



Cal EPPC News

***Protecting California's Natural Areas
from Wildland Weeds***

Vol. 11, No. 1, Spring 2003

Quarterly newsletter of the California Exotic Pest Plant Council



Yes, Calla lilies. In Western Australia, which has a Mediterranean climate similar to ours, *Zantedeschia aethiopica* is commonly known as arum lily. It is also known as an aggressive invader of forests and forested wetlands. This photo was taken mid-September (late winter) by John Randall of The Nature Conservancy's Wildland Invasive Species Program about 135 km south of Perth near the Tuart Forest National Park. What lessons in prediction might we learn from invasives in other Mediterranean climates? Our lead article from two Australian researchers addresses this important issue.

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California Exotic Pest Plant Council

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A California 501(c)3 nonprofit organization

Our Mission

CalEPPC works to protect
California's natural areas
from wildland weeds through
research, restoration, and education.

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From the Director's Desk

Quick, what time of year do the rains come?

For most people in the world, the answer would be, "Summer!" But for most Californians, the answer is, "Winter, of course." Our "Mediterranean" climatic regime of hot summer drought and winter rain is found over only 2% of the world's landmass. Besides California and the Mediterranean Sea area itself, three other regions have a similar climate: Chile, the tip of South Africa, and western and southern Australia.

Because wildland weeds are often climate dependent, many of our invasives come from these other Mediterranean climate regions—eucalyptus from Australia, brooms from the Mediterranean, Cape ivy from South Africa, and *Spartina densiflora* from Chile, for instance. Likewise, California natives can misbehave in other Mediterranean regions—California poppies and Monterey pine, for instance, are invasive in Chile, Europe, Australia and New Zealand. Of course we import weeds from other climatic regions, and export to them as well, but there is a special ecological link between the world's Mediterranean climate zones when it comes to invasive exotics.

What are the implications of this? For one, plants that have proven themselves to be invasive in one of these regions should be considered potentially suspect in the other regions. In hopes of thwarting further invasions, such information can put us a step ahead for potential invasives not yet established in one of these regions. Our cover article addresses this very issue. The Australian authors examine how several of their weeds (which are sold in nurseries here) might fare in California wildlands by using a climatic model that assesses where a particular plant may be able to naturalize.

The link between Mediterranean climate zones also means that we need to work together. The Australian article demonstrates one way in which we can join forces to predict potential invasives before they get started. There are other effective ways to collaborate. The International Broom Initiative's efforts to develop biocontrols for a family of brooms and gorse is a great example. By coordinating research among all areas infested with broom—including California, Oregon, Washington, British Columbia, Hawaii, New Zealand and Australia—and by working on Scotch, French, Spanish, Portuguese and other invasive brooms together, the project is designed to accomplish much more than could any one country working on any one plant. We need all the efficiency we can get.



From www.themediterraneangarden.org/climate/map.cfm

Wildland Weed NewsNewsNewsNewsNews

The **Center for Invasive Plant Management** (CIPM) in Montana has awarded grants to three WMAs in California—Butte County for water-milfoil control, Yolo County for mapping sloughs and roadside revegetation, and Lake county for outreach and education. Online applications for this year at www.weedcenter.org.

Members of the **International Broom Initiative** presented the project at a USDA-sponsored forum at their Albany lab January 17. IBI is again working with California's congressional delegation to submit a funding request for the lab to research biocontrols for brooms and gorse. Project partners from Oregon, Washington, Hawaii, British Columbia, Australia and New Zealand advocating for the \$1.4 million request point to the high ecological and economic costs of expanding

broom infestations and the need for a cost-effective strategy that address these infestations on a landscape scale. www.caleppc.org

Funding for **CDFA weed programs** has been cut severely in the governor's proposed 2003/04 budget. When combined with December's cuts, this latest cut chops the program by 50%, severely reducing staff and operating expenses in the Biocontrols and Weed & Vertebrate programs. This cut will have long-lasting impact on our ability to control weeds in the state, and CalEPPC, with partner organizations through the California Invasive Weed Awareness Coalition, is campaigning to have these cuts reversed. Your voice can help in this matter. To express your concerns, see sample letter and information at www.caleppc.org.

Congressman Hefley (R-CO) and Senator Craig (R-ID) have reintroduced the **Harmful Invasive Weed Control Act**, which seeks \$100 million a year until 2006 for local weed management groups nationwide.

CalFlora, the much-used online botanical database, closed shop February 1 due to insufficient funding. Staff and volunteers continue to pursue sources of stable funding, with the goal of reopening as soon as possible. Visit www.calflora.org for more information.

Save the date!
CalEPPC Symposium
October 2-4, 2003
North Tahoe
Conference Center

Board Changes

The CalEPPC Board of Directors welcomes two new members—Carri Piroso of Redding and Deanne DiPietro of Petaluma. Carri coordinates weed outreach in northern counties for the California Department of Food & Agriculture, and is keenly interested in education. Deanne works with the Sudden Oak Death Research Project at Sonoma State. She has also been involved with Team Arundo del Norte, and was instrumental in developing the state's weed mapping handbook released last September. Their experience and energy will be a great addition to the board!

