

San Francisco Bay Area Network Early Detection Program

Early Detection News August - October 2016

National Park Service
U.S. Department of the Interior
S.F. Bay Area Network
Inventory and Monitoring Program



Contents

Noteworthy Early
Detections

New iNaturalist Project:
Marin County Early
Detection

Survey Results

What We Do

Links

[Weed Watchers](#)

[Bay Area Early Detection
Network](#)

[California Invasive Plant
Council](#)

[SFNPS Invasive Plant
Page](#)

[Weed Manager](#)

Volunteer Opportunities

[Weed Watchers](#)

[Invasive Plant Patrol](#)

[Habitat Restoration Team](#)

The Invasive Species Early Detection Program (ISED) surveys roads and trails in the San Francisco Bay Area Network of National Parks. We detect, map, and remove new populations of invasive plants before they can spread.

Do you have early detections to report, or need more information? Contact the Early Detection Coordinator, Eric Wrubel, Eric_Wrubel@nps.gov (415) 289-1849.

To see the newsletter archives, visit www.sfnps.org/weed_watchers/newsletters

iNaturalist Early Detection Project

The Marin County Early Detection Project



Help us document the distribution of wildland weeds in Marin County, inform control efforts, and reduce the impacts of invasive plants! This project harnesses the crowd-sourcing power of the iNaturalist community to enhance early detection/rapid response programs currently implemented by land management agencies in Marin County. The iNaturalist system is ideally suited for identification and verification of species occurrences, and the high volume of opportunistic observations significantly increases the coverage of existing surveillance programs.

For those who are not familiar, iNaturalist is a worldwide online network of citizen scientists and biologists who record biodiversity information to help each other learn about nature. Observations can be made using a free, mobile application or from a computer via their website, iNaturalist.org. Once uploaded, species identifications are confirmed, or debated by the iNaturalist community. When a consensus is reached, an observation is deemed "research grade". Confirmed vascular plant observations from California are exported to the Calflora Database.

We created a [priority list of invasive plants for early detection in Marin County](#) which combines the early detection species lists from Golden Gate NRA, Point Reyes NS, and the Tamalpais Lands Collaborative (OneTam). All iNaturalist observations of species on the priority list that fall within Marin County are aggregated into the project. The Marin County Early Detection Project is open to everyone. Citizen scientists and park staff will be able to add geotagged photo observations quickly in the field, and the iNaturalist community can identify or verify those observations.

This project has already alerted us to new occurrences of high priority early detection species, and will help us gain a more comprehensive understanding of the distribution of priority species in the parks and throughout Marin County. The project currently contains 800 observations of 86 species.

Join today, and tell your friends!
[Marin County Early Detection](#)

Noteworthy Early Detections



Raphaela Buzbee contemplates a patch of small-leaf spiderwort.
Photo by Eric Wrubel, NPS.

2016 Redwood Creek Surveys

Early detection surveys were conducted along the entire length of Redwood Creek this year, in a collaborative effort between ISED, One Tam Early Detection, and GGNPC Park Stewardship. The three high-priority species described below were found to be widely distributed along the creek.

Small-leaf Spiderwort (*Tradescantia fluminensis*)

Small-leaf spiderwort was found to be much more abundant in the Redwood Creek Watershed than previously known. This species is not widespread in California, but is spreading in riparian areas in Marin and Alameda Counties.

Small leaf spiderwort is native to South America and is considered invasive in Florida, South Africa, Australia and New Zealand. It is a rhizomatous and perennial groundcover that can form carpet-like monocultures (up to 90cm deep) in moist and

shady habitats. It has prostrate stems with alternate, glabrous leaves and small, white, three-petaled flowers appearing April through July. Small-leaf spiderwort is dispersed by vegetative fragments along streams or in yard waste and rubbish. As the plants spread over the forest floor they prevent the regeneration and establishment of native plants, decreasing species richness and abundance. This process eventually alters the structure and composition of the entire plant community.

In New Zealand, small leaf spiderwort has significantly degraded native forest remnants and current research indicates that control can prove difficult. Hand-pulling is exceptionally time-consuming because even very small fragments (greater than or equal to 1cm) must be collected to prevent regrowth. It is somewhat resistant to chemical control due to the plant's smooth and waxy surfaces. In New Zealand forests, neither hand-pulling or herbicide application prevented regrowth even over repeated treatments. Currently, artificial shading is the most successful treatment, but repeated efforts are certainly necessary for continued control of small leaf spiderwort.

Hanging Sedge **(*Carex pendula*)**

Hanging sedge was also found to be frequent along the banks of Redwood Creek. This year's surveys were initiated to perform an eradication sweep for this species. The last sweep of Redwood Creek was performed in 2010-2011, when 12 patches were found and removed. The 2016 surveys (started in December 2015) detected 57 patches, occupying 0.25 gross acres. The number of detections in 2016 represents a 475% increase since the 2010-2011 sweep. While this year's surveys were probably more thorough than the previous ones, it is clear that hanging sedge is persisting and spreading to new sites in Redwood Creek. All plants found along the creek bank were removed.

