Mozilla Science Lab / Mozilla Fellows for Science - 2016

Your application (ID #VsLU2FvPXeeY)

https://mozilla-science-lab.forms.fm/mozilla-fellows-for-science-2016/responses/VsLU2FvPXeeY

What institution are you based at currently? (10 words)

Nebraska Cooperative Fish & Wildlife Research Unit,
University of Nebraska-Lincoln

What is your role at the institution?

- ✓ graduate student
- post-doctoral researcher
- lecturer
- research staff

What research fields are you in? (25 words)

What?
Complexity science, urban ecology, quantitative ecology

How?
By occupying a research nexus of quantitative and complex systems ecology informed by citizen science data.

What is your research focus? (50 words)

I use open source, big data to detect abrupt, catastrophic shifts in social-ecological systems. These shifts occur when ongoing disturbances suddenly eliminate desirable social-ecological processes. As these losses are often unexpected, my research addresses an urgent need to develop statistical tools for predicting such shifts.

Describe to us your current research team. (50 words)

My team consists of local and international scholars with expertise including macroecological modeling, resilience theory, and ornithology. Working closely with fellow students, post-docs, and established scientists, I am the citizen science and big data expert on my team, driving innovative research at the nexus of open data and ecological modeling.

Supervisor name (10 words)

Craig R. Allen

Supervisor title (10 words)

Professor

Supervisor email

callen3@unl.edu

Supervisor phone number

+14024720229

Describe to us how open science advances your research. (100 words)

Sudden shifts in social-ecological systems are easy to disentangle in retrospect. Predicting regime shifts in the face global change and its interacting, complex drivers, however, is obscured by a lack of freely available data. Resource guarding in the exclusive, neo-liberal academy hinders this. Open-source data solves this problem, providing me with big, cross scale datasets to inform statistical models that detect abrupt social-ecological regime shifts. Without such data, my dissertation would be infeasible, and urgently needed innovation, stymied. Indeed, open science advances all knowledge, and will continue to shape my research program and career.

Are you leading any projects related to open science? (100 words)

Most of my peer-reviewed and in preparation publications are the product of open source, citizen science data. I am the key organizer of a project using open data to detect impending regime shifts. This project is funded by the Department of Defense, and relies on data collected at U.S. military bases. I am amplifying these data with open-source data, providing an example for other researchers with big questions but few resources for primary data collection. To do this I will draw on expertise gained from co-organizing the Big Data Ornithology working group, and collaborations with experts in citizen science.

How do you see Mozilla advancing your work? (50 words)

A Mozilla partnership will provide me with the resources and platform necessary to effectively advocate for open science in academia. As a first generation college and now graduate student, I recognize how vital open science is for scientists with all levels of access to resources and knowledge.

What do you see as the opportunities for impact around open research at your university? Could you leverage this opportunity in a potential project? (50 words)

With the advent of the Holland (Super)Computing Center and Nebraska Innovation Campus, The University of Nebraska-Lincoln (UNL) is poised to become a leader in innovation technology. As founder of UNL’s Natural Resources Diversity Initiative, I have developed a productive relationship with our chancellor, positioning me to promote open science.

What do you think needs to change most immediately in scientific research? (100 words)

Beyond removing all paywalls for journal articles, I think articles reporting empirical results must publish their raw data and detailed methods (preferably accompanied by script)., I know how challenging it can be to break into the “scripting club” in scientific research, especially for women. The time and energy we spend as non-statisticians translating methods into script for data analysis wastes valuable talent and energy. Freely available data and code would allow for rapid accumulation of knowledge from existing empirical pursuits, allowing underrepresented and disenfranchised groups the opportunity to equitably contribute to their scientific disciplines.

What project in the field do you find most inspiring to further science and the web? (50 words)

Project eBird, iDigBio, and the LTER network are exemplary open science initiatives with varying scopes. I hope to capitalize on the development of these efforts as transformational formulas for data dissemination. These and similar initiatives are vital for estimating baseline social-ecological conditions for complex systems locally and globally.

Why is the the open web important to you? (25 words)

First-generation students have disproportionate barriers to education, graduate funding, and data. The open web offers a bridge to knowledge, training, and inspiration for ALL students.

GitHub or other code repository profile

https://github.com/trashbirdecology

Links to 2 of your projects that have high relevance to open science

https://trashbirdecology.github.io/regimeshift_dissertation/

https://github.com/TrashBirdEcology/projects_nondissertation/tree/master/EurasianTreeSparrow

Do you speak any languages other than English? If yes, please list them.

Not at this time.

Are you comfortable with semi-regular travel, and what are your travel constraints?

I welcome travel and will have minimal constraints.

How did you hear about the fellowship?

- Twitter
- Blog
- Friend
- ✓ Other: LTER list-serv

Do you want to be added to our Mozilla Science Lab mailing list?

- Yes, please!
- ✓ Not at this time.

Are you a legal permanent resident, temporary resident, Asylee or otherwise authorized to work in your country of residence?

- ✓ Yes
- No

I am permitted by my home institution to receive the fellowship funds directly (i.e., paid to me by Mozilla), without a requirement that the funds be routed through the organization and paid out to me through the organization.

Yes

I am permitted to reduce my time spent as an employee of my home institution to no more than 20%, and I will be able to dedicate at least 80% of my time to fellowship activities.

Yes

I am either a citizen of my local jurisdiction or have a visa that currently permits me to work there.

Yes

My visa will allow me to reduce my time spent as an employee of my home institution to no more than 20% during the fellowship term, even though my status will be as a Mozilla fellow and not a Mozilla employee.

No

Coverletter

Mozilla_CoverLetter_edit.pdf25.3 KB

Résumé

CVResume_Hybrid.pdf156 KB

Letter of support from your supervisor