Siskiyou RCD

Invasive Plant Management Plan: Scott Watershed

2022

CHAPTER 1: INTRODUCTION

(1.1) Mission Statement:

This Plan is directed at prioritizing, coordinating and strategizing objectives and activities necessary for the prevention, reduction, eradication and control of high priority noxious and invasive plants on private and public lands in the Scott River watershed in order to preserve and improve local biodiversity.

Purpose:

Invasive plant species pose risks to our local biodiversity by reducing or out-competing native plant populations, changing the intensity and spread of wildfires, altering aquatic ecosystems, and reducing forage for livestock and cropland for ranchers and farmers. Once noxious or invasive plants become established it is extremely difficult to eradicate them and bring back the native plant communities that have been displaced.

The Scott River watershed includes a U.S. Forest Service designated wilderness area, the character and value of which would be compromised by the encroachment of invasive species. Tributary creeks and streams transmit the seeds of invasive plants downstream into the Scott River, irrigation ditches in Scott Valley, and eventually the Klamath River. If management practices are not implemented promptly, high priority invasive plants will rapidly establish along roads, trails, trailheads, anadromous waterways and pastureland in the Russian Wilderness, Scott Valley and Klamath River watershed.

Once A-rated invasive plants such as Knapweed become widely established, management practices become considerably less efficient and/or effective (cost/time). Addressing invasive plant species that are impacting native ecological function and local agricultural operations is a high priority for Siskiyou County, the U.S. Forest Service, and the State of California.

Invasive plants are responsible for changing the patterns of fire activity in many ecosystems around the world. In particular, invasive species can lead to hotter and more frequent fires. One of the main ways flammable invasive plants can have long-lasting impacts on an ecosystem comes from positive fire-vegetation feedback. Such feedback can occur when a flammable plant invades a less fire-prone ecosystem. By changing the available fuel the invader makes fires more likely and often hotter.

If the invading species has characteristics that allow it to outcompete native species after a fire, such as Knapweeds, then it will further dominate the ecosystem. Such traits include thick bark, the ability to resprout following fire, or seeds that survive burning. This invasion will likely lead to more fires, changing the species composition and function of the ecosystem in a “fire begets fire” cycle. Extreme examples of this dynamic are where flammable grasses or shrubs invade forests, leading to loss of the forest ecosystems.

Invasive species outcompeting native vegetation can alter food-webs, potentially leading to a trophic cascade. Currently, tributaries of the Scott River and portions of the mainstem support a variety of wildlife and fisheries habitat. Deer, elk, beaver and a variety of birds rely on the riparian areas along these waterways, especially the corridor between French Creek and the mainstem Scott River.

The Plan’s activities for suppression, eradication and control of invasive plant species will help to maintain the recreational and aesthetic value of open space, recreational and public areas, fuels-reduction and preserve biodiversity of native, beneficial plant species and aquatic organisms (macroinvertebrates) along and in anadromous waterways. Studies show, even with small projects, eradicating invasive weeds has a bottom-up impact on adjacent aquatic ecosystems (Invasive Plant Science and Management, 2017).

Spatial Scope & Setting:

The Scott River's watershed covers about 800 square miles *(512,000 acres)*. About half of the watershed's area is in private ownership, with the other half belonging to the federal government (U.S. Department of Agriculture Forest Service wilderness and other land use allocations).

The Scott River's watershed flows through western Siskiyou County, the second most biologically diverse county in the nation. This extreme biodiversity makes the county an attractive destination for tourists who appreciate the wide-open spaces, wilderness areas, outdoor sports and beautiful scenery.

The primary use of private land is agricultural in nature, including timber harvest, livestock grazing, and large-scale crop production. Alfalfa, grain, and pasture forage are the most common crops produced in the watershed. Agriculture is the number one industry in Scott Valley. Currently, approximately 30,000 acres of land in the Scott River watershed are irrigated (about 6% of the watershed) utilizing surface and groundwater sources. Ranchers and farmers in Scott Valley are constantly trying to maintain or improve production to be competitive in the current market. Invasions of noxious plants could have a serious impact on our agricultural based economy.

(1.2) Project Team:

Projects will be executed across agricultural, residential, and recreational private land holdings. Coordination between landowners, stakeholders, and cooperators to survey/map invasive plants and approach treatment or eradication in an integrated manner will be managed by the Project's Coordinator. In addition to private lands, the Projects may encompass federal property. The distinction between the two is important, as invasive plant management protocols differ between the two land type designations (treatment measures will not be practiced on Forest Lands).

- Program Manager: Evan Senf
- Siskiyou RCD works with partners through the KARISM (Klamath Alliance for Regional Invasive Species Management).
- Siskiyou RCD partners with the Siskiyou County Agriculture Department and Commissioner in developing and implementing projects that control, reduce and eradicate invasive or noxious plant species within the District. Siskiyou County Agriculture Department survey and eradication personnel will be contracted to conduct mapping and suppression exercises as needed.

Criteria for Prioritization:

Species Priorities: "Noxious (or invasive) weed" means any species of plant that is, or liable to be, troublesome, aggressive, intrusive, detrimental, or destructive to agriculture, silviculture, or important native species, and difficult to control or eradicate, which the Secretary of the California Department of Food and Agriculture, by regulation, designates to be a noxious weed. (Definition from the California Food and Agriculture Code.)

A full list of invasive plants in the Scott River watershed was compiled utilizing the CalWeedMapper platform with prioritization rankings from the Cal-IPC inventory and California Agriculture Department. A selection of the highest concern species was then scored by additional criteria such as:

- Larger landscape invasiveness
- Status and habitat suitability
- Ecological impacts
- Difficulty of control
- Larger landscape importance

Area Priorities: The Scott River watershed was divided into six management areas:

- Area 1: McAdams Creek Watershed
- Area 2: Moffett Creek Watershed
- Area 3: East Fork
- Area 4: South Fork, Sugar Creek
- Area 5: French Creek Watershed, Etna Creek, Patterson Creek
- Area 6: Kidder Creek, Shackleford Creek Watershed, Main Stem Scott

These areas were scored for priority by criteria such as: *Importance of conservation targets score, Integrity (intactness) of resources score, Innate resistance to invasion score, Risk of invasion: pathways and vectors score, Risk of invasion: anthropogenic disturbance score, Infestation level score.*

CHAPTER 2: PRIORITY AREAS, SPECIES & MANAGEMENT LEVELS

(2.1) Range/Areas Map

(2.2) Priority Area Site-Specific Information (See Appendix A for Area Priority Score Table):

Area 1 (McAdams Creek Watershed):

Scott Valley watershed priority score: 16

Area 2 (Moffett Creek Watershed):

Scott Valley watershed priority score: 16

Area 3 (East Fork):

