

**Preliminary Program
Pre-Registration and Hotel Information**

28th VERTEBRATE PEST CONFERENCE

February 26 – March 1, 2018

Rohnert Park, California

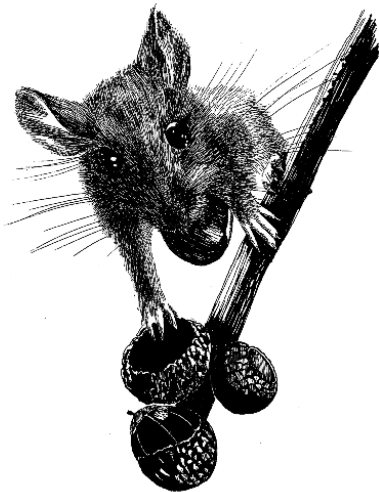
28th VERTEBRATE PEST CONFERENCE

February 26 – March 1, 2018

Rohnert Park, California

Includes special symposia:

- **Living with Wolves**
- **Commensal Rodents**
- **Anticoagulant Rodenticides**



Sponsored by:
The Vertebrate Pest Council

The 28th Vertebrate Pest Conference will be held Monday, February 26 through Thursday, March 1, 2018. Located 40 miles north of San Francisco, Rohnert Park, California is in the heart of Sonoma County, with easy access to recreation, world class wineries, exceptional golfing, Sonoma State University and the world-class Green Music Center. The Conference will feature an optional full-day field trip (Monday, February 26) and three days of presentations (Tuesday through Thursday, February 27 - March 1) covering many aspects of vertebrate pest control.

Who Should Attend

The Conference significantly contributes to understanding and resolving undesirable wildlife-human interactions and wildlife damage problems, promoting better management methodology, and minimizing adverse environmental and ecological effects. Vertebrate pest management is applied ecology with improved agriculture, public health, and conservation of natural and human-made resources as the primary goals. The Conference is a forum for exchanging knowledge, information and experiences among researchers, administrators, regulators, extension personnel, practitioners, and students. Participants have various professional backgrounds, but all have one common interest – managing human-wildlife conflicts. The following represents previous attendee affiliations:

- Wildlife control and animal control officials and personnel
- Wildlife managers employed by federal, state, and regional agencies
- Health department officials and employees
- Pest control advisors (PCAs) and others involved in pesticide use and pesticide regulation
- Agricultural producers, both using conventional and organic methods
- Consultants in vertebrate pest problems
- Manufacturers and suppliers of vertebrate pest materials
- Extension Specialists, Advisors, and Agents
- Foresters
- Administrators and staff of federal and state agriculture departments, environmental protection agencies, and other regulatory agencies
- Sanitarians
- Food processing and warehouse managers
- Educators teaching integrated pest management and agricultural topics
- Researchers (public agencies and private sector)
- Natural resource managers (conservationists) in public agencies and NGOs

CONTINUING EDUCATION CREDITS

California Continuing Education (CE) credits for pest control professionals (PCA, QAC, etc.) and Vector Control personnel are to be determined. Past Conferences have provided 18 - 22 California DPR credit hours, plus CE credits from the CA Department of Public Health; credits are based on final program content. For updates, see www.vpconference.org.

CONFERENCE REGISTRATION

Pre-registration is highly recommended and can be accomplished online via the Internet, using a credit card (Visa, MasterCard, American Express, or Discover), by going to <http://www.vpconference.org/>. To obtain the discounted pre-registration rate, be sure to complete your registration **by February 2, 2018**. Registration after February 2 or at the Conference will include an additional \$25 surcharge.

Registration Options are as follows:

Pre-registration fees will be refunded minus a 20% administrative fee if the request for refund is made to Conference Registration [Coordinators](#) Katie Ruth or Jill Damskey (phone: 831-442-3536) by **February 16, 2018**. No refunds will be granted after this date. Pre-registration fees can be transferred to another individual if the request is made by February 16.

