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*Protecting California's environment and economy from invasive plants*

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**Cal-IPC Dispatch**

Winter 2024/2025 – Vol 32, No. 3  
Editor: Doug Johnson  
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**FROM THE DIRECTOR'S DESK**

**Nature-based solutions**

**By Executive Director Doug Johnson**

**Y**ou may have heard the term “nature-based solutions” in relation to California state agency planning efforts to address climate change. According to the state’s 2022 report *California’s Nature-Based Solutions Climate Targets*, “Nature-based solutions that deliver on California’s climate change goals are land management practices that increase the health and resilience of natural systems, which supports their ability to serve as a durable carbon sink (lands that absorb more carbon than they release).”

It is challenging to quantify carbon sequestration benefits from invasive plant management, but we know that this management increases the health and resilience of natural systems. The report makes clear that “activities that deliver climate benefits but cannot yet be quantified” are included in the mix of nature-based solutions, and invasive plant control is mentioned multiple times as an activity that contributes to habitat resilience.

The report sets goals for how many acres a year need to be conserved or restored, broken up by land cover types, such as forests, grasslands, and shrublands and chapparral. The goals are very ambitious. For instance, they call for conserving or restoring a total of 141,600 acres of chapparral and shrublands, every year. That’s a lot of acres.

For comparison, the all-time total area of all habitat types conserved or restored through grants from the California Wildlife Conservation Board — one of the state’s top funders for conservation and restoration — was 830,211 acres, according to their 2019 Strategic Plan. The pace and scale have been accelerating, but the

magnitude of goals set for nature-based solutions is immense.

One way that wildlands can be made more resilient to climate change is to control small populations of top-priority invasive plants before they spread across a region. Work on one acre over the next few years might protect a thousand acres from impacts in the not-too-distant future.

Making work happen to “get ahead of the invasion curve” poses challenges, some

**The goals are very ambitious.... They call for conserving or restoring 141,600 acres of chapparral and shrublands, every year. That’s a lot of acres.**

of which have been overcome. CalWeed- Mapper gives us the information needed for setting strategic regional target species, and we have done that in regions across the state. The California Department of Food and Agriculture now

has funding to provide grants to county Weed Management Agencies (WMAs) to address key populations of these species.

We will work over the next several years to re-invigorate the WMA program, and endeavor to have the contributions counted toward the state’s nature-based solutions climate targets.

**ON THE COVER**

RECON Environmental, Inc., crew discussing how to avoid native creeping wild rye grass (*Leymus triticoides*) before mowing to control invasive slender oat (*Avena barbata*) in Alameda County. To help practitioners craft integrated pest management plans, Cal-IPC and the Department of Pesticide Regulation have launched an updated WeedCUT tool. Learn more on page 13.

This issue’s cover was a submission to the 2024 Cal-IPC Photo Contest. We welcome your photo submission this summer at cal-ipc.org/photocontest. Cover photo: Izi Aspera, RECON Environmental.

# Wildland Weed News

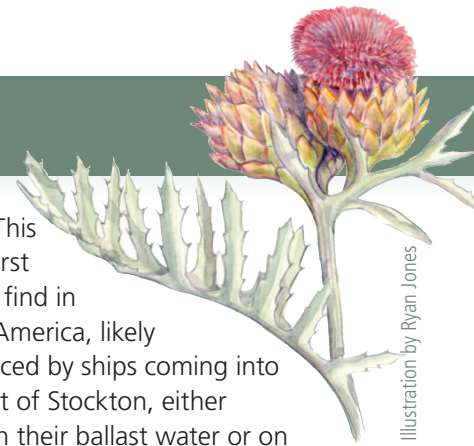


Illustration by Ryan Jones

## CAL-IPC UPDATES

**2024 Symposium** – Thank you to the 600+ registrants who joined us online to discuss our theme, “Getting ahead of the invasion curve.” See details on pages 8-11. Save the Date for the 2025 Cal-IPC Symposium in Ventura, Nov. 12-15.

**2024 Practitioner Workshops** – We hosted two workshops this fall, Oct. 1 at Cal Poly Pomona and Nov. 15 at CSU East Bay in Concord. See details on page 7.

**AB-2509 (Kalra)** – In September, Cal-IPC’s bill to define “invasive species” and promote “integrated pest management” was signed into law by the Governor. Thank you to the coalition of stewardship organizations who supported the bill.

**Corps training** – Cal-IPC and the California Local Conservation Corps Foundation are holding three regional workshops in early 2025 to train staff from corps groups across the state in providing ecological education to corps members as a foundation for invasive plant management.



Conservation Specialist Constance Taylor will lead workshops on plant ID and other fundamentals of invasive plant management.

**CISAW webinars** – With UC Cooperative Extension colleagues, we held lunchtime webinars during California Invasive Species Advisory Week in June, including a speaker from Australia on controlling feral cats that are damaging native wildlife.

**Roadside vegetation management** – Cal-IPC has compiled best practices for roadside vegetation management in southern California, with a goal of

protecting habitat while reducing wildfire ignitions. View it online at [cal-ipc.org/roadside](http://cal-ipc.org/roadside).

**Spartina control** – Cal-IPC supported the Invasive Spartina Project team in a successful season of mapping and treating hybrid cordgrass in San Francisco Bay. Across the region, more than 200 sites are monitored and retreated, while work commences at the final handful of highly infested sites approved for work through a new Biological Opinion from the US Fish & Wildlife Service. Learn more on the new website: [spartina.org](http://spartina.org).

**Workforce development** – As part of the California Biodiversity Network’s Stewardship Roundtable, we helped organize a workshop on actions needed to strengthen and diversify the state’s stewardship workforce.

## OTHER NEWS

**Funding for WMAs** – At the Statewide Weed Management Area Meeting, held in conjunction with the Cal-IPC Symposium, the California Dept. of Food and Agriculture announced a call for funding proposals, opening in December. The agency has \$6 million allocated for WMA grants over the next three years.

**Prop. 4** – The ballot measure for water, wildfire prevention and land protection passed, providing \$10 billion in bond funds. Included is \$20 million for the Invasive Species Council of California (based on Cal-IPC advocacy) and new funding for the Wildlife Conservation Board. These funds will become available after July 1, 2025, at the earliest.

