

JARET S. REBLIN

BOWDOIN COLLEGE
DEPARTMENT OF BIOLOGY
6500 COLLEGE STATION
BRUNSWICK, ME 04011
(207)725-3166
JREBLIN@BOWDOIN.EDU

RESEARCH INTERESTS

I am a broadly trained ecologist and have experience conducting research in a wide array of different fields ranging from ecotoxicology to animal and plant ecology and natural history to terrestrial and aquatic biogeochemistry to plant ecophysiology. Currently, my research explores stress physiology in higher plants. Specifically I study how biotic and abiotic stressors act together and independently to influence photosynthesis and water relations in plants.

TEACHING INTERESTS

In the classroom, I specialize in teaching research-based, investigative laboratories with emphases on ecology, natural history, ecophysiology, general biology, and quantitative skills development. In recent years, I have taught laboratory courses in Plant Ecophysiology, Forest Ecology and Conservation, Community and Ecosystems Ecology, Behavioral and Population Ecology, and Introductory Biology among others.

EDUCATION

John Carroll University, University Heights, Ohio
MS in Biology, 2001
Baldwin-Wallace University, Berea, Ohio
BS in Biology with a Minor in Chemistry, 1997
Franz Theodore Stone Laboratory, Ohio State University, Put-in-Bay, Ohio, Summer 1994
The Ohio State University, Columbus, Ohio, Fall 1992

CURRENT APPOINTMENT

Bowdoin College, Department of Biology, Brunswick Maine, **Laboratory Instructor**, 2001 to Present

PUBLICATIONS

PEER-REVIEWED ARTICLES

UNDERLINE DENOTES AN UNDERGRADUATE COLLABORATOR

PUBLISHED

Magney T, Logan B, **Reblin J**, Boelman N, Eitel J, Greaves H, Griffin K, Prager C, Vierling L. (2017) Xanthophyll cycle activity in two prominent Arctic shrub species. *Arctic, Antarctic, and Alpine Research* 49(2):277-289.

de Villier J, **Reblin J**, B Logan. (2017) Needle Properties of Host White Spruce (*Picea glauca* [Moench] Voss) Experiencing Eastern Dwarf Mistletoe (*Arceuthobium pusillum* Peck) Infections of Differing Severity. *Botany* 95(3):295-305.

Logan B, Stafstrom W, Walsh M, **Reblin J**, Gould K (2015) Examining the photoprotection hypothesis for adaxial foliar anthocyanin accumulation by revisiting comparisons of green and red-leafed varieties of coleus (*Solenostemon scutellarioides*). *Photosynth Res* 124:267-274.

Logan B, **Reblin J**, Zonana D, Dunlavey R, Hricko C, Hall A, Schmiege S, Butschek R, Duran K, Emery N, Kurepin L, Lewis J, Pharis R, Phillips N, Tissue D (2013) Impact of eastern dwarf mistletoe (*Arceuthobium pusillum*) on host white spruce (*Picea glauca*) development, growth and performance across multiple scales. *Physiologia Plantarum* 147:503-513.

Lichter J, Burton M, Close S, Grinvalsky J, **Reblin J** (2011) Waterfowl Habitat Change Over Five Decades in a Freshwater Tidal Ecosystem in Mid-Coast Maine. *Northeastern Naturalist* 18(2): 161-176.

Reblin J, Logan B, Tissue D (2006) Impact of eastern dwarf mistletoe (*Arceuthobium pusillum*) infection on the needles of red (*Picea rubens*) and white spruce (*P. glauca*): oxygen exchange, morphology, and composition. *Tree Physiology* 26:1325-1332.

Wicknick J, Anthony C, **Reblin J** (2005) An amphibian survey of Killbuck Marsh Wildlife Area, Ohio. *Ohio Journal of Science* 105(2):2-7.

Reblin J, Anthony C (2001) Caudata: *Eurycea longicauda longicauda* (Long-tailed salamander). Predation. *Herpetological Review* 32(4):245-246.

OTHER PUBLICATIONS

Logan B, Tarr E, Murphy P, **Reblin J** (2011) Studies Probe Secrets of Spruce Parasite. *Maine Island Trail Winter Newsletter*, Maine Island Trail Association, Portland, ME USA

Moore S, **Reblin J** (2009) The Kennebec Estuary: Restoration Challenges and Opportunities. Kennebec Estuary Collaboration Technical Report.

