

## **FISH FRIENDLY FARMING/FISH FRIENDLY RANCHING - AMADOR COUNTY #735**

### **Detailed Project Description**

Agricultural and rangelands in the Sierra Nevada provide benefits to the local economy and the local environment. This proposal will improve the management of these lands in Amador County through the use of the Fish Friendly Farming (FFF) and Fish Friendly Ranching (FFR) Environmental Certification Programs. The FFF/ FFR program addresses a range of environmental improvements on private land and integrates these improvements in the farming and ranching operation for long term public and environmental benefits. The FFF/ FFR program also identifies management measures and designs projects for water quality, water conservation and fish and wildlife habitat improvements. The Ca. Land Stewardship Institute (CLSI) operates the FFF/ FFR program and under this proposal CLSI will partner with the Amador County Resource Conservation District (RCD) and the University of California Cooperative Extension (UCCE) to bring the FFF/ FFR program to Amador County.

### **Environmental Setting**

Amador County in the central Sierra (Figure 1) is a major winegrape growing area with over 3500 acres of vineyards primarily in the Shenandoah Valley. Other vineyards near lone lie below the SNC project elevation boundary of 1250 ft. Other agricultural lands include fruit orchards. Rangeland used for dryland grazing covers 73,000 acres above the SNC boundary. Figure 2 depicts the irrigated farmland and dryland grazing areas above 1250 ft in Amador County.

These lands serve as a working landscape where economic uses such as livestock operations and farming exist within a landscape of streams, rivers and their watershed lands. These lands support a diverse assemblage of native plant and wildlife species interspersed within and around the farming and grazing lands. Improvements to the management of the farm and grazing lands increases the water quality and water flow in streams, the sustainability of soils and agricultural productivity, the quality and continuity of habitats and the value of farm products. The FFF/ FFR program while focusing on private land produces benefits to many public resources while improving the economic viability of each farm or ranch.

Most of this area drains to the Consumes River or the Mokelumne River. The Consumes River is an undammed waterway with a substantial nature preserve in its downstream reaches. According to the Basin Plan of the Central Valley Regional Water Quality Control Board (CVRWQCB) the upper Consumes River provides the following beneficial uses: domestic water supply, agricultural irrigation supply, contact recreational use, cold freshwater habitats, cold spawning habitats and wildlife habitat. The Mokelumne River flows into the Pardee/Comanche Reservoirs operated by the East Bay Municipal Utility District as an urban water supply. The Basin Plan lists municipal and domestic water supply, power generation, contact recreation, warm and cold freshwater habitats, cold and warm migration habitat, warm and cold spawning habitat and wildlife habitat as beneficial uses for the Mokelumne River.

Water quality impacts from agricultural and ranch lands in the Central Sierra are from nonpoint sources, or widely distributed locations that each generate small amounts of sediment, nutrient and pesticide/herbicide pollutants. Agricultural operations in this area use low volumes of irrigation water and do not generate return flows, a major source of pollutants in the Central Valley. Instead pollutants are generated through storm water runoff, direct drift or spillage of pesticides. Ranches have similar mechanisms of pollutant delivery - storm water runoff transports sediment and pathogen bacteria into waterways. Numerous water quality studies recognize that nonpoint source pollution has to be addressed through implementation of best management practices (BMPs) such as filter strips, cover crops and critical area planting, riparian revegetation, drainage improvements and road repair to minimize the potential for soil erosion and pesticide runoff. Amador County is part of the Irrigated Lands Regulatory Program of the CVRWQCB. Water quality monitoring is done at four stations downstream of Amador County in Sacramento County.

