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Conservation Profile: Blending Oil and Water for Wildlife Habitat

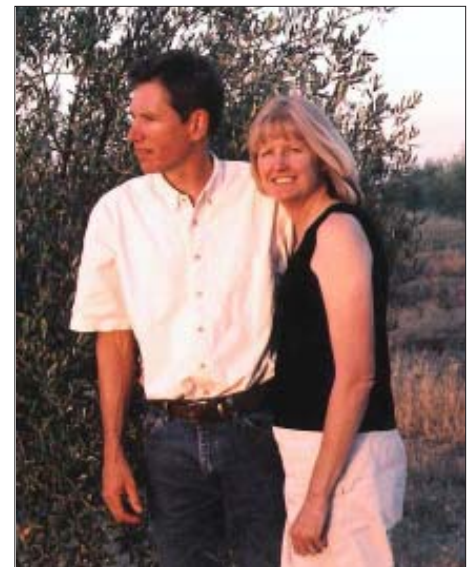
by Diane Crumley

Jim and Andrea Mayer live and farm on 20 acres located south of Woodland near Willow Slough where they produce organic olive oil, hand-crafted from a blend of mostly Tuscan olive tree varieties. Their olive oil called Frate Sole, translates from Italian to Brother Sun, a phrase used in a canticle written by St. Francis of Assisi that describes the attributes of nature in family terms. St. Francis' deep appreciation and respect for plants, animals and natural resources is shared and demonstrated by the Mayers, and is a fundamental part of their business plan.

Jim and Andrea selected Yolo County as the place to live, farm and raise a family largely because of its reputation for being a region with innovative farmers dedicated to preserving and sustaining both agriculture and wildlife habitat. It was for similar reasons that Jim Mayer became involved with the Yolo County Resource Conservation District, where he has served for several years on the board of directors, and is currently Vice Chair. Jim's background, training and work in environmental journalism and public policy administration are

important assets to the YCRCD board.

All farming operations, regardless of size and crop type can face challenges imposed by topography, soil composition, water delivery, drainage, flood risk, and competition from invasive species and potential



Jim and Andrea Mayer.

pests. In Jim Mayer's case, his farmland had previously been fallow and infested with noxious weeds such as yellow star thistle. Additionally, the northeast low-lying portion of the property hosts silty, clay-alkaline soil formed over time by the annual pattern of flooding and ponding after winter storms, leaving that ground unsuitable for crop production.

To address these issues, the Mayers worked on their own to grade the property and create elevated areas to protect their home site, barn and orchards from seasonal flooding, and to direct runoff towards an informal pond in the flood-prone northeast three acres of the property. They also planted a grove of young valley oaks along the western boundary to provide screening from sun and wind, additional native habitat, and eventually replace the existing row of non-native eucalyptus trees. They

Inside this edition:



- Conservation Profile: Mayer Farm
- Irrigation Evaluation Services Available
- Ag Water Quality Support Program Services
- YCRCD Welcomes Mark Lane
- Cache Creek Discovery Day a Splash
- Caltrans Vegetation Project Update
- Will Baker Native Plant Garden Progress

Continued on page 2

included cover crops on the floor of the olive orchard, which is irrigated with a water-conserving drip system.

In 2006, Jim partnered with conservationists from YCRCD and NRCS, and a UC Davis landscape architecture student to produce a Whole-Farm Conservation Plan, as part of a biennial 'Farmscape Architecture' course taught and designed by YCRCD Executive Director, Paul Robins. The planning process enabled the Mayers to conduct an integrated site analysis, clarify their goals and objectives for the land, and develop a five-year implementation and funding plan.

With the plan, the Mayers are now working toward further development of the farm pond that includes two small habitat islands, the installation of flap gates and flashboard risers to contain the water during the wet season, and native plantings along the edges to provide bank stability and habitat. Apart from flood control, the pond will allow for groundwater recharge, capture sediment, and improve the quality of water leaving the property that eventually drains to Willow Slough.

West of the pond, running along the northern boundary of the farm are low hedgerow plantings to establish a windbreak, to encourage the presence



Jim and Andrea examining young olives.

of beneficial birds and insects, and serve as a natural barrier to minimize weed seed drift from the adjacent fallow property. Directly south of this area, Jim plans to build a barn this summer to house the sheep and goats that are planned additions to their farm to assist with natural weed management. Sheep grazing can function similarly to native herbivore grazing, and by planting native vegetation in pasture areas, it can mimic the natural rangeland ecosystem.

