

LINDSAY CHANEY, PHD

CURRICULUM VITAE

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PROFESSIONAL APPOINTMENTS & EDUCATION

- 2014- Post-Doctoral Fellow; Brigham Young University, Provo, UT
Advisor: Joshua A. Udall
- 2014- Post-Doctoral Fellow; USDA Forest Service Rocky Mountain Research Station
Shrub Sciences Laboratory, Provo, UT
Advisor: Bryce A. Richardson
- 2010-2014 Ph.D. Biology; University of Cincinnati, Cincinnati, OH
Advisor: Regina S. Baucom
Dissertation topic: Understanding the evolutionary potential of weeds
- 2009-2010 B.S. Biology, Mathematics minor, *cum laude*; West Virginia University,
Morgantown, WV
- 2005-2006 Utah State University, Logan, UT (transferred without degree)
- 2003-2005 A.S., *cum laude*; Snow College, Ephraim, UT

PUBLICATIONS

Peer-reviewed:

- 2014 L. Chaney, & R.S. Baucom. The costs and benefits of tolerance to competition in *Ipomoea purpurea*, the common morning glory. *Evolution*, 68: 1698-1709.
- 2012 L. Chaney, & R.S. Baucom. The evolutionary potential of Baker's weediness traits in the common morning glory, *Ipomoea purpurea* (Convolvulaceae). *American Journal of Botany*, (99)9, 1524-153.

In review:

- 2016 L. Chaney, & B. Richardson. "Climate at the local and landscape level drive adaptive genetic responses associated with survival in big sagebrush (*Artemisia tridentata*)" *Evolutionary Applications*.
- 2015 L. Chaney, A.R. Sharp & J.A. Udall. "Next-generation mapping for structural variation detection in comparative plant genomics." *Trends in Plant Science*.

Published abstract:

- 2014 R.S. Baucom & L. Chaney. “The prevalence of fitness costs of tolerance across organisms” Symposium for The Society for Integrative and Comparative Biology. Austin, TX.

In preparation (to be submitted by March 2016):

L. Chaney, L. Elliott*, D. LeGendre*, & R.S. Baucom. Altering the microbial soil community changes the pattern of selection on flowering day.

L. Chaney, B.A. Richardson, & J.A. Udall. Genome physical map of *Populus tremuloides* (quaking aspen).

B.A. Richardson, L. Chaney, & N.L. Shaw. Clines in growth, seed yield and their relationship to climate among subspecies of big sagebrush (*Artemisia tridentata*).

PRESENTATIONS

Oral presentations: (presenting author)

- 2016 L. Chaney, B. Richardson, & M. Germino. “Climate drives adaptive genetics in big sagebrush (*Artemisia tridentata*).” Society of Ecological Restoration and Great Basin Native Plant Project. Boise, ID. (*Invited*)

- 2015 L. Chaney, D.M. Jaeger, & B.A. Richardson. “Survival and seed size in big sagebrush restoration.” 2015. Utah Section Society for Range Management. Moab, UT. (*Invited*)

B. Richardson, L. Chaney, N. Shaw, M. Germino. “Growth, seed yield and survivorship clines of big sagebrush (*Artemisia tridentata*): relationships to climate and development of seed transfer zones.” Society of Ecological Restoration. Manchester, UK.

L. Chaney. “What’s the story morning glory? Understanding the evolutionary potential in an agricultural weed.” Brigham Young University Plant and Wildlife Sciences department seminar. Provo, UT. (*Invited*)

B. Richardson, L. Chaney, N. Shaw, & M. Germino. “Clines in growth, seed yield and survivorship among subspecies big sagebrush: relationships to climate and development of seed transfer zones.” Great Basin Consortium Native Plant Program. Boise State University; Boise, ID.

- 2014 L. Chaney, & R.S. Baucom. “Plants that persist: Are highly tolerant plants also the most fit?” Society of the Study of Evolution. Raleigh, NC.

L. Chaney. “The evolution of weeds: tolerance to competition.” University of Cincinnati Department of Biological Sciences Seminar Series and Awards Ceremony. Cincinnati, OH. (*Invited*)

L. Chaney, & R.S. Baucom. “Baker’s General Purpose Genotype: Are highly tolerant weeds also the most fit?” Midwest Ecology and Evolution Conference. Dayton, OH. (*Invited*)

2013 L. Chaney, & R.S. Baucom. “The evolution of tolerance to competition in the common morning glory, *Ipomoea purpurea*.” Society of the Study of Evolution. Snowbird, UT.

L. Chaney. “The evolution of tolerance across nature: what is tolerance and why is it interesting?” University of Cincinnati Department of Biological Sciences Bioblitz Retreat. Fernbank Park, Cincinnati, OH.

Poster presentations: (undergraduate, presenting author)*

2016 L. Chaney & B. Richardson. “Climate at the local and landscape level drive adaptive genetic responses associated with survival in big sagebrush (*Artemisia tridentata*).” Sagebrush Ecosystem Conference. Salt Lake City, UT.

L. Chaney, B. Richardson, & J. Udall. “Genome map of quacking aspen (*Populus tremuloides*).” Plant and Animal Genome Conference XXIV. San Diego, CA.

