

## 1. Personal Information

### **Brian R. Maricle**

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## 2. Education

- 2006 Ph.D. in Botany, School of Biological Sciences, Washington State University  
Dissertation title: "The physiological ecology of salt marsh grasses: factors influencing flooding tolerance, salinity tolerance, and species zonation"  
Thesis committee: R.W. Lee (Chair), R.A. Black, and G.E. Edwards
- 2002 M.S. in Botany, School of Biological Sciences, Washington State University  
Thesis title: "Aerenchyma development and oxygen transport in the estuarine cordgrasses *Spartina alterniflora* and *S. anglica*"  
Thesis committee: R.W. Lee (Chair), M. Tegeder, V.R. Franceschi
- 2000 B.S., Biology Comprehensive Major, University of Nebraska at Kearney  
Thesis title: "How population density relates to body size in birds"  
Thesis advisors: C.J. Bicak and H.G. Nagel

## 3. Areas of Expertise

- Brian R. Maricle has training in plant physiology and plant ecology. He studies effects of environmental stress on plants, especially drought, salinity, and flooding. Dr. Maricle is interested in anatomical, physiological, and biochemical responses of plants to these conditions, and relating these properties to ecological questions.
- Responses of plants to flooding
  - Environmental factors influencing species zonation in estuaries and wetlands
  - Physiological, biochemical, and anatomical factors influencing flooding tolerance in plants
  - Effects of low oxygen levels on respiration and nitrogen assimilation in plants
  - Roles of flooding tolerance in the success of wetland invasive species
  - Novel capabilities of plants beneficial to agriculture and phytoremediation
- Effects of environment on photosynthesis in plants
  - Effects of drought and salinity on stomatal conductance, photosynthesis, and transpiration
  - Physiological, biochemical, and anatomical factors influencing drought and salinity tolerance in plants
  - Roles of latent, sensible, and radiative heat exchange under changing environmental conditions
  - Physiological and biochemical responses to oxidative stress in plants
  - Carbon and hydrogen isotope physiology in photosynthesis and transpiration
  - Effects of chilling on photosynthetic light harvesting, gas exchange, and carbon metabolism

## 4. Teaching Experience

### **Fort Hays State University**

BIOL 100D	Human Biology	Fall 2009
BIOL 180L	Principles of Biology lab (4 sections)	Fall 2009

BIOL 235	Early Field Experience: Biology	Fall 2009
BIOL 250/250L	Introductory Botany	Fall 2009
BIOL 476A	Apprenticeship in Biology	Fall 2009
BIOL 607A	Environmental Physiology	Fall 2009
BIOL 882	Readings in Biology: Advanced Plant Physiology	Fall 2009
BIOL 235	Early Field Experience: Biology	Spring 2009
BIOL 250/250L	Introductory Botany	Spring 2009
BIOL 476A	Apprenticeship in Biology	Spring 2009
BIOL 495/495L	Plant Physiology	Spring 2009
BIOL 855	Graduate Seminar	Spring 2009
BIOL 882	Readings in Biology: Stable Isotope Uses and Applications	Spring 2009
BIOL 882	Readings in Biology: Advanced Plant Anatomy	Spring 2009
BIOL 100D	Human Biology	Fall 2008
BIOL 180L	Principles of Biology lab (3 sections)	Fall 2008
BIOL 235	Early Field Experience: Biology	Fall 2008
BIOL 250/250L	Introductory Botany	Fall 2008
BIOL 882	Readings in Biology: Stable Isotope Uses and Applications	Fall 2008
BIOL 100	Human Biology	Summer 2008
BIOL 235	Early Field Experience: Biology	Spring 2008
BIOL 250/250L	Introductory Botany	Spring 2008
BIOL 330/330L	Plant Anatomy	Spring 2008
BIOL 855	Graduate Seminar	Spring 2008
BIOL 100	Human Biology (2 sections)	Fall 2007
BIOL 180L	Principles of Biology lab (3 sections)	Fall 2007
BIOL 250/250L	Introductory Botany	Fall 2007
BIOL 607A	Posters and Presentations	Fall 2007
BIOL 100	Human Biology	Summer 2007
BIOL 495/495L	Plant Physiology	Spring 2007
BIOL 632	Dendrology	Spring 2007
BIOL 100A	Human Biology	Fall 2006
BIOL 180L	Principles of Biology lab (3 sections)	Fall 2006
BIOL 476A	Apprenticeship in Biology	Fall 2006

**Washington State University**

BIOL 372	General Ecology lab instructor	Spring 2006	supervisor R.N. Mack
BIOL 320	Plant Physiology lab instructor	Fall 2005	supervisors G.E. Edwards and M. Tegender

BIOL 352	Cell Physiology exam grader	Fall 2005	supervisor D.F. Moffett
BIOL 352	Cell Physiology website manager	Fall 2005	supervisor R.W. Lee
BIOL 298	Honors Biology lab instructor	Spring 2005	supervisors H.L. Hosick and B.J. Marshall
BIOL 251	Human Physiology lab instructor	Fall 2004	supervisor S.B. Moffett
BIOL 372	General Ecology lab instructor	Spring 2004	supervisor R.N. Mack
BIOL 320	Plant Physiology lab instructor	Fall 2002	supervisor G.E. Edwards
BIOL 352	Cell Physiology exam grader	Fall 2002	supervisor D.F. Moffett
BIOL 352	Cell Physiology website manager	Fall 2002	supervisor R.W. Lee
ZOOL 251	Human Physiology lab instructor	Spring 2002	supervisor P.A. Carter
BOT 320	Plant Physiology lab instructor	Fall 2001	supervisor G.E. Edwards
ZOOL 251	Human Physiology lab instructor	Spring 2001	supervisor P.A. Carter
ZOOL 251	Human Physiology lab instructor	Fall 2000	supervisor J.L. Lipar