**Mussel find** – The California Dept. of Fish and Wildlife reports that invasive golden mussels have been found in the

Delta. This is the first known find in North America, likely introduced by ships coming into the Port of Stockton, either through their ballast water or on their hulls. The mussels are a threat to aquatic ecology as well as water conveyance infrastructure.



Golden mussels. Photo courtesy CDFW.

**WCB strategic plan** – The state’s Wildlife Conservation Board, a primary source of grants for restoration work, is preparing an update to the strategic plan for 2025-2030.

**Plants and insects** – A paper in the October issue of *Bioscience* maintains that the global proliferation of non-native plants is a major driver of insect invasions.

**SB 675** – The bill from Senator Monique Limón passed, marking a milestone in the effort to integrate prescribed grazing into the state’s wildfire resilience policies, programs, and strategies.

**Tending the land** – Nonprofit organizations Sonoma Ecology Center, Pepperwood Preserve, and Occidental Arts and Ecology Center have collaborated with other partners to create an online resource called “Tending the Land” for anyone who wants to help build fire resilience while promoting better habitat.

**Streamlined permitting** – Sustainable Conservation continues their work on accelerating restoration with a new tool, the Roadmap for Efficient Restoration Permitting in the Sacramento River Basin.

## YOUR MEMBERSHIP

Thank you for keeping your membership current. Note that your expiration date is shown on the mailing label of this newsletter. Cal-IPC’s success in meeting its mission depends on your vital support.

# San Francisco Bay *Limonium* work

Drew Kerr, Kerr Ecological Solutions

In 2016, Cal-IPC began organizing a coordinated baywide management program on invasive sea lavender (*Limonium*) species in San Francisco Bay tidal marshes and has made great progress in arresting their spread and reducing the threat posed to our habitat and biodiversity. A total regional population of approximately 25 net acres spread over 90 sites has been greatly reduced, with many of the largest populations reduced by 75-85% or more.

However, the seed bank is strong, and it may last up to 5 years or more. The Bay Area received substantial rainfall from a series of atmospheric rivers throughout late autumn 2023 and early winter in 2024, the second consecutive year of above average rainfall on the heels of a multi-year drought. This created a banner year for invasive *Limonium*, not only stimulating additional seedbank recruitment but feeding any maturing plants that had sprouted over the summer after our last treatment events of 2023. This resulted in a bounce (or even some “explosions”) of plants from the seedbank, seen across most sites by Cal-IPC and its numerous partners. Even areas that had not had any invasive *Limonium* present aboveground the previous year, sometimes for multiple years, experienced a resurgence. This phenomenon was seen across both manual and chemical treatment method histories, as well as at the full range of infestation densities from light to heavy.

To address this surge, nearly all available resources were focused on treatment, with mapping conducted in only a handful of special circumstances. In 2024, Cal-IPC and its partners conducted active treatment (with either manual removal or



Manual removal of *Limonium ramosissimum* (Algerian sea lavender) and *Limonium duriusculum* (European sea lavender) in the marshes of Mill Valley by SOLitude Lake Management.

herbicide application) at 81 of the 90 sites. Fourteen of the sites have transitioned to partners taking (or continuing) full management responsibility for the invasive *Limonium*, while 6 sites were treated by both Cal-IPC contractors and partnership stewards, and Cal-IPC was the sole treatment entity at the remaining 61 sites. Cal-IPC contractors for this work, led by Kerr Ecological Solutions, include SOLitude Lake Management and Olofson Environmental, Inc.

While we were not able to treat quite as many sites as we treated in 2023 due to the seedbank resurgence, more treatment of invasive *Limonium* was conducted around the estuary than in any other previous treatment season. Often, this treatment was earlier in the phenology/growing season of the plants, which is normally more

effective and more likely to stop seed production and dispersal.

Control work was prioritized at high-quality marshes such as Don Edwards National Wildlife Refuge, Eden Landing Ecological Reserve, Bair Island Ecological Reserve, and Redwood Shores Ecological Reserve, as well as filling in gaps from previous years and work at leading-edge marshes. The leading edges include the northernmost infestations in the East Bay, and manual removal at nascent infestations in Santa

Clara County, both areas that remain largely uninvaded.

The treatment team was able to implement a second round of treatments at sites that needed it to really maintain year-to-year progress. Bunker Marsh, for instance, showed high (95+%) efficacy from the initial treatment in March, but also had extensive seedbank recruitment later in the same season, just a few months later. Without this important follow-up, the prolific long-lived seedbank and twelve-month growing season for



Revenge of the seedlings, cannibalizing an effectively treated parent plant.

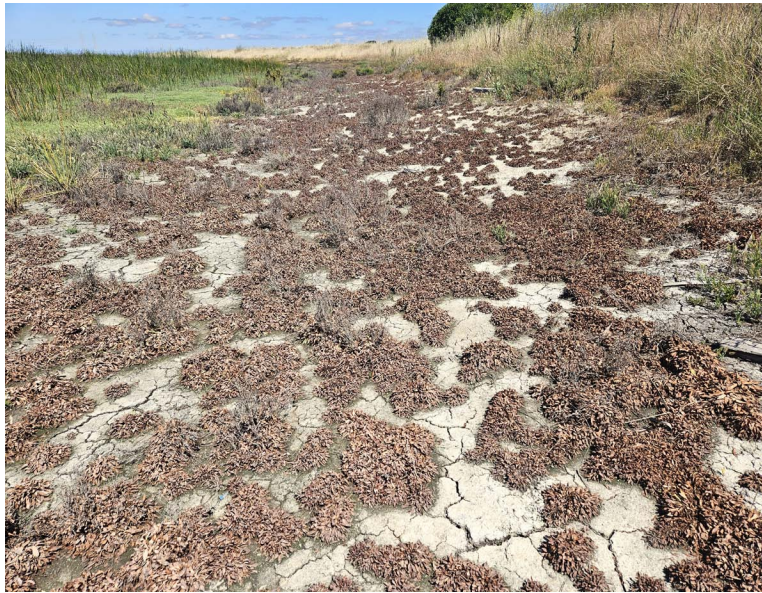
invasive sea lavender can quickly undo progress.

