

APPENDIX A: Pine Creek Management Practices Survey

The management practice survey for Pine Creek occurred in three phases starting in January 2006 and ending in February 2009. The goal was to identify, evaluate and document management practices that were specific and appropriate to activities and operations within the watershed. A monitoring site was established for Pine Creek at Gianella Road to determine the effectiveness of those practices in ensuring water quality objectives. Pine Creek is currently under management plans for *E. coli* and chlorpyrifos.

Phase I consisted of surveying the portion of Pine Creek that was in Butte County (see Figure 1). Actual on-site inspections of the drainage and farms were performed by the Butte County staff. Phase II required going into Tehama County to map, inspect and survey the parcels near the headwaters of Pine Creek. All information in the Pine Creek Management Practices Survey were transferred to a geographical information system (GIS) as part of the Phase III operations.

Figures 2 and 3 shows more detailed maps for the Phase II activities. Part of the Phase II activities included finding discharge points from irrigated areas to Pine Creek itself (Figure 4). Due to limited resources, priority was given to transferring all of the management practice data from spreadsheets to the GIS system to create visual layers. The Tehama County information is in the database, but Tehama lacked GIS capabilities and resources. A summary of the management practices observed for the Tehama portion of Pine Creek (Phase II) is attached as Exhibit E.

The table below lists the percentage of sites observed using specific management practices compared to all inspected Pine Creek sites. The surveyed area has multiple agricultural crop types which includes orchard, field crops and range land. Since different agricultural crops utilize different management practices, the stated percentage is an average representation and highly generalized.

Pine Creek Summary of Management Practices Survey

Management Practice	Percent of sites surveyed with practice ¹
Irrigation management practices	
Drip system	17%
Micro sprinkler system	30%
Retention pond	30%
Closed system	39%
Reclaimed surface water	31%
Runoff management practices	
Constructed levees or berms adjacent to creek	83%
Discharge controls	43%
Filter strip/buffer	43%
Pesticide application	
Nozzle calibration	86%
IPM practices	91%
Nutrient management	38%

¹ Exceeds 100% per category due to multiple system use at a site.

Attached:

- Figure 1. Pine Creek, Phase 1 Survey Area
- Figure 2. Pine Creek, Detailed map
- Figure 3. Pine Creek, Survey boundaries
- Figure 4. Pine Creek, Field discharge points and discharge points to creek
- Exhibit E: Inspection Report for Pine Creek including management practices observed
(Observations/Notes on page 2)

Figure 1: Pine Creek, Phase I Survey Area

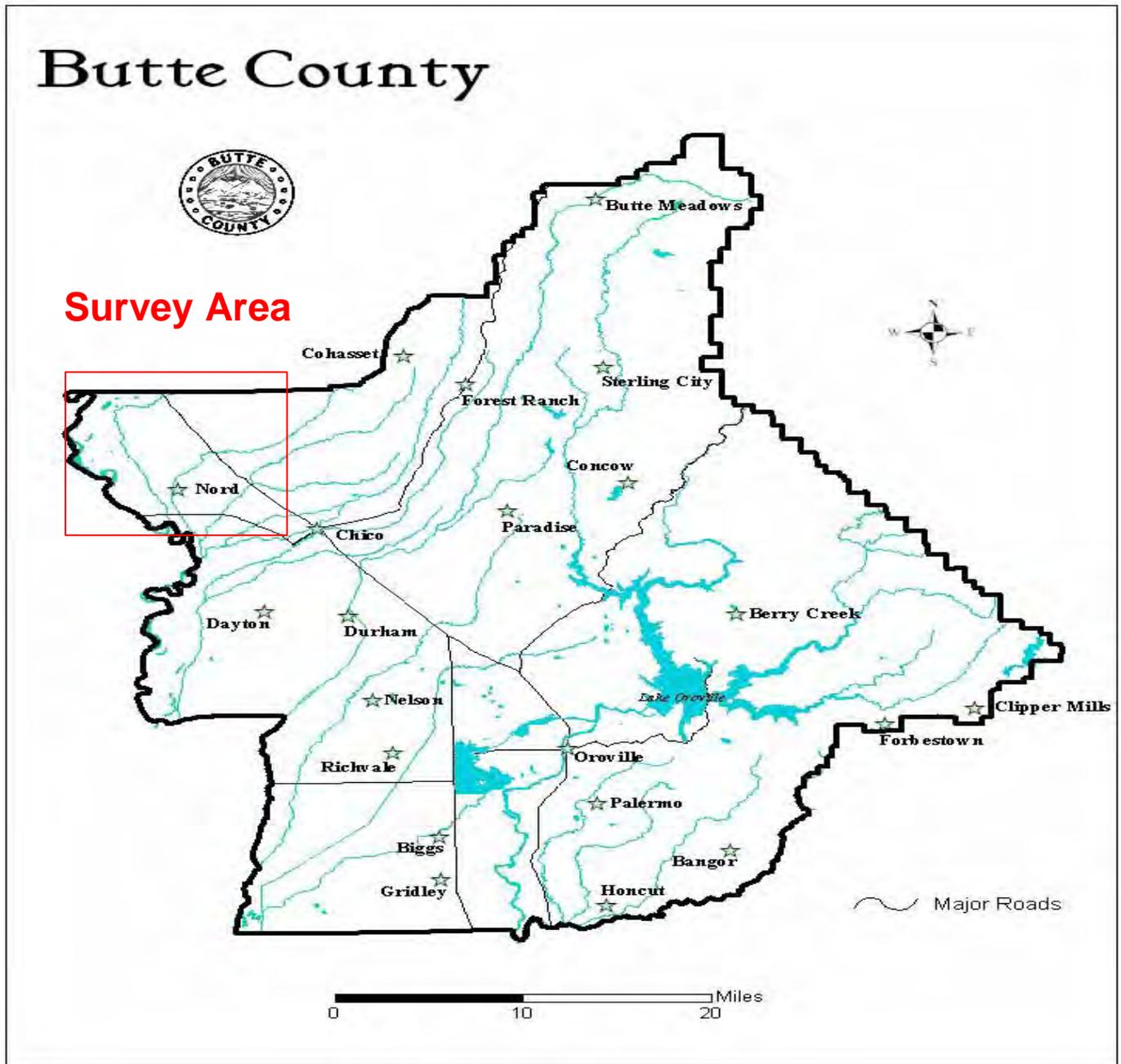


Figure 2: Pine Creek, Detailed Map



Figure 3: Pine Creek, Survey boundaries

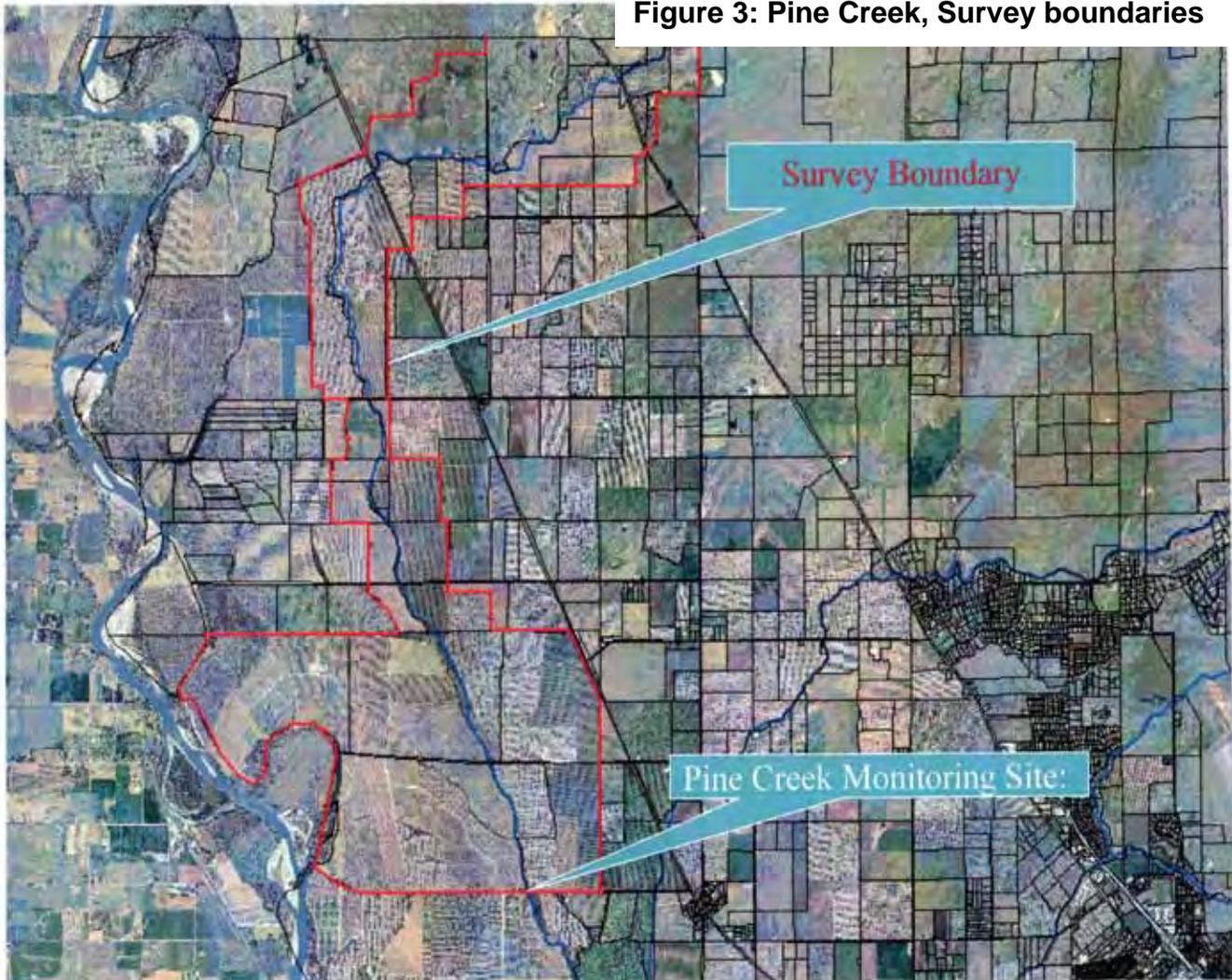


Figure 4. Pine Creek, Field discharge points and discharge points to creek

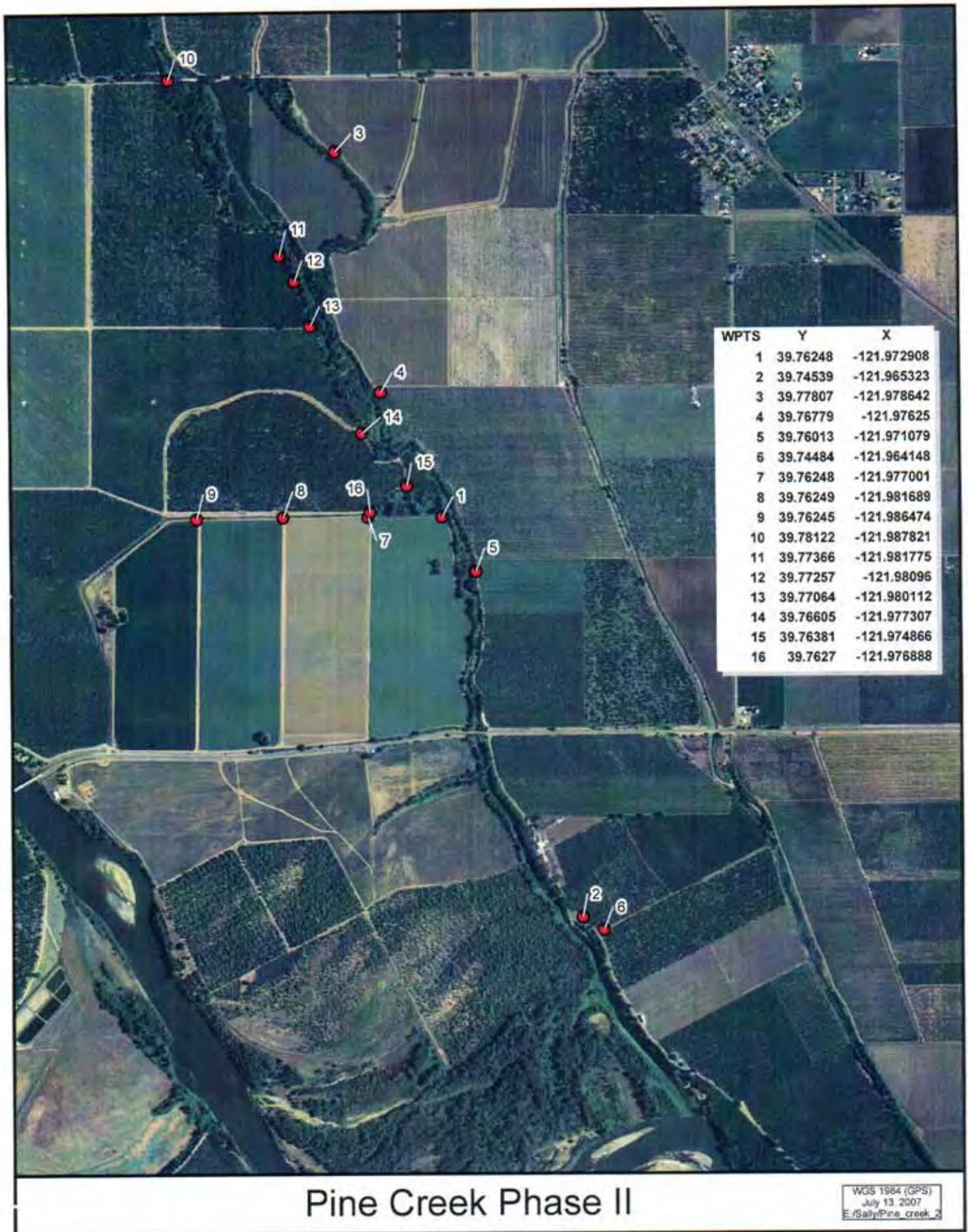


Exhibit E Inspection /Investigation Report

Butte County Agricultural Commissioner
 Performed for Central Valley Regional Water Quality Control Board

Property Owner/Contact(s): Butte County Agricultural Department Sacramento Valley Water Quality Coalition Phone Number: 530-538-7381		Location (address, parcel number, GPS coordinates) Pine Creek Monitoring Site Lat: N 39° 46.882 Long: W 121° 49.259	
Date of inspection: 08/20/07	Start Time N/A	End Time N/A	Inspected by: Mike Brown and Robert Hill
Reason for inspection: Exhibit A, Scope of Work Task 2B and 5B ○ Identify, evaluate and document management practices that are specific and appropriate to activities and operations within watershed. ○ Assist Water Board staff by providing information and input that will further the implementation of the Irrigated Lands Program.			
Crop/livestock/location/acreage/irrigation method: See attached: Survey Data Spreadsheet			
Observations/Notes: Part II of a visually survey of agricultural operations adjacent to Pine Creek for the presents of obvious Management Practices that have water quality improvement and protection benefits. <ol style="list-style-type: none"> 1. Starting at the Nord-Gianella Road Bridge. Pine Creek Monitoring Site, agricultural operations were surveyed on both banks of Pine Creek south to the confluence with the Sacramento River. 2. Obvious management practices listed on the survey forms (see attached) were documented, additional data was collected on: <ul style="list-style-type: none"> • Significant discharge points into the channel • Notable, significant hydrologic engineering (levees, dams, weirs) • Non agricultural parcels • Any other significant feature 3. The survey data from part I and II was combined, compiled, summarized and is available in the attached documents: <ul style="list-style-type: none"> • Survey Summary chart • Survey overview and conclusions • Pine Creek survey forms • A CD containing electronic copies and a PowerPoint presentation of the survey 			

Exhibit E Inspection /Investigation Report

Observations/Notes:

Survey Overview

- 14.1 mile length of the creek surveyed
- 54 parcels surveyed
- 50 parcels under agricultural permit
- 7 non agricultural parcel in the survey area some under ag permit
- 23 agricultural operations having restricted materials permits
- 12,332 total acres surveyed
- 7944 acres under cultivation
- 39 discharge points were documented
- 13 agricultural operations had discharge points directly to the channel (All had some form of discharge control devices)
- 8 agricultural operation had no observable discharge points directly to the channel
- All potential discharge area had heavy vegetation growth
- No significant hydrological engineering in the survey area
- Flow was present in Singer creek (from some source in Tehama County and not a result of discharge in Butte County)
- Back flow from the Sac. River was present in the lower 1 mile of Pine Creek
- There was 1 irrigation discharge to the creek observed

Survey Conclusions

Survey method conclusions:

- The seven MP survey items are likely the observation limits of this kind of survey.
- Any other type of management practice survey would require detailed examination of the agricultural operation.
- The possibility of discharge from secondary and tertiary, etcetera, parcels adjacent the drainage system is beyond the economic scope of this type of survey.
- 31.1 hours per mile of drainage, was required to develop, conduct the survey, analyze and organize the data.

Statistical conclusions about agricultural operations and observed management practices:

1. 91% of the agricultural land surveyed has been leveled
2. 83% had constructed levees or berms adjacent the creek
3. 96% had vegetative buffer areas, filter strips in place, varied in width from ~12 to+200 feet.
4. 83% had some kind of discharge control devise or features
 - 39% had no observable discharge points
 - 43% had discharge control devises or features of some kind
 - 17% had no discharge control.
5. 30% had irrigation retention / recharge pond areas or diversion ditches
6. 91% had metered irrigation systems
 - 70% Steel head impact sprinklers
 - 30% Micro sprinklers
 - 17% Drip system
 - 13% Gravity(Exceeds 100% due to multiple system use)
7. No other obvious notable management practice was observed

Exhibit E
Inspection /Investigation Report

Observations/Notes

Survey Conclusions

Other General Conclusions:

- Irrigation run-off / discharge does not appear to be a significant issue in this survey area.
- There needs to be a Singer Creek and possibly a Pine Creek monitoring site at the Tehama - Butte County line to monitor discharge passing from Tehama County into Butte County.

