Bodega Land Trust Fall, 2005 **Number 19**

Bodega Land Trust Newsletter

"...When we see land as a community to which we belong, we may begin to use it with love and respect". — *Aldo Leopold (1886-1948), American Forester*

Note: Bodega Land Trust is happy to help announce the creation of the Salmon Creek Ecology Center at Salmon Creek School. Victoria Johnston, who spear headed the multi-million dollar project for the Harmony District Schools, presented the concept to the BLT Board about a year ago and asked for our assistance. Our decision to become the Joint Use Partner allowed grant applications to proceed. We are very pleased to support this wonderful collaborative green project and hope you will too.

The New Salmon Creek Ecology Center

by Brian Burke, Salmon Creek School Principal

The Salmon Creek Ecology Center will become the center stage, an educational locus, for all our Green School projects.

Our school's new curriculum emphasizes environmental education in conjunction with the stewardship, restoration, and the wise use of the place we inhabit. The chief beneficiaries of our Green School projects are our students, our local communities, and the watershed itself. The new building will provide educational opportunities for learners of all ages, from child to adult. It will do this by creating spaces for learning and exhibits that demonstrate sound environmental practices that are used in and around our school.

Artist's Rendering of The Ecology Center

The educational goals of the project are interwoven with the management of the land and its buildings. For example, the new building will house our school cafeteria, which will become a demonstration site for garden-to-table practices - students growing, harvesting, and consuming their own foods. It will also incorporate sustainable technology and Green Building design features.

The overall project goals are:

1. Model sustainable restoration practices of watersheds, wetlands, and redwoods;
2. Integrate environmental education in all buildings and lands;
3. Provide our community with a demonstration site to understand ecology.

In order to facilitate these project goals, the building has been designed to:

- Meet the basic facility needs of our Harmony District Schools;
- Provide an environmental and educational resource for the community at large;
- Demonstrate sustainable building design;
- Meet Leadership in Energy and Environmental Design Green Building criteria.

Members of our school and community are working together to create a place and a building that will provide an inspiration for responsible stewardship of the environment. Together we will improve the watershed and create a well-informed and responsible citizenship, understanding and appreciating their place in the natural world.

For more information please call Victoria Johnston at 874-1205.

Bodega Land Trust
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Member: Land Trust Alliance

The mission of the Bodega Land Trust is to protect land through conservation easements, encourage wise land use practices and promote appreciation and knowledge of the interaction of individuals and communities with natural resources. The Bodega Land Trust was founded in 1992.

Notes from the President

This morning, coffee in hand, I sat on my deck appreciating the western Sonoma County view of sun-warmed hilltops, fog flowing in the valleys, and bits of sparkling ocean. I heard the distinctive flutter of a hummingbird suddenly stop just to the left of my ear. He landed on a rose branch three feet from my head and began checking me out. His neck swiveled left, then right, then 180 degrees around and back. I sat still, watching … after another moment, I was treated to a beautiful, soft song.

I'm very grateful for those moments of connection with nature, nurturing moments that hold the world together. Preservation of habitat and connection with healthy land and creatures, including people, are some of the reasons I'm involved with the Bodega Land Trust. But it's not just about being able to sit quietly in a beautiful place. My mother told me that everything worthwhile takes a lot of focused work. BLT is focused and has been working diligently with our primary tool, the Conservation Easement.

We are holding a series of evening and afternoon "Soirees", events to bring together small groups of people interested in learning more about Conservation Easements and how they work. Jerry and Arienne Dodrill graciously hosted one Soiree in their downtown Bodega Gallery. Another was in the home of Don and Ann Hines, where you arrive awestruck from driving through the old growth redwoods and then feast on their magnificent view to the ocean. The Soirees are fun, informative, and have resulted in two more easement agreements with BLT so far. If you would like to host or attend a future Soiree, let us know by calling Abby at 876-3093. This summer we also expanded our Monitoring Program and trained many new volunteers.

Our next Newsletter will focus on water conservation strategies; new ideas and some that already exist in our neighborhoods. If you have information or articles to contribute, please contact us. We are also interested in finding out who might want to receive the Newsletter by email. It would come in beautiful color, with sharper picture images, and would save trees and the costs involved in mailing. Let us know at landtrust@bodeganet.com.

Many thanks to Jim Grant, Scott Van Cleemput, and Steve Killey for their expertise and installation of our Photo Show in the Cup O' Mud in Bodega. Don't miss it! I look forward to seeing you at the Annual BLT Dinner, November 12th, in the Fire Hall, Downtown Bodega.

Mary Biggs

Hazel Flett reports on the June 4, 2005 Bodega Land Trust Walk and Talk, led by Kathleen Kraft.

Coastal Prairie Walk

by Hazel Flett

California is one of the twenty-five biodiversity "hotspots" in the world and one of the eight that are endangered. Development and invasive exotics (i.e. non-natives) are the two biggest threats to native biodiversity. Since Sonoma County is one of the fastest developing areas in California, this suggests that we have urgent conservation work to do, right here.

