



Cal-IPC News

*Protecting California's Natural Areas
from Wildland Weeds*

Vol. 11, No. 4, Winter 2004 Quarterly newsletter of the California Invasive Plant Council



Beetles!

USDA and the Diorhabda beetle target tamarisk in the West. Is this the makings of a biological control success story? Article page 4.

Inside:

How much do wildland weeds cost society?
Alert: *Brachypodium sylvaticum* (false brome)
Lessons from the San Diego fires
Weed awareness events in DC and California



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Invasive Plant
Council

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A California 501 (c)3 nonprofit organization

Our Mission

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

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Cal-IPC News

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From the Director's Desk

Marshalling resources for 2004

Here at the office, we keep getting lucky with volunteer help. We currently have four people making significant **volunteer contributions** to our work: Jinji Wimalsena, a recent graduate in Environmental Biology from CSU Northridge, is organizing the weed list revision; Bertha McKinley, ex-president of the San Diego CNPS chapter, has been overseeing membership renewals and book orders; Elizabeth Stampe, a development specialist for Greenbelt Alliance, is designing a new weed brochure; and Heather Sprung, a transitioning high-tech writer, is helping prepare grant proposals. Bree and I are grateful for all their help.



Jinji, Bree, Doug, and Bertha at our Aquatic Park office.

The **landscaping alternatives brochure** ("Don't Plant a Pest!") has been distributed widely. Calls come from garden clubs looking for speakers, from the media, and from other regions and states wanting to develop their own brochures. Definitely an idea whose time has come.

In late February, weed worker representatives from across the country will be traveling to Washington, DC, for the fifth annual **National Invasive Weeds Awareness Week**. This year's California delegation includes David Chang from the Santa Barbara WMA and Bob Case from the Alameda/Contra Costa WMA. They will give agency and elected officials a better understanding of how weed work is happening on the local level.

Several articles in this issue focus on tamarisk—its economic costs, the legislation seeking to address control issues, and the USDA's promising biocontrols research program. As one of the worst weeds in the West (including desert California), it offers a glimpse into how our research and funding systems are capable of reacting. Let's hope this sets a trend, and helps us find support for other major wildland weeds we face.

Below: Researchers Tom Dudley (right) of UN Reno and Dan Bean of UC Davis release *Diorhabda* beetles onto tamarisk in California's Owens Valley.



Wildland Weed NewsNewsNewsNewsNews

USDA-APHIS is moving ahead with plans to revise **regulations governing importation** of plants. The revision is likely to also address both invasive insects and diseases that ride on imported plants, as well as the potential for the plants themselves to be invasive. An Advance Notice of Proposed Rulemaking should be released summer 2004.

Habitat[®] herbicide has received full label approval from the Environmental Protection Agency. Habitat[®] is labeled for controlling undesirable emergent, shoreline and woody vegetation in and around standing or flowing water. Target plants include water hyacinth, purple loosestrife, and saltcedar, among others. <www.vmanswers.com>

The newest weapon in the war on weeds may have four legs, fur, and be named "**Knapweed Nightmare.**" Once trained to detect drugs, this German shepherd is now learning to sniff out spotted knapweed. When her training at Montana State University is complete, Nightmare will be able to scout rangeland with a GPS flashcard attached to her collar, which will mark places where she stops to dig at a scent. If successful, this experiment could make dogs invaluable helpers in early detection and mapping efforts. *Associated Press, 12/31/2003.*

THE WEED LIST NEEDS YOUR HELP!

We need your knowledge and experience to help evaluate plants for the Cal-IPC List using the newly developed criteria. We have reviewers identified for many plants, but still need reviewers for many more. Visit <www.cal-ipc.org> to find plants that still need reviewers, and help us produce the improved list!

Acacia paradoxa (kangaroothorn) · *Agrostis stolonifera* (redtop bentgrass) · *Alternanthera philoxeroides* (alligatorweed) · *Anthemis cotula* (dog fennel) · *Anthriscus caucalis* (bur chervil) · *Araujia sericofera* (bladderflower) · *Bellis perennis* (English lawn daisy) · *Berberis darwinii* (Darwin barberry) · *Brachypodium...*

Not all mammals are being so helpful. In Shasta county, **beavers** have begun utilizing *Arundo donax* as material for constructing dams. Given the ability of arundo to spread

through small fragments, this practice is likely to speed the spread of this riparian weed. *Redding Record Searchlight, 12/27/2003.*

Advocacy on tap...

National Invasive Weeds Awareness Week is February 23-27. While the California delegation is in Washington, DC, this would be a great time to visit the local offices of your federal representatives.

California Invasive Weeds Awareness Week is coming up July 19-26, 2004. Time to start organizing local events!

As of press time, the first **California Weed Day at the Capitol** is tentatively scheduled for March 24 in Sacramento. This will be a great chance to discuss weed issues with agency managers and elected state officials. Check <www.cal-ipc.org> for updates.

Help grow our membership!

We've recruited 236 new members in the last two month! That brings us one-third of the way to our goal of 1,500 members by March 31— we still need 433 more. Please ask your friends and colleagues who are concerned about the California landscape to become members. Ask the people sitting next to you at your next WMA meeting if they are members yet. We need their support. If each current member recruits just one new member, we'll meet our goal! And if you recruit three or more new members, we have rewards including books, T-shirts, water bottles, and free admission to the 2004 Symposium.

Our goal: 1,500 members by March 31!

1,067 members — in January, 2004!

831 members in October, 2003

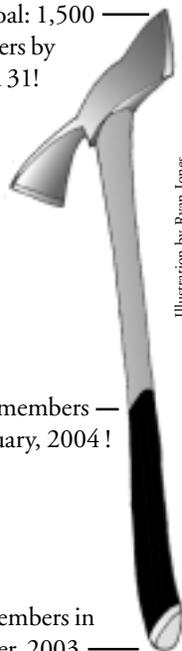


Illustration by Ryan Jones



Christmas tidings for weed staff on holiday. Rocky Mountain National Park, Dec. 25, 2003. Photo by Brianna Richardson.

