WESTERN CHAPTER
International Erosion Control Association

Western Chapter News

Serving Erosion Control Professionals in Arizona, California, Nevada and Hawaii

Winter 2003

Volume 7, Issue 1

In this Issue

Participants at the July 2002 Lake Tahoe field tour.

Hope to See You All in Las Vegas

Dear Western Chapter Members,

Happy New Year! It is hard to believe that we are busily moving into 2003 with the 34th Annual Conference rapidly approaching. This is a major event for us as the Host Chapter - Chapter members are giving papers, instructing courses, running the hydrodeo, and serving as volunteers in various aspects of the conference. If you are attending and have an hour or two to spare, contact Mike Chase, mchase@rainforrent.com, who is coordinating Chapter volunteers. Our booth will be at the conference and we need volunteers to staff it too; this is a good excuse to sit for a moment and catch up with your colleagues. Make a point to stop by the booth - we have new Chapter magnetic name badges for all our members and don't forget to enter the raffles. Tickets are printed on the back of this Newsletter.

The Chapter annual meeting will be held at the conference on Thursday, February 27, from 5:30-6:30 p.m., in Brasilia 2. We have a full agenda for the meeting to update you on what the Chapter is doing, how you can get involved, and to get your input for future Chapter activities. Among things to be discussed at the meeting are:

- Update on the goals of the committees from the committee chairs;
- 2003 Chapter events, plans for a summer field trip and get ideas from you for future events; and
- 2004 Chapter regional conference ideas from you on location and topics.

Additionally, we have invited Ben Northcutt, and several of the IECA Board members to attend our meeting to give Chapter members an opportunity to meet them and to help foster better relations with the leaders of our Association. We will also draw the raffle winners at the meeting.

Looking back on 2002, the Chapter had a tremendously successful year from our educational activities to Chapter management achievements. In April, we hosted our 3rd regional conference, Monitoring for Success, which was coupled with CPESC training and testing; and in July, we hosted an erosion control and revegetation field tour around Lake Tahoe. Two scholarship students (see related article) are attending the IECA conference, thanks to a donation from the Western Chapter. We achieved our goal of publishing Western Chapter News quarterly, with a new professional look. On the management front, committee descriptions were updated, the Board revised the long-range plan, which will be approved at the next Board of Directors meeting, a Policies and Procedures manual was developed, and we created a new Chapter recruitment brochure. The Chapter didn't grow much this year, but the membership remains active and we continue to have the largest Chapter, closing out the year with 258 members. In the 2002 Chapter Partners for Excellence competition, the Western Chapter tied for the Chapter Management Award of Achievement, and won the Growth Rewards for having the Largest Chapter. Wow what a year.

Looking forward, 2003 will be as eventful. We are beginning plans for a summer field trip. We have exciting plans to involve more chapter members in the committees; offering educational resources to schools, professional groups, community groups, etc.; hosting professional development courses in conjunction with our events; not to mention planning the 2004 regional conference. The Board is currently very excited about a new erosion control program area and has been exploring the concept of an Erosion Control Operations Technician certification and this concept will be more fully developed in the coming year. This certification would be for individuals involved in the installation and application of erosion control materials in the field. The certification would complement the current CPESC and CPSWQ certifications, in that it is designed for hands on field staff.

See **President**, pg. 2

President, cont'd from pg. 1

There is a great need in the industry for such a certification and the Western Chapter is lucky to have Directors who both recognize this need and have the know-how and connections to set such a program in motion. We will have more on this conceptual proposal at the Chapter meeting and will report more on it in future newsletters.

And to plant a seed, election for three Board of Director's slots will be held in June. It isn't too early to start thinking about running. If you're interested, speak with one of the current Directors for more information about serving on the Board.

Finally, I want to personally welcome the new members who joined the Chapter since September, Richard Bedford, Jeanne Geno, Mark Hicks, Dale Gropp, Steve Pecorilla, Richard Starner, William Taylor, Marie Veerkamp, and Bruce Wilcox.