5. **Date of Appointment to Fort Hays State University:** 18 August 2008 (with one year prior service)

6. **Prior Service at Other Institutions**

- 2008- Assistant Professor, Fort Hays State University Department of Biological Sciences
- 2006-2008 Instructor (non tenure track), Fort Hays State University Department of Biological Sciences
- 2000-2006 Teaching Assistant, Washington State University School of Biological Sciences
- 2003 Research Assistant, Washington State University School of Biological Sciences; supervisor R.W. Lee
- 2001-2002 Research Assistant, Padilla Bay National Estuarine Research Reserve, Washington State Department of Ecology; supervisors D.A. Bulthuis and S.R. Riggs
- 1998-1999 Laboratory Technician, University of Nebraska at Kearney Dept. of Chemistry; supervisor D. Kaufman
- 1998 Research Assistant, University of Nebraska at Kearney Dept. of Physics and Physical Sciences; supervisor J.L. Mena-Werth

7. **Departmental and Institutional Service**

a. **Graduate Students Mentored**

- 2008- Elizabeth F. Waring\*, M.S. student, FHSU Botany (2007 B.S. in Biology, University of Wisconsin, Milwaukee); proposed thesis topic: Effects of flooding on light harvesting, CO<sub>2</sub> fixation, and carbon isotope discrimination in native and nonnative grasses of central Kansas. [\*Fleharty Fellowship recipient, 2009-2010]
- 2008- Kristen A. Polacik, M.S. student, FHSU Botany (2008 B.S. in Biology, Marshall University); proposed thesis topic: Comparative physiological response to flooding of *Tamarix*, *Salix*, and *Populus*
- 2007-2008 Shi He, M.S. student, FHSU Botany (2007 B.S. in Biology, Wuhan University); Project: Nitrate reductase activities in wetland grasses; later went into a Ph.D. program at the University of Idaho

**b. Undergraduate Students Mentored**

- 2008- Cali R. Parker, Fort Hays State University Biology; project: Mechanisms of chilling-tolerant C<sub>4</sub> photosynthesis in marsh grasses
- 2008- Jordan J. Brungardt, Fort Hays State University Biology; project: Effects of oil well brine on neighboring plants
- 2007-2009 Aaron M. Pfeifer, Fort Hays State University Biology; projects: Effects of diet, drugs, and activity levels on  $\delta^{13}\text{C}$  of breath and hair of humans; Ascorbate concentrations and osmolalities in orange and apple juices
- 2000-2004 Brian C. Bussiere, Washington State University Biology; project: Ammonium assimilation in wetland plants; later went into graduate school at the University of San Francisco
- 2003-2004 Jeramiah J. Crosier, Washington State University Biology; project: Respiration enzyme activities in marsh plants in relation to flooding; later went to work as a technician at a lab supply company
- 2000-2001 Toru Tzusaki, Washington State University Biology; project: Aerenchyma formation in *Spartina* roots; later went into graduate school at the University of Southampton, UK to work on a similar project

**c. Technicians Mentored**

- 2007 Sam R. Zwenger, FHSU Botany (2007 M.S. in Biological Science, Fort Hays State University)

**d. Graduate Teaching Assistants Supervised**

- BIOL 180L, Principles of Biology lab: Jessica J. Bitner, Sarah A. Carrow, P. Allen Casey, Carol D. Grover, Georgina Y. Jacquez, Kristen A. Polacik, Zac L. Ripperger, Lloyd W. Towers III
- BIOL 250L, Introductory Botany lab: Shi He, Ashley A. Inslee, Kristen A. Polacik, Elizabeth F. Waring
- BIOL 330L, Plant Anatomy lab: Shi He

**e. Undergraduate Apprentices Supervised**

- BIOL 180L, Principles of Biology lab: Mike D. Howell, Jenna B. Shepherd, Maniphone V. (Katrina) Thirakul
- BIOL 250L, Introductory Botany lab: Robert “Andy” Calhoun

**f. Graduate Thesis Committees**

- 2009- Shingo Ishihara. M.S. student, FHSU Microbiology. Major Advisor: Eric T. Gillock; proposed thesis topic: Isolation of Tylosin-resistant bacteria from cattle feedlots and pastures: cross-resistance to human macrolides
- 2009- Stephanie A. Kane. M.S. student, FHSU Zoology. Major Advisor: Greg H. Farley; proposed thesis topic: Diet and migration patterns of black rails in Quivira National Wildlife Refuge, Kansas
- 2008- Lloyd W. Towers III. M.S. student, FHSU Zoology. Major Advisor: Elmer J. Finck; proposed thesis topic: Perception of false alarm calls in prairie dogs
- 2008- Jacob Carter. M.S. student, Kansas State University, Division of Biology. Major Advisor: Jesse B. Nippert; proposed thesis topic: Effects of salinity on salt cedar

