The Development of Pesticide Related Spatial Data in California

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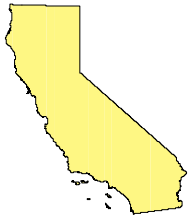
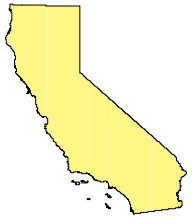
Dept. Pesticide Regulation



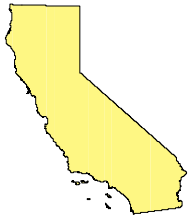
GIS and the Pesticide Regulatory Program

- Brief program overview
- The geospatial component - why and how ?
  - History and progress
  - What's involved
- Current status
- Planning for the future



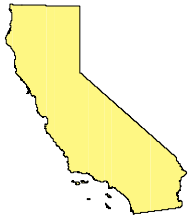
DPR's Pesticide Regulatory Program is the functional equivalent of the California Environmental Quality Act (CEQA)

- Regulated use of restricted materials require an EIR.
- Program carried out jointly by DPR and County Agricultural Commissioners (CAC) – approx. 325 County inspector biologists.
- Restricted Material Permitting is site, crop, chemical, & time specific.
- The CAC evaluates, mitigates, approves or denies permits; can recommend alternative chemicals or practices.
- Growers must submit a Notice of Intent 24-48 hours prior to any proposed restricted material application.



County Based Permitting

1. Permits – Site Identified. Permit evaluated, issued/denied.
2. Notice of Intent for Restricted Materials - Reviewed by CAC.
3. Pesticides applied by Grower/PCO.
4. All Pesticide Use reported to CAC.
5. Section-based Pesticide Use data reported to DPR.
6. DPR disseminates Section-based PUR data.



Annual Figures

In California there are approximately:

