November 24, 2017

Dear Dr. Anthony Amend and Members of the Search Committee,

Please find enclosed my application for the faculty position in Quantitative Evolution/Ecology in the Department of Botany at the University of Hawai'i at Manoa. I am particularly well-suited for this position because I use advanced quantitative approaches to understand *how* plants work and *why* they evolved to work that way. My experience in both academia and industry uniquely qualifies me to do world-class research and mentor young scientists to pursue diverse scientific careers. I foresee many opportunities to collaborate internally and internationally, as well as expand course offerings in mathematical biology, statistics, and data science.

Quantitative skills in math, statistics, and data sciences are indispensable for modern science. I believe that math is required to distill complex biology down to testable hypotheses, statistics should be tailored to the biological question (not the other way around), and data science skills make research open and reproducible. I have breadth and depth of experience in all three areas:

- **Mathematical proficiency** in integral calculus, ordinary differential equations, stochastic differential equations, and simulation models using R and Mathematica.
- **Advanced statistical expertise** in generalized linear mixed-effects models, nonlinear regression, finite mixture models, phylogenetic comparative methods, and Bayesian data analysis using R and Stan.
- **Data science skills** in programmatic data wrangling, reproducible science using RStudio/GitHub, and dynamic data visualization.

I developed these skills to pursue cutting-edge research that has been published in high-impact journals and funded through competitive grants and fellowships. My core competencies are:

- **Independent scholarship and funding success**: I have independently conceived of, established collaboration for, and acquired funding to execute multiple research projects during my graduate and postdoctoral career. For example, I established an international collaboration to study leaf evolutionary physiology in wild tomato species with competitive NSF funding. I also received a Biodiversity Postdoctoral Fellowship from the University of British Columbia. This fellowship provides an unusually high level of independence wherein fellows effectively run their own miniature labs.
- **High-impact research**: I have published 16 papers (10 as first author) in leading journals, coorganized and participated in international symposia at major conferences, and delivered 17 invited seminars.
- **Integrative biology through collaboration:** I have collaborated between the US, Canada, and Europe. I often contribute quantitative approaches on papers and would continue to do so at Hawai'i. My broad research interests could be easily adapted to tropical systems in collaboration with other labs.

After 3.5 years of postdoctoral research, I am now working to make agriculture more sustainable as a biostatistician at Novozymes. I am actively involved in research and mentoring as an Honorary Research Associate of the Department of Botany at UBC. The breadth and depth of my scientific experience provides a solid foundation to develop a quantitative research and teaching programs in plant evolution. Thank you for considering my application.

Respectfully,

Christopher D. Muir