Progress on the Biological Control of Tamarisk

Text and photos by Raymond I. Carruthers¹ and C. Jack DeLoach²
 USDA-Agricultural Research Service in ¹Albany, CA and ²Temple, TX

Dicidious shrubby saltcedars (Family: Order = Tamaricaceae: Tamaricales) are among the most devastating exotic weeds invading western North American riparian ecosystems. Their effects on native vegetation, wildlife, and hydrology are severe and well-known (see article on economic impacts, page 6). Their widespread distribution across western states makes their eradication unrealistic by physical control techniques alone except at sites with limited infestations.

In 1986, the USDA's Agricultural Research Service (ARS) began overseas research on biological control. By the early 1990s, several promising insect agents were brought to the U.S. for host-specificity testing in quarantine. After more than a decade of experimentation, safety testing, and regulatory consideration, one species of leaf beetle, *Diorhabda elongata deserticola*, collected from Fukang, China, and Chilik, Kazakhstan, was released into field cages at ten sites in California, Colorado, Nevada, Texas, Utah, and Wyoming during 1999 and 2000. Following two years of cage studies, permits were granted that allowed open field release in these six states in May, 2001. Monitoring over the last two years has demonstrated marked early success in several test sites.

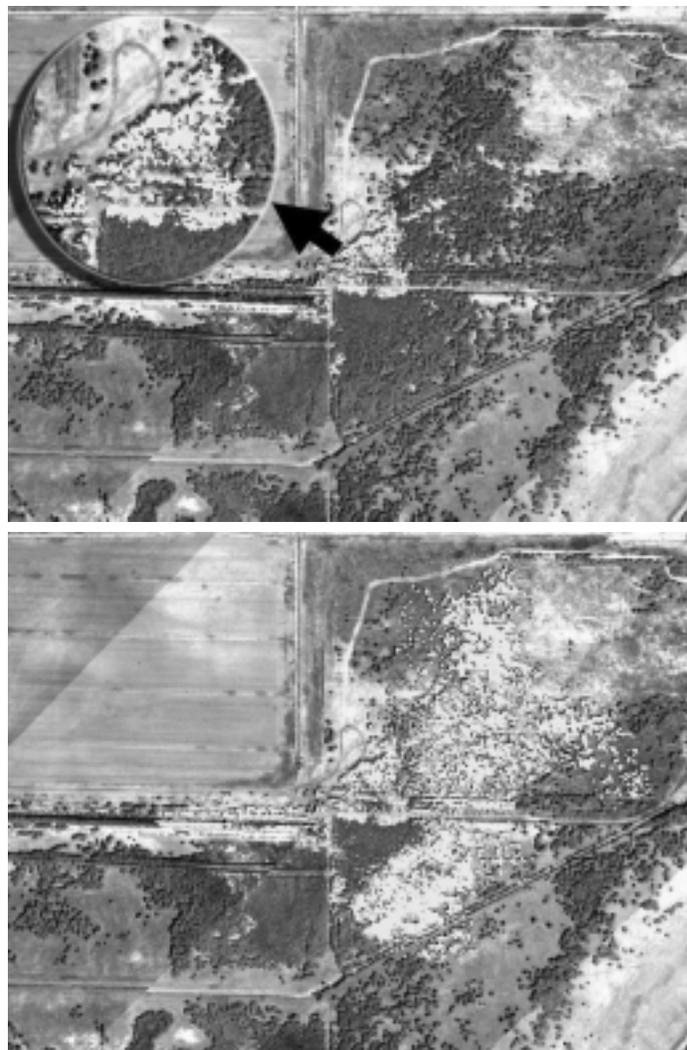
At five sites north of the 38 parallel, where the Chinese biotype of *D. elongata* has been in the open environment for two or more years, populations have had overwintering success and significant impact on tamarisk. During the summer of 2002, *Diorhabda* caused dramatic defoliation of saltcedar at Lovelock, Nevada and good

In two years, beetles at Lovelock have expanded from less than an acre to 143 acres, defoliating tamarisk as they go.

defoliation at Pueblo, Colorado. At sites in at Delta, Utah, Schurz, Nevada and Lovell, Wyoming, they caused only partial defoliation, but they produced substantial population increases. By the end of the third growing season in late summer of 2003, the beetles had begun a rapid and dramatic defoliation of tamarisk at five of the seven release sites north of the 38th parallel. At the best site (Lovelock, NV), defoliation increased from 0.8 ha in early September

2002, to 4.3 ha in early July 2003, to 190 ha by early September 2003, along an approximate 5 km reach of the Humboldt River. In Colorado, the beetles increased from a single defoliated tree in 2001 to a 100m radius of the release point during 2002, and by September 2003 they had defoliated ca. 40 ha of saltcedar. At Delta and Lovell, the beetles overcame both bird and ant predation in 2002 to defoliate ca. 30 ha and 9 ha respectively by this past September. At the establishment site closest to California in Schurz, NV, the beetles have now defoliated ca. 15 ha along the Walker River.

ARS began this research based on requests from a number of groups including The Nature Conservancy, several rancher associations, state/ local water boards, the US Bureau of Reclamation and



Aerial photos from August, 2002 (top) and July, 2003 show rapid spread of beetles at the Lovelock site. Agents were initially released near the center of the photos (expanded portion of top photo). Pale vegetation spreading to upper right of photos is denuded tamarisk.

members of Cal-IPC. Many prospective control insects were investigated in the Eurasian homeland of saltcedar, from the Mediterranean Basin to China. Over 300 different insects were found to feed on saltcedar in Eurasia, attacking all parts of the plant. These natural enemies appear to be a major factor in limiting saltcedar populations in much of its area of origin.

At most of the release sites in western states, *Diorhabda* beetles were placed into sleeve bags over terminal branches outside the cages for one-two weeks until they had begun ovipositing, and then the bags were removed. This allowed field monitoring teams to follow the development and mortality of the beetles by knowing where and



Adult *Diorhabda* eating tamarisk leaves.

how many eggs were present. Additional beetles were released into the open—altogether one to several thousand beetles were released into each of the various test sites. The beetle successfully overwintered in the open environment in five sites north of the 38th parallel in Nevada, Utah, Colorado and Wyoming.