The FFF/ FFR Programs, with its emphasis on reducing erosion and fine sediment loss on farming and ranching lands, is consistent with the Amador County General Plan Open Space Element (p. 42), which identifies specific programs to implement the Open Space Element, including: “2. To continue similar cooperative action with State agencies and public utilities with respect to... watershed erosion...” and “4. To provide all reasonable protection and encouragement to the preservation of agricultural soils and continued agricultural use of suitable soils.” In addition, the FFF/FFR Program certification signs and bottle labeling are a tool for increased publicity, which is compatible with the Section III. Plan Objectives, Principles, and Standards excerpt (p. 44), which reads: “3. To strengthen the area economy through expanded commerce and industrial activity, protection and expansion of agriculture and forestry and increased local processing of their raw materials.” The FFF/FFR Program supports the Custom and Culture of Agriculture and Grazing in Amador County, as identified in the General Plan (pp. 61-62).

## **Goals**

The goals of the FFF/ FFR Programs are to:

- **Improve and sustain high levels of water quality in rivers, lakes and streams through pollution prevention measures on farms and ranches.**

As part of this proposal pollution prevention analyses will be carried out on a minimum of 3000 acres of farm and ranch lands up to a maximum of 5000 acres. Deliverables: BMP list with timeline and project designs (as applicable) for each site up to the 5000 acres maximum. BMPs cover pollution prevention for agricultural chemicals, sediment sources, water conservation, livestock management to reduce bacterial pollution as well as stream revegetation.

- **Improve, sustain and increase the ecological integrity of riparian corridors and wetlands through projects on farm and ranches.**

As part of this proposal we estimate that the site assessments will include approximately 15 linear ft of creek/river corridor per acre of farm and ranch land.

Deliverables: For all of these streams the assessments will provide either BMPs for improvements or a project design if needed.

- **Sustain and preserve working landscapes and economic uses of land**

By improving the environmental condition of farms and ranches especially for water quality the FFF/FFR program makes these areas sustainable with less regulation.

Deliverables: List of certified sites and record of BMP implementation.

- **Increase opportunities for agricultural tourism through the promotion of FFF/FFR certified sites and labeled products**

CLSI provides the tools for marketing and promotion of each site with our logo and signs. Deliverables: Project information materials for Ag tourism groups for marketing and publicity of local areas.

- **Develop a regional program for long term improvements in water quality and habitats and sustainable agriculture and ranching.**

This proposal will extend the FFF/ FFR program to Amador County. CLSI is also working with the El Dorado RCD and Placer County RCD to extend the program on a regional basis. Deliverables: Increased acres in the FFF/ FFR program and greater improvements to water quality, habitat and sustainability.

## **Project Description**

In 2008 the SNC approved a grant to the Georgetown Divide/El Dorado RCD to partner with CLSI to develop and implement a version of the FFF program in El Dorado County. The FFF program had successfully implemented water quality improvements on over 120,000 acres statewide. The Sierra Foothills FFF program includes Beneficial Management Practices (BMPs) for winegrapes, plums, peaches, nectarines, cherries, walnuts, olives, pears, apples and Christmas trees. Each of these crops has specific diseases and pests and chemical usage as well as tillage, weed control, fertilizer use, irrigation and other practices. The FFF program BMPs use Integrated Pest Management (IPM) as well as a number of other measures to reduce pollutants in runoff and create additional habitat on farms. The FFR program was developed in 2011 and focuses on reducing erosion and bacterial pollution into waterways as well as creek restoration and sustainable livestock operations. Both programs provide the landowner with use of the FFF logo in marketing and labeling their products. Currently there are a number of El Dorado growers who are using the logo. Growers in El Dorado County certified 2750 acres and participation in the FFF program has been steadily growing. Growers in nearby counties such as Amador and Placer want to participate in the FFF program.

This Category 2 planning project will provide for a minimum of 3000 acres up to a maximum of 5000 acres of farm and ranch lands to be assessed using the Sierra Foothills FFF/ FFR program and needed BMPs and projects to be prescribed.