One exciting accomplishment from the 2024 treatment season was achieving thorough treatment of the entire infestation at the mouth of Belmont Slough at the north end of the California Department of Fish and Wildlife's Redwood Shores Ecological Reserve. This is the largest infested site in the Estuary, estimated to contain over 40% of all the invasive *Limonium* treated in the Estuary in 2024. This marks the first time since 2019 that the project has been able to conduct full treatment across this major infestation.

In 2020, there was a lapse in project funding and Covid pandemic delays, and from 2021 to 2023 Foster City was constructing a miles-long sea wall that made large-scale ground-based access to the site impossible. The team was only able to treat a third of the infestation during those years, with access limited to airboats at suitable tides.

For the long-term success of the project, it is essential to engage with landowners, land managers, and other stewards that may be able to "take ownership" of the work and share the annual management to reduce the *Limonium* threat down to a negligible one. These partnerships allow for far more *Limonium* management to be accomplished each season than just the contractor work funded by our grants. For example, management responsibility for the Heron's Head site fully transitioned to the community nonprofit Literacy for Environmental Justice (LEJ) and the Port of San Francisco, with additional volunteer help from Golden Gate Bird Alliance.

LEJ recently installed thousands of native plants to begin reclaiming the areas that were invasive *Limonium* monocultures. They are in the fortunate position of having the many dedicated person-hours needed to hand-weed the invasive



*Limonium* two months after treatment in the upland transition zone of Coyote Creek Lagoon.

*Limonium* around these vulnerable young plants and begin to exhaust the sea lavender seedbank over time.

Volunteer partners continue to make a huge contribution at many smaller infestations: Martin Cooper at Eden Landing and Coyote Lagoon, Melissa Grush and family at Roberts Landing and Hayward Shoreline, Marin Audubon at numerous sites in Sausalito, Mill Valley and Corte Madera, Greens at Work at Eastshore State Park in Albany and Richmond, Friends of Five Creeks at the Albany Bulb, and the

Golden Gate Bird Alliance at Pier 94, Heron's Head, and Martin Luther King, Jr. Shoreline. We hope to achieve substantial reductions in San Leandro Bay infestations in the coming years and transfer management of the rest of the sites in this area to volunteers with Save the Bay and the Golden Gate Bird Alliance.

Control efforts by Cal-IPC and its partners around the Estuary have clearly resulted in arresting the spread of invasive *Limonium* to new sites. To our knowledge, successful control work around the Estuary by

Cal-IPC contractors and our partner network has not allowed for any truly "new infestations" to develop since our project began in 2016. This is due to consistent work each year, with financial support primarily from the National Fish and Wildlife Foundation, complemented by support from Weed Management Areas in Marin, San Francisco, San Mateo, and Santa Clara counties.

All photos for this article are courtesy of Drew Kerr, Kerr Ecological Solutions.



Airboat-assisted backpack treatment at Bair Island, just a few miles north of the 2023 Phase 2 South Bay Salt Pond Restoration Project breach at Ravenswood.

# The art of creating an invasive weed guide

Constance Taylor, Cal-IPC

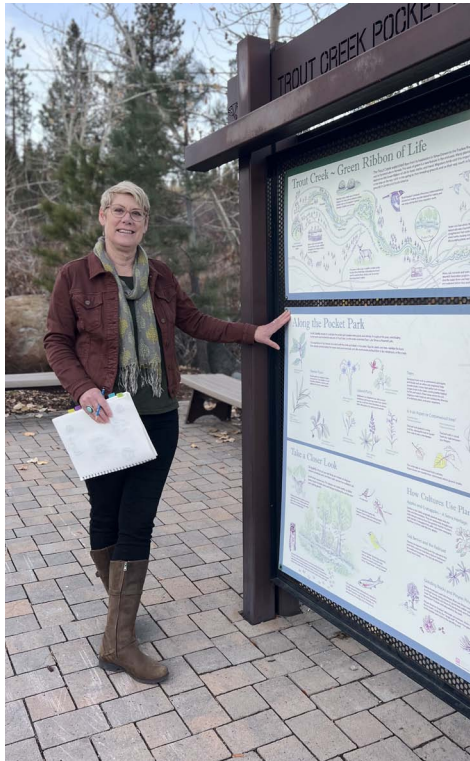
**A**nnaliese Miller has been working as a professional science illustrator since graduating from the Science Illustration Program at UC Santa Cruz in 1989. With decades of experience as a graphic designer and science illustrator for environmental nonprofits, government agencies, and small businesses, we are lucky that Annaliese has found an interest in invasive plants! Since 2004, she has been using her formidable talents to illustrate locally-specific guides to help people identify invasive plants and common look-alikes. We spoke with Annaliese about her creative process and the positive impacts of her work.

**Cal-IPC:** What was your gateway weed?

**Annaliese Miller:** Musk thistle! I live by the Truckee river, so I go there to swim. I'd notice a rosette, and then later this giant plant would pop up. I called my local resource agency and realized that no one was working on removing this plant in this area. I connected with people working with invasive plants who taught me how to remove it without spreading it, so I started weeding it myself. As my interest grew, I started pitching the idea for a local identification guide. I made a prototype guide, which was just paper stapled together, to hand out at the Truckee River Day. Then I worked with the University of Nevada Cooperative Extension to create a more polished version, which is still around and helping people.

**Cal-IPC:** Can you describe your process for explaining complex concepts to an audience of non-experts?

**Annaliese:** Thinking about the audience and breaking your topic down into its basic components are two main considerations. The guides need to be portable, and useful for people who aren't botanists, like landowners or land managers. I work closely with botanists throughout



*Annaliese Miller points to plant identification signs she illustrated for the Trout Creek Pocket Park. Photo courtesy of Annaliese Miller.*

the draft process. We limit botanical terms in the descriptions, so the language is approachable. As an illustrator, I'm trained to notice differences in shape, size, structure, and color, so I highlight key characteristics using these broad categories.

As a graphic designer, I create logos for clients, and a good logo does not include too much information. This is a helpful principle in making field guides, filtering through great information to find the essence. If you include too much detail, people miss the main points.

**Cal-IPC:** Plant ID can feel overwhelming to a novice. How do you break it down?

**Annaliese:** It can be easier to compare two plants to notice similarities and differences, instead of trying to ID a plant on its own with no point of reference. Also, looking at the whole plant can be overwhelming, so I break it into specific

parts of the plant, especially when comparing invasives to look-alikes. For example, invasive bull thistle and native Anderson's thistle are often seen together. If you slow down and consider the basic components of the plant, you'll see the differences. For the illustrations comparing these two thistles, I highlight major characteristics like the flower head shape, leaves, and a cartoon person as reference for height and growth form.

