

2020 Dry Creek Red Sesbania Removal Project Report

Placer Resource Conservation District (Placer RCD)

February 2021

Executive Summary

The 2020 Dry Creek Red Sesbania Removal Project continued efforts to remove red sesbania (*Sesbania punicea*) throughout the Dry Creek watershed within Placer County, California. Although complete eradication is unlikely, managing for minimal infestation is critical for water resource management, wildlife habitat, and flood control. Information gathered during this project will be utilized in planning future invasive plant species management. Funding provided by Sacramento Area Flood Control Agency (SAFCA) was utilized to conduct presence/absence surveys, determine relative abundance, species density and distribution, and to perform plant extraction and biomass removal treatments in tributaries to Dry Creek within Placer County. Stretches of Dry Creek, Secret Ravine, and Miner's Ravine were included in the treatment area (see associated map).

During 2020 project efforts, red sesbania plant presence, distribution, relative abundance, and species density surpassed the numbers associated with 2017-2019 survey findings and treatments, demonstrating that hard work remains. The contractors and Placer Resource Conservation District (Placer RCD) estimate that approximately 24 cubic yards of red sesbania seed pods were removed from Dry Creek drainages. This is a substantial increase from the 2017, 2018, and 2019 reports, which reported the removal of 6 cubic yards. The increase in red sesbania removal may be due to the growth of previously dormant seeds. Seeds may lay dormant for years, making it challenging to know how large the seed bank is. In addition, several previously undetected populations of red sesbania were located within Placer County waterways. There were no single ½ mile stretches surveyed with zero plants.

Introduction

SAFCA conducted an invasive plant control program for red sesbania in the Dry Creek watershed from 2004 to 2006. The project was funded by the California Department of Water Resources Proposition 13 Flood Protection Corridor Program grant. Since 2014, the maintenance phase of the removal program has been funded by SAFCA. Placer RCD has been partnered with SAFCA since 2006.

Placer RCD manages the Dry Creek Red Sesbania Removal Project and collaborates with SAFCA, contractors, and the community to implement the Dry Creek Management Plan. The goal of the project is to reduce the potential for flooding in Dry Creek and improve native plant and wildlife habitat in the watershed. The project detects, removes, and controls red sesbania to achieve a minimal level of infestation that requires baseline maintenance. This report presents a summary of the 2020 treatment efforts.

Background

Red sesbania, also known as scarlet wisteria or rattlebrush, is a deciduous shrub in the plant family Fabaceae (peas/legumes) and grows up to 4 meters in height. The plant is rapidly expanding its range in northern California, particularly in the Sacramento and Central Valley regions. It was introduced into California from Argentina and Paraguay as an ornamental plant, likely due to its brilliant reddish-orange flowers and long flowering season. Red sesbania has escaped cultivation and proliferated throughout

California watersheds. Plants sprout, mature, and begin producing seed pods within the first few growing seasons. Plants emerge from seed, grow to maturity, and produce viable seed pods within the first year of growth. Seed pods are disseminated by falling from shrubs and floating downstream where seeds germinate and root in sandy/semi-aquatic areas, forming new populations. Once established, red sesbania plants form thick clusters, which divert water flows, displace native plants, and alter watershed corridors. Their presence contributes to bank erosion and flooding, and modifies wildlife habitat attributes. Stump sprouting and regrowth of cut shrubs are common. All parts of the plant, but particularly the seeds, contain saponin glycosides, a toxin to humans, livestock, and wildlife when eaten. The 2020 California Invasive Plant Council (Cal-IPC) has assigned red sesbania an overall rating of HIGH on the California Invasive Plant Inventory listing, meaning that the plant has moderate or severe impacts on native plant communities, abiotic ecosystem processes, and higher trophic levels.

Methods

The Dry Creek watershed was divided into sections based on topography, flows, depth, access to waterways (including permissions or denials of permissions to enter through private properties), known historical red sesbania presence, historical abundance concentrations data, crew ingress/egress access, and biomass extraction points.

