Danielle D. Ignace

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Research Interests

Mechanisms and impacts of non-native species invasions, Ecosystem and plant physiological responses to environmental variation, Impacts of global change, Climate change and Nitrogen deposition, Species coexistence and community composition, and Biodiversity and ecosystem functioning.

Education

2006 University of Arizona, Tucson
Ph.D. Ecology and Evolutionary Biology
Thesis: Functional responses of Sonoran Desert plant species to precipitation
Advisor: Travis E. Huxman

2004 University of Arizona, Tucson
M.S. Ecology and Evolutionary Biology
Advisor: Travis E. Huxman

2000 University of Wisconsin, Madison
B.S. (Honors) Zoology and Environmental Studies
Thesis: Identification of the critical timing of sex determination in Daphnia magna (Crustacea, Branchiopoda) for use in toxicological studies
Advisor: Stanley I. Dodson

Professional Appointments

2012 - Assistant Professor, Department of Biological Sciences, Smith College

2006 - 2012 Postdoctoral Research Associate, Department of Ecology and Evolutionary Biology, University of Arizona, Tucson
Advisor: Peter Chesson

Awards and Honors

2015 Recipient of the Career Enhancement Fellowship for Junior Faculty from the Woodrow Wilson Foundation (Administered by the Andrew W. Mellon Foundation). Fellowship is awarded for the 2015-2016 academic year.

2012 Sigma Xi Research Society, Smith College Chapter, Full member

2007	Selected for the DISSCRS III Symposium (DISsertation initiative for the advancement of Climate Change ReSearch, KMC, Hawaii), September 10-17
2006	Centennial Achievement Doctoral Award, University of Arizona, $500
2004-2006	Alfred P. Sloan Foundation – Native American Fellowship, University of Arizona, $36,000
2002	Honorable Mention, National Science Foundation Pre-doctoral Graduate Fellowship
2002	Honorable mention, Ford Foundation Pre-doctoral Fellowship for Minorities
2001-2002	Minority Graduate Research Fellowship, University of Arizona
2000	REU, Rocky Mountain Biological Laboratory, Crested Butte, CO, Advisor: Neo Martinez

Grants

2014	National Science Foundation, Senior personnel for the Harvard Forest REU Site Renewal Proposal, *submitted summer 2014*
2013	Committee on Faculty Compensation & Development Grant, **$1,435**
2012	Committee on Faculty Compensation & Development Grant, **$3,500**
2008-2011	National Science Foundation, Division of Environmental Biology (Population and Community Ecology), "Community Change in an Arid Ecosystem", **$570,000** (PI Chesson, Co-PI Ignace)
2010	National Science Foundation, REU Supplement, **$7,500**
2009	National Science Foundation, REU Supplement, **$7,296**
2006	Centennial Achievement Doctoral Award, University of Arizona, **$500**
2004	Ecology and Evolutionary Biology, University of Arizona, Research Grant, **$800**

Publications

Ignace, D. D. and P. Chesson. 2014. Removing an invader: Evidence for forces reassembling a Chihuahuan Desert ecosystem. ***Ecology*** 95(11):3203-3212.

Ogle, K., R. W. Lucas, L. P. Bentley, J. M. Cable, G. Barron-Gafford, A. Griffith, **D. D. Ignace**, G. D. Jenerette, A. Tyler, T. E. Huxman, M. E. Loik, S. D. Smith, and D. T. Tissue. 2012. Differential daytime and nighttime stomatal behavior and substantial nighttime water loss in plants from deserts of North America. ***New Phytologist*** 194: 464-476.

Ignace, D. D., S. I. Dodson, and D. Kashian. 2011. Identification of the critical timing of sex determination in *Daphnia magna* (Crustacea, Branchiopoda) for use in toxicological studies. ***Hydrobiologia*** 668(1):117-123.

Ignace, D. D. and T. E. Huxman. 2009. Limitations to photosynthetic function across season in *Larrea tridentata* (creosotebush) growing on contrasting soil surfaces in the Sonoran Desert. ***Journal of Arid Environments*** 73:626-633.

Resco, V., **D. D. Ignace**, W. Sun, T. E. Huxman, J. F. Weltzin, and D. G. Williams. 2008. Chlorophyll fluorescence, predawn water potential and photosynthesis in precipitation pulse-driven ecosystems - implications for ecological studies. ***Functional Ecology*** 22: 479-483.