Discounted Pre-Registration

Complete Conference (Feb 27-Mar1)*	\$375.00
Per-Day [] Feb 27 [] Feb 28 [] Mar 1	\$150.00
Retiree, Complete Conference (Feb 27-Mar1)*	\$175.00

Student Pre-Registration

Complete Conference – Student (Feb 27-Mar1)**	\$ 75.00
Per-Day [] Feb 27 [] Feb 28 [] Mar 1	\$ 30.00

Commercial Exhibitor

Complete Conference – Exhibitor (includes 1 person registration with 1 exhibit table)	\$890.00
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Optional Events

Field Trip (full day Feb 26, includes lunch)	\$ 85.00
Field Trip – Guest (full day Feb 26, includes lunch)	\$ 85.00

CONFERENCE PROCEEDINGS

The conference *Proceedings* will be available with open access as individual papers in pdf format at the University of California's eScholarship portal once publication is completed. A printed version of the 28th *Proceedings* will also be available for purchase via print-on-demand, with details to be announced in the Final Program.

CONFERENCE LOCATION

**Doubletree by Hilton Hotel Sonoma Wine Country
1 Doubletree, Rohnert Park, CA 94928**

HOTEL RESERVATIONS

To make your hotel reservation at the DoubleTree by Hilton Sonoma Wine Country, direct your web browser <http://group.doubletree.com/vertebratepestconference>. Using this link will ensure you get the conference rate on your room and will be provided complimentary internet access. There are a limited number of rooms available at the conference rate so it is important you make your room reservations early.

TRANSPORTATION

Airports: The Sonoma County Airport (STS) is 13 miles from the DoubleTree. This airport has regional service offered by Alaska, United, and American Airlines. The [Oakland International Airport](#) (OAK) is the closest major airport to the hotel, located 63 miles south. The [San Francisco International Airport](#) (SFO) is Northern California's largest and busiest airport, and located about 70 miles south of Rohnert Park. [Sacramento International Airport](#) (SMF) is located roughly 96 miles east of the hotel.

Ground Transportation: Airport Express (<http://airportexpressinc.com>) provides service from STS, OAK, and SFO with a stop at the DoubleTree. Rental cars are available at all of the airports.

Parking: Self-parking is available at the hotel for \$8.00 per day.

DRIVING DIRECTIONS

From the Sonoma County Airport: Take Airport Blvd east to Highway 101 South, exit at Wilfred Ave exit. Turn right at the stoplight onto Redwood Dr., then right onto Commerce Blvd., and left on Golf Course Drive, then left onto Doubletree Drive at second stoplight.

From the San Francisco Airport: Take Highway 101 North to Interstate 380 West, then Interstate 280 North (follow signs to the Golden Gate Bridge. After crossing the GG Bridge, continue north on Highway 101 for approximately 45 miles. Take exit 484A (Golf Course Dr.) Turn left onto Commerce Blvd, right onto Golf Course Dr, then left on Doubletree Drive.

COMMERCIAL DISPLAYS

The Conference will have commercial exhibit displays. Space is available for exhibiting commercial products and services. The exhibition fee is \$890, which includes one full conference registration. Complimentary hors d'oeuvres and a no-host bar will be available Wednesday evening in conjunction with the displays, poster exhibits, and a vendors' forum. For further information, contact Ashley Freeman at 916-445-4239 or email: Ashley.freeman@cdpr.ca.gov.

FIELD TRIP (Monday, February 26th, 2016)

The conference begins with an *optional* all-day field trip on Monday, February 26. The field trip departs from the DoubleTree by Hilton Hotel – Sonoma Wine Country at around 7:30 AM, traveling by bus throughout portions of Sonoma and Mendocino Counties. This area is known for its abundant vineyards juxtaposed against the lush forested areas and rangelands associated with the Russian River Valley. Many human-wildlife conflicts exist in this area given an abundant human population reliant on agriculture and natural resources. This field trip will highlight some of these conflict situations, and will provide insight into some of the tools and strategies used to mitigate these conflicts. A tour guide will accompany each bus to provide local insights on human-wildlife interactions and vertebrate pest control. Stops may include demonstrations and mini-lectures about vertebrate damage to forestry, livestock depredation concerns, current mountain lion management and research, wild pig management, and field rodent and bird management in vineyards. The field trip will be capped by a discussion on viticulture/enology and concomitant wine tasting at a vineyard location. A catered lunch will be provided (included in cost). Buses will return to the DoubleTree by Hilton Hotel between 4:30 and 5:00 PM.