Among the rarest of the California ecosystems is coastal prairie. It runs along the coast from Big Sur to Oregon, coinciding with the fog belt. It is neither well known nor well understood, - yet one study has shown it to be one of the most diverse grasslands in North America. Kathleen Kraft, Linda Esposito and Phil Northern have been awarded grants from U.S. Fish and Wildlife Service and California Coastal Conservancy to study the prairie over a four-year period and to start making a regional plan for its management.

The prairie is a mosaic of perennial bunchgrasses with bulbs and forbs (non grass herbaceous plants) in between. There are few native annual grasses, the foggy climate favoring perennials. The leafy parts of the native grasses are low; the flower stem rises high above them then dies down and the leafy parts live on green for most of the summer. Before Europeans arrived in California the golden hills looked very much greener.

The structure of grasslands is important; the coastal prairie is fairly open, with lowish plants and spaces for new plants to come up. The exotic grasses fill in the spaces between the bunch grasses and at the end of each season the accumulation of annual thatch (dead plant material) inhibits the seeding of native grasses and native

Bromus carinatus (native) *California Native Plant Society*

Danthonia californica *(native) Robert H Mohlenbrock; USDA NRCS Wetland Science Institute*

annual wildflowers. When Kathleen weeded the exotic grass (rattlesnake grass in this case) and other weeds from a small patch of ground, only a few spindly native grasses remained. The good news is that the annual grass pulled out very easily, its root system being very slight compared with the extensive roots of the perennial grasses.

Very few pure stands of coastal prairie exist. Most grasslands have some exotic grasses and forbs mixed in. Preventing the exotics from dominating the grassland and encouraging the native grasses are the goals of management. "It's knowing your species, then timing, timing, timing," said Kathleen, referring to the timing of mowing, grazing, burning or planting. Each site responds somewhat differently and weather varies from year to year, so that it is difficult to find firm information to go on. For this reason, Kathleen, Linda and Phil have an experimental design to study the effects of grazing and burning areas of grassland, compared with no treatment. Their study is taking place on five plots of 2 south-facing acres each at Ocean Song, Coleman Valley Road, Occidental.

Now picture a beautiful June morning with the grasses still in bloom when Kathleen Kraft and a small group of walkers from Bodega Land Trust explore the coastal prairie on Ocean Song. Among the commonest native grasses in these parts are purple needlegrass, California oatgrass, blue wild rye and California brome. Purple needlegrass (Nassella pulchra) is a beautiful grass with nodding heads of purple awns and tiny white flowers. California oatgrass (Danthonia californica) has an oat-like seed head, but it is carried less erect than that of oats. It has a separate seed in the stem; the stem detaches easily when animals graze on the upper seed head; the lower seed is then trampled into the ground (i.e. planted and covered) by the animals – a wonderful adaptation to grazing. Oatgrass is thought to be good forage. It has been found in the teeth of mammoth fossils. Blue wild rye (Elymus glaucus), a tall-stemmed grass with a coarse spike-like seed head, grows in damper places. California brome (Bromus carinatus) is vigorous and quick growing; it is a good one to try if you are wanting to start some native grasses.

Among other beautiful native grasses are California bottlebrush (Elymus californica) that likes shady damp places; meadow barley (Hordeum brachyantherum), a grass of damp meadows; three fescues (Festuca rubra, idahoensis and californica) with feathery seed heads; and hairgrass (Deschampsia elongata in shady places, D. caespitosa in open damp places). Kathleen showed us most of these. For people who would like to hone their ID skills, she recommended a set of posters of California grasses, just published by the California Native Plant Society (916 447-2677).

Kathleen described three periods in the 'management' of coastal prairie. In the first, the megafauna (the large animals, such as mastodon and bison, who were abundant here until about 10,000 years ago) 'managed' the grasslands by grazing them. As people moved in and the megafauna became rarer the prairie was managed by burning – so the second period was ca. 10,000 years of Native American burning. The third period began when the Spanish settled, bringing cattle and European seeds. The Gold Rush meant many more cattle and, since this coincided with years of drought, there was a lot of bare earth which was invaded by European colonizer plants. This was the end of most of the native grassland inland. Yet a look around coastal grasslands has revealed more native grasses than was previously thought. Some native grass plants have persisted for a hundred year or more, with outer leaves dying and new growth coming up from the crown of the plant. Because new growth arises from the crown it is crucial that the crown not be blocked from sunlight by thatch (dead plant matter); ungrazed plants can become moribund. This is why grazing or burning may be essential for the health of the prairie.

Currently coastal prairie is threatened by the cessation of historical disturbance regimes (i.e. grazing, burning, trampling), and by the invasions of non-native grasses and forbs. It is destroyed by development and plowing.