- 2007-2009 Claudia M. Dasilva-Carvalho. M.S. student, FHSU Microbiology. Major Advisor: Eric T. Gillock; thesis title: Isolation and characterization of halophilic bacteria from Quivira National Wildlife Refuge (thesis defended 4/16/2009)
- 2007- Jason K. Black. M.S. student, FHSU Zoology. Major Advisor: Elmer J. Finck; thesis topic: Stable isotope analyses of waterfowl diet and assessment of natal origin of hunter-harvested ducks at Cheyenne Bottoms Wildlife Area, Kansas
- 2007-2009 Christian N. Edwards. M.S. student, FHSU Zoology. Major Advisor: Greg H. Farley; thesis title: Snowy plover nest density and reproductive success at Great Salt Lake, Utah (thesis defended 4/23/2009)
- 2006-2009 P. Allen Casey. M.S. student, FHSU Botany. Major Advisor: Joseph R. Thomasson; thesis title: Comparative studies of two small, freshwater wetlands in Ellis County, Kansas (thesis defended 3/30/2009)

**g. Professional Service**

Peer review: *American Journal of Botany*  
*Annals of Botany*  
*Aquatic Biology*  
*Aquatic Conservation: Marine and Freshwater Ecosystems*  
Benjamin Cummings Publishing  
*Environmental and Experimental Botany*  
*Estuarine, Coastal and Shelf Science*  
*Journal of Agricultural Science and Technology*  
*Limnology and Oceanography Methods*  
*Marine Ecology Progress Series*  
National Science Foundation  
*Plant Biology*  
*Southwestern Naturalist*

Judge for McCarley student grant proposals, Southwestern Association of Naturalists, March 2009

Judge for Wilks student presentation award at the Southwestern Association of Naturalists annual meeting, April 2008

Judge for Hubbs student poster award at the Southwestern Association of Naturalists annual meeting, April 2008

**h. Department and University Service**

**Fort Hays State University**

- 2009- University Research Environment Committee  
2007- University Department/Program Review Committee

**College of Health and Life Sciences, Fort Hays State University**

- 2008- College of Health and Life Sciences Dean's Faculty Advisory Council  
2008- College of Health and Life Sciences Professional Science Master's Program Committee

**Department of Biological Sciences, Fort Hays State University**

- 2009-2010 Advisor for 2 graduate students  
2009-2010 Advisor for 9 undergraduate students

- 2009-2010 Evaluation committee for 0 graduate student applications
- 2009-2010 Graduate oral exam committees for 0 students
- 2009-2010 Student recruitment: met with 4 prospective students individually
- 2009-2010 Graduate student recruitment: met with 0 prospective graduate students individually
- 21 Aug 2009 FHSU Department of Biological Sciences social for incoming freshmen and transfer students
- 4 May 2009 Department of Biological Sciences representative during Tiger pre-enrollment day
- 25 Apr 2009 Department of Biological Sciences representative during Tiger pre-enrollment day
- 2009 Faculty search committee, Manager, Kansas Wetlands Education Center
- 29 Jan 2009 Student recognition program: Phillipsburg, KS
- 27 Oct 2008 Lab tours for high school students during Science Day
- 2008 Faculty search committee, Environmental microbiologist, FHSU Department of Biological Sciences
- 2008-2009 Advisor for 2 graduate students
- 2008-2009 Advisor for 10 undergraduate students
- 2008-2009 Evaluation committee for 4 graduate student applications
- 2008-2009 Graduate oral exam committees for 6 students
- 2008-2009 Student recruitment: met with 27 prospective students individually
- 2008-2009 Graduate student recruitment: met with 7 prospective graduate students individually
- 2008-2009 Department of Biological Sciences Graduate Studies Committee
- 2008- Department of Biological Sciences Curriculum Committee
- 2008- Department of Biological Sciences Faculty Awards Committee
- 2008- Graduate teaching assistant award selection committee
- 22 Aug 2008 FHSU Department of Biological Sciences social for incoming freshmen and transfer students
- 10 June 2008 Department of Biological Sciences representative during FHSU Transfer Enrollment day
- 2 April 2008 Department of Biological Sciences representative during Tiger Mania student recruitment
- 26 Feb 2008 "Designing research posters" tutorial given to FHSU faculty
- 4 Feb 2008 Student recognition program: Great Bend, KS
- 3 Nov 2007 Zoology lab representative, Tiger Day recruitment
- 15 Oct 2007 Captain, "Tiger Call" phonathon, FHSU Foundation (Endowment Center)
- 2007 FHSU Department of Biological Sciences Biosciences Institute Development Committee
- 17 Aug 2007 FHSU Department of Biological Sciences social for incoming freshmen and transfer students
- 2007-2008 Advisor for 1 graduate student