PRESENTATIONS CONFERENCE

UNDERLINE DENOTES AN UNDERGRADUATE COLLABORATOR

The impacts of the parasitic plant eastern dwarf mistletoe (*Arceuthobium pusillum*) on host photosynthesis and branch biomass partitioning in white spruce (*Picea glauca*). Annual Meeting of the Ecological Society of America, August 2015, Baltimore MD (Poster with B. Logan, P. Murphy, E. Tarr, J. Reblin presenter)

Do asymmetric physiological responses to stress influence the effects of a parasitic plant on two host conifers with different ecophysologies? Meeting of the American Society of Plant Biologists, July 2014, Portland, OR (Oral Presentation by J. Reblin)

Impacts of a parasitic dwarf mistletoe on the water relations of two host conifers with different drought tolerances. Annual Meeting of the

	<p>Ecological Society of America, July 2013, Minneapolis MN (Poster with B. Logan, J. Reblin presenter)</p> <p>Impact of eastern dwarf mistletoe infection (<i>Arceuthobium pusillum</i>) on the needles of red (<i>Picea rubens</i>) and white spruce (<i>P. glauca</i>): Photosynthesis, biochemistry and morphology. Annual meeting of the Ecological Society of America, August, 2005, Montreal Canada (Poster with B. Logan and D. Tissue, J. Reblin presenter)</p> <p>The Toxicity of the Mosquito Control Agent Abate® 4-E to Tadpoles of the Blanchard's Cricket Frog, <i>Acris crepitans blanchardi</i>. 49th Annual Meeting of the Society of the Study of Amphibians and Reptiles July 2001 Indianapolis, IN (Poster with C. Anthony as co-author, J. Reblin presenter)</p>
INVITED TALKS & SEMINARS	<p>Physiological impacts of the parasitic plant eastern dwarf mistletoe on host white spruce. 72nd Annual meeting of the Northeastern Forest Pest Council. March 2010, York ME (Oral presentation)</p> <p>Ecology of the Kennebec River Estuary. December, 2008, Bath ME. Sponsored by the Kennebec Estuary Collaboration (Oral presentation with S. Moore)</p> <p>Effects of dwarf mistletoe, a native parasitic plant, on host spruce growth and survival. Faculty Seminar Series, December, 2002, Bowdoin College, Brunswick ME (Oral presentation with B. Logan)</p> <p>The Toxicity of the Mosquito Control Agent Abate® 4-E to Tadpoles of the Blanchard's Cricket Frog, <i>Acris crepitans blanchardi</i>. October 2001. John Carroll University, University Heights OH. (Oral presentation)</p> <p>The Toxicity of Abate® to Tadpoles of the African Clawed Frog, <i>Xenopus laevis</i>. 2000 John Carroll University, University Heights OH (Oral presentation)</p>
OTHER PRESENTATIONS	<p>Progressive impacts of parasitism by eastern dwarf mistletoe (<i>Arceuthobium pusillum</i>) on the physiology of white spruce (<i>Picea glauca</i>). Meeting of the American Society of Plant Biologists, July 2014, Portland, OR (Poster Presentation with J. de Villier and B. Logan, J. de Villier presenter)</p> <p>Situating foliar anthocyanin accumulation among photoprotective mechanisms employed by plants in response to abiotic stress. Meeting of the American Society of Plant Biologists, July 2014, Portland, OR (Poster Presentation with B. Logan, <u>W. Stafstrom</u>, <u>M. Walsh</u>, B. Logan presenter)</p> <p>Testing the photoprotection hypothesis for foliar anthocyanin accumulation. Annual Meeting of the Ecological Society of America, July 2013, Minneapolis MN (Poster with B. Logan, <u>W. Stafstrom</u>, <u>M. Walsh</u>, and <u>S. Merrill</u>, B. Logan presenter)</p>

Soil carbon and nitrogen dynamics in a pine forest under elevated atmospheric CO₂. Meeting of the American Geophysical Union, December 2011, San Francisco CA (Poster with J. Lichter and F. Hopkins, J. Lichter presenter)

Parasitic manipulation of host white spruce (*Picea glauca*) by eastern dwarf mistletoe (*Arceuthobium pusillum*): effects on host development, growth and performance across multiple scales. Meeting of the American Society of Plant Biologists, August 2011, Minneapolis MN (Poster with B. Logan, D. Zonana, R. Dunlavy, C. Hricko, J. Lewis, D. Tissue, N. Phillips, N. Emery, R. Pharis, L. Kurepin, and K. Duran, B. Logan presenter)

