. Bazzaz), Dept. of Organismic and Evolutionary Biology, **Harvard University**, Cambridge, MA. September, 1988 - August, 1990.

Postdoctoral Scholar (with Dr. H.A. Mooney), Department of Biological Sciences, **Stanford University**, Stanford, CA. June, 1987 - September, 1988.

Cary Fellow (**Institute of Ecosystem Studies**), **Yale University Graduate School**, New Haven, CT. January, 1985 - June, 1987.

ADMINISTRATIVE ACCOMPLISHMENTS:

Vice Provost for Research and Professor of Ecology and Evolutionary Biology, Rice University, Houston, TX. September 15, 2007 – present.

As the incoming Vice Provost for Research, I was given the sole responsibility for the Office of Sponsored Research Office of Technology Transfer and the Office of Animal Resources, and partial responsibility for overseeing Rice's nationally renowned entrepreneurship center, The Rice Alliance. I was also given the task of developing and growing a first-class research infrastructure at Rice. During my time at Rice, I have become responsible for several of Rice interdisciplinary units including the BioSciences Research Collaborative (\$300M, multi-institutional, multidisciplinary, life science building); Smalley Institute for Nanoscale Science and Technology, Rice 360^o- Institute for Global Health Technologies; Rice Building Institute; Institute for Sustainable and Applied Infodynamics (with NTU in Singapore) and the Rice Quantum Institute including its oversight of Rice's Applied Physics Graduate program.

- Developed a strategic plan to provide infrastructural support to faculty to grow Rice's research profile and stature that we are in the process of implementing. Rice's sponsored project awards grew approximately 67% during my time at Rice, while the volume of proposal submissions (in dollars) has more than doubled. Industrial sponsored research has grown as much as nearly four-fold during my time at Rice.
- Implemented (with the Director of Government Relations and Vice President for Public Affairs) a transparent and rigorous process to prioritize Rice's federal research initiatives and to work closely with the Vice President for Public Affairs in communicating these initiatives to our Congressional delegation and to federal agencies.
- Played a significant supporting role in the receipt of a \$3,000,000 gift from the Virginia and L.E. Simmons Family Foundation to foster research collaborations among Rice, Texas Children's Hospital and the Methodist Hospital Research Institute, and I played the lead role in implementing this effort including defining the program, advertising the program to faculty, developing electronic systems for submission and review of proposals, implementing the review process, awarding the grants, and engaging and stewarding the donor.

- Led the process of working with faculty and staff across campus to develop an operating plan and budget for Rice's new BioScience Research Collaborative (BRC), a 480,000 sq. ft. research facility that opened this summer, and I was responsible for hiring the leadership staff to direct the operations of the facility. The BRC will be a multi-institutional collaborative facility housing faculty from Rice with scientists from several institutions in the Texas Medical Center.
- I co-chaired a joint Rice-Baylor College of Medicine committee charged with examining ways to maximize academic benefits of a possible coming together of Rice University and the Baylor College of Medicine. I currently co-Chair Rice's Bioscience and Human Health task force aimed at developing a strategic plan for Rice to develop a preeminent niche in this area.
- Successfully engaged the Rice's Board of Trustees on the importance of Rice's research to realizing Rice's Vision for the 2nd Century.
- Built relationships with the economic development community of Houston in order to help achieve Rice's vision for engaging with Houston. I am also in the process of helping to develop a coherent economic development strategy by integrating the missions and activities of the Office of Technology Transfer and The Rice Alliance, and working closely with the Rice Office of Corporate and Foundation Relations. These activities enabled Rice to be involved in the activities that helped Houston lure Vestas Inc (the largest manufacturer of wind energy turbines) to move its research and development operations to Houston, and the Greater Houston Partnership has also called on Rice to help attract biotechnology companies such as TEVA pharmaceuticals. As a result of these efforts chaired the Technology Development subcommittee of the Energy Collaborative – a group of university and Houston business leaders tasked with developing strategies to ensure Houston's continued leadership in the energy industry. Corporate research activity has grown more than three fold over my first two years as VP for Research
- In FY 2010, I was an administrative principal investigator for Rice on nearly \$1,000,000 of sponsored project expenditures. I was also a facilitator and administrative PI on a \$1,650,000 NIH grant for high performance computing in the life sciences
- I collaborated with the Humanities Research Center at Rice to create a Humanities Innovation Fund to seed research across the humanities and humanistic social sciences.

Vice Chancellor for Research, Director of the Office of Research and Professor of Biological Sciences, **University of Missouri, Columbia**, MO. May 15, 2006 – September 14, 2007.

As the Vice Chancellor for Research, I was responsible for overseeing all aspects of MU's research enterprise including oversight of approximately a \$30,000,000 general operating budget for the Office of Research, oversight of an overall budget for units under my direction of approximately \$70,000,000 (that includes research and service revenues in addition to general operating funds), and oversight of the entire \$220,000,000

research enterprise at MU. Approximately 700 employees ultimately reported to my office. Some of these accomplishments include:

- Research expenditures grew 25% during my time at MU. The annual rate of invention disclosures, deal signing, and patent filings all doubled during my tenure at MU, with annual licensing income increasing from \$2M to over \$6M (with a high of \$10M due to a one-time milestone payment).
- Led the process of designing operating models and opening the new interdisciplinary Christopher S. Bond Life Sciences Center (LSC), including the recruitment of an internationally recognized Director, and now his successor, development of a self-sustainable budget strategy that allows for maximum interdisciplinary collaboration between the LSC and campus units, the merger of this new program with the existing campus molecular biology program, and working with the new Director and campus Deans to ensure that the LSC met the strategic goals we set for it during a long strategic planning process that started well before I joined MU.
- Played a major role in the development of two significant new interdisciplinary centers: (1) Institute for Nano and Molecular Medicine (and the hiring of a National Academy member to lead the center)- this included the construction of a new research facility; and (2) Thompson Center for Autism and Neurodevelopmental Disorders.
- Successfully communicated the importance and success of MU's research enterprise, and how the success of the research enterprise connected to all the other academic missions of the university, to both internal audiences (faculty, students, staff, Board of Curators) and external audiences (Missouri Governor's Office and Missouri's State Legislature, local chambers of commerce, Rotary clubs, business leaders, and community groups). I also interacted extensively with the media in Missouri and I also successfully communicated MU's positions on science policy issues such as stem cell research, as well as working with our legislative delegation to educate them on various science policy issues.
- Significantly improved several aspects of MU's applied research infrastructure including: (1) working with the University of Missouri System Vice President to reorganize the way MU manages intellectual property and support faculty entrepreneurship that led to a doubling of MU's invention disclosures and a ten-fold increase in our deal flow; and (2) working with the Columbia, MO community to develop plans and funding for a life science business incubator in Columbia that opened this past May and I played a significant role in securing a \$2,500,000 gift from the Monsanto Corporation to help cover construction costs
- Led efforts to develop an infrastructure strategic plan to support MU's planned growth in biomedical research requiring facilities for housing and caring for animals, and for plant growth facilities needed to maintain MU's stature as one of the leading research plant biology research universities in the United States.
- Worked with Deans and Faculty to create new budget models to support research infrastructure. This included a new plan to self-sustain the costs of compliance in the area of clinical trials, and the development of a 'grant incentive plan' that

allows for salary incentives to faculty that are successful in securing extramural funding.

- Contributed to campus diversity i., utrsing my “bully pulpit”, by being a significant contributor to an NSF award to train undergraduate minority students in environmental biology, and by energizing a team of female scientists that received an NSF ADVANCE grant to promote the development of female faculty in science, math and engineering areas.
- Chaired a committee charged with encouraging interdisciplinary behavior including changes in MU’s tenure process. That Committee’s report was enthusiastically accepted by the campus strategic planning committee and its implementation has begun.
- Worked with the Vice Provost for Undergraduate Studies and reallocated funds from the Office of Research budget to create a campus-wide Office of Undergraduate Research to better communicate and support undergraduate research across campus. This led to a significant increase in the number of students supported in research opportunities and in MU’s ability to showcase the pivotal role that research plays in undergraduate education across the entire campus including arts and humanities.
- Acted as the Provost’s representative to the campus-wide promotion and tenure committee that evaluated candidates across all the disciplines represented in MU’s 12 schools and colleges; evaluated comments from outside reviewers; evaluated decisions by departments, schools and colleges; and then wrote full reviews and made recommendations on all campus faculty eligible for tenure and promotion. These diverse disciplines ranged from journalism to basic science and clinical faculty in medicine and veterinary medicine, from agriculture to law, from education to the traditional full range of arts and sciences.
- Played a significant role with many others in securing the recruitment of the world’s foremost boron chemist. I also recruited a first class scientist to direct MU’s flagship life sciences research center, a first class scientist to direct MU’s Dalton Cardiovascular Research Center, a person who positively transformed MU’s technology commercialization function, a director of MU’s interdisciplinary center for aging, and a Director of a Center for Arts and Humanities—dramatically increasing the campus-wide research presence and infrastructure in this area
- Worked on a team four people including the Provost, Associate Provost and Budget Officer to set academic budgets for all 12 of MU’s Schools and Colleges along with other major academic functions such as cooperative extension, information technology and enrollment management, as well as making decisions on a wide range of academic expenditures and investments. I also had 20 direct reports and 700 faculty and staff ultimately reported to my office that had an operating budget of more than \$70M (\$30M was general operating) .
- Served as an active member of the steering committee for MU’s successful \$1,000,000,000 campaign

Vice President for Research and Business Development, **Desert Research Institute**,
Reno, NV. January 1, 2000 – April, 2003.

