

CURRICULUM VITAE

William W. Adams III

Education

Australian National University , Canberra	1984-87	PhD	Plant Environmental Biology (and Desert Research Institute, Reno, 1984-1985)
University of Kansas , Lawrence	1981-84	MA	Botany
University of Kansas , Lawrence	1979-83	BA	Atmospheric Sciences
University of Kansas , Lawrence	1977-81	BA	Biology

Academic Positions

2003-present	Professor, University of Colorado
1996-2003	Associate Professor, University of Colorado
May-Aug 1994	Visiting Fellow, Australian National University
1988-1996	Assistant Professor, University of Colorado
1988-89	Humboldt Fellow, Universität Würzburg
1987-88	NATO Postdoctoral Fellow, Universität Würzburg
1984-87	PhD Scholar, Australian National University
1981-84	Teaching Assistant, University of Kansas

Academic Honors

- Highly Cited Researcher** in the Plant & Animal Science category by the Institute for Scientific Information (“comprising less than one half of one percent of all publishing researchers”).
See: <<http://isihighlycited.com/>>
- Boulder Faculty Assembly **Excellence in Teaching Award**, 16 April 2004, University of Colorado
- Two papers among the top five that were honored for being the most highly cited during the previous ten years in the Australian Journal of Plant Physiology (January 2003 issue of Functional Plant Biology).
- One paper among the top twenty that were honored for being the most highly cited during the 30 years that the Australian Journal of Plant Physiology and Functional Plant Biology have been published (March 2003 issue of Functional Plant Biology).
- Certificate of Recognition for **Exceptional Teaching**, Mortar Board, Nov. 2000, University of Colorado
- Visiting Fellow, Australian National University, May-August 1994
- Junior Faculty Development Award, Summer 1990, University of Colorado at Boulder
- Fellowship from the Alexander von Humboldt Foundation, August 1988 to June 1989
- NATO Postdoctoral Fellowship, August 1987 to July 1988
- Young Botanist Award, XIV International Botanical Congress, July 1987
- PhD Scholarship, January 1986-June 1987, Australian National University
- Honors Fellowship, The Graduate School, August 1981-May 1984, University of Kansas (KU)
- Summer Fellowship, The Graduate School, June-July 1982, KU
- Election to Phi Beta Kappa and the National Honor Society of Phi Kappa Phi, May 1981, KU
- Graduation with Highest Distinction, and with Honors in Biology, May 1981, KU
- Waddington Family-Taylor Scholarship, 1981, KU
- Anschutz Scholarship, 1980, KU

-Quena Allen Scholarship, 1979-80, KU

Publications

- Demmig-Adams B, Adams WW III (2006) Photoprotection in an ecological context: the remarkable complexity of thermal dissipation. *New Phytologist* (Tansley Review) in press
- Zarter CR, Adams WW III, Ebbert V, Cuthbertson, D Adamska I, Demmig-Adams B (2006) Winter downregulation of intrinsic photosynthetic capacity coupled with upregulation of Elip-like proteins and persistent energy dissipation in a subalpine forest. *New Phytologist* in press
- Zarter CR, Demmig-Adams B, Ebbert V, Adamska I, Adams WW III (2006) Photosynthetic capacity and light harvesting efficiency during the winter-to-spring transition in subalpine conifers. *New Phytologist* in press
- Adams WW III, Zarter CR, Mueh KE, Amiard V, Demmig-Adams B (2006) Energy dissipation and photoinhibition: a continuum of photoprotection. *In* B Demmig-Adams, WW Adams III, AK Mattoo (eds) Photoprotection, Photoinhibition, Gene Regulation, and Environment. *Advances in Photosynthesis and Respiration, Volume 21*. Springer, Dordrecht, pp. 49-64
- Demmig-Adams B, Ebbert V, Zarter CR, Adams WW III (2006) Characteristics and species-dependent employment of flexible versus sustained thermal dissipation and photoinhibition. *In* B Demmig-Adams, WW Adams III, AK Mattoo (eds) Photoprotection, Photoinhibition, Gene Regulation, and Environment. *Advances in Photosynthesis and Respiration, Volume 21*. Springer, Dordrecht, pp. 39-48
- Demmig-Adams B, Adams WW III, Mattoo AK (eds) (2006) Photoprotection, Photoinhibition, Gene Regulation, and Environment. *Advances in Photosynthesis and Respiration, Volume 21*. Springer, Dordrecht
- Demmig-Adams B, Ebbert V, Mellman DL, Mueh KE, Schaffer L, Funk C, Zarter CR, Adamska I, Jansson S, Adams WW III (2006) Modulation of PsbS and flexible versus sustained energy dissipation by light environment in different species. *Physiologia Plantarum* **127**: 670-680
- Zarter CR, Adams WW III, Ebbert V, Adamska I, Jansson S, Demmig-Adams B (2006) Winter acclimation of PsbS and related proteins in the evergreen *Arctostaphylos uva-ursi* as influenced by altitude and light environment. *Plant, Cell and Environment* **29**: 869-878
- Amiard V, Mueh KE, Demmig-Adams B, Ebbert V, Turgeon R, Adams WW III (2005) Anatomical and photosynthetic acclimation to the light environment in species with differing mechanisms of phloem loading. *Proceedings of the National Academy of Sciences USA* **102**: 12968-12973
- Adams WW III, Amiard VSE, Mueh KE, Turgeon R, Demmig-Adams B (2005) Phloem loading type and photosynthetic acclimation to light. *In* A van der Est, D Bruce (eds) *Photosynthesis: Fundamental Aspects to Global Perspectives*. Allen Press, Lawrence, pp. 814-816

