

Q&A from Stewardship Training for Volunteers, 6/25/20

These are the questions submitted during the webinar, with written answers from presenters and other attendees. Some websites:

- Cal-IPC plant profiles for each species: <https://www.cal-ipc.org/plants/profiles/>
- PlantRight: <https://plantright.org>

Q: I'm seeing Italian thistle *everywhere* in the south bay, spreading broadly every year, and yet it doesn't generally seem to get mentioned as a big problem. I see it inside the open space preserves (e.g. Rancho San Antonio) and in neighborhoods and along roadside. It seems to push *everything* else out by growing dense thickets of tall weeds that produce thousands of seeds that blow broadly. Is it just me that hates that weed so much?

A: I think many of us hate this weed! Unfortunately, it is sooo common now that it is hard to target effectively. Try to attack it in local sites and hold the front!

A: Italian thistle would definitely be in the "Asset-based protection" part of the invasion curve. It is too widespread for effective landscape-level control, but certainly worth treating around rare species or other high value resources.

Q: Is there any environmentally-friendly but really effective way to control it [Italian thistle] other than pulling it up by the roots? That's what I do on my 6 acres of hillsides, but it takes me dozens of hours per year.

A: I'm there with you. It is extremely robust but pulling it in specific, designated locations helped my park out in controlling it. Just got to get it before flowering.

A: I agree -- pulling is pretty darn effective. Mulching can work as well. Herbicides are effective if they are an option.

A: Consider timed mowing/line trimming, you can treat more area and faster. Target plants when about 5% of heads have just begun to bloom. Cut as low as you can. You may kill plenty. Then follow up any that resprout with chemical, grubbing, etc. With a nice dry summer, you may be very successful with that first cut.

Q: Is iceplant considered an invasive species?

A: Virtually all iceplant species in CA are non-native and many are invasive. I believe we have only one member of that family that is native.

A: And they are not good at preventing erosion, the original intent for its introduction!

Q: What are some examples of invasive plant management projects in California (or just the Bay Area) that have been successful? I'm aware of some of the big nuisance plants such as ice plants and French broom but don't know much about projects that have resulted in native ecosystem recovery.

A: Answered live. Early detection and rapid response efforts, like the removal of *Caulerpa taxifolia* seaweed in two southern California locations in the early 2000s, avoid future damage. Most "restoration" projects are

relatively small and achieve habitat improvement at that scale. Some of the larger projects in California involve removal of *Arundo* (giant reed) from entire watersheds, which significantly improves riparian ecosystems, or removal of cordgrass hybrids across SF Bay to protect tidal marshes and mudflats.

Q: How many acres are being worked by volunteers? How many of these acres have actually been brought to restored state?

A: We will pass that to our speakers. It's a difficult question to answer. Many volunteer projects are done in collaboration with park or conservancy staff so it's hard to tease apart who does what. Everyone really values volunteer contributions though

A (Pamela Beitz): Restored is a concept that I believe can be very misleading. Restoration ecology focuses on "restoring" a system to its historical or functionally appropriate trajectory. This introduces dynamics into the equation and ultimately invokes the need for maintenance. In our highly altered environment, humans play an important part in introducing moderated disturbance like fire, thinning, mowing, grazing, that approximates historic or, more appropriately, indigenous management of our natural systems. I believe that every project is a "success" if it is under thoughtful, adaptive management that focuses on the entire system, balanced, dynamic, and relatively sustainable, following best practices and ecological science.

Q: I don't know of an herbicide other than Roundup which as I understand it kills everything. I want to leave *everything* except the Italian thistle, but that means a lot of work by hand. Is there a more directed, safe, effective herbicide for it, e.g. for harder-to-reach areas?

A: Check the management recs. There are aster-specific herbicides. There are very selective herbicides that target thistles, but you must be a qualified applicator. You can hire a qualified applicator.

Any non-chemical control of oxalids? Major problem and taking over certain areas of our Pacific coastal bluffs.

A: Will ask. But that's a tough one. Tarping can work.

A: They are the cockroaches of weeds. So hard to kill without multi-year herbicide treatment.

A: In our non-chemical training class, Rachel Kesel suggested that the best way is to sift the soil - but wow is that time-consuming!

A: Poster from our Symposium on control of oxalis: https://www.cal-ipc.org/wp-content/uploads/2018/02/2017_Symposium-Managing-Bermuda-buttercup-in-SF-Pub-Util-Thomas.pdf

Q: Can anyone tell us how eucalyptus impacts groundwater and soil composition. Are they thirsty?

