



DPR's Air Monitoring Network (AMN) Expansion: A Prioritization Framework

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Agenda

- Introduction to the Air Monitoring Network (AMN)
- Expansion of the AMN
- AMN Framework for Prioritization
- Top Ranked Counties and Communities
- DPR Questions to the Public



Introduction to DPR's Air Monitoring Network



Air Monitoring Network (AMN)

- AMN stations provide DPR with data on pesticides in ambient air that allows for the long-term assessment of potential pesticide exposures in agricultural communities with high pesticide use.
- The AMN monitors **35** pesticides and **5** breakdown products in the ambient air weekly.



AMN Locations

Currently, there are five AMN sites and one planned expansion (6 total):

- Oxnard (Ventura County)
 - In operation since October 2011
- Santa Maria (Santa Barbara County)
 - In operation since August 2010
- Shafter (Kern County)
 - In operation since February 2011
- Pajaro (Monterey County)
 - Location moved in January 2026
 - In operation in that township since November 2011
- Delhi (Merced County)
 - Recently expanded in January 2026
 - 1,3-D monitoring in operation since December 2016
- Fresno County – planned expansion/relocation
 - 1,3-D monitoring in operation since December 2016



Pesticides Monitored in the AMN

Fumigants: 1,3-Dichloropropene, chloropicrin, MITC (breakdown product of metam sodium and potassium, dazomet), and methyl bromide

Organophosphates: Acephate, bensulide, chlorpyrifos*, chlorpyrifos OA*, DDVP, DEF, Diazinon, Diazinon OA, dimethoate, dimethoate OA, malathion, malathion OA, methiadathion*, oxydemeton methyl*, phosmet

Carbamates: EPTC, methomyl

Organochlorines: Dicofol*, endosulfan*, endosulfan sulfate*

Herbicides: Dacthal, diuron, s-metolachlor, norflurazon, oryzalin, oxyfluorfen, pendimethalin, simazine, trifluralin

Fungicides: Chlorothalonil, captan, iprodione,

Insecticides: Cypermethrin, fenpyroximate, permethrin, propargite

* = no longer registered

AMN Objectives

- Monitor pesticides in the air and determine seasonal, annual, and multi-year concentrations.
- Compare concentrations to acute, subchronic, chronic, and lifetime screening levels or regulatory targets. These targets help us identify exposures that need additional investigation.
- Track temporal variations in pesticide concentrations in the air.
- Estimate cumulative exposure to multiple pesticides with common physiological modes of action in humans (e.g., cholinesterase inhibitors).



Flow Rate Acc. Range Device
3.0 (1.35-1.65) High Flow
1.5 (1.35-1.65) High Flow
50.0 (45-55) Low Flow
3.0 (2.7-3.3) Low Flow

Expanding the AMN



AMN Expansion

- DPR received additional funding in the 2024 Budget Act to permanently expand its ambient air monitoring efforts.
- The expansion has three components:
 1. Conversion of 1,3-D only stations
 2. The introduction of a mobile monitoring platform
 3. The addition of four new monitoring stations.
- The target date for expansion is by the end of 2027.
- As part of the AMN expansion, DPR updated its site selection procedure to re-evaluate California communities to identify potential new monitoring sites



Conversion and Updating of Existing Stations

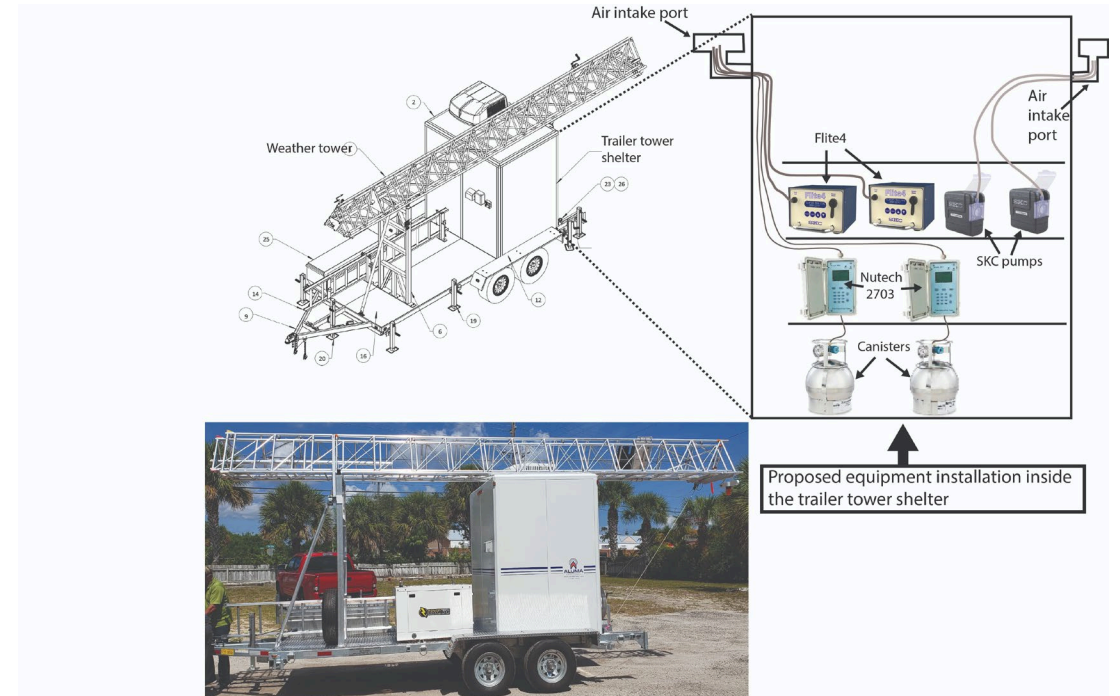
Component 1 of the AMN Expansion is the conversion of 1,3-D only stations:

- Oxnard (Ventura County),
- Santa Maria (Santa Babara County),
- Shafter (Kern County),
- *Pajaro (Monterey County),*
- **Delhi (Merced County), and**
- **New site (Fresno County)**



Mobile Monitoring Station

- Component 2 of the AMN expansion is the deployment of a mobile monitoring station.
- A mobile monitoring station can be quickly deployed to locations throughout California.
- Meant for shorter-term monitoring (periods of one year or less)
- The mobile monitoring station, which has similar capabilities as a stationary AMN station, will be equipped with:
 - Standard sampling instrumentation
 - Weather tower