Environmental history of the Kennebec Estuary, Maine: a paleoecological study. Meeting of the Atlantic Estuarine Research Society, April 2011, Solomons MD (Poster with S. Cooper, J. Lichter, P. Lea, and A. Nurse, S. Cooper presenter)

Soil carbon and nitrogen turnover in a pine forest under elevated CO₂. Meeting of the American Geophysical Union, December 2010, San Francisco CA (Poster with J. Lichter, A. Kaubris, R. Austin, J. Anderson, N. Wong, and S. Wu, J. Lichter presenter)

Environmental history of the Kennebec Estuary, Maine. Coastal and Estuarine Research Federation 20th Biennial Conference, November 2009, Portland OR (Poster with S. Cooper, J. Lichter, P. Lea, and A. Nurse, S. Cooper presenter)

Ecological recovery in a freshwater tidal ecosystem in mid-coast Maine. Annual Meeting of the Ecological Society of America, August 2009, Albuquerque NM (Poster with J. Lichter, M. Burton, and S. MacFarlane, J. Lichter presenter)

Soil carbon sequestration and turnover under elevated atmospheric CO₂. Annual Meeting of the Ecological Society of America, August 2009, Albuquerque NM (Poster with A. Kaubris, and J. Lichter, J. Lichter presenter)

The influence of *Arceuthobium pusillum* infection on the hydraulic architecture of white spruce stems. World Congress on Parasitic Plants, June, 2007, Charlottesville VA (Poster with R. Dunlavy and B. Logan, B. Logan presenter).

Student-led investigative laboratories designed to examine the acclimation of photosynthesis and energy dissipation. American Society for Plant Biologists, August, 2006, Boston MA (Poster with B. Logan as co-author and presenter)

The demography and movement patterns of snapping turtles, (*Chelydra serpentina*) in a freshwater tidal wetland, Merrymeeting Bay, Maine USA. Annual Meeting of the Ecological Society of America, August, 2006, Memphis TN (Poster with L. Van Hook co-author and presenter)

Student-led investigative laboratories designed to examine the acclimation of photosynthesis and energy dissipation. International Congress on Photosynthesis. August/September, 2004, Montreal Canada (Poster with B. Logan as co-author and presenter)

Student-led investigative laboratories designed to examine the acclimation of photosynthesis and energy dissipation. American Society of Plant Biologists – Northeast Section. June, 2004, Providence RI (Poster with B. Logan as co-author and presenter)

The legacy of intense deer browsing on plant and microbial community composition and diversity. Annual Meeting of the Ecological Society of America and the 14th Annual International Conference of the Society for Ecological Restoration, August 2002, Tucson AZ (Poster with J. Lichter, J. Hardison, and E. Stemmler, J. Lichter presenter)

ACKNOWLEDGED CONTRIBUTIONS

PAPERS, BOOKS, AND DISSERTATIONS IN WHICH ACKNOWLEDGEMENTS WERE MADE FOR MY MATERIAL OR INTELLECTUAL CONTRIBUTIONS.

Magney T, Eitel J, Griffin K, Vierling L. (2016) LIDAR canopy radiation model reveals patterns of photosynthetic partitioning in an arctic shrub. *Agricultural and Forest Meteorology* 221:78-93.

Cooney L. (2015) Redressing the roles of anthocyanin pigments in vegetative and reproductive organs. Dissertation submitted to Victoria University of Wellington, New Zealand 134pgs.

Magney T, Eusden S, Eitel J, Logan B, Jiang J, Vierling L. (2014) Assessing leaf photoprotective mechanisms using terrestrial LiDAR: towards mapping canopy photosynthetic performance in three dimensions. *New Phytologist* 201:344-356.

Pfingsten R, Davis J, Matson T, Lipps G, Wynn D, Armitage B (editors). (2013) *Amphibians of Ohio*. Ohio Biological Survey, Inc. Columbus OH. 898pgs.

Goldsmith G. (2012) Plant-water relations in seasonally dry tropical montane cloud forests. Dissertation submitted to the University of California, Berkeley 87pgs.

Kraichak E, Pope R, Wheelwright N. (2009) Habitat associations of macrolichens on a boreal island in the Bay of Fundy, New Brunswick, Canada. *The Bryologist* 112(4):762-772.