Ref. No. 2

APPENDIX B: Walker Creek Watershed Best Management Practices (BMP) Evaluation

The Walker Creek Management Practices Survey was started in January 2006 and completed by May 2008. Glenn County staff became knowledgeable and proficient with geographical information systems (GIS) and presented their final report showing different information layers to the Regional Water Board's Technical Issues Committee in August 2008. Inspections of all sites within the watershed were performed. All information was transferred to a GIS database. In addition, a Farm Site Self-Assessment form was sent to all growers within the watershed to provide additional information not readily visible during the site evaluation. This information would be available if additional outreach was necessary.

A Sacramento Valley Water Quality Coalition Group monitoring site for Walker Creek was established in 2005 and sampling continued to determine effectiveness of the observed management practices. In 2007, monitoring data for the Walker Creek site triggered a management plan requirement for chlorpyrifos when the 0.015 µg/L limit was exceeded twice in a three-month period.

When the evaluation was completed, an active ingredient query was performed for all reported pesticides applied in the watershed during the evaluation time frame. Results of the query indicated that the visual management practices observed in the watershed evaluation clearly have a beneficial effect on water quality. It can also be pointed out that the most obvious management practice being employed by growers centers around the importance of pesticide use at the time of economic thresholds and the proper application of the selected materials according to labels and regulations.

Attachment A is the Farm Site Self-Assessment form used by the Glenn County staff to generate information for additional outreach if necessary for the sub-watershed. Examples of the different layers that were created are shown in Figures 1 through 7.

Attachment A: Farm Site Self-Assessment

Attachment B: Layers in the Walker Creek ArcView Map (available information in GIS)

Figure 1: GIS layer showing Walker Creek Watershed (outlined in red)

Figure 2: GIS layer showing parcels surveyed (pink parcels)

Figure 3: GIS layer with surveyed parcels within ¼ mile of Walker Creek (pink with green outline)

Figure 4: GIS layer with Grower Information (surveyed parcel selected in green; inset shows field survey info)

Figure 5: GIS layer with Site Information (inset with site information including crop type, acreage)

Figure 6: GIS layer with surveyed parcels that applied chlorpyrifos between July and September 2007 (two exceedances of water quality objective during this period).

Figure 7: GIS layer showing surveyed parcels with sprinkler irrigation (pink with green outline)

Acres Surveyed: 27,128 (365 Sites)

Management Practice	Percent of sites inspected utilizing specific practices
Irrigation Management Practices	98%
Flood/Surface	74%
Micro irrigation/Drip system	8%
Sprinkler system	16%
Runoff Management Practices	
Proper Grading	89%
Constructed levees or berms	80%
Vegetative buffer areas/filter strips	56%

Attachment A:

FARM SITE SELF-ASSESSMENT

Coalition for Urban/Rural Environmental Stewardship

www.curesworks.org

Grower 1

Acres: _____

FARM SITE SELF-ASSESSMENT

Handling and applying pesticides carries important responsibilities, not only for doing the best job possible to control insects and diseases, but also for limiting the potential for surface water contamination (off site movement). Today, more than ever, public pressure and regulatory scrutiny is increasing on the activities we routinely perform on the farm.

This site assessment is intended to assist growers in identifying practices or site characteristics that may lead to off site movement of farm inputs such as pesticides and nutrients.

The questionnaire is intended only as a CONFIDENTIAL SELF-EVALUATION of your fields and practices.

The authors suggest reviewing this site assessment with a Pest Control Advisor (PCA) or Farm Advisor who is familiar with your farm management and pest control practices.

Coalition for Urban/Rural Environmental Stewardship

Farm Site

1) Have you made a visual evaluation of the surrounding area and fields to assess the runoff potential (from irrigation or storm water) of a field prior to a pesticide spray application?

Yes _____
 No _____ 1

2) Prior to an application do you check weather conditions and ask questions such as "Is it too windy?" or "Will it rain later today or tomorrow"?

Yes _____
 No _____

3) Prior to applying winter dormant sprays, what is the condition of your orchard floor?

	Acres This Year	Acres Next Year
Some Vegetation	_____	_____
Vegetated Cover with Sprayed Berms	_____	_____
No vegetation (disked)	_____	_____
No vegetation (not disked)	_____	_____

4) Do you contain runoff from your orchard(s) during winter storms and after dormant sprays, preventing runoff from entering nearby waterways?

Yes _____
No _____
No runoff on property _____

5) What type(s) of practices are used to lessen storm runoff from fields into ditches, canals or streams that flow into nearby rivers.

	Acres This Year	Acres Next Year
Vegetative Filter Strips Around Edges	_____	_____
Grass Row Centers	_____	_____
Tailwater Return System	_____	_____
None	_____	_____

6) In the past two years, have you practiced any mitigation measures (checking weather conditions, i.e. avoided spraying on windy days or when rainfall is imminent, checking droplet size/calibrating nozzles, maintaining setback zones) to reduce drift of pesticides to non-target areas?

Yes _____
No _____

7) Have you been informed of methods to reduce the potential of pesticides being carried into ditches, canals or streams that feed into nearby rivers?

Yes _____
No _____

Pest Management

1) Are pesticides used only when insect scouting or PCA indicates they are necessary?

Yes _____
No _____

2) Are populations of pests and beneficials considered when making pest management decisions?

Yes _____
No _____

3) Are economic thresholds (when applicable) considered when making pest management decisions?

Yes _____
No _____

4) Are UCIPM guidelines and/or other IPM information considered when making pest management decisions?

Yes _____
No _____

5) If you have an orchard near a sensitive waterway or with drainage to waterways, have you or your PCA considered alternative strategies to using diazinon or chlorpyrifos (Lorsban) in your spray program either during the dormant or growing season?

Yes _____
No _____

6) Do you normally spot treat pest-infested areas or treat an entire field to prevent further infestation?

Decision based on many variables _____
Spot-treat only _____
Treat whole field always _____

7) Are chemical rotation and insect resistance management considered in the decision to use a pesticide?

Yes _____
No _____

8) Is the most environmentally benign pesticide that is effective against a pest used after considering the factors in question 7?

Yes _____
No _____

9) Is crop rotation used to avoid buildup of pest populations?

Yes _____
No _____

Pesticide Mixing / Loading / Storage

1) What is the surface where pesticide or fertilizer mixing/loading takes place?

Concrete or asphalt pad that drains to a central sump _____
Concrete or asphalt pad _____
Field _____
Soil or gravel _____
Hard packed or paved road _____

2) What is the minimum distance between any pesticide or fertilizer mixing/loading area and any ditches, canals or streams that feed into nearby rivers?

Less than 20 feet _____
Between 20 and 100 feet _____
More than 100 feet _____

3) What is the minimum distance between any pesticide or fertilizer mixing/loading area and any deep well locations?

Less than 20 feet _____
Between 20 and 100 feet _____
More than 100 feet _____

4) Is the sprayer checked for cracked or broken hoses and is the drain plug in place prior to filling the tank?

Yes _____
No _____

5) Is the tank filled to overflowing?

Yes _____
No _____

6) How do you prevent tank overfilling?

Stop when it foams over _____
Keep a close watch _____

7) Do you use an airgap between the fill tube and the tank?

Yes _____
No _____

8) During mixing and loading how full is the tank prior to the addition of chemicals?

One-third to one-half full _____
Two-thirds full _____
Full _____

Pesticide Mixing / Loading / Storage (continued)

9) Is someone present during pesticide or fertilizer mixing/loading operations to watch for spills and other mishaps and to take corrective action?

Present entire time _____
Present most of the time _____
Start filling, leave and return after set time _____

10) Are you and your employees aware of the necessary corrective action when a spill occurs?

Yes _____
No _____

11) Do you use a closed system when required?

Yes _____
No _____

12) Do your pesticide and fertilizer storage areas have spill containment capability to protect from runoff into any nearby surface waters?

Yes _____
No _____

13) What type of floors are in your pesticide and fertilizer storage areas?

Impermeable surface with curbs (coated or sealed concrete is best) _____
Impermeable surface without curbs, no _____
cracks _____
Impermeable surface with curbs, some _____
cracks _____
Permeable surface _____

Sprayer Equipment and Spraying

1) How often is spray equipment calibrated?

Prior to each application _____
Once per month _____
Once per year _____
Never _____

2) Are spray nozzles adjusted to match the crop canopy profile?

Yes _____
No _____

3) When spraying young orchards, are top nozzles shut off to minimize overspray and conserve materials?

Yes _____
No _____

4) Are outside nozzles shut off when spraying outer rows next to sensitive sites?

Yes _____
No _____

5) In the past two years, what type of sprayer(s) did you use for orchard or row crop application(s)?

Electronic controlled sprayer nozzles (e.g. Smart Sprayer) _____
Conventional Airblast _____
Aerial _____

6) Are nozzles used that provide the largest effective droplet size in order to minimize drift?

Yes _____
No _____

7) How many acres of dormant pesticides are applied with ground equipment?

Acres This Year	Acres Next Year
_____	_____

8) Have you been informed through your PCA, farm input supplier or grower meetings about recent changes in the Diazinon label that no longer allow for aerial applications?

Yes _____
No _____

Sprayer Equipment and Spraying (continued)

9) How many acres sprayed with dormant pesticides are within 100' upslope of any surfacewater, including ag ditches?

Acres This Year	Acres Next Year

10) Are the first 3 rows closest to waterbodies sprayed only when wind is blowing away from the waterbodies?

Yes _____

No _____

11) Are air blast applications made only when wind is between 3-10 mph as measured with an anemometer on the side nearest and upwind from a sensitive site?

Yes _____

No _____

Sprayer Cleanup and Container Disposal

1) How do you dispose of rinsate from your sprayer(s)?

Mix with water and reapply to field _____

Store in hazardous waste container _____

In field, not prone to runoff, that can be disked _____

In field, more than 150 feet from surface waters _____

In field, less than 150 feet from surface waters _____

2) Where do you clean spray application equipment?

On a mixing/loading pad _____

On application site (rinseate re-applied to field) _____

More than 300 feet from surface waters _____

More than 150 feet from surface waters _____

Less than 150 feet from surface waters _____

3) How do you handle empty pesticide containers?

Triple rinsed, taken to landfill or recycling handler _____

Triple rinsed, then put on burn pile _____

Put on burn pile _____

4) Do you clean up pesticide and fertilizer spills promptly?

Yes _____

No _____

Runoff Management

1) Is vegetation planted or allowed to grow in and along drainage ditches to trap sediment?

Yes _____
No _____

2) Do you maintain vegetated filter strips at least 10' wide downslope of cropped areas that are adjacent to and within 100' of sensitive aquatic sites?

Yes _____
No _____

3) Are orchard dormant applications made when soil moisture is at field capacity and/or when a storm event likely to produce runoff is forecast to occur within 48 hours after application?

Yes _____
No _____

4) Are appropriate slopes, tillage, furrow lengths, and irrigation set times used to optimize irrigation efficiency and reduce runoff?

Yes _____
No _____

5) Do you use drainage basins (sediment ponds) or wetlands to capture and retain runoff for at least 72 hours?

Yes _____
No _____

6) Are tailwater return systems utilized to recirculate and reapply irrigation runoff to other fields?

Yes _____
No _____

7) Is Polyacrylamide (PAM) used to increase water infiltration, and reduce furrow erosion and sediment levels in runoff?

Yes _____
No _____

8) Are irrigations scheduled according to actual moisture levels or by the calendar?

Yes _____
No _____

Nutrient Management

1) Prior to planting are soil samples taken to determine amounts of nutrients currently present in the soil?

Yes _____
No _____

2) Are fertilizer applications based on crop needs and past crop production versus production goals?

Yes _____
No _____

3) Are plant tissue samples taken mid to late season to determine the plant's fertilizer needs?

Yes _____
No _____

4) Is nitrogen supplied in excess of total crop needs?

Yes _____
No _____

5) Are fertilizers placed where maximum plant uptake can occur?

Yes _____
No _____

6) When injecting fertilizer into irrigation water are proper backflow devices installed?

Yes _____
No _____

7) Before application are applicators made aware of any sensitive areas that need to be avoided during application?

Yes _____
No _____

Manure Management

1) Do you currently make applications of manure to your irrigated land?

Yes _____
No _____

2) Who is most responsible for making decisions about the application of manure for your operation? (Please check only one)

Owner _____
Employee _____
Other _____

3) Who actually applies the manure for your operation? (Please check only one)

Owner _____
Employee _____
Contractor _____
Other _____

4) Please check all the manure types that your agricultural operation has applied in the past 5 years.

Dairy _____
Chicken _____
Other _____

5) Please check all the manure types that your agricultural operation will likely apply in the next 5 years.

Dairy _____
Chicken _____
Other _____

6) What is the average rate per acre of manure that you apply annually?

Dairy _____
Chicken _____
Other _____

7) Within your agriculture operation, do you see a trend away from the use of manure?

Yes _____
No _____

Manure Management (continued)

8) How much, if at all, has manure degraded surface water quality in your area?

A lot _____
A little _____
None _____
Unknown _____

9) How close are surface water ways (creeks, drains, irrigation ditches or canals, etc) to the fields where you apply manure?

Adjacent _____
Very close (< 100 ft) _____
Close (< 300 ft) _____
Distant (> 300 ft) _____

Continuing Education

1) Have you read the Stewardship Bulletin "Orchard Practices for Protecting Surface Water"?

Yes _____
No _____

2) Is the Stewardship Bulletin "Orchard Practices for Protecting Surface Water" available to handlers and equipment operators at the application site during all application activities?

Yes _____
No _____

3) Which of the following management practices (sometimes referred to as "Best Management Practices" or "BMPs") do you most frequently implement to protect surface water quality? (Check all that apply)

Soil Nutrient Analysis _____
Nutrient Management Plan _____
Vegetated Ditches / Grass Swales _____
Agronomist's Advice _____
Commodity-Specific Training Sessions _____
CCA Fertilizer Recommendation _____
Tailwater Return System _____
PCA Recommendation _____
Sprayer Calibration _____
Laser Leveling _____

4) If you are not already implementing the "BMPs" listed in question #9 above that are applicable to your operation, why not?

Convinced it will not work _____
Lack of available equipment _____
Cost of implementation _____
Lack of knowledge (for example, engineering) _____
Not applicable to my situation _____
Other _____

5) Are you interested in participating in a BMP effectiveness study if your expenses are covered?

Yes _____
No _____

6) Are you interested in receiving a free on-site consultation to identify potential BMPs that might be useful for your operation?

Yes _____
No _____

Continuing Education (continued)

Have you attended or completed the following?

7) NRCS, UCCE, or other Farm Water Quality training

Yes _____

No _____

Completed _____

8) NRCS or UCCE Farm Water Quality Plan

Yes _____

No _____

Completed _____

9) Erosion control training

Yes _____

No _____

Completed _____

10) Irrigation management training

Yes _____

No _____

Completed _____

11) Pest management training

Yes _____

No _____

Completed _____

12) Other training (identify)

County of **Glenn** Department of Agriculture

Mark D. Black, Agricultural Commissioner/ Sealer of Weights & Measures

Jean S. Miller, Assistant Agricultural Commissioner/Sealer of Weights & Measures

DATE: November 27, 2006
TO: Glenn County Grower
FROM: Lester Messina
SUBJECT: Watershed Management Practice Evaluation

The Central Valley Regional Water Quality Control Board (Board) has implemented the Irrigated Lands Program (ILP) in response to the conditional waiver for runoff from commercial agricultural properties that use pesticides. By now, everyone is familiar with the Sacramento Valley Water Quality Coalition (Coalition) and the Colusa Glenn Sub-watershed, the local administrative entity for the Coalition that coordinates water quality sampling in Colusa and Glenn Counties or the California Rice Commission Monitoring Program that concentrates their efforts in rice water quality. Sampling results over the past few years have been very favorable, indicating that there may not be as much of an impact from irrigated agriculture as previously thought.

In a related matter, the Board, the State Water Resources Control Board, the Department of Pesticide Regulation, and the Agricultural Commissioners of Glenn and Butte Counties entered into a Memorandum of Understanding (MOU) to create a pilot program to assist the Regional Board, in a non-regulatory manner, with the implementation of the ILP and provide input on agricultural practices within our counties. A work plan was developed from the MOU and the Counties entered into separate contracts with the Regional Board proposing specific tasks to perform and make recommendations or evaluate others. One such task is to document management practices in place used by growers that would have a positive effect on water quality to reduce runoff containing pesticides. Examples of pesticides that affect water quality are organophosphates (Diazinon, Guthion) or pyrethroids (Asana, Lorsban). There are many practices used that growers utilize intentionally and there are also practices that are unknowingly used in day to day operations. The documentation of these practices may be the most effective way of communicating to the Regional Board that pesticides are used in a safe and responsible manner.

In order to achieve this goal, staff from the Glenn County Department of Agriculture will be doing a management practice evaluation in the Walker Creek watershed during 2007. To provide backup to the evaluation, Walker Creek has been added to the Coalition's sampling locations (County Road 48). You are receiving this letter to inform you that your agricultural operation falls within the Walker Creek watershed and we will be contacting you in the near future to discuss the specifics of the evaluation. There may be some additional requests made of you at the time you get your restricted materials permit.

