

CalEPPC NEWS

NEWSLETTER OF THE CALIFORNIA EXOTIC PEST PLANT COUNCIL

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Nicotiana glauca

CalEPPC News is published quarterly by the California Exotic Pest Plant Council, a non-profit organization. The objects of the organization are: to provide a focus for issues and concerns regarding exotic pest plants in California; to facilitate communication and the exchange of information regarding all aspects of exotic pest plant control and management; to provide a forum where all interested parties may participate in meetings and share in the benefits from the information generated by this council; to promote public understanding regarding exotic pest plants and their control; to serve as an advisory council regarding funding, research, management and control of exotic pest plants; to facilitate action campaigns to monitor and control exotic pest plants in California; and to review incipient and potential pest plant management problems and activities and provide relevant information to interested parties.

Letters to the Editor, notices, articles of all types, volunteer workday schedules, photographs and line drawings are welcome and may be submitted directly to the editor at the address below. We invite you to utilize the CalEPPC newsletter as a forum for describing your project, asking for help, or bringing new issues or developments to the forefront. Electronic submission is gratefully accepted in IBM-formatted 3.5" or 5.25" disks for WordPerfect or Microsoft Word. Please enclose a letter quality hard copy with disk. Copy for the Fall 1993 issue is due with the editor by October 10, 1993.

Interim Board Members appointed at the November 11, 1992 meeting of the Steering Committee:

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President's Message

At the August CalEPPC Board meeting, which ten board members and three especially active CalEPPC Council members attended, we quickly took stock of the Council's activities during the past year. The results were encouraging: plans for a second annual symposium well underway; an up and running database on exotic pest plant species; experiments on French broom control underway at the Jackson Demonstration State Forest; the incorporation process progressing; the production of two fine newsletters; and the list goes on. The board meeting itself demonstrated one item we forgot to list; the development of a very dedicated and active board. As with all of our meetings, some board members have to travel long distances to attend, and as always this proved to be no deterrent. Only two board members did not attend; one had undergone surgery recently, and the other is currently working in Washington D.C. where he is helping with organization of the National Biological Survey.

After taking stock we tackled the task of setting goals for the board itself in the coming year. In short order we agreed that of all the goals that we most wanted to accomplish, they could all be consolidated under one heading 'OUTREACH AND GROWTH.' We then developed six specific objectives to accomplish that goal:

1. Increase the Council's membership. This will involve the active recruitment of members, and will be aided by the implementation of objectives 2 - 4 below.
2. Improve the newsletter to make it a more effective mode of communication within the CalEPPC Council and an inducement for others to join.
3. Develop and publish an attractive brochure which describes the Council's goals and activities.
4. Organize the CalEPPC Symposium '94 and produce a Proceedings volume based on the presentations.
5. Develop a long-term budget and fund-raising capabilities.
6. Promote the continued function of the working groups.

We all had many other suggestions for things we would like the Council to accomplish in the coming year, but agreed that, as a board, we must give the items listed above the highest priority.

This leaves a great deal for **ALL** members of the Council to become involved in, including those who happen to be on the board. Those of us at the August board meeting put together the following list for the coming year, and I submit it to you with the hope that one or more items on it will attract or inspire you to add your own ideas and to then act on them. The board wants to:

- Develop a list of the state's most troublesome exotic species.
- Improve and expand the database and develop a brochure promoting it.
- Help several state agencies develop and submit a proposal to co-fund a State Exotic Plant Species Coordinator position.
- Develop a one-page protocol for research projects on exotic plant species control.
- Sponsor a local exotic plant symposium or workshop such as the San Diego Exotic Pest Plant Symposium held last March.
- Develop a press package about exotic plant species and the problems they cause, and provide information about CalEPPC.
- Develop additional research projects on pest plant control methods.
- Support the work of Team Arundo (as described in Spring 93 CalEPPC News).
- Develop a collection of slides of pest plant invasions that speakers can use for presentations.
- Develop a resolution encouraging the use of native species.
- Cultivate a strong, cooperative relationship with the state's nursery growers.

We look forward to hearing from those of you who would like to become involved with these projects, and from those who would like to add to the list.

