

2019 Placer County RCD Dry Creek Red sesbania Project Report

January 20, 2020

Executive Summary

The goals of the 2019 Placer County Resource Conservation District (PCRCDD) Dry Creek Red sesbania Project activities were to continue previous efforts to detect current presence and to continue treatments towards reduction of Red sesbania (*Sesbania punicea*) throughout the Dry Creek watershed within Placer County, California, leading to eventual eradication of Red sesbania from Placer County waterways. Information gathered during this project is to 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 waterways tributary to Dry Creek Drainage within Placer County including portions of Dry Creek, Secret Ravine and Miner's Ravine.

During 2019 project efforts, Red sesbania plant presence, distribution, relative abundance and species density were relatively consistent with 2017-2018 PCRCDD survey findings and treatments. Six (6) cubic yards of Red sesbania seed pods were removed from Dry Creek drainage, the same amount as was removed during 2017 and 2018 season treatments. This volume is significantly reduced from 16 cubic yards removed during 2016 treatments. In addition, several previously undetected populations of Red sesbania were again located within Placer County waterways.

Red sesbania is still present throughout the Dry Creek drainage in Placer County, California. Overall, Red sesbania species presence, relative abundance and species density were greatly reduced from previous years and treatment efforts are being effective. However, there again were no single ½ mile stretches surveyed with zero plants.

Introduction

The Sacramento Area Flood Control Agency (SAFCA) conducted an invasive plant control program for Red sesbania (*Sesbania punicea*) in the Dry Creek watershed from 2004 to 2006. The project was funded by a California Department of Water Resources Proposition 13 Flood Protection Corridor Program grant administered by SAFCA. Since 2014, the maintenance phase of the removal program has been funded by SAFCA.

The Placer County RCD Dry Creek Red sesbania Project is administered by Placer County Resource Conservation District, who continues to coordinate with stakeholders to implement the Dry Creek management plan. The goal of the project is to reduce the potential for flooding in Dry Creek and to improve native plant and wildlife habitat in the watershed. The objective is to continue to detect, remove and control Red sesbania, anticipating a diminishing level of effort over time. This report presents a summary of the 2019 surveys, monitoring and treatment efforts, including a summary of the work completed by PCRCDD.

Background

Red sesbania (*Sesbania punicea*) 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, specifically in the Sacramento region. It was introduced into California from Argentina and Paraguay as an ornamental plant probably due to its brilliant reddish-orange pea like flowers and long flowering season. Red sesbania has escaped cultivation into the wild amongst various California riverine watersheds. Plants sprout, mature and begin producing seed pods within the first few growing seasons. Study site plants within the Dry Creek Drainage within Placer County, California often emerge from seed, grow to maturity and produce viable seed pods within the first year of growth. Growth rates of study site plants have been verified at three plus feet per month. 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 contributing to bank erosion and flooding and modifying wildlife habitat attributes. Stump sprouting / regrowth of cut shrubs are common. The plants also contain saponin glycosides which are toxic to humans, livestock, and wildlife when eaten. The California Invasive Plant Council (Cal-IPC) has rated Red sesbania as HIGH on the California Invasive Plant Inventory listing.

Methods

Dry Creek drainage within Placer County was portioned into sections from Newcastle-Loomis- Rocklin- Granite Bay-Roseville-South Western Placer County / Sacramento County interface based on topography, flows, depth, access to water ways (including permissions or denials of permissions to enter through private properties), known historical Red sesbania presence, historical abundance concentrations data and availability and access to crew ingress / egress points and biomass extraction points.

In-creek surveys and treatments were conducted by PCRCO field crews directed and led by Walter Clevenger, biologist, and Fred Harrison, crew leader. Crews worked from upstream to downstream, from May 01-October 15, 2019. Off channel work continued through December 31, 2019. 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 and were then transported to Placer County Agricultural Commissioner's Office or transported directly to Sacramento County Hazardous Bio-waste Disposal Site for disposal. Residual Red sesbania plant biomass was removed from the bed and bank areas of drainages delineated as, or adjacent to, navigable waters of the United States.

Results

During the 2019 project work season, eighteen miles of Dry Creek drainage tributary links within Placer County, California were surveyed for Red sesbania presence and treatments for removal were conducted. This included Secret Ravine from Brace Road in Loomis to confluence Miner's Ravine, Miner's Ravine in Granite Bay to confluence Dry Creek, Dry Creek to confluence Cirby Creek, portion of upstream Cirby Creek, and Dry Creek from confluence Cirby Creek to Placer County line west of Watt Avenue. Red sesbania was also detected and treated in portions of side channels with seasonal connectivity to Dry Creek and private ponds with potential to provide seed sources to Dry Creek drainage.