Hanging sedge is a large, rhizomatous grass-like plant, which can grow up to 3 m tall and 2 m wide. Clonal patches may cover larger areas. It spreads readily in moist locations, and can overtop and smother native plants. It was introduced as an ornamental plant. The first North American record of hanging sedge was from Mill Valley, Marin County, in 1975, where it probably escaped from the landscaping around a single home on Old Mill Creek. A USDA risk assessment for hanging sedge estimated that 70% of climate zones in the US are suitable for the plant, including the entire state of California. Hanging sedge is on the Cal-IPC Watchlist, and Cal-IPC is currently conducting a risk assessment for its potential impacts on native ecosystems.

Traveler's Joy **(*Clematis vitalba*)**

Traveler's joy was also found to be widely distributed on Redwood Creek from Fern Creek to below Heather Cutoff. This species was only recently identified in the watershed in 2014, and was long mistaken for the native virgin's bower (*Clematis ligusticifolia*). Traveler's joy is far more rampant than virgin's bower, with the ability to smother entire trees. It is naturalized in northwestern Oregon to Puget Sound, and is listed as a noxious weed in Washington State. It is invasive in Australia and New Zealand, and is expanding its range in Europe, where it is native. Cal-IPC is currently conducting a risk assessment for its potential impacts on native ecosystems.

Below are links to distribution maps of the above-mentioned species in the Redwood Creek Watershed.

[Small-leaf spiderwort](#)

[Hanging sedge](#)

[Traveler's joy](#)



Tree of heaven sapling.
Photo by Eric Wrubel, NPS.

New Finds at Jewell Demolition Site

Dilapidated structures were recently demolished by NPS at the abandoned town of Jewell along Lagunitas Creek. An ISED inspection of the demolition site revealed two high priority species that have not been reported previously in the watershed.

Tree of heaven (*Ailanthus altissima*)

A small patch of tree of heaven was found growing out of the foundation at one of the Jewell demolition sites. A 6 m tall tree and several saplings are connected by underground roots growing onto the floodplain below. To our knowledge, this is the first record in the Lagunitas watershed.

Tree of heaven is indigenous to China and Taiwan. Since its 1748 introduction in Philadelphia, the tree has spread throughout

most of the US. In California, it was widely planted as a street tree until the 1890s. It is now widespread, primarily occurring in the Sierra foothills and Coast Ranges. It is found primarily in disturbed areas, but can also spread into natural habitats.

Tree of heaven is a deciduous tree which can grow 3-15 feet per year and up to 70 feet tall. The tree has pale grey bark and large, alternate compound leaves. It looks similar to the native California black walnut (*Juglans hindsii*), but is distinguishable by glandular lobes on each leaflet base and a distinctive, unpleasant odor. The species is dioecious, meaning individuals are either male or female, and individuals of both sexes are necessary for successful sexual reproduction. A mature female tree of heaven can produce up to one million seeds (winged samaras) in a single year. Vegetative reproduction is vigorous, by clonal sprouts (ramets) from a wide-spreading root system. This extensive root sprouting can quickly create dense, monospecific stands which exclude native species. Additionally plant materials secrete allelopathic compounds, which alter soil chemistry and suppress the growth of nearby plants. Control of tree of heaven is difficult because it will re-sprout from cut stems, or from root fragments.

The California Invasive Plant Council (Cal-IPC) classifies the potential impact of tree of heaven on California's native ecosystems as MODERATE, and The California Department of Food and Agriculture (CDFA) categorizes it as a List C noxious weed.

Hanging Sedge (*Carex pendula*)

ISED found a single hanging sedge plant along the bank of Lagunitas Creek, below the same demolition site referenced above. This marks the first record of hanging sedge in the Lagunitas Creek Watershed. The immediate vicinity was surveyed upstream and downstream, and no other plants were found.

As stated above, hanging sedge is widely naturalized in the Redwood Creek Watershed. However it remains uncommon in the rest of Marin County, and California. It is established and spreading at isolated locations in the San Francisco Bay Area, and near Chico.

Sources (tree of heaven):

[Cal-IPC Plant Assessment Form](#)

[USDA PLANTS Profile](#)

[National Park Service - Plant Invaders of the Mid-Atlantic](#)

[Calflora Interactive Distribution Map](#)



Malfurada. Photo by Eric Wrubel, NPS.

Malfurada **(*Hypericum*** ***grandifolium*)**

During an August survey of Point Reyes- Petaluma Road, ISED discovered and removed a small patch of malfurada growing in a rocky road cut.