Logan B, Combs A, Myers K, Kent R, Stanley L, Tissue D. (2009) Seasonal response of photosynthetic electron transport and energy dissipation in the eighth year of exposure to elevated atmospheric CO₂ (FACE) in *Pinus taeda* (loblolly pine). *Tree Physiology* 29:789-797.

Mathewson B. (2009) The relative abundance of eastern red-backed salamanders in eastern hemlock-dominated and mixed deciduous forests at Harvard Forest. *Northeastern Naturalist* 16(1):1-12.

	<p>Köster D, Lichter J, Lea P, Nurse A. (2007) Historical eutrophication in a river-estuary complex mid-coast Maine. <i>Ecological Applications</i> 17(3):765-778.</p> <p>Peterson T, Uesugi A, Lichter J. (2005) Tree recruitment limitation by introduced snowshoe hares, <i>Lepus americanus</i>, on Kent Island, New Brunswick. <i>Canadian Field-Naturalist</i> 119:569-572.</p>
Professional Meetings Attended	<p>American Society of Plant Biologists, 2014 Ecological Society of America, 2005, 2013, 2015 Northeastern Forest Pest Council, 2010 Society for the Study of Amphibians and Reptiles, 2001</p>
Membership in Professional Organizations	<p>Ecological Society of America</p>
Editorial Work	<p>Guest Editor, <i>Northeastern Naturalist</i>, 2008-2009.</p>
GRANTS	<p>In 2002 and again in 2007 with Dr. Barry Logan, I was awarded research funding through the Rusack Coastal Studies Project Initiative Fund to pursue research on the ecophysiology of parasitic plant infections on host species. In 2011 with Dr. Barry Logan, I was awarded research funding allocated from a larger institutional HHMI award to measure the impacts of eastern dwarf mistletoe infection on photosynthesis in white spruce in an attempt to help determine how the infection contributes to host decline and death.</p>
TEACHING	
BOWDOIN COLLEGE	<p>LABORATORY INSTRUCTOR, 2001 TO PRESENT I currently teach laboratories for the Forest Ecology and Conservation, Plant Ecophysiology, and Biological Principles II courses. In addition to these courses, I have also taught laboratories in Community and Ecosystems Ecology, Behavioral and Populations Ecology, Investigations in Biology, Ancient and Modern Agriculture, Biofuels, the Ecology of Merymeeting Bay, and the Science of Food and Wine. I am primarily responsible for the design, implementation, and execution of the laboratory activities in these courses. I work collaboratively with students to develop and test biological hypotheses and to present their results in journal style scientific manuscripts or in research presentations as talks or scientific posters.</p>
BOWDOIN COLLEGE	<p>SUMMER RESEARCH INSTRUCTOR, 2003 TO 2015 In this position, I worked during the summer months both conducting my own research and mentoring students doing independent research on a wide variety of different topics. Topic areas of these projects</p>

include; the demography and habitat use by turtles in freshwater tidal ecosystems, habitat use by fishes in tidal ecosystems, both intertidal and subtidal plant population census and monitoring, intertidal and subtidal plant ecology and physiological ecology, aquatic biogeochemistry, terrestrial soil carbon sequestration, the physiology and ecology of plant and plant parasite interactions, and the photosynthetic stress physiology of higher plants. This work was funded by grants from the National Science Foundation, Howard Hughes Medical Institute, Luce Foundation, and the Rusack Coastal Studies Project Initiative Fund.

**JOHN CARROLL
UNIVERSITY**

GRADUATE TEACHING ASSISTANT, 1999 TO 2001

I worked with the Advanced Ecology (under Dr. Carl Anthony), Evolution (under Dr. Venessa Artman), and Principles of Biology (under Sandy Buckles) courses. In these courses, my responsibilities included preparing lectures, developing laboratory exercises, writing and grading assignments and exams, and supervising students in the design and execution of independent research projects including statistical data analysis and the preparation of journal style scientific manuscripts. While working as a teaching assistant at John Carroll, I was the only graduate student selected to teach sections of Principles of Biology I & II laboratories independently without additional faculty or graduate student support.