- Demmig-Adams B, Ebbert V, Adams WW III (2005) Photoinhibition in evergreens: Involvement of sustained thermal dissipation and PSII protein phosphorylation. *In* A van der Est, D Bruce (eds) *Photosynthesis: Fundamental Aspects to Global Perspectives*. Allen Press, Lawrence, pp. 634-636
- Adams WW III (2005) Photoprotection in plants. *In* McGraw-Hill Yearbook of Science & Technology 2005. McGraw-Hill, New York, pp. 265-268
- Ebbert V, Adams WW III, Mattoo AK, Sokolenko A, Demmig-Adams B (2005) Upregulation of a PSII core protein phosphatase inhibitor and sustained D1 phosphorylation in zeaxanthin-retaining, photoinhibited needles of overwintering Douglas fir. *Plant, Cell and Environment* **28**: 232-240
- Adams WW III, Zarter CR, Ebbert V, Demmig-Adams B (2004) Photoprotective strategies of overwintering evergreens. *BioScience* **54**: 41-49
- Adams WW III, Demmig-Adams B (2004) Chlorophyll fluorescence as a tool to monitor plant response to the environment. *In* GC Papageorgiou, Govindjee (eds) *Chlorophyll a Fluorescence: A Signature of Photosynthesis*. Advances in Photosynthesis and Respiration, Volume 19. Springer, Dordrecht, pp. 583-604
- Barker DH, Marszalek J, Zimpfer JF, Adams WW III (2004) Changes in photosynthetic pigment composition and absorbed energy allocation during salt stress and CAM induction in *Mesembryanthemum crystallinum*. *Functional Plant Biology* **31**: 781-787
- Bachmann KM, Ebbert V, Adams WW III, Verhoeven AS, Logan BA, Demmig-Adams B (2004) Effects of lincomycin on PSII efficiency, non-photochemical quenching, D1 protein and xanthophyll cycle during photoinhibition and recovery. *Functional Plant Biology* **31**: 803-813
- Demmig-Adams B, Ebbert V, Adams WW III (2004) Photosynthesis and stress. *In* RM Goodman (ed) *Encyclopedia of Plant & Crop Science*, Marcel Dekker, New York, pp. 901-905
- Demmig-Adams B, Adams WW III (2003) Photoinhibition. *In* B Thomas, D Murphy, B Murray (eds) *Encyclopedia of Applied Plant Science*. Academic Press, London, pp. 707-714
- Demmig-Adams B, Adams WW III (2003) Photoprotection against excess light via zeaxanthin-dependent energy dissipation. *In* W Larcher. *Physiological Plant Ecology. Ecophysiology and Stress Physiology of Functional Groups*. 4th edition. Springer, Berlin, pp. 359-261 & 501-502
- Adams WW III, Demmig-Adams B, Rosenstiel TN, Brightwell AK, Ebbert V (2002) Photosynthesis and photoprotection in overwintering plants. *Plant Biology* **4**: 545-557
- Demmig-Adams B, Adams WW III (2002) Antioxidants in photosynthesis and human nutrition. *Science* **298**: 2149-2153

- Barker DH, Adams WW III, Demmig-Adams B, Logan BA, Verhoeven AS, Smith SD (2002) Nocturnally retained zeaxanthin does not remain engaged in a state primed for energy dissipation during the summer in two *Yucca* species growing in the Mojave Desert. *Plant, Cell and Environment* **25**: 95-103
- Adams WW III, Demmig-Adams B, Rosenstiel TN, Ebbert V (2001) Dependence of photosynthesis and energy dissipation activity upon growth form and light environment during the winter. *Photosynthesis Research* **67**: 51-62
- Ebbert V, Demmig-Adams B, Adams WW III, Mueh KE, Staehelin LA (2001) Association between persistent forms of zeaxanthin-dependent energy dissipation and thylakoid protein phosphorylation. *Photosynthesis Research* **67**: 63-78
- Adams WW III, Demmig-Adams B, Rosenstiel TN, Ebbert V, Brightwell AK, Barker DH, Zarter CR (2001) Photosynthesis, xanthophylls, and D1 phosphorylation under winter stress. *In*: PS2001 Proceedings: 12th International Congress on Photosynthesis. CSIRO Publishing: Melbourne, Australia, 2001. Available at <http://www.publish.csiro.au/ps2001>
- Demmig-Adams B, Adams WW III (2001) Starklichtstreß: Photoprotektion durch Umwandlung der Xanthophylle. *In* W Larcher . Ökophysiologie der Pflanzen. 6th edition. Eugen Ulmer, Stuttgart, pp 293-295
- Demmig-Adams B, Adams WW III (2000) Harvesting sunlight safely. *Nature* **403**: 371-374
- Adams WW III, Demmig-Adams B, Logan BA, Barker DH, Osmond CB (1999) Rapid changes in xanthophyll cycle-dependent energy dissipation and photosystem II efficiency in two vines, *Stephania japonica* and *Smilax australis*, growing in the understory of an open *Eucalyptus* forest. *Plant, Cell and Environment* **22**: 125-136
- Verhoeven AS, Adams WW III, Demmig-Adams B (1999) The xanthophyll cycle and acclimation of *Pinus ponderosa* and *Malva neglecta* to winter stress. *Oecologia* **118**: 277-287
- Verhoeven AS, Adams WW III, Demmig-Adams B, Croce R, Bassi R (1999) Xanthophyll cycle pigment localization and dynamics during exposure to low temperatures and light stress in *Vinca major*. *Plant Physiology* **120**: 727-737
- Logan BA, Demmig-Adams B, Rosenstiel TN, Adams WW III (1999) Effect of nitrogen limitation on foliar antioxidants in relationship to other metabolic characteristics. *Planta* **209**: 213-220
- Demmig-Adams B, Adams WW III, Ebbert V, Logan BA (1999) Ecophysiology of the xanthophyll cycle. *In* HA Frank, AJ Young, G Britton, RJ Cogdell (eds) The Photochemistry of Carotenoids. Advances in Photosynthesis, Vol. 8. Kluwer Academic Publishers, Dordrecht, pp. 245-269
- Logan, BA, Demmig-Adams B, Adams WW III (1999) Acclimation of photosynthesis to the environment. *In* GS Singhal, G Renger, SK Sopory, Irrgang K-D, Govindjee (eds) Concepts