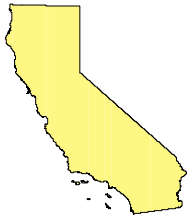
49,000 operator IDs/permits

189,000 unique site Ids

250,000 notices of intent for restricted materials

2,500,000 use records for all pesticides

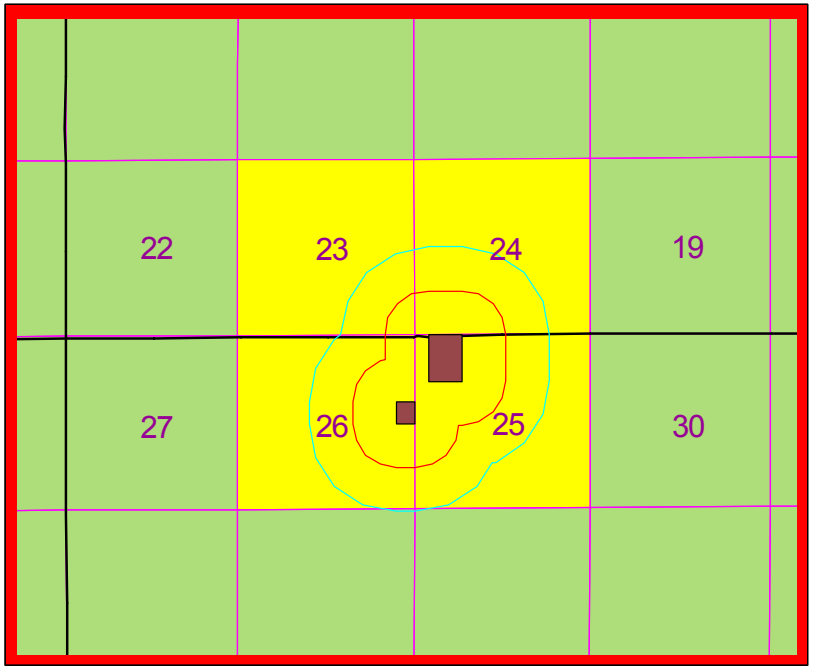
2002 data

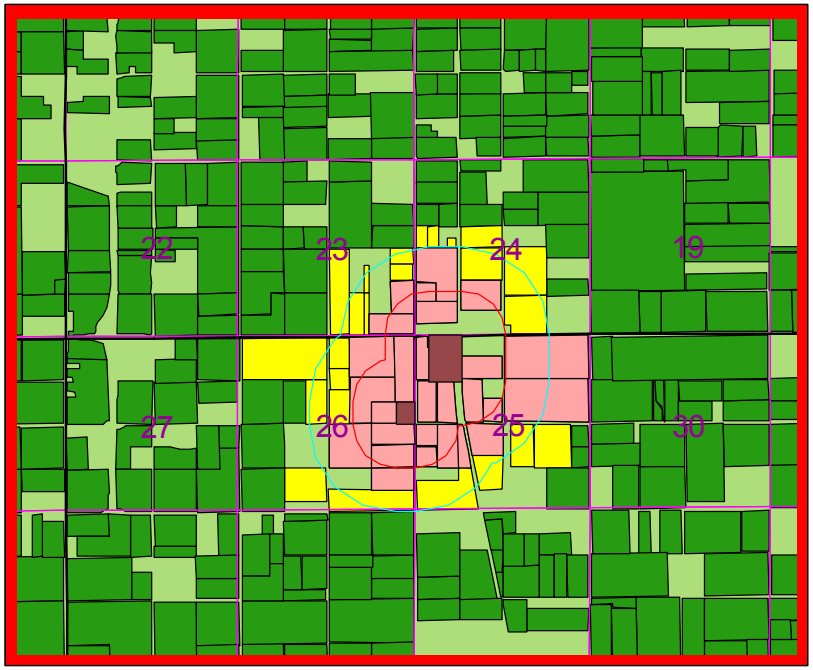


Why use GIS ?

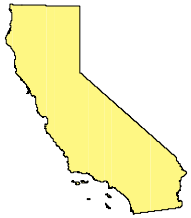
- Until recently PUR data collection in the counties had spatial resolution only to a square mile section, which has limited usefulness where distances are < 1 mile.
- PUR data reported to DPR still uses the square mile as the geographic component.
- CACs understand that improving the spatial resolution of pesticide applications from the current square mile section to an actual field site significantly improves their ability to regulate responsibly pesticide use at *the appropriate operational scale*.

Using section-based data has it's limitations. Field-based data improves spatial accuracy



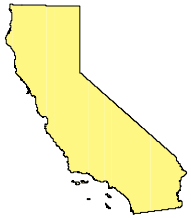


Schools
Sections
Roads
0.5 mile Buffer
1.0 mile Buffer



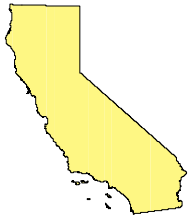
History and Progress

- In 1995 six CACs joined with DPR to establish the Permit Mapping Developers Group.
- The group's purpose was to develop guidelines and recommendations for the integration of GIS into the pesticide permitting and use reporting programs.
- One of the key focus points has been to standardize the way permitted sites are defined.
- DPR has coordinated this effort and provided leadership, technical expertise, training, and support to the CACs.



How is Spatial Data Collected?

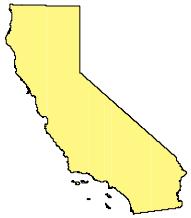
- Field border data are collected by each CAC, therefore data development is dependent on CAC resources.
- To ensure statewide consistency the DPR/CAC Developers Group has developed language for site definitions and guidelines.
- Data acquisition is time consuming and slow and is dependent on the availability of imagery and key base layers.



How is Data Collection Standardized?

Recommendations and guidelines for uniquely identifying permitted field sites using GIS have been developed:

- Site Ids do not have to be standardized, but there is a standard format that most CACs are following.
- Ideally a permitted site should be managed by *one* permit holder growing *one* commodity at any *one* time. However, guidelines have been developed for CACs who have to deal with sites where inter-planted commodities are grown, or where multiple growers and commodities are grown on small acreages under short rotation.
- Some CACs are now refining field boundaries to exclude certain features such as farm roads, farm buildings, headlands, etc.

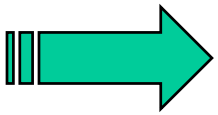


How is Data Collection Handled?

- In most cases, permits must be identified using poor hand drawn maps and questionable information. Once permitted sites are identified in the GIS, permit maps are standardized and the process of permit issuance becomes easier.
- CAC biologists use imagery and other data to identify sites, and then digitize them on-screen.
- Using GIS many CACs have identified and been able to correct a large number of inconsistencies in their existing RMPP Database using GIS.

Using GIS Permit Maps can be transformed from

A hand drawing



A digital representation

6754

STANISLAUS COUNTY DEPARTMENT OF AGRICULTURE

PERMITTEE Jim Anderson DATE 12-1-95 MAP I.D. M-1

12-6-96

ITEMS TO BE SHOWN ON MAP OF AREA TO BE TREATED:

Sec. 6
Twn. 4S
Rng. 11E

1. Adjacent crops and waterways.
2. Occupied buildings including schools, churches, dwellings and labor camps.
3. Areas occupied by animals including beehives, livestock and poultry.

