Cal-IPC News

Protecting California's Natural Areas from Wildland Weeds

Vol. 16, No. 4 Winter 2009 Quarterly Newsletter of the California Invasive Plant Council

What research questions should graduate students like Janet Garcia of UC Riverside (pictured here studying artichoke thistle) pursue to help land managers? Story page 4.

Photo: Janet Garcia, Cal-IPC Photo Contest 2005

Inside:

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A California 501(c)3 nonprofit organization

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

Cal-IPC News
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Editors: Doug Johnson, Elizabeth Brusati, Heather Brady

A truly "green" New Deal

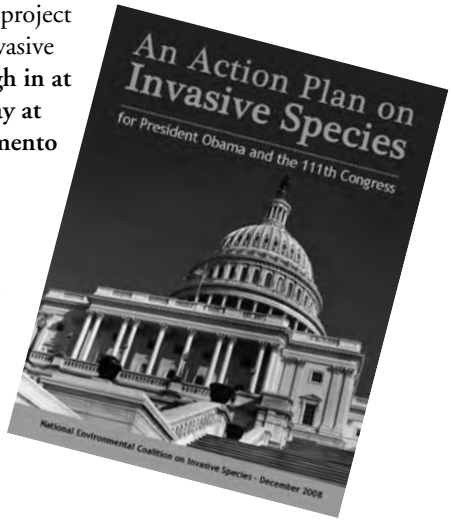
Cal-IPC recently joined partner organizations, including the California Native Grasslands Association (CNGA) and the California Society for Ecological Restoration (SERCAL), in sending a letter to Congress and the incoming administration urging them to consider environmental restoration work with any new funding for the nation's infrastructure. As our country works to maintain the systems that sustain it, we should be sure to include not just the built environment, but also the natural resources that provide essential ecosystem services. This would follow the lead of progressive agencies like California State Parks, which has begun including natural resources in their budgets for deferred maintenance.

California Conservation Corps members removing arundo near Ukiah. *Photo: John Griffith.*

In terms of job creation, restoration projects have the potential to put many citizens to work. Roles range from physical labor to project management, and include significant opportunities for professional training. Many restoration efforts are limited by available staffing, and a new work force could increase the potential for larger restoration projects.

Cal-IPC is already working with partners whose roots lie in Roosevelt's New Deal of the 1930s. Today's California Conservation Corps and twelve local Conservation Corps are modeled after the Civilian Conservation Corps that put millions of men to work on the land during the Great Depression. Conservation Corps in California provide labor for a range of projects, including invasive plant management, while training youth in valuable work skills (see *Cal-IPC News* Winter 2006 and Spring 2004). In 2009, Cal-IPC plans for the first time to hold field courses designed exclusively for corps members. Over time, these efforts will grow and diversify the work force engaged in restoration.

Before we can expand the work force, however, we need to protect current capacity from the dangerous impacts of California's ongoing budget crisis. Organizations performing restoration work funded by voter-approved bond measures have been told to stop work, and have not been paid for work already completed. This puts enormous financial stress on many organizations, while threatening project success and potentially resetting the clock on invasive plant populations being controlled. **Please weigh in at stopworkimpact.ning.com and come to our Day at the Capitol advocacy event March 11 in Sacramento** (see p. 15).



Finally, Cal-IPC joined with The Nature Conservancy, Defenders of Wildlife, and the Union of Concerned Scientists in developing an action plan for strengthening invasive species policy (pictured at left; see p.14 for url).

Wildland Weed NewsNewsNewsNewsNews

Cal-IPC Updates

Have you renewed for 2009?
Check the address label. Renew online for faster processing and an instant receipt.
www.cal-ipc.org/about/membership

Support us while searching online
Donate to Cal-IPC without spending a dime! Go to www.goodsearch.com and type "Cal-IPC" in the "Who do you GoodSearch for?" box. We receive 1.3¢ for each search. Help Cal-IPC even more by using the companion site GoodShop. Those pennies add up!
www.goodsearch.com

Be the student chapter's friend
Join their Facebook group and connect with students interested in invasive plants. See page 6.

Website updates
Our website now contains a list of California WMAs with links to their websites and profiles of those without their own sites (*www.cal-ipc.org/WMAs)*. Also, reference lists for each Plant Profiles now include newsletters and Proceedings through 2008.
www.cal-ipc.org

Chico Symposium presentations
Presentations and Proceedings papers from the 2008 Symposium are now online. Thanks to volunteer Dale Smith for designing the Proceedings.
www.cal-ipc.org/symposia

Need materials for spring events?
Order "Don't Plant a Pest!" brochures for your region and statewide brochures for Trees and Aquatic Plants. Please order early to allow time for mailing. $25 per 100 plus shipping. Spring is also a good opportunity to highlight the PlantRight program for reducing ornamental plants. PlantRight brochures are free. *www.cal-ipc.org/shop* or call 510-843-3902.

Climate change comments
Cal-IPC submitted comments to the CA Dept. of Fish & Game's draft Climate Change Action Plan. The final plan is scheduled for release in mid-2009.
www.dfg.ca.gov/climatechange

A great way to connect your local weed events with broader themes in science: **Year of Science 2009** is a national celebration with the goal of connecting the public with science. Post your events on their calendar. Each month has a theme. May's is Sustainability and the Environment; September's is Biodiversity and Conservation. *www.yearofscience2009.org*

Are **Burmese pythons** on their way to California? According to an article in the February 2009 issue of *Biological Invasions*, the snake that has been found in the Everglades could survive much further north, including along the California coast to the San Francisco Bay Area, in the Central Valley, and in most of the southern California desert. As the climate warms, more of the state will become suitable habitat. The state of Florida is trying to eradicate pythons before they escape the Florida peninsula. Rodda, G. H. et al. 2009. Biological Invasions. 11:241–252

The California Department of Food and Agriculture's border inspection stations will be featured on the ABC-TV series "**Homeland Security.**" With the help of CDFA's Plant Pest Diagnostics Lab, inspectors intercepted over 2,500 confirmed exotic invasive species capable of causing damage to California's agricultural and urban environments in 2008. *www.cdfa.ca.gov*