I was responsible for: (1) creating an effective office of research and business development; (2) designing and implementing interdisciplinary research programs; (3) developing new processes to strategically invest and track institutional resources to build research programs; (4) helping to negotiate faculty start-up packages; (5) articulating the vision of DRI's research programs to Nevada's federal and state legislative representatives, the UCCSN Board of Regents, DRI's fundraising foundation, groups and individuals involved in promoting the development of knowledge-based economy in Nevada, and members of the Reno and Las Vegas community; (6) designing a technology transfer program essentially from scratch; (7) overseeing and developing several areas relating to research compliance; (8) working with the chief research officers of UNR and UNLV to advocate for and develop statewide research and graduate programs; (9) participating (albeit in a relatively minimal way), as a faculty member in UNR's Graduate Program in Ecology, Evolution and Conservation Biology; and (10) I directed Nevada's National Science Foundation EPSCoR Program.

- DRI's President, Dr. Steve Wells, asked me to assume the Vice President for Research (VPR) post at a time when DRI faculty were questioning whether the position should exist. I worked very hard to redefine DRI's VPR position so that it focused more intensely on advocating for and facilitating faculty research. Positive results of that effort were recognized in a report in 2001 by DRI's National Science Advisory Committee (an outside group of experts led by the American Association for the Advancement of Science who reviewed DRI's science and operations). In its report the committee of nine internationally recognized scientists and science administrators wrote "*The high level of mutual respect between DRI faculty and DRI leadership, and the efforts made by DRI leadership to be visible and accessible, contribute significantly to the vertical flow of information at DRI. The present leadership at DRI is both dynamic and visionary. Their accomplishments over the last two years were generally recognized and appreciated by the faculty.*" The notion of mutual respect between DRI faculty and senior administrators (in central administration) was much more obscure when I took the position.
- Demonstrated the ability to help design and build interdisciplinary research programs that also required me to co-lead significant institutional change (DRI did a major institutional reorganization in 2000 going from five Centers, to three, with the creation of two new cross-cutting units) with DRI's President. Furthermore, the programs that we built were aimed at linking basic (curiosity-driven) and applied (problem solving) science.
- Developed an implemented a strategic plan to make the institution's investment into an internationally unique facility (EcoCELLs –Ecologically Controlled Lysimeter Laboratories) pay off. We defined our goal as getting major NSF competitive funding and proving that the concept of the EcoCELLs could significantly advance global change science – the ultimate recognition we aimed for at the time was to get a paper based on research in the EcoCELLs on the cover of *Nature*. I implemented a plan that involved accessing support from NSF and EPA EPSCoR, the Mellon Foundation, redefining the research focus of the

- EcoCELLs from physiological ecology to ecosystem ecology, strategic use of external advisory group, and the hiring and collaboration with great people, that led to major NSF funding (\$3,000,000 from NSF's IRCEB program) and ultimately, on September 18, 2008, to a picture of the EcoCELLs on the cover of *Nature*.
- Successfully communicated the important role that DRI's activities play in the State of Nevada and nationally to several stakeholder groups including the Board of Curators, local and statewide politicians and community leaders and to Nevada's Congressional delegation. I put in place a very successful process for DRI's interaction with Nevada's Congressional delegation that has led to multi-million dollars of federal research funding.
 - Faculty I hired as assistant professors while Director of the Biological Sciences Research Center are now faculty leaders of the institution. As Vice President, I developed an institution-wide process with the Division Directors (Deans in DRI's structure) to rank research areas for campus-wide hires in each year including development of a process for creating annual institutional start-up budgets which greatly improved institutional hiring and the institutional budget process.
 - As Nevada's National Science Foundation (NSF) EPSCoR director, I led the process of developing and implementing strategic plans to invest millions of dollars to improve statewide research capacity (across the Nevada University System), including educational outreach in science and engineering to the K-12 community. During my tenure, I was told by NSF that Nevada was one of the best of more than 20 statewide programs, because of our successful strategic planning. In fact, Nevada has experienced the second largest increase in research performance at the National Science Foundation from its entry into the EPSCoR program of any EPSCoR state. I also played a role in bringing more funding to the EPSCoR community by my service on the Board of the EPSCoR Coalition.

Program Officer, Panel on Ecological and Evolutionary Physiology, Division of Integrated Biology and Neuroscience, National Science Foundation, Arlington, VA. September, 1995 - August, 1996.

This experience taught me a great deal about strategically planning research investments, managing and assessing large research programs, and in running peer review processes. I was responsible for managing the investments into research of an annual budget of over \$10,000,000 and the entire review process for the NSF program "Ecological and Evolutionary Physiology" and I co-managed the NSF/Department of Energy/NASA/USDA Program in "Terrestrial Ecology and Global Change". I was also responsible for articulating the vision for these programs to the higher administration at NSF and to the research community, as well as working to develop new, interdisciplinary programs. Furthermore, I was responsible for concisely defending and supporting my funding recommendations to the upper administration at NSF, as well as working with principal investigators who were not successful in grant competitions in a manner that enabled them to increase their competitiveness in future competitions.

PROFESSIONAL ORGANIZATIONS AND MEMBERSHIPS: Ecological Society of America; American Association for the Advancement of Science; American Institute of Biological Sciences; AAU Senior Research Officers.

RESEARCH INTERESTS

My most recent focus has been the ecological effects of environmental change. Past research has focused on the causes and consequences of developmental, ecological and evolutionary variation in physiological, morphological and biochemical responses of plants to single and multiple abiotic stresses; whether variation in stress responses results from optimization of costs and benefits; and how variation in stress responses affects the interaction of plants with other organisms (particularly herbivores and pathogens).

GRANTS (PI or Co-PI on approximately \$40,000,000 in grants and cooperative agreements)

Mary Flagler Cary Charitable Trust Grant (1986).

NASA Graduate Student Fellowship in Global Change Research (\$22,000/yr for three years 9/1/92-9/1/95) to my graduate student, Brian Wilsey. I was the co-principal investigator with Dr. Sam McNaughton.

National Science Foundation, Ecological and Evolutionary Physiology Panel: Responses of plants to acute and chronic heat stress in a high CO₂ environment: Linking molecular biology with physiological ecology (collaborative research with Richard Hallberg, Syracuse University), \$190,000 (9/15/92 - 9/15/95).

National Science Foundation, Division of Integrated Biology and Neuroscience, Young Investigator Award, \$250,000 (7/93-7/99).

Andrew W. Mellon Foundation: Plant responses to stress: integrating molecular, developmental, physiological and ecological approaches. \$125,000 (7/93-7/99).

National Science Foundation, Ecological and Evolutionary Physiology Panel: Testing optimal partitioning and plant strategy theories: do conclusions differ when functional adjustments are distinguished from ontogenetic drift? \$140,000 (7/94 -7/98). Collaborative research with Dr. Kelly McConnaughay, Bradley University.

National Science Foundation, Ecological and Evolutionary Physiology Panel: Dissertation Improvement: Nitrogen-plant-insect interactions: Integrating via a net effects approach. \$6,890 (1/95-12/95). Collaborative research with D. Alexander Wait and Clive G. Jones.

Department of Energy, EPSCoR: The Nevada Desert FACE facility: Responses of a desert ecosystem to long-term elevated atmospheric carbon dioxide. \$700,000 (9/97-8/00). Collaborative research with J. Seemann (PI), S. Smith and R. Nowak.

Andrew W. Mellon Foundation (and Nevada State Match): Exploring the sensitivity of different carbon and nitrogen fluxes to variation in the timing of an ecosystem perturbation: The use of EcoCELL technology for developing scaling strategies in ecosystem research. \$537,126 (1/98 - 1/01). Collaborative research with R. D. Evans, W. Cheng, J. Arnone, Y. Luo and D. Johnson.

United States Department of Agriculture, CRSEES: UV-B Microclimate of High-Altitude Plant Communities. \$23,115 (9/98-9/99 with \$23,115 match). Collaborative Research with Melanie Wetzal (PI) and Yiqi Luo.

National Science Foundation. Constructing a long-term ecological research program at the NTS: Building on past EPSCoR success to create a scientific center of excellence in Nevada. \$500,000 (5/98-5/00). Collaborative Research with S. Smith and R. Nowak.