**Cal-IPC:** What has been the impact of these guides?

**Annaliese:** The guides are handed out at events, and a number of people in my community have them. Many invasive plants are pretty, and homeowners can get defensive if you tell them that the plants in their yard can cause environmental harm. These guides have been a great way for people to self-educate about what is harmful and what is beneficial in their local ecosystems. Then, one person doesn't have to stand in as the "weed police." Also, a number of agencies have reached out to me to revise the guide for field techs who need to identify invasive plants in the field.

I want to highlight the benefits of pairing art and science when it comes to education. The benefits of these guides are twofold; first, having an attractive guide that's fun to look at helps pull people into the content. If something is eye-catching, someone is more likely to pick up and flip through a guide on their own. Second, as an artist I can focus on specific things about a plant and be very intentional about how I illustrate a feature, so the concept is as clear as possible to the reader. Helping people identify the plants around them, either in their yards or in the landscapes they work in, is an important first step when it comes to invasive species management.

Learn more about Annaliese Miller and her work at [AMDesignWorks.net](http://AMDesignWorks.net).

# 2024 Cal-IPC Practitioner Workshops in Photos

In fall, we offered two full-day workshops — October 1 at Cal Poly Pomona and November 15 at CSU East Bay in Concord — to share regionally-specific knowledge and connect with colleagues. Each workshop included presentations on weed management principles, integrated pest management (IPM), and a regional overview of invasive plants. Afternoon sessions explored topics in-depth: tools and techniques, restoration practices, managing volunteer programs, equity in field safety, and controlling difficult invasives. Each day closed with an overview of the Weed Control User Techniques (WeedCUT) online decision-support tool (more on page 13) and other online resources for weed management. Thank you to the many partners who made these events a success!



Erin Questad, Associate Professor of Biological Sciences at Cal Poly Pomona (center, in baseball cap), led a session at the Cal Poly Pomona workshop covering restoration topics, including local habitat, invasive plant management, and passive versus active techniques. Photo: Doug Johnson.



Clarissa Rodriguez, graduate student at San Diego State University (right, in green), offered a stinknet sample for guests to sniff at the October 1 workshop. On her table, the extracted roots of an *Arundo* plant served as a prop for the session she co-led, “Controlling Difficult Species – *Arundo*, Stinknet, and Fountaingrass.” Photo: Claire F. Meyler.



Tom Getts, Weed Ecology & Cropping Systems Advisor at UCCE, co-led the roundtable discussion “Tools and Techniques for Controlling Invasive Plants” at the CSU East Bay Concord workshop. Photo: Claire F. Meyler.



A networking “bingo” game encouraged folks to chat and connect during breaks at Cal Poly Pomona. Photo: Claire F. Meyler.



Colleagues enjoyed an opportunity to reconnect during breaks at CSU East Bay Concord Center. Photo: Claire F. Meyler.

# 2024 Cal-IPC Symposium award winners

## Congratulations to the 2024 Cal-IPC Award Winners!



Rachel Kesel collaborates with many partners as a State Parks ecologist.

The Ryan Jones Catalyst Award for initiative and creative engagement was presented to Rachel Kesel, an ecologist for California State Parks working out of Sonoma County. She is an evangelist for the principles of Early Detection and Rapid Response (EDRR) and the power of partnerships. She previously exercised her skills for collaboration with One Tam, which brings together California State Parks, National Park, and the Marin Water District, and has shared her EDRR expertise by leading Cal-IPC trainings. Accepting the award at the Symposium, Rachel said, "Please steal all these ideas with pride. Check out resources and training materials from past Symposia. My goal every year is to identify someone to reach out to and work with, and I urge you to do the same. Follow up, keep making those connections, and believe in yourself. We can all squeeze in time to work together on the left side of the invasion curve."

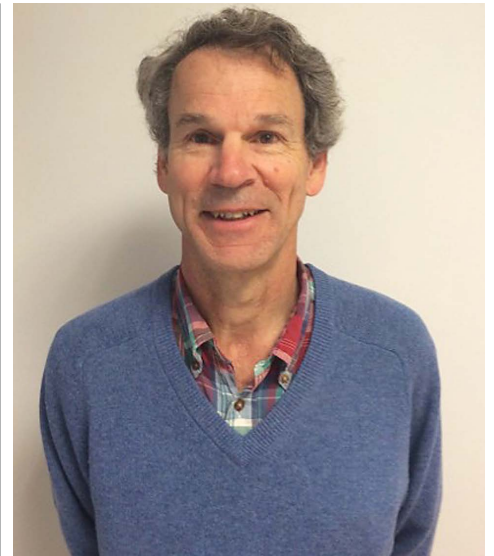
The Ken Moore Wildlands Restoration Award for Land Manager of the Year, also known as the Golden Weed Wrench, was awarded this year to Gina Darin, Senior Environmental Scientist at the California Department of Water Resources (DWR).

Through persistence and collaboration, she has been able to make restoration happen at a large scale in the highly regulated landscape of the Delta and Suisun Marsh. With a 10,000 acre project area, including more than 8,000 acres of tidal lands, the project is an amazing accomplishment. Previously, as an employee at the California Department of Food and Agriculture, she supported and championed the work of the state's Weed Management Areas. As a dedicated Cal-IPC volunteer and past board member, Gina has shared her hard work and infectious energy with the Cal-IPC community. Gina thanked Cal-IPC, the community, her DWR team, and partners, including UC Cooperative Extension, the Division of Boating and Waterways, and the Suisun Resource Conservation District. She said, "Without those folks, nothing on the ground would happen. The support and mentorship I've gotten over the years from the Cal-IPC community has been incredibly important to me. The mission is crucial, but the people keep me going. So, everybody support Cal-IPC, because we could not be the environmental stewards we are without them!"



Gina Darin poses with the Golden Weed Wrench and her plaque.