Scott Valley watershed priority score: 18

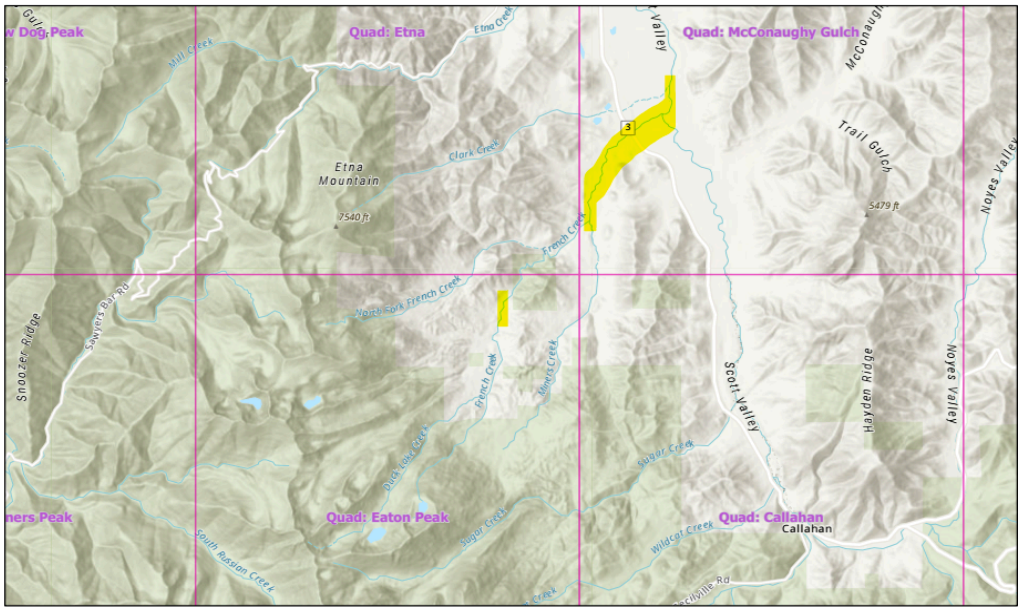
The East Fork of the Scott River drains 72,650 acres, 14% of the Scott River watershed. Elevations range from 3,120' at Callahan (confluence) and up to 8,540' in the headwaters. Land use is mixed Federal and private timberlands in headwaters with rangeland and irrigated agricultural use throughout the larger valleys.

Area 4 (South Fork, Sugar Creek):

Scott Valley watershed priority score: 19

The South Fork drains 25,133 acres (4.8% of the Scott River watershed). Land ownership in this watershed is primarily mixed ownership timberlands with federally owned wilderness in much of the headwaters. Limited residential property and small amounts of irrigated pasture land are scattered through the lowest section of the South Fork (Callahan).
Sugar Creek's watershed is 8,914 acres. The watershed's land use is primarily mixed federal and private timberlands (headwaters in the Russian wilderness area) with small private landowners occupying the bottomlands. The last 1,000' of Sugar Creek's channel is constrained by tailing piles (Hwy 3 to confluence).

Area 5 (French Creek, Etna Creek, Patterson Creek Watershed):



French Creek Invasive Plant Map 2021 (Yellow depicts area of known and historic Invasive Noxious Weeds: Spotted and Diffuse knapweed, Sulfur cinquefoil)

Scott Valley watershed priority score: *22*

The French Creek watershed contains 21,000 acres of mostly high granite mountains in northern California. It's heavily forested and used for timber harvest, recreation, and rural residences. Elevations range from 2,800' to 8,000'. There are over 100 miles of streams. Annual precipitation rates range from less than 20" to more than 50".

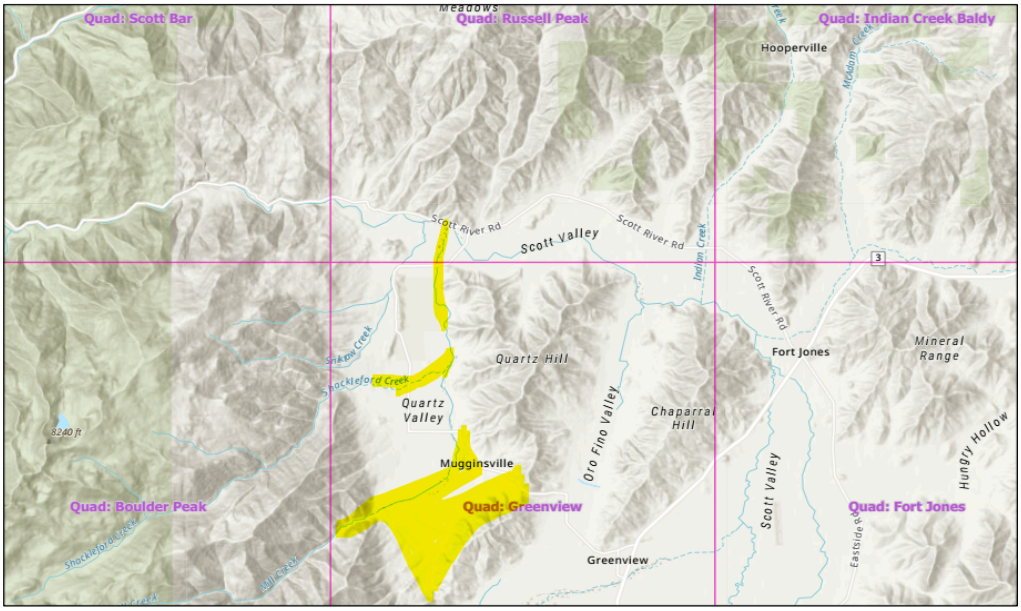
The key issue in the French Creek watershed is fish habitat. Erosion of granitic soils (63% of the French Creek basin) has led to sediment impacts on spawning and rearing habitats for salmonids. There has been a substantial amount of timber harvest in the basin and significant concern that timber harvest and other land management activities have increased erosion and sedimentation. Fire management planning and reducing fuel hazards are also important concerns in this basin.

Both temperature monitoring and macroinvertebrate sampling indicate that French Creek likely maintains water quality high enough for salmonid rearing. This is supported by annual juvenile population and adult spawning surveys.

Etna Creek drains a 27,500 acre watershed. Etna Creek's headwaters are in the wilderness with timberlands throughout the top and middle of the watershed. The lower gradients and alluvial portion of the watershed contains residential, municipal (city of Etna), and agricultural land. The mouth of the creek normally goes dry during low flow due to subsurface flow.

Patterson Creek is a small watershed with an estimated area of 4,000 acres. The land use in the watershed is primarily mixed ownership timberlands and agricultural with a small amount of private residences.

Area 6 (Kidder Creek, Shackleford Creek Watershed, Main Stem Scott):



Quartz Valley Invasive Plant Map 2021 (Yellow depicts area of known and historic Invasive Noxious Weeds: Leafy spurge, Spotted knapweed, Sulfur cinquefoil - 1 site)

Scott Valley watershed priority score: *21*

The Kidder Creek watershed is 50,144 acres from the headwaters to the confluence with Big Slough. Land use in this watershed is wilderness in the headwaters, private timber upslope, and residential (including the town of Greenview) and agricultural in the valley section.

Shackleford-Mill Creek watershed is primarily ultramorphic rock and drains 31,869 acres. The headwaters start in the Marble Mountains at 8,000' elevation, dropping to 2,880' elevation in Quartz Valley. Land use in the watershed is a combination of wilderness, USFS, private timber, small residential, and agricultural.