- 2007-2008 Advisor for 4 undergraduate students
- 2007-2008 Evaluation committees for 9 graduate student applications
- 2007-2008 Graduate oral exam committees for 7 students
- 2007-2008 Student recruitment: met with 19 prospective students individually
- 2007-2008 Graduate student recruitment: met with 21 prospective graduate students individually
- 2007 Chair, Graduate teaching assistant award selection committee
- 4 April 2007 Department of Biological Sciences representative during Tiger Mania student recruitment
- 5 Feb 2007 Student recognition program: Holdrege, NE
- 2007 Department plant technician search committee
- 2007 Cell biology/physiology lab development committee
- 18 Dec 2006 Greenhouse tour for high school biology students
- 6 Nov 2006 Lab tours for high school students during Science Day
- 16 Oct 2006 Captain, "Tiger Call" phonathon, FHSU Endowment Center
- 14 Oct 2006 Botany lab representative, Tiger Friends and Family Day recruitment
- 2006-2007 Evaluation committee for 1 graduate student application
- 2006-2007 Graduate oral exam committees for 2 students
- 2006-2007 Student recruitment: met with 3 prospective students individually
- 2006-2007 Graduate student recruitment: met with 9 prospective graduate students individually
- 2006-2009 Biology Club sponsor, FHSU Department of Biological Sciences

#### **Washington State University**

- 2005-2006 Faculty search committee, Plant Cell Biologist, WSU School of Biological Sciences

### **8. Scholarly Submissions, Publications, and Papers Presented**

#### **a. Peer-Reviewed Publications** (asterisks denote undergraduate authors)

- Maricle, B.R.**, N.K. Koteyeva, E.V. Voznesenskaya, J.R. Thomasson, and G.E. Edwards. 2009. Diversity in leaf anatomy, and stomatal distribution and conductance, between salt marsh and freshwater species in the C<sub>4</sub> genus *Spartina* (Poaceae). Manuscript in press: New Phytologist
- Maricle, B.R.** and A.M. Pfeifer\*. 2009. Ascorbate concentrations and osmolalities in orange and apple juices. Transactions of the Kansas Academy of Science 112:77-86
- Maricle, B.R.**, R.W. Lee, C.E. Hellquist, O. Kiirats, and G.E. Edwards. 2007. Effects of salinity on chlorophyll fluorescence and CO<sub>2</sub> fixation in C<sub>4</sub> estuarine grasses. Photosynthetica 45:433-440
- Maricle, B.R.**, D.R. Cobos, and C.S. Campbell. 2007. Biophysical and morphological leaf adaptations to drought and salinity in salt marsh grasses. Environmental and Experimental Botany 60:458-467
- Maricle, B.R.** and R.W. Lee. 2007. Root respiration and oxygen flux in salt marsh grasses from different elevational zones. Marine Biology 151:413-423
- Maricle, B.R.**, J.J. Crosier\*, B.C. Bussiere\*, and R.W. Lee. 2006. Respiratory enzyme activities correlate with anoxia tolerance in salt marsh grasses. Journal of Experimental Marine Biology and Ecology 337:30-37

Kroemer, J., C. Kirkpatrick, **B. Maricle**, R. Gawrych, M.D. Mosher, and D. Kaufman. 2006. Reike zinc as a reducing agent for common organic functional groups. *Tetrahedron Letters* 47:6339-6341

**Maricle, B.R.** and R.W. Lee. 2006. Effects of environmental salinity on carbon isotope discrimination and stomatal conductance in *Spartina* grasses. *Marine Ecology Progress Series* 313:305-310

**Maricle, B.R.** and R.W. Lee. 2002. Aerenchyma development and oxygen transport in the estuarine cordgrasses *Spartina alterniflora* and *S. anglica*. *Aquatic Botany* 74:109-120

**b. Other Publications**

**Maricle, B.R.** 2008. How to approach phone interviews. *American Society of Plant Biologists (ASPB) News* 35:7-8

**Maricle, B.R.** General Botany BIOL 250/250L Laboratory Manual. FHSU Print Shop, revised April 2009

**Maricle, B.R.** Plant Anatomy BIOL 330/330L Laboratory Manual. FHSU Print Shop, revised May 2008

**Maricle, B.R.** BIOL 495 – Plant Physiology Laboratory Manual. FHSU Print Shop, revised May 2009

Packauskas, R.J. and **B.R. Maricle**, with contributions from K.R. Hickman, M.L. Morgan, E.T. Gillock, and P.A. Casey. *Principles of Biology Laboratory Manual*. FHSU Print Shop, revised August 2009

**Maricle, B.R.** and R.W. Lee. 2003. The effect of mowing on oxygen transport in *Spartina anglica* (Poaceae). Padilla Bay National Estuarine Research Reserve Technical Report No. 27. Padilla Bay National Estuarine Research Reserve, Mount Vernon, Washington, 26 pp

**Maricle, B.R.** and J.L. Mena-Werth. 1999. The determination of circumstellar material around stars observed with the International Ultraviolet Explorer Satellite using asymmetries in the singly ionized magnesium h and k lines. *Proceedings of the Thirteenth Annual National Conference of Undergraduate Research, Volume V (Physical Sciences):1285-1288*

**c. Manuscripts Accepted**

Lee, R.W., **B.R. Maricle**, and K. Patten. Glyphosate uptake and transport in the estuarine cordgrass *Spartina alterniflora*: a novel stable isotope tracer approach and implications for invasive species control. Manuscript accepted pending revisions: *Weed Technology*

