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Oakland, CA 94608

2016-09-10

Members of the Search Committee
ESPM Department
University of California, Berkeley
130 Mulford Hall #3114
Berkeley, CA 94720-3114

RE: Job Number JPF01097

Dear Committee Members

I am applying for the position of Cooperative Extension (CE) Specialist in Forest Products and Woody Biomass in the Ecosystem Sciences Division of the College of Natural Resources at the University of California, Berkeley. I believe that I have the skills, experience, and drive to do both the rigorous academic research and the public facing extension and outreach needed to move the sustainable use of forests and wood products into the future. I am confident you will find me uniquely qualified for this position, possessing a range of experience, skills and expertise that will broaden and strengthen the Division and the CE specialist network. Having worked in the wood resources group (WRG) at UC Berkeley under the supervision of Dr. John Shelly since 2012, I come with a thorough understanding of what the program has been and clear ideas of what it has the potential to be. Below are some of the highlights of my work here to date,

- organized and led a series of [Community Scale Wood Bioenergy Workshops](#) in three locations across the state,
- coordinated, served as Guest Editor of, and authored articles in a [special issue](#) of California Agriculture, titled "*Woody Biomass: Energy, ecosystems, economics*,"
- wrote and supported passage of legislation ([AB1923 - 2016](#)) to improve efficiency and reduce Levelized Cost of Electricity (LCOE) for small-scale wood bioenergy plants through on-site Combined Heat and Power (CHP) in collaboration with University of California Division of Agriculture and Natural Resources (UCANR) CE Forest Advisor and Humboldt-Del Norte County Director Yana Valachovic,
- facilitated [public meetings and multi-campus peer-review](#) of the California Department of Forestry and Fire Protection's strategy to evaluate impacts of Forest Practice Rules on carbon sequestration in California's forests and forest products,
- as chair of the scientific advisory committee for a [multi-location hazardous fuels treatment demonstration](#), I conducted outreach, developed the experimental design, and deployed novel low-cost Global Positioning System (GPS) and accelerometer data-logging technology to evaluate equipment productivity,
- developed and maintained a [comprehensive statewide historical database](#) and web-based map of sawmills and biomass power plants.

In addition to fulfilling the responsibilities associated with the long standing relationship with Region 5 of the US Forest Service, I have collaborated on successful research proposals to the United States Department of Agriculture (USDA), California Energy Commission, Energy Biosciences Institute and UCANR Renewable Resources Extension Act Program. My academic skills and experience span empirical analysis, techno-economic modeling and systems-analysis, algorithm development, and spatial data science with my primary focus on spatial and techno-economic analysis of forests bioenergy systems. My experience in CE includes,

- 5-7 public presentations annually reaching on average 200 people per year mostly in rural under-served forest-dependent communities since 2012,
- direct technical assistance on 3-5 wood energy projects annually,
- development of a web platform designed to reach a broad public audience with a wide range of content on wood products, utilization and wood energy and
- publication of peer-reviewed fact-sheets and publications through academic journals and the UCANR peer-review process.

The WRG has provided an opportunity for me to apply my technical skills in an applied, extension context. For example, rural communities closest to forests affected by fire or which historically relied on forest based economies often self-organize to advocate for wood energy projects. These groups often lack the skills to assess the technical and financial viability of such projects and the know-how to get the public and private sector capital needed to make them a reality. While county-based extension agents provide critical support for these organizations, the complexity of biomass conversion technologies requires specific technical expertise. Through community based workshops and direct assistance to these groups, I have helped projects take shape, steered groups away from investing in untested technologies, and reduced excessive spending on third party consultants for projects that are unlikely to succeed.

As a PhD student in Geography at UC Davis, my dissertation and research focused on the use of geospatial technology and spatial analysis in forestry in the following two primary areas: 1) use of remote sensing technologies (Light Detection and Ranging (LiDAR), hyperspectral imagery) to assess forest conditions, 2) use of spatial analysis and data science (network analysis, spatial clustering) in techno-economic models of forestry supply chains. My research contributions are the application of a novel, geometric shape-fitting algorithm in the detection and delineation of individual tree crowns from LiDAR point clouds, and the use of spatial clustering (mean shift, k -means) and linear multi-modal network analysis in linear programming approaches to facility siting for biofuels and forest product facilities.

During my time at University of California, Davis (UC Davis), the landmark Global Warming Solutions Act was passed in California. I worked on a research team building a modeling framework to evaluate the economic potential for forestry residuals (and a range of other biomass sources) as feedstock for biofuels. This work made me understand the importance of evaluating the economic and environmental tradeoffs between supply chains for transportation fuels and electricity.

As a post Doc working at UC Davis, I developed a proposal with colleagues at the University of Washington, Greenwood Resources, and ZeaChem to evaluate the use of ligno-cellulosic material from short-rotation hybrid poplar grown on marginal agricultural lands across the Pacific Northwest in biofuel production. The proposal received \$40 million in funding from the USDA, then the largest single grant ever awarded by that agency.

My deep interest in wood and forests feels almost innate. I grew up in rural Humboldt County, California in a fraught era that saw the northern spotted owl listed as a federally endangered species, hostile takeovers of family-owned timber and forest products companies, and the unprecedented liquidation of standing timber inventory. My dad is a woodworker and builder and as his eldest son I was his conscripted employee starting in my preteens. In high school, fistfights would regularly erupt between “hippies” (the offspring of pot growers), and “loggers” (the offspring of loggers). Witnessing the violence and social discord made clear to me the importance of forest landscapes not just for their natural beauty but as integral to culture, identity and livelihood.

This position would allow me to continue the academic research I’m passionate about while working with, and helping, the people who work in forests, rely on wood products, and live in communities surrounded by trees—the kind of people who I grew up with. I have enclosed my curriculum vitae, statement of research and extension interests and experience, statement of contributions to diversity and inclusion, and several publications for your review. The following people have agreed to be available as reference on my behalf:

- John R. Shelly – Cooperative Extension Adviser Emeritus, Forest Products and Biomass Utilization, University of California, Berkeley
- Bryan Jenkins – Professor and Chair, Department of Biological and Agricultural Engineering, University of California, Davis
- Jana Ganion – Energy Director, Blue Lake Rancheria and US Department of Energy Office of Indian Energy Policy and Programs

Thank you for your consideration of my application.

Sincerely,



Peter W. Tlittmann