I hope to see you all in Las Vegas.
Sandy Mathews

Talk To Me

Reportedly, one of the main reasons we sign up and send money to become (and remain) members of WCIECA is because we enjoy interacting with other individuals who are similarly engaged in combating soil erosion. Our interests are spread widely across the entire spectrum of both "hard" erosion control (structural) and "soft" erosion control (revegetation). Wherever we fall in the spectrum, after a few years experience in the world of hard knocks dealing with Mother Nature, it is always productive to discuss one's successes and failures and other "fish stories" with other members. We have all been down similar paths of the learning curve at that stream site/mine site/construction site out over back of beyond.

While there is nothing like showing up at a WCIECA-sponsored field trip to get to know fellow members and to witness first-hand the successes and failures of somebody's stepping-up-to-the-plate to accomplish something beneficial for our environment, the purpose of this announcement is to encourage you to take advantage of this Quarterly Newsletter to share your experiences that might be of interest to the rest of us. If you are struggling with a particular challenge that someone else may have had success with, write to us about it. Or if you simply have something to say, an insight perhaps on our industry, our IECA association, some topic you would be interested in initiating a dialogue about, an idea for a field trip you would enjoy organizing or participating in, tell us about it:

- ✏ Write to me (or any of your board members) via our website at www.wcieca.org and we'll do our best to include your contribution in an upcoming newsletter.
- ✏ Under a "You Write To Us About..." column for pieces that are a few sentences.
- ✏ More in-depth pieces, consider contributing to a "Speaking Your Mind" column of 1,200 - 1,500 words or so.
- ✏ Both columns have the potential to become a clearinghouse for fresh ideas and discussion, taking advantage of our large, widespread and diverse membership.

To get the ball rolling, I'm "speaking my mind" in this Winter Newsletter about the functioning of the reclamation seeding business, the "soft" facet of erosion control, where we do our best to ally ourselves with Mother Nature to re-establish native shrubs and grasses on disturbed soils in harsh environments. If what I have to say engenders some healthy scientific debate, or merely confirms quiet concerns you may have, spurring you to action on your next project, it will have accomplished its purpose.

See **Talk**, pg. 3

Calendar of Events

February 20-21 (Santa Clara, CA) - *Turf & Landscape Expo 2003*, Santa Clara Convention Center. Preregister by 2/16 for free admission. Contact: Carol Du Bey, Executive Coordinator, 510-505-9600 or email at ExecutiveCoordinator@nctlc.com

February 24-28 (Las Vegas, NV) - *A Gathering of Global Solutions International Erosion Control Association 34th Annual Conference and Exposition*, Rio Suites & Convention Center, Las Vegas, NV, http://www.ieca.org, 970-879-3010

February 25 (Las Vegas, NV) - *Western Chapter Board of Directors Meeting*, Rio Suites & Convention Center, 6 p.m., Room TBD, Las Vegas, NV. Contact Sandy Mathews mathews6@llnl.gov.

February 27 (Las Vegas, NV) - *Western Chapter Annual Meeting* at the Annual Conference, Rio Suites & Convention Center, 5:30 - 6:30 p.m., Room: Brasilia 2, Las Vegas, NV. Contact Sandy Mathews mathews6@llnl.gov.

April TBD - *California Storm Water Best Management Practices Handbook Training*, 4 half-day sessions introducing each of the Industrial, Municipal, Construction, and Post Construction handbook, more info at http://www.stormwatertaskforce.org. Locations and Dates TBD.

April 8 and 9 - *Construction Storm Water Compliance Training Seminars and Field Tours*, Culver City and Corona, CA, presented by the BIA of Southern California. Call (909) 396-9993 for more information.

April 21-23 (Scottsdale AZ) - *Soil and Water Conservation Society Arizona Chapter Annual Meeting*. Old Town Hotel, Scottsdale AZ. Water and Snow Scarcity: Exception or Way of Life? http://www.swcs.org.

April 23-25 (San Diego, CA) - *6th National Mitigation Banking Conference Practice and Policy: The Nation's Hands-on Conference for Mitigation and Conservation Banking*. http://www.mitigationbankingconference.com

July 26-30 (Spokane WA) - *Soil and Water Conservation Society Annual Conference*, Spokane Convention Center, The Columbia, Conserving a Legacy of Life, more info at http://www.swcs.org, or Nancy Herselius (515) 289-2331 ext. 17.

