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
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.

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.
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.

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.

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Help grow our membership!

We’ve recruited 236 new members in the last two months! 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 —

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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.

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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...

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Progress on the Biological Control of Tamarisk

Diciduous 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 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 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
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>.
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 known 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**

Tamarix 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.

<table>
<thead>
<tr>
<th>Water Losses: Municipal</th>
<th>$1.4 to 3.7 billion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Losses: Agricultural</td>
<td>$2.1 to 6.7 billion</td>
</tr>
<tr>
<td>Water Losses: Hydropower</td>
<td>$880 million to 2.4 billion</td>
</tr>
<tr>
<td>Water Losses: Recreational</td>
<td>$29 to 132 million</td>
</tr>
<tr>
<td>Flood Damage</td>
<td>$2.9 billion</td>
</tr>
<tr>
<td>Wildlife Losses</td>
<td>$85 to 360 million</td>
</tr>
<tr>
<td><strong>Total Estimated losses</strong></td>
<td><strong>$7.39 to 16.16 billion</strong></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Discount rate</th>
<th>Net Benefits ($1998/acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>$3,312 to 6,975</td>
</tr>
<tr>
<td>1%</td>
<td>$2,146 to 4,966</td>
</tr>
<tr>
<td>2%</td>
<td>$1,363 to 3,584</td>
</tr>
<tr>
<td>3%</td>
<td>$837 to 2,525</td>
</tr>
<tr>
<td>4%</td>
<td>$484 to 1,954</td>
</tr>
<tr>
<td>5%</td>
<td>$249 to 1,483</td>
</tr>
<tr>
<td>6%</td>
<td>$95 to 1,147</td>
</tr>
</tbody>
</table>

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.

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 Beuarez (CO), Bonilla (TX), Cannon (UT), Cardoza (CA), Cabin (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 Beuarez (R-CO).
Bill remains in committee.

Tamarisk 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, D.C. 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.doj.gov/news/news040122.htm>
Regional

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 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 a 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 Philemone 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, 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 Marrus 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 reseeding. 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.
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
**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.

*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.

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.

**Mandy Tu of TNC’s Oregon Field Office says, “Get it now... before it’s too late!”**

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/altrbrac.html>.

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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
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 Skylonda. 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 Francisquito 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 <ficmnew.fws.gov/FICMNEW_EDRR_FINAL.pdf>


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/howtowritepressrelease.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>


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, mesusaxhead, 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>.

<table>
<thead>
<tr>
<th>Solano County Weed Management Area 2002</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Broadleaf Weeds</strong></td>
</tr>
<tr>
<td><strong>Jan.</strong></td>
</tr>
<tr>
<td>----------------------------------------</td>
</tr>
<tr>
<td>Yellow starthistle, Purple starthistle</td>
</tr>
<tr>
<td>Transline*</td>
</tr>
<tr>
<td>2,4-D, Dicamba, Garlon® or glyphosate</td>
</tr>
<tr>
<td>Grazing</td>
</tr>
<tr>
<td>Mowing</td>
</tr>
<tr>
<td>Burning</td>
</tr>
<tr>
<td>Artichoke thistle</td>
</tr>
<tr>
<td>Remove flowers previous spring, glyphosate in following spring</td>
</tr>
<tr>
<td>Cut near base, paint with 25% glyphosate</td>
</tr>
<tr>
<td>Tamarisk</td>
</tr>
<tr>
<td>Foliar: glyphosate, Arsenal®, or Garlon 3A®</td>
</tr>
<tr>
<td>Cut near ground, apply Garlon 4® or Pathfinder to stump®</td>
</tr>
<tr>
<td>Puncturevine</td>
</tr>
<tr>
<td>glyphosate, Prowl® or 2,4-D</td>
</tr>
<tr>
<td>Hand pulling or hoeing</td>
</tr>
<tr>
<td>dithiopyr pre-emergence</td>
</tr>
<tr>
<td>Perennial pepperweed</td>
</tr>
<tr>
<td>Chopper®, Telar®, Arsenal®, Stalker®</td>
</tr>
<tr>
<td>Do not apply these herbicides near water.</td>
</tr>
<tr>
<td>If dense, mow area and apply to resprouting plants.</td>
</tr>
<tr>
<td>Mowing</td>
</tr>
<tr>
<td>2,4-D or glyphosate</td>
</tr>
</tbody>
</table>

12 Cal-IPC News Winter 2004
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.
<idahoweekcontrol.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 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.
<fiicmnew.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.cngra.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 Tippets, 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.
New and Contributing Members

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

Donations
Tarja Sager (Thousand Oaks)
Julie Ezra (Western Botanical Services, Reno)
Ken Poerner (Solano Land Trust, Fairfield)

Life Members
John R. Ekhoff (Cal. Dept. of Fish & Game, Long Beach)
Joan and Kevin Bockman (Buena Vista Native Plant Club, Oceanside)
Elizabeth Crispin (Mount Shasta)
Gigi Hurst (Habitat West, Inc., Escondido)
Micki Kelly (Kelly Biological Consulting, San Anselmo)

Sustaining Members
Greg Archbald (Grass Valley)
Christie & John Hastings (Lafayette)
P.L. Overnir (San Francisco)
Sally Falkenhagen (Menlo Park)
James S. Young (El Cerrito)
Zeb Young (Santa Rosa)
Annette Wheeler (Los Altos Hills)
Dorleene Cimhan (Chirman Biological Consulting, Santa Barbara)
Victoria Jadall (Thousand Oaks)
Carolyn Johnson (Sebastopol)
Stan Weidert (Shingletown)