A: Some work done on the Channel Islands has shown a pretty significant increase in groundwater in a canyon where they were removed. But it's not clear whether a eucalyptus is more 'thirsty' than another tree of the same size.

A (Pamela Beitz): There is substantial research from around the world that eucalypt and other tree species, when grown in plantations for harvest, can lower the water table sufficient to dry streams up. This isn't necessarily because of the species, but because of the density of planting and the conversion from one plant community like grass, shrub, or wetland to a forest community that will require more water for transpiration. Prior to the eucalypt plantation, plantings that occurred throughout the East Bay Hills in the early 1900's,

eucalypt species were encouraged to plant for homestead purposes and to dry up wetlands in order to control mosquito populations-converting one type of plant community for another, "thirstier" one.

Q: Please include in discussion aspects of "habitat" / birds, animals -- are there instances where we should leave stands of invasive plants for any value to wildlife? for instance, in pulling invasive weeds in on beach bluffs, often result in large open cleared areas... which may not provide shelter and nesting sites for birds, bugs, etc.

A: (answered live) Yes, there are lots of complexities around timing, replanting, etc. to minimize near-term impact to wildlife while improving habitat for the long-run. Sometimes it can be good to remove weeds in a progression that allows wildlife to move.

Q: Please advise about removing/controlling ivy

A: For English and Cape ivy, I've had great success with A LOT of handpulling. It can be difficult to remove the roots in the drier months, but winter is prime time for treatment. Cape Ivy can resprout from small fragments, so all plant material should be disposed of. English Ivy does not resprout as readily, so can be composted on site. English Ivy tends to only flower when it is climbing, so cutting the climbing vines can do a lot to prevent seed production.

Q: What happens to biological controls like the weevil for starthistle when starthistle levels decline in an area, do the weevils start eating other plants or are they dependant solely on starthistle?

A: They depend solely on starthistle, so if no starthistle is present the weevil will die.

A: Weevil numbers tend to track their host plant. Some weevil species can use alternate host plants (other Centaurea and in some cases thistles) so they don't crash as much as if they were 100% specialized.

Q: So speaking of monarchs and non-native milkweeds.....can we not work preventively to get them to stop selling them due to not only the fact that they can spread so easily but also have disease issue and causing monarchs to winterbreed in warm areas. Florida already has a huge problem, Texas is starting to and the eastern population does not have overwintering sites in the same ecosystems where non-native milkweeds live year round and do not go dormant like the native milkweeds

A: Hopefully, we will get to this question live! Xerces Society is working hard to spread the word about this issue. It is good for us all to point to their resources because they are tracking the issue most closely. Plant native milkweed and try to let your well-meaning friends that are reaching for ornamental cultivars to do the same (and check out the Xerces resources!).

Q: Can you talk a little more about the compost in place with plastic method?

A: I hope that we'll have time for our speakers to answer this later, but in the event that we run out of time (likely!) - first off these methods are a little more difficult in southern CA because it's just too dry down there to stimulate growth. Compost in place = mulching. You need several inches and you are counting on the mulch slowly decaying in place. In northern CA sheet mulching, using cardboard sheets in combination with mulch is often used because there is enough moisture to decay the cardboard slowly and seal the soil from any contact

with the light (that is key). Plastic tarping is often used for really pernicious rhizomatous species such as bindweed, perennial pepperweed, and root sprouters like Himalayan blackberry.

Q: Is fountain grass a problem in northern California? It seems to be taking over the roadsides in the central coast/Santa Barbara area. What is the best treatment method?

A: My observations are that it is expanding, like down south, along roadways, trails, etc. rapidly. Treatment should be integrated, I don't know how it responds to mowing/line trimming.

Q: Will individual leaves of Cape Ivy root?

A: Yes, the smallest of fragments, I believe, can root.

A: Not sure if leaves themselves are a problem or just stems, but that's probably a moot point. You don't want to leave any of it around.

Q: How many groups are involved with weed control/restoration?

A: There are many! You can see a map of volunteer organizations in the bay area doing this kind of work here <https://www.cal-ipc.org/resources/volunteers/wildland-volunteer-network/#orgs>

Q: Any recommendations about control and eradication of stinknet and how it is spread so widely and quickly?

A: Stinknet is a curse. Chris McDonald, UC Extension based out of San Bernardino is the best resource for treatment options for stinknet. He recommends pretty aggressive action early on. Beware the seeds travel far and wide. Pre-emergent herbicides have been recommended as an important component to gain a foothold on this species.

