



# GRASSLANDS

The Newsletter of the California Native Grass Association

Volume IV, No. 4 Dec. 1994

## NATIVE GRASS DATABASE

by Mark R. Stromberg

### Introduction and Summary

Last year, members of CNGA were given a demonstration of an expert database and friendly interactive interface developed by Frank Chan and PG&E to facilitate the proper choice of trees for landscaping, urban forestry and energy savings in California. Inspired by the success of this "Tree Finder" program, Frank is now working with seven authors to fund development of a three-part, computer-based information storage and retrieval system to facilitate the development and restoration of native grasslands in California. If funded, this "expert-based" native grass database would include 1) Available information on distribution, habitat requirements, genetics, morphological description, as well as germination, establishment and management needs for all grasses listed in the current Jepson Manual. This information will be gathered in a readily updatable form that can be accessed through a computer program which will provide a graphical interface which is both informative and easy to use. An associated program will be included to allow one to determine the scientific and common name of a grass starting with any morphological character, in any order; 2) A booklet to summarize this information for the most commonly used and widely distributed grasses; 3) To link users, vendors and contributors, a commercial bulletin board service (eg. Compuserve) can be set up to include updated information on seed sources, prices, and availability. Vendors could upload new information usually with a local phone call. Part of the bulletin board could support discussion sections where anyone can ask post questions and others can contribute solutions. A library section of reference articles would allow users to store and retrieve text and images.

### Goals and Proposed Development of the Database

As members of CNGA, the authors of the native grass database share a vision of healthy stands of all the native grasses of California, integrated into the landscapes occupied by people. An expert-based native grass database will give individuals the knowledge and experience and thus the power to promote, develop and appreciate our native grasses. Such a native grass database could be useful to those in city, county, state and federal governments charged with implementing revegetation and restoration projects.

As with urban forestry, there is a need to provide the best possible information so that restoration, mitigation, and landscaping applications are appropriate and use of native grass plant material is optimal. At this relatively early stage of native grass restoration in California, failures which are attributed to the inability to find information to specify appropriate species and planting treatments in restoration contracts can have ripple effects across the wide spectrum of potential users of native grasses. Providing useful, updated information can capitalize on successes and avert potential

wasted time, materials and often limited funds. Successes will sustain the interest we now see in native grasses by state and federal agencies, and private industry.

We realize that much of the knowledge of appropriate species selections, establishment techniques and long-term management of native grasses is scattered, poorly documented and rapidly evolving. Indeed, much of the information we need is available from scattered sources, generally in the files and memories of the members of CNGA. We hope this database will be a means to compile and share our past and developing knowledge of native grasses. Members of CNGA are both the source of much of the information on the agronomy of native grasses, and are the individuals who best understand the benefit of promoting and developing restored native grassland through sharing appropriate knowledge.

Now that a working group has been organized, we want to share our progress and plans with the members of CNGA. We welcome your input and hope you will help us over the next 2-3 years as our database develops. The working group has developed a business plan and is in the process of writing a proposal to fund the work required to build the database. Our plans are as follows:

Past and present information on native grasses would be assembled by several working groups, each focusing on different characteristics of the grasses. Group leaders have identified the tasks required to compile information on different topics. Anyone who is able and willing to assist in the tasks of gathering information is welcome. Frank Chan, Dave Gilpin and Paul Kephart will be compiling information from agronomic and production sources. Cini Brown will be compiling data on establishment and management information. Kevin Rice and Eric Knapp will be working up the latest information on genetics, as well as compiling information from research published in academic and agronomy journals. Mark Stromberg will coordinate the on-line bulletin board service. Chris Meacham and Bruce Potterton will be working to develop the computer programs- the friendly graphic user interface- for the database, running on MS-DOS computers. We will determine information fields to be included for each native grass, and with a program that is available across many kinds of computers (eg.

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FoxPro) each group will start entering information. We do not know how many fields will be included at this point. Programs like FoxPro will only be used to assemble data from all working groups in a common format. Such programs are good for professionals, but require a lot of time to learn. It is critical that a very simple computer interface will allow even a computer novice to search the combined database. Chris and Bruce will work to develop a unique program so that any user can readily enter their particular site descriptions, establishment and management options, and have the program select a list of suitable grasses and bring up information on vendors and pricing. There are about 258 native species (and 48 more subspecies), and 167 non-native grasses included in the recent Jepson Manual (Hickman, 1993); we chose to include this set of grasses native or naturalized in California.

### Using the Database

For those who do not have access to computers, a booklet will be produced which will focus on the most widely distributed and most readily available native grasses of California. Selected information on factors which will improve the chances of successful establishment and growth of each grass will be summarized. Updates of this booklet are possible.

To search the database, a user will be asked specific questions to provide descriptions of the proposed habitat of native grasses as well as the intended uses of the grasses. Simple descriptions will be requested and the interface will be able to educate users about choices in descriptions as they are selected. A profile of the site (eg., location, soils, elevation), establishment options (soil preparation options, planting options-drill, broadcast, etc.) and management options (irrigation, weed control, etc.) can be compiled by the user. As information about the planned use is provided by the user, the database will be scanned and eventually a small group of candidate species identified. For each candidate grass, a complete record of all the descriptions of physical appearance, establishment needs and management can be provided. Documentation of the sources of the information for each characteristic of each species will be compiled. If needed, the user can request documentation (sources) for each descriptor of the species selected. If a characteristic of a grass is controversial or poorly known, this can be indicated. Finally, an easily updated list of vendors, showing pricing and availability of plant material will be included as a part of this searchable database. A user's manual will be produced to introduce this computer-based database. Annual updates of the underlying databases could be produced and distributed. Another useful part of the database we propose is a key which will allow users to identify grass species based on physical characteristics of specimens. Chris Meacham has extensive experience in development of a new kind of key which, unlike the typical biological keys to species, uses a "Multiple Entry Key Algorithm" or MEKA. A wide variety of characters are presented as starting points. If the plant has no flowers, one can go to the "leaf" or "fruit" or "size" or "growth form", etc. and chose descriptions. At

each observation entry (eg. leaves wider than 0.5 cm), many species are eliminated. Eventually, only a few candidates remain. Comparison to a few pictures at that point will usually allow one to find the current scientific name of the grass. Such a MEKA key is already been developed by John Kartesz for the USFWS National Wetlands Inventory to identify diagnostic (delineating) wetland plants. We hope to include images of both the technical nature of the grass species (line drawings) as well as the entire mature plant (or group of plants) for landscaping considerations.