Your cooperation in this evaluation is greatly appreciated. This is an outreach program, and there will be no enforcement actions associated with the evaluation. In the meantime, if you have any questions or comments, please call Lester Messina or Lisa Hunter at (530) 934-6501.

720 N. Colusa Street
P.O. Box 351
Willows, CA 95988

Phone: (530) 934-6501
Fax: (530) 934-6503
Email: aacommr@countyofglenn.net

Attachment B

Layers in the Walker Creek ArcView Map

NovDec2007 – contains sites that applied pesticides between November 19 and December 19, 2007. This was based upon a request by the Colusa-Glenn subwatershed due to an aquatic toxicity during the storm season sample taken in December.

Glyphosate2007 – contains sites that applied glyphosate in 2007. Used for demonstration of how this program can be used to target particular types of growers for outreach purposes.

ChlorpyrifosJuly_Sept_2007 – contains sites that applied chlorpyrifos between July 19 and September 19, 2007. This was based upon a request from the Colusa Glenn sub-watershed because of 2 consecutive exceedances of chlorpyrifos.

PLS_WC – contains Section, Township, and Range information in the Walker Creek watershed area.

Alfalfa – contains all alfalfa fields located within the WalkerCreek watershed. Used for demonstration of how this program can be used to target particular types of growers for outreach purposes.

monitoring_points – contains sampling locations.

WalkerCreek Watershed – contains the boundary to the Walker Creek watershed.

Walker_Creek – contains an outline of Walker Creek, North Fork of Walker Creek and South Fork of Walker Creek.

taxparcl selection – contains boundaries of the tax parcels located within the Walker Creek watershed.

field_survey – contains all fields surveyed for the BMP evaluation.

Not_surveyed – contains all fields not surveyed in the BMP evaluation. This could be because the collective field size for that grower was less than 10 acres or because the field was not accessible.

Non-Attributed – contains all areas of the watershed that the county does not have a pesticide use permit. These areas could be rangeland, urban areas, habitat, organic fields, etc. Surveys were not performed in these areas.

Organic_fields – contains sites that are organic according to the county's organic registration information. This helped staff determine where there were gaps in the survey information.

nonattparcels – contains the parcel layer cut to match the Non-Attributed layer.

Streams – contains stream information for Glenn County. This layer was used to cut the Walker Creek layer.

Roads – contains Glenn County roads.

pu_request_april – contains sites that applied any pesticide for 30 days prior to the sampling event on April 17, 2007 within the watershed from County Road 33 to the sampling location on County Road 48.

Fields selection – contains all sites in the permitting program utilized in Glenn County. This gave staff a basis of fields to be surveyed and growers to be contacted.

Topo – contains topography layers for the Walker Creek area.

Sid – contains the image layers for the Walker Creek area.

Mosaic – contains black and white images for Glenn County.

Figure 1: GIS layer showing Walker Creek Watershed (outlined in red)

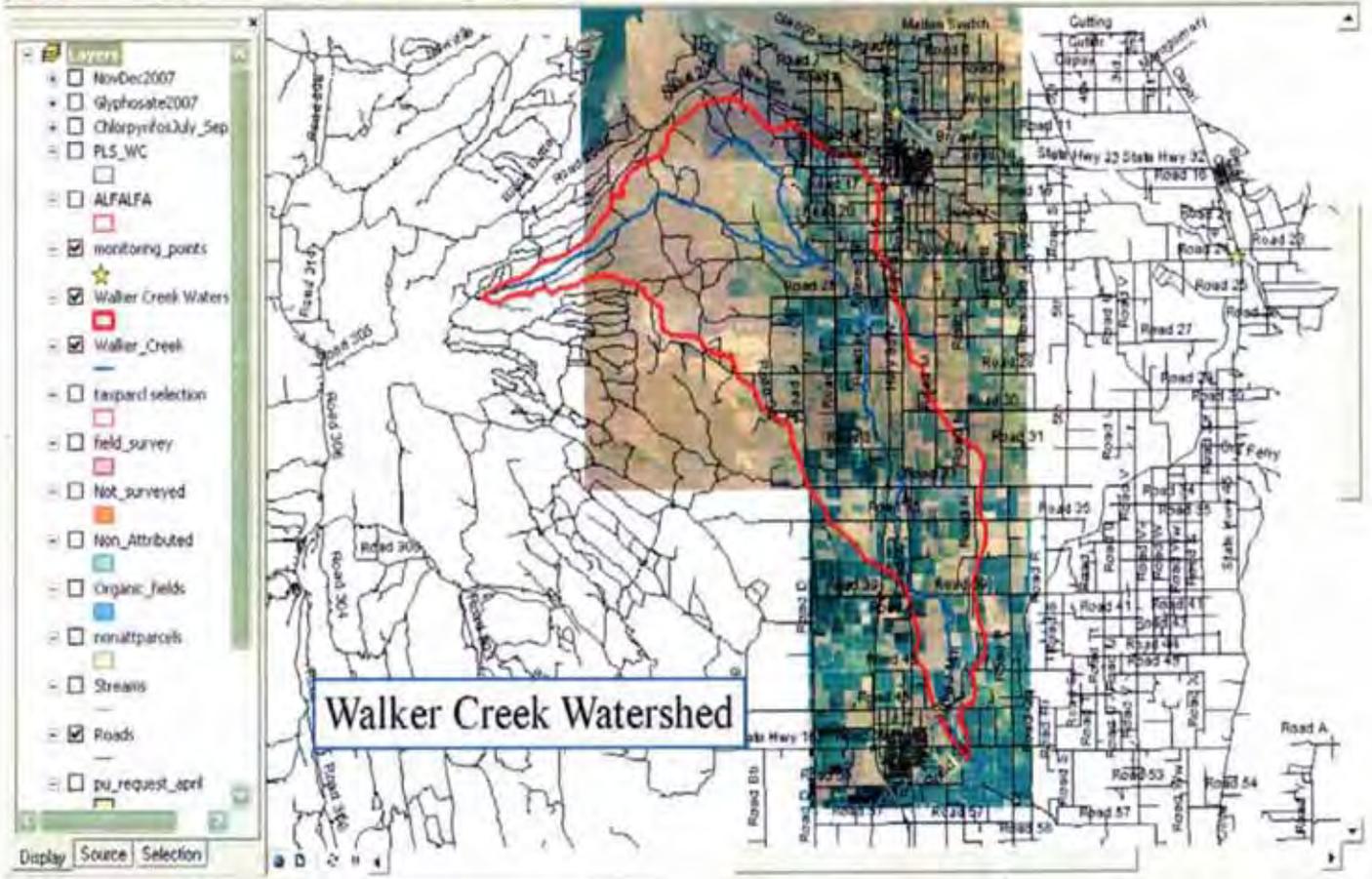


Figure 2: GIS layer showing parcels surveyed (pink)

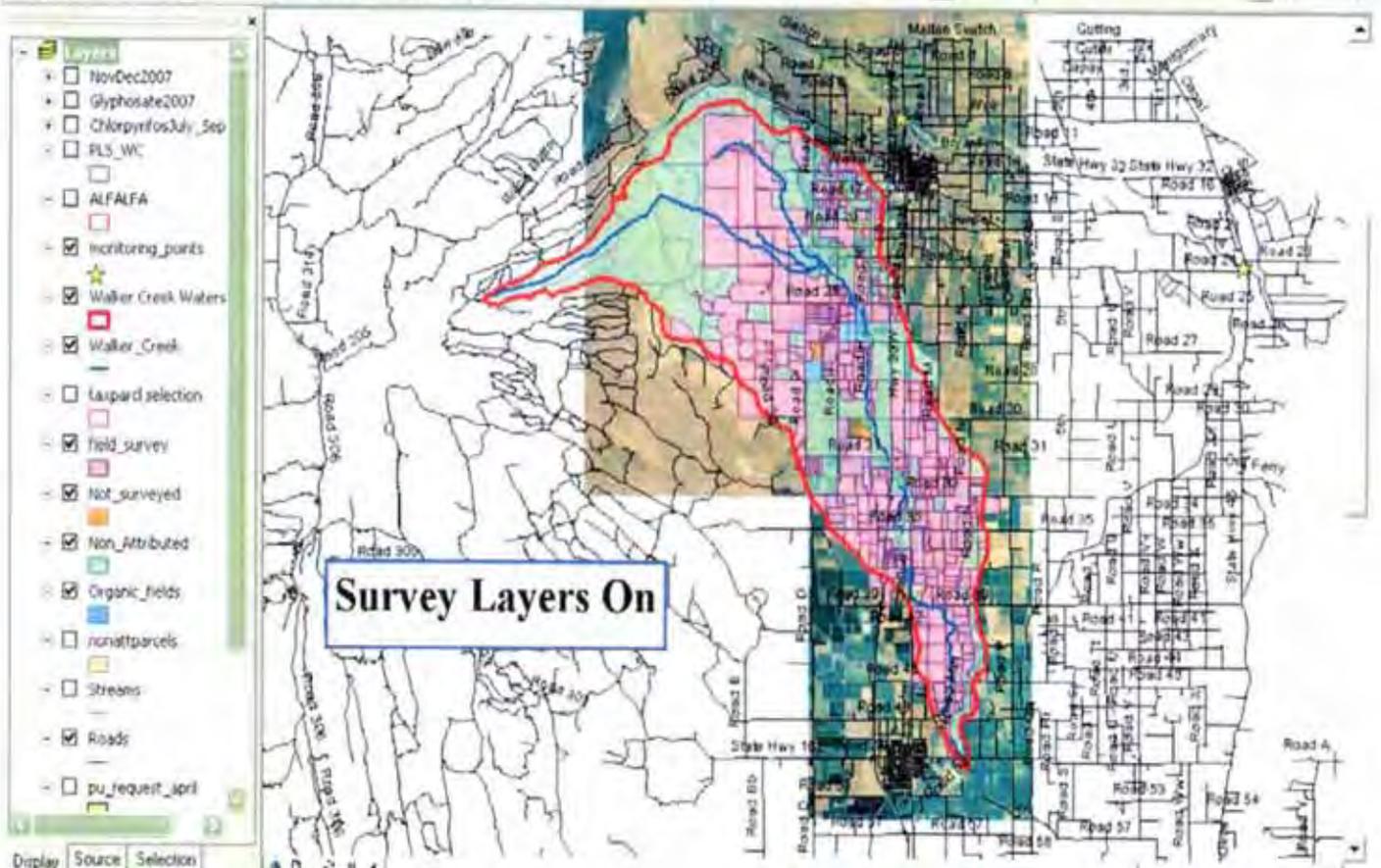


Figure 3: GIS layer with surveyed parcels within ¼ mile of Walker Creek (pink with green outline)

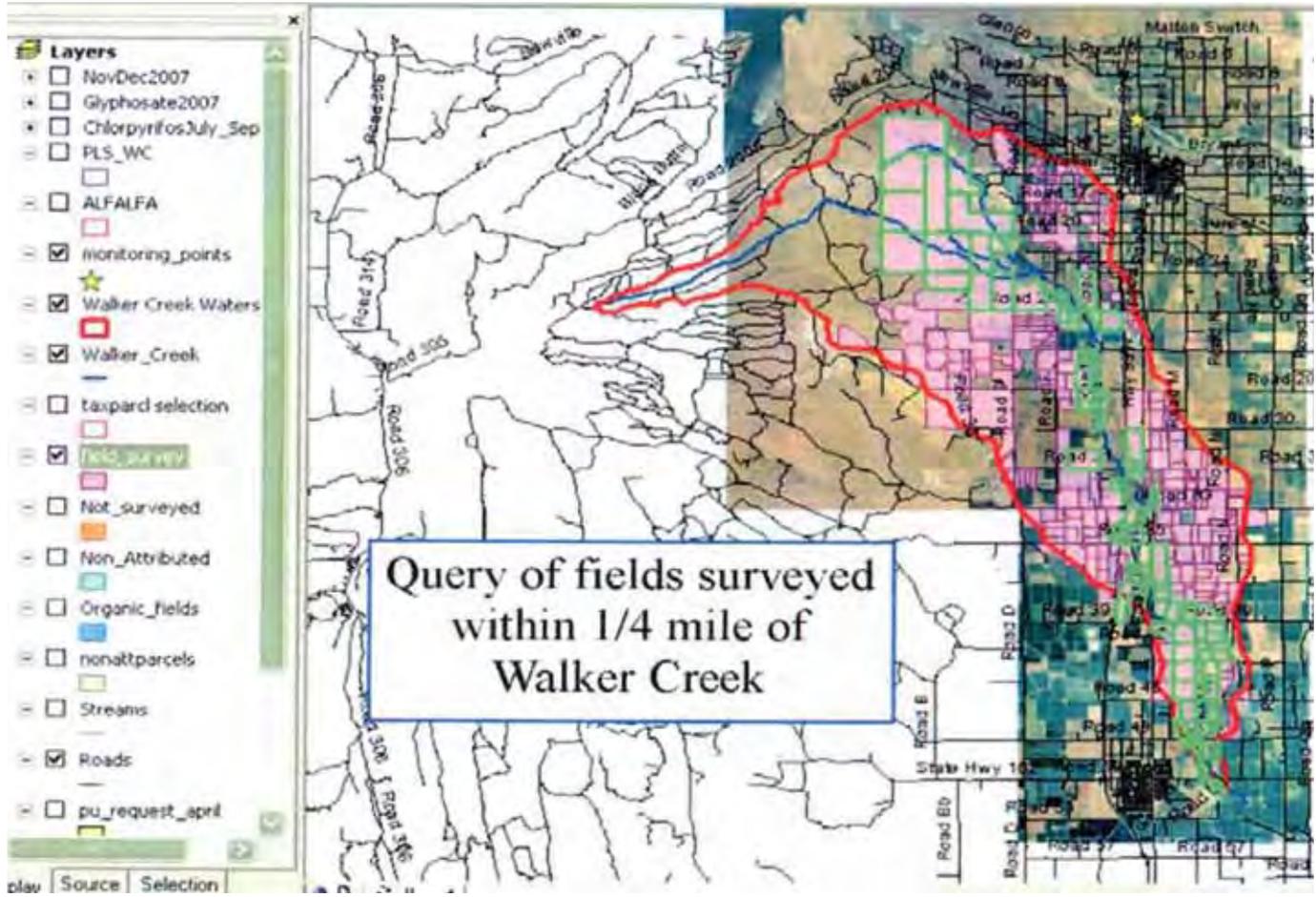


Figure 4: GIS layer with Grower Information (surveyed parcel selected in green; inset shows field survey info)

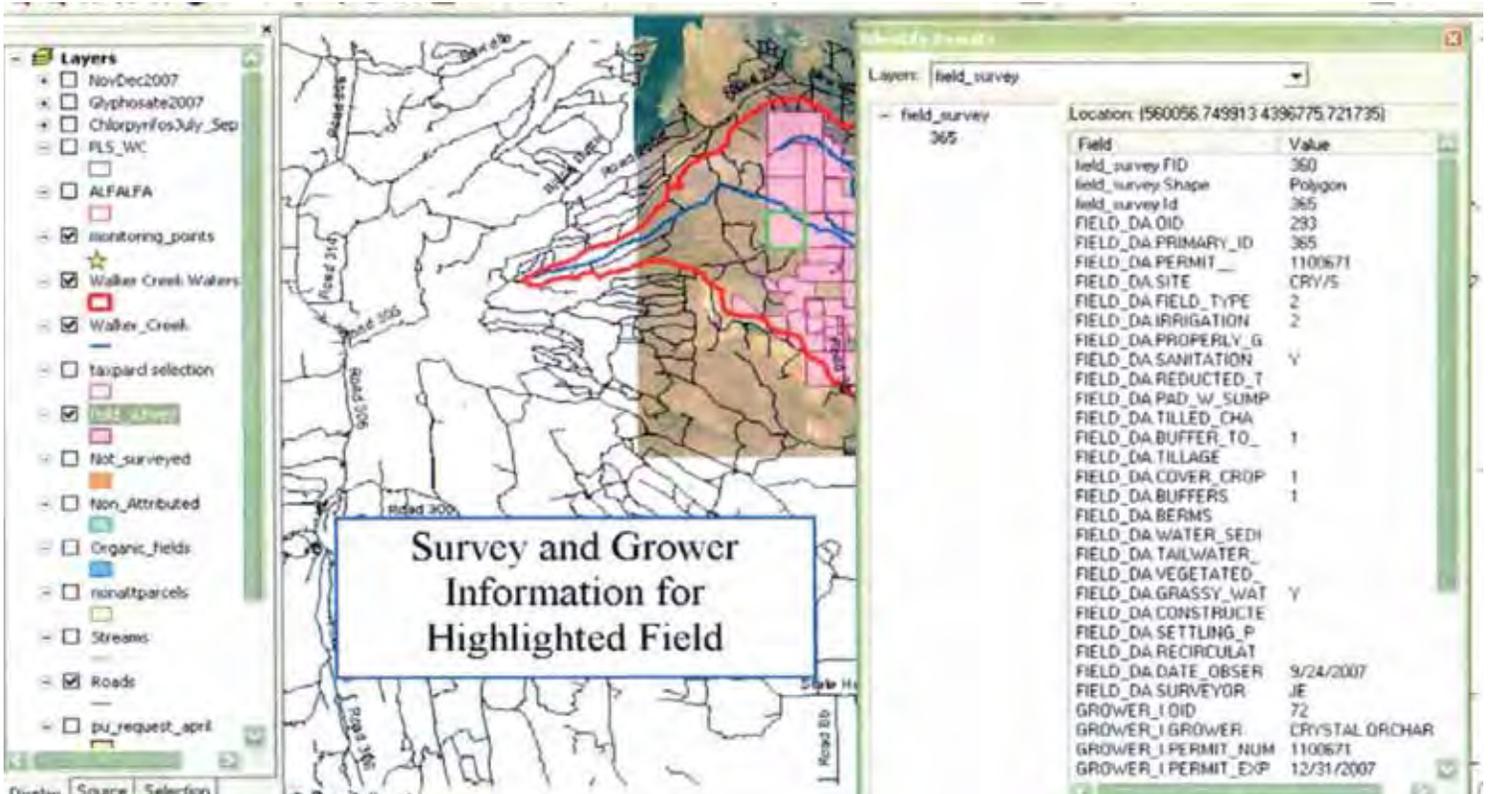


Figure 5: GIS layer with Site Information (inset with site information including crop type, acreage)