Contributing Members
Clarence Weinmann (Berkeley)
Mary Lynn Cox (CNPS, Kensington)
Betty Kipp (CNPS, Berkeley)
Dorothy B. Hunt (Pacific Grove)
William J. McClung (Claremont Canyon Conservancy, Berkeley)
Henry E. Bennet (Davis)
Nadene Ivens (Fullerton)
T. Charles Moore (Sunnyvale)
June Bilisoly (Portola Valley)
Jennifer Langford (Jenesis Ecological Services, Avila)
Mark Langner (California State Parks, Bridgeport)
Matthew Zlatunich (San Francisco)
Irene Winston (Berkeley)
Collette Zemetis (Dept. of Water Resources, Davis)
Laura Morgan (Oakland)
Michael Wood (Walnut Creek)
Kenneth C. Johnson (Santa Clara)
Christina M. Koten (LA Unified School District, Los Angeles)
Peter Rudy (Big Chief Tree Service, El Cerrito)

New Individual Members
Alan Erickson (Yucca Valley), Allan Thode (Murphys), Allan W. Beeson (A.W. Beeson & Associates, Nevada City), Allison Connor (Berkeley), Alyx Wall (San Diego State University, San Diego), Ann Lange (Back Country Horsemans of America, Lake Isabella), Anne T. Erikson (Master Gardener, Santa Barbara), Ari Golan (San Rafael), Barbara Brydolf (River Ridge Ranch, Springville), Barbara Williams (BLM, Lodi), Becky Pewel (Santa Cruz), Belinda Gilbert (CNPS, Alhambra), Benjamin Hirz Jr. (Santa Barbara), Bess Chrisenssen (CNPS, Lompoc), Betty DeShong Meador (Ramona), Betty Tomoe (Santa Monica), Bill Ralph (Livermore), Bob Young (CNPS, San Carlos), Bob Rutenmoeller (Redwood Coast Land Conservancy, Gualala), Bonnie Mary Rathjen (Pleasanton), Brad Monroe (Ornamental Horticulture, El Cajon), Brad Olson (East Bay Regional Parks District, Oakland), Bruce Pavlik (BMP Ecosciences, Oakland), Buck King (Oakland), Carl Hurst (Ramona), Carol D. Weiske (Greenbrae), Carroll Brentano (Berkeley), Celeste Whitlow (Cal Poly, SLO, Arroyo Grande), Cheryl Ingersoll (Corvallis, OR), Cheryl Miller (Amphion, Oakland), Chip Bouril (Tonvville), Chris K. Kjeldsen (Santa Rosa), Chris Todd (Garden Escapes by Chris, Sunnyvale), Christopher G. Brant (CNPS, Eureka), Christopher Campbell (Natural Areas Program, San Francisco), Collette Zemetis (Dept. of Water Resources, Davis), Daniel T. Munoz (Los Angeles), Daud Seznai (CDFA, Lemon Grove), David Allen (Carpathia), David C. Long (Mill Valley), David Kelley (K&S, Inc., Davis), David Loeb (Bay Nature Magazine, Berkeley), David S. Hollarombe (Los Angeles), Dawn Cope (Monterey), Dean W. Lloyd (Grass Valley), Deborah Liefenv (NH Invasive Species Commission, Londonberry, NH), Devora R. Hertz (Laguna Beach), Dianne Lake (CNPS, Finale), Dimples Beyer (Meadow Vista), Douglas Fischer (Santa Barbara), Douglas Kirby (Topanga), Dr. Deborah J. Coon (NWF Habitat Steward, San Diego), Edward F. Tuttle (UCLA, Los Angeles), Edward Munsky (Los Altos), Elaine I. Woodriff (Petaluma), Elaine P. Worthington Jackson (CNPS East Bay Chapter, Martinez), Eli Asarian (Arcata), Elizabeth Carlton (Oakland), Elizabeth Schwartz (Los Angeles), Elizabeth Warne (Sacramento), Frank Dangarma (Carmel Valley), Galen Sapp (CNPS, San Francisco), Gerald L. Moore (Petaluma), Gilbert R. Ray (Van De Water) (CNPS, Gualala), Gloria Eive (CNPS, San Leandro), Gwen Heistand (Audubon Canyon Ranch, Stinson Beach), H. Martin Pancoast (Meadow Vista), Hall Newbegan (Berkeley), Helen T. Dijkstra (Mountain View), Holly Warner (Upper Merced River Watershed, Midpines), Hugh Safford (USFS, Davis), James A. Martin (Environmental Collaborative, Emeryville), James Montgomery (San Diego), James Pommier (Pacific), Jean D. Holden (CNPS, Sonoma), Jean Swanson (Arvense Horticultural Consulting, Los Altos), Jean Vandervort (Felton), Jeff Burkhardt (University of La
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

Invasive Plants of California’s Wildlands. 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

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

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

Name

Affiliation

Address

City, State & Zip

Work Phone Home Phone

Fax E-mail

Credit Card No. Exp. Date

California Invasive Plant Council

1442-A Walnut Street, #462 Berkeley, CA 94709

ADDRESS SERVICE REQUESTED

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