The Jake Sigg Award for Vision and Dedicated Service was presented to Dr. Lincoln Smith, who has dedicated his career to researching biological controls



Dr. Lincoln Smith has traveled the world studying biocontrol agents for use in California.

for the U.S. Department of Agriculture, Agricultural Research Service. He has worked on controls for yellow starthistle, Russian thistle, French broom, Scotch thistle, and more. As part of his research, he's travelled the world, exploring home ranges in Russia, Turkey, Uzbekistan, Bulgaria, Italy, Greece, Spain, and Tunisia. For four years, he served as the director of the European Biological Control Laboratory in France. Despite his retirement, he's currently back at ARS, showing his commitment and dedication to the field. Thanking his partners, Link said, "We've made a lot of effort on evaluating new agents for some rangeland weeds that have been difficult to control. A rosette weevil has been approved for release for yellow starthistle, and we have delivered populations to multiply for release to the California Department of Food and Agriculture and to other states. Hopefully, that will have some impact down the road. The mite for Russian thistle should be approved next spring, and it impacts all six species we have here in California. These are projects that started before my time, working with cooperative agents both overseas and in the state to make it happen. The collaborations are absolutely critical to develop and improve these agents. I look forward to a bright future."



**Congratulations, Student Contest Winners!**



Full Length Talk Winner: Rebecca Nelson, UC Davis, "The effects of invasive goatgrass control on serpentine wildflowers and pollinators."



Lightning Talks First Place Winners: Sophie Zeng (left) and Grace Yao (right), Project Arise, "Today's technology for today's environment: Constructing a CNN to enhance invasive plant identification and removal."



Other student winners: Lightning Talks Second Place Winner: Joanna Tang, UC Santa Barbara, "Evaluating intraspecific variation to restore climate-resilient populations." Lightning Talks Third Place Winner: Tessa Hospod, University of

Connecticut, "Pesticide application and its effects on soil decomposition and microbial communities."

*All photos in this story are courtesy of the award winners.*

**Congratulations to our 2024 Photo Contest winners!**

Thank you to everyone who participated. With more than 100 photos this year, it was stiff competition for the prize — and the youth vote stole the show! Your images help us tell the story of weed work in California — the sweat, the dirt, the joy of vanquishing a weedy foe. Join us in summer for another round!



First Place Winner: "My Son, Samuel, owning the borrowed weed wrench from CNPS Marin Chapter to clear broom from a slope on Mt. Tam. When the conditions are right, after the winter rains, the weed wrench works wonders on this woody invasive plant. So easy and satisfying, a mighty 8-year-old can do it! You can too!" Photo: Sarah Lovitt-Woodard.



Second Place Winner: "A young weed worker in training holding a pulled Mediterranean broom, just east of where the species was first introduced to Catalina Island in the early 20th century." Photo: Aaron Kreisberg, Catalina Island Conservancy.



Third Place Winner: "A proud Arundo hunter with her trophy!" Photo: Eric Peterson (submitted by Veronica Yates), Trinity River Restoration Program.



Honorable Mention: "The mustard fairy is here!" Photo: Natalie Borchardt, San Diego River Park Foundation.

# 2024 Cal-IPC Symposium program highlights

## Doug Johnson, Cal-IPC

The 2024 Symposium program featured more than fifty presenters, four workshops, two panel discussions, and the Statewide WMA Meeting. More than 600 registrants used the online platform to ask questions and exchange information.

In keeping with our theme, “Getting ahead of the invasion curve,” our opening session addressed the topic of prevention. Claudia Vasquez from the California Department of Food and Agriculture, the state’s lead agency for preventing the introduction of invasive species, described an assessment being made of the entire statewide prevention system by a team of researchers from the University of California and California State University. Results and recommendations are expected in 2025.

Dr. Sapna Thottathil, the new Deputy Director for Sustainable Pest Management with the California Department of Pesticide Regulation, followed up with a summary of how the state’s Sustainable Pest Management Roadmap aims to reduce harmful pesticide uses over time, with prevention being a key method to limit the need for pesticide use.

Brent Johnson, Vegetation Ecologist and Regional IPM Program Manager for the National Park Service (NPS), wrapped up the session by getting a bit more “into the weeds,” sharing how the NPS in California holds workshops at park units to work with staff on setting up measures to prevent weed spread.

The second day’s plenary expanded on the theme, starting with a session on new weeds to watch out for, including sea poppy (*Glaucium flavum*), creeping groundsel (*Senecio angulatus*), blue corn lily (*Aristea ecklonii*), *Corynephorus articulatus* (likely the first observation in North America), mayten tree (*Maytenus boaria*, not new but expanding in the last



Fuel modification zone in the City of Laguna Beach, reducing wildfire risk to homes while reducing the risk of weed spread into natural areas. File photo from the Laguna Canyon Foundation.

herbicides are regulated (covered by Bryan George, California Department of Pesticide Regulation). These talks set the table for a different kind of talk from Alan Kaufman of the Laguna Canyon Foundation (LCF).

LCF maintains fuel modification zones around the City of Laguna Beach. A year ago, community members successfully pushed for the city to halt herbicide use for this work.

Based on his observations of this process, Alan described a

variety of ways that people formed their opinions about herbicide use and presented their case. He included examples of various types of misunderstandings, and the tendency for members of the public to discount the expertise and experience of those working in land management.

In addition to these sessions related to the theme, there were dozens of other presentations on topics ranging from wetland weeds to grassland restoration, from new mapping technology to Tribal stewardship. Thank you to the hundreds of land managers who made the event a rich exchange of information and inspiration. Stay posted for announcements about the 2025 Symposium!

twenty years), and tubered bulrush (*Bolboschoenus glaucus*). We also heard reports on garlic mustard (*Alliaria petiolata*), desert knapweed (*Volutaria tubuliflora*), barbed goatgrass (*Aegilops triuncialis*), *Caulerpa* seaweed species, and tumbleweeds.

The final session on our theme discussed the role of herbicides in integrated pest management (IPM) for wildland weeds. Given herbicide’s importance as a tool for controlling invasive plants in situations where other tools do not work well, we asked presenters to provide a foundation for understanding how herbicides work (covered by Tom Getts, UC Cooperative Extension) and how



Weeds to watch (clockwise from left): sea poppy (photo: Ron Vanderhoff), creeping groundsel (photo: R. Spellenberg), blue corn lily; *Corynephorus articulatus* (photo: Michael Chasse), mayten tree (photo: Jean Pawek), and tubered bulrush (photo: Morgan Stickrod).