John Randall, president

Control of Exotic Plants in an Herbaceous Understory

by

Christine Perala, Doris A. Hoover, and E.A. Parra-Szjij

Authors' Note: This project was made possible by a grant to the Mountains Conservancy Foundation (MCF) from the Santa Monica Mountains Conservancy (SMMC). The MCF Staff through their management and training, and the SMMC through their funding program have helped pioneer this new approach to ecologically appropriate weed control. A complete training workbook will be available for park staff use as part of this grant. This project continues to be worked on intermittently.

Background

In June 1988, Solstice Canyon Park was established by the Santa Monica Mountains Conservancy (SMMC) as a public park in the Santa Monica Mountains National Area (SMMNA). The park is 22 hectare (556 acres) of coastal sage scrub and southern oak woodland.

In California's Mediterranean climate, this canyon's unusual, perennial stream ecosystem supports a diverse tree canopy in the riparian zone dominated by white alder (*Alnus rhombifolia*), bay laurel (*Umbellularia californica*), and arroyo willow (*Salix lasiolepis*). Alluvial terraces support California sycamore (*Platanus racemosa*) and coast live oak (*Quercus agrifolia*). Upland slopes support California walnut (*Juglans californica*) and laurel sumac (*Malosma laurina*) adjoining the dominant Coastal Sage Scrub Community.

About 6.0 hectare (15 acres) have been targeted for restoration in the lower canyon along the creek. This area is both the most heavily weed-infested and the most utilized by park visitors. Historically, the canyon was heavily grazed. Records indicate that from 1800 the canyon was a cattle ranch. Cattle continued to denude the understory until the 1980's. In 1982, an intense fire swept through the canyon. Post-fire succession has led to the development of a dense canopy along the stream, but in open areas the understory was dominated by a host of weed species such as castor bean (*Ricinis communis*), tree tobacco (*Nicotiana glauca*), and milk thistle (*Silybum marianum*).

Surveys of neighboring canyons and the upper part of Solstice Canyon indicated a rich complement of herbaceous plant species in the understory. Wildflowers, bunchgrasses and flowering shrubs should have been found in the lower part of the canyon. Instead, these niches were occupied by non-native species of nearly ubiquitous distribution in disturbed, unpaved soils. Our definition of a weed begins with a knowledge of the taxonomy of our local flora.

Weed eradication began in the spring of 1987 with groups of volunteers from the California Native Plant Society (CNPS) working to clear the castor bean and milk thistle. The goal was to remove the dense forests of these weeds that had invaded open areas within the riparian corridor. The woody perennials, castor bean and tree tobacco, resprout quickly after being cut down. To prevent this, the volunteer crews carefully saturated the freshly cut stump-end with 25% glyphosate solution (cut and sprayed plants do not resprout). The seeds are extremely fertile, but seedlings are easily removed by hand. After three years, sprouts are still being removed. The most important principle of all weed control is timely prevention of seed formation; "Pull the weed before it sets seed!"

Milk thistle has formed dense thickets in the Solstice Creek drainage over the years, and for three years staff and volunteers have worked to eradicate this annual before seed set occurred. After the winter rains, milk thistle sprouts quickly and is easily pulled. Later in the season, when size and leaf bristles become more formidable, a spade makes this job easier.

Progress can be seen from year to year. Initially, one area took 12 people four days to clear. The following year, the same area took four people only half a day. During this clearing process, great care was taken to remove only the exotics, leaving the natives in place. It is vitally important that each worker is able to identify the target plants in the seedling stage.

Over three years a succession of different weed groups appeared in the disturbed areas. In the first year, coexisting with castor bean, tree tobacco and milk thistle, we had bull thistle (*Cirsium vulgare*), horehound (*Marrubium vulgare*), wild artichoke (*Cynara cardunculus*), and black mustard (*Brassica nigra*). As these were removed, other less invasive exotics filled in, such as ripgut brome grass (*Bromus diandrus*), red brome grass (*Bromus rubus*), filaree (*Erodium cicutarium*), cheeseweed (*Malva parviflora*), and dwarf nettle (*Urtica urens*).

In the third year, dominants have become sow thistle (*Sonchus oleraceus*), cheeseweed, filaree, black mustard, perennial mustard (*Hirschfeldia incana*) and spurge (*Euphorbia peplis*). This weed succession indicated that simply removing exotics is insufficient, or at least too slow. The natural regeneration of the herbaceous native plant community would take longer than the three-year term of our contract. Our goal was to speed up this process, to restore the health of the understory in order to resist weed invasions.