Interagency (NSF/DOE/USDA/NASA/NOAA) Program for Terrestrial Ecology and Global Change. Effects of elevated CO₂ on a Mojave desert ecosystem. \$1,300,000 (9/1/98 - 8/30/01, award was made by NSF). Collaborative research with Stan Smith (PI), Jeff Seemann, R. Dave Evans, Brandon Moore, and Weixin Cheng.

Environmental Protection Agency, Nevada EPSCoR. Determining the role of plants and soils in the biogeochemical cycling of mercury on an ecosystem level. \$400,000. (5/1/99 - 5/1/01). Collaborative research with Mae Gustin (PI), Dale Johnson and Steve Lindburgh.

National Science Foundation, EPSCoR. Research infrastructure for Nevada's growth: Targeting research with uniqueness and excellence (RING-TRUE). 6/99 – 7/02. \$3,000,000 (with an additional \$4,100,000 match from the State of Nevada and "in-kind" match from UNR, UNLV and DRI for a total award of \$7.1 million).

Department of Energy, Terrestrial Carbon Process. Biotic processes regulating the carbon balance of desert ecosystems. 9/00-8/03. \$2,300,000. Collaborative Research with Jeff Seemann (PI), Stan Smith, Bob Nowak and Lynn Fenstermaker.

National Science Foundation, EPSCoR. Research infrastructure for Nevada's growth: Targeting research with uniqueness and excellence II (RING-TRUE II). 8/02 – 8/05. \$9,000,000 (with an additional \$4,500,000 match from the State of Nevada).

National Institutes of Health, National Center for Research Resources. eIRB: Online Education and Quality Assurance. (Administrative PI – with Office of Research IRB and computing Directors) 9/03 – 8/04. \$100,000.

National Science Foundation, Partnerships for Innovation. Alliance for Collaborative Research in Alternative Fuel Technology. (Administrative PI; Peter Pfeifer scientific PI) 10/04 – 9/07. \$591,637.

National Institutes of Health, National Center for Research Resources. National Swine Research and Resource Center (Administrative PI: science driven by Randy Prather and Lela Riley). 9/03 – 9/08. \$2,848,226.

Economic Development Administration (US Department of Commerce), Life Sciences Incubator, (PI, co-PI is Jake Halliday). 5/05 – 5/09. \$2,500,000

National Institutes of Health, National Institute for Allergies and Infectious Diseases, Regional Biocontainment Laboratory (Administrative PI; scientific PIs, George Stewart, Kim Wise and Lela Riley), \$13,400,000 – construction beginning in Spring, 2007 to be completed by 2008. (PI transferred to Neil Olsen when I left Missouri).

Virginia and L.E. Simmons Family Foundation, Collaborative Research Fund (Administrative PI: this is a gift to Rice to fund collaborative research seed grants between Rice University, Texas Children's Hospital and The Methodist Hospital Research Institute). \$3,000,000. 9/08 – 8/13

Health Resources and Services Administration, Research Equipment for Rice University's Collaborative Research Center (PI), \$355,037. 06/01/08 - 09/30/10

Health Resources and Services Administration Research, Equipment for Rice University's BioScience Research Collaborative (PI), \$ \$377,190. 08/01/09 - 07/31/11

Health Resources and Services Administration Research, Equipment for Rice University's BioScience Research Collaborative (PI), \$ \$445,000. 08/01/10 - 07/31/13

National Center for Research Resources, NIH, Computational Biology Cluster (Administrative PI; Jan Odegard and Moshe Vardi scientific leadership), \$1,635,302 08/12/2010 – 08/11/2011

ACADEMIC RECOGNITION:

Outstanding Administrator, 1998-1999, UCCSN Board of Regents

NSF Young Investigator Award. 1993-1998

William W. Wasserstrom Prize for excellence in graduate education in the College of Arts and Sciences, Syracuse University 1995-1996 Academic Year

PUBLICATIONS IN PRINT,:

1. Murdoch, C.W., J.S. Coleman and R.J. Campana. 1983. Bark cracks associated with injection wounds in elm. *Journal of Arboriculture* 9: 61-64.
2. Coleman, J.S., C.W. Murdoch, R.J. Campana and W.H. Smith. 1985. Investigations on the decay resistance of elm wetwood. *Canadian Journal of Plant Pathology* 7: 151-154.

3. Coleman, J.S. 1986. Leaf development and leaf stress: increased susceptibility associated with sink-source transition. *Tree Physiology* 2: 289-299.
4. Coleman, J.S., C.G. Jones and W.H. Smith. 1987. The effect of ozone on cottonwood - leaf rust interactions: independence of abiotic stress, genotype and leaf ontogeny. *Canadian Journal of Botany* 65: 949-953.
5. Jones, C.G. and J.S. Coleman. 1988. Leaf disk size and insect preference: implications for assays and studies on induction of plant defense. *Entomologia Experimentalis et Applicata* 47: 167-172.
6. Jones, C.G. and J.S. Coleman. 1988. Plant stress and insect behavior: Cottonwood, ozone and the feeding and oviposition preference of a beetle. *Oecologia* 76: 51-56.
7. Coleman, J.S. and C.G. Jones. 1988. Plant stress and insect performance: Cottonwood, ozone and a leaf beetle. *Oecologia* 76: 57-61.
8. Coleman, J.S. and C.G. Jones. 1988. Acute ozone stress on eastern cottonwood (*Populus deltoides* Bartr.) and the pest potential of the aphid, *Chaitophorus populicola* Thomas (Homoptera:Aphididae). *Environmental Entomology* 17: 207-212.
9. Coleman, J.S., C.G. Jones and W.H. Smith. 1988. Interactions between an acute ozone dose, eastern cottonwood, and *Marssonina* leaf spot: implications for pathogen community dynamics. *Canadian Journal of Botany* 66: 863-868.
10. Jones, C.G. and J.S. Coleman. 1989. Biochemical indicators of air pollution effects in trees: Unambiguous signals based on secondary metabolism and nitrogen in fast-growing species? In: National Research Council. *Biologic Markers of Air Pollution Stress and Damage in Forests*. National Academy Press, Washington, D.C. pp. 261-273.
11. Coleman, J.S., H.A. Mooney and J.N. Gorham. 1989. Effects of multiple stresses on radish growth and resource allocation. I. Responses of wild radish plants to a combination of SO₂ exposure and decreasing nitrate availability. *Oecologia* 81: 124-131.
12. Coleman, J.S., H.A. Mooney and W.E. Winner. 1990. Anthropogenic stress and natural selection: Variability in radish biomass accumulation increases with increasing SO₂ dose. *Canadian Journal of Botany* 68: 102-106.
13. Bazzaz, F.A., J.S. Coleman and S.R. Morse. 1990. The responses of seven major co-occurring trees of the northeastern United States to CO₂. *Canadian Journal of Forest Research* 20: 1479-1484.

14. Winner, W.E., J.S. Coleman, C. Gillepsie, H.A. Mooney and E.J. Pell. 1991. Consequences of evolving resistance to air pollutants. In: Taylor, G.E. Jr. and L. Pitelka (eds.). *Ecological Genetics and Air Pollution*. Springer-Verlag, Berlin. pp. 177-202.
15. Jones, C.G. and J.S. Coleman. 1991. Plant stress and insect herbivory: Toward an integrated perspective. In: H.A. Mooney, W.E. Winner and E.J. Pell (eds.) *Integrated Responses of Plants to Environmental Stress*. Academic Press, NY. pp. 249-282.
16. Coleman, J.S. and C.G. Jones. 1991. A phytocentric perspective of phytochemical induction by herbivores. In: D. Tallamy and M. Raupp (eds.). *Phytochemical Induction by Herbivores*. J. Wiley and Sons. pp. 3-45.
17. Coleman, J.S., L. Rochefort, F.A. Bazzaz, and F.I. Woodward. 1991. Effects of CO₂ on plant performance, plant nitrogen status, and the susceptibility of plants to an acute increase in temperature. *Plant, Cell and Environment* 14: 667-674.
18. Chu, C.C., J.S. Coleman and H.A. Mooney. 1992. Examining the controls on the partitioning of biomass between roots and shoots: effects of elevated levels of CO₂ on growth and resource use of California coastal wild radish. *Oecologia* 89: 580-587.
19. Ackerly, D.D., J.S. Coleman, S.R. Morse and F.A. Bazzaz. 1992. Combined effects of temperature and elevated CO₂ on morphogenetic processes in two annual plant species. *Ecology* 73: 1260-1269.
20. Coleman, J.S. and F.A. Bazzaz. 1992. Interacting effects of elevated CO₂ and temperature on growth and resource use of co-occurring annual plants. *Ecology* 73: 1244-1259.
21. Coleman, J.S., C.G. Jones, and V.A. Krischik. 1992. Phytocentric and exploiter perspectives of phytopathology. *Advances in Plant Pathology* 8: 149-195.
22. Jones, C.G., R.F. Hopper, J.S. Coleman, and V.A. Krischik. 1993. Plant vasculature controls the distribution of systemically induced defense against a herbivore. *Oecologia* 93: 452-456.
23. Coleman, J.S., K.D.M. McConnaughay, and F.A. Bazzaz. 1993. Elevated CO₂ and plant nitrogen-use: Is reduced tissue nitrogen concentration size-dependent? *Oecologia*.93: 195-200.
24. Coleman, J.S., K.D. M. McConnaughay and D.D. Ackerly. 1994. Interpreting phenotypic variation in plants. *Trends in Ecology and Evolution* 9: 187-191.

