MINUTES
VERTEBRATE PEST CONTROL RESEARCH ADVISORY COMMITTEE MEETING
Sponsored by: San Joaquin County Department of Agriculture
Robert J Cabral Ag. Center
2101 E. Earhart Avenue, Ste 200
Stockton, CA 95206
April 24, 2013

Members Present
Dale Huss
Mark Novak
Dennis Bray
Karen Sweet
Edward Meyer
Paul Stapp
Robert Timm
Victoria Hornbaker

Members Absent
Art Foster
Dan Spangler, Chairperson

Visitors
Jennifer Gordon
Duane Schnabel
Peter Newman (via phone)
Fred Rinder
Kamaljit Bagri
Joseph Duchala
Vincent Guise
Ronald Ross
Ted Viss
David Kratville
Roger Baldwin
Ed Duarte
Michael Leoni
Dennis Chambers
Rafael Garcia
Barbara Huecksteadt
Brian Steger

INTRODUCTIONS

Welcome from Mr. Scott Hudson, San Joaquin County Agricultural Commissioner

Dennis Bray called the meeting to order at 8:00 a.m.

BAGLEY-KEENE OPEN MEETING ACT AND VERTEBRATE PEST CONTROL RESEARCH ADVISORY COMMITTEE COMPLIANCE

Dennis Bray and the Committee acknowledged the Bagley-Keene Open Meeting Act and Vertebrate Pest Control Research Advisory Committee (VPCRAC) compliance.

APPROVAL OF MINUTES

Motion: **Robert Timm moved that the Committee approve the minutes from the October 10-11, 2012 meeting with corrections. The motion was seconded by Edward Meyer and passed unanimously with Karen Sweet abstaining.**

FINANCIAL REPORTS

Mr. David Kratville provided the Committee with information on the program budget, revenue, expenditures, and projections. The program budget for FY 2012/13 was authorized at $602,497 and the program has spent approximately $348,338 to date, including encumbrances. Research expenditures including encumbrances for FY 2012/13 are approximately $118,761. The administrative budget for FY 2012/13 was set at $276,633 and the program has spent $184,697 to date. Revenue from bait sales for FY 12/13 through 3rd Quarter are $528,615. At the last meeting it was agreed that the Fund Condition reserve would be maintained at a level to fund one year's budget.

COMMITTEE MEMBERSHIP: CONSIDERATION AND RECOMMENDATION OF NEW MEMBERS

Board Member Ellen Des Jardins-Hirth has officially retired from the Committee as of the October 5, 2011 meeting. An individual from the agricultural industry is needed to take her place as a representative on the Committee.

Dan Spangler has decided to step down as Chairperson for the Committee but would still like to be a regular member of the Committee. Dennis Bray was recommended as the new Chairperson for the Committee.

After five years of working as the Secretary and member of the Committee, Victoria Hornbaker will be stepping down and moving on to the California Citrus Pest and Disease Prevention Committee (CCPDPC) to work with the Asian Citrus Psyllid (ACP) /"huanglongbing" (HLB), program.

David Kratville will be filling the position of Victoria Hornbaker with a recommendation to the Secretary to become the representative of California Department of Food and Agriculture (CDFA) and Committee secretary. The Committee voted to recommend David Kratville as a new Committee member.

Motion: **Karen Sweet moved that the Committee recommend to the Secretary that David Kratville be appointed as a Committee member. The motion was seconded by Dennis Bray and passed unanimously.**

Motion: **Dale Huss moved that the Committee recommend to the Secretary that Dennis Bray be appointed as the new Chairman of the Committee. The motion was seconded by Robert Timm and passed unanimously with Dennis Bray abstaining.**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY'S (US EPA) RISK MITIGATION DECISION FOR TEN RODENTICIDES

Ms. Hornbaker updated the Committee on a lawsuit filed by the Reckitt Corporation which delayed the cancellation of their rodenticide registrations by the United States Environmental Protection Agency.