Most of Shackleford-Mill has cattle exclusion fencing in locations where necessary, and riparian replanting efforts were incorporated into fencing efforts.

(2.3) Priority Species Full List:

Scientific Name	Common Name	Scott Watershed Priority Score*	Regional Priority	Recommended Action**
Management Level 1 - Prevention				
Chondrilla juncea	Rush Skeletonweed	16	High	Surveillance
Tribulus terrestris	Puncture Vine	14	High	Surveillance
Management Level 2 - Eradication				
Euphorbia virgata	Leafy spurge	20	High	Monitor
Management Level 3 - Containment				
Centaurea stoebe ssp. micranthos	Spotted Knapweed	23	High	Coordinate; Fund management
Lepidium latifolium	Perennial pepperweed	18	High	Coordinate; Fund management
Cytisus scoparius	Scotch broom	16	Medium	Coordinate
Cirsium arvense	Canada Thistle	16	Medium	Coordinate
Centaurea diffusa	Diffuse knapweed	18	Medium	Coordinate; Fund management
Elymus caput-medusae	Medusahead	-	Medium	Additional Data
Salsola tragus	Russian Thistle	-	Low	Coordinate
Management Level 4 - Asset-based Protection				
Isatis tinctoria	Dyer's Woad	10	Low	Additional Data; Coordinate

*Scott Watershed Species Priority Score: See Appendix B.

Recommended Action: **Additional data = additional distribution/abundance data are needed to assess impacts and/or management feasibility. **Coordinate** = facilitate coordinated management of species between multiple entities and/or management units. **Fund trial** = test the ability of multiple entities to effectively implement management across a management unit. **Fund management** = fund management of species. **Monitor** = monitor established control programs to ensure species are being managed effectively. **Surveillance** = watch for occurrences of species region-wide (early detection).

(2.4) Management Levels:

- *Level 1 - Prevention:* Preventing the introduction of invasive plant species is the first line of defense against invasive species (Early Detection Rapid Response).
- *Level 2 - Eradication:* Eradication is the complete removal of an invasive plant species (including reproductive propagules) from a defined area.
- *Level 3 - Containment:* Containment is defined as any action taken to prevent establishment or to control a plant species beyond a predefined area known as the containment unit. Control is defined as the act of reducing the occurrence or abundance of invasive plants using one or more IPM chemical, biological, cultural, or mechanical removal techniques.
- *Level 4 - Asset-based protection:* Asset-based protection means limiting invasive plant control activities to portions of an infestation that directly threaten high-value conservation targets (such as areas supporting a high-valued species, community, ecosystem, or culturally significant asset).

Level 1 - Prevention (Watershed-wide):

Goal: Prevent establishment of new invasive plant populations within the Scott Watershed.

Species on this level are distributed in surrounding regions or areas, or are suspected to occur within the watershed.

Recommendations:

- Conduct ground based inventories for presence/absence of prioritized species with estimated populations (size of infestations).
- Develop and implement early detection rapid response (EDRR) protocol focused on high priority early detection species.

Management Level 1 - Prevention			
Scientific Name	Common Name	SWPS	Abundance
Chondrilla juncea	Rush Skeletonweed	16	N/a
Tribulus terrestris	Puncture Vine	14	Unknown

Rush Skeletonweed *Chondrilla juncea*

Scott Watershed Priority Score: 16

Current condition:

Management information:

Recommendations:

Suspected population sites:

Puncture Vine *Tribulus terrestris*

Scott Watershed Priority Score: 14

Current condition:

Management information: N/a

Recommendations:

Suspected population sites: Area 6.

Level 2 - Eradication:

Goal: Eradication with regionally coordinated control programs.

Species on this level have either been considered eradicated through management efforts (they are suspected to no longer be present), or they are limited in distribution that makes eradication feasible.

Recommendations:

- Monitor previous management sites (ideally annually or bi-annually).
- Coordinate with *KARISM* and Siskiyou County Ag Department to maintain current invasive plant location information databases.
- Conform to early detection rapid response protocols accordingly.
- Educate the general public and stakeholders about invasive plants with online and physical resources at our website and fair exhibits, ect.

Management Level 2 - Eradication				
Scientific Name	Common Name	SWPS	# of historical sites	Abundance
Euphorbia virgata	Leafy spurge	20	1	N/a

Leafy spurge ***Euphorbia virgata***

Scott Watershed Priority Score: 20

Current condition: CDFA Rating: **A**. Cal-IPC Rating: **High-Alert**. Abundance medium, spread stable or decreasing.

Local Invasive Value: **8** - Abundance medium, spread stable or decreasing. Historically, Quartz Valley had large infestations that were successfully eradicated in the 1960's. Currently, satellite populations exist and are being managed. Funding for surveys in the Shackleford Creek area will be conducted for presence/absence of leafy spurge in 2022.

Management information:

Recommendations: Continue funding surveys and early detection rapid response (EDRR) projects in and around historical infestation sites.

Known population sites: Area 6.

Level 3 - Containment:

Goal: Implement suppression/reduction projects of invasive plant populations annually aimed at eventual watershed or area wide eradication.

Recommendations:

- Support existing Siskiyou County Weed Management Area eradication, suppression and control efforts.
- Partner with Siskiyou County Agriculture Department for projects with herbicide treatment.
- Promote development of watershed level control for additional invasive plant species.
- Assess success of both existing and new programs.
- Fund projects that implement management objectives and actions.

Management Level 3 - Containment					
Scientific Name	Common Name	SWPS	Control Effort	Feasibility	Funding Needed
Centaurea stoebe ssp. micranthos	Spotted Knapweed	23	High	High	No
Lepidium latifolium	Perennial pepperweed	18	Med	High	Yes
Cytisus scoparius	Scotch broom	16	Low	Med	Yes
Cirsium arvense	Canada Thistle	16	Med	Med	Yes
Centaurea diffusa	Diffuse knapweed	18	High	High	Yes
Elymus caput-medusae	Medusahead	-	N/a	Low	Yes
Salsola tragus	Russian Thistle	-	N/a	-	Yes

Spotted Knapweed ***Centaurea stoebe ssp. Micranthos***

Scott Watershed Priority Score: 23

Current condition: CDFA rating: **A**. Cal-IPC Invasiveness Rating: **High**. Highly competitive with native vegetation. Forms dense stands that can exclude desirable vegetation and wildlife in natural areas.

Local Invasiveness Value: **6** - Abundance low, spread stable or decreasing. Sources of Spotted Knapweed locally are suspected to come from French Creek watershed. Programs are currently being implemented in order to manage and determine the source population(s) in the French Creek watershed.

Management information: *Mechanical (pulling, cutting, disking):* Hand pulling is feasible for scattered spotted knapweed plants, or for areas where other control methods are not feasible and sufficient labor is available. Generally, this form of control is limited to small infested areas. Repeated hand pulling is necessary during the season and over many years. Successful control has been reported when plants were hand removed 3 times a year (spring, summer, and late summer) over a period of 5 years. Every effort should be made to remove the entire taproot with little soil disturbance. When soil dries, it may be difficult to remove the root crown and this can lead to rapid reestablishment.

