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Fraser Sime
Adrienne Stolz

Staff as of July 1, 2012
Vicky Dawley, District Manager
Tom McCubbins, Watershed Coordinator/Project Mgr
Laurie Kehrer, Watershed Specialist
Rose Calzontzi, Watershed Specialist
Cathie Benjamin, GIS Manager
Randy Cousineau, GIS Analyst/Project Mgr
Cody Ewing, Lead Conservation Technician
Kevin Greer, Watershed Specialist
Mike Marvier, Project Coordinator
Kris Lamkin, Accountant

Office
2 Sutter Street, Suite D
Red Bluff, California 96080
Phone: 530.527.3013 x5
Fax: 530.527.7451

Cover photo: Taken by Kevin Greer at the Tehama Wildlife Area April 2012. This photo won KRCR News Channel 7 “Photo of the Week”
Introduction

The Tehama County Resource Conservation District (TCRCD) is a legal subdivision of the State of California, governed by Division 9 of the Public Resources Code. TCRCD’s responsibility is conservation of the natural resources within its borders which includes the entire county of Tehama, excluding only the incorporated cities of Red Bluff, Corning and Tehama. It is governed by five Directors, appointed by the Tehama County Board of Supervisors’ and non-voting Associate Directors, appointed by the District’s Board of Directors. The board members are all local landowners who volunteer their time to represent the land users in the district, thus ensuring a local voice in natural resource issues. The District is wholly funded by grants, donations and contracts. It receives no general tax revenues.

By means of a Memorandum of Understanding with the Natural Resources Conservation Service (NRCS), the District receives assistance carrying out its mandated responsibilities. Working with NRCS and other agencies and groups, a coordinated effort is made to conserve and improve the natural resources of Tehama County.

Mission: To provide assistance with managing, conserving and improving the natural resources of Tehama County.

Vision: A balanced management of the county’s natural resources, where all land use decisions are locally driven, socially acceptable, environmentally sound and economically feasible.

Purpose: To coordinate technical, financial and educational resources, to ensure the long term use of natural resources.

Long Range Plan

In 2008, the board of directors and staff of TCRCD worked together to develop a five year Long Range Plan to serve as a direction for its activities. The Plan outlines six broad topics of concern to TCRCD in its mission to assist with management of the county’s natural resources. It also includes actions to address each of the topics of concern. The topics include:

♦ Land Use & Planning
♦ Watershed Management & Health
♦ Air Quality
♦ Direct Assistance to Land Stewards
♦ Education & Outreach
♦ Administration & Operation

For a full copy of the TCRCD Long Range Plan, see Appendix A.

History

On May 26, 1987 the Tehama County Resource Conservation District was officially formed from the consolidation of four RCDs. In September 2005, the Tehama County RCD merged with the Vina Resource Conservation District, which was located in the southeastern corner of the County. At the time of the merger, the Tehama County RCD became a county-wide district.

For a compete history and physical description of the District, see Appendix B.
Finances

Since July 2007, TCRCD has steadily made changes to its sources of funding. The District was heavily dependent on funding from grants from bond funds issued by the state of California when all bond funding was frozen for several months in early 2009. When our grant funded projects were restarted after the freeze, we had a shortened time frame within which to complete all work on the projects. The TCRCD board of directors made the decision at that time to quickly diversify the District’s sources of funding to bring more security to District operations. They specifically wanted to move into more fee-for-service work. The charts below show the drastic changes in revenue sources that have been made over the course of five years.

The TCRCD is proud of its resilience in the face of turbulent economic times. We have consistently maintained a staff of 4-5 full-time and 3-4 part-time staff, along with 1-2 interns each summer. We provide a quality working environment with vacation, holiday and sick leave; health and retirement benefits are also included. Our annual revenues of from half a million to one million dollars make us a reasonably large Tehama County business. It is rewarding to know that we are not only contributing to the well-being of the county’s natural resources but also to its economic health.

The remainder of this report will describe nine broad areas of TCRCD’s activities:

- Fee-for-service projects
- Mobile Irrigation Lab
- GIS
- Watershed management
- Environmental studies
- Fire and fuels management
- Projects completed in cooperation with the Natural Resources Conservation Service
- Education and Outreach
Fee-for-Service Projects

Fee-for-service has been the cornerstone of TCRCD’s move toward financial stability. We provide services to a number of organizations including:

- The Shasta Tehama Watershed Education Coalition (administrative and financial management)
- Sacramento Valley Association of RCDs (administrative and financial management)
- Battle Creek Watershed Group (financial management)
- Sacramento River Discovery Center (financial management)
- CA Department of Fish and Game (management of the grazing leases and monitoring on the Tehama Wildlife Area)
- Tehama County Transportation Commission (training in use of GIS software for county staff)
- Red Bluff Farms (monitoring of vernal pools and Residual Dry Matter at the Coyote Creek Conservation Area)
- Rancho Tehama Elementary School (watershed education presentations)
- Glenn County RCD (creation of a Community Wildfire Protection Plan)
- Calfire, High Sierra RC&D, Cottonwood Creek Watershed Group (CEQA Services – see Appendix C for more details on TCRCD’s CEQA program)

Mobile Irrigation Lab

TCRCD has been operating a Mobile Irrigation Lab since 2002 with funding from the Department of Water Resources, Bureau of Reclamation and the Natural Resources Conservation Service. This free service is mostly used by farmers, but has also been used by homeowners and businesses. The MIL provides information to the irrigator about the distribution uniformity of the irrigation system and also about irrigation scheduling. For details of the program see Appendix D.