25. Jones, C.G., J.S. Coleman, and S. Findlay. 1994. Effects of ozone on interactions among plants, consumers, and decomposers. In R. Alscher (ed.). *Plant Responses to the Gaseous Environment*. Chapman and Hall, London. pp. 339-363.
26. Wilsey, B.J., S.J. McNaughton. and J.S. Coleman. 1994. Will increases in atmospheric CO₂ affect regrowth following grazing in grasses from tropical grasslands? A test with *Sporobolus kentrophyllus*. *Oecologia* 99: 141-144.
27. Coleman, J.S. and A.S. Leonard. 1995. Why it matters where on a leaf a folivore feeds. *Oecologia* 101: 324-328.
28. Coleman, J.S., S.A. Heckathorn and R.L. Hallberg. 1995. Heat shock proteins and thermotolerance: Linking ecological and molecular perspectives. *Trends in Ecology and Evolution* 10: 305-306.
29. Coleman, J.S. and K.D.M. McConnaughay. 1995. A non-functional interpretation of a classical optimal partitioning example. *Functional Ecology* 9: 951-954.
30. Hartvigsen, G., D.A. Wait, and J.S. Coleman. 1995. Tri-trophic interactions as influenced by resource availability: Predator effects on plant performance depend on resource level. *Oikos* 74: 463-468.
31. Gedroc, J.J., K.D.M. McConnaughay, and J.S. Coleman. 1996. Plasticity in root/shoot partitioning: optimal, ontogenetic, or both? *Functional Ecology* 10: 44-50.
32. Heckathorn, S.A., G.J. Polgreen, J.S. Coleman and R.L. Hallberg. 1996. Nitrogen availability alters the accumulation of stress-induced proteins in plants. *Oecologia* 105: 413-418.
33. Heckathorn, S.A., G.J. Polgreen, J.S. Coleman and R.L. Hallberg. 1996. Influence of nitrogen and development on the dynamics of rubisco and pepcase content in response to heat stress. *International Journal of Plant Sciences* 157: 546-553.
34. Coleman, J.S. and K. Schneider. 1996. Evidence suggesting that ABA may not regulate changes in growth and biomass partitioning in response to low soil resource availability. *Oecologia* 106: 273-278.
35. McConnaughay, K.D.M. and J.S. Coleman. 1996. A tale of two universities: A PUI (predominantly undergraduate institution)/research institution collaboration at work. *Council on Undergraduate Research Quarterly* (Dec. 1996); 68-70.
36. Heckathorn, S.A., J.S. Coleman and R.L. Hallberg. 1997. Recovery of net CO₂ assimilation after heat stress is correlated with recovery of levels of oxygen evolving-complex proteins in *Zea mays* L. *Photosynthetica*: 34: 13-20.

37. Wilsey, B.J., J.S. Coleman and S.J. McNaughton. 1997. Effects of defoliation and elevated CO₂ on grasses: a comparative ecosystem approach. *Ecological Applications* 7: 844-853.
38. Mabry, C.M., M. Jasienski, J.S. Coleman and F.A. Bazzaz. 1997. Genotypic variation in *Polygonum pensylvanicum*: nutrient effects on plant growth and aphid infestation. *Canadian Journal of Botany* 75: 546-551.
39. Downs, C., S.A. Heckathorn, J.S. Coleman and J. Bryan. 1998. The methionine-rich low-molecular-weight chloroplast heat shock protein: evolutionary conservation and accumulation in relation to thermotolerance. *American Journal of Botany* 85: 175-183.
40. Heckathorn, S.A., C.A. Downs, T.D. Sharkey and J.S. Coleman. 1998. A small chloroplast heat-shock protein protects photosystem II during heat stress. *Plant Physiology* 116: 439-444.
41. Heckathorn, S.A., C.A. Downs and J.S. Coleman. 1998. Nuclear-encoded chloroplast proteins accumulate in the cytosol during severe heat stress. *International Journal of Plant Sciences*. 159: 39-45.
42. Heckathorn, S.A., S.J. McNaughton and J.S. Coleman. 1998. C₄ photosynthesis and herbivory. In: R. Sage and R. Monson (eds). *The biology of C₄ photosynthesis*. Academic Press. San Diego. pages 285-312.
43. McConnaughay, K.D.M. and J.S. Coleman. 1998. Can plants track changes in nutrient availability via changes in biomass partitioning? *Plant and Soil* 202: 201-209.
44. Wait, D.A., C.G. Jones, J.S. Coleman and M. Schaedle. 1998. Insect responses to fertilization of host plants may be regulated by changes in leaf development. *Oikos* 82: 502-514.
45. Hamilton, E.W. III, M.S. Giovannini, S.J. Moses, J.S. Coleman, and S.J. McNaughton. 1998. Biomass and mineral element responses of a Serengeti short grass species to nitrogen supply and defoliation: Compensation requires a critical [N]. *Oecologia* 116: 407-418.
46. Huxman, T.E., E.P. Hammerlynk, S.D. Smith, D.N. Jordan, S.F. Zitzer, R.S. Nowak, J.S. Coleman and J.R. Seemann. 1999. Photosynthetic down-regulation in *Larrea tridentata* exposed to elevated atmospheric CO₂: Interaction with drought under glasshouse and field (FACE) exposure. *Plant, Cell and Environment* 21: 1153-1161.
47. Downs, C.A., J.S. Coleman, and S.A. Heckathorn. 1999. The chloroplast 22-Ku heat-shock protein: A luminal protein that associates with the oxygen evolving

- complex and protects photosystem II during heat stress. *Journal of Plant Physiology* 155: 477-487.
48. McConnaughay, K.D.M. and J.S. Coleman. 1999. Biomass allocation in plants: ontogeny or optimality? A test along three resource gradients. *Ecology* 80: 2581-2593.
49. Jordan, D.N., S.F. Zitzer, G.R. Hendrey, K.F. Lewin, R.S. Nowak, S.D. Smith, J.S. Coleman and J.R. Seemann. 1999. Biotic, abiotic and performance aspects of the Nevada Desert Free-Air CO₂ Enrichment (FACE) facility. *Global Change Biology* 5: 659-668.
49. Heckathorn, S.A., C.A. Downs, and J.S. Coleman. 1999. Small heat shock proteins protect electron transport in chloroplasts and mitochondria during stress. *American Zoologist* 39: 865-876.
50. Wells, S.G., J.S. Coleman, J.N. Crowley and K.W. Hunter. 1999. Cooperative efforts around Lake Tahoe (Correspondence, not peer-reviewed). *Nature* 402: 348.
51. Cheng, W., D. Sims, Y. Luo, D. Johnson, T. Ball, and J.S. Coleman. 2000. Demonstration of complete carbon budgeting in plant-soil mesocosms under elevated CO₂: Locally missing carbon? *Global Change Biology* 6: 99-110.
52. Luo, Y., D. Hui, W. Cheng, J.S. Coleman, D.W. Johnson and D.A. Sims. 2000. Canopy quantum yield in a mesocosm study. *Agricultural and Forest Meteorology* 100: 35-48.
53. Hammerlynk, E.P., T.E. Huxman, S.D. Smith, R.S. Nowak, S. Redar, M.E. Loik, D.N. Jordan, D.A., S.F. Zitzer, J.S. Coleman and J.R. Seemann. 2000. Photosynthetic responses in contrasting Mojave Desert shrub species to increased CO₂ concentration at the Nevada Desert FACE facility. *Journal of Arid Environments* 44: 425-436.
54. Taub, D., J.R. Seemann, and J.S. Coleman. 2000, Growth at elevated CO₂ protects photosynthesis from damage by high temperature. *Plant, Cell and Environment* 23: 649-656.
55. Pataki, D.E., T.E. Huxman, D.N. Jordan, S.F. Zitzer, J.S. Coleman, S.D. Smith, R.S. Nowak and J.R. Seemann. 2000. Water use of Mojave Desert shrubs under elevated CO₂. *Global Change Biology* 6: 889-898.
56. Preczewski, P., S.A. Heckathorn, C.A. Downs and J.S. Coleman. 2000. Photosynthetic thermotolerance is quantitatively and positively correlated with the production of specific heat shock protein among nine genotypes of tomato. *Photosynthetica* 38: 127-134.