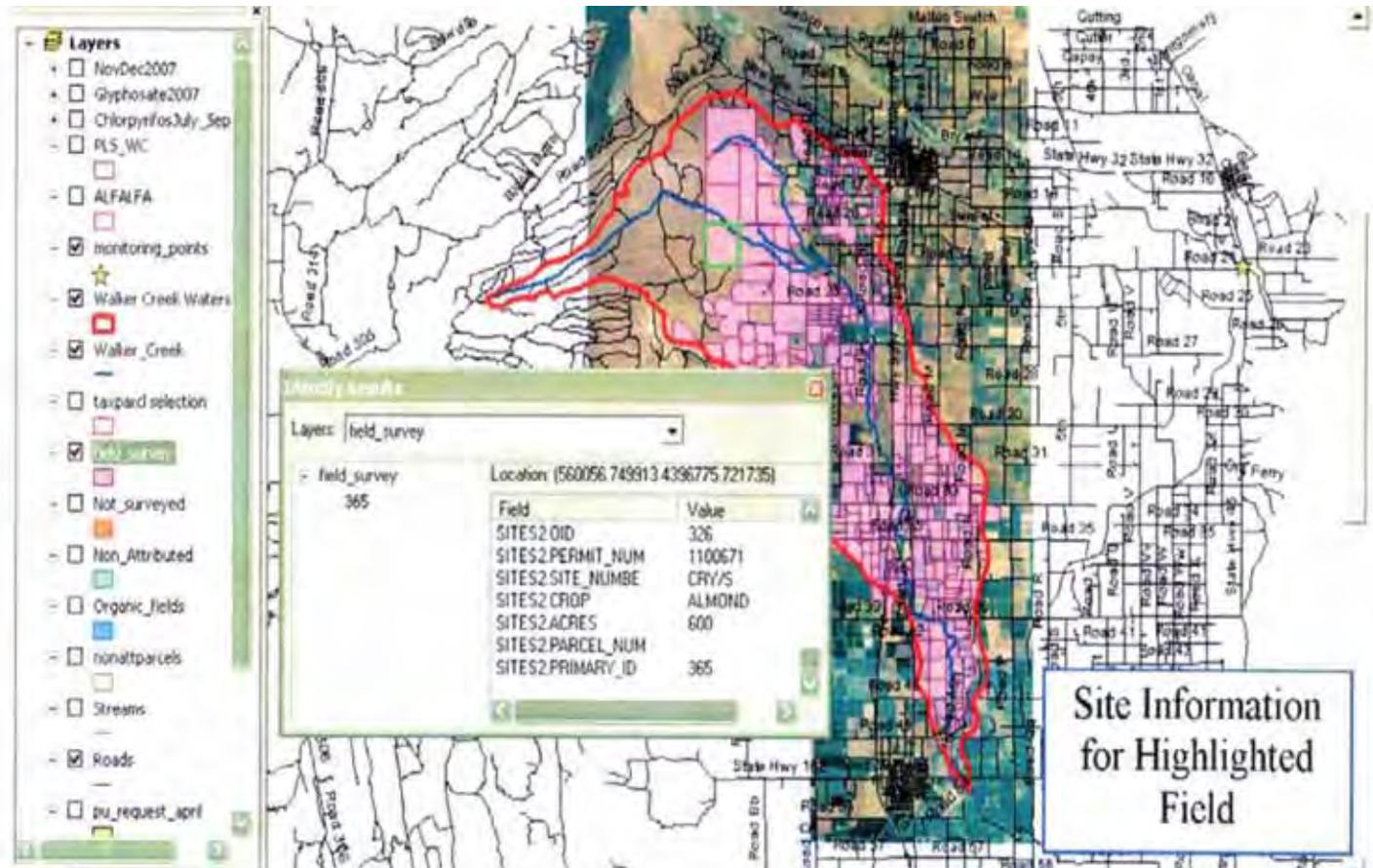


Figure 6: GIS layer with surveyed parcels that applied chlorpyrifos

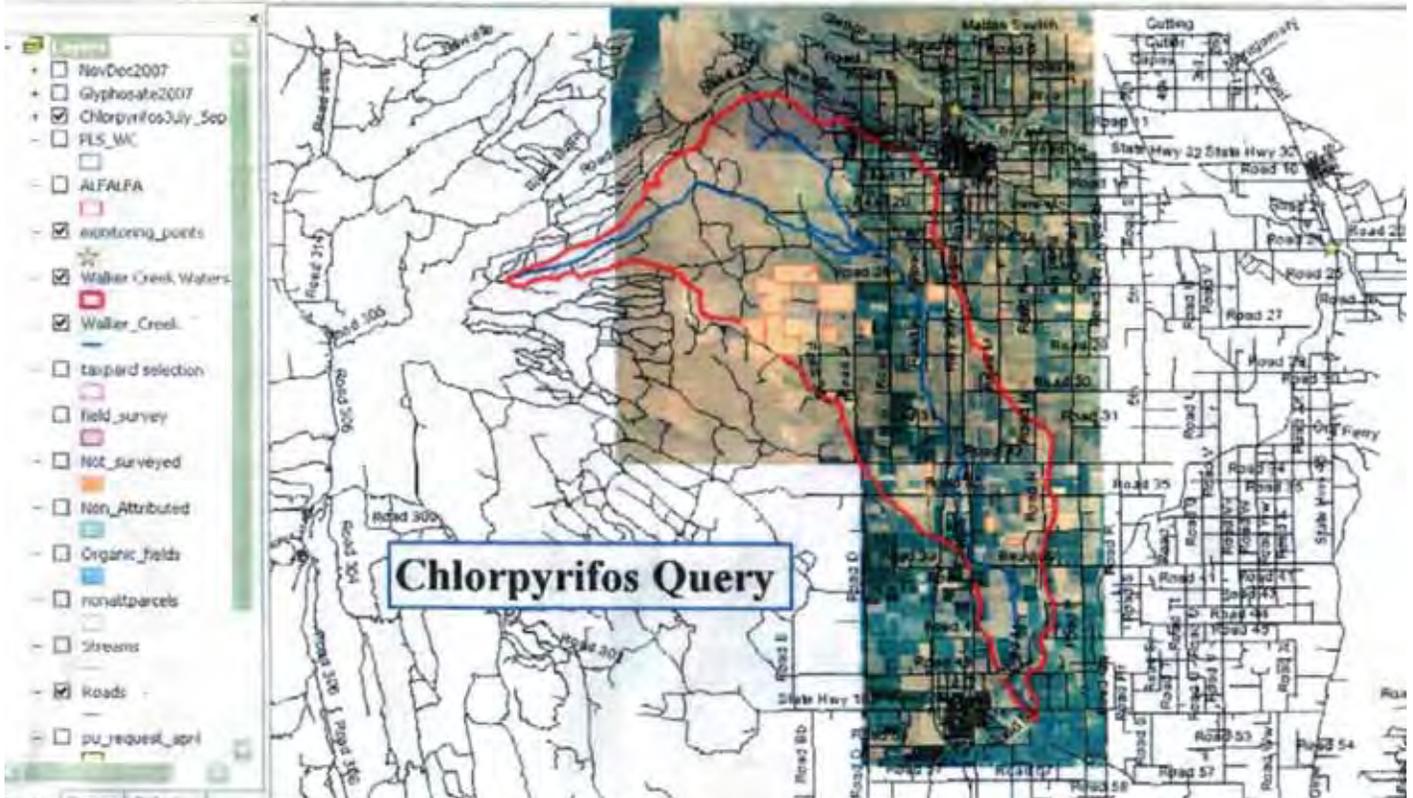
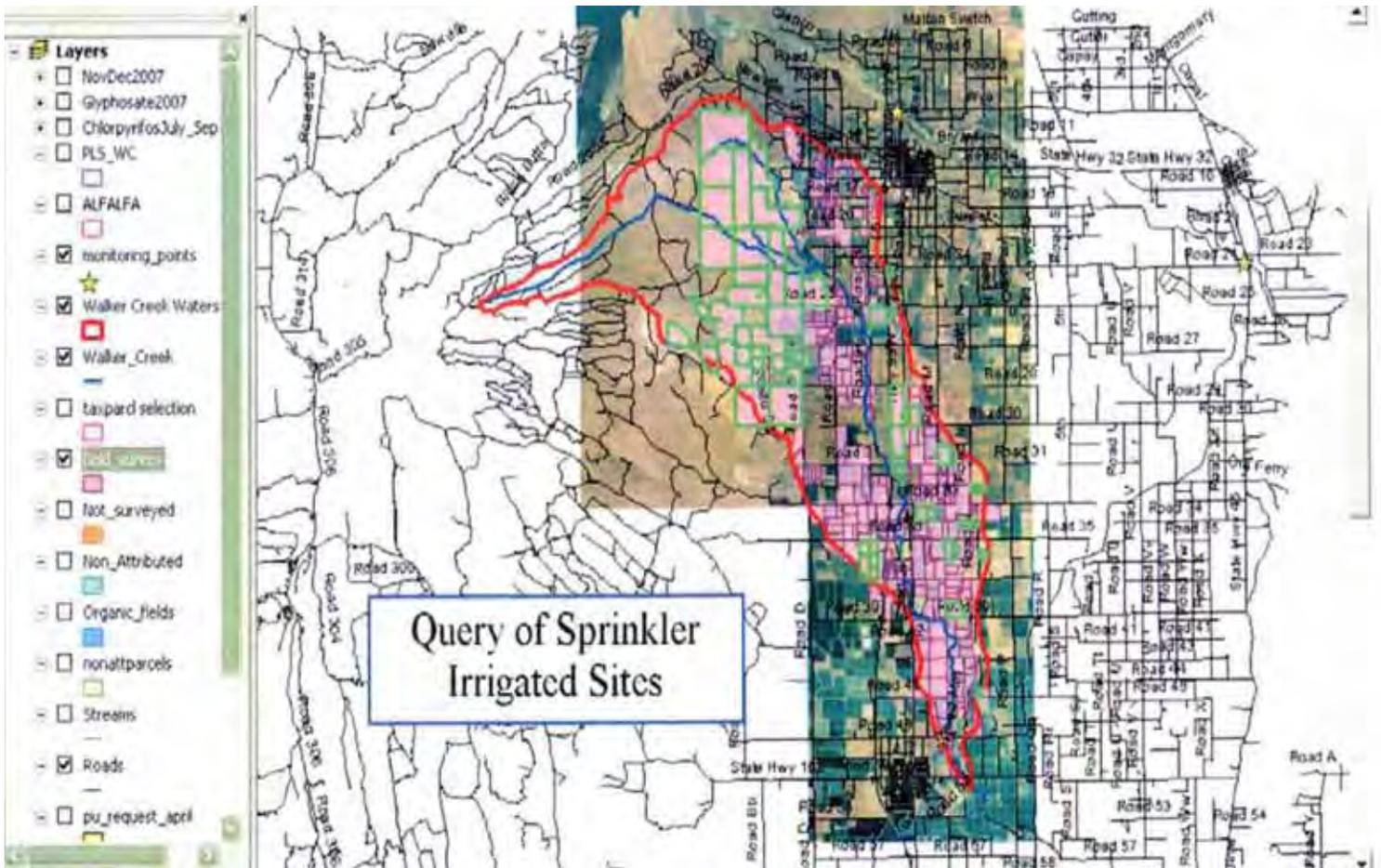


Figure 7: GIS layer showing survey parcels with sprinkler irrigation (pink with green outline)



APPENDIX C: Logan Creek Watershed Best Management Practices (BMP) Evaluation

The Logan Creek Management Practices Survey was started in November 2007 and completed by February 2009. Logan Creek is fully contained within Glenn and Colusa Counties and discharges into the Colusa Basin Drain. This activity was possible through a Memorandum of Agreement the Glenn and Colusa County Agricultural Commissioners signed in October 2007 and allowed by the MOU.¹

Attachment A is the Farm Site Self-Assessment form used by the Glenn County and Colusa County staff to generate information for additional outreach if necessary for the sub-watershed. Glenn County staff worked with Colusa County staff to perform the inspections for Logan Creek. Glenn County staff entered information into the database since resources and GIS expertise were limited in Colusa County. The difficulties and differences between the capabilities and resources in County Agricultural Commissioners will be more evident with any expansion of the Pilot Program.

Logan Creek has management plans for *E. Coli* and total dissolved solids (TDS).

As with the Walker Creek evaluation, an active ingredient query was performed for all reported pesticides applied in the Logan Creek watershed during the evaluation time frame. Results of this query also indicated that the visual management practices observed in the watershed evaluation clearly have a beneficial effect on water quality.

This management practice survey is very similar to the Walker Creek survey and GIS layers are basically the same. The Logan Creek Best Management Practices (BMP) Evaluation is available on the ILRP website at

http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/ag_commissioners_pilot/logancreek_bmp_eval_2009june.pdf

Acres Surveyed: 39,783 (455 Sites)

Management Practice	Percent of sites inspected utilizing specific practices
Irrigation Management Practices	99%
Flood/Surface	84%
Micro irrigation/Drip system	4%
Sprinkler system	2%
Runoff Management Practices	
Proper Grading	95%
Constructed levees or berms	90%
Vegetative buffer areas/filter strips	16%

¹ The 2007 MOU states "the two counties may undertake activities related to this MOU throughout the Sacramento River Basin."

APPENDIX D: Honcut Creek Management Practice Survey and Monitoring Site Evaluation

The Honcut Creek Management Practices Survey was started in February 2009 and was completed March 2010. The delay was due to transferring all survey and inspection information to the GIS. As part of the Management Practices Survey, the possible monitoring sites were examined by the Butte County Agricultural Commissioner staff to determine if the sites were accessible, representative of agricultural discharges, and did not have other interfering factors like urban or industrial discharges near the sites.

The Honcut Creek survey covered 8.7 miles of the creek in which 28 agricultural parcels were surveyed. Some survey conclusions for Honcut Creek regarding agricultural operations and observed management practices are listed below. The percentages listed should be considered averages since the area covered multiple agricultural crops with different management practices.

- 71% of the agricultural land surveyed has been leveled
- 64% had constructed levees or berms adjacent the creek
- 64% had vegetative buffer areas or filter strips in place, varying in width from ~10 to+100 feet.
- 16% had some kind of discharge control devise or features
 - 3% had no observable discharge points
 - 28% had discharge control devices or features of some kind
 - 71% had no discharge control
- 32% had irrigation retention / recharge pond areas or diversion ditches
- 58% had metered irrigation systems
 - 29% steel head impact sprinklers
 - 29% micro sprinklers
 - 0% drip system
 - 39% gravity-fed

Appendix D contains material from the Honcut Creek Management Practice Survey, how it was used for compliance, and information on the monitoring site evaluations.