Manual control methods may pose less risk to high quality waters and high value fisheries than do chemical applications. Although time and labor intensive, several manual control methods, including propane torching of seedlings early in the season, hand digging with small tools, mulching with black plastic, and mowing with weed eaters have been proven successful for smaller populations.

Mowing typically doesn't kill knapweeds; cut plants generally survive and recover to set seed. Plants mowed at the rosette stage will quickly recover, and mowing too late (after seed set) can disperse seed. However, mowing at the late bud to early bloom stage will reduce seed production. Mowing can also remove dead growth to improve herbicide coverage. A program of cutting only bolted plants, particularly in the early bloom stage, 2-4 times per year for several consecutive years can greatly suppress spotted knapweed and may shift the competitive balance in favor of desired grasses. Mowing is not possible in areas that are too rocky or steep, or with desirable shrub species. Spotted knapweed does not persist under annual cultivation, which is why it is not typically a cropland weed. However, tillage in wildland and rangelands can spread spotted knapweed, because tillage creates an ideal weed seed bed.

Cultural: Maintaining pasture and rangeland health by or preventing overgrazing and minimizing disturbance can help limit knapweed establishment and spread.

Grazing is not considered to be an effective eradication method. In addition, intensive grazing can create ideal seedbeds for further invasion. However, researchers have shown that cattle, sheep and goats will readily graze spotted knapweed in early spring, suppressing seed production. Sheep are the most effective. The timing of grazing may be critical to its success.

There is little information on the use of prescribed burning for control of spotted knapweed. On the one hand, burning has been shown to control diffuse knapweed while stimulating grass regrowth, and under the right conditions perhaps the same response might occur with spotted knapweed. On the other hand, spotted knapweed can be the first species to recover from a burn.

Recommendations: Regional Priority: **High**. Action: Continue funding French Creek Watershed Invasive Plant Management Program (estimated $15k-$40k annually).

Known population sites: Area 5 (limited).

Perennial pepperweed ***Lepidium latifolium***

Scott Watershed Priority Score: 18

Current condition: CDFA Rating: **B.** Cal-IPC Rating: **High.** Perennial pepperweed can rapidly form large, dense stands that displace desirable vegetation and wildlife. Populations easily spread along waterways and can infest entire stream corridors, riparian areas and irrigation structures. Roots do not hold soil together well, allowing erosion of river, stream, or ditch banks. Flooded streams often wash away roots growing along the streambank, and new infestations develop downstream. Perennial pepperweed reduces forage quality in hay and pasture by extracting salts from deep soil and depositing them on the soil surface, inhibiting the germination and growth of other species that are sensitive to salinity.

Perennial pepperweed is a prolific seed producer; however, seeds do not appear to remain viable in the soil for extended periods. As a result, perennial pepperweed reproduces primarily vegetatively from roots and root fragments that can survive desiccation on the soil surface for extended periods and develop into new plants. Root fragments and seeds disperse with flooding, soil movement, and human and animal activities.

Local Infestation Value: **7** - Abundance medium, spread increasing rapidly. Locally, Perennial pepperweed is originally thought to have come from Moffett Creek and has been managed since as funding permitted. It is suspected the spread has grown to near Eastside Road (South of Fort Jones).

Management information: *Mechanical (pulling, cutting, disking):* Seedlings are easily controlled by hand-pulling or tillage, but these techniques do not control established plants because shoots quickly resprout from vast root reserves. In addition, seedlings are not often encountered. Root segments as small as 1" are capable of producing new shoots. Cultivation and tillage typically increase infestations by dispersing root fragments. Clean equipment after tillage to prevent spreading root fragments.

Mowing stimulates perennial pepperweed plants to resprout and produce new growth, but mowing is helpful for removing accumulated thatch. Mowing breaks old stems into small fragments and helps prevent shading of favorable species. Combining mowing with herbicides has been shown to be an effective control strategy. For best results, mow plants at the bolting or flower bud stage and apply herbicides to resprouting shoots once they have reached the flower bud stage.

Recommendations: Regional Priority: **High**. Action: Fund management project(s) in Moffett Creek watershed (estimated $15-$50k annually).

Known population sites: Area 2.

Scotch broom ***Cytisus scoparius***

Scott Watershed Priority Score: 16

Current condition: CDFA Rating: **C**. Cal-IPC Rating: **High Invasiveness**. Grows rapidly, forming dense stands that most wildlife find impenetrable and unpalatable. Dense stems limit regeneration of most other plant species, and the accumulation of woody biomass creates a dangerous fire hazard. Broom can fix nitrogen, which increases soil fertility and gives competitive advantage to other non-native weeds. Seeds can remain viable in the soil for up to 30 years. Large soil seed banks often accumulate making long term control difficult. Shrubs may live for up to 30 years.

Local Infestation Value: **3** - Abundance: medium, spread increasing rapidly. Currently managed (limited). Populations persist along roadways, especially highway 3 between Greenview and Fort Jones.

Management information: *Mechanical (pulling, cutting, disking):* Seedlings and small shrubs can be hand pulled. For larger established shrubs, a weed wrench or other woody weed extractor can be used. Extract the entire root or resprouting will occur. Best results are achieved when soil is moist.

Cutting broom off before it flowers will reduce seed production and will deplete the plant's energy reserves. Resprouting is common after treatment, but can be reduced by cutting broom at the beginning of the dry season. Cutting should be combined with an herbicide treatment or with multiple cuttings over a period of years. Cut shrubs at ground level with power or manual saws.

Recommendations: Regional Priority: **Medium**. Action: Fund coordinated projects targeted at managing specifically this species.

Canada Thistle ***Cirsium arvense***

Scott Watershed Priority Score: 16

Current condition: CDFA Rating: **B**. Cal-IPC Rating: **Moderate Invasiveness**. Competes aggressively with native plant species. It causes extensive yield loss in crops competing for nutrients, light and water. It may also have an allelopathic effect. The productivity of pastures is significantly reduced because livestock avoid grazing Canada thistle and surrounding plants due to the spiny nature of the mature foliage. Canada thistle can also be economically damaging to ranchers by causing an increase in infections due to abrasions. Canada thistle is a host species for several agricultural insect and disease pests such as the sod-web worm, bean aphid, stalk borer, and cucumber mosaic virus.

Local infestation value: **2** - Abundance low, spread increasing.

Management information: *Mechanical (pulling, cutting, disking):* Mowing can be used to reduce the nutrient storage in the roots and suppress flower formation. However, for mowing to be effective it must be repeated at least every 3-4 weeks over several growing seasons or coupled with other control practices.

Tillage or cultivation can actually increase Canada thistle because it breaks the root system into fragments, spreading the roots through the soil and stimulating development of new plants. Small root pieces have enough stored reserves to develop new plants. Small roots can survive at least 100 days without nutrient replenishment from photosynthesis. For cultivation to be effective it must be repeated at 21 day intervals throughout the growing season.

Recommendations: Regional Priority: **Medium**. Action: Fund coordinated projects targeted at managing specifically this species.

