

Marijuana Production in Forest Environments –A Very Brief review of recent findings by Dr. Mourad Gabriel (Integral Ecology Research Center)

And a Call to Action

{ Canary in the Cannabis Field: How the Fisher Illuminated the Conservation Concerns from Cannabis Cultivation on California's Forest Lands.

NCTC conservation webinar series presentation by Dr. Mourad Gabriel Nov 8, 2017 11:00 am to noon.

A recording of this webinar will be available on the National Conservation Training Center's webinar gallery.

Breaking News October 2017

- ‡ On April 4, 2017, an 8-year-old male condor was found dead on private land in Coalinga, California.
- ‡ The carcass was located near several illegally cultivated marijuana grows.
- ‡ CDFW conducted eradication operations and removed over 11,000 marijuana plants and 2,500 pounds of trash and infrastructure from the site.
- ‡ The Forensics Laboratory conducted a thorough examination of the condor to determine the cause of death.
- ‡ Necropsy results indicated that the condor died from anticoagulant poisoning by brodifacoum.



New Data on Environmental Impacts

- ⌘ Changes in exposure and mortality to fishers & NSOs
- ⌘ Modeling to “Predict the Probability of Trespass Marijuana Cultivation Site Presence in Fisher, Northern Spotted Owl, and Humboldt Marten Habitat”
- ⌘ Impacts to the small mammal community
- ⌘ Water contamination
- ⌘ Changes in Toxicant Use at grow sites

Data collected through:

- ⌘ Section 6 Conservation Grants
- ⌘ Tribal Wildlife Grants
- ⌘ USFWS R8 funding
- ⌘ Partnerships, Partnerships, Partnerships!!!!!!!





Canary in the Cannabis Field

Dr. Mourad Gabriel
Executive Director
UC Davis Research Faculty



2012 Paper



Exposure



Mortality

N.CA

Sierras

All CA

72%

83%

79%

2

2

4



2015 Paper



Exposure



Mortality

84%

86%

85%

5

4

9

Nov 2015- Jan 2017

14 months of data



Exposure



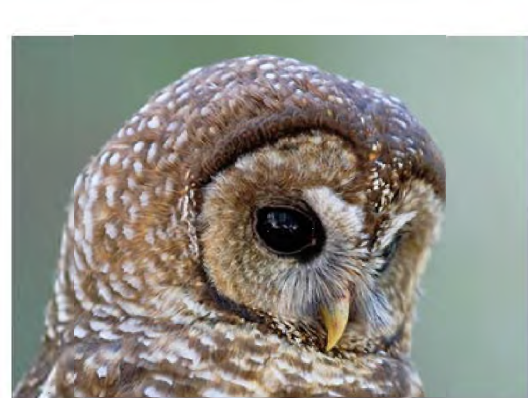
Mortality

100% (n= 9) 100% (n= 17) 100% (n= 26)

2

2

4



NSOs and Barred Owls

BARRED OWLS (Collected during removal)

Green Diamond Resource Company	34 of 84, 40%
--------------------------------	---------------

Hoopa Tribal Lands	54 of 74, 73%
--------------------	---------------

NORTHERN SPOTTED OWLS (Collected opportunistically)