Q: Any suggestions or BMPs for disposing of Arundo donax once it has been removed from a riparian area?

A: In Walnut Creek they have an active Arundo removal effort -- I imagine they have guidelines for disposal. <https://www.wcwatershed.org/arundo-removal.html> Large projects often mulch dead Arundo on-site after herbicide application. If you're removing live Arundo, I'm not sure how long it takes to die once cut, or if urban composting operations would take care of it.

Q: For the question on an effective herbicides for thistle control - selective to asters... milestone (aminopyralid) for perennial thistles and transline (chlopyralid) for annual thistles are good options.

A: Yes these are effective on thistles and in some cases other species. Check out UC Weed Research and Information Center's manual, "Weed Control in Natural Areas in the Western United State". If you don't have a copy I would recommend buying one for recommendations for both chemical and non-chemical treatments for a broad range of species.

Q: Will goats eat the broom seedlings?

A: Great question, not sure. I think they may have the biggest impact with their hooves, by "punching" down the young seedlings. But only if penned in and they have no other choice. This is the tricky part, getting them to eat or impact what you want and not do what they want, without impacting their health

Q: Once a plant like Italian thistle has flowered or gone to seed, is it ok to put it in suburban green waste collection bins for "industrial" composting? I.e. will that kill the seeds or just spread them elsewhere?

A: (live answered) Yes, that is likely fine. The composting we do for the park district destroys the viability of all weed seeds. Do not use suburban green waste collection for weeds with seeds of highly invasive species that are new to an area (just to be safe).

Q: In terms of follow through on restoration projects, how long do the seeds of Carex pendula remain a problem?

A: This species produces copious amounts of seed and other species related to this have high dormancy. I'm not sure about seed life but check out the assessment form located here for more information. I would suspect it has long seed life. <https://www.cal-ipc.org/plants/profile/carex-pendula-profile/>

Q: Goats and sheep have become a more popular tool in my area for large areas of invasive species. I understand that they may not eat some invasive species but will trample them. Is this of any value?

A: (live answered) We did have a presentation on this at the 2019 Symposium: https://www.cal-ipc.org/wp-content/uploads/2019/11/Cal_IPC_Symposium_2019_Alyssa_Cope_Prescribed-goat-grazing-for-wildland-management.pdf

Q: I am a huge supporter of nature-based solutions and would like to see them become more integrated in community planning. Restoration has been touted as a great way to improve runoff and surface water quality

Q: Do you view these lessons within the scope of Ecopsychology, or in parallel to?

A: Hands-on work stewarding our local environment is therapeutic, and brings us in contact with the network of life around us, especially important as modern life can distance us.

Q: Is there a guide for the average layperson that summarizes the value of invasive removal and offers native plant alternatives? I ask because I know a lot of people seem to be enamored by flowers produced by shrubs and trees that provide no ecological benefit and it's sometimes difficult to bring their understanding beyond what is aesthetically pleasing.

A: We have a "Don't Plant a Pest" function on the Cal-IPC website, sortable by area: <https://www.cal-ipc.org/solutions/prevention/landscaping/dpp/> Also, Plant Right has great resources on plants to avoid, and suitable replacements. Find them here: <https://plantright.org/about-invasive-plants/plant-list/>

Q: Is Price working with volunteers to remove plants just to help the environment, or also to help people's personal relationship with the environment, and to promote their own psychological health?

A: (live answered) Both are important outcomes!

Q: For summer-time volunteers -- what types of habitat restoration can be done with teams that come out this time of year?

A: (live answered) There are volunteer opportunities – contact your local organizations. See <https://www.cal-ipc.org/resources/volunteers/wildland-volunteer-network/#orgs>. Different tasks get done at different times of year.

Q: We have several acres of a ryegrass blend on old Ag land. What is the best way to start eradication? Cattle are not an option as water hauling costs are prohibitive.

A: This is a great resource for management info on ryegrass:
https://wric.ucdavis.edu/information/crop/natural%20areas/wr_L/Lolium_multiflorum-perenne.pdf

Q: How do you think COVID-19 has affected conservation and restoration efforts?

A: (live answered) It has certainly hindered a lot of work this spring. We are working to maintain focus on what we can do.

A (Price Sheppy) – Managing the spread of Phytophthora and soil pathogens has really prepared us for this idea of disease spread. It's very comparable to the spread of coronavirus. So, it has helped inform our safety concerns and the way we clean our gear, etc. On the other hand, the volunteer program has stopped because we can't bring out big groups. We will have to reimagine the program before we can reopen. In terms of managing supervision and taking responsibility for volunteer safety, there are many questions to be answered. We're still figuring it out.

