

## **CE Specialist in Veterinary Entomology**

### **Position Description:**

This 100% UCCE Specialist position is a veterinarian who will focus on surveillance and strategic intervention to control high risk insect borne diseases of economic and public health concern (zoonotic transmission) to California's animal and human populations. This position would be responsible for investigating effective controls and providing outreach on arthropods that transmit infectious diseases of livestock and poultry, and the associated flies that contaminate our food supply. A specific focus will be the study of climate change effects on demographic reservoirs of arthropod vectors, including introduction of new vectors and changing territories of existing vectors that have potential to adversely affect animal and human health, limit animal movement, and restrict trade of animals or animal products, particularly food products of animal origin, globally. Beyond enhancing interaction between scientists working on issues involving medical and veterinary entomology, this position would take advantage of the considerable expertise resident within the Center for Vectorborne Diseases (CVEC: SVM & CAES) on the Davis campus, diagnosticians in the California Animal Health and Food Safety Laboratory (CAHFS) system, clinical parasitologists in the Veterinary Medical Teaching Hospital (VMTH) and wildlife parasitologists in the Center for Wildlife Health (WHC) and entomologists at UCB, UCD, and UCR.

DVM or equivalent and PhD required. Expertise in insect borne vectors of disease transmission to animal and human populations, including surveillance (population ecology/biology/modeling of vector/disease spread) and intervention strategies essential. Knowledge and/or expertise in arthropod ecology, IPM, pesticide management, genetic modification, and livestock and poultry production systems essential.

### **Justification:**

Insect vectors are a major method of spread for many diseases to animals and people. The critical control point in quickly and cost-effectively managing outbreaks and preventing disease transmission is accomplished by managing populations of the arthropod vector(s) themselves. Mosquitoes, ticks, flies, midges, and other insects disseminate a substantial number of devastating zoonotic and other diseases that seriously threaten both public and animal health. Climate and environmental changes coupled with changes in human demographics and increasing global trade and travel, all contribute to the recent emergence of infectious diseases. Indeed, most new and emerging human diseases in the last 50 years are infectious zoonoses transmitted from wildlife to humans (e.g. SARS, avian flu); a substantial proportion of these diseases are transmitted by insects. The presence of these diseases also impacts global trade and animal movement (e.g. Bluetongue, the equine encephalitidies, etc.), public health (West Nile virus, plague, etc.), and animal health (Anaplasmosis, epizootic bovine abortion etc.). For instance, the recent bluetongue pandemic throughout Europe has graphically confirmed the devastating impact that an animal disease can have on

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regional animal movement and trade, with profoundly adverse economic effects to the affected countries and regions (impact of several billion \$ to the EU since 2006).

UC ANR needs to enhance capacity to monitor and predict these health and food supply risks, and develop and implement better strategies for reducing and preventing them in the future. The expanding threat of bioterrorist acts involving animal or human diseases that are spread by arthropods provides added concern and urgency, as reflected by the priority assigned by the Department of Homeland Security to several arthropod-transmitted diseases (e.g. Rift Valley fever, African horse sickness, etc.).

California's diverse landscape, climate, and agriculture all contribute to the great variety of arthropod pests and vectors that currently exist or could survive here if introduced. Our population continues to expand and increasingly encroach on the agricultural lands that produce our milk, meat, and eggs, blurring the lines between urban and rural so that production agriculture, humans, and wildlife freely mix. Such juxtaposition increases contact between humans and arthropods associated with animal production. These demographic trends seem destined to continue and will exacerbate arthropod-related problems in future years.

### **Extension:**

This position will provide outreach education activities and resources using both conventional and technology-based delivery methods to advisors, veterinary practitioners, physicians and public health practitioners, animal and public health regulators, policy makers, commodity groups, producers, consumers, and journalists.

### **Research:**

This specialist will focus on high priority disease transmission issues for livestock and poultry associated with arthropod borne diseases. Research will focus on the effects of climate change on population ecology of insect vectors, particularly in relation to at risk populations. Key reservoirs for arthropod populations known, or with the potential, to be vectors will be monitored and the influences of climate change on population ecology and spread assessed/modeled as foundation for interventional strategies to limit or prevent disease transmission. Publication outlets include California Agriculture, ANR peer-reviewed 8000 series, peer-reviewed veterinary journals, and lay producer/commodity group publications.

### **ANR Continuum:**

UCD, UCR and UCB have strengths in entomology but no veterinary expertise focused on diseases of livestock and poultry. This position fills a critical gap in the continuum of entomology expertise across plants/animals/humans and complements existing expertise in the VMTH, WHC, CVEC and statewide disease surveillance of livestock and

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poultry conducted by CAHFS, the California Department of Food and Agriculture (CDFA) Animal Health Branch, and the California Department of Health Services.

### **Support:**

Veterinary Medicine Extension, located within the Department of Population Health and Reproduction at UC Davis, will provide administrative support, office space, and computing and telephone support and laboratory space for research.

### **Other support:**

The School has a Center for Food Animal Health which provides two calls for proposals annually and recognizes proposals with Extension components for bonus points. Many of the livestock industries have small amounts of money available for activities addressing their needs. California's Department of Food and Agriculture often contracts with Specialists for research and outreach programs. The California Animal Health and Food Safety Laboratory at UCD with additional laboratories in Turlock, Tulare, and San Bernardino provide essential diagnostic services and surveillance expertise on naturally occurring diseases of California's livestock and poultry industries.

### **Location:**

Position will be located at UC Davis because this provides optimal access to other faculty with related/allied interests in infectious diseases of livestock and poultry, vectorborne diseases, spatial modeling, population ecology, and wildlife diseases.