

**DRAFT MINUTES**

California Department of Food and Agriculture  
Integrated Pest Control Branch

**VERTEBRATE PEST CONTROL RESEARCH ADVISORY COMMITTEE MEETING**

California Department of Food and Agriculture  
1220 N St., Sacramento, CA 95814  
November 16, 2021

**Members Present**

Jimmy Hook  
David Kratville, CDFA  
Mark Novak  
Dr. Paul Stapp  
Dr. Robert Timm  
Ken Zimmerman

**Members Absent**

Brandon Fawaz

**CDFA Department Personnel**

Michelle Dennis  
Jennifer Gordon  
Canh Nguyen  
Carrie Fales  
Raj Randhawa

**Guest Present****County:**

Ed Duarte and Don McCoon, Alameda County of Agriculture  
W. Schaub, Contra Costa County of Agriculture  
Mario Reeves, Fresno County of Agriculture  
Mario Gutierrez, Kings County of Agriculture  
Harinder Grewal, Stanislaus County of Agriculture

**Liphatech:**

Katie Swift

**UC Davis:**

Roger Baldwin, Niamh Quinn

**USDA-NWRC:**

Katherine Horak, Aaron Shiels

**DPR:**

Nathan Desjarlais

**Public:**

Matt Parker, Institute of Wildlife Studies

**INTRODUCTIONS**

The meeting was convened at 9:00 a.m. by Chairman Jimmy Hook and introductions were made. The Vertebrate Pest Control Research Advisory Committee (VPCRAC) acknowledged that the meeting was held in compliance with the Bagley-Keene Open Meeting Act.

Jimmy Hook gave the floor to Matt Parker from Institute of Wildlife Studies to speak on their outreach for non-lead ammunitions. Non-lead bullets on vertebrates will help with the stop of poisoning scavengers. They want to help hunters understand the benefits of non-lead bullets. They are doing outreach at booths and different events to make hunters aware of the benefits of none lead

bullets. Offered to provide education to ranchers. He left his organizations website if anyone wanted to know more. <http://huntingwithnonlead.org>

### **MINUTES FOR April 14, 2021 MEETING**

The minutes from the Spring, April 14, 2021 meeting were reviewed.

**Motions: 1. Dr. Paul Stapp moved that the Committee recommend approving the minutes of the April 14, 2021 Meeting with corrections. The motion was seconded by Dr. Mark Novak and passed unanimously.**

<b><u>Yes</u></b>	<b><u>No</u></b>	<b><u>Abstention</u></b>
David Kratville		
Jimmy Hook	N/A	N/A
Ken Zimmerman		
Dr. Robert Timm		
Dr. Paul Stapp		
Dr. Mark Novak		

### **CALIFORNIA DEPARTMENT OF FOOD AND AG (CDFA) UPDATE**

#### **CDFA reorganization**

David Kratville gave an update of changes in CDFA staff and who would be working with the VPCRAC program now.

#### **Vertebrate Legislation and Regulations**

Mr. Kratville gave an update on AB 1298, Bloom Pesticides, use of 2<sup>nd</sup> generation anticoagulant rodenticides.

#### **California Department of Pesticide Regulation Update**

Mr. Kratville gave an update on enforcement letter 21-002 on use of carbon monoxide on farms. The use was restricted around and inside structures and near non-targets.

A question was asked regarding proposed restrictions on small gas powered machines impact on the use carbon monoxide devices. Mr. Kratville said he would research for a future meeting.

### **FINANCIAL REPORTS**

#### **Fiscal Year (FY) 20/21 and 21/22 Budgets, Expenditures, and Revenue Review**

Mr. Kratville presented the Committee with final expenditures for FY20/21, \$403,395.74. Personnel costs of \$165,439.62 and Operating expenses at \$93,528.12 due to cuts from other programs but research funding was under at \$144,428 so final were under at \$403,395.74 from the approved budget of \$446,527.34. Approved budget for FY21/22 was approved at last meeting for Personnel

at \$236,163.28, Operating expenses at \$91,000, and Research funding at \$157,484 for a total budget of \$499,397.28. So far expenditures for FY21/22 are Personnel at \$92,752.81, Operating expenses at \$6,925.18 and Research so far approved at \$108,055.