CALIFORNIA DEPARTMENT OF PESTICIDE REGULATION (DPR) PURSUING 2ND GENERATION ANITCOAGULANT RESTRICTED (SGARs) USE – ANN HANGER

U.S. EPA's Risk Mitigation Decision (RMD) in May 2008 included ten commensal use rodenticides. The original restrictions of use only within 50 feet of buildings was increased to 100 feet in May 2012. The "Building" definition changed to "man-made structures constructed in a manner so as to be vulnerable to commensal rodent invasions and/or to harboring or attracting rodent infestations." Two major goals for these changes were for reducing children's exposure to rodenticides used in the home and reducing wildlife/ ecological risks. SGAR products are available for sale in 8lbs and 16lbs quantities from tractor supply and feed stores or directly from pest control operators. This prohibited the sale in retail and "big box" stores oriented towards residential consumers.

Three companies with 20 products on the market refused to comply with the U.S. EPA's cancellation order following the RMD. They argued that the U.S EPA had violated the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) by using misbranding instead of going through the cancellation process. U.S. EPA drafted a Notice of Intent to Cancel on Nov. 2, 2011. A Scientific Advisory Panel (SAP) met Dec. 2011 and on Jan. 30, 2013, U.S. EPA moved forward with the cancellation. Only Reckitt Benckiser is now actively challenging the RMD. The next step will be a formal hearing before an Administrative Law Judge which can be a lengthy process.

In July 2011, the Department of Pesticide Regulation (DPR) received a request from the California Department of Fish and Wildlife (DFW) to designate all SGARs as California restricted materials. DPR analyzed wildlife incident and mortality data, land use data, and sales and use data. Data suggests exposure & toxicity to non-target wildlife to SGARs is a statewide problem. The data also suggests that the problem occurs in both urban & rural areas. DPR produced a draft document discussing effects and mitigation measures for SGARs which was subject to an external peer review process. DPR is currently revising the document based on comments received.

DPR proposed the following mitigation measures. Designate all SGARs as restricted materials. Limit the aboveground use of baits within 50 feet of a man-made structure unless there is a "feature" associated with the site that is harboring or attracting the target pest between the 50-foot limit and the limit specified on the label. Revise definition of private applicator to refer to the federal definition of agricultural commodity. Current Ag commodity definition excludes livestock, poultry, and fish production operations.

The next steps are DPR will issue a Notice of Proposed Regulatory Action when ready to formally propose regulations followed by a formal comment period.

CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE REGISTRATION ISSUES

David Kratville updated the Committee on the following registration issues.

Zinc Phosphide Label – revise language requiring artificial cover for voles

The current label directions state:

- **HAND BAITING:** Place bait near base of each infested tree at 2-4 locations, either on surface trails or at the mouth of holes leading to underground burrow systems. Cover bait artificially (e.g., mats, boards) or by pulling overhanging grass over bait. Do not allow bait to be exposed on bare ground. Do not disturb the runway system. Apply teaspoon amount (4 grams) per placement, 2 - 3 lb/A (0.04 - 0.06 lb ai/A).

Will be changed to:

- **HAND BAITING:** Place bait near base of each infested tree at 2-4 locations, either on surface trails or at the mouth of holes leading to underground burrow systems. **When practical**, cover bait artificially (e.g., mats, boards) or by pulling overhanging grass over bait. **Avoid applying to bare ground.** Do not disturb the runway system. Apply teaspoon amount (4 grams) per placement, 2 - 3 lb/A (0.04 - 0.06 lb ai/A).

Diphacinone .005% bait stations for Deer Mice in orchards

Supported by the results of VPCRAC funded research by Dr. Roger Baldwin, UCCE, Deer Mice are being added to the Diphacinone .005% bait label for bait stations applications in orchards and vineyards:

DEER MICE
USE RESTRICTIONS: This product may be used to control deer mice (*Peromyscus spp.) after harvest and in dormant season applications only in orchard, groves, and vineyards. Do not graze livestock or plant food or feed crops in spot-treated areas while bait is present.*
BAIT STATION BAITING: Secure tamper-resistant bait stations near active infestation. Place stations at intervals of 70 to 100 feet. Load 4 to 8 ounces of bait into bait station. Inspect stations at least weekly and replenish bait as needed. Remove and properly dispose of spoiled or fouled bait.
SPOT BAITING: Using a bait spoon, evenly scatter one to two tablespoons of bait (1/4 to ½ ounce) near areas where active feeding has occurred. Do not over-bait. Do not place bait in piles. Using the same procedure, make a second application 4 days after the first. Do not apply more than 10 pounds of bait per acre per treatment.