A biocontrol agent released to control saltcedar (*Tamarix ramosissima*) may be doing its job too well. *Diorhabda elongata* beetles were released to control saltcedar in Utah. US Department of Agriculture scientists did not think it could survive below 38° latitude. However, individuals not associated with USDA appear to have released the beetle further south and **it is now defoliating saltcedar trees used as nesting sites by the endangered Southwestern willow flycatcher.** The Center for Biological Diversity has filed suit against USDA for violating the Endangered Species Act and is requesting an updated consultation with the US Fish and Wildlife Service for the saltcedar biocontrol program.
www.biologicaldiversity.org/species/birds/southwestern_willow_flycatcher/pdfs/notice-20081212.pdf

Researchers have identified water dispersal as a **new vector for spreading for Brazilian peppertree** (*Schinus terebinthifolius*), a South American tree that causes serious problems in Florida and also invades Southern California. Birds and mammals also eat and drop peppertree seeds. Donnelly, M. J., and L. J. Walters. 2008. Estuaries and Coasts 31(5): 960-968. Read the abstract at *erf.org/cesn/vol31n5r2.html. Coastal and Estuarine Science News, www.erf.org/cesn*

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Budget Update:

Like many other organizations, Cal-IPC has received a "stop work" order on bond-funded projects.With the tightening of foundation and state funding, your year-end donations are extremely valuable in helping us maintain our programs. Thank you. Cal-IPC will continue to advocate for maintaining support to restoration projects.

Correction:

Our Fall issue failed to acknowledge Symposium sponsorship by the Los Angeles Conservation Corps. We regret the omission. Besides Los Angeles, local conservation corps exist in Long Beach, San Francisco East Bay, Fresno, Marin County, Orange County, Sacramento, San Francisco, San Jose, Tulare County, San Gabriel Valley, and San Diego.
www.calcc.org

Feature

"We don't know what we need to know"*

Identifying high-priority research needs for invasive plants

By Ramona Robison, UC Davis and California Botany, rarobison@ucdavis.edu

What research is underway on invasive plants in California? Who is doing the research? What types of research would land managers like to see in coming years? How can this be accomplished?

These were the questions on the mind of Cal-IPC and state weed program leaders when they organized a meeting at UC Davis in 2005. The group developed a list of topic areas in need of research and started on the process of gathering information. The need for a compilation of research needs also became clear during development of the California Invasive Plant Inventory. We lack basic biological information on seed germination, temperature tolerances and growth rates for many of the common invasive plants in California.

The goals of the project were to:

- Gather information on who is conducting invasive plant research in California
- Develop a summary on needs for invasive plant species research
- Conduct outreach to academics and graduate students to stimulate work in the priority areas
- Share results with the larger community of invasive species research and management.

In 2008, the California Department of Food and Agriculture (CDFA) provided funding to move the project forward. The final report lists 66 research needs in the 10 topic areas chosen in the 2005 meeting. The report is based on interviews with 45 leading researchers in California and will be available soon at www.cal-ipc.org. A list of 243 researchers is also available from Cal-IPC. They range from faculty at University of California and California State campuses to private colleges and universities such as Stanford, Mills and St. Mary's. UC Cooperative Extension and government scientists at the California Department of Food and Agriculture, US Department of Agriculture, US Forest Service, and National Park Service are included, as well as regional and local non-profits who manage land.

**Jake Sigg at the 2005 Research Roundtable*

Research Needs Topic Areas:

Biology & Ecology

Ecological Impacts

Distribution, Biogeography & Range Modeling

Risk Assessment

Human Pathways & Prevention

Control & Management

Restoration

Economic Impacts

Social Issues

Policy & Laws

How do invasive plants affect wildlife? An endangered California least tern chick (*Sterna antillarum*) rests its head on a piece of *Arundo donax* (giant reed) while taking cover under invasive *Cakile maritima* (sea rocket). *Photo: John Hyde, NOAA, Cal-IPC 2005 Photo Contest*

A working group at the 2008 Symposium discussed prioritizing the research needs identified in interviews. Participants noted a distinction between academic research which could be completed by faculty and graduate students, and policy research which would be more appropriate for Cal-IPC or other non-government organizations.

Research needs identified

The high-priority research needs include a broad range of emphasis areas, from impact analysis to specific management strategies. The working group chose 17 specific high priority needs and also identified a need for overall synthesis of research in biology and ecology; ecological impacts; control and management; restoration; and social issues.

Six of the priority needs focus on social components of invasive plant management, addressing **economic, philosophical and policy issues**. Economic analysis was seen as the highest priority overall by the work group. We need much more information on the costs to our economy of invasive plants. Valuable "ecosystem services" provided by natural communities can be irrevocably altered by invasive plants but good methods to quantify those losses are not readily available. Collaboration between economists and ecologists is needed to achieve these goals.

Policy issues address several areas where Cal-IPC is active. Impacts caused by **horticultural plants** were also seen as a priority for research. Cal-IPC's participation in the PlantRight Campaign has brought this subject to a wider audience, but we do not have information yet on whether this type of voluntary industry self-regulation can be effective in stemming the tide of horticultural introductions. Other **policy and law**

> "We need what medicine developed, a systematic review of research using standardized techniques." *Dan Gluesenkamp, Audubon Canyon Ranch*

How can we address invasive horticultural plants? The PlantRight committee visits a seed breeding facility. *Photo: Cal-IPC.*

priorities for research included evaluating the success of the WMA program in comparison to efforts in other states.

> "How can key ecological processes be replaced? An example, is cutting equivalent to burning?"
> *Carla Bossard, St. Mary's College*

Other priority needs can be thought of in the context of invasion stages: arrival, establishment, spread and impact. One priority addresses **pathways of entry**, the arrival stage. We need more information on which pathways of entry are facilitating introductions into California. Research can also be conducted on where new plant invaders are likely to originate, in order to aid pro-active measures such as Early Detection Networks.

Management of invasive plants begins at the establishment and spread stages of a plant invasion. Several needs relate to general management (spread along roads, restoration), and two of them relate specifically to **managing the seedbank**. More information is needed on the seed biology of a wide variety of plants to develop long-term management strategies. Methods to encourage rapid seed germination (flushing the seedbank) would also benefit land managers. **Standardizing monitoring** was also seen as important for determining which management strategies are most successful.

Impacts caused by invasive plants once they arrive, and specifically the **impacts to wildlife and endangered or threatened species** were seen as priorities. To what extent do wildlife use invasive plants? Are the impacts to wildlife positive or negative? The impacts to the rest of the ecosystem from invasive plant removal was also a priority.