**Motions: 2. Kenneth Zimmerman moved that the Committee accept the financial reports. The motion was seconded by Dr. Paul Stapp and passed unanimously.**

<u>Yes</u>	<u>No</u>	<u>Abstention</u>
David Kratville		
Jimmy Hook	N/A	N/A
Ken Zimmerman		
Dr. Robert Timm		
Dr. Paul Stapp		
Dr. Mark Novak		

## COMMITTEE MEMBERSHIP

### **Board Member Vacancies**

Mr. Kratville reported that Board member Dan Spangler has decided to step down as a member of the VPCRAC. Mr. Kratville read a letter from Mr. Spangler to the Committee.

With Mr. Spangler's resignation there are now three industry vacancies and one general public vacancy on the committee. Mr. Kratville reported that there was interest from Fred Rinder as a possible member but had not heard back from him. Currently there are no prospective new members.

### 2020-2021 RESEARCH PROPOSAL GUIDELINES

Mr. Kratville reported no new changes to current guidelines for proposals as listed on the grants.ca.gov website which is linked to our CDEFA Vertebrate page for templates to submit proposals.

### RESEARCH UPDATES

#### **Rangeland forage loss from California ground squirrels.**

Dr. Roger Baldwin gave final report for this project.

Ground squirrels lead to removal of forage, broken limbs to livestock, significant erosion, decreased water quality, roads/levees. Prior damage estimates showed a range of result: 200 ground squirrels consume the amount of 1 steer, 6 male ground squirrels resulted in 529 lbs. lost per 0.5 acres, ground squirrel control led to 33 lb. gain per heifer. Dr. Baldwin identified 16 field sites across 5 regions in California. Included a wide range of ground squirrel densities up to 30 squirrels per acre. Following emergence of young squirrels' surveys covered 4-6 weeks in early May to June in 2019 and 2020. Comparative yield approach used a 1'x1' square 100 samples per plot. Rated 0-5 bare ground to maximum production. Vegetation was clipped, bagged and dried reported in kg/ha. Four plots selected one each of minimal, low, medium, and high squirrel density in each of the 16 sites. Precipitation information was collected at each site. Biomass and precipitation varied between

2019 and 2020. Grazing intensity varied across the range, some ranches did not collect grazing intensity on two sites, these were removed from the calculation. Precipitation and ground squirrel abundance impacted residual crop. Each additional ground squirrel resulted in 27.2 kg/ha loss of forage. Similar to the 23.7 kg/ha found in the reassessment of Fetcher/Hitch study. One cow/calf pair requires 425 kg/month. Each additional 1cm of precipitation equals 16.6 kg/ha forage. Forage losses were not compounded by dry years. Ground squirrel damage substantial at moderate to high densities.

**An assessment of quantitative indexing tools and movement patterns in invasive roof rats in citrus orchards.**

Dr. Baldwin gave final report for this project.

Fruit damage was common in oranges, damage to trees via girdling more common in lemons as well as irrigation damage. Previous research had little data on roof rat movement within and between citrus orchards nor common range size for guiding management control densities. Goals were to determine movement patterns and monitoring protocol. Live trapped 15 rats across 3 orchards and used cellular tracking collars to collect location data every few seconds. COVID travel restriction impacted data collection at one of the three sites. Determined home range size for males was 179 m and females 152 m in diameter. Average maximum distance moved per day was 174-190 m. Rats were active primarily at night. Data used to establish 76 m intervals between bait stations and traps. Control efforts can be focused in orchards and exclusively during nighttime to exclude non-targets.

Indexing trials identified five 210m x 210m study sites, three were in lemon orchards and two in oranges. Utilized a combination of tracking tunnels and motion cameras placed on ground and in trees. Operated tunnels and cameras for 3 days, delay of 5 minutes set on cameras. Camera data developed two indices: presence/absence and the number of visits per day, tunnels only recorded presence. Followed up with 4-5 nights of live trapping, initial captures were ear tagged.