Members, do you know about an upcoming training session, event, or conference that might be of general interest to the chapter members? Send your calendar items to Sandy Mathews mathews6@llnl.gov.

Professional Listings

Marvin E. Davis & Associates, Inc., a provider of geotechnical engineering services in the Northern NV and Tahoe, CA areas, seeks experienced engineers, registered in NV and/or CA, for design and project management of geotechnical and materials testing projects. M.S. in geotechnical engineering and at least three years experience conducting geotechnical investigations required. Please fax resume to Personnel Manager @ 775-853-9199, or E-mail to MDA12000@aol.com.

Synergy Resource Solutions, Inc., Jack D. Alexander III, President. (775) 331-5577, fax (775) 331-5579, synergy@countgrass.com. We provide vegetation, water, soil, and air monitoring; reclamation and erosion control planning, permitting, and monitoring; and NEPA document preparation. Offices in Reno, NV and Alpine, WY.

Western Botanical Services, Julie Etra, Owner. 775-849-3223, 775-849-3303. WBS provides consulting services for design of erosion control, wetlands and riparian areas as well as botanical surveys and wetland delineations. Construction management services are also available.

Kelley Erosion Control, Claudia J. Chambers CPESC, Kym Kelley CPESC, Helen Godfrey, Reno, NV 775-322-7755 Fax 775-322-6606 email kelleyerosion@worldnet.att.net. Services: Hydroseeding, wetland mitigation, stream channel stabilization, revegetation, dust abatement, drill seeding, BMP installation, biotechnical slope stabilization, strawblowing & reclamation.

JWA Consulting Engineers, R. Mark Hoefer Vice President, P.E., CPESC. Two offices to serve your needs; Zephyr Cove, NV- (775) 588-7178 fax (775) 588-1726, jwaeast@aol.com and Pleasant Hill, CA- (925) 939-5000 fax (925) 939-5878, jwawest@aol.com

Talk, cont'd from pg. 2

We welcome constructive feedback, different perspectives, or requests for further insight from the authors. Opinions expressed in either of "You Write to Us About ..." or "Speaking Your Mind," while possibly shared by level-headed and alert individuals, are those of the writers only and are not necessarily those of the WCIECA, its sponsors, or advertisers.

Lastly, in addition to making this newsletter as vibrant and interesting as possible, we are also keen on making it financially self-sufficient. To this end I encourage you to take advantage of the opportunity to reach prospects, customers and friends throughout our 4-State region via Banner style ads displayed in the Newsletter published both on the Web Site and in hardcopy format. These ads require a calendar year commitment and cost only $350.00 for the four-issue coverage. If you don't yet have a Banner ad, our Webmaster will produce one for you for a one-time charge of $50.00. What a deal!

In addition, "Business Card" ads are available for Contractors, Designers, Engineers, Consultants, and others who don't sell a product but instead render a professional service. They cost $150.00 annually and will have instant e-mail links available. Why wealthy fat cat "renderers of professional services" get a break over the rate currently paid by hapless "sellers of products" beats me. But until such time as a full investigation is mounted into why such discrimination exists, I urge you to take advantage of this advertising windfall for 2003.

Peter McRae, Chairperson, Chapter Communications

CONTRACTOR'S CORNER

Chitosan: A New Tool for Water Quality

In 1999-2000, developers on construction sites in the state of Washington were having difficulty maintaining the water quality standards they were required to meet. Experiments were made with various substances in hopes of finding one that would help clarify stormwater runoff. Eventually, a material called chitosan was discovered to be especially effective. Chitosan has been used for decades as a water treatment agent for aquariums, swimming pools and drinking water.

Chitosan is made of a natural biopolymer of chitin, nature's second most abundant polymer. Chitin is the structural material found in shells of crustaceans such as shrimp, crabs, and lobsters. When added to turbid stormwater, chitosan coagulates suspended particles thereby increasing particle density allowing for more efficient gravity settling and filtration (biofiltration, sand filtration or cartridge filtration). This occurs because the positive cationic particles of chitosan are attracted to the negative anionic particles in polluted water; when they meet, the electrical charges are neutralized and the soil particles are able to coalesce rather than repel each other.