All of the priority needs listed above would benefit from development of **statewide weed maps** for high priority species. Although this is not a research project on its own, gathering this information in one location would facilitate new research projects as well as regional efforts in management and prioritization.

In addition to subjects for academic research, participants in the working group and interviews also identified the need for education and training on specific topics:

Modeling for land managers - Models need to be adapted so that they can be used by land managers. Training could be provided through Cal-IPC or another centralized organization to help with use of the models. Modeling is also needed for prioritization at the Weed Management Area level.

Grazing - Some invasive plant managers need to be educated on the basic facts of grazing. This type of training could be made available through Cal-IPC or UC Cooperative Extension.

Monitoring effectiveness - Invasive plant managers need an easy way to monitor the effectiveness of eradication and restoration projects. Quick site-specific species assessment methodology to help with prioritization and control would also be useful.

> **"The whole social science world is a huge research gap. We are not good at telling stories about our work with numbers."**
> ***Pete Holloran, UC Santa Cruz***

Horticultural invasives - Social science research is needed to determine the best ways to change attitudes and practices about horticultural plants. What information is currently distributed to horticulture professionals and the general public, and is it effective?

Communicating with the public - The invasive plant management community could learn to take advantage of windows of opportunity in our community to spread a message. For example, we could learn to be "on message" by incorporating information on the PlantRight Campaign into our daily work and communications.

Information for graduate students

The final report includes a list of funding sources for graduate students. Public agencies interviewed, such as the National

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What is the best way to manage the seedbank? Heather Schneider of UC Riverside collects soil seedbank cores in Joshua Tree National Park. *Photo courtesy H. Schneider*

Stopping yellow starthistle at its leading edge

By Wendy West, UC Cooperative Extension El Dorado County and Cal-IPC Vice-President, wkwest@ucdavis.edu

Yellow starthistle (*Centaurea solstitialis*) is one of the most ecologically and economically damaging invasive plants in California. Although areas of California remain uninfested, yellow starthistle (YST) has shown it can invade most bioregions. YST has invaded the foothills of the Sierra Nevada Mountains and is poised to expand into the higher elevations including the Lake Tahoe Basin and Yosemite National Park.

Yellow starthistle is capable of growing, and has been detected in small populations, at high elevation locations in California's Sierra Mountains including the Lake Tahoe Basin and Yosemite National Park. It has long been the consensus of the invasive weed community that the coordination of early detection and rapid response strategies are key in preventing the spread of invasive weeds. The Sierra Nevada Mountains and their important natural values — 12.9 million acres of public lands, 48 threatened and endangered plant and animals species, timber production and recreational and property values — can be protected by stopping the eastern spread of YST along a "no-spread" line in the fourteen county Sierra foothills region.

Sierra Nevada foothill counties participating in the regional project. *Map courtesy Wendy West*

Treatment of hard-to-reach yellow starthistle in the Merced River canyon. *Photo courtesy Wendy West*

A coordinated, regional project to control YST populations at an eastern leading edge line across the Sierra foothill counties, from Plumas to Kern, was initiated by the California Department of Food and Agriculture (CDFA) in 2007. This project is one of the first in California to address invasive species in a coordinated manner over a large region. Project elements include: 1) surveying, mapping and control of YST at the eastern leading edge, 2) detection and eradication of outlier YST populations beyond the "no-spread" line, 3) establishment of a centralized GIS database to document results and 4) "Yellow Starthistle Prevention Areas" along the YST stop-the-spread line with educational signage and contact information for when YST populations are detected in the designated area. By implementing a regional-scale early detection and eradication plan utilizing the Weed Management Area (WMA) infrastructure and a project coordinator, collaboration among landowners and local, state and federal agencies has increased to utilize resources more effectively.

In 1999 and 2000 CDFA conducted a YST detection survey along major and secondary roadways in the Sierra Nevada foothills. Based on this data, several counties in the region have established YST "no-spread" lines and identified outlier populations to eradicate east of the leading edge line. The goal of this project is to expand these detection survey, mapping and control/treatment efforts across the entire foothill region.

A project coordinator from University of California Cooperative Extension was hired by CDFA in late 2007 to facilitate grant administration, federal, state and local stakeholder and agency coordination, and to identify the barriers and needs of the local WMA to participate and succeed in implementing the project. Twelve WMA groups within the region developed work plans and received $5000 mini-grants for survey, mapping and/or control/eradication work during the 2008 field season. Lead agencies on the project included County Agriculture Departments, University of California Cooperative Extension and Resource Conservation Districts. Six WMAs completed detection survey and mapping work to produce a baseline data set for their county, while the remaining WMAs completed survey and mapping of historical populations plus treatment of YST. Priority areas for survey and mapping included: burned areas, construction and road development sites, high risk areas near threatened and endangered species, important wildlife habitat and high value timber and recreation areas.

The project coordinator worked with each WMA to identify barriers and needs to implement the leading edge project successfully. Identified needs included: 1) long-term funding for on-the-ground survey and control/eradication activities; 2) challenges in hiring trained, seasonal and/or part-time

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Getting to know the Cal-IPC Student Chapter

By Heather Schneider, Cal-IPC Student Chapter Co-chair, University of California, Riverside, calipcsc@gmail.com

As the Cal-IPC Student Chapter continues to move forward with its mission to bring students and professionals together, we thought it would be nice to introduce ourselves to the members of Cal-IPC. To that end, the student chapter will include short biographies of our student members in addition to updates on our activities and accomplishments. We feel that sharing our own stories and research interests is important for creating a network of people who share interests and ideas. So if you read a bio that sounds interesting to you and you'd like to know more (or better yet, to mentor that person), don't hesitate to let us know. We all have a lot to share and a lot to learn…so let's do it!

Sara Jo Dickens at a prescribed burn on the Santa Rosa Plateau. *Photo: Carole Bell*

Chapter Co-chairs

Sara Jo Dickens, UC Riverside (*by Sara Jo Dickens)*

Sara Jo spent her childhood in the farm and woodlands of Minnesota. Following undergraduate research in northern Minnesota, she became dedicated to understanding plant invasion and how its effects could be reversed.

Sara Jo earned a Bachelor of Arts degree in Biology at the University of Colorado, Boulder in 2003. She returned to Minnesota to work for the US Forest Service controlling invasive plants and gained an appreciation for the challenges of managing wild lands.