- in Photobiology. Photosynthesis and Photomorphogenesis. Narosa Publishing House, New Dehli, pp. 477-512
- Adams WW III, Barker DH (1998) Seasonal changes in xanthophyll cycle-dependent energy dissipation in *Yucca glauca* Nuttall. *Plant, Cell and Environment* **21**: 501-512
- Verhoeven AS, Adams WW III, Demmig-Adams B (1998) Two forms of sustained xanthophyll cycle-dependent energy dissipation in overwintering *Euonymus kiautschovicus*. *Plant, Cell and Environment* **21**: 893-903
- Grace SC, Logan BA, Adams WW III (1998) Seasonal differences in the foliar content of chlorogenic acid, a phenylpropanoid antioxidant, in *Mahonia repens*. *Plant, Cell and Environment* **21**: 513-521
- Logan BA, Grace SC, Adams WW III, Demmig-Adams B (1998) Seasonal differences in xanthophyll cycle characteristics and antioxidants in *Mahonia repens* growing in different light environments. *Oecologia* **116**: 9-17
- Logan BA, Demmig-Adams B, Adams WW III, Grace SC (1998) Antioxidation and xanthophyll cycle-dependent energy dissipation in *Cucurbita pepo* and *Vinca major* acclimated to four growth irradiances in the field. *Journal of Experimental Botany* **49**: 1869-1879
- Logan BA, Demmig-Adams B, Adams WW III (1998) Antioxidation and xanthophyll cycle-dependent energy dissipation in *Cucurbita pepo* and *Vinca major* during a transfer from low to high irradiance in the field. *Journal of Experimental Botany* **49**: 1881-1888
- Demmig-Adams B, Moeller DL, Logan BA, Adams WW III (1998) Positive correlation between levels of retained zeaxanthin + antheraxanthin and degree of photoinhibition in shade leaves of *Schefflera arboricola*. *Planta* **205**: 367-374
- Barker DH, Logan BA, Adams WW III, Demmig-Adams B (1998) Photochemistry and xanthophyll cycle-dependent energy dissipation in differently oriented cladodes of *Opuntia stricta* during the winter. *Australian Journal of Plant Physiology* **25**: 95-104
- Barker DH, Adams WW III (1997) The xanthophyll cycle and energy dissipation in differently oriented faces of the cactus *Opuntia macrorhiza*. *Oecologia* **109**: 353-361
- Logan BA, Barker DH, Adams WW III, Demmig-Adams B (1997) The response of xanthophyll cycle-dependent energy dissipation in *Alocasia brisbanensis* to sunflecks in a subtropical rainforest. *Australian Journal of Plant Physiology* **24**: 27-33
- Verhoeven AS, Demmig-Adams B, Adams WW III (1997) Enhanced employment of the xanthophyll cycle and thermal energy dissipation in spinach exposed to high light and nitrogen stress. *Plant Physiology* **113**: 817-824
- Demmig-Adams B, Adams WW III, Grace SC (1997) Physiology of light tolerance in plants. *Horticultural Reviews* **18**: 215-246

