

Laidlaw Honey Bee Research Facility: Who We Are

The Harry H. Laidlaw Jr. Honey Bee Research Facility is a nexus for diverse bee research and scientists from around the world. We provide cutting-edge research on basic bee biology, genetics, pollination and conservation. We address international concerns about bee health, and meet the needs of California's multibillion dollar agricultural industry. Our program combines research on honey bees and native species to promote sustainability of pollinators and pollination.



Susan Cobey
Bee Breeder-Geneticist
and manager of Laidlaw
Facility



Queen bee insemination



Varroa mite on drone pupa

Susan Cobey

Susan Cobey's focus is honey bee stock improvement. She carries out an intensive and comprehensive breeding and selection program and also provides training to promote stock improvement to the beekeeping community in California and beyond.

Current research areas:

- Selection for honey bee mechanisms of resistance to pests and diseases
- Selection and maintenance of the New World Carniolan
- Closed population breeding program
- Increasing genetic diversity through importation of honey bee stocks expressing resistance to pests and disease
- Developing protocol of the safe international movement of honey bee germplasm.



Eric Mussen
Extension Apiculturist



Honey bee on sunflower

Eric Mussen

As Extension Apiculturist, Dr. Mussen serves as California's liaison between the academic realm of apiculture and the real world realm of beekeeping. Honey bee-related information is disseminated through a bi-monthly newsletter, the departmental Web site, presentations to beekeepers and other individuals with an interest in honey bee topics.

Current research areas:

- Effects on honey bee colonies of exposure to crop pollination
- Effects on honey bees of exposure to light brown apple moth mating disruption pheromone
- Vaccination of honey bee colonies with dsRNA to prevent virus infection



Neal Williams
Pollination Ecologist



Female sunflower bee:
Diadasia enavata, family
Apidae, foraging on New
England Aster (sunflower
family).

Neal Williams

Dr. Williams' lab explores fundamental questions about the evolution and ecology of bees and pollination as well as applied research on crop pollination and native bee conservation within the context of global change and agricultural sustainability.

Current research areas:

- Developing best plant mixes to support native bees and honeybees in intensive agricultural systems
- Effect of farm management and landscape context on the stability of pollinator communities and pollination of melon
- The effect of landscape configuration and complexity on pollinator diversity and pollination service
- The contributions of specialist versus generalist bee species to the pollination of shared host plants

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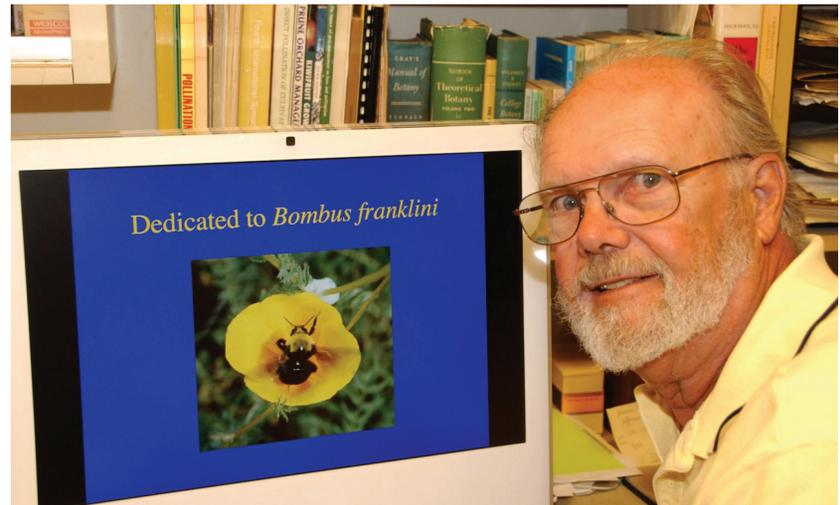
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Robbin Thorp

Dr. Thorp retired in 1994, but continues to conduct research on bees (Apoidea) with a focus on native bees, their ecology, systematics, biodiversity, conservation, and pollination relationships.