In 2005, she entered the University of California, Riverside's Botany and Plant Sciences graduate studies program where she currently researches invasive plant invasion effects on ecosystem processes. Her research interests include: exotic plant ecology, soil ecology, above and belowground feedbacks, ecosystem biogeochemical cycling in reference to exotic plant invasion, and fire and restoration ecology.

Heather Schneider, UC Riverside

Heather grew up in the Chicago area where she enjoyed the city atmosphere, as well as the outdoors. Having always been interested in science, Heather obtained a Bachelor of Science degree from Elmhurst College in 2005. She moved to California in the fall of 2005 and began a PhD program at UC Riverside in the Department of Botany and Plant Sciences.

Heather's research focuses on the effects of invasive annual grasses and nitrogen deposition on native annual forbs in California deserts. Her experiments include looking at the effects of grass removal and nitrogen fertilization on native annual forbs, examining soil seed banks, seed germination at multiple nitrogen levels, and seedling growth under different water and nitrogen levels.

What have we been up to lately?

- Created an outreach program to educate the public about invasives plants. We have used it at 10 plant sales in southern California so far!
- Established contacts and collaborations with three Weed Management Areas, Santa Ana Watershed Association, and a Resource Conservation District.
- Attended the Cal-IPC Symposium in Chico, set up a booth about the student chapter, ran a student recruitment luncheon, and acted as volunteers, speakers, and poster presenters.
- Designed and sold t-shirts to raise funds for the chapter (shirts sold out!).
- Contacted local teachers about getting involved with children's education.
- Wrote an introductory article for the Santa Ana River/Orange County WMA newsletter.
- Attended the December Cal-IPC board meeting to share updates and ideas.
- Contacted students at UC Santa Cruz, UC Davis, UC Santa Barbara, and UC Irvine and provided them with branch start up materials.
- Created a Facebook page.

The student chapter has many more activities planned for 2009. See the box above for how to contact them and learn more.

Join us!

Email: calipcsc@gmail.com

Facebook: Search for the Cal-IPC student chapter or use the link at www.cal-ipc.org (under "What's New").

Cal-IPC Student Chapter. *Front:* Sara Jo Dickens, Heather Schneider, Robin Marushia, Oli Bachie. *Back:* Sarah Pasquini, Kai Palenscar, Milt McGiffen, Mike Bell

East Bay volunteers head to the hills and the shores

By Susan Schwartz, Friends of Five Creeks, f5creeks@aol.com. Photos by Susan Schwartz.

"I pay my therapist $125 an hour and I don't get anywhere near as much benefit from it as I do spending an hour out here!"

"This is as good a workout as the gym!"

Those are typical comments among the growing number of city dwellers volunteering to help remove invasives from the Berkeley-Oakland Hills to the shoreline east of San Francisco Bay. Loosely under the auspices of Friends of Five Creeks, an all-volunteer watershed-restoration group, projects over the last 10 years have included hand-pulling yellow starthistle on the shoreline from Berkeley into Richmond (successful) and pulling, digging, and cutting perennial pepperweed along the same shoreline (only containment achieved so far).

Working with the cities of Berkeley, Albany, and El Cerrito, as well as the East Bay Regional Park District, Friends of Five Creeks volunteers also have wrenched out a forest of 10-foot-high broom plants from Eastshore State Park, pickaxed big Pampas grass clumps, pulled out creekside tangles of cape ivy and Bayshore carpets of ice plant, and freed Mortar Rock Park – a Native American seed-processing site in Berkeley – from smothering Algerian ivy. They are gradually digging out almost a half mile of evergreen thornless blackberry (*Rubus ulmifolia*) from the banks of Cerrito Creek, a small but historic creek on the Alameda-Contra Costa County boundary. The blackberry's whip-like canes formed an impenetrable jungle that hid trees, spanned the creek, trapped silt and garbage, and increased floods.

UC Berkeley students pull ice plant at Point Isabel with Greens at Work.

Friends of Five Creeks is one of many local watershed groups that hold regular work parties in the East Bay.

With F5C, small-scale projects and maintenance are handled by the Weekday Weed Warriors, who work for a couple of hours on Tuesday mornings, followed by coffee and chat. Large work parties, usually 10 to 40 people, do the heavy work, including erosion control and re-planting with appropriate natives. The group hosts almost 50 work parties a year, including monthly work parties open to all and events for religious, business, service, and student groups. UC Berkeley students are a major source of help.

To the south, in Oakland, another major volunteer effort started in 2004, when Wendy Tokuda, a well-known local newscaster with CBS Channel 5, got tired of watching broom take over the ridgetop trails and views in Redwood Regional Park, where she walks her dog. The park supervisor loaned her a weed wrench and showed her how to use it. Passers-by joined in. The project soon grew to a regular event, with East Bay Regional Park District supplying tools, snacks, green-waste removal, and, eventually, transportation. Work had started near a parking lot, but so much broom has been cleared that volunteers often travel 2.5 miles to work sites. Slathered with poison-oak block, they also venture far off trails, sometimes discovering – and rescuing - beautiful meadows.

"People love pulling those big bushes," Tokuda said. "It gives everyone such a concrete feeling of accomplishment at the end of the day, to see a large cleared area and a huge pile of brush. But for me what is satisfying is to see the native plants re-emerge, especially the grasses."

The Redwood Regional Park project now offers two events monthly: broom removal on second Saturdays on the ridgetop, and lighter work such as removing ivy and vinca on third Sundays in the Redwood Creek canyon.

A sibling project is doing wonders in Beaconsfield Canyon, a neglected city park in the steep Oakland Hills. With memories of the 1991 Oakland firestorm strong, Richard Kauffman, who lives in one of the homes edging the canyon, explained that he got started when he found himself "looking over his backyard fence and seeing this disaster waiting to happen."

"I was skeptical about getting volunteers. I didn't have time. I'm not an organizer," Kauffman said. Only six people showed up at the first work party, on Earth Day 2007.

The weed worker's exercise program: Haul that broom!

Berkeley High students roll ivy at Mortar Rock to make removing the ivy more manageable.

One of them was Wendy Tokuda. "I had in mind putting it on the city's shoulders," Kauffman laughed. "She said I should have regular work parties instead: 'Little by little, things will get done. A few people will show up, and that's OK. So which Saturday do you want to do it?'

"We've had monthly work days ever since."

High school students tackle pepperweed along the shores of San Francisco Bay.