Holcus lanatus *(non-native)*
Robert H Mohlenbrock; USDA NRCS Wetland Science Institute

Here are four invasive non-natives to look out for:

- Medusahead (Elymus caput-medusae), a big pest. Burn it or pull it before the seed sets.
- Purple false brome (Brachypodium distachyon) colonizes rocky outcrops where natives thrive.
- Tall fescue (Festuca arundinacea), a big and dense exotic perennial grass, crowds out natives; the seed is carried along the roads by county mowers, which come through just as the plant is going to seed.
- Velvet grass (Holcus lanatus) is easy to recognize by its purple, feathery heads. Because this is also a perennial, liking the same damp condi-

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Work Around the Watershed: an Overview

by James Sharp

Many residents of the Salmon Creek Watershed are excited by the environmental studies, programs and conservation projects that are currently underway within our watershed. People are discovering what small groups and individuals can accomplish in spite of the bewildering number of regulatory agencies they encounter. Thanks to events such as the Landowners Outreach Workshops and Watershed Day, and to groups such as the Salmon Creek Watershed Council (SCWC) and the Bodega Land Trust (BLT), people are learning that there is help out there. The help extends from advice, encouragement and information sharing from SCWC and BLT, to the technical assistance of organizations like the Gold Ridge Resource Conservation District (Gold Ridge RCD) who can assist residents in obtaining permits and grant money. Even the California Department of Fish & Game (DFG) can be an ally and helpful resource.

As part of a process of refocusing and defining goals and objectives for the next five years, the Salmon Creek Watershed Council took some time to review their accomplishments over the past five years. The SCWC could be described as an informal coalition of groups, organizations, businesses, landowners and individuals. So, many of its accomplishments may be seen as the work of the members, rather than of the SCWC as a formal body. But those who identify themselves as part of the council see that it's all about getting things done and not about who gets the credit.

An impressive list of accomplishments emerged. The list included the following:

- Watershed Day(s) – an event to raise watershed consciousness and introduce the public to many of the organizations involved in conservation that can provide people with assistance.
- The Landowners' Outreach Workshop Series, sponsored by the Bodega Marine Lab and the U.C. Sea Grant Program, coordinated by Janet Moore;
- The West County Fire Safe Project;
- Bodega Land Trust's "Walks and Talks" Series;
- Salmon Creek School's projects, which include nature trail improvements and signage, the Salmon Creek viewing platform, various restoration projects, and the Green Building for which the school received a major grant from the Coastal Conservancy. A bank stabilization project is also being funded in part by the U.S. Fish & Wildlife Service;
- The Coastal Prairie Study at Ocean Song;
- The West County Watershed Signage Project initiated by Occidental Arts and Ecology Center (OAEC);
- The new Salmon Creek Watershed Roads Assessment initiated by DFG and Gold Ridge RCD;
- The co-founding of the West County Watershed Network with OAEC;
- Many private landowner projects have commenced for such things as gully repair, bank stabilization and riparian maintenance. These projects received assistance in obtaining permits and matching funds from Gold Ridge RCD, DFG, the Coastal Conservancy and US Fish & Wildlife Service. There are many more projects in the design phase.

Perhaps the most important events to date are the two watershed studies that began in 2003:

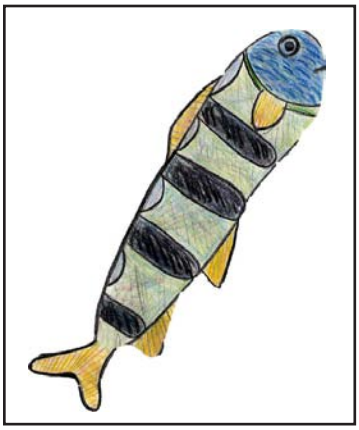
The Salmon Creek Assessment and Restoration Plan

The SCWC and Gold Ridge RCD were awarded a grant from the California Department of Fish & Game to assess watershed conditions related to coho salmon and steelhead trout habitat. DFG contracted the work to Gold Ridge RCD, and Prunuske Chatham, Inc. (PCI) is a subcontractor. This study will produce a major portion of a watershed restoration plan, and identify conservation and restoration projects for future funding.

Part of the study included an in-stream habitat typing survey and report. The survey was conducted during the summer of 2003 by DFG and Americorps crews. The final report was published in September 2004 and summarized in BLT's Spring 2005 Newsletter. Another major part of the study was an erosion source inventory. PCI and Gold Ridge RCD inventoried 147 sites. DFG has already awarded some grants to help fund restoration projects identified during this preliminary data gathering.

The Salmon Creek Estuary Study

The SCWC, in collaboration with the Occidental Arts & Ecology Center, was also awarded a grant from the California State Coastal Conservancy to study the Salmon Creek Estuary and produce a plan to improve salmonid habitat. The Estuary Study is primarily conducted by Lauren Hammack and Michael Fawcett and includes stream morphology, an adult and juvenile salmonid survey, and water flow and quality monitoring.



by Harmony School District Student

Volunteer water quality monitoring along Salmon Creek and its major tributaries is being conducted as part of both studies. The funding for the water quality monitoring has actually been exhausted, but Gold Ridge RCD and PCI are donating their time to continue it. Volunteer water

testers continue to donate their time as well.

Both the DFG Study and the Estuary Study are in their final stages. The data collection has been completed. Gold Ridge RCD and PCI will be generating formal reports. Both reports will be available to the public.