At the same time, we extend our gratitude to outgoing directors Carl Bell of UC Cooperative Extension in San Diego and Paul Caron of CalTrans in Ventura for their dedicated work on the board over the last two years. This was Carl's second tour of duty, and we greatly appreciated the experience and insight he brought to our strategic planning. Thanks!



Mule power. Britt Schumacher of the Tehama County Agriculture Department, riding Charlie Horse, takes Brittany the mule into dry creek beds to spray arundo and tamarisk. This spring he plans to use her for a small brush control project in steep country that's difficult to access. Britt got the trained mule from a successful weed program in Idaho.

Weed warning from downunder

The weed potential of selected South African plants in cultivation in California

By Roderick P. Randall and Sandra G. (Sandy) Lloyd
Department of Agriculture, Western Australia, and
Cooperative Research Centre for Australian Weed Management

Reprinted from the proceedings of the
13th Australian Weeds Conference, held
Sept. 8-13, 2002, Perth, Western Australia.
H. Spafford Jacob, J. Dodd, J.H. Moore, eds.
Council of Australian Weed Science Societies

The authors propose that any plant both: (a) native to one Mediterranean climate region, and (b) a known weed in at least one other, should automatically be viewed as a threat to other Mediterranean climate regions where it has not yet naturalised, or has only a limited distribution.

The focus of this paper is on species native to South Africa that are weedy in the southwest of Western Australia (Hussey *et al.* 1997) and available in the horticultural trade in California. The species selected are three geophytes—**bridal creeper** (*Asparagus asparagoides* (L.) W. Wight, Asparagaceae), **watsonia** (*Watsonia meriana* (L.) Mill., Iridaceae), and **arum lily** (*Zantedeschia aethiopica* (L.) Spreng., Araceae)—and the small tree **taylorina** or blue scurf pea (*Psoralea pinnata* L., Fabaceae). Two Australian species, **bluebell creeper** (*Sollya heterophylla* Lindl., Pittosporaceae) and Victorian **tea tree** (*Leptospermum laevigatum* (Gaertner) F.Muell., Myrtaceae), are also discussed briefly.

METHODS

The native and naturalised distribution data for the three geophytes and taylorina in both South Africa and southwest Western Australia were determined and analysed, with CLIMATE predicting back to the world dataset to determine just how much of California would be suitable for establishment.

CLIMATE is a predictive application that uses long term meteorological station data from within the known range of a plant to determine similar climates within Australia. Originally developed by the Western Australian Department of Agriculture, and based in part on BIOCLIM (Nix 1986), this software can also be used to analyse back to the large global meteorological station data of 9,460 weather stations. In countries where station coverage is very high, such as the USA, good predictions can be obtained.

CLIMATE uses 16 climatic variables, all derived from long-term monthly temperature and rainfall data. The output parameters in the prediction maps (Figures 1-4) equate to 0-30% variance from ideal climate (black squares) to 30-50% variance from ideal climate (open circles) based on the ideal native and naturalised climate mean. The black squares represent those areas most at risk of the analysed species establishing and becoming problematic.

The naturalised range in Western Australia (WA Herbarium 1998) was included in each analysis to increase the efficacy of the predictions. In many cases a species can survive climatic conditions overseas outside those it inhabits in its native range, and a subsequent CLIMATE analysis may predict a wider coverage than if the native range, alone, were used. This ability to adapt to or tolerate a range of climates is a common characteristic of many weed species.

RESULTS

All four species analysed by CLIMATE showed good climate matches for

significant areas of California, from Sonoma County south to San Diego County. There were also a few locations further north in Washington state where populations of these species may establish, although the cooler winters may limit their spread and impact.

Bridal creeper is found along the south coast of South Africa and northeast through the Drakensberg into the Transvaal (Kleinjan and Edwards 1999). It was introduced to Australia in the mid-1800s and earned its common name through its widespread use in bridal bouquets and floral arrangements. Populations increased dramatically in the late 20th century to the point where it was named as a Weed Of National Significance (WONS) in 1997 (Anon 2001). Bridal creeper occurs from Dongara to Esperance in Western Australia, as well as other areas across southern Australia, and has been recorded as naturalising in California near San Diego, Los Angeles and San Francisco (CalFlora 2002). The CLIMATE prediction (Figure 1) shows that large areas of the Sacramento and San Joaquin Valleys around Los Angeles, San Louis Obispo and San Diego are climatically suitable for establishment of bridal creeper.

In South Africa, taylorina occurs along the coast from the Western Cape province inland to Lesotho and north to the Transvaal and is commonly found around wetlands or soaks (Palgrave 1996). Introduced to Western Australia as a source of honey, taylorina has naturalised extensively along the wetter south coastal fringes from Albany and Denmark to Margaret River and moist areas around Perth.