Geographic Information Systems (GIS)

A geographic information system is a system designed to capture, store, manipulate, analyze, manage and present all types of geographical data. Since 2007, TCRCD’s GIS team has used their technical skills to provide maps, statistics and analysis in support of grant writing and reporting requirements. GIS has also been used as a fee-for-service activity, most recently in a contract with the Tehama County Transportation Commission to provide training to county staff in a variety of departments in the use of GIS software. For more details of the GIS activities of TCRCD, see Appendix E.

Map created for the WUI and Watershed Protection/Emergency Access Assessment (Coleman Fish Hatchery Road and Ponderosa Way) Project, for a full version of the map see the TCRCD website
Watershed Coordinator manning a booth at the Watershed Awareness Day, April 2009

Starting on October 1, 2011 we started work on a new three year watershed coordinator grant for the Cottonwood Creek watershed. The Watershed Coordinator will work with landowners and agencies to expand public awareness of, and participation in, environmental improvement and conservation projects within the Cottonwood Creek Watershed. We will collaborate with the Western Shasta RCD on this project as the watershed is in both Shasta and Tehama counties. Planned projects include fuels reduction, vegetation/riparian habitat management and monitoring, and education and outreach on a range of topics of interest to landowners and the public within the watershed.

TCRCD has been fortunate to have a Watershed Coordinator through Department of Conservation funding since 2001. The watershed that we have been managing is the “Sacramento-Lower Thomes” watershed that covers the Sacramento River and the mouths of most tributaries to the river on its east and west sides. This has given the watershed coordinator the opportunity to participate in a wide variety of activities throughout the county, from writing and managing grants, to conducting education and outreach activities. Our grant for work in this watershed will end on June 30, 2012.

Studies

Through the efforts of the TCRCD and the watershed groups in the county, all watersheds in the county have watershed assessments and management plans. These studies have generally been completed with grant funding provided by state bond funds. Consulting firms have done many of the studies, but recently TCRCD has developed the expertise to complete its own studies. We also are using the talents of our GIS staff to complete vegetation management studies of the Tehama Wildlife Area for the Department of Fish and Game. For a complete description of TCRCD’s studies see Appendix F.
Fire and Fuels Management

Since the beginning of 2007, TCRCD’s fire and fuels management efforts have focused on both assessing wildfire related issues within the County and addressing these through the implementation of project work. Through the development of the countywide fire plans problems related to wildfire and fuels management were identified. By collaborating with public and private stakeholders, projects and changes to local regulations and fire management infrastructure were recommended.

In 2010, TCRCD received funding from the California Fire Safe Council to purchase a large chipper unit that can process vegetative material up to 14” in diameter. TCRCD received funding to use the chipper to develop fuel breaks totaling more than 30 miles around the Manton community as well as within the Battle Creek and Antelope Creek watersheds. In addition to shaded fuel breaks created through the cutting and chipping of wildland vegetation, TCRCD completed a 13 mile long fuel break in northwestern Tehama County utilizing ball and chain techniques. This project extends a 73 mile long system of fuel breaks by an additional 13 miles. For further details of the TCRCD Fire and Fuels Management program see Appendix G.

Education and Outreach

Workshops have been an important part of the Tehama County RCD’s outreach efforts. Since 2000, we have hosted 53 workshops with a total attendance of 1,744. Workshop topics helped landowners manage their land, focusing on conservation, stewardship and water quality issues.

In addition to workshops, Tehama County RCD staff frequently give presentations about topics of interest to local organizations. Those organizations cover many interests from the Red Bluff Garden Club, to fellow RCDs and irrigation districts, farming groups and schools.

For more details about TCRCD’s Education and Outreach programs see Appendix H.
Projects completed with the Natural Resources Conservation Service

Resource Conservation Districts (RCD) work closely with the USDA’s Natural Resources Conservation Service (NRCS). The presence of an RCD in a county makes it possible for an NRCS office to be located there. In turn, NRCS often provides office space for the RCD. Working as a team, the two agencies are able to achieve more conservation practices than they could separately. In the last five years, the partnership between TCRCD and the Red Bluff office of NRCS has brought $2,831,706 to Tehama County in the following conservation practices:

<table>
<thead>
<tr>
<th>Accomplishment</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservation plans</td>
<td>85 plans on 81,252 acres</td>
</tr>
<tr>
<td>Applied conservation practices on rangeland</td>
<td>176,622 acres</td>
</tr>
<tr>
<td>Applied conservation practices to reduce erosion</td>
<td>3,646 acres</td>
</tr>
<tr>
<td>Applied conservation practices to improve water quality</td>
<td>132,305 acres</td>
</tr>
<tr>
<td>Water conservation systems</td>
<td>2,928 acres</td>
</tr>
<tr>
<td>Brush management</td>
<td>315 acres</td>
</tr>
<tr>
<td>Fence installed</td>
<td>187,990 ft.</td>
</tr>
<tr>
<td>Cover crops</td>
<td>326 acres</td>
</tr>
<tr>
<td>Range plant/pasture</td>
<td>1,538 acres</td>
</tr>
<tr>
<td>Hedge rows</td>
<td>3,373 ft.</td>
</tr>
<tr>
<td>Pipeline</td>
<td>53,484 ft.</td>
</tr>
<tr>
<td>Watering facilities</td>
<td>47</td>
</tr>
<tr>
<td>Irrigation systems</td>
<td>431 acres</td>
</tr>
<tr>
<td>Irrigation pipe</td>
<td>16,561 ft.</td>
</tr>
<tr>
<td>Irrigation Tailwater Recovery Systems</td>
<td>5</td>
</tr>
<tr>
<td>Wells/pumping plants</td>
<td>11</td>
</tr>
<tr>
<td>Waste management systems/roof runoff</td>
<td>1,824</td>
</tr>
<tr>
<td>Irrigation Water Management Plans</td>
<td>1,392 acres</td>
</tr>
<tr>
<td>Pest Management Plans</td>
<td>219 acres</td>
</tr>
<tr>
<td>Prescribed grazing</td>
<td>50,605 acres</td>
</tr>
<tr>
<td>Wetlands enhancement</td>
<td>11,513 acres</td>
</tr>
</tbody>
</table>

For more information on TCRCD and its programs:
530.527.3013 x5
or
www.tehamacountyrcd.org

Successful NRCS Pasture Enhancement Project
Appendix A: Long Range Plan

Tehama County Resource Conservation District
Long Range Plan
2008 – 2013

Organization
The Tehama County Resource Conservation District (TCRCD) is a legal subdivision of the State of California, governed by Division 9 of the Public Resources Code. TCRCD’s responsibility is conservation of the natural resources within its borders. It is governed by five Directors, appointed by the Tehama County Board of Supervisors; and non-voting Associate Directors, appointed by the District’s Board of Directors. The board members are all local landowners who volunteer their time to represent the land users in the district, thus ensuring a local voice in natural resource issues. The District is wholly funded by grants, donations and contracts. It receives no general tax revenues.

By means of a Memorandum of Understanding with the Natural Resources Conservation Service, the District receives assistance carrying out its mandated responsibilities. Working together, and as needed with other agencies and groups, a coordinated effort is made to conserve and improve the natural resources of Tehama County.

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Purpose: To coordinate technical, financial and educational resources, to ensure the long term use of natural resources.

Land Use & Planning
Tehama County RCD recognizes the increasing pressures of urbanization and the potential loss of agricultural, ranch, oak woodland and open space lands. The RCD believes the best way to address this issue is to: (1) continue educating land managers and decision makers on natural resource issues of the county and (2) assist land stewards with managing natural resources in a profitable and sustainable manner. To accomplish this, TCRCD will engage in the following activities:

A. Participate in and continue to monitor the County’s general planning process regarding the importance of natural resource issues

B. Facilitate creation of conservation easements on agricultural lands by connecting interested landowners with land trusts and/or easement programs

C. Pursue management of mitigation lands
D. Host educational events on agricultural land protection, conservation, easements and managing productive working lands

E. Recognition as the “go-to” organization for technical assistance with natural resources management

F. Provide input on creation, development and implementation of legislation and local ordinances that may influence natural resources of the county

### Watershed Management & Health

TCRCD recognizes several trends impacting the county’s resources, such as increased regulation and need to protect water quality, loss or segmentation of riparian and wildlife habitat, increased residential housing and recreational or small scale agriculture, increasing citizen awareness of natural resource issues, transitions from rangeland to irrigated cropland and difficulty in managing forest and upland resources. Considering these trends and TCRCD’s commitment to maintain and improve watershed health, the District will seek funding and foster partnerships to address the following five resource areas:

#### Water Quality

A. Continue to support the Shasta-Tehama Water Education Coalition in monitoring and identification of water quality concerns on behalf of landowners with irrigated lands

B. Provide technical support for practices that limit sediment, nutrient and pesticide discharges

C. Support programs that decrease or remove illegal waste dumped in waterways

D. Work with Tehama County Solid Waste on a recycling awareness program

#### Water Conservation

A. Continue operation of Mobile Irrigation Lab with the goal of increasing water use efficiency

B. Survey riparian habitat and plan restoration needs with interested landowners

C. Promote water conservation in urban areas through Mobile Irrigation Lab technical assistance and education

#### Oak Woodland Conservation/Upland Watershed Management

A. Analyze oak woodland change over time utilizing GIS analysis

B. Assist development of conservation plans on upland watershed

C. Achieve a net gain of oak trees within the county through an oak planting effort

D. Increase landscape stability in chaparral and forest ecosystems through improved technologic capabilities and strategic planning for fuels management

E. Participate in the Tehama County Oak Hardwood Advisory Committee

F. Implement projects identified in the Tehama County Fire Plan

#### Soil Quality & Erosion

A. Work with partners and landowners to assess and improve soil quality and stability through practices such as grazing management, cover crops and off-stream water development

B. Document existing county road erosion and development problems and assist with prevention

#### Locally Led Conservation

A. Continue collaborative project development with existing watershed groups, stakeholder groups, government agencies and non-profit organizations
B. Provide administrative and technical assistance to existing and new stakeholder groups