In-creek work was started May 01, 2019 and was completed prior to October 15, 2019. Off channel survey and treatment work continued through December 31, 2019.

Two treatment sweeps were conducted of most areas, working from upstream to downstream. One sweep was made through the City of Roseville city limit areas from Folsom Road to Douglas Boulevard due to hazardous obstructions in creek. Three sweeps were conducted in the Granite Bay area resulting in 650+ new / emerging / maturing plants. This area is thought to be one of the original sources of introduction of Red sesbania into Dry Creek drainage.

All detected shrubs (after-second-year plants with woody bark and seed pods present) and first year / emerging plants were uprooted, root masses severed, and biomass removed from bed and bank areas with seed pods stripped and removed for disposal.

Overall, 6+ cubic yards of Red sesbania seed pods were collected from the Dry Creek Drainage within Placer County during 2019 and removed for disposal.

Red sesbania is still present throughout the Dry Creek drainage within Placer County. Overall, Red sesbania species presence and relative abundance levels are remaining consistent or greatly reduced from previous years and treatment efforts are being effective. However, there were no single ½ mile stretches surveyed with zero plants.

Specific Area Results

Secret Ravine from Loomis to confluence with Miner's Ravine again produced significant first year 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 to above bed and bank area. Approximately 15 cubic feet of seed pods were removed from this area.

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

Miner's Ravine areas upstream from Granite Bay, previously outside the purview of PCRCD project efforts, were again partially surveyed and treated during 2019. Direct hydrologic connection to Dry Creek drainage is seasonal and flows fluctuate temporally. Approximately 15 cubic feet of seed pods were removed from this area. More extensive surveys and treatments of this area are scheduled for 2020 field season dependent on available funding.

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

Areas in Granite Bay, tributary to Miner's Ravine, were again treated. A large population of previously detected and treated Red sesbania persists in these areas. 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. This area continues to produce emerging Red sesbania and remains a primary focus of project activities to reduce infestation potential for lower reaches of the Dry Creek drainage. All located plants were uprooted and removed to above bed and bank area.

Several individual homeowners were again very helpful in providing direct ingress / egress access to treatment areas and assistance to accomplish this major seed source reduction effort. Approximately one cubic yard of seed pods were removed from this area.

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

Miner's Ravine from Granite Bay to confluence with Secret Ravine again produced significant presence. Although reduced from previous years, Red sesbania still persists sporadically in this reach. All located plants were uprooted and seed pods were removed from this area.

The densest areas of Red sesbania presence this year within City of Roseville jurisdiction were in Miner's Ravine, Roseville Open Spaces. Approximately 16 cubic feet of seed pods were removed this year. This area is likely to remain an area of high concern for several continuing years.

Red sesbania within this area should be considered treated / greatly reduced and contained to specific stretches but not fully controlled or eradicated.

Antelope Creek through lower portions of City of Rocklin from Highway 65 to below Antelope Creek Flood Control Project, Upper Weir within City of Roseville were reported as being monitored and treated by City of Roseville. During last year's 2018 project work, PCRCD crews removed 1000+ mature seed pod bearing plants, expending 80+ man hours, in a single ½ mile stretch of Antelope creek that was previously reduced to ~40 plants per mile.

Red sesbania within this area was previously considered contained / controlled but not eradicated. Red sesbania within this area should now be considered uncontained and uncontrolled with serious potential to reinfest lower stretches of Dry Creek.

Dry Creek from the confluences of Secret Ravine, Miner's Ravine and Antelope Creek with Dry Creek to Lincoln Estates Park within City of Roseville produced first year plant growth presence; these are possibly emerging plants from previously deposited seeds. Only one sweep was made of the area within

the City of Roseville city limits from Folsom Road to Douglas Boulevard due to hazardous obstructions in creek. All located plants were uprooted and removed to above bed and bank area. Approximately 6 cubic feet of seed pods were removed during 2019.

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 was surveyed and treated twice. 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. Areas of Dry Creek within Royer Park were inaccessible due to obstructions in creek. Approximately 4 cubic feet of seed pods were removed during the 2019 season.

