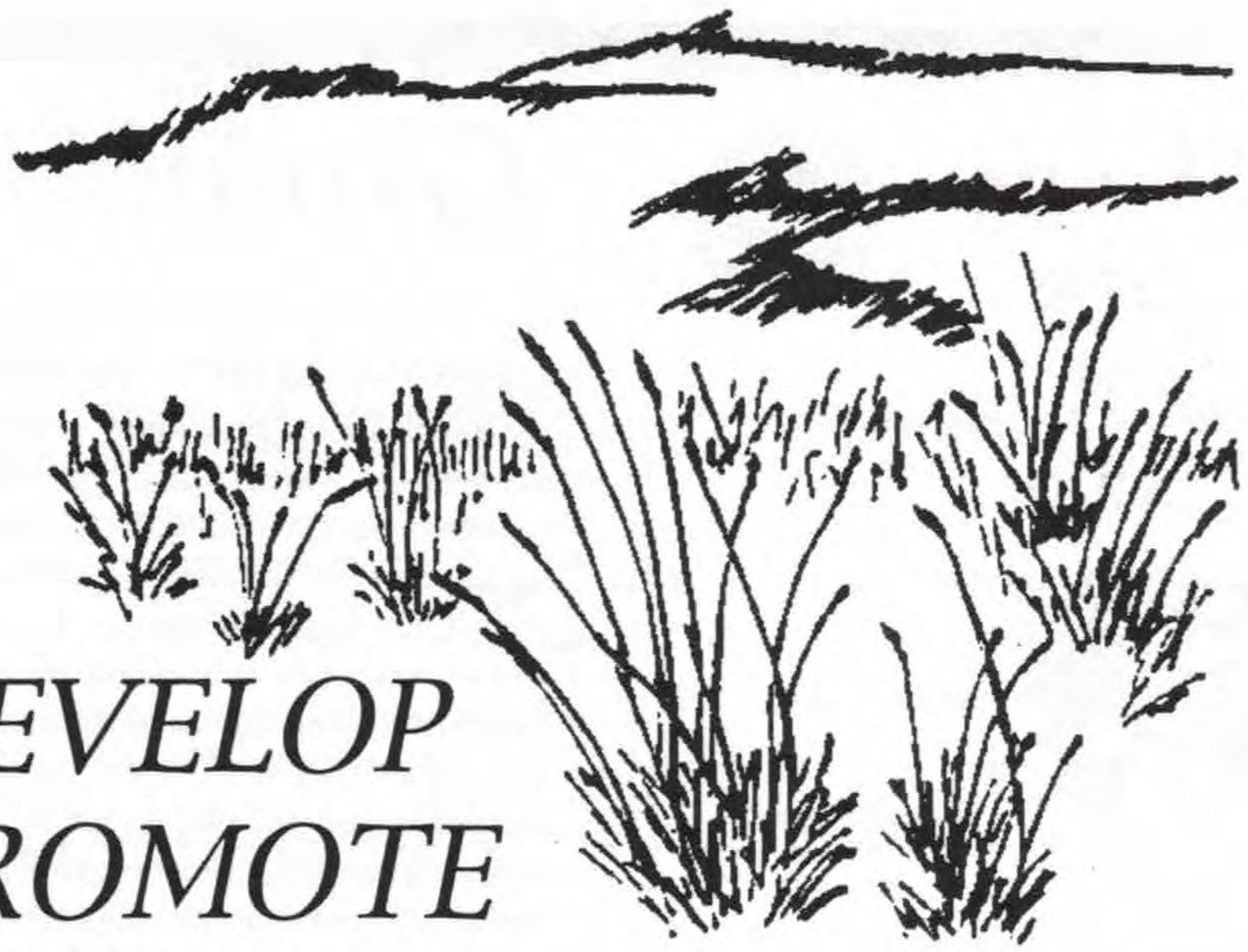


DEVELOP
PROMOTE
RESTORE

California Native Grass Association
P.O. Box 566
Dixon, CA 95620

RECYCLED
PAPER

Non-Profit Org.
U.S. Postage
PAID
Permit No. 19
Dixon, CA

GRASSLANDS

The Newsletter of the California Native Grass Association Volume 4, No. 2 June 1994

TUMBLEWEED CONTROL PILOT REVEGETATION PROJECT ON THE CALIFORNIA AQUEDUCT: FIRST-YEAR OBSERVATIONS

Jonathan A. Oldham
California Department of Water Resources
(805) 549-3559

Introduction

The Department of Water Resources owns and operates the California Aqueduct, the largest water transport system in the State. The aqueduct delivers approximately 2 million acre-feet of water annually from Northern California to Central and Southern California for agricultural, municipal, and industrial uses. Maintaining the aqueduct is of paramount importance to protect the aqueduct's integrity. Maintenance activities include facilities maintenance, erosion and sediment control, and vegetation management.

Managing noxious and/or troublesome vegetation is one of the most time-consuming activities for the Department's Division of Operations and Maintenance personnel responsible for maintaining the aqueduct. Russian thistle (Salsola iberica), better known as tumbleweed, is the primary weed growing along and adjacent to the aqueduct and has been the major concern. After a spring and early summer growing season, the tumbleweeds break away at the stem base and disperse their seeds by rolling in the fall winds. The winds blow the weeds (1) into the aqueduct, creating water delivery and pumping problems; (2) against fences where large accumulations present maintenance and fire hazards; (3) across adjacent agricultural fields, creating weed pest problems; (4) across roads and highways, causing potential vehicle collisions; and (5) into native lands supporting endemic species, which become threatened by the exotic weed intrusion. The overall cost for tumbleweed control is extremely high.

Alternatives to the costly and sometimes restricted control measures such as herbicide spraying, burning, and mechanical removal programs should be analyzed. One promising alternative is vegetative replacement and management. Planting less intrusive, more desirable grass or shrub species which may have a long-term competitive edge over the tumbleweeds may prove effective. Though initial establishment costs could be higher than control costs in the short term, long-term costs would be substantially lower. Control of exotic weeds is also ecologically beneficial, although complete eradication of this exotic weed species is highly unlikely.

This paper discusses an experimental tumbleweed control project that used native grasses and shrubs as replacement cover types. Visual observations and notes made during the first year of growth are presented. While monitoring is ongoing, future studies may provide additional quantitative and qualitative analyses.

Site Description

The California Aqueduct begins near the town of Byron in Contra Costa County and stretches south to Lake Perris in Riverside County. It contours the west side of the San Joaquin Valley, dissecting agricultural lands, disturbed annual grasslands, and saltbush and alkali sink native plant communities. The aqueduct has a permanent right of way which runs along both sides and ranges from 10 to 300 feet wide.

The project site is approximately 5 miles north of the town of Lost Hills in Kern County. At that point, the right of way is about 100 feet wide. Before planting, it was characterized as a 100 percent cover of dead and living tumbleweeds with some lambsquarters (Chenopodium album) and bassia (Bassia hyssopifolia). Desert saltbush (Atriplex polycarpa), quailbush (Atriplex lentiformis), goldenbush (Haplopappus sp.), and annual grasses and forbs exist along the edges of some of the site. Cotton and winter grain crops are grown in the adjacent fields.

Methods

Ten 1-acre plots (87 feet by 500 feet) were delineated in the eastern right of way by metal fence posts. All vegetation was removed prior to planting using three methods: mowing, burning the vegetation in place using a propane torch, and stacking the vegetation with a brush rake mounted on a front-end loader and then burning. A harrow pulled behind a small tractor was used to prepare the seedbed.

Annual and perennial grasses and a perennial shrub were planted in December 1992 in varied densities and mixes. The annual grass species were Cucamonga brome (Bromus arizonicus) and zorro fescue (Festuca megalura); the perennial species were nodding needlegrass (Nassella cernua) and purple needlegrass (Nassella pulchra). The shrub species was desert saltbush (Atriplex polycarpa) (Table 1). The seed was spread on each plot using a 3-point-hitch agricultural seed spreader. The spreader was modified by enlarging the stirring arm in the seed box to prevent seed bridging. The seed was then covered with the harrow. The seeding rates were based on weight and not pure live seed.

Herbicide was applied to Plots 4, 5, and 6 in March 1993 using a controlled droplet applicator (CDA) and a conventional high volume sprayer. Buctril and 2,4-D were applied to two-thirds and one-third of Plot 5, respectively. Buctril was also sprayed on Plot 6, while Telar was sprayed on Plot 4 (Table 2). The average weed height at the time of application was about 4 to 6 inches.

Photo points were established in each plot. Visual assessments of each plot were conducted periodically throughout the growing season. Notes were recorded on germination success, percent cover, and responses to methods, soils, and herbicide treatments.

Results

Visual comparisons between methods of preplant weed removal indicated burning in place resulted in substantially fewer weeds after planting. Using the loader resulted in increased soil

In This Issue:

disturbance, which encouraged more tumbleweed growth. Tumbleweeds generally grow in disturbed soils and, as a result, were more abundant. Other dominant weeds occurring in the plots were lambsquarters, tarweed (Hemizonia kelloggii), and filaree (Erodium sp.).

Plot 1 was never planted because of mechanical problems with the mower and its inability to mow down the weeds. Using a small rotary mower proved to be an ineffective way to remove large, dried tumbleweeds. The tumbleweeds piled up in front of the mower resulting in the weeds being dragged along the ground.

Grass productivity was by far the best in Plot 4. Telar's post-emergent control of all weeds was 100 percent. It removed all weed competition from the plot. The pre-emergent control of weeds throughout the spring and summer months was excellent. As a result, all three grass species grew very well, forming a solid cover of grass. This plot produced the largest stand of bunchgrass out of all plots. The brome was abundant throughout the plot and exhibited excellent seed production. However, it appeared several inches shorter than brome planted in other plots. Although this implies that the brome may have been stunted by the Telar, the ability of the material to suppress broadleaf weeds throughout the growing season and allow annual and perennial grass production outweighs this concern.

In Plot 5, the 2,4-D performed well against tarweed, filaree, and lambsquarters, but not tumbleweeds. Tumbleweed growth was still minimal, however, because of the amount of brome present. It was planted at a rate of 15 pounds per acre and was sown only with bunchgrass. As a result, the brome was the most productive in this plot, exhibiting the tallest and most abundant growth. Bunchgrass was also plentiful, and although it grew only in patches, it still produced seed.

Conversely, Buctril performed well against tumbleweeds and tarweed, but not against lambsquarters and filaree. As expected, the Buctril applied with the low-volume CDA in Plot 5 was less effective than that applied with the conventional sprayer in Plot 6. The lambsquarters was stunted more in Plot 6 than in Plot 5, but by summer after the annuals had died, both plots had good stands of lambsquarters. As with 2,4-D, the brome grew well, producing seed and maximum height by spring. In Plot 6, fescue growth was very good and apparently not affected by the Buctril. It provided strong competition for the lambsquarters because of its dense growth and good cover. Bunchgrass production was poor compared to Plots 4 and 5, perhaps because of the lower seeding rate of only 3 pounds per acre. If calculated, the amount of bunchgrass pure live seed applied per acre would be less than 2 pounds per acre.

Visual comparisons between sprayed and unsprayed plots showed obvious results. Weed growth, especially from lambsquarters and tarweed, was much more abundant in unsprayed plots. The fescue and brome grew well initially in the unsprayed plots, maturing and producing seed and reducing the amount of weed growth. Yet after the grasses died and as the summer progressed, weed growth continued. As in Plots 5 and 6, the lambsquarters was the most abundant, while the amount of tumbleweed was minimal. The bunchgrass grew well initially, but most died out as weed competition increased. The desert saltbush in Plot 7 did not grow at all, possibly because of too much competition.

Tumbleweed control was very good in all plots and substantially better in the sprayed plots. In the control plots where the weeds were cleared but no grasses were planted, regrowth of tumbleweeds, bassia, and lambsquarters was significant.

Conclusions

After one year of growth, visual observations indicate that planting a cover crop using a mix of Cucamonga brome, zorro fescue, and perennial bunchgrass helps reduce weed growth, especially tumbleweed growth. Employing methods which minimize ground disturbance should be used during site preparation. Using herbicides to control weeds during grass establishment is very effective and perhaps necessary. On sites where ground-disturbing activities occur, no treatment results in substantial regrowth of tumbleweeds. Future monitoring of the plots established in this study will aid in understanding the long-term benefits of using grasses to help control tumbleweeds.

Table 1. Weed removal methods and seeding rates for each plot

Plot	Removal method	Species	Amount (lb per acre)
1	mow	(not planted)	
2	burn	B. arizonicus	12
		E. megalura	8
		N. cernua	5
3	burn	E. megalura	10
		N. cernua	5
		N. pulchra	5
4	burn and spray	B. arizonicus	12
		E. megalura	8
		N. cernua	5
5	burn and spray	B. arizonicus	15
		N. cernua	8
6	burn and spray	B. arizonicus	12
		E. meqalura	8
		N. cernua	3
7	loader rake	E. megalura	10
		A. polycarpa	1
8	loader rake	F. megalura	10
		N. cernua	8
9A	loader rake	E. megalura	10
9B		B. arizonicus	10
10	loader rake	control	
11	burn	control	

Table 2. Herbicides used

Plot	Material	Rate	Method
4	Telar	2 ounces per acre	sprayer
5 (1/3)	2,4-D	9 pints per acre	CDA
5 (2/3)	Buctril	1 quart per acre	CDA
6	Buctril	1 quart per acre	sprayer

PRESIDENT'S MESSAGE

Patricia Gouveia

I would like to begin this message, my first as CNGA president, by getting acquainted with you. First, I'll introduce myself. I am an Integrated Pest Management Specialist with the City of Davis. In the interest of reducing herbicide use and eliminating bare ground roadside management, I became acquainted with John Anderson and other founding members of CNGA. In our first year, I served as the Public Information and Education Chair. With the help of numerous individuals, I helped with the planning of various workshops, our first technical conference at Elkhorn Slough and the first annual meeting in Walnut Creek.

Since being elected president, I have heard from some of you, concerned about the direction, or lack of, that CNGA has taken. I have also heard a lot of praise, for our workshops, our conferences, and our newsletter. And so at this point, I would like to get to know you. I would like to know what you think, what you like and what you don't like about CNGA. I would like to hear from you, the membership, what direction this organization should take. What do you see as a realistic goal for CNGA for 1994?

To develop, promote, and restore. I would like to know exactly what those words mean to you. As I stated earlier, our educational efforts are a big success. Is this where we should concentrate our efforts? Would you like to see more workshops, day hikes, meetings, etc.? Would you support the creation of an executive director to facilitate a broadbased educational outreach? Should we solicit our commercial members for support so that we may better support them?

There are many questions to be asked, many roads to be taken. In the end, our purpose remains to develop, promote and restore California native grasses. It is important that as we begin our fourth year that we take a good look at ourselves and determine if we are meeting our goals and objectives. I submit to you that we have made a dent but there is more information needed, a critical need to deciminate that information and many, many grasslands that need to be restored.

We can only rely on you, your help, your word, your devotion. Let us know what you think, what your needs are. Come be an active member of CNGA.

The following is something I found, that may have meaning to our readership.

Articles published in Grasslands do not reflect the views of CNGA, its officers, Board Members, or staff, but rather those of the author(s). CNGA is dedicated to the unbaised publication of newsworthy information for the benefit of its readers and will present opposing viewpoints whenever submitted. No article will be rejected on the basis of its content unless defamatory or otherwise personally offensive material is included.

How to Kill Your Association

Seldom, if ever, go to a meeting.

If you attend, find fault with the officers.

Never accept an office or serve on a committee. It is easier to criticize than to do things.

If asked by any officer to give your opinion regarding some matter, tell him you have nothing to say. But say plenty after the meeting.

Do nothing more than is absolutely necessary; but when other members roll up their sleeves and willingly and unselfishly use their ability to help matters along, howl that the association is run by a clique.

Squall about your offices, but never allow yourself to be nominated for one.

When a banquet is given, tell everybody money is being wasted on blowouts that make a big noise and accomplish nothing.

When no banquets are given, say that the association is dead and needs a can tied to it.

Don't tell the association how it can help you, but if it doesn't help you, resign.

Get all the association gives, but don't give it anything!

Kick about the cost of membership, even though you spend as much as an entire year's dues on the World Series or a "little party. "

If you receive service without joining, don't think of joining.

Keep your eyes open for something wrong and when you find it. YELP!

At every opportunity threaten to quit and get your friends to resign.

MINUTES
CALIFORNIA NATIVE GRASS ASSOCIATION
BOARD MEETING
PARSONS SEED RESEARCH CENTER
MARCH 11, 1994

Meeting convened at 1:00 pm..

Officers present: Patricia Gouveia, President; Ted Adams, Past President; Daniel Strait, President-elect

Members-at-Large: Barbara Amberson, Sacramento; Charlice Danielson, Kensington; Linda Marianito, Redding; Richard Reiner, Galt; Kevin Rice, Davis

Guests: Theda Strack, CNGA office manager; Tom Griggs, Research & Development Committee Chair; Carolyn Shoulders, Public Information &Education Committee Chair; John Anderson, Roadside Management Committee Chair

Introduction of Officers and Members-at-Large

Patricia Gouveia was introduced as the CNGA President for 1994. For the first time, CNGA has a President-elect, Dan Strait and a Past President, Ted Adams. New Members-at-Large introduced were Kevin Rice, Richard Reiner, and Charlice Danielson. All will be serving for a two year term.

Office Operations

Theda Strack has completely taken over the office manager's responsibilities. Theda will be on vacation during the month of May. Her duties will be handled by Ruth Kleinen.

Native Grass Database

Kevin Rice reported that the committee met. Charlice Danielson was elected to chair the committee. Immediate discussion focused on whether to pursue this type of database. Charlice indicated that Frank Chan might pursue this on his own. Charlice will put together a questionnaire to be included in the next newsletter. *(Included in this newsletter)* Questions to be put to the membership will include: How to structure the database; what does the membership want to know; information required on data base - common grasses, site evaluation, grass profiles, etc.

Field Day S&S Seed

A draft agenda for the field day at S&S Seed was distributed by Pattie. It was agreed to delay the field day until May so that information could be included in the newsletter.

Bodeqa Bay Workshop

Carolyn Shoulders reported on the grass ID workshop being planned at the Bodega Bay Marine Lab planned for the first week in June. Arrangements for classes and housing were discussed. Camping facilities are also available.

Annual Meeting

Ted presented a tentative agenda for the Annual Meeting to be held November 4, in Sacramento. In addition to the business meeting, the agenda includes presentations by Cini Brown, Eric Knapf, Andy Dyer and Carolyn Showers.

Reorqanization

The possibility of reorganizing CNGA was brought to the board by Pattie Gouveia. Involving members has been a problem but attendence and requests for educational information is high. It was decided to poll the membership via the newsletter as to what direction the organization should take. It was also suggested that each committee provide a set of goals and plan for the next year. If a committee is inactive and there is no desire among the membership to actively participate in the function of the committee than it should be dissolved. The efforts of those involved in the committee would be channeled towards education. It was agreed that committees will be formed immediately after the field day and annual meeting to plan for next year's event.

Requests for information, it was agreed, need to be screened by someone, most likely Theda or Carolyn Shoulders. A phone tree will be provided to both to help in the dissemination of information.

More networking by the board and committee chairs to provide articles for the newsletter was approved. A schedule will be worked up by Pattie and distributed. Charlice Danielson and Pattie agreed to provide information for the next newsletter.

Executive Director

The idea of working towards the hiring of an executive director was approached by Pattie. The idea of a Marketing Order to support such a position or pursuing a grant to pay for this position was discussed. It was felt that the internal funding of the organization could not sustain such a position. It was decided to review the matter again at a later date.

In the interim, it was decided to talk to Theda to determine if she would increase her duties. More secretarial support could be obtained thru the internship program at UCD. Charlice Danielson offered to look into the possibility of sharing an office with CNPS.

Native qrass leaflets

Ted reported on the progress of the information leaflets being compiled by UCD. CNGA will be listed as a cooperator. One grass, *Stipa,* is complete. CNGA can purchase the leaflets from the University and sell them, if we so desire.

CNGA Corporate Members

Jones & Stokes Associates

CNGA Life Members

Polly Anderson
Sally Casey
Charlice Danielsen
Bob Delzell
Jim Eagan
David Gilpin
Charlotte Glenn
Paul Kephardt
Rod MacDonald
Eugene Majerowicz
Warren Robers
Vic Schaff
Scott Stewart

ANNOUNCEMENTS

NATIVE HERE NURSERY TO OPEN

The **Native Here Nursery**, a project ofthe East Bay Chapter, California Native Plant Society (EB/CNPS) anticipates opening mid-summer 1994. **Native Here Nursery** is EB/CNPS' way of responding to the concern that plants native to the Bay Area and typical of natural plant communities here be preserved both in the wild and in deliberate plantings such as restoration, revegetation and gardening within the area..

Biologists have become more and more concerned with what happens to the genetics of wild populations with the introduction of plants of the same or closely related species from outside the area. Genetic "swamping" may occur, morphological distinctions may become obscured and diversity lost.

A conservative approach to this problem is to plant materials of local origin. Native Here's goal is to supply appropriate plant materials for areas at wildland interfaces to avoid contaminating the native stands with outside, possibly counter-adaptive genetic traits. At present, there is virtually no supply of local plant materials. Supplies of California native plants found in nurseries may be hybrid cultivars, or from locations anywhere in the state, may not be well adapted to local conditions, or may contain genes that will affect nearby wild populations. *Quercus agrifolia,* for example, may come from San Luis Obispo or Sonoma counties originally and be quite different in makeup from a Mt. Diablo, or an Oakland live oak.

Native Here will collect or accept seed from local wild populations, with sources well documented, and grow plants for use in areas near where the collections were made. The Nursery is located on GolfLinks Drive in Tilden Park, near Berkeley. Grasses and herbaceous perennials will be the major focus, but shrubs, trees and ferns will also be grown. Contract orders are now being accepted. And because the nursey is small, quantities in the hundreds or even dozens will be accepted. The bulk of sales and growing will be on contract. Seedlings in 2" rose pots or supercells(liners), depending on growth rate, need to be contracted before the collection period for the current year. 4" pots and gallon sizes can also be grown if requested.

Ferns require three years advance planning for 1" to 2" liners. Plants of dense woodlands such as redwood riparian understory require two to three years of advance planning due to seed dormancy. Trees and woody shrubs can be grown in 3 gallon long pots (18" deep) or 5 gallon standard pots oin 1-2 years.

CNGA members in the East Bay Area may be interested in participating in this project as volunteers (collecting seed, growing plants) or as clients of the nursery. For the time being, contact **Native Here** through Charli Danielsen, project coordinator, 510/5259076, 10 Kerr Ave, Kensington, CA 94707.

Charli Danielsen is a director-at-large of CNGA; coordinates **Native Here Nursery** Project for EB/CNPS; and manages Restoration of a Native Bunchgrass and Wildflower Grassland, Mount Diablo State Park, for Save Mount Diablo. She is a past president of California Native Plant Society, both the statewide organization (1986-1988) and the East Bay Chapter (1982-1984), was propagator for Design Associates Working with Nature in Berkeley (1984-1991), and has been active in restoration of both grasslands and riparian communities.

CalEPPC Symposium '94

You're Invited!

September 30 - October 1, 1994
Hyatt Regency Sacramento
Sacramento, California

Senecio mikanioides
German Ivy

Problems and practical solutions related to the threat of exotic plants in natural area ecosystems. Peter Vitousek, Ph.D., keynote speaker. Talks on biocontrol, planning for control of exotics, herbicide science, success stories. Contact: Sally Davis; 488 Bello Street; Pismo Beach; CA 93449. Sponsored by the California Exotic Pest Plant Council.

NATIVE GRASS "EXPERT" DATABASE

Prepared by Charlice W. Danielsen

At the annual meeting of the California Native Grass Association, Franklin Chan, consulting horticulturist for Pacific Gas and Electric Company, spoke on using *Treefinder,* an expert database developed for selecting horticultural trees, and asked for ideas and suggestions for developing a data- base for selecting native grasses.

The purpose ofthis questionnaire is to establish what features would be desirable in an expert data base for native grasses. Frank is planning the project now and recogizes that CNGA members include likely users as well as contributors of information to the project.

Please answer the questions frankly. Even if your answers to the first group of questions are negative, please complete the second group, as your answers will be helpful to CNGA in designing other informational materials.

FEASIBILITY

Are you interested in purchasing an "expert" data base on native grasses? Yes_____ No_____

Do you have the machinery required?

IBM PC or compatible with a 16-color monitor and mouse? _____

10 Megabytes of hard disk space? _____ 8 Megabytes RAM? _____

MS-DOS 5.0 or higher? _____ Microsoft WINDOWS version 3.1 or higher _____

What machinery specifications would you prefer?_____

How much would you be willing to pay for the software package?

<$100_____ <$200_____ <$300_____

<$400_____ <$500_____

Would you be interested in funding the project? Yes_____ No_____

As a co-sponsor_____ . Donor amount _____

Pre-subscription_____

Would you be interested in providing data input? donated_____, paid_____

Are you on Internet? Yes_____ , Service_____ No_____

What other vegetation classification systems are you likely to be using? (i.e., SCS Vegspec, etc.)

_____

How necessary is it that information be similar to that system? _____

CONTENT

Please rate the following categories or fields by priority:

E=essential information, highest possible priority
H=high priority information
M=moderately important information
L=interesting but not essential information
W=who cares?

SITE EVALUATION

Aspect _____ Climate _____ Plant Climate Zones _____ Elevation _____
Flooding _____ Land Use History_____ Soil Chemistry_____ Slope _____
Soil Density _____ Soil Disturbance _____ Soil Moisture_____
Proximity to Natural Areas _____ Land Use Restrictions, Protection _____
Land Resource Region _____ Proximity to Protected Species or Assemblages _____
Location—County _____ Map coordinates _____
Other _____

PLANTS

Species to include: native grasses _____ native rushes _____ native sedges _____
non-native grasses _____weedy grasses _____ associated forbs_____

Growth and appearance: Active growth period of plant _____ Description of plant parts _____
Fruiting abundance _____ Time seed ripens _____ Growth rate _____
Habit Height at maturity _____ Lifecycle _____ Lifespan _____
Regrowth after mowing _____ Seeds/pound _____ Seed spread _____
Vegetative spread _____ Seedling vigor _____

Cover: Planting density _____ Associated species _____
Other _____

Conditions: Soil moisture requirement _____ Carbon-Nitrogen ratio _____
Drought tolerance _____ Level of nutrients required _____
Inundation tolerance _____ Maximum precipitation tolerance _____
Moisture use _____ Nitrogen fixation _____ Shade tolerance _____
pH range tolerance _____ Salinity tolerance _____
Soil texture adaptation _____
Other _____

Maintenance and Use: Allelopathic effect present? _____ Fire resistance _____
Fire tolerance _____ Forage potential _____ Origin _____
Legal status of endangerment _____ Toxicity to humans, wildlife7 livestock _____
Other _____

Please return completed questionnaires to Charli Danielsen, 10 Kerr Ave, Kensington, CA 94707.

1994 Board of Directors

Members-at-Large

Committee Chairs

Research & Development

Ecosystem Restoration

Urban Management

Seed Produc. & Marketing

Membership

***Grasslands* Editor**

Roadside Management

Public Info & Education

ANNOUNCEMENTS

California Native Grass Association

IV Annual General Membership Meeting

Holiday Inn-Northeast, Sacramento

November 4, 1994

Knowledge is Power: Advances in Research and Restoration

The Annual Meeting of the California Native Grass Association will be held Friday, November 4, 1994 at the Holiday Inn-Northeast in Sacramento. A tenative agenda follows on the next page. An application for registration will appear in the next *Grasslands.*

Hotel Accomodations:
The Holiday Inn-Northeast, Sacramento has reserved a number of rooms for attendees. The hotel may be contacted directly for reservations at:

Holiday Inn-Northeast
5321 Date Ave.
Sacramento, CA 95814-2597
(916) 338-5800

Vendors Program: Any member who would like to promote or advertise a business or display an educational poster is welcome.
Set up 8:00 a.m.-9:00 a.m., coffee and doughnuts
Break down 4:00 p.m.-5:00 p.m.

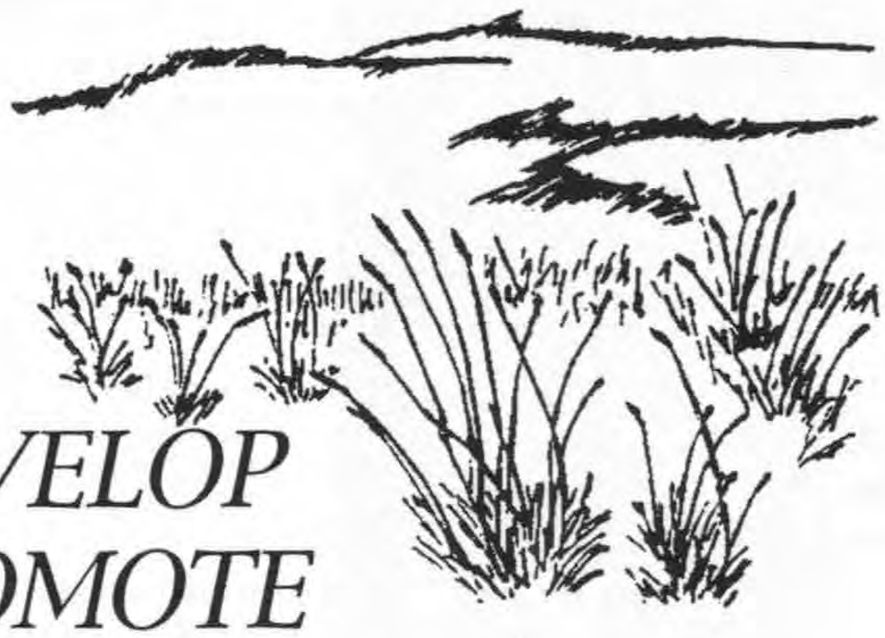
For commercial displays, contact:
Dave Gilpin, Pacific Coast Seed
7074-D Commerce Circle
Pleasanton, CA 94588
(510) 463-1188 FAX: (510) 463-1941

For educational posters, contact:
Ted Adams
Agronomy Department
University of California
Davis, CA 95616
(916) 752-3457 FAX: (916) 752-4361

IV ANNUAL GENERAL MEMBERSHIP MEETING

Tenative Agenda

Morning	
8:00-9:00	Check In and Late Registration; Vendors and Poster Setup
9:00-9:10	Welcome—Patricia Gouveia
9:10-9:45	Competition: The Needlegrass Nemesis Andy Dyer, Ecology Graduate Group, UCD
9:45-10:20	You Want Needlegrass? Plant It! Carolyn Shoulders, University of Wisconsin, Madison
10:20-10:40	Break
10:40-11:15	Genetic Architecture of Purple Needlegrass:Implications for Restoration Dr. Eric Knapp, Agronomy Dept., UCD
11:15-11:50	California Brome: Local and Regional Adaptation Laurie Luedtke, Ecology Graduate Group, UCD
11:50-12:15	CNGA Business Meeting Patricia Gouveia, President
12:15-1:30	Lunch
Afternoon	Concurrent Session I: Reclamation Through Restoration
1:30-2:05	Outcompeting the Competion: Seed Mixtures for Weed Control Cynthia Brown, Ecology Graduate Group, UCD
2:05-2:40	Carrizo Plain Restoration Project Deborah Hillyard, Calif. Dept. of Fish and Game
2:40-3:00	Break
3:00-3:35	Native Grasses and Clear Water: Restoration of Grass Valley Creek, Trinity County John McCullah, Trinity County Resource Conservation District
3:35-4:10	Starting a Restoration Project: A Practical Approach Ray Griffiths, Acorn Environmental Consulting
4:10	Adjourn
Afternoon	Concurrent Session II: Grasslands of California
1:30-2:05	Valley Prairie Project: Remnants and Restoration Craig Thomsen, Agronomy Dept., UCD
2:05-2:40	A Bit of Paradise: The UC Quail Ridge Reserve Dr. Frank Maurer, Exec. Director, Quail Ridge Wilderness Conservancy
2:40-3:00	Break
3:00-3:35	The Santa Rosa Plateau Robin Wills, The Nature Conservancy, Santa Rosa Plateau
3:35-4:10	Native Grasses Do Not Always a Grassland Make Mitchel Beauchamp, Pres., Pacific Southwest Biological Services, Inc.
4:10	Adjourn



DEVELOP
PROMOTE
RESTORE

California Native Plant Society

CNPS announces the new fifth edition of the **INVENTORY OF RARE AND ENDANGERED VASCULAR PLANTS OF CALIFORNIA**, edited by Mark W. Skinner and Bruce Pavlik. The inventory lists 1742 rare, endangered, or uncommon California native plants, representing nearly 28% of California's 6800 native plants.

Land resource managers, conservationists, field biologists, consultants, and botanical researchers will find the new **INVENTORY** an indepensible reference for identifying, protecting and managing California's rarest botanical resources.

A partial list of revisions in the fifth edition includes: discussions of rarity, rare plant ecology, state, federal and global programs, plant life form and blooming period for each taxon, status and distribution summaries for the 1742 rarest California plants, complete cross-referencing to The Jepson Manual, and topographic quad data for more than 1200 plants.

CNPS has simultaneously published an **ELECTRONIC INVENTORY** for MS-Dos Personal computers, based on Microsoft Fox-Pro $_{(tm)}$ database. This application allows users to search for species based on hundreds of criteria. Purchasers will be required to update every 18 months.

Publication date: February 1994; **ISBN**; 0-943460-18-2
Publisher: CNPS; **Retail Price:** $22.95
Order from: CNPS, 1722 J St., Suite 17, Sacramento, CA 95814; 916-447-2677; FAX 916-447-2727
For a review copy or to contact an editor, call: Tom White, 510-540-0678, FAX 510-848-4841; email: tomwhite@well.com, or write c/o CNPS
For CNPS Spring/Summer 1994 Publications Catalog, write CNPS—many great titles!

Growing Native

GROWING NATIVE: The Newsletter of the Growing Native Research Institute, Louise Lacey, Editor & Publisher announces the March/April 1994 edition. Highlights include grass ornamentals, and introduction to grasses, controversies on management of native grasses, 'outrageous interviews with David Amme and Craig Dremann', 37 California native grass species descriptions with cultivation information, several with photographs, and a chronicle of the making of Santa Barbara Botanic Garden's Meadow by Carol Bornstein.. This is an excellent newletter, and includes an article by the editor on 'How to Grow Native Grasses for Meadow or Pasture' that is very practical in nature. Three years in preparation, the issue is double the usual *GN* size, and is crammed with facts, pictures and controversy reflecting editor Louise Lacey's interviews with people all over the state. An extensive bibliography is included.

If you are not yet a subscriber, you can get a copy for $7.50, postpaid, from Growing Native, P.O. Box 489, Berkeley, CA 94701.

Join the Native Grass Association

Date _____
Name _____
Title _____
Organization _____
Address _____
City/State/Zip _____
Phone/FAX _____

Membership Satus

Regular	$35/year
Student	$20/year (include school, grad. yr.)
Retired	$20/year
Life	$350
Corporate	$500/year
Associate	100/year

Benefits: Regular, Student, Retired, or a business on a Regular Membership--1 person at member rates at functions; Family, Commercial or Associate--all members of group at member rates.
Donations:: In any category designed (see committees), to support CNGA in its efforts to Develop, Promote, and Restore, I am enclosing a donation of $_____ for _____

Donations are tax deductibe to the extent allowed under federal and state law.

Dues are for the Current calendar year, up to November, at which time dues paid are for the following year.

Detach and mail to:

California Native Grass Association
P.O. Box 566
Dixon, CA 95620