Known population sites: All.

Diffuse knapweed ***Centaurea diffusa***

Scott Watershed Priority Score: 18

Current condition: CDFA Rating: **A**. Cal-IPC Rating: **Moderate Invasiveness**. Plants reproduce only by seed. Diffuse knapweed inflorescences detach from the parent plant when stems break off near the ground and tumble along the ground in the wind, dispersing seed to a greater distance than most Centaurea species. Data shows that about 20-50 % of plant inflorescences tumble off site. Seeds remain viable in the soil 2-5 years, with some surviving longer.

Local Invasive Value: **6** - Abundance low, spread stable or decreasing. Currently managed. Populations mostly exist in McAdams Creek watershed. Infestation source is suspected to be at the top of the McAdams Creek watershed.

Management information: *Mechanical (pulling, cutting, disking):* Physical and mechanical approaches to diffuse knapweed control include hand pulling, digging, tilling, disking, and cutting or mowing. Physical removal or damage can provide some control depending on the timing and frequency of treatment, the presence of competitive, desirable vegetation, and the level of soil disturbance caused by the treatment.

Hand pulling is practical for scattered diffuse knapweed plants, or for areas where other control methods are not feasible and sufficient labor is available. Repeated hand pulling is necessary during the season and over many years. Successful control has been reported when plants were hand removed 3 times a year (spring, summer, late summer) over a period of 5 years. Every effort should be made to remove the entire taproot with little soil disturbance. If not possible, then cut the root 2"-4" below the soil surface to remove much of the reproductive crown. Gloves should be worn when hand pulling. The best timing for hand removal is before plants produce viable seed. Hand pulling has not been effective in all areas. On dry soils, it may be difficult to remove the root crown and this can lead to rapid reestablishment.

Mowing typically doesn't kill knapweeds; cut plants generally survive and recover to set seed. Plants mowed at the rosette stage will quickly recover, and mowing too late (after seed set) can disperse seed. However, mowing at the late bud to early bloom stage will reduce seed production. Mowing can also remove dead growth to improve herbicide coverage. A program of cutting only bolted plants, particularly at the early bloom stage, for several consecutive years can greatly suppress diffuse knapweed.

*Cultural**:*** Grazing is not an effective eradication method. Burning has been shown to give effective control of diffuse knapweed while stimulating grass regrowth. Within 2 years of burning, most diffuse knapweed rosettes were eliminated.

Recommendations: Regional Priority: **High**. Action: Fund project for McAdams Creek Watershed invasive plant management (estimated $15k-$40k per year).

Known population sites: Area 1.

Medusahead ***Elymus caput-medusae***

Scott Watershed Priority Score: 17

Current condition: CDFA Rating: **C**. Cal-IPC Rating: **High**.

Local Invasiveness Value: **1** - Abundance low, spread stable. Not directly managed.

Known population sites: Areas 4, 5.

Russian Thistle ***Salsola tragus***

Scott Watershed Priority Score: 15

Current condition: CDFA Rating: **C**. Cal-IPC Rating: **Limited**.

Local Invasiveness Value: **8** - Abundance medium, spread stable or decreasing. Currently managed.

Known population sites: All areas.

Level 4 - Asset-based protection

Goal: Increase the probability of successful treatment and restoration projects, with the goal of protecting and enhancing populations of covered and narrow endemic species to ensure their persistence.

Recommendations: Coordinate annual community-wide management project(s) specifically for this species.

Management Level 4 - Asset-based protection			
Scientific Name	Common Name	SWPS	Abundance
Dyer's Woad	Isatis tinctoria	10	High

Dyer's Woad *Isatis tinctoria*

Scott Watershed Priority Score: 10

Current condition: CDFA Rating: **B**. Cal-IPC Rating: **Moderate**.

Local Invasiveness Value: **9**. Abundance high, spread increasing. Currently managed.

Management information: *Mechanical (pulling, cutting, disking):* Hand-pulling may be effective provided the crown is removed. Hand pulling is easiest after the plants have bolted but should be done before seed set (ideally after a rainfall). It is important to visit the site 2-3 weeks later to rogue plants that have resprouted or were missed the first time through. It is necessary to follow up for several years to prevent reinfestation.

Mowing is not effective due to resprouting from the crown, but mowing multiple times can reduce root reserves and seed production. Populations can be reduced if seed production can be prevented for a few years by cutting off the seed stalks and removing them from the field. Close clipping (2" from the soil surface - perhaps with weed-wackers) is more effective. This should be done as soon as possible after flowering to minimize resprouting and prevent seed production. Multiple field visits may be necessary to minimize seed production on resprouting plants. Spring cultivation can control infestations in crop fields but is not practical in most range settings.

Recommendations: Regional Priority: **Medium**. Action: Fund coordinated projects targeted at managing specifically this species.

Known population sites: All areas.

CHAPTER 3: WORK PLAN

(3.1) SMART Objectives:

Objective	Area
1. Understand distribution and sources of high priority *(listed in this Plan)* invasive plant locations on private and public lands within the Scott watershed and use this data to refine and inform objectives on a bi-annual basis.	All
2. Prevent establishment of new invasive plant populations within the Scott Watershed through education outreach, detection and early eradication actions.	All
3. Keep clean areas clean, particularly Forest and Wilderness lands, from high priority invasive plants.	All
4. *Reduce* Spotted Knapweed populations by *5-10%* in the French and Etna Creek watersheds by 2024 *(estimated 15 acres treated annually).*	5
5. *Reduce* Diffuse Knapweed populations by *5-10%* in the McAdams Creek watershed by 2026 *(estimated 5 acres treated annually).*	1
6. *Reduce* Perennial Pepperweed populations by *5-10%* in the Moffett Creek watershed by 2026 *(estimated **5?** acres treated annually).*	2
7. *Reduce* Canada Thistle populations by *5-10%* in the pasturelands and river corridor north of Fort Jones by 2026 *(estimated acres 5 treated annually).*	6
8. *Reduce* pesticide use on field-edges and fallow fields by *5-10% (Project participants)* annually by encouraging farmers to implement IPM practices.	All
9. Determine effectiveness of treatment practices, including prevention strategies, in meeting established objectives on a bi-annual basis.	All
10.	

(3.2) Management Activities & Strategies:

Activity	Objectives Addressed	Impact	Feasibility	Non-target effects
Conduct ground based inventories for presence/absence of prioritized species with estimated populations (size of infestations).	1, 2	High	Medium	Low
Develop and implement early detection rapid response (EDRR) protocol focused on high priority early detection species.	3,4	High	Medium	Low
Educate the general public about invasive plants with online and physical resources at our website and fair exhibits.	2	High	High	Low
Discuss invasive species issues and possible solutions at Alliance meetings to enhance awareness.	2	High	High	Low
Reduce Spotted Knapweed using mechanical treatment in sensitive habitat areas.	5	Medium	High	Medium
Reduce Spotted Knapweed using mechanical treatment in sensitive areas and herbicide X treatment in low-impact areas.	5	High	High	Medium
Reduce Diffuse Knapweed using mechanical treatment in sensitive areas.	6	Medium	High	Medium
Reduce Diffuse Knapweed using mechanical treatment in sensitive areas and herbicide X treatment in low-impact areas.	6	High	High	Medium
Reduce Canada Thistle using mechanical treatment in sensitive areas and herbicide X treatment in low-impact areas.	7	High	High	Medium
Monitor and evaluate treatment sites (as detailed in Chapter 5) prior to and after treatment actions annually.	1, 8	High	High	Low
Educate and outreach farmers in our District on Integrated Pest Management practices such as: cover-cropping, rotational grazing, mulching, ect.				