**Maricle, B.R.** and R.W. Lee. Mechanisms of sulfide and anoxia tolerance in salt marsh grasses in relation to elevational zonation. Manuscript in press: *Proceedings of the Third International Conference on Invasive Spartina*, San Francisco, CA, November 2004

**Maricle, B.R.**, O. Kiirats, R.W. Lee, and G.E. Edwards. Effects of salinity on photosynthesis in C<sub>4</sub> estuarine grasses. Manuscript in press: *Proceedings of the Third International Conference on Invasive Spartina*, San Francisco, CA, November 2004

**d. Manuscripts in Review**

**Maricle, B.R.** Changes in chlorophyll content and antioxidant capacity during dark to light transitions in etiolated seedlings. Manuscript in review: *Biologia Plantarum*

**e. Manuscripts in Preparation** (asterisks\* denote undergraduate authors; daggers† indicate graduate student authors)

Pfeifer, A.M.\*, M.L. Morgan, R.W. Lee, and **B.R. Maricle**. Effects of diet, drugs, and activity levels on  $\delta^{13}\text{C}$  of breath and hair of humans. Manuscript in preparation

**Maricle, B.R.** CO<sub>2</sub> fixation and chlorophyll fluorescence in C<sub>4</sub> grasses under chilling: comparisons between chilling-tolerant *Spartina anglica* and chilling-sensitive *Zea mays* (Poaceae). Manuscript in preparation

**Maricle, B.R.**, S.R. Zwenger<sup>†</sup>, and R.W. Lee. Effects of creek drying on carbon, nitrogen, and hydrogen stable isotope ratios in shallow- and deep-rooted trees in western Kansas. Manuscript in preparation

He, S.<sup>†</sup> and **B.R. Maricle**. Effects of NO<sub>3</sub><sup>-</sup>/NH<sub>4</sub><sup>+</sup> nitrogen treatment on nitrate assimilation and photosynthesis in leaves of *Spartina* (Poaceae). Manuscript in preparation

**Maricle, B.R.**, T. Tsuzaki<sup>†</sup>, J.J. Brungardt\*, and R.W. Lee. Factors influencing aerenchyma development in *Spartina* (Poaceae). Manuscript in preparation

**f. Abstracts Published** (asterisks\* denote undergraduate authors; daggers<sup>†</sup> indicate graduate student authors)

Pfeifer, A.M.\*, R.W. Lee, and **B.R. Maricle**. 2009. Effects of diet, drugs, and activity levels on δ<sup>13</sup>C of breath and hair of humans. Transactions of the Kansas Academy of Science 112:150

Polacik, K.A.<sup>†</sup> and **B.R. Maricle**. 2009. Response to flooding in invasive saltcedar (*Tamarix*). Transactions of the Kansas Academy of Science 112:150

Waring, E.F.<sup>†</sup> and **B.R. Maricle**. 2009. Effects of flooding on light harvesting and CO<sub>2</sub> fixation in native and nonnative wetland grasses of central Kansas. Transactions of the Kansas Academy of Science 112:157

**Maricle, B.**, R. Gawrych, and D. Kaufman. 1999. Rieck zinc as a possible reducing agent for common organic functional groups. Program and Proceedings of the Nebraska Academy of Sciences 119:101

**g. Guest Lectures**

“Macroclimate” and “Microclimate.” Guest lectures for the General Ecology class, Washington State University, Pullman, WA, January 2006

“Photosynthetic Light Harvesting” and “Alternative Respiration Strategies.” Guest lectures for the Cell Physiology class, Washington State University, Pullman, WA, September 2005

“Near shore environments.” Guest lecture for the General Ecology class, University of Idaho, Moscow, ID, May 2002

“Cardiovascular System: Blood and Blood Pressure.” Guest lecture for the Human Physiology class, Washington State University, Pullman, WA, April 2002

“Respiratory System: Mechanics” Guest lecture for the Human Physiology class, Washington State University, Pullman, WA, April 2001

**h. Invited Presentations**

**Maricle, B.R.** Environmental influences on salt marsh grasses: the roles of waterlogging, salinity, and sulfide. Invited presentation at the Kansas State University Seminar Series in Ecology and Evolutionary Biology, October 2008

**Maricle, B.R.** Wetland vegetation. Invited seminar presented at the Cheyenne Bottoms Wetlanders Festival, Hoisington, KS, April 2007

**Maricle, B.R.** Environmental regulation of species zonation in salt marshes: the roles of flooding, salinity, and sulfide. Invited seminar at Loras College, Dubuque, IA, February 2007

**Maricle, B.R.** The physiological ecology of salt marsh grasses: factors influencing flooding tolerance, salinity tolerance, and species zonation. Invited seminar at the University of St. Thomas, St. Paul, MN, March 2006

**Maricle, B.R.** and R.W. Lee. Respiration and oxygen transport in saltmarsh grasses in relation to elevational zonation. Invited for presentation in the “Environmental Physiology” Minisymposium at the American Society of Plant Biologists Annual Meeting, Seattle, WA, July 2005

**Maricle, B.R.** and R.W. Lee. Oxygen transport through aerenchyma in *Spartina* (Poaceae). Invited for presentation in the “Structure and Function of Wetland Plants” Symposium at the Botanical Society of America Annual Meeting, Mobile, AL, July 2003