# 2024 Scholarship Awardees

## Claire F. Meyler, Cal-IPC

Thanks to the generous support of the donors who established the John H. Anderson Land Steward Training Fund, Cal-IPC provided scholarships for sixty students and emerging professionals to attend training events this year — twenty participants to the 2024 Cal-IPC Symposium in October, and twenty participants to each of the two Practitioner Workshops in October and November — helping them to gain critical training and network with colleagues. Awardees came from across the state, including two online Symposium attendees from Oregon and Montana. They also represented a diverse range of experiences, including students, corpsmembers, volunteers, educators, field techs, and other land stewards. We asked attendees to comment on their experience and here is a selection of the responses.

Emma Miller, grad student and Teaching Associate at the Scordato Lab in Cal Poly Pomona, recently moved to Southern California from Ohio. She commented, “I am an out-of-state graduate student studying the relationship of native plant restoration and avian biodiversity in and around orchards. This was an excellent opportunity to learn more about local invasive plants and valuable tools. I also appreciated the conversations about field equity and the commitment of Cal-IPC to people and the environment alike. I am grateful for the John H. Anderson Scholarship that assisted me in attending the workshop in Pomona, and I would recommend this opportunity to anyone interested in learning more about invasive plant control.”

Anise Dellith-Moser, currently pursuing a master’s degree in botany at Cal Poly

Humboldt, shared her perspective on the Symposium, “Thank you for this valuable opportunity to gain deeper insights into the world of invasive plant management. I found the discussions on current research trends both inspiring and insightful. My passion for invasive plant removal began shortly after graduating

from high school and has only grown during my time in college. In the future, I hope to collaborate with government agencies to protect California’s native species. The conference enhanced my understanding of these organizations’ roles, procedures, and on-the-ground management strategies.”

Mel Letterman, Program Coordinator at the Irvine Ranch Conservancy, joined the October 1 Practitioner Workshop in Cal Poly Pomona. They shared this summary of their experience, “Over the last few years, I have been interested in native plants within Orange County and have been actively engaged through my local California Native Plant Society chapter and iNaturalist. Thanks to Ron Vanderhoff, I have recently broadened my plant



Anise Dellith-Moser on a class field trip looking at rare plants on bluffs in Point Reyes.

interests into early detection and rapid response. Previously, I had no clue that there were people out there containing the spread of newer invaders, let alone having a career in it. The Cal-IPC Practitioner Workshop was an amazing experience that aided in furthering my knowledge of local emerging invasive plants, reconnected me with old and new colleagues, and inspired

me with information on how to do more within my community to stop the spread of EDRR-targeted species. It was encouraging to see how other individuals and organizations track and remove invasive plants, and how they restore the affected areas into their natural habitats. Thank you for the grant committee and the John Anderson Scholarship for funding this experience for myself, others, and future LGBTQ+ botanists that are largely underrepresented within the environmental field.”

Daniel Whitaker, Natural Resources Manager at the American River Parkway Foundation shared a word of thanks after attending the Symposium online, “I would like to express my gratitude. In my position, I engage thousands of volunteers in conservation activities and manage the Intern Program that sees up to a dozen environmental interns per year gain new skills and experience in invasive plant management. Attending the 2024



Mel Letterman enjoying some *Salvia mellifera*.

(Continued on page 14)

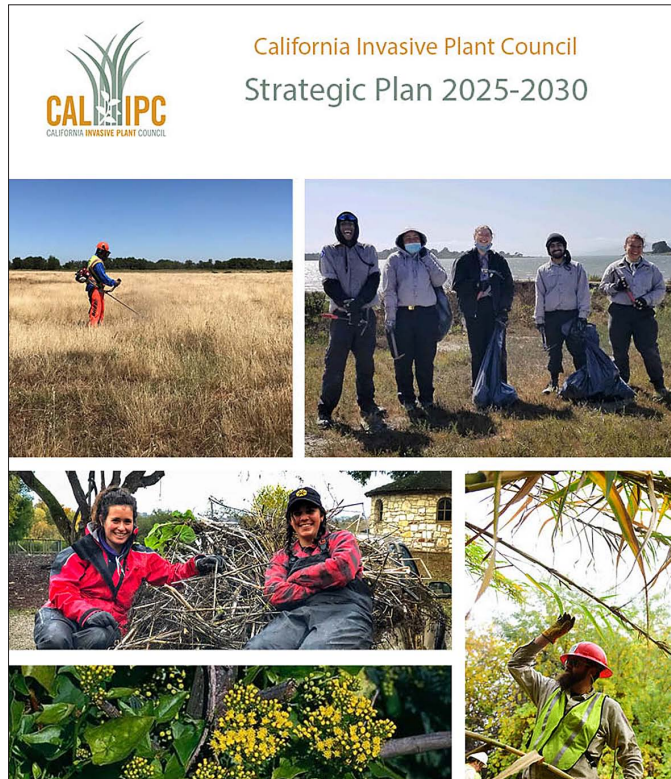
# Cal-IPC approves a new Strategic Plan

Cal-IPC board members and staff worked together over the last year to create a new five-year Strategic Plan for 2025-2030. Here are some highlights.

We will continue fulfilling our leadership role through fundamental efforts that were established in the early days of the organization — we will hold an annual Symposium for the exchange of knowledge among land managers and we will maintain a list of invasive plant species in California. We will support the development of biological control agents and promote integrated pest management (IPM) practices.

Many new program areas have opened over the last three decades. One of the most important is the growing ability to set regional strategies to keep new weeds from spreading. CalWeedMapper compiles data from Calflora and experts across the state to maintain updated distribution maps of all the weeds listed on Cal-IPC's Inventory. Using CalWeedMapper, we are helping regional partners determine which species are still early on the invasion curve in their area so that they can make controlling populations of these species a high priority. With the growth of online reporting platforms like Calflora and iNaturalist and apps that will help identify plants, we will continue pushing to exploit an increased ability to detect new plants. In addition to supporting development of regional landscape level strategies, we will help more organizations develop strategies for weed management on their own lands.