(3.3) Best Management Practices to Avoid Non-Target Effects and Improve Success:

An integrated management or treatment approach is incorporated using established and accepted conventional and non-chemical means on private lands. Treatment strategies are prescribed based on several factors such as: feasibility, non-target effects and stakeholder support.

Treatment Method	*Infestation Size*	*Non-target effects*
Manual (hand pull, weed wrench)	<0.1 acres	Low-medium
Mechanical (weed wacker)	<1 acres	Medium
Mechanical (mowing)	<6 acres	Medium-high
Competitive planting	<2 acres	Low-medium
Chemical (herbicide)	>2 acres	Medium

Manual (hand pull, weed wrench):

- Infestation size: <0.1 acres
- Frequency: Two times annually, once in the beginning of the growing season and once in the end of growing season.
- Preferred treatment method(s): Hand-pull or Weed Wrench shortly after a rain event, removing all roots or as many as possible
- Non-target effects: low-medium

The goal of this technique is to remove entire plants, including their roots, to the point where they cannot resprout. Manual removal is not recommended for species that can regenerate from vegetative structures left behind underground. Weed species that reproduce only by seed are generally easier to control with manual removal than are weed species that can reproduce vegetatively.

Manual removal becomes dramatically less practical as the patch size to control becomes larger. This can be somewhat mitigated by having a large labor force and multiple, consecutive years of consistent control.

Manual removal can be very effective for weed populations that are a considerable distance from roads, but this also assumes smaller areas of infestation due to logistical constraints of travel and transportation of tools, water, and safety gear for workers. Weed populations in steeper terrain are not well-suited for this technique due to erosion concerns created by forcibly removing roots. Worker safety is also a concern in this scenario, though in certain cases small or scattered populations can be targeted if safe access is available.

Mechanical (weed wacker):

- Infestation size: <1 acres
- Impact: Medium
- Timing: Perennials should be cut in the vegetative stage, just before flowering begins, and multiple cuts will be needed to prevent seed production.
- Frequency: Annual treatment frequency to eliminate seed production differs depending on the target species and climate. For annual species, this will be as many times per year as new populations germinate or regrow after initial cutting. For perennial species, this will be once or more during the growing season depending on the level of control desired. Certain broad-leaf perennial species and grasses may need to be cut back three to four times a growing season to

prevent seed production. Annual or biennial plants should be targeted just before or at flowering. Cutting needs to take place before seeds are mature enough to finish setting. For most grasses this is before the "milky" stage of seed development.
- Non-target effects: low-medium

String trimmers (weed wackers) and brush-cutters are used to sever vegetation at or near the soil surface. String thickness should match the robustness of the target species. Always use precaution when using powered equipment in dry conditions.

Mechanical (mowing):

- Infestation size: <6 acres
- Timing and Frequency: When mowing invasive plant species, proper timing and frequency of mowing are essential to prevent seed set from occurring. Annuals should be targeted at the flowering stage, but before seed set. Many species of annuals, such as foxtails and yellow starthistle (Centaurea solstitialis), can regrow and produce seed after the initial cutting. A single cut per year will not control any species that sends up secondary growth and flowers after cutting, whether annual, biennial or perennial. If only one pass is made, the lowest mowing height will offer the best weed suppression. If a second cut is planned, mowing at a high initial cutting height will allow space to come back and make a second cut below the height of the original cut. Mowing two or even three times in a growing season with decreasing cutting height may be necessary to achieve seed head control. Often, resources only allow for a single mowing pass over the site.

  Vegetative perennial species will often resprout after an initial cut and multiple cuttings per year may be needed for seed suppression. Mowing will not eradicate resprouting perennial species but suppression can be achieved.

  Smaller woody brush species can effectively be mowed and suppressed with a large rotary mower operated at a high cutting height. Ideally, sites should be mowed multiple times a year for multiple years in order to prevent seed set from occurring in the targeted weedy vegetation.

- Non-target effects: Medium-High

Mowing is one of the most common and useful non-chemical weed control techniques for large areas. Mowing typically cuts vegetation a few inches above the ground, though some flail mowers can cut vegetation down to the soil surface. Mowing is most often used in flat, even terrain, or in areas with gentle slopes.

Controlling Plants at a Community Scale (Competitive Planting):

- Preferred method(s): native plant revegetation.
- Non-target effects: low-medium.

Special Tips: A variety of restoration techniques can be used to establish desirable plant species. Choose a site with existing native vegetation. Focus planting along edges of native habitat to capitalize on adjacent seed rain and herbivory that could keep weeds down (though herbivores may also browse transplants). Tree tubes are highly recommended for oak seedlings, both to improve growth and protect them from deer browsing. When using tree tubes, a porous barrier must be placed over the top to avoid birds getting trapped. Shrub shelters are also helpful for establishing shrubs. Consider temporarily fencing sites that show extensive browsing by wildlife. Consider planting densely to exclude weeds early on and thinning out plantings later as they mature. When transplanting, make sure not to introduce only a single sex of a dioecious species (e.g., willows and mulefat).

Optimal Conditions for Use: Competitive planting is best done in areas where the habitat of the competitive plants matches the site. Competitive plantings can be effective in mesic (moderate moisture) soils where perennial native rhizomatous or stolon-forming species can suppress weed populations. For sites that are flat and wet most of the spring, wetland perennials would be a good fit (and upland species would be a poor fit). In many parts of California, the weeds invading a given habitat type are a different

growth form than the native plants they threaten, and this affects which areas will be most conducive to effective competitive planting. For instance, nonnative annual grasses invading areas with native perennial shrubs are most appropriate for areas that are not too dry or too wet where shrubs are most likely to establish. In many arid areas of the state the weed species are annual or occasionally biennials, whereas the natives are annuals and perennials. These weeds tend to have traits that outcompete native annuals and the seedlings of perennial plants, so native seedlings will need assistance (such as irrigation, weeding or an herbivory shelter) to ensure establishment.

Caveats: The competitiveness of most native plant species relative to invasive plants is either unknown or only known through anecdotal observations. There are few, if any, native species that are known to be highly competitive across their range, in all growth stages, in a variety of plant associations and against a variety of weeds commonly encountered in the environment. Each species will perform differently from site to site. The principles on which competitive planting as a weed reduction technique is founded are sound, but the technique relies on local environmental factors and specific species interactions that may not have been well studied. Practitioners may have difficulty determining which native plants will provide enough competition to suppress local weed populations.