Some chitosan products are 100% acrylamide-free and, properly administered with a good filtration system, have reduced turbidity levels by more than 99% and phosphorus levels up to 87%. Unlike some flocculants, chitosan-based treatments will not require reformulation for different types of soil. At a filtration rate of 400-700 gpm and stormwater with a turbidity range of 200-500 NTUs, the dose rate would be .5mg/L. The dosage would be increased to 1mg/L when the turbidity range is 500-1000 NTUs. Obviously, erosion and sediment control BMPs prior to stormwater concentrations remain a good recommendation for controlling turbidity. Chitosan should be used when stormwater ph is between 8.5 and 6.5. This range is similar to most state and local standards for stormwater discharges; outside this range, neutralization is generally required anyway. Chitosan will not alter the ph of stormwater.

See **Chitosan**, pg. 4

Chitosan, cont'd from pg. 3

One construction site in Redmond, Washington was used as a case study for chitosan. Approximately 270,000 gallons of stormwater were treated in four tests where turbidity ranged from 79 to 643. After treatment, the NTU range was 1 to 3.1. The ph did not change. The four aquatic toxicity tests for trout had 0% mortality and the Daphnia magna toxicity test resulted in three tests with 0% mortality and one test with 2% mortality.

With the water quality of construction site runoff being under increased scrutiny, chitosan will likely receive more recognition and use as an effective and economical tool. Chitosan-based products and filtration services are available from a variety of IECA-member companies.

David Franklin, CPESC and WCIECA Board Member
Metamorphosis Erosion Control, Inc., 800-994-7333

SPEAKING YOUR MIND

Fundamentally Flawed?

By Peter McRae

Acknowledging the Elephant in the Living Room

By some accounts, the reclamation native seeding industry is fundamentally flawed. To the casual observer, at least, any industry that can experience 85% "disappointing" results must appear to have some major room for improvement. At times, even that 15% estimate of success is under fire, despite the vast amount of knowledge that has been accumulated from years of research on the life and times of native plant species by smart and dedicated individuals.

On a recent statewide review of approximately 60 reclamation sites, costing a King's ransom to plant and seed, the following insight was volunteered: "Where there was irrigation, inappropriate plant species were growing; where there was no irrigation, nothing was growing". Such an assessment could well apply to much of the seeded acreage undertaken throughout our 12-State Western U.S. region.

I recall sitting in on a well-attended Contractor Forum, scheduled just before the closing ceremony of the 1997 IECA conference in Nashville, TN. This forum addressed the ins and outs of bidding on reclamation seeding contracts. After 90 minutes of lively discussion, we broke up with a startling and discouraging consensus: that the contract winning "low bid" invariably turns out to become the most expensive route to implementing a seeding project! Obviously, all is not well in Denmark.

The Challenge Defined

At the outset, some definitional caveats should be made. "Reclamation seeding" means restoring disturbed land to the natural vegetative state that existed before it was disturbed. It is the challenge to "re-establish sustainable native plant growth on drastically disturbed soils in harsh environments" that we are concerned with. This translates into attempting to grow native plants on steep slopes of what is often decomposed granite rock in desert conditions.

Such conditions include blast-furnace heat in the summer, icy wind over snow in the winter, only 6"-18" of annual precipitation, and much of that coming from snow melt. "Success" is defined as a sustainable blend of diversified native shrub, forb and grass plant community that mirrors the vegetation coverage on adjacent undisturbed areas. Admittedly, this is a tall order by any standard.

The good news is that there are reclamation seeding practitioners successfully re-establishing native plants on tough sites, and on a consistent basis.

See **Flawed**, pg. 5

"Re-establishing sustainable native plant growth on drastically disturbed soils in harsh environments" at FHWA's Flowery Trail Scenic By-way, WA.

Native plants are entirely dependent upon healthy microbial communities in soil for survival. Under conventional seeding practices, what are we doing to re-build a healthy soil food web at our re-vegetation sites?

Regulatory News

On December 2, 2002, California State Water Resource Control Board, approved Modification of Construction Storm Water NPDES Permit (Order # 99-08) to include small construction activity one to five acres.

The modification will do the following:

- ✏ The Threshold acreage of soil disturbance requiring permit coverage has been reduced from five acres to one acre.