Figure 1: Parcels adjacent to Honcut Creek that were surveyed

Figure 2: Example of survey documents linked to parcel

Figure 3: Parcels along Honcut Creek reviewed for subwatershed membership

Figure 4: Parcels from Central Valley Water Board 13267 list

Figure 5: Parcels with permits for rice only pesticides

Attachment E. Inspection Report for Honcut Creek proposed monitoring site

Figure 1. Parcels adjacent to Honcut Creek that were surveyed

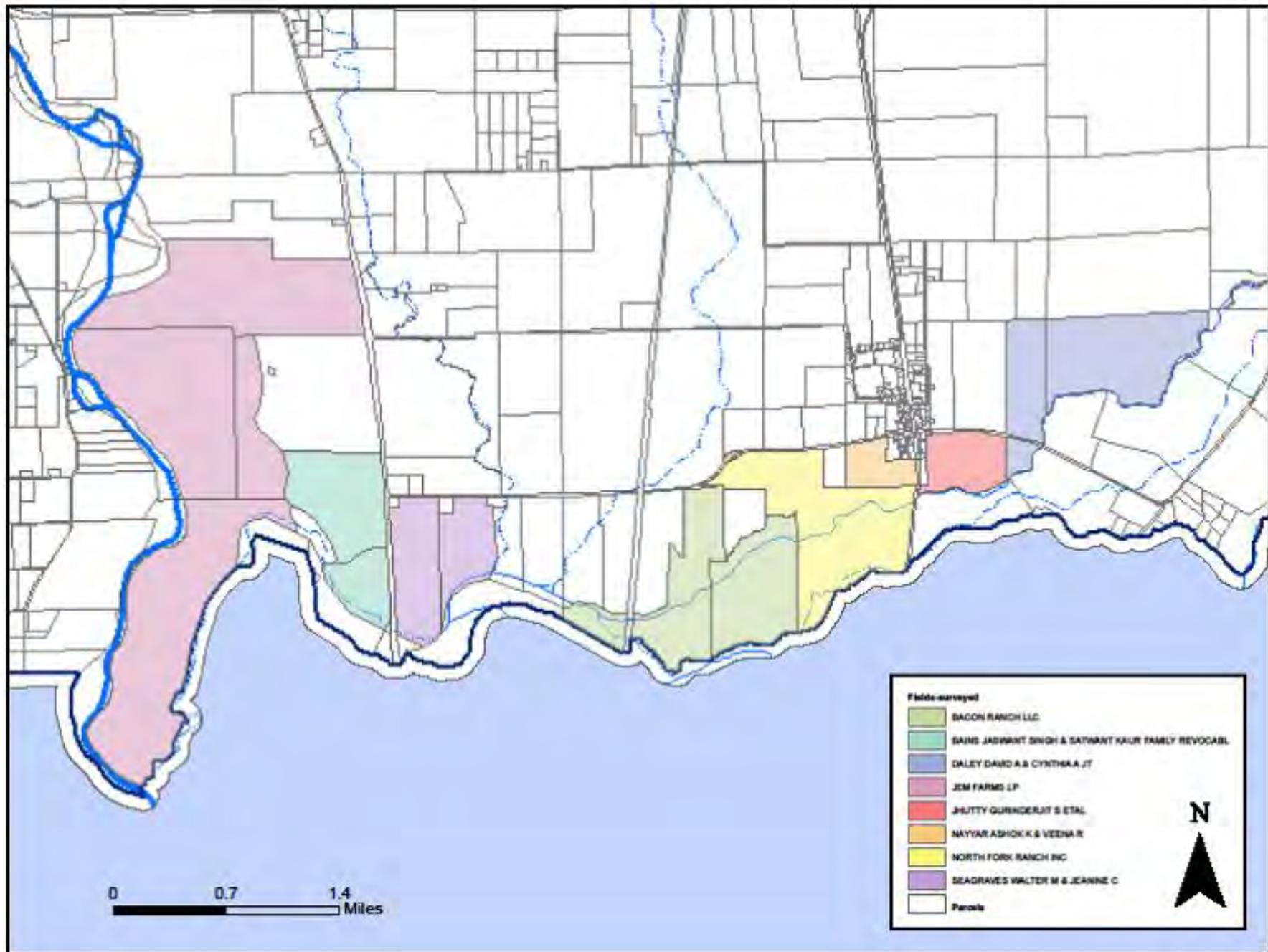


Figure 2: Example of survey documents linked to parcel

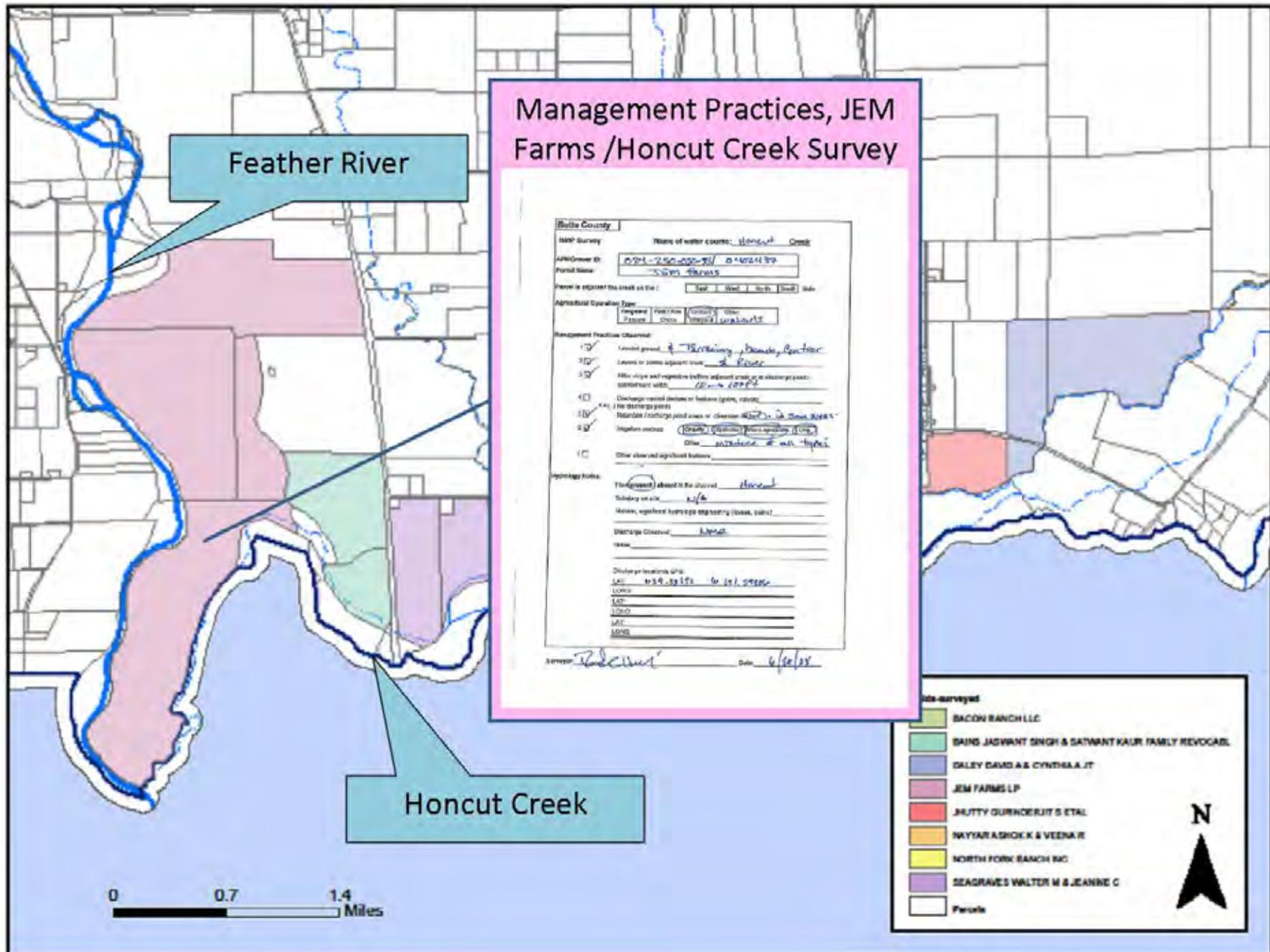


Figure 3. Parcels along Honcut Creek reviewed for subwatershed membership



Figure 4: Parcels from Central Valley Water Board 13267 list

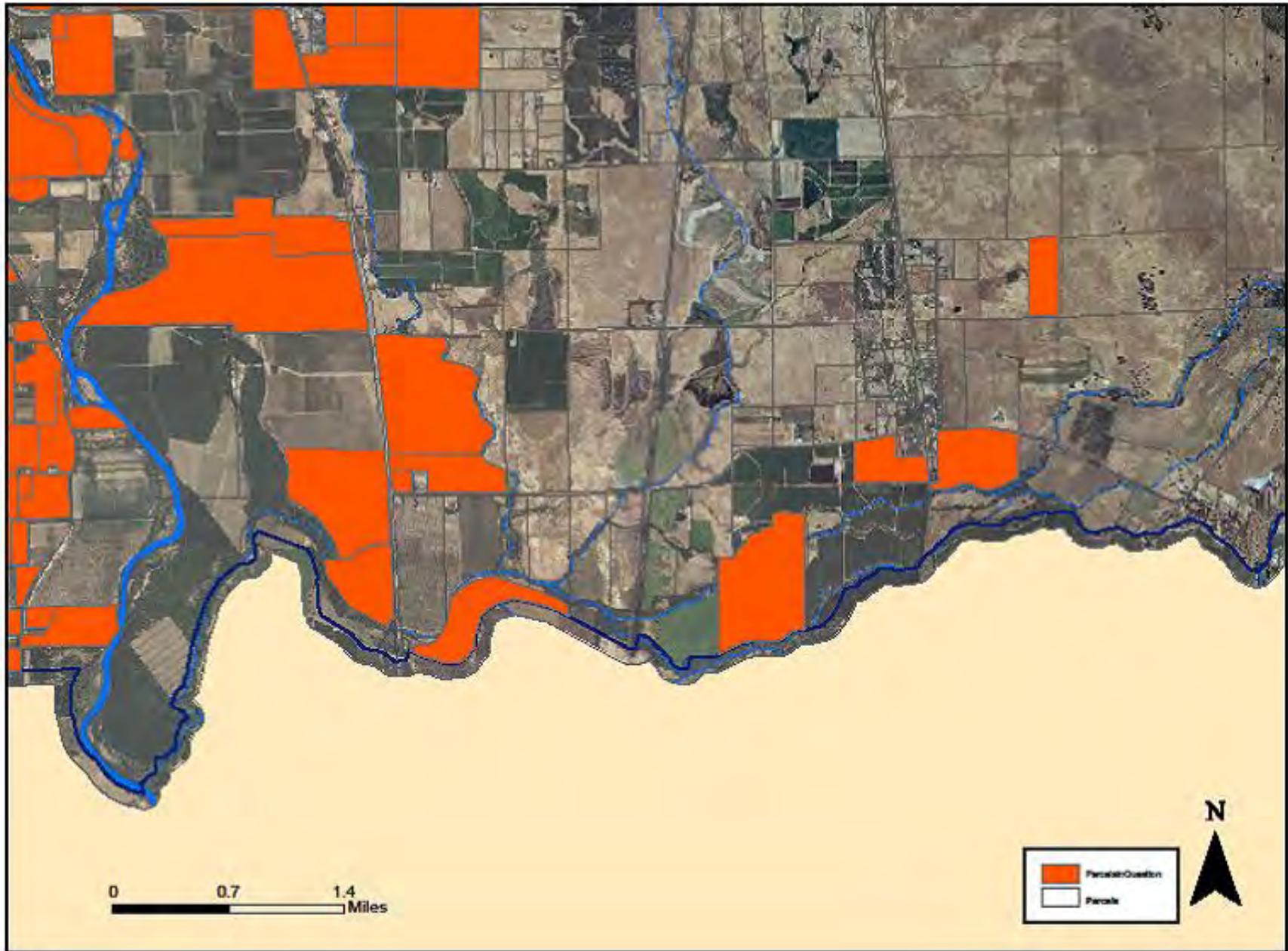


Figure 5: Parcels with permits for rice only pesticides

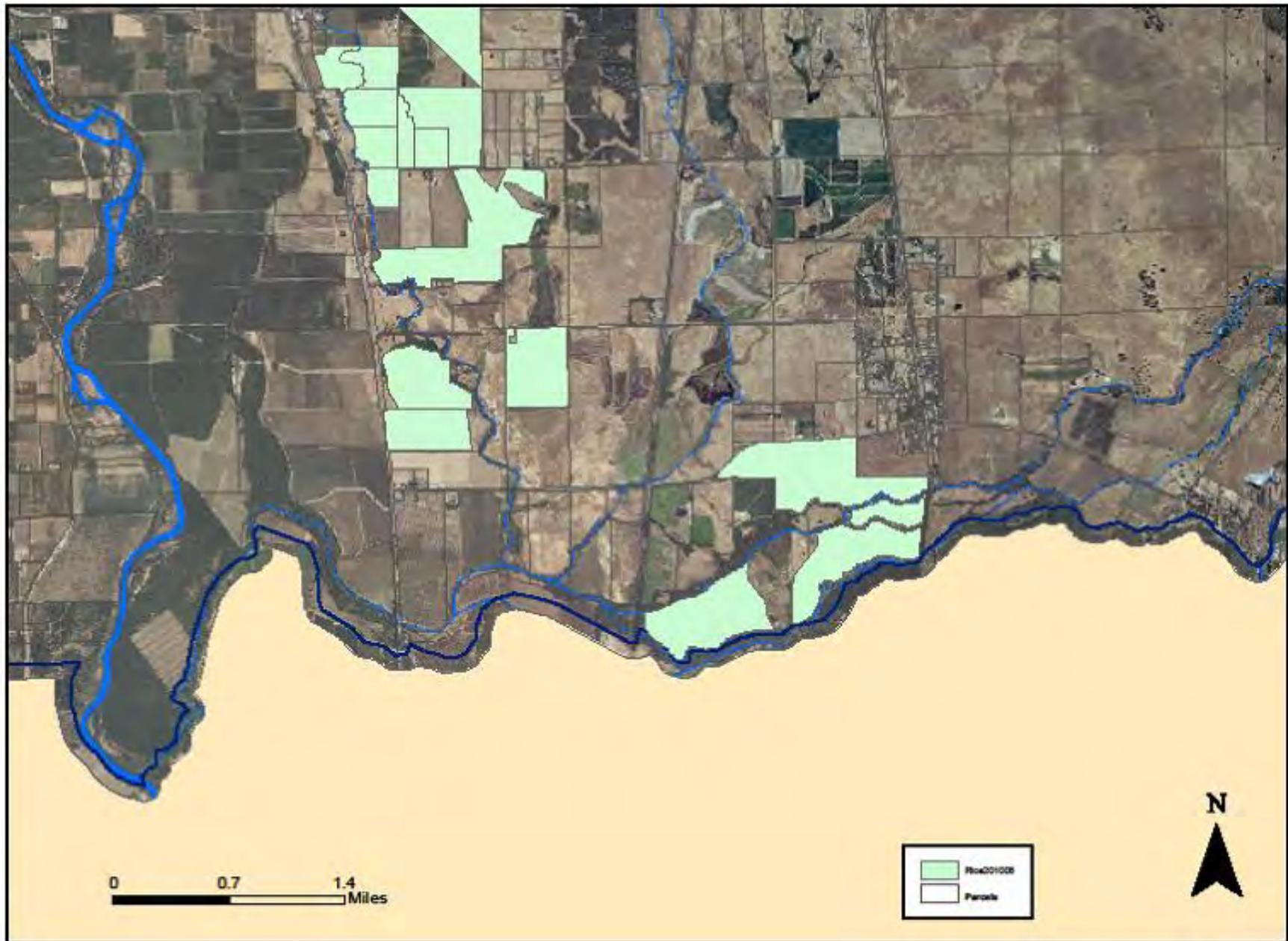


Exhibit E
Inspection /Investigation Report

Butte County Agricultural Commissioner
Performed for Central Valley Regional Water Quality Control Board

Property Owner/Contact(s): Butte County, Sacramento Valley water Quality Coalition Phone Number: 530-538-7381		Location (address, parcel number, GPS coordinates) Huncut Creek proposed monitoring site Lat: N 39'19.037 Long: W 121' 35.736 (taken at the entrance to the site)	
Date of inspection:	Start Time	End Time	Inspected by:
05/30/08	1:30pm	530pm	Robert Hill
Reason for inspection: Exhibit A, Scope of Work Task 3A Inspect sample points designated in the Sacramento Valley water Quality Coalition Monitoring Plan.			
Crop/livestock/location/acreage/irrigation method: NA			
Crop/livestock	Location	Acreage	Irrigation Method
NA	NA	NA	NA
Observations/Notes Four possible Huncut Creek watershed sample sites were evaluated: Public access to these sites was the primary limiting factor and is only available from Lower Huncut Road and Highway 70 <ol style="list-style-type: none"> 1. Wyandotte Creek tributary at Lower Huncut Road: wet, heavily vegetated, no observable flow. 2. Wyman Ravine tributary at Lower Huncut Road: heavily vegetated, marginal flow 3. South Huncut Creek at Highway 70: Dry 4. North Huncut Creek at Highway 70: good access, depth and flow <p>North Huncut Creek at Highway 70 is likely the best location evaluated. Together with South Huncut Creek they form the main water course that drains the south east agricultural area of Butte County. Including Natchez Creek, they also form the boundary between Butte and Yuba County.</p> <p>Access to the site is along a dirt road that runs parallel to the east side of Highway 70 and an orchard boundary which appears to be within the highway easement/ right of way.</p> <p>North and South Huncut Creek merge and enter the Feather River about 1 1/2 miles southwest of the site.</p> <p>Tributaries to the North Huncut: Wyandotte Creek, Wyman Ravine, Wilson Creek, The Bangor Ditch and Swain Ravine all originate in Butte County.</p> <p>Tributaries to South Huncut from Yuba Co have not all been determined, they include: Praire Creek, and Natchez Creek.</p> <p>The tributaries of North and South Huncut Creek passes through many diverse land use categories Including:</p> <ul style="list-style-type: none"> • Moderately populated urban and suburban residential, industrial and mining areas. • Commercial orchard and rice land crop area. • Extensive range and grazing land. <p>Wyman Ravine drains approximately 21,000 acres of mixed orchard, rice and grazing land. North Huncut, Wyandotte Creek, Wyman Ravine and Wilson Creek together drain about another 32,000 acres of grazing land, citrus and olive orchard. Together these creeks and ravines drain approximately 31,000 acres of urban/ residential land and 16,000 acres of foothill forest land prior to passing through the agricultural area. The total land drainage is approximately 100,000 acres.</p>			

Exhibit E
Inspection /Investigation Report

APPENDIX E: Freshwater Creek Watershed Best Management Practices (BMP) Evaluation

The Freshwater Creek Best Management Practices Evaluation was started in November 2007 and completed February 2009. Freshwater Creek is fully contained within Colusa County. This activity built upon the previous coordination between the counties for the Logan Creek evaluation, and was used as a training exercise to incorporate other CACs in the ILRP process.

As with the Walker Creek and Logan Creek evaluations, an active ingredient query was performed for all reported pesticides applied in the Freshwater Creek watershed during the evaluation time frame. Results of this query also indicated that the visual management practices observed in the watershed evaluation clearly have a beneficial effect on water quality.

Acres Surveyed: 19,789 (214 Sites)

Management Practice	Percent of sites inspected utilizing specific practices
Irrigation Management Practices	96%
Flood/Surface	73%
Micro irrigation/Drip system	21%
Sprinkler system	2%
Runoff Management Practices	
Proper Grading	93%
Constructed levees or berms	19%
Vegetative buffer areas/filter strips	4%

The following figures show what has been accomplished with the use of a GIS program and data collected from the management practice evaluation.