Other Non-Chemical Methods to Combine With: Competitive planting techniques often must be combined with weed reduction methods before and after competitive plants have been introduced to the site. Examples of non-chemical weed reduction techniques that complement planting include hand pulling, hoeing, grazing, prescribed burning, solarization, and mulching.

Chemical (herbicides):

- Indicated Infestation size: >2 acres
- Preferred treatment method(s): Foliar spot sprayed by trained professionals using pressurized tanks mounted on ATV's or backpacks (where necessary) with meters that monitor acres treated.
- Non-target effects: Medium

An herbicide's potential risk to aquatic and terrestrial wildlife and livestock is assessed by the EPA before the product is registered for use in agricultural or wildland settings. When using an herbicide registered for use in agricultural or wildland settings any risk to wildlife and livestock can be further mitigated by following Best Management Practices, as described below.

General Wildlife BMP's

➢ Know Your Site:

1. Know how to identify the plants you are controlling and how to distinguish them from similar species.

2. Map or flag the locations of surface water (streams, lakes, ponds, springs, etc.) and their current status (flowing or not). Maps of groundwater may be available from the local water district. Some herbicides are mobile in both surface and groundwater and may pose risks to aquatic organisms or water quality. a. Be aware of water sources just outside your boundary. b. Many of the BMPs listed that apply to surface water will also protect groundwater.

3. Map areas that are sensitive to soil compaction and vegetation trampling. This will influence decisions about the number of workers and types of equipment used on a particular site.

4. Be mindful of soil conditions that could affect herbicide use, such as soil types, infiltration rates, slope, aspect, and hydrology of the site.

5. Identify resources available for your site, such as databases that catalog background data on conserved lands in your region.

➢ Record Wildlife Observations:

1. Track the types of wildlife present on site. This information is important for understanding any potential impacts of herbicide treatment and for designing protocols that protect wildlife. a. Consult with state and

federal wildlife agencies regarding special status species (for instance, those that are federal or state-listed as threatened or endangered) at your site that require a qualified biologist to survey with specific protocols. b. Use the California Department of Pesticide Regulation Endangered Species PRESCRIBE database to learn if there are endangered species in the vicinity of the application site and if there are any recommended use limitations on specific pesticide products used in those areas.

2. Train treatment crews and others who work in the field to identify and report wildlife observations. Consider working with a local wildlife organization to create training materials. Have a clear system for recording wildlife observed in nesting or rearing behaviors. a. Training crews on basic wildlife life cycles and behavior will help them generalize that information to new situations. b. Smartphone applications such as iNaturalist may be useful for creating species lists. c. Observations of threatened, endangered or special status species should be reported to the California Department of Fish and Wildlife for inclusion in its Natural Diversity Database.

3. Watch for birds exhibiting nesting behavior, such as carrying nesting material or food or consistently singing in one spot. Look for nests in trees or evidence of nests such as whitewash on stems or scat on the ground. Be aware that many grassland birds nest on the ground and their nests are difficult to see.

4. Look for signs of active mammal or reptile burrows in grasslands. Signs include fresh tracks or scrapes near the burrow, remains of prey, and scat.

5. Determine routes for any heavy equipment to avoid impacting wildlife. 6. Monitor wildlife during treatments to identify and mitigate any apparent potential for impact, if feasible. During post-treatment monitoring, document any observed shifts from baseline conditions as feasible. This can be used both to gauge positive impacts on wildlife from restoration and to spot any negative impacts from herbicide treatment.

- ➢ Create separation between wildlife and treatment areas.

1. Create buffer zones around habitat as appropriate to provide untreated areas for wildlife. (This is typically more important with a broadcast treatment than with spot treatments.) These buffers can be around the perimeter of the entire site, but may also include sensitive areas such as bird nesting sites or game trails. Mark any “do not treat” areas clearly ahead of time to guide field work.

2. Have a clear protocol to avoid trampling sensitive species or habitats.

3. If treatments are extensive, consider treating your site in stages or in rotation, leaving a portion untreated during each stage so that wildlife can move to these areas as needed.

General Herbicide BMPs

- ➢ Consider the full range of control tools.

1. When conducting an Integrated Pest Management (IPM) assessment, look at all potential treatment methods, and assess the potential wildlife and habitat impacts of each.

2. When using herbicides, use the most specifically targeted application method that can effectively achieve program goals.

- ➢ Consult a licensed PCA and use Qualified Applicators

1. Licensing by the California Department of Pesticide Regulation ensures the highest level of knowledge about herbicide application. A Pest Control Advisor, or PCA, is authorized to write official recommendations for treatment, and an experienced PCA will help you understand herbicide labeling, keep you updated on bulletins from the US EPA, and bring extensive background on real-world considerations for herbicide applications.

2. California state-certified applicators (e.g., those with a Qualified Applicator Certificate (QAC) or License (QAL)) oversee treatment on the ground.

➢ Consider timing of herbicide application.

1. Know the effective timing of the herbicide and application technique you are using based on its "mode of action" and the target plant's annual growth cycle. Success in treating the target, which reduces the amount of treatment needed and therefore potential for impact, should be a top priority.

2. Consider adjusting herbicide application by season to avoid sensitive times for wildlife species, such as bird nesting season or bloom periods for plants that are important for pollinators. Application timing can also enhance efficacy and selectiveness of the treatment, which can decrease potential for non-target impact. Different wildlife species may be susceptible at different times, so wildland managers need to find a balance that protects wildlife species at their site while still meeting invasive plant management project objectives. a. Treatments that avoid nesting season will impact fewer birds. Some projects, such as streambed alteration projects, legally require treatment outside of nesting season (California Department of Fish and Wildlife Section 1600 permitting), and other projects can minimize impacts to birds by observing a similar blackout period. Treatments at the very beginning or end of the nesting season will impact fewer birds than those in the middle. Concentrate your applications in a few days rather than spreading throughout the season, if possible

3. Consider adjusting time of treatment to a particular time of day; for instance, bees tend to be less active before the sun rises and after it sets, or at temperatures below 50°F.

4. Avoid herbicide applications if rainfall is expected within 24 hours. (This is conservative since many formulations may be "rain-fast" in substantially less time; refer to the herbicide label for detailed information). Avoid treating when temperatures are too high or low (refer to label for restrictions). Extreme temperatures may reduce efficacy by reducing herbicide absorption and translocation in target plants. Further, herbicide applications made during hot weather can increase the potential for a few herbicides to volatilize (change from liquid to gas). Of the herbicides commonly used in wildlands, only the ester forms of 2,4-D and triclopyr pose significant volatilization risks when air temperatures exceed 85°F. Silicone-based surfactants may evaporate at high temperatures before they have adequately facilitated penetration of the plant's cuticle.

5. Do not treat when wind speed and direction may cause herbicide drift to sensitive sites. a. While drift prevention measures should be based on site-specific factors, wind speeds that are less than 12 mph do not generally cause substantial drift, especially when low volume or hand-held equipment is used. b. In some cases, wind speeds that are less than 3 mph indicate the presence of a temperature inversion. These still conditions can also have the potential to contribute to off-target herbicide damage by trapping airborne pesticide vapors or spray aerosols close to the ground rather than allowing them to disperse. However, damage caused by temperature inversion is almost always associated with large-scale agricultural pesticide applications, especially those applied by aircraft

➢ Plan for what happens after treatment.