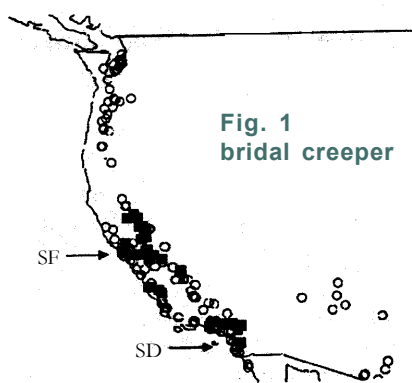


Fig. 1
bridal creeper

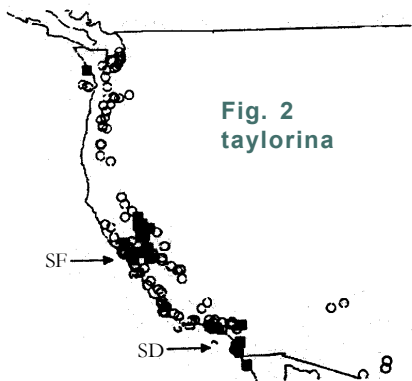


Fig. 2
taylorina

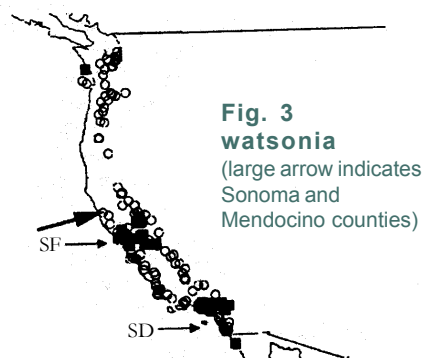


Fig. 3
watsonia
(large arrow indicates
Sonoma and
Mendocino counties)

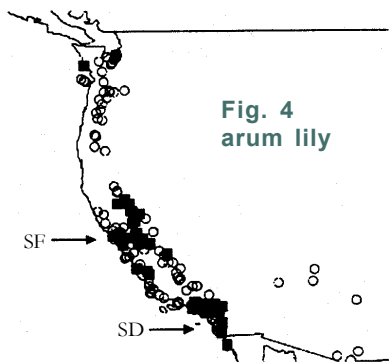


Fig. 4
arum lily

Taylorina is not yet known to be naturalised in California; however, plants are available from at least once source in San Francisco (Potrero Gardens 2002). The CLIMATE prediction (Figure 2) shows large areas of the Sacramento Valley, Los Angeles and San Diego to be climatically suitable for its establishment.

Watsonia is distributed along the southwest Capes of southern Africa (Goldblatt 1989) and was common in cultivation in Australia prior to being recognised as a 'garden thug' (Randall 2001).

Watsonia has naturalised through much of the southwest of Western Australia, as well as other areas across southern Australia. Already well naturalised in Mendocino and Sonoma counties in California (CalFlora 2002) watsonia is recognised as an invasive species in the County of Mendocino town planning regulations (County of Mendocino 2002). The CLIMATE prediction (Figure 3) shows large areas of the San Joaquin Valley and around San Diego and Los Angeles to be climatically suitable for establishment.

Arum lily, also known as calla lily, is a widely used ornamental around the world. Its distribution in South Africa stretches along the coast from the Western Cape province, inland to Lesotho and north to the Transvaal (Scott 1997). It is extremely invasive in Western Australian wetlands and irrigated pastures, particularly in the Busselton-Margaret River area, and is also naturalised in other southern States of Australia. Arum lily has already been noted naturalising around old homesteads and seeps in Sonoma, Monterey and Santa Clara counties (CalFlora 2002 and Randall pers. comm. 2002). The CLIMATE prediction (Figure 4) shows that large areas of the Sacramento and San Joaquin Valleys, Los Angeles, San Louis Obispo and San Diego are climatically suitable for establishment.

DISCUSSION

Many countries are looking at risk assessment to identify and prioritise weed threats for a range of reasons, including:

- increased knowledge about the threat of invasive plants to natural ecosystems;
- knowledge of the 'sleeping weed'

concept (i.e. the long lag phase between introduction and impact);

- trends towards an holistic biosecurity approach rather than just quarantine for agriculture;
- the adoption of quarantine policies that are based on formalised weed risk assessment rather than simple prohibited species lists; and
- increased pressure from communities expecting more from quarantine systems.

Some of these assessment processes are time consuming and costly, and it is often difficult to obtain data on particular species.

Many scientists consider that many parts of the world are entering an 'homocene' era, or a 'Mc-Donaldisation' of the world's species. That is, the replacement of regional diversity by homogenous ecosystems, characterised by cohorts of invasive species that are the same worldwide. The Mediterranean climate regions are no exception and, because of their mild climate and high human populations, are likely to be the worst affected regions. There is no shortage of examples of Mediterranean species that have made an impact around the world, including the ubiquitous charlock (*Sinapis arvensis* L.), which is found on every continent and is a weed of crops in over 50 countries (Holm et al. 1997) and common privet (*Ligustrum vulgare* L.) which was a favoured garden plant for centuries and is now a major environmental weed on several continents.

The Mediterranean climate is characterised by having cool, wet winters and warm to hot, dry summers. Regions sharing this climate are the southwest of Western Australia, parts of South Australia, southwestern California, southwestern Africa, parts of Chile and the Mediterranean basin itself.

Examples of Australian native species with demonstrated weedy behaviour in Australia that clearly indicate potential invasiveness in similar climates overseas, are bluebell creeper and Victorian tea tree.

Bluebell creeper, a popular garden plant native to southwest Western Australia, has become an environmental weed in southeastern Australia, creating dense clumps that grow over existing

downunder...

...continued from previous page

native vegetation (Blood 2001). It is present from Sonoma County to San Diego County (Hickman 1993) in California, but is not yet known to have established in South Africa.