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 again produced significant maturing plant presence. Improved private property owner granted access within this area made in-creek work and ingress / egress for seed pod removal efforts more time and cost effective than in previous years. All located plants and seed pods were removed from this area. Approximately 6 cubic feet of seed pods were removed during the 2019 season.

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

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

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 main concentrations of emerging Red sesbania plants and mature shrubs within the project area. Significant presence of mature seed pod producing plants were again 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. The densest populations were again located between Walerga Road and Watt Avenue. All located plants were cut down, uprooted when possible, and seed pods were removed from this area. Several areas with temporal back flows from Dry Creek only during near flood event years were again surveyed but remained untreated due to property ownership change and lack of ingress / land owner permissions. Approximately 3 cubic yards of seed pods were removed during the 2019 season.

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.

Discussion / Recommendations

The Placer County Resource Conservation District (PCRC) and Sacramento Area Flood Control Agency (SAFCA) have partnered for several years to survey and treat Red sesbania throughout the Dry Creek Drainage including Secret Ravine, Miner's Ravine, Antelope Creek below CA Highway 65, and Dry Creek to Placer County / Sacramento County interface.

Red sesbania continues to be present within the Dry Creek drainage, within Placer County, from approximately Newcastle / Loomis through Granite Bay to City of Roseville, City of Rocklin and the Community of Dry Creek, continuing downstream into Sacramento County. Overall, Red sesbania species presence, relative abundance and species density are consistent with or reduced from previous years. However, during 2019 PCRC surveys and treatment efforts there were again no single ½ mile stretches with zero plants.

Water flows within the Dry Creek drainage originating from melting snowpack in the Central Sierra Nevada were reduced during winter 2018-2019 from flows during winter 2016-2017, resulting in reduced localized flooding of Dry Creek. Much of the Dry Creek drainage area received scouring flows during winter 2016-2017 that may have had a significant effect on Red sesbania presence, distribution and growth during 2018 and 2019 and beyond.

Previous survey detections and treatments have been effective in reducing presence and abundance of Red sesbania throughout the Dry Creek drainage. Previously treated areas were retreated and several new areas of presence / maturing infestation were discovered during 2019 project efforts. Continuing efforts to detect and remove Red sesbania from Dry Creek drainage appear to be effective. Project treatment work is having a noticeable positive effect on Dry Creek drainage in regards to invasive plant management, manageability of consistently fluctuating water quantities and maintaining the desirable paths of shifting patterns of water flows.

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 continues to produce new plants in many areas and multiple years of continued treatments will be required to reduce the entire Dry Creek Drainage to a maintenance level with eventual eradication being the desired result.

In addition, 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 known areas have hydrologic connectivity to the Sacramento River Drainage.

Continuing communications and outreach education by PCRC crews during 2019 season treatments again resulted in improved landowner cooperation. Improved ingress / egress access provided by private landowners and Placer County made 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 perhaps eventually eliminate Red sesbania from Placer County waterways. Continued coordination of stakeholder efforts to implement Dry Creek management plans should be encouraged.

It is again apparent that United States Army Corps of Engineers, Sacramento District, permitted dredging / in- creek disturbance during construction of the "Antelope Creek Flood Control Project, Upper Weir" released residual Red sesbania seed deposits into Antelope Creek during 2017/2018. Red sesbania seeds can remain viable within drainage for a decade or more. 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.

The stated goals of the 2019 Placer County RCD Dry Creek Red sesbania Project to continue to reduce the potential for flooding in the Dry Creek drainage throughout Sacramento and Placer Counties and to improve wildlife habitat conditions throughout the watershed by continued detection and removal of invasive plants, specifically Red sesbania (*Sesbania punicea*), were accomplished in a resource and cost effective manner. This project is having a noticeable positive impact on the environment, including improving overall watershed ecosystem health conditions, which should be encouraged and continued. It is recommended that the SAFCA / Placer County RCD Dry Creek Red sesbania Project be continued for the foreseeable future. Failure to continue treatments would likely result in repopulation and infestation of Red sesbania throughout the Dry Creek drainage.

Representative site photos from 2019 Placer County RCD Dry Creek Red sesbania Project



Dry Creek, South Western Placer County 2019



Dry Creek, South Western Placer County 2019



Secret Ravine, Placer County 2019



Dry Creek, City of Roseville, Placer County 2019



Dry Creek, Community of Dry Creek, Placer County 2019



Antelope Creek, Placer County 2019



Red sesbania seed pods / biomass, Granite Bay, Placer County 2019



Miner's Ravine, Granite Bay, Placer County 2019

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