### Air Quality

C. Seek funding for projects and studies of interest to stakeholders

Air quality is an increasingly serious resource concern in the north state. TCRCD is committed to refining district activities relevant to air quality as regulations continue to impact the Sacramento Valley. In order to promote and support activities that reduce air pollution, TCRCD will…

A. Foster improved air quality by recognizing and supporting sources of renewable energy
B. Host seminars or workshops on topics relevant to air quality
C. Partner with Air Pollution Control District on issues of mutual concern regarding air quality such as:
   1. An ordinance to not allow burning of leaves
   2. Enforcement of illegal burning activities
D. Maximize ag waste materials directed to co-gen plants instead of burning
E. Support and facilitate use of the County’s central compost/recycle area
F. Support planning and development efforts that yield no net loss of trees as a result of urban development

### Direct Assistance

The health of our natural resources begins with the ability of private land stewards to apply conservation practices on their land. In order to support land stewards in the management and protection of their lands, TCRCD will…

A. Obtain grants to assist land stewards with applied conservation practices
B. Assist land stewards with conservation applications and permits
C. Support revitalization of distressed properties by removing trash and pollution sources
D. Provide technical assistance to land stewards regarding natural resource management

### Education and Outreach

One of the most important services TCRCD has to offer is educational opportunities for the community. In order to increase community awareness of its programs and to offer a variety of educational opportunities, TCRCD will…

A. Integrate and/or support Natural Resources education for children
B. Provide ongoing training to staff and directors on issues relevant to local natural resources
C. Conduct an ongoing public relations program by:
   1. Submitting newspaper articles for publication about the RCD and its activities
   2. Presenting the District display board at community events
3. Publishing an annual newsletter, containing the District’s Annual Report and articles about local landowners and conservation projects
4. Giving presentations about District activities to community groups and schools
5. Inviting local media and officials to RCD events

D. Encourage suggestions and input from District residents
E. Support local, state and national associations of Resource Conservation Districts by:
   1. Encouraging Directors and staff to attend association meeting and annual conferences
   2. Providing dues, fees or conference registration, as the budget allows
   3. Submitting resolutions to associations as needed to address RCD concerns
F. Communicate with and lobby local, state and federal legislators concerning resource matters of concern to the District
G. Continue to lobby for staffing and increased support for RCDs
H. Be involved locally with the Board of Supervisors and the Tehama County Planning Commission by:
   1. Making special presentations at Supervisors’ meetings
   2. With input from NRCS staff, reviewing materials sent by the Tehama County Planning Department, and commenting on applications for projects that have the potential to negatively impact natural resources
I. Link ag community with urban community for education on ag issues

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**Administration and Operation**

In order to effectively serve the community, TCRCD will use responsible business practices. To accomplish this, TCRCD will…

**Budget**

A. Prepare an annual budget
B. Utilize proper accounting procedures for RCDs
C. Prepare monthly fiscal reports for the Board
D. Conduct annual financial audit
E. Secure grants, private and public, and pursue contracts for projects to further District priorities, assuring:
   1. Sufficient lead-time so grants and contracts overlap
   2. Adequate money in the grant or contract to accomplish the project’s tasks and goals
   3. Grants and contract deadlines are understood and followed
   4. Sufficient overhead is charged
F. Diversify income sources

---

**Administration**
A. Annually complete items as scheduled in the District’s Administrative Policy including:
   1. Election of Officers
   2. Review of Agency MOUs
   3. Development of Annual Work Plan
   4. Preparation of District Annual Report
   5. Review list of Associate Directors

B. Review District policies as needed

C. Provide ongoing training to District directors in ethics, boardsmanship and Division 9

D. Provide ongoing training to staff in administrative procedures
Appendix B: History and Physical Description

History
On May 26, 1987 the Tehama County Resource Conservation District was officially formed from the consolidation of the Corning (formed July 1945), Lassen View (formed May 1961) and Cottonwood (formed April 1956) RCDs. At the time of the consolidation, any parts of the Cottonwood or Corning RCDs that were in Shasta or Glenn Counties were detached from the new Tehama County Resource Conservation District. In September 2005, the Tehama County RCD merged with the Vina Resource Conservation District that had been located in the southeastern corner of the County. At the time of the merger, the small section of the Vina RCD that was in Butte County was detached and the Tehama County RCD became a county-wide district, excluding only the incorporated cities of Red Bluff, Corning and Tehama.

Physical Description
The District contains approximately 1.7 million acres (92% of the county’s acreage) and 36,930 people (63% of the county’s population). There are various land uses in the district, including: irrigated and non-irrigated cropland, orchards, vineyards, dry cropland, rangeland, brushland and forestland. The district also covers a rapidly growing acreage containing rural housing. Many parcels of this type are developed, but large numbers remain approved but undeveloped.