Victorian tea tree, a native of south-eastern Australia, was used as an ornamental, coastal dune stabiliser and windbreak (Blood 2001). After being introduced to Western Australia, it quickly spread into coastal heath and woodlands in the lower southwest, creating dense thickets. It is a declared noxious weed in South Africa (Henderson 2001) and is also present in California (CalFlora 2002).

Climate matching programs such as CLIMATE or CLIMEX (Sutherst and Maywald 1985) are useful tools for predicting where such species may establish, but are not essential when generalising for major climatic types. Because of their demonstrated weediness in Australia, both Australian species mentioned should be considered to have significant potential to establish in other Mediterranean climates.

It is worth noting that predictions for three of the four species analysed show a small area near Aberdeen in Washington state (Figures 2-4) to be climatically

suitable to allow growth. This is a reminder that this type of analysis can only indicate the gross areas of climatic suitability, whereas many smaller microclimates with their potentially unique vegetation might not be indicated as suitable.

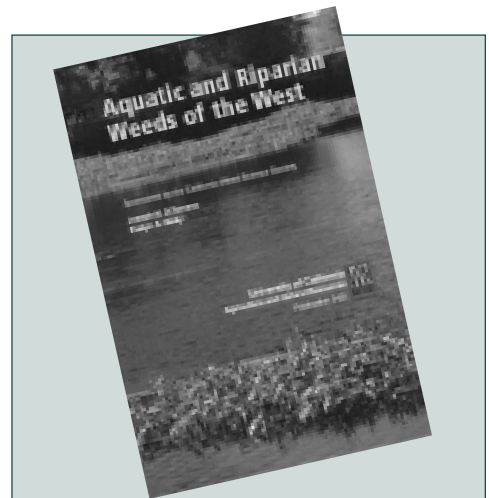
The documentation of known invasive plant species within identified climate types can be a fast and effective means to identify potential new weeds in regions with the same climate type.

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Arum lily in a woodland. Photo by John Randall, taken in Australia's Leeuwin Naturaliste National Park. The majority of trees in the overstorey are *Agonias flexuosa*, commonly known as peppermint or willow myrtle (Myrtaceae).



The California Weed Science Society is publishing a comprehensive identification manual for aquatic and riparian weeds west of the Rocky Mountains, with 560 color photos of 170 species of submerged, floating leaf, and emergent aquatic weeds. \$5 discount for pre-publication orders! www.cwss.org/aquatic_book.htm

Species Focus

Oxalis pes-caprae

By Jake Sigg

If one needs an illustration of the function of natural controls on an organism, they need look no further than yellow oxalis (aka sour grass or Cape sorrel, *Oxalis pes-caprae*), a scourge of the California coast. It is a rare and endangered plant in its home range of South Africa, where native fowl eat the foliage, a



© Br. Alfred Brousseau, Saint Mary's College

mammal digs the bulbs, and parasites infest bulbs. Freed from these energy-suckers in California, its spread near the coast is untrammelled.

The purpose of this article is (a) to elicit help in determining how yellow oxalis disperses, (b) to heighten awareness of its surreptitious spread, and (c) to suggest removal techniques and potential problems with those techniques.

People are incredulous when learning that viable seed from this plant has never been reported in California. After absorbing this information, their exasperated question follows: but HOW does it get around? Oxalis' abundant production of bulb offsets and lateral runners partially accounts for it but doesn't fully explain its alarming spread—how it travels so fast, how it gets across the road, or one hundred yards up the hill, or into a second-floor flowerbox. Contaminated soil may account for some occurrences

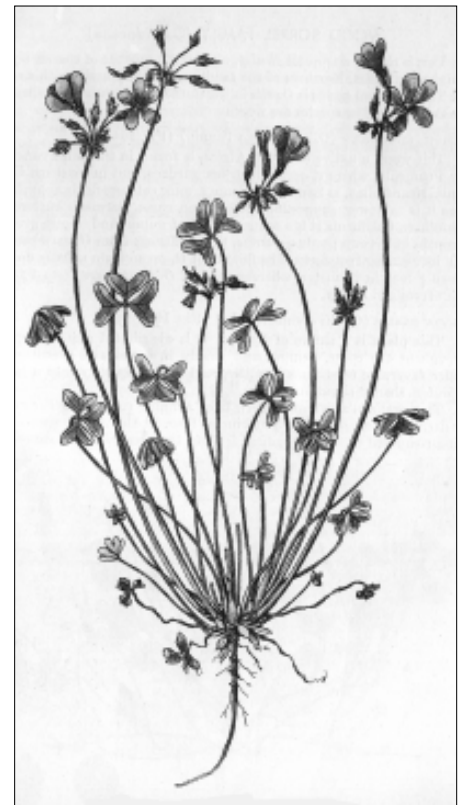
like the window-box, but that can't explain all the populations, especially in wildlands.

The latest version of the CalEPPC weed lists published in 1999 dodged the question of how to rate yellow oxalis, treating it as “needing more information.” Up to then it had been considered a weed of disturbed areas (a relative term—is there any part of low-elevation California that is not disturbed?). At this time oxalis began rising on my personal worry list and in the last three years I have become panic-stricken as I see it proliferating across landscapes. In heavy soils it multiplies rapidly; in sand it explodes. In a remnant native plant community occupying a stabilized sand dune near my house in western San Francisco, I watched a small semi-circular infestation with an approximate radius of twenty feet spread seemingly exponentially in approximately fifteen years to dominate the whole ten-acre natural area, which is now on its way to becoming a monoculture. I wasn't watching its progress that closely because I was too busy with other concerns, but it surely did not spread entirely by lateral runners. It must have leap-frogged, but lacking time-lapse photos, that will never be known. Now it may not be possible to save the site's biological community.