The committee discussed the possibility of extending the application time for bait stations in orchards beyond the dormant season. CDFA will investigate the feasibility of extending the application time.

Request to add landscape ornamentals as a use site to the Diphacinone 0.005% label

CDFA addressed requests to add non-agricultural sites to the Diphacinone labels. Alternative products were identified that are already registered for these uses including Zinc Phosphide and Warfarin Wax Blocks.

Crop Use Conflict

Following the recent CDFA label amendment submissions DPR had concerns over crop contamination language and agricultural use of grain baits: *"Use only in rodent infested areas where exposure to agricultural crops or commodities will not occur. Do not contaminate food or food stuffs."* CDFA staff believed that the restrictions on timing of applications during dormant season were sufficient to avoid crop contamination. DPR felt there was a conflict in the label and asked for clarification of the language to avoid crop contamination. CDFA staff conferred with Environmental Protection Agency and agreed to have this language removed from the label. The committee considered the possibility of extending the application time beyond the dormant season. CDFA staff agreed to discuss the option with EPA and report back at the next meeting.

U.S. FISH AND WILDLIFE SERVICES (USFWS) UPDATE ON GAS CARTRIDGE MITIGATION MEASURES FOR ENDAGERED SPECIES

The US EPA is conducting a periodic registration review of small gas cartridges. Ecological Risk Assessment (ERA) indicates some endangered species could be at risk. They are now waiting on USFWS to release its Biological Opinion. Geographic restriction being considered as a means of mitigation. Next step – release proposed interim decision for public comment. Discussion followed on potential impacts for burrowing rodent control in California.

QUALITY ASSURANCE / QUALITY CONTROL PROGRAM

Two samples of bait produced by bait manufacturing Counties were submitted for Quality Analysis and Quality Control. Samples included Diphacinone 0.010% and Chlorophacinone 0.010% baits. The Diphacinone was slightly lower than the certified limits but the Chlorophacinone bait was within limits. Overall the County manufacturers continue to improve the quality of their rodenticide products.

UPDATES ON OTHER VERTEBRATE "PEST" ISSUES

Pending Legislation

AB 711, Rendon. Hunting: nonlead ammunition
Requires use of non-lead ammunition for the taking of all wildlife in California, including mammals, game birds, nongame birds, and nongame mammals, with any firearm.
Requires the Fish and Game Commission (FGC), by July 1, 2014, to certify by regulation, non-lead ammunition for these purposes.
Expands the FGC's existing authority to establish a process to provide hunters with nonlead ammunition at no or reduced charge within certain hunting zones, to instead apply statewide.

States legislative findings and declarations regarding the threats to public health and wildlife posed by lead in the environment, and the availability of nontoxic ammunition alternatives.

AB 789, Williams. Trapping

Reduces the maximum size of conibear traps (spring-loaded body-crushing traps, without teeth) used to kill mammals, except where they are submerged, partially submerged, or set in a managed wetland, from 10' X 10" to 6" X 6".

Requires a sign warning that dogs should be kept away from areas where conibear traps are set on publicly owned land or land that is open to the public.

Prohibits killing any trapped mammal by intentional drowning, injection with any chemical not sold for the purpose of euthanizing animals, or thoracic compression.

AB 1213, Bloom. Bobcat Protection Act of 2013

Adds bobcats to the list of fur-bearing mammals.

Makes it unlawful to trap or attempt to trap any bobcat, or to sell or export any bobcat or part thereof taken in California, or to receive, transport, or possess any bobcat or past thereof taken in violation of the Fish and Game Code or regulations adopted pursuant to the code.