Lee, R. W. and **B.R. Maricle**. Why are *Spartina* grasses so successful? Adaptations to anoxia and hydrogen sulfide. Invited presentation at the *Spartina* Mini Conference, Long Beach, WA, June 2001

**i. Contributed Presentations** (asterisks\* denote undergraduate authors; daggers† indicate graduate student authors)

**Maricle, B.R.**, S.R. Zwenger†, A.M. Pfeifer\*, and R.W. Lee. Effects of creek drying on shallow- and deep-rooted trees in western Kansas. Presented at the Ecological Society of America Annual Meeting, Milwaukee, WI, August 2008

**Maricle, B.R.** Biophysical and morphological leaf adaptations to drought and salinity in salt marsh grasses. Presented at the Ecological Society of America Annual Meeting, San Jose, CA, August 2007

**Maricle, B.R.** The physiological ecology of salt marsh grasses: factors influencing flooding tolerance, salinity tolerance, and species zonation. FHSU seminar series, Hays, KS, October 2006

**Maricle, B.R.** The physiological ecology of salt marsh grasses: factors influencing flooding tolerance, salinity tolerance, and species zonation. WSU exit seminar, Pullman, WA, April 2006

**Maricle, B.R.** and R.W. Lee. Oxygen transport and physiological mechanisms influencing zonation in salt marsh grasses. Presented at the Third International Conference on Invasive *Spartina*, San Francisco, CA, November 2004

**Maricle, B.R.**, O. Kiirats, G.E. Edwards, and R.W. Lee. Effects of salinity on carbon isotope discrimination and photosynthesis in C<sub>4</sub> estuarine grasses. Presented at the Ecological Society of America Annual Meeting, Portland, OR, August 2004

**Maricle, B.R.**, J.J. Crosier\*, B.C. Bussiere\*, and R.W. Lee. Potential for marsh plants to oxygenate sediments and enhance bioremediation of pollutants. Presented at the Society of Wetland Scientists Annual Meeting, Seattle, WA, July 2004

Lee, R.W. and **B.R. Maricle**. Oxygen transport and adaptations to flooding in estuarine cordgrasses. Presented at the EPA Joint Program in Phytoremediation PI Meeting, Washington, DC, January 2004

Lee, R.W. and **B.R. Maricle**. Oxygenation of sediments by *Spartina* marsh grasses: Potential facilitation of pollutant degradation. Presented at the U.S. EPA International Applied Phytotechnologies Conference, Chicago, IL, March 2003

**Maricle, B.R.** What makes a successful estuarine invader? Comparative hypoxia- and salt-stress physiology of introduced *Spartina* and native *Distichlis* grasses. Presented at “Eco-Evo Lunch,” WSU School of Biological Sciences informal departmental seminar, January 2003

**Maricle, B.R.** and R.W. Lee. Physiological mechanisms of hypoxia tolerance in invasive *Spartina* cordgrass: The significance of aerenchyma development and oxygen transport. Presented at the American Society of Limnology and Oceanography Annual Meeting, Victoria, BC, June 2002

**Maricle, B.R.** and R.W. Lee. Aerenchyma development and oxygen transport in the estuarine cordgrasses *Spartina alterniflora* and *S. anglica*. Presented at the International Conference on Aquatic Invasive Species, Alexandria, VA, February 2002

**Maricle, B.R.** Aerenchyma development and oxygen transport in the estuarine cordgrasses *Spartina alterniflora* and *S. anglica*. Presented at "Eco-Evo Lunch," WSU School of Biological Sciences informal departmental seminar, October 2001

**Maricle, B.R.** How population density relates to body size in birds. Undergraduate thesis defense, Kearney, NE, July 1999

**Maricle, B.R.**, R. Gawrych, and D. Kaufman. Rieke Zinc as a possible reducing agent for common organic functional groups. Presented at the Nebraska Academy of Sciences, Lincoln, NE, April 1999

**j. Poster Presentations** (asterisks\* denote undergraduate authors; daggers† indicate graduate student authors)

Waring, E.F.† and **B.R. Maricle**. Differences in photosynthesis and respiration due to flooding in native and nonnative wetland grasses of central Kansas. Presented at the Society of Wetland Scientists Annual Meeting, Madison, WI, June 2009

Polacik, K.A.† and **B.R. Maricle**. Response to flooding in invasive saltcedar (*Tamarix*). Presented for Fort Hays State University's Research and Creative Activities Week, Hays, KS, April 2009

Waring, E.F.† and **B.R. Maricle**. Effects of flooding on light harvesting and CO<sub>2</sub> fixation in native and nonnative wetland grasses of central Kansas. Presented for Fort Hays State University's Research and Creative Activities Week, Hays, KS, April 2009 [3<sup>rd</sup> place in the graduate student poster competition]

Polacik, K.A.† and **B.R. Maricle**. Response to flooding in invasive saltcedar (*Tamarix*). Presented at the Kansas Academy of Science Annual Meeting, Topeka, KS, March 2009

Waring, E.F.† and **B.R. Maricle**. Effects of flooding on light harvesting and CO<sub>2</sub> fixation in native and nonnative wetland grasses of central Kansas. Presented at the Kansas Academy of Science Annual Meeting, Topeka, KS, March 2009