Malfurada is native to the Canary Islands and Madeira. The plants are evergreen shrubs with glandular ovate sessile leaves. The inflorescences are cymes of large, bright yellow, five-petaled flowers. It was first mapped in

California in 2010, and it occurs only in a few locations within Marin County. Upon its discovery in California, it was Q-listed by CDFA (inadequate information, but suspected to be economically or environmentally detrimental). Cal-IPC is currently conducting a risk assessment for its potential ecosystem impacts. Malfurada is listed as an environmental weed in South Australia and Victoria, and has been recorded as naturalized in Chile.

The closely related Canary Island St. John's wort (*Hypericum canariense*), is distinguishable by its lanceolate leaves and ovoid fruits. This plant is more widely distributed in California, occurring along the coastline from Tijuana to Oregon. It is invasive in coastal sage scrub and grasslands where it can form dense stands that crowd out native species. A single plant can produce several thousand seeds from June to September, and plants can spread or re-sprout by rhizomes. Canary Island St. John's wort was introduced as an ornamental plant and is also invasive in Hawaii and Australia. Cal-IPC classifies the potential impact of *H. canariense* on California's native ecosystems as MODERATE-Alert and CDFA ranks it as a List B noxious weed.

Sources:

[Malfurada global distribution \(GBIF\)](#)

[Global Compendium of Weeds: *Hypericum grandifolium*](#)

[Malfurada CalFlora Interactive Distribution Map](#)

[Canary Island St Johnswort CalFlora Interactive Distribution Map](#)

[Canary Island St Johnswort Cal-IPC Plant Assessment Form](#)



Stinkwort removal team. Photo by Wende Rehlander, NPS.

Stinkwort (*Dittrichia graveolens*)

In August, Wende Rehlaender, Lead Fire Effects Monitor at Point Reyes NS, discovered a large patch of stinkwort growing on NPS property adjacent to the Tomales Bay Oyster Company. Calflora records indicate that this is the first record of stinkwort in the Tomales Bay Watershed. In September, Point Reyes and ISED staff joined in a workday to remove the

plants.

Stinkwort is a late-season winter annual that can grow up to 3 feet tall. It is native to the Mediterranean region, and has become invasive in parts of Europe and Australia. Its foliage is covered in glandular hairs with a strongly aromatic resin. The plants bear small yellow flowers that turn red with age from September to December. With the exception of tarweeds, there are very few California native plants with this life cycle, which may help stinkwort compete with annual grasses. A single plant can produce about 15,000 seeds, which are dispersed by wind over 600 feet, accelerating dispersal by animal fur/clothing, fill dirt, mowing and motor vehicles. Seeds can germinate at any time and are only limited by available soil moisture.

Stinkwort is primarily found along roadsides, riparian areas, overgrazed grasslands and other disturbed areas, but it can tolerate a variety of soil types and temperatures. It can rapidly form dense patches in late summer and early fall, excluding native plants. Stinkwort is known to cause poisoning in livestock and the barbed seed heads can become embedded in sheep's intestines. The plant's sticky resin can cause contact dermatitis in humans. High germination success, an uncommon life history and a tolerance for a range of environmental conditions, make stinkwort a successful species across diverse landscapes. Cal-IPC rates the potential impact of stinkwort on native ecosystems in California as MODERATE Alert due to its current limited distribution.

ISED also detected and pulled a single stinkwort plant at the Phleger Estate in San Mateo County, on the Richards Road trail, which follows the border between the Phleger Estate and Huddart Park.

Sources:

[Brownsey, R., Guy B. Kyser, Joseph M. DiTomaso. Stinkwort is rapidly expanding its range in California. California Agriculture, University of California. April-June 2013; 67 \(2\): 110-115.](#)

[Cal-IPC Plant Assessment Form](#)

[Calflora Interactive Distribution Map](#)



New Zealand nightshade, Poroporo (*Solanum aviculare*)

In mid-September, ISED found and promptly treated a large New Zealand nightshade shrub in the Fort Miley maintenance yard at Land's End.

New Zealand nightshade, or poroporo is a soft-wooded shrub characterized by deeply lobed leaves, blue-violet flowers and round,

A photo from New Zealand comparing *Solanum laciniatum* (left), and *Solanum aviculare* (right). The identification of California specimens has been questioned by New Zealand botanists

green fruits that turn bright red-orange as they mature. Each fruit contains hundreds of seeds. This perennial plant can reach up to 12 feet in height. Like many other plants of the Solanaceae, the fruits and leaves of this species are toxic to humans and animals.

New Zealand nightshade is native to New Zealand and the southwest coast of Australia, but has been introduced to other regions of those countries where it is now considered an environmental weed. In the US, it is listed as an invasive species in Hawaii, and it is introduced, but not widespread in California and Oregon. Cal-IPC is currently conducting a risk assessment for its potential ecosystem impacts. In the Bay Area, it has been found in Point Reyes NS, at Muir Beach and Stinson Beach. However, the greatest number of known occurrences are centered around Land's End. It is typically found in loose soils and disturbed areas.

