

POSITION DESCRIPTION

Title: **Cooperative Extension Forest Health Specialist**
Location: Department of Environmental Science, Policy, and Management
University of California, Berkeley

Justification:

Insects, fungi and other microorganisms are important components in forested ecosystems. Insects and diseases also play a beneficial role in forest ecosystems, contributing an important source of biodiversity, serving as part of the food chain for wildlife species, and assisting in nutrient cycling processes. Episodic expansions of the population of insects and diseases can create annual economic losses of millions of dollars. These losses include mortality, reductions in tree growth and quality, loss of amenity value, increased fuel loading and fire intensity, and accompanying losses in soil erosion. The public's concern for sustainable forest ecosystems demands a science-based approach to identify trends and evaluate management responses that could be undertaken by different classes of landowners.

Tremendous changes in California's forest environments have altered the status of insects and diseases in these ecosystems. Population growth on the periphery of mountainous forests areas has increased social concerns and the number of new insects and diseases into forest management. Urbanization in forest areas and the amenity value of trees in urban and suburban settings continues to increase dramatically. Urban populations will have increasing concerns about the effects of certain insects on small-sized tracts of forest land and ornamental trees in planned landscapes at the same time that some of them will be introducing new species. Thus, the public has demanded more information about pests and more treatment options to lessen their economic and aesthetic impacts. Fire suppression has created forest stand structures that have a higher predisposition to catastrophic losses to insects and pathogens, especially during periods of extreme climatic events. The highly mobile human population settling in forested areas and the widespread planing of ornamental tree species creates opportunities for the introduction of exotic species for which there may be no natural resistance. Increasing importation of logs and other wood products from throughout the world creates another pathway to introducing new pests to our forests. Projected climate changes in our forested ecosystems also may predispose forests to new and unknown impacts to forest health from insects and pathogens, as well as exotic plant species. The skill to identify the new risks and developing new strategies to address changing population of people, insects, and diseases across the range of forests from those next to subdivisions to those in remote parks is currently lacking.

There is a need for forest health expertise in the University of California System to develop science-based extension programs. Tremendous need also exists for an applied research program to adapt principles of ecology, forest management, and integrated pest management to various forest health issues in different forest regions of the state.

Since Berkeley is the only UC campus with a program in forestry, the opportunity for leadership and statewide cooperation in forest health is tremendous. This position would complement UC Berkeley's leadership in forestry within ANR. Current funding for research and extension teams to address Pine Pitch Canker, the Goldenspotted Oak Borer, and Tanoak/Live Oak Sudden Death would benefit from this position. In addition, the Center for Forestry, the Center for Fire Research

and Outreach, the Geospatial Innovation Facility (GIF) and the Center for Biological Control are located on the Berkeley campus. The Extension Forest Health Specialist will serve as an important team member in these units. The Extension Specialist would have vast basic and applied science resources upon which to draw.

Faculty at U.C. Berkeley with Affiliated Interests:

A partial list of Berkeley-based faculty with a major thrust in forest ecology, management, and health is shown below. In addition to this group, there are another twenty faculty who spend at least part of their time on forestry issues.

Dennis Baldocchi, John Battles, Peter Berck, Greg Biging, Tom Bruns, Ignacio Chapela, Richard Dodd, Gordon Frankie, Matteo Garbelotto, Keith Gilless, Allen Goldstein, Lynn Huntsinger, Joe McBride, Nick Mills, Maggi Kelly, Vernard Lewis, Doug McCreary, Adina Merenlender, Max Moritz, Gary Nakamura, Kevin O'Hara, Tom Scott, Whendee Silver, Rick Standiford, Scott Stephens, Bill Stewart, Bill Tietje, Dave Wood, Rob York.

Other ANR Academics:

Shown below are faculty and county advisors, as well as ANR and campus centers that would be expected to interact with the Forest Health Specialist.

Affiliations at UC Riverside:

Robert Luck, Timothy Paine, Mark Hoddle
Center for Invasive Species Research

Affiliation at U.C. Davis:

Les Ehler, Tom Gordon, Dave Rizzo, Joe DiTomaso
Integrated Pest Management Program (ANR program housed at UCD)

CE Farm Advisors:

Mary Bianchi, San Luis Obispo Co.; Laurence Costello, San Mateo/San Francisco Counties; Mike DeLasaux, Plumas/Sierra Counties; Sabrina Drill, Los Angeles/Ventura Counties; Greg Giusti, Mendocino/Lake Counties; John Kabashima, Orange Co.; Susie Kocher, El Dorado Co.; Neil McDougald, Madera/Fresno Counties; Steve Quarles, Contra Costa Co./Center for Forestry; Ellie Rilla, Marin Co.; John Shelly, Contra Costa Co./Center for Forestry; Steve Swain, Marin Co.; Steven Tjosvold, Santa Cruz Co.; Yana Valachovic, Humboldt/Del Norte Co.