Ignace, D. D., T. E. Huxman, J. Weltzin, and D. G. Williams. 2007. Leaf gas exchange and water status responses of a native and non-native grass to precipitation across contrasting soil surfaces in the Sonoran Desert. ***Oecologia*** 152:401-413.

Patrick, L., J. Cable, D. Potts, **D. D. Ignace**, G. Barron-Gafford, N. Van Gestel, T. Robertson, H. Alpert, A. Griffith, T. Huxman, J. Zak, M. Loik, D. Tissue. 2007. Effects of an increase in summer precipitation on leaf, soil and ecosystem fluxes of CO2 and H2O in a sotol-grassland in Big Bend National Park, Texas. ***Oecologia*** 151:704-718.

Potts, D. L., T. E. Huxman, J. M. Cable, N. B. English, **D. D. Ignace**, J. A. Eilts, M. J. Mason, J. F. Weltzin, and D. G. Williams. 2006. Antecedent moisture and seasonal precipitation influence response of canopy-scale carbon and water exchange to rainfall pulses in a semi-arid grassland. ***New Phytologist*** 170:849-860.

Yepez, E. A., T. E Huxman, **D. D. Ignace**, N. B. English, J. F. Weltzin, A. E. Castellanos, D. G. Williams. 2005. Dynamics of transpiration and evaporation following a moisture pulse in semiarid grassland: A chamber-based isotope method for partitioning flux components. ***Agricultural and Forest Meteorology*** 132 (3-4): 359-376.

Huxman, T. E., J. M. Cable, **D. D. Ignace**, J. A. Eilts, N. B. English, J. Weltzin, and D. G. Williams. 2004. Response of net ecosystem gas exchange to a simulated precipitation pulse in a semi-arid grassland: the role of native versus non-native grasses and soil texture. ***Oecologia*** 141:295-305.

Enquist, B. J., E. P. Economo, T. E. Huxman, A. P. Allen, **D. D. Ignace**, and J. F. Gillooly. 2003. Scaling metabolism from organisms to ecosystems. ***Nature*** 423:639-642.

Teaching Experience at Smith College

Spring 2015
- Plant Physiology (lecture), BIO 206
- Plant Physiology (lab), BIO 207
- Guest lectured for BIO 150 (Photosynthesis and Physiology)

Fall 2014
- Introductory Biology, BIO 150 (Cells, Physiology, and Development), Co-instructor with Chris White-Ziegler
- BIO 390 Seminar, Ecological Impacts of Global Change

Spring 2014
- Plant Physiology (lecture), BIO 206
- Plant Physiology (lab), BIO 207
- Guest lectured for BIO 150 (Photosynthesis and Physiology)

Fall 2013
- Introductory Biology, BIO 150 (Cells, Physiology, and Development), Co-instructor with Chris White-Ziegler
- BIO 390 Seminar, Ecological Impacts of Global Change

Spring 2013
- Plant Physiology (lecture), BIO 206
- BIO 390 Seminar, Climate Change and Ecosystem Processes

Guest lectured for BIO 150 (Plant Development and Physiology)

Fall 2012

Introductory Biology, BIO 150 (Cells, Physiology, and Development), Co-instructor with Chris White-Ziegler

Teaching Experience at the University of Arizona

Co-instructor, 2010

Ecology 596 (graduate student seminar), Resource availability and plant invasions

Teaching Assistant, 2001-2004

General Ecology 302 (core undergraduate course), Evolutionary Biology 335 (upper division undergraduate course), and Genetics 320 (upper division undergraduate)

Mentoring Experience while at Smith College

Fall 2014 – Spring 2015

Mentored Sam Danguilan and Kyle Boyd on their senior honors thesis projects. Both graduated with honors and are currently preparing their manuscripts for publication.

Spring 2014

Sam Danguilan completed a special studies project relating to root nodule development in native and non-native winter annual species. Shabnam Kapur, Karen Yu, Devi Dearmon-Moore, and Bradyn St. Marie assisted with lab research while developing their own independent research projects. Celebrating Collaboration Poster/Presentation; All students in the lab presented a poster "Plant invasion in the Chihuahuan Desert".