The FFF/FFR program requires a number of steps:

- Landowner enrolls property, receives FFF/FFR workbooks and site maps and attends two workshops on management measures. Enrollment will occur prior to contract with SNC.
- CLSI completes site assessment with owner/manager

- CLSI working with owner identifies problems and needed BMPs and any needed projects. Projects are defined as more complex efforts than BMPs and may require permits to implement. Owner and CLSI completes farm plan template including BMP prescriptions.
- UCCE works with growers to establish tools to revise pesticide use in winegrapes
- CLSI and RCD discuss BMPs with owner
- CLSI completes project designs.
- Properties are certified by Agricultural Commissioner and Natural Resource Conservation Service (NRCS)
- Landowner is able to use FFF/ FFR logo in marketing or labeling products and site signage.
- Landowner implements BMPs separately from this grant but with assistance from CLSI and RCD and completes annual photo monitoring
- Also separate from this grant CLSI and RCD work with landowner to find funding for project implementation.

Each site assessment will be comprehensive covering:

- Soil erosion – a complete sediment source inventory and mapping will be done including tilled areas, roads, corrals, existing erosion sites and other areas to identify active erosion. Movement of soil particles into waterways is a major pathway for pesticides to enter streams and rivers.
- Water use – type of irrigation and frost control system will be assessed along with efficiency evaluation
- Chemical use – for each crop the chemical/cultural control measure for each pest and disease is assessed. The toxicity of currently used chemicals is compared to alternative measures. Chemical storage, mix and load sites and application measures are assessed for precautions against spills, drift and groundwater contamination. Use of IPM measures such as insectary rows, beneficial insect habitat, tolerance of pest damage to support beneficial insects and other measures are evaluated.
- Stream network – the network of perennial, intermittent and ephemeral creeks is mapped on the site and assessed for geomorphic condition, vegetative type and cover, presence of invasive nonnative plants, potential for improvements to fish and wildlife habitat, potential to increase connectivity within the watershed, create wildlife corridors and other features.
- Agricultural area – farmed lands are mapped and assessed for measures to protect against soil erosion such as cover crops, the condition of the agricultural drainage system, fertilizer use and overall soil health.
- Grazing areas – grazed areas are mapped along with fence lines, watering areas, supplement locations, shade structure locations, corrals and service areas, creek crossings and sensitive habitat or rare plant areas. The operation is evaluated for the season of use of various grazing areas, type of operation, herd size, rangeland capacity, residual dry matter and other features. All of these features determine if sediment and pathogen bacteria delivery to creeks is limited to the greatest degree possible by management measures in use.

- Non-agricultural areas – uplands are evaluated for vegetation type, use and potential for enhancement of native plants or wildlife habitat.

The assessment is prepared with the grower/rancher in order to include the detailed and historic knowledge of the operator and create a collaborative working relationship. For each assessment a series of BMPs is prescribed to revise management practices and make specific improvements to water quality, in-stream flows, fish and wildlife habitat and improve the sustainability of the operation. The BMPs to be prescribed include 38 for irrigated agricultural lands and 36 for ranches such as:

- Installation of winter cover crops and critical area plantings on all farmed land to protect soil against sheet or rain strike erosion;
- Elimination of wet weather tillage;
- Installation of erosion control on field roads, ranch roads and year round roads;
- Installation of vegetated filter strips adjacent to all waterways;
- Stabilization and revegetation of rills and gullies over the property;
- Installation of rock dissipaters at pipe outlets to eliminate gully formation;
- Stabilization of creek crossings and modification if a fish migration barrier exists;
- Eradication of invasive non-native plants;
- Revegetation of ephemeral, seasonal and year round waterways and wetlands with local genetically appropriate native plants;
- Reduction in pesticide and fertilizer use through IPM practices and modification of storage, mixing and application practices to protect surface and groundwater;
- Elimination of use of chemicals known to leach into groundwater;
- Grazing management to provide adequate residual dry matter to protect soils and reduce negative effects on riparian corridors and wetlands;
- Water conservation practices.