Our commitment to supporting land stewards has continued to evolve. We will provide advanced professional training workshops on IPM techniques. We will compile and share best management practices (BMPs) in a variety of formats, such as the new online WeedCUT site



*The Strategic Plan cover shares a small slice of the work we aim to achieve. Photos, clockwise from top left: Dawn Cunningham, Resource Environmental Solutions, LLC; Drew Kerr; American Conservation Experience; Joseph DiTomaso; Adam White, Santa Lucia Conservancy.*

designed to provide guidance for weed control methods for different situations and plants. We will partner with the state's conservation corps groups and with other environmental groups, looking for ways to grow the stewardship workforce, formalize stewardship jobs, and open pathways for everyone interested in pursuing a stewardship career. We will also seek out opportunities to support Tribes in stewarding land.

Over the years, Cal-IPC has advocated for stronger policy and funding at the state level (and sometimes at the federal level). Together, we have accomplished a lot: securing funding for the state's Weed Management Areas (WMAs) in 2006 and again in 2022; establishing the state's Invasive Species Council and Advisory Committee in 2018; and securing funding for it in 2022; and passing AB 2509 in 2024. In the midst of a biodiversity crisis, there is so much more that needs to be done. We will push for setting ambitious

goals, funding programs to pursue those goals, and tracking progress towards meeting those goals. The Global Biodiversity Framework calls for reducing invasive species introductions by 50% by 2030. California's Nature-Based Solutions Climate Targets report specifies ambitious goals in the order of hundreds of thousands of acres conserved and restored each year. It is high time for the impact of invasive plants to be recognized and integrated into the state's goals, plans, and budgets. We will work from the top by advocating in Sacramento, we will work from the middle by collaborating with a range of partner groups, and we will work from the grassroots by communicating with the public.

Finally, we will maintain an effective team of staff and board members, steward our inclusive organizational culture, and amplify our impact by cultivating partnerships. To accomplish our mission, we need to increase our funding, both through project grants and member contributions.

Cal-IPC covers a lot of ground for a small organization. From humble beginnings holding a meeting for the state's land stewards to share information in the early 1990s to today's broad suite of program efforts, our work has grown significantly. However, the same collaborative spirit of sharing information and inspiration is at the core of Cal-IPC's culture as we pursue our long-range vision: a California where biodiversity and ecosystem services are not under threat; a California where residents and decision makers recognize their stake in addressing invasive species; and a California where land stewardship thrives with support and involvement from diverse people and communities.

Summary and detailed versions of the plan can be found online at [cal-ipc.org/strategicplan](http://cal-ipc.org/strategicplan).

# WeedCUT (Weed Control User Tool) expands!

Jutta C. Burger, Cal-IPC; Tom J. Getts, UCCE; Tunyalee Martin, UC IPM

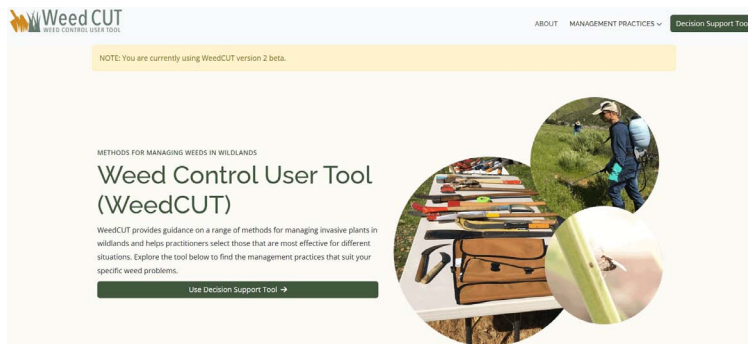
Three years ago, Cal-IPC (and our project partners) proudly released the online decision support tool WeedCUT to help practitioners find the best integrated pest management (IPM) approach for their situation and to guide them with best management practices (BMPs) for each technique.

We have now released a new version of WeedCUT. The first version of the tool included BMPs for 21 non-chemical techniques and 18 biological control targets. The newly expanded tool includes detailed BMPs for 18 herbicides that are permitted and used in wildlands and other non-crop areas in California.

There are organic contact herbicides, commonly used active ingredients, such as triclopyr, aminopyralid, and glyphosate, and newer chemicals, such as indaziflam and isoxaben. (No product names are used, as required by the primary funder of this tool, the California Department of Pesticide Regulation.)

Each herbicide BMP covers topics tailored for wildland weed applicators, including an overview, lists of formulations and adjuvants, a “how to use” section, tips, optimal conditions, caveats, potential hazards, common tank mixes, recommended non-chemical techniques to complement control, and recommendations for when not to use the herbicide. The BMPs were authored by seasoned field experts and reviewed for accuracy by at least three reviewers from a team of more than 20 experienced specialists.

We have added the ability to filter effective weed control techniques for 288 species from the Cal-IPC Invasive Plant Inventory. Users can also specify their site characteristics, allowing the user to narrow the range of potential weed control techniques to those that may work best for their situation. The resulting list of techniques are rated by their estimated



Header for the new beta WeedCUT site.

reduction in the target weed’s cover and its associated propagule production. A rating of “Excellent” reflects >95% reduction; “Good” for 80-95% reduction; “Fair” for 50-80% reduction; and “Poor/Ineffective” for <50% reduction.

Herbicide efficacies in WeedCUT are based on a number of resources, as well as the field knowledge of the project’s technical advisory committee members. First and foremost, our team referred to the product labels and the 2013 “Weed Control for Natural Areas” manual by DiTomaso, Kyser, et al.

Each herbicide BMP cautions that users must read and follow specifications on herbicide labels and should consult with specialists before applying herbicides to new species in new environments. Disclaimers emphasize that WeedCUT outputs do not constitute a formal recommendation, and that any management technique should be followed up with additional research and expert consultation before it is implemented.

Thus, the tool is designed to provide a “first cut” of potentially suitable techniques for a given situation. WeedCUT is not a replacement for the land manager’s critical thinking and experience.