2015 B. Richardson, L. Chaney, N. Shaw, & M. Germino. “Clines in growth, seed yield and survivorship among subspecies big sagebrush: relationships to climate and development of seed transfer zones.” Great Basin Consortium Native Plant Program. Boise State University; Boise, ID.

2014 L. Chaney, & R.S. Baucom. “The costs and benefits of tolerance: a look across multiple systems and stressors.” Invasion Genetics: The Baker and Stebbins Legacy Symposium. Asilomar, CA.

*L. Gilfillan, & L. Chaney. “Artificial herbivory and its effects on high and low fitness groups of *Ipomoea purpurea*.” University of Cincinnati Undergraduate Research Conference. Cincinnati, OH.

2013 L. Chaney, & R.S. Baucom. “Tolerance and plasticity in an agricultural weed, the common morning glory.” University of Cincinnati Graduate Poster Forum. Cincinnati, OH.

*Z. Ahmed, L. Chaney, & R.S. Baucom. “Photosynthetic capability of *Ipomoea purpurea* under salt and drought stress.” University of Cincinnati Undergraduate Research Conference. Cincinnati, OH.

*T. Schaible, L. Chaney, & R.S. Baucom. “The effect of salinity on the relative growth rate of *Ipomoea purpurea*.” University of Cincinnati Undergraduate Research Conference. Cincinnati, OH.

- 2012 L. Chaney, & R.S. Baucom. “The evolutionary potential of weediness traits in the common morning glory, *Ipomoea purpurea*.” Midwest Ecology of Evolution Conference. Cincinnati, OH.
- L. Chaney, & R.S. Baucom. “The evolutionary potential of weediness traits in the common morning glory, *Ipomoea purpurea*.” University of Cincinnati Graduate Poster Forum. Cincinnati, OH.
- 2010 *L. Chaney, et al. “The interactive effects of carbon dioxide and temperature on the competitive interaction between invasive Japanese stiltgrass (*Microstegium vimineum* (Trin.)) and native American ginseng (*Panax quinquefolius* L.).” West Virginia University Senior Capstone Poster Symposium. Morgantown, WV.

GRANTS AWARDED:

- 2013-2014 University of Cincinnati department of Biological Sciences Weiman / Benedict Research Awards. *Examination of the ‘general purpose genotype’ in an agricultural weed, Ipomoea purpurea*. \$800 funded June 2013 to June 2014.
- 2012-2013 University of Cincinnati department of Biological Sciences Benedict Research Awards. *Assessing the evolutionary potential of weeds: a look at Baker’s traits in the common morning glory, Ipomoea purpurea*. \$800 funded June 2012 to June 2013.
- 2011-2012 University of Cincinnati department of Biological Sciences Wendal Botany Grant. *Natural Selection on Weediness in Ipomoea purpurea: Response To Competition*. \$1,976.94 funded June 2011 to May 2012.
- 2011-2012 University of Cincinnati department of Biological Sciences Benedict Research Awards. *Natural Selection on Weediness in Ipomoea purpurea: Response To Competition*. \$1,200 funded June 2011 to May 2012.

AWARDS AND HONORS:

- 2015 Presidential Management Fellows Semi-Finalist
- 2014 University of Cincinnati Department of Biology J. Robie Vestal Award for Outstanding Doctorate Student
- 2011 University of Cincinnati Department of Biology J. Robie Vestal Award for Outstanding Master Student
- 2009-2010 West Virginia University President’s List and Dean’s List
- 2003-2005 Snow College Dean’s List

RESEARCH & WORK EXPERIENCE:

- 2010-2014 Graduate Assistant; University of Cincinnati, Cincinnati, OH
Conducted quantitative genetic research with *Ipomoea purpurea* (common morning glory) both in the greenhouse and in the field setting.
- 2009-2010 Herbarium Aid; West Virginia University, Morgantown, WV.
Mounted, pressed, and dried plants for use in the Herbarium. Filed plants according to taxonomical rules. Assisted in data input for collection database.
- 2009 STEP Biological Science Technician, USDA Forest Service, Morgantown, WV.
Conducted research on growth rate of the invasive grass *Microstegium vimineum* (Japanese Stilt Grass) and its effect on *Quercus rubra* (Northern Red Oak) seedling growth. Study of *Ailanthus altissima* (tree of heaven) reproduction patterns to determine frequency of hermaphrodites.
- 2006 Biological Science Technician (Plants), USDA Forest Service, Provo, UT.
Conducted vegetative surveys throughout the forest. Included burn area regrowth, noxious weed inventory, native seed collection and sensitive, threatened, and endangered plant surveys.
- 2005-2006 Lab Assistant, USU Crop Physiology Lab, Logan, UT.
Collected, organized, maintained and oversaw experiments in the research greenhouse. Aided in growing dwarf plants that are used in conjunction with NASA, the International space station, and the Russian space station MIR.

