



UNIVERSITY OF OREGON
College of Arts and Sciences

27 March 2010

Prof. Connie Woodhouse
University of Arizona
School Geography and Development
P.O. Box 210076
Tucson, AZ 85721

Re: Jack Williams

Dear Connie:

I am pleased to recommend Jack Williams for the “Forests in the Earth System” position. I’ve known Jack for about fifteen years now, from around the time he was starting work on his Master’s degree at Brown. I’ve also been a co-author on a couple of Jack’s papers (as a minor contributor for the most part), and we are continuing to collaborate on several projects. Consequently, I feel that I am in a good position to assess his progress so far, as well as his longer-term potential.

Jack’s dissertation work focused on Quaternary vegetation dynamics, a topic that is closely coupled to the related fields of climatology and paleoclimatology, “neo-” and paleoecology, global biogeochemistry, and even satellite remote sensing, and overall has a strong Earth-system history component. What distinguished Jack’s work at the early stage of his career was that he attempted to contribute to each of these fields, and to construct links among them, and he has succeeded nicely. A more standard trajectory for a recent Ph.D. to follow would have been one that was somewhat more narrowly focused on a straightforward extension of the Ph.D. project.

I really liked this aspect of Jack’s overall game plan. It’s easy to see in practically any science-policy document from the past ten years statements of the kind that urge truly *interdisciplinary* (as opposed to *multidisciplinary*) research. Few, even well established, scientists are willing to take the risks implied in that kind of research, owing to the “unfocused, too diffuse, jack-of-all-trades, master-of-none...” labels that come with such work. I think that Jack deserves special credit for attempting an interdisciplinary approach so early in his career. Although he’s long past the dissertation/entry-level stage, this aspect of Jack’s overall career is still important to note, because it demonstrates that he comes “hard-wired” to lead the kind of interdisciplinary, cross-cutting work that your position description describes.

At this point Jack can easily be recognized as the central person in what is a community effort in collecting and synthesizing Quaternary paleoecological data for mapping and understanding the vegetation history of North America—work that was pioneered by Tom Webb, Jack’s Ph.D. supervisor. Jack and his collaborators have greatly expanded the scope of that work and its significance to allied fields such as Earth-system science or global ecology. Jack’s contribution includes both “nuts-and-bolts” work like the *Atlas of Pollen-Vegetation-Climate Relationships of the United States and Canada* (which is necessary for making any kind of sense of the fossil data), as well as highly synthetic papers that use the modern and fossil data to address such issues such as the stability of plant communities over time, and the mechanisms involved in the response of the terrestrial biosphere to abrupt climate change.

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The particular theme of community stability, expressed through Jack's focus on the occurrence of plant communities without modern analogues (and the related occurrence of past (or future) climates also without modern analogues) is, I think, the centerpiece of his research, and one that has multiple audiences. As an element of general "paleo" research, it represents an important contribution to understanding how plants respond to environmental change, and as a consequence, it also contributes to understanding of their response to future environmental changes. I think that the basic (modern and paleo) database-development work that Jack has done, along with such novel applications such as the climate-analogue work reported in *PNAS* and others, provide a premier example of the value of such research to "real-world" issues, including understanding what that world will indeed look like in 100 years.

Jack has paid the intellectual start-up costs of marshalling the materials (data and models) and the guidance necessary to effectively use them, and the return on that investment can be clearly seen in his C.V. I think that his potential for working in an interdisciplinary environment and making contributions that span several fields is already proven, and not simply promised, and he has the tools and perspective to take his career to the next level.

I understand that he has just been offered a Bullard fellowship at Harvard Forest next year, to work on a book on terrestrial ecosystem response to past climate changes. His book plan is great—ambitious, but tractable. The need for such a book has long been discussed among Quaternary "paleo" people, and will serve that community, and will also provide a portal for "neocologists" interested in the long-term perspective that paleoecology provides. The book plan (and his proposal to work on it at Harvard Forest) addresses what must stand out as a real anomaly in Jack's application—his evident inexperience with dendroclimatology. I think he is completely familiar with the issues, approaches and the tools for working on vegetation dynamics on the annual-to-centennial and local-to-regional scales. He's not just a pollen guy.

Jack also seems to be succeeding well in teaching and graduate training. I know that Jack takes it seriously, and from conversation, I know expends significant effort in giving his courses a strong intellectual-development focus, in contrast to seeing them as vehicles for delivering testable facts. I think his experience as both an undergrad and graduate student in schools that focus on undergraduates (Oberlin, Brown) is now readily apparent in his teaching goals and ambitions. As to graduate and post-graduate training, my most recent (and probably best ever) Ph.D. student, Jenn Marlon, was just awarded an NSF EAR Earth Sciences Postdoctoral fellowship to work with Jack, attracted by the help he provided to her during her dissertation work.

In short, I think that Jack will continue thrive in an environment that fosters interdisciplinary research that cross-cuts traditional fields, and I predict that he will continue to make the necessary connections to do so. He also understands the importance of good departmental and university citizenship, and of service to the scientific community, and would make a great colleague. Please let me know if there is anything I could elaborate further on.

Sincerely,

Patrick J. Bartlein
Professor of Geography