Placer RCD contracted Rusmore Consulting for removal efforts. The team worked from June 17, 2020 until September 2, 2020. However, anecdotal evidence suggests that the removal of red sesbania could easily be stretched for several more months – beginning earlier and ending later. Seedlings were still sprouting at the start of September; however limited resources prevented the contractors from further removal.

Treatment areas were based on previous mapping data that identified the highest risk areas for red sesbania growth: Dry Creek, Miner’s Ravine, and portions of Secret Ravine and Antelope Creek (see map for details). The contractors began at the most upstream point of the waterway and worked downstream. Surveys were conducted by physically walking within the established waterways and tributary side channels. Treatments were conducted by physically removing emerging and established red sesbania plants by hand or using mechanical methods (weed wrench, pruners, chain saw, machete, and shovel). Plant roots were pulled or dug up from soil, severed, and removed to above bed and bank areas. No stream bed alteration practices were employed or occurred. Mature seed pods were stripped by hand, manually collected, bagged, and carried out of the site. Large “tree-like” red sesbania plants were treated using the “cut-and-paint” method, by which trees are cut and a small amount of herbicide is applied to the stump. This method is highly effective, but not used ubiquitously across the watershed to avoid any negative impacts of herbicide. The bags of seed pods were transported to Placer County Agricultural Commissioner’s Office or taken directly to Sacramento County Hazardous Bio-Waste Disposal Site for disposal.

Results

During the 2020 project work season, about 30 miles of riparian corridors within Placer County were surveyed and treated for red sesbania removal. This included Antelope Creek from Sunset Blvd south to the confluence of Dry Creek, a large stretch of Miner’s Ravine from King Road near Penryn south to Granite Bay and west to the confluence of Dry Creek, Dry Creek to the confluence of Cirby Creek, and Dry Creek from confluence Cirby Creek to Placer County line west of Watt Avenue.

In-creek work began on June 17 and the crew worked until September 2. Two treatment sweeps were conducted of most areas, working from upstream to downstream. All detected shrubs (after-second-year plants with woody bark and seed pods present) and emerging plants were uprooted, root masses severed, and biomass removed from bed and bank areas with seed pods stripped and removed for disposal.

Overall, more than 24 cubic yards of red sesbania seed pods were collected and removed for disposal from the Dry Creek Drainage within Placer County. Red sesbania is still present and likely will remain in the area for many decades. Monitoring, removal, and disposal work must continue to be a priority to control the species and benefit wildlife habitat, water conservation, and flood control.

Specific Area Results

Hotspots of red sesbania were found in all riparian corridors that were evaluated (see map). This indicates that red sesbania is likely found in more upstream reaches of the Dry Creek watershed. The footprint of treated project work should be expanded further northeast into Placer County.

Secret Ravine to Miner's Ravine confluence

Significant plant growth. These are possibly emerging plants from previously deposited seeds with late season maturing plants producing medium volumes of viable seed pods. Access to this area and work within this stretch is difficult due to rocky terrain, lack of ingress/egress points and private land ownership. All located plants were uprooted and removed 20 ft above bed and bank area.

Red sesbania within this area should be considered treated, but not controlled or eradicated.

Miner's Ravine areas upstream from Granite Bay

This riparian stretch was previously outside the purview of Placer RCD project efforts. 2019 was the first year it was surveyed and treated. Direct hydrologic connection to Dry Creek drainage is seasonal. The 2020 project report found extensive populations of red sesbania here.

Red sesbania within this area should be considered initially surveyed, untreated and uncontrolled.

Areas in Granite Bay, and tributary to Miner's Ravine, were also treated. A large population of previously detected and treated red sesbania persists. These areas are suspected of being one of the original seed sources for red sesbania introduced as an ornamental plant into the Dry Creek drainage within Placer County. It continues to produce emerging plants and remains a primary focus of project activities to reduce infestation in lower reaches of the Dry Creek drainage. All located plants were uprooted and removed to above bed and bank area.

Several individual homeowners were very helpful in providing direct ingress/egress access to treatment areas and assistance to accomplish this major seed source reduction effort. However, landowner outreach must continue to be prioritized so that the community is made aware of the severity of red sesbania impacts.

Red sesbania within this area should be considered treated and reduced, but not eradicated.

Miner's Ravine from Granite Bay to confluence with Secret Ravine

Significant populations of red sesbania were found here. Although reduced from previous years, red sesbania still persists in this reach. All located plants were uprooted and seed pods were removed from this area. This area is likely to remain an area of high concern for several continuing years.

Red sesbania within this area should be considered treated, but not controlled or eradicated.

Antelope Creek

Significant populations of red sesbania were removed from the Antelope Creek locations. This location was previously considered contained in 2018, however in 2019 and 2020, this stretch proved to have serious potential for reinfestation of the Dry Creek watershed.

Red sesbania should be considered treated, but not controlled or eradicated.

Dry Creek from the confluences of Secret Ravine, Miner's Ravine, and Antelope Creek

These are emerging plants from previously deposited seeds. All located plants were uprooted and removed to above bed and bank area.

Red sesbania within this area should be considered contained/controlled but not eradicated.

Dry Creek from the Royer Park/Saugstad Park areas within the City of Roseville to Riverside Avenue

This area continues to have red sesbania present as first year plant growth. All located plants were uprooted and removed to above bed and bank area.

Red sesbania within this area should be considered treated and contained/controlled but not eradicated.

Dry Creek from Riverside Avenue, Roseville, to Vernon Street, Roseville

This area had significant populations of mature plants. All located plants and seed pods were removed from this area.

Red sesbania within this area should be considered treated, but not controlled.

Union Pacific Railroad properties from Vernon Street, Roseville to Atkinson Street, Roseville produced limited immature plant presence. All located plants were uprooted and removed to above bed and bank area.

Dry Creek and tributary side channels within Placer County from Atkinson Street, Roseville to Community of Dry Creek, to Watt Avenue in rural south western Placer County continues to produce the huge concentrations of emerging red sesbania plants and mature shrubs. Mature seed pod-producing plants were detected and removed. The majority bulk of red sesbania seed pods removed from Dry Creek drainage areas in Placer County during 2019 again came from this area. All located plants were cut down, uprooted when possible, and seed pods were removed. Contractors used the "cut-and-paint" method to try to control larger, mature stumps from resprouting.

This remains the most prolific area for red sesbania within Placer County. Red sesbania within this area should be considered treated/reduced, but not contained or controlled.

All areas on the attached map were treated, except for the point marked “No Access” on Miner’s Ravine, west of Granite Bay. Due to hazardous obstructions, the contractors were unable to safely access the creek and remove plants from this area.

Discussion/Recommendations

The infestation of red sesbania in the Dry Creek watershed has substantially increased since 2019. It is necessary to continue removal efforts in the Sacramento and Placer County regions. In fact, it is recommended to create, fund, and maintain a community volunteer group for invasive species removal.

Red sesbania continues to be present within the Dry Creek drainage, from Newcastle/Loomis through Granite Bay to City of Roseville, City of Rocklin, and the Community of Dry Creek, continuing downstream into Sacramento County. Due to increasing numbers since previous years, reduction efforts must continue. Consistent surveying, monitoring, and removal throughout the watershed is necessary. Although it is both a laborious and cost-intensive effort, annual removal is necessary to ensure the health of our watershed and the conservation of water in our community.

Previous survey detections and treatments have been effective in reducing presence and abundance of red sesbania throughout the Dry Creek watershed. But invasive species removal, by nature, is a long-term, labor-intensive process. Previously treated areas were retreated, and several new areas of presence/maturing infestation were discovered during 2020 project efforts. Project treatment work must continue to improve vegetation management.