In the last year and a half, Beaconsfield's small band of volunteers has hauled out over 100 cubic yards of broom, thistle, Himalayan blackberry, ivy and other invasives. Once the workdays got going, the Oakland Fire Department took a greater interest, establishing a three-year clearing program to do the heavy work that volunteers could not.

Friends of Sausal Creek, a very active local watershed group, adopted the project, helping with publicity, organizing planting days, and donating hundreds of plants from their nursery, which propagates local natives. They have found almost 50 species of native plants surviving, including locally rare black cottonwood. "I'm spending more time on the canyon than ever," Kauffman says, "since I'm now on the board of FOSC. But I'm learning a tremendous amount about ecology and native plants and how our work is part of the larger effort to protect the entire watershed."

Another citizen-led volunteer effort is headed by Berkeley environmentalists Tom and Jane Kelly. During summer evening bicycle rides on the Bay Trail, they became concerned with the thickets of broom, fennel, and ice plant edging the trail. They started removal on their own in 2007, picking a highly visible, popular area: the trail next to Point Isabel Regional Park, in Richmond. From a revegetation project they had completed on Berkeley's Strawberry Creek, they already had some tools, a contact list, and a name – Greens at Work. Volunteers began showing up right away.

"After a couple of run-ins with East Bay Regional Park staff who asked us what we were up to, we decided to formalize our activities," Tom Kelly recalls. "And the piled-up plant debris along the trail was giving the EBRPD staff unscheduled work." Park Supervisor Kevin Takei quickly became a valued partner, supplying green-waste containers as well as weed wrenches and other tools.

Greens at Work now has monthly work parties except in the hottest months. Groups average 10-20, swelling to 30 or more when schools organize service days. Work has moved more than a quarter mile north from the starting point, and broom and fennel no longer block the view of adjacent Hoffmann Marsh.

"It does mean that other exotics show up," Tom Kelly said. "But we are continuing to reduce their numbers." And the couple has begun growing natives for replanting, with seeds harvested from the site.

To find out more or join in:

- Beaconsfield Canyon: www.sausalcreek.org, coordinator@sausalcreek.org
- Friends of Five Creeks: www.fivecreeks.org, f5creeks@aol.com,
- Greens at Work: www.kyotousa.org, kyotousa@sbcglobal.net
- Redwood Park: www.ebparks.org, pbeitz@ebparks.org

Many other Bay Area groups remove invasives and re-establish natives, in a wide variety of sites and for many reasons, including improving habitat for endangered species. To find other Bay Area volunteer invasives-removal projects:

- Click on the map at www.fivecreeks.org
- Check the calendar at www.baynature.org/events/calview
- Find East Bay Regional Parks work days at www.ebparks.org/getinvolved/volunteer/operations

Local agencies provide dumpsters for removing weed debris.

Chasing weeds from Maine to California

Dr. Lois Berg Stack is visiting UC Davis and working with the California Horticultural Invasives Prevention partnership while on sabbatical from the University of Maine. Cal-IPC interviewed Lois to learn her impressions of the West Coast.

What is your position in Maine?

I am UMaine's Extension Specialist in Ornamental Horticulture. I work statewide with the ornamental horticulture industry: people who grow plants (nurseries and garden centers); people who sell plants (garden centers and florists); and people who design/install/maintain plants (the landscape industry and arborists). I also work with home gardeners, public gardens, and municipalities. I began my job in 1987. For the first ten years, I also taught three classes in the Landscape Horticulture program. I am also a Professor of Sustainable Agriculture, and when I return to Maine in September 2009, I'll teach a course in that program.

I completed an M.S. in floriculture at the University of Wisconsin-Madison, and worked for a few years at the Brooklyn Botanic Garden. Then I returned to UW-Madison and completed a Ph.D. in Horticulture Education. My program was interdisciplinary, combining horticultural science, agricultural journalism and adult education – it provided great training for a career in Cooperative Extension.

How did you become interested in invasive plants?

I always look for projects that address the needs of more than one of my client groups, and the issue of invasive plants is a great example. As the number of requests for information about identifying and managing invasive plants has increased steadily, I have realized that this issue affects all of my client groups. Of course, Maine is home to some invasive plants, but it has not experienced as many severe problems as many other states, for several reasons: the state's watersheds are mostly contained within its boundaries so it doesn't inherit problems from other states; Maine people have a long tradition of valuing the state's natural heritage; Maine's population is small; and huge tracts of the state remain in the hands of relatively few companies that manage forest resources (although major development is pending). With other New England states implementing invasive plant regulations, my clients have expressed various opinions about the desirability of similar action in Maine. This is the perfect time for education.

What weed work occurs in Maine?

Maine has a long agricultural tradition, and its agronomic weeds are similar to those of most northern states. Several researchers at UMaine work on the ecology and management of weeds, notably in potatoes and other field crops, lowbush blueberries and hayfields.

Lois Berg Stack at the UC Santa Cruz Arboretum with Cal-HIP.

Invasive aquatic plants have gained notoriety, as Eurasian watermilfoil (*Myriopyllum spicatum*) has recently invaded two Maine lakes. Only 29 of Maine's 5,700 ponds and lakes contain any species of invasive plants. Both UMaine and several state government agencies work hard to educate people and prevent more invasions.

Among invasive terrestrial plants, our wetlands have long been invaded by purple loosestrife (*Lythrum salicaria*), and common reed (*Phragmites australis*) is increasingly evident in southern and coastal Maine wetlands. Japanese knotweed (*Fallopia japonica*) is common along roadsides and in developed landscapes. Black swallowwort (*Cynanchum louiseae*) envelops roadside shrubs, and Asiatic bittersweet (*Celastrus orbiculatus*) strangles trees. Shrubs that invade fields and woods-edges include autumn olive (*Elaeagnus umbellata*), burningbush (*Euonymus alatus*), common buckthorn (*Rhamnus cathartica*), glossy buckthorn (*Frangula alnus*), Japanese barberry (*Berberis thunbergii*), Morrow's and tatarian honeysuckles (*Lonicera morowii* and *L. tatarica*), and multiflora rose (*Rosa multiflora*). Norway maple (*Acer platanoides*) is now seen in the canopy of some forests, and garlic mustard (*Alliaria petiolata*) is invading the understory.