CONFERENCE PROGRAM (Tuesday - Thursday, Feb. 27-Mar. 1)

Conference presentations will begin at 9:00 AM on Tuesday, February 27, with a single plenary session, led off by a keynote address. Concurrent sessions will occur from Tuesday afternoon through Thursday afternoon, offering participants a choice of topical sessions and special symposia. Morning and afternoon refreshment breaks, as well as evening social activities on Tuesday and Wednesday, will permit ample time for meeting speakers and conference participants to engage in informal discussions.

The final program, containing exact times and assignments of concurrent sessions and individual presentations, will be provided at the time of the Conference. Updates on program details will be posted on the Conference's web site (<http://www.vpconference.org>) when they become available.

KEYNOTE ADDRESS

The Keynote Address will be given by Dr. Charles Eason, Professor at Lincoln University in New Zealand and CEO of the Cawthron Institute; who specializes in research and development of new drugs and the design of toxins that minimize adverse animal welfare impacts and residue concerns. He is credited with over 20 product registration dossiers, 220 refereed publications, 170 commissioned reports and 180 conference presentations. He is internationally recognized as a world leader in the field of vertebrate pesticide toxicology and has won numerous awards, most recently the Thomson Medal in 2017 for Science Leadership. Professor Eason will discuss global trends in the development of rodenticides and other pest control technologies. He will discuss challenges in the development and retention of these tools and future opportunities for the integration of emerging technologies for transformational change.

POSTER SESSION

A special Poster Session will be available for informal viewing from Tuesday afternoon (February 27) through Thursday morning (March 1). Posters are still being accepted for the Conference and can present either practical or technical aspects of managing human-wildlife conflicts, or summarize research related to wildlife damage management or work currently in progress. Easels and poster boards will be provided to display posters, so posters should not be larger than 36 inches × 36 inches. For further details, see the Conference's web site or contact Paula Rivadeneira by email at pkrivadeneira@email.arizona.edu.



Conference At-A-Glance: Tentative Schedule

Monday, February 26 Optional Field Trip, 7:30 AM - 5 PM

Tuesday, February 27

Opening Plenary Session 9:00 – 11:50 AM

Lunch (*on your own*)

Posters and Commercial Exhibits open – 1:15

<i>Concurrent Session:</i> Human-Wildlife Conflict 1:25 – 5:00 PM	<i>Concurrent Session:</i> Wildlife Disease 1:25 – 5:00 PM	<i>Concurrent Session:</i> Field Rodents 1:25 – 5:00 PM
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5:30 No-Host Welcoming Social

Wednesday, February 28

<i>Symposium:</i> Commensal Rodents 8:15 AM – 11:50 PM	<i>Symposium:</i> Living with Wolves 8:15 AM – 11:50 PM
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Lunch (*on your own*)

<i>Symposium:</i> Commensal Rodents 1:25 – 5:00 PM	<i>Symposium:</i> Living with Wolves 1:25 – 2:35 5:00 PM
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6:30 PM: Hors d'oeuvres, Poster Session, and Vendors' Forum

Thursday, March 1

<i>Concurrent Session:</i> Vertebrate Toxicants/Bird Control 8:15 AM – 11:50 PM	<i>Symposium:</i> Anticoagulant Rodenticides 8:15 AM – 11:50 PM
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Lunch (*on your own*)

Posters and Commercial Exhibits conclude

<i>Concurrent Session:</i> Vertebrate Pest Control Methods Closing Remarks 1:25 – 4:00 PM	<i>Symposium:</i> Anticoagulant Rodenticides Closing Remarks 1:25 – 4:00 PM
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TENTATIVE PROGRAM – TOPICS AND SPEAKERS

Concurrent Session:
Human-Wildlife Conflict

Pest and Politics: Managing Free-Ranging Tule Elk in Point Reyes National Seashore. *Randi Black*, University of California Cooperative Extension, Santa Rosa, CA.

Movement Ecology of Nonnative Feral Goats in Makaleha Valley, Oahu, Hawaii. *Jared Char*, University of Hawaii, Monoa.

Barriers to Adopting Long-Term Solutions for Pet and Livestock Depredation by Large Mammalian Predators. *Lynn Cullens*, Mountain Lion Federation, Sacramento, CA.