Jim Mayer's 8.5-acre organic olive orchard utilizes cover crops for nitrogen fixation, weed control, reduction of soil erosion from wind and water, and additional forage when sheep are introduced to the operation. The trees are spaced generously, compared to current industry standards of planting at increasingly high densities to facilitate mechanical harvesting. At the Mayer's farm, all harvesting is done by hand with family and friends on busy weekends in November. The hand-picked olives are then rushed to be cold-pressed within 24 hours to maximize the oil's flavor and freshness.



Sam Mayer during harvest.

Jim and Andrea's Frate Sole Tuscan-blend won a gold medal at Yolo County Fair's first-ever olive oil competition in 2005, a silver medal in 2006, a Best of Yolo County award in 2007, and they also medaled at the more widely attended Los Angeles County Fair. They are already looking forward to the late fall, when once again, they will have the opportunity to bring friends and family together to enjoy the camaraderie of the harvest and the diversity of on-site plants and wildlife benefiting from their farm stewardship.

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On-Farm Ag Water Quality Support Program Continues in Yolo and Solano Counties

Growers in Yolo and Solano Counties can be reimbursed for the costs of installing sediment traps, vegetated ditches, and cover crops thanks to a grant from the State Water Resources Control Board using funds from Proposition 50. Yolo County RCD staff are partnering with Solano and Dixon RCD, and the Yolo County Farm Bureau Education Corporation to provide technical support, on-farm water quality monitoring, and outreach about the benefits of these best management practices.

A sediment trap is an excavated ditch with an outflow control structure that temporarily impounds irrigation tailwater or storm water runoff. The sediment can later be removed and deposited on an adjacent field or open land at the end of the season. YCRCD has documented the ability of these traps to reduce the volume of sediment in run-off water by 30 to 50% over the course of an irrigation season. One two-stage sediment trap and tailwater pond reduced sediment concentrations by 98% in a 2000 YCRCD study.

In vegetated drainage ditches, living and decomposing plants/roots and the associated microorganisms slow

water flow, trap sediment and take up excess nutrients and pesticides. In a well-designed and well-maintained ditch, vegetation can detain 40-95% of certain pesticides. From a recent field trial performed by YCRCD staff and colleagues, Program Manager Jeanette Wrynski reported that preliminary results indicate that the length of vegetated ditch required to reduce permethrin (a pyrethroid pesticide) concentration by one half was 22 meters, compared to 347 meters in a non-vegetated ditch—a more than 90% increase in ‘distance efficiency’ required to reduce pesticide concentrations.

Cover crops are commonly used in permanent crops and most organic agriculture for their nutrient benefits. They also help to protect and anchor the soil and capture runoff, allowing rain and irrigation water to penetrate the soil, instead of eroding it. UC Davis and YCRCD studies have shown cover crops to reduce storm runoff by as much as 90% and to decrease the concentration of sediment in runoff by 30-45%.

Monitoring information from this project will further refine our understanding of how and to what

degree these practices improve farm runoff water quality. For more information, please contact Mark Lane at the Yolo County RCD at (530) 662-2037, extension 120 or Andrea Mummert at the Solano RCD at (707) 678-1655, extension 101. For fact sheets about each of these practices, link to the YCRCD website, Ag Water Quality page at www.yolorcd.org/programs/agwq.



Cover crops can filter and reduce runoff from permanent and annual crop lands while providing soil quality and nutrient benefits.

Free Irrigation Evaluations Offered To Local Growers

The especially dry winter has resulted in an early start for irrigations this year. The Yolo County RCD invites Yolo and Colusa County growers to request free irrigation system evaluations through the Mobile Water Lab Program. Services include: determining the system’s distribution uniformity, measuring the total volume of water applied during an irrigation event, developing a system map of pressure and flow measurements, providing irrigation scheduling assistance, and optional water quality sampling of source irrigation water and/or runoff. By measuring nitrogen inputs from well-water before irrigation, it enables growers to potentially reduce the amount of fertilizer applied to the field. Over the past two years, the Mobile Water Lab has identified ways in which growers have been able to improve irrigation efficiency by 15% on average. This free analysis can help growers save water, electricity and money, and improve the water quality of run-off.

Over the past month Lab Manager Mark Lane and Water Management Assistant Daniel Constable have conducted seven irrigation evaluations covering a total of 400 acres of almond, walnut, prune and orange orchards. They evaluated a total of 230 acres that utilized drip irrigation and 170 acres using micro sprinkler systems. Daniel, a 2006 graduate from the UC Davis Environmental & Resource Sciences program, assisted last year with 32 irrigation assessments that included over 1100 acres of vineyards, almond and walnut orchards, and alfalfa fields.