However, the beetles did not successfully establish outside of cages in more southern sites in Texas or California, presumably because daylength is too short at these southern sites and the beetles were forced into overwintering diapause too early. This prevented them from successfully overwintering, and none emerged the following spring in these more southerly locations. Efforts to establish the Chinese beetles at these sites were terminated, and plans were developed to locate and test additional natural enemies for these locations. ARS scientists and their state cooperators have been evaluating *Diorhabda* populations from other locales including strains from Africa, Greece and several Middle Eastern countries. These are expected to overwinter more effectively in the more southern U.S. sites.

This past fall, beetles from Crete were permitted for release and placed in field cages in Central California, New Mexico and southern Texas where they are expected to be better adapted to the local climatic conditions. Following thorough field cage host-specificity tests, the Crete beetles were released into sites including an open field along California's Cache Creek and at Fort Hunter Liggett inland of Monterey. These populations and their biological impact are being monitored carefully using a combination of ground-based sampling and remote sensing. Little is known yet about the rate of kill of the

saltcedar plants, but monitoring data that is to be collected in 2004 should document saltcedar mortality in some areas. Overwintering success of the Crete beetles in open field situations is expected in the spring of 2004 and hopefully significant defoliation will then begin on saltcedar populations in areas below the 38th parallel. With results in hand from these southern sites this summer, we will be working with the US Fish & Wildlife Service and local cooperators along both sides of the Mexican border to determine if these new beetles should be released in Mexico.

USDA-ARS scientists have been working closely with a number of groups to assess the benefits and safety of tamarisk biological control, and have had many independent cooperators assessing associated direct and indirect impacts on the local plant and wildlife communities. So far, the project has produced the expected desired benefits with no deleterious side effects. Based on these assessments, USDA is hoping to move forward with a cooperative saltcedar biological control implementation effort in areas above the 38th parallel where the Chinese *Diorhabda* beetles are working exceptionally well. USDA-APHIS (Animal and Plant Health Inspection Service) has already filed a Federal Register notification outlining their plans to work with several state Departments of Agriculture and federal agencies (such as the Bureau of Reclamation and the Bureau of Land Management) to establish beetle nursery sites and begin more widespread distribution of these beneficial insects in several states. In more southern areas, the research will continue, and hopefully demonstrate that the new strains of beetles now under investigation are both effective and safe to release in other areas where tamarisk is causing extensive environmental damage.

Contact the authors at <ric@pw.usda.gov>.



Nada Carruthers of USDA-APHIS and cooperator Javid Kashefi collect insects in Greece as potential biocontrol agents for tamarisk.

How much do weeds cost society?

The tamarisk example

Information in this article is taken from "Valuing ecosystem services lost to Tamarix invasion" by Erika Zavaleta, a chapter in Invasive Species in a Changing World, edited by Harold A. Mooney and Richard J. Hobbs (2000 Island Press).



An unlined irrigation ditch in the Owens Valley. Photo courtesy of G. Donald Bain, <geoimages.berkeley.edu>

Invasive plants cost society in a number of ways, and it is apparent that the cost is large. In a much-quoted Cornell University study, researchers conservatively estimate that invasive species cost the U.S. \$138 billion each year (Pimental et al, 1999, accessed Jan. 2004 at <www.news.cornell.edu/releases/Jan99/species_costs.html>. But quantifying such impacts is difficult. Some effects have a direct market value, such as lost water, while other effects, such as reduced ecological integrity, are challenging to translate into dollars. It is crucial to have estimates, though, so that the problem of invasive plants can be weighed against other financial threats that vie for the attention of policy makers.

Tamarisk is one of the few plants that have been evaluated economically, and its evaluation provides a useful example of a way to estimate damage caused by invasive plants. Though not all of the impacts of tamarisk are evaluated, the sum of several major impacts—including water supply, flood control, and wildlife—gives a gauge of the damage caused by one of the West's most widely know invasive plants. The economic impacts in these areas are summarized in the accompanying tables. Typically a range of figures is given,

spanning from a conservative estimate to a "bolder" estimate.

Water Losses

Tamarisk uses, on average, 1.0-1.54 feet/year more water than native vegetation. In total, this costs the U.S. 1.16-2.41 million acre-feet of water each year. This water has monetary value for municipal use, agricultural use, and "instream" uses such as boating. Based on the costs of planned water projects, the total value of water lost to southern California and Arizona municipalities is \$1.4-3.7 billion over 55 years (this timeframe was chosen to match current water contracts in the region). Water losses to agriculture are estimated to be worth an additional \$2.1-6.7 billion over 55 years. Finally, instream water losses include lost hydro-

electric generation capacity, estimated at \$880 million to \$2.4 billion over 55 years, and lost recreational value to boaters (determined using "willingness to pay"), estimated at \$29-132 million.

Flood Damage

Increased sediment accretion caused by tamarisk causes narrowing of stream channels, and this increases flood damage. This increased damage is estimated at \$2.9 billion over 55 years.

Impacts on Wildlife

Using willingness-to-pay values for protecting threatened species, economic losses resulting from tamarisk damage to wildlife can be calculated. Focusing on federally listed species impacted by Tamarisk invasion (southwestern willow flycatcher, bald eagle,

and whooping crane), and one candidate for listing (peninsula bighorn sheep), the total value lost over 55 years is \$85-360 million.

These economic losses over a 55-year period add up to between \$7.39 and 16.16 billion. Given the estimated extent of tamarisk in the West, this comes to \$6,300-\$10,000 per acre of land invaded. This loss can be compared to the cost of controlling tamarisk to assess if control is economically cost-effective. The estimated cost of eradicating tamarisk and replanting with native species is estimated at approximately \$3,000 per acre (or \$3.48-4.83 billion over the entire region). At discount rates up to 6%, the 55-year benefits of tamarisk removal outweigh the costs.

An analysis like this one demonstrates that even conservative estimates of damage, based on only a few of a plant's impacts, can make a good case for control.

Water Losses: Municipal	\$1.4 to 3.7 billion
Water Losses: Agricultural	\$2.1 to 6.7 billion
Water Losses: Hydropower	\$880 million to 2.4 billion
Water Losses: Recreational	\$29 to 132 million
Flood Damage	\$2.9 billion
Wildlife Losses	\$85 to 360 million
Total Estimated losses	\$7.39 to 16.16 billion

Estimated costs resulting from Tamarix invasion over a 55-year period, in 1998 dollars.