Collected from public and private land, CA	7 of 10, 70%
--	--------------

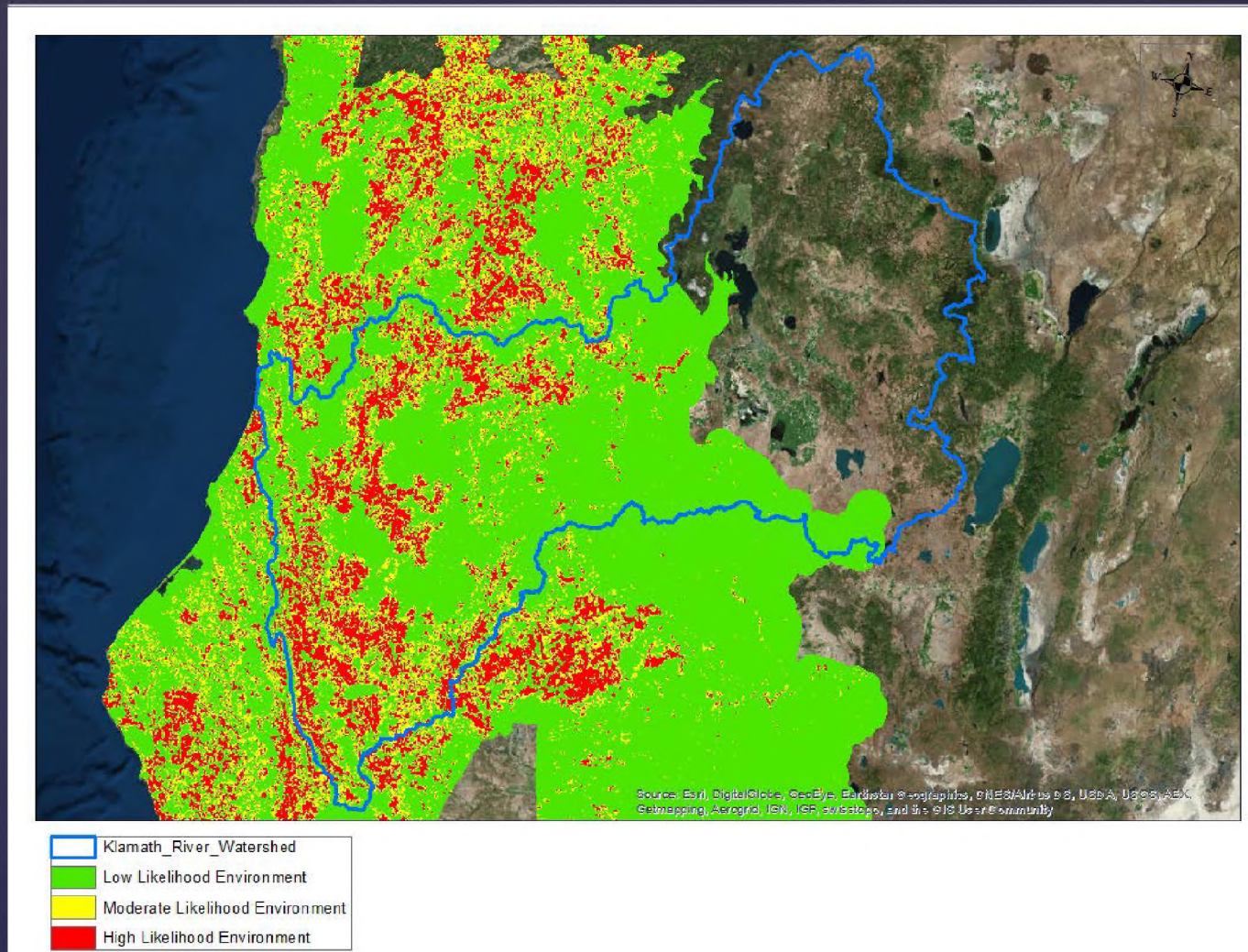
New Data in Review; Gabriel et al.

Trinity County; Private Land Marijuana Cultivation

Google Earth; 2016



MaxEnt Model; 2010 data set



632 trespass grow sites; Important Variables: Elevation, Slope, Distance to water, roads & private land

Preliminary Statistics

Ongoing field validation of model results

- ⌘ Overlap between high quality northern spotted owl habitat and high likelihood of cultivation = **28%**
- ⌘ Overlap between high quality fisher habitat and high likelihood of cultivation = **27%**
- ⌘ Validation to date: Random selection of 13 streams: 11 previously undetected grow sites, **78%** within moderate to high risk areas identified

Small Mammal Abundance, Diversity, and Exposure

Canary In The Cannabis Field



Canary in the Cannabis Field

Dr. Mourad Gabriel
Executive Director
UC Davis Research Faculty



- Trapped six grow and control site pairs
 - 5 transects with 20 traps, 4 nights = ~400 trap nights (per site)



Grow Site Vs. Control Sites

- **Grow Sites** had **lower species diversity**.
- **Grow sites** had **only young or smaller bodied** individuals.
- **Control sites** had **greater diversity and age structure**.



Trap Mortalities

15 at Grow Site

6 of 15: 40% positive for AR

0 of 6 at Control Site

Monitoring of Water Contamination

Canary In The Cannabis Field



Canary in the Cannabis Field

Dr. Mourad Gabriel
Executive Director
UC Davis Research Faculty



- Monitored 14 grow site complexes
- Nine sites were monitored for two years (seasons)
- Site monitoring intervals varied from 4-6 months only each year.
 - Safety concerns

Detected pesticides in 7 of the 14 (50%) water samples.
Detections included restricted and banned pesticides.