- ✏ Storm water discharges associated with industrial activity that are owned or operated by municipalities serving population less than 10,000 are no longer exempt from a storm water discharge permit.

In addition to above modification in the permit the filing fees for a construction permit has been increased from $250 to $700 since October 2002.

These modifications will be effective by March 10, 2003

Flawed, cont'd from pg. 4

The weak performance at most of the 85%-90% failing projects has more to do with erroneous *design* and/or dishonorable *implementation*, than with the severity of the acknowledged challenge.

Design Shortcomings

So where are we going wrong? Part of the problem stems from a lack of awareness of fundamental technologies that have proven successful across time at jump-starting the re-establishment of native plant species on disturbed soils. There are those who plow on with "tried and failed" agronomic practices, blaming Mother Nature's lack of cooperation for bringing them lackluster introduced grasses interspersed with weeds, if they bother to monitor the site at all. Although we all know native species march to a very different drum than, say, introduced plant species, some practitioners persist with utilizing aberrations of agronomic models to grow native plants, using materials and methods more suited to ornamental horticulture and crop farming.

This persistence with "growing carrots in the desert", notwithstanding the pockets of success attained by practitioners who have oriented their seeding efforts in a variety of ways to mimic Mother Nature, is merely one "inappropriate technology" example of the numerous shortcomings relating to the *design* phase of a conventional seeding project.

Plant species selection is another fertile area for weak design, where the utilization of inappropriate plant species and inappropriate ancillary soil amendments dooms the project at the outset. In addition, because there is little understanding of the "big picture", of what is required to set the stage for the successful re-establishment of site-adapted native plants, we unwittingly specify actions that are counter-productive to the ultimate design goals.

For example, the attainment of one short-term goal (say, the wish to establish quick-growing grasses for timely erosion control) will frustrate the attainment of critical longer-term goals such as the establishment of deep-rooted native shrubs. Or agronomic fertilizer will be applied for the purpose of boosting plant/carrots growth, resulting in a runaway weed competition problem and a soil we have unwittingly rendered more sterile than before we blundered into view. Or wood fiber mulch and/or straw will be blanketed on the slope to "pillow" the impact of raindrops and retain moisture in the soil (good), creating such an imbalance in the C : N ratio to lock up nitrogen (bad) that it's a wonder anything grows. The practice of adding agronomic fertilizer (misguided) to counter this nitrogen lock-up side effect sends the project into a downward spiral (bad).

As with treating a patient, the cure may be worse than the cold. The side effect of one action, however successful it may be at achieving an interim objective, has the potential to sabotage the ultimate goal. To carry the analogy a step further, conventional seeding does not even inquire as to what the patient is suffering from. We blindly apply seed and amendments without having a clue as to the soil we are seeding into. "Dirt is dirt" is the mentality, and we pay for such lack of common sense with expensive failures.

Implementation Shortcomings

And finally, a big part of the problem stems from an incredibly dislocated process of *implementing* even a well-designed reclamation seeding plan.

The industry is permeated by a colorful assortment of individuals, some of whom are, by nature, bent on doing other than what is contained in the contract specifications they agreed to implement, especially where it betters their bottom line. Suffice to say, the implementation contractor should not be acting as your de facto seeding re-designer, though not all follow in this view.

See **Flawed**, pg. 6

Western Chapter Sponsors Two Scholarship Students at the 34th Annual IECA Conference and Expo

Laurie Barnes and Angela De Paoli will be attending this year's Annual Conference and Expo thanks to the Western Chapter. The Western Chapter has an annual goal of sponsoring at least two scholarship students to the annual conference and we met our goal. The Chapter prefers that their scholarship funds go to students from the Western Chapter Region. This year two strong scholarship applications were received from California students, to whom the Western Chapter scholarship funds were applied. Laurie and Angela's biographies are listed below. When you encounter them at the conference please make them feel welcome and help to make the conference as meaningful and fun as possible. Next year remember to encourage other undergraduate or graduate students from the Western Chapter Region to apply for scholarships to attend the annual conference.