Summer 2014

Summer Harvard Forest REU program

I mentored Kyle Boyd (Smith student) for the Harvard Forest REU summer program (Petersham, MA). Kyle worked on my new research project investigating plant physiology dynamics and vegetation structure development in response to clearing at Harvard Forest.

Summer SURF program

Sam Danguilan continued work a project that relates to my research investigating soil respiration and microbial diversity and activity at the MacLeish Field Station. Bradyn St. Marie continued her research project that investigates competition between a native and non-native winter annual desert species.

Fall 2013

Two special studies students, Allison Ferreira and Shabnam Kapur, completed research projects relating to plant physiology of my desert system. Samanatha Danguilan, Devi Dearmon-Moore, and Bradyn St. Marie assisted with lab research while finding opportunities to have their own independent research projects.

Summer 2013

Summer Harvard Forest REU program:

Mentored Sophie Bandurski (Smith student) for the Harvard Forest REU summer program (Petersham, MA). Sophie completed an independent project that

met the goals of my group project looking at the development of the forest carbon sink at the Harvard Forest. My research objectives focused on the forest understory productivity and physiology.

Summer SURF program:

Kyle Boyd, Allison Ferreira, and Enu Otsyina, were involved in research during the summer of 2013. Students assisted with plant growth chamber experiments and doing fieldwork at the MacLeish Field Station while carrying out their independent research projects.

Spring 2013

Mentored Kyle Boyd for a special studies project. *Effects of Environmental Changes on the Physiology of Native and Invasive Desert Annual Plants*. Kyle presented a poster at the Celebrating Collaborations event on April 20, 2013.

Fall 2012-Spring 2013

Samantha Zizi, Sophie Bandurski, and Samantha Danguilan have been assisted with setting up the lab and research projects this year.

Mentoring Experience while at the University of Arizona

2006-2011	Laboratory technicians Rebecca Prescott, Stephanie Hovatter, and Krista Cole, and 16 undergraduate students assisting with grant projects
2010	Elieza Tang, Research Experience for Undergraduates (REU) Project, Competition between a Chihuahuan Desert native and non-native annual plant in a growth chamber experiment, supplemental project for NSF funded grant "Community Change in an Arid Ecosystem"
2009	Krista Cole, Research Experience for Undergraduates (REU) Project, Techniques for understanding plant responses to environmental variability in growth chamber experiments, supplemental project for NSF funded grant "Community Change in an Arid Ecosystem"
2004-2007	Native American and other underrepresented minority undergraduate students, Alfred P. Sloan Foundation – Native American Fellowship Program Led meetings and discussions of developing and completing independent research projects, presented research, and advised students in the process of determining their scientific career goals
2001-2006	Six undergraduate students assisting with doctoral research

Invited Symposia, Seminars, and Workshops

Invited Seminar Speaker – Positive and negative effects of non-native species: Impacts on community structure and ecosystem function; Harvard University in the Arnold Arboretum seminar series, November 16, 2015.

Invited Seminar Speaker – Positive and negative effects of non-native species: Impacts on community structure and ecosystem function; UMass-Boston in the Biology Department, September 25, 2015.

Invited Seminar Speaker - Wesleyan University in the Biology Department. Spring 2015.

Sigma Xi Seminar Speaker - Community change in arid ecosystems: The roles of invasive species, climate change, and nitrogen deposition. April 2, 2013.

Invited Seminar Speaker - Community change of a desert ecosystem. Harvard Forest Seminar Series, January 25, 2012

Invited Seminar Speaker - The role of precipitation in plant dynamics of a Sonoran and Chihuahuan Desert ecosystem. Department of Ecology and Evolutionary Biology, Wayne State University, Detroit, MI, September 20, 2010

Invited Class Lecturer - The desert and the environment. iPlant Collaborative Project with Empire High School, AP and Honors Biology Class, April 6, 2009

Invited Participant - DOE National Institute for Climatic Change Research, Focus 4: Synthesis of existing datasets to explore the implications of altered precipitation for carbon and water dynamics in desert ecosystems of the southwestern US, Tucson, AZ, November 15-18, 2007

Selected Participant - DISSCRS III Symposium (DISsertation initiative for the advancement of Climate Change ReSearch, KMC, Hawaii), September 10-17, 2007

Professional Activities and Service

Reviewer for the IPCC (Intergovernmental Panel on Climate Change) Synthesis Report:
Reviewer for the Working Group contribution to the IPCC's Fifth Assessment Report (AR5) on Climate Change (released April 21, 2014).

