GRASSLANDS

The Newsletter of the California Native Grass Association Volume IV, No. 3 Sept. 1994

Restoration of a Seasonally Flooded Hordeum brachyantherum Meadow in the Northern Sacramento River Delta, California.

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An 8 acre abandoned wheat field was planted with meadow barley, Hordeum brachyantherum, a California perennial native bunch grass. The planting was part of the Lost Slough project, a 500 acre seasonal wetland and riparian forest restoration effort at the Cosumnes River Preserve in southern Sacramento County. The goals of the Lost Slough project included: increasing seasonal wetland habitat for wintering waterfowl, improving nesting habitat, and planting a riparian corridor of trees, shrubs and native grass around the perimeter of the property. The specific objectives of the meadow barley planting were to: 1) increase the native grass diversity of the property, 2) provide waterfowl nesting habitat, 3) attempt to establish a native grass stand without the use of irrigation or herbicides, 4) test differing seeding rates of meadow barley.

This article describes the Cosumnes River Preserve's first grassland restoration project and discusses some of the lessons learned during the first two years. Funding for the Lost Slough restoration was through the North American Wetlands Conservation Act.

SITE CHARACTERISTICS

The Cosumnes River Preserve is a 5,000 acre cooperative project of The Nature Conservancy, Ducks Unlimited, Bureau of Land Management, California Department of Fish and Game, American Farmland Trust and Sacramento County. The grassland restoration site borders Lost Slough within view of Interstate 5 and near the town of Thornton, California. The slough is freshwater, yet tidal.

The entire north edge of the field gently slopes down to the un-levied shore of Lost Slough. Additionally, the field gently slopes from east to west with the eastern end being approximately 5 feet above mean high tide and the western end being only 2 feet above mean high tide. The lowest portion of the field was flooded for over a week during 5 of the past 6 winters. The soil is a San Joaquin Series silt-loam with low permability and a hard pan at about 30 inches.

The 8 acre field was previously farmed with wheat and had been left fallow since the last crop was harvested in the fall of 1990. A volunteer crop of wheat was harvested in summer of 1991. The field was left fallow in 1992 but still produced a significant crop of wheat which was left unharvested. Weedy grasses in the field were predominantly wild oats (Avena fatua) and annual ryegrass (Lolium multiflorum).

METHODS

To insure that the seed used in this planting was adapted to the winter flooding common in the Delta, we collected seed in 1990 from areas of the Cosumnes Preserve which often undergo flooding. The seed was increased by a commercial grower the following winter. Initial cost of the seed was $15/lb, however now that the grower has an established Consumnes meadow barley field, the price is reduced.

The field was prepared for planting by discing it in September 1992 before the first major winter rain. A second discing in late October loosened the soil which had been capped by October rains and turned under the newly germinated weeds. A better system of weed control would have been to till under the weeds several times during the preceding winter.

The seed was planted on December 3 after substantial rainfall. A Truax wildflower seeder was used to broadcast the extremely fluffy meadow barley seed. The small seeder (4 foot box) was light enough to be towed by a Toyota 4-wheel drive pickup. A small spring tooth harrow was attached behind the seeder followed by a 4-foot ring roller. One hundred and fifty pounds was added to the roller to help improve the seeds contact with the soil. The small size of the wildflower seeder made planting slow going, however a good stereo in the cab of the Toyota plus the enjoyment of watching the inquisitive looks we got from local farmers as they cruised by in their custom Fords made the job bearable. It took an entire day to seed the 8 acres. Fortunately, attaching all three implements at once made it possible to plant and compact the seed in a single pass.

Four areas of the field were planted with 4 different seeding rates: 6 lbs/acre, 12 lbs/acre, 24 lbs/acre, and 36 lbs/acre. The seeding treatments were arranged east to west with the northem end of each treatment gently sloped down towards the slough edge.

RESULTS

Within a week of planting, we received over an inch of rain! The weather patterns remained favorable throughout the winter with significant rain during March. Germination of volunteer wheat was evident within 2 weeks after the planting but the meadow barley did not germinate until January 1, almost a month after planting. A storm in late February flooded the eastem portion of the field for over two

In This Issue:

weeks causing the volunteer wheat to yellow. The young meadow barley did not seem to be affected by the flooding and at this point it appear that we had a very strong stand of meadow barley developing. Of interest, the best meadow barley germination was in the tire tracks left by the Toyota. This appears similar to the phenomena reported by Mark Stromberg (*Grasslands*, Vol. 4, No. 1), working in sandy soils in the Carmel Valley. It's likely that the ring rollers commonly used for agricultural crops do not sufficiently compact meadow barley.

As the spring continued it became evident that the meadow barley was facing fierce competition from wild oats, annual ryegrass, May weed (*Anthemus cotula*) and volunteer wheat. Of the "weeds", wheat seemed to be the least threat and might even have been acting as a nurse crop for the barley. The higher end of the field appeard to have greater weed infestations than the lower end of the field. In an attempt to control wild oats, we decided to mow the field in April just as the wild oats and the meadow barley were setting seed. Our hypothesis was that the mowing would stimulate the deep rooted perennial barley to tiller and then it would re-flower in several weeks. We hoped the shallow rooted annual weeds would not have enough soil moisture to re-flower. In actuality, both the meadow barley and annual ryegrass re-flowered with gusto, although, the wild oats appeared to be weakened by the mowing. Neither the May weed or the ryegrass showed any sing of decline.

The field was monitored for meadow barley density in early June 1993 and again in early June 1994. By this time the field was abloom in a sea of white May weed flowers and dancing florets of meadow barley. Twenty—1/4 meter sq. randomly placed plots were sampled in each of the seeding treatment areas. In the first spring after planting, meadow barley density averaged 42 plants/meter sq. with 4.6 average tillers/plant. When the field was re-sampled in 1994, the average density of meadow barley had decreased to 33 plants/meter sq., however the average number of tillers/plant increased to 10 / plant. The decline in average number of plants in the 2nd year was apparently due to decreases in the higher end of the pasture and not pasture wide declines.

There appeared to be no differences between seeding rates in 1993 or 1994, but the results were confounded by the strong effect topography had on survival the 2nd year. Topographic position and its relation to flooding and thus weed competition seemed to be the most important factor influencing meadow barley survival. Sorting of native grasses along a flood gradient was observed at a similar planting on Sacramento County Land just north of this site. At that location Bromus carinatus, Elvmus glaucus, and Hordeum brachyantherum were planted as a mix. After several years the Hordeum disappeared from the highest sites. My observations of our first native grass planting at the Cosumnes Preserve further convince me that a major consideration in any non-irrigated planting is selecting the correct species for the site and then further identifying the micro-sites which it prefers. The selection process should also include finding a local variety which is adapted to specific conditions such as flooding or a unique soil type. This is especially important when that adaption helps the plant out compete weeds.

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

Jonathan A. Oldham
California Department of Water Resources

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 l-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 meqalura); 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 highvolume 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 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 kelloqqii), 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 the 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, lambsquarters was the most abundant, while the amount of tumbleweed was minimal. 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
1	mow	(not planted)	
2	burn	B. arizonicus	12 #/acre
		F. megalura	8 #/acre
		N. cernua	5 #/acre
3	burn	F. meqalura	10 #/acre
		N. cernua	5 #/acre
		N. pulchra	5 #/acre
4	burn & spray	B. arizonicu	12 #/acre
		F. megalura	8 #/acre
		N. cernua	5 #/acre
5	burn & spray	B. arizonicus	15 #/acre
		N. cernua	8 #/acre
6	burn & spray	B. arizonicus	12 #/acre
		F. meqalura	8 #/acre
		N. cernua	3 #/acre
7	loader rake	F. meqalura	10 #/acre
		A. polycarpa	1 #/acre
8	loader rake	F. megalura	10 #/acre
		N. cernua	8 #/acre
9A	loader rake	F. megalura	10 #/acre
9B		B. arizonicus	10 #/acre
10	loader rake	control	
11	burn control		

Table 2. Herbicides used

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

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Nominees, 1995 CNGA Board of Directors

Watch for your ballot coming in the mail soon!

President-elect

Dr. Mark R. Stromberg, Director, UC Hastings Natural History Reserve, Carmel Valley

Treasurer--No Nominees

Secretary

Phil Hogan, District Conservationist, Soil Conservation Service, Woodland

Members-at-Large--3 to be elected

Rachel Freeman, Farm Advisor, UC Cooperative Ext, Woodland

Dave Dyer, Manager, SCS Plant Materials Gnter, Lockeford

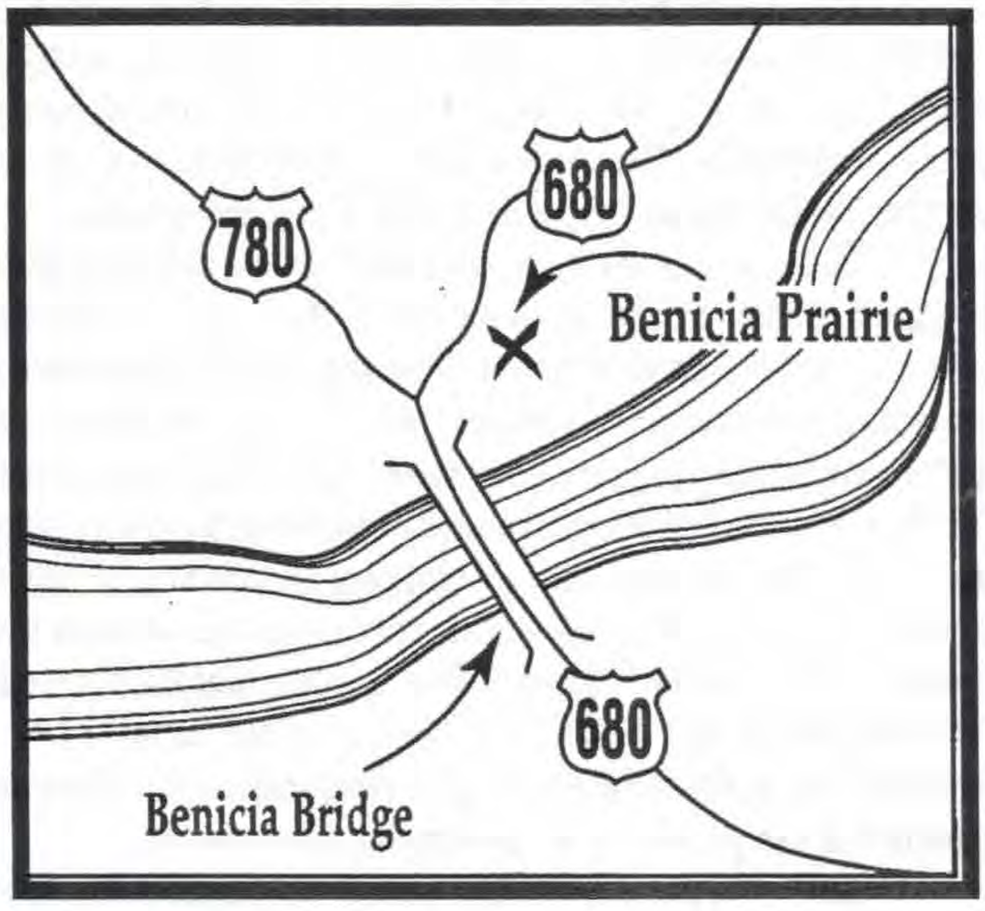
Tony Norris, Landscape Inspector, City of Vallejo Public Works Department

Victor Schaff, S&S Seeds, Carpinteria, CA

Relic Prarie Finder

Grasslands *readers are encouraged to contribute information on their favorite relic prairie for this column. A 'relic prairie' is defined as a contiguous grassland of any size of at least one species of native grass, includes at least one other native grassland member and is greater than 50% natives as measured by canopy coverage. Other members of a relic community could be species of other native grasses or species of other native grassland families (sunflower, lily, bean, etc.)*

Name: Benicia Prairie - one of the San Francisco Bay area's largest contiguous ungrazed prairies not on serpentine soil.
County: Solano
Discoverer: Craig Dremann (Redwood City Seed Co.); November, 1991 by checking a grassland area where a burn had gone through a month earlier.
Location: East side of I-680 between the roadway and railroad line, 0.2 mi north of the Benicia Bridge
Size: 1.1 acres
Quality: Pristine, prior to burn
Species: In remaining unburned portion, 80% cover, with a year-by-year list of the other community members in Table 1.
Soil & Precipitation: sandstone soil and only 10" normal annual precipitation with some fog influence.
Elevation: 50-1000 feet.
History & Ownership: Originally part of the Vallejo Rancho, the prairie area was deeded to Semple & Larkin in 1847. The prairie became part of a U.S. Army post in 1849 and was authorized as the Benicia arsenal from 1851 to 1964. Since the 1960's, Exxon purchased most of the property and turned it into a petro-tank farm. Caltrans obtained an easement which includes the prairie and construction of the Interstate 680 freeway began in 1964.
Access: Park at the first large turnoff northbound on I-680. The prairie is about 100 feet due north, towards the bridge. While in the prairie, please stay on the trail to the left of the flagged transect.
Transect Information: A belt transect was set up in February 1992 after the site was inspected by four Caltrans biologists and an encroachment permit was obtained. The burned area of the prairie has been measured each year for recovery and species composition after the 1991 burn.



Benicia Prairie Transect (natives in bold)

% canopy cover at one foot off ground

Species	1992	1993	1994
Stipa pulchra	12.48	222.9	29.7
Filaree & Small annual Grasses (*Vulpia*, *Bromus mollis*)	42.61	45.0	27.8
Wild oats	7.52	3.8	10.8
Legumes	-	2.0	7.1
Ripgut brome	-	1.8	6.4
Fennel	0.47	5.3	5.8
Bare soil	32.19	5.3	4.08
Artemisia	0.01	0.7	3.6
Eriogonum	1.37	2.4	2.2
Eur. thistle	3.30	4.9	0.7
Wild lettuce	-	0.7	0.7
Mustard	-	1.6	0.6
Red brome	-	2.4	0.1
Soap plant	0.01	-	0.3
Sow thistle	-	1.1	0.08
Epilobium	-	0.05	-
Unusual composite	-	0.02	-
Blue eyed grass	-	0.004	-
Unusual scrophula	-	<0.001	-
Star thistle	-	-	0.04

By 1994, all bare soil was fresh gopher mounds.

The slow rate of *Stipa* recovery may be due to the complete lack of viable seed being produced. A fungal infection results in the fungus taking the place of the kernel inside. Unless the prairie begins producing viable seed it may take six to eight more years to grow back to its original cover (80%).

One interesting observation is made by walking through the prairie just a few times in the year, that the species composition changes towards more wild oats.

CNGA Corporate Members

Jones & Stokes Associates

CNGA Life Members

Polly Anderson
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Rod MacDonald
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Warren Robers
Vic Schaff
Scott Stewart

ANNOUNCEMENTS

PACIFIC COAST SEED, INC.

Pacific Coast Seed, Inc. is proud to announce the opening of their new office and warehousing facility located at:

6144 Industrial Way
Livermore, CA 94550
Phone: (800) 733-3462

The new location is effective as of **Monday, August 1, 1944.**

Greenbelt Alliance

"Green Edges for Healthy Cities"
SPECIAL CONFERENCE THIS FALL: DRAW THE LINE AGAINST URBAN SPRAWL!

October 1,1994 • Laney College • Oakland, CA • 9:30 a.m. - 5:00 p.m.
Sponsored by Greenbelt Alliance and the Association of Bay Area Governments

Wondering why all that new development just carves up more farmlands while leaving vacant city space in neglect? Concerned that your green refuge could soon be consumed by urban sprawl? What's the latest tool to protect greenbelts, promote eco-efficient cities and enable local communities to take control of their future? *Urban growth boundaries (UGBs).*—and they're starting to spring up around the Bay Area and Northern California. You can learn the latest about this powerful tool for the environment and sustainable communities at a special working conference: "Green Edges for Healthy Cities." Greenbelt Alliance, the Association of Bay Area Governments, Sierra Club, the Planning and Conservation League and many others are sponsoring this high-content, low-cost conference on Saturday, October 1 at Oakland's BART-accessible Laney College. Key features include planning experts from around California and Oregon, local case studies, and in-depth working groups on how to make UGBs work for <u>your</u> community. For information, contact Greenbelt Alliance at 415/543-4291 or 408/983-0539.

The conference is specially designed to enable public officials, local residents, and citizen activists to create long-term UGBs, encourage more sustainable development inside the boundary, and protect greenbelt lands outside the UGB. Another key issue that will be addressed is how to protect critical habitat and other greenspaces inside UGBs.

The Theodore Payne Foundation

for wild flowers and native plants, Inc.

October 22: ACT I—FALL, A SEASON FOR PLANNING & PLANTING

Topics by speakers: Effects of planting native, Fire and erosion control, Designing with nature, Planting for wildlife, Planting & maintenance of natives
Time: 8:30 am-1:30 pm
Tickets: $15, members; $20, nonmembers
Included: Gourmet box lunch, experts on hand for consultation, discounts on all purchases from nursery, bookstore and seed shop

October 29 & 30: ANNUAL FALL SALE OF CALIFORNIA NATIVES

discounts on all purchases from nursery, bookstore and seed shop

For additional information, contact: Holliday Wagnor (818) 768-1802

A non-profit organization to perpetuate the native flora of California

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<u>FIRE RESISTENT LANDSCAPING NEEDS YOUR HELP</u>...TODAY!

The Gateways Garden, a 'Fire Resistant Demonstration Garden and Education Center' needs your support. The garden is located along Caldecott Lane, Highway 24 and is co-sponsored by the City of Oakland Office of Parks & Recreation and North Hills Landscape Committee.

You can help with:

1. **$$$$**—Donations made payable to the Friends of the Oakland Parks & Recreation (tax deductible). $20,000 is needed to complete the Garden.
2. **Volunteering**—your help or schedule group help.
3. **Ideas or materials** for the Educational Center.

For information or contributions, please contact:
North Hills Landscape Committee
Attn: Gordon Piper, Chair
33 Hiller Drive
Oakland, CA 94618
(510) 843-3828

The City of Oakland has received a $172,000 Federal grant for the project, but requires local matching funds. The City of Oakland's POarks Service Manager Antonio Acosta has expressed interest in using native grasses in this project in addition to other fire resistant plants. Adjacent homeowners also plan on using native grasses in relandscaping. CNGA has been asked to help in selection of best native grasses, obtaining donations of seed, developing appropriate educational exhibits pertinent to native grasses, and aid in identifying sources of donated labor to aid in establishing native grasses on site. There is potential for the City of Oakland and CalTrans to use native grasses along Highway 24 as an extension of this effort. **CAN YOU HELP?**

NEWS RELEASE NEWS RELEASE NEWS RELEASE NEWS RELEASE NEWS RELEASE

Rancho Santa Ana Botanic Garden Names New Executive Director

The Trustees of RSABG have named Dr. Roy L. Taylor Executive Director effective November 1, 1994.

Dr. Taylor, currently President and Chief Executive Officer for the Chicago Horticultural Society and Director of the Chicago Botanic Garden, is nationally recognized for his contributions to botany, horticulture and the role of botanic gradients in public education and conservation.

Born in Alberta, Canada, Dr. Taylor received his B.S. in Biology at Sir George Williams University, Montreal, and later pursued his doctorate at the University of California, Berkeley where he completed his Ph.D. in Botany. His professional experience includes research and university faculty positions,...(lack of space precludes including the many laurels of Dr. Taylor, *editor*).

RSABG was founded in 1927 by Susanna Bixby Bryant who sought to increase understanding and appreciation for the beauty and importance of California's rapidly disappearing native flora. The original Garden was located in Orange County, and, in addition to her extensive living collection of plants, Mrs. Bryant also established a systematics and botanical research program, a research library, and an herbarium of dried plant specimens. In the ensuing 65 years RSABG has gained an international reputation as a leader in systematics research as well as for its extensive botanical collection.

Dr. and Mrs. Taylor's arrival in Claremont will be celebrated November 4, 1994 in conjunction with the dedication of the Garden's new $1.2 million state of the art research and horticultural growing facilities and the Garden's ANNUAL PLANT SALE which opens Saturday, November 5th.

CNGA BOARD MEETING

The next CNGA Board Meeting will be on September 27, 1994 at Hedgerow Farms in Winters from 10:30 to 1:30. Please bring your own lunch.

The agenda will include:

1. An update of the native grass database and, if available, results from the survey. Commitment and/or donation by CNGA.
2. An update on the proposal of an executive director or the hiring of an agency which would serve that purpose.
3. Elections! Nominations! Bylaws revisions.
4. Review of draft proposals for Information and Education Committee, Meetings Committee, Meetings Checklist, Nominations Committee.
5. Reports - Treasurer, Committee, Grasslands editor. (***Grasslands* editor reporting in absentia--no, that does not mean my mind is gone, but I will be--reporting on the use of California native grasses to the Agronomy Department of the University of Slovenia in Ljubljana. See you when I get back at the Annual Meeting!**)

Please plan on attending!

PRESIDENT'S MESSAGE

Patricia Gouveia

Fall brings many changes. For the California Native Grass Association, fall begins the preparation for changes in the organization's leadership. Preparations for the election of new officers has begun. Many people have enthusiastically stepped forward. We still have a few offices in need of nominees. The Treasurer's office, an Executive Board of Directors position, are in need of candidates. The Treasurer is assisted by a full time bookkeeper so that many of the detailed aspects of the position are taken care of. It is an important position and you are encouraged to run. Our current Treasurer, Joni Janecki, has filled the position for two years. CNGA owes her a world of thanks. Joni has expressed an interest to be involved in other aspects of the organization. Please consider running for this office or encourage others to run. What keeps our organization vital and interesting is an infusion of new blood. Nominees are still being accepted for President-elect, Secretary, and Members-at-Large.

In your last newsletter, a questionnaire was submitted, for your response, on the possibility of developing a native grass database. If you have not already done so, please reply and send your responses to Charlice Danielson, at the address indicated on the survey. This information is important in many ways. It provides direction to the Board of Directors indicating to what extent CNGA should be involved. The questionnaire is also valuable in defining content to those participating in the development of the database. Please, let us know how you feel regarding this project.

CNGA was invited to participate in a forum - "Agriculture and the Environment: Listening to the Grassroots" - sponsored by the USDA's Soil Conservation Service on August 11, 1994. The purpose of this forum was to provide input on major natural resource conservation issues to members of the Environment and Conservation Subgroup of USDA's Farm Bill Task Force. It was a valuable opportunity for CNGA to express the advantages and utility of native grasses, their worth towards integrating agriculture with its environment, and the need to develop federal standards for the use of native grasses. Many environmental concerns were represented. The message that was resounded by all was developing partnerships and the need to fund education and research.

CNGA has grown in many ways in the last four years. One measure, as evidenced by our participation in the above forum, is the extent of our influence and the value of our activities. Mark your calendars for our next major offering, the Annual General Membership Meeting, November 4, 1994 at the Holiday Inn in Sacramento. Once again, this meeting will prove to be educational as well as entertaining. Mark your calendars and plan to attend!

BOARD MEETING Minutes
JUNE 24, 1994

Meeting opened at 10:50 am at Joni Janecki & Assoc.
In attendance: P. Gouveia, Dan Strait, Ted Adams, Kitren Weis

I. Agenda opened with discussion of nomination of officers for coming year. Joni unable to continue as treasurer; accountant hired could continue with new treasurer. We need new president-elect, treasurer, secretary and 3 members-at-large to serve a 2 year term each. Nominations should be made by June for the coming year. Election ballots sent concurrent with registration for annual meeting by September 1 as separate mailing with the election ballots to be returned by October 15. Election committee as required by bylaws has not been appointed. This is an ad hoc committee (generally a single person) that will tabulate election results. Results of the election will be announced at annual meeting. Bylaws amendment proposed to address lag time in nominations, elections, and assumption of duties by new officers. Officers have not been in place by January of new year, as elections have followed the nominations done at annual meeting in November of each year. Board members and committee chairs will be asked to contact 10 people each to be nominated for the above positions. Nominees must be willing to serve.

Bylaws amendment must wait until annual meeting so any changes will not be in place until 1995. Slate of officers must be prepared now to preceed nominations announcement. Barbara Amberson will be contacted to write revision to bylaws. Wording of the bylaws can be commented on by Ted Adams.

Compensation for Board Members and active volunteers for participation in events for which they have put in organizational time—compensation in the form of free attendance, travel expenses and expenses accrued in the form of meals, etc. at meetings for which substantial time was donated will be awarded on approval of the Board or Executive Committee.

II. Treasurer's report pending upon receipt of information from accountant. Our balance is approximately $10,000, which is within appropriate limits for being a nonprofit education and information organization.

S&S Seeds sent bill for facilities for technical workshop in the amount of $2990.39. As a nonprofit organization, CNGA does not stand to make a profit on workshops, however this workshop lost money for CNGA. S&S Seeds carried the entire burden of organizing this workshop and without organizational support from the CNGA membership and committees, workshops will not consistently be designed to be operating without a loss. The Association cannot allow this to happen again and all workshops will be planned a year in advance in future. We owe Vic Schaff and S&S Seeds a very large 'Thank you'.

Refund requests for Association events have averaged 5 per event, usually for emergency and usually after the event. The Executive committee formulated policy to be amended in the bylaws to require advance notice within a certain amount of time with a doctor's documentation of medical emergency to allow for refund of registration fee only (meals are prepaid and not refundable). This announcement to be included in each event's registration form. For events limited in attendance, requests made for registration after the limited number is reached will be placed on a waiting list pending cancellations. Persons cancelling from limited enrollment events will not be reimbursed upon cancellation.

III. *Grasslands* will be on track again schedulewise with the next newsletter. It has been suggested that each workshop/technical meeting be summarized anecdotally by a willing attendee to inform those who did not attend. Dan Strait will submit a summary of the plant ID workshop at Bodega Bay for the next newsletter.

IV. Proposal for Executive Director written and submitted by Kitren. Pattie will photocopy it and send it to Board members for comment. A summary of this proposal will be included in the next newsletter to inform the membership. Funding of this position was suggested to be through an annual commercial fee for a sustained source of income. Donations can also be solicited. The members present at this meeting feel that without an Executive Director to carry workload that will not be accomplished by voluteers, CNGA cannot remain a viable organization.

V. Updates and trivia.

Announcements for next newsletter submitted—a couple of interesting revegetation projects ongoing in the Bay Area will be announced.

Duck Days Celebration suggested as a good event for CNGA to participate in. The event will occur in February, 1995, and may be coincidental with a CNGA/Nature Conservancy-sponsored planting day with train ride to Jepson Prairie to generate money for both CNGA and Duck Days.

Technical Conference 1995 will be at Hedgerow Farms in the 2nd Saturday in May. Planners are Dan Strait, Pattie Gouveia and John Anderson and more planners are needed. Joni Janecki has agreed to speak on use of native grasses in landscape architecture. The 1995 Plant ID workshop may be held at UCD/Jepson Prairie. Pattie Gouveia will look into possibilities.

1994 Board of Directors

California Native Grass Association
4th Annual General Membership Meeting
November 4, 1994
Holiday Inn—Northeast, Sacramento

Knowledge is Power!
Advances in Research and Restoration

This year's theme, "Knowledge is Power: Advances in Research and Restoration," emphasizes current efforts to develop needed information on the influence of environmental factors affecting perennial grass performance and the use of information to further restoration efforts. Using narration and visual media, the program also will include visits to selected California native grasslands that show some of the structure knowledge can help create.

Agenda

Morning

8:00 - 9:00 Check in

Moderator: Dr. Kevin Rice, University of Calif, Davis

9:00 - 9:10 Welcome
Patricia Gouveia, President

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, Univer. 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 & 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

Moderator: Dr. Tom Griggs, The Nature Conservancy

1:30 - 2:05 Outcompetiting the Competition: Seed Mixtures for Weed Control
Cynthia Brown, Ecology Graduate Group, UCD

2:05 - 2:40 Carrizo Plain Restoration Project
Deborah Hillyard, California Department of Fish & Game

2:40 - 3:00 Break

3:00 - 3:35 Native Grasses & 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

Moderator: Dr. John Anderson, Hedgerow Farms

1:30 - 2:05 Valley Prairie Project: Remnants & Restoration
Craig Thomsen, Agronomy Dept., UCD

2:05 - 2:40 A Bit of Paradise: The UC Quail Ridge Reserve
Dr. Frank Maurer, Exec. Dir., 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, President, Pacific Southwest Biological Services, Inc.

4:10 Adjourn

Again this year, the Annual Meeting will include a Vendors' Program a concurrent part of the Annual Meeting. This component of the 1994 Meeting will include educational posters and commercial displays of plant materials and products. For information on commercial displays, contact Dave Gilpin, Pacific Coast Seed, 7074 D Commerce Circle, Pleasanton, CA 94566 or call (510) 463-1188. Contact Ted Adams for information on poster presentations. Ted's telephone number is (916) 752-3457. His address is Agronomy Dept., University of California, Davis, CA 95616-8515.

The extended lunch "hour" and the morning and afternoon breaks are intended to provide opportunities to "visit with the natives" in the display area. To further encourage this activity, beverages will be served in the display area.

Early registration is encouraged. This helps the program committee and planning efforts, and it saves money; registration after October 24 costs an additional $10 (see Registration Form).

A delicatessen buffet luncheon will be served at noon. The price for this delicious assortment of comestibles is $14, not expensive considering the variety of foods offered; and all diets can be accommodated. We encourage purchase of tickets; their sale helps pay for the meeting rooms.

The venue for this year's Annual Meeting in Sacramento, the Holiday Inn-Northeast, provides an opportunity to visit historical sites in and around Sacramento. A block of 10 rooms has been reserved for registrants staying overnight. The rates are $60 (single) and $66 (double for 1 bed with 2 persons), and add tax to both (12%). Cutoff date for room reservations is October 4. For reservations call toll free (within California) 1-800-371-2491. Tell Reservations you are attending the CNGA meeting November 4. Complimentary airport shuttle is available with 24 hours notice to the hotel.

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California Native Grass Association

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