### Electronic Bulletin Board

Information on native grasses is a dynamic, growing set of observations. On-line data servers have advanced to the point that millions of people a year now join with others "on line", using such services as Compuserve, America On Line, Genie, etc. Such commercial services provide local phone numbers allowing anyone with a computer and modem to open a window to join in with current discussions or choose articles to read from libraries. Commercial on-line services make the connection between people and/or databases as easy as possible. Working with such a commercial service, we hope to set up a conference center with a library. Users could call in, find a topic of interest, and read what others have recently asked and the responses which others have posted. Users could find current prices and availability of seed and other plant material. Vendors could upload prices lists whenever needed. Fast-moving market changes can be tracked. Like an old fashioned bulletin board in the office hallway, questions and information can be posted, but shared instantly across California. Contributors can also open files in a library section dedicated to native grasses. There, they could read articles from the current issue of *Grasslands*, journal articles from the 1940s, or invited summaries written by people actually doing grassland restoration. CNGA members and others could contribute articles for parts of the library. By scanning ongoing discussions and articles in the library, users can often find answers to their questions about grasses by simply reading along. When 100 members of the CNGA can all read a question posed by someone needing help with a given situation, it is amazing how often someone can respond with that needed information which, in turn, can be commented upon by all the other readers. A consensus of the best-available information is rapidly reached. Commercial on-line data servers can provide this service for about \$10 a month for each subscriber.

On-line information services provide a means to keep the formal database updated. New information can be gleaned from on-line reports of results of trials across the state and incorporated into the searchable database. We do not have plans to make the native grass database program available on the Internet, but there may be a way to share data with other state-wide natural resource data servers, for example that under development by the Resources Agency, "CERES".

We are proposing that one or several non-profit organizations act as the center for administration, sales, promotion and upgrading. We do not intend to make a profit from any potential sales of the searchable database; income from sales will be used to offset costs of improving and updating the data and costs of the on-line bulletin board. But we are actively seeking funds to support the work done by the working group members. Currently the group team leaders are proceeding with work on detailed descriptions of the tasks to be done and corresponding budget estimates. We will be approaching various non-profit organizations to discuss administrative organization. A proposal will be prepared with the technical production help of Bruce Potterton. Funding will be sought from foundations, government, private individuals, organizations and corporations to provide

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### BACK ISSUES OF *Grasslands*

1991	April, July, October	\$1.00
1992	February, May, September, October	\$2.00
1993	February, May, August, October	\$2.00

support for the working groups to carry out their tasks in building this database. We expect it will take from two to three years to have the database available.

In our planning process, we have included responses from CNGA members to the recent survey published in *Grasslands* which requested information about what members would like to see in this database. Thank you for the time you took to respond. We would like to emphasize that at this point we do not know what we are going to be able to accomplish and what we present here is only one possibility. If any CNGA members have leads on potential funding sources, we would follow up as actively as possible.

For more information on the status of the native grass database, we urge you to get in touch with Frank Chan at (415) 973-3832, Paul Kephart at (408) 763-1207, or Mark Stromberg at (408) 659-266.

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### HISTORICAL NOTES

*There are many interesting historical accounts of California's grasslands, and interesting people who pioneered their study. This section allows you to share historical accounts or interviews or stories of the California bunchgrass pioneers.*

**Observations of Joseph Burtt Davy (1902) in Stock Ranges of Northwestern California: Notes on the Grasses and Forage Plants and Range Conditions**, USDA Bureau of Plant Industry, Bulletin No. 12, 81 pages.

Davy talks about all the perennial grasses and associated forbs he encountered while surveying the range conditions of Del Norte, Humboldt, and Mendocino counties during 1897-1899. He was able to interview some of the original white settlers and they were able to tell Davy what the original grass species were in those areas. He also quotes diaries of people who passed through the area in the 1850-1860's who noted the vegetation and species.

"Mr. Sherwood, who settled in 1853 in the valley which bears his name, and who was the first white settler there, took the writer to a point some distance from his house to point out danthonia (*Danthonia californica*) as the grass which was most abundant on hillside and valley floor and which formed the favorite and most nutritious forage plant when he first brought cattle into the valley. This grass is now scarce in the vicinity."

"The primitive [original] forage plants [of N.W. California] were the 'bunch-grasses' with annual and perennial clovers, wild pea vines and wild sunflowers; these were much more abundant in former times than now, and on account of their palatableness they largely disappeared with overstocking."

*Copies of Davy's work can be found at these libraries:*

U.C. BERKELEY Bancroft library storage, or Bio-Sci. off campus

collection access using GLADYS, call# SB19 A3  
U.C. DAVIS Shield's library, call# SB19 B85  
U.C. SANTA CRUZ Bio-Ag. library, call# QK1 U45  
U.C. RIVERSIDE Bio-Ag. library, and  
U.C.L.A. storage.

(This historical note offered by Craig Dremann of the Redwood City Seed Co.)

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### RELIC PRAIRIE FINDER

*This section is for readers to describe the location and information about the relic prairies that have been found so that other Grasslands readers can go visit and enjoy them.*

#### **FIFTEEN PRAIRIES VISITED BY DR. JAMES BARRY IN 1971.**

In 1971 Dr. James Barry visited fifteen relic bunchgrass prairies around the state of California and noted their size, quality, and location on USGS quads, and published this information in 1972 in **The Central Valley Prairie, Vol. 1, California Prairie Ecosystem**, published by the State of California Dept. of Parks and Recreation, 82 pages. Below is a list of the prairies visited:

County	Location	Acres
Colusa	Salt Creek Canyon	200
Marin	Mt. Tamalpais State Park	1,000
Monterey	Hasting's Nat.Hist.Reserve	300
San Diego	Camp Pendleton	2,000-3,000
San Luis Obispo	Cal.State Poly College	300
San Luis Obispo	Montana de Oro State Park	<50
San Luis Obispo	Camp S.L.O. Mil. Reserv.	unknown
Santa Barbara	Gaviota State Beach	<50
Santa Barbara	Pt. Sal State Beach	<50
Santa Cruz	Henry Cowell Redwoods	<50
Solano	Dozier North & South	1,000
Solano	Hog Wallows & MacDonald Ranch	500
Solano	Leutholz Ranch & Rio Vista Jct.	150
Sonoma	Bennett Mtn./Annadel Farms	550
Ventura	Pt. Mugu/LaJolla Valley	250

For maps and exact locations, a copy of this publication is at the U.C. Berkeley Forestry library or at the Bio-Sci. library, call #QK 938 P7 B26, or an edited 36 page version with maps can be obtained from the Redwood City Seed Co, **Prairie Relics in California: A Guidebook based on Dr. James Barry's 1971 survey and maps**, from Box 361, Redwood City, Cal. 94064 for \$6 postpaid.

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### **15th Annual Ecological Farming Conference January 25-28, 1995 Asilomar Conference Center, Pacific Grove**

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## BUNCHGRASS OBSERVATIONS

California's bunchgrass has been the least known or studied plant community in North America, and this section allows you to share your observations with others so that our grass-roots knowledge can spread.

### **TOPIC: Fire protection of Nodding Needlegrass by Great Valley Gumplant.**

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One very hot July afternoon in 1991 while in search of bunchgrass prairies, my wife Sue and I were driving through the dry eastern edge of Alameda County about 12 miles east of Livermore. The sandstone soils of this semi-desert area only receives twelve inches of annual rainfall and is the westernmost edge of the San Joaquin Valley's Nodding Needlegrass/Great Valley Gumplant/Poa prairies. We encountered one of those prairies across from the Carnegie State Vehicle Rec. Area at Mile marker 9.73 along Tesla Road. A fire had burned the needlegrass a few months earlier, killing or weakening most of the plants and the survivors were resprouting. The original needlegrass plants were spaced 8-12" apart and I measured the regrowth of 110 of the needlegrass (*Stipa/Nasella cernua*) plants, with these interesting results from the effects of the fire:

Plants that were killed.....	63%
Plants with 5% regrowth.....	16%
Plants with >5% & <25% regrowth....	12%
Plants with 25% regrowth.....	7%
Plants with >25% regrowth.....	3%

While measuring these plants, a startling pattern of survivorship appeared. Survival was best when bunchgrass plants were on the downwind side of the Great Valley Gumplants (*Grindelia camporum*). The gumplants acted as firebreaks, with the fire being forced up and over the tops of the gumplants thereby protecting the bunchgrasses downwind. To do their firebreak duty the optimum gumplant spacing appeared to be ten feet apart in each direction, or only 500 plants evenly spaced per acre could significantly protect needlegrass from fire.

## **CNGA SEED EXCHANGE PROPOSED**

Ray Griffiths, Chairman, Ecosystem Restoration Committee

I would like to encourage revegetation experimentation by CNGA members and am proposing the following seed exchange guidelines as an on-going function of CNGA. Please submit comments and criticisms on its potential value or lack thereof. It will require clerical effort on the part of CNGA staff. Will its value justify the time commitment?

The purpose of this seed exchange service is to promote trial, small scale plantings of a variety of species by CNGA members. Use of these seeds for larger scale plantings should require several years of testing prior to increasing to assure adaptation.

With thanks for review by Craig Dremann, Andy Dyer and Scott Volmer.

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## SEED EXCHANGE SELECTION CRITERIA GUIDELINES

The purpose of the seed exchange service of CNGA is to facilitate experimental revegetation using native grasses and other native herbaceous species in California. The following guidelines should provide access to samples of a variety of native species, while enhancing successful revegetation efforts, and prevent inadvertent cross-contamination of local wild populations with poorly adapted ecotypes.

The guidelines for obtaining seeds are based on the Seed Savers Exchange, a vegetable, grain and herb seed exchange based in Decorah, Ohio.

### GUIDELINES FOR EXPERIMENTAL PLANTING:

#### Soils, Regional & Elevational Movement Guidelines

- Stay within same Geographic Subdivisions of California as found in the Jepson Manual, Higher Plants of California, 1993.
- Populations from unusual soils should be confined to similar soils, e.g. soil texture: tight clays, droughty gravels, claypans, etc. Composition: low or high fertility, alluvium, limestone, serpentine, alkali, heavy metals, tailings piles, etc.
- Avoid moving ecotypes greater than 100 miles on a North-South latitudinal gradient.
- Avoid movement within Geographical Subdivisions greater than 1000 feet in elevation.
- If Species Range is known, try to avoid moving ecotypes from one end of their range to the other.

#### Seed Collection Guidelines for Maintenance of Genetic Variability

- Collect from a wide range of plant sizes and types within the population, (eg. don't select only the most robust individuals).
- Try to collect seed more than once a season to represent early and late flowering individuals.

#### Rules For Obtaining Seeds

Listed or non-listed member? Listed members, meaning those offering materials to others, pay a lower price than non-listed members.

#### TABLE OF PRICES

	Listed members	Non-listed members
Small seeds	\$1.00	\$2.00
Large seeds	\$2.00	\$3.00
Plants	\$3.00	\$5.00

Payment should be made in cash or stamps. Small seeds include those smaller than lettuce seed (1/8 inch). Large seeds include those with long awns or ones that are otherwise hard to handle. Seed samples should consist of at least 100 seeds from a variety of different individuals to insure adequate genetic diversity. Seeds being re-offered should acknowledge the original source.

A Listed Member Code is included with each seed offering. This includes the code to the listed members offering seeds. Seeds offered that originated from a commercial source should give that source. The Listed Member Code includes the County from which

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Now the cows can eat everything that grows. No non edible plants, far fewer birds and furry mammals. After a rain the pasture looks pretty, a rich green. When it dries out it's stiff, tough and nasty, of little value as forage; it pokes cows in the eyes, some ranchers say.

But the bulldozers are still tearing away. Two million acres in Sonora have been officially cleared, heading for fourteen million, by government estimates. That's every bit of the Sonora below 2900 feet with rainfall in excess of 8 inches. The Sonoran government now offers to pay one-third the cost of stripping away the desert, scrub or forest. The combination of the government subsidy and the firewood concession are too good to resist. Everyone is invited to join the buffelgrass express.

Recently, however, SARH issued a regulation called "directives for the improvement of the range." In this footnote, Mexican government technicians mention the value of winter forage provided by desert trees at a time when buffelgrass is dry stubble with no food value. In other words, they've suggested to ranchers that it would be a good idea to have something for cows to eat in the winter. This directive makes the recommendation of leaving some trees and not bulldozing the arroyos. This futile attempt to stop the wanton destruction of the desert comes too little and too late, after 2 million acres have been ravaged. Once the bulldozer gets rolling, swerving to avoid trees and shrubs is a nuisance. Trees of the thorn scrub and the tropical deciduous forest cannot survive in isolation. They suffer sunburn, are buffeted by winds and more prone to disease. Few survive more than a couple of seasons after the desmonte. Once the desert legumes are gone, nothing is left to enrich the soil. Without the trees, cows have no shade and may suffer severely from excessive exposure to the sun.

It gets worse. Sonorans have learned one peculiar and painful fact about buffelgrass: it loves fire and burns like a torch. It even burns when still green and sprouts anew immediately after the flames die down. The burning grass torches fenceposts, so ranchers have to replace wooden posts with concrete. For smalltime ranchers this can be a backbreaking expense. The electric company has had to fit all wooden power poles with a skirt of galvanized steel sheeting to

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- \$.12 each for 5000 or less

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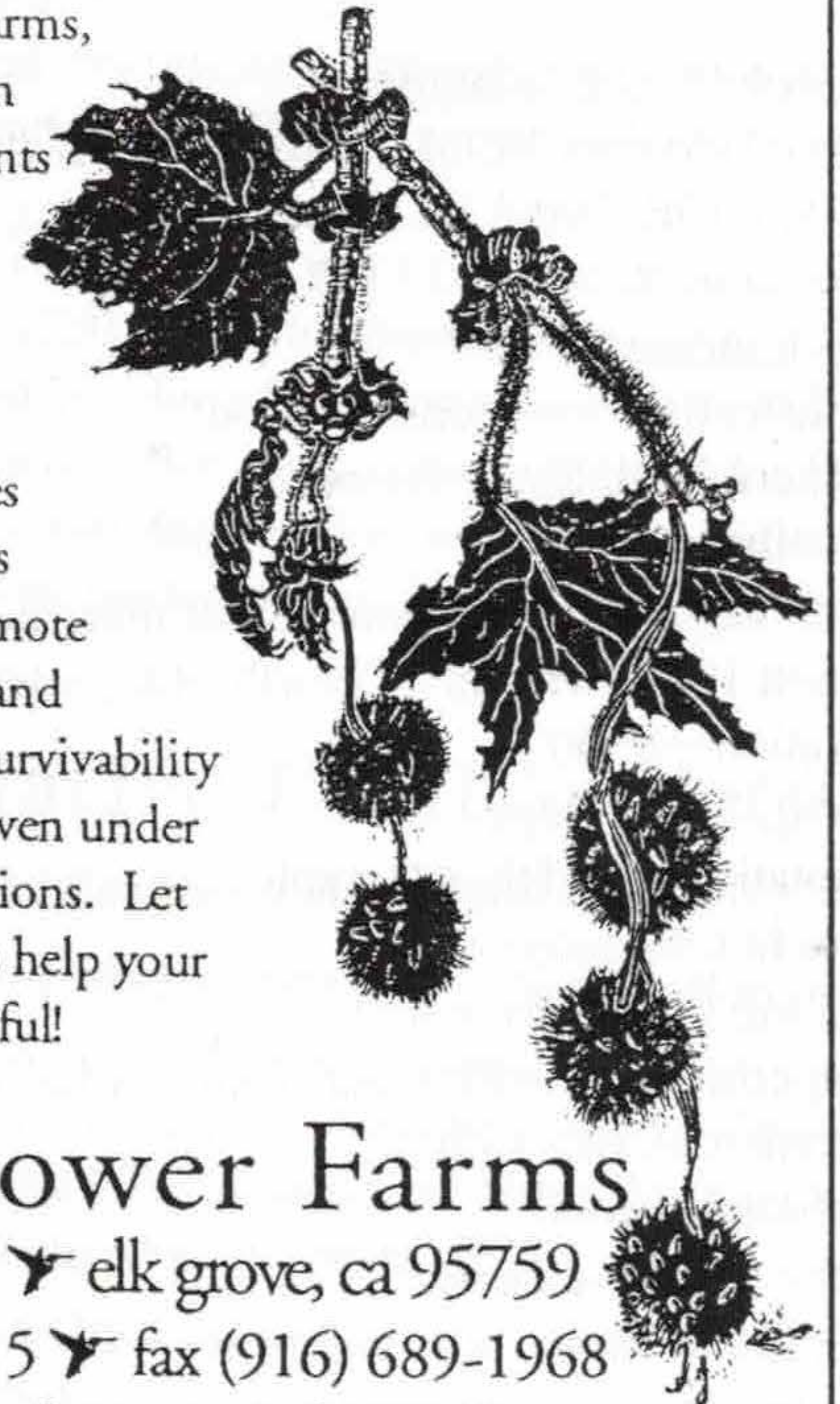
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protect them from fire. Buffelgrass roots flourish in the ashes. Wild land fires, almost unheard of a few years ago, are now extremely common during the dry months of the year. From Sonora come reports of a 3000% increase in wild land fires for the City of Caborca. During April to June 1994 a wildfire occurred in the Hermosillo area every three days, invariably fueled by buffelgrass growing in city lots or in nearby fields. In the desert the fires, rarely seen before, burn whatever else is growing.

Most native desert plants do not survive fire. Saguaro, chollas, palo verdes, ironwoods, all of them die when burned, some quickly, others experiencing a slower, creeping death. Buffelgrass, by contrast, needs fire, invites the fires that threaten to kill our Sonoran desert. The dried grass helps fires spread. Then it moves in when the competition has died, choking out all other aspiring plants. It hates company.

The Sonoran Desert doesn't burn naturally. This spring's fire in Saguaro National Monument killed desert plants where fires were previously unknown, probably because invading, non native grasses (in this case an introduced Mediterranean grass called red brome (*Bromus rubens*) provided fuel. Unlike plants that have evolved in different parts of the globe, Sonoran Desert plants have no resistance to fire. Where fires occur, the familiar desert is gone, perhaps forever.

A decade or so ago buffelgrass showed up in some yards in Tucson. It formed dense clumps, a pretty green that turned harsh yellow-brown when it dried. It was hell on a lawn. It couldn't be mowed. People cursed the stuff. Some dug it up. Then it disappeared with hard freezes. Now it has returned following several years without a hard freeze.

Before long it started appearing on Tumamoc Hill, near downtown Tucson. It has grown all over the Hill, sprouting and spreading among the desert plants as it has all over Sonora, providing excellent fuel for wildfires. Then it appeared in the Tucson Mountain mountains, later in Saguaro National Monument, where park officials try to root it out. In the absence of frost, which makes the grass die back, it has flourished in the Tucson Basin. Now it is found throughout the Sonoran Desert except where it is too dry. Buffelgrass is on a roll.

Nothing is free. After a few years of using buffelgrass the grazing has sucked away most of the soil nutrients, so the rancher must resort to prescribed fires, subsoiling, and reseedling. In other words, the entire range must be deep-plowed again to bring nutrients deep in the soil up to the surface. Only wealthy landowners can afford this operation. If it is not done, the clumps deteriorate or die after a ten-year suicidal mission. Behind, they leave a legacy of sterility. The old growth of the desert is removed leaving no hope of return while the dense root mat of the dead buffelgrass survives for years, preventing germination of other plants (even, according to preliminary research, buffelgrass!). The soil lies unprotected. The ancient desert cover has no chance to re-establish itself. The pitiless desert sun sears a barren landscape. This year's drought gave dramatic testimony throughout Sonora as the buffeled pastures took on the aspect of dust bowls.

Big time ranchers plant the buffelgrass on thousands of acres of their estates, right up to the edge of Sonoran Indians' lands. The original Sonorans report unanimously that it is now hotter and drier and that game and wildlife have dwindled since the advent of the grass. The former cover of forest or scrub absorbed the heat. The yellowed grass reflects it, driving temperatures higher. There is no refuge for animal life in the one-plant sea. Climatic change brought about by buffelgrass planting is an area the cries out for research.

SCS has spent millions of our tax dollars searching for new grasses to import, for strains of buffelgrass that will be frost hardy and drought tolerant. If buffelgrass will yield more beef there, then why not here? Why not everywhere? The current natural limitations against the expansion of the intruder—hard frosts and long droughts—are but temporary. SCS researchers can use the miracles of genetic engineering to produce a buffelgrass that will do for Arizona and the West what it is doing to Sonora—convert it into one vast pasture of one grass. Can we stop them in time? Or will we face a desert of buffelgrass that grades into a grassland of pure Lehmann's lovegrass?

Will SCS continue to bring in more alien plants, willing to sacrifice every other consideration on public and private lands alike to the appetites of cows? Or will they turn their attention to correcting the damage caused by imported grasses? The Mother's Day fire in Saguaro National Monument, for example, destroyed untold saguaros and thousands of acres of desert. A crash program to control the culprit red brome grass would save huge areas of desert from conflagration. It is not unreasonable to steer SCS in the direction of intensive research to heal the harm their programs have wrought. SCS has filed no environmental assessments, held no public hearings, requested no public comments when introducing a new grass. Their actions can have more devastating environmental consequences than any other program of the U.S. government, but that has not deterred them. Will they turn their efforts to improving our ravaged rangelands by developing better management techniques or will they attempt to squeeze ever more production from the land, thus mortgaging our ecological future? They need pressure from us to change their ways. If you would like to help, contact Matt Johnson at (602) 749-2547. He is forming an action group called "S.O.B., Stamp Out Buffelgrass!" S.O.B. hopes to hold a conference in Fall 1995.

## LETTERS TO THE EDITOR

Dear Editor,

I heard your plea for contributions and am responding with this small one. Please feel free to edit it as you feel fit.

*Achnatherum lemmonii* Many people have reported this species to be very difficult to germinate, requiring long holding periods and with ultimate low germination rates. I have found this true for the most part but with the exception of seed collected by beating gently the seed from the standing grass culms. I have gathered only tiny quantities but have 66% germination after 40 stratification and expect much higher ultimate yield. I would be interested in hearing about your results on different seed gathering techniques.

Sincerely,

David Fritchle  
390 Harlan Drive  
Redding, CA 96003  
(916) 246-4094.

If you wish a copy of the CNGA By-laws, please write or call the CNGA Office in Dixon. We must cut the expenses incurred by a mass mailing.

I thought I should take this opportunity to put in a wish list for the newsletter, ie. a wish list of equipment or supplies that CNGA could use to further its work.

The CNGA Macintosh IIvx needs an upgrade badly. Unfortunately, we've never been able to run the MS-Dos emulation software or fax/modem communication software we purchased when we bought the system because our Mac doesn't have enough hard disk space to hold it with the scanning, imaging, word processing and desktop publishing software I need to produce *Grasslands*. We also lack sufficient RAM to keep more than one application open at a time, except for our 3 year old versions of Word and Pagemaker.

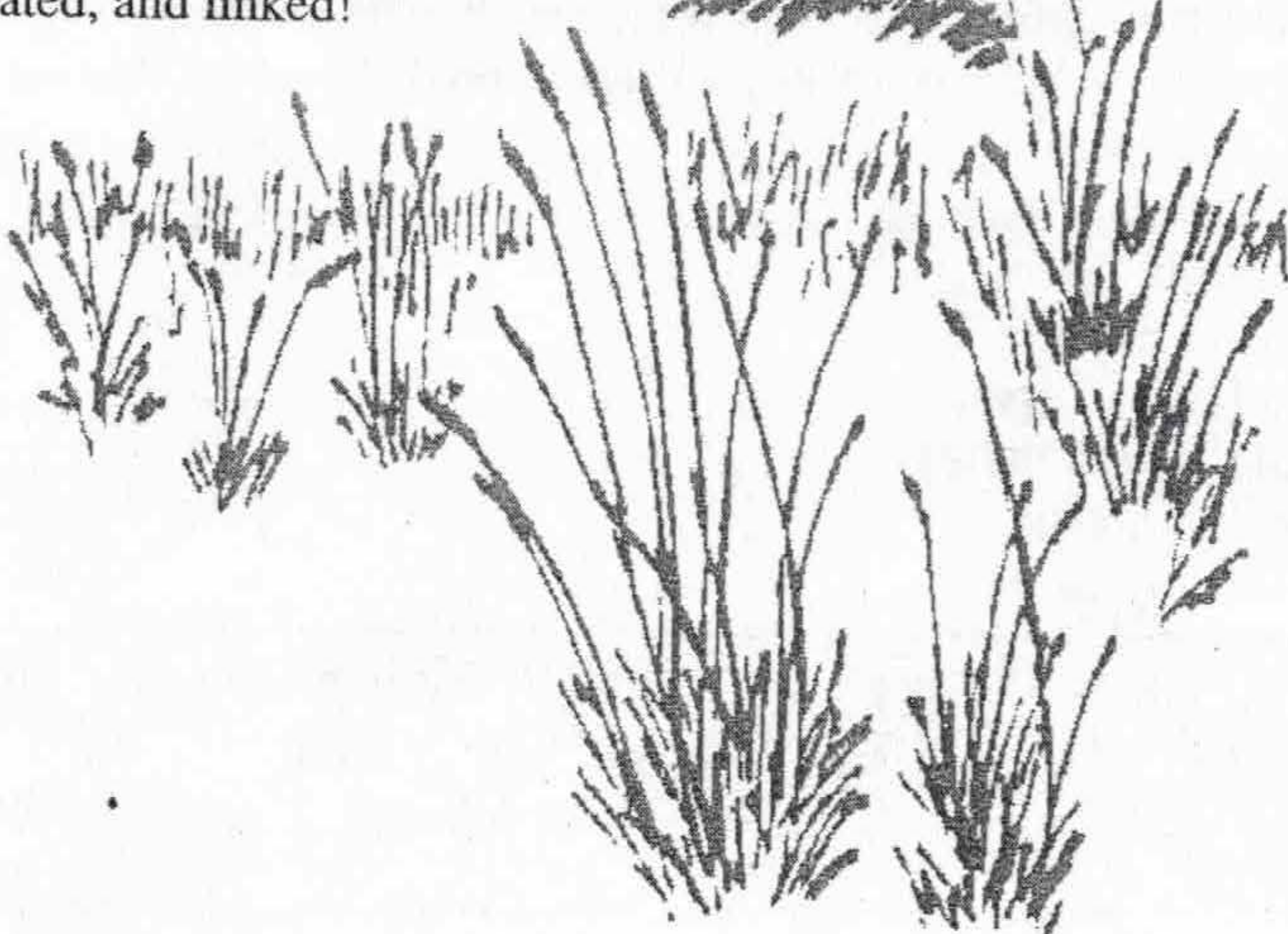
Our system could function as a communication hub via fax and the Internet if we were able to use a fax/modem--the 3 year old one we purchased is too old and too slow, even if we had the disk space to accommodate the software needed to run it. In as much as the Presidency of CNGA changes yearly, and our CNGA office is not computerized or linked, it would be of benefit to have a permanent electronic 'home' for CNGA communications. I would also benefit from receiving articles and ad materials electronically, facilitating newsletter production.

So, with these points in mind, I would like to request that readers get creative and let's try to find:

1. updates of Word, Pagemaker, Omnipage, Adobe Photoshop.
2. Upgrade from 4 MB Ram to 16 MB (but I'd be happy with 8!).
3. An external hard disk to augment disk space to at least 500 MB.
4. A new fax/modem with appropriate software.
5. A donation of \$75 to add a phone line to serve the fax/modem, with a monthly maintenance of approximately \$25. We have only a single phone in my home (the editor's 'office'), which has to serve the family and emergency calls of my husband's veterinary hospital.

In gratitude, I would continue to subsidize all electricity supplying the system, including that needed to keep the CPU on constantly to receive faxes. I would also be willing to receive faxes and email for CNGA business, and forward it on to the appropriate party.

Well, that's not asking for much, is it!? Let's get current, updated, and linked!



In July a group of in-coming 8th. graders will spend a day "hunting" for seeds of native California grasses (about 6 species) that can still be found in vestigial patches along Tomales Bay. (Group to be assisted by EAC and Dr. John Kelly of Cypress Grove Preserve). In the fall, the 8th. grade class will germinate the seeds, then during rainy season, plant them in a 30'x40' foot pre-prepared demonstration plot adjacent to the sun deck of Cafe Reyes. The class will tend the plot and study the history and value of these grasses. Local businesses will donate money for signs and a modest brochure. The demo plot will provide a high visibility showcase and environmental educational vehicle to reach a great many locals, students, and visitors to the Cafe.

Drip irrigation installed, with landscaping and pathways donated, will ensure this plot has on-going appeal as an attractive, self-guided mini-living garden that will have enduring benefit to Marin county's communities.

As a powerful educational tool, the native grass demonstration plot will teach not only the student stewards of the project, but visitors as well, history of early ranching in West Marin, and about how fast growing rye and pasture grasses imported from Europe supplanted the sturdier, more deeply rooted (and erosion resistant) local grasses. They will learn of planned strategies to re-introduce these hardy range grasses, and understand the environmental responsibilities associated with prudent agricultural practices. We anticipate that Sonoma and Marin ranchers will appreciate an opportunity to view *in situ* these specimens, several of which grow to substantial height and are lovely and robust. We anticipate that W. Marin school 7th. and 8th. graders would be caretakers of this plot for several years, passing the responsibility on each year to incoming classes.

1. This project is an ideal focus on a single subject of great importance: native grasses; 2. The hands-on character is perfect for study and investigation; 3. The project is designed for continuing follow-up; and 4. Is based on field visits and designed specifically for field visits. Lastly it represents a wonderful interdisciplinary/cooperative effort by the EAC West Marin School, Audobon Cypress Grove and, a local business (Cafe Reyes). We're confident we'll enlist additional involvement with a local nursery, the Farm Bureau, and noted local experts.

We'll need \$500 from MCF (drip irrigation, \$175), seed trays & germination tubes (\$80), back hoe/contouring (\$100), soil prep & additives (\$120), and W. Marin School misc. expenses (\$25). EAC will chip in \$200 worth of office costs, coordination, and media promotion, local merchants will donate \$400 for signage, and contractors will donate \$300 in landscaping. Total project budget: \$1,400.

## California Native Plant Society

Spring/Summer 1994 Publications Catalog, 916-447-CNPS

California's Changing Landscapes: by Michael Barbour, Bruce Pavlik, Susan Lindstrom and Frank Drysdale

CNPS Inventory of Rare and Endangered Vascular Plants of California, new 5th ed, edited by Mark W. Skinner and Bruce M. Pavlik  
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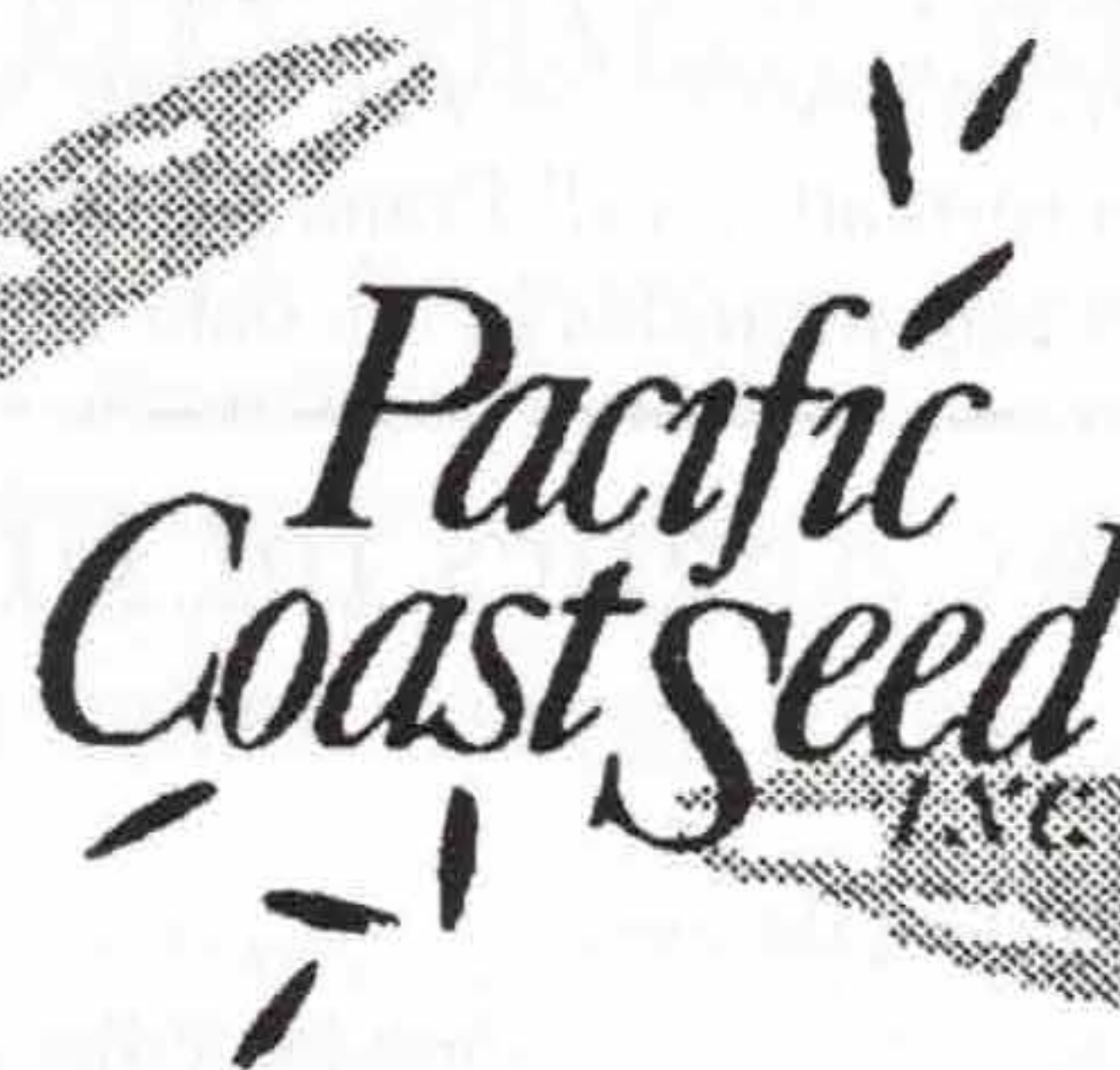
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phone hours evenings & weekends

A written confirmation of ads received will be provided  
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Please try to avoid sending dot-matrix printed, or poorly photo-  
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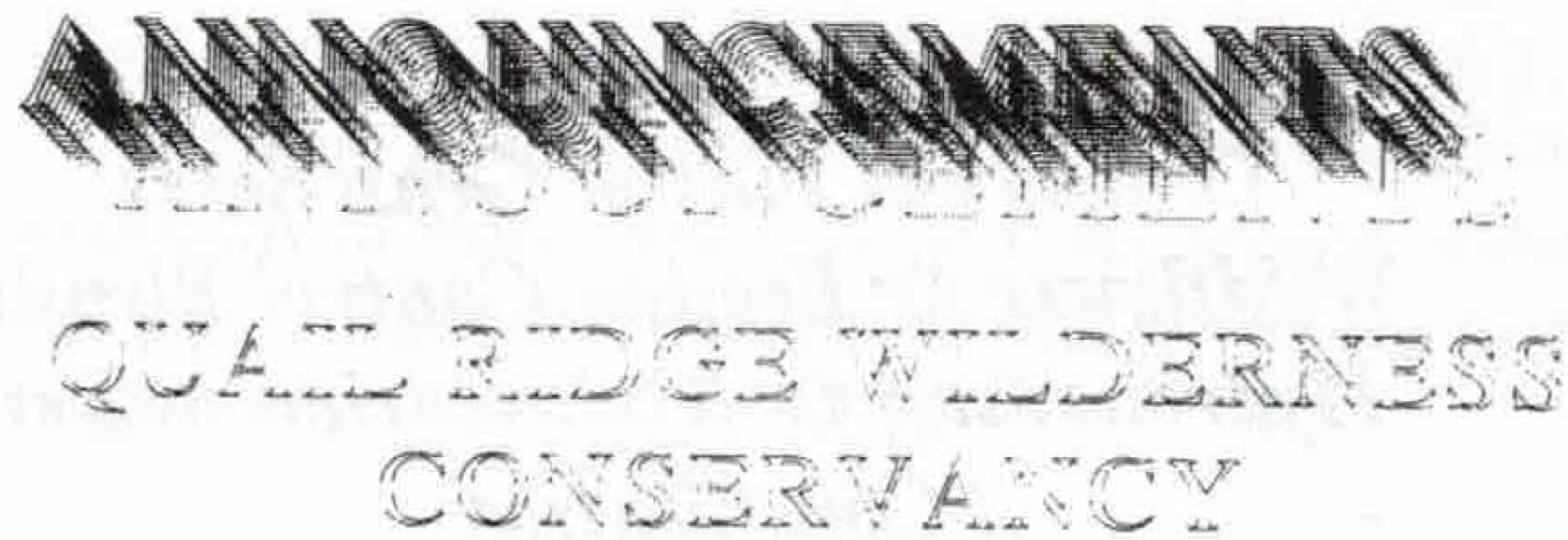


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QUAIL RIDGE WILDERNESS  
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--wishes to announce its upcoming schedule of activities. Guided walks in the Ecological Reserve are scheduled for the first Saturday of each month through April, as well as the 3rd Saturday in April, Earth Day. For information call Frank Maurer at (916) 758-1387. Take the seasonal opportunities in the oaks and grasslands!

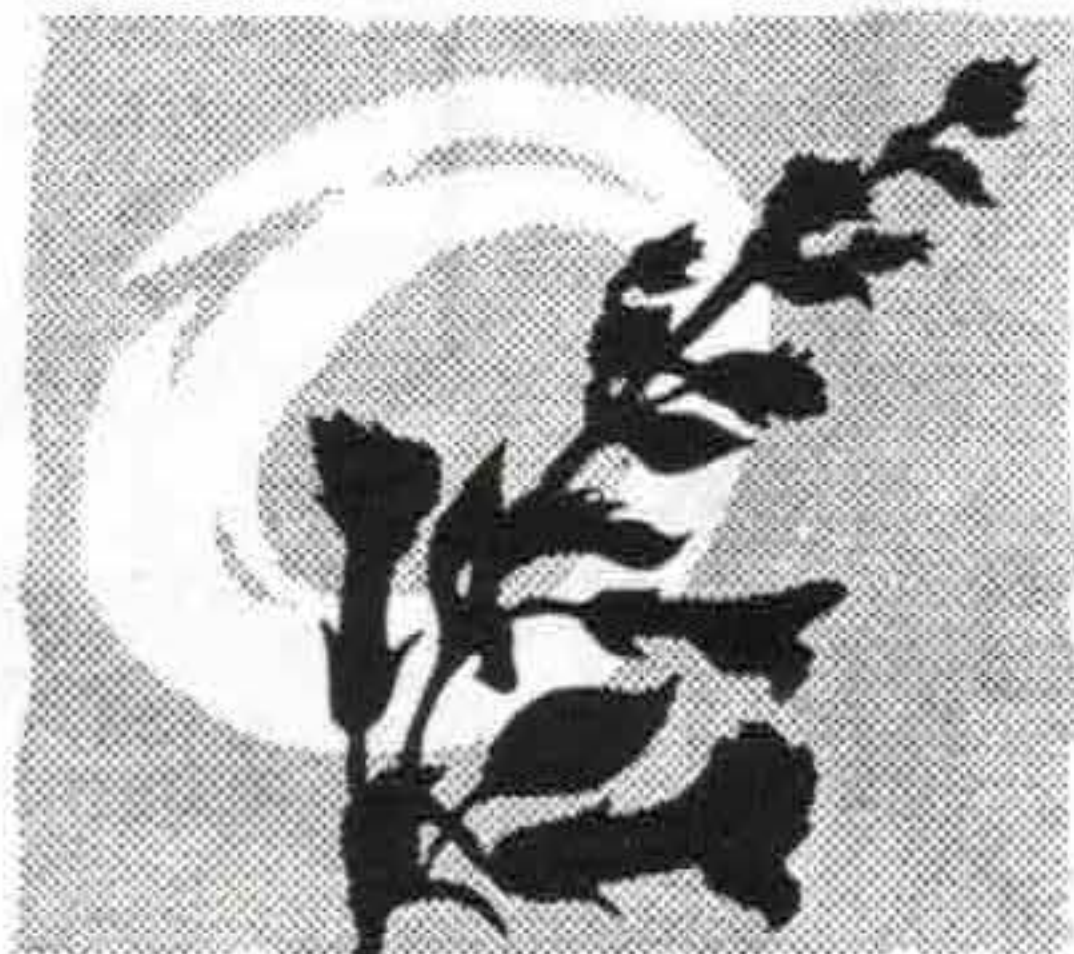
### eac Applies for Grant

June 10, 1994

Dear Friend of Native Grasses,

Please forgive my less than personal salutation (it seemed better than "Dear grass lover"). The enclosed is a copy of a microgrant proposal to the Marin Community Foundation for \$500 that EAC submitted yesterday. The proposal is the result of some recent creative bubblings involving an enlightened local merchant (Chuck Edwards, proprietor of the new Reyes Cafe), West Marin School teachers Ann Wigfield and Francis Elliot, and Cypress Grove Preserve's John Kelly.

We think we're on to something here and it promises to be a lot of fun as well. John has already delivered to EAC several slides and a pot containing a splendid specimen of tufted grass for me to show the 7th graders next week. He's also volunteered to take a group on a seed safari next month to collect seeds.



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Species: Purple needlegrass *Nassella pulchra* (NP), Foothill needlegrass *Nassella lepida* (NL), Nodding needlegrass *Nassella cernua* (NC), (SL Blue wildrye *Elymus glaucus* (EG), Slender wheatgrass "Yolo" *Elymus trachycaulus* var. *majus* (ETM), Creeping wildrye *Leymus triticoides* "Rio" (LT), California oniongrass *Melica californica* (MC), Pine bluegrass *Poa segunda* (PS), Three awn *Aristida hamulosa* (AH), Idaho fescue *Festuca idahoensis* (FI), Meadow barley *Hordeum brachyantherum* (HB), California barley *Hordeum californicum* (HC), California brome *Bromus carinatus* (BC) Tufted hairgrass *Deschampsia caespitosa* (DC), Bent grass *Agrostis exarata* (AE), Deer grass *Muhlenbergia rigens* (MR).

John Anderson  
21740 County Road 88  
Winters, CA 95694  
916-662-4570  
FAX 916-668-8369  
Consulting- Contract Growing

I wanted you to know about this because of your interest in projects of this nature. If you have any ideas or suggestions, or any leads on folks who may wish to help or at least know about this project, please don't hesitate to contact me.

Thanks for your interest,  
John Grissim  
Executive Director  
Environmental Action Committee of West Marin  
Box 609  
Point Reyes Station, CA 94956  
(415) 663-9312

PS. The motto of the California Native Grass Association is "Grass is the forgiveness of Nature!" Such gentle words auger well for our project.

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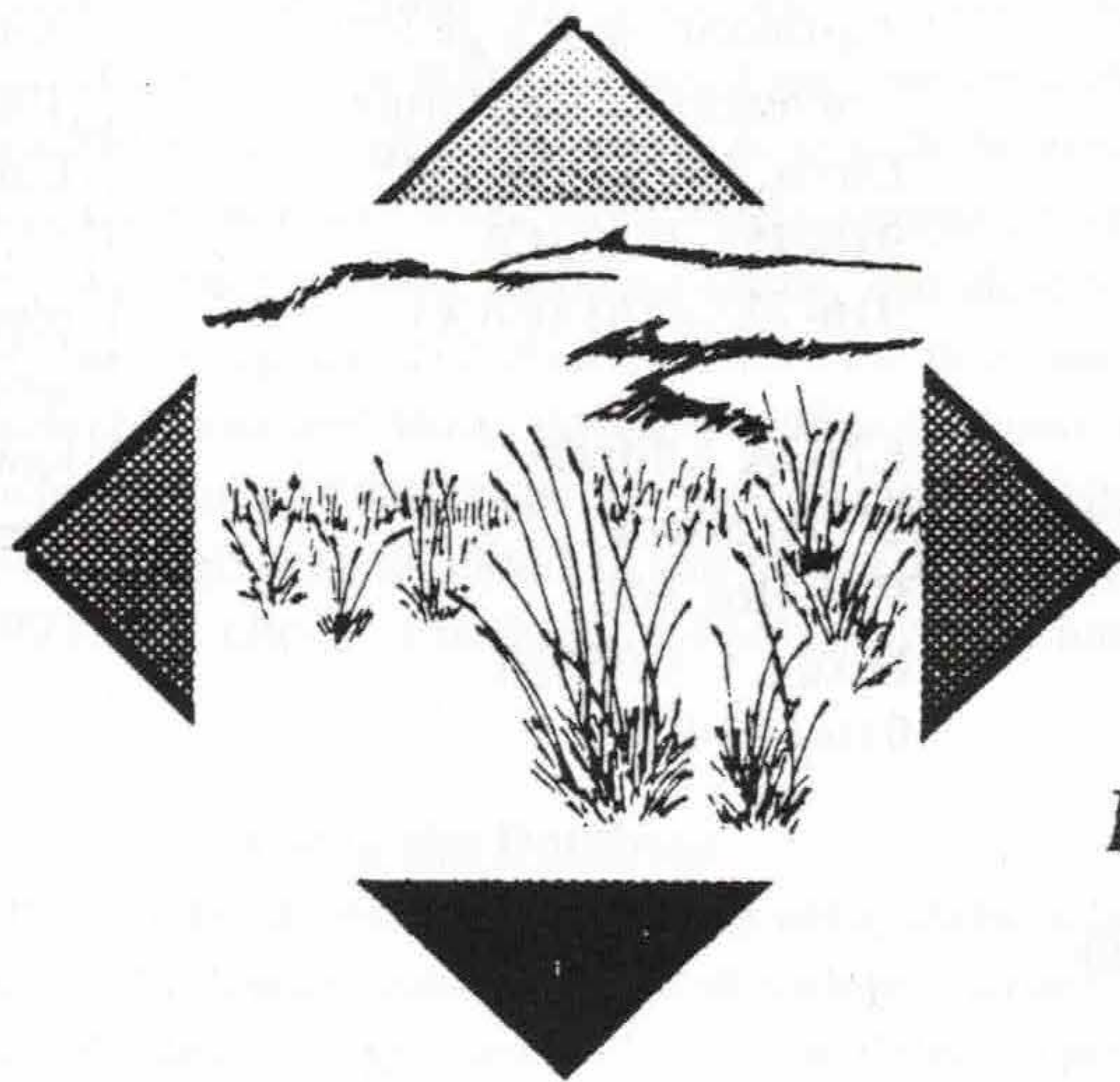
*Benefits:* Regular, Student, Retired, or a business on a Regular Membership--1 person at member rates at functions; Family, Commercial or Associate--all members of group at member rates.

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