Clientele Served:

Forests are important natural resources in California, thus there is a wide group of clientele for information that could be provided by a forest health specialist. In the public sector, the USDA Forest Service, Bureau of Land Management, National Park Service, California Department of Forestry and Fire Protection, California Department of Food and Agriculture, California State Parks, and various county government agencies are examples of groups who would look to the Forest Health Specialist for leadership. Specific interagency groups, including the Board of Forest Pest Council, and the Forest Vegetation Management Conference would also provide excellent opportunities for collaboration and input on priority issues. Forest products companies, non-

industrial forest landowners, land trusts, conservation groups, consulting foresters and arborists, and the horticulture and nursery industry would also look to the Specialist for advice on forest health issues.

The ANR Strategic Initiatives in Sustainable Natural Resources, and Endemic and Invasive Pests and Diseases are both addressed by this new position.

Nature and Purpose:

(1) To develop information on forest health issues statewide; (2) to extend forest pest management and monitoring information to forest resource managers, landowners, policy makers, and the general public; and (3) to develop an applied research program focusing on the balanced role of insects and pathogens in the forest environment.

Major Duties and Responsibilities:

- a) Plan, conduct, and coordinate vigorous applied research to find environmentally and socially acceptable control methods for pests of trees in forests. Compete successfully for public and private grant funding.
- b) There are many exotic pests introduced into the forest and urban forest environment, and methods for detection and controlling these must be developed. Cooperative Research should also be developed through the Center for Biological Control on introduced pests.

Some current research areas where a specialist could be active and contribute:

- (1) Development of pheromone trapping to monitor bark beetles and their natural enemies to assist in forest management decisions. Participation with U.S. Forest Service personnel on *Ips*, *Dendroctonus* and *Scolylus* spp. problem.
 - (2) Monitoring techniques for forest defoliators and development of prediction methods such as for Douglas fir tussock moth. Cooperation with U.S. Forest Service and selected U.C. Farm Advisors.
 - (3) Development of integrated pest management strategies and monitoring methods for tree insects in large urban areas. Cooperation with City Park Services and Neighborhood Services in Sacramento and U.C. Farm Advisors. Examples are: urban tree aphids, *Eugenia* psyllid, blue gum psyllid and elm leaf beetle, California oakmoths, and various bark beetles.
 - (4) Relationship between forest insects and wildlife populations.
 - (5) Provide leadership in the newly emerging issues from the Goldenspotted Oak Borer (GSOB) in black oak woodlands and forests
- c) Develop research findings and transfer information for use by public and private sectors concerned with wildland or urban forest health.

- d) Coordinate extension activities with other forest pest and disease management personnel. Extend information on concerns and problems of public and private sectors to appropriate University, USDA Forest Service and California Department of Forestry and Fire Protection personnel.
- e) Maintain professional competence and interactions by participating in professional organizations, workshops, conferences, and other means.
- f) Facilitate affirmative action programs to encourage greater participation of minorities, women, and other underrepresented groups. Assist in the conduct of effective outreach programs for the above

Relationships:

Responsible to the Chair of the Department of Environmental Science, Policy, and Management for program direction, job performance, administrative matters and operational methods. Supervise and evaluate non-academic support personnel.

Provide statewide leadership to county CE forestry and urban forestry programs on forest health issues.

Contact person to maintain communication among county-based personnel, USFS, USDA, industry, forestry and entomology research departments. Advise forestry community on research and technical advice.

Assure that programs are available to all citizens in accordance with Affirmative Action guidelines on matters concerning forest insect pests.

Space Needs:

The individual should have access to a "dirty lab" so that logs and other tree-type samples could be brought easily into a small rough lab for examination. A small "clean" lab would also be needed.

Qualifications:

The Extension Forest Health Specialist requires a Ph.D. degree with training in forestry, entomology, pathology, or integrated pest management. Must have good writing and public speaking skills to communicate to a diverse audience of professional and non-technical clientele. Must have capacity to design and carry out high quality research in a discipline related to forest health, and serve as a team member on interdisciplinary projects in forest health and ecosystem sustainability.