Tracking tunnel visits were more frequent than camera sites. Unique captures were greater in the trees compared to on ground. Unique captures greater in lemons than oranges. Monitoring with further sampling distance of 3x3 vs 5x5 sites was equally effective. Tracking tunnels would be more practical for growers and PCAs to monitor populations.

Dr. Paul Stapp – is there always crop on the tree providing a food source to the rats? Yes, fruit generally on the tree year-round. Ranches often have a variety of citrus which ripen and are available at different times of year. Missed harvest of fruit will stay on tree for a long period of time. Other sources of nutrition? Baldwin reported many empty snail shells, other insects are consumed, girdling damage to trees. Camera vs tracking data, can number of tracks be used to correlate the number of animals?

**A test of management tools for invasive roof rats in citrus orchards.**

Dr. Baldwin gave a quick verbal update stating that data has been collected but still needs to be reviewed. Traps were not working well, suggested adding a platform to improve results. Will have more to report at next meeting.

**An assessment of secondary impacts of anticoagulant rodenticides on predators.**

Dr. Baldwin gave a quick verbal update stating that lab had received batch of liver samples but had

not analyzed them yet. In general, nearly 50% of coyotes had been exposed but wide range of levels. Will have more to report at next meeting.

### **Development of a management program for voles in alfalfa.**

Dr. Baldwin stated there was nothing to report as they have just started the project.

### **Efficacy and palatability testing of a novel rat specific toxicant**

Dr. Kathrine Horak gave an update on their Norvel rat toxicant No Choice and 2 Choice trials.

With Aaron Shiels from USDA Ft Collins Colorado. Rats damage crops, infrastructure as well as food storage impacting worldwide poverty and food shortages. USDA committed to rodent research. Worldwide anticoagulants are the primary control option for rodents. Need for additional options for rodent control, ideally species specific and non-persistent options. Of species tested rats are the most susceptible to norbormide but quick onset of action leads to bait acceptance problems. Rats would stop eating at onset of symptoms before receiving a toxic dose. Norbormide modified by adding a fatty acid to delay onset of symptoms, increased onset from 5 minutes to 30-40 minutes. Enzymatic cleavage in rats body extends onset of symptoms. Black rats were initially intended to be collected in California but COVID travel restrictions lead to rats being collected in Arizona instead.

Transported 68 rats, spent a night in New Mexico before arriving in Colorado. Oral gavage accurate assessment of amount of chemical ingested, OPTTS Up-Down method, only 8 animals gavaged. LD50 ~140 mg/kg. Palatability no-choice and two-choice trials. 12 animals per group, three bait matrices tested for palatability and preference over three nights. No-choice testing only 1 of 12 died on the second night, two choice testing same results only 1 of 12 died on the second night. Weight of bait consumed should have resulted in a lethal dose of 140.2 mg/kg. Working on bait matrix to improve consumption as opposed to slow nibbling of lower doses.

Norway rats were collected at dairies in Colorado. Gavage 9 rats, LD50 18.6 mg/lg. No-choice testing 10 of 12 died first night, remaining two were euthanized due to symptoms. Two-choice test, five of 12 died the first night, one died the second night and four were euthanized due to symptoms.

Additional testing on Norway rats, two choice trial put bait in the cage with animal rather than wire feeding rack to mimic bait availability in application stations. Twelve of twelve died with increased access to bait.

Applied for Specialty Crop Block grant to study toxicity in Black Rats based off age class and sex. Bait formulation, heat of extruded wax matrix impacting toxicity to Black Rats. Baiting strategy study for developing application efficacy.

## **RESEARCH PROPOSALS**

Mr. Kratville pointed out that if the committee wanted to fund both projects presented that day the limit to the research budget needs to be raised to \$372,355.45. The Committee had a discussion on maybe funding one or the other. They also talked about funding just the first year of funding and that would keep the amount under the already approved budget.