Among the invasive plant research projects at UMaine, I've collaborated with two of my UMaine colleagues and three University of Connecticut colleagues in the past few years through the New England Invasive Plant Center. The UConn group is developing super-sterile cultivars of popular landscape plants that are invasive; assessing cultivars of some popular invasive shrubs to compare seed production and invasive potential; and evaluating native alternatives to invasive plants. At UMaine, we've developed educational materials, conducted a survey of nursery industry and home gardener attitudes about invasive plants, and developed some field trials of native plants as alternatives to invasive plants. We're also mapping the incidence of burningbush and Japanese barberry throughout the state, and using DNA markers and assessing other biological and environmental factors to analyze why Japanese barberry is so invasive. And, our UMaine group is collaborating with Acadia National Park to address some of its more serious invasive plant problems. We're assessing the ecological impact and spread of Japanese barberry and purple loosestrife in the Park, and analyzing the traits that contribute to increased vigor of these two plants within various ecosystems of the Park.

Why did you come to California?

When I decided to focus on invasive plants during my sabbatical leave, I contacted many people for ideas. A friend at USDA suggested UC Davis, and Dr. Joe DiTomaso specifically. I had used a book Joe co-authored, *Weeds of the Northeast*,

Continued page 12 ...

Yellow starthistle *from page 6...*

staff to complete the work; 3) Global Position System and Geographic Information System mapping training; 4) improved coordination with agencies and large landowners at the local, state and federal levels; 5) additional control and eradication tools, including the use of herbicides, which could require additional environmental assessment documentation by state and federal land management agencies; and 6) engagement of private landowners and access to private lands.

Mapping data from 2000 to 2007, beyond the roadway data collected by CDFA in 2000, was collected from the foothill counties, when available, and incorporated into CDFA's yellow starthistle database. Initial analysis of the data revealed that YST moved east and gained 1200 feet in elevation along Highway 4 in Calaveras County between 2000 and 2007 — a good example of YST "marching" into the Sierras when left unchecked.

Mapping training was conducted for 25 WMA participants in March 2008 and data collected from government agencies, utility companies, and large private landowners. To date, 24,700 gross acres and 2,950 miles of roadway have been surveyed and mapped for YST. Treatment in the region has included hand pulling YST on 24 acres and 41 miles of roadway and treating 137 net acres with herbicide. Educational and outreach efforts have reached 1950 landowners via surveys, workshops, informational booths at events, presentations at commission and homeowner associations meetings and during site visits with private landowners.

This project has highlighted the success and momentum that can be achieved with a regional, coordinated approach. Currently, funding sources are being sought to continue the project and expand on the collaborative efforts.

For more information:

Wendy West's Symposium presentation: *www.cal-ipc.org/symposia/archive/index.php.*

CDFA Encycloweedia: *www.cdfa.ca.gov/phpps/ipc/encycloweedia/encycloweedia_hp.htm.*

EPPCs and IPCs gather in Nashville

By Doug Johnson. Photos by Ruark Cleary.

The National Association of Exotic Pest Plant Councils held its first ever conference in Nashville last October. Representatives from state EPPCs and IPCs came from all regions of the country to discuss their programs and plan national strategy. Currently, over 30 states have active groups, with more forming each year. Florida's is the country's oldest and California's is the largest (few others have any paid staff).

One main effort moving forward is the development of a national early detection system. The Invasive Plant Atlas of New England has developed a successful volunteer program to map invasive plant occurrences, and several other systems also exist, such as EDDMapS in conjunction with the Southeast EPPC and iMapInvasives in conjunction with The Nature Conservancy and NatureServe.

The conference was held jointly with the Natural Areas Association's 35th Annual Conference (NAA serves the staff of state natural areas programs). Twenty-four field trips gave attendees plenty of opportunity to see regional weeds like oriental bittersweet, as well as spectacular Cumberland Plateau scenery like Greeter Falls (below). An evening reception at the historic Ryman Auditorium, original home of the Grand Ol' Opry, included the traditional competition for "Prairie Fire", a combination of a drip torch and tequila shots that goes to the team bidding the highest donation to NAA. The NAEPPC crew (above) won a spirited round of bidding over a determined Midwest restoration contingent.

Following the theme of "Tuning Into A Changing Climate And Biological Invasion", keynote speakers included Larry Schweiger, President of the National Wildlife Federation; Dan Simberloff, ecologist at the University of Tennessee; and Dick Mack, ecologist from Washington State University, on the interrelations of climate change, biofuels, and invasive species. Cal-IPC Executive Director Doug Johnson participated in a panel discussion on weed management areas and gave a presentation on using predictive mapping to support early detection programs.

For more information:

NAEPPC: *www.naeppc.org*

Conference presentations with audio and video: *www.naturalarea.org/08Conference*

Invasive Plant Atlas of New England: *nbii-nin.ciesin.columbia.edu/ipane/index.htm*

EDDMapS: *www.eddmaps.org*

iMapInvasives: *www.imapinvasives.org*

Lois Berg Stack, *from page 10*

almost daily for several years, so I knew of him. I contacted him, and he said that he was starting some collaborative projects with Cal-IPC, and would be happy to host my stay in Davis. I'm having a blast here, and am learning so much!

What projects are you working on?

I'm currently involved in two projects, both very collaborative in nature, and I'm preparing to work on a third.

First, in conjunction with Joe, Cal-IPC and Cal-HIP, and the California Master Gardener Program, we're surveying 4100 Master Gardeners throughout the state to determine where they seek information about invasive plants, whether they think the sale of invasive plants should be restricted, whether they think new ornamental plants should be screened for invasiveness before being introduced, and what invasive plant-related activities they've participate in. The results of this survey will help all the participating groups more effectively deliver information to Master Gardeners and other home gardeners. We're also hoping to recruit some of the Master Gardeners to participate in some very creative volunteer projects.

Second, I'm collaborating with Joe, Cal-IPC and Cal-HIP to evaluate two Weed Risk Assessment (WRA) tools. These are spreadsheets that assess the invasive potential of plants based on biological traits, invasive history elsewhere, and climate matching between plants' native range and areas into which they are introduced. While California may never be rid of the invasive plants that are already here, future invasions could be avoided through good screening procedures. One of the WRA tools, Paul Pheloung's model from Australia, has proven 90% effective in predicting invasiveness, but it is enormously time-consuming. The second WRA tool is a streamlined version of the Pheloung model. We're trying to determine if the streamlined version works as well as the more robust model. That would make it a much easier and less expensive tool for the nursery industry, which introduces many plants every year. In our project, we're applying the WRA models to the Arboretum All-Stars (*arboretum.ucdavis.edu*), which are outstanding landscape plants selected by the UC Davis's California Center for Urban Horticulture (CCUH). We hope to add "certified non-invasive" labels to these plants in CCUH's future literature; this will raise home gardeners' awareness of invasive plants, and think about avoiding invasive plants in their landscapes.