I don't know how or when it came to California. Bailey's 1930 *The Standard Cyclopedia of Horticulture* listed it (as *O. cernua*), so it was probably in the horticultural trade then. It is not listed in the wild in the 1925 Jepson Manual. The first mention of it as a weed known to me was the 1951 Robbins, Bellue, and Ball *Weeds of California* as *O. cernua*. They reported it in orchards in the San Francisco Bay Area and southern California. It may have been more widespread than that, and it may have been in cultivated sites before 1925. It has been in the Mediterranean area since the 18th century and it doesn't produce seed there either.

It certainly does like disturbance. (On an amusing side note, a weed brochure produced in the Bay Area recommended getting rid of oxalis by rototilling, a sure-fire way of quadrupling its numbers overnight! Please, please—don't throw me

in that briar patch!) However, it no longer requires active soil disturbance to establish, and it is an increasingly aggressive invader of native plant communities. Once established in a grassland, dune, or even shrubland, its advance is inexorable and without human intervention the outcome is inevitable. Although it is active only during the brief rainy season, when days are short and the sun is low in the sky, populations nevertheless rapidly expand, displacing plants that are photosynthetically-active year-round. Free of the need to produce extra energy to support wildlife (nothing eats it), the robust photosynthetic engine pumps out enormous quantities of energy to pro-



from Robbins, Bellue, and Ball, *Weeds of California*, 1951, p272

duce—in about February or early March—prodigious bulb offsets and lateral runners to invade surrounding areas and to muscle out even plants much larger than it.

A lateral runner travels several inches at a time; it is a peculiar fat, translucent organ resembling an icicle, with emergent slender, white, one-inch shoots at the tip (see illustration next page). It inserts itself

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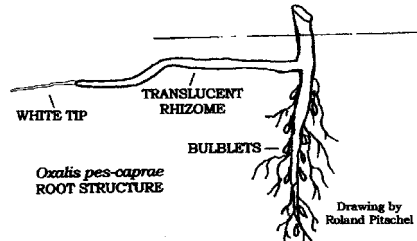
into the middle of an already crowded clump of healthy natives, even into the tight center of a vigorous bunchgrass or rush, where it steadily burgeons, capturing space and light. Its roots compete with the bunchgrass and even with native shrubs such as coffeeberry or coyote bush. Whether this direct competition can weaken or eventually kill a shrub is not established, but it is certain that it will prevent a new generation of that or any other plant at the site.

Thus, long-term prognosis is for a monoculture of oxalis. No matter which community is invaded, year-by-year the oxalis becomes stronger and the other plants become weaker. It even outcompetes many aggressive weeds, although it meets a worthy rival in the same habitats preferred by its fellow South African, *Ehrharta erecta* (see *CalEPPC News* Summer/Fall 1996). It will be interesting to see which of these two bullies predominates on a given site; *ehrharta* is the only plant I know that can prevent oxalis from becoming a monoculture. (I am excepting another South African, Cape ivy (*Delairea odorata*), which in a favorable moist or shady site will smother both oxalis and *ehrharta*.)

Eradication is difficult and time-consuming because of that bulb. Removing a small infestation in a discrete area is a feasible project. I was able to manually rid it from my garden, which contained many hundreds of oxalis plants, by persisting in removal of the above-bulb parts for four or five years. Repeated timely removal of top-growth will deprive the bulb of its stored energy. Optimum time for this is winter or early spring just before it starts producing offsets. Placing fingers at soil level beneath the crown and pulling gently but steadily (two hands better) will frequently get the whole taproot, especially when growing in sand. The bulb will probably remain and still have some stored energy to produce more top-growth. A repetition of the preceding operation during the same season will either kill the plant or draw down its energy so severely that one more pull usually effects kill, providing it is well-timed and does not allow time for the

bulb to recharge its energy. There is need for monitoring for an additional two years to make certain, as I have sometimes found a single small leaf hiding among other plants, slowly building up its bulb's strength for a comeback.

For large tracts spraying may be the



only option, although a judgment call may arise if the oxalis is so intermixed with the natives that killing it may entail killing the natives. Some people reason that they are going to lose the community anyway, and eradicating the weed will allow them to re-establish the natives. I don't know of definitive information on the effectiveness of herbicides on oxalis bulbs. Anecdotal information I received says that 2% glyphosate is effective providing you have a good surfactant, since oxalis leaves tend to shed water. I have not verified this information. A further consideration is if the infestation is in grasslands with few or no native dicots present, triclopyr may be a better choice, as it is designed to kill dicots but not monocots.