Weed workers using only non-chemical methods have robust guidance on how, where, and when to use them most effectively. Those using herbicides also have robust guidance on the use of specific herbicides in a wildland setting and can learn more about complementary or, in some cases, effective alternative

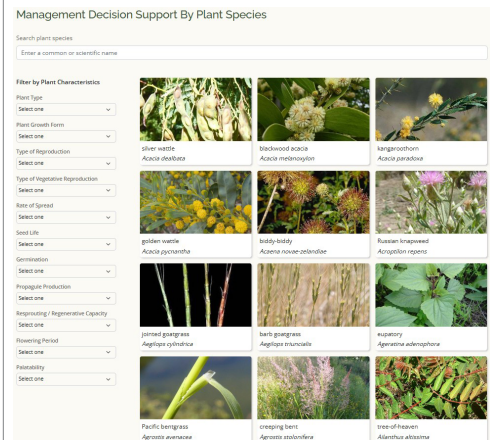
non-chemical methods for their plant species and site conditions.

Agencies and management organizations can separate potentially feasible techniques from clearly unfeasible ones and weigh information about their comparative strengths, weaknesses, and suitability. All users can find out more

about traditional biocontrol methods for the 18 weed species (or, in some cases, species groups) for which agents have been released in California.

WeedCUT is designed to strengthen practitioners’ use of IPM by providing information on alternative approaches for the safe and effective management of weeds. Let us know how it works for you! Send feedback to [info@cal-ipc.org](mailto:info@cal-ipc.org).

Find the new WeedCUT at [weedcut-new.ipm.ucanr.edu](http://weedcut-new.ipm.ucanr.edu).



Screenshot from the WeedCUT menu of plant species.

This project was funded by the Department of Pesticide Regulation as part of Alliance Grant 21-PMG-A002. The contents may not necessarily reflect the official views or policies of the State of California.



# Carl Bell, remembered

Cheryl Wilen, UC ANR, retired and Jutta Burger, Cal-IPC

Carl Bell, a leader in invasive plant management, research, and extension work, passed away on July 31, 2024. Carl was known for leading many workshops to teach pesticide applicators how to calibrate equipment to reduce the over-application of herbicides.

Carl retired from UC Cooperative Extension in 2014 after a 35-year career as a weed scientist. He began as a Weed Science Advisor in Imperial County in 1979 and later transitioned to Regional Weed Science Advisor for southern California, based in San Diego County. Although moving from row crops in the desert to advising land managers in Southern California on invasive plants of wildlands was a dramatic shift in scope from his time in Imperial County, Carl took on the challenge with gusto and immediately established himself as the go-to person regionally for unbiased invasive plant management advice.



Carl Bell in action. Photo: Stephen Francis, Irvine Ranch Conservancy.

While Carl was very productive with his research and extension work in the desert, he flourished in San Diego in both his new

areas of work and in his personal life. He quickly made friends and professional connections. Carl was a natural at involving diverse groups of people from the practitioner community in research projects and in sharing that information. He loved the people he interacted with and the outdoors. Many southern California practitioners were influenced by and have fond memories of his calibration classes and innovative field trials.

When Carl moved to San Diego, he embraced the San Diego lifestyle. This included learning to surf, practicing Tai Chi, and enjoying a beer at one of the many microbreweries. He also met his "partner in crime," San Diego Zoo's Senior Horticulturalist, Judy Bell, who shared his passion for plants and later became his wife.

Carl's passing leaves a great hole, but we can be comforted that he lived a full life and leaves a legacy as a weed scientist and a great human being.

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Cal-IPC Symposium allowed me to learn from so many professionals, which will help me better support our volunteers and interns. I am excited to apply what I have learned to better manage invasive plants along the 23-mile Wild & Scenic Lower American River."



Daniel Whitaker (center, in hat) works with spring environmental interns from Sac State and UC Davis to conduct a trail and plant survey in the Lower Sunrise area of the American River Parkway.

Thank you to all the awardees for sharing your energy, enthusiasm, and experience at the Symposium and Practitioner Workshops. We look forward to many more years working together. And, thanks to the John H. Anderson Land Steward Training Fund, we hope to welcome many more new folks to the field.

All photos are used courtesy of the awardee.

### Individual Membership

|                      |        |
|----------------------|--------|
| Stewardship Circle   | \$1000 |
| Champion             | \$ 500 |
| Partner              | \$ 250 |
| Professional         | \$ 100 |
| Friend               | \$ 50  |
| Student/Early Career | \$ 25  |

Members receive **Dispatch** and discount on Symposium registration!

### Organizational Membership

|            |        |                      |                            |
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| Benefactor | \$2000 | Pro membership for 8 | Quarter-page in newsletter |
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| Sustainer  | \$ 500 | Pro membership for 4 | Logo in newsletter         |
| Supporter  | \$ 250 | Pro membership for 3 | Name in newsletter         |

Organizations receive Professional membership for their staff and newsletter recognition for 12 months!

See [cal-ipc.org](http://cal-ipc.org) for full membership details

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### California Weed Science Society

January 22-24, Sacramento, CA • cwss.org

### Public Lands Alliance

February 2-6, Las Vegas, NV  
publiclandsalliance.org

### National Invasives Species Awareness Week (NISAW)

February 24-28 • nisaw.org

### Western Society of Weed Science

March 10-13, Seattle, WA  
wsweedscience.org

### Western Aquatic Plant Management Society

March 17-19, Sacramento, CA  
wapms.org

### SERCAL

April 21-23, Sacramento, CA • sercal.org

### International Invasive Species and Climate Change Conference

October, Lake Tahoe, CA • naisma.org

### Cal-IPC Symposium

November 12-15, Ventura, CA  
cal-ipc.org/symposium

*“COP 16 was an opportunity to double down on our commitment to halt and reverse biodiversity loss and ecosystem degradation. There were some very real wins... But the lack of progress on key negotiation items is concerning. Without new biodiversity plans in place, governments will be hard pressed to protect and restore nature in a way that reverses the catastrophic losses we’re witnessing across many ecosystems.”*

— Alec Crawford, Director of Nature for Resilience at the International Institute for Sustainable Development, in reaction to the two weeks of meetings on the Global Biodiversity Framework in Cali, Colombia in October.



### Happy New Year! Look to the future with Cal-IPC.

With the launch of our 2025-2030 Strategic Plan, Cal-IPC is looking forward to the future. We invite you to plan for your future through our partnership with FreeWill. Their online estate planning tool makes it easy to create a will or revocable living trust for free.

Protect the people, communities, and causes you care about.

Visit [cal-ipc.org/plan](http://cal-ipc.org/plan) or scan the QR code to learn more.



Aaron Echols

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