Exempts from the above prohibition in taking of any bobcat by an employee of the Department of Fish and Wildlife (DFW) acting in an official capacity or by the holder of a scientific or propagation permit.

Further exempts from the above prohibition any bobcat or part or product thereof lawfully possessed prior to January 1, 2014, and allows for the lawful taking of bobcats found to be injuring crops or property pursuant to a depredation permit.

States legislative findings and declarations regarding bobcats, their role in the ecosystem, the value of wildlife to California's economy, and the rise in the number of bobcats trapped for commercial purposes in the state.

AB 1230, Donnelly. Mammals: use of dogs to pursue bears and bobcats.

Existing law, makes it unlawful to permit or allow a dog to pursue any bear, as defined, or bobcat at any time. Existing law authorizes the Department of Fish and Wildlife to capture a dog not under the reasonable control of its owner or handler that is pursuing any bear or bobcat in violation of this prohibition or to capture or dispatch a dog inflicting injury or immediately threatening to inflict injury on any bear or bobcat at any time.

This bill would eliminate this prohibition, the exceptions, and this authority of the department. This bill would instead generally prohibit a person from using dogs to hunt, pursue, or molest bears, but would permit the use of one dog per hunter for the hunting of bears during open deer season, and the use of more than one dog per hunter during the open bear season except during the period when archery deer seasons or regular deer seasons are open.

Existing law authorizes the Fish and Game Commission to establish a hound tag program, imposing certain requirements on the licensure and use of hounds, as defined, to pursue mammals.

This bill would repeal this authorization.

Other reports
Delta Waterfowl: 2012 Predator Management Report
Delta Waterfowl is a non-profit conservation organization focusing on waterfowl conservation. In 2012 they released a report showing positive results of predator control.

Contra Costa County conducted a study to compare the cost effectiveness of rodenticide bait applications versus live trapping for controlling California ground squirrels. : Contra Costa County Agricultural Commissioner Vince Guise gave a description of the project and results. The Committee asked that a link to the report would be put on the VPCRAC website as a reference.

RESEARCH UPDATES

National Wildlife Research Center (NWRC)

Dr. Katherine Horak was unable to attend as she was traveling out of country. She sent us updates on the projects she is currently working on.

"**IN-vitro Inhibition of Chlorophacinone Metabolism in Resistant Meadow Voles using FIFRA 25b Inert Ingredients,"Contract # 10-0292.**
Dr. Horak sent us the following update for this project. Ingredients from the FIFRA 25B list of inert ingredients were screened as possible inhibitors of chlorophacinone metabolism using microsomes from anticoagulant resistant voles. Of the numerous compounds tested five were selected for more in-depth screening. These compounds ranged in their ability to inhibit metabolism from 2.5%-36%. From these five compounds the two most efficacious inhibitors were selected for further testing. Both of these compounds were found to be more efficacious inhibitors in female than male voles at all concentration ranges tested. Although both compounds may be promising metabolic inhibitors the more effective inhibitor, decreasing metabolism by 51% in male voles and 71% in female voles, was selected for stability testing. Inhibitory capacity of solutions containing this compound were tested at various time points to determine if this compound could be formulated into baits and still be efficacious after formulation as baits are often made in large batches and then used as needed. Aging of the inhibitor solutions impacts efficacy. Therefore, to determine the chemical changes associated with the aging process HLPC-MS analysis was done on the compound. This testing is on-going and will help determine if compound stabilization will be necessary for field applications of these compounds.