AMN Expansion – Component 3

Addition of 4 new monitoring sites

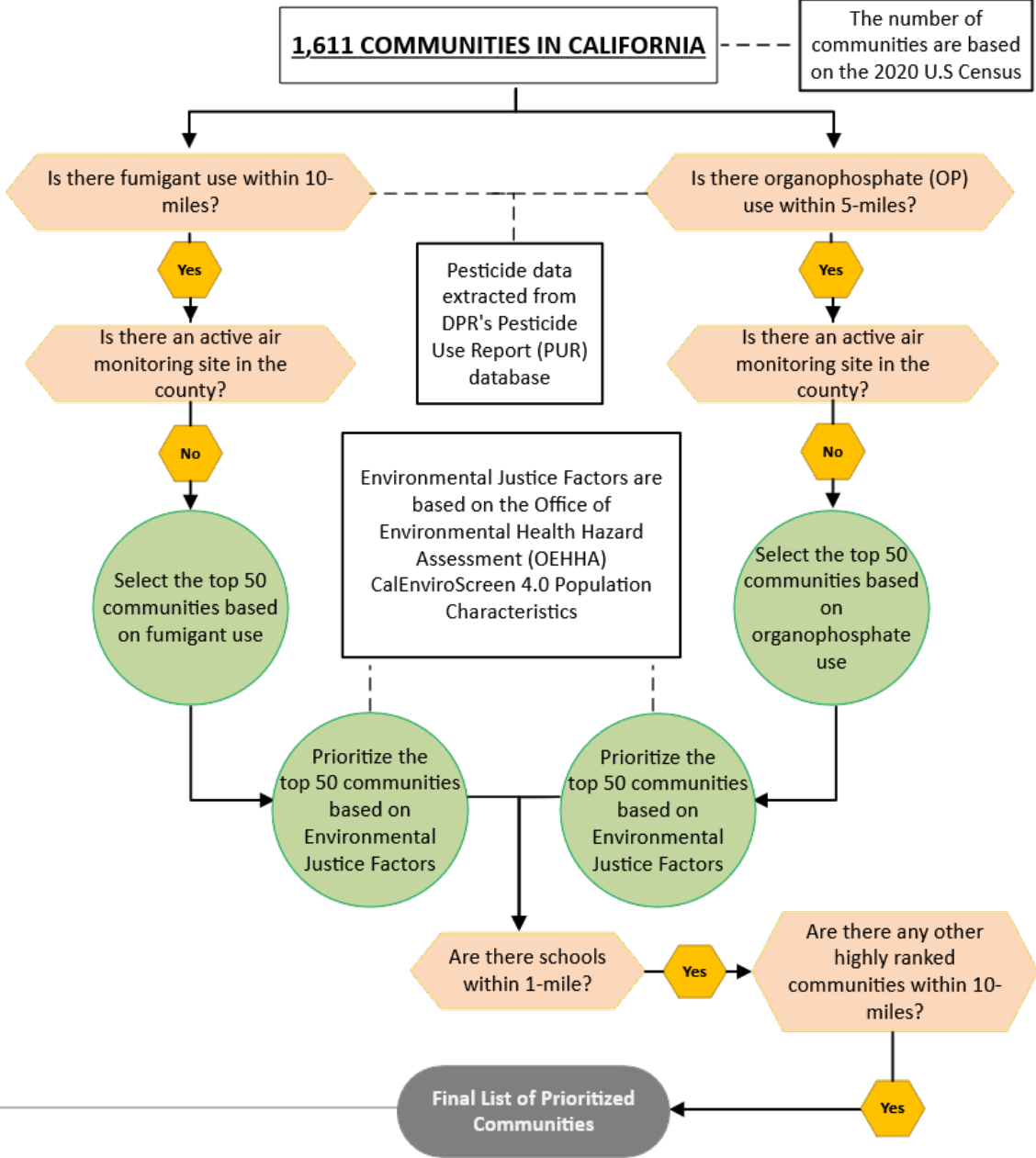


AMN

**Framework for
Prioritization**



Community Prioritization Procedure



Step 1

Step 2

Step 3

Step 4

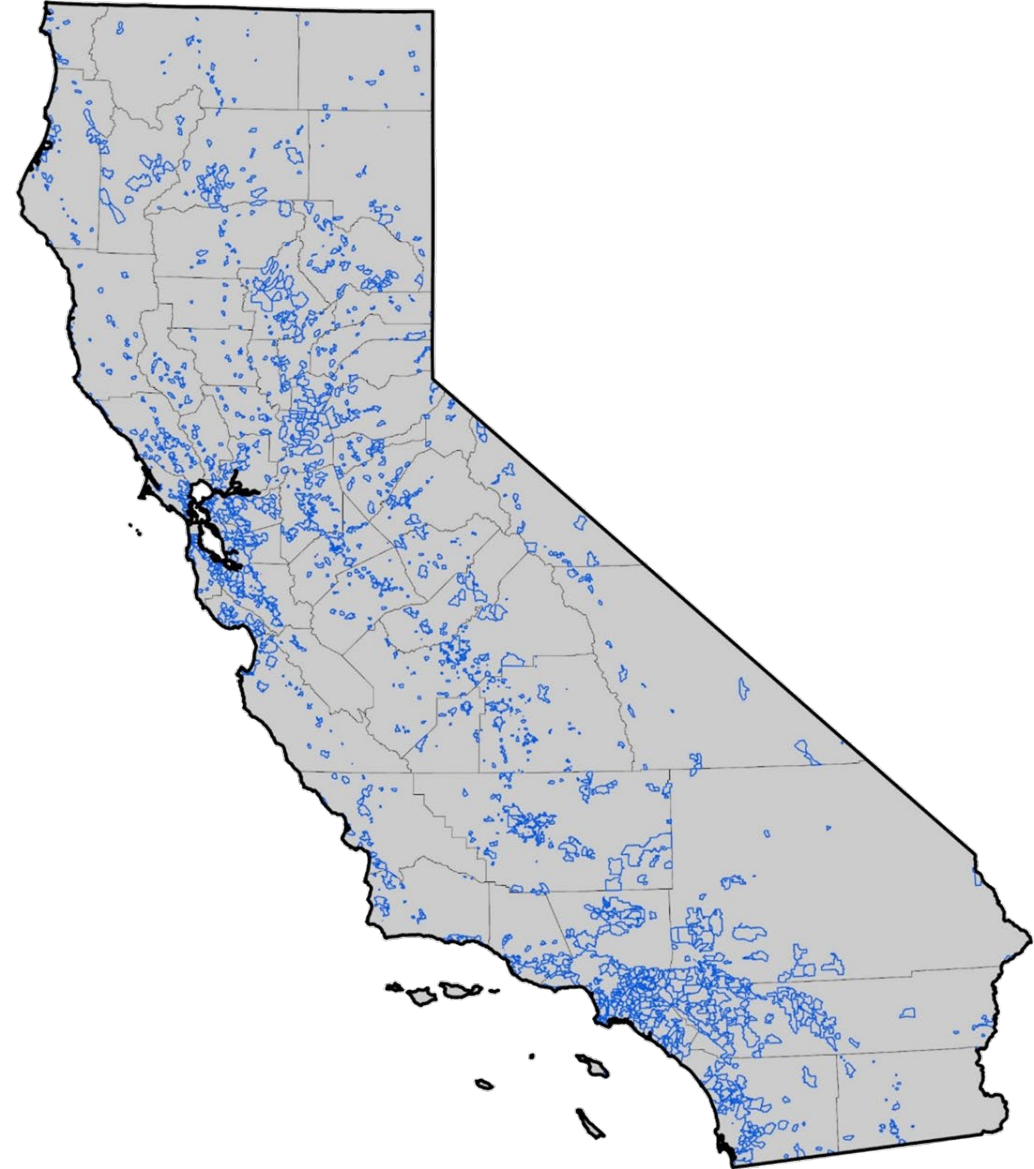
Step 5

Step 6

Final List of Prioritized Communities

Community Boundaries

- The geographic boundaries of California communities, which included cities and census designated places (CDP), were obtained from the US Census Bureau.
 - Based on the 2020 Census, there are 1,611 California communities.
-

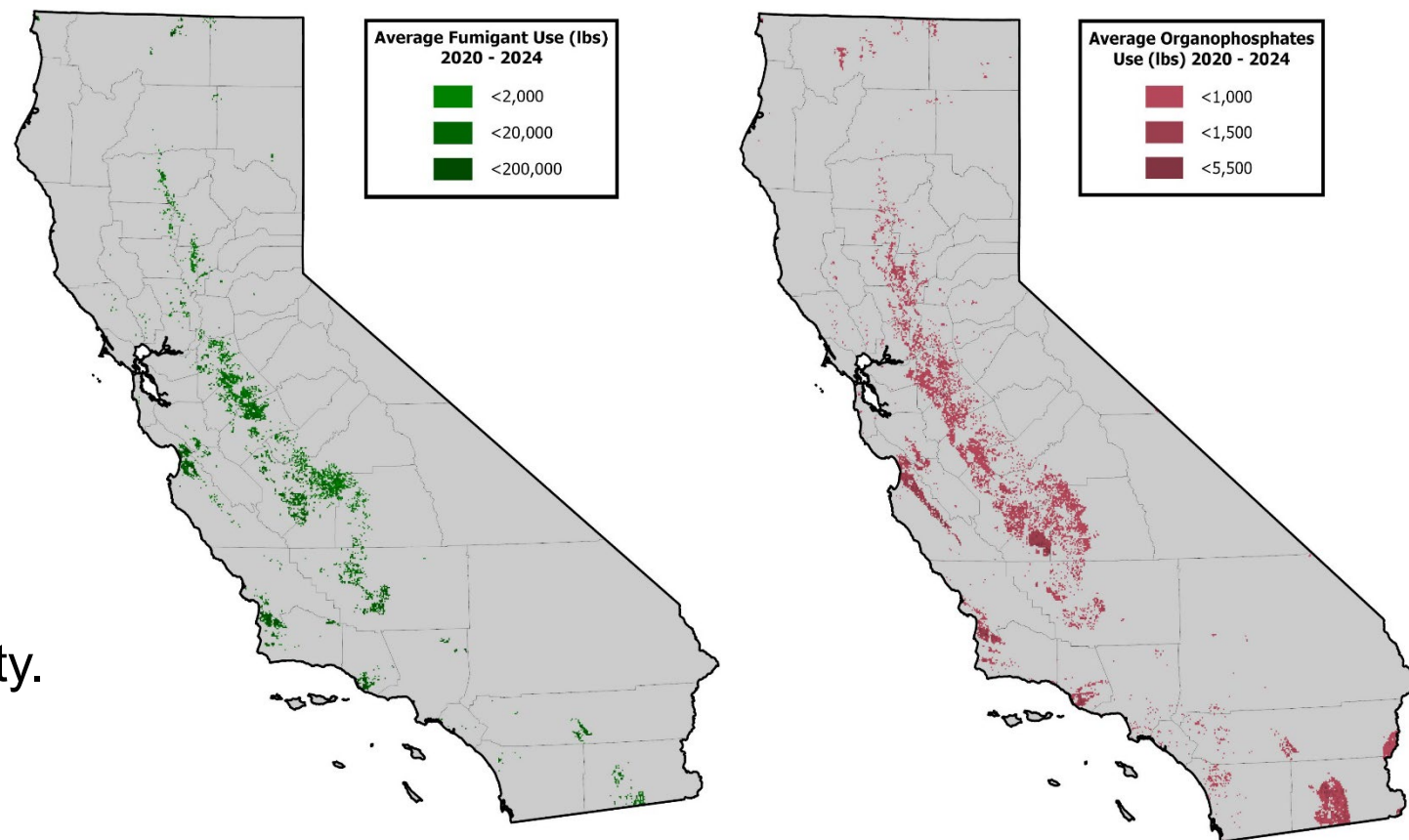


Pesticide Use Data

DPR considered two categories of pesticides as part of this procedure:

- **Fumigants**
 - Fumigants readily enter the gas phase.
- **Organophosphates (OPs)**
 - OPs share a common biological mechanism which can produce an additive effect in terms of their toxicity.

Use from 2020 – 2024 is included in the analysis.

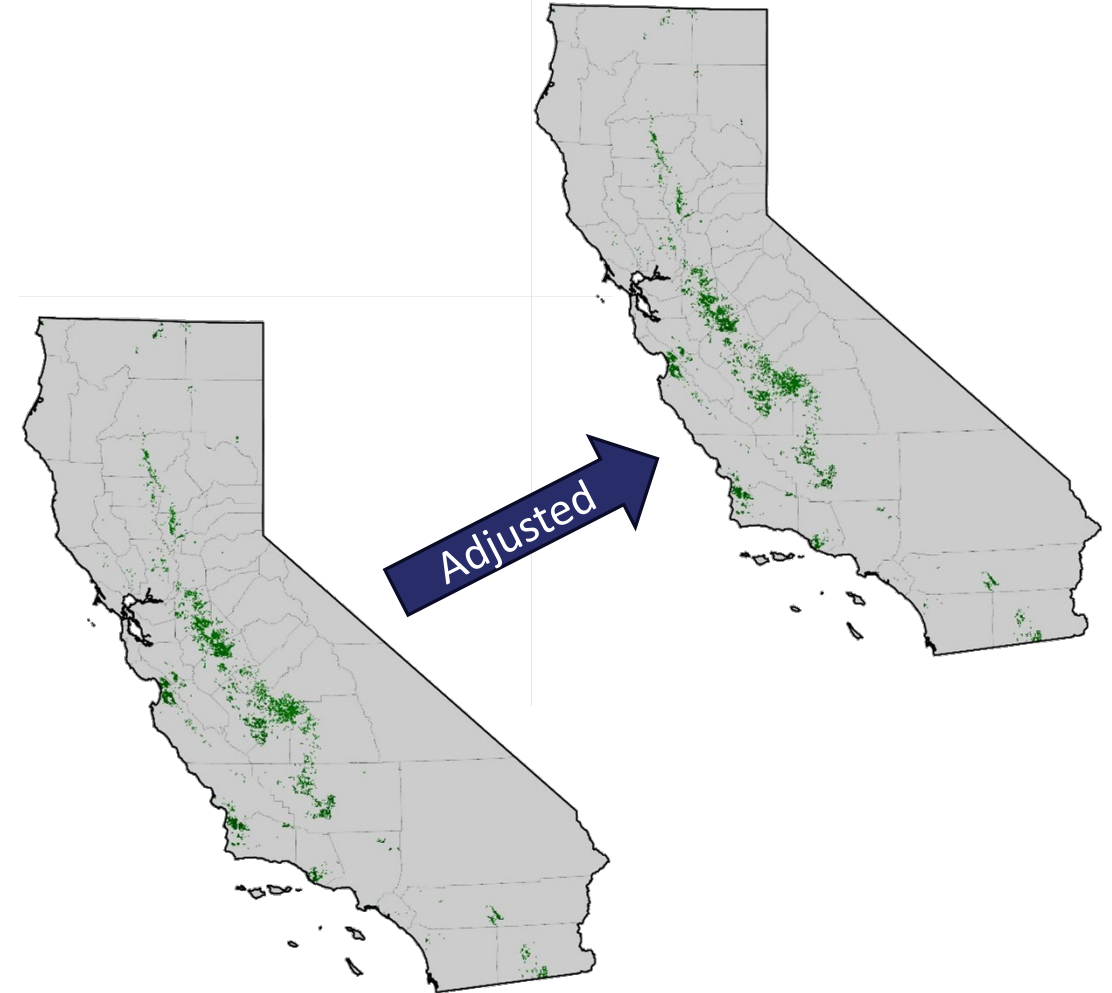


Emission Fraction Adjustment for Fumigants

Step 2

- Emissions levels can change depending on how a fumigant is applied.
- DPR has developed the Emission Fraction (EF), which is the proportion of applied fumigant that turns into an emission after it is applied.
- There are Emission Fractions for each application method for each fumigant.
- Fumigant use in pounds is multiplied by EF to better reflect how much of the fumigant emits into the air.