The evaluations are planned to work around growers’ busy summer schedules. The Mobile Lab is currently taking appointments, and can be reached by calling Mark or Daniel at (530)662-2037, extension 120. For additional information and a printable brochure, visit the RCD website at www.yolorcd.org. The free services of the Mobile Lab are made possible through funding from the U.S. Bureau of Reclamation, the California Dept. of Water Resources Office of Water Use Efficiency and Transfers, and NRCS.

Mark Lane Joins RCD as Mobile Water Lab Manager

YCRCD welcomes Mark Lane to Woodland and to his new position as Mobile Water Lab Manager, replacing Clara Mamone who has moved to the Bay Area. Mark previously worked at Contra Costa RCD managing their Ag Water Quality Program that focused mostly on installing and monitoring drip irrigation systems in tomato fields. Prior to that, he served as a Natural Resource Specialist with a Bay Area environmental firm that specialized in resource management, restoration, and outreach activities. Mark assisted growers in developing farm conservation plans for erosion control, water quality and sustaining habitat for salmon and steelhead trout, and also conducted on-farm visits to evaluate best management practices for wine grape growers.



Mark Lane collecting water sample with Mobile Lab.

Mark's training includes a B.S. in Natural Resources and Environmental Sciences from Purdue University in Indiana, and a B.S. in Geological Engineering from the University of Idaho. Mark has also received formal certification in Ecological Restoration from Merritt College in Oakland, and GIS/GPS certification from Diablo Valley College. His broad experience in several areas of natural resource management, his familiarity with working with the NRCS, and other nearby Ag water quality projects, prepares him well for managing YCRCD's Mobile Lab and the Yolo-Solano Agricultural Water Quality Support Programs.



Children meet the goat herd as they dine on a Tamarisk thicket at Cache Creek Discovery Day.

Cache Creek Watershed Event a Success

Over 175 residents from Yolo, Lake and Colusa counties converged on the first-ever Cache Creek Discovery Day at Cowboy Camp on Saturday, May 19. Participants went on hikes in the nearby hills, visited with goats as they devoured riparian weeds in Bear Creek, and visited numerous interactive displays and presentations on different aspects of the Cache Creek watershed's history and ecosystem. Member organizations of the Cache Creek Watershed Forum co-organized the event and hosted the activities based on their areas of expertise: including wildlife and plant (native and weed) identification, Native American basket weaving, fire ecology, cultural history, and stream dynamics. The mid-May weather could not have been more cooperative, and the Lake County 4-Hers cooked up a tri-tip lunch on site. Local musicians Bill Barrows, Connie Miller, and "Singing Professor" Harry Lyons serenaded the crowd during lunch with a solar-powered PA system.

The goat herd was placed on site by Cow Mountain Kiko Goats a few days prior to the event as a test of grazing tamarisk, tall wheatgrass and perennial pepperweed. They seemed to prefer the green growth on the tall wheatgrass as well as the smaller grasses and forbs in-between the clumps of wheatgrass. They also munched on the perennial pepperweed and ate some tamarisk, stripping small branches and 'barking' larger stems. They completely ignored the saltgrass on site, which is a native grass that the elk prefer when they come through the area.

The Cache Creek Watershed Forum is a tri-county organization of natural resource, agricultural, and educational partners. The Discovery Day was conducted as part of Watershed Awareness Month, designated by a proclamation by Governor Schwarzenegger, to promote the importance of watershed education and stewardship activities at the local community level. The event was made possible by partial funding from the Rumsey Community Fund.



Cache Creek Conservancy's Lynnel Pollock shares wildlife identification tips and tracks with children from three counties.

Caltrans Native Tree Plantings Celebrate Second Summer of Growth

On May 31st, RCD Revegetation Specialist Sean Kenady and Project Assistant John Reynolds planted the last of over 1,600 native trees and shrubs placed along four local highway interchanges near the Yolo Bypass Causeway and West Sacramento for the Caltrans-funded Native Tree Project. The hardy plant species selected for landscaping the interchanges include: interior live oak, valley oak, red and black willows, Fremont cottonwoods, western redbud, black walnut, coyotebrush and deergrass. In the first year, the trees were less than two feet tall, and were easily supported by half-inch bamboo stakes. But as some of the now six foot tall trees leafed out this spring, some have completely out-grown their light-weight stakes and require greater support. The faster growing black walnuts and cottonwoods are mostly self-supporting this season, with the slower-growing oaks, willow and redbud requiring re-staking.

This year, irrigation began on May 1st, roughly two weeks earlier than last year due to the drier winter. Because this will be the second summer for most of the project sites, Sean and John plan on irrigating longer during each visit, but less frequently to encourage deep rooting of the trees and shrubs. Over-winter survival of the trees and shrubs this year was 95%, and survival for deergrass was 93%. These survival rates are encouraging due to the rather extreme weather that has occurred over the project's planting and establishment phase. These young plants experienced record-breaking rainfall in December of 2005, a severe heat wave in July of 2006, and record-shattering cold and drought in January 2007. As can be seen in the photo of the thriving six-foot Black Walnuts and four-foot Deergrass under the I-80 – I-50 interchange, these California natives are indeed well-suited to tolerate wide temperature fluctuations, drought and periodic flooding



Native plantings at I-80-I-50 interchange.

Stakeholders Group Submits Plans for Demonstration Garden to County

After two years of planning and collaborative design development the Cache Creek Watershed Stakeholders Group (CCWSG) is ready to move ahead with initial installation of the Will Baker Native Plant Garden. The half-acre garden will be located within the Vernon A. Nichols Park in Guinda, a 21-acre site along Cache Creek in Capay Valley in memory of Will Baker, a longtime local author, farmer, cowboy and UC Davis professor. The group anticipates breaking ground this fall, now that the CCWSG Garden Committee has submitted the revised garden design and plant list to the County Parks and Natural Resources Department.

The Native Garden will serve as a demonstration project to showcase native plants and their beneficial uses in rural and home landscapes for drought tolerant wildlife habitat, fire and weed suppression and erosion control. Garden planting zones are designed to correspond with natural plant communities, such as streamside, ponds, lowlands and dry hills. The Stakeholders Group plans on developing informational displays within the plant groupings to inform visitors about the plants' roles in the watershed, and how landowners can incorporate them into their home, farm or ranch landscapes.

Just in the planning process, the Will Baker Garden has drawn in many partners and community members, especially those of the Western Yolo Grange in Guinda. Garden Committee members spent many hours preparing and presenting the design for community review, and YCRCD Vegetation Management Specialist and Wa-

tershed Coordinator, Tanya Meyer provided go-between assistance with county parks staff and the group. NRCS engineer, Jack Alderson has provided critical support through site surveys, preliminary designs and planting recommendations. Initial funding for the project comes from the Yolo County Planning and Public Works Department, which received the enabling grant for the improvement of the larger 21-acre Nichols Park with Proposition 50 funding from the California River Parkway Program. The County will perform the grading and the construction of the paths and irrigation system, and the Stakeholders Group will propagate and purchase the plants, build the beds and start planting (next fall), install the drip lines and perform all weed control.

The Stakeholders Group will maintain and support the Will Baker Native Plant Garden entirely with their own efforts and fundraising. So far they have raised several thousand dollars by organizing and hosting their annual Mother's Day Garden Tour, a self-guided tour of private gardens in Capay Valley that saw over 200 participants in 2007 and 2006. For more information, visit the garden project website at www.capayvalley.com/WillBakerGarden.htm and the stakeholders group's page on the YCRCD website at www.yolorcd.org/programs/cache-creek-watershed-stakeholders-group. CCWSG is a locally-led organization of Capay Valley residents whose mission is to enhance and protect their resources through working collaboratively to promote watershed stewardship through community outreach and cooperative planning.

Yolo County RCD Publications

The Yolo County RCD offers various resource materials for sale. To place an order, send your request to Yolo County RCD - Orders, 221 W. Court Street, Suite 1, Woodland, CA 95695; call 530-662-2037, ext. 117; or send an e-mail to pratt@yolorcd.org.

Please add tax and shipping and handling costs to publication prices below:

- Know Your Natives; A Pictorial Guide to CA Native Grasses (includes supplement)\$30
- Know Your Natives - supplement ONLY \$15
- Bring Farm Edges Back to Life! \$15
- California Native Grass (poster) \$17
- Monitoring on Your Farm \$15
- Working Habitat for Working Farms (video) . \$10
- Yolo County Soil Survey (CD-ROM) \$13.92
- Capay Valley Conservation & Restoration Manual (free to Capay Valley residents) \$15



Shipping & handling:

- 1 item: \$6.00
- 2-5 items: \$9.00
- 6-10 items: \$12.00
- 11-30 items: \$16.00
- Poster: \$7.50

Please add 7.75% sales tax to prices

Find project progress reports, events, links, and updated conservation articles on the RCD website at www.yolorcd.org

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