Dr. Horak sent us the following update on this project. **"Increasing Acceptance of Zinc Phosphide Baits," Contract # 10-0291.** A method was developed for microencapsulating zinc phosphide for use in bait palatability assays. In caged studies, captive voles showed a slight avoidance of lecithin which had previously been implicated as a possible cause of bait avoidance. Rather, zinc phosphide was found to be a strong cue and unconditioned stimulus responsible for bait shyness. Microencapsulation was investigated to reduce the cue while preserving the toxicity. Although voles did prefer control bait over encapsulated zinc phosphide bait, they did prefer encapsulated zinc bait over non-encapsulated. Interestingly, during the course of the bait acceptance trials it appeared that the encapsulated zinc phosphide bait was more efficacious than non-encapsulated bait. As a result, efficacy trials were performed on

encapsulated zinc bait. It was found that targeted 80% efficacy could be obtained with 0.5% encapsulated zinc phosphide bait (compared to 2% non-encapsulated bait that is currently in use). The efficacy of the encapsulated bait will be tested more thoroughly as funding is secured from granting agencies.

Dr. Horak sent us the following update on this current project. **"Dietary Toxicity of Bioincorporated Chlorophacinone to Kestrels." Contract # 11-0430.** To further examine the toxicity and potential hazard of anticoagulant rodenticides to raptors, tissue from chlorophacinone (CPN) treated rats (*Rattus norvegicus*) was prepared at the National Wildlife Research Center in Fort Collins, CO. Using combinations of CPN-treated and untreated rats, "biologically-incorporated" CPN diets were formulated at three concentrations (0.15, 0.75, and 1.50 ppm). These CPN diets contain both parent compound and some metabolites. In addition, rodent tissue mechanically-amended with CPN was also prepared at similar dose levels (0.15, 0.75, and 1.50 ppm). The mechanically-amended diets should have fewer metabolites, and the CPN may be bound differently in tissues than in biologically–incorporated diets.

These diets were shipped to the Patuxent Wildlife Research Center where daily rations (two 18 ± 0.1 g meatballs) were prepared for a feeding trial. Following an acclimation period, 40 adult male kestrels (n=5/group) received one of eight different diets for a 7-day period. The diets included Nebraska Bird of Prey food (control), untreated rodent tissue (control), biologically-incorporated CPN (doses of either 0.15, 0.75 or 1.5 ppm), or mechanically-amended diets containing CPN (0.15, 0.75 or 1.5 ppm). During the feeding trial (April 2013), food scraps were collected each day to estimate CPN exposure. Kestrels were observed several times each day, weighed and physically examined on day 0, 3, and 5, and then weighed, examined, bled (0.9 ml jugular venipuncture sample), sacrificed and necropsied on day 7. Following determination of hematocrit, citrated blood was centrifuged, and plasma was frozen in aliquots for clotting time assays (prothrombin time, Russell's viper venom time, thrombin clotting time). Some tissues were fixed in phosphate-buffered formalin (liver, kidney, heart, portions of the intestine, breast muscle) for histopathologic analysis, and the remainder of the liver, kidney and the carcass were frozen at -20°C for residue analysis.

None of the CPN-treated birds died during the 7-day trial. One kestrel receiving 1.5 ppm biologically-incorporated CPN exhibited a bruise on the featherless tract (neck region) on day 7 of the trial, and a few other birds succumbed following blood collection presumably due to coagulopathy. A preliminary evaluation of the hematocrit data, suggest that 2 kestrels (1 receiving the 1.5 ppm biologically-incorporated CPN diet and 1 receiving the 1.5 ppm mechanically-amended CPN diet) could be classified as anemic (hematocrit <30).

Dry weight of uneaten food scraps from the feeding trial is being determined, and will be used to estimate food consumption and CPN exposure for each kestrel in the study. Samples for CPN residue analysis have been shipped to the National Wildlife Research Center of USDA. A contract for histopathologic analysis of formalin-fixed tissues is currently being processed by USGS. Clotting time assays are to be conducted in July and August of 2013.

Dr. Stephanie Shwiff provided us with a short update about her project, "**Estimating Job and Revenue Savings from using a Variety of Pest Control Techniques to Protect Crops from Bird and Rodent Damage in California**" **Contract #10-0332**. Dr. Shwiff completed the project within the specified timeline. A final report was submitted. A press release on the results is pending. A publication was submitted to the Crop Protection journal, combining some of the research that she conducted for this project and with another project on wine grapes. Once that publication is accepted a copy will be sent to VPCRAC.