Current research areas:

- Status and declines of bumble bee populations.
- Biodiversity of bees in agricultural landscapes and urban gardens
- Systematics and host specificity of vernal pool bees
- Biodiversity of bees on Santa Cruz Island, Calif.



Robbin Thorp with Franklin's bumble bee

Kim Fondrk

M. Kim Fondrk is currently managing the Honey Bee Pollen Hoarding Selection Program at the UC Davis Honey Bee Research Facility under the direction of Dr. Robert E. Page Jr., Arizona State University.

Pollen is the sole protein source for honey bees and is necessary for brood rearing and maintenance of within hive bee populations. Pollen is not available though out the year so hives must rely on pollen they have stored during abundant times to continue brood rearing during dearth periods. This is a two-way selection for High as well as Low pollen hoarding bees and the High strain hives store about 10 times the amount of pollen as Low strain hives. This selection has continued for 35 generations over 20 years and has provided test material for experiments that have resulted in numerous scientific publications, adding to our insight into the areas of genetics, neurophysiology, behavior and sensory perception.



Kim Fondrk, bee breeder-geneticist



Michelle Flenniken,
UC Davis Häagen-Dazs
Postdoctoral
Scholar and insect virus
researcher

Michelle Flenniken

Michelle Flenniken is the UC Davis Häagen-Dazs Postdoctoral Scholar and an insect virus researcher; and a UC San Francisco Postdoctoral Fellow with Dr. R. Andino.

Dr. Flenniken investigates the viruses and other microbes associated with honey bees using a molecular biology approach.

Current research areas:

- RNA Interference (RNAi) as an Antiviral Strategy in Honey Bees
- Colony Collapse Disorder Research - Microarray Monitoring of the Honey Bee Microbial Flora (Collaboration with C. Runckel and Dr. J. DeRisi at UCSF)



Queen bee and her royal attendants.

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Claire Kremen

Claire Kremen is a conservation biologist (affiliate, UC Berkeley) and associated with UC Davis.

Dr. Kremen's lab at UC Berkeley explores the conservation and sustainable management of ecosystem services such as pollination and pest control in agricultural settings. Her group stages several research projects through the Laidlaw Honey Bee Research Facility.

Current research areas:

- The role of native-plant hedgerows in supporting diverse communities of pollinators and natural enemies and in providing pollination and pest control services to adjacent crop fields
- Modeling the role of landscape and local landscape features on the pollinator communities and pollination services
- Estimating economic and nutritional value of pollination services provided by native pollinators in California and globally
- Suitability of native plant hedgerows as nesting sites for pollinators; role of hedgerows as sources or sinks of pollinators



Claire Kremen, conservation biologist, in almond orchard.

Our Visiting Scientists



Susan Monheit
UC Davis

Susan Monheit and Eric Mussen investigated the effects of contact (spray) and oral exposure of microencapsulated and non-encapsulated light brown moth (LBAM) pheromones to newly emergent honey bees (*Apis mellifera*), and determined that these substances are non-toxic to honey bees, even at 10 times the prescribed application rate to disrupt mating of the invasive target moth species.



Alexandra Klein
University of Goettingen,
Germany

Dr. Klein's research in California examines the effects of landscape composition and multiple local management drivers on almond pollination and nut nutritional quality.

She also quantifies the pollination effectiveness and interactions of native and honey bees and the importance of pollen varietal diversity for almond pollination.



Stephen Hendrix
University of Iowa

Dr. Hendrix's research is examining the role of bee diversity in the pollination of almonds. He is using experimental studies to quantify delivery of pollen by wild bees and observational studies to determine nesting opportunities for wild bees in almond orchards.



Lora Morandin
UC Berkeley

Dr. Morandin's research focuses on the role of native-plant hedgerows in supporting diverse pollinator and natural enemy communities in delivering pollination and pest control services to crops.



Claire Brittain
University of Goettingen
Germany

Dr. Brittain is testing the effects of agro-chemicals on native bees and honey bees in the context of almond pollination. She is also working with scientists at the lab to identify life-history traits of early-foraging native bees.