Some controversy remains about the identification of this species in California. In the past, taxonomists have applied the name *Solanum laciniatum* to the species currently identified as *Solanum aviculare*. These two species from New Zealand and southwestern Australia are closely related and similar in appearance. Recent correspondence from New Zealand taxonomist Peter de Lange, questions whether the plants in California are in fact *S. laciniatum*. Of further ecological interest, the two species were formerly widespread in New Zealand, but *S. aviculare* now appears to be in decline there. We will continue to follow the *Jepson Manual, Vol II* and recognize this species as *S. aviculare*, until there is an authoritative taxonomic resolution to this matter.

Sources:

[Jepson eFlora](#)

[Calflora Interactive Distribution Map](#)

[iNaturalist Project: What's up with our poroporo?](#)

solanaceaesource.org: *Solanum aviculare*

solanaceaesource.org: *Solanum laciniatum*

Giant Reed **(*Arundo donax*)**

The ISED team found a single, large clump of giant reed growing on a hillside near the abandoned homesite at Cheda Ranch, near Sir Francis Drake Boulevard.

Giant reed is a large perennial grass that can grow up to 9 meters tall and has tough, hollow stems with pale, blue-green clasping leaves and hairy ligules. In North America, the plants only reproduce vegetatively by rhizomes or root fragments, in riparian areas and floodplains. Giant reed was once thought to be native to the Mediterranean region, but now the scientific consensus is that it was an ancient introduction from India. It is naturalized and invasive in many parts of the world including southern Africa, much of the United States, Mexico, the Caribbean, South America, Australia and Southeast Asia. Giant reed has been in California since at least 1820, when it was already abundant in the Los Angeles River. It now grows extensively throughout the state, especially in central and southern California and the central valley. It is used commercially for musical instrument production and is planted as an ornamental or for erosion control.

Giant reed displaces native plants, wildlife and aquatic animals. The dense colonies affect hydrology and groundwater availability. CDFA classifies it as a List B noxious weed, and Cal-IPC ranks the potential impacts on California's native ecosystems as HIGH.

The patch at Cheda Ranch is isolated, and unlikely to spread downstream into Lagunitas Creek, as long as it remains undisturbed.

Sources:

[Cal-IPC Plant Profile](#)

[USDA PLANTS Profile](#)

Survey Results

August - September 2016 ISED survey results

The August - September 2016 surveys were conducted in:

Golden Gate National Recreation Area
Point Reyes National Seashore
John Muir National Historic Site

The link above will take you to the Calflora Observation Hotline, where ISED records can be viewed in an interactive map. [Click here](#) for help using the Observation Hotline.

What We Do

The ISED team maps, assesses, and reports occurrences of priority invasive plants along trails and roads in the San Francisco Bay Area network of National Parks, treating localized infestations when feasible.

The monthly survey results presented in this newsletter represent only new observations of patches of priority invasive plant species. A patch is defined as a group of individuals that is at least 20 meters from the next nearest group. Some patches may not be mapped in a given month if they have already been recorded in previous years, or if the patch is too large (see below).

Priority Species Lists

Golden Gate National Recreation Area John Muir National Historic Site Pinnacles National Park Point Reyes National Seashore

See the table below for more information about our priority invasive species and the data that we collect:

Our Priorities	Example	Explanation	Data Collected
List 1 (Highest Priority Plants)	 Fertile capeweed	List 1 plants are highly invasive and are typically not widespread. Control or even eradication is often feasible.	<i>Point occurrences*</i> and <i>polygon assessments**</i> are recorded for all patches, regardless of their size.
List 2 (High Priority Plants)	 Cape ivy	List 2 plants are highly invasive and usually more common than List 1 species, but are still feasible to control in many places.	<i>Point occurrences</i> are recorded for all patches regardless of their size, and <i>polygon assessments</i> are recorded for all patches smaller than 100 square meters.
List 3 (Medium Priority Plants)	 Sweet fennel	List 3 plants are usually widespread and difficult to control at the scale of the park. Uncommon species of concern are also listed here to improve our understanding of their distribution in the park.	<i>Point occurrences</i> are recorded for all patches smaller than 100 square meters.
List 4 (Lower Priority Plants)	 Rattlesnake grass	List 4 plants include all other exotic species that are not captured by Lists 1 – 3. Typically, these are ubiquitous invasive plants and are beyond control, or they are waifs.	These plants are not mapped. Skilled observers may record presence/absence.
*Point occurrences are individual points recorded to represent an entire patch of invasive plants **Polygon assessments describe the size, shape and coverage of a patch			