Will 60 to T.J. Anderson

N

Pellerin

L-1 7 AC Almonds

House

Barn

M-1

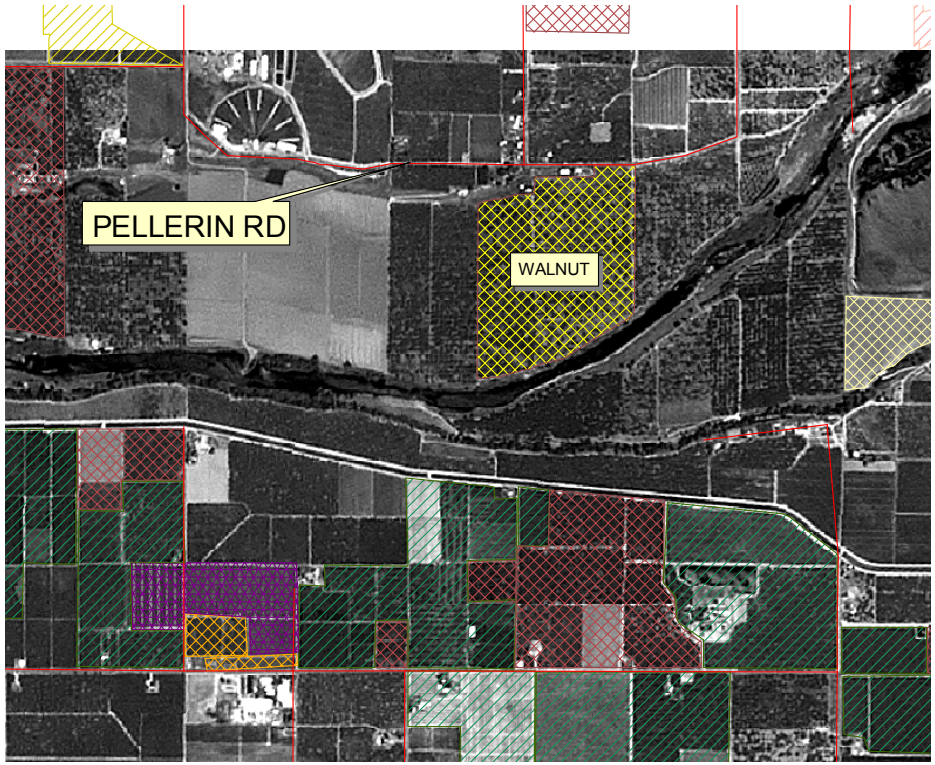
60 AC Walnuts

Oats N

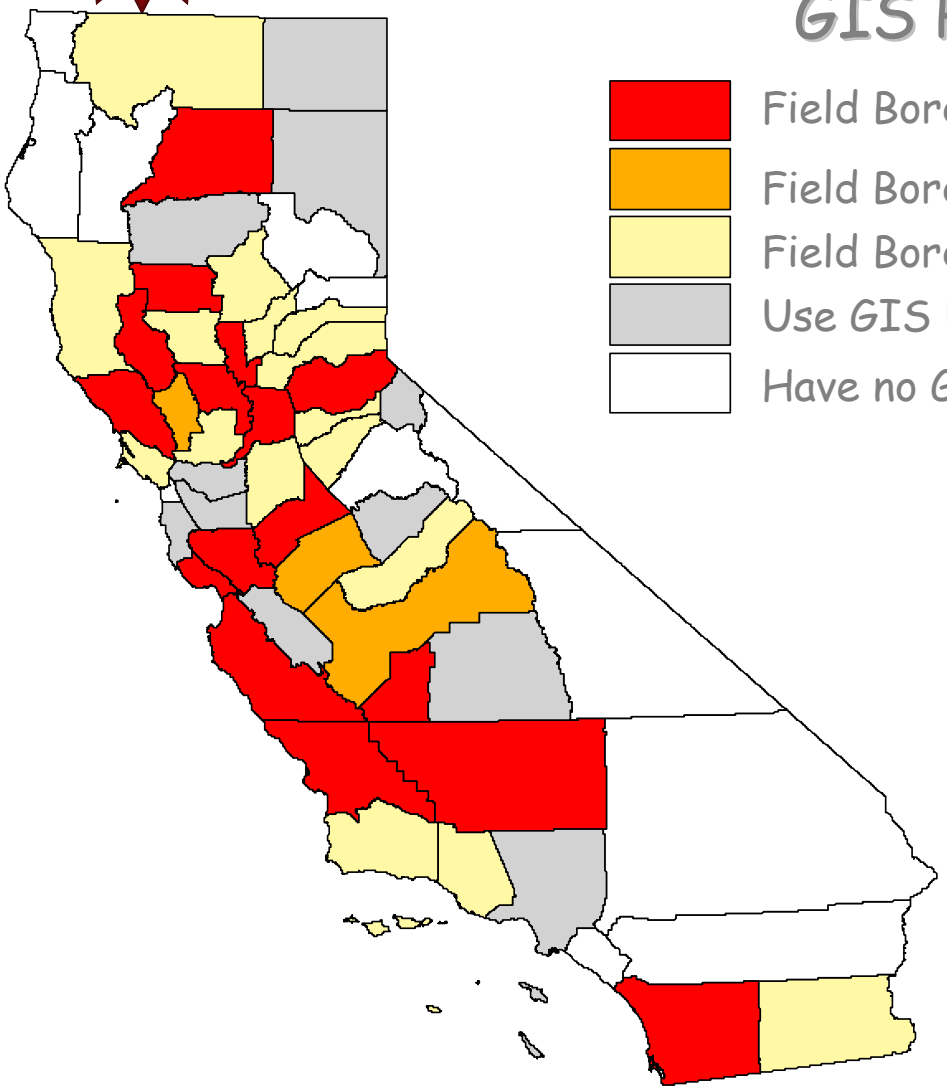
Walnuts

Touloume River

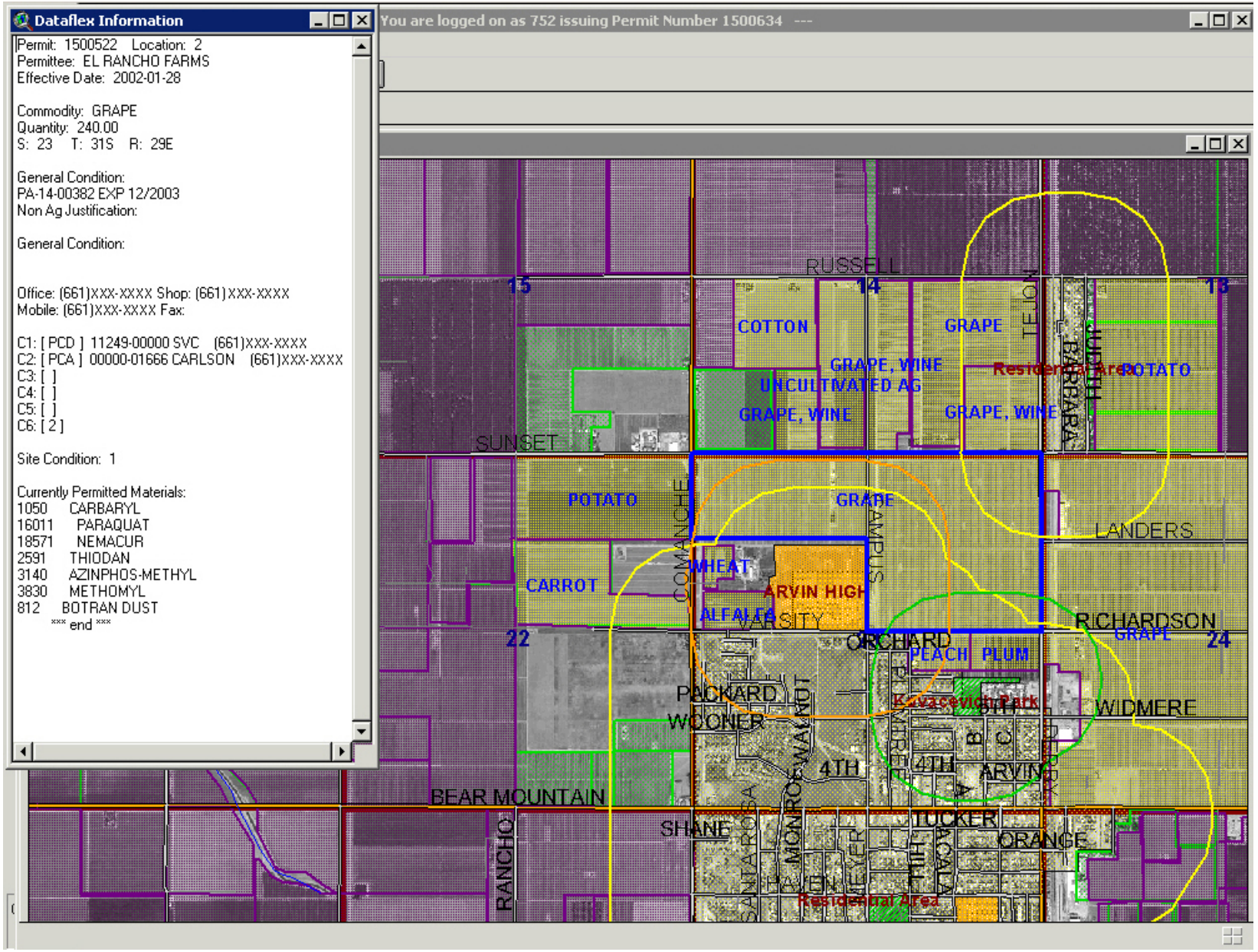
S



46 CACs using GIS in 2004



KGIS – ArcView 3.x Online Permit Issuance Application



SCAMP - Sonoma County Automated Mapping Program -- agcomm - Microsoft Internet Explorer provided by County of Sonoma IE 5.5 SP2