Discount rate	Net Benefits (\$1998/acre)
0%	\$3,312 to 6,975
1%	\$2,146 to 4,966
2%	\$1,363 to 3,584
3%	\$837 to 2,525
4%	\$484 to 1,954
5%	\$249 to 1,483
6%	\$95 to 1,147

Net benefits of Tamarisk removal over a 55-year period in 1998 dollars.

Invasive species legislation: *What's hot on "The Hill"*

Tamarisk, or saltcedar (*Tamarix* species), is one invasive weed that has gotten the attention of lawmakers in Congress. Four bills—two in the House and two in the Senate—have been introduced to increase research into tamarisk water usage and more effective tamarisk eradication techniques. The reason for all this legislative attention is the tremendous amount of water used by tamarisk in the West each year—estimated to be enough to support 20 million people or a million acres of agriculture.

The highest profile legislation comes from Senator Domenici of New Mexico (R). The "Saltcedar Control Demonstration Act" (S. 1051 and S. 1516; also HR 2707 (Pearce, R-NM) as a companion bill on the House side) would initiate major spending by the Department of the Interior—up to \$50 million/year—to implement demonstration projects aimed at determining the best methods for removing tamarisk. The act also includes Russian olive (*Eleagnus augustifolia*), another invasive tree found in Western riparian areas. Demonstration projects would explore methods and challenges in management, including all aspects of destruction, biomass removal, restoration, and maintenance. Long-term funding strategies will also be identified.

HR 695, introduced by Scott McInnis (R-CO) would authorize \$1 million to Mesa State College in Grand Junction, Colorado, for development of enhanced methods of long-term control and suppression of saltcedar in the Colorado River watershed in western Colorado and eastern Utah. Mesa would provide matching funds of \$1 million.

At least eleven other bills currently in Congress deal with the issue of invasive species. Particularly important for California are S.144 (Craig, R-ID) and H.R.119 (Hefley, R-CO), the "Harmful Invasive Weed Control Act," which would authorize the Department of the Interior to distribute \$100 million each year through 2007 to "eligible weed management entities" such as Weed Management Areas. Because California's state funds for WMAs through S.B.1740 sunset this year, passage of these federal bills would be a great shot in the arm for the continued success of our WMA network. Currently, H.R.119 has stalled in the House Natural Resources committee, chaired by Rep. Richard Pombo (R-Stockton). Cal-IPC and other groups are working to convey our strong support for this legislation to Rep. Pombo and others in Congress.

Other invasive species legislation currently pending includes bills that would: codify the National Invasive Species Council, which was created by executive order in 1999 (S. 536); provide \$80 million in grants for invasive species control projects (H.R. 2310); strengthen the Nonindigenous Aquatic Nuisance Prevention and Control Act (H.R. 1080 and S. 525); provide funding for aquatic invasive species research (H.R. 1081); provide funding to control invasive nutrias in Maryland and Louisiana (H.R. 273); and control ballast water emissions in the Great Lakes (H.R. 3122 and H.R. 989).

Trends

Invasive species legislation may be tending more toward species-specific and location-specific bills, rather than general, over-arching

Tamarisk Legislation:

S. 1051 Saltcedar Council Demonstration Act

Introduced 5/13/2003 by Pete Domenici (R-NM); Cosponsored by Reid (D-NV) and Bingaman (D-NM). Bill remains in committee.

S. 1516: Saltcedar Control Demonstration Act

Introduced: 7/31/2003 by Senator Pete V. Domenici (R) New Mexico. Cosponsored by: Senator Campbell (R), Colorado. Bill remains in committee.

H.R. 2707: Saltcedar & Russian Olive Control Demonstration Act

Introduced 7/1/2003 by Steve Pearce (R-NM). Cosponsored by Beauprez (CO), Bonilla (TX), Cannon (UT), Cardoza (CA), Cubin (WY), Filner (CA), Grijalva (AZ), Hunter (CA), Matheson (UT), McInnis (CO), Moran (KS), Neugebauer (TX), Osborne (NE), Renzi (AZ), Stenholm (TX), Thornberry (TX), Udall (CO), Udall (NM), Wilson (NM). On 10/29/03 the House Committee on Resources ordered the bill to be reported (as amended) by unanimous consent.

H.R. 695: Tamarisk Research and Control Act of 2003

Introduced 2/11/2003 by Scott McInnis (R-CO). Cosponsored by Tancredo (R-CO) and Beauprez (R-CO). Bill remains in committee.

legislation. According to Tim Playford, of the Invasive Weeds Awareness Coalition in Washington, D.C., one reason for this trend is that the federal government has not taken the initiative in drafting broad invasive species policy and programs, and that groups working on specific species, or in specific locations, decide to pursue legislation to support for their own projects. There is some concern that this may fracture the larger invasive species community as groups vie for federal support. This makes H.R. 119 extremely important to encouraging local activities across the entire range of invasive plant work. The bill's funding would provide a financial incentive for all states and counties to organize the necessary infrastructure for obtaining funds and successfully fighting weeds.

Support for H.R. 119 will be a major focus of the fifth annual National Invasive Weeds Awareness Week in Washington, DC in late February. California will be sending a delegation to discuss our weed work with agency officials and legislators, so that they will be aware of the extent of the problem and of the work that is getting done at the local level.

Norton, Veneman launch tamarisk initiative

At press time, we received the announcement that Interior Secretary Gale Norton and Agriculture Secretary Ann M. Veneman have announced plans to work with Southwestern states and communities on a strategic initiative to control tamarisk. The effort will formally begin with a three-day conference, March 31 to April 2 in Albuquerque, N.M. Press release at <www.doi.gov/news/040122e.htm>

7th Annual Monterey “War on Weeds” Conference

Text and photos by Brianna Richardson

The 7th Annual War on Weeds Conference was hosted by the Watershed Institute at California State University, Monterey Bay, and by Return of the Natives, and held on campus at the converted Fort Ord, Friday



The Hydro-Ax.

November 14th. This year's theme was “Big Tools, Little Tools: the Right Tool for the Right Weed.” And of tools there were plenty. In addition to speakers, there were two “tool-gate” parties where participants could check out the latest and greatest in weed-control machinery.

