WESTERN CHAPTER
International Erosion Control Association

Western Chapter News

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

Spring 2003

Volume 7, Issue 2

In this Issue

Participants at the 2003 IECA Conference Hydrodeo.

WCIECA Hits the Jackpot in Las Vegas

It was great to see so many chapter members at the Las Vegas Conference. I enjoyed connecting faces to all the folks that I usually only get to communicate with by e-mail or by phone. We had a successful chapter meeting where we discussed the direction of the chapter activities, Ben Northcutt addressed the members, and we had some fun with the raffles. The raffle winners were Robert Schott, who won the professional membership, and William Lincoln, who won the free pass to the 2004 Western Chapter Regional Conference.

Kym Kelley and Helen Godfrey bask in the glory of their first place finish in the Hydrodeo Ride and Shoot event.

The Western Chapter's contribution to the IECA couldn't go unnoticed at the conference. In addition to the normal responsibilities of being the host chapter including moderating sessions and volunteering, our members demonstrated that they are leaders in every aspect of the erosion control field. Chapter members taught professional development courses, presented technical papers, Misty Scharff won the Most Distinguished Technical Paper Award, and Past Chapter President Carol Forrest received IECA's Sustained Contributor Award.

Western Chapter members not only coordinated the Hydrodeo, they dominated the competition, with honors taken by Jim Gorter in Wattle Doggin' and the Hydro Joust, and Kym Kelley and Helen Godfrey in the Hosey Mosey. Kym and Helen also took first place in the premier event of the Hydrodeo, the Ride and Shoot. And although not chapter members yet… the two teams from the SDSU Soil Erosion Research Lab didn't show too poorly in their first competition with Bobby Appleseed & The Fantastic Bonded Fiber Matrix Boy winning the 2003 HydWrangler of the Year. Good going Bobby Shaddox and Wade May. What a conference! Good work everyone!

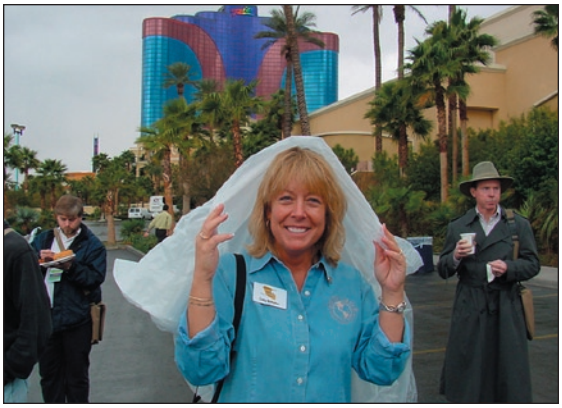
As you may have noticed, we are trying to keep you informed of chapter happenings through e-mail messages. Hopefully you are finding this form of communication to be a useful tool. Critical messages and newsletters get faxed or mailed to those members for whom we don't have e-mail addresses, but I encourage you to keep your e-mail address updated in the chapter records so we can get you time sensitive information. If you haven't been getting emails from me, it is likely that I don't have a valid e-mail address for you.

Plans are underway for the 2004 Regional Conference, which will be held in the spring 2004 (late April or early May). We are beginning the development of the conference theme and agenda. A couple of active Arizona members are scoping out conference locations and potential field trip sites. Feel free to contribute your ideas on what you want to see at the conference.

Finally, I want to welcome the new members who joined the chapter since February, Laurie Barnes, Craig Benson, Jack Bodger, Robert Bridges, William Budke, Patricia Cormier, John Cornell, Ted Crandall, Mel Driscoll, Lucinda Dustin, Lee Ellsworth, Guillermo Flores, George Fontes, Darren Granard, Jason Gullette, Nabil Hissen, Michael Horner, Tim Kennedy, David Korfas, Richard Maile, Dan Neary, James Nible, Brett Nichols, Kevin Perko, Eric Richard, Misty Scharff, Bridget Supple, Michael Sweeney, Jim Tanner, Kathleen Tucker, David Watson, Charles Wernke, Clark West. Thank you for your support.