And third, California's many educational efforts, research projects and organizational resources that address invasive plants provide a fantastic model for other states. I'm working with Joe and the team at Cal-IPC to define a project in which we will develop profiles of businesses that have successfully transitioned away from invasive plants. Green industry professionals in Maine and other states could learn so much from California.

How do you spend your time when you're not thinking about weeds?

In Maine, I garden a lot. My husband Phil and I live in an old New England farmhouse. Much of our landscape is devoted to native plants, and we have a big vegetable garden where grow most of our own food. Oops … I guess that involves thinking about weeds, doesn't it?

In California, we've been exploring. We try to go to a new place every weekend. We visited family in Washington and Oregon over Thanksgiving break, and we're going to camp in Death Valley over the holiday break. I'm always asking people about their favorite places, favorite restaurants, favorite bicycle routes. I've asked people about their favorite wines, but I don't think I have time to follow through on all of them!

And finally... Do you miss winter?

No!

Research needs *from page 5...*

Park Service, indicated they sometimes need graduate students to work on funded project that are already in place. This indicates the need to develop active networks between agency biologists and research institutions. Some federal agencies have programs that hire students during summer and place them in jobs after graduation. Cal-IPC now has an active student chapter at UC Riverside which can serve as a model for future groups.

Next Steps

The Research Needs Assessment will help bring new researchers to questions that are holding back effective weed work. It will also help focus funding on projects that address broad questions.

The future of the research needs project will depend upon the willingness of the research and management communities to stay engaged in the process. Another meeting of experts would be useful to maintain the momentum in this effort, specifically addressing the priority needs and identifying funding sources to initiate research projects. Since graduate students were not specifically targeted in preparing the document, they could be surveyed to gauge the applicability and usefulness of the funding information to their needs. Finally, some of the collaboration needs identified during the process could be addressed at upcoming Cal-IPC Symposia through invited speakers and working groups focusing on economic and social science issues.

For more information:

View information on this project, including the final report and notes from the 2005 meeting, at *www.cal-ipc.org/ip/research/roundtable.php*.

Comparing the effectiveness of treatments such as burning to other methods was one of the research needs identified. Left: Burning yellow starthistle. *Photo: Joe DiTomaso.*

Thank You for Supporting our Work!

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New Members

Dave Abercrombie (Oakland), **Sarah Austing** (USFWS San Francisco Bay National Wildlife Refuge, Newark), **Steven Barrett** (City of Los Angeles Public Works Dept, Valencia), **Angela Bates** (Stanislaus Department of Agriculture, Modesto), **CNPS Sierra Foothills Chapter** (Jamestown), **Zach Coffman** (USFWS San Francisco Bay National Wildlife Refuge, Newark), **Ione Conlan** (Conlan Ranches California, Valley Ford), **Donna Dormody** (Carmel Garden Club, Carmel), **Jerah Frye** (UC Davis Natural Reserve System, Davis), **Marc Gomes** (Monterey County, Monterey), **Juliana Gonzalez** (SPAWNERS, Richmond), **Ilima Hawkins** (Southern Low Desert RC&D, Indio), **Christopher Hon** (Hungry Valley SVRA, Lebec), **Marya Johnston-McIntosh** (Presidio Park Stewards Program, San Francisco), **Wendy Jones** (Pepperwood Preserve, Santa Rosa), **Nicole Jurjavcic** (Stillwater Sciences, Berkeley), **Patrick Kearns** (USFWS San Francisco Bay National Wildlife Refuge, Newark), **Christine Kotula** (Carlsbad), **Elizabeth Lanham** (City of San Jose Arborist Office, San Jose), **Teri Macias** (Laguna de Santa Rosa, Cloverdale), **Meg Marriott** (USFWS San Francisco Bay National Wildlife Refuge, Newark), **Michelle Murphy** (Golden Gate National Parks Conservancy, San Francisco), **Virginia Palacias** (Americorps, San Rafael), **Sierra Perry** (Moss Landing Marine Labs, Moss Landing), **Camille Peterson** (Friends of Five Creeks, Berkeley), **Bruce Weidman** (City of Walnut Creek, Walnut Creek)

News from page 3...

Nature Conservancy researchers culled data from 350 databases and other sources to **synthesize information on 329 marine invasive species**, including their distribution, impacts on biodiversity, and introduction pathways. An online database highlights the invasive groups that are most threatening and provides a framework to prioritize the invasion pathways that pose the greatest threat. Molnar et al. 2008. Frontiers in Ecology and the Environment. 6(9): 485–492. *www.nature.org/marineinvasions*

An invasive plant has been **transformed into biofuel by villagers in Nepal**. Villagers harvest invasive *Eupatorium*, burn it into charcoal, then form briquettes. This process allows them to avoid cutting trees for fuel and the briquettes produce less smoke than wood fires. See a video at *www.cnn.com/video/#/video/tech/2008/12/25/rivers.nepal.charcoal.cnn.*

A study in Spain compared **attitudes of several stakeholder groups towards invasive species**. Tourists were most likely to say they were willing to pay for eradication while local users (farmers, beekeepers) were the least willing. Species that had been introduced recently were more widely recognized as invasive. García-Llorente, M. et al. 2008. Biological Conservation. 141(12):2969-2983.

Readings & Resources

Know of a resource that should be shared here? Send it to edbrusati@cal-ipc.org.

Cal-IPC listservs

Did you know that Cal-IPC maintains two listservs to facilitate communication among California weed workers? Cal Weed Talk is a forum for discussing invasive plants and their management. Cal Weed Jobs allows subscribers to receive or post announcements of available positions. To subscribe, send a blank e-mail to californiaweedtalk-subscribe@topica.com or calweedjobs-subscribe@topica.com.

