David L Nieland

Subject: POSTDOCTORAL POSITION – Population modeling of threatened and endangered plants

A postdoctoral position is immediately available in the Department of Ecology, Evolution, and Behavior. Valery Forbes is looking for a highly motivated postdoc to work on a project related to assessing the potential risks of herbicides to threatened and endangered plant species through population modeling. In particular this project will focus on developing methods for dealing with data gaps for data-poor species. Population modeling has been recommended by the National Research Council to assess the risks of pesticides to species listed under the Endangered Species Act (ESA). The project specifically addresses a significant challenge for ESA-related population modeling, which is the artifact of data limitation. Most listed species do not have the requisite life-history or habitat data necessary to assemble a comprehensive species-specific population model.

Moreover, this is not practical or financially viable given the number of listed species (>1,500). Consequently, a systematic approach will be used to develop models for several data-poor plant species; i.e. a generic platform.

The position term is for 2 years, and is annually renewable depending on performance and availability of funding. The successful candidate will receive training in professional and personal development, research collaboration, presentation and publication of results, outreach, and mentoring. The position includes a competitive salary and health insurance. Review of applications will begin immediately and will continue until the position is filled. A near-term start date is desired.

All applicants must have a Ph.D. in biology, ecology, ecotoxicology or a related field. Expertise in modeling and/or computer programming is highly desirable.

Applications should include: (i) brief cover letter, (ii) curriculum vitae,
(iii) a brief description of past research accomplishments (under two pages), and (v) the names and contact information for three references. All materials should be uploaded through the University of Minnesota's online
system:
Visit http://www1.umn.edu/ohr/employment/
Click the appropriate internal or external applicant link Search Job ID# 308409

The curriculum vitae, description of past research accomplishments, and references should be combined into one PDF and uploaded in the resume area.
The cover letter should be uploaded as a separate document.

Any questions should be directed to Valery Forbes (veforbes@umn.edu).

The University of Minnesota is an Equal Opportunity/Affirmative Action Employer.

Position Description

The Post-Doctoral Associate will be responsible for independently developing an approach for using population models for data-poor species in the context of pesticide risk assessments of listed species under ESA. This will involve identifying which data gaps are most critical (for model performance and predictability); providing approaches for filling such data gaps (e.g., using surrogate species, allometric relationships, theory, etc.); demonstrating how the models can provide useful insights regarding individual-to-population linkages even when data are scarce. This work is being co-funded by Syngenta Crop Protection LLC.

30% Ecological model development
The postdoc will independently develop a spatially explicit, individual-based model that can be applied to one or more endangered/threatened plant species. Model parameterization, evaluation, and interpretation of model outputs are included in this. The preferred platform for model development is NetLogo, though other platforms can be considered, depending on the expertise of the postdoc.

50% Model analysis
The developed model will be used to explore the relative importance of different types of data gaps and the effectiveness of different methods for filling those gaps. In addition analyses will be done to investigate how population models (even for data-poor species) can provide insights that are useful for assessing risks of pesticides to listed species.

10% Prepare Results for Dissemination
The results of the project will be published in major journals in the field and presented at national and international meetings. This position will require data compilation and figure preparation that will be incorporated into manuscripts to be written and submitted for publication as well as posters and oral presentations.

10% Interaction with the business sector and governmental agencies The position includes collaborations with the non-academic sector, and the postdoctoral associate will interact, collaborate and present results in academic, as well as non-academic settings.