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Acres in District</th>
<th>% of District</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rangeland</td>
<td>800,000</td>
<td>42%</td>
</tr>
<tr>
<td>Forestland</td>
<td>550,000</td>
<td>28%</td>
</tr>
<tr>
<td>Brushland</td>
<td>185,000</td>
<td>10%</td>
</tr>
<tr>
<td>Cropland, irrigated</td>
<td>108,000</td>
<td>6%</td>
</tr>
<tr>
<td>Cropland, dry farmed</td>
<td>85,000</td>
<td>4%</td>
</tr>
<tr>
<td>Rural housing</td>
<td>27,500</td>
<td>2%</td>
</tr>
</tbody>
</table>

Agricultural land uses comprise the majority of the Tehama County acreage total. All major land uses have numerous natural assets: soil, wildlife, water, trees, vegetation, and air. Rural living, recreation, hunting, fishing and fuel harvesting can be integrated uses of the same base acreage.

The Sacramento River runs through the heart of the District, bringing with it issues of water quantity, quality and anadromous fish habitat. Most of the district is comprised of watersheds that flow into the Sacramento River. The District believes that the management, conservation and improvement of the county’s natural resources are best achieved when approached at a watershed level.

On the east side of the District, along with numerous smaller watersheds, are the Battle, Paynes, Antelope, Mill and Deer Creek watersheds. These watersheds are in relatively healthy condition and several support significant populations of native anadromous fish. The Battle, Mill and Deer Creek watersheds also have active landowner groups in place and completed watershed assessments. TCRCD has completed a Fire Plan for all of the watersheds on the east side of the county and a combined watershed assessment and management plan for those eastern watersheds with no active landowner group.

On the west side, the geology and soils together produce watersheds that contribute excessive sediment to the Sacramento River. The Cottonwood Creek watershed to the north has a completed fire plan, watershed assessment and management plan. South of Cottonwood Creek are the Reeds, Red Bank, Elder and Thomes Creek watersheds, along with numerous smaller watersheds. TCRCD is active in the southwestern watersheds with a completed fire plan, watershed assessment and watershed management plan for these “Tehama West” watersheds.
In 2009, the Tehama County Resource Conservation District initiated its permitting and CEQA Services program. Most sizable environmental protection and restoration projects require an analysis of their impacts on the environment and communities. Under the California Environmental Quality Act (CEQA), this requires an assessment and determination of project related impacts. Depending upon the type of work involved and the agencies having oversight of the project, other environmental permits may also be required. TCRCD staff has extensive experience in developing, coordinating and preparing the following documents and their related analyses:

**CEQA Documents**
- Notice of Exemption
- Initial Studies and coordination of specialist’s reports
- Negative Declaration
- Various Required CEQA Notices

**Other Permitting Documents**
- Army Corp of Engineers’ 404 Permit
- California Regional Water Quality Control Board Water Quality Certification (401) analysis
- California Department of Fish and Game 1600 permits

The Tehama County RCD has provided the following analyses to public and private entities in the North State area.

**Cal Fire Tehama-Glenn Unit**
Initial Study/Mitigated Negative Declaration preparation for the:
- Little Giant Mill Road Fuel Break
- Sunflower Fuel Break
- Pattymocus Fuel Break
- Hazen C Line Fuel Break
- Hazen Forward Fuel Break

**High Sierra Resource Conservation and Development District**
Initial Study Mitigated/Negative Declaration for the Forbestown Road Shaded Fuel Break

**Cottonwood Creek Watershed Group**
- Initial Study Mitigated/Negative Declaration Hammer Loop Fuel Break
- Initial Study Mitigated/Negative Declaration Crowley Gulch Vegetation Treatments
- Initial Study Mitigated/Negative Declaration/Cottonwood Creek Invasives Control Project (*In Process*)

TCRCD has submitted a funding proposal to the Sierra Nevada Conservancy to conduct environmental analysis on the District’s proposed Tramway Road/A Line Shaded Fuel Break. Once completed this proposed 10 mile long roadside fuel break would tie into Cal Fire’s roughly 12 mile long C Line Fuel Break that was completed in spring of 2012.
Appendix D: Mobile Irrigation Lab

The Mobile Irrigation Lab is a service provided to agricultural irrigators by the TCRCD. The MIL program was started in 2002 with the goals of helping growers better understand their irrigation systems, providing scheduling assistance, and giving recommendations for improvement.

Several key pieces of information are provided to the grower in a 15 to 20 page report that includes; application rates, distribution uniformity (DU), suggested run times, maintenance practices, and field maps consisting of flow and pressure readings taken throughout their system. Currently the MIL program is run by Kevin Greer who was hired in May of 2009 as an Irrigation Technician.

Prior to 2009 the MIL had evaluated systems for 7 irrigation seasons with a total of 206 evaluations completed. Since Kevin took over in 2009, an additional 219 evaluations have been completed.

Over the 10 year course of MIL evaluations the program has expanded the amount of data collected in the field and the information given to growers. In 2010 the RCD purchased a portable flow meter that enables field technicians to test flow rates being input into irrigation systems. This aides growers to understand exactly how much water is being used per minute. For troubleshooting systems this is a valuable tool that can determine if there are any issues with the pump.

Another key addition in the last year has been working with NRCS’s Irrigation Water Management (IWM) program. Through this service growers are taught about different indicators that may determine irrigation scheduling, for example, understanding Evapotranspiration (ET) rates used in conjunction with crop coefficients. These two measurements provide a clue as to how much water a specific crop type has consumed over the course of a day, week, or month. The IWM is much more intensive as contact between the MIL technician and the grower takes place once per week. As a result, run times are adjusted from week to week based on individual irrigation system performance and fluctuating weather conditions.