The first tool-gate session focused on Big Tools, including a flail mower, the Caterpillar

AVS, which can be used to send French broom into oblivion, the Hydro-Ax Brushcutter, which can mow invasive plants of any height, and a well equipped truck, decked out for large scale spraying.

The real innovators, however, were found at the Small Tools tool-gate, where Charlie Moore demonstrated how to harvest weeds with an old fashioned scythe, Darlene Chirman showed off a homemade pampasgrass plume-hook (a hardware store hook screwed into a broom handle) that allows workers to pull the tall plumes to within cutting reach, and Philomene Smith shared her “herbicide for volunteers,” straight vinegar in a garden sprayer, which “kills seedlings dead.”

The speakers and attendees found the conference a great opportunity to share their successes, frustrations, and ideas. Discussion topics included making connections across the scope and scale of weed work, using tarping to control iceplant and Harding grass, control of aquatic and riparian weeds,



Conference attendees visit a Fort Ord burn site.

and one man's 23-year fight against yellow starthistle.

After a day of weed talk, it was refreshing to get outside and see some real, albeit unintentional, restoration work. In July 2003, an accidental fire started on Army land adjacent to Bureau of Land Management land at Fort Ord. The fire burned approximately 600 acres that was considered prime area for a prescribed burn. Since the burn, regular surveys have been conducted to compile plant lists of what returns to the area. BLM restorationists expect a number of previously rare natives to make a post-burn comeback. Conference organizer Bruce Delgado led attendees on a hike through the burn site. The faint drizzle and charred landscape provided an eerily beautiful end to the day.

Lessons learned after the San Diego County fires

By Carolyn Martus and Carrie Schneider, San Diego Chapter of the California Native Plant Society

You may not have heard, but there has been an extensive debate in San Diego County after last fall's fires about reseeding for erosion control—is it useful at all, and if you do it, what seeds should be used?

The fires alone caused considerable environmental destruction, decimating declining populations of rare and endangered plants and butterflies, but the real ecological battle was the contentious issue of [re]seeding. We in the San Diego Chapter of CNPS were particularly concerned about reseeding efforts that included invasives like rye grass (*Lolium* spp.) and African daisy (*Dimorphotheca sinuata*). The debate illustrates the need for better consensus on post-fire erosion control and seed mixes in order to prevent future ecological problems. Here's my version of how the issue unfolded over the last few months in

San Diego County.

After the Cedar and Paradise fires in San Diego County in late October 2003, government agencies scrambled to calm residents' concerns about erosion control. A donor in Oregon sent 43,000 lbs of rye grass seed (*Lolium* spp.) to aid fire victims, facilitated by Congressman Duncan Hunter's office (R-El Cajon). Calls and e-mails opposing the use of rye grass went out to the conservation community in San Diego, and then calls poured into the offices of Congressman Hunter, Senators Feinstein and Boxer, and then-Governor Davis. CNPS-SD contacted the U.S. Fish and Wildlife Service, the California Department of Fish and Game, and the Natural Resource Conservation Service to express our opposition to the use of rye grass for erosion control.

Studies have shown that seeding with rye grass can be ecologically damaging, and we thought the agencies were already convinced that seeding was a bad idea. Apparently, they were only convinced that *aerial* seeding was a bad idea. Congressional aides told us that the U.S. Department of Agriculture was recommending the use of rye grass. We are unsure how much has actually been distributed. We have only been able to confirm that the rye grass was handed out over the weekend of November 15th and 16th at one location in the city of Poway.

Rye grass was not the only seed waiting to be spread on the hillsides of San Diego. The San Diego County Department of Agriculture, Weights and Measures handed out a

...Continued next page.

seed mix (described in a press release as “native”) that contained non-native species including African daisy (*Dimorphotheca sinuata*) and rose-clover (*Trifolium hirtum*). CNPS-SD spoke with county officials but they maintained that these two species are useful for erosion control. In addition, they said that the plants must not be a problem since they are not on the Cal-IPC list (*D. sinuata* is under “Needs more information”). This points out the need to get the list updated as soon as possible, and to have a disclaimer to avoid such interpretations.

D. sinuata is invading open spaces in Riverside County and Ventura County. The U.S. Fish & Wildlife Service actually ordered CalTrans to stop using *D. sinuata* in the Coachella Valley because it was escaping roadsides and getting into neighboring open spaces. San Diego County has maintained that their seed mix is appropriate because it is meant to be used only in already disturbed areas around homes. But the fires happened in wildland areas at the urban-wildland interface, and many damaged homes are directly adjacent to open space and in upper parts of our watersheds.

One of the authors personally spoke with a family who owns 10 acres in the unincorporated eastern part of the county that was affected by the fire. They had no structures on their property, so it was basically open space. They went to one of the county’s



Photo courtesy Carolyn Martus

erosion control centers and were prescribed the non-native/native seed mix to use on their property. They specifically asked for a seed mix that would not affect native habitats and were told that the seed mix was native and would not cause any problems. Fortunately, we let these individuals know about *D. sinuata* and *T. hirtum*. But in cases like this, the county’s intention—that the seed mix would only be used in disturbed areas around structures—was not the actual practice.

We learned many things after these most recent fires. One of the most important is that

we need to educate local, regional, and federal agencies and elected officials about the environmental and economic impacts of invasive plants. A productive discussion with all concerned stakeholders about the appropriate seed mixtures for post-fire erosion control needs to happen before our next major fire season.

Contact authors at <c_martus@yahoo.com> or <c_schneid@n2.net>. The authors thank Cindy Burrascano, who has compiled a reference list of articles dealing with erosion control and post-fire seeding issues. To request a copy, email her at <cindyburrascano@cox.net>.

Agencies like the NRCS and USFS do not have clear guidelines for post-fire erosion control. In fact, one can find articles on their websites that recommend planting not only rye grass and African daisy, but English ivy and iceplant as well (weblink below). Such articles can give the message to any citizen or land manager that this is what federal land managers recommend doing. It is crucial that the NRCS and others work on better guidelines and update their information.

