

CIRRICULUM VITAE

DR. JOSHUA A. BANTA

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APPOINTMENTS

- Director Center for Environment, Biodiversity, and Conservation, University of Texas at Tyler 2018 – present
- Associate Professor University of Texas at Tyler 2017 – present
- Assistant Professor University of Texas at Tyler 2011 – 2017

EDUCATION

- Ph.D., Ecology and Evolution Stony Brook University 2004 – 2008
- Ph.D. (transferred with advisor) University of Tennessee 2001 – 2004
- B.S., Biology (Cum Laude) University of Pittsburgh 1995 – 2000
Certificate, GIS Mapping

PROFESSIONAL EXPERIENCE

- 2018 – Present Director, Center for Environment, Biodiversity, and Conservation, University of Texas at Tyler
- 2017 – Present Associate Professor, University of Texas at Tyler
- 2011 – 2017 Assistant Professor, University of Texas at Tyler
- 2008 – 2011 Senior Post-Doctoral Research Associate, New York University
- 2005 – 2008 Graduate Teaching Assistant, Stony Brook University
- 2004 – 2005 Graduate Research Assistant, Stony Brook University
- 2001 – 2004 Graduate Teaching Assistant, University of Tennessee-Knoxville
- 2000 – 2001 Lab Manager, Brown University
- 1997 – 2000 Research Assistant, University of Pittsburgh (various labs)

TEACHING EXPERIENCE

- Graduate Seminars, Various (University of Texas at Tyler)
- Evolutionary Genetics (University of Texas at Tyler)
- Plant Biology and Plant Biology Lab (University of Texas at Tyler)
- Landscape Ecology and Landscape Ecology Lab (University of Texas at Tyler)
- General Biology I (University of Texas at Tyler)
- Applied Ecology and Conservation Biology Lab (Stony Brook University)
- Biology I Lab (University of Tennessee)
- Biology II Lab (University of Tennessee)
- Ecology Lab (University of Tennessee)

- Advised or currently advising four Masters students.
- Served or currently serving on 19 graduate student committees.
- Mentored 36 undergraduates during the last 15+ years, including 24 women and six minorities. Many have presented their research at international professional meetings and received competitive travel awards. At least 10 students have gone on to graduate school in science or chosen research careers, and two of them received prestigious pre-doctoral fellowships.

REFEREED PUBLICATIONS

- Sain, M. P., K. Barthel, K. L. Hertweck, J. S. Placyk, Jr., R. L. Small, L. R. Williams, M. Williams, and **J. A. Banta**. Integrative ecological genetics reveals a threat posed by genetic swamping to an East Texas endemic wildflower (*Hibiscus dasyclyax*, Malvaceae). In revision.
- Key, K. N., **J. A. Banta**, A. Gluesenkamp, K. L. Hertweck, and J. S. Placyk, Jr. Conservation biology of a southwestern endemic, the Texas gartersnake, *Thamnophis sirtalis annectens*: an integrative perspective. *Southwestern Naturalist*, in press.
- Senula, S. F., **J. A. Banta**, U. G. Mueller, J. N. Seal, and K. Kellner. Species distribution models of eight North American *Trachymyrmex* (Hymenoptera: Formicidae) species. *Journal of Insect Science*, in press.
- Walters, A. D., M. A. Brown, G. M. Cerbie, M. G. Williams, **J. A. Banta**, L. R. Williams, N. B. Ford, and D. J. Berg. 2019. Do hotspots fall within protected areas? A GAP analysis of regional freshwater biodiversity. *Freshwater Biology*, 64: 2046-2056.
- Banta, J. A.**, and C. L. Richards. 2018. Quantitative epigenetics and evolution. *Heredity*, 121(3): 210-224.
- Marshall, N. T., **J. A. Banta**, L. R. Williams, M. G. Williams, and J. S. Placyk, Jr. 2017. DNA barcoding permits identification of potential fish hosts of unionid freshwater mussels. *American Malacological Bulletin*, 36(1): 42-56.
- Waters, A. D., D. Ford, M. Williams, N. B. Ford, L. R. Williams, and **J. A. Banta**. 2017. High-resolution ecological niche modeling of threatened freshwater mussels in east Texas, USA. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 27: 1251-1260.
- Scholes, D. R., J. Dalrymple, J. M. Mesa, **J. A. Banta**, and K. N. Paige. 2017. The genetic basis of variation in tolerance to apical meristem damage in natural populations of *Arabidopsis thaliana*. *Plant Ecology*, 218: 265-276.
- Kaplan, J., M. Pigliucci, M., and **J. A. Banta**. 2015. Gould on Morton, Redux: What can the debate reveal about the limits of data? *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences*, 52: 22-31.
- Schrey, A. W., H. J. Kilvitis, **J. A. Banta**, and C. L. Richards. 2015. Ecological epigenetics in integrative biology. In: Martin, L. B., C. K. Ghalambor, and H. A. Woods (Eds), *Integrative Biology*. New York, Springer.
- Rosas, U., Y. Mei, Q. Xie, **J. A. Banta**, R. W. Zhou, G. Seufferheld, S. Gerard-Martinez, L. Chou, N. Bhambhra, J. D. Parks, J. Flowers, C. R. McClung, Y. Hanzawa, and M.