- Demmig-Adams B, Adams WW III (1996) The role of xanthophyll cycle carotenoids in the protection of photosynthesis. *Trends in Plant Science* **1**: 21-26
- Demmig-Adams B, Gilmore AM, Adams WW III (1996) In vivo functions of carotenoids in higher plants. *The FASEB Journal* **10**: 403-412
- Demmig-Adams B, Adams WW III (1996) Xanthophyll cycle and light stress in nature: uniform response to excess direct sunlight among higher plant species. *Planta* **198**: 460-470
- Verhoeven AS, Adams WW III, Demmig-Adams B (1996) Close relationship between the state of the xanthophyll cycle pigments and photosystem II efficiency during recovery from winter stress. *Physiologia Plantarum* **96**: 567-576
- Logan BA, Barker DH, Demmig-Adams B, Adams WW III (1996) Acclimation of leaf carotenoid composition and ascorbate levels to gradients in the light environment within an Australian rainforest. *Plant, Cell and Environment* **19**: 1083-1090
- Demmig-Adams B, Adams WW III, Barker DH, Logan BA, Verhoeven AS, Bowling DR (1996) Using chlorophyll fluorescence to assess the allocation of absorbed light to thermal dissipation of excess excitation. *Physiologia Plantarum* **98**: 253-264
- Demmig-Adams B, Adams WW III (1996) Chlorophyll and carotenoid composition in leaves of *Euonymus kiautschovicus* acclimated to different degrees of light stress in the field. *Australian Journal of Plant Physiology* **23**: 649-659
- Adams WW III, Demmig-Adams B, Barker DH, Kiley S (1996) Carotenoids and photosystem II characteristics of upper and lower halves of leaves acclimated to high light. *Australian Journal of Plant Physiology* **23**: 669-677
- Adams WW III, Demmig-Adams B (1996) Energy dissipation and the xanthophyll cycle in CAM plants. In K Winter, JAC Smith (eds) *Crassulacean Acid Metabolism. Biochemistry, Ecophysiology, and Evolution. Ecological Studies vol. 114.* Springer, Berlin, pp. 97-114
- Adams WW III, Demmig-Adams B, Verhoeven AS, Barker DH (1995) 'Photoinhibition' during winter stress: Involvement of sustained xanthophyll cycle-dependent energy dissipation. *Australian Journal of Plant Physiology* **22**: 261-276
- Adams WW III, Demmig-Adams B (1995) The xanthophyll cycle and sustained thermal energy dissipation activity in *Vinca minor* and *Euonymus kiautschovicus* in winter. *Plant, Cell and Environment* **18**: 117-127
- Adams WW III, Hoehn A, Demmig-Adams B (1995) Chilling temperatures and the xanthophyll cycle. A comparison of warm-grown and overwintering spinach. *Australian Journal of Plant Physiology* **22**: 75-85

- Demmig-Adams B, Adams WW III, Logan BA, Verhoeven AS (1995) Xanthophyll cycle-dependent energy dissipation and flexible PSII efficiency in plants acclimated to light stress. *Australian Journal of Plant Physiology* **22**: 249-260
- Adams WW III, Demmig-Adams B (1994) Carotenoid composition and down regulation of photosystem II in three conifer species during the winter. *Physiologia Plantarum* **92**: 451-458
- Demmig-Adams B, Adams WW III (1994) Capacity for energy dissipation in the pigment bed in leaves with different xanthophyll cycle pools. *Australian Journal of Plant Physiology* **21**: 575-588
- Falbel TG, Staehelin LA, Adams WW III (1994) Analysis of xanthophyll cycle carotenoids and chlorophyll fluorescence in light intensity-dependent chlorophyll-deficient mutants of wheat and barley. *Photosynthesis Research* **42**: 191-202
- Demmig-Adams B, Adams WW III (1994) Light stress and photoprotection related to the xanthophyll cycle. In C Foyer, P Mullineaux (eds) Causes of Photooxidative Stress and Amelioration of Defense Systems in Plants. CRC Press, Boca Raton, pp 105-126
- Adams WW III, Demmig-Adams B, Lange OL (1993) Carotenoid composition and metabolism in green and blue-green algal lichens in the field. *Oecologia* **94**: 576-584
- Demmig-Adams B, Adams WW III (1993) The xanthophyll cycle, protein turnover, and the high-light tolerance of sun-acclimated leaves. *Plant Physiology* **103**: 1413-1420
- Adams WW III, Demmig-Adams B (1993) Energy dissipation and photoprotection in leaves of higher plants. In HY Yamamoto and CM Smith (eds) Photosynthetic Responses to the Environment. Current Topics in Plant Physiology: An American Society of Plant Physiologists Series, Rockville, Maryland, pp 27-36
- Demmig-Adams B, Adams WW III (1993) The Xanthophyll Cycle. In A Young, G Britton (eds) Carotenoids in Photosynthesis. Chapman and Hall, London, pp 206-251
- Demmig-Adams B, Adams WW III (1993) The Xanthophyll Cycle. In RG Alscher, JL Hess (eds) Antioxidants in Higher Plants. CRC Press, Boca Raton, pp 91-110
- Adams WW III, Demmig-Adams B (1992) Operation of the xanthophyll cycle in higher plants in response to diurnal changes in incident sunlight. *Planta* **186**: 390-398
- Adams WW III, Volk M, Hoehn A, Demmig-Adams B (1992) Leaf orientation and the response of the xanthophyll cycle to incident light. *Oecologia* **90**: 404-410
- Demmig-Adams B, Adams WW III (1992) Carotenoid composition in sun and shade leaves of plants with different life forms. *Plant, Cell and Environment* **15**: 411-419