Laurie Barnes

Laurie Barnes is a California native who is currently enrolled in the Heavy Equipment Operations and Maintenance Certificate Program at Shasta College in Redding, CA, with an emphasis on Watershed Restoration. She will be receiving her Certificate in May, 2003. For the last year she has worked for the non-profit Sacramento Watersheds Action Group on various projects including the Old 99 Road to Trail Project and the Lower Sulphur Creek Realignment and Riparian Habitat Enhancement Project. She also works for Salix Applied Earthcare in Redding, CA. She has an excellent hands-on background in erosion and sediment control from her 7 seasons in Backcountry Trail Construction and Maintenance for the Humbolt-Toiyabe National Forest. Laurie is very thankful and excited about her chance to attend the 2003 IECA Conference!

Angela De Paoli

Angela De Paoli has always had a strong interest in soils management. She has a degree in Soil and Water Science from the University of California at Davis and is currently working on a Masters Degree from Davis in Soil Science. Her research focuses on current Best Management Practices on construction sites throughout California.

When her degree is complete, Ms. De Paoli wants to continue working as a consultant for ECORP Consulting, Inc. At ECORP she prepares and monitors Storm Water Pollution Prevention Plans. In the future, she hopes to become a Certified Professional Soil Erosion and Sediment Control Specialist and continue working with land developers.

TECHNICAL CORNER

Pole Planting for Enhancing Riparian Habitat

Streambank stabilization techniques can have excellent environmental benefits when live poles are incorporated into construction. Pole plantings provide cover and increased habitat when used with stabilization techniques such as riprap, gabions, rootwad revetments, deflectors, and longitudinal peaked stone toe protection.

The poles have tremendous tensile strength which can enhance the strength and shear resistance of the soil, and when incorporated into structural practices, the poles can increase the strength and longevity of the structures. See **Pole Planting**, pg. 7

Flawed, cont'd from pg. 5

Mother Nature Intolerant of "Weak Links"

In the face of this basket of "design" and "implementation" shortcomings, Mother Nature has unfortunately proven herself to be intolerant of any inattention or "weak links" where reclamation native seeding is concerned. Just as one can't be "a little pregnant", one has to be successful on all critical fronts to effectively establish native plants on tough sites. With a flawed design, you're doomed before you begin. Conversely, the best design and soil amendments in the world are equally ineffective when paired with inappropriate plant species, or dead seed. Can any of you recall when good design, good seed and good soil amendments were ruined by flawed implementation? Given the common understanding that native species are entirely dependent upon healthy microbial communities in the soil for survival, what are we doing to encourage the development of the soil food web?

IECA's Challenge and What's Been Done About It

So returning to the IECA Contractor Forum in Nashville in 1997. As we shuffled to the exit doors, with the surprising consensus determination of "low bid = most expensive" very much on our minds, the words of forum moderator and WCIECA member Ed Kleiner, rang in our ears: "Let's go back to our regional Chapters and see what we can do about correcting this unfortunate reality", or words to that effect. For now, popcorn and beer awaited us in the closing ceremony hall.

In the upcoming Summer and Fall newsletters, we (the Royal "we" here, so feel free to send in your views) propose to (a) highlight the varied shortcomings of conventional native plant seeding design, and share innovative seeding technologies that have evolved over the past 10 years that may well improve your chances of seeding success; and (b) bring you some insights into what various parties have done since 1997 to overhaul the "low bid = most expensive" implementation shortcomings of their seeding projects, and how this overhaul has translated into seeding success in the field.

Again, the good news is that sustainable native plant establishment is being successfully accomplished, and on a consistent basis. However, much still needs to be done before this success permeates throughout the seeding industry, sufficient to chip away at that "85% disappointing results" estimate. It is abundantly clear to many of us that the industry has a ways to go to meet the nature and dimension of the challenges at hand.

Planting poles during keyway construction, San Vacinte Creek.

A Power Auger is used to excavate deep holes.

Poles planted into a Longitudinal Peaked Stone Toe Protection (LPSTP) keyway during construction.

7 months post-construction, poles are growing vigorously.

Pole Planting, cont'd from pg. 6

The cuttings are intended to sprout and take root, stabilizing the surface with a dense matrix of roots. Pole plantings need to be planted deep and therefore usually require heavy equipment assisted construction techniques.

When established, pole plantings can protect from scour and the deep roots provide remarkable pull-out resistance which can greatly reduce future collapse of the structures.