Sandy Mathews
Western Chapter IECA President

Trying his luck, John Haynes enters the raffle at the WCIECA chapter booth.



Cathy McPhillips sports the fashion rage at the hydrodeo.

Hydrodeo judges, Carol Forrest and Dan Waldeman debate the competition's finer points.

No, no, the finish line is in the other direction, but a professional leaves no corner unstapled.

Regulatory Update

On June 18, 2003, the California State Water Resources Control Board (SWRCB) adopted the National Pollutant Discharge Elimination System (NPDES) Statewide General Permit for Storm Water Discharges Associated with Construction Activity from Small Linear Underground/Overhead Projects. Small linear underground/overhead projects (small LUPs) typically include the construction of any conveyance, pipe, or pipeline for the transportation of any gaseous, liquid, liquescent, or slurry substance; any cable line or wire for the transmission of electrical energy; any cable line or wire for communications; and associated ancillary facilities.

More information can be found at the SWRCB web site, http://www.swrcb.ca.gov/stormwtr/index.html

EPA Awards $1.32 million in Grants for Reef Protection Projects

The EPA recently awarded $1.32 million in funding to six organizations working to protect Hawaii's coral reefs. The coral reefs, which provide habitat for a variety of species and are among the world's most biologically diverse ecosystems, face many threats. Those threats include pollution from agricultural runoff and sewage discharge, sediment from soil erosion, overfishing, recreational overuse and misuse, marine debris, invasive alien algae, dredging and shoreline modification, vessel groundings and anchoring, and global climate change. The funded projects cover a wide range of activities, including:

- A $700,000 grant to reduce pollution and assess coral reefs' health at Hanalei, Kauai.
- A $103,145 grant to address alien seaweed, which can overgrow and kill coral.
- An $86,354 grant to assess, map, and monitor coral reefs.
- A $102,000 grant to assess how coral reef health may be affected by nutrient inputs from land.
- A $250,000 grant to develop innovative ways to remove invasive alien seaweed from the reefs and beaches of Kihei, and develop beneficial uses for the seaweed waste.
- A $40,000 grant to evaluate how federal programs address damage to coral reefs caused by coastal construction projects.
- A $40,000 grant to provide on-site technical assistance towards the development of a coral reef monitoring program in American Samoa on the impacts of polluted runoff.

For more information, please visit the EPA's Coral Reef Protection Web Page, http://www.epa.gov/owow/oceans/coral/index.html

Michael Broadwater, CPESC and WCIECA Board Member
Vali Cooper & Associates, 909-579-0804, mikeb@valicooper.com

We Need Your E-mail Address!

New federal rules are going into effect that will limit IECA and the Chapter's ability to communicate with members by fax. Until further clarification of these rules are available the Chapter will not be sending you information by fax. Please make sure we have your current e-mail address, or make sure you check the web site regularly for information on chapter events and news.

Calendar of Events

July 26-30, 2003 (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.

July 28-31, 2003 (San Antonio, TX) - *StormCon' 03*. More info at http://www.stormcon.com

August 21-22, 2003 (San Diego, CA) - WCIECA Summer Educational Event and Field Tour. See pg. 8 for more details or visit http://www.wcieca.org

September 12, 2003 (Ontario, CA) - *California Stormwater Quality Association*, General Meeting. More info at http://www.casqa.org.

Summer and Fall 2003, Construction Site Planning and Management for Water Quality Protection workshops. A cooperative project of the San Francisco Estuary Project and the San Francisco Bay Regional Board and Friends of the SF Estuary. Registration and info at http://www.abag.ca.gov/bayarea/sfep/programs/construction/
or call Carol Thornton at 510-622-2419.

August 28 - Novato, CA
September 8 - Concord, CA
September 25 - San Jose, CA
October 9 - Dublin, CA
October 28 - Daly City, CA
October 30 - Napa, CA

December 9-11, 2003 (Stevenson, WA) - Pacific Northwest Chapter's Erosion Control 2003, Stevenson, WA. More info at http://www.pnwieca.org/ec2003.htm

February 16-20, 2004 (Philadelphia, PA) - EC04, IECA's 35th Annual Conference and Expo. More info at http://www.ieca.org, or call Kate Nowak 970-879-3010 ext 15

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.

Board of Directors Election Results

The results are in on the 2003 election for WCIECA's Board of Directors. Mike Chase, Peter McRae, and Sandy Mathews were reelected to serve on the Board for another three-year term.

Peter McRae is President of Quattro Environmental, Inc., a San Diego-based environmental consulting and revegetation material R&D company with operations throughout the Western U.S. and overseas.

Mike Chase is a Water Quality and Filtration Specialist with Rain For Rent and helps to solve erosion, sediment, and TMDL problems nationwide in addition to developing and teaching courses for IECA for the past several years. Mike is also a CPESC.

Sandy Mathews is an Analyst in the Environmental Protection Department at Lawrence Livermore National Laboratory, where she has responsibilities for water quality protection program, especially the construction and industrial storm water programs.

The new Board will elect the officers at the next Board of Directors meeting.

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 e-mail 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

SPEAKING YOUR MIND

Seeding Design Shortcomings: Growing Carrots in the Desert

By Peter McRae

"Drastically disturbed soil" at FHWA's Flowery Trail Scenic By-way, WA.

Re-capping the Challenge

Re-establishing sustainable native plant growth on drastically disturbed soils in harsh environments is a tall order by anyone's standards. We are talking here about restoring disturbed land to its former natural vegetative state that existed prior to its being disturbed. Not surprisingly, there are few in the moisture-parched Western U.S. having much success at meeting this challenge, despite the vast amount of knowledge that has been accumulated from years of research on the ecology and developmental morphology of native plant species by intelligent and dedicated individuals.

The good news is that sustainable establishment and growth of native plants is being successfully accomplished, and on a consistent basis in select venues following a carefully orchestrated program. However, much still needs to be done before this success permeates throughout the seeding industry, sufficient to chip away at that "85% disappointing performance" estimate and the consequent casual observer's conclusion that the reclamation seeding industry is "fundamentally flawed" (see Fundamentally Flawed, Western Chapter News Winter 2003).

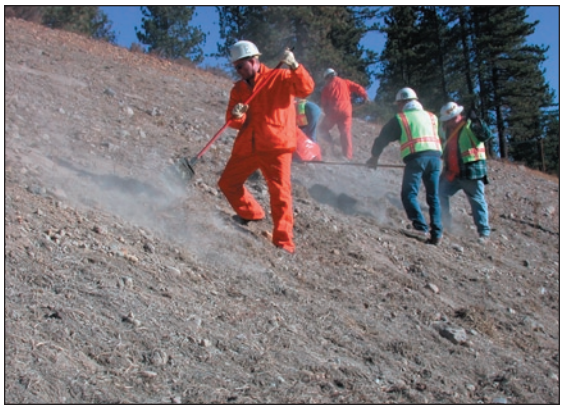
Steep slopes only compound the challenges faced in revegetating drastically disturbed soils (Victor, CO).

So why are so many seeding projects turning out "disappointing"? Let's first look at some shortcomings of CONVENTIONAL DESIGN.

No Need to See the Patient

First and foremost, conventional seeding design pays scant, if any, attention to soil composition and conditions apart from perhaps broad characterization into unspecific categories such as sandy/loam/clay, prompted by concerns over immediate soil stabilization. But soil mineral balance and the health of soil microorganisms within the soil biota, the crucial building blocks of vibrant soil and plant life, escapes the notice of most reclamation practitioners. "Soil is soil. Something to seed into, or build a road with". Unbelievably, some designers never even visit their seeding sites, let alone seek an analysis of soil samples taken from their seeding sites.

While there is a growing realization that topsoil is critical to re-establishing sustainable plant growth, apathy towards preserving topsoil belies any suggestion that many in the industry understand to what extent "living" topsoil is crucial to seeding success. "Topsoil" is often viewed as whatever soil happens to be placed "on top", and even stockpiled topsoil is often allowed to become sterile due to ineffective stockpiling techniques.



Removing "cellulose mulch" from failed conventional seeding site (Truckee, CA).

Feed 'Em Cake

Second, conventional seeding techniques invariably take a purely agronomic approach to re-establishing native plants on a disturbed site. This fundamental error, repeated so often, ignores the essential facts that native species obtain nutrient and moisture differently than agronomic and ornamental species. In addition, native species have different requirements for germination and establishment. Drill seeding into living native soils may work fine, if it is appropriate to cover subject species, and if Nature cooperates with sufficient moisture to both germinate and nurture young seedlings to the point their roots and mycorrhizal associations are established. In addition, the major outstanding question in this equation is the ability of the soil to adequately provide sufficient soil microorganisms to support establishment. It's when we attempt to grow native plants on drastically disturbed soils (read "sterile") that we run into difficulties. Steep slopes only compound the problems faced in revegetating disturbed soils.

See **Seeding**, pg. 5

CONTRACTOR'S CORNER

FYI: Straw Blowing and Dust Control Violations

By Sandy Mathews

Recently the Placer County Air Pollution Control District fined an erosion control contractor and stiffened dust control rules that will affect straw blowing and hydroseeding activities. The WCIECA has the opportunity to be involved in creating a solution that will be mutually beneficial to air quality, water quality and our members. The WCIECA Board is looking for a few chapter members to volunteer to participate in this discussion. Those of you involved in blowing operations and equipment manufacturers have the experience needed to help craft practices that are practical and could be implemented in the field. If you are interested please keep reading and contact myself <mathews6@llnl.gov> or David Gilpin <dwgilpin @attglobal.net>.

Placer County Air Pollution Control District recently fined Nitta Construction, an erosion control contractor, under a "nuisance" rule for creating dust in Auburn while blowing straw on a calm day. The contractor was warned that the next violation would result in a much stiffer penalty. To further complicate the situation, on 4/10/03, Placer County enacted a "fugitive dust" rule, Rule 228, in response to continued poor air quality and the perceived need for stricter compliance rules for construction-related dust. (www.placer.ca.gov/apcd). As it stands now, rule 228 restricts any dust from leaving one property and crossing to another. At this time, enforcement of the rule is reputed to be primarily complaint-driven and, since there are no objective measures of how much dust is too much dust, it is up to the discretion of an individual inspector to determine if there is a violation of the rule.

Given the prospects of much broader applications of rule 228 and the potential impact on erosion control BMP's and contractors, Jon Shilling of Pacific Coast Seed, Inc. and Tony Pitts of Earthsaver (also representing the Western Chapter - IECA) attended a public meeting on 4/10/2003. During an open forum, they made the APCD board aware that straw mulch application is a widely utilized erosion control BMP currently specified by Caltrans, and many other public and private entities, and recognized by the Regional Water Quality Control Boards as one of the more effective erosion control practices.

See **Dust Control**, pg. 7

Seeding, cont'd from pg. 4

Feeding Sugar To Kids

Admittedly, many have progressed beyond the "wood fiber mulch + 16-20-0 + tackifier + seed" recipe (and its beefed up and impendent successor, the bonded fiber matrix) so ably marketed by Weyerhaeuser during the '80s and early '90s. Unless one is operating in the rain shadow perpetual dampness west of the Cascade Mountains, even Weyerhaeuser's mantra of "seed it each year for five years" is not going to cut it in the harsh environment of low rainfall, low nutrient levels, high soil temperatures, heavy metals, soil salinity, low organic matter, mineral imbalances so prevalent in the semiarid West. The "sugar-shot" approach to replenishing what soil physicists like to term depleted "nitrogen pools" works fine for irrigated ornamental plant species, but this ill founded approach ignores the fundamental requirement of native species, which have relatively low nutrient requirements. This single dimensional analysis of native plant ecology is without empirical foundation, and unsupported by credible research literature concerning native revegetation, not to mention unsupported by evidence of success in the field.

Garbage In, Garbage Out

Analogous to the '70s fascination with anything spit out by (and thereby authenticated by) a computer, some well meaning practitioners in search of organic alternatives have embraced composting of whatever is close at hand, or what might be politically correct to save from the landfill. Composting was the "pixie dust" of any and all waste products, theoretically converting organic materials of questionable mineral and suspect nutrient value into soil amendments for the garden. All too often, however, we have forgotten the "garbage in, garbage out" lesson we learned in the early days of computers. Cost benefit analysis of various compost materials is required to ascertain what, if any, value a subject compost materials may have, and the benefits to the target species, relative to cost for moving and applying this bulky material at the revegetation site. The question must be asked: What nutrient and what quality of organic matter is contained in the subject volume of compost?

Consequently, human waste by-product (and heavy-metal) sludges and decomposed garbage have been fired out onto soil surfaces in an effort to boost organic material on drastically disturbed soils. And much like the largely unsuccessful organic-enhancing efforts of the '60s where farm paddocks were treated with truckloads of cellulose-laden sawdust, elevated levels of carbon in the sawdust immediately locked up whatever little nutrient existed in the soil. Likewise, much supposedly composted mulch is quite high in cellulose and little more, and thus of little if any benefit to the revegetation effort, however politically correct it may be.

Growing Weeds and Poisoning Your Soil

Countering this cellulose induced nitrogen lock-up with timely treatments of nitrogen fertilizer wins you points for effort, but only weeds as a consequence of the expenditure. There are few better ways to trigger the invasion of cheat grass and other invasive weeds into your reclamation plot (which may win you short-term satisfaction points from your clients who only understood "any form of green is good"). Unfortunately, one is also unknowingly poisoning (like chlorine in a swimming pool) the very ecology one is hoping to nurture for long-term native plant establishment. Our pre-occupation with what we can see and control on the soil surface has blinded us to the devastating side effects of chemical fertilizers upon soil microorganisms and their ecosystem, upon which most native species are dependant for sustained establishment.

Designs That Are Working

"Good designs are ones that perform across time." Not surprisingly, there is no magic recipe of products for successful native plant reclamation projects, because each site is unique in soil, aspect, altitude, slope, microbial composition, plant species, precipitation, seasonal temperature fluctuations, etc. But there are a limited number of formulas of approach, either one of which will dramatically increase your chances of a successful seeding effort, that concentrate first and foremost on rejuvenating the soil ecology that must ultimately sustain the shrubs, forbs and grasses that are native to your site.

See **Seeding**, pg. 6

Seeding, cont'd from pg. 5

An example of one such "recipe of approach" is the Growing Soil Technologies developed by the Native Plants Alliance team of designers, academics, researchers and seed specialists drawn from throughout the Western U.S., individuals who are informally linked by a mutual passion for successfully growing native plants in harsh environments. To obtain some insight into their methodology of approach, go to NativePlantsAlliance.net and make your way to the "Growing Soil" technical paper.

What is stimulating about the Growing Soil Technologies is that the merger of soil science, botany, plant morphology, knowledge of native seed and structural engineering has not only been working on a consistent basis for some 8 years now, but that it is also working successfully on sites that have responded unacceptably to conventional design approaches. What began in the semi-arid deserts of Idaho with Summit Associates (Boise, ID) has been equally successfully implemented by the likes of Jones & Jones (Seattle, WA) and the FHWA (Vancouver, WA) in Montana, Washington, and Oregon; by leading native seeding specialist Western Botanical Services (Reno, NV) in the Tahoe Basin of California and Nevada; mine sites in Wyoming, Idaho, Utah and the Rocky Mountains of Colorado, as well as by seeding contractor SunWest Golf & Reclamation growing native plants in the desert environment of Cabo San Lucas, Baja California.

As the Growing Soil title suggests, all efforts to re-establish sustainable native plants growth revolves around re-establishing a healthy soil food web in the sterile soil, in setting the stage for the natural re-establishment of site-specific mycorrhizae and related soil microorganisms to nurture and co-exist in symbiotic relationships with the successional native species from early seral stage through to climax species. It all begins with the site analysis, and the examination and interpretation of soil analysis from the sample taken at the site. The soil dictates what is required to be done to establish desired growing conditions for the selected species, transcending manufacturer's specifications. This is in addition to selecting site appropriate early seral stage species for the revegetation effort, and knowing how to put out the seed effectively.

The irony of the situation is that many of the similarly successful associated "recipes of approach" are heavily grounded in working closely with Nature, where minimal financial resources either limited access to modern machinery and/or manufactured products (that have since been found to be counter-productive to the overall objectives sought), or mandated the stringent salvaging of topsoil which has been shown to be far more valuable than it was ever given credit for.

Plant Species Selection

Once one has restored the mineral balance of one's soil and taken steps to re-establish a healthy soil food web, the issue of plant species selection must be addressed. It was not so very long ago that we realized how ill advised our efforts were in attempting to grow ornamental and agronomic species at revegetation sites, and in specifying introduced forage and turf species into our reclamation projects. In an effort to improve sustainability of plant growth, we began to take note of what plant species were growing immediately outside our disturbed areas and to plant what we saw. Notwithstanding the logic of this strategy, we again fell short of Nature's threshold conditions for success. It was not until we more closely mimicked the natural successional process, by seeding with early seral stage (pioneer) species, that we set the stage for climax species to ultimately re-establish themselves on disturbed sites.

Innovative Blind Alleys

Over the past 8 years, much has been made of inserting mycorrhizal fungi into the revegetation equation. After all, mycorrhizal associations (fungal colonies) are found in a broad range of habitats, being present in the root systems of the majority of indigenous plant species on arid and semiarid lands of the American West.

See **Seeding**, pg. 7

An oft- and unfairly-maligned seeding practice, hydroseeding lends itself well to implementing a Growing Soil Technologies seeding design (Mojave, CA).

Checking out the patient; collecting soil for analysis for the purpose of determining the true extent of the seeding challenge.

Dust Control, cont'd from pg. 5

Subsequently, a chief staff member from the City of Auburn Public Works Department acknowledged that they were aware of the dilemma faced by both the City and by the Nitta Construction and other contractors when trying to protect water quality and preserve air quality standards. He strongly suggested that air and water quality and other agencies work to resolve the contradictory regulations.

The Placer County Air Pollution Control District chose to approve Rule 228 and took a proactive approach to address the straw-blowing issue. The District established a three-month window to review options and further educate everyone affected by the rule. Also, they decided to forego air pollution fines for the next six months on straw blowing and hydroseeding operations. The Placer County APCD will be meeting with Caltrans, the RWQCB, and local representatives of our industry to develop and implement local guidelines to assist erosion control contractors in the future.

The Air Pollution Control District has contacted the storm water staff of the Central Valley Regional Water Quality Control Board. Because Regional Boards are constrained in "requiring" specific practices and creating BMPs, the storm water staff approached Sandy to see if through her contacts with the WCIECA and CASQA if we could help create a solution through these professional organizations.

Undoubtedly new requirements for straw blowing will be coming at us because of air quality issues, having knowledgeable practitioners involved in crafting these rules can only benefit the WCIECA members and erosion control professionals in California.

Sandy Mathews, WCIECA President
LLNL, 925-423-6679, mathews6@llnl.gov

Seeding, cont'd from pg. 6

In regions with low rainfall, where soils tend to be low in organic matter and low in available P and N, mycorrhizal fungi plays a vital role in assisting the root systems of dominant species of indigenous vegetation to access moisture and nutrients from the soil. By way of example, 96% of the native species in the Great Basin have mycorrhizae associations. More than 30 years of research worldwide has proven the roles of mycorrhizal fungi, in association with other soil microbes, are necessary for plant survival in these ecosystems.

Yet successfully revegetating drastically disturbed soils with mycorrhizae-innoculated native plant seedlings has proven an elusive objective, as reasonable as it may have seemed at the outset. Notwithstanding the logic of this practice, field experience over the past 6 - 8 years would clearly indicate that we are again falling short of Nature's threshold conditions for success. In all likelihood, looking only at mycorrhizae fungi in isolation will one day be shown to be myopic; we should be looking at the entire fauna and flora of a disturbed site, in much the same way as the Growing Soil Technologies sets out to do. It's a subtle, but critically important concept to grasp: one is not so much growing native plants per se, as one is nurturing early seral stage plant species in tandem with mineral balancing + biological amendments in an effort to set the stage for the natural re-establishment of site-specific mycorrhizae fungi and the other functioning components of the soil food web. Absent the revival of a functioning soil food web, the much-heralded hardy native plant species have little chance of survival.

Raising Your Chances of Seeding Success

1. Retain a successful designer, by which I mean a designer who can take you and a native plant botanist to at least five (5) performing sites that span a "2 years of established native vegetation through more than 4 years since seeding took place" time frame. Wherever possible, talk at length with the client's representative who was on site at the time of the seeding to (a) confirm your candidate designer truly was the designer; (b) what difficulties (if any) occurred during the implementation of the design; (c) what was done to resolve such difficulties (if any); (d) what was the design's specific objectives; and (e) how did the end product match up to the design's objectives.

   Far too many clients are hiring designers who have no track record of success, notwithstanding the professional qualifications. Be wary of engineers who believe seeding is simple. Remember: Nature is utterly intolerant of any weak link that slips into your seeding project.

2. Analyze your soil properly and have the analysis interpreted by an individual knowledgeable about soil balance and nutrient levels required for native species. Otherwise, you're shooting in the dark and wasting both money and time.

3. Make the effort to re-balance your soil.

4. Retain your designer to be on-site at the time the seeding project is implemented.

5. Release anyone who believes that because seeding is the last phase of a construction project, sees it as the least important phase of the construction project. With all due respect to engineers, it is often the most visible (and thereby most critical) component of a construction project seen by surrounding communities.

Peter McRae, WCIECA Board Member, President
Quattro Environmental, Inc. 619-522-0044, pmcrae@san.rr.com

WESTERN CHAPTER
International Erosion Control Association
c/o Quattro Environmental, Inc.
649 "I" Avenue
Coronado, CA 92118

WCIECA Summer Educational Event and Field Tour

Thursday, August 21 and Friday, August 22, 2003

Join the Western Chapter for fun and education in beautiful San Diego California on August 21st and 22nd. The events are individually priced to allow you the maximum flexibility with your schedule and educational needs.

Thursday August 21, 9:00 a.m. to 5:00 p.m.: How to Develop and Implement a Storm Water Pollution Prevention Plan. Instructor Mike Chase, CPESC at the Crown Cove Aquatic Center. See the attached class syllabus for details.

Thursday August 21, 5:30 p.m. to 8:30 p.m.: BBQ on the shores of Crown Cove with exhibits by the event sponsors.

Friday August 22, 9:00 a.m. to 5:00 p.m.: Field tour buses will depart promptly at 9:00 and return to the State Beach parking area at 5:00 p.m. The site visits will involve some walking, please dress comfortably and appropriately for the weather.

- Site visit to the McMillin Rolling Hills Ranch master-planned community in Chula Vista.
- Tour of the San Diego State University Rainfall Simulator Laboratory.
- Visit two locations at the Tijuana Estuary, a unique and biological productive coastal wetland on US-Mexico Border.

Visit http://www.wcieca.org for Full Event Details and Registration
Participation is limited. Please get your registration form in by August 15, 2003.

Contact Tony Pitts
866-928-8537
for information on sponsoring this event.