In 1988, staff began propagating local native plants on-site, using four methods:

1. Direct sowing of seed - primarily annuals, perennials and grasses.
2. Sowing local seed in native soil in raised, covered beds.
3. Planting bulbs and container shrubs in wire baskets for gopher protection.
4. Rooted cuttings of rhizomatous perennial natives.

The goal was to develop environmentally sound, unobtrusive methods of propagation for eventual use in unimproved, natural areas such as wilderness preserves and wildlands parks. This was done both for aesthetic and practical reasons.

No shadehouse, no crowded rows of container plants, no hoses or irrigation systems were used. On an alluvial terrace, staff and volunteers built wooden frame boxes 8' x 4' x 1', with galvanized wire mesh bottoms. We filled these with a mixture of sandy creek soils and well-structured local clays. Each box was fitted with a removable covered lid (framed in 2x4s) to protect seedlings from herbivores. Seed sowing began in the late winter of 1988, irrigated by creek water, brought by hand in buckets. Very good germination rates were seen in perennial grasses such as *Stipa* and *Melica*; in bulbs such as blue dicks (*Dichelostema pulchella*) and Mariposa lily (*Calochortus plummerae*); in annuals such as sticky bluebell (*Phacelia viscida*), and red maids (*Cardamine californica*); and in perennials such as red delphinium (*Delphinium cardinale*), Indian pinks (*Silene lacinata*), and gumpplant (*Grindelia robusta*). Shrub species have also performed well under this treatment: coffeeberry (*Rhamnus californica*), mountain mahogany (*Cercocarpus betuloides*), and heart-leaved penstemon (*Keckiella cordifolia*).

Methods

Our transplanting technique is to lift clumps of young plants by spade from the seed box with soil attached, and immediately carry them in buckets to the planting areas (already cleared of weeds). The soil is opened by spade, with minimal preparation, to the full depth of the spade and swift planting is immediately followed by hand watering. Two to four seedlings are set in a shallow basin to improve watering efficiency. Throughout the rainy season (November through April) native seedlings were transplanted into appropriate habitat sites and watered by hand. Water demands vary for each species; in general, perennials and shrubs become established more quickly, while annuals need more water to perform well. 1990 was the fourth year of drought in Southern California, requiring continual hand watering throughout the spring and summer.

The remainder of the spring season is spent watering young transplants and eradicating exotics in other areas of the park. Minimal watering of perennials takes place as needed throughout the early summer. Seed collection occurs during the summer, to be followed by sowing beginning in September. Working with the local rain cycle, using the natural terrain, and planting in appropriate sites with small plants all reduce dependence on supplemental irrigation.

Two years ago, the meadow was solid milk thistle and mustard. Today, it is a meadow with native annuals, perennials and grasses. Native seedlings came up with succession weeds, which we removed. Selection among seedlings requires a trained eye and hand.

We have used standard state park signs in our major planting areas to educate the public about the work being done at Solstice Canyon Park. On spring weekends in 1990, the park had an average of 400 visitors. That number could double as the public becomes aware of the existence of Solstice Canyon Park. Docents report that the signs are read by the park visitors, so this information is reaching a local audience.

Weeds to Wildflowers

The top of Bulb Hill was an old pasture in the ecozone between coastal sage scrub and Southern California walnut woodland. Because the hill is a potential staging area for emergency fire fighting, regrowth of native brush on Bulb Hill must be limited. The planting of native bulbs, annuals and perennial bunch grasses allows for clearing by selective mowing. Bulbs and perennials were planted within wire baskets sunk 12"-15" deep for

protection from gophers. The native bulbs are locally salvaged or grown from seed. As native bulbs are scarce, we hope to reintroduce their progeny for conservation and propagation. Early success with native bulbs include the redskin onion (*Allium haematochiton*), chocolate lily (*Fritillaria biflora*), golden stars (*Bloomeria crocea*) and blue dicks. Elsewhere, protection of seedlings from gophers is achieved by planting in soil pockets between rocks in outcrops or cobble-filled stream banks.

Perennial Bunchgrass Meadow Regeneration

California still has a rich heritage of perennial bunchgrasses, at one time thought lost to grazing and the plow. Restoring these natives to the understory vegetation is an important step in ultimate control of invasive weeds. Following weed removal, some natural regeneration of California bromegrass (*Bromus carinatus*) is recolonizing former milk thistle patches under oaks. Perennial bunchgrasses quickly take hold if planted during the rainy winter months. Good colonies have been obtained by thickly seeding rows of bunchgrass directly into 5' x 5' quadrants. When 3" - 4" tall, these seedlings transplant very well into deeply spaded patches. The *Stipa* often flower the first year. It is hoped that these perennial bunchgrass meadows will be resistant to invasion by exotic weeds, and will shield seedlings of annual and perennial native forbs from herbivores.

Wildlands Weed Workshop for Park Management

Based on three experimental years of weed management, the Mountains Conservancy Foundation (MCF) Solstice Native Plant Committee hosted a series of workshops. The goals were to teach basic principles of wildland weed control and restoration of the herbaceous native understory. One-day sessions focused on local vegetation ecology, hand weeding principles, techniques and distinguishing invasive weeds from native plant species. In follow-up sessions, we will present techniques in native plant propagation.

The first sessions were attended by two to six people per group, and ranged from college students to State Park maintenance personnel. Their responses were very enthusiastic, although the amount of information to be assimilated was daunting. Many were surprised that the ideas and recommendations presented were similar to or equal to their own observations, especially the prevention of weed seed formation. At first, the concept of hand removal of weeds throughout many acres of parkland seemed unattainable, yet our work at Solstice Canyon Park has shown that it is effective and environmentally sound. The use of volunteers, or local youth conservation corps, with trained leadership can accomplish significant results in the first year. At least three years are required for maximal reduction of each group of dominant weeds. Replacement of weeds with self-maintaining native plants helps to control further invasion by exotics. Timely, consistent and complete annual clearing of specific, definable areas greatly reduces soil seed bank each year as shown by the reduction in person hours required to clear each identified weed area.

We hope that these principles will be implemented throughout the park system. This method of weed control and ecological restoration is obviously a long-term solution to management problems on undeveloped lands, involving a fundamental shift in approach to complex ecological problems. Historically, weeds thrive on human intervention in the landscape. We hope that we are beginning a new era of land management in which human behavior benefits the native plant communities instead of the weeds.

CalEPPC Welcomes New Members

Our membership is growing! At the first California Exotic Pest Plant Symposium held in Morro Bay on October 9-10, 1992, 154 registrants became charter members of the organization, through December 1993. CalEPPC warmly welcomes the following people and organizations who have joined during July and August 1993.

Robert B. Allen
David Amme
Dr. Ellen T. Bauder
Carlisle Becker
Stephanie Wilson Blanc
Mark Blumler

C. W. Bouscaren
Ron Crockett
Wilma C. Follette
Steve Kilmer
Larry Sward
Carol Deane Weiske

CalEPPC Working Group Reports

Biocontrol of tamarisk

Biological control of tamarisk has been under investigation since 1987. The USDA Agricultural Research Station at Temple, Texas has conducted the study, with financial sponsorship from the U.S. Bureau of Reclamation in Boulder City, Nevada. To date, the study has identified and tested several insect species from Israel, France and China that show potential for control.

The Bureau of Reclamation is developing a long-range plan for restoring native riparian vegetation along the lower Colorado River. As one component of this plan, biocontrol may provide a self-sustaining method for reducing tamarisk density.

At the initial CalEPPC meeting last year, a working group was organized to assist the tamarisk biocontrol effort. Since then, the group leader has taken two actions:

- Financial support for the biocontrol study was solicited from the Metropolitan Water District, with negative results.
- A representative from the Bureau of Reclamation was invited, and has agreed to describe the tamarisk biocontrol study at the upcoming CalEPPC meeting in Westlake Village. *Bill Neill*

Database

We have fielded inquiries on exotic pest plant control from private and public organizations and from individuals. Most inquiries seek information on species not currently in our database, indicating that word of CalEPPC's database is reaching persons in other parts of the country who are concerned with species not of current threat to California's lands.

It is proposed that the database be expanded in its area of concern to include all exotic pest plants and, therefore serve the interest of land managers throughout the country.

Conservation and environmental education representatives with ECONET have continued to express interest and support of the on-going development of our database, and have proposed increased exposure and interaction with biological groups in INTERNET, greatly expanding the scientific resource base that we can draw upon and support.

Far Afield; I have made inquiries, via e-mail with the ECONET account, to an associate who is currently in the region of Novosibirsk, Siberia, as to what species are considered "weeds" in that region

or elsewhere in the CIS. He found that the concept of "weed" was a bit foreign to persons in that region. Perhaps this illustrates that problems with invasive plants are symptomatic of human manipulation/development activities in the new world and/or in other regions. Also, weeds may just be a function of latitude or environmental character of the site.

Steve Harris

Press Relations

The August 11th edition of the *San Francisco Chronicle* carried a nearly full-page article titled "Return of the Natives; Why Indigenous Plants are Important to California's Ecosystem" which was primarily directed toward the subject of invasive exotics. Extensive coverage was given to the California Native Plant Society (CNPS) chapters as a source of information and volunteer restoration opportunities, as well as to the Golden Gate National Park Association Habitat Restoration Team, but they failed to mention CalEPPC, which was a disappointment to me.

I met with the California Association of Nurserymen's Environmental Resources Management Committee regarding the sale of invasive plants. Although the subject of discontinuing sale of certain plants met with resistance, the door was held open to cooperation. What is needed is a realistic list of plants which we would like to see discontinued. There are difficulties in creating such a list because 1.) plants that are weeds in one area are not weedy in another part of our varied-climate state and 2.) some plants are very big money-makers for the industry. It is pointless, for example, to ask for *pyracantha* to be discontinued when it is a huge seller and is weedy only in a few coastal areas. We will be working on this list. Suggestions from readers will be most welcome. Please include comments on the seriousness of the threat, its geographic extent, means of spread, and any other pertinent information which will aid in arriving at a decision. Please send to: *Jake Sigg, 338 Ortega Street, San Francisco, CA 94122, 415.731.3028.*

Use of Volunteers

I would like to thank our working group for their responses to our "meetings by mail." I think this approach has worked well and saved us all time and money. I have received many good comments and suggestions, some of which have led me into additional research which I plan to complete before

our October California Exotic Pest Plant Symposium.

To gather some additional information on volunteer work parties, I scheduled an "Exotic Plant Removal Work Party" for the Nature Conservancy at the Oso Flaco Lake Natural Area in the Nipomo Dunes. We had a small group of eight volunteers that removed 67 trash bags full of iceplant (*Carpobrotus edulis* and *C. chilensis*) from a mixed dune plant community at the inland end of the boardwalk. The iceplants were carefully removed by hand so the native plants would not be uprooted.

It was very satisfying to look over the area when we had finished. It looked undisturbed, with space between the natives for expansion. We could almost hear the native plants say "Thanks for removing that invasive exotic that has been taking our water and nutrients!" It was a great day. *Jack Beigle*

Weed Control Methods & Applications

Arundo experimental control

A part-time coordinator has been hired by Team Arundo. Also, Team Arundo has prepared a draft of "Users Field Guide to Arundo Removal".

New Arundo removal projects are planned by the Army Corps of Engineers in Prado Basin, Corona, to create new wetlands. The impetus is to remove nitrates from the water and create more least Bell's vireo habitat. San Jose Flycasters have an Arundo removal project in the Salinas River basin. And the Angeles National Forest has a project for Arundo removal in the San Francisquito and Soledad canyons. *Nelroy Jackson*

French broom experimental control

The French broom experimental control working group is making progress on a major French broom control experiment. The aim is to develop scientifically-based information on the most effective and cost-efficient methods of controlling this species. Techniques being tested include various combinations of pulling, cutting, low-volume basal bark herbicide, and/or prescribed burn treatments.

In early June, pre-treatment environmental and vegetation sampling of the experimental site, located in Jackson Demonstration State Forest near Fort Bragg, was finished. Pulling and low-volume basal bark herbicide treatments were accomplished in June and July. In early August, the herbicide-killed shrubs were cut. We are indebted to the hardworking members of Crews 1 and 3 of the Parlin Forks Conservation Camp who expeditiously

accomplished the pulling and cutting of the broom shrubs on 40 experimental blocks. Prescribed burn treatments are scheduled for late September.

This project was developed under the auspices of the California Exotic Pest Plant Council (CalEPPC) with the cooperation (primarily as contributions of staff time or site preparation workers, but in some cases funding) of Jackson Demonstration State Forest, Golden Gate National Recreation Area, Golden Gate National Park Association, and St. Mary's College of California. Most of the supplies were donated by several companies. The coordinated effort of this working group and these cooperators has resulted in this large, complex experiment being set up on schedule with a minimal budget. Even in these times of shrinking budgets, much can be accomplished toward controlling exotics if group effort is applied. *Carla Bossard*

German ivy and hoary cress control

David Chipping, Vince Cicero of State Parks, Brenda Ouwerkerk of the San Luis Obispo County Agricultural Commissioner's Office, and Ricardo Silberman of Monsanto got together in June to attempt to resolve the issues of removing hoary cress from Morro Bay State Park. The political problems seem to be overwhelming. California Native Plant Society (CNPS) cannot do anything on their own as they have no certified herbicide applicator. The marsh is wetland, requiring special treatment, and State Parks is concerned about the need for an environmental study due to the potential presence of endangered species. Ricardo kindly said he would act as applicator if State Parks would give their clearance, as would Brenda, but the park is not county property, and all she could do was weed control along the right-of-way. State Parks is completely out of resources, and the use of CCC labor may be out of the question (regarding liability with herbicides). Things are slowly grinding along, unlike the hoary cress, which is in high gear.

On a brighter note, Dave Chipping is working with San Simeon State Park's Resource Ecologist Woody Elliot, at the prompting of Mr. Elliot, to find some way of eliminating German ivy in the San Simeon Campground. German ivy is out of control in the willow forest along San Simeon Creek, and is now showing up in brackish marsh and in grassland, growing as mats in the open sun, which seems to be a new adaptation for the plant. Mr. Elliot is really worried that it will get into the Monterey pine forest, and therefore is considering chemical

treatment. The same permitting and wetland problems as indicated above may block fast implementation, although there are no endangered species in the equation. It appears that selective removal of German ivy via herbicide cannot be accomplished. Glyphosate, oxyfluorfen, and triclopyr have been successful in initial control. Subsequent seedlings have been successfully treated with triclopyr, and with a combination of glyphosate and a soil residual application of simazine, but all listed chemicals would also perform a scorched earth treatment of non-target flora if all of the rooted portions of a plant are to be attacked. This leaves the ground subject to further weed invasion.

David Chipping

Yellow starthistle experimental control

Yellow starthistle, *Centaurea solstitialis*, is an exotic annual weed from southern Europe. It arrived in California probably in the mid-1880's and it is estimated to inhabit eight million acres statewide. Yellow starthistle infests rangelands, pastures, orchards, vineyards, roadsides, canal banks, and parklands. Several studies investigating various methods of controlling this weed are being performed by the University of California, USDA/ARS, the California Department of Food and Agriculture, and others. The initial activity of the yellow starthistle working group has been to obtain the most recent information on controlling yellow starthistle and the current status of the various research projects. This information, which will be reported to CAL-EPPC members in future newsletters, will serve as a foundation on which additional experiments can be designed and performed.

From the work that has been done to date, it appears that controlling yellow starthistle is not a simple process and will require a systematic and persistent effort over several years. Yellow starthistle is a long-lived annual plant that reproduces only from seed. Most seeds germinate in the fall following the first autumn rains but some germination will occur during late winter or early spring. The young plants exist as small rosettes close to the ground under the canopy of the annual grasses. During this time, the plants are building reserves and sending down a deep taproot. As the annual grasses begin to fade and turn brown during May and June, yellow starthistle sends up a stalk that branches and gives rise to the flower heads. Mature plants may be as small as a six inch stem

with one flower head or as large as a bush four feet tall.

Yellow starthistle produces two types of seeds. In the central portion of the flower heads are several seeds with short bristles (termed plumed seeds). These are released quickly after the flower head matures. Along the outer portion of the flower head are black seeds without bristles. These remain in the seed heads until the heads break down in late winter. There are approximately three plumed seeds to one plumeless seed. Most seeds produced over the course of a summer will germinate the following spring; some, however, become part of the soil's "seed bank" where they remain until conditions become favorable for germination or are killed by seed predators or other natural causes.

The methods of controlling yellow starthistle fall under six general categories: mechanical (mowing or discing), fire, chemical (herbicides), biological (insects and diseases, plant competition, grazing), preventive, and integrated control. Each of these topics will be summarized and reported in later issues. In this issue we'll report on the use of mechanical control methods.

Mechanical control methods include mowing, hand-weeding, and discing. Mowing can be a useful method of reducing yellow starthistle abundance provided it is well-timed with the start of flowering and repeated as necessary. A study carried out at the University of California at Davis showed that mowing was most effective when plants are at the beginning of the flowering stage, then followed by a second mowing at the beginning of flowering of the regrowth. In this study, the beginning of flowering was determined to be when 2% of the flower heads showed their yellow petals. Mowing at this time removes the above ground portion of the plant after much of the root reserves have gone into producing flowers, and less reserve is available for regrowth. Still, the plants should be monitored for regrowth and mowed again. If plants are mowed too early, substantial regrowth will occur and several additional mowings will be necessary.

Mowing should be done before the seeds are formed in the flower heads. Individual seeds are not damaged by the mower and will settle onto the soil and germinate in the fall. Mowing too late will not reduce the number of seeds entering the seed bank and may actually help disperse the seed. Controlling yellow starthistle with mowing will be more effective if no irrigation water or rainfall follows the mowing event.

Hand-weeding with a hoe in small areas can also be effective. It is easiest during the seedling or rosette stages in late winter and early spring before the taproot has become well-developed. As the taproot grows larger and deeper, more reserves are accumulated and the potential for regrowth is increased. In larger plants, the upper portion of the taproot will need to be dislodged. Again, periodic monitoring of sites for more germination or regrowth is important.

Discing the soil as a means to control yellow starthistle is best used against the seedlings. If irrigation is available, targeted areas can be irrigated prior to fall rains and then disced to remove the germinating seedlings. If this is repeated, the seed bank may be depleted and the number of young yellow starthistle plants substantially reduced.

Mike Pücairn

Pampasgrass experimental control

In the Spring CalEPPC News, I failed to pass on the useful tip from Jim Nee (Santa Cruz) that they're not required to have any special license to use an herbicide like Roundup, but there had better be a real training program in operation. Also the assurance from Jack Beigle (Pismo Beach) that the pampasgrass that is running amok down there is *Cortaderia selloana* (supposedly sterile).

Corky Mathews (Carmel Valley) reports that the Monterey County Public Works Department is now committed to removing pampasgrass and broom along their rights-of-way. They are discussing using high school students to eradicate the noxious stuff in Pt. Lobos and county parks. The county planner prefers the CNPS chapter to be the "lead agency" in coordinating efforts, but at least new land developments must remove and avoid using these exotics.

In implementing AB 1108, following Jake Sigg's lead, but in the absence of a responsive nursery association chapter, I've personally contacted the larger nurseries in Marin and written to about 20 others, inviting them to support listing as noxious weeds both *Cortaderia*, both brooms, gorse, and blue gum, which then could not be sold or brought in. Response has been uniformly supportive, with the exception of one nurseryman who prefers the "educational approach." Our ag commissioner is likewise sympathetic, though he had been hitherto unaware of the legislation.

If you know the name of a qualified graduate student please pass it on to me. I am looking for someone who could research such aspects of

pampasgrass control as to what turns *C. selloana* into a weed, or has it always been invasive, and other questions.

A joint federal, state, county parks, and community program to remove pampasgrass in the Bolinas-Tamalpais area of west Marin is still in the talking stage.

If you can't attend CalEPPC Symposium '93 in October, please pass on your contributions to someone who will be able to report them to working groups.

Quentin Griffiths

Legislative Update

California Group meets to discuss Undesirable Plants Program

On March 18, 1993 a meeting was held between various federal and state agencies in Sacramento to discuss the implementation of the 1990 Section 15 amendment to the Federal Noxious Weed Act. This amendment as addressed in the 1990 Farm Bill titled "Management of Undesirable Plants on Federal Lands" requires each federal land management agency to 1.) Designate a lead office and person trained in the management of undesirable plants. 2.) Establish and fund an undesirable plant program. 3.) Implement cooperative agreements with state agencies. 4.) Establish integrated management systems to control undesirable plant species.

Those attending the meeting represented California's Department of Food and Agriculture, Fish and Game, Environmental Protection Agency, as well as the County Agricultural Commissioners Association. Federal agencies represented were the Bureau of Reclamation, Corps of Engineers, Navy, Army, Air Force, Forest Service, and Bureau of Land Management.

Those in attendance agreed to initiate an inter-agency effort for the coordination and integration of managing noxious weeds in conjunction with the responsibilities of the California Department of Food and Agriculture. The first function of the group is to develop an agreement between the participating agencies. A workshop is planned later this summer to develop an agreement, based on a sample document soon to be released for review.

Any agencies, groups or individuals wanting more information should contact either one of the following persons: *Ross O'Connell, Calif. Dept. of Food & Agriculture, 1220 N Street, Room A357, Sacramento, CA 95814, 916.654.0768* or *Jim Morrison, BLM, Federal Bldg., 2800 Cottage Way, Sacramento, CA 95825, 916.978.4725.*

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If you attended the 1992 Exotic Pest Plant Symposium in Morro Bay, your symposium fees made you a charter member of CalEPPC for 1993. If you did not attend the symposium, but would like to join CalEPPC, please remit your dues using the form provided. All members will receive the CalEPPC Newsletter, be eligible to join CalEPPC working groups, be invited to the annual meeting, and participate in selecting future board members. Your personal involvement and financial support are the key to success. Additional contributions by present charter members are warmly welcomed!

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 448 Bello Street
 Pismo Beach, CA 93449

Pending official incorporation of the California Exotic Pest Plant Council, newsletter mailings will be handled by Friends of Los Peñasquitos Canyon Preserve, Inc. a California not-for-profit corporation.

Upcoming Meetings

- **November 19, 1993 Riverside, California**

"Workshop on *Arundo donax*" Friday, November 19, 1993 from 9 a.m. to 5 p.m. at the Ontario Airport Hilton Hotel. For registration information contact Paul Frandsen, 4600 Crestmore Road, Riverside, CA 92519, 909.275.4312, or Nelroy Jackson, 400 S. Ramona Ave., Corona, CA 91719, 909.279.7787.

- **November 12, 1993 Sacramento, California**

California Native Grass Association "Native Grasses and Restoration," Holiday Inn NE. Speakers include Frank Chan, Tom Griggs, John Haynes, and Brad Burkhart. Details in October Native Grass Newsletter.

- **December 8 - 10, 1993 Pendleton, Oregon**

Oregon Interagency Noxious Weed Symposium. A cooperative program sponsored by Oregon Dept. of Agriculture, BLM, and USFS.

- **January 17 - 19, 1994 San Jose, California**

The California Weed Conference (annual meeting of the California Weed Science Society) at the Red Lion Hotel in San Jose. Contact Wanda Graves at 510.790.1252 for more information.

- **March 22 - 24, 1994 Houston, Texas**

The 1994 Wildlands Conference, sponsored by The Wildlife Habitat Enhancement Council will meet March 1994 in Houston, Texas. Contact WHEC's Wildlands Conference, 736 Company Farm Road, Aspers, PA 17304, 717.528.7062, FAX 717.528.7544.

- **August 9 - 14, 1994 Lansing, Michigan**

SER 1994 Conference 'Saving All the Pieces' will be held at Lansing Community College. For more information contact Robert Welch, Lansing Community College, 422 N. Washington Square, Dept. 31, Lansing, MI 48901, 517.483.9675, FAX 517.483.9619.

- **October 1994, Florida**

Joint meeting of Natural Areas and EPPC to be held in Florida. Details forthcoming.

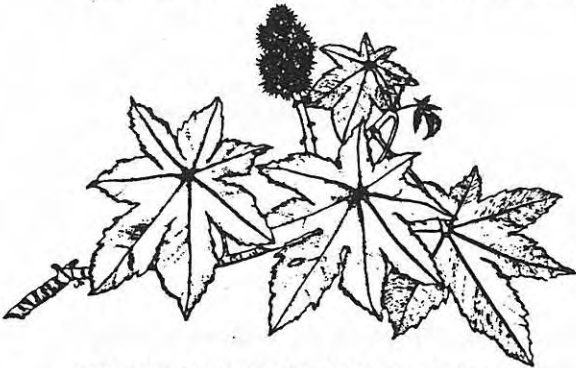
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