- D. Purugganan. 2014. Life history diversity in *Arabidopsis* controlled by *cis*-regulatory variation in *CONSTANS*. *Nature Communications*, 5: 3651.
- Rosas, U., A. Cibrian-Jaramillo, D. Ristova, **J. A. Banta**, M. Gifford, A. H. Fan, R. W. Zhou, G. J. Kim, G. Krouk, K. D. Birnbaum, M. D. Purugganan, and G. Coruzzi. 2013. Integration of responses within and across *Arabidopsis* natural accessions uncovers loci controlling root systems architecture. *Proceedings of the National Academy of Sciences of the United States of America*, 110: 15133-15138.
- Gifford, M. L., **J. A. Banta**, M. S. Katari, J. Hulsmans, L. Chen, D. Ristova, D. Tranchina, M. D. Purugganan, G. M. Coruzzi, and K. D. Birnbaum. 2013. Plasticity regulators modulate specific root traits in discrete nitrogen environments. *PLoS Genetics*, 9: e1003760. Highlighted in *Nature Reviews Genetics*, Volume 14, November 2013.
- Banta, J. A.**, I. M. Ehrenreich, S. Gerard, L. Chou, A. Wilczek, J. Schmitt, P. X. Kover, and M. D. Purugganan. 2012. Climate envelope modeling reveals intraspecific relationships among flowering phenology, niche breadth, and potential range size in *Arabidopsis thaliana*. *Ecology Letters*, 15: 769-777.
- Richards, C. L., U. Rosas, **J. A. Banta**, N. Bhambhra, and M. D. Purugganan. 2012. Genome-wide patterns of *Arabidopsis* gene expression in nature. *PLoS Genetics*, 8: 482-495.
- Banta, J. A.**, and M. Pigliucci. 2010. Genetic and environmental variation affect the ontogeny of reproductive traits in *Arabidopsis thaliana*. *International Journal of Plant Developmental Biology* 4: 112-121.
- Banta, J. A.**, M. H. Stevens, and M. Pigliucci. 2010. A comprehensive intraspecific test of the "Limiting Resources" framework predicting plant tolerance to apical meristem damage. *Oikos* 119: 359 - 369.
- Bossdorf, O., Shuja, Z., and **J. A. Banta**. 2009. Genotype and maternal environment affect belowground interactions between *Arabidopsis thaliana* and its competitors. *Oikos* 118: 1541 - 1551.
- Banta, J. A.**, S. C. Stark, M. H. Stevens, T. Pendergast, A. Baumert, and W. P. Carson. 2008. Light reduction predicts widespread patterns of dominance between asters and goldenrods. *Plant Ecology* 199: 65 - 76.
- Banta, J. A.**, J. Dole, M. Cruzan, and M. Pigliucci. 2007. Evidence of local adaptation to coarse-grained environmental variation in *Arabidopsis thaliana*. *Evolution* 61: 2419 - 2432.
- Banta, J. A.**, A. A. Royo, C. Kirschbaum, and W. P. Carson. 2005. Plant communities growing on boulders in the Allegheny National Forest: evidence for boulders as refugia from deer and as a bioassay of overbrowsing. *Natural Areas Journal* 25: 10 - 18.
- Banta, J. A.** and Massimo Pigliucci. 2005. The effects of gibberellin mutations on tolerance to apical meristem damage in *Arabidopsis thaliana*. *Heredity* 94: 229 - 236.
- Huber, H., N. Kane, M. S. Heschel, E. J. von Wettberg, **J. Banta**, A. Leuck, and J. Schmitt. 2004. Frequency and microenvironmental pattern of selection on plastic shade avoidance traits in a natural population of *Impatiens capensis*. *American Naturalist* 163: 548 - 563.