- Monson RK, Jaeger CH, Adams WW III, Driggers EM, Silver GM, Fall R (1992) Relationships among isoprene emission rate, photosynthesis, and isoprene synthase activity as influenced by temperature. *Plant Physiology* **98**: 1175-1180
- Demmig-Adams B, Adams WW III (1992) Photoprotection and other responses of plants to high light stress. *Annual Review of Plant Physiology and Plant Molecular Biology* **43**: 599-626
- Demmig-Adams B, Adams WW III (1991) Light, photosynthesis, and the xanthophyll cycle. In EJ Pell, KL Steffen (eds) *Active Oxygen/Oxidative Stress and Plant Metabolism, Current Topics in Plant Physiology*, v 6, American Society of Plant Physiologists, Rockville, Maryland, pp 171-179
- Adams WW III, Demmig-Adams B, Winter K, Schreiber U (1990) The ratio of variable to maximum chlorophyll fluorescence from photosystem II, measured in leaves at ambient temperature and at 77K, as an indicator of the photon yield of photosynthesis. *Planta* **180**: 166-174
- Adams WW III, Winter K, Schreiber U, Schramel P (1990) Photosynthesis and chlorophyll fluorescence characteristics in relationship to changes in pigment and element composition of leaves of *Platanus occidentalis* L. during autumnal leaf senescence. *Plant Physiology* **92**: 1184-1190
- Demmig-Adams B, Adams WW III, Heber U, Neimanis S, Winter K, Krüger A, Czygan F-C, Bilger W, Björkman O (1990) Inhibition of zeaxanthin formation and of rapid changes in radiationless energy dissipation by dithiothreitol in spinach leaves and chloroplasts. *Plant Physiology* **92**: 293-301
- Adams WW III, Demmig-Adams B, Winter K (1990) Relative contributions of zeaxanthin-related and zeaxanthin-unrelated types of "high-energy-state" quenching of chlorophyll fluorescence in spinach leaves exposed to various environmental conditions. *Plant Physiology* **92**: 302-309
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- Demmig-Adams B, Máguas C, Adams III WW, Meyer A, Kilian E, Lange OL (1990) Effect of high light on the efficiency of photochemical energy conversion in a variety of lichen species with green and blue-green phycobionts. *Planta* **180**: 400-409
- Demmig-Adams B, Adams WW III, Czygan F-C, Schreiber U, Lange OL (1990) Differences in the capacity for radiationless energy dissipation in green and blue-green algal lichens associated with differences in carotenoid composition. *Planta* **180**: 582-589
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- Adams WW III, Díaz M, Winter K (1989) Diurnal changes in photochemical efficiency, the reduction state of Q, radiationless energy dissipation, and nonphotochemical fluorescence quenching from cacti exposed to natural sunlight in northern Venezuela. *Oecologia* **80**: 553-561
- Demmig-Adams B, Adams WW III, Winter K, Meyer A, Schreiber U, Pereira JS, Krüger A, Czygan F-C, Lange OL (1989) Photochemical efficiency of photosystem II, photon yield of O₂ evolution, photosynthetic capacity, and carotenoid composition during the "midday depression" of net CO₂ uptake in *Arbutus unedo* growing in Portugal. *Planta* **177**: 377-387
- Osmond CB, Adams WW III, Smith SD (1989) Crassulacean acid metabolism. In RW Pearcy, JR Ehleringer, HA Mooney, P Rundel (eds) *Plant Physiological Ecology - Field Methods and Instrumentation*. Chapman and Hall, London, pp 255-280
- Adams WW III (1988) Photosynthetic acclimation and photoinhibition of terrestrial and epiphytic CAM tissues growing in full sunlight and deep shade. *Australian Journal of Plant Physiology* **15**: 123-134
- Adams WW III, Terashima I, Brugnoli E, Demmig B (1988) Comparisons of photosynthesis and photoinhibition in the CAM vine *Hoya australis* and several C₃ vines growing on the coast of eastern Australia. *Plant, Cell and Environment* **11**: 173-181
- Adams WW III, Osmond CB (1988) Internal CO₂ supply during photosynthesis of sun and shade grown CAM plants in relation to photoinhibition. *Plant Physiology* **86**: 117-123
- Evans JR, von Caemmerer S, Adams WW III (eds) (1988) *Ecology of Photosynthesis in Sun and Shade*. CSIRO Press, Melbourne. 358 pp
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- Adams WW III, Osmond CB, Sharkey TD (1987) Responses of two CAM species to different irradiances during growth and susceptibility to photoinhibition by high light. *Plant Physiology* **83**: 213-218

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- Adams WW III, Nishida K, Osmond CB (1986) Quantum yields of CAM plants measured by photosynthetic O₂ exchange. *Plant Physiology* **81**: 297-300
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- Adams WW III, Martin CE (1986) Physiological consequences of changes in life form of the Mexican epiphyte *Tillandsia deppeana* (Bromeliaceae). *Oecologia* **70**: 298-304
- Adams WW III, Martin CE (1986) Heterophylly and its relevance to evolution within the Tillandsioideae. *Selbyana* **9**: 121-125
- Haufler CH, Adams WW III (1982) Early gametophyte ontogeny of *Gleichenia bifida* (Willd.) Spreng: phylogenetic and ecological implications. *American Journal of Botany* **69**: 1560-1565

Previous Extramural Support

- Supplementary Research Opportunity Award to Collaborative Research: Photosynthetic Acclimation, Photoprotection, and Phloem Loading (2005-2006). \$24,952 from the National Science Foundation. PI with Barbara Demmig-Adams
- Collaborative Research: Photosynthetic Acclimation, Photoprotection, and Phloem Loading (2003-2006). \$454,007 (\$386,638 to the University of Colorado) from the National Science Foundation. PI with Barbara Demmig-Adams and Robert Turgeon (Cornell University)
- Seasonal Changes in the Productivity of Evergreen Forests: Toward an Understanding of what it Takes to be "Evergreen" and How Seasonal Changes are Orchestrated (2002-2005). \$260,000 from the Andrew W. Mellon Foundation. PI with Barbara Demmig-Adams
- Protein Phosphorylation and Xanthophyll Cycle Dynamics Dependent on Lifeform (2000-2003) \$150,000 from the United States Department of Agriculture. Co-PI with Barbara Demmig-Adams
- Photoprotection during Winter Stress (1999-2001) \$100,000 from the National Science Foundation. PI with Barbara Demmig-Adams
- Photoprotection during Winter Stress (1996-1998) \$200,486 from the National Science Foundation. PI with Barbara Demmig-Adams
- Interaction of Photoprotective Processes in Plants (1994-1997) \$185,000 from the United States Department of Agriculture. Co-PI with Barbara Demmig-Adams