In addition to helping growers, the MIL has been active with Tehama County job placement programs. Our interns for the past 3 years have come from Red Bluff’s Job Training Center (JTC). We have used JTC’s programs to employ first time job seekers, applicants with limited work experience, and those seeking jobs in sustainable agriculture. Through these programs the TCRCD has employed 4 interns in the last 3 years.
Randy Cousineau and Cathie Benjamin were hired in January 2007 as a GIS analysis team for TCRCD. At that time, the district had purchased a software maintenance contract from ESRI and was utilizing the ArcView program for GIS tasks. The GIS team successfully applied for a conservation grant to update the GIS software to version 9.2 in February 2007. During that first year, a GIS library of datasets was built, and the district’s Tehama County watershed maps and rain monitoring volunteer map were updated. After these basic resources were developed, the team became proficient, efficient, and accurate in responding to requests for GIS assistance. An intern was hired in the summer of 2008 to supplement the GIS staff, a Red Bluff High School senior named David Button. David worked under the supervision of Randy and Cathie for two years and was helpful with several ongoing projects. Another intern, Jas O’Grownney, joined TCRCD in the summer of 2009 and contributed toward a road maintenance analysis along Ponderosa Way and Coleman Fish Hatchery Road. A third addition to the GIS team was Kevin Greer, hired in the fall of 2009, who now works mainly with the mobile irrigation lab and the chipping program.

A showcase of Randy and Cathie’s abilities as GIS analysts took place during the first summer at the annual Day in the District event hosted by TCRCD. A collection of historic topographic maps and an innovative 3D virtual tour of demonstration projects using ArcGlobe were presented. During 2007, the major GIS projects included a watershed assessment and management plan for the eastside of Tehama County and an eastside fire plan. Between July 1, 2007 and June 30, 2010, TCRCD’s GIS staff contributed various types of technical support to the following projects, listed below in alphabetic order by funding source:

- Bureau of Land Management
  - Valley Elderberry Longhorn Beetle Habitat Mapping Project (GIS mapping and analysis, document formatting)
- California Department of Fish and Game
  - Tehama Wildlife Area (GIS assistance)
- California Department of Water Resources
  - Tehama East Watershed Assessment and Management Plan (watershed atlas, GIS models)
  - Sacramento River Watershed Program (contribution of shapefiles, images, and reports for SWIM)
- California Fire Safe Council
  - Chipping programs (mapping support)
  - Tehama East Community Wildfire Protection Plan (GIS mapping, graphic design, document formatting, Webtool for fire-related projects)
- Coyote Creek (residual dry matter monitoring data)
- Glenn County RCD
  - Glenn County Community Wildfire Protection Plan
- Natural Resources Conservation Service
  - Mobile Irrigation Lab (documentation of evaluation sites)
  - GIS assistance
  - Honcut watershed project (analysis of riparian corridor)
  - Rephotography (digital photography and graphic design)
- Sierra RCD and Upper San Joaquin River Stewardship Council
  - Upper San Joaquin River Watershed Assessment (GIS support)
- Sunflower CRMP
  - Songbird Monitoring (GIS mapping support)
  - Conservation easement (GIS analysis and support, document formatting)
- Burrows Ranch
  - Conservation easement (GIS analysis and support)
- Sacramento River Discovery Center
  - Red Bluff High School intern program (training GIS interns, Sunset zone map for native plants)
  - Summer Camp (watershed education)
STWEC
(GIS assistance)
Tehama County Transportation Commission
Blueprint U-Plan (GIS assistance)
US Fish & Wildlife Service
Antelope Creek Geomorphology (GIS database development and photographic documentation)
Wildland Urban Interface (WUI) and watershed protection and emergency access for Coleman Fish Hatchery Road and Ponderosa Way (online image galleries, GIS analysis, field work, graphic design, and document formatting)

Ongoing projects include providing training in GIS software for various Tehama County departments and for the Tehama Wildlife Area working with the Department of Fish and Game.

The GIS team has provided maps, statistics, and analysis in support of grant writing and reporting requirements. In preparation for events, fairs, workshops, conferences, and presentations, analysts have created posters, PowerPoint presentations, lectures, and handouts. The Sacramento River Discovery Center has received many technologically-related benefits, including the creation of a website update and the loan of a computer kiosk for several months that contained interactive watershed education tools, in addition to several days of ArcView instruction given to Red Bluff High School interns. Community involvement has included GIS analysis related to the recent general plan update for Tehama County and participation in local events such as the county fair, Education Day, and watershed tours and festivals.

Many examples of the excellent work done by the TCRCD GIS analysts can be viewed online at the district’s website found at http://www.tehamacountyrcd.org. The initial investment of time, effort, and dollars made in 2007 to develop this expertise has paid off in the ability of TCRCD to provide these highly technical, professional-level services to the residents, landowners, agricultural producers, and government agencies of Tehama County.
Tehama West Watershed Management Plan (TWWMP)

The Tehama West Watershed Management Plan is the action document resulting from the evaluation of the Tehama West Watershed Assessment (TWWA 2006), which provides the necessary background information on existing conditions within the watershed. The TWWMP was produced in house by TCRCD staff. Funded through a grant from the State Water Resources Control Board as part of the CALFED Watershed Program, this community-based process provided the opportunity for input through public meetings that were held in various locations within the assessment area. From those meetings conclusions and recommendations were reached concerning possible improvement activities. Additional interviews and written comments were also part of this process. A Technical Advisory Committee (TAC), consisting of individuals from private industry, public agencies, and other stakeholders (including private landowners) provided guidance addressing the conclusions and recommendations of the management.