I hope this article will elicit interest in this pernicious weed and perhaps generate a satisfactory explanation for its spread. I borrowed an idea from scientist Joe Balciunas, who offered a \$100 reward for anyone finding fertile seed of Cape ivy in California for his biocontrol research project. It worked for Cape ivy—viable seed was found and Joe is \$100 poorer. I decided to make an identical offer to anyone who produced viable seed or a verifiable seedling of yellow oxalis, and I published the offer in a recent issue of the CNPS Yerba Buena Chapter newsletter. Greatly to my surprise, botanist Lee Ellis provided me color photocopies of seedlings with cotyledon leaves from her East Bay garden. This is very important information and I encouraged her to deposit herbarium specimens in the

Jepson Herbarium and with CDFA.

However, I do not think this answers the question about the plant's means of dispersal, as I have checked innumerable populations without finding viable seed or young plants with cotyledon leaves. Until proven otherwise, I will assume that seed production is an uncommon occurrence, and this accords with the information in the Jepson Manual. If it is not uncommon, that would be vitally important information. So the mystery is still there. As Lee graciously declined the reward, I will re-offer the \$100 to the first party producing proof.

Jake Sigg is Invasives Chair for the California Native Plant Society. He can be reached at <jakesigg@earthblink.net>.

Mom's tips

My daughter shared her formula for oxalis removal with me. Weed by hand early in the season and often. The plant puts out tiny nutlets near the crown as the weather warms, in addition to the flowers, and the idea is to get it out of the ground before the nutlets and/or flowers (and the next generation) have a chance to form.

I have pulled all the plants in an area only to go back a few days later to find new ones. However, the new plants appear to be smaller each time I return. In some areas it's stopped coming back.

She also suggested Roundup, but that did not work for me, I think because it is too cool here in the Russian River watershed. The instructions say it needs to be 60 degrees to work, and by the time it's that warm the nutlets and flowers will have formed.

One thing I find interesting is the plant's structure. It has a long root that forms a 1" nut about ten inches below ground. Later in the season when I sift through the soil I find these nuts below the surface, sometimes attached to a swollen white root like matter. That, plus the scattered nutlets that spread out when the plant is disturbed—no wonder oxalis is so difficult to eradicate!

Victoria Wikele

***Oxalis* invades north coast dunes**

Andrea Pickart of the Humboldt Bay National Wildlife Refuge in northern California reports that *O. pes-caprae* has within the past two years started to spread explosively into native dune habitats. It is now encroaching upon endangered plant areas maintained by the Bureau of Land Management and by the City of Eureka. She also reports that *O. pes-caprae* is extremely aggressive, and that it is the only plant that has been observed surviving and coexisting with iceplant (*Carpobrotus edulis*), another prolific invasive exotic species of coastal dune habitats. Pickart adds that *O. pes-caprae* often forms dense mats in any area with open space, and that is very successful at competing with and excluding native plants. Even when it does not exclude natives, it has detrimental impacts in open unvegetated areas, as it causes soil enrichment and stabilization of semi-stable areas, altering ecosystem nutrient cycling.

[Info from *The Nature Conservancy's Wildland Invasive Species Team's website*. Visit <http://tncweeds.ucdavis.edu/alert/alrtoxal.html> for more information on *oxalis*.]

Sometimes we change our minds. A Boy Scout planting pampas grass for the Soil Conservation Service in Los Angeles County, 1953. [From a California Resource Conservation Fund card. Thanks to Carla Koop for submitting the photo.]



New and Contributing Members

Thank you for your prompt renewals. We apologize if we forgot you or got your information wrong! Please let us know by emailing <dnjohnson@caleppc.org>. All personal information is kept confidential.

Sustaining Members:

Doug Allshouse (Friends of San Bruno Mountain, Daly City) · **Greg Archbald** (Santa Barbara) · **Gladys Baird** (Encinitas) · **Carolyn Johnson & Rick Theis** (Sebastapol) · **Fred Kramer** (San Diego) · **William McCoy** (Berkeley) · **Connie Rutherford** (Ventura)

Contributing Members:

Martha Blane (Martha Blane & Associates, San Marcos) · **Marian Chambers** (Central Sierra Partnership Against Weeds, Sonora) · **Sarah Chaney** (Channel Islands National Park, Ventura) · **Darlene Chirman** (Chirman Biological Consulting, Santa Barbara) · **Tom Dodson** (Tom Dodson & Associates, San Bernardino) · **Doug Elliott** (US Forest Service, Miwuk Village) · **Lawrence Janeway** (Chico) · **Jo Kitz** (Mountains Restoration Trust, Woodland Hills) · **Ralph Kraetsch** (Walnut Creek Open Space Foundation, Walnut Creek) · **Jennifer Langford** (Genesis Ecological Services, Avila Beach) · **Mark Langner** (Bridgeport) · **Susan Cochrane Levitsky** (Cameron Park) · **Tamia Marg** (Claremont Canyon Conservancy, Berkeley) · **T. Charles Moore** (Sunnyvale) · **Mike Peters** (Fallbrook Land Conservancy, Fallbrook) · **Susan Schwartz** (Friends of Five Creeks, Berkeley) · **Peter Slattery** (Moss Landing Marine Lab, Salinas) · **Stephen Underwood** (California State Parks, McKinleyville) · **Clarence Weinmann** (Berkeley) · **Dolores Welty** (Encinitas) · **Linda Willis** (Soquel)

New Members:

Clay Courtwright (Stone Lakes National Wildlife Refuge, Elk Grove) · **Mark Frey** (Presidio Trust, San Francisco) · **Yvette Redler** (USDA APHIS PPQ, Sacramento) · **Jim Sharp** (Berkeley) · **Christopher Thayer** (Sycamore Associates, Walnut Creek) · **Marilyn Walter** (Portola Valley Ranch Landscape Committee, Portola Valley)

Gift Memberships:

Rosemary Gunn (Walnut Creek; gift from Mark Renz) · **Adeline Gunnerson** (Walnut Creek; gift from Mark Renz) · **Diane Nygaard** (Preserve Calavera, Carlsbad; gift from Ynez Yoder) · **Mr. & Mrs. Doug Whiting** (Carlsbad; gift from Ynez Yoder) · **Mr. & Mrs. Thomas Lyon** (Oceanside; gift from Ynez Yoder) · **Bob Isaackson** (Allan Hancock College, Lompoc; gift from Charles Blair) · **Nathan Hulse-Stephens** (Davis; from Geri Hulse-Stephens)

Family Members:

Margaret Graham & Walter Earle (Mostly Natives Nursery, Tomales Bay) · **Wilma & William Follette** (Sausalito) · **Franklin & Jean Olmstead** (Foothills Park, Palo Alto) · **Don Stiver** (CNPS, El Cerrito) · **Michael & Jerre White** (Conservation Biology Institute, Encinitas)

Institutional Renewals:

Thomas Reid Associates (Palo Alto) · **Jesse and Jason Giessow** (Dendra, Inc., Encinitas) · **Buford Crites** (City of Palm Desert) · **Ron Unger** (EDAW, Sacramento) · **Cache Creek Conservancy** (Woodland) · **Mike Bisciegli** (DeAngelo Brothers, Inc., Chino) · **Jean Ferreira** (Elkhorn Native Plant Nursery, Moss Landing) · **Patricia Oliver** (Ventura County Resource Conservation District, Somis) · **John Anderson** (Hedgerow Farms, Winters) · **David Gilpin** (Pacific Coast Seed, Livermore) · **Huntington Library** (San Marino) · **Dave Moore** (San Mateo County Parks, Redwood City) · **City of San Diego Park Rangers** · **California State Parks, Santa Cruz District** · **Helen Crocker Russell Library, Strybing Arboretum** (San Francisco) · **Small Wilderness Area Preservation, Inc.** (Los Osos) · **Sue Gardner** (Golden Gate National Parks Association, San Francisco) · **Steven Ash/IPM-PCA Associates** (San Rafael) · **David Sands** (Go Native Nursery, LLC, Montara) · **Sue Weis** (Inyo National Forest, Bishop)

EDUCATION & OUTREACH

Inquiry in action: Using invasive plants for teacher training

By *Lorrae Fuentes*

[CalEPPC awarded a mini-grant to the K-12 Alliance in 2002.]

CalEPPC made a significant contribution to the training of California science teachers this past summer. Using invasive plant models and issues to learn about life science concepts, twenty teachers, grades 5-12, became field researchers conducting experiments and collecting and recording data over a two-week period.

The K-12 Alliance is a school science reform project in California. Teachers participate in a two-week institute in the summer, featuring science inquiry and



content sessions, and have follow-up workshops during the school year. The K-12 Alliance convenes institutes in Sacramento, San Diego and the LA/RIMS area (Los Angeles, Riverside, Inyo, Mono, San Bernardino).

The LA/RIMS summer institute was held at Diamond Ranch High School in Diamond Bar, California, July 28 through August 9. The teaching cadre consisted of three teachers: Lorrae Fuentes, Director of Education at Rancho Santa Ana Botanic Garden; Keith Thompson, Science Curriculum Coordinator and former high school science teacher, Fontana Unified School District; and Ian Signer, Environmental Educator and Curriculum Specialist at the California Institute for Biodiversity. We planned

lessons and activities throughout the winter and spring, and decided early to teach biology concepts around the central theme of invasive species of plants.

We also wanted to provide resources for teachers to get their students involved in "action field projects" like weed mapping, weed removal and habitat restoration. Towards this end, we planned a one-day field trip to Catalina Island as part of the two-week institute. There are extensive threats to native plant species by invasives on the island, but the Catalina Island Conservancy has an aggressive research and restoration program. They also have a comprehensive educational outreach program.

CalEPPC, CNPS, and the Center for Invasive Plant Management all contributed curriculum and print resources as well as funds for getting teachers to Catalina for a day of exploration. Thanks to these organizations, twenty teachers and their hundreds of students are far more aware of invasive plants, and have more understanding of the impacts on the native plant communities of California.

Contact Lorrae at
<Lorrae.Fuentes@cgu.edu>



Readings & Resources

FANCY CARWASH

Portable Agricultural Soil Wash

An outfit from Platina has developed a vehicle washing unit that can be leased to clean fire-fighting vehicles on site. Wash water can be drained on site or contained, and pads absorb petroleum. Six spray nozzles rinse vehicles' undersides, and two pressure washers allow you to wash wheels, etc. Service includes a 3,000-gallon water tender and two operators. Info: *Eddie Pokorny at 530/628-5669.*



TEACHING BIODIVERSITY

Cal Alive!