Note: OP use was not adjusted due to lack of data to support such adjustments.



Geospatial Data and Analysis

Four non-overlapping ring-shaped zones were developed using ArcGIS to create use densities.

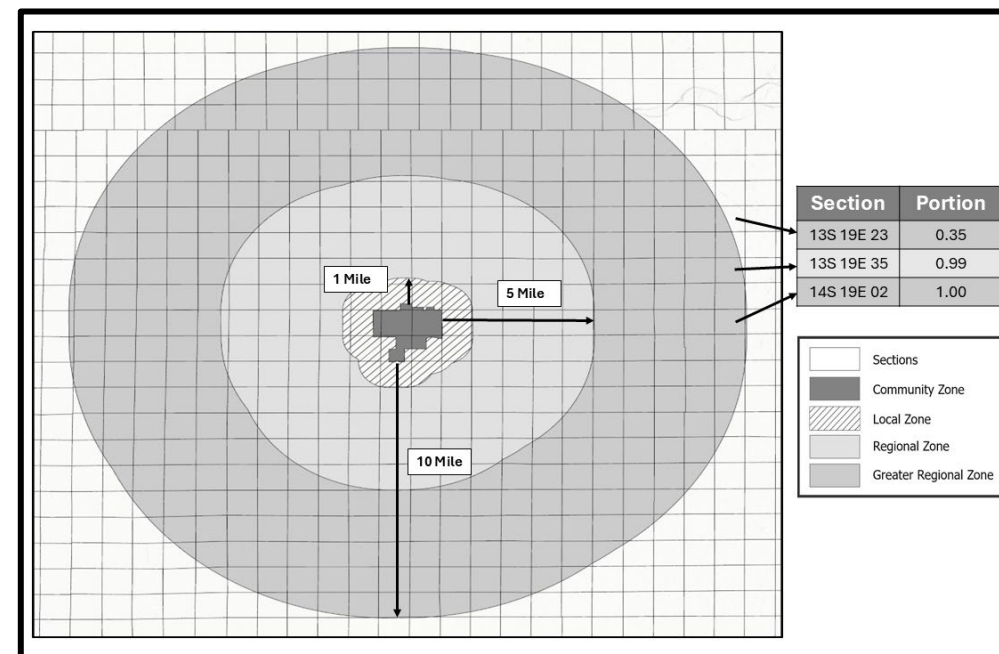
- **Use Density = Use Amount (lbs) / Area of the zone (sq ft)**

Different distances were analyzed:

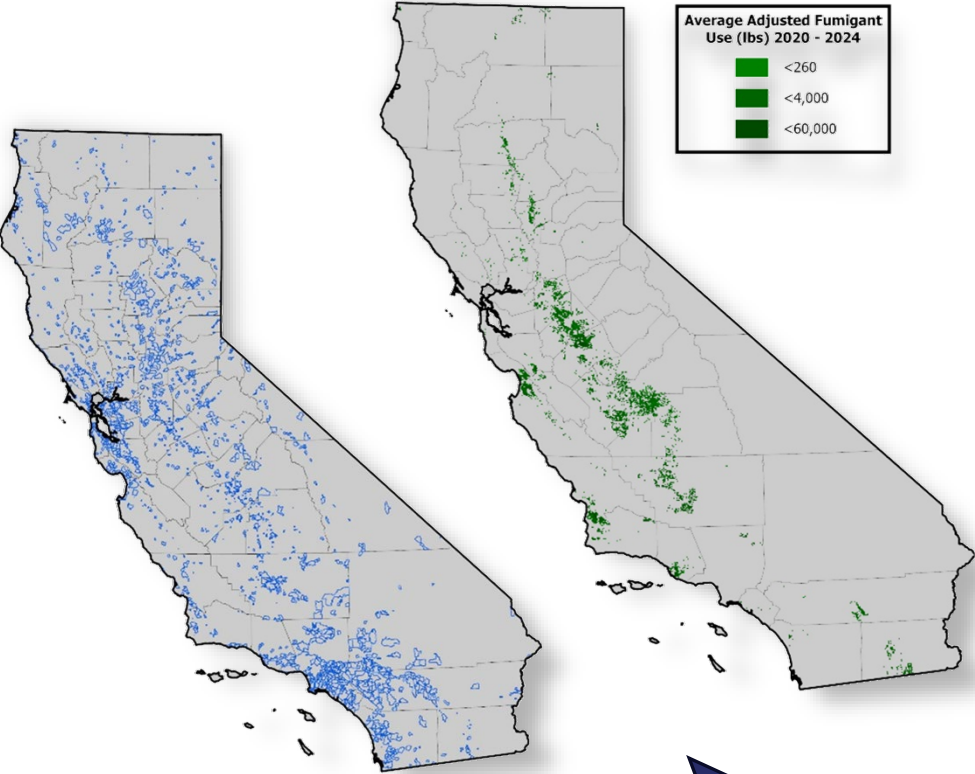
- *Community Zone*: Within community boundaries.
- *Local Zone*: Between the boundary and 1 mile outside the community boundary.
- *Regional Zone*: Between 1 and 5 miles outside the community boundary.
- *Greater Regional Zone*: Between 5 and 10 miles outside the community boundary (fumigants only).

The use density in each zone was adjusted based on the average wind speed

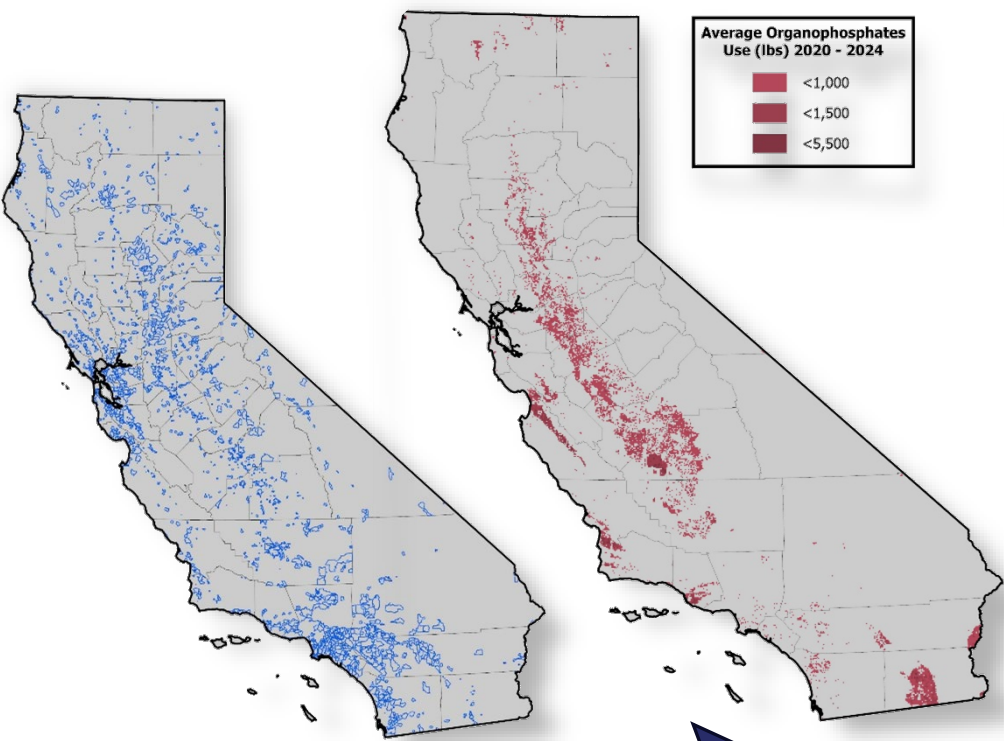
- **Adjusted Use Density = Use Density / Average Wind Speed**