File Edit View Favorites Tools Help

Back Search Favorites Media

Address ://sc-gis/scamp/browse.jsp?action=3&maxx=6302501.14789798&maxy=1992642.69170179&minx=6301044.79027011&miny=1991509.96910234&accepted=Accept&mapaction=zoomin Go

COUNTY OF SONOMA

INFORMATION SYSTEMS DEPARTMENT

Powered by TOMCAT ArcIMS

SCAMP -- Sonoma County's Automated Mapping Program

Navigation Buttons:

- (•) Zoom In
- ( ) Zoom Out
- ( ) Pan
- ( ) Put Star

ZoomToCounty
Finder
Info
Layers
Submit Points
Bookmarks
Get Map
Image

Current Service:
agcomm

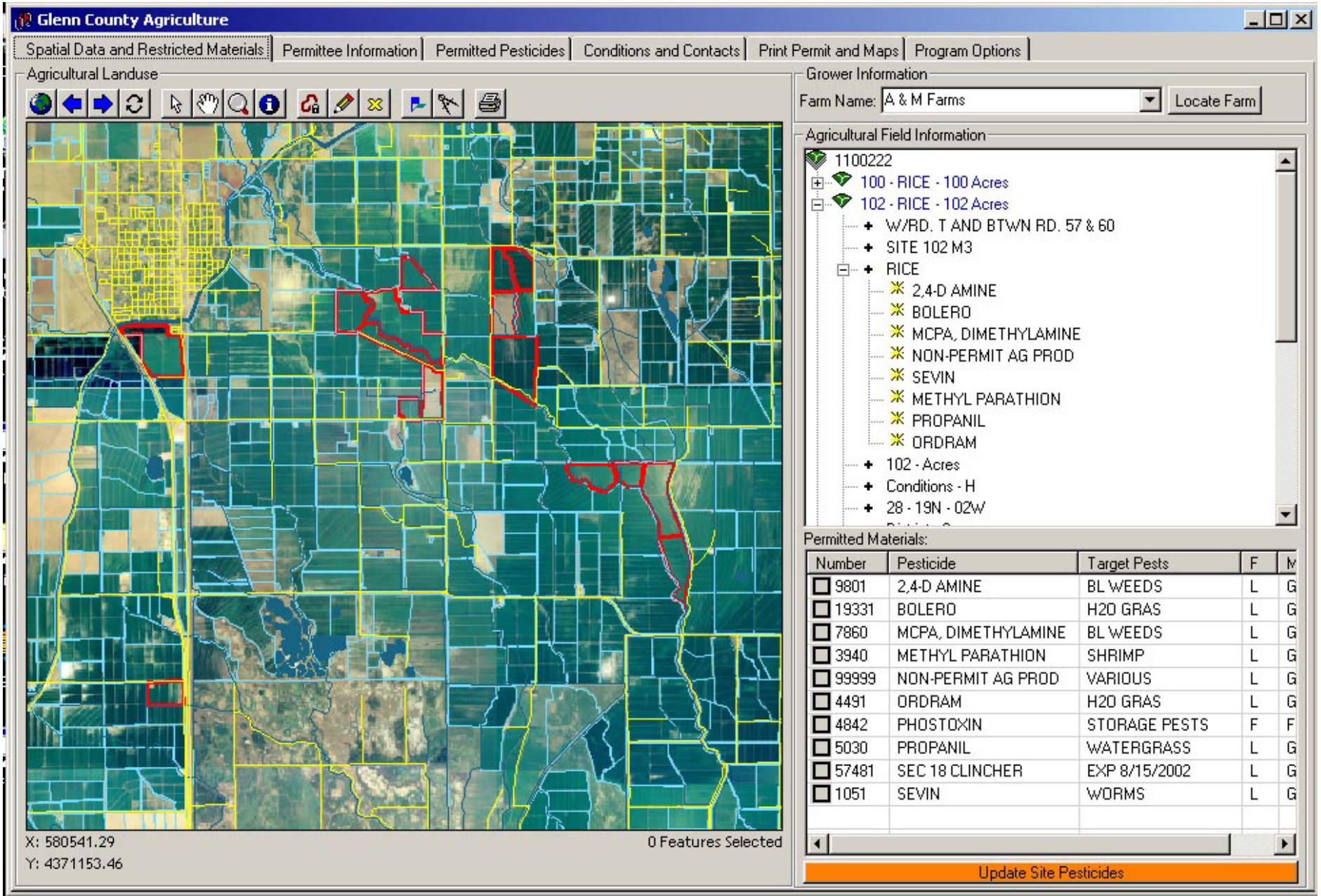
Map Services
HELP!
GIS Home

NW	North	NE
West		East
SW	South	SE

Disclaimer: The spatial boundaries depicted in this application are intended as a visual aid only. Official record of survey always takes precedence.