RESEARCH GRANTS (\$1,539,703 TOTAL)

- Banta, J. A.**, and J. Coleman. 2019. Western Chicken Turtle (*Deirochelys reticularia miaria*) field surveys. *Texas Ecological Laboratory*, \$18,233.36.
- Banta, J. A.**, L. R. Williams, N. B. Ford, K. Kellner, and M. B. Williams. 2019. The distribution and abundance of Louisiana Pigtoe (*Pleurobema riddellii*; Bivalvia: Unionidae), a rare east Texas endemic freshwater mussel. *Texas Comptroller of Public Accounts*, Endangered Species Research Grant, \$67,214.
- Banta, J. A.**, L. R. Williams, N. B. Ford, K. Kellner, and M. B. Williams. 2019. The distribution and abundance of Texas Heelsplitter (*Potamilus amphichaenus*; Bivalvia: Unionidae), a rare east Texas endemic freshwater mussel. *Texas Comptroller of Public Accounts*, Endangered Species Research Grant, \$110,999.
- Banta, J. A.** 2018. Genetic analysis and ecological modeling of the wildflowers Neches River Rose Mallow (*Hibiscus dasycalyx*), Halberdleaf Rose Mallow (*Hibiscus laevis*), and Woolly Rose Mallow (*Hibiscus moscheutos*) (Malvaceae). *Texas Ecological Laboratory*, \$3,141.46.
- Banta, J. A.**, and K. L. Hertweck. The metabolism and genomics of industrial vs. wild strains of *Clostridium acetobutylicum*. 2017. *Army Research Office*, \$20,000.
- Williams, L. R., N. B. Ford, M. Williams, J. S. Placyk, Jr., **J. A. Banta**, and K. Hertweck. 2017. Status of the Kisatchie painted crayfish (*Orconectes maleate*) in Louisiana. *United States Army*, \$100,810.
- Placyk, J. S., Jr., **J. A. Banta**, K. L. Hertweck, L. R. Williams, and M. Williams. 2017. RFP No. 207c for Endangered Species Research Projects for Freshwater Mussels, Region 2, East Texas: Extension for Pigtoe Genomic Research. *Texas Comptroller of Public Accounts*, Endangered Species Research Grant, \$130,314.37
- Banta, J. A.**, J. S. Placyk, Jr., K. L. Hertweck, and R. Small. 2016. Hybridization between *Hibiscus dasycalyx* and congeneric species at Boggy Slough in Trinity County, TX. *Ellen Temple and the T. L. L. Temple Foundation*. \$5,000
- Guderjan, T., W. McLatchey, and **J. A. Banta**. 2016. Building BRIT collections from Belize and undertaking graduate research and undergraduate training. *Botanical Research Institute of Texas*, \$10,200.
- Banta, J. A.**, and C. L. Richards. 2015. Epigenetics and Evolutionary Processes. *Invited symposium organized for the Evolution meetings in Sao Paulo, Brazil, with funds from the Society for the Study of Evolution and Sociedade Brasileira de Genética*. \$15,000.
- Richards, C. L. (co-written by **J. A. Banta**). 2014 – 2015. The effect of induced methylation changes on the inheritance of flowering time variation in *Arabidopsis thaliana*. *National Science Foundation*, Research Opportunity Award, \$25,000.
- Banta, J. A.**, J. Placyk, and M. Williams. 2014. A Texas Golden Gladecress-based analysis of Weches glades in San Augustine and Sabine Co. Texas. *Texas Parks & Wildlife Department*, Horned Lizard License Plate Fund, \$18,583.
- Banta, J. A.**, 2014. *University of Texas at Tyler*, grant to participate in the US Army's Open Campus Initiative in Adelphi, MD, \$15,000.
- Placyk, J. S., N. B. Ford, **J. A. Banta**, R. A. Seigel, M. Williams. 2014. RFP # 207i for endangered species research projects for the Desert Massasauga Rattlesnake. *Texas Comptroller of Public Accounts*, Endangered Species Research Grant, \$209,023.