57. Ackerly, D.D., S.A. Dudley, S.E. Sultan, J. Schmitt, J.S. Coleman, R. Linder, D.R. Sandquist, M.A. Geber, A.S. Evans, T.E. Dawson and M.J. Lechowicz. 2000. The evolution of plant ecophysiological traits: Recent advances and future directions. *BioScience* 50: 979-995.
58. Smith, S.D., T.E. Huxman, S. F. Zitzer, T.N. Charlet, D.C. Housman, J. S. Coleman, L. K. Fenstermaker, J.R. Seemann, and R.S. Nowak. 2000 Elevated CO₂ increases productivity and invasive species success in an arid ecosystem. *Nature* 408: 79-82.
59. Bernacchi, C.J., J.S. Coleman, F.A. Bazzaz and K.D. M. McConnaughay. 2000. Biomass allocation in old-field annual species grown in elevated CO₂ environments: no evidence for optimal partitioning. *Global Change Biology* 6: 855-863.
60. Cheng, W., D.S. Sims, Y. Luo, J.S. Coleman and D.W. Johnson. 2000. Photosynthesis, respiration and net primary production of sunflower stands in ambient and elevated atmospheric CO₂ concentrations: an invariant NPP:GPP ratio? *Global Change Biology* 6: 931-942.
61. Hamilton, E.W. III and J.S. Coleman. 2001. Heat-shock proteins are induced in unstressed leaves of *Nicotiana attenuata* when distant leaves are stressed. *American Journal of Botany* 88: 950-955.
62. Hui, D., D.A. Sims, D.W. Johnson, W. Cheng, J.S. Coleman and Y. Luo. 2001. Canopy water and water use efficiencies at elevated CO₂. *Global Change Biology* 7: 75-92.
63. Hamilton III, E.W., S.J. McNaughton and J.S. Coleman. 2001. Soil Na stress: Molecular, physiological and growth responses in four Serengeti C₄ grasses. *American Journal of Botany* 88: 1258-1265.
64. Nowak, R.S., D.N. Jordan, L.A. DeFalco, C.S. Wilcox, J.S. Coleman, J.R. Seemann, and S.D. Smith. 2001. Effects of Elevated Atmospheric CO₂ on Leaf Conductance and Temperature for Three Desert Perennials at the Nevada Desert FACE Facility. *New Phytologist* 150: 449-458.
65. DeLucia, E.H., J.S. Coleman, T.E. Dawson, and R.B. Jackson. 2001. Plant physiological ecology: linking the organism to scales above and below (meeting report). *New Phytologist* 149: 9-16.
66. Wait, D.A., J.S. Coleman and C.G. Jones. 2002. *Chrysomela scripta*, *Plagioderia versicolora* (Coleoptera: Chrysomelidae), and *Trichoplusia ni* (Lepodoptera: Noctuidae) track specific leaf developmental stages. *Environmental Entomology* 31: 836-843.

67. Johnson, D.W., J. A. Benesch, M. S. Gustin, D. S. Schorran, S. E. Lindberg, J. S. Coleman: 2002. Experimental evidence against diffusion control of Hg evasion from soils. *Science of the Total Environment* 304: 175-184.
68. Ericksen, J.A., M.S. Gustin, D.S. Schorran, D.W. Johnson, S.E. Lindberg and J.S. Coleman. 2003. Accumulation of atmospheric mercury by forest foliage. *Atmospheric Environment* 37: 1613-1622.
69. Obrist, D., P.S.J. Verburg, M.H. Young, J.S. Coleman, D.E. Schorran, J.A. Arnone III. 2003. Quantifying the effects of phenology on ecosystem evapotranspiration in planted grassland mesocosms using EcoCELL technology. *Agricultural and Forest Meteorology* 118: pp. 173-183.
70. Weatherly, H.E., S.F. Zitzer, J.S. Coleman, and J.A. Arnone. 2003. In situ litter decomposition and litter quality in a Mojave Desert ecosystem: effects of elevated atmospheric CO₂ and interannual climate variability. *Global Change Biology* 9: 1223-1233.
71. Verburg, P.S.J., J.A. Arnone III, D. Obrist, D.W. Johnson, D. Leroux-Swarthout, D.E. Schorran, Y. Luo, R.D. Evans, and J.S. Coleman. 2004. Net ecosystem carbon exchange in two experimental grassland ecosystems. *Global Change Biology* 10: 498-508.
72. Nowak, R.S., S.F. Zitzer, D. Babcock, V. Smith-Longozo, T.N. Charlet, J.S. Coleman, J.R. Seemann and S.D. Smith. 2004. Elevated atmospheric CO₂ does not conserve soil moisture in the Mojave Desert. *Ecology* 85: 93-99.
73. Gustin, M.S., J.A. Ericksen, D.E. Schorran, D.W. Johnson, S.E. Lindberg, J.S. Coleman. 2004. Application of controlled mesocosms for understanding mercury air-soil-plant exchange. *Environmental Science and Technology* 38: 6044-6050.
74. Coleman, J.S. 2005. Undergraduate research participation as an essential component of a research university: A perspective of a chief research officer. *Council of Undergraduate Research Quarterly*: June, 2005: 154-155.
75. Gould, G.G., C.G. Jones, P. Rifleman, A. Perez, and J.S. Coleman. 2007. Variation in Eastern Cottonwood (*Populus deltoides* Bartr.) phloem sap content and toughness due to leaf Development may affect feeding site Selection behavior of the aphid, *Chaitophorous populicola* Thomas (Homoptera: Aphididae). *Environmental Entomology* 35: 1212:1225.
76. Bernacchi, C.J., J.N. Thompson, J.S. Coleman, K.D.M. McConnaughay. 2007. Allometric Analysis Reveals Relatively Little Variation in Nitrogen vs. Biomass Accrual in Four Plant Species Exposed to Varying Light, Nutrients, Water, and CO₂. *Plant, Cell and Environment* 30: 1216:1222.

77. Barua, D., S.A. Heckathorn, J.S. Coleman. 2008. Variation in heat-shock proteins and photosynthetic thermotolerance among natural populations of *Chenopodium album* L. from contrasting thermal environments: implications for plant responses to global warming. *Journal of Integrative Plant Biology*: 50: 1440-1451.
78. Arnone, J.A. III, P.S.J. Verburg, D.W. Johnson, J.D. Larsen, R.L. Jasoni, A.J. Lucchesi, C.M. Batts, C. von Nagy, W.G. Coulombe, D.E. Schorran, P.E. Buck, B.H. Braswell, J.S. Coleman, R.A. Sherry, L.L. Wallace, Y. Luo and D.S. Schimel. 2008. Prolonged suppression of ecosystem carbon dioxide uptake after an anomalously warm year. *Nature* 455:383-386.

PUBLISHED ABSTRACTS AND PRESENTATIONS AT SCIENTIFIC MEETINGS:

1. Murdoch, C.W., J.S. Coleman and R.J. Campana. 1982. Bark cracks associated with injection wounds in elms. *Phytopathology* 72: 259.
2. Hoch, J.G., R.J. Campana, J.S. Coleman and C.W. Murdoch. 1982. Stem cankers mimic Dutch elm disease symptoms in Maine. *Phytopathology* 72: 262.
3. Coleman, J.S., R.J. Campana and C.W. Murdoch. 1982. Inhibition of decay in bacterial-stained wood of american elm (*Ulmus americana* L.). *Phytopathology* 72: 958-959.
4. Coleman, J.S., C.W. Murdoch, R.J. Campana and W.H. Smith. 1984. Investigations on the decay resistance of elm wetwood. *Phytopathology* 74: 869-870.
5. Coleman, J.S., C.G. Jones and W.H. Smith. 1985. The effect of ozone on two cottonwood pest interactions. 17th Annual Air Pollution Workshop. Raleigh, NC. April 15-17, 1985.
6. Coleman, J.S. 1985. Leaf sink-source transition and susceptibility to biotic and abiotic stress agents: an ecological perspective of physiological concepts. IUFRO International Symposium on Whole-Plant Physiology. Knoxville, TN. October 6-11, 1985.
7. Jones, C.G. and J.S. Coleman. 1986. The effect of ozone on the interaction of eastern cottonwood with a leaf chewing beetle and a pathogenic rust. Entomological Society of America, Hollywood, FL.
8. Jones, C.G. and J.S. Coleman. 1986. Effects of ambient ozone stress on cottonwood resistance to its insect and pathogen community. *Bulletin of the Ecological Society of America* 67: 116.