Dr. Mark Novak pointed out that funding in past was around \$175,00 for research and isn't that far over. The ability to fund worthy research was more important than increasing the surcharge and that we should address inflation and possibly need to think about the possibility of a raise in the surcharge.

The committee voted on the raise of the research budget.

**Motions: 3. Dr. Paul Stapp moved that the Committee accept increasing the Research Budget for FY 21/22 to \$372,355.45. The motion was seconded by Dr. Robert Timm and passed with five ayes and one nay.**

<u>Yes</u>	<u>No</u>	<u>Abstention</u>
David Kratville		
Jimmy Hook	Ken Zimmerman	N/A
Dr. Robert Timm		
Dr. Paul Stapp		
Dr. Mark Novak		

- a) Dr. Roger Baldwin from UC Davis presented his research proposal, "Developing and testing an IPM approach for managing roof rats in citrus."

**Motions: 4. Jimmy Hook moved that the Committee accept Roger Baldwin research project titled "Developing and testing an IPM approach for managing roof rats in citrus." in the amount of \$147,279.00. The motion was seconded by Dr. Paul Stapp and passed with five ayes and one nay.**

<u>Yes</u>	<u>No</u>	<u>Abstention</u>
David Kratville		
Jimmy Hook	Ken Zimmerman	N/A
Dr. Robert Timm		
Dr. Paul Stapp		
Dr. Mark Novak		

**Motions: 5. Dr. Paul Stapp moved that the Committee accept Aaron Shiels research project titled "Developing and testing an IPM approach for managing roof rats in citrus." in the amount of \$25,078.26. The motion was seconded by Jimmy Hook and passed with five ayes and one nay.**

<u>Yes</u>	<u>No</u>	<u>Abstention</u>
David Kratville		
Jimmy Hook	Ken Zimmerman	N/A
Dr. Robert Timm		
Dr. Paul Stapp		
Dr. Mark Novak		

- b) Dr. Niamh Quinn from UC Davis presented her research project, “Investigating invasive roof rat resistance.”

**Motions: 6. Dr. Robert Timm moved that the Committee accept Niamh Quinn and Katherine Horak research project titled “Investigating invasive roof rat resistance by screening for genetic mutations and metabolic changes.” in the amount of \$199,998.19. The motion was seconded by Dr. Paul Stapp and passed with five ayes and one nay.**

<u>Yes</u>	<u>No</u>	<u>Abstention</u>
David Kratville		
Dr. Robert Timm	Jimmy Hook	N/A
Dr. Paul Stapp		
Dr. Mark Novak		
Ken Zimmerman		

## OTHER ITEMS

### **Identifying Northern California rodenticide mixing location**

Mr. Kratville stated that they still haven’t found a new mixing county. He spoke with Modoc County to see if they were interested but haven’t heard anything from them.

### **Yearly Calendar Review**

Due to COVID-19 restrictions meetings will continue to be conducted via webinar/ Zoom. The Committee decided to have the Spring 2022 meeting on Thursday, April 28, 2022 and Fall 2022 meeting on Thursday, November 3, 2022.

### **Public comments**

Katie Swift US EPA meeting with registrants to discuss potential measures in Dec/Jan planning to put out an interim decision in March 2022. Use pattern comments. US EPA questionnaire, stake holder groups to provide information on agricultural use patterns.

Vertebrate Pest Conference 2022, in Reno, NV – Field trip Monday, sessions T-Th. Mar 7-10.

### **Possible topics for next meeting**

- 1) More information on the small gas restrictions.
- 2) Revisit priority research topics.
- 3) Revisit surcharge rates.

**ADJOURNEMENT**

**Motions: 7. David Kratville moved that the Committee to adjourn meeting at 12:26pm. The motion was seconded by Jimmy Hook and passed unanimously.**

<b><u>Yes</u></b>	<b><u>No</u></b>	<b><u>Abstention</u></b>
David Kratville		
Jimmy Hook	N/A	N/A
Ken Zimmerman		
Dr. Robert Timm		
Dr. Paul Stapp		
Dr. Mark Novak		

The meeting adjourned at 12:26 pm.

David Kratville  
Secretary to the Board