California Institute for Biodiversity
<www.calalive.org>

Cal Alive! is an interactive CD-ROM set covering California's biological diversity for grades 4-8. Experiments, stories, games, fly-bys, and virtual field trips bring the state's 53 different habitats to the classroom, promoting interactive learning about the state's climate, geology, ecology and heritage. Classroom guides and teacher resource guides are included.

SPECIAL SECTION

Journal of Conservation Biology

<conbio.net>

The February issue of *Conservation Biology* has a six-paper special section on the "Population Biology of Invasive Species" from authors including CalEPPC member Ingrid Parker of UC Santa Cruz.

Wal-Mart stops selling pampas grass in California

Letter from Carolyn Martus

[CalEPPC member Carolyn Martus of Carlsbad got frustrated when she saw pampas grass for sale at WalMart, and wrote them an email. It was forwarded to WalMart's west coast buyer, who decided to take pampas grass off the master list of plants available to stores! Carolyn also convinced an REI store to remove pampas grass from their landscaping. She has now turned her attention to other big box outlets where the plant is sold.]

I've received lots of kudos and congratulations for getting WalMart to take pampas grass off their shelves, but I have to admit that it was pretty easy and uncontroversial. It took all of about 15 minutes to pull up their website, go to their customer service section and compose a few sentences. I wrote them a very short email, one paragraph long, and included a link to Carrie Schneider's proposal to the City of San Diego to ban pampas grass.

Briefly, I told WalMart that pampas grass is wreaking havoc in our open spaces and if they want to help the environment, they need to take it off their shelves. My

email was concise and positive. I congratulated them for giving back to the community and stressed how we needed to work together to help the environment. I believe most people and businesses will do the right thing once they know they are causing harm to a community or environment.

Until CalEPPC can convince CDEA to list *Cortaderia selloana* as a noxious weed, it will be up to individuals to educate others. Make it your New Year's

resolution to talk to one neighbor or local business about pampas grass, and get some educational materials to help your case.

For an excellent brochure to use when talking to people about pampas grass, visit <<http://wric.ucdavis.edu/information/pampasgrass.html>>. Carolyn can be reached at c_martus@yahoo.com. To express support for Linda Prendergast's decision to remove pampas grass from WalMart shelves, write her at 3233 Grand Ave., Suite N-411, Chino Hills, CA 91709-1489.

The WILDLAND WEED CALENDAR

National Invasive Weed Awareness Week

February 24-28
Washington, DC

4th annual gathering of weed managers to participate in visible public activities and to lobby their representatives.

<www.nawma.org>

2003 Western Society of Weed Science Annual Meeting

March 11-13, 2003
Koloa, HI

<www.wsweedscience.org>

Third International Conference on Marine Bioinvasions

March 16-19, 2003
Scripps Institution of Oceanography,
La Jolla, CA

Sponsored by the California Sea Grant College System and The MIT Sea Grant College Program.

<www.sgmeet.com/mb/>

California Weed Awareness Week

July 6-12

A week to plan local weed tours, newspaper articles and other outreach events. For ideas from WMAs that sponsored events last year, contact Nancy Brownfield at <nbrownfi@ebparks.org> or Wendy West at <wendyn@atasteofeldorado.com>.

Save the date!

CalEPPC Symposium 2003

October 2-4
North Tahoe Conference Center

Quotable:

“The International Union for the Conservation of Nature estimates that since 1600, 109 species of mammals, birds, reptiles, amphibians, fishes, invertebrates, and vascular plants have become extinct in what is now the continental United States... at least 4,500 nonindigenous species have established free-living populations in the United States over the past few hundred years... On balance, this part of the world has seen an increase in biological diversity.”

Allan Fitzsimmons, newly appointed wildlands fuel coordinator for the Department of the Interior, from a Fall 2000 issue of Markets and Morality as reported in Sierra, Jan/Feb 2003).

“With international trade at unprecedented volumes, the worldwide reshuffling of organisms is now a major driver of global change. We live in a time the ecologist Gordon Orians dubbed "The Homogocene" to describe how once unique places have come to resemble each other—with massive environmental and economic impacts.”

Phyllis Windle, Union of Concerned Scientists, "Connecting the dots: Bringing the invasive species issue into focus," Fall 2002, Catalyst (semiannual magazine of UCS) 1(2):14.

CalEPPC Membership Form

We're working to protect California's wildlands from invasive plants—join us!

CalEPPC's effectiveness comes from a strong membership, including scientists, land managers, policy makers, and concerned citizens. Please photocopy the form below, complete, and mail with your payment. Additional donations are always welcome to support our projects; we are a 501(c)3 nonprofit organization, and donations beyond regular membership rates are tax deductible.

Individual

- Student/low income \$15
- Regular \$30
- Family \$40
- Contributing \$50
- Sustaining \$100
- Life \$1,000

Institutional

- Regular \$100
- Contributing \$250
- Patron \$500
- Sustaining \$1,000

Name

Affiliation

Address

City, State & Zip

Work Phone

Home Phone

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E-mail

Additional donations for:

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- International Broom Initiative \$ _____
- Educational outreach and materials \$ _____
- Cal-EPPC News* and operating costs \$ _____

Please mail check (to "Cal-EPPC") and this form to:

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1442-A Walnut Street #462
Berkeley CA 94709



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Got a good idea for a bumper sticker?
Contact Jon Fox at <jcfox@co.slo.ca.us>