Pfeifer, A.M.\* , R.W. Lee, and **B.R. Maricle**. Effects of diet, drugs, and activity levels on δ<sup>13</sup>C of breath and hair of humans. Presented at the Kansas Academy of Science Annual Meeting, Topeka, KS, March 2009

**Maricle, B.R.**, J.R. Thomasson, J.L. Casey\*, J.J. Bitner†, J.L. Gorney†, C.M. Dasilva-Carvalho†, R.M. Shofner\*, E.V. Voznesenskaya, N.K. Koteyeva, and G.E. Edwards. Functional and ecological leaf anatomy in grass leaves of the genus *Spartina*. Presented for Fort Hays State University's Research and Creative Activities Week, Hays, KS, April 2008

**Maricle, B.R.** and R.W. Lee. Respiration and oxygen transport in saltmarsh grasses in relation to elevational zonation. Presented at the American Society of Plant Biologists Annual Meeting, Seattle, WA, July 2005

**Maricle, B.R.**, O. Kiirats, G.E. Edwards, and R.W. Lee. Effects of salinity on photosynthesis in C<sub>4</sub> estuarine grasses. Presented at the Third International Conference on Invasive *Spartina*, San Francisco, CA, November 2004

**Maricle, B.R.** and R.W. Lee. Changes in carbon and nitrogen isotopic composition of C<sub>4</sub> estuarine grasses under different salinity levels. Presented at the Estuarine Research Federation Biennial Conference, Seattle, WA, September 2003

**Maricle, B.R.**, T. Tsuzaki\*, B.C. Bussiere\*, and R.W. Lee. Aerenchyma development in *Spartina alterniflora* and *S. anglica*: Differential responses to flooding and nutrient limitation. Presented at the Science and Engineering Research Symposium, Pullman, WA, March 2001

**Maricle, B.R.** and R.W. Lee. Aerenchyma development in *Spartina alterniflora* and *S. anglica*: Differential responses to flooding. Presented at the William R. Wiley Research Exposition, Pullman, WA, February 2001

**Maricle, B.R.** and J.L. Mena-Werth. The determination of circumstellar material around stars observed with the International Ultraviolet Explorer Satellite using asymmetries in the singly ionized magnesium *h* and *k* lines. Presented at the National Conference of Undergraduate Research, Rochester, NY, April 1999

## 9. Research Grants Received

### a. **Current Research Grants** (daggers<sup>†</sup> indicate graduate student authors)

#### **Kansas Academy of Science**

Waring, E.F.<sup>†</sup> and **B.R. Maricle**. Mechanisms of cold-tolerance in C<sub>4</sub> photosynthetic plants. KAS Student Research Grant, \$1000

Polacik, K.A.<sup>†</sup> and **B.R. Maricle**. Response to flooding in invasive salt cedar (*Tamarix*). KAS Student Research Grant, \$922

### b. **Pending Research Grants**

#### **National Science Foundation**

2009 **Maricle, B.R.** Physiological effects of prescribed burning on invasive cattail at Quivira National Wildlife Refuge, Kansas. National Science Foundation Ecological Biology Cluster DEB-00949794, \$77,720

#### **United States Department of Agriculture**

2009 Johnson, L.C., S.G. Baer, **B.R. Maricle**, and K.R. Harmony. Genotypic variation (diversity) in a dominant forage grass: consequences for Midwest grassland response to precipitation change. United States Department of Agriculture Rangeland Research Program, GRANT10370773, \$499,936

### c. **Past Research Grants**

#### **National Science Foundation**

2004 Lee, R.W. and **B.R. Maricle**. Mechanisms of anoxia tolerance in marsh grasses in the genus *Spartina* (Poaceae). National Science Foundation Doctoral Dissertation Improvement Grant DEB-0508833, \$8542

#### **U.S. Environmental Protection Agency**

2001 Lee, R. W. and **B.R. Maricle**. Physiological mechanisms of estuarine sediment oxidation by *Spartina* cordgrasses. U.S. Environmental Protection Agency Joint Program in Phytoremediation, \$110,307

#### **Li-Cor Biosciences, Inc.**

2008 **Maricle, B.R.** Application for LI-6400 XTR package through the Li-Cor Environmental Education Fund (LEEF) program, \$71,850

**Washington State Department of Ecology**

- 2001 **Maricle, B.R.** Physiological assessments of vigor in Pacific estuary invaders *Spartina alterniflora* and *S. anglica*: How effective is mowing as a control agent? Washington State Department of Ecology Research Assistantship, \$5000

**Fort Hays State University**

- 2008 **Maricle, B.R.** Mechanisms of chilling-tolerant C<sub>4</sub> photosynthesis in marsh grasses. FHSU Graduate School Small Research Grant, \$1190
- 2008 **Maricle, B.R.** Request for travel money. FHSU Faculty/Staff Development Plan, \$516
- 2007 **Maricle, B.R.** Physiological and ecological assessments of water stress in riparian trees. FHSU Graduate School Small Research Grant, \$4798
- 2007 **Maricle, B.R.** Request for travel money. FHSU Faculty/Staff Development Plan, \$600
- 2007 **Maricle, B.R.** Faculty teaching grant award. FHSU College of Health and Life Sciences, \$500
- 2006 **Maricle, B.R.** Physiological and biochemical mechanisms of flooding tolerance in plants. FHSU Graduate School Small Research Grant, \$740
- 2006 **Maricle, B.R.** Request for travel money. FHSU Faculty/Staff Development Plan, \$825