<www.fs.fed.us/psw/publications/documents/gtr-067/>

Letters

Hi friends,

I am a botanist-naturalist in New Hampshire. I’m the governor’s appointed public representative on the New Hampshire Invasive Species Commission. I was very impressed with your [landscaping alternatives] brochure on choosing the right plants. We are about to embark on an educational component to our work here. We are unusual in New Hampshire in that we are empowered by the legislature to create a list of plants that will no longer be allowed to be sold. This has caused some issues with three popular landscaping plants that are proven invasives in New Hampshire.

California and New Hampshire are so different, but we also have so much in common. The names are different but the problems are certainly nation- and world-wide. Please sign me up as a member so I can follow what you are doing for informational purposes. Thanks,

Deb Lievens, Londonderry, New Hampshire



Cartoon from *The New Yorker*

Brachypodium sylvaticum (slender false brome)

Jim Johnson, Streamkeeper, San Francisquito Watershed Council

The first California collection of *Brachypodium sylvaticum* (Huds.) Beauv. (slender false brome or false brome) was identified in early December, 2003, by Dr. Fred Hrusa, senior plant systematist for CDFA Plant Pest Diagnostic Center, from specimens sent to him through the San Mateo County Department of Agriculture. The plants were found growing in the San Francisquito Creek watershed located in San Mateo and Santa Clara Counties. He has given it a Q rating, a provisional status, pending evaluation of the plant's invasive potential by a state committee that will be established for the species.



Photo courtesy John Beall

***B. sylvaticum*, foreground, along Highway 84 in the Santa Cruz Mountains.**

It is, however, currently widespread in Oregon, particularly surrounding the Willamette Valley, and expanding rapidly. Federal and state agencies, companies and non-profits there have established a False Brome Working Group in Oregon to deal with the infestation which covers some 10,000 acres in the state. They have decided eradication is impossible and that containment is the only option. We might expect similar invasiveness in parts of California and should lose no time in mapping the extent of the current invasion, beginning control and, in particular, familiarizing those concerned about wildland weeds in California with the plant so they can begin to look for it. The Oregon False Brome Working Group maintains a good

web-site on the plant at appliedeco.org/FBWG.html, as does The Nature Conservancy at tncweeds.ucdavis.edu/alert/alrtbrac.html.

Brachypodium sylvaticum is a very invasive, perennial, non-rhizomatous bunchgrass native to Eurasia and North Africa. It thrives in a broad range of conditions, from fairly deep shade to full sun, from dry upland prairie to riparian corridor, from near sea-level to 3500 feet. From my experience the plant does not go dormant, and under the right conditions produces seed throughout the year. It recovers quickly after fire, is not particularly palatable to wildlife or stock and the clumps coalesce to form a dense groundcover shading out low growing plants and preventing seed germination.

It is, moreover, a handsome plant, likely introduced in Oregon through the horticultural trade. Indeed, when I first discovered it several years ago, I had hoped it was native so we could use it in our native revegetation projects. As time went by and no one was able to identify it (being new to California, it is not listed in state floras), we began to grow suspicious. Nevertheless, succumbing to its charm, two years ago I planted it in a revegetation site isolated from the wildlands in a creekside urban park where I could keep an eye on it. It has formed a dense cover 12-18 inches high where it was planted and the patch has quadrupled in size through seed dispersal. We will now gain our first experience in false brome control by eliminating this infestation.

Mandy Tu of TNC's Oregon Field Office says, "Get it now... before it's too late!"

The grass is easily identified once one is familiar with it. The pictures on the web and accompanying this article should provide a strong visual cue to the observer. The following description is my own from collections of this infestation. Systematists with a broader range of specimens will have slightly different details. Most distinctive in identifying false brome is the single row of ciliate-pilose hairs fringing the leaf blade and similar hairs covering the leaf sheath and accentuated at the collar.

The leaf sheath is open to the base. Leaf surfaces are sparsely covered by similar hairs (very sparse on the abaxial-dorsal-surface in specimens from this infestation recently collected). The leaf blades are a distinctive bright green, flat, about



Photo courtesy John Beall



***B. sylvaticum* among redwood trees.**

10-12 mm wide and 20 cm long. They are lax, curving downward from the center of the plant. The thin flowering culms (about 4 dm long) similarly nod. The inflorescence consists of six or more sessile (or very short stalked) spikelets, each about 1 cm apart on the drooping rachis. The awnless glumes subtending the spikelet are small and persistent on the rachis, which does not disarticulate. The spikelets contain 8 or more florets on short pedicels. The lemmas are longer than the glumes and bear awns (10-12 mm) longer than themselves. But I believe the flat, nodding leaf blade, the leaf and sheath hairs

and the open sheath are diagnostic, according to what others have written.

Brachypodium sylvaticum has no rhizomes or stolons. Each plant increases its size by bunching at the base until individual plants coalesce to form a solid mass. The roots are surprisingly weak for a deep-rooted bunch grass, so the plants are easy to pull with the right soil moisture, particularly if the plants are lifted first with a spading fork. Care must be exercised so that all basal growth points are eliminated. But this is tedious. Glyphosate is probably a better option for control of pure stands. Seeds are said to be short-lived.

The plant is well established around Schilling Lake in Portola Valley in San Mateo County on the peninsula south of San Francisco. It must have been there for some time. Though we have not fully mapped the extent of the infestation, it stretches at least 1 mile (the area of most dense cover is about 1/2 mile long) along the steep canyon of Dennis Martin Creek from near the base of the Santa Cruz Mountains to the crest, perhaps. Its spread laterally from the creek is unknown. This is mostly redwood forest. It does not seem to grow in the densest shade of the redwoods, but does well where there are sun breaks and in the mixed evergreen forest nearby. In those few spots where there is full sun, it grows luxuriantly.

The center of the infestation is on Midpeninsula Regional Open Space District

(MROSD) land in Thornewood Open Space Preserve and their resource manager is very interested in controlling the infestation. It also occurs on private property along Grandview Terrace and Espinoza Drive at Highway 84 near Skyllonda. Our San Mateo County Weed Management Area (WMA), the county agriculture commission, and the local CNPS chapter are very concerned also. Regardless of state designation, this is definitely a plant to become familiar with, identify and eradicate where possible in California. It has the potential to become widespread in the coastal mountains with serious ecological implications. As Mandy Tu of The Nature Conservancy's Oregon Field Office said when hearing of our collection, "Get it now...before it's too late!"