Reviewer for a Textbook:
Sadava, David, David M. Hillis, H. Craig Heller, and May R. Berenbaum. *Life: The Science of Biology, 10th Edition*. I reviewed Chapter 34 (The Plant Body), Chapter 35 (Transport in Plants), Chapter 36 (Plant Nutrition), and Chapter 39 (Plant Responses to Environmental Challenges).

Manuscript Reviewer for:
Biological Invasions, Ecology, Functional Ecology, Global Change Biology, Journal of Arid Environments, Journal of Ecology, Journal of the Torrey Botanical Society, Northeastern Naturalist, Oecologia, Rangeland Ecology and Management, Trees – Structure and Function

Grant Proposal Reviewer for:
National Science Foundation (Division of Environmental Biology, Long Term Research in Environmental Biology, 2008)

Symposium Reviewer for:
DISSCRS IV Symposium (DISsertation initiative for The advancement of Climate Change, 2008): Reviewed and ranked applicants for selection into the 2008 DISSCRS Symposium.

College Committees and Services

Science Planning Committee
I participate in regular meetings to define the Div III (Natural Sciences) strategic plan and discuss needs of the faculty and students in Div III.

STEM Graduate School Application Workshop Series

I participated in the four part workshop series that advised students in STEM field on the process of selecting a graduate program, the application process, crafting a CV, and developing interview skills.

Discovery Weekend Community Dinner

I represented Smith as a faculty member of color while greeting newly admitted students of color. (Fall of 2013 & 2014).

Smith Community Conversation:

Participant in a community discussion on fossil fuel divestment (October 25, 2013; hosted by CEEDS and Divest Smith students

Liberal Arts Advisor to nine new students in their first year at Smith College (2013-2014).

Biological Sciences Department Committee and Services

Curriculum Committee (2014-2015)
Endowed Funds Committee (2013-2014)
Department Secretary (2012-2013)
Major advisor to seven students

Environmental Science and Policy Program Committee and Services

Staffing and Space Subcommittee (2013-2015)
Advisor to one student majoring in ES&P and one student minoring in ES&P

Concentrations at Smith College Services

Climate Change Concentration:
This new concentration admitted students in the Fall of 2014 and I advise one student.

Community Service and Outreach

Native Seeds/SEARCH (Southwestern Endangered Aridland Resource Clearing House), Non-profit organization located in Tucson, AZ:

Vice-chair, Board of Directors (2011-2012)
Grant Consultant (2011-2012)
Chair of the Native American Committee and Marketing Committee (2009-2012)
Secretary, Board of Directors (2009-2012)
Board of Directors (2008-2012)

Graduate Student Leadership:

Coordinator for graduate student and seminar speaker activities, Ecology and Evolutionary Biology, University of Arizona (2004-2005)
Graduate Student Representative, Ecology and Evolutionary Biology, University of Arizona (2002-2005)
Coordinator for prospective graduate interview process, Ecology and Evolutionary Biology, University of Arizona (2002)

Presentations at Scientific Conferences

Boyd, K. and **D. D. Ignace.** Assessing seasonal photosynthetic function of dominant species post clearcut at Harvard Forest. Harvard Forest Symposium. August, 2014.

Bandurski, S. and **D. D. Ignace**. Development of the carbon sink: Understory physiology. Harvard Forest Symposium. August, 2013.

Ignace, D. D. and P. Chesson. A field experiment testing the effects of climate change, nitrogen deposition, and invasion on a Chihuahuan Desert ecosystem. Ecological Society of America Meeting, Pittsburgh, PA, August 2, 2010.

Ignace, D. D. and P. Chesson. The role of resource use and availability in the invasion of an exotic species and its impacts on a Chihuahuan Desert ecosystem. Ecology Society of America Meeting, Albuquerque, NM, August 3, 2009.

Ignace, D. D. and P. Chesson. Effects of removing the non-native, *Erodium cicutarium*, on a Chihuahuan Desert ecosystem. Ecological Society of America Meeting, Milwaukee, WI, August 5, 2008.

Ignace, D. D. Functional responses of Sonoran Desert plant species to precipitation. DISSCRS III Symposium (DISsertation initiative for the advancement of Climate Change ReSearch, KMC, Hawaii), September 10-17, 2007.