Outcomes of each site assessment will be described by the potential results of implementing the assessment including: tons of sediment retained from waterways, acres with soil and water conservation completed, miles of roads and waterways treated for erosion, acres of nonnative plant removal and native plant revegetation, acres of wetlands enhanced, acres of rangeland treated with improved grazing management.

Ongoing water quality monitoring through the water quality coalition will document improvements over time. To obtain and continue to use the FFF label and logo landowners must continue to implement all BMPs creating long term public benefits. Additionally the use of the FFF certification as compliance under CVRWQCB's irrigated lands program is being sought as is done in Regions 1 and 2.

In order to meet SNC's requirements we have already completed outreach to growers and ranchers and have identified those who are interested in enrolling in the program. We will use the alternative land tenure process and have attached our landowner agreement/enrollment form and landowner list.

## **Project Summary**

Nonpoint source pollutants consisting of sediment, pesticides, fertilizers and bacterial pathogens are derived from farms and ranches distributed over Amador County. These private lands contain significant fish and wildlife habitats and stream areas. The Fish Friendly Farming/Fish Friendly Ranching (FFF/FFR) programs operated by the nonprofit Ca. Land Stewardship Institute (CLSI) work directly with landowners to complete a comprehensive assessment of all soil erosion sources, chemical use, stream network, water use, grazing operations, fish and wildlife habitats and agricultural land management practices. Beneficial Management Practices (BMPs) are prescribed and if needed projects are designed using the FFF/FFR templates and working with the owner. This proposal would complete these assessments on a minimum of 3000 acres up to a maximum of 5000 acres including 45,000 to 75,000 linear feet of creek assessments. Revegetation designs will be completed for up to 20,000 linear feet of creek corridor. Both the Amador County RCD and the University of California Cooperative Extension will be partners with CLSI for this grant. The FFF/ FFR program provides for certification of each site by the County Agricultural Commissioner and NRCS. Once certified the owner can use the FFF/ FFR logo to market products and publicize their sustainable practices. CLSI has identified 70 agricultural and ranching properties likely to enroll in the FFF/ FFR program and will complete land owner agreements /enrollment forms before the SNC contract is issued. Outcomes of each site assessment will be described by the potential results of implementing the assessment including: tons of sediment retained from waterways, acres with soil and water conservation completed, miles of roads and waterways treated for erosion, acres of nonnative plant removal and native plant revegetation, acres of wetlands enhanced, acres of rangeland treated with improved grazing management.

## **Work plan and Schedule**

We are assuming a start date of 5/2013 and an end date of 3/1/2016

### Task 1: Project Management – throughout project

Oversight of subcontracts, preparation of invoices and 6-month progress reports, coordination with SNC staff, performance measure reporting.

- Deliverables: Progress reports with performance measure reporting, invoices, subcontracts, final report with performance measure reporting

### Task 2: Site Enrollment 5/2013; 10/2013-1/2014; 10/2014-1/2015

We have listed a number of agricultural and ranching sites who are interested in participating. We will complete enrollment/landowner agreement forms with each landowner prior to the SNC contract and prepare maps of topography, soils and an aerial photography at 1"=500'.

- Deliverables: List of enrolled sites, landowner agreements

### Task 3: BMP Training for Landowners 6/2013; 1/2014; 1/2015

It is essential that landowners are actively engaged in improving land management practices. Each enrolled site will send 1-2 representatives to a series of two workshops. FFF/FFR workshops will be distributed. University of California Cooperative Extension (UCCE) staff will work with CLSI to provide presentations on soil erosion control techniques, stream care and revegetation, wildlife habitat enhancement, Integrated Pest Management (IPM), pesticide storage and protection of surface and groundwater and water conservation.

- Deliverables: Workshop schedule and presentations

### Task 4: Site Assessments 5/2013-8/2013; 3/2014-8/2014; 3/2015-8/2015

CLSI will meet with landowners and work with them to perform a comprehensive assessment of their lands. This will include mapping features and working with the owner to complete the FFF farm plan template and BMP implementation timeline. CLSI will produce a summary of needed BMPs and projects for each site.