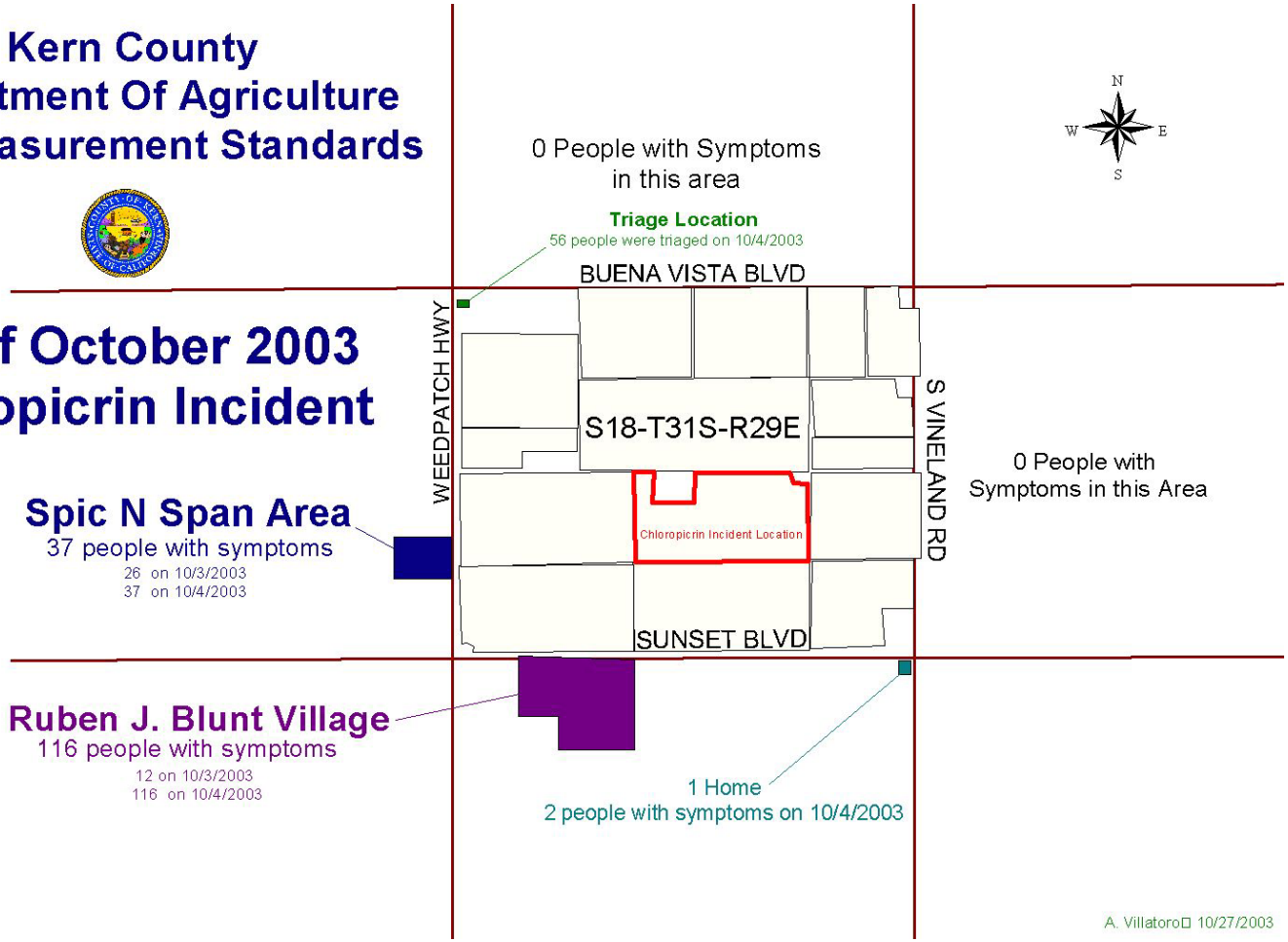
Local intranet

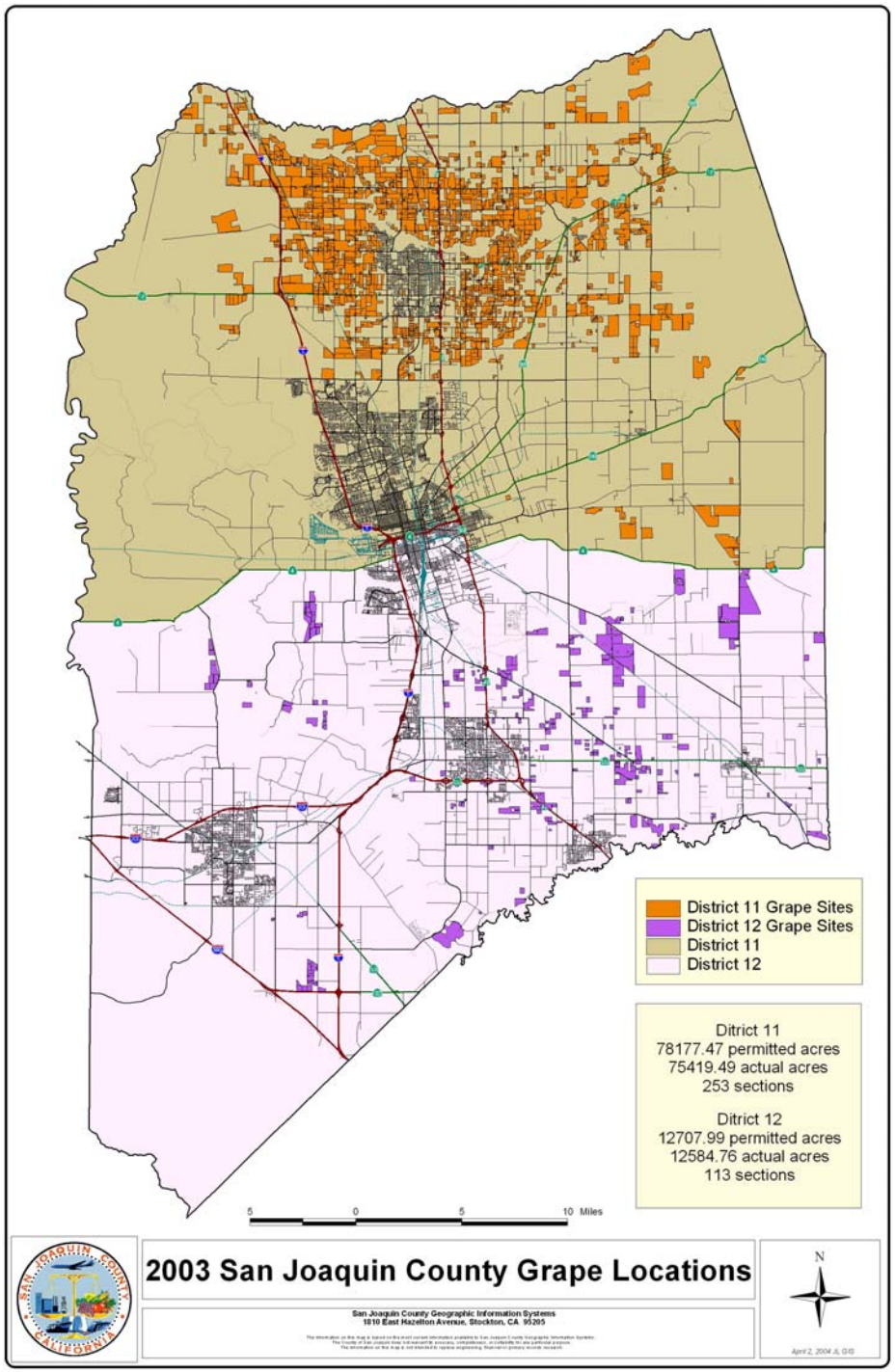
Glenn County ArcGIS/RMPP Application



Kern County Department Of Agriculture and Measurement Standards

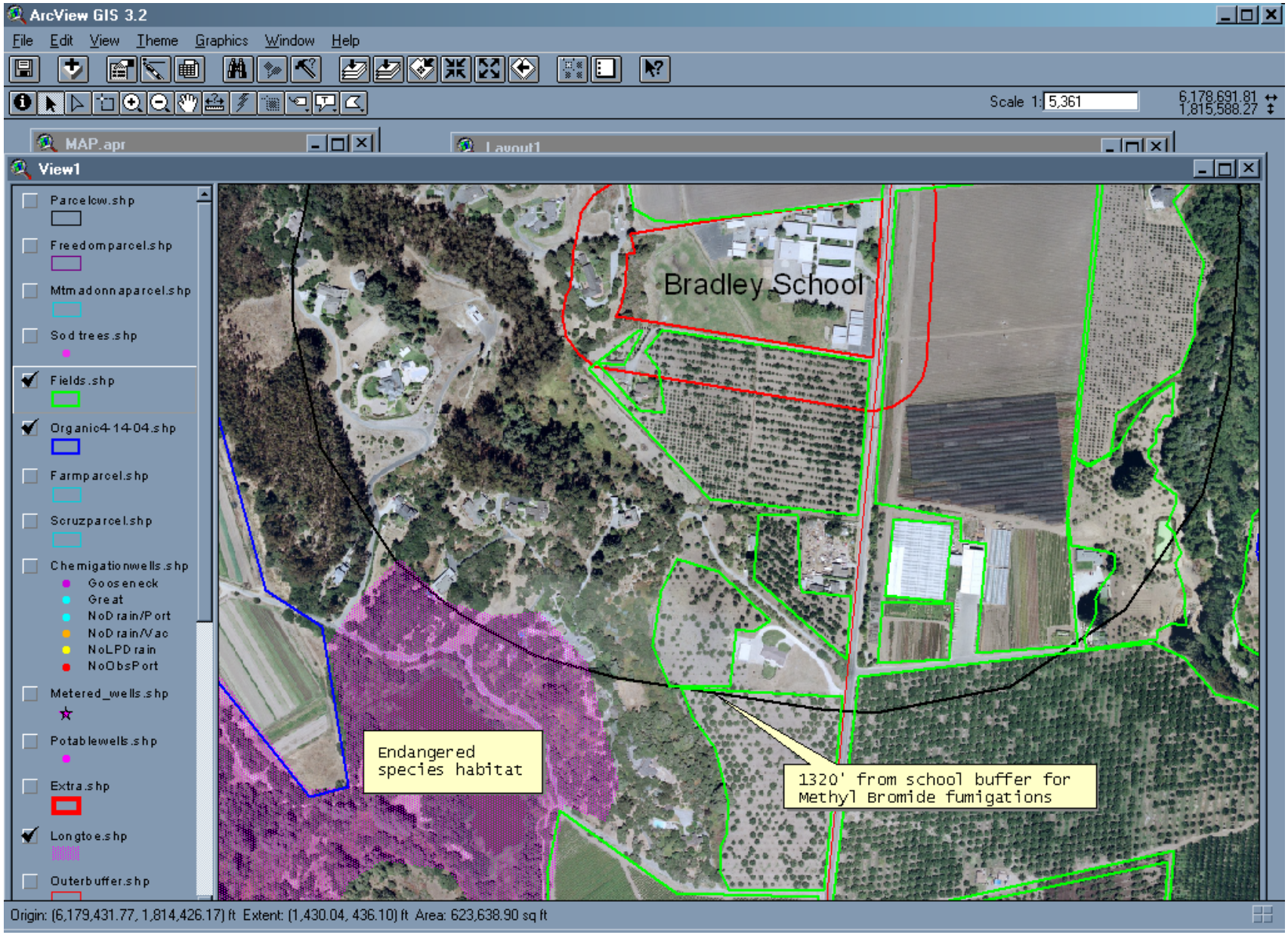
Map of October 2003 Chloropicrin Incident




District 11 Grape Sites
District 12 Grape Sites
District 11
District 12
Ditrict 11
78177.47 permitted acres
75419.49 actual acres
253 sections
Ditrict 12
12707.99 permitted acres
12584.76 actual acres
113 sections
5 0 5 10 Miles
2003 San Joaquin County Grape Locations
San Joaquin County Geographic Information Systems
1810 East Hazelton Avenue, Stockton, CA 95205
N
April 2, 2004 JL GIS

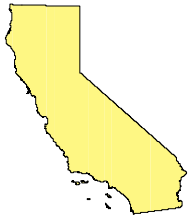
Methyl Bromide Notification

Environmental Mitigation



Statewide Permitting and Use Reporting System (SPURS)

- A collaborative effort among DPR and the CACs.
- The goal is to identify and implement a software solution that will support business processes for complying with environmental regulations for pesticide use.
- SPURS will be a GIS-based solution and will provide CACs with the ability to track pesticide use site- and time- specifically.
- Field Border & PUR data will be available through SPURS



DPR's Long-term Goals

- Continue to implement the Permit Mapping using GIS until it is statewide.
- Continue to address issues of statewide consistency and standards.
- Work cooperatively with other agencies to share data and resources.
- Address centralized shapefile warehousing and distribution issues at DPR.