University of California

Mr. Peter Newman updated the Committee via Conference Call on the following projects:
"Development and Evaluation of the VPCRAC Website for Vertebrate Pest Research Information" Contract # 09-0637, Mr. Newman stated that Dr. Terry Salmon at the University of California did not want to pursue a partnership with Mr. Newman as a contractor to maintain the VPCRAC website. The Committee supported a one year contract less than $5,000 with Mr. Newman to get the website up to date. By the October meeting CDFA will develop a request for proposal (RFP) for a new two year contract for the development and evaluation of the VPCRAC website.

Motion: **Robert Timm moved that the Committee recommend funding for a contract to update and maintain the VPCRAC website in the amount of $4,999 or less. By the October 2013 meeting California Department of Food and Agriculture (CDFA) will develop a request for proposal (RFP) for a new two year contract for the development and evaluation of the VPCRAC website. The motion was seconded by Dale Huss and passed unanimously.**

"Vertebrate pest control – education and certification using the internet and touch screen devices" Contract #10-0265, Mr. Newman stated that Dr. Salmon has one of his assistants continuing the work started by Mr. Newman on the project.

Dr. Roger Baldwin updated the Committee on the following project:
"Development of an Integrated Pest Management (IPM) Program for Vole Control in Artichokes" Contract #09-0643, Dr. Baldwin gave a final report for this project. The IPM management recommendations include: utilize chopping and aluminum phosphide to remove most voles from fields in late spring; install barriers around perimeter of fields to slow vole reinvasion; frequently monitor fields for vole activity; utilize chlorophacinone-treated bracts when populations start to build up; and utilizing herbicide applications to reduce weeds which provide a food source and cover for voles may have some benefits when combined with rodenticide applications, although this has not been proven.

Joint University of California and National Wildlife Research Center

Dr. Roger Baldwin updated the Committee on the following projects:
"Efficacy of Cholecalciferol + Diphacinone(C+D) for California Vole Control" Contract #12-0408/12-0410, Dr. Baldwin gave a final report on this project. The first goal of the project was to determine the efficacy of Cholecalciferol +Diphacinone and then test the palatability of the C+D to determine which carrier would most likely be successful in field applications. Voles were captured and transported to the lab at the National Wildlife Research Center in Colorado to start a breeding colony. Bait trials were conducted; no-choice and two choice trials, pelleted bait, and various concentrations of treated artichoke bract baits were tested. Test voles started dying after four days. White nodules suggested calcium deposits on organs. Hence voles first impacted by cholecalciferol. Both pelleted bait and treated artichoke bracts were highly effective. Cage trials suggested a test of field efficacy is warranted. After final report Dr. Baldwin presented his proposal to extend this project into a field study and see the efficacy of the Cholecalciferol +Diphacinone in the field setting.

"Development of a Management Program to Control Voles in Seed Alfalfa" Contract #11-0447, Dr. Baldwin stated that because they were not able to catch any voles they cancelled this project.

NEW RESEARCH PROPOSALS

Motions: **Dale Huss moved that the Committee recommended funding the research proposal from Dr. Roger Baldwin, UC IPM and Dr. Gary Witmer, USDA/APHIS/WS/NWRC, entitled, "Identifying possible alternative baits to replace strychnine for pocket gopher (Thomomys spp.) control," in the amount $48,248. The motion was seconded by Robert Timm and passed unanimously.**

Motions: **Karen Sweet moved that the Committee recommended funding the research proposal from Dr. Roger Baldwin, UC IPM and Dr. Gary Witmer, USDA/APHIS/WS/NWRC, entitled, "Field efficacy trial of cholecalciferol + diphacinone baits for California vole control," in the amount $29,758. The motion was seconded by Edward Meyer and passed unanimously.**

Next Meeting Schedule

Oct. 23, 2013 in Mendocino County, Hopland, CA

Adjourn
12:30pm

David Kratville – Secretary

8/22/13
Date