- Ford, N., L. Williams, M. Williams, **J. Banta**, J. Placyk, and H. Hawley. 2014. RFP # 207c for Endangered Species Research Projects for Freshwater Mussels, Region 2, East Texas. *Texas Comptroller of Public Accounts*, Endangered Species Research Grant, \$299,951.52
- Williams, L., M. Williams, and **J. A. Banta**. 2014. Ecological Niche Modeling and Field Surveys for the Kisatchie Painted Crayfish, *Orconectes maleate*. *Texas Parks & Wildlife Department*, State Wildlife Grant, \$25,920.
- Banta, J. A.**, J. S. Placyk, Jr., L. R. Williams, and N. B. Ford. 2013. Co-curricular funds for students to attend the Joint Annual Meeting of the Society for the Study of Evolution, the Society of Systematic Biologists, and the American Society of Naturalists, in Raleigh, NC. \$2,800.
- Banta, J. A.**, L. R. Williams, J. S. Seal, and J. S. Placyk, Jr. 2013. Co-curricular funds for students to attend the Joint Conference of the Society for Ecological Restoration, Texas Chapter and the Society for Ecological Restoration, Southwest Chapter, in Alpine, TX. \$2,000.
- Williams, L. R., J. S. Placyk, Jr., and **J. A. Banta**. 2013. Co-curricular funds for students to attend the Southwestern Association of Naturalists annual meeting in Stillwater, OK. \$3,100.
- Banta, J. A.**, J. Placyk, R. Small, M. Williams, and L. Williams. 2013 – 2015. Distinguishing the Neches River Rose Mallow (*Hibiscus dasycalyx*) from its congeners using genetic and niche modeling methods. *U.S. Fish & Wildlife Service*, Section 6 Grant, \$85,456.
- Paige, K. N. (co-written by **J. A. Banta**). 2013 – 2014. The ecology and genetics of endoreduplication in *Arabidopsis thaliana* in the wild. *National Science Foundation*, Research Opportunity Award, \$24,995.
- Banta, J. A.** and B. Bextine. 2012 – 2015. Acquisition of controlled-environment chambers for integrative botanical research and training at UT-Tyler. *National Science Foundation*, Major Research Infrastructure Grant (DBI 1229742), \$253,649.
- Placyk, J., L. Williams, M. Williams, **J. A. Banta**, and N. Ford. 2012 - 2014. Identification of important fish hosts for East Texas freshwater mussels using genetic and ecological niche modeling methods. *U.S. Fish & Wildlife Service*, Section 6 Grant, \$69,113.
- Banta, J. A.** 2012. *University of Texas at Tyler*, Faculty Research Award, \$9,000.
- Banta, J. A.**, L. R. Williams, J. S. Placyk, Jr., and N. B. Ford. 2012. Co-curricular funds for students to attend the Southwestern Association of Naturalists Annual Meeting in Lake Charles, LA. \$3,200.
- Banta, J. A.**, and M. Pigliucci. 2006 – 2008. Molecular mechanisms accounting for patterns of tolerance to apical meristem damage in *Arabidopsis thaliana*. *National Science Foundation*, Doctoral Dissertation Improvement Grant (DEB 0608232), \$12,000.

HONORS, RECOGNITIONS, AND AWARDS

Research featured in a story by local CBS affiliate KTYX. 2019. Link:

<https://www.cbs19.tv/article/news/ut-tyler-researchers-east-texas-freshwater-mussel-population-in-danger/501-f6775792-1ab4-42e8-94be-ded38a987a61>

Research featured in a story by the online publication the Tyler Loop. 2019. Link: <https://thetylerloop.com/freshwater-mussels-are-disappearing-in-east-texas-heres-why-thats-scary-as-hell/>

Research featured as part of UT-Tyler's promotional materials. Link: https://www.youtube.com/watch?v=VO6vF6sV_NE

Former undergraduate student Miles Mesa's research featured in the New York Times, with quote from Banta. 2017. Link: https://www.nytimes.com/2017/10/20/science/plants-defenses-overcompensators.html?_r=2

White Fellowship for Teaching Excellence award, *University of Texas at Tyler*. 2017. Link: <http://www.uttyler.edu/news/pressrelease/2017/08252017.php>

Research featured on the main web page of the Army Research Lab. 2016. Link: <http://www.arl.army.mil/www/default.cfm?article=2678>

Research highlighted in UT System Chancellor Bill McRaven's *UT Matters* blog. 2016. Link: <https://www.utsystem.edu/blog/2016/01/08/faculty-spotlight-ut-arlington-and-ut-tyler-researchers-work-making-impact-veterans->

Research highlighted in UT-Tyler President Rodney Mabry's Fall Convocation remarks. 2016. Links: http://www.uttyler.edu/president/files/convocation_2015_script.pdf, http://www.uttyler.edu/president/files/convocation_2015_PPT.pdf

Organized an invited, funded symposium at the Evolution meetings in Guarujá, Brazil entitled, *Epigenetics and Evolutionary Processes*. 2015. Link: <https://sites.google.com/site/thebantalab/news-and-links/sse2015>

