

PROMOTION RECOMMENDATION
The University of Michigan
College of Literature, Science, and the Arts

Regina S. Baucom, assistant professor of ecology and evolutionary biology, College of Literature, Science, and the Arts, is recommended for promotion to associate professor of ecology and evolutionary biology, with tenure, College of Literature, Science, and the Arts.

Academic Degrees:

Ph.D.	2006	University of Georgia
B.S.	1999	University of Tennessee, Knoxville

Professional Record:

2013 – present	Assistant Professor, Department of Ecology and Evolutionary Biology, University of Michigan
2010 – 2013	Assistant Professor, Department of Biological Sciences, University of Cincinnati
2006 – 2009	Post-doctoral Research Associate, Department of Genetics, University of Georgia

Summary of Evaluation:

Teaching – Professor Baucom is a dedicated and effective teacher who is committed to student learning at both the undergraduate and graduate levels. She teaches the large undergraduate genetics course (Biology 305) and a new course she developed (EEB 416, Introduction to Bioinformatics). Student evaluations for both of these courses are very strong. Professor Baucom is committed to evidence-based teaching practices such as active learning and formative assessments. In her genetics course, she developed a series of short videos that serve as supplemental tutorials and offer more examples of how course content relates to “the real world.” These tools are great aids for students who, as described by Professor Baucom, “are most challenged by what they cannot see.” She had mentored fourteen undergraduate students while an assistant professor at the University of Cincinnati and has mentored nineteen more since joining the faculty at Michigan. Seven of these students are co-authors on published papers, including two as first authors, and four that have joined or are in the process of applying to Ph.D. programs. Professor Baucom currently has three Ph.D. students, two of whom are from backgrounds underrepresented in the sciences. She has mentored three post-doctoral researchers at Michigan, one of whom recently joined the faculty of the University of Pennsylvania. Professor Baucom is a thoughtful mentor who develops personalized mentoring strategies specific to the needs of each individual student. She is a highly sought-after thesis committee member for students in other laboratories.

Research – Professor Baucom’s research program investigates the evolutionary mechanisms underlying rapid and long-term adaptation in plant traits and is designed to address fundamental questions in evolution. These include, “What is the genetic basis of rapid adaptation in a field setting?” and “What factors constrain the spread of alleles under strong selection?” and “What life history characteristics promote ‘weediness’ in particular plant species?” The combination of fundamental evolutionary research with problems of interest to an agricultural sub-discipline

(weed science) distinguishes her from her peers. She is widely recognized as a world expert on the evolution of traits in weedy plants. Professor Baucom has received many lecture and symposium invitations, including a graduate student “superspeaker” invitation from Duke University, and invitations to give the prestigious Walton Lecture at Mountain Lake Biological Station as well as a distinguished speaker seminar at the Max Planck Institute. Her consistent contributions to the evolution of weedy plants are highly integrative and novel, and she is perceived as a world leader in this field. Professor Baucom has a strong record of publication in leading journals and of winning external funding.

Recent and Significant Publications:

- “Shifts in outcrossing rates and changes to floral traits are associated with the evolution of herbicide resistance in the common morning glory,” with A. Kuester, et al., *Ecology Letters*, 20, 2017, pp. 41–49.
- “A resurrection experiment finds evidence of both reduced genetic diversity and adaptive evolution in the agricultural weed *Ipomoea purpurea*,” with A. Kuester, et al., *Molecular Ecology*, 25, 2016, pp. 4508–4520.
- “Fitness costs of herbicide resistance across natural populations of the common morning glory, *Ipomoea purpurea*,” with M. L. Van Etten, et al., *Evolution*, 70(10), 2016, pp. 2199–2210.
- “How weeds emerge: A taxonomic and trait-based examination using United States data,” with A. Kuester, et al., *Phytologist*, 202, 2014, pp. 1055–1068, DOI: 10.1111/nph.12698.

Service – Professor Baucom displays great dedication to service in her department, the university, and the greater academic community, especially with respect to efforts to diversify the ethnic and gender makeup of academia. She has served on the departmental Graduate Admissions Committee (2015 – present) and has taken on a leadership role in the LSA Next Prof Science program (2017 – present), which aims to enhance diversity in science through outreach to promising undergraduate students. She is also involved in the co-creation and maintenance of the *DiversifyEEB* list, which serves as a valuable resource across the discipline for minority and women job candidates. Professor Baucom was the primary organizer of the highly successful second annual UM Green Life Sciences Symposium in fall 2018. To the wider community, she is an associate editor of the journal *Molecular Ecology* (2016-present) and an active reviewer for manuscripts of journals in evolutionary biology, molecular biology, and plant biology. Professor Baucom serves on the Technology Committee of the Botanical Society of America and was recently appointed head of the new Diversity Committee for the Association of American Naturalist Society. She has also served as an external reviewer for the Ohio Plant Biology Consortium and as a grant panel member for the USDA.

External Reviews:

Reviewer (A)

“The current focus of much of the field of contemporary evolution and eco-evolutionary feedbacks is shifting towards the contexts created by the Anthropocene (e.g. agricultural and urban habitats) and questions of evolutionary repeatability of evolutionary trajectories, and Dr. Baucom’s work is on the forefront of both of these aspects.”

Reviewer (B)

“What has always impressed me about Baucom’s approach, though, is that she manages to take fundamental questions about evolution, genetics, and how they play out at landscape scales, and attack them with a system that is both fascinating biologically and relevant agriculturally. Where many of us work on somewhat esoteric systems, Baucom’s results have real world impacts. This aspect of her research program provides a pragmatic advantage in that it opens doors for funding from multiple agencies, and she has capitalized on this repeatedly with success securing both USDA & NSF support for her lab.”

Reviewer (C)

“Regarding Dr. Baucom’s standing in relation to others who have been working in the same field, I would rate her as one of the top researchers whose work is both groundbreaking and relevant to society. Dr. Baucom’s work investigating the evolutionary pattern of herbicide resistance in the weedy morning glory is one of the best examples on how basic science can provide invaluable insight to real world problems...”

Reviewer (D)

“I think that Dr. Baucom is a highly respected investigator in the evolutionary genetics of plants. She is at the top of my list for understanding how the evolution of resistance to herbicides has far reaching impacts on the species and community.”

Reviewer (E)

“I follow her work with anticipation. Her work on the genetic basis and constraints on the adaptation of herbicide resistance has the potential to be a text-book example of repeated evolution as well as an example of causes of variation in adaptive outcomes. The clear, logical development of a research program, as she does, is what produces those classic examples of fundamental principles that stick with readers.”

Summary of Recommendation:

Professor Baucom is a world-renowned scholar who has made significant contributions to the study of ecology, evolution, and genetics. She is an excellent teacher and she has provided valuable service. The Executive Committee and the College of Literature, Science, and the Arts and I recommend that Assistant Professor Regina S. Baucom be promoted to the rank of associate professor of ecology and evolutionary biology, with tenure, College of Literature, Science, and the Arts.



Elizabeth R. Cole, Interim Dean
Professor of Women’s Studies, Psychology
and Afroamerican and African Studies
College of Literature, Science, and the Arts

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