Step 2

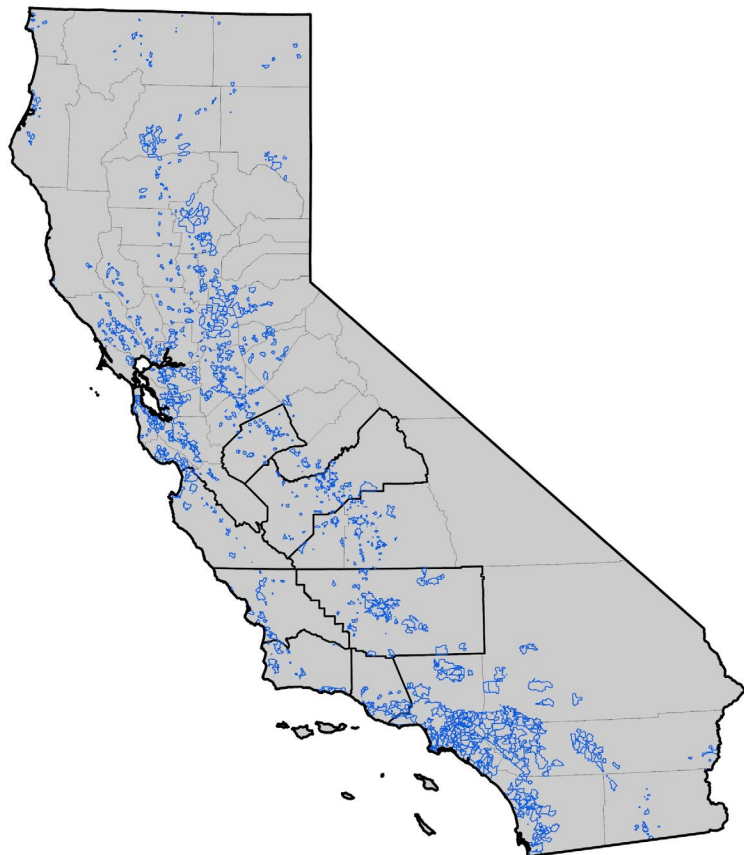


Overlay

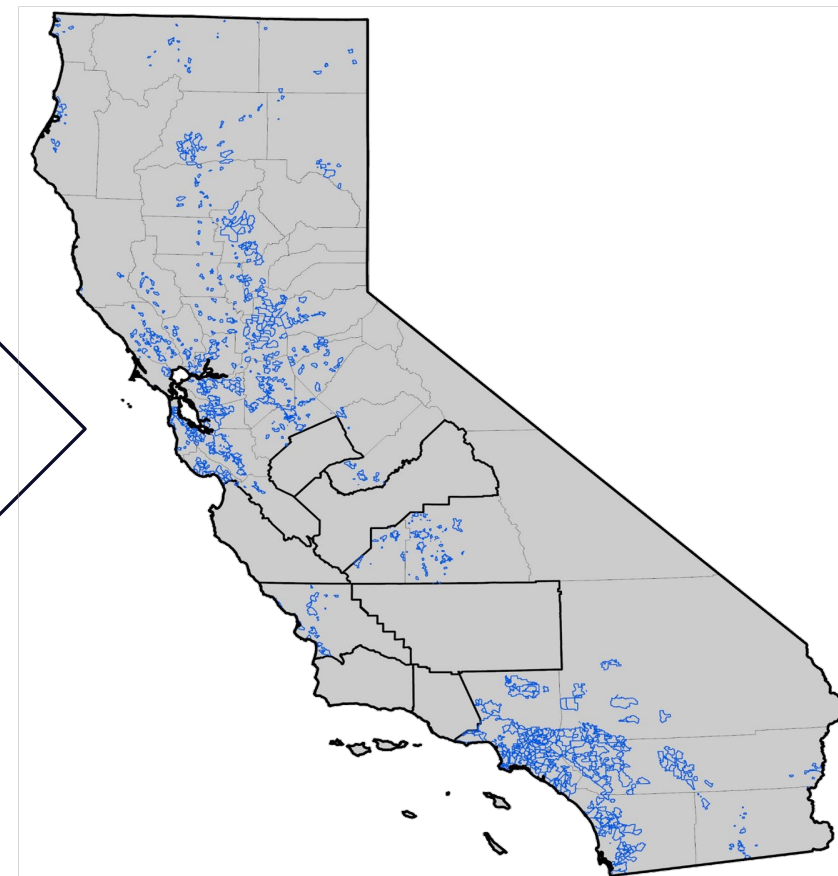


Overlay

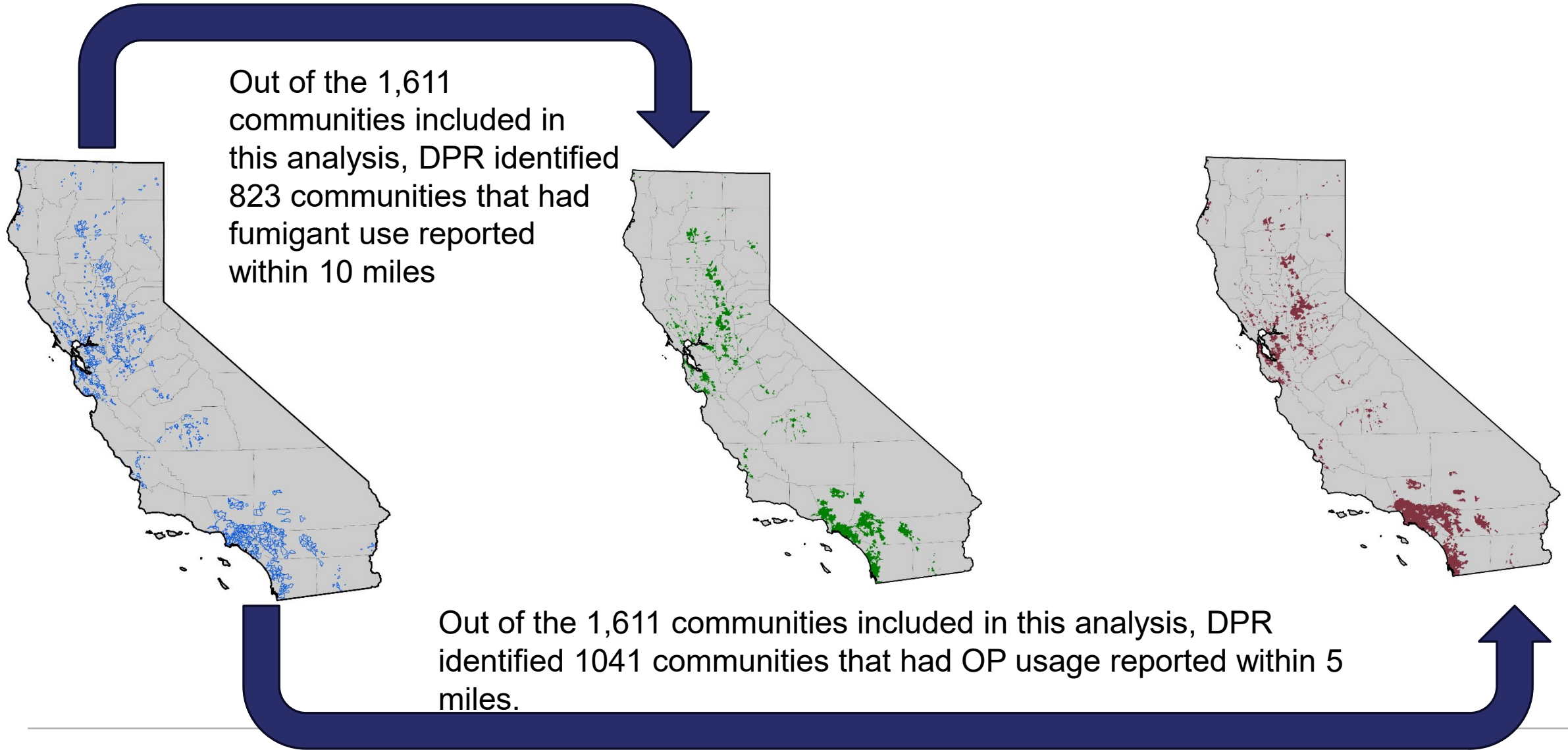
Counties with existing AMN stations removed



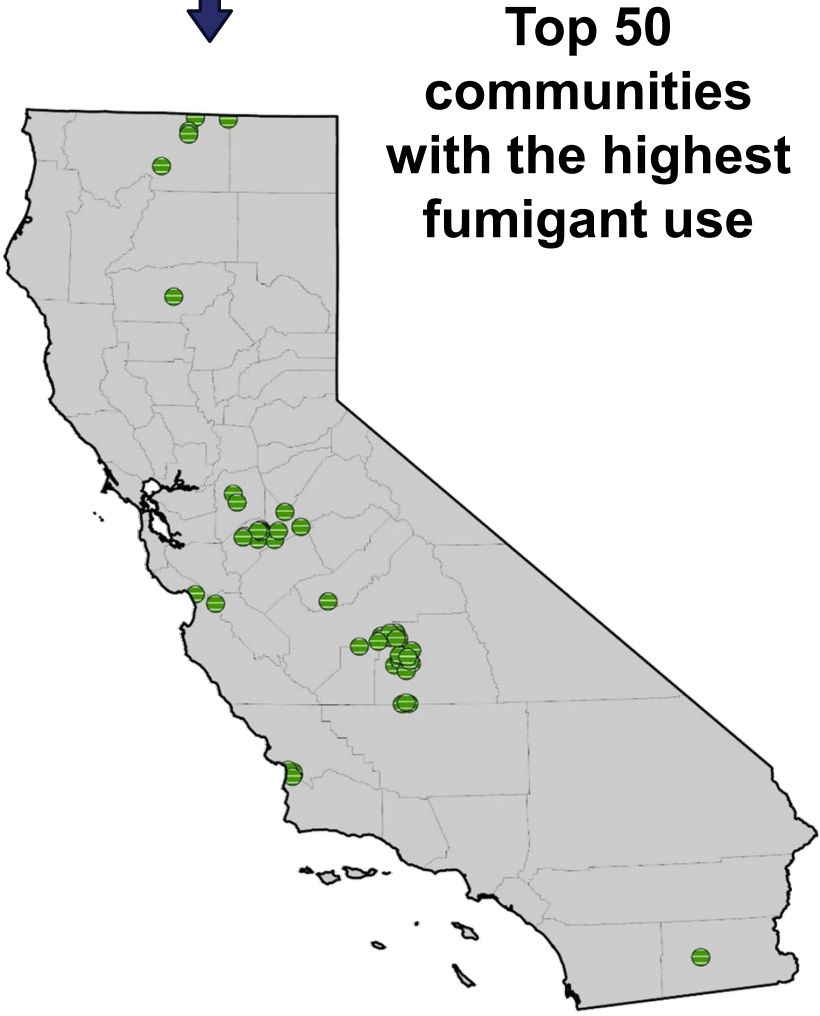
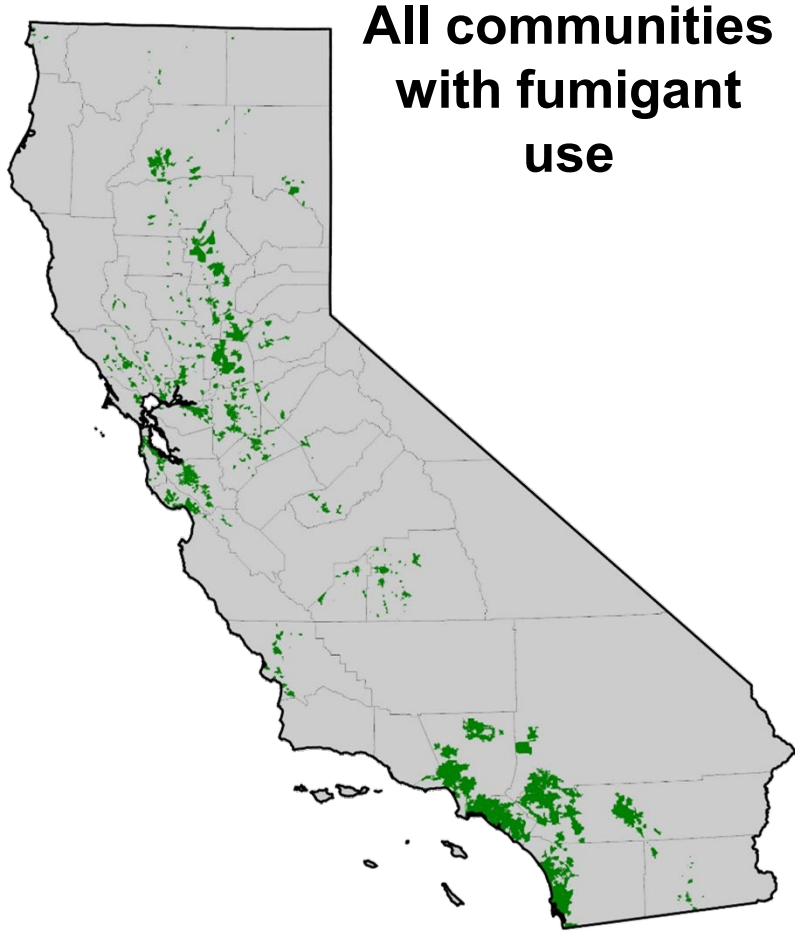
Selecting one monitoring site per county for the AMN ensures continuous evaluation across areas with diverse crop types, fumigation methods, use patterns, and weather conditions.