Ignace, D. D. and P. Chesson. The role of climate in the invasion of an exotic species and its impacts on a Chihuahuan Desert ecosystem. Ecological Society of America Meeting, San Jose, California, August 7, 2007.

Ignace, D. D., T. E. Huxman, D. Williams, and J. Weltzin. Leaf photosynthesis responses of native and non-native C4 grasses to precipitation pulses in a desert grassland. Ecological Society of America Meeting, Memphis, Tennessee, August 8, 2006.

Ignace, D. D., D. Potts, E. Yepez-Gonzalez, J. Cable, M. Mason, A. Eilts, N. English, J. Weltzin, D. Williams, and T. E. Huxman. The role of a native and non-native grass species in ecosystem CO2 and H2O exchange across two contrasting soil surfaces. Research Insights in Semiarid Ecosystems (RISE) Symposium, Tucson, AZ, October 8, 2005.

Ignace, D. D. Functional response of a native and non-native grass species to precipitation manipulation across contrasting soil surfaces. Alfred P. Sloan Foundation Research Fair, Tucson, Arizona, October 18, 2005.

Ignace, D. D., D. Potts, E. Yepez-Gonzalez, T. E. Huxman, D. Williams, J. Weltzin. Response of evapotranspiration in a semi-arid ecosystem applied with a simulated precipitation pulse: The role of grass species across geomorphic surfaces. Ecological Society of America Meeting, Montreal, Canada, August 8, 2005.

Tissue, D., L. Patrick, A. Griffith, H. Alpert, **D. D. Ignace**, and J. Cable. The effect of changes in timing and magnitude of precipitation on carbon and water fluxes: Scaling C3, C4 and CAM to ecosystem. Ecological Society of America Meeting, Montreal, Canada, August 8, 2005.

Ignace, D. D. and T. E. Huxman. Functional response of native and non-native grasses to a precipitation simulation in the Sonoran Desert. Ecological Society of America Meeting, Portland, Oregon, August 2004.

Cable, J. M., T. E. Huxman, J. Weltzin, D. G. Williams, **D. D. Ignace**, D. L. Potts, N. English, and M.

Mason. Controls on respiration in a semi-arid grassland in southeastern Arizona. Ecological Society of America Meeting, Portland, Oregon, August 2004.

Ignace, D. D. and T. E. Huxman. Functional response of native and non-native grasses to a precipitation simulation in the Sonoran Desert. Southwestern Association of Biologists meeting, Portal, Arizona. Oct, 2003.

Heinz, C. A., D. R. Papaj, **D. D. Ignace**, and J. Garcia. Battus philenor and color variants of Aristolochia watsoni in southern Arizona. Entomological Society of America Meeting, Cincinnati Ohio, October 26-29, 2003.

Enquist, B. J., E. P. Economo, T. E. Huxman, A. Allen, **D. D. Ignace**, and J. F. Gillooly. A general model for scaling temperature and biochemical kinetics from cells to ecosystems. Ecological Society of America Meeting, Savannah, Georgia, August 3-8, 2003.

Ignace, D. D. and T. E. Huxman. The effects of soil surface on community structure and plant function of Larrea tridentata in the Sonoran Desert. Ecological Society of America Meeting, Savannah, Georgia, August 3-8, 2003.

Ignace, D. D., E. P. Economo, B. J. Enquist, and T. E. Huxman. Latitudinal variation in forest community productivity: A comparison between North America and Europe. Ecological Society of America Meeting, Tucson, Arizona, August 3-9, 2002.

Economo, E., **D. D. Ignace**, T. E. Huxman, and B. J. Enquist. Assessing the key features driving large scale patterns of gross primary production across forest ecosystems: A comparison across Europe and North America. Ecological Society of America Meeting, Tucson, Arizona, August 3-9, 2002.

Huxman, T.E., J.M. Cable, **D.D. Ignace**, J.A. Eilts, N. English, J. Weltzin, and D.G. Williams. Geomorphic influence on ecosystem precipitation pulse response in a semi-arid grassland. Chapman Conference, Taos, NM, September, 2002.

Professional Affiliations

Sigma Xi, Full member elected to the Smith College Chapter
Botanical Society of America
Ecological Society of America
Eco-physiological Chapter of the Ecological Society of America