The National Wildlife Strike Database: A Scientific Foundation to Enhance Aviation Safety. *Richard Dolbeer*, USDA-APHIS-WS, Huron, OH.

Assessment of Predation Management for Recovery of Endangered Species Using Cost and Time Measurements. *David German*, California Department of Fish and Wildlife, Bishop, CA.

Mobile Apps for Crowd-Sourcing Spatial Data Collections about Vertebrate Pests. *Sean Hogan*, University of California ANR, Davis, CA.

A Proposed Analysis of Deer Use of Jumpout Ramps and Carnivore Use of Culverts along Highways with Wildlife Exclusion Fencing. *Alex J Jensen*, Biological Sciences Department, California Polytechnic State University, San Luis Obispo, CA.

Recreational Hunting as a Tool to Manage Invasive and Human-Wildlife Conflict Species. *Luke Macaulay*, Cooperative Extension Specialist in Rangeland Planning and Policy, University of California, Berkeley.

Mississippi Public Awareness, Knowledge, and Attitudes towards Wild Hogs. *Diana M. Neal*, Wildlife Ecology and Management, Mississippi State University, Mississippi State, MS.

The Chesapeake Bay Nutria Eradication Project 2002-2017. *Margaret Pepper*, APHIS USDA Wildlife Services, Cambridge, MD.

The Research Strategy for a 'Predator Free' New Zealand. *Dan Tompkins*, Predator Free 2050 Ltd, Dunedin, New Zealand.

Concurrent Session:
Wildlife Disease

Seasonal Dietary Variation in an Invasive Vertebrate Across a Subtropical Agroecosystem. *Wesley Anderson*, Wildlife Ecology and Conservation Department, University of Florida, Ona, FL.

A Ten-Year Assessment of Relative Raccoon Densities on Cape Cod, Massachusetts: What Have We Learned. *Brian M. Bjorklund*, USDA-Wildlife Services, Amherst, MA.

The Cape Cod Rabies Program: Mainland Barrier Reestablishment. *Monte D. Chandler*, USDA, Amherst, MA.

Development of an Oral, Field Stable Vaccine against Sylvatic Plague. *John Eisemann*, USDA/APHIS/NWRC, Fort Collins, CO.

Impact of Field-Edge Habitat on Mammalian Wildlife Abundance, Distribution, and Vectored Foodborne Pathogens. *Rachael Long*, UCCE, Woodland, CA.

The Impacts of a Wild Pig Pathogen on Florida Panthers and Potential Impacts to California Wildlife. *Samantha M. Wisely*, Department of Wildlife Ecology, University of Florida, Gainesville, FL.



Concurrent Session:
Field Rodents

Anthraquinone as a Vole Repellent: Not Just for the Birds? *Roger A. Baldwin*, Department of Wildlife, Fish, and Conservation Biology, University of California, Davis.

Will Zinc Phosphide-Coated Cabbage Allow for Effective Management of Belding's Ground Squirrels? *Roger A. Baldwin*, Department of Wildlife, Fish, and Conservation Biology, University of California, Davis.

Efficacy of IGI Carbon Dioxide Gas to Kill Ground Squirrels & Pocket Gophers in Underground Burrows. *William A. Donahue, Jr.*, Sierra Research Laboratories, Modesto, CA.

Barn Owls Remove Rodents from Winegrape Vineyard Landscapes. *Matt Johnson*, Wildlife Department, Humboldt State University, Humboldt, CA.

Fumigation of Burrowing Rodents with Carbon Monoxide: a Comparison to Alternative Fumigation Options. *Ryan Meinerz*, Department of Wildlife, Fish, and Conservation Biology, University of California, Davis.

Evaluating the Efficacy of the Rodenator (Propane-Oxygen Device) for Controlling Black-tailed Prairie Dogs. *Stephen M. Vantassel*, Montana Department of Agriculture, Lewiston, MT.

Cage Efficacy Trials with Cholecalciferol plus Diphacinone and Cholecalciferol plus Brodifacoum Rodenticide. *Gary Witmer*, USDA/NWRC, Fort Collins, CO.

Using Endophytic Grasses to Reduce Small Mammal Populations. *Gary Witmer*, USDA/NWRC, Fort Collins, CO.