Why is this important to our community? Having these reports will play a critical role in obtaining significantly larger funding for conservation projects within the Salmon Creek Watershed.

PCI has requested "augmentation" funding from the Coastal Conservancy in order to integrate the DFG report, the Estuary Study, the Coastal Prairie Study and the Salmon Creek Roads Assessment, into a comprehensive Watershed Management Plan. The agencies controlling the big bucks are interested in seeing a total Watershed Management Plan before they allocate truly significant sums of money. An integrated Watershed Management Plan could be instrumental in obtaining millions of dollars for conservation activities within the Salmon Creek Watershed.

Connoisseur Of Dirt

Who cares about the banana slug? Suddenly
there on the path inches from your feet
like a refugee from a painting by Bosch.
Can't you picture its image on a bone china teacup?
This dawdling thumb of slime – so viscous
it could cruise a knife edge without a nick. Oozes
through the day, unapologetic, as if haste
were a sure sign of the uncivilized.

Imagine spending every hour contemplating
the earth millimeter by millimeter. To track
the footprints of beetles, wakes of worms.
Probing like a lover's topography tiny arcs
of forest floor, the density of dirt, forsaken pebbles.
Would you hear a heartbeat? Some ancient,
implacable ka-thwunk, ka-thwunk that rumbles,
Like the lazy lope of a brontosaurus, up through
magma and igneous rock? And would it change
in the rain?

Married for life to a place enduring as faith,
a cool, dark realm that hums with roots unfurling
and seeds that dream their tomorrow then do
their dance, could you forget how the earth holds
you, gives and receives without judgment? Spirit,
manifest in a mud puddle and in this slithering
alchemist who turns fox dung, rotted leaves, poison
oak into the shimmer and glisten of blood, breath,
and light.

by Lucy Aron

News From the Salmon Creek Watershed Council

by Kurt Erickson

Launched in 1996 with support from the Bodega Land Trust and the Occidental Arts and Ecology Center, the Salmon Creek Watershed Council has worked hard and put in many long meetings working on grants and gathering friends among various agencies and other watershed groups. The Salmon Creek Watershed Council came together to help watershed residents understand the dynamics of the 35 square mile watershed and find ways to restore Salmonid habitat.

Several pivotal people have provided critical financial and technical assistance throughout the years. Richard Retecki of The Coastal Conservancy has provided both financial aid and wonderful counsel. Gail Seymour, Restoration Planner at the California Department of Fish and Game has also been incredibly important. And Liza Prunuske, along with many of the staff at Prunuske Chatham, Inc. has been a guiding force throughout the years. With current grants, we're gathering more and more hard data about the estuary, sedimentation and water flow problems. Oral histories have been gathered as well, providing a foundation for both environmental, and cultural understanding.

On September 20, Liza Prunuske facilitated a goal-setting session for the Council. The group reviewed its accomplishments, evaluated its processes and set objectives for the next 5 years. James Sharp's article Work Around the Watershed describes much of the progress made thus far.

The group felt that the Council was providing a good forum for information gathering, and that the loose-knit structure enabled a good pace of activity. Members voiced the need to solicit greater participation with long-time agriculturally oriented residents and ranchers, and to widen the circle of participation to keep energy fresh. Ideas were forwarded on how to more efficiently inform watershed residents and decision makers of progress on projects.

Ideas for efforts during the next 5 years included:

- Assisting the Salmon Creek School Building and other associated projects such as trails and programs;
- Continuing work to bring back the Coho;
- Demonstrating and educating about good vineyard and ranch management to support a healthy ecology;
- Conducting a water budget;
- Improving outreach and access to information;
- Providing opportunities to do work in the creek & watershed;
- Revitalizing the fuel load reduction/fire safe program;
- Working with County and State agencies;
- Monitoring.

The Salmon Creek Watershed Council meets at the old Pastorale building in Freestone on the third Tuesday of every month at 7:00 pm (except November, please see announcements page 11). Anyone interested in keeping abreast of information and participating in watershed-related activities is welcome. For more information please contact Kathleen Kraft at 874- 2014 or see the website at: www.bodeganet.com/SalmonCreek/

Local Vinca Removal and Restoration Project

by Sharon Sadler

Bodega Land Trust has been providing volunteers for a vinca removal and revegetation project this summer at Green Creek, a tributary of Salmon Creek about half way between Freestone and Occidental. Landowner Zeporrah Glass received a cost-sharing grant for the project from the US Fish and Wildlife Service, Partners in Wildlife Project. Sharon Sadler of Sweet Earth Landscape Design is the project coordinator.

The purpose of the project is to improve the native habitat value of the Green Creek stretch by removing the aggressive species vinca major or periwinkle. Additionally, the project serves as an outdoor educational workshop on vinca removal and native revegetation techniques. A variety of techniques are being demonstrated, and will be evaluated for effectiveness once the project is completed. The project started in June 2005 and was permitted by The Department of Fish and Game. Four workshops were held this summer, with a final one planned with the help of environmental science classes at the Salmon Creek School.

