AUBRIE R.M. JAMES, PHD

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Curriculum Committee
Deep Springs College
250 Deep Springs Ranch Road
Highway 168
Big Pine, CA 93513

Dear Members of the Curriculum Committee,

I am writing in application to the Herbert Reich Chair of Natural Science position at Deep Springs College as advertised. The combination of my singular approach to ecological research, commitment to meaningful pedagogy, and engagement with transdisciplinary scholarship makes me an ideal fit for this position.

At the core of my research is the desire to produce better accounts of the biological world. My strategy is unique: I straddle the line of classical scientific research and experimental transdisciplinarity to conduct ecological inquiry. This approach is inspired by the historical development of biological theory; leveraging techniques and ideas from other disciplines is a time-honored tradition reaching all the way back to Darwin.

My award-winning scientific research focuses on understanding and predicting the persistence of diversity in plant communities. I work in global hotspots of biodiversity – most notably, just southwest of the Deep Springs campus, in the Sequoia National Forest -- using experimental field research and simulation modelling to test the assumptions and predictions of coexistence theory. In doing so, I aim to identify the drivers of plant-pollinator diversity and persistence. This research has been published in high-impact international journals and funded predominantly through winning competitive grants and fellowships from institutions such as the National Science Foundation, the Cornell Atkinson Center for Sustainable Biodiversity, and the American Society of Naturalists.

Alongside my scientific trajectory I cultivated an interest in how scientific knowledge is shaped, situated, and communicated. This led me to pursue a Master of Science in Art, Culture, and Technology at the Massachusetts Institute of Technology, where I developed a formal science-art practice. Inspired by traditions of ecological and evolutionary theorists who borrow from different disciplines to think about ecology, I explore how science and art can be done together to expand ecological knowledge and outreach by deepening public engagement with ecological issues.

Though my professional science-art practice is young, it has already won competitive grants from the MIT Center for Art, Science & Technology and a commission from the deCordova Sculpture Park and Museum. Over the last year I have advanced this work through teaching at the Fashion Institute of Technology, exhibited in international galleries, and participated in two artist residencies, all while continuing the more traditional arm of my scientific research. These experiences have strengthened my vision for transdisciplinary ecological research and commitment to public scholarship and outreach.

At Deep Springs, I will foster the growth and development of ecology as a discipline by pairing my work in the progression of “normal science” with science-art experimentation. My research will encompass three themes: to conduct transdisciplinary ecological research by integrating artistic practice into the scientific method; to

continue biodiversity research with traditional ecological scientific inquiry; and to develop eco-art projects through which I can generate ideas for scientific research and conduct scientific outreach and communication.

While employed at Deep Springs, I will continue this research with the help of students. Student work will center on conducting fieldwork in the ecosystems in the area, which will complement their understanding of the landscape they encounter every day as they labor on the Deep Springs campus and in the surrounding areas. The first theme will be addressed with ecological field research of native ground-nesting bee demography and ecology. The long-term goals of this line of research will be to determine how pollinator demography affects flowering plant coexistence, to inform wild bee conservation research, and to integrate socially engaged art practice into the scientific method. My work in the second theme will inform a longer-term program of data (re-)analysis to assess global evidence for positive, facilitative interactions (as opposed to negative, competitive interactions) in plant communities. Under the third theme, I will work with students to develop artworks to generate creative thought for ecological research and outreach. This work will be shown in and outside of academic contexts for engagement and communication with other scientists as well as the public. My research and teaching statements cover these themes in more depth (referenced artworks can be found on the website listed above).

I am well-versed in postsecondary teaching through training and experience. I have completed courses in effective one-on-one and small-group teaching practices for biological instruction at Iowa State University; course design for teaching scientific writing through the Center for Teaching Innovation at Cornell University; and philosophy of teaching for students in non-traditional classrooms (i.e. students incarcerated in the American prison system) at Cornell University. My additional training in art and science-art pedagogy at MIT positions me well to uniquely contribute to the academics pillar at Deep Springs.

In addition, I have led numerous classrooms at four different institutions for higher learning, covering topics in general biology, ecology, evolution, biostatistics, and environmental issues. As a postdoctoral scholar at the University of Queensland I designed, revamped, and maintained course materials for the introductory biostatistics course, lectured the practicum section for the course, and aided in the design of course materials for the Master of Conservation Biology program. Most recently, I designed an Ecology and Environmental issues course for teaching undergraduate students at the Fashion Institute of Technology using STEAM (integrating Art into Science, Technology, Engineering, and Math) approaches.

Finally, I also have considerable experience advising undergraduate, honours, master, and PhD students in pursuing ecological research. Supervising and working side-by-side with students in intense and highly rewarding remote field work environments (i.e. southern California and Western Australia) enhances students' experience and understanding of ecology and the landscape. For five of these students (four undergraduates and one PhD student), I also served as the primary research advisor, supervising and aiding in work that eventually was published in international scholarly journals (see C.V.). Each of my pedagogical roles has taught me that impactful teaching and mentorship hinges on creating spaces where students feel empowered as equals. This has informed my position that self-determination is key to a meaningful education.

Deep Springs is an ideal place for me to continue my work. My experience and values as a scholar will complement and extend the College's three pillar focus on labor, self-governance, and academics in forward-looking ways. As a faculty member I will conduct scholarship which will position Deep Springs at the forefront of transdisciplinary engagement with the pressing ecological issues of our time.

Thank you for taking the time to review my application, and I look forward to hearing from you at your earliest convenience.

Sincerely,

Aubrie R.M. James, PhD