Planting poles are a valuable way to provide habitat enhancement to standard structural engineering practices. Pole planting was used to enhance rock riprap repairs to San Vacinte Creek, Santa Cruz County, as a part of an Emergency Watershed Protection (EWP) in 1998. The USDA NRCS and the County of Santa Cruz collaborated on this project to repair approximately 300 feet of flood damaged streambank to protect three (3) homes and a commercial establishment. The live pole plantings were intended to reinforce the structural components while enhancing critical riparian and wildlife habitat diversity along San Vacinte Creek.

Pole planting is also a useful "stand alone" revegetation technique for replacing and/or reestablishing riparian vegetation and cover. A riparian mitigation forest was planted in Sulfur Creek, a tributary to the Sacramento River, Redding, CA. A second year progress report gave survival rates of irrigated, pole planted Salix spp. at 90%, and for Populus fremontii at 80%.

Construction Specifications

Pole planting areas may need to be accessible to heavy equipment as the poles should be planted into deep holes. Pole planting techniques may require the use of a power auger, a large metal punch bar mounted on a backhoe or hydraulic excavator or other method to excavate deep holes. The location of the water table (saturated zone) and vadose zone (moist soil zone including the capillary fringe, located above the saturated zone) should be approximately identified so the pole plantings can access sufficient moisture.

Pole planting techniques implemented after construction is complete, for instance, after riprap placement, is very difficult. Pole plantings should ideally be installed during the construction of any large structures.

Materials

When planting poles, use relatively long, large diameter cuttings, about 5 to 10 feet long, taken from willow (Salix spp.) or cottonwood (Populus spp.). Larger diameter cuttings have greater supply of stored energy. Works well with non-irrigated projects as the deep planting can ensure contact of the basal ends of the poles with the vadose zone during hot, dry summer months.

A pond or storage area for soaking the cuttings will be necessary. The harvested cuttings (ideally during the dormant season) need to be soaked for 5 to 10 days. Poles have been successfully established after 30 days of soaking. Plant poles into an augered, "punched", or excavated hole. The holes should extend to approximately 1 foot above the water table and through the vadose zone. In the case of widely fluctuating season water levels, ensure that the ends of the poles reach the low waterline at the time of plantings.

Plant the poles during riprap placement such that the poles extend through the riprap and backfill and into contact with the "native" bank. Poles can be planted into trenches excavated for keyways or scour trenches. The backfill can be placed over and around the poles rather than having to "punch" holes through the riprap. The pole plantings, especially the basal ends, must have good contact with the soil. "Mudding" (filling the hole with water and then adding soil to make a mud slurry) can remove air pockets.

John McCullah, CPESC
Salix Applied Earthcare, 530-247-1600, info@salixaec.com

c/o Quatro Environmental, Inc.
649 "I" Avenue
Coronado, CA 92118

WCIECA Raffles at the IECA 34th Annual Conference & Expo

Win a Free Pass to the 2004 WCIECA Regional Erosion Control Conference*

Open to IECA 34th Annual Conference Attendees.

Clip this ticket, fill it out, and drop it off in the Raffle Box at the WCIECA Booth at the IECA Annual Conference and Exposition.

The drawing will be taking place at the WCIECA Chapter meeting on Thursday. You don't need to be present at the drawing to win, but you do need to drop off the ticket at the Chapter's conference booth. One ticket per person.

* Free pass to the event only, does not include travel, accommodations, or separate fee classes that may be offered in conjunction with the event.

Win a Free IECA Professional Membership

Open to WCIECA Members Only.

Clip this ticket, fill it out, and drop it off in the Raffle Jar at the WCIECA Booth at the IECA Annual Conference and Exposition.

The drawing will be taking place at the WCIECA Chapter meeting on Thursday. You don't need to be present at the drawing to win, but you do need to drop off the ticket at the Chapter's conference booth. One ticket per person.

You must be a current Western Chapter member to win.

If you are not a member check with the booth to find out how to become one.

2004 WCIECA Regional Erosion Control Conference

Name: .....

Address: .....

.....

Phone Number: .....

Email address: .....

TICKET

WCIECA Members Only Raffle

Name: .....

Address: .....

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Phone Number: .....

Email address: .....

TICKET