Biosphere/Atmosphere Interactions: Biochemical Causes to Global Implications (1994-1999)
\$1,699,837 from the National Science Foundation. Co-PI with 20 other investigators

Replacement and Modernization of Greenhouse Facilities (1994-1996) \$202,500 from the
National Science Foundation. Co-PI with 4 other investigators

Improvement of Laboratories in Plant Physiology and Plant Ecophysiology at the University of
Colorado in Boulder (1993-1995) \$90,000 from the National Science Foundation and the
University of Colorado. PI with Barbara Demmig-Adams and Russell Monson

Carotenoids and Photoprotection in CAM plants (1992-1995) \$126,000 from the National
Science Foundation. PI with Barbara Demmig-Adams

In house grant to support research during three months as a Visiting Fellow in Australia (1994)
A\$18,000 from the Research School of Biological Sciences, Australian National University,
Canberra, Australia.

Remote Sensing of Actual Photosynthesis Rates of Vegetation under Changing Environmental
Conditions (1991-1992) \$17,971 from the University of Colorado Global Change &
Environmental Quality Program. Co-PI with Barbara Demmig-Adams

Carotenoids and Photoprotection in Various Crop Species (1990-1992) \$100,000 from the
United States Department of Agriculture. Co-PI with Barbara Demmig-Adams

Purchase of Nine Controlled Environment Growth Chambers (1990-1991) \$113,015 from the
National Science Foundation. Co-PI with 4 other investigators

Invited Presentations

“Seasonal adjustments in photosynthesis and photoprotection”, Keynote Speaker for symposium
entitled: Responses to Winter – from Ecosystem to Gene, XVII International Botanical
Congress, Vienna, Austria, 17-23 July 2005

“Photoprotective energy dissipation and the bigger picture”, Keynote speaker for symposium
entitled: Antioxidants, Gene Regulation, and Environment, XVII International Botanical
Congress, Vienna, Austria, 18-23 July 2005. B Demmig-Adams, V Ebbert, KE Mueh, WW
Adams III

“Responses of plants to excess light”, Department of Biological Sciences, University of Nevada,
Las Vegas, NV, 5 November 2004

“Role of phloem loading type in the plasticity of photosynthetic acclimation to light environment”,
13th International Congress of Photosynthesis, Montréal, Canada, 29 August – 3 September 2004.
WW Adams III, VSE Amiard, KEM Bachmann, R Turgeon, & B Demmig-Adams

“Multiple mechanisms of zeaxanthin function in thermal dissipation, photoinhibition, and signal
transduction”, 13th International Congress of Photosynthesis, Montréal, Canada, 29 August – 3

September 2004. B Demmig-Adams, V Ebbert, CR Zarter, KEM Bachmann, VSE Amiard, A Sokolenko, AK Mattoo, & WW Adams III

“Role of phloem loading type in the plasticity of photosynthetic acclimation to light environment”, Plasmodesmata 2004, Fifth International Conference, Pacific Grove, CA, 17-21 August 2004. VSE Amiard, KEM Bachmann, R Turgeon, B Demmig-Adams, & WW Adams III

“An integrative view of photoprotection”, Department of Plant Biology, Cornell University, Ithaca, NY, 24 October 2003

“Photosynthesis and photoprotection during winter”, Annual Meeting of the American Society of Plant Biologists, Denver, CO, 3-7 August 2002. B Demmig-Adams & WW Adams III

“Growth form and light environment determinants of photosynthetic acclimation to winter stress”, 12th International Congress on Photosynthesis. Brisbane, Australia, 18-23 August 2001. WW Adams III & B Demmig-Adams

“Regulatory and acclimatory responses of xanthophyll cycle-dependent energy dissipation”, USDA Vegetable Laboratory, Beltsville Agricultural Research Center, MD, 30 March 2001

“Seasonal adjustments in photosynthesis and energy dissipation in overwintering plants”, Gordon Research Conference on Temperature Stress in Plants. Ventura, CA, 28 January to 1 February 2001. WW Adams III & B Demmig-Adams

“Modulation of the xanthophyll cycle by the environment” and “Zeaxanthin retention, sustained energy dissipation, and protein phosphorylation”, European Science Foundation (ESF) Workshop on “Non-Photochemical Quenching and the Xanthophyll Cycle – Mechanisms and Implications”, Weizmann Institute of Science, Rehovot, Israel, 12-15 October 1999. B Demmig-Adams & WW Adams III

“How is continuous energy dissipation maintained under stress? From the whole plant to the chloroplast”, Symposium on “Light and Photosynthesis: From the Molecule to the Globe” sponsored by the Carnegie Institution of Washington, Napa, CA, 28-30 August 1999. B Demmig-Adams & WW Adams III

"Relationships among zeaxanthin, photoinhibition, and carbohydrate status in shade leaves exposed to high light", 7th Western Photosynthesis Conference, Asilomar Conference Center, Pacific Grove, CA, 8-11 January 1998. B Demmig-Adams & WW Adams III

"The xanthophyll cycle and regulation of the efficiency of solar energy conversion", International Conference on 'Molecular to Global Photosynthesis'. Imperial College of Science, London, United Kingdom, 28-29 March 1996. B Demmig-Adams & WW Adams III