A (Pamela Beitz) – Because there are such great parallels, I have been able to use the issue of COVID-19 to get traction on the Phytophthora issue, and get people to understand those risks.

A (Kristen Williams) – In some ways, it was helpful to have something throw a wrench in the works. It helped me acknowledge that there are some things I don't have control over, and to refocus on doing what I can.

Q: How fast does Velvet grass spread, and is it spreading rapidly in Monterey County now?

A (Pamela Beitz): I cannot comment on how fast it spreads, but in low lying, wet areas it takes over and maintains a strong hold. It is particularly pernicious in coastal prairies.

Q: Do you allow for grazing on your properties and if so, what is your success for controlling invasives using this management practice?

This one was answered live – not many had experience with grazing. Pamela talked about the need to balance between potential seed spread or even soil impact for grazing animals vs trying to get the animal to eat the

weeds you want them to eat. So you have to carefully plan the grazing process with the target weed cycle, and you might have to pen them carefully to get them to eat certain weeds that they might not prefer. It is a balancing act, but can be quite beneficial.

Here's a presentation from the 2019 Symposium that might offer more information on goat grazing in particular: https://www.cal-ipc.org/wp-content/uploads/2019/11/Cal_IPC_Symposium_2019_Alyssa_Cope_Prescribed-goat-grazing-for-wildland-management.pdf

Q: You mentioned that yellow starthistle (YST) is toxic to cattle. Can you provide references to this? We have found that cattle can be trained to target YST during the bolting stage to right before the spiny heads emerge. There are some toxins in the starthistle, which ruminant animals can detoxify.

A: YST is toxic to horses. Cattle love it. If it weren't for the spines, they'd eat the heads too!

Q: Are there any efforts to use fire ecology in the Bay? especially from Amah Mutsun, Graton or Muwekma?

A: There are a few prescribed burning programs to my knowledge in San Mateo County that are currently in the planning or permitting phase (<https://www.openspace.org/our-work/projects/wfrp>). Fire has been particularly difficult to bring back for many reasons in the Bay. Some existing fire ecology programs include East Bay Regional Park (https://www.ebparks.org/about/fire/fuels_management/) and State Parks in Santa Cruz and south San Mateo County (http://www.santacruzcountyfire.com/front_page/02-19-20_prescribed_burn.pdf). State Parks involves the Amah Mutsun Land Trust (a non-profit extension of the Amah Mutsun Tribal Band) in prescribed burns, especially within Año Nuevo State Park.

Q: Any recommendations on the eradication of ice plant, salty cedar, and buffel grass in the Mexican Pacific Islands? All the islands in Mexico are Natural Protected Areas and we are trying to obtain a permit to use chemical methods, but in my country they are looking to remove chemicals from the market that could help us in island conservation.

A: For salt cedar, look into obtaining permission to introduce *Diorhabda* salt cedar beetles. You can contact CDFA about this species. It is highly host specific in our environment. Check out https://wric.ucdavis.edu/information/natural%20areas/wr_C/Carpobrotus.pdf for chemical and non-chemical weed management recommendations for ice plant. Non-chemical control of this species is very difficult because of its ability to re-sprout from stem fragments. For buffelgrass, you are probably best following guidelines for manual removal of fountain grass, which will include physical removal and disposal of individual clumps. All these species are very difficult to control without herbicide.

Q: Is there a way to successfully remove tree of heaven without pesticides?

A: (live answered) It's really hard. You can try tarping, but it can sprout from roots a distance away.

Q: Have you seen a measurable decrease of pollutant loads in runoff water and downstream surface water quality in restoration areas that have focused on urban streams, rivers, and riparian areas?

A: I am unaware of any studies that compare weed work with increased functionality of urban streams with respect to water quality. I predict that for the most part vegetation performs similar tasks, despite its invasiveness or nativeness. What some invasives do is change the morphology and subsequent functioning of

that stream channel. That being said, healthy native diversity may increase functionality from the perspective of habitat and food web resiliency in aquatic and riparian environments. Though some invasive species have been implicated in poor erosion control, like ice plant, perennial pepperweed, and others.

Q: After manually pulling Oxeye daisies, I haven't found what the best practice is to do with the biomass afterwards. Suggestions?

A: My general working solution is: when I don't have the option of disposal in green waste, and I can't haul off, I will pile discreetly and allow for decomposition. Large piles sometimes must be turned, and you should be careful that you aren't smothering any desirable native species that will provide competition that will help you in the long run.