Pesticide Use

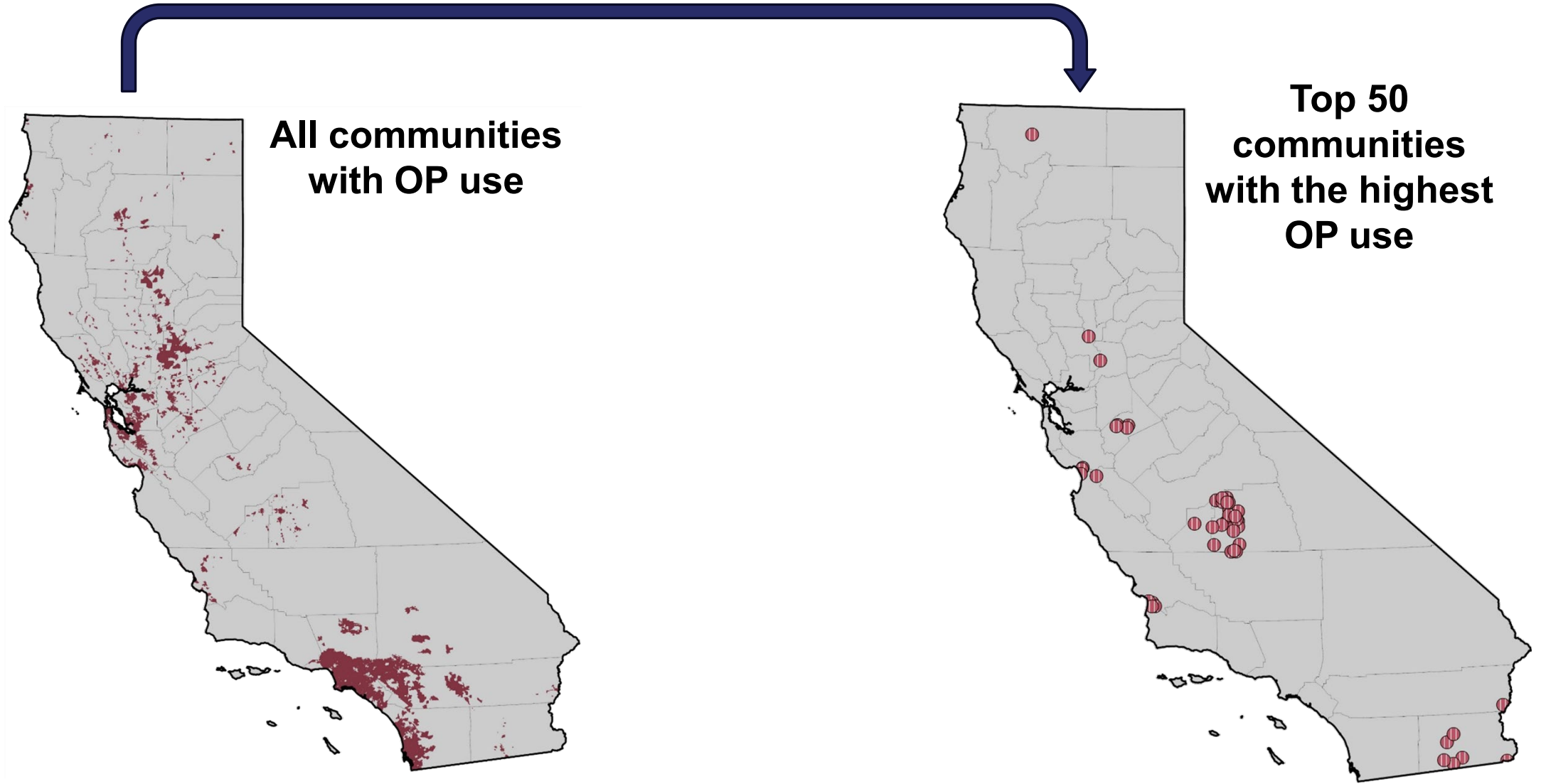


Top 50 Communities - Fumigants



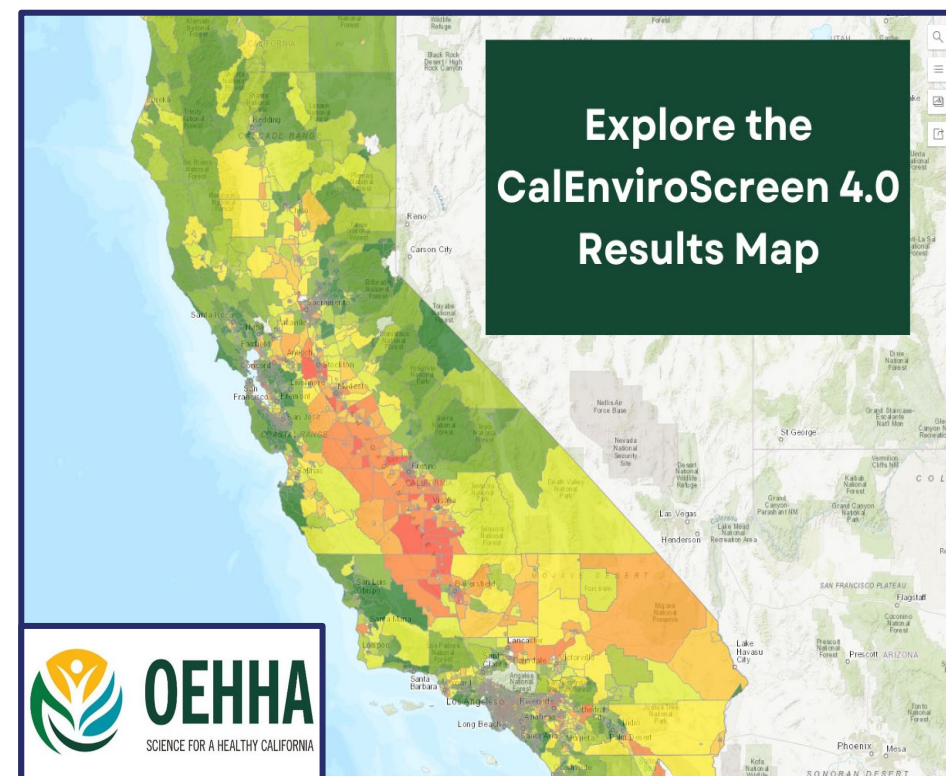
Top 50 Communities - OPs

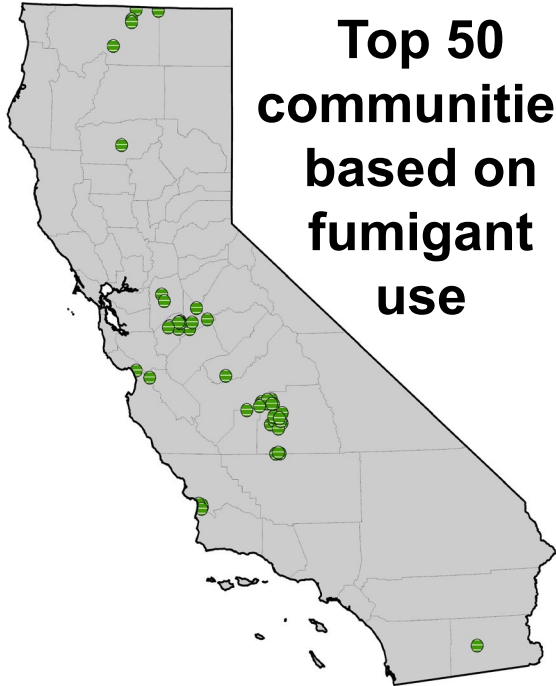
Step 4



Environmental Justice Factors

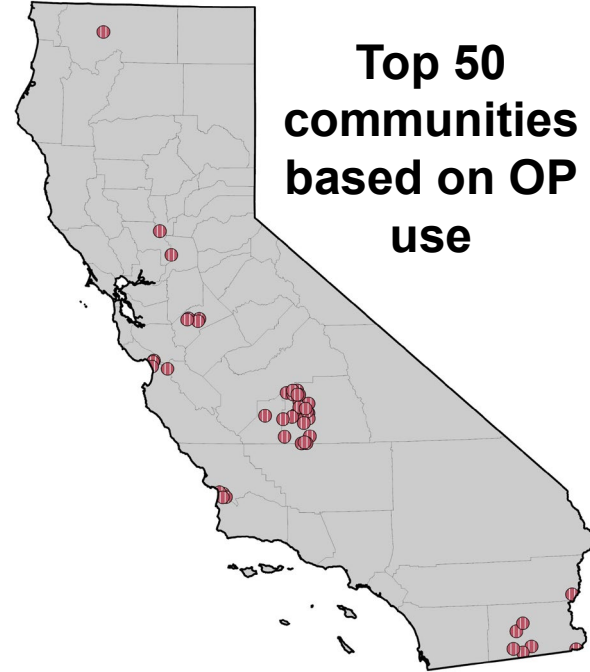
- CalEnviroScreen (CES) version 4.0 by the Office of Environmental Health Hazard Assessment (OEHHA) is designed to identify California communities more susceptible to a pollution burden.
- The communities identified in the pesticide use step were then ranked from 1 to 50 based on the highest average Population Characteristics (PC) score to account for environmental justice factors.
- PC percentile field rates sensitive population indicators as well as socio-economic factors. The higher the PC percentile, the more susceptible a community's population may be to pollutant exposure.