Special Symposium:
Commensal Rodents

Harnessing Genetics for Pest Management: Theory and Application for Urban Rats. *Matthew Combs*, Biology Department, Fordham University, Armonk, NY.

Canaries in the Coal Mine: Using Remote Sensor Technology For Preventive Rodent Surveillance in Cities. *Bobby Corrigan*, RMC Pest Management Consulting, Briarcliff Manor, NY.

Your Children Mite Not be Safe at School! An Outbreak of Biting Rat Mites. *Robert Cummings*, Orange County Mosquito and Vector Control District, Garden Grove, CA.

Commensal Rodent Exclusion and Eviction. *Rebecca Dmytryk*, Wildlife Emergency Services, Moss Landing, CA.

Development of Rat Specific Technology. *Charles Eason*, Lincoln University and Cawthron Institute, South Island, New Zealand.

Gene Drives and Island Mouse Control. *John Eisemann* USDA/APHIS/NWRC, Fort Collins, CO.

Norway Rodent Sewer Baiting Program in the City of Oakland. *Robert Brian Gay*, Alameda County Vector Control Services District, Alameda, CA.

New Long-Life Semiochemical Lures for Rats. *Michael D. Jackson*, Centre for Biodiversity and Restoration Ecology, Victoria University, Wellington, NZ.

Conquering the Rat Uncertainty Principle: How Can Cooperation between Academics, Public Health Agencies, and Pest Management Professionals Improve Urban Rat Research? *Jason Munshi-South*, Biology Department, Fordham University, Armonk, NY.

A Closer Look at Rat Lungworm Infection Levels in Wild Rats (*Rattus spp.*) from Eastern Hawai'i Islands. *Chris N. Niebuhr*, USDA APHIS WS National Wildlife Research Center, Hilo, HI.

ContraPest, a New Tool for Rodent Control. *Brandy Pyzyna*, Senestech, Inc., Flagstaff, AZ.

A California Without Rodenticides: Challenges for Commensal Rodent Management in the Future. *Niamh Quinn*, UC ANR, Irvine, CA.

The Use of Game Cameras for Data Collection in Rodenticide Efficacy Trials. *Claudia Riegel*, City of New Orleans Mosquito, Termite, and Rodent Control Board, New Orleans, LA.

Non-Trapping, Rapid Surveillance Sampling to Determine Presence of Invasive Predators. *Aaron B. Shiels*, USDA/APHIS/NWRC, Fort Collins, CO.

Snap traps, Goodnature A24s, and Hand-Broadcasted Diphacinone Baits to Suppress Rats in Hawaii. *Aaron B. Shiels*, USDA/APHIS/NWRC, Fort Collins, CO.

Post Drought Rodent Population Explosion in Alameda County. *Daniel Wilson*, Alameda County Vector Control Services District, Alameda, CA.

Special Symposium:
Living with Wolves

Living with Wolves in the Southwest: Adaption, Mitigation and Integration and their Epigenetic Implications. *Cadell Anderson*, Flagstaff, AZ.

Livestock Management for Coexistence with Large Carnivores, Healthy Land and Productive Ranches. *Matt Barnes*, People and Carnivores, Bozeman, MT.

Livestock Depredation by Mexican Wolves and Compensation Programs. *David L. Bergman*, USDA APHIS Wildlife Services, Phoenix, AZ.

Predicting Spatial Risk of Wolf-Cattle Encounters on Rugged and Extensive Grazing Lands. *Patrick E. Clark*, USDA Agricultural Research Service, Boise, ID.

Impacts of Wolves on Big Game on Managed Landscape. *Justin Dellinger*, California Department of Fish and Wildlife, Gold River, CA.

Wolves in California: An Analysis of Potential Wolf-Livestock Conflict Hotspots & Conflict Reduction. *Pamela Flick*, Defenders of Wildlife, Sacramento, CA.

Wolves in Europe. *Kaj Granlund*, Finland.

Dances with Wolves: A Choreographic Challenge. *Kent Laudon*, California Department of Fish and Wildlife, Redding, CA.

Direct and Indirect Impacts to Ranchers from Wolves and Other Predators: Building a Baseline in California. *Dan Macon*, UC Cooperative Extension, Auburn, CA.

