PhD positions are available in Dr. Balch's Fire Works lab at the University of Colorado-Boulder for the fall 2015 semester.

APPLICATIONS TO THE DEPARTMENT OF GEOGRAPHY ARE DUE DECEMBER 1st.

Research in the lab focuses on the intersection of disturbance dynamics, ecosystem thresholds, and coupled human-natural systems. We examine how global environmental change—including shifting fire cycles—alters plant communities and ecosystem function. Our research balances cutting-edge fieldwork with analysis of global ecological data to examine how human changes to fire patterns are encouraging forest-savanna transitions, degrading ecosystems, and increasing greenhouse gas emissions. Together with an international community of collaborators, we work across disciplines and scales—from individual organisms to entire ecosystems.

One PhD position will be part of a larger collaborative project exploring the climate and land use drivers of invasive-grass fueled fires across the western U.S. Non-native, invasive grasses are increasing fire activity globally, yet the mechanisms driving the initiation and perpetuation of novel fire regimes remain largely unknown. This project will use remote sensing and spatial analysis to investigate the climate and land-use mechanisms that promote fires in invaded and native ecosystems—for one of the most prominent cases of a potentially irreversible grass-fire cycle. Cheatgrass (Bromus tectorum), which was introduced to North America in the mid-1800s, now dominates over 40,000 km2 of the intermountain west. This collaborative research project will address the following questions about how climate, land use, and fire interact across invaded and native ecosystems of the intermountain west: i) How do fire regimes and fire probability vary in invaded and native ecosystems? ii) What are the climate and land-use predictors of fire activity in these landscapes? iii) What is the geography of current and future fire risk, under mid-century climate and land-use change scenarios? (This position will be supported through a NASA-supported Research Assistantship and department Teaching Assistantship, which cover tuition and stipends.)

Other PhD opportunities exist on changing fire dynamics, but are dependent on strong student initiative and creativity. Please see my website for other current research themes. I am open to student proposals to explore questions within the scope of my overall research program. There are opportunities for highly competitive students to get support via Teaching Assistantships, or other outside funding.

Applicants should have a Bachelor's or Master's degree in ecology, geography, biology, forestry, or other field related to environmental studies. Prior research experience, particularly using remote sensing data or GIS is a plus.

Please see my website: www.nceas.ucsb.edu/~balch

The PhD students will be enrolled in the Department of Geography at CU-Boulder: http://geography.colorado.edu

See here for how to apply:
http://geography.colorado.edu/grad_program/admissions_and_applications

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If you are interested in working with me as a PhD student, please send me i) a paragraph or two telling me what types of research questions you are interested in; ii) a brief description of your career goals or what you hope to get out of graduate school; iii) your c.v.; iv) an "unofficial" transcript; v) “unofficial” GRE scores; and vi) a writing sample. (Note, this requested information is separate from the formal application required by the Department of Geography.)

Best wishes,
Dr. Jennifer K. Balch

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