1. Keep detailed records that include the plants and area treated, amount and type of herbicide used, application method, and date of application in order to evaluate the effectiveness of the control program and to help document and analyze any impacts to non-target species.

2. Plan thorough post-treatment effectiveness monitoring.

3. Consider revegetating with desirable species to restore ecosystem function and habitat, provide benefits to wildlife, prevent the regrowth of weeds, and reduce the number of follow-up treatments needed. However, if enough native plants are at the site, allowing them to grow back naturally may be enough. Consider herbicide half-life and the particular needs of wildlife species when planning revegetation efforts.

BMPs for Foliar Applications

➢ Choose appropriate equipment.

1. Determine whether spot treatment or broadcast treatment will be most effective and least impactful. Spot treatment is appropriate for isolated plants, while broadcast treatment is appropriate for dense infestations and may use a lower rate of herbicide active ingredient

2. Use directed sprayers with low-pressure, large droplet nozzles. Larger droplet size is less susceptible to drift.

3. Use tools that create less worker fatigue to reduce the chance that tired workers will make mistakes. For example, a truck-mounted spray rig with a long hose creates less fatigue on workers than a heavy backpack sprayer. It also requires fewer trips to refill the container, which reduces the chance of spilling herbicide.

4. Use a pulsed application where practical, which gives a burst of product, rather than a constant trigger spray. This method reduces the amount of herbicide leaving the nozzle, especially when using a spray rig, and can help the applicator wet the target plant without over-spraying which can lead to dripping on plants below and increased herbicide

- ➢ Protect non-target vegetation.

1. Always be on the lookout for any drift or accidental application to non-target plants. Use a spotter to monitor the application.

2. Flag native plants and/or plants to be treated if feasible. Use plant guards to protect desirable plants in the application area. This can be in-place protection, such as inverted empty plant containers or tarps, or hand-held protection like a spray shield.

3. Use tools such as brush hooks to concentrate target foliage so you can move it away from non-target species and reduce overspray. In tight situations, trimming non-target plants may be useful for keeping them clear of contact with herbicide.

4. Consider the possibility of cutting or mowing target vegetation first then either treating the cut stem or treating the resprouting vegetation. This may reduce the total amount of herbicide required to do the job and reduce the potential for drift to non-target plants.

5. Consider the direction of spray. Spraying downward can reduce horizontal drift to non-target plants and applicators. A longer wand can be attached to the hose of a spray rig to reach out over dense stands of vegetation and spray downward onto the target plant. For very tall vegetation, like twenty-foot giant reed (Arundo donax), consider using a truck-mounted lift bucket in order to direct spray downward.

6. Walk around the target plant to judge the best direction from which to spray. If possible, applicators should position themselves so that non-target plants are behind them. When spraying along a riparian corridor spray from the direction of the creek towards the bank to reduce spray into the creek. Spraying from multiple angles will help ensure good coverage on foliage.

7. A certain amount of non-target plant damage may be acceptable, but if a non-target plant is accidentally sprayed, you can take steps to reduce damage. a. Wash off herbicide. Give each staff person a spray bottle with water when working around sensitive species habitat to rinse off any herbicide that accidentally contacts a non-target plant. b. Break off the part of the plant that was sprayed so the herbicide will not spread to the rest of the plant.

8. Consider less obvious pathways that can damage nearby non-target vegetation, such as volatilization of certain herbicides under certain conditions, as well as potential soil migration and root zone uptake of persistent herbicides (like imazapyr and aminopyralid) that are slower to degrade.

CHAPTER 4: MONITORING AND EVALUATION

An essential element of invasive or noxious plant management is observing changes (monitoring) in invasive or noxious species populations over time. This monitoring approach documents changes in invasive species populations or infestations through characteristics such as spatial expansion or contraction of a given infestation. Subsequent visits to a known site for re-measurement is considered infestation or population level monitoring. Monitoring includes recording results or conditions and evaluations that interpret monitoring results and their implications.

Evaluation of invasive or noxious plant populations in subsequent years of a Project is accomplished by comparing the new number of acres treated against previous years, consideration being taken if additional infestations are found in the subsequent year and treated that were not found, present, or treated in previous years. Photo points are also taken at select infestation sites for visual appraisal each year, prior to treatment measures, and compared to the following year/second year photo points.

Data Management: Monitoring procedures will conform to protocols provided by the Siskiyou County Agriculture Department. Data sharing and maps will be at a 7.5 min Quad Grid (FS Quad Grid and named) scale.

References:

- Cal-IPC. 2018. Land Manager's Guide to Developing an Invasive Plant Management Plan
- Siskiyou County Weed Management Area. 2000. Strategic Plan for the Control of Noxious and Invasive Weeds.
- Cal-IPC. 2015. Best Management Practices for Wildland Stewardship: Protecting Wildlife When Using Herbicides for Invasive Plant Management. Cal-IPC Publication 2015-1. California Invasive Plant Council, Berkeley, CA. Available: www.cal-ipc.org
- Cal-IPC 2020. Best Management Practices for Non-Chemical Weed Control. Report to California Department of Pesticide Regulation under grant number 18-PML-G002. 291 p
- CalWeedMapper online application resource tool.

Appendix A (Assessing Priority Management Areas In Scott Watershed):

Location	*Importance of Conservation Targets Score*	*Integrity (Intactness) of Resources Score*	*Innate Resistance to Invasion Score*	*Risk of Invasion: Pathways and Vectors Score*	*Risk of Invasion: Anthropogenic Disturbance Score*	*Infestation Level Score*	***Total Score***
Area 1: McAdams Creek Watershed	3	2	2	3	3	3	**16**
Area 2: Moffett Creek Watershed	3	2	2	3	3	3	**16**
Area 3: East Fork	4	4	2	2	2	4	**18**
Area 4: South Fork, Sugar Creek	4	4	3	2	2	4	**19**
Area 5: French Creek Watershed, Etna Creek, Patterson Creek	5	4	3	4	2	4	**22**
Area 6: Kidder Creek, Shackleford Creek Watershed, Main Stem Scott	4	4	3	4	2	4	**21**

Reference: Land Manager's Guide to Developing an Invasive Plant Management Plan (2018)

Appendix B (Assessing Priority Management Species In Scott Watershed)

Species	*Larger Landscape Invasiveness*	*Status and Habitat Suitability*	*Ecological Impacts*	*Difficulty of Control*	*Larger Landscape Importance*	***Total Score***
Dyer's Woad *Isatis tinctoria L.*	3	1	2	1	3	**10**
Perennial pepperweed (tall whitetop) *Lepidium latifolium L.*	5	3	3	3	4	**18**
Scotch Broom *Cytisus scoparius L.*	5	2	3	3	3	**16**
Canada Thistle *Cirsium arvense (L.) Scop.*	3	3	4	2	4	**16**
Spotted Knapweed *Centaurea stoebe L. ssