CalEPPC NEWS

NEWSLETTER OF THE CALIFORNIA EXOTIC PEST PLANT COUNCIL

VOLUME 2 • NUMBER 2 SPRING 94

INSIDE

Pulaskies in hand, **Wildlands Restoration Program** volunteers take on a large *Cortaderia jubata* in the Santa Cruz mountains. **See story pg. 7.**

Who We Are

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;
- facilitate communication and the exchange of information regarding all aspects of exotic pest plant control and management;
- provide a forum where all interested parties may participate in meetings and share in the benefits from the information generated by this council;
- promote public understanding regarding exotic pest plants and their control;
- serve as an advisory council regarding funding, research, management and control of exotic pest plants;
- facilitate action campaigns to monitor and control exotic pest plants in California; and
- review incipient and potential pest plant management problems and activities and provide relevant information to interested parties.

Newsletter Submissions

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 ***CalEPPC NEWS*** 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 PC-formatted 3.5″ or 5.25″ disks for WordPerfect or Microsoft Word, or plain text files. Please enclose a letter quality hard copy with your disk. Copy for the Summer 1994 issue is due with the editor by August 15, 1994.

Publication on Exotics

California Plant Pest & Disease Report
(Agricultural Pests or Potential)

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President's Message

What's in a Name?

John Randall, president

We call ourselves the **California Exotic Pest Plant Council**. The story behind that name and how it was chosen illustrates some of the subtleties between words and names. In one sense, the story is simple. We were inspired by and modelled ourselves after the **Exotic Pest Plant Council**, a group which formed in Florida in 1984, and, with their permission, adopted the same name, adding "California" to distinguish ourselves. But in some ways it was easier to decide what the focus of the group should be than it was to name it. After all, there are many terms used to refer to the type of plants upon which we concentrate. These terms are exotic, alien, introduced, non-native, non-indigenous, and non-aboriginal. They are also pests, weeds, invasive, naturalized, and many are noxious. They have been referred to as natural area pests, floral weeds and environmental weeds. Careful consideration of these terms (and others I neglected to include) reveals that each carries different connotations, different associations.

Species labeled exotic, alien, introduced, non-native, non-indigenous, or non-aboriginal could all be defined as those which were directly or indirectly introduced by humans to areas outside their natural zone of survival and potential dispersal. But there is more to it than this, and therein lies the problem. We wanted a title which would indicate our focus on a major, although under-recognized, threat to natural areas and wildlands. The word exotic, however, conjures up positive images for some; they think of exotic vacation destinations where exotic drinks might be served or even visit nurseries advertising colorful, exotic ornamental plants for landscape and garden.

On the other hand, the word alien carries the negative connotations we wanted, bringing to mind images of invading space fiends and the like for many. Unfortunately, for some, the term may also be used to stigmatize real people who have recently arrived in an area, especially those not granted citizenship, and for this reason it can be regarded as offensive. Introduced and non-native are well known and widely used words that carry little emotional weight and either might have served well in our title. Non-indigenous and non-aboriginal are terms which accurately label the types of organisms with which we are concerned and without emotion, but both are unfamiliar to some and sound stuffy or overly complicated to others.

There are problems with several of the other terms we considered as well. Weeds may be defined as plants growing where they are not wanted, including National Parks and other natural areas, but most folks think of them only as plants that are undesirable in lawns, agricultural fields, and grazing lands. On the other hand, naturalized is a term that some of us shun because it may imply that an introduced species is becoming a "natural" part of the native plant community, its propagation and spread accepted. The term noxious, although it conveys the meaning of a threat, is unsuitable simply because it is a legal designation declared by local, state or county governments, usually to agricultural pests whose control is deemed necessary. Some of the other terms we considered have been very well defined but have not been used widely and are therefore not well understood by many people, at least not in the United States. For example, the term "environmental weeds" is used by many Australians authors, but few in North America.

After a great deal of discussion of this sort, we decided to take our name from the Florida group after all. We had several reasons. For one, the term exotic is used in many scientific papers about the topic and it clearly indicates species that are not native to a given area. In addition, we recognized that any positive connotations it has should be countered by the word "Pest." Some pointed out that if the name leaves some people a bit confused, it might just inspire them to ask about it, giving us the chance to explain the issue more fully. Finally, we agreed that since the good work done by the original Exotic Pest Plant Council has been recognized by a variety of conservationists and policymakers; the name recognition this entailed would serve us well. The other EPPCs that have formed in the Pacific Northwest and Tennessee went through similar discussions and arrived at the same conclusions we did - it is a good name that allows us to benefit from each other's work and encourages us to cooperate while the regional designations indicate each group's independence.

Our group's third annual meeting, the California Exotic Pest Plant Symposium '94, will be held at the Hyatt Regency in Sacramento September 30 - October 1, 1994. We have designed the conference to help us live up to our name as a "Council," which Webster defines as an assembly for consultation, discussion, and advice, as well as an executive body whose members are equal in power and authority. I hope that you will join us to learn more and exchange ideas about the ecology and control of exotic, alien, introduced, non-native, naturalizing, pestiferous, non-indigenous, non-aboriginal, invasive, environmental weeds - whatever name you call them.

Pampas Eradication Program - P.E.P. - Part Two

John H. Madison

Exotic Plant Committee Chair of the Dorothy King Young Chapter, California Native Plant Society

Editor's Note: In 1987, the Dorothy King Young (DKY) Chapter of the California Native Plant Society began a community project in the Gualala-Point Arena area to control the infestations of *Cortaderia jubata* which were coming to dominate the views from the local roads. Since then, *C. jubata*, or jubatagrass, has increased as a problem of the coastal areas of California. The DKY Chapter reprinted this updated paper in the March-April 1991 Calypso Newsletter. It is their sincere desire that this article will help others to successfully kill, control, and perhaps even eradicate this pest from areas of their concern. Part One of this article was printed in CalEPPC NEWS, Volume 1, Number 4.

Pampasgrass - The Plants

We'll first look at the history of the two Pampasgrasses, and then compare them. There is no problem telling the fine, well cared-for garden specimen of *Cortaderia selloana* from the scruffy *Cortaderia jubata* on a road cut. But, presented with a well grown jubatagrass and a neglected C. selloana, the distinction becomes more subtle.

Cortaderia selloana was introduced into horticulture by James Tweedie, a Scot who lived from 1775-1862. Trained in horticulture, Tweedie achieved the position of head gardener at the Edinburgh Botanic Garden, but at age 53 he quit to emigrate to Argentina. There he collected plants widely, sending collections to the botanic gardens at Dublin, Glasgow, and Liverpool, and seeds to friends. Among his introductions we may note Petunia and Cyphomandra, the tree tomato.

In the grass family, Pampasgrass is a member of sub-group, Arundoideae, the reeds, of which *Arundo donax*, the common reed, is yet another escapee along streams and in moist areas of California. Pampasgrass was first named *Arundo dioica* in 1825 by Curt Sprengel. This was changed to *Arundo selloana* in 1827 by Joseph Schultes, who named it in honor of Frederick Sello, a German botanist who collected in Brazil. Christian Nees von Esenbeck wrote ***Agrostologia Brasiliensis*** in 1829, in which he named the plant *Gynerium aragenteum*. This means silvery, female wool, appropriately descriptive of the silvery hairs on the ovary of the female flower, which is what makes the plumes so striking.

In 1897, Otto Stapf at Kew separated Cortaderia out of Gynerium on the basis of culm leaves. In Gynerium, 2-4 inch broad leaves are clustered up the stem, giving the appearance of a fan palm. Stapf called the plant *Cortaderia argentea*. (Cortaderia is simply the common name throughout its native range, and means cutting.) The present name was given in 1900 by Paul Aschers and Karl Graebner at the Berlin Herbarium.

C. selloana grows in Argentina, Brazil, and Chile on river plains where part of the year the crown is underwater from flooding, but where most of the rest of the year the plant is under drought stress. *C. selloana* was introduced into California about 1848, according to Joseph Sexton, pioneering nurseryman of Santa Barbara. It is easily grown from seed, but is highly variable. Color varies from silvery white to pink or lavender, and height varies to 30 feet.

Sexton continually selected the plants he worked with, and in time realized that the lovelier plumes were from the female plant, which had stiff hairs on the seed. These spread the spikelets of the inflorescence to create a soft fluffiness not seen in male flowers. Sexton also found that if the plume was pulled from the female plant just before it opened and placed in the sun, it would expand, puff out, and, as it could not form seed, the hairs on the unfertilized ovary were fixed in place. This discovery led to Pampasgrass plumes as a commercial crop from ca. 1874 to the end of the century. The plumes were in great demand throughout Europe. In this country in the 1880s, one could hardly have a parade without Pampasgrass plumes to decorate a float.

Information about *Cortaderia jubata* is less clear. Native to Ecuador, Peru, and Chile (not to the Pampas) it would be better called Andean plumegrass. Weed control people have settled on the name "jubatagrass" to distinguish it from Pampasgrass. It is a colonizing species, invading talus, slides and other bare areas in the mountains. It is at home on the California coast, colonizing road cuts, forest clear-cuts and various eroded or exposed soils. It appears to have entered the horticultural trade through France, introduced by the Lemoine Nursery in Nancy. I find no information (in my library) on when it entered this country.

Nees named the plant *Gynerium quila* in apparent confusion with a bamboo, *Chusquia quila*. Lemoine named it *Gynerium jubata* and introduced a horticultural variety as *Gynerium arcuato-nebulosum* (an arched cloud). Otto Stapf is the authority for the present name, *Cortaderia jubata*. The same plant is also sold as *C. quila* and as *C. rudiscula*, although the true *C. rudiscula* has long, narrow plumes. *C. jubata* has also been called *C. atacamensis*.

By whatever channels, *C. jubata* came to California. It found a home here and its presence is increasing in geometric progression. It is now widespread, and I suggest that the bay area is suffering from jubatagrass pollution. Sunset's ***Western Garden Guide*** has acknowledged it only in its later editions, since 1976. Beecher Crampton, in his 1977 ***Grasses of California*** did not recognize the difference, and

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comments of *C. selloana* that, "Some forms of it produce a little seed and become naturalized, especially along the coast."

Doris Anne Hoover, Escaped Exotics Chair of the Santa Monica Mountains Chapter of CNPS, writes, "Here in Los Angeles County, jubatagrass is still the selected choice of landfill operators and highway crews for 'landscaping' huge banks of earth surrounded by native Santa Monica Mountain vegetation. The seedlings are beginning to spread, as we expected, up and down canyons on the on-shore, off-shore winds, and no doubt a few wet years will create the same problem here."

Certainly the sophisticated nurseryman is aware of the differences between the two species, but I'm sure there are many who think there is only one Pampasgrass or plumegrass. Some nurserymen prefer the jubatagrass, as seed can germinate on the fall rains and throw up a flower in a gallon can the following September, which allows for a quicker sale. Thomas Everitt writes in his ***Encyclopedia of Horticulture*** that he prefers the arching plumes of jubatagrass.

While the problem has been with us for 20 years, we have only recently become aware of the seriousness of it. With the completion of her thesis on ***Ecology and Reproductive Biology of the Genus Cortaderia in California***, Martha Costas Lippmann has taught us the reason for the geometric burgeoning of *C. jubata*. *C. selloana* is a dioecious plant with male and female flowers on separate plants. As the seeds carry the hairs that fluff up the plumes, the female plants are the desirable horticultural specimens. If only females are planted, there will be no pollen and no seed, and the plumes will remain fluffed for some time.

In contrast, plants of *C. jubata* are all female. Each flower produces seed by apomixis, a process in which each ovule produces an embryo from a mother cell, genetically identical to the mother plant. Seeds mature fast and are quickly shed, with many thousands per plume. Seeds are small and delicate. New seedlings don't compete well, but quickly establish in bare soil, which is why they are common on road cuts and in the eroded canyons following forest clear cuts. Establishment is also favored near water from seeps, springs, or road catch basins. Once they have roots down, though, they can survive on dry, hot slopes that have almost no soil. Jubatagrass plants would be great for protecting raw banks if it weren't for the fact that they crowd out our native vegetation, which is a bit slower in getting a foothold. Once the seeds are shed, the hairs are shed with the seeds and the plume collapses into an unattractive, dun-colored wad on a stick.

A guide to distinguishing the two species was given by Ms. Costas Lippmann as a table in the January 1977 issue of ***Fremontia***. Her observations were made in the area of Davis and Berkeley. On the coast, I find the flowering time otherwise. Jubatagrass blooms first, beginning in late July, with principle blooms in August, and late shoots continuing into September. *C. selloana* follows, blooming from late August, but primarily in September.

Immature shoots are a deep rosy lavender for *C. jubata*; silvery white or pale violet for *C. selloana*. Leaves of *C. selloana* appear more slender, rising in an arc to the level of the inflorescence. Jubatagrass leaves are less curled, wider, and usually are one to three feet below the inflorescence.

Female infloresences of *C. selloana* may show a few male flowers at the base; jubatagrass is all female. The inflorescence of jubatagrass arcs; that of *C. selloana* is erect. Other minor differences are give in the ***Fremontia*** table, but because of variability among plants, and some overlap, these are not always helpful.

Other Pests

Throughout the program we have been asked why we don't control broom while we are at it. We have two broom pests in the area, Scotch broom, *Cytisus scoparius*, and French broom, *Genista monspessulana*. We do not consider it appropriate to spend energy on these two exotics for two reasons: Firstly, the brooms have seed pods which ripen and explode, throwing seeds up to 20 feet. At this distance, they remain on private property and are the property owner's problem to take care of. This is in contrast to jubatagrass, where a single plant can sow a million seeds on the wind to blow hither and yon. Thus, a jubatagrass plant is a threat to the entire community, and community action is appropriate.

Secondly, seeds of the brooms are long lived, known to be viable after 80 years. Our local experience has shown that in clearing broom, seedlings will continue to germinate at high levels for over 20 years. We are not prepared to make such a long term commitment. We do not think it a good use of a volunteer's time to spend a couple of decades pulling broom for a community that is enthusiastic about the endeavor, but without effort on their part. Better to plant trees, build bird nesting boxes, rescue animals from oil spills, protest forest practices, etc.

At the same time, we are pleased to give advice to those who ask regarding the best methods to employ for them to control broom. For example, we have found that cutting broom off at or below soil level usually destroys it, where cutting it off an inch or two above soil level usually results in resprouting. The annual crop of seedlings is readily pulled in the spring before the soil dries. As the roots have nodules of Rhizobium, the seedlings can be added to the compost pile with advantage. If broom is burned, the dormancy is broken, and the seeds all germinate within a year or two.

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Retrospective

As I write this, we are beginning our fifth year in the program. Our four years of experience gives us perspective to review the program. In our first year we effectively killed 95% of the jubatagrass in the viewshed of the two principle roads between Gualala and Point Arena. Caltrans sprayed the highway right-of-way between Manchester and Gualala. Thus, we were off to a good start. The townspeople were very congratulatory, but those of us working in the field had begun to realize that this was only the surface, for back in the cañons were huge stands of big mother plants, ready to reseed the area. We were also aware of hundreds of seedlings already reinfesting areas that had been sprayed.

The chapter held a series of morning walks during that winter to acquaint persons with the appearance of jubatagrass seedlings. With a bit of experience, the seedlings became easy to recognize and were easy to pull when the soil was wet. (Gloves are recommended.)

The second year it was necessary to again cover the same area as the first year in order to get seedlings and the resprouts within clumps that had been sprayed the first year. The second time around took much less time. About two-thirds of our effort was spent working back into the cañons where the plants had colonized heavily-logged steep slopes. Much of this work was arduous. The climbing was difficult enough, even without a spray tank on your back. In some places, our spray person was let down a slope on a rope. Our leader, Bill Walker, bought a pair of woodsman's boots with caulks to help his footing, but even so, he took a couple of tumbles.

We found the sprayed clumps were slow to rot away. Jubatagrass appears to be high in silica which slows rotting. There was also a benefit from the silica. Initially, we were afraid of the potential fire hazard from the dead clumps of grass. It appears, however, that the high silica content acts as a fire retardant. The dried leaves will burn if contacted with a flame, but if the flame is removed, the fire soon goes out. There seems to be no tendency for the fire to spread within the clump.

Young flower shoots can be pulled, as the base provides a tender esculent which can be chewed raw, like sugar cane, or cooked as a vegetable, like bamboo shoots. When used this way, any silicon entering the system will complex with aluminum and the complex be excreted. In this way it could be of some value in detoxifying the system of aluminum. But we would still be left with the plant.

Unfortunately, when the third year rolled around, the plumes of jubatagrass had been absent from the viewshed long enough that the community was regarding control as a *fait accompli*. There were still many seedlings, and here and there a missed plant. I found myself annoyed with local business people who were loud supporters of the program but who would have a seedling plant blooming in front of the office window, and made no effort to dig it up or otherwise destroy it. We had two or three loyal supporters of the program who would help spray two or three mornings a week. But by and large, support from the community was waning, and the Lion's Club was turning to other projects. The community was still willing to provide funds, but the project was rapidly changing from a community project to a CNPS project.

Most of the third summer was spent working in the cañons. The realization gradually dawned that there would always be mother plants back there beyond the reach of retired gentlemen who were willing, but often unable, to scale the heights.

In the fourth season, when volunteer energies had largely evaporated, jubatagrass control became a DKY project, with little input from the community in spite of widespread approval. At this point we decided to continue to keep the major viewsheds free of invading jubatagrass, but abandoned work in the forests and cañons.

Downtown Gualala is perched on a bluff. A colony of large jubatagrass plants grow on the bluff and annually sow millions of seeds which drift over the town on the westerly winds. As yet we have no volunteers to rope down with a spray tank on their backs to spray these plants. Where we can, we cut plumes. Hopefully, we get them young before they open, bagging them in plastic bags and burying them in a landfill. If they are not bagged, the cut stalks still contain enough energy to mature some of the seeds, which then blow on the wind.

Among our members is one couple, Ed and Pauline Wrenn, who daily take a morning walk. They vary the location of their walks, and use the occasion to pull seedlings of jubatagrass along their way. And they keep count. During the year they pulled over 10,000 seedlings, which varies from two to ten inches in height, so several hundred fit comfortably into a plastic shopping bag. Removal is not difficult if the soil is moist. If other walkers in the community would also pluck the occasional seedling, our need to spray would almost vanish.

I suggest that importation of any plants of genus Cortaderia into California be prohibited, and all plants of the genus sold in nurseries in-state be vegetatively propagated from plants certified to be female plants of *Cortaderia selloana*. This should benefit the nurseries by removing the anger caused by sale of jubatagrass and by restoring pampasgrass as a legitimate specimen plant for the landscape.

Pulling Pampas: Controlling Cortaderia by Hand With a Volunteer Program

Ken Moore, Restoration Coordinator, Sempervirens Fund

"You can't possibly get rid of all this by hand." "Volunteers won't do this!" Boosted by "encouragement" such as this, the Wildlands Restoration Program was born in 1990 to help restore natural process to state park ecosystems in the Santa Cruz mountains. Although this work includes the removal of many exotic species, there is nothing like a large stand of Cortaderia to prompt this kind of skepticism. These days, though, we find the remarks have changed a bit; "You mean you did all that in less than a year *by hand*?"

I'll admit that at the outset I had no idea what to expect. I wasn't sure whether I'd eventually be the only one still out there! But now, with the program having logged over 12,000 volunteer hours in three years, I've had my horizons expanded - dramatically - as to what can be accomplished by the combined might of many caring hands.

The Santa Cruz mountains are not an easy place to mount a volunteer effort. Our sites are often remote, very steep, and sometimes only accessible after a long and demanding off-trail trek. Bringing in mechanized equipment is not an option. Neither is carrying in anything other than light hand tools. At the outset I knew that this would require a special breed of volunteer. Were they out there? They were, and are! Our ranks have more than doubled since 1991, our first full year. I'm told that the very challenge of this project has become its appeal. I've found that we are comparable to other volunteer restoration programs in the respect that we do have some people who come out only once. In addition, I feel that the specific nature of any program will cause it to be self-limiting; you can lose some people by not giving them enough of a challenge, too!

By now you may be saying, "Well, they probably do some pretty small scale projects. I'll bet they don't tackle anything *really* big." You'd be wrong. A team of 10 to 12 seasoned volunteers will normally clear between 2,000 and 5,000 square feet per day (4 to 5 hours of actual work) depending on site specifics. We're talking dump truck loads here. We now have completely eradicated areas that I thought were impossible to do by hand when I first saw them.

Another comment we frequently hear is, "Why don't you just spray it?" First, it is state park policy that herbicides are only used when no other alternative is available. It's a policy I support. Many people have told me that one of the reasons they work with us is because we don't use herbicides. Second, water is not usually available on-site, and carrying the required amount of pre-mixed herbicide into these remote areas would be very difficult. In our rugged terrain there is a constant danger of a spill. Third, after having done some experiments with herbicides on Pampasgrass, I have found that one or more follow-up trips to the site were sometimes required to achieve complete kill. Again, the remoteness of our sites dictates that a lower overall expenditure of time and energy is used to dig out the plants by hand - just once.

For a hand removal program to be effective on a large scale, the choice of tools and techniques becomes critical. Since we were limited to hand tools from the beginning, we have tried every tool and method we could find, and a few we came up with on our own. Over the years we have narrowed the selection down to just two.

The most versatile tool is the Pulaski, a tool originally adapted for forest fire fighting by welding an adze head onto the back of a single-bit ax. We have found it to be nearly idea for Pampasgrass uprooting, with no modifications other than some specialized sharpening. The ax edge is sharpened normally, but the adze edge should be sharpened with a double bevel. The first bevel is quite long, and its purpose is to remove enough thickness in back of the edge to allow the tool to penetrate the dense root crown more effectively. The second bevel defines the cutting edge, is quite narrow, and its angle will depend on whether rocks are present in the soil. If so, the angle must be reduced to protect the edge. You want the steepest angle on the edge that site conditions allow, as this greatly increases its effectiveness. I can't overstate the importance of proper sharpening. This is hard work, and people simply will not stay with it unless they are making real progress!

Use only the adze edge on smaller plants. Swing down and bury the edge under the far side of the root crown. On first year plants, one or two good swings will usually do it. With the edge hooked well under the root mass, push the handle forward, and lever the root up and out. On plants a bit larger, it may take a few more swings to loosen it enough to lever it out. On the really big plants, first cutting away the leaf mass is a big help. (Pampas leaves have very sharp edges and can inflict a nasty cut, made worse by an irritant contained in the leaves.) Also, this allow access to the root crown for much quicker (and more pleasant!) removal. I often use a machete for this, but I do not recommend the machete for volunteer use. It is a very dangerous tool, especially if it is as sharp as it needs to be for this task. The Pulaski can also be used to do this job by using the ax end and chopping at an angle down into the leaf mass with angled swings. I have also used a chain saw to remove the leaf mass, but there's nothing like a screaming chain saw to ruin the magic of being with nature in a wild and beautiful place!

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Make sure your new volunteers are advised to wear long sleeves and pants, and boots, if possible, when working on Pampas projects. I have seen arms and legs actually swell up badly from the leaf cuts. Needless to say, this is not conducive to keeping volunteers! I try to schedule Pampas projects in cooler months to facilitate this.

A word on safety. The Pulaski's two opposing sharp edges, which make it such an effective tool to use, also make it a potentially dangerous tool. At the start of the day, people need to be told how to carry it and use it safely. Make sure that no one works within swinging distance of anyone else, and alert everyone about not walking behind someone swinging a Pulaski. I chalk our perfect safety record up to being religious about the morning safety talk, if I have any new volunteers, and continual monitoring through the day. If, after coaching, a person is still not able to use the tool effectively, have them do another job - seed plume gathering and disposal, for instance.

Once the leaf mass is out of the way, you're ready to start surgery. Large plants are made up of many small root crowns connected by myriad small runners. You use the Pulaski to cut through the runners by alternately cutting with the ax edge and chopping with the adze edge, like cutting a cake into squares. When the connecting runners are severed, the individual root crowns are easily removed. You needn't dig out all the small root-hairs radiating from the root crown, but any portion of the root crown left in the ground will likely produce a new plant.

The average life span on Cortaderia is about 15 years, so very large plants often represent many generations and consist of a large and mostly dead mass of old leaves and root crowns within which younger Pampasgrass seedlings often take root. Applying what I call selective surgery in these situations (cutting out just the living tissue) can save much time and effort. A word of caution - it can be tricky to be ascertain which plant parts are alive, and if you miss any live parts, you will probably soon be looking at new growth. If the plant is fairly dry, I take off my glove and touch the back of my hand to the questionable part. Live tissue will be transpiring moisture and will be cool to the touch. This isn't reliable in cold or wet weather though, and the rule is "When in doubt, cut it out."

Because the Pulaski will do any task needed (including cutting through downfalls and carving footholds on steep slopes to get to the site!) it's usually the only tool we take to remote sites. If we're working near the truck, we sometimes use a shovel variously called a transplanting spade, a drain or tile spade, or a "Montana Sharpshooter." This is a short-handled shovel with a long, narrow, and very heavy, forged blade. Some makers only offer it with a square nose, but it is much more effective for this use if ground to a rounded point and keenly sharpened. This is an effective tool when working on steep slopes if employed as follows: have one or two people stand below the plant and pull the top of the plant downhill while another person starts to undercut the root crown from above with the shovel. It will be easier, as more roots are severed, to pull it on over, and, after a certain portion of the roots are cut, its own weight will help to break it free. Make sure any root crown parts left in the ground are removed.

This tool is only available through nursery supply houses and other professional sources - and it is expensive; from $70 to $100. (Pulaski's are about $30.) You can buy a cheaper and much lighter stamped-blade version at hardware stores, but the blades will literally bend backwards when the shovel is used as a lever - which, rest assured - it will be. This is one of the reasons we don't use regular long handled shovels; the handles break. I was told another crew once broke eight handles in one day this way. In our remote sites, breaking a tool means that person is out of commission for the day. Fiberglass handles are stronger, but the blade on this tool is at too much of an angle and too short to be effective as a deep penetrating cutting tool.

Each Cortaderia seed plume contains many thousands of seeds, and jostling will release them, so carefully remove the seed plumes before attacking the plant. Bending the stalk over will often break it at a node, which saves cutting it. If you can, dispose of plumes by deep burial. If this isn't feasible, make sure they are in permanent deep shade and where they cannot catch the wind. *Don't* bag and take them to the dump; plant refuse should not take up landfill space, and the bags may be broken open and spread by the dozers there. Dumps with an expanding rim of Cortaderia along the edge are becoming an all too familiar sight. If you can remove seed plumes before they release their seed from colonies of Cortaderia that you haven't been able to dig up, you will prevent seed production for the season. However, you may need to make follow-up trips back to the site. Cortaderia can produce new seed plumes continuously as long as warm weather prevails.

After a plant is removed, make sure that no part of the root mass is touching the ground, or it may resprout. We turn the plant upside down, shake or scrape off as much dirt as possible, and prop it up so the sun will dry out the roots quickly. A large Pampasgrass still contains enough stored energy to send new roots down through its own leaf mass and re-root, even when all this is done! In addition, taking the time to distribute a thick layer of vegetation over the ground you've just disturbed will help to prevent the germination of Pampas seeds, which are sure to be present. We use the Pampas leaves as part of this mulch. I do follow-up checks for regrowth on all sites.

Continued page 9

Building a Successful Volunteer Program

Volunteers can be recruited in sufficient numbers if all available channels for "getting the word out" are utilized. Many people are frustrated by the escalating environmental degradation they see and read about, and are eager to do something "real" to help. You must find ways to reach them. Newspapers, radio and TV stations will list your events, usually at no charge. Send them a press release listing all the particulars of your event. If you have an ongoing project, you may need to send it in regularly as they will often drop your listing if you don't. Volunteer exchanges are excellent sources. Contacting high schools, colleges, corporations and philanthropic groups can get you a whole group of volunteers. And have patience. It takes time for a volunteer program to build momentum.

The single most important hurdle in tackling seemingly insurmountable projects with hand work is not so much the reality of the task. It is each new volunteer's sense of being overwhelmed at the scale of the task that you are actually up against. People almost universally underestimate what they will accomplish in a day, let alone in a year! New volunteers often look a bit overwhelmed when first viewing a project, but then they see that the "old hands" are starting right in, not a bit impressed with it all. At the end of the day, they're amazed - and thoroughly charged - by how much they've gotten done! I think this is a pivotal factor in turning first-timers into believers. When people are empowered by a sense of accomplishment that exceeds their expectations, they will be back.

One way to minimize the problem of perceived "doability" is to pick a project that can be finished with the teampower you have that day. If this can't be done, clearly define an identifiable goal that can be realized that day. People will stay with it if they sense completion within their reach, even if that means putting in a little "overtime," as long as the goal you've set is attainable. If the goal is achieved early, I let them know I'm impressed. Early achievement of a goal can be empowering! It can even inspire a team to keep going on their own initiative. More than once I have found myself at the end of the day telling a still hard-working team that it's time to start heading back. Now, *that* is satisfying!

People need to know how much time they'll be asked to commit each day, but be ready to adjust this if conditions dictate. If people want to stay longer, be accommodating, if you can. (I'm a known pushover on this one!) If it's a miserable day for any reason, be willing to call a halt early - really early, if you need to. The important issue here is not the completion of the day's project, but that *people remember each day positively.* If they do, they'll be back, and it's the ones who keep coming back that are the life force of a program. Also, a high ratio of people who keep coming back is the best indication that you're doing something right!

As a project leader, I think it's of great value not to ask your volunteers to do anything you're not doing yourself. If need be, see if you can find someone to supervise field work who can stay shoulder to shoulder with them out there. I'm often told that this has been a significant factor in keeping people in our program.

Delegating responsibility to experienced team members is an effective way to show your "core" people just how valuable they are. This will really cement their bond to the program, and relieve you of some of the load at the same time! We hold a regular monthly potluck which is an excellent way of building this feeling of belonging for all. It's also a great way for the team to get to know each other in greater depth than occurs in the field. Sometimes, after a really good day, I'll treat everybody to a long, cool one, and maybe something to eat. It's another good way of letting your team know they're special to you.

It is also important to provide inspiration in the form of stimulating discussion in which all are encouraged to participate on the value of nature, restoration, and, most importantly, what *this project* will mean to *this* ecosystem. We normally do this at lunch, but I will often call a temporary stop to the day's work to point out something which presents itself at that moment and show them how nature will heal itself because of their efforts. This will make them feel personally connected to the land and to the value of their work. Encourage them to come back to the site in the future to witness the miracle of renewal each of them has helped to bring about.

In addition to accomplishing your restoration objectives, a volunteer program will help to increase public awareness not just of the problem of invasive exotics, but of other ecological issues, and provide the personal satisfaction that comes with hands-on helping. In the long run, I believe this will be our most effective tool to achieve our goal of restoring healthy, functioning ecosystems and simultaneously help people to understand their own role in ensuring our planet's continued vitality.

As I write this, we are deep in broom season, racing the clock to prevent seed set, with no time to think about other projects. But at lunch last Saturday, I asked everybody what their favorite projects were. About two thirds replied "Pampasgrass." This, in spite of the fact that nearly everyone who has every worked with me, including this group, agrees that Pampasgrass eradication is the hardest thing we do. Might be a lesson here; sometimes adversity *can* work to your advantage.

Hands-On Alert; Exotic Removal Projects Around the State

Greg Archbald and Nelroy Jackson

If you live in the SF Bay Area, the following great opportunities to get involved with volunteer groups that control exotic pest plants of natural areas has been supplied by Greg Archbald:

Golden Gate National Recreation Area:

The **Habitat Restoration Team** meets every Sunday from 9:30 to 2:30 to remove invasive, non-native plants, and (in winter) to plant native plants. Call Bonnie Galvin, 415.776.1607, EXT 236 for information.

A new **Site Stewardship Program** matches volunteers to specially selected stewardship sites to do a wide range of habitat monitoring, restoration planning, and restoration work. For information, call Sue Gardner, 415.776.1607, EXT 250.

Santa Cruz Mountains

The **Wildlands Restoration Team** goes out every Saturday to remove French broom, Pampasgrass, and other exotics. Call Ken Moore, 408.662.3039.

Nelroy Jackson supplied this list of contacts for *Arundo donax* removal projects around the state:

Kern National Wildlife Refuge (Audubon Society)	Bob Barnes	916.481.5332
Pixley National Wildlife Refuge (Audubon Society)	Bob Barnes	916.481.5332
Team Arundo	Paul Frandsen	909.275.4305
Riverside Land Conservancy	Shelton Douthit	909.788.0670
Santa Ana River (Riverside Flood Control)	Dewayne Butler	909.275.1311
Santa Margarita River	Gary Bell	909.699.1856
Angeles National Forest - USFS	Shawna Bautista	805.296.9710
San Juan Creek, South Coast Audubon	Monique Rea	714.493.4834
Caltrans, San Diego	John Rieger	619.688.6754
Cottonwood Creek Conservancy, San Diego/Encinitas	Mary Renaker	619.942.1506
Fallbrook Village Association, San Diego	Ted Young	619.723.8384
Friends of Famosa Slough, San Diego	Jim Peugh	619.224.4591
Friends of Los Peñasquitos Canyon Preserve, SD	Mike Kelly	619.566.6489
Mission Trails Regional Park, City of San Diego	Dan Bylan	619.525.8283
San Diego County	Jon Avery	619.694.2832
Sweetwater Authority	Dennis Bostad	619.420.1413
Coyote Creek/Los Gatos Creek, Santa Clara Valley	Sally Walters	510.286.6226
Uvas Creek - Gilroy and Salinas River	Fred Houwink	408.732.8566
Friends of the LA River	Richard Doucé	310.437.4365
Simi Valley	John Baskin	818.792.2382
Joseph Jensen Filtration Plant	Marie Campbell	818.683.3547
	Ellen Mackey	213.217.6194
Simi Arroyo, Caltrans, Moorpark	Monica Finn	213.897.0687
Santa Clara River, Caltrans	Monica Finn	213.897.0687
San Gabriel River, Azusa/Duarte	Mark Durham	213.894.6423

Go for it and help the CalEPPC cause first-hand!

CalEPPC Welcomes New Members

Our membership is growing! CalEPPC warmly welcomes the following people and organizations who have joined in May and June:

INSTITUTIONAL Esalen Institute

INDIVIDUAL

Melinda Benton	Grant Fletcher
Stuart Gray	Richard Greek
Teri Knight	Cheri Rohrer
Jan C. Scow	Michael Sweesy

1994 Calendar Year Dues

Membership Categories

	Individual	Institutional
❑ Student/Retired	$15	
❑ Regular	$25	$100
❑ Contributing	$50	$250
❑ Sustaining	$250	$1,000
❑ Lifetime	$1,000	

❑ Other Gift $_____

Please make check payable to: **CalEPPC**. Mail your form and check to:

CalEPPC Membership
c/o Sally Davis
P.O. Box 711
Cambria, CA 93428

Join CalEPPC Today!

If you 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 members are welcomed!

Name _____

Organization _____

Address _____

City, State, Zip _____

Office Phone _____

Home Phone _____

FAX _____

Letter from the Editor

Dear CalEPPC Member,

The CalEPPC Board of Directors is seeking your help. We need your assistance in expanding the CalEPPC membership. You may call or write me for brochures, membership applications, and symposium registration forms guaranteed to dazzle your friends and impress your associates. CalEPPC particularly needs corporate sponsors. We know times are tough and money is short. And we need your help.

How would you build this organization? Who would you target as prospective members? Any particular group? Could you provide CalEPPC with a list of restoration consultants to target for membership?

We are looking for a membership coordinator to take charge of this campaign. Please help us recruit new members and get involved in the CalEPPC membership drive. You may contact me or any other CalEPPC board member listed on Page 2.

Thanks for your assistance!

Sally Davis, editor

Call for Posters

Michael Parker

Posters addressing all areas of exotic plant control in wildland ecosystems of California are sought for CalEPPC Symposium '94. Poster presentations regarding research, control methods, tools, products, inter-agency cooperation, local environmental group accomplishments, or other related topics must be submitted no later than September 9, 1994.

Easels and/or tables will be provided. The poster room will be employed as the conference break room, as at last year's smposium, and we expect large groups of people to gather there daily, and during the poster session on.

The poster room will first be open to symposium registrants at 7:00 a.m., September 30th for coffee and continental breakfast. The poster session is scheduled for Friday, September 30th, between 5:00 p.m. and 7:00 p.m.

The poster room will be available for setup Thursday, September 29th after 4:00 p.m. Materials are to be removed on Saturday, October 1st between 10:00 a.m. and 12:00.

Persons or organizations wishing to present posters or displays at the CalEPPC Symposium '94 are asked to send the title, a brief abstract, and telephone number to: Michael Parker, San Francisco Bay NWR, P.O. Box 524, Newark, CA 94560. For additional information, contact Mike at 510.792.0222 (day) or 510.795.6766 (evening) or FAX 510.792.5828.

Upcoming Meetings

- **August 7 - 11 1994, Knoxville, Tennessee**
  Ecological Society of America/American Institute for Biological Sciences Annual Meeting. For more information, contact Louise Salmon, AIBS, 730 11th Street, NW, Washington, DC 20001; 202.628.1500.
- **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, 517.483.9675, FAX 517.483.9619.
- **September 30 - October 1, 1994 Sacramento, California**
  CalEPPC Symposium '94 to be held at the Hyatt Regency Sacramento at Capitol Park. **Registration**: contact Sally Davis, 805.927.0881. **Posters**: contact Mike Parker at (w) 510.792.0222 or (h) 510.795.6766.
- **October 8 - 11 1994 San Antonio, Texas**
  1994 Annual Meeting & Expo, American Society of Landscape Architects. Keynote speaker will be Henry G. Cisneros, Secretary, U.S. Dept. of Housing & Urban Development. An important focus of the program will be on water, with educational sessions dealing with rivers and streams, conservation, floodplain management, wetland mitigation banking, and constructed wetlands for wastewater treatment. For information, contact ASLA at 202.686.2752.
- **October 17 - 22 1994 West Palm Beach, Florida**
  1994 Natural Areas Conference to be held at the Palm Beach Gardens Marriott. The 21st annual conference will be hosted by the South Florida Water Management District. For information, contact Bill Helfferich at 407.687.6637.
- **October 28 1994 Davis, California**
  TNC, NPS, and several agencies will sponsor ***California Conference on Ecosystem Management*** in late October. For exact dates and more information, contact David Diaz, 415.705.1891.

CalEPPC NEWS
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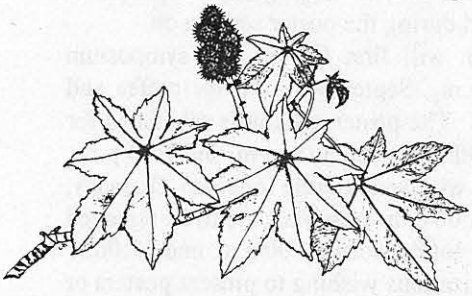

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