- Five sites were in Headwater areas.
 - Two of these were in Wilderness Areas.
- One site Mid-slope
- One site below private inholding, growing marijuana.
- Contamination could have originated from private grow

Changes in Use by Toxicant Type

Canary In The Cannabis Field



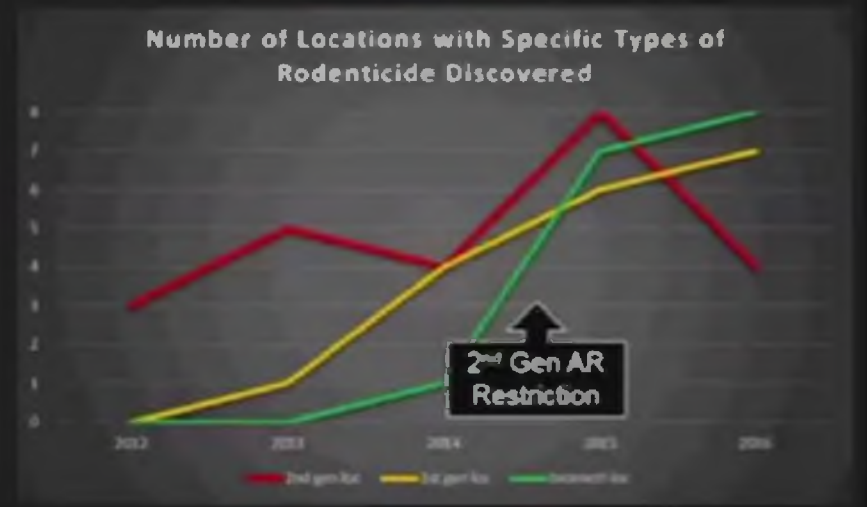
Canary in the Cannabis Field

Dr. Mourad Gabriel
Executive Director
UC Davis Research Faculty



Rodenticide Use Pre- and Post-regulation.

- July 1, 2014, 2nd Gen ARs Restricted for Use.
- Only licensed applicators.
- No longer available at your local hardware stores.



Trend of Carbofuran Use

Canary In The Cannabis Field



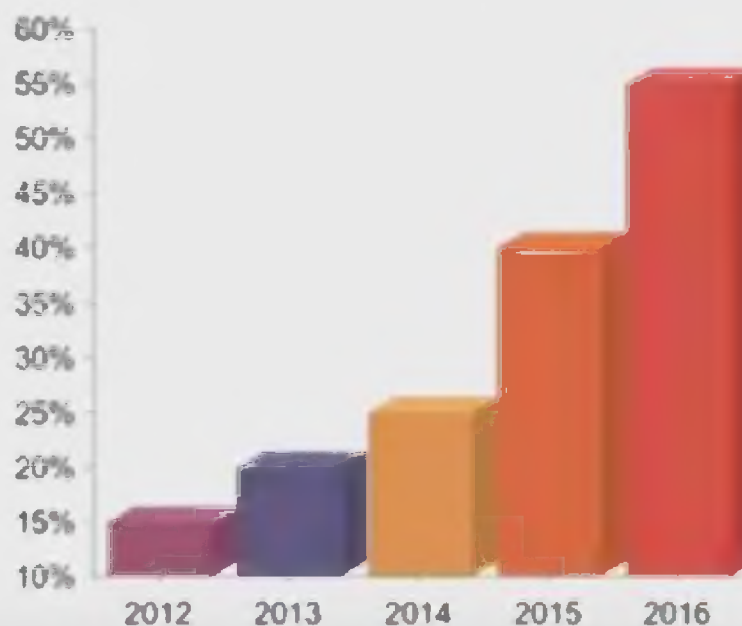
Canary in the Cannabis Field

Dr. Mourad Gabriel
Executive Director
UC Davis Research Faculty



Trend of Carbofuran Use at Cultivation Sites in California

Percent of Sites Where Carbofuran was Detected



In Review: Current and Projected Toxicant and Fertilizer Use at Marijuana Cultivation Sites on Public Lands in California: Four Year Trends of Landscape Impacts to Watersheds and Forest Lands.
Mourad W. Gabriel et. al.

Data Collected between 2012 and 2016
From 76 independent locations; 8 public lands,
3 private timberlands, 2 wilderness, and one
Tribal land.



Questions Dr. Gabriel Encouraged us all to Consider

- ❖ Does the lack of investigation or data in OR/WA justify the assumption that it is not occurring or minimal in nature?
- ❖ If OR barred owls and NSO and even fishers are exhibiting exposures similar to CA, and the source points not Identified, and if based off the limited data sets combined, there is no significant differences in toxicants and impacts seen in OR sites when compared to CA, is this justifiable evidence to not warrant further investigations?
- ❖ If the level of interdiction, reconnaissance and eradication efforts by Law Enforcement in OR and WA are a fraction of CA, can we state with justification, that this activity does not occur at any significant level in OR and WA.