- Deliverables: Site description and BMP timeline for each site for a total of 3-5,000 acres

### Task 5: Improving Data Collection and Revising Pesticide Use 6/2013-3/2016

One method for revising the use of pesticides is to use precise environmental data. For winegrapes fungicides are the primary chemical used. In most regions weather stations are used in each micro-climate to measure temperatures and humidity and be used with a computerized mildew model. This type of analysis provides for the precise use of chemicals reducing overall use and improving the quality of grapes sustaining the farm operation. As part of the FFF program we would like to set up a weather station as a demonstration of a management method that growers need to adopt.

- Deliverables: New methodology for revising use of fungicides in winegrapes

### Task 6: Certification 8/2013-9/2013; 8/2014-9/2014; 8/2015-2/2016

CLSI will coordinate with the Amador County Agricultural Commissioner, Natural Resource Conservation Service and UCCE to complete certifications. The certifiers review the farm plan, review the site and add BMPs if needed. They approve the site, approve with modifications or reject with an explanation. Once the certification is completed CLSI issues a certificate to the owner.

- Deliverables: Copies of certificates

### Task 7: Project Designs 8/2013-3/2016

For sites where erosion control, revegetation or wildlife enhancement projects are identified, CLSI will complete designs to allow for permitting and implementation.

- Deliverables: Project designs for six major projects or 10 small projects selected by severity of problem on natural resources or operation.

### Task 8 Implementation 6/2013-3/2016 Match funds only

Using our own funds, CLSI will work with growers to assure they implement the BMP portion of their farm plans and complete annual photo monitoring. In addition we will work with the RCD and NRCS to find funds for implementation of project designs and complete permit requirements.

### **Restrictions, Technical Documents and Agreements – Category 1 Projects Only**

This section does not apply to this Category 2 project.

### **Organizational Capacity**

CLSI currently operates the FFF program in five counties including Napa, Sonoma, Mendocino, Solano and El Dorado on over 120,000 acres. Our staff all work on the FFF program as well as numerous restoration projects and include erosion control specialists, botanists with revegetation and habitat restoration experience, GIS specialists and rangeland conservation specialists. All of our staff work with private landowners and understand how to collaborate with farmers and ranchers.

Our project manager for this grant, Derek Hitchcock, grew up in Nevada City and is very familiar with ranching and farming in the foothill region. Derek has completed numerous FFF plans and can efficiently complete site assessments and discuss the need for various BMPs and projects with landowners.

Laurel Marcus, our Executive Director will oversee the work on the grant and is the author of the FFF/ FFR programs. Ms Marcus will teach the workshops, review the site assessments and BMPs prescribed. She will also prepare the project designs. Ms Marcus has over 30 years of experience in this field.

CLSI has developed field methods to efficiently assess land conditions, map features accurately and work with growers. We have the capacity to complete the proposed project.

### **Cooperation and Community Support**

CLSI developed this proposal in conjunction with the Amador County RCD and Central Sierra UCCE. We have also coordinated with the Amador County Winegrape Growers Association and a number of growers and ranchers. It was difficult to request support letters from specific growers as it is currently harvest and growers are very busy. However we have compiled a list and will complete landowner agreements/enrollment forms with these growers and ranchers. A letter from the Amador RCD is attached.

## **Long Term Management and Sustainability**

In other regions where the FFF program operates growers implement the BMPs prescribed in the assessment. CLSI works with the grower to provide needed technical assistance. Each BMP has a timeline for implementation depending on the severity of the problem. In order to be re-certified 5-7 years after the initial certification the growers needs to demonstrate progress on implementation. Recertification is required to continue use of the FFF logo. Also the program is structured to revise land management practices and so has a long term effect.