**BALDWIN-
WALLACE
UNIVERSITY**

COURSE ASSISTANT, 1995 TO 1996

I worked with the Field Biology (under Dr. Michael Melampy and Dr. Glenn Peterjohn) and Biochemistry (under Dr. Michael Bumbulis) courses as an undergraduate student. My work with these courses in part helped me to earn the Biological Sciences Merit Award, one of two awards given to graduating students in the department. In these courses, my primary responsibilities included testing new laboratory procedures and protocols, aiding students in the proper use of laboratory and field equipment, holding topic review sessions, and writing and administering practical examinations.

**TECHNICAL
SKILLS &
PROFICIENCIES**

THE LIST THAT FOLLOWS PROVIDES EXAMPLES OF THE TYPES OF EQUIPMENT AND METHODOLOGIES I USE IN MY TEACHING AND RESEARCH.

PLANT PHYSIOLOGICAL ECOLOGY

- Field and laboratory measurements of photosynthesis, transpiration, stomatal conductance, and chlorophyll fluorescence parameters using portable gas exchange systems (e.g. Li-Cor 6400 & 6800).
- Laboratory measurements of leaf photosynthetic oxygen evolution and cellular respiration of terrestrial, intertidal, and submerged aquatic plants using Clarke-type oxygen electrodes (e.g. Hansatech Oxygen Electrodes).

- Extraction, separation, and quantification of leaf chlorophylls, carotenoids, and anthocyanins using thin layer chromatography, high performance liquid chromatography, and/or spectrophotometry.
- High performance liquid chromatography method development for plant pigment separation and quantification.
- Measurement of a wide variety chlorophyll fluorescence parameters using PAM fluorometry equipment (e.g. Waltz PAM 101, Hansatech FMSII, and Li-Cor 6400 & 6800).
- Measurement of plant non-structural carbohydrate pools using the phenol-sulfuric acid technique.
- Leaf carbon and nitrogen analysis including measurements of stable isotopes of carbon.
- Plant total protein quantification using Bradford's assay.
- Stem hydraulic conductivity measurements on woody plants using the applied tension and pressure head methodologies.
- Assessment of stem cavitation vulnerabilities by direct air injection.
- Measurements of plant moisture stress and stem and leaf water potentials using Scholander style pressure chambers.

SOIL BIOGEOCHEMISTRY

- Terrestrial, intertidal, and benthic soil sample collection and preservation.
- Soil size, particle type, and chemical fractionations.
- Soil carbon and nitrogen elemental analysis.

AQUATIC BIOGEOCHEMISTRY

- Field measurement of dissolved oxygen, conductivity, turbidity, pH, and chlorophyll using multi-parameter sondes (e.g. YSI) in spot and remote deployment applications.
- Field collection of water samples using Van Dorn, Kemmerer, and depth integrated water samplers.
- Lab based measurement of total and volatile suspended solids, chlorophyll, total carbon, organic carbon, inorganic carbon, and total nitrogen in surface waters.

GENERAL ECOLOGY

- Inventories of terrestrial, wetland, and submerged aquatic plants using plot sampling methodologies.
- Monitoring animal movements and habitat use by radio telemetry.
- Surveys of amphibians using advertisement call monitoring protocols.
- Surveys of amphibians and reptiles using artificial cover object arrays, cover object searches, surface searches, and a variety of different trapping techniques.
- Sampling of fishes in lentic and lotic systems using seining and trap-based techniques.

- Surveys of aquatic macro-invertebrates in lentic and lotic systems using traps, artificial substrates, dip nets, and kick seines.
- PADI and NAUI certified open water SCUBA diver.
- Proficient in the use, transportation, and maintenance of small watercraft (<25 feet).
- Experience using and maintaining data logging equipment (e.g. Hobo & Li-Cor) in laboratory and field settings.
- Proficient using handheld GPS devices and map and compass for navigation.

SOFTWARE AND TECHNOLOGY

- Proficient in the use of Microsoft Office products including Word, Excel, PowerPoint, and Publisher with some experience using Access.
- For statistical analysis and graphing, I routinely use SPSS, Graphpad Prism, and Excel. I have an interest in learning R.
- Familiar with the use ESRI ArcMap to display and analyze geospatial data and to create maps for ecological reports. I also set up and use the ESRI Collector app for the collection of geolocated data in the field using smart phones and tablets.
- Proficient in the use of the Logger Pro (Vernier) and Lab Chart (AD Instruments) data collection platforms.
- Digital image analysis using the ImageJ platform.

SAFETY CERTIFICATIONS

- Wilderness Advanced First Aid (WAFA) certification from Wilderness Medical Associates International – Expires 2020