9. Coleman, J.S. and C.G. Jones. 1988. A phytocentric perspective of phytochemical induction by herbivores. Meeting of the International Entomological Society, Vancouver, British Columbia, Canada. July 3 - July 7.
10. Coleman, J.S. and C.G. Jones. 1988. Leaf sink-source transition and susceptibility to insects and pathogens: some ecological perspectives. *Bulletin of the Ecological Society of America* 69: 103.
11. Jones, C.G. and J.S. Coleman. 1989. An integrated approach to studying plant-herbivore interactions: the effect of ozone on cottonwood resistance to a leaf beetle. International Society of Chemical Ecology. Sweden, August 7-11, 1989.
12. Morse, S.R., J.S. Coleman and F.A. Bazzaz. 1989. Combined effects of CO₂ and temperature on germination and survivorship of two plant species with different photosynthetic pathways when grown in monocultures. *Bulletin of the Ecological Society of America* 70: 210.
13. Coleman, J.S., S. R. Morse and F.A. Bazzaz. 1989. Combined effects of CO₂ and temperature on growth and resource allocation of two sympatric plant species with different photosynthetic pathways. *Bulletin of the Ecological Society of America* 70: 64.
14. Coleman, J.S. and F.A. Bazzaz. 1991. Using plant growth analysis to determine plant nitrogen use efficiency under differing availabilities of carbon and nitrogen. *Bulletin of the Ecological Society of America* 72: 91-92.
15. Hartvigsen, G., D.A. Wait, and J.S. Coleman. 1992. Cottonwood, herbivorous mites and predatory mites: the effect of plant nutrient supply on three-trophic level interactions. *Bulletin of the Ecological Society of America* 73: 100.
16. Coleman, J.S. and C.G. Jones. 1992. Leaf ontogeny and plant phenology as regulators of plant-herbivore interactions. Gordon Research Conference on Plant-Herbivore Interactions. February, 1992.
17. Wait, D.A., C.G. Jones and J.S. Coleman. 1993. Fertilization and herbivore feeding: the relationship between leaf ontogeny and leaf biochemical composition. *Bulletin of the Ecological Society of America* 74: 474.
18. Coleman, J.S. and D.A. Wait. 1993. Leaf ontogeny and herbivore preference: do herbivores care about leaf chronological age, developmental stage, or position on the stem. *Bulletin of the Ecological Society of America* 74: 197.
19. Wait, D.A., C.G. Jones and J.S. Coleman. 1994. Nutrient supply, leaf nitrogen, and phenol glycoside composition in cottonwood: How they interact to affect beetle feeding?. 11th Annual Meeting of the International Society of Chemical Ecology, Syracuse, NY. June 4-8, 1994.

20. Polgreen, G.J., J.S. Coleman and R.L. Hallberg. 1994. Plant nutrient availability and thermotolerance: Linking molecular and ecological approaches. *Bulletin of the Ecological Society of America* 75: 182-183.
21. Heckathorn, S.A., G.J. Polgreen, J.S. Coleman and R.L. Hallberg. 1994. Effect of induced variation in heat shock proteins on photosynthesis: Linking molecular and whole-plant processes. *Plant Physiology Supplement*.
22. Heckathorn, S.A., G.J. Polgreen, J.S. Coleman and R.L. Hallberg. 1995. Effect of induced variation in hsp accumulation on photosynthesis: Evidence that hsps limit damage to the oxygen evolving complex proteins and photosystem II function during heat stress at the cost of soluble enzymes involved in CO₂ fixation. 1995 Gordon Research Conference on Temperature Stress in Plants. Oxnard, CA, January 29 - February 2, 1995.
23. Wait, D.A., C.G. Jones and J.S. Coleman. 1995. Manipulation of leaf development and chemistry with novel use of fertilization: Leaf development determines where beetles feed and leaf chemistry determines how much they consume. 1995 Gordon Research Conference on Plant-Herbivore Interactions. Oxnard, CA, February 5 - February 9, 1995.
24. Wilsey, B.J., J.S. Coleman and S.J. McNaughton. 1995. Effects of elevated CO₂ on plant-grazer interactions: the importance of urine-hits and simulated grazing on the response of C3 grass from Yellowstone National Park. *Bulletin of the Ecological Society of America* 76: 285.
25. Wait, D.A., J.S. Coleman, and C.G. Jones. 1995. Net effects of herbivory on plant performance measured under dynamic nutrient supply in the field. *Bulletin of the Ecological Society of America* 76: 276.
26. McConnaughay, K.D.M. and J.S. Coleman. 1995. Allocational plasticity in old-field annuals: optimal partitioning or ontogenetic drift? *Bulletin of the Ecological Society of America* 76: 174-175.
27. Coleman, J.S. and K.D.M. McConnaughay. 1996. Ontogenetic constraints to allocational plasticity in old-field annuals. *Bulletin of the Ecological Society of America*.
28. McConnaughay, K.D.M. and J.S. Coleman. 1996. Plasticity in reproductive allocation patterns in old-field annuals. *Bulletin of the Ecological Society of America*.
29. Hamilton, E.W., S.A. Heckathorn, C.A. Downs, T.E. Schwarz, J.S. Coleman and R.L. Hallberg. 1996. Heat shock proteins are produced by field-grown naturally

- occurring plants in the summer in the temperate northeast United States. *Bulletin of the Ecological Society of America*.
30. Heckathorn, S.A., J.S. Coleman, and R.L. Hallberg. 1996. Evidence for photosynthetic trade-offs associated with heat-shock protein production in plants. *Bulletin of the Ecological Society of America*.
 31. Wait, D.A., J.S. Coleman and C.G. Jones. 1996. Plant responses to defoliation and damage depend on the trajectory of their relative growth rate. *Bulletin of the Ecological Society of America*.
 32. McConnaughay, K.D.M. and J.S. Coleman. 1997. Plasticity in the use of nitrogen in biomass production for three old-field annuals along gradients of light, water and nutrients. *Bulletin of the Ecological Society of America*.
 33. Coleman, J.S. 1998. Studies of adaptive variation of heat shock proteins in plants. 49th Annual Meeting of the American Institute of Biological Sciences, Baltimore, MD. *Bulletin of the Ecological Society of America*.
 34. Hui, D., Y. Luo, W. Cheng, J.S. Coleman, D.W. Johnson and D.A. Sims. 1998. Quantum yield, canopy development, and carbon flux in a mesocosm study. 49th Annual Meeting of the American Institute of Biological Sciences, Baltimore, MD. *Bulletin of the Ecological Society of America*.
 35. Hamilton, E. W. III, J.S. Coleman, and S.J. McNaughton, 1998. Variation in physiological and biochemical responses to soil Na: Adaptations in 4 C₄ grasses from the Serengeti short-grass plains. 49th Annual Meeting of the American Institute of Biological Sciences, Baltimore, MD. *Bulletin of the Ecological Society of America*.
 36. Cheng, W., J.T. Ball, J.S. Coleman, D.W. Johnson, W. Liu, Y. Luo, D. Schorran, D.A. Sims and E. Sotoodeh. 1998. An integrative study of shoot and root respiration under elevated CO₂. Annual Meeting of the American Institute of Biological Sciences, Baltimore, MD. *Bulletin of the Ecological Society of America*.
 37. Pataki, D.E., T.E. Huxman, D.N. Jordan, S.F. Zitzer, J.S. Coleman, S.D. Smith, R.S. Nowak and J.R. Seemann. 1998. Water use of Mojave Desert shrubs under elevated CO₂. American Geophysical Union, December, 1998.
 38. Coleman, J.S., D.N. Jordan, R.S. Nowak, J.R. Seemann and S.D. Smith. 1999. The Nevada Global Environmental Change program (NevGEC). Mojave Desert Science Symposium, Las Vegas, NV, February, 1999.
 39. Cheng, W., D.A. Sims, Y. Luo, J.S. Coleman and D.W. Johnson. 1999. Sunflower canopy photosynthesis and respiration under elevated CO₂: Percent increase means

- what? Annual Meeting of the Ecological Society of America, Spokane, WA. *Bulletin of the Ecological Society of America*.
40. Hui, D., Y. Luo, W. Cheng, J.S. Coleman, D.W. Johnson and D.A. Sima. 1999. Effects of elevated CO₂ on canopy radiation and water use efficiencies. Annual Meeting of the Ecological Society of America, Spokane, WA. *Bulletin of the Ecological Society of America*.
 41. Taub, D.R., J.R. Seemann and J.S. Coleman. 1999. Growth at elevated CO₂ increases photosynthetic tolerance at high temperature. Annual Meeting of the Ecological Society of America, Spokane, WA. *Bulletin of the Ecological Society of America*.
 42. Houseman, D., S. F. Zitzer, J.S. Coleman, R. S. Nowak and J.R. Seemann. 1999. Survival and growth characteristics of naturally recruited seedlings of Mojave Desert shrubs *Larrea tridentata* and *Ambrosia dumosa* exposed to elevated atmospheric CO₂ (FACE) during a wet year. Annual Meeting of the Ecological Society of America, Spokane, WA. *Bulletin of the Ecological Society of America*.
 43. Taub, D.B., J.R. Seemann and J.S. Coleman. 2000. Effect of growth at low atmospheric CO₂ on plant photosynthetic tolerance of high temperatures. Annual Meeting of the Ecological Society of America, Snowbird, UT. *Bulletin of the Ecological Society of America*.
 44. Zitzer, S., J.S. Coleman, R. Nowak, J.R. Seemann, and S. Smith. 2000. Litter accumulation beneath Mojave Desert shrubs exposed to predicted 21st century atmospheric CO₂ levels using Free Air CO₂ Enrichment (FACE). Annual Meeting of the Ecological Society of America, Snowbird, UT. *Bulletin of the Ecological Society of America*.
 45. Coleman, J.S., R. B. Jackson and T.E. Dawson (organizers). 2000. Plant physiological ecology: Linking the organism to scales above and below. Symposium, Annual Meeting of the Ecological Society of America, Snowbird, UT. *Bulletin of the Ecological Society of America*.
 46. Nowak, R.S., D.N. Jordan, L.A. DeFalco, J.S. Coleman, J.R. Seemann, and S.D. Smith. 2000. Effects of elevated atmospheric CO₂ on leaf conductance and temperature for three desert perennials at the Nevada Desert FACE facility. International FACE meeting, Japan.
 47. Nowak, R.S., J.R. Seemann, J.S. Coleman, and S.D. Smith. 2000 Responses of vegetation to elevated atmospheric CO₂: The Nevada Desert FACE facility. International FACE meeting, Japan.
 48. Frescholtz, T.F., Gustin, M.S., Schorran, D.E., The role of vegetation in mercury cycling at mercury enriched mine sites, American Geophysical Union Meeting, San Francisco, CA, Dec. 2001.
 49. Gustin, M. Sexauer, Benesch, J. A., Schorran, D.E., Johnson, D.A., Lindberg, S.A., Coleman, J. Assessing the effect of plants on mercury emissions from substrate, poster presented at the 6th International Conference on Hg as Global Pollutant, Minamata, Japan, October 2001.