Top 50 communities based on fumigant use

Ranked community (fumigant)	PC score
Community#1	Highest
Community#2	
.....	
.....	
Community#49	
Community#50	

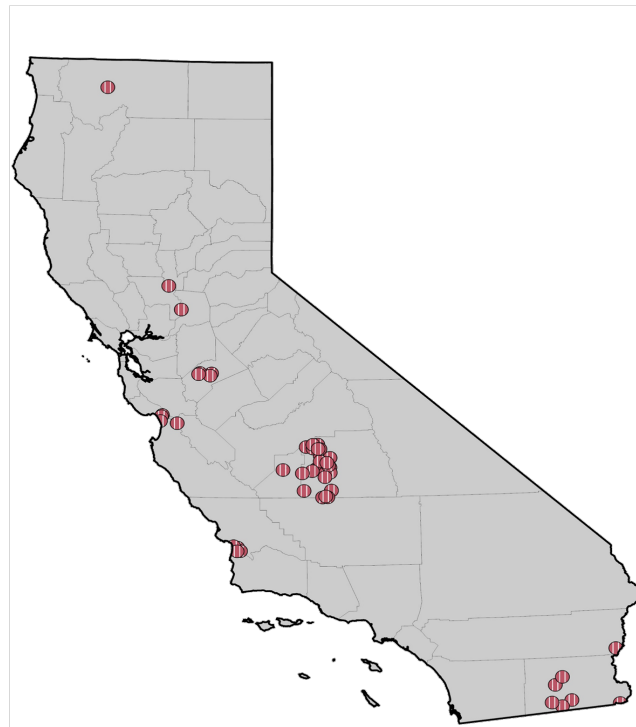
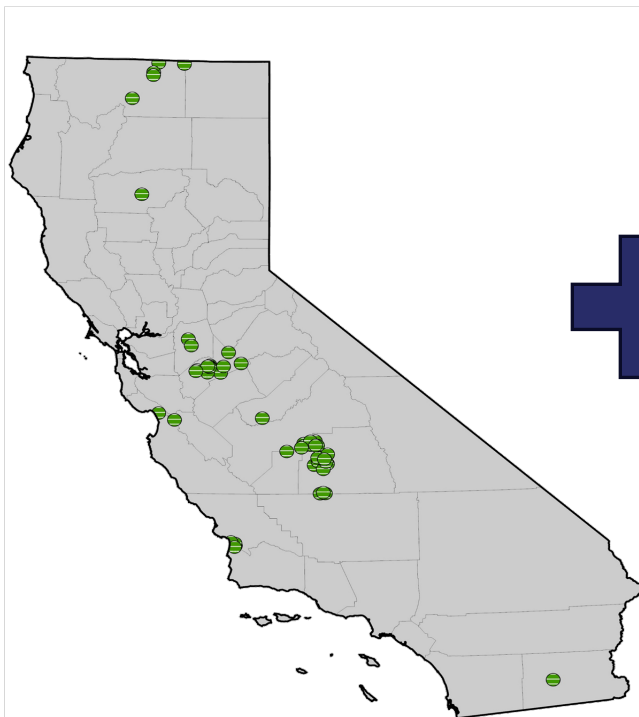


Top 50 communities based on OP use

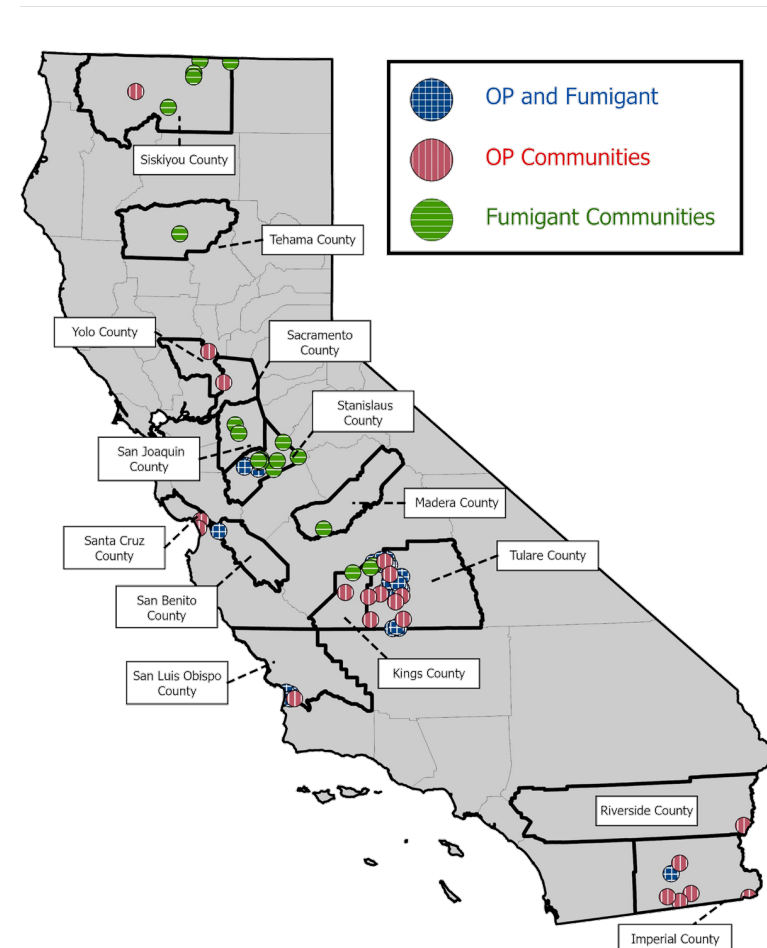
Ranked community (OP)	PC score
Community#1	Highest
Community#2	
.....	
.....	
Community#49	
Community#50	