"Involvement of the xanthophyll cycle in the phenomenon of photoinhibition", Fifth Western Photosynthesis Conference. Asilomar Conference Center, Pacific Grove, 9-12 January 1996. B Demmig-Adams & WW Adams III

"Xanthophyll cycle and diurnal PSII regulation", Special Mini-Symposium on "The Xanthophyll Cycle and Photoprotective Energy Dissipation". Annual Meeting of the American Society of Plant Physiology. Charlotte, NC, 2 August 1995. B Demmig-Adams & WW Adams III

"Xanthophyll cycle and temporal flexibility in regulation of thermal energy dissipation: seconds to seasons", Annual meeting of the American Society of Plant Physiology. Charlotte, NC, 1 August 1995. WW Adams III and B Demmig-Adams

"The xanthophyll cycle in the understory of different Australian forests", Department of Botany, University of California at Davis, 7 September 1994

"Photoinhibition' during winter stress", Robertson Symposium on "Chlorophyll Fluorescence, Origin, Measurements, Interpretations, and Applications", Australian National University, Canberra, 27-29 May 1994. WW Adams III & B Demmig-Adams

"Using chlorophyll fluorescence to assess the dynamics of xanthophyll-associated energy dissipation", Robertson Symposium on "Chlorophyll Fluorescence", Research School of Biological Sciences, Australian National University, Canberra, Australia, 27-29 May 1994. B Demmig-Adams & WW Adams III

"Photoprotection and the xanthophyll cycle under chilling stress", 4th Western Regional Photosynthesis Conference. Asilomar Conference Center, Pacific Grove, CA, 4-7 January 1994. WW Adams III & B Demmig-Adams

"Photoprotection and the xanthophyll cycle: Capacity for energy dissipation in leaves with different xanthophyll cycle pools sizes", 4th Western Regional Photosynthesis Conference, Asilomar Conference Center, Pacific Grove, CA, 4-7 January 1994. B Demmig-Adams & WW Adams III

"Down regulation of PS II efficiency: Ecophysiological aspects", Gordon Research Conference on Photosynthetic CO₂ Fixation and Metabolism. Irsee, Germany, 10-15 October 1993. WW Adams III & B Demmig-Adams

"High light stress and the xanthophyll cycle", XVth International Botanical Congress, Tokyo (Yokohama), Japan, 28 August – 3 September 1993. B Demmig-Adams & WW Adams III

"Energy dissipation and the xanthophyll cycle in CAM plants", International Workshop on Crassulacean Acid Metabolism. Panama City, 21-26 March 1993

"The xanthophyll cycle and energy dissipation in plants", Department of Botany, University of Wyoming, Laramie, 5 March 1993

"Photoprotection of the photosynthetic apparatus through the carotenoid zeaxanthin", Photosynthetic Responses to the Environment, Satellite meeting for the IX International Congress on Photosynthesis, Kona, Hawaii, 25-27 August 1992. B Demmig-Adams & WW Adams III

"Zeaxanthin function in photosynthetic organisms", Gordon Research Conference on Chemistry and Biology of Carotenoids, Oxnard, CA, 9-13 March 1992. B Demmig-Adams & WW Adams III

"The carotenoid zeaxanthin and photoprotection of the photosynthetic apparatus", Sixth Annual Penn State Symposium in Plant Physiology, 23-25 May 1991. B Demmig-Adams & WW Adams III

"Zeaxanthin formation and photoprotective energy dissipation as affected by temperature", Gordon Research Conference on Temperature Stress in Plants. Oxnard, CA, 18 January 1991. WW Adams III & B Demmig-Adams

"Photoinhibition and photoprotective responses: the xanthophyll cycle", Plant Physiology Seminar, Department of Botany, Duke University, Durham, 30 March 1990. Joint seminar) WW Adams III & B Demmig-Adams

"Zeaxanthin formation and avoidance of PS II damage from combined high light and water stress", Rockefeller Foundation meeting on 'The Potentials of Biotechnology for Improving Grain Yield of Rice under Water Limited Conditions', Bellagio Study and Conference Center, Bellagio, Italy, 18-22 September 1989. B Demmig-Adams & WW Adams III

"Zeaxanthin-associated energy dissipation in leaves and isolated chloroplasts", International Workshop on 'The Use of Chlorophyll Fluorescence and other Non-Invasive Spectroscopic Techniques in Plant Stress Physiology', Wageningen, The Netherlands, 14-16 August 1989. B Demmig-Adams & WW Adams III

"Light stress, photoprotective energy dissipation, and the carotenoid zeaxanthin", VIIIth International Congress on Photosynthesis, Stockholm, Sweden, 6-11 August 1989. B Demmig-Adams & WW Adams III

"Heterophylly in the epiphytic genus *Tillandsia*: ecophysiological and evolutionary implications", XIV International Botanical Congress. West Berlin, July 1987

"Photosynthesis and photoinhibition in CAM plants found in full sunlight and deep shade", First Robertson Symposium on "Ecology of Photosynthesis in Sun and Shade", Australian National University, Canberra, February 1987

"Fluorescence and stress in CAM plants", Joint US and Australian conference on "Structure, function and photoinhibition of Photosystem II and plant responses to stress". Honolulu, Hawaii, September 1985

"Photosynthesis and transpiration in atmospheric and tank forms of the epiphyte *Tillandsia deppeana* (Bromeliaceae)", Annual meeting of the American Society of Plant Physiology. Davis, California, August 1984. WW Adams III & CE Martin