**Washington State University**

- 2006 **Maricle, B.R.** Environmental regulation of species distribution in Washington salt marshes. Betty W. Higinbotham Trust for off-campus training and research, \$975
- 2005 **Maricle, B.R.** Physiological mechanisms of anoxia tolerance in marsh grasses in the genus *Spartina* (Poaceae). Betty W. Higinbotham Trust for off-campus training and research, \$1028
- 2005 **Maricle, B.R.** Physiological mechanisms of anoxia tolerance in marsh grasses in the genus *Spartina* (Poaceae). WSU Orlin and Susann Biddulph Summer Research Award, \$1000
- 2004 **Maricle, B.R.** What makes a successful estuarine mudflat invader? Comparative hypoxia- and salt-stress physiology of introduced *Spartina* and native *Distichlis spicata* (Poaceae). WSU Betty W. Higinbotham Trust for off-campus training and research, \$1933
- 2004 **Maricle, B.R.** The physiology of an estuarine invader: What makes introduced *Spartina* so successful? WSU Orlin and Susann Biddulph Summer Research Award, \$1000
- 2003 **Maricle, B.R.** Oxygenation of sediment by *Spartina* marsh grasses: Facilitation of pollutant degradation. WSU Noe Higinbotham Endowment in Botany, \$500
- 2002 **Maricle, B.R.** Aerenchyma development and oxygen transport in the estuarine cordgrasses *Spartina alterniflora* and *S. anglica*. WSU Graduate School Travel Grant, \$270
- 2002 **Maricle, B.R.** What makes a successful estuarine invader? Comparative hypoxia- and salt-stress physiology of introduced *Spartina* and native West-Coast estuarine vegetation. WSU Betty W. Higinbotham Trust for off-campus training and research, \$1824
- 2001 **Maricle, B.R.** Aerenchyma formation and function in Pacific estuary invaders *Spartina alterniflora* and *S. anglica*: Physiological adaptations to hypoxia. WSU Betty W. Higinbotham Trust for off-campus training and research, \$2620

**10. Honors and Distinctions**

**a. Professional Distinctions**

Fort Hays State University Outstanding Research award, Spring 2009

**b. Academic Honors**

- 2006 Graduated Summa Cum Laude, Ph.D. in Botany, WSU
- 2002 Graduated Summa Cum Laude, M.S. in Botany, WSU
- 2000-2006 Dean's List, Washington State University
- 2000 Selected as Outstanding Graduating Senior by the UNK Department of Biology
- 2000 Graduated Summa Cum Laude, B.S. in Biology, UNK
- 1996-2000 Dean's List, University of Nebraska at Kearney
- 1996-2000 Member of UNK Honors Program

**c. Professional Affiliations**

- American Society of Plant Biologists (member 2001 - present)
- Botanical Society of America (member 2008 - present)
- Ecological Society of America (member 2004 - present)
- Kansas Academy of Science (member 2009 - present)

**d. Current and Recent Collaborators**

- Peter B. Adler, Department of Wildland Resources and the Ecology Center, Utah State University, Logan, UT
- Sara G. Baer, Department of Plant Biology, Southern Illinois Univeristy, Carbondale, IL
- Colin S. Campbell, Decagon Devices, Inc., Pullman, WA
- Douglas R. Cobos, Decagon Devices, Inc., Pullman, WA
- Loretta T. Dorn, Department of Chemistry, Fort Hays State University, Hays, KS
- Gerald E. Edwards, School of Biological Sciences, Washington State University, Pullman, WA
- Keith R. Harmony, Kansas State University Ag Research Center, Hays, KS
- C. Eric Hellquist, Department of Biological Sciences, Oswego State University, Oswego, NY
- Loretta C. Johnson, Division of Biology, Kansas State University, Manhattan, KS
- Olavi Kuirats, School of Biological Sciences, Washington State University, Pullman, WA
- Nuria K. Koteyeva, Laboratory of Anatomy and Morphology, V. L. Komarov Botanical Institute of Russian Academy of Sciences, St. Petersburg, Russia
- Maurice S. B. Ku, Graduate Institute of Agricultural Biotechnology, Center of Agricultural Biotechnology, National Chiayi University, Chiayi, Taiwan
- Jordana J. LaFantasie, Department of Biological Sciences, Fort Hays State University, Hays, KS
- Raymond W. Lee, School of Biological Sciences, Washington State University, Pullman, WA
- Mary L. Morgan, Department of Biological Sciences, Fort Hays State University, Hays, KS
- Joseph R. Thomasson, Department of Biological Sciences, Fort Hays State University, Hays, KS
- Elena V. Voznesenskaya, Laboratory of Anatomy and Morphology, V. L. Komarov Botanical Institute of Russian Academy of Sciences, St. Petersburg, Russia

**11. Community Service**

Work with the FHSU Biology club to develop an outdoor classroom at the Sternberg Museum of Natural History (Spring 2007 to Spring 2009)

Presentation to a lay audience:

**Maricle, B.R.** Wetland vegetation. Invited seminar presented at the Cheyenne Bottoms Wetlanders Festival, Hoisington, KS, April 2007

## 12. References

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