Multiple private property ponds in the Newcastle-Granite Bay areas, with direct hydrologic connectivity to Miner’s Ravine, previously had red sesbania introduced as ornamentals and are still being discovered and added to future project anticipated efforts. Red sesbania remains uncontrolled in some areas of Placer County and is barely contained or controlled in others. The previously deposited seed bank produces new plants every year. Given the proliferative nature of the plant, active removal efforts must continue annually to reduce its presence. It would be helpful to establish a volunteer group for multiple removal events throughout the summer season.

Detection and verification of red sesbania has again taken place in stretches of Auburn Ravine Drainage between the cities of Auburn and Lincoln within Placer County, but complete surveys have not been conducted and no known treatments have occurred. These areas flow into the Sacramento River Drainage, emphasizing the importance of hydrologic connectivity of larger watersheds. Red sesbania is not bound by geopolitical borders and removal should be a state-wide effort. The Dry Creek watershed is just one of the tributaries that addresses red sesbania, but other sections must be monitored and treated, as well.

The effects of the COVID-19 created challenges regarding landowner communication and outreach. The inability to meet or interact with landowners face-to-face exposed gaps in our outreach work. Placer RCD recognizes the importance of community engagement and seeks to better advertise invasive species removal throughout the community. The Conservation Project Coordinator and the Grants and Outreach Specialist at Placer RCD are dedicated to improving landowner outreach in future removal efforts, making in-creek work more efficient and cost effective.

Cooperative efforts between citizens, agencies and organizations interested in preserving/restoring the Dry Creek drainage are having a positive effect on reduction of red sesbania presence and may be vital

to planning and implementation of future invasive plant management. Continued survey and treatment efforts are required to contain and reduce red sesbania from Placer County waterways. Continued coordination of stakeholder efforts to implement Dry Creek management plans should be encouraged.

In 2017 and 2018, the United States Army Corps of Engineers, Sacramento District, permitted dredging and riparian disturbance during construction of the “Antelope Creek Flood Control Project, Upper Weir.” The construction spread red sesbania seed deposits into Antelope Creek. Red sesbania seeds can remain viable within drainage for many years. Placer County Flood Control and Water Conservation District's USACE CWA 404 Permits NW#27, NW#3 and Mitigated Negative Declaration indicate “...there WILL NOT be a significant effect in this case...” and that invasive plant management was included as part of project plans.