Adaptive Use of Nonlethal Strategies for Minimizing Wolf-Sheep Conflict in Idaho. *Suzanne Asha Stone*, Defenders of Wildlife, Boise, ID.

Trait-Mediated Effects of Wolves on Livestock: Can Prey Gut Microbiome Predict Stress Response in Predator-Prey Interactions. *Azzurra Valerio*, School of the Environment, Washington State University, Pullman, WA.

Working Circle Proactive Stewardship: A Community Based Comprehensive Approach to Wolf-Livestock Conflict Benefitting Wildlife, Land, People, and Livestock. *Karin Vardaman*, California Wolf Center, Julian, CA.

Effect of Wolf Presence on Cattle Behavior, Distribution and Management. *John Williams*, Oregon State University Extension, Enterprise, OR.

Concurrent Session:
Vertebrate Toxicants/ Bird Control

Sunshine, Beaches, and Birds: Managing Raptor-Aircraft Collisions at Airports in Southern California. *Daniel S. Biteman*, USDA/APHIS/Wildlife Services, Sandusky, OH.

Evaluation of the Effects of Rhodamine B on Palatability of Feral Swine Baits. *John C. Kinsey*, Texas Parks and Wildlife Department, Hunt, TX.

To Live and Fly in LA: Using Bird Strike and Management Program Information to Improve Air Safety. *Todd J. Pitlik*, USDA/APHIS/Wildlife Services, Sandusky, OH.

A Review of Bird Deterrents used in Agriculture. *Paula Rivadeneira*, Department of Soil, Water, and Environmental Science, University of Arizona, Yuma, AZ.

Potential for Large-Scale Removal of Invasive Wild Pigs using a Toxic Bait. *Nathan P. Snow*, USDA/APHIS/NWRC, Fort Collins, CO.

Estimating the Effects of DRC-1339 Treated Egg Baits on Common Ravens Using a Bioenergetics Model. *Jimmy Taylor*, USDA/APHIS/NWRC, Corvallis, OR.

Special Symposium: **Anticoagulant Rodenticides**

Monitoring of non-target poisoning in animals with pesticides and rodenticides: implementation of a nation-wide system in France. *Philippe Berny*, Veterinary School, Marcy l'étoile, France.

Effects of Environmentally Realistic Brodifacoum Exposure on Feline Immune Response. *Katherine Horak* USDA/APHIS/NWRC, Fort Collins, CO.

Towards a Way to Decrease Ecotoxicity of Second Generation Rodenticides Based on the Concept of Stereochemistry. *Virginie Lattard*, Veterinary School, Marcy L'étoile, France.

Anticoagulant Rodenticide Residues in Game Animals in California. *Stella McMillin*, California Department of Fish and Wildlife, Gold River, CA.

Anticoagulant Rodenticide Exposure Monitoring in Birds of Prey in a Wildlife Rehabilitation Setting. *Maureen Murray*, Cummings School of Veterinary Medicine, Tufts University, Medford, MA.

Potential Hazard of Sequential Exposure to Anticoagulant Rodenticides in Raptorial Birds. *Barnett A. Rattner*, USGS – Patuxent Wildlife Research Center, Beltsville, MD.

Prevalence of First-Generation and Second-Generation Rodenticide Exposure in California Mountain Lions. *Jaime Rudd*, California Department of Fish and Wildlife; Gold River, CA.

Urbanization and anticoagulant poisons promote immune dysfunction in bobcats. *Laurel E.K. Serieys*, University of Cape Town South Africa.

What Do We Need to Know to Assess Individual and Population Level Effects on Wildlife from Rodenticides? *Niamh Quinn*, University of California, Cooperative Extension, Irvine CA.

The Relative Importance of Different Trophic Pathways for Secondary Exposure to Anticoagulant Rodenticides. *Richard Shore*, Centre for Ecology and Hydrology, Lancashire, UK.

Concurrent Session: **Vertebrate Pest Management Methods**

Quantifying the Efficacy of Donkeys as Livestock Guarding Animals in Florida. *Sam Baraoidan*, Department of Wildlife Ecology and Conservation, University of Florida, Gainesville, FL.

After 29 Years, Israeli Farmers are still Satisfied in Using Barn Owls as Biological Pest Control. *Motti Charter*, Shamir Research Institute, University of Haifa, Israel.

An Evaluation of Two Low Cost Thermal Imaging Cameras for Wildlife Damage Management Objectives. *George Gallagher*, Animal Science Department, Berry College, Mount Berry, GA.

Common Raven Captures: What Works and What Doesn't. *Pat Jackson*, Nevada Department of Wildlife, Reno, NV.

Raptor Use of Artificial Perches in California Rangelands. *Sara Kross*, Department of Environmental Studies, California State University, Sacramento.

Self-Resetting Traps – Eradication and Reinvasion Control of Stoats on an Inshore Island in New Zealand. *Darren Peters*, Department of Conservation, New Zealand.

You are the Speaker: Considerations of the Art and Science of an Effective Presentation. *George Gallagher*, Animal Science Department, Berry College, GA.

Effects of American Kestrel Nest Boxes on Small Mammal Prey in Cherry Orchards. *Megan Shave*, Integrative Biology Department, Michigan State University, Quincy, MI.



Poster Session

Flea'in Around: A Look at the Identification, Preservation, Clearing, and Mounting of Siphonaptera. *James D. Campbell*, Orange County Mosquito and Vector Control District, Garden Grove, CA.

Evaluating Blackbird Behavioral Response Toward Unmanned Aircraft Systems (UAS). *Conor Egan*, Biological Sciences Department, North Dakota State University, USDA-APHIS-Wildlife Services, Fargo, ND.

Determining the Most Effective Methods to Manage Ground Squirrels in Alfalfa in Utah. *Nicole Frey*, Utah State University Extension, Cedar City, UT.

Assessment of Damages due to Hybrid Sparrow on Cereal Crops in Ouargla Algeria. *Benras Hafsa*, Kasdi Merbah Ouargla University, Ouargla, Algeria.

Chemical Repellents for Reducing Blackbird Damage: Further Evaluation of an Anthraquinone-Based Repellent on Mature Sunflowers. *Brandon Kaiser*, Environmental and Conservation Sciences, North Dakota State University, Fargo, ND.

Implied Mapping of *Rattus rattus* and *R. norvegicus* Distribution in Alameda, CA. *Bruce Kirkpatrick*, Alameda County Vector Control Services District, Alameda, CA.

Exclusion Techniques for Rodent and Wildlife Vectors of Structures. *Gary Kunselman*, Alameda Control Vector Control Services District, Alameda, CA.

Anticoagulant Rodenticides and Wildlife: A New Reference Text. *Barnett A. Ratner*, U.S. Geological Survey, Beltsville, MD.

Dry Ice for California Ground Squirrel Control in Alameda County. *Michael Mooney*, Alameda County Vector Control Services District, Alameda, CA.

Critical Timings and Method of Poison Bait Application for Rodent Control in Wheat Crop Sown under Conventional Tillage. *Rajwinder Singh*, Department of Zoology, Punjab Agricultural University, Ludhiana, Punjab, India.

Bat Exclusion in Fremont. *John Sutton*, Alameda County Vector Control Services



NWCOA® Basic Wildlife Control Operator Certification
sponsored by NWCOA® and
held in conjunction with the
Vertebrate Pest Conference

DoubleTree by Hilton Sonoma Wine Country

March 2 - 3, 2018 • 8:00 am - 5:00 pm

NWCOA brings this two-day certification course for the first time to CA to train new and current WCOs that perform wildlife management services. Hone your technical skills and build your business management skills.

Upon completion of this course and successful passing of a test, the WCO will become a NWCOA Certified Basic Wildlife Control Operator, receive a certificate of completion, and use of the logo.

Register by Feb. 16, 2018 for best price:

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Visit <http://nwcoa.com/botc.html>, call 855.Go.NWCOA, or E-mail goNWCOA@gmail.com.

Included Topics:

- Principles of Wildlife Damage Management
- Zoonotic Diseases
- Control Methods
- Toxicants
- Bats, Birds, Squirrels, Raccoons, Skunks & Urban Birds
- Animal Biology & Handling
- Euthanasia & Carcass Disposal
- Inspection
- Business Practices
- Safety
- Trapping
- Legal & Ethical Considerations



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28th VERTEBRATE PEST CONFERENCE

CONFERENCE CHAIR:

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CONTINUING EDUCATION

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