TNC Invasipedia

The Nature Conservancy's Global Invasive Species Team has consolidated its information on invasive species control methods into an online wiki format. Field workers and academic researchers with expertise on a particular species are invited to contribute information. *invasipedia.ucdavis.edu/doku.php*

Managing weeds in forests

The Winter 2009 issue of California Forestland Steward focuses on managing weeds in forest lands, with tips on weed prevention and creating an integrated weed management plan. *ceres.ca.gov/foreststeward/html/newsletter.html*

Action plan for Obama administration

The National Environmental Coalition on Invasive Species (NECIS) has produced an action plan with recommendations for the new administration and Congress. *www.ucsusa.org/assets/documents/invasive_species/NECIS-brochure.pdf*

DVD for hunters and anglers

The USDA Forest Service has produced a DVD on invasive species for hunters and anglers. "Defending Favorite Places" features invasive species information and testimonies of sportsmen and women. The 27 min. DVD is available for free or may be downloaded from the Forest Service website. *www.fs.fed.us/invasivespecies/prevention/defending.shtml*

Weed calendar

The Alien Plant Working Group's Invasive Plant Calendar for 2009 is now available for downloading and printing. *www.nps.gov/plants/alien/pubs/calendar.htm*

Recommendations for weed laws

"Updating Weed Laws to Increase Efficient Management of Plant Invasions" states that developing noxious weed lists tiered by the plant's invasion stage (new weed or widespread) can guide allocation of scarce public resources to the management of prioritized noxious weeds, including those that require a rapid response. *www.weedcenter.org/Newsletter/08_12weedlaw_final.pdf*

Invasive plant training website

The Center for Invasive Plant Management and the US Fish and Wildlife Service National Wildlife Refuge System have developed an educational website for natural resource managers. "Managing Invasive Plants: Concepts, Principles, and Practices" provides an overview of invasive plant management and planning supported by case studies, quizzes, scientific literature, and web-based resources. *www.fws.gov/invasives/staffTrainingModule/index.html*

Economic brief from USDA

"Integrating Invasive Species Prevention and Control Policies" by Michael Livingston and Craig Osteen synthesizes results from USDA economic research programs. The authors describe the factors that influence whether a program should emphasize prevention or control. 8 pp. *www.ers.usda.gov/Publications/EB11*

Report on Great Lakes invaders

"Predicting Future Introductions of Nonindigenous Species to the Great Lakes". predicts the spread of aquatic nonindigenous species into the Great Lakes to help resource managers focus monitoring activities. *cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=190305*

2009 Wildland Weed Field Courses

Cal-IPC's full-day field courses provide expert instruction on important topics for your work, including: Biology and Identification, Control Methods, Mapping, and Revegetation. This year we are adding two new field courses that participants have been requesting for years: Advanced Mechanical Control Methods and Advanced Herbicide Control Techniques.

Check out our website to learn more about the instructors, topics, and locations and to find out about discounted rates for attending consecutive courses, early-bird registration, and restoration volunteers. DPR credits available for all courses. Register at www.cal-ipc.org or call 510-843-3902.

San Diego

Sycamore Canyon/
Goodan Ranch Open Space
April 1 - Control Methods
April 2 - Revegetation Techniques

Santa Rosa

Mountain Home Ranch
May 13 - Biology and Identification
May 14 - Control Methods

Santa Cruz Mountains

Location to be determined
July 21 - Advanced Mechanical Control Methods **NEW!**

Visalia (Pre-Symposium course)

Kaweah Oaks Preserve,
Sequoia Riverlands Trust
October 7 - Advanced Herbicide Control Techniques **NEW!**

Pasadena

Audubon Center at Debs Park
November 4 - Control Methods
November 5 - Mapping

The Wildland Weed Calendar

Tamarisk & Russian Olive Research Conference

February 18-19
Reno, NV
www.tamarisk.colostate.edu

National Invasive Weeds Awareness Week

February 22-27
Washington, DC
www.nawma.org

Western Society of Weed Science

March 9-12
Albuquerque, NM
wsweedscience.org

Statewide WMA Meeting

For Weed Management Area coordinators.
March 10
Woodland
Contact Gina Darin, gdarin@cdfa.ca.gov

6th Invasive Weeds Awareness Day at the Capitol
March 11, Sacramento, 9am-5pm

Hear updates on state funding, invasive species councils, risk assessment of pests (AB 2763), economic analysis, and federal legislation *(tentative list).*

Educate lawmakers on the need to maintain funding for invasive plant work.

Registration is free with lunch provided. Travel stipends are available for Southern California weed workers! Call 510-843-3902 for more information.

Register at www.cal-ipc.org

Organized by the California Invasive Weeds Awareness Coalition (CALIWAC)

Above: George Milovich of the Inyo-Mono Agriculture Department and Frank Wallace of the Sacramento Weed Warriors advocate for WMA funding during the 2008 Day at the Capitol. *Photo by Bob Case.*

Invasive Weeds Awareness Day at the Capitol

March 11
Sacramento
www.cal-ipc.org

Synthesizing Ecology and Evolution for the Study of Invasive Species

March 19-22
North Lake Tahoe
Contact Kristina Schierenbeck (ka.schierenbeck@ars.usda.gov) for information.

Growing Natives: Celebrating California's beauty in dry times.

March 28-29
Lafayette and Berkeley
www.nativeplants.org

SERCAL-CNGA Joint Conference

California Society for Ecological Restoration and California Native Grasslands Association

April 29-May 1
Folsom
www.sercal.org, www.cnga.org

National Conference on Ecosystem Restoration

July 20-24
Los Angeles
www.conference.ifas.ufl.edu/NCER2009

North America Weed Management Association Conference

"Response to Riparian Invasion"

September 21-24
Kearney, NE
www.nawma.org

Cal-IPC Symposium

October 7-10
Visalia
Abstracts due June 1.
Registration opens in June.
www.cal-ipc.org

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 that includes scientists, land managers, policy makers, and concerned citizens. Please complete this form and mail with check or credit card number. Additional donations support our projects. We are a 501(c)(3) non-profit organization, and donations beyond regular membership rates are tax deductible. **Join or donate online at www.cal-ipc.org.**

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Cal-IPC Membership runs on the calendar year. Those who join after June 30 each year will be current through the following calendar year. Joint memberships receive a $5 discount on each organization's normal rate, and apply only to Regular Cal-IPC memberships.

- ☐ Check here if you would prefer to receive the *Cal-IPC News* as a link to a pdf file online rather than a paper copy.
- ☐ Occasionally, we share members' addresses with like-minded organizations. Check if you ***do not*** want your information shared.

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