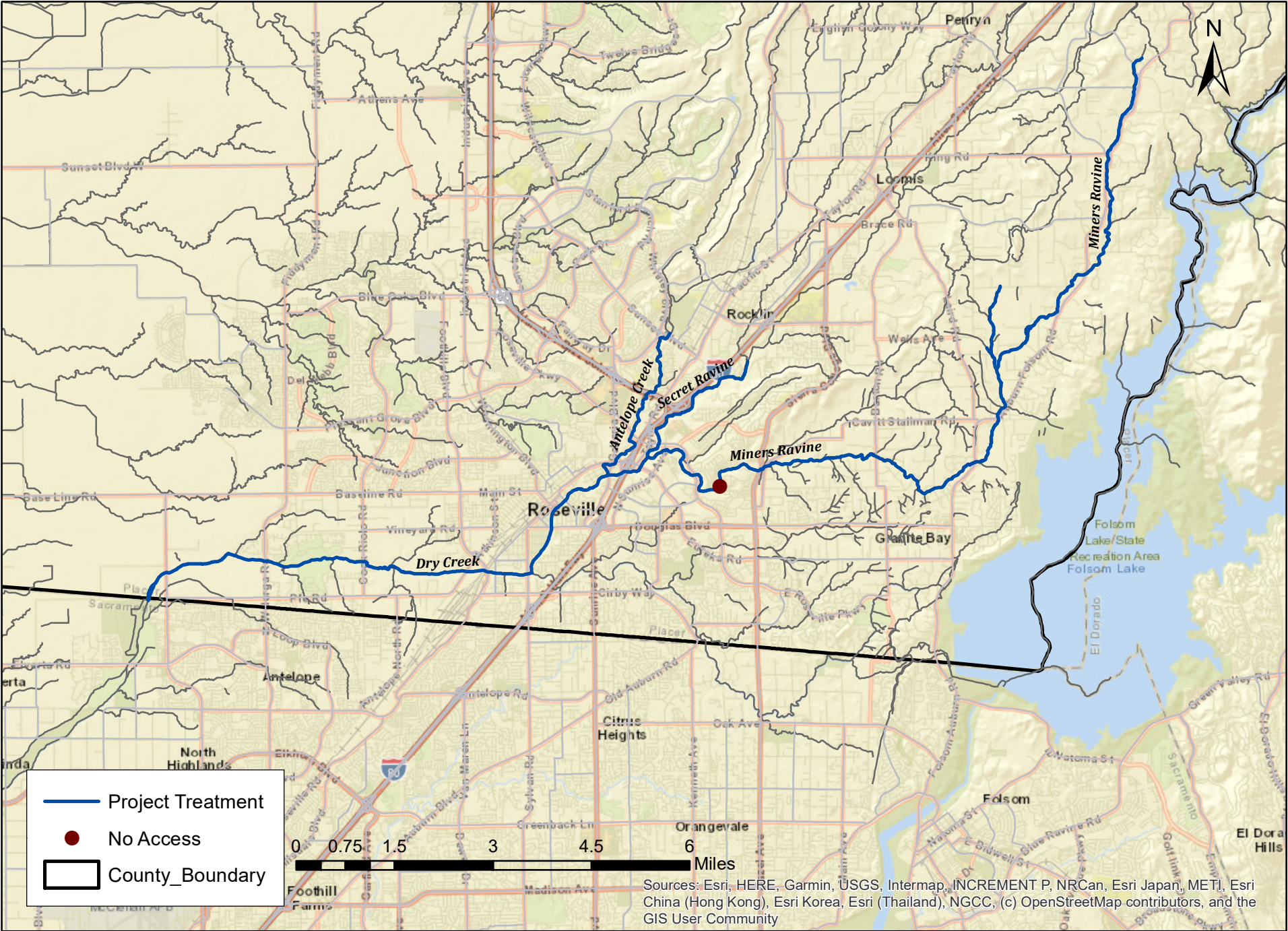
In 2019, this area is reported as being monitored and treated by City of Roseville and/or Placer County Flood Control and Water Conservation District as part of required U.S. Army Corps of Engineers Permit conditions regarding invasive plant surveys and monitoring for post construction of the weir project. This area has serious potential to provide major seed source for reinfestation for lower reaches of the Dry Creek drainage. It is also anticipated that Caltrans District 3 “Interstate 80 / Highway 65 Interchange Improvements Project” is likely to produce significant adverse effects in this area in future years as a direct result of dredging/disturbance of residual seed bank within Antelope Creek in the vicinity of Highway 65 interchange. Anthropogenic disturbances are some of the primary causes of invasive plant spread.

The stated goals of the 2020 Placer RCD Dry Creek Red Sesbania Project to reduce the potential for flooding and to improve native plant and wildlife habitat conditions through red sesbania removal were accomplished in a resource and cost-effective manner. This project is positively impacting the watershed. It is recommended that the SAFCA and Placer RCD continue to collaborate on red sesbania removal projects. Failure to continue treatments would likely result in repopulation and infestation of red sesbania throughout the region.

Site Photos

The following site photos highlight the rapid growth and intense infestation of red sesbania within the Dry Creek watershed. Invasive species removal efforts are labor and cost-intensive, but a critical component of a healthy watershed. Monitoring and removal work must continue for the health, safety, and ecological benefits of Placer County.

Dry Creek Red Sesbania Removal Project 2020



2020 Monitoring Photos:



Photo 1: Mature tree-like red sesbania plants were found throughout the Dry Creek watershed



Photo 2: Trash and evidence of sustained human presence were found throughout the watershed in addition to red sesbania plants.



Photo 3: Contractors use hand saws and weed wrenches to remove red sesbania plants from the base.



Photo 4: Contractors remove red sesbania plants, large and small. As much as possible, plants were removed with the roots to prevent further infestation.