"New aspects of gametophyte development in the tropical fern *Gleichenia bifida*", Botanical Society of America section of the annual AIBS meeting. Bloomington, Indiana, August 1981. WW Adams III & CH Haufler

Contributed Presentations

"Seasonal adjustments in photosynthesis and photoprotection in a subalpine forest.", Annual meeting of the Guild of the Rocky Mountain Population Biologists, 17-18 September 2004. CR Zarter, V Ebbert, WW Adams III, & B Demmig-Adams

"Does photoinhibition represent downregulation of photosystem II in response to limited sink strength?", Gordon Research Conference on CO₂ Fixation and Metabolism in Green Plants. Tilton, NH, 18-23 August 1996. WW Adams III & B Demmig-Adams

"High PFD reduces SO₂-induced inhibition of photosynthesis", Annual meeting of the American Society of Plant Physiology. Reno, Nevada, July 1988. WW Adams III, K Winter, & A Lanzl

"Adaptability to shade and photoinhibition in plants possessing crassulacean acid metabolism", Annual meeting of the Australian Society of Plant Physiology. Melbourne, Victoria, May 1986. WW Adams III & CB Osmond

"Photosynthetic responses to tissue desiccation in the CAM epiphytes *Tillandsia usneoides* and *T. schiedeana*", Annual meeting of the Ecological Society of America. Syracuse, New York, August 1986. CE Martin, WW Adams III, & FM Smith

"Quantum yield and fluorescence in CAM", Annual meeting of the American Society of Plant Physiology. Providence, Rhode Island, June 1985. WW Adams III & CB Osmond

"Physiological consequences of an extreme change in leaf morphology in a Mexican epiphyte", Fourth Annual Prairie States Ecology Conclave. Big Lake, Missouri, April 1984

"Water stress in *Populus deltoides* along an environmental gradient", Regional meeting of the Association of American Geographers. Lawrence, Kansas, November 1984. GE Marotz & WW Adams III

Symposia Organized/Chaired

"Responses to Winter – from Ecosystem to Gene", Organizer, Chair, & Keynote Speaker, XVII International Botanical Congress, Vienna, Austria, 18-23 July 2005

"Temperature Stress", Chair, Plant Biology 2002 (Annual meeting of the American Society of Plant Biologists), Denver, Colorado, 5 August 2002

"The Xanthophyll Cycle and Photoprotective Energy Dissipation", Organizer and Chair. Annual meeting of the American Society of Plant Physiologists. Charlotte, North Carolina, 2 August 1995

Teaching Activities

	Ratings	
	<u>Instructor</u>	<u>Course</u>
Spring 2006, EBIO 4800/5800, Genetically Engineered Plants	3.89 (A+)	3.78 (A)
Fall 2005, EBIO 3530, Functional Plant Biology	3.33 (B+)	3.17 (B)

Spring 2005, EBIO 4800/5800, Genetically Engineered Plants	3.94 (A+)	3.83 (A)
Spring 2004, EPOB 4800/5800, Genetically Engineered Plants	4.00 (A+)	3.89 (A+)
Fall 2003, EPOB 3530, Plant Physiology	3.80 (A)	3.68 (A)
Spring 2003, EPOB 4800/5800, Genetically Engineered Plants	4.00 (A+)	3.88 (A+)
Fall 2002, EPOB 3530, Plant Physiology	3.95 (A+)	3.82 (A)
Spring 2002, EPOB 4800/5800, Plant Ecophysiology	3.75 (A)	3.83 (A)
Fall 2001, EPOB 3530, Essentials of Plant Physiology	3.77 (A)	3.61 (A-)
Fall 2000, EPOB 4800/5800, Plant Ecophysiology	3.89 (A+)	3.89 (A+)
Fall 2000, EPOB 3530, Plant Physiology	3.79 (A)	3.63 (A)
Spring 2000, EPOB 4800, Plant Ecophysiology	4.00 (A+)	3.89 (A+)

Teaching Awards

Boulder Faculty Assembly Excellence in Teaching Award, 16 April 2004, University of Colorado

Certificate of Recognition for Exceptional Teaching, Mortar Board, 16 November 2000, University of Colorado

Graduate Students

Matthew Dumlao, pursuing PhD in EBIO, 2006-present

MaryKay Herzenach, pursuing PhD in EBIO, 2006-present

Amy Watson, pursuing PhD in EBIO, 2005-present

Kristine E. Mueh, PhD in 2005; Boulder Valley School District

C. Ryan Zarter, PhD in 2005; Forest Service

Todd N. Rosenstiel, 1996-1999; Obtained PhD in EBIO with Russell Monson in 2004; Assistant Professor, Portland State University

David H. Barker, PhD in 1999; Postdoctoral Fellow, Smithsonian Tropical Research Institute, Panama 1999-2000; Postdoctoral Fellow, Australian National University, 2001-2002; Postdoctoral Fellow, University of Nevada at Las Vegas, 2002 – 2005; Research Assistant Professor, Public Lands Institute and UNLV

Mark Longo, MAII in 1998

Amy S. Verhoeven, PhD in 1998; Associate Professor at University of St. Thomas, St. Paul, MN

Barry A. Logan, PhD in 1997; Associate Professor at Bowdoin College, Brunswick, Maine

Postdoctoral Associates

Volker Ebbert, 1996-2006, funded in part by a Feodor Lynen Fellowship from 1997-1999

Véronique Amiard, 2003-2005

Stephen C. Grace, 1994-1996, NSF postdoctoral fellowship; Associate Professor, University of Arkansas