For the project designs, CLSI will work with the RCD and NRCS to find farm bill programs or other funding for implementation. The majority of growers and ranchers in the Amador area are small operations and qualify for farm bill programs like EQIP. The completion of a comprehensive assessment of site conditions allows for a higher score in the local prioritization of EQIP projects. CLSI will also evaluate other federal, state and private sources of funding for projects. Over the 15 year history of the FFF program CLSI has always identified funding for projects.

## **Performance Measures**

### Number of People Reached:

The expansion of the program into Amador County will involve diverse participants, including Sierra Nevada residents, landowner groups and individuals, conservation groups and individuals, government officials, and resource professionals. CLSI will track the participation of these groups and the number of people reached through the use of sign-in sheets at FFF BMP workshops, FFF enrollment forms, and attendees at the FFF program completion award ceremony at the end of the grant period. In addition, CLSI will track unique visitors to the FFF Sierra Nevada web page, once it is online. This information will be compiled into a spreadsheet and submitted to the Grant Manager.

### Dollar Value of Resources Leveraged for the Sierra Nevada:

This Category 2 grant will provide for site assessment with BMP prescriptions for 3-5000 acres of farm and ranch land. We expect the majority of the BMPs to be implemented by landowners. The value of this implementation will be tracked along with the value of landowner's time to complete the assessments. As additional grants are received for project implementation we will also track these funds.

### Number and Type of Jobs Created:

The establishment of the FFF Program in Amador County is expected to directly create jobs in the Farming, Construction, and Professional, Scientific, & Technical Services occupational groups, through the implementation of BMPs and restoration projects. In addition, the opportunity for use of FFF certification to increase agricultural tourism may indirectly create jobs in the Accommodation and Food Service and Other Services occupational groups. CLSI will use SNC's recommended approach to estimating the number of jobs created.

### Number and Value of New, Improved, or Preserved Economic Activities

The FFF Program is expected to aid in the preservation of agriculture and working landscapes in Amador County and provide new opportunities for agricultural tourism. Properties that are certified under the FFF Program with a certification sign on the property. These signs have proven very popular with participants in El Dorado County and other areas, and can be a highly visible method for increasing public relations and media attention. CLSI will use the number of properties certified as the means of estimating this Performance Measure.

#### Number of Collaboratively Developed Plans and Assessments

For each property enrolled in the FFF Program, CLSI staff work extensively with the landowner/land manager to create an individualized, site-specific assessment and BMP prescription, which documents existing conditions and makes recommendations for implementing BMPs and projects where necessary. CLSI will use the number of site assessments created by this grant for this Performance Measure.

#### Percent of Pre-Project Planning Efforts Resulting in Project Implementation

Properties certified under the FFF Program are expected to implement their required BMPs according to the timeline recommended for each BMPs or show significant progress toward implementation, in order to be recertified. For this Performance Measure, CLSI will check certified properties for progress on required actions one and three years after the end of the SNC grant, and report the results.

#### Measurable Changes in Knowledge or Behavior

Participants in the FFF Program are required to attend a series of workshops covering all of the elements of the FFF/FFR program including road erosion, creek erosion and vegetation management, cover crops, and other BMPs to improve water quality and wildlife habitat. To track changes in knowledge or behavior, CLSI will administer a survey to attendees at the beginning of the first workshop to assess pre-existing knowledge and behavior. CLSI will then administer a post-project survey to participants at the certification visit to measure changes in knowledge and behavior, and will report on the results.

#### **Budget Narrative**

The budget for this proposal primarily has personnel costs for CLSI staff who will do the majority of the work for the project. The total number of hours budgeted 5,108 for assessments, BMP prescriptions and other actions for 3,000-5,000 acres. This time allocation also would provide for 10 project designs. CLSI has developed a highly efficient methodology for completing site map creation, site assessment and mapping and BMP prescription. CLSI will also provide \$5,000 in in-kind services.

Two other organizations will provide services: Amador County RCD and UC Cooperative Extension. Landowner in-kind services are also estimated at 40 hours for the entire FFF/FFR program process. We also estimate a minimum of 45 landowners will participate and a low per hour cost of \$30.00.