TEACHING EXPERIENCE:

- 2015-2016 Adjunct Instructor for College Biology I (BIOL 1615), Utah Valley University.
Taught two lab sections on scientific method, biomolecules, cell structure and function, cellular reproduction, genetics, DNA technology, and evolution.
- 2014 Guest Lecturer for Genomics (BIO/MMBIO/PWS 468), Brigham Young University. Taught lectures on physical mapping, optical mapping, and nano-channel technology.
Instructor Mentor to adjunct high school teachers teaching Introduction to Environmental Studies I (EVST 1011), University of Cincinnati, for Dual Enrollment credit.
- 2013 Co-Instructor with Dr. Eric Maurer for Introduction to Environmental Studies I (EVST 1011), University of Cincinnati
Head Teaching Assistant for Evolution, Ecology, and Genetics (BIOL 2082C), University of Cincinnati. Set up and organized 11 lab sections and trained TA's in material to be taught.
- 2012 Teaching Assistant for Genetics and Cell (BIOL 2081C), University of Cincinnati. Lead one lab section through wet labs and learning labs.

- 2011 Teaching Assistant for Ecology (BIOL 303), University of Cincinnati. Lead one lab section through field ecology techniques and data analysis. (2 terms)
- Teaching Assistant for Biology Lab (BIOL 112), University of Cincinnati. Directed two lab sections through biological problem solving and in experimental design.
- 2010 Teaching Assistant for Genetics (BIOL 302), University of Cincinnati. Instructed lab section on computer-based genetics problems and guided students through genetic term papers. (2 terms)
- Teacher Aid for Plant Systematics (BIOL 450), West Virginia University. Assisted in class preparation, lab setup, and grading class assignments and exams.

MENTORING AND SERVICE:

- 2016, 2015 Organized, recruited, and mentored two 7-12th grade biology teachers for a five-week Research Experience for Teachers (RET) on plant genomics.
- 2015 Reviewer: *Weed Science* (1)
- 2014 Reviewer: *PLOS ONE* (2)
- 2014- Volunteer at People Helping People
- 2012-2014 Treasurer for Biology Grad Student Association
- 2011, 2013-4 Volunteer judge at the Regional Science and Engineering Exposition for grades 6-12.
- 2011 Volunteer at National Lab Day at Hughes STEM High School
- 2011-2014 Mentoring of undergraduate students on their own research projects, two of which completed a capstone and three presented posters presentations, at the University of Cincinnati
- Lucas Gilfillan (3 terms): Differential fitness response of artificial herbivory on genotypes of *I. purpurea* selected for high/low fitness (Capstone).
- Zara Ahmed (5 terms): Photosynthetic rates of *I. purpurea* in drought and salinity stress (Capstone). Maternal provisioning in *I. purpurea*.
- Ted Schaible (1 term): Relative growth rate of *I. purpurea* in drought and salinity stress.
- Travis Thedders (1 term): Effects of interspecific competition in *I. purpurea*.
- David Whisset (1 term): Assessing Baker's 'ideal' weed traits 'continuous seed output' and 'high seed output via flower number and seed count.
- Scott Curran (1 term): Resistance to herbivory in *I. purpurea* when grown in interspecific competition.

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS:

- 2013- Society for the Study of Evolution (SSE)
2013- Society for the Advancement of Biology Education Research (SABER)
2011- Association for Women in Science (AWIS)

TRAVEL AWARDS AND SCHOLARSHIPS:

- 2015 Summer Institute in Statistics Modeling Infectious Diseases Tuition Scholarship
Summer Institute in Statistics Modeling Infectious Diseases Travel Scholarship
2013 Society for the Study of Evolution Travel Award
2013, 2014 University of Cincinnati Graduate Student Governance Association Presenter
Travel Award
2012 Summer Institute in Statistical Genetics Tuition Scholarship
Summer Institute in Statistical Genetics Travel Scholarship
2010-2014 University of Cincinnati University Graduate Scholarship (UGS)
2010-2012 University of Cincinnati Chose Ohio First Scholarship
2005-2006 Utah State University Aggie Scholar Scholarship
2003-2005 Snow College Academic Excellence Scholarship
Snow College Athletic Volleyball Scholarship

PROFESSIONAL DEVELOPMENT COURSES ATTENDED:

- 2015 Metagenomics Analysis. *Summer Institute in Statistics & Modeling in Infectious Diseases*; Seattle, WA. Instructors: A. Alekseyenko & P. McMurdie
Publish and Flourish. Brigham Young University; Provo, UT. Instructor: T. Gray.
2014 Experiencing Evolution: A Professional Development Workshop for Undergraduate Educators. Evolution 2014; Raleigh, NC. Organizers: K. Jenkins, L. Mead, & J. Weintraub
2013 Avoiding Extinction in the Classroom. Evolution 2013; Snowbird, UT. Organizers: T. Meagher, L. Mead, J. Jensen, & K. Jenkins
Professional Development in Academic Biology. University of Cincinnati; Cincinnati, OH. Facilitator: S. Rollman
2012 Quantitative Genetics and Mixed Models in Quantitative Genetics. *Summer Institute in Statistical Genetics*; Seattle, WA. Instructors: B. Muir & B. Walsh.
2010 Evidence Based Teaching. University of Cincinnati; Cincinnati, OH. Instructor: B. Kinkle