50. Benesch, J. A., Gustin, M.A., Schorran, D.E., Coleman, J., Johnson, D.A., Lindberg, S.E., Determining the role of plants in the biogeochemical cycling of mercury on an ecosystem level, paper to be presented at the 6th International Conference on Hg as Global Pollutant, Minamata, Japan, October 2001.
51. Johnson, D.W., Benesch, J.A., Gustin, M.S., Schorran, D.E., Coleman, J., Lindberg, S.E., Soil gaseous Hg concentrations: Evidence against diffusive control of flux paper to be presented at the 6th International Conference on Hg as Global Pollutant, Minamata, Japan, October 2001.
52. Gustin, M.S., J. Benesch, J. Frescholtz, D. Schorran, D. Johnson, S. Lindberg, and J. Coleman. 2002. Forests as sources of new mercury to ecosystems. American Society of Limnology and Oceanography, Victoria, BC.
53. Babcock, D.H., S.F. Zitzer, D.C. Houseman, L.K. Fenstermaker, R.S. Nowak, S.D. Smith and J.S. Coleman. Influence of microsite and elevated CO₂ (FACE) on recruitment, survival and growth of desert shrubs. Ecological Society of America Meeting, Tucson, AZ, August, 2002.
54. Verburg, P.S., J.A. Arnone, R.D. Evans, D. Leroux-Swarthout, D. Obrist, D.W. Johnson, Y. Luo and J.S. Coleman. The potential of short-rotation cropping systems to sequester C. Ecological Society of America Meeting, Tucson, AZ, August, 2002.
55. Thompson, J., C. Bernacchi, J.S. Coleman and K.D.M. McConnaughay. 2002. C/N Ratios in Four Species of Plants Exposed to Varying Light, Nutrients, Water, and CO₂. Ecological Society of America Meeting, Tucson, AZ, August, 2002.

COURSES TAUGHT

Readings in Population Biology: The cost of plant defense. (Fall, 1990; Spring 1995)
 Plant Physiology (Fall, 1991; Fall 1992; Fall 1993; Fall 1994; Fall 1996)
 Physiology Laboratory (Fall 1993; Fall 1994)
 Freshman Forum (Fall 1993; Fall 1994; Fall 1996)
 Undergraduate Seminar in Population Biology (Fall, 1991)
 Undergraduate Independent Research and Study in Population Biology (Fall 1991; Spring 1992; Fall 1992; Spring 1993; Fall 1993; Spring 1994; Fall 1994, Spring 1995; Fall 1996)
 Topics in Population Biology: Plant-Herbivore Interactions (Spring, 1991)
 Species Interactions (Spring 1993; Spring 1994, Spring 1995)
 Capstone Seminar in Environmental Sciences (Spring 1997)

GRADUATE STUDENTS IN MY LABORATORY:

Lori Brisbin (completed M.S. 1991)
 Gretchen Polgreen (completed M.S., 12/94; winner of University Prize for most outstanding M.S. thesis)
 D. Alexander Wait (Ph.D.; completed 2/97)
 Brian J. Wilsey (Ph.D.; co-advisor with Dr. Samuel J. McNaughton; completed August, 1995; winner of Guerevitch Award for best Ph.D. thesis in Biology Department; Assistant Professor Iowa State University)

Sherri Gross (Ph.D. candidate; co-advisor with Dr. Larry Wolf; completed May 2000)
 Jenifer Sabol (M.S. candidate, left for Dental School)
 Craig Downs (M.S - completed 1997)
 Deepak Barua (Ph.D. candidate; completed degree under Scott Heckathorn; May 2003)
 Georgianna Gould (Ph.D; co-advised with Larry Wolf; completed 2001)
 Bill Hamilton (Ph.D., completed, 1999; co-advised with Sam McNaughton)

GRADUATE COMMITTEES:

Doug Frank (completed 1991)
 Fran Lissemore (completed 1993)
 Kevin Williams (completed 1993)
 Gregg Hartvigsen (completed 1995)
 Yuying Hsu (completed 1997)
 Brenda Price Latham (completed 1997)
 Ben Tracy (completed 1996)
 Mahesh Sankaran (completed May 2001)
 Travis Huxman (completed January 2000)
 Dani Obrist (completed December 2002)
 Amy Dona (completed May, 2005)
 Katie Becklin (expected completion date in 2009)

UNDERGRADUATES CONDUCTING INDEPENDENT RESEARCH IN MY LABORATORY (OR WITH ME):

Gunnar Kleemann (honors; honors thesis completed 1995)
 Karin Schneider (completed 1995)
 Michele Giovannini (honors; completed 1994; recipient of Lundgren Award)
 Lori Clark (honors; completed 1994; recipient of SU scholar and Lundgren Award)
 A. Soren Leonard (completed 1994)
 Tara Houndt (honors; completed 1993))
 Richard Lee (completed 1993)
 Bill Hamilton (completed 1992)
 Paul Pryczewski (completed 1997)
 Sean Metivier (completed 1997)
 Jessica Rabenold (2002-2007; worked with Candi Galen, Mannie Liscum and me)

UNDERGRADUATE HONORS THESIS READER (OTHER THAN ADVISEES):

Gina Zuniga (1995: recipient of Lundgren Award for most outstanding Biology student)
 Stephanie Moses (1994; co-recipient of Lundgren Award; recipient of SU Scholar)

POSTDOCTORAL ASSOCIATES IN MY LABORATORY:

Scott Heckathorn, Ph.D. Univ. of Illinois, 1994; (1994-1997)
 Steve Boese, Ph.D. University of Western Ontario, 1991. (1995-1996)
 Daniel "Max" Taub, Ph.D. SUNY-Stony Brook 1997 (1998-2000)
 Diane Pataki, Ph.D., Duke University, 1998, (1998-1999)

Elke Naumberg, Ph.D., Duke University, 2000. (shared with Stan Smith, UNLV; April 2000 – June 2002)

PROFESSIONAL SERVICE:

Board of Advisors, Ocean Energy Institute, February, 2010 –
 Member, External Review Committee of the Biology Department, Georgetown University, May, 2010
 Reviewer for Notre Dame University's internal research program. Fall, 2009
 Member, Committee of Visitors for National Science Foundation EPSCoR program, August, 2009
 Chair, Technology Development Subcommittee, Energy Collaborative, Greater Houston Partnership. January 2009 – December 2009
 AAAS reviewer for Nebraska NSF EPSCoR project selection. 2009
 Board member, Houston Advanced Research Center (HARC) 2008-present
 Board member, Alliance for Nanohealth, 2008-present
 Board member, Gulf Coast Consortium, 2008-present
 Chair, External Advisory Board member to Nevada's NSF EPSCoR \$15,000,000 Research Infrastructure Improvement Grant, 2008-present
 Commissioner, University of Rhode Island Commission for Research and Innovation, September, 2007- 2008 (member of statewide implementation team September 2008-present)
 Chair, State of Arkansas NSF EPSCoR external advisory committee, September 2007-present
 Board member, National Space Biomedical Research Institute, September, 2007 – present
 Board member, SURA (Southern Universities Research Alliance), September, 2007-present
 Member, Economic Development committee, Greater Houston Partnership, January 2008 – present.
 National Science Foundation reverse site visitor, NSF EPSCoR, October, 2006
 Invited workshop participant (1 of 25) NSF EPSCoR 2020 Workshop: Defining a Strategic Plan for the Experimental Program to Stimulate Competitive Research, June, 2006.
 AAAS Panel to review Kansas EPSCoR programs, May, 2006 and October, 2006
 Reviewer for Vermont EPSCoR program's submission of RII proposal, Fall, 2006
 Reviewer for South Carolina EPSCoR RII preproposals, November, 2006
 Reviewer for Rhode Island EPSCoR program. September, 2005
 AAAS Panel to review Kansas EPSCoR programs. May, 2005; November, 2006
 Invitee – NSF Workshop on the future of Science, Mathematics, Engineering and Technology Education. April, 2005
 Program Committee member, AAU Senior Research Officers, 2005 - present
 Panel Member, EPSCoR RII awards, September 2004
 Board Member, Missouri Innovation Center, May 2003 – September, 2007
 Panel Member, NSF Frontiers in Biological Research, December, 2002
 Elected Board Member, Association of Ecosystem Research Centers, 2002-2007
 Chairman, Nevada Inventor of the Year Selection Committee, 2001