Many of the activities and projects found in the document will require new funding through public/private grants or other sources in order for those projects to reach fruition. Some activities may require nothing more than a prescription or strategy implementation, and other conclusions and recommendations may require further investigation before management activities can be described.

Elder Creek in Western Tehama County

Tehama East Watershed Assessment, GIS Map Atlas, and Management Plan

The watershed assessment, map atlas, and management plan were developed and produced by the staff at TCRCD. For the written document, consultants contributed to the final assessment by writing for the fisheries, water quality, hydrology, botany, and wildlife chapters, with the rest written by TCRCD staff. TAC meetings were held during the course of the grant at which staff members received the advice of technical experts. An online catalog entry into the California Environmental Information Catalog has been made for the various deliverables so that this work will be more accessible.
Watershed Assessment
The goal of this watershed assessment/watershed management plan project was to characterize the current environmental and land development conditions found within a large portion of the county’s eastside landscapes. With an understanding of the area’s landscape-scale ecological and social dynamics, problems found in multiple watersheds such as stream flows, water quality and anadromous fish habitats were better understood. Once the project area’s resources were fully described they were analyzed in order to identify significant problems related to the environmental and economic health of the study area. Utilizing the information, data, observations and analysis developed through the watershed assessment process, a management plan was prepared which provided strategies to solve the significant problems found in the project area.

A major component of this project was public education and community outreach. Engaging public and private stakeholders as well as the general public allowed the local community to participate in the development of this project as well as the solutions developed to solve local resource problems. These efforts were also used to provide residents, regulators and decision makers’ information on the ecosystems and landscapes of eastern Tehama County in an attempt to improve resource management and protection.

TCRCD considers its watershed management plans to be “living documents.” The assessment and management plan documents will be posted on our website where the public will have easy access and the ability to comment. In addition to changes suggested by the public, TCRCD staff and board can suggest changes that will improve the management plan as a document that provides direction for future funding applications.

GIS Map Atlas
The final watershed assessment consists of two documents, a traditional written watershed assessment and a watershed atlas. For the watershed atlas, collection of publicly available GIS datasets was undertaken and completed, and three original datasets were created: (1) watershed boundaries for the study area that extend to the confluence with the Sacramento River, (2) an NRCS soils coverage joined with extended attribute information and (3) countywide bridge and culvert locations. A set of 60+ GIS conceptual models was developed for landscape metrics, with 15 actual models created using ArcGIS ModelBuilder. Clipped datasets included 13 distinct landscape characteristics. Location-specific Rarefind species occurrences were gathered. Resulting maps were compiled into a 450+ page watershed atlas depicting available public GIS datasets for the study area.

Management Plan
The management plan flowing from this assessment process has multifaceted benefits. Data gathering has provided opportunities to build connections with local citizens and to hear their concerns. A local reputation has been built for TCRCD showcasing the knowledge, competence, and professionalism of its staff. Partnerships have been strengthened between TCRCD and other natural resource organizations in the county. Lastly, the final management plan document has yielded a list of project work and data gaps that deserve attention in order to manage, conserve, protect, and enhance the natural resources of Tehama County.

Funding
Funding for these analyses were funded by the California Bay-Delta Program and was administered by California Department of Water Resources.
**Tehama Wildlife Area (TWA)**

**Vegetation Management**
The TWA, owned and managed by the State of California, Department of Fish and Game (DFG), provides critical wintering habitat for one of the largest migrating deer herds in the state, known as the Eastern Tehama Deer Herd. As part of the TWA vegetation management scheme, the area is divided into ten livestock grazing allotments, providing forage for grazing from January to May each year. The Tehama County Resource Conservation District was chosen by DFG to oversee the administration of the grazing permits and to evaluate and monitor range conditions. The TCRCD staff has developed a grazing management plan and subsequent annual grazing reports to make sure that livestock remains a viable and appropriate management tool within the TWA. Through this reporting process, the DFG continues to evaluate the use of livestock grazing within the TWA.

**Vegetation monitoring**
The utilization and vegetation monitoring for the TWA grazing allotments consists of two evaluation criteria. The first evaluation criteria will provide annual information constituting the forage utilized by livestock grazing and annual use of riparian corridors. The second criteria will provide long-term condition and trend information concerning health and vigor of the rangeland. Annual vegetation monitoring will consist of two methods of seasonal use by livestock: 1) Residual Dry Matter (RDM); and, 2) Robel Pole (RP). The annual use of riparian areas will be monitored using the Visual Assessment of Riparian Health (VARH), as developed by the University of California Division of Agriculture and Natural Resources. Long-term monitoring is also performed to determine condition and trends of the vegetation within TWA.