Follow up note: On January 13th, a group of representatives from MROSD, the California Native Plant Society, the San Francisco Watershed Council, California State Parks, and other members of the San Mateo County WMA visited the *B. sylvaticum* infestation to appraise the situation and begin making management decisions. They estimated the extent of the infestation at approximately 30 acres. Approximately half of this area is on MROSD land, and half is on adjacent or nearby private land. Much of the area is also heavily populated with native, perennial grasses, which will pose additional management challenges. The group will coordinate through the Weed Management Area to determine the best methods for control. They will likely start by containing the infestation, then work on eradication.

IPINAMS: Landmark conference on invasives

In November, the first ever IPINAMS ("Invasive Plants in Natural and Managed Systems") conference was held in Fort Lauderdale, FL. The meeting was organized by the Weed Science Society of America and the Ecological Society of America, and represented a historical coming together of researchers studying invasive plants from different disciplines. Over 800 people attended from around the world, sharing their research, experience and ideas on invasive plant biology and control. Keynote speakers included the Executive Director of the U.S. National Invasive Species Council

and Forest Service Chief Dale Bosworth. Many items from the National Management Plan were addressed during the conference, including Early Detection/Rapid Response, regulatory streamlining, prevention, control and management, restoration, education. At a workshop on nursery introductions, Cal-IPC's landscaping brochure was well-received.

The IPINAMS organizing committee was co-chaired by Carla D'Antonio and Nelroy Jackson, both past board members of Cal-IPC.



Readings, Resources & Reviews

The Federal Interagency Committee for the Management of Noxious and Exotic Weeds (FICMNEW) has released an updated version of their **National Early Detection and Rapid Response System for Invasive Plants in the United States**. Those wishing to participate in Phase II testing and development of the local, state, and regional aspects of the system should contact FICMNEW. To view the National EDRR plan visit <fcmnew.fws.gov/FICMNEW_EDRR_FINAL.pdf>

The California Watershed Network and the Watershed Management Council released a report on the **California Watershed Forum** held in September, 2003. The report

identifies the main issues facing watershed partnerships, and outlines an action plan with four primary aspects of communication, funding and technical support, regionalization, and self-help. <www.watershednetwork.org>

The Alien Plant Working Group's **Invasive Plant Calendar for 2004** is now complete and available on-line. The calendar includes invasive plant meetings, workshops, and other events. <www.eventcal.net/weeds_gone_wild>

Want to **write a press release** for your weed event? The Center for Invasive Plant Management has tips on how to do so. <www.weedcenter.org/info/howtonewsrelease.doc>

The **Organic Weed Management Website** provides organic gardeners with information about the biology of garden weeds, including identification, management strategies and ecological information. <www.css.cornell.edu/WeedEco/WeedDatabase/index2.html>

Two new publications are available through the **Aquatics Ecosystem Restoration Foundation**: *Best Management Practices for Aquatic Plant Management* and *Economic Impact of Aquatic Weeds-Literature Review*. <www.aquatics.org/index.html>

The **Center for Invasive Plant Management** is once again offering grants up to \$5,000 for enhancement of Cooperative Weed Management Areas in the West. Deadline for proposals is March 5, 2004. Online application form at <www.weedcenter.org/grants/cwma-rfp-2004.htm>

A University of Nevada Cooperative Extension fact sheet on **"Measures to Prevent the Spread of Noxious and Invasive Weeds During Construction Activities"** is available at <www.unce.unr.edu/publications/FS03/FS0359.pdf>

Treatment Calendar

Adapted from a card put out by the Solano County Weed Management Area, which is double sided and outlines the timing for control of barbed goatgrass, medusahead, common reed, arundo, and pampasgrass, in addition to the weeds below. To obtain a copy of the calendar contact the WMA through their website at <www.co.solano.ca.us/SubSection/SubSection.asp?NavID=1058>.

Solano County Weed Management Area 2002												
Broadleaf Weeds	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Yellow starthistle, Purple starthistle		Transline® 2,4-D, Dicamba, Garlon® or glyphosate			Grazing		Mowing Burning					
Artichoke thistle	Remove flowers previous spring, glyphosate in following spring		Garlon3A®		Cut near base, paint with 25% glyphosate							
Tamarisk						Cut near ground, apply Garlon 4® or Pathfinder to stump®		Foliar: glyphosate, Arsenal®, or Garlon 3A®				
Puncturevine		Hand pulling or hoeing glyphosate, Prowl® or 2,4-D									dithiopyr pre- emergence	
Perennial pepperweed	Mowing		Chopper®, Telar®, Arsenal®, Stalker®		Do not apply these herbicides near water.							
			2,4-D or glyphosate		If dense, mow area and apply to resprouting plants.							

The WILDLAND WEED CALENDAR

Are you holding a weed event? If you have a regional, statewide, or national event that you would like to see mentioned here, please send info to <brichardson@cal-ipc.org>.

Workshop on the Critical Issues of Biological Control

February 1-3, 2004
Greenbelt, MD

U.S. Department of Agriculture's (USDA) Agricultural Research Service (ARS), will host a workshop on critical issues in biological control. The workshop will seek to determine how ARS can best contribute to the advancement of biological control.

Contact Chris Dionigi or Ernest S. Delfosse of the ARS, 301-504-6470.

Idaho Weed Conference

February 4-5, 2004
Nampa, ID

Presentations will include the ecology of weed invasions, early detection of leafy spurge and other weeds using NASA program techniques, nursery establishment, distribution and monitoring of important biological control agents for knapweeds, purple loosestrife and toadflaxes.

<idahoweedcontrol.org/weedconference.html>

Weed Science Society of America Annual Meeting

February 9-12, 2004
Kansas City, MO

Symposium topics will include: the fate of agrochemical in the environment and the

implications for water quality, remote sensing, crop biotechnology, and the sustainability of glyphosate. <www.wssa.net>

Invasive Species Plant Workshop

February 12-13, 2004
Kansas City, MO

The North America Weed Management Association (NAWMA) will co-sponsor an Invasive Plant Species Workshop with the Weed Science Society of America (WSSA), following the WSSA meetings.