Chosen by UT-Tyler and the UT System as one of the inaugural participants, worldwide, in the Army Research Lab's Open Campus Project. 2014. Link: <http://www.uttyler.edu/news/pressrelease/2014/06202014.php>

Research featured on the website of the Human Frontier Science Program website. 2014. Link: <http://www.hfsp.org/frontier-science/awardees-articles/late-bloomers-subtle-diversity-flowering-time>

Research article recommended by *Faculty of 1000 Prime*. 2014. Link: <http://f1000.com/prime/718087019>

Research highlighted in *Nature Reviews Genetics*. 2014. Link: <http://www.nature.com/nrg/journal/v14/n11/full/nrg3608.html>

Research featured at the ecology and evolutionary biology blog *EEB and Flow*. 2012. Link: <http://evol-eco.blogspot.com/2012/05/putting-ecological-niche-models-to-good.html>

Research Award, in recognition of doing the best research in the College of Arts and Sciences, *University of Texas at Tyler*. 2013.

SERVICE

- Director of the Center for Environment, Biodiversity and Conservation at the University of Texas at Tyler. 2018 – current.
- Member and chair of various committees at the departmental and university levels at UT-Tyler. 2011 – current.
- Grant review panelist for the National Science Foundation in March 2015, March 2016, October 2016, April 2017, May 2018, December 2018, and April 2019.

- Ad-hoc reviewer for books and book proposals from Bloomsbury, Oxford University Press, Columbia University Press, and Random House.
- Ad-hoc reviewer for the National Science Foundation (NSF) and the United States-Israel Binational Science Foundation (BSF).
- Ad-hoc reviewer for the journals: *Acta Oecologia*; *American Journal of Botany*; *Annals of Botany*; *Belgian Journal of Zoology*; *Biology Letters*; *Biological Journal of the Linnean Society*; *BMC Evolutionary Biology*; *Ecology*; *Ecological Engineering*; *Ecology Letters*; *Ecological Research*; *Evolution*; *Evolutionary Biology, Infection, Genetics, and Evolution*; *Evolutionary Ecology*; *Evolutionary Ecology Research*; *Functional Ecology*; *Genome*; *International Journal of Plant Science*; *Journal of Experimental Marine Biology and Ecology*; *Journal of Evolutionary Biology*; *Molecular Ecology Resources*; *Molecular Biology and Evolution*; *Molecular Ecology*; *Oikos*; *Philosophical Psychology*; *Philosophical Transactions of the Royal Society B*; *Plant Cell, Tissue, and Organ Culture*; *Plant Science*; *Plant Species Biology*; *Proceedings of the Royal Society B: Biological Sciences*; *Quarterly Review of Biology*; *Scientific Reports*; *Southwestern Naturalist*; and *Trends in Ecology and Evolution*.
- Organizer for an Earth Day conference and keynote lecture on conservation biology that is sponsored by the Center for Environment, Biodiversity and Conservation at UT-Tyler. 2016, 2018 – current.
- Chair of the organizing committee for Darwin Day in Tyler Texas, an annual series of city-wide events with a keynote lecture. 2014 – Current.
- An active participant in the National Science Foundation Lois Stokes Alliance for Minority Participation (LSAMP) Summer Research Academy (SRA) at UT-Tyler since 2012.

INVITED SEMINARS

- 2019 University of Mary Washington Fredericksburg, VA
- 2018 University of Texas at Tyler Tyler, TX
- 2018 University of Latvia Riga, Latvia
- 2018 Virginia State University Petersburg, VA
- 2018 Tyler Junior College Tyler, TX
- 2018 Hood College Frederick, MD
- 2017 Juniata College Huntingdon, PA
- 2016 Texas A&M University-Texarkana Texarkana, TX
- 2016 University of Texas at Tyler Tyler, TX
- 2016 Maya Research Program Orange Walk, Belize
- 2016 University of Alberta Edmonton, AB, CAN
- 2015 Delaware State University Dover, DE
- 2015 Seton Hall University South Orange, NJ
- 2015 Ohio University Athens, OH
- 2015 University of Akron Akron, OH
- 2015 Indiana University of Pennsylvania Indiana, PA
- 2014 North Dakota State University Fargo, ND
- 2014 University of Texas at Tyler Tyler, TX
- 2014 Army Research Labs Adelphi, MD
- 2014 University of Oklahoma Norman, OK
- 2013 Louisiana State University at Shreveport Shreveport, LA
- 2011 University of Texas at Tyler Tyler, TX
- 2011 University of North Dakota Grand Forks, ND
- 2010 Western Kentucky University Bowling Green, KY
- 2010 New York Botanical Gardens Bronx, NY