Vinca major or periwinkle is a groundcover that is native to southern Europe and northern Africa. It has been planted as a shade tolerant ground cover in Sonoma County over the past hundred years. Today it can be found covering huge tracts of riparian corridor in Western Sonoma County, not to mention much of southern and coastal California. As an example, one can see vinca growing almost uninterruptedly along Dutch Bill Creek from Occidental to Camp Meeker.

Vinca major's method of reproduction is vegetative, that is, it spreads by over-ground runners that freely root as they reach new ground. It almost seems to walk, if not run, across the land. Vinca is hardy and can withstand drought and frost and comes back with vigor in the spring and fall. Fortunately, vinca does not reproduce by seed in California, so once it has been eradicated one need not worry about seeds sprouting for years to come, as with scotch broom, ivy and gorse. It can, however, resprout from a very small piece of root left in the ground.

Approximately two acres of vinca are growing along the banks of Green Creek and up into the hills along the creek as well. The Green Creek ecosystem is a second growth coast redwood/douglas fir forest. The riparian corridor consists of big leaf maple, hazel nut, coast live oak, western sword fern, willow, redwood sorrel, Oregon ash et al.

We have surmised that the vinca has been growing there for generations. Zeporrah has conceded that her grandchildren will probably be pulling vinca, so well has it established itself among and around the native vegetation.

Vinca is a problem at this site because it has over taken the banks of the creek and is prohibiting the regrowth of seedlings of riparian trees and shrubs. It has also contributed to the down cutting (incision) of the channel because its shallow roots do not do the job that native riparian plants do to hold up the different grades of substrate that constitute a healthy and stable bank. It is possible to surmise, by looking at healthier, shadier reaches of Green Creek, that the creek could possibly be host to California freshwater shrimp and steelhead. In any event its health is directly related to Salmon Creek.

Methods

Three methods were used to remove the vinca. As per the CDF permit we only work from June through October. All of the methods are considered experimental as each area has particular ratios of vinca to native plants. Each demonstration plot will be monitored over three seasons to evaluate the effectiveness of each method under each particular condition. Any surviving vinca will be removed in the areas worked on.

The first method is to gently and thoroughly hand-pull the plants using a garden fork. This can only be done effectively during the spring when the soil is wet enough so that the roots can be gently lifted without tearing them and leaving rootlets.

The second method is to sheet mulch with newspaper, cardboard and finally straw. This method has been successful at Westminster Woods on Dutch Bill Creek where David Berman has worked with his classes, sheet mulching the vinca. Care must be taken to ensure that glossy, colored paper is not used, as these are not as cleanly biodegradable. Likewise, cardboard (which can be found in large quantities at the box stores) should be cleaned of any tape that would not biodegrade completely.

The third method is mulching with 10-ml. black plastic pinned down with soil pins and weighted with logs or rocks. The plastic will be removed in about one year. Ten-ml black plastic can be purchased at Friedman's lumber.

With each method, care is taken to leave native species growing. At some locations multiple methods are used, such as hand pulling and then mulching, or mulching with plastic for two months and then sheet mulch with newspaper, cardboard and straw before the fall rains. This prevents hydrologic problems of water flowing over the plastic instead of permeating into the ground. So far it appears that sheet mulching will prove to be the most effective, though it is more labor intensive than laying down plastic. Additional precautions are taken to ensure that removal activities do not increase sedimentation into the creek either during or after the work.

Native riparian plants will be planted through the

mulch or erosion netting this fall in order to replace tracts of vinca with appropriate riparian plants. Nearby healthy stretches of the creek will be used as a model for the selection of plants. Replanting is usually done right before the winter rains so that they can receive plenty of moisture at the start.

*No herbicides are being used because their use may cause more harm to this or any ecosystem than good.

Work and Learn Days

Volunteer crews are prepared for the day with an introduction to the ecosystem and watershed in which we work. Native and non-native plants are identified. Safety information is delivered regarding the hazards of working around poison oak and perhaps yellow jacket nests. Appropriate protective clothing such as long pants and gloves are required. The crew is apprised of the methods and then we get to work. Tarps are provided to each group so that when hand removing, no part of the plant is left on the site but removed by truck to the landfill or a compost operation which can ensure the vinca will not survive its composting methods.

The groups have ranged from around 8-10 people, which has been a good number. People have worked very diligently, with a sense of humor and with respect for the land. Zeporrah provides gourmet lunches, which help tremendously if anybody had wondered if they might have chosen another activity for their precious Saturday morning. We work for about three and a half hours.

The results of the project will be disseminated to local watershed groups and any other groups interested in vinca removal in the spring, 2006. An excellent book on invasive species is Invasive Species of California's Wildlands, by Bossard.