Figure 1: Freshwater Creek Watershed

Figure 2: Non-rice crops in the Freshwater Creek Watershed

Figure 3: Orchards (almond, walnut) in the Freshwater Creek Watershed

Figure 4: Irrigation management practices for orchards

Figure 1: Freshwater Creek Watershed

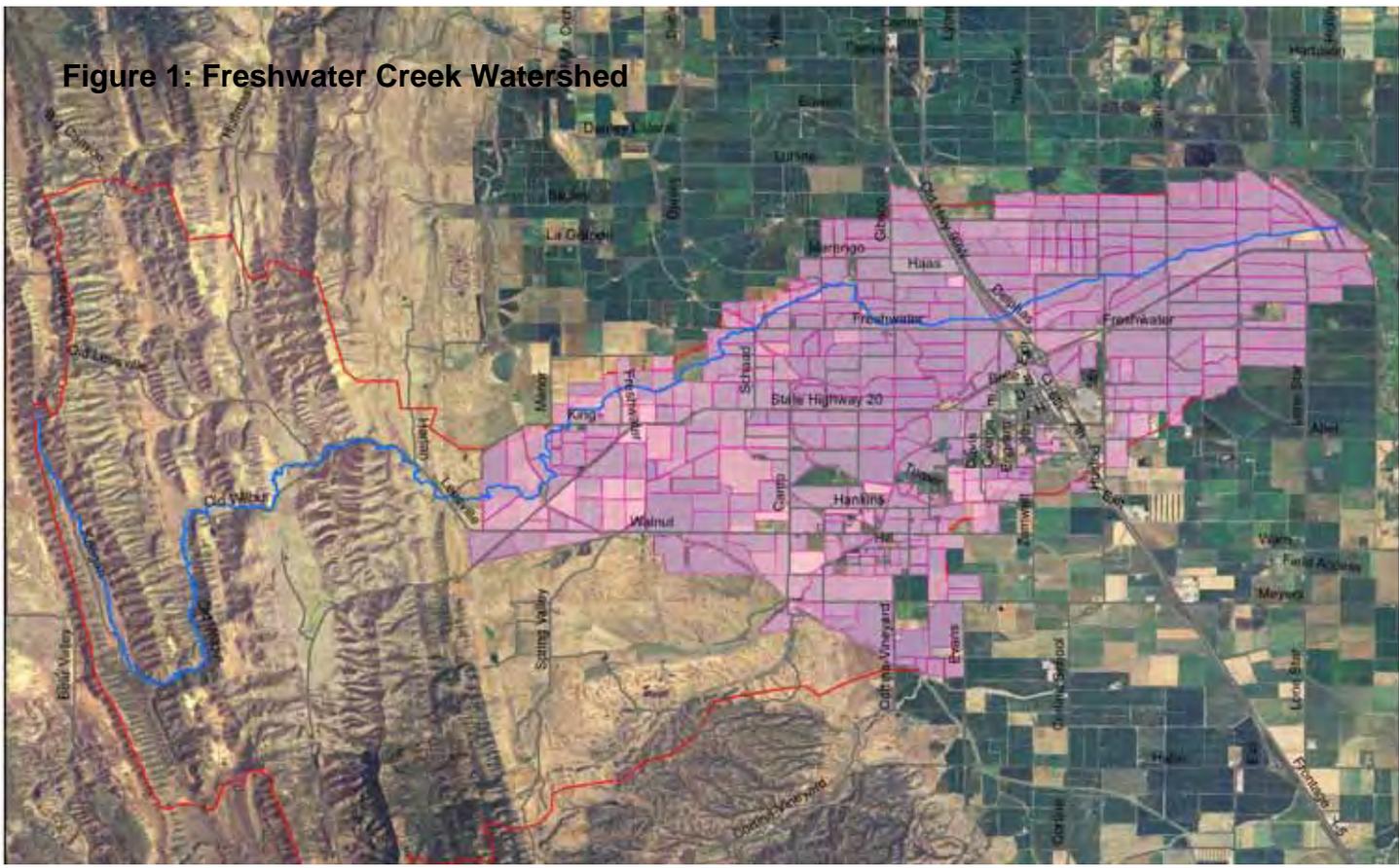


Figure 2: Non-rice crops in Freshwater Creek Watershed

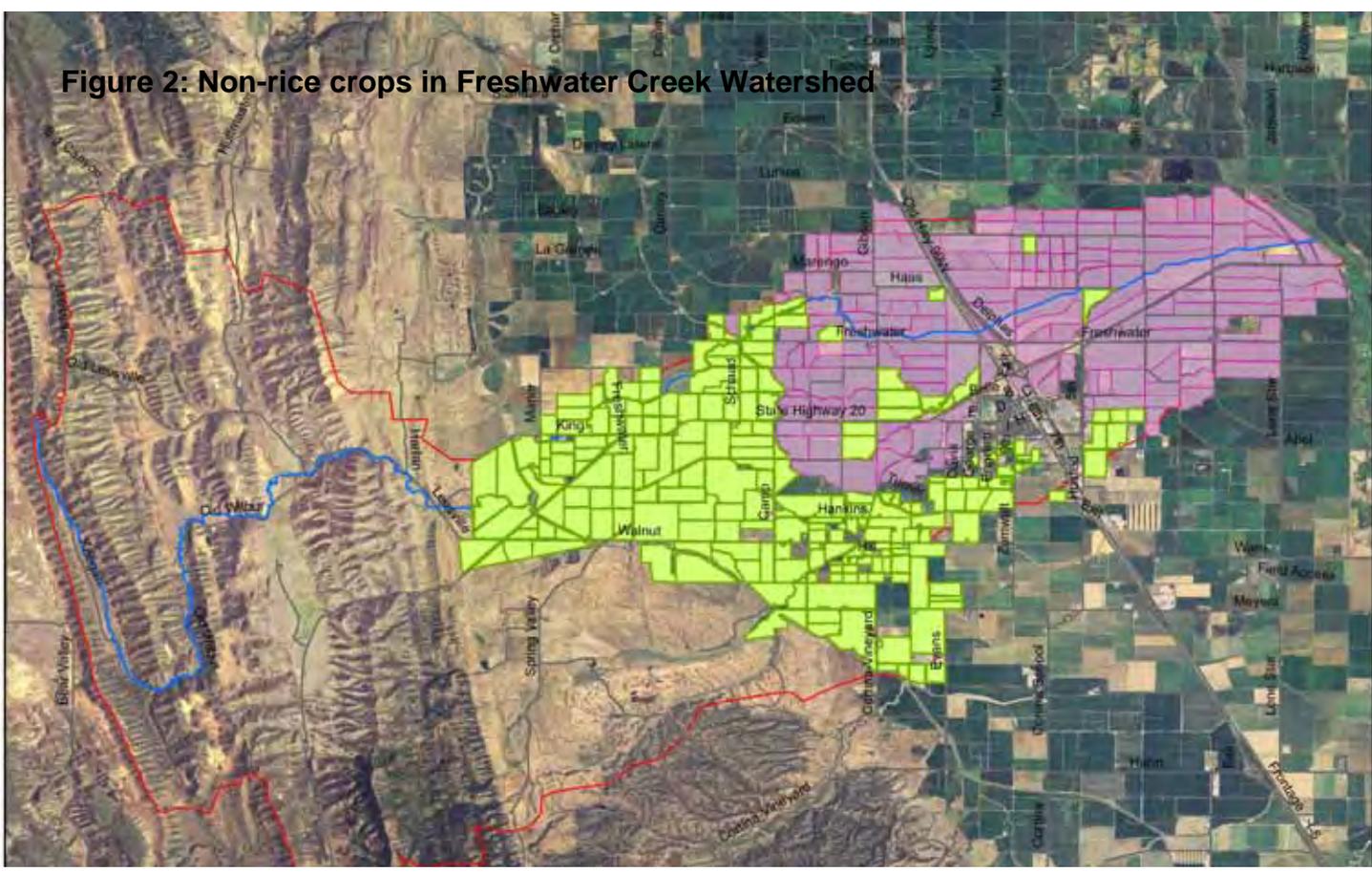


Figure 3: Orchards (almond, walnut) in Freshwater Creek

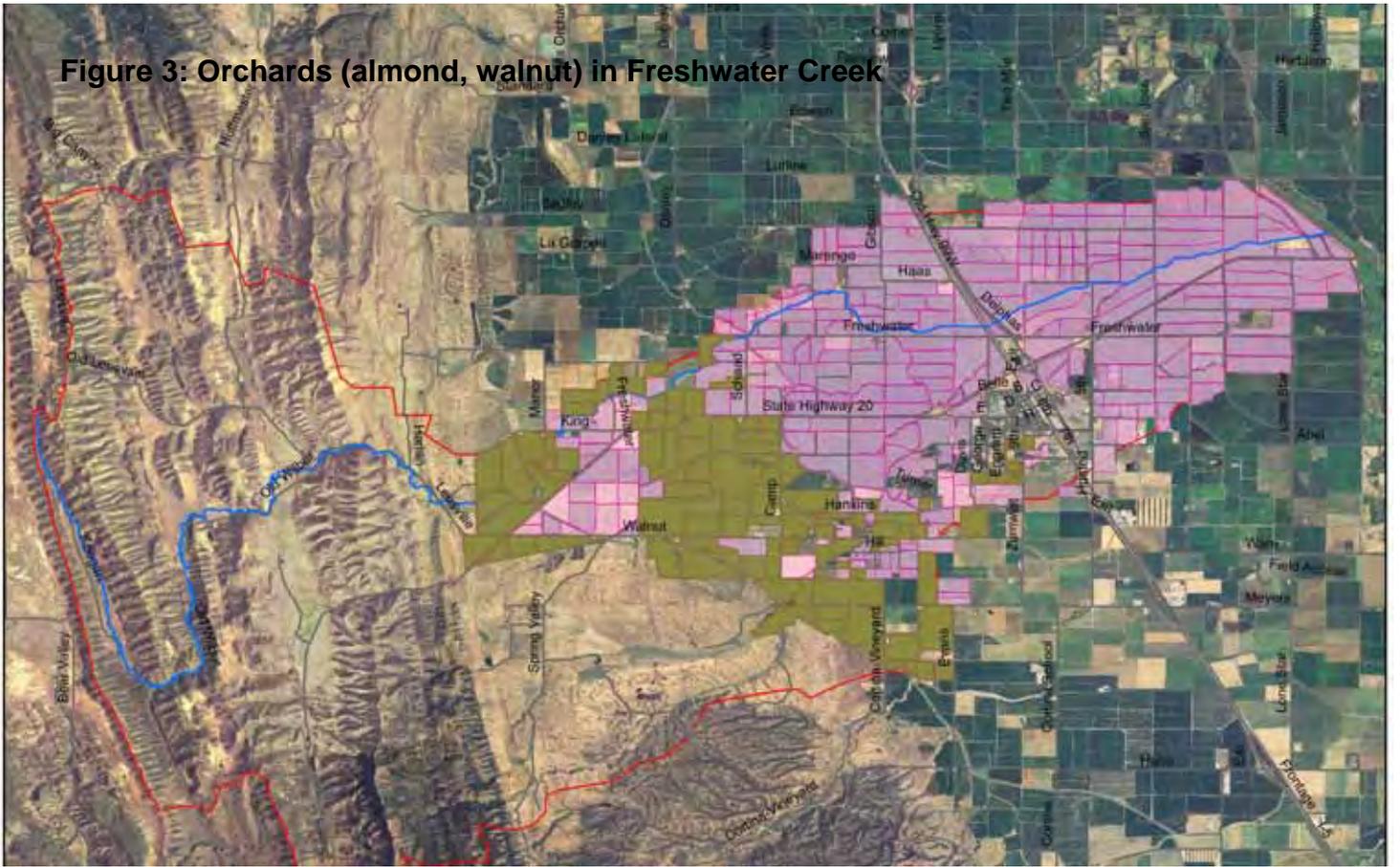
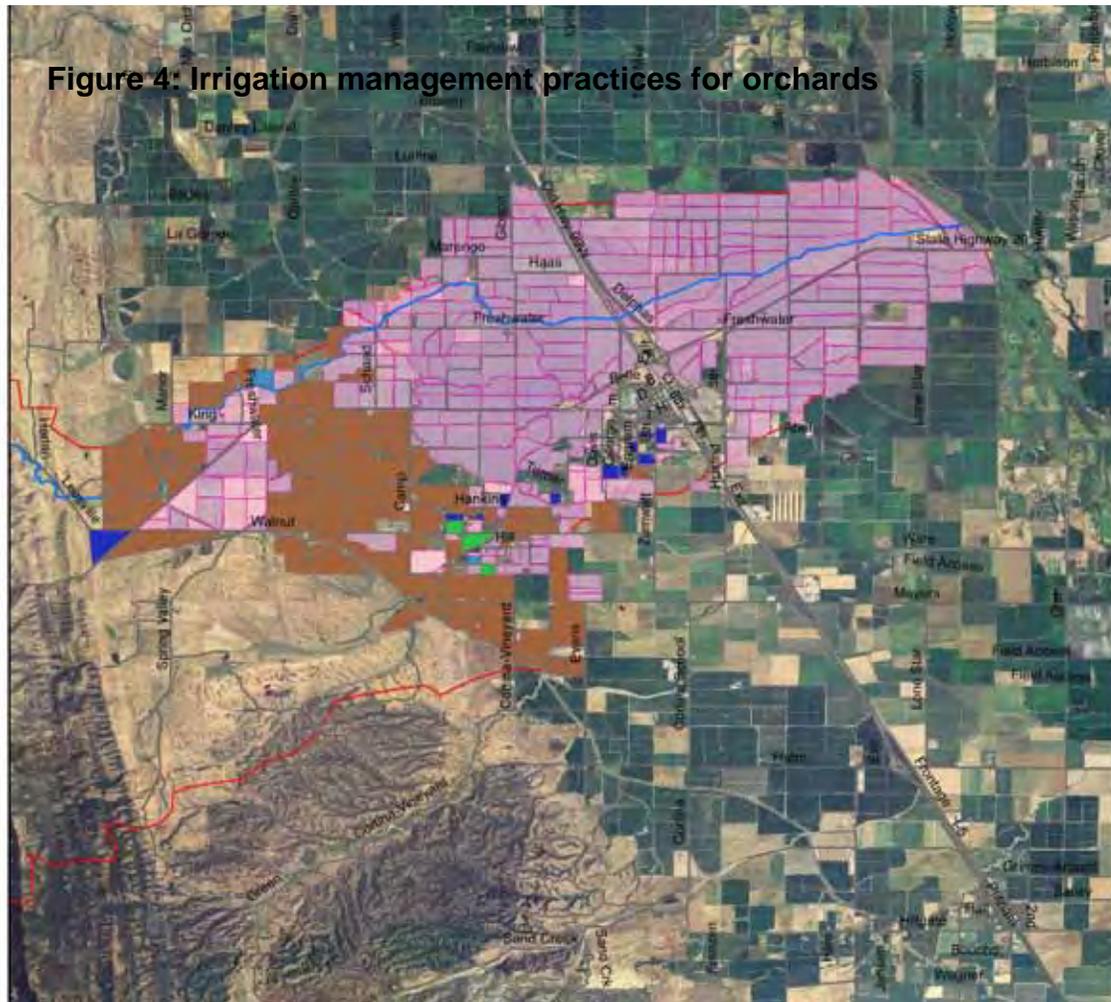


Figure 4: Irrigation management practices for orchards



Legend

Orchards

Response

- <Null>
- MICROIRRIGATION
- SPRINKLER
- SURFACE
- FW FieldSurvey

APPENDIX F: Walker Creek Chlorpyrifos Outreach

Walker Creek monitoring showed two exceedances for chlorpyrifos between July and September 2007. The Glenn County Agricultural Commissioner (CAC) staff worked with the Colusa-Glenn Subwatershed of the Sacramento Valley Water Quality Coalition Group to address and inform growers of the exceedances.

The following items were submitted July 2009 and shows the collaboration between the Glenn CAC staff and the subwatershed.

EVALUATION OF EFFECTIVENESS
OF MANAGEMENT PRACTICES FOR THE
PROTECTION OF WATER QUALITY
IN THE WALKER CREEK WATERSHED
GLENN COUNTY, CA

Background

The Walker Creek watershed of Glenn County was the subject of a Best Management Practices (BMP) Evaluation during the 2006-2007 growing season. The evaluation was conducted under the MOU Pilot Program and the associated contract with the Regional Board in support of the Irrigated Lands Regulatory Program (IRLP). The final report was submitted in May 2008 and was presented to the IIRP Technical Issues Committee in August 2008¹. The major task in the evaluation was to visually inspect all agricultural fields contained within the watershed where feasible and assess the potential of the practices being utilized to benefit water quality and the second step was to correlate the effectiveness of the observed practices to the sampling results of Sacramento Valley Water Quality Coalition (SVWQC) monitoring at the base of the watershed.

Summary

In November 2005, baseline water quality samples were collected at the selected SVWQC monitoring location at the intersection of County Road 48 in Willows, CA at the Walker Creek crossing. Collected samples were analyzed for pesticides according to the requirements of the Regional Board's Basin Management Plan and SVWQC Monitoring and Reporting Plan. Results of these baseline samples indicated there were no pesticides present.

The most consistently used management practices that were documented that provide water quality benefits are identified as:

- Planted or resident vegetation end of field buffer strips
- Planted or resident vegetation orchard row middles
- Vegetated waterways adjacent to fields
- Mix and load location placement far from waterways
- Numerous irrigation methods
- Recirculation and tail water recovery systems
- Berm placement that contains potential runoff
- Constructed wetland areas
- Various methods of soil management and tillage

The agricultural operations of the watershed encompass 26,000 acres consisting of 394 separately farmed fields operated by 140 individual growers. During the course of the evaluation, SVWQC monitoring continued through the storm and irrigation seasons with favorable sampling results except for two exceedances of chlorpyrifos in August and September 2007.