Top 50 Communities

Top 50 communities based on fumigant use

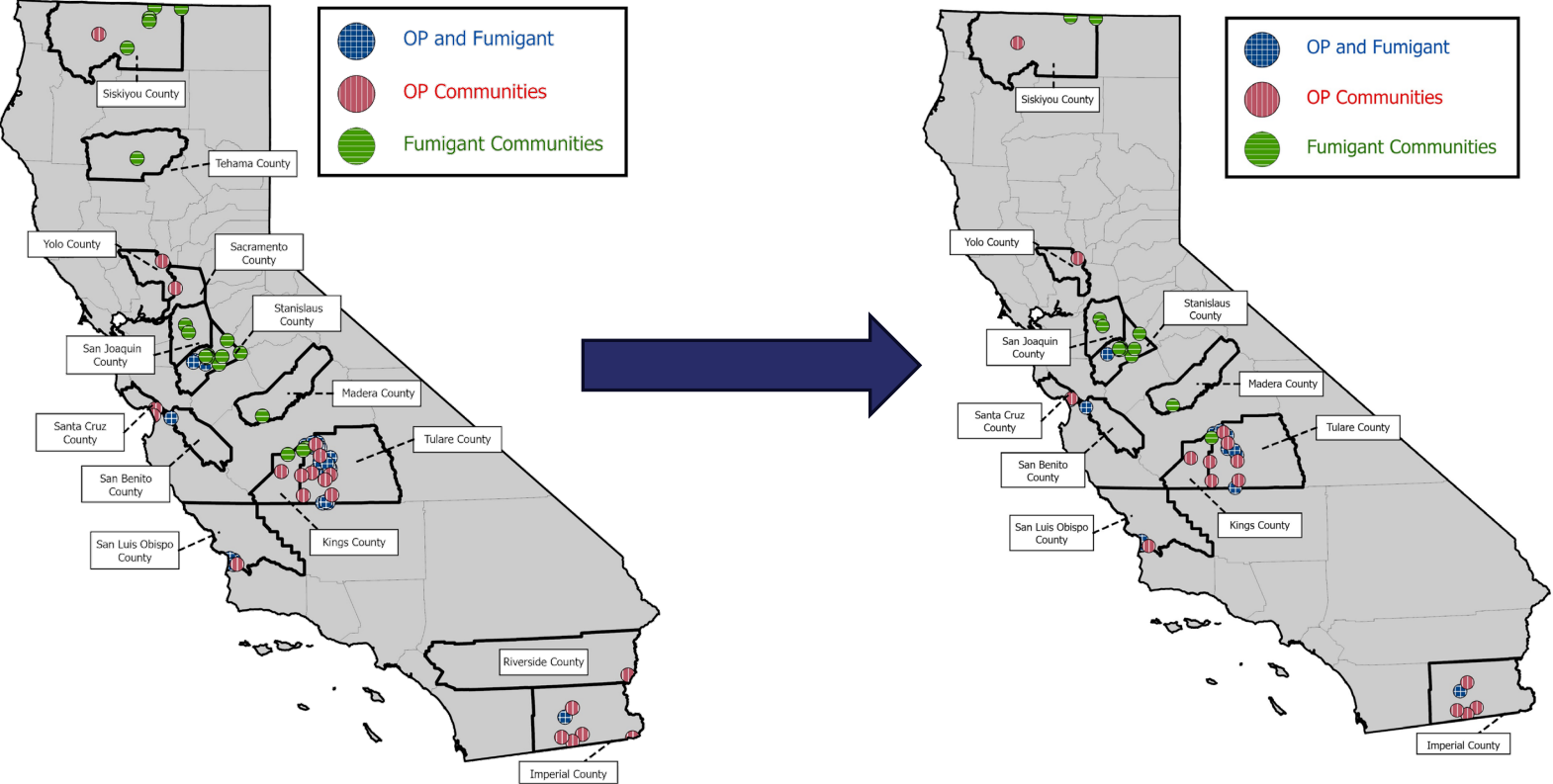


Top 50 communities based on OP use



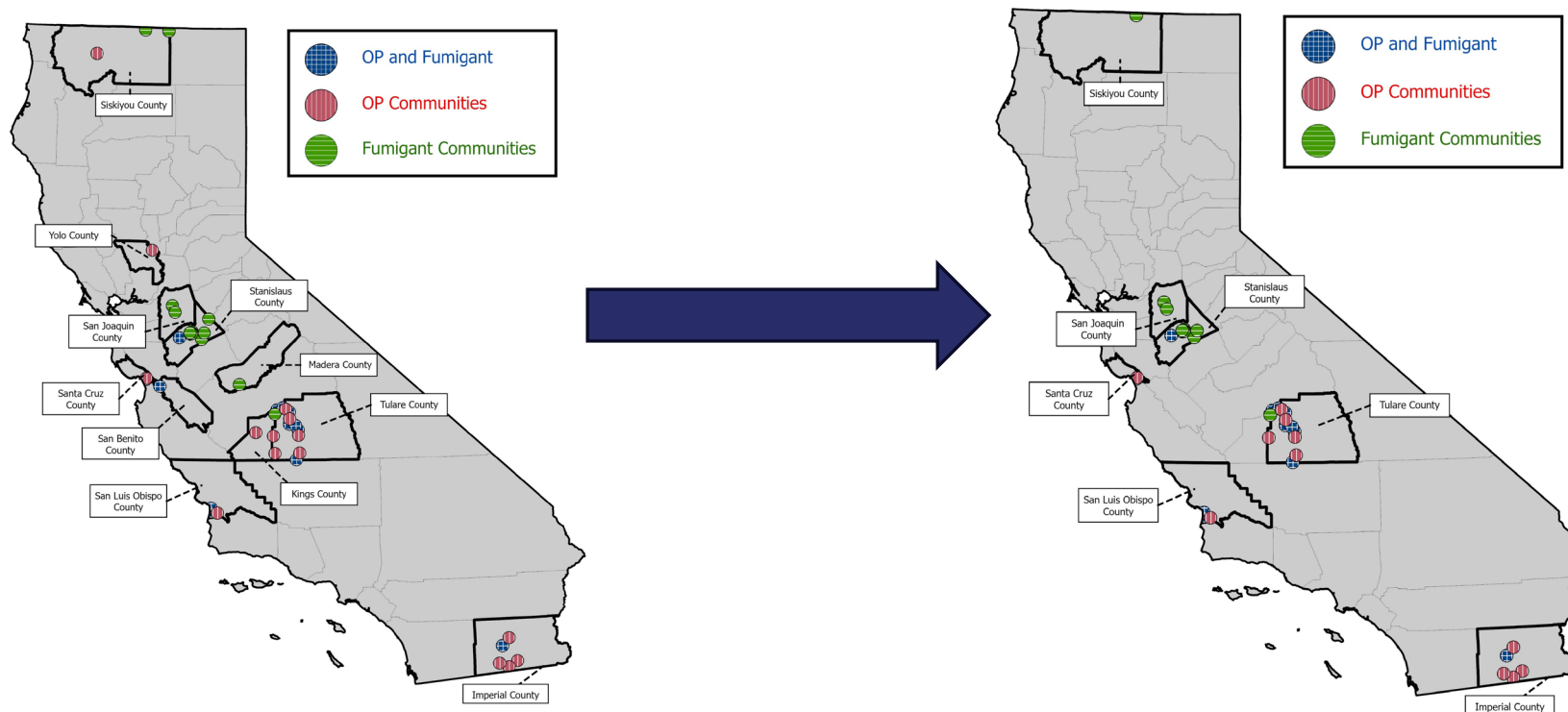
Communities with Schools within a 1-mile radius

- Schools are the preferred locations for DPR monitoring sites; therefore, communities from the top 50 list with a school within a 1-mile radius were identified.
- This process identified 27 communities from the fumigant list and 28 communities from the OPs list.



Nearby Communities

- That subset of communities was then analyzed to identify proximity to other Top 50 communities.
- This process identified 21 communities from the fumigant list and 23 communities from the OP list with the most communities near each other.



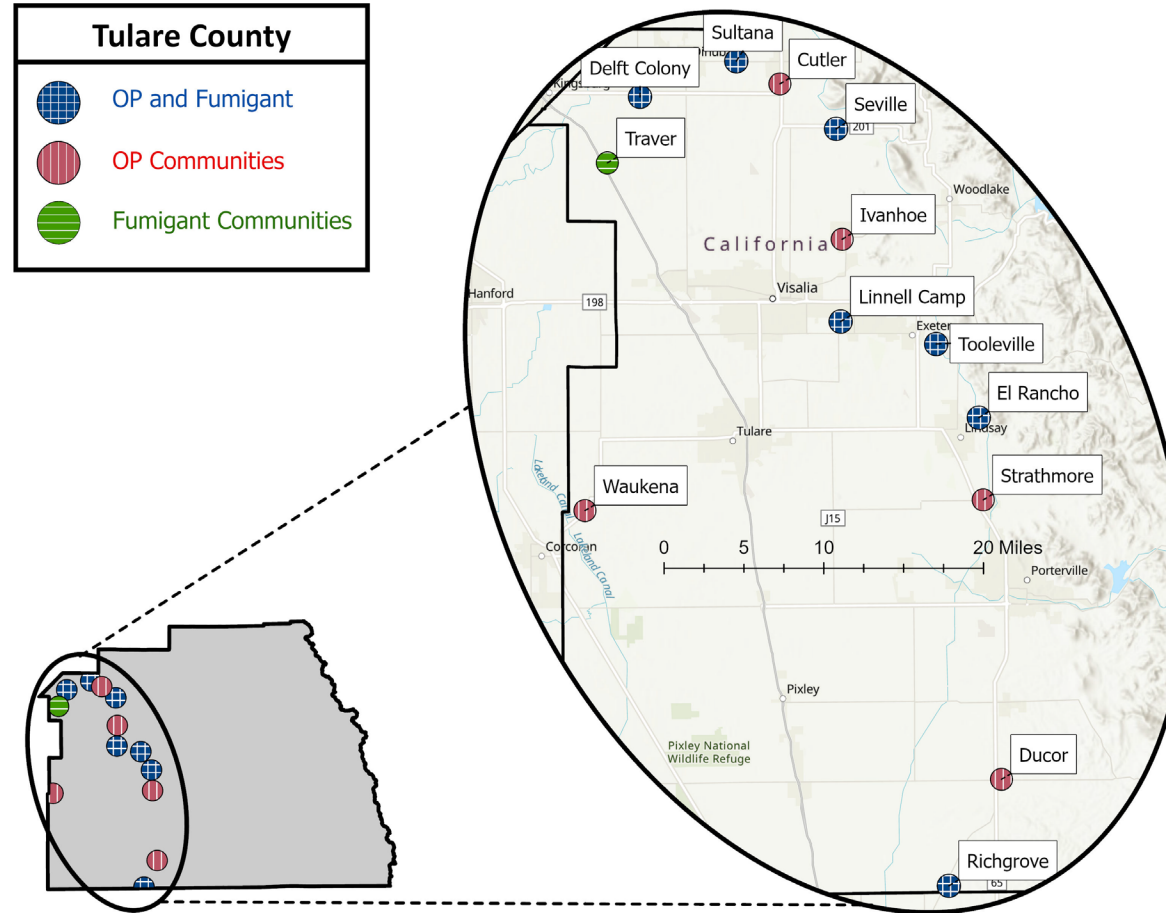
Top Ranked Counties and Communities





Proposed List of Counties for Placement of AMN stations

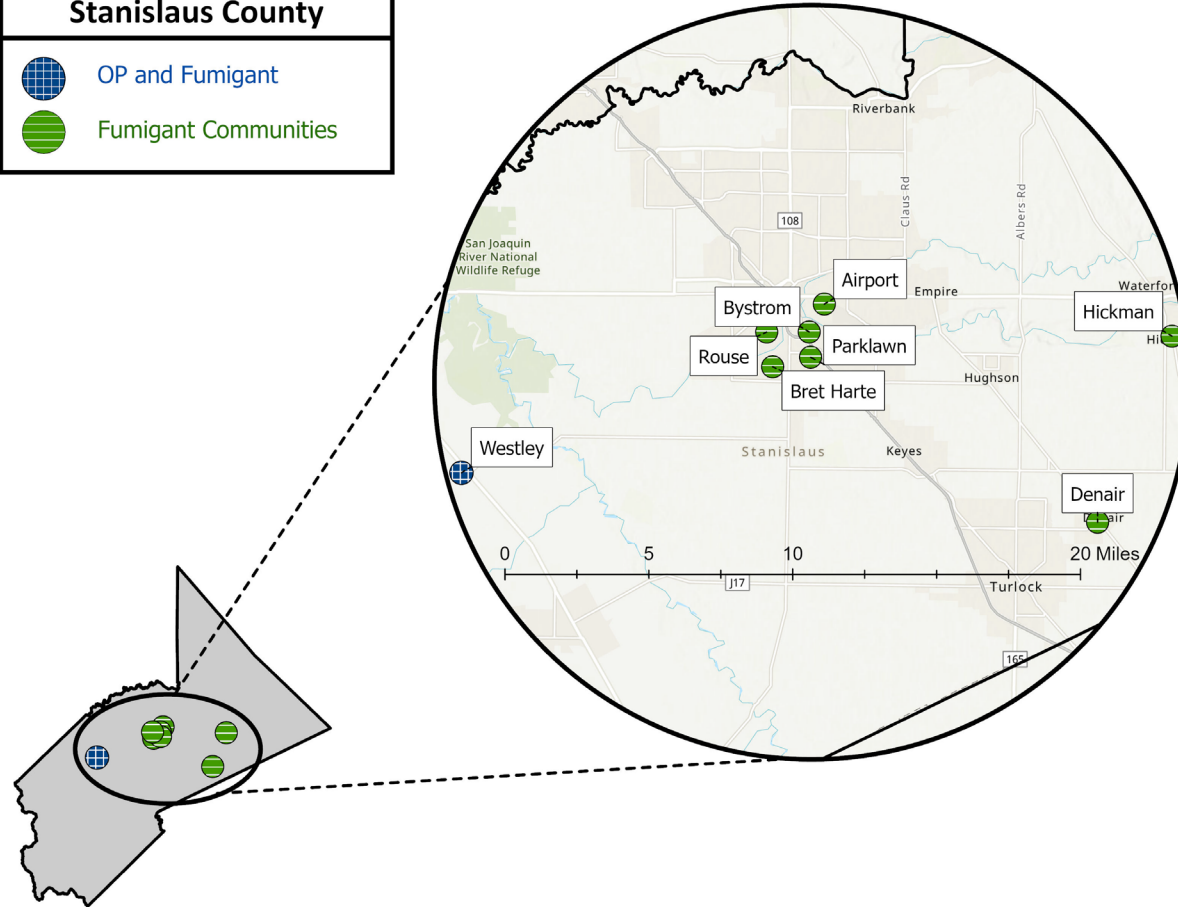
County	Number of Top-50 Communities within the County	Priority Category by DPR
Tulare	27	1
Stanislaus	13	2
Imperial	6	3
Siskiyou	6	4
San Joaquin	2	5

Tulare County





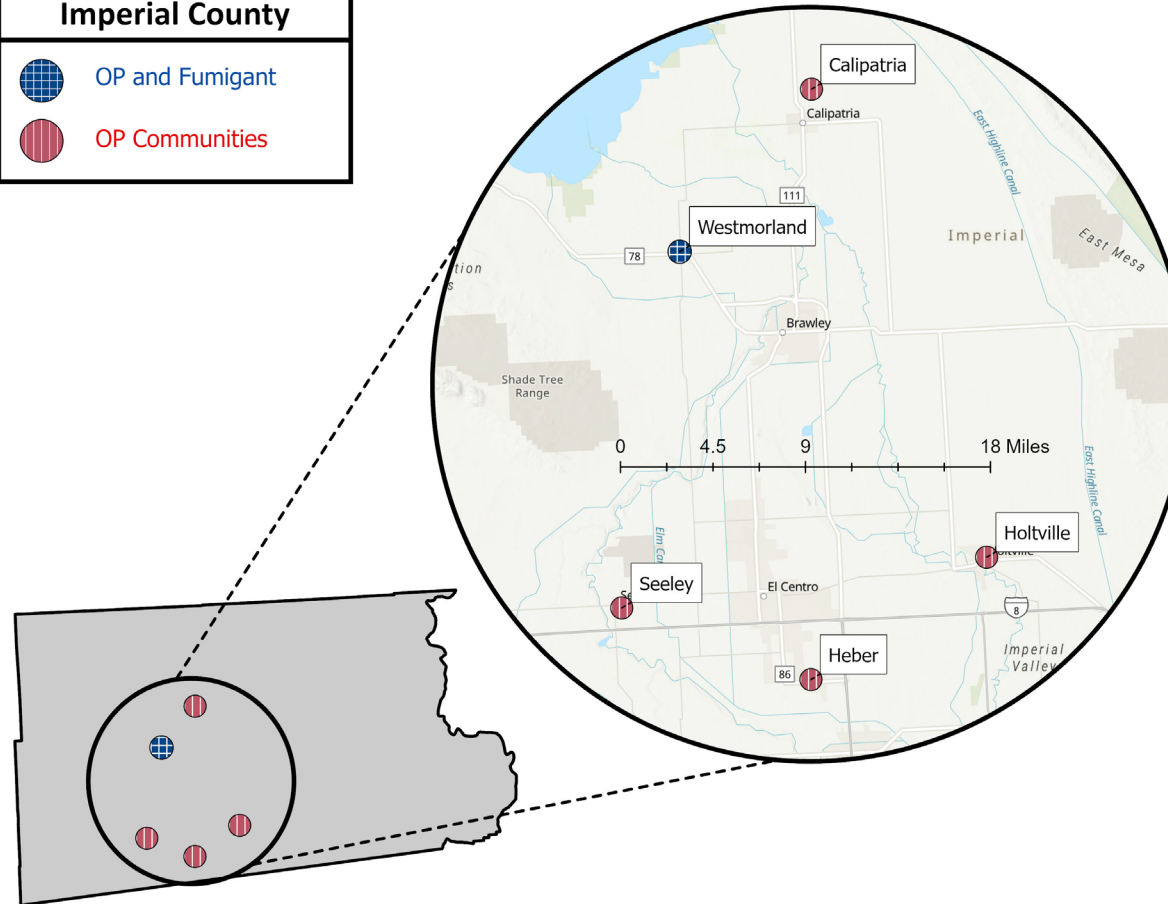
Stanislaus County

Stanislaus County	
	OP and Fumigant
	Fumigant Communities



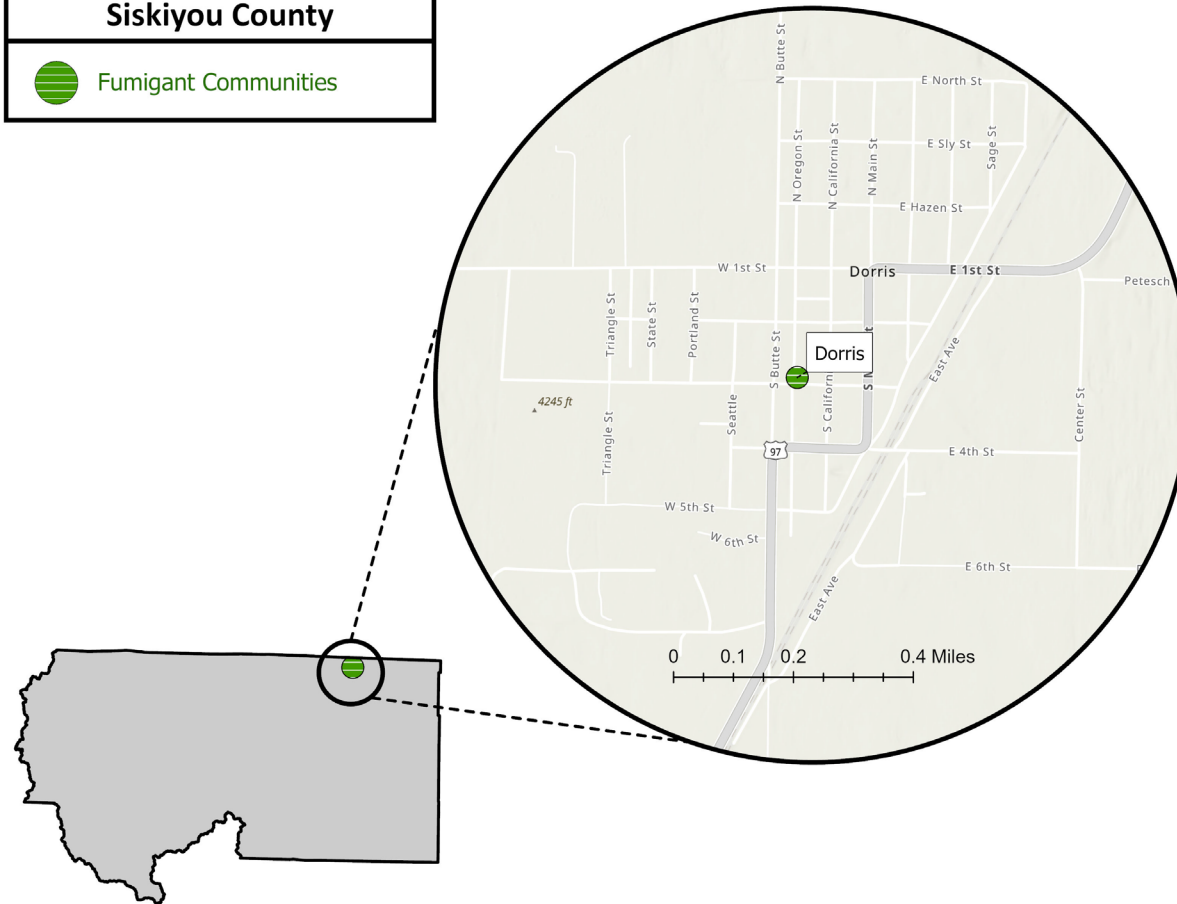
Imperial County

Imperial County	
	OP and Fumigant
	OP Communities



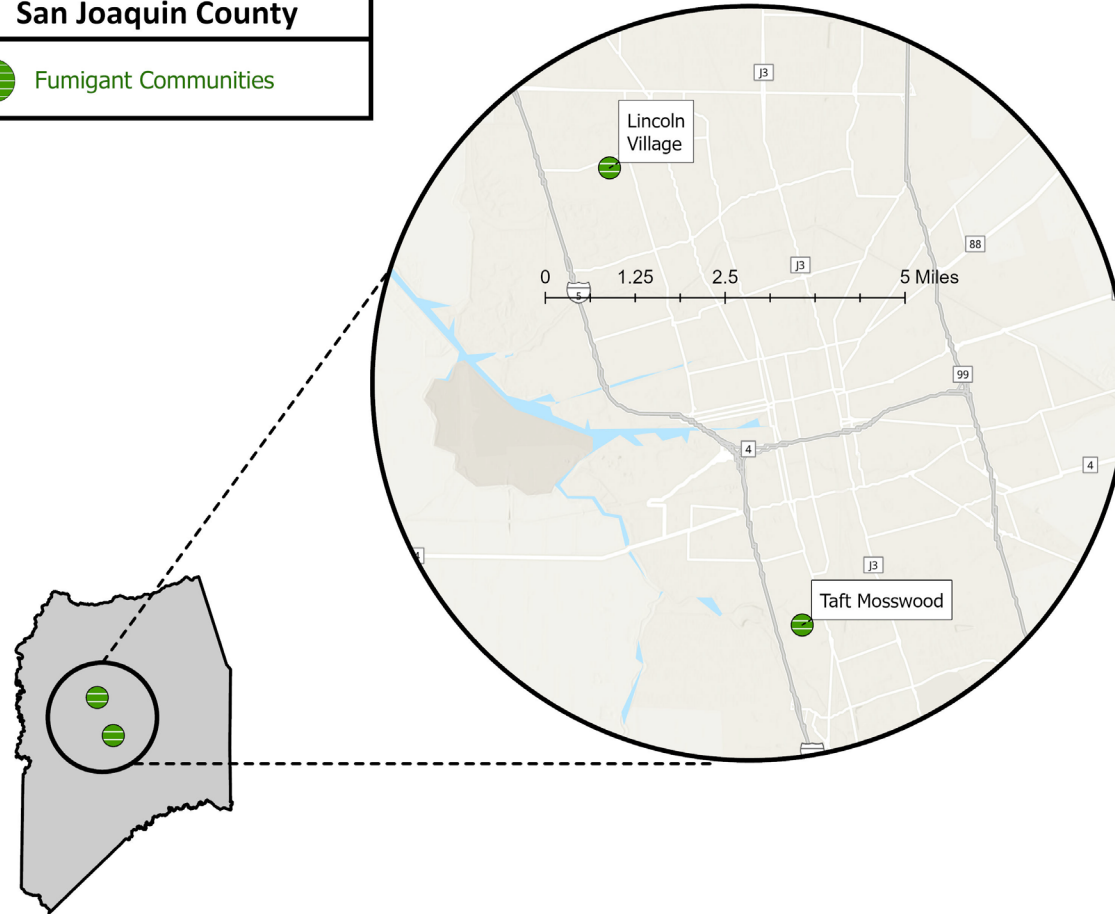
Siskiyou County

Siskiyou County	
	Fumigant Communities



San Joaquin County

San Joaquin County	
	Fumigant Communities



DPR Questions to the Public



Question 1

DPR has enough resources for up to four new AMN stations.

DPR intends to go down the list beginning at the highest rank (rank 1) until funding is exhausted.

Therefore, the proposed ranking of counties could mean that some locations may not be selected for a new AMN station at this time.

Please provide feedback on the order of the ranking of these five counties, any other counties that should be considered, and any other factors DPR should consider.

County	Number of Top-50 Communities	Priority Category by DPR
Tulare	27	1
Stanislaus	13	2
Imperial	6	3
Siskiyou	6	4
San Joaquin	2	5
Other		

Question 2

Once the list of county priority is finalized, DPR will further evaluate the selected communities within each county to find the most appropriate location to host the AMN station.

The appropriate locations are those accessible to sampling personnel on weekdays and weekends, have electrical outlets, and are secure from equipment loss or tampering.

Please rank the communities within each county that you believe would be the most desirable location for monitoring, with a rank of 1 indicating the community being most desirable.

Example table for ranking – Imperial County Communities

Community	PC Percentile	Fumigant Use Rank	OP Use Rank
Westmorland city	97.47	42	2
Calipatria city	86.28	NA	38
Seeley CDP	77.95	NA	39
Heber CDP	75.73	NA	31
Holtville city	70.95	NA	13

Public Comment Period

The public comment period is open from March 12, 2026 – May 11, 2026



Link to Smart Comment

Thank you! Questions?

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