Landowner Zeporrah Glass removing vinca

The Sudden Oak Death Pathogen

by Michelle Cooper and Christy Juhasz

Phytophthora ramorum is a forest pathogen that has recently emerged in northern California and southern Oregon. Commonly known as Sudden Oak Death (SOD), this pathogen is thought to be non-native in North America because of its limited gene pool and the high levels of susceptibility of some hosts. P. ramorum causes two different forms of disease across a wide range of hosts. One form fatally infects tanoak (Lithocarpus densiflora), coast live oak (Quercus agrifolia), California black oak (Quercus kellogii), canyon live oak (Quercus chrysolepis) and Shreve oak (Quercus parvula var. shrevei). It kills these hosts by producing a canker disease in the main stems and branches, followed by the browning of foliage. To date, studies have been unable to isolate dispersal spores (sporangia and chlamydospores) from the leaves or bark of any of these hosts, except tanoak. For this reason, they are referred to as terminal hosts and are thought by researchers to be an epidemiological dead-end. This pathogen causes another non-lethal, foliar and twig disease found in over 20 plant species representing 12 families. Although P. ramorum rarely kills foliar hosts, these hosts are thought to serve as reservoirs of dispersal spores or inoculum and thus may play a key role in disease transmission. Viable dispersal spores have been cultured from rainwater, stream water, litter and soil that has been collected under or near infected foliar hosts, especially around California bay laurels (Umbellularia californica). P. ramorum has already killed tens of thousands of terminal hosts and the infection level is reaching epidemic proportions along 300 km of the central coast of California including Sonoma County. It has the potential to drastically transform California's oak woodlands as well as oak-dominated systems elsewhere.

There are many avenues for the spread of P. ramorum. Inoculum can be spread abiotically or biotically, over short and long distances. Abiotic factors include rain-splash or wind-blown rain which most likely contributes to relatively short distance spread. Major storm events and downstream passage may also be factors in long-distance spore distribution. The rainy season seems to be the optimal time for this disease to spread. Biotic vectors have received much less attention, but may include vertebrates such as deer and humans. They may be responsible for both long and short distance dispersal of soil-borne propagules.

To eliminate chances of potentially spreading spore propagules after hiking or biking in known or suspected SOD affected areas, soles of shoes or bike wheels can be wiped down with a rag dipped in isopropyl alcohol. Shoes or bike wheels that are cleaned of mud or soil can be also be stored in a warm, dry place.

If you would like to find out more information about SOD go to: www.suddenoakdeath.org.

Water Quality Testing by Volunteers

by Penny Bentley

Reasons for Testing

Testing of water quality carried out by citizen volunteers helps to compile data that can identify pollutants and conditions in our watersheds that influence stream life, including fish, invertebrates, mammals and birds. This includes testing for temperature, conductivity, turbidity, pH, stream flow, nitrates, and phosphates in rural watershed areas; and testing for pollutants from pesticides, and toxic waste created by automobiles, in urban watershed areas.

Salmon Creek Watershed Council

Prunuske Chatham Inc. tests the Salmon Creek watershed through a two-year grant from California Fish and Game, which was given to the Gold Ridge Resource Conservation District (GRRCD), and the Salmon Creek Watershed Council (SCWC). The testing is done by volunteers who were locally recruited and trained by SCWC, GRRCD, and Prunuske Chatham to do the testing at sites in the watershed near the volunteer's homes; this gets people involved with their watershed. There are about fifteen volunteers and thirteen sites. Nine of the sites are along Salmon Creek itself and the other four sites are on the Nolan, Tannery, Fay and Coleman Valley tributaries. Testing is done once a month from the headwaters to the bay. The data from this testing will be published in a report by the SCWC due out in the spring of 2006. The focus of this report will be to produce a watershed plan for the Salmon Creek watershed.

Community Clean Water Institute

The Community Clean Water Institute (CCWI) trains volunteers from watershed and neighborhood groups to test water, and then supplies the equipment and evaluates the samples in their laboratory. Volunteer groups collect data on a regular basis over a number of years (five is optimal) to identify water quality parameters related to salmonid habitat restoration. In this way the pollution can be tracked to its source and a solution can be found. CCWI assists watershed groups ranging from Sonoma County to Humboldt. The watersheds they are involved with in Sonoma County are Russian River, Petaluma River, and Salmon Creek.

Volunteers from the Highlanders neighborhood group test the upper reaches of the Salmon Creek watershed. They test on a specific day each month. Divided into groups of three, each group tests one or two creeks and then passes on the testing equipment to the next group—signing it over following proper Chain of Custody protocols.

I went with Bob Nelson, Darlene LaMont, and Carol Sklar to Tannery and Fay Creeks. It was a cool summer morning and the creeks were still flowing (something they apparently used to do until later into the summer before there was so much water use by residents); this year there was more water because of the late rains.

Each site was originally picked by an environmental scientist. The main criterion is to have a stretch of creek that is fairly straight and runs evenly. The equipment used for the testing consisted of a very large measuring stick to measure both the width and the depth of the creeks, and two instruments that look like large thermometers; one that tested the conductivity and the other to test dissolved oxygen and temperature. The temperature of the air and water were also taken independently with a separate thermometer, so there were two readings from separate sources for the water temperature. Two samples of the water were taken in Whirl-Pak bags for testing pH, nitrates and phosphates. All of these elements are factors in fish habitat and influence the fish population. All data are recorded on the KRIS website at www.KRIS.org.

CCWI offers a comprehensive and useful website that has many articles on water testing and its practical applications such as testing your well to see if it is polluted, background information on fish populations, and reports on other citizen monitoring projects like the lower Russian River monitoring project and the Humboldt Bay First Flush. Here you can also find articles on groundwater, climate change, internships with CCWI, and Big Picture Solutions (how local action can help find solutions to global problems). Please visit www.CCWI.org.

Russian River Keeper (Volunteers for First Flush)

This year's First Flush effort is going to be a scramble if it rains early. As of September 5th the training had not been set up and it looks like it may rain earlier than expected. Friends of the Russian River have a core group of volunteers of about 40 people. Usually there are about 125 volunteers for First Flush.

The testing will be done at 26 locales. Testing will be done for eighteen urban use pesticide products, including the nutrients nitrate, ammonia, and phosphate, as well as lead, copper and zinc associated with automobiles. Turbidity, conductivity, nitrates and pH, which can be affected from conditions occurring in nature or from human activity, will also be tested. Urbanized runoff is the largest pollutant source for the lower Russian River area.

This will be the 4th year of testing, and if the results are the same as last year there will be a strong case for the enforcement of regulations to control the toxic runoff.

600,000 people use the Russian River as a source of drinking water and it is home to the Chinook, Coho,

and steelhead; all on the endangered species list.
To find out more about First Flush or to volunteer, visit the website at www.russianriverkeeper.org.

Environmental Protection Agency

The Environmental Protection Agency has abundant information on water testing projects all over the United States. A search on the EPA website (www.EPA.gov) for National Directory of Volunteer Monitoring Programs will bring you to a page that has links to monitoring programs by state or the name of the program. From this page there is a link to "Volunteer Monitoring" which will take you to a page that discusses what volunteer water quality monitors do and how to start your own local program. There are links to manuals of methods for monitoring of estuaries, lakes, streams and wetlands.

Klamath Resource Information System (KRIS)

At the KRIS website I found a link to West Marin-Sonoma Sub-basins. Here one can find the statistics for many of the creeks in the areas that have been tested through volunteer programs, including charts of tests that have been carried out in the past few years, and maps of watersheds and pictures. There are also links to specific water quality subjects like stream conditions and pollutants, how they are tested and how they affect aquatic life. There are links to organizations that are involved with water quality and watershed issues such as the Bodega Marine Lab, Bodega Land Trust, and California Department of Fish and Game, to name only a few.

It gives in-depth articles on water quality in general. For instance, I found and article on the effects of temperature on salmon and steelhead trout, covering all the life stages of the fish.

Surfrider Foundation

The Surfrider Foundation is another organization involved in water quality, this time of the ocean and specifically beaches. At their website www.surfrider.org click on "Water Quality" at top right hand of the page, and you will be taken to a page where you can pick your state and chapter of the foundation in your area and find the quality of your beaches. The tests made by Surfrider are for bacterial pollution.

Before researching this article I didn't realize that people could relate to where they live by their watershed. The watershed is a source of life combining the sun, the air, the water and the earth. Individuals identifying with their watersheds is a great way to help people understand the importance of nature and its meaning to their own life. I am very impressed by the work individuals and groups are doing all over the U.S. and I highly recommend checking out the EPA website and the others I have cited in the article.

Coastal Prarie Walk continued from page 4

tions as many of the native perennials, it may be harder to eliminate and poses more of a threat to coastal prairie than the exotic annuals.

California coastal prairie is identified as an endangered plant community in the California Natural Diversity Database, with less than 5% of the original acreage left in existence. Kathleen's, Linda's and Phil's results and recommendations are sorely needed and eagerly awaited.

by Harmony School District Student

by Harmony School District Student

Monte Rio Union School Environmental Education Program

by Victoria Winkle

Did you know that for the past 10 years the Monte Rio Union School has had an Environmental Education Site with an evolving education program? Thanks to a line of committed teachers, parents, volunteers and students, the magical western end of the school property is devoted to a living laboratory that includes a vegetable garden, a pond and a redwood forest where the children and the community can gather to learn about their own health, the health of the school community and the health of the watershed through experiential learning, growing, cooking and stewardship in the outdoor classroom.

On the sunny south side is a vegetable garden with raised beds. Many different kinds of vegetables and flowers grow there throughout the various seasons. Behind the vegetable garden lies the forested area with its canopy of large trees, redwoods, maple and bay to name of few. In the center of the forest is a large circular table built by a volunteer. There the children can pot up seeds, have a snack, and work on projects. The forest also has a small pond where frogs and other aquatic life offer another learning experience. Multiple paths take visitors from one area to another. The fence surrounding the site provides a climbing opportunity for vines. A butterfly garden is planned for the entrance.

The children are enthusiastic and enjoy visiting the EE site. They know where the first flower bloomed this spring, what the soil looked like after the rains, the difference between their native blackberry plant and the Himalayan blackberry, and where the best patches of redwood sorrel, Miner's lettuce and wild strawberries can be found. They also like to see what can be found under rocks and in spider webs. They are learning about native plants used by the Pomo Native Americans and the historical garden used by the settlers at Fort Ross. In one classroom the children adopted individual tree "partners" that they observed as the seasons changed. Students have been introduced to the concept of a watershed, and they have learned about and participated in invasive weed removal. They have collected seeds and cuttings for native plant propagation done on their behalf by Circuit Rider Productions. As part of the program they grow salad ingredients that they harvest and eat. Kids actually like vegetables that they have grown and harvested.

This is the first year that the garden has had a coordinator, Elizabeth Beak. Her part time position is funded by the California Nutrition Network and the Monte Rio Recreation and Park District. During the school year she works with the regular teaching staff to provide supplemental education and during the summer she runs a 3-day a week program. Her enthusiasm and that of the children is contagious.

Elizabeth's dream is to work with members of the community to enhance the program and the site. The site and the program could be improved if the invasive plants including ivy, broom, Himalayan blackberry and other invasive weeds were removed and the site replanted with more native plants. For the past several months Elizabeth and other volunteers have been working to remove the weeds. We plan to replant the weed-free areas in November with native redwood under story plants such as:

Redwood sorrel, Oxalis oregana
Columbine, Aquilegia formosa
Wild ginger, Asarum caudatum
Fringe cups, Tellima grandiflora
Piggyback plant, Tolmiea menziesii
Western bleeding heart, Dicentra formosa
Redwood violet, Viola sempervirens
Wood rose, Rosa gymnocarpa
California maidenhair fern, Adiantum jordanii
Huckleberry, Vaccinium ovatum
Twin berry, Lonicera involucrata

The program needs donations of time, money and materials. How can you help? Here is an opportunity to: do vegetable gardening or learn about vegetable gardening, educate yourself about redwood forest plants, contribute to the community, work with children and plants, have fun, exercise, be outdoors, meet other involved people, watch birds, butterflies and insects, write grants, make signs, learn about ponds, do a scientific study, collect seeds, share your vegetable seeds or starts, grow and contribute redwood under story plants, play with dirt and mulch, garden in the sun or shade, donate to a worthy cause and be part of the community.

If you want to volunteer, Elizabeth would love to hear from you at 327-7865 or elizbeak@yahoo.com.

by Harmony School District Student

The Bodega Land Trust monitoring team is growing and strong! Twenty-three new easement monitors were trained at the first monitors picnic last June. Educated, equipped and enthused, nine teams struck out to ensure and document that our conservation easements remain well-stewarded. Annual monitoring is a cornerstone of Bodega Land Trust's commitment and obligation to ensure the perpetual stewardship of our conservation easements. With this important work, our ability to defend the easements against development is secured. We heartily thank all of our volunteer monitors and look forward to continuous improvement of the program and participation from our members. If you would like to participate in the program, please contact Abby at 876-3093.

Thank you Bodega Land Trust Monitors!

Karl Anderson
Dan Arendt
Lynn Axelrod
Mary Biggs
Noel Bouck
Ben Bouck
Rob Cary
Jerry Dodrill
Robert Feurer
Karen Froiland
Lisa Gonzalez
Jim Grant
Don Hines
Ann Hines
Norma Jellison
Christy Juhasz
Steve Killey
Darlene LaMont
Essra Mostafavi
Abby Myers
Bob Nelson
Susie Nosker
Don Sherer
Sandy Sharp
Carol Sklar

and special thanks to the picnic chefs

Gloria Molica
Nick Peck
Laird Sutton

BLT Monitor Training Picnic

Announcements

Salmon Creek Watershed Council Meeting
Tuesday, November 15, 2005
Salmon Creek School
1935 Bohemian Highway
7:00 pm

Lauren Hammack of Prunuske- Chatham, Inc will present the preliminary results of the Salmon Creek Watershed Estuary and Flow Report.

I would like to join or continue my membership at o $10 o $20 o $50 o $100 o Other _____

Please make checks payable to: Bodega Land Trust, and mail to: PO Box 254, Bodega, CA 94922

All donations are tax-deductible

Name: _____
Address: _____
_____
Phone: _____
E-Mail _____

I would be interested in being:

o a Board member
o a volunteer

My special interests are:
_____

My special skills are:
_____

A project I would like to see the Bodega Land Trust consider is:
_____

Bodega Land Trust
PO Box 254
Bodega, CA 94922

Bodega Land Trust

invites you to our

Ninth Annual

Dinner & Silent Auction

Saturday, November 12 from 6:00 PM
McCaughey Hall, Bodega

Local Musicians and Special Live Auction

Adults $15.00, children under 12 $5.00

Reservations suggested. Call 876-3093 or 876-3422.

A bountiful meal with hors d'oeuvres, salad, home-cooked main course including a vegetarian dish, desserts, local breads, and non-alcoholic beverages will be served. Wine will be available by the glass.