Chairman, Rudolf Gunnerman Silver State Technology Award Selection Committee,
2000, 2001, 2002

Member of UCCSN Computer Vision Program Advisory Board 2000 - 2003

Elected Board Member of the Coalition of EPSCoR States– October 2000 – 2003

Board Member, International Arid Lands Consortium Board of Directors, July, 2000 –
May, 2001

Board Member, Nevada Technology Council, 1998 - 2003

Nevada State EPSCoR Committee – 1998 - 2003

Co-lead organizer (Martin Feder played major role) in SICB symposium on linking plant
and animal approaches to ecological and evolutionary physiology

Lead organizer for ESA symposium: Plant Physiological Ecology: Linking the Organism
to Scales Above and Below- August 2000

NSF Biocomplexity Panel – June, 2000

National Science Foundation Working Group for NEON. January, 2000

DOE Review of Biosphere II - 2000

AAAS review committee for University of Idaho Biology Department, May, 1999

Organized workshop on Evolutionary Responses to Global Change for NSF-EPSCoR and
DOE-TCP held in Reno, NV, 5/23/99 – 5/26/99

President of the Physiological Ecology Section of the Ecological Society of America
(1/99- 1/01)

Member of the Governing Advisory Board of the Ecological Society of America (1/99 –
1/01)

Editorial Board for journals *Ecology* and *Ecological Monographs*. (10/96 –10/99)

Editorial Board for *International Journal of Plant Sciences* (11/97- 6/08)

Member of Honorary Membership Committee, Ecological Society of America (1998-
2001)

Member of the Membership Committee of the Ecological Society of America (1990-
1994)

Program Officer, NSF Panel of Ecological and Evolutionary Physiology (1995-1996)

Panel Member NSF CRUI Preproposals (1996)

Panel Member NSF Science and Technology Center Preproposals (1998)

Panel Member NSF IGERT Preproposal competition (1999)

Panel member for USDA, National Research Initiative, Competitive Grants Program,
1994 Entomology/Nematology Panel

Panel member for NSF, Ecological and Evolutionary Physiology, 1995, 1997, 1998

Reviewer for the following journals:

Oecologia

Oikos

Ecology

Forest Science

Canadian Journal of Forest Research

New Zealand Journal of Botany

Bulletin of the Torrey Botanical Garden

Entomologia applicata et experimentalis

Environmental Entomology

Plant, Cell and Environment
Functional Ecology
Ecological Applications
American Journal of Botany
Global Change Biology
Journal of Ecology
International Journal of Plant Sciences
Annals of Botany
New Phytologist

National Science Foundation (ecology, ecosystem, population biology, and ecological and

evolutionary physiology panels) grant reviews

National Science and Engineering Research Council of Canada, reviewer

United States Department of Agriculture Competitive Grants Program, grant reviews

Mid-Western Regional Center for Global Change, Grant Reviewer

Chile FONDAP competition, 1999

AAAS Research Competitiveness Program, 1999

Tenure and promotion reviewer for several universities

Reviewer for inside grants of the City College of New York

Reviewer for the National Research Council

Reviewer for Wellcome Trust proposals

Participation in Project Advance and Frontiers of Science

Participation in New York State Summer Program for Science and Mathematics (1994, 1995)

UNIVERSITY SERVICE:

Rice-Baylor College of Medicine Steering Committee for Merger with the Baylor College of Medicine, 2008-present

Chair, Subcommittee on Academic Matters, joint Rice-Baylor College of Medicine Steering Committee, June 2009 – present.

Rice Research Advisory Group, 2007-present.

Rice Graduate Council, ex-officio member, 2007-present.

Search Committee member for Dean of Rice's Weiss School of Natural Sciences, 2007-2008

Rice Shared Equipment Authority, ex-officio member, 2007-present

Strategy and Planning group member, 2007-present

Rice Crisis Management Team member, 2007-present

Rice University Graduate Council (ex-officio)- 2007-present

Collaborative Research Center, steering committee member, 2007-present

Collaborative Research Center, core team member, 2007-present

Co-Chair, MU Strategic Planning Committee focused on 10 year environmental scan. 2006- 2007

Member, Campaign Steering Committee for MU's \$1,000,000,000 fundraising campaign. 2005-2007

MU Promotion and Tenure Committee. December, 2005 – 2007.

Search Committee, MU Vice Provost for Graduate School. December, 2005- May 2006

Co-Chair, Council of Economic Development, MU. April, 2005 –2007
 Chair, Strategic Planning and Resource Allocation Subcommittee on pursuit of quality, innovation, incentives, risks and rewards. September, 2004 – 2007
 Member, Research Alliance of Missouri, 2004- 2007
 MU Life Sciences Task Force, 2003-2007
 MU Research Reactor Advisory Committee, 2003-2007
 Strategic Planning and Resource Allocation Committee, MU, 2003- 2007(Chair of subcommittee on the pursuit of quality, innovation, incentives, risks and rewards)
 Search Committee, Plant Evolutionary Biologist, MU 2003-2004
 Search Committee Chair, Vice President for Business and Government Relations, DRI, 2003
 Chancellors Technology Task Force, 2002-
 Technology Strategy for Nevada, Task Force. 2001 – 2003
 Nevada Entrepreneurial Team for National Governors Association Entrepreneurial Academy. October 16, 2000 – 2003
 Search Committee Chair, Vice President for Academic Affairs, DRI, 2002
 Search Committee, Vice Chancellor Academic Affairs, University and Community and College of Nevada 2001
 Search Committee, Vice President for Research and Dean of the Graduate School, University of Nevada, Reno, 2000
 Chair, Technology Advisory Committee and Board Member, Nevada Technology Council, 1999-2003
 Participation in EPSCoR coalition for Nevada – led the effort to obtain a letter from Governors of 10 EPSCoR states supporting an increase in the NSF EPSCoR budget
 DRI representative to Oak Ridge Associated Universities. Review coordinator for junior faculty awards. 1999 – 2003
 Representative to the Tech Alliance of Nevada. 1999-2000
 Ex-Officio member of the Board of the Dandini Research Park 1999-2003
 Presentation to Nevada Legislature on the role of science in economic diversification. March, 2000
 Nevada Economic Development – Science, Engineering and Technology invited participant 1998-2000
 Member of Western Industrial Nevada, DRI
 Advisor to DRI fundraising foundation
 Chaired two Search Committees and participated in 5 others in 1999-2000, DRI
 Lake Mead Water Quality Forum Representative, DRI – 1999-2000
 University and Community College System of Nevada Research Affairs Council, 1999-
 Institute Advisory Committee for Presidential Search, DRI, 1998
 Institute Grievance Committee, DRI, 1998
 QSC Executive Director Search Committee, DRI, 1998
 Nevada State EPSCoR Committee, 1998
 DRI institutional strategic planning committee, 1999
 Nevada Technology Council, 1999-present
 Nevada Development Authority, member of Technology subcommittee, 1999-present
 Several presentations on the relationship between EPSCoR and economic development 1998- present

Chair DRI Search Committee for leaders of new interdisciplinary programs, 1999-present

Institute Advisory Committee for Presidential Search, DRI, 1998

Institute Grievance Committee, DRI, 1998

Co-Advisor (with E. Maine) to Undergraduate Biology Club, Syracuse University (1994, 1995)

1994 Orlin Prize Selection Committee, Syracuse University

Chairperson of theses defense for a candidate from Environmental Engineering and another from Chemistry, Syracuse University

Co-leader of the Earth Science-Biology Environmental Sciences Curriculum development, Syracuse University

Martin Luther King Jr. Celebration Committee, Syracuse University (Chair of Awards Sub-Committee, 1994-1995; 1996-1997; member 1992-1994)

College of Arts and Sciences Committee on Student Life, Syracuse University (1994-1995)

Department of Biology Graduate Recruitment Committee, Syracuse University (Chair, 1994-1995; member prior to that date)

Department of Biology, Chair Search Committee, Syracuse University 1996

Department of Biology, Population Biology search committee, Syracuse University 1995-1996

Department of Biology Undergraduate Committee, Syracuse University

Recruiting phone calls for College of Arts and Sciences, Syracuse University (1992 & 1993)

Participation in Fall Fridays and Spring weekends sponsored by the Admissions Office, Syracuse University (1992, 1993, 1994)

Keynote speaker during College of Arts and Sciences Science Recruiting Days, 1992

Summer phone advising, Syracuse University (1995)