(1)

http://www.swrcb.ca.gov/centralvalley/water_issues/irrigated_lands/ag_commissioners_pilot/walker_creek_bmp_eval_may_2008.pdf

Also during the evaluation time frame, (September 2006-September 2007) there were 228,000 pounds of active ingredient of all pesticides applied within the boundaries of the watershed and there were no other active pesticide exceedances detected except in the February 2008 flood event. Sample analysis of this event indicated a breakdown product of DDT was present in a water sample at the sample location but was not detected during the remaining SVWQC sampling events ending in September 2008. The vicinity of the sampling location was a popular area to grow clover and repeated applications of DDT were necessary to control lygus bugs. DDT has not been used as an agricultural pesticide in Glenn County for over 35 years and may only be present during subsequent flood events due to the amount of sediment released.

Glenn County's agricultural producers subject to the IRLP are members of the Colusa Glenn Subwatershed Program (Subwatershed) of the SVWQC. At the request of the Subwatershed, Glenn County staff provided valuable outreach as a response to the August and September 2007 exceedances of chlorpyrifos from the Walker Creek monitoring location. The information that was gathered during the BMP evaluation and how it was assembled was essential to the outreach that needed to be performed to all users of chlorpyrifos during the time of the sampling events. By reviewing the County's pesticide use reports for chlorpyrifos applications, the grower fields and applicators were identified. In addition, a list of all recorded users of chlorpyrifos was assembled, and in January 2008 a meeting was organized by the Subwatershed where attendees were presented with an overview of the watershed evaluation and how it would be useful for identifying potential and actual threats to waterways from pesticides. Growers, applicators, and pesticide control advisors were provided with an easy-to-understand presentation on the effectiveness of gathering data for spatial analysis and discussion. (See Attachment A – Walker Creek Watershed Water Quality Workshop Meeting Information and Continuing Education and Outreach)

The favorable results of the meeting produced positive feed back on the utility of this type of evaluation and demonstrated its value in assisting the Subwatershed and the SVWQC in complying with the ILRP and required management plans.

Conclusion

Results of the baseline sample analysis and repeated monitoring for a two year period from the Walker Creek SVWQC monitoring location, it can be assumed that the visual management practices observed in the watershed evaluation clearly have a beneficial effect on water quality. In recognition of the 228,000 lbs of active ingredient of all pesticides applied during the evaluation time frame it can also be pointed out that the most obvious management practice being employed by growers centers around the importance of pesticide use at the time of economic thresholds and the proper application of the selected materials according to labels and regulations.

Cost effective management practice implementation followed up with monitoring and a comprehensive program of education and outreach should provide effective water quality

in any watershed and contribute to improvement when the information provided is positive and consistent.

Recommendations

There is a lot to be said for getting pesticides on the intended target while at the same time taking advantage of cultural practices that are put in place for underlying economic reasons. The value of this type of evaluation can provide a level of importance that would be missed if it had not been done when the information needed is necessary.

To assess the effectiveness of management practices there would have to be baseline information collected prior to the development of an agricultural operation that would in turn use pesticides in a manner that may or may not have the ability to reach a water way and determine the concentration that would have a detrimental effect on water quality. An alternate method to this idea would be to recklessly perform the same pesticide applications in a consistent manner on the same crops in a similar area without any control over your actions and utilize end of field monitoring techniques and compare results.

Prior to undertaking a watershed evaluation where effectiveness of practices observed is in question, additional decision making tools need to be identified or developed to define performance measures. There is currently no effectiveness measuring tools available short of identifying what has worked in the past to remedy previously unfavorable monitoring results.

Attachment A

Walker Creek Watershed Water Quality Workshop Meeting Information and Continuing Education and Outreach

1. Exceedance Notice
2. Meeting Announcement, January 16, 2008
3. Chlorpyrifos use in Walker Creek Watershed-July-Sept. 2007
4. Growers identified that applied Chlorpyrifos- July-Sept. 2007
5. Growers targeted for outreach
6. Sign up sheet for attendees
7. Fields identified as using Chlorpyrifos- July-Sept. 2007
8. Follow-up Outreach Notice, May 2008
9. Follow-up Outreach Notice, July 2008
10. Farm Bureau Outreach, August 2008
11. Follow-up Outreach Notice, May 2009
12. Press Release, June 2009



EXCEEDANCE NOTICE

from
Sacramento Valley Water Quality Coalition
and
Colusa Glenn Subwatershed Program

WALKER CREEK WATERSHED

Enclosures

1. **Advisory Notice of Exceedances**
 2. **Workshop Notice**
-

December 21, 2007

Water quality testing of the Walker Creek Watershed is currently being performed by the Sacramento Valley Water Quality Coalition (SVWQC), with the assistance of your local subwatershed group, the *Colusa Glenn Subwatershed Program*. The Event 23 (August 2007) and Event 24 (September 2007) irrigation samplings showed exceedances of state water quality objectives for chlorpyrifos (trade names include Lorsban 4E, Lorsban 4E-HF, Whirlwind, Nufos 4E, Govern 4E, Chlorpyrifos 4E). As a result of these exceedances, the Central Valley Regional Water Quality Control Board (Water Board), under the Irrigated Lands Regulatory Program, is requiring that the SVWQC notify landowners upstream of the sampling site about the water quality exceedances and potential causes. In addition, a Management Plan is required to be developed in order to address this problem. You can help correct the water quality problem, and potentially keep monitoring to a minimal, by doing the following:

Attend a workshop on January 16, 2008. The workshop will describe the test results, possible causes, and research and implementation of Best Management Practices (BMPs).

Monday Afternoon Club
120 North Lassen Street, Willows
9:00 a.m. to 10:30 a.m.
Refreshments provided

Who is attending? All growers in the Walker Creek Watershed that have Almonds, Alfalfa, and transplant nursery crops. All Pest Control Advisors and Commercial applicators of the growers

Why should I bother? Grower, PCA, and PCO participation at workshops, growers completing Management Practice surveys and more importantly, adopting BMPs on lands contributing to farm runoff problems, are key success measures for you, the SVWQC, and Colusa Glenn Subwatershed Program to comply with the Irrigated Lands Regulatory Program. Failure to solve water quality problems through watershed-wide efforts will eventually lead to regulations requiring individual permitting of each farm operation by the Water Board.

If you are a grower and have not received and returned a Management Practice Survey from the Glenn County Department of Agriculture during your last pesticide permit renewal, please contact Lester Messina, Glenn County Department of Agriculture at 934-6501.

Larry Domenighini
Colusa Glenn Subwatershed Program, President
(530) 934-8036

Mark Black
Agricultural Commissioner
(530) 934-6501

With technical assistance from:

County of Glenn Department of Agriculture

Mark D. Black, Agricultural Commissioner
Sealer of Weights & Measures

Jean S. Miller, Assistant Agricultural Commissioner
Sealer of Weights & Measures

Sacramento Valley Water Quality Coalition
&
Colusa Glenn Subwatershed Program

WALKER CREEK WATERSHED WATER QUALITY WORKSHOP

When: Wednesday, January 16, 2008

Where: Monday Afternoon Club
120 North Lassen Street
Willows, CA 95988

Time: 9:00 AM to 10:30 AM

Questions? Please call (530) 934-8036 for more information.

With technical assistance from:

County of Glenn Department of Agriculture

Mark D. Black, Agricultural Commissioner
Sealer of Weights & Measures

Jean S. Miller, Assistant Agricultural Commissioner
Sealer of Weights & Measures

Chlorpyrifos Walker Creek

Date	Township	Range	Section	Product	Amount	Unit
7/1/2007	21N	04W	24	LORSBAN-4E	300	GA
7/2/2007	21N	04W	16	CHLORPYRIFOS 4E AG	20	GA
7/3/2007	21N	04W	15	CHLORPYRIFOS 4E AG	135.7	GA
7/5/2007	21N	03W	21	LORSBAN 4E-HF	101.5	GA
7/5/2007	21N	03W	28	LORSBAN 4E-HF	70	GA
7/5/2007	21N	04W	15	CHLORPYRIFOS 4E AG	112.25	GA
7/5/2007	21N	04W	15	CHLORPYRIFOS 4E AG	53.75	GA
7/6/2007	20N	03W	13	LORSBAN-4E	14	PT
7/6/2007	21N	03W	26	LORSBAN-4E	87	PT
7/6/2007	21N	04W	10	CHLORPYRIFOS 4E AG	128.5	GA
7/7/2007	21N	03W	6	WHIRLWIND	1200	PT
7/7/2007	21N	03W	6	WHIRLWIND	1200	PT
7/7/2007	21N	04W	2	CHLORPYRIFOS 4E AG	94	GA
7/9/2007	21N	03W	4	LORSBAN-4E	11.5	GA
7/9/2007	21N	03W	26	LORSBAN 4E INSECTICIDE	5	GA
7/9/2007	21N	04W	12	CHLORPYRIFOS 4E AG	101	GA
7/10/2007	21N	04W	9	CHLORPYRIFOS 4E AG	42	GA
7/10/2007	21N	04W	10	CHLORPYRIFOS 4E AG	15	GA
7/10/2007	21N	04W	13	CHLORPYRIFOS 4E AG	49.25	GA
7/11/2007	20N	03W	23	LORSBAN 4E-HF	6	GA
7/11/2007	21N	04W	12	CHLORPYRIFOS 4E AG	101	GA
7/12/2007	20N	03W	23	LORSBAN 4E-HF	20	GA
7/12/2007	21N	04W	15	CHLORPYRIFOS 4E AG	135.7	GA
7/13/2007	21N	04W	15	CHLORPYRIFOS 4E AG	112.25	GA
7/13/2007	21N	04W	16	CHLORPYRIFOS 4E AG	20	GA
7/14/2007	21N	03W	32	LORSBAN-4E	74	GA
7/14/2007	21N	04W	10	CHLORPYRIFOS 4E AG	128.5	GA
7/14/2007	21N	04W	23	LORSBAN 4E INSECTICIDE	200	GA
7/15/2007	22N	03W	28	LORSBAN-4E	92	PT
7/16/2007	20N	03W	3	CHLORPYRIFOS 4E AG	25	GA
7/16/2007	20N	03W	3	CHLORPYRIFOS 4E AG	25	GA
7/16/2007	21N	04W	2	CHLORPYRIFOS 4E AG	94	GA
7/17/2007	21N	04W	9	CHLORPYRIFOS 4E AG	42	GA
7/17/2007	21N	04W	10	CHLORPYRIFOS 4E AG	15	GA
7/17/2007	21N	04W	15	CHLORPYRIFOS 4E AG	53.75	GA
7/19/2007	21N	04W	13	CHLORPYRIFOS 4E AG	49.25	GA
7/20/2007	21N	03W	9	LORSBAN-4E	70	GA
7/20/2007	21N	03W	18	NUFOS 4E	72	PT
7/21/2007	20N	03W	12	NUFOS 4E	10	QT
7/23/2007	21N	03W	4	LORSBAN-4E	4	GA
7/23/2007	21N	04W	13	LORSBAN 4E-HF	7.5	GA
7/24/2007	20N	03W	10	LORSBAN-4E	110	QT
7/26/2007	21N	04W	2	LORSBAN 4E-HF	94	GA
7/27/2007	21N	04W	8	LORSBAN 4E-HF	77.25	GA
7/27/2007	21N	04W	13	LORSBAN 4E-HF	53.5	GA
7/27/2007	21N	04W	16	LORSBAN 4E-HF	47.75	GA
7/28/2007	21N	04W	15	LORSBAN 4E-HF	135.7	GA
7/30/2007	21N	04W	15	LORSBAN 4E-HF	112.25	GA

GROWER	PERMIT NUMBER	Crop	Site Number	Acres	Primary ID
BIG W ORCHARD	1100096	ALMOND	8	439	290
BIG W ORCHARD	1100096	ALMOND	1	377	283
BIG W ORCHARD	1100096	ALMOND	2	408	284
BIG W ORCHARD	1100096	ALMOND	7	238	289
BIG W ORCHARD	1100096	ALMOND	3	214	362
BIG W ORCHARD	1100096	ALMOND	9	449	288
CARRIERE AND SONS	1100409	ALMOND	9AL	72	306
CHAMBERS, TOM	400003	ALMOND	1	79	NS08
CROWN NURSERY	5200209	OUTDOOR TRANSPLANT	3	20	21
CROWN NURSERY	5200209	OUTDOOR TRANSPLANT	4	20	132
KENNEDY/COUTO	1100183	ALFALFA	4	70	66
KENNEDY/COUTO	1100183	ALFALFA	11	27	68
M & B RANCHES	5800272	ALMOND	1	140	267
THIARA, HARDIAL SINGH	1100042	ALMOND	1	24	385
VON BARGEN, SCOTT	1100818	ALFALFA	3	160	127
WATTS, PAUL M	1100213	ALFALFA	2	35	159

Total Acres

2772

<u>GROWER</u>	<u>CONTACT NAME</u>	<u>MAILING ADDRESS</u>	<u>CITY STATE</u>	<u>ZIP</u>	<u>CONTACT PHONE NUMBER</u>
ALPHA GROWERS	MIKE PERRY	PO BOX 607	ORLAND, CA	95963	865-7676
ALVES FARMS	GARY ALVES	2611 COUNTY RD T	GLENN, CA	95943	934-4847
AURORA GROWERS	MIKE PERRY	PO BOX 607	ORLAND, CA	95963	865-7676
BIG W ORCHARD	JOHN WILLIAMS	5919 COUNTY RD 25	ORLAND, CA	95963	865-1403
CARRIERE AND SONS	GARY ENOS	1640 HWY 45	GLENN, CA	95943	934-7454
CHAMBERS, MIKE	MIKE AND BEN CHAMBERS	PO BOX 1184	DURHAM, CA	95938	345-1720
CHAMBERS, R. J.	RAYMOND (RJ) CHAMBERS	5660 ANITA ROAD	CHICO, CA	95973	895-3084
CHAMBERS, TOM	TOM CHAMBERS	9712 MCANARLIN	CHICO, CA	95938	343-5729
CRYSTAL ORCHARDS	MIKE PERRY	PO BOX 607	ORLAND, CA	95963	865-7676
EMBREY, LARRY	LARRY EMBREY	PO BOX 772	ORLAND, CA	95963	865-2118
F.T.C	ROBERT FLASH/ NORTH STIMPLE	11691 MERIDIAN ROAD	CHICO, CA	95973	826-3317
HALE, JIM	JIM HALE	PO BOX 0220	ARTOIS, CA	95913	934-4573
HANKS, DICK	DICK HANKS	PO BOX 217	ORLAND, CA	95963	865-7858
KAISER, LEONARD/ BERNHARDT	LEONARD KAISER	PO BOX 103	ARTOIS, CA	95913	934-7578
KALKAT ORCHARD/CO	SONNY KALKAT	3224 GRANITE DRIVE	YUBA CITY, CA	95993	673-6661
KENNEDY/COUTO	DAN KENNEDY	1669 COUNTY ROAD V	GLENN, CA	95943	934-7426
M & B RANCHES	ROBERT & MOHINDER BAINS	3443 S. WALTON AVE	YUBA CITY, CA	95993	674-1167
MAGNUM GROWERS	MIKE PERRY	PO BOX 607	ORLAND, CA	95963	865-7676
MAPCO FARMS	MIKE PERRY	PO BOX 607	ORLAND, CA	95963	865-7676
MARTIN BROS	PAUL MARTIN	6880 COUNTY ROAD 48	WILLOWS, CA	95988	934-7517
MARYBELLE FARMS, INC	LEIGH MCDANIEL	4241 COUNTY ROAD S	ORLAND, CA	95963	865-5500
MERLO, ROCQUE	ROCQUE MERLO	PO BOX 814	DURHAM, CA	95938	894-3825
MILLAR FARMS	TOM, MIKE, TOM JR MILLAR	3368 HWY 45	GLENN, CA	95943	826-3244
NEW PRINCESS CORP.	MIKE PERRY	PO BOX 607	ORLAND, CA	95963	865-7676
REIMANN PROPERTIES	NATE KILMER	PO BOX 151	ORLAND, CA	95963	934-6691
RODRIGUEZ, ALFREDO	ALFREDO RODRIGUEZ	PO BOX 981	DURHAM, CA	95938	343-7771
SCHULLER, JOHN	JOHN SCHULLER	PO BOX 21	ARTOIS, CA	95913	330-1822

qryChlorpyrifosAddresses

SILVEIRA, BOB J	ROBERT SILVEIRA	3852 RD 99W	ORLAND, CA	95963	865-4196
SPOONER COMPANY	JOHN SPOONER	6789 COUNTY ROAD 39	WILLOWS, CA	95988	934-3690
TAYLOR BROS	BRUCE & JOE TAYLOR	6227 COUNTY ROAD 62	WILLOWS, CA	95988	934-8480
TAYLOR, CHRIS	CHRIS TAYLOR	1024 GREENWICH DR	CHICO, CA	95926	439-2500
THIARA, HARDIAL SINGH	HARDIAL THIARA	6451 COUNTY ROAD 24	ORLAND, CA	95966	865-9106
TRINITY ORCHARDS	JIM QUACKENBUSH	1367 EAST AVE	CHICO, CA	95926	934-7727
VANELLA, ROBERT & SUSAN	BOB VANELLA	3068 CHICO AVE	CHICO, CA	95928	342-8313
WOLICH, PAUL	DAN CUMMINGS	1750 DAYTON ROAD	CHICO, CA	95928	894-5494
VON BARGEN, SCOTT	SCOTT VON BARGEN	PO BOX 126	ARTOIS, CA	95913	934-3705
WATTS, GREG	GREG WATTS	6399 COUNTY ROAD 48	WILLOWS, CA	95988	934-7660
WATTS, PAUL M	PAUL WATTS	388 N. LASSEN STREET	WILLOWS, CA	95988	934-5242
WESTSTEYN DAIRY 2	BERT WESTSTEYN	1763 S. HEWITT ROAD	LINDEN, CA	95236	(209)886-5334

COLUSA GLENN SUBWATERSHED PROGRAM

Walker Creek Watershed Water Quality Workshop
January 16, 2008

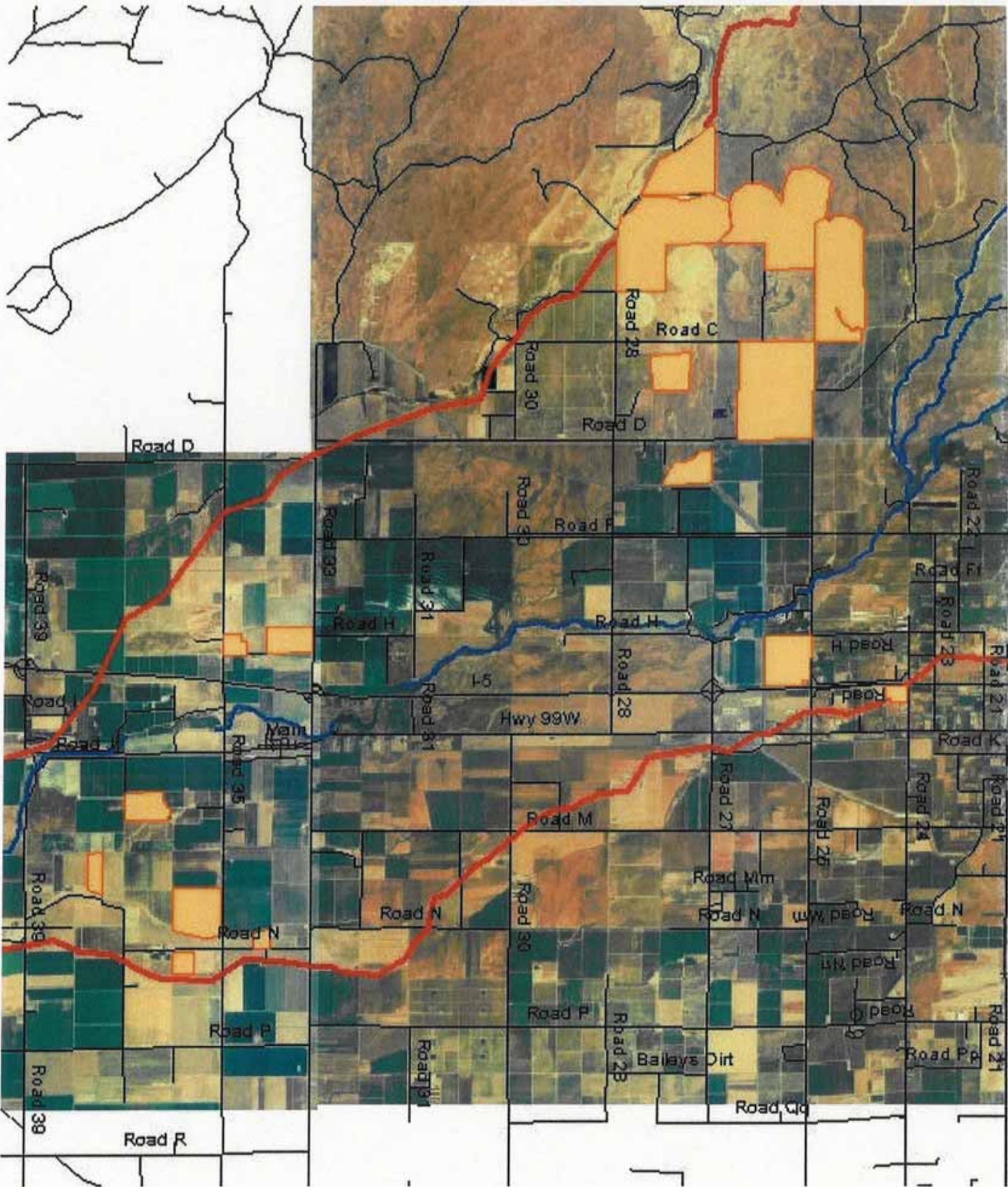
	NAME	MAILING ADDRESS	PHONE NUMBER
1	LARRY M. ENGLISH		
2	KAUJDI MANNAN 12-LID		
3	TODI POTURGERA	11020 Sencarter Dr. Re	916-464-4858
4	STAV R. JETER CC. DR.	100 Sunrise Blvd STE Glenna	95932 530-458-0580
5	Bob J Averila	3068 Chico Avn	95928 392-8313
6	LARRY EMBREY	P.O. Box 772	815-2118
7	Paul M. Patis	2750 Co Rd P Glenna	934-2753
8	MARK M. MATHIAS	9723 McArthur Hwy Fairview	343-5727
9	Jerry Schmiere	P.O. Box 180 Colusa	95943 458-0575
10	Greg DASTIS	6399 Co. Rd 48 willows,	934-7660
11	Frank S. Counts	1606 Co. Rd 149	934-5020
12	DEW S. GAYNE	P.O. Box 917 Colusa	455-7566
13	DAN R. RYAN	1469 Co. Rd 12 Glenna	512-0092
14	PLAT NESTLERN	6330 A. Rd 39 willows	934-2337
15	Gus Kuhse	1640 Hwy 45 (Lim 95943	934-8200
16	Math Lohr	1640 Hwy 45 (Lim 95943	934-8200
17	Robert Sanchez	271 E. Hwy. Ave Chico	95926 895-3840
18	Mark Black	1	934-6501
19	GARY ENOS	16th Hwy 45 Glenna	934-8200
20	Charles Schomauer	P.O. Box 336 Orland	934-3728
21	Howard Kassi	P.O. Box 103 Artois	934-7578
22	Greg DASTIS		

COLUSA GLENN SUBWATERSHED PROGRAM

Walker Creek Watershed Water Quality Workshop

January 16, 2008

	NAME	MAILING ADDRESS	PHONE NUMBER
23	John Spoor	6789 Rd 39	330-1610
24	LEIGH MCDANIEL	P.O. Box 922 ORLAND	(916) 955-7627
25	Stanley	2611 Co. Rd 47	530-934-4182
26	John H. Jett	PO Box 21 AEROS	530-330-1822
27	Jim Quackenbush	13852 Carwest Estates Way	521-1501
28	John Williams	5919 Rd 25 Deland	845-1403
29	WALTERS GRAMER	2704 Co Rd T ORLAND	934-4469
30	STEVE GRUENWALD	25800 Post Ave ORLAND	934 7727
31			
32			
33			
34			
35			
36			
37			
38			
39			
40			
41			
42			
43			
44			



Colusa Glenn

Subwatershed Program

P.O. Box 1205, Willows, California 95988 - Phone (530) 934-8036 - Email cgsubwatershed@sbcglobal.net

May 21, 2008

Dear Landowners, Ag Dealers, PCA's, and Operators:

Please read this carefully.

This letter serves as a reminder that you, or your clients, participate in the local subwatershed group, the *Colusa Glenn Subwatershed Program*, to meet requirements under the Irrigated Lands Regulatory Program (ILRP). The ILRP is a mandated program through the California Regional Water Quality Control Board, Central Valley Region for growers within the Central Valley who have irrigation water and/or stormwater leaving their irrigated lands.

As spring has come and summer is almost here, we know that it is time to begin using Chlorpyrifos (trade names include Dursban, Lorsban 4E, Lorsban 4E-HF, Whirlwind, Nufos 4E, Govern 4E, Chlorpyrifos 4E) on your crops. Application of these products may be by ground or air and include most tree crops and alfalfa.

We strongly encourage that you be very aware of water quality issues with this insecticide and utilize any and all Best Management Practices (BMPs) that are available to you and your operation. For example, control drift when applied, do not over-apply, and most of all be aware that if an exceedance in run-off waters occur, then the local subwatershed group will be forced to conduct additional outreach to its participants, using membership fees. *NOTE:* There have already been two exceedances of this nature within the Walker Creek Watershed area. As a response to these exceedances we held a grower workshop in January 2008 and as required by the Conditional Waiver we now have to prepare a management plan. At this time it is not clear what will be required to comply with these requirements.

For more information in using Chlorpyrifos appropriately to reduce chances of an exceedance, please contact our office at (530) 934-8036 or your local Ag Commissioners office to receive Best Management Practice ideas.

Thank you,

Kandi Manhart
Outreach & Education

More information on the Irrigated Lands Regulatory Program (ILRP) may be found at:
www.waterboards.ca.gov/centralvalley/programs/irrigated_lands/index.html

More information on the Sacramento Valley Water Quality Coalition may be found at: www.svwqc.org

Board of Directors

Colusa County Farmers: Denise Carter, Joe Carrancho, John Garner
Glenn County Farmers: Larry Domenighini, Greg Overton

Colusa Glenn

Subwatershed Program

P.O. Box 1205, Willows, California 95988 - Phone (530) 934-8036 - Email cgsubwatershed@sbcglobal.net

July 29, 2008

Dear Landowners, Ag Dealers, PCA's, and Operators:

Please read this carefully.

This letter serves as a reminder that you, or your clients, participate in the local subwatershed group, the *Colusa Glenn Subwatershed Program*, to meet requirements under the Irrigated Lands Regulatory Program (ILRP). The ILRP is a mandated program through the California Regional Water Quality Control Board, Central Valley Region for growers within the Central Valley who have irrigation water and/or stormwater leaving their irrigated lands.

As spring has come and summer is here, we know that it is time to use Chlorpyrifos (trade names include Dursban, Lorsban 4E, Lorsban 4E-HF, Whirlwind, Nufos 4E, Govern 4E, Chlorpyrifos 4E) on your crops. Application of these products may be by ground or air and include most tree crops and alfalfa.

We strongly encourage that you be very aware of water quality issues with this insecticide and utilize any and all Best Management Practices (BMPs) that are available to you and your operation. For example, control drift when applied, do not over-apply, and most of all be aware that *if an exceedance in run-off waters occur, then the local subwatershed group will be forced to conduct additional outreach to its participants, using membership fees.* **NOTE:** There have already been two exceedances of this nature within the Walker Creek Watershed area. As a response to these exceedances we held a grower workshop in January 2008 and as required by the Conditional Waiver we now have to prepare a management plan. At this time it is not clear what will be required to comply with these requirements.

For more information in using Chlorpyrifos appropriately to reduce chances of an exceedance, please contact our office at (530) 934-8036 or your local Ag Commissioners office to receive Best Management Practice ideas.

Thank you,

Kandi Manhart
Outreach & Education

More information on the Irrigated Lands Regulatory Program (ILRP) may be found at:
www.waterboards.ca.gov/centralvalley/programs/irrigated_lands/index.html

More information on the Sacramento Valley Water Quality Coalition may be found at: www.svwqc.org

Board of Directors

Colusa County Farmers: Denise Carter, Joe Carrancho, John Garner
Glenn County Farmers: Larry Domenighini, Greg Overton

Colusa Glenn

Subwatershed Program

P.O. Box 1205, Willows, California 95988 - Phone (530) 934-8036 - Email cgsubwatershed@sbcglobal.net

August 18, 2008

Dear Farm Bureau Member:

Please read this carefully.

This letter serves as a reminder that you may participate in the local subwatershed group, the *Colusa Glenn Subwatershed Program*, to meet requirements under the Irrigated Lands Regulatory Program (ILRP). The ILRP is a mandated program through the California Regional Water Quality Control Board, Central Valley Region for growers within the Central Valley who have irrigation water and/or stormwater leaving their irrigated lands.

As spring has come and summer is here, we know that it is time to use Chlorpyrifos (trade names include Dursban, Lorsban 4E, Lorsban 4E-HF, Whirlwind, Nufos 4E, Govern 4E, Chlorpyrifos 4E) on your crops. Application of these products may be by ground or air and include most tree crops and alfalfa.

We strongly encourage that you be very aware of water quality issues with this insecticide and utilize any and all Best Management Practices (BMPs) that are available to you and your operation. For example, control drift when applied, do not over-apply, and most of all be aware that *if an exceedance in run-off waters occur, then the local subwatershed group will be forced to conduct additional outreach to its participants, using membership fees.* **NOTE:** There have already been two exceedances of this nature within the Walker Creek Watershed area. As a response to these exceedances we held a grower workshop in January 2008 and as required by the ILRP we now have to prepare a management plan. At this time it is not clear what will be required to comply with these requirements.

For more information in using Chlorpyrifos appropriately to reduce chances of an exceedance, please contact our office at (530) 934-8036 or your local Ag Commissioners office to receive Best Management Practice ideas.

Thank you,

Kandi Manhart
Outreach & Education

More information on the Irrigated Lands Regulatory Program (ILRP) may be found at:
www.waterboards.ca.gov/centralvalley/programs/irrigated_lands/index.html

More information on the Sacramento Valley Water Quality Coalition may be found at: www.svwqc.org

Board of Directors

Colusa County Farmers: Denise Carter, Joe Carrancho, John Garner
Glenn County Farmers: Larry Domenighini, Greg Overton

Colusa Glenn

Subwatershed Program

P.O. Box 1205, Willows, California 95988 - Phone (530) 934-8036 - Email cgsubwatershed@sbcglobal.net

May 27, 2009

Dear Landowner:

Please read this carefully.

This letter serves as a reminder that you may participate in the local subwatershed group, the *Colusa Glenn Subwatershed Program*, to meet requirements under the Irrigated Lands Regulatory Program (ILRP). The ILRP is a mandated program through the California Regional Water Quality Control Board, Central Valley Region for growers within the Central Valley who have irrigation water and/or stormwater leaving their irrigated lands.

As spring has come and summer is almost here, we know that it is time to use Chlorpyrifos (trade names include Dursban, Lorsban 4E, Lorsban 4E-HF, Whirlwind, Nufos 4E, Govern 4E, Chlorpyrifos 4E) on your crops. Application of these products may be by ground or air and include most tree crops and alfalfa.

We strongly encourage that you be very aware of water quality issues with this insecticide and utilize any and all Best Management Practices (BMPs) that are available to you and your operation. For example, control drift when applied, do not over-apply, and most of all be aware that *if an exceedance in run-off waters occur, then the local subwatershed group will be forced to conduct additional outreach to its participants, using membership fees.* **NOTE:** There were two exceedances of this nature within the Walker Creek Watershed area in 2007. In response to the exceedances, we held a grower workshop in January 2008 and as required by the ILRP we have prepared a management plan.

Although in 2008 there were no exceedances, we still want to remind you of the importance to be very aware of the water quality issues this insecticide may cause if not handled or applied according to the label.

For more information in using Chlorpyrifos appropriately to reduce chances of an exceedance, please contact our office at (530) 934-8036 or your local Ag Commissioners office to receive Best Management Practice ideas.

Thank you,

Kandi Manhart
Outreach & Education

More information on the Irrigated Lands Regulatory Program (ILRP) may be found at:
http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/

More information on the Sacramento Valley Water Quality Coalition may be found at: www.svwqc.org

Board of Directors

Colusa County Farmers: Denise Carter, Joe Carrancho, John Garner
Glenn County Farmers: Larry Domenighini, Greg Overton

Colusa Glenn

Subwatershed Program

P.O. Box 1205, Willows, California 95988 - Phone (530) 934-8036 - Email cgsubwatershed@sbcglobal.net

PRESS RELEASE

For Immediate Release

Date: June 3, 2009

For additional information, please contact Kandi Manhart, Outreach and Education, at (530) 934-8036 or cgsubwatershed@sbcglobal.net.

STEWARDSHIP OF CHLORPYRIFOS TO AVOID WATER QUALITY ISSUES

Spring is here. Summer is knocking at the door. Therefore, the *Colusa Glenn Subwatershed Program* knows that it is time to use Chlorpyrifos (trade names include Dursban, Lorsban 4E, Lorsban 4E-HF, Whirlwind, Nufos 4E, Govern 4E, Chlorpyrifos 4E) on agricultural crops. Application of these products may be by ground or air and include most tree crops and alfalfa.

For those of you who may not know, although hopefully you do, the Colusa Glenn Subwatershed Program is the local subwatershed program to help irrigated landowners meet requirements of the Irrigated Lands Regulatory Program (ILRP). The ILRP is a mandated program through the California Regional Water Quality Control Board, Central Valley Region for growers within the Central Valley who have irrigation water and/or stormwater leaving their irrigated lands.

In an effort to keep our water quality issues at a minimum, we strongly encourage that handling and applications of this insecticide are according to the label. Also, please utilize any and all Best Management Practices (BMPs) that are available. For example, control drift when applied, do not over-apply, and most of all be aware that *if an exceedance in run-off waters occur, then the local subwatershed program will be forced to conduct additional outreach to its participants using membership fees and will possibly encourage restrictive use of Chlorpyrifos.*

There were two exceedances of this nature in Glenn County within the Walker Creek Watershed area in 2007. In response to the exceedances, we held a grower workshop in January 2008 and as required by the ILRP we have prepared a management plan. Although in 2008 there were no exceedances, we still want to remind everyone of the importance to be very aware of the water quality issues this insecticide may cause if not handled or applied according to the label.

For more information in using Chlorpyrifos appropriately to reduce chances of an exceedance, please contact our office at (530) 934-8036 or your local Ag Commissioners office to receive Best Management Practice ideas.