**Fuels Plan**
During the winter of 2010, TCRCD entered into an agreement with the DFG in order to manage Agricultural Lease Plans (s) within the TWA. Under this agreement and with the assistance of TCRCD, the University of California Cooperative Extension Service, and the Natural Resources Conservation Service, DFG determines agricultural management activities such as stocking and rotation rates for livestock upon the designated TWA lands. The Annual Agricultural Lease Plans specify agricultural management activities that achieve these rates and address other land management issues in order to accomplish wildlife enhancement and related conservation goals.

Among DFG’s primary goals in managing the approximately 46,895 acres within the wildlife area is the protection of watershed resources from the impact of wildfire and fire suppression activities. In addition, DFG is attempting to manage vegetation on a landscape scale in a manner that mimics natural ecological functioning and that provides habitat and other resources to the array of wildlife for which the property is being managed. Acknowledging the necessity of coordinating fire management efforts more closely across this largely unfragmented landscape, DFG and TCRCD collaborated on the development of this Vegetation and Fuels Management Plan for the TWA. This plan articulates fuels and vegetation management goals, along with research and monitoring priorities, developed by DFG, CalFire, and TCRCD. The plan also outlines site-specific objectives for the entire TWA.

All of the Tehama County RCD studies and documents mentioned in this report are available on our website: www.tehamacountyrcd.org
Since the beginning of 2007, the Tehama County Resource Conservation District’s fire and fuels management efforts have focused on both assessing wildfire related issues within the County and addressing these through the implementation of project work. In 2008 a Community Wildfire Protection Plan was completed for Eastern Tehama County. The plan’s assessment area covered that portion of Tehama County’s eastside from the valley floor to the Lassen National Forest’s western boundary. This planning effort followed an earlier planning project completed in 2005 for Western Tehama County.

Through the development of the Tehama East CWPP and the Tehama West Fire Plan an array of problems related to wildfire and fuels management were identified. Utilizing collaborations with an array of public and private stakeholders, projects along with changes to local regulations and fire management infrastructure were recommended. In 2010, the RCD received funding from the California Fire Safe Council to purchase a large chipper unit that can process vegetative material up to 14” in diameter. With this equipment and trained personnel in place, the TCRCD sought and received funding from the Fire Safe Council which resulted in the development of fuel breaks totaling more than 30 miles around the Manton community as well as within the Battle Creek and Antelope Creek watersheds. In addition to shaded fuel breaks created through the cutting and chipping of wildland vegetation, the RCD completed a 13 mile long fuel break in northwestern Tehama County utilizing ball and chain techniques. With its completion, this project extends a 73 mile long system of fuel breaks by an additional 13 miles.

Over the past five years, the Tehama County RCD has developed close working relationships with many fire fighting and fuels management entities through its coordination of the Tehama-Glenn Fire Safe Council. Included among these local watershed stakeholders are Cal Fire, the Lassen National Forest, Mendocino National Forest and the Shasta-Trinity National Forest. In addition, the District coordinates their fuels management efforts with those of the Lassen Volcanic National Park, the Bureau of Land Management, U.S. Fish and Wildlife Service and the California Department of Fish and Game. Effective working relationships have also been developed with Sierra Pacific Industries upon whose lands a portion of these fuel breaks have been developed.
In 2011 the Tehama County RCD completed a vegetation management plan for the California Department of Fish and Game’s Tehama Wildlife Area. The plan was in connection with the District's management of grazing allotments on these lands. One of the plan’s goals is to develop an implementation strategy that will result in the management of wildland fuels on the eastside of the Wildlife Area in order to protect upland forest resources from catastrophic wildfire. It is also anticipated that implementation measures will reduce the necessity of using heavy equipment to create fire breaks during wildlife events which can negatively impact water quality in streams and the condition of riparian habitat. In addition, fuels work that develops out of the planning process is expected to improve wildlife habitat for the numerous species being managed in the Wildlife Area.

Having a chipper unit, the Tehama County RCD now has the opportunity to assist other entities in their efforts to better manage wildland fuels that protect both communities and watershed resources. Included among these collaborations was the creation of an additional 2 miles of fuel treatments in connection with Cal Fire’s 10 mile long Little Giant Mill Road Fuel Break near the communities of Ponderosa Sky Ranch and Lyman Springs. The RCD’s chipper program was also utilized in order to provide Cal Fire with assistance in connecting one of their fuel break projects to a larger effort that was completed by the District.
The following is a list of the fuels projects completed by the Tehama County Resource Conservation District since 2007.

**Completed Fuels Projects**
- Tehama County RCD Chipper Program and Manton Fuel Break Project
- Paynes Creek Community Fuel Break
- Tedoc Mountain Fuel Break
- Ponderosa Way Fuel Break
- Mill Creek Community Fuels Treatments
- Little Giant Mill Fuel Break  * (Assistance provided to Cal Fire)

**In Process Fuels Projects**
- Forward Road-Forward Mill Fuel Break
- Boondocks Community Fuel Treatments
- Mineral Community Fuel Treatments
- Lake California Fuels Program  * (Coordination of Fuels work conducted by Cal Fire’s Ishi Camp)

**Other Fire and Fuels Management Related Efforts**
- Revision of the Tehama West Fire Plan
- Development, Preparation and Update of the Tehama East Community Wildfire Protection Plan
- Glenn County Community Wildfire Protection Plan  * (Prepared Under Contract with the Glenn County Resource Conservation District)
- Tehama Wildlife Area Vegetation Management Plan