<www.wssa.net/2004mtng.pdf>

National Invasive Weed Awareness Week (NIWAW 5)

February 23-26, 2004
Washington, DC

This event keeps growing, with weed advocates attending from around the country to attend sessions with high-ranking agency officials and lawmakers. Property rights and the passage of HR 119, providing \$100 million to local WMAs, are sure to be important topics this spring.

<fcmnew.fws.gov/>

Invasive Species Advisory Committee (ISAC) Meeting

March 2-3, 2004
Oahu, HI

A field tour is tentatively scheduled for ISAC members on March 4, 2004.

Invasive Species Working Group Meeting

March 15, 2004
Spokane, WA

The National Military Fish and Wildlife

Association (NMFWA) will hold its annual training workshop in conjunction with the North American Wildlife and Natural Resources Conference. The Invasive Species Working Group of NMFWA will meet at 8:00 a.m.

<www.wildlifemanagementinstitute.org>

Living Landscapes: Linking Ethnobiology and Restoration Ecology in the Revival of Native Systems

March 24-27, 2004
Davis, CA

The 27th annual conference of the Society of Ethnobiology will discuss the enduring stewardship legacy of the Native peoples of the United States, Canada, and Mexico. <ethnobiology.org/2004Conference/>

Ecology and Management of California Grasslands

April 2-3, 2004
Berkeley, CA

Sponsored by the California Biodiversity Center. Conference attendees will compare research findings and explore the scientific basis for management decisions.

<cbc.berkeley.edu/grass>

Native Grasses and Graminoids: Tools for Protecting Water Quality

April 22-25, 2004
Modesto, CA

Annual conference of the California Native Grass Association. Three days are split between workshops, technical sessions, and fieldtrips. <www.cnga.org>

Quotable:

“Putting in rye grass does not help with erosion... It provides a superficial cover of roots that won't do enough to stabilize the soil.”

Bill Tippetts, California Department of Fish and Game, in the San Diego Union Tribune, November 14, 2003.

“With a flavor like candy, Yellow Star Thistle Honey comes from a vibrant wildflower growing throughout Northern California. As the [human] population grows, stands of these yellow, fuzzy flowers become fewer and fewer. Beekeepers vie for hive locations in the last areas densely covered with Yellow Star Thistle. Use honey happily because honey has NO FAT!”

California Yellow Star Thistle Honey label, from the Moon Shine Trading Co., Woodland, CA. Available at Peet's Coffee & Tea.

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Thank you for your generous support! This list reflects donors and new members since the last newsletter.

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Tarja Sagar (Thousand Oaks)
Julie Etra (Western Botanical Services, Reno)
Ken Poerner (Solano Land Trust, Fairfield)

Life Members

John R. Ekhoﬀ (Cal. Dept. of Fish & Game, Long Beach)
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Gigi Hurst (Habitat West, Inc., Escondido)
Micki Kelly (Kelly Biological Consulting, San Anselmo)

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Cal-IPC stuff...

All proceeds from the sale of Cal-IPC merchandise go directly to the work we do to protect California's wildlands from invasive plants.

Aquatic and Riparian Weeds of the West. 2003. Joseph M. DiTomaso and Evelyn A. Healy. Published by University of California Press. 442 pages, more than 550 color photos. Each species description provides detailed information on the distribution, habitat, propagation, phenology, management considerations, and characteristics that allow distinguishing between similar or related species. **\$48.30 includes tax and shipping**



Logo water bottle

These quart-size Nalgene® are perfect for a hike, a day at the desk or a day in the field. Comes in dark blue, violet, turquoise, sage green, and bright green. **\$18.00 includes tax and shipping**

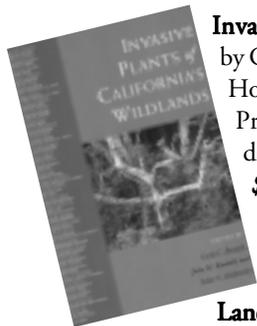


T-Shirts

Help spread the word, not the weeds! Our new high-quality cotton tees have the Cal-IPC logo on the front, and "Save California's Landscape! Stop the Invasion of Wildland Weeds" on the back. Shirt colors: Navy, Grey, White. Shirt sizes: YM, YL, S, M, L, XL. **\$18.00 includes tax and shipping**



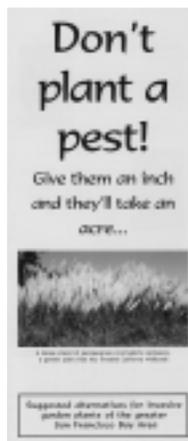
Visit www.cal-ipc.org for color photos and order forms. To place an order, call (510) 525-1502.



Invasive Plants of California's Wildland. 2000. Edited by Carla Bossard, John M. Randall, and Marc C. Hoshovsky. Published by University of California Press. 360 pages, 133 color photographs, includes distribution maps and control information. **\$31.88 includes tax and shipping**

Landscaping Alternatives brochure

The product of an extensive collaborative process, this 14-panel brochure presents the connection between landscaping and wildland weed problems, and gives safe alternatives for a dozen invasive plants sold in the San Francisco Bay Area. Target species include iceplant, vinca, English ivy, brooms and pampasgrass. See pdf file at www.cal-ipc.org for more detail. **\$30.00/hundred brochures requested donation**



Cal-IPC Membership Form

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

Cal-IPC'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

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Affiliation

Address

City, State & Zip

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Home Phone

Fax

E-mail

Credit Card No.

Exp. Date

Additional donations for:

- Nursery outreach and education \$ _____
International Broom Initiative \$ _____
Cape ivy biocontrols research \$ _____
Cal-IPC News and operating costs \$ _____

Ways to sign up:

Mail: send this form with check (made out to "Cal-IPC") or credit card info to Cal-IPC, 1442-A Walnut Street #462, Berkeley, CA 94709

Fax: fax form with credit card info to 510/217-3500

Email: send contact and credit card info to dwjohnson@cal-ipc.org

Phone: call us at 510/525-1502 and provide contact and credit card info



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ADDRESS SERVICE REQUESTED



*A fuzzy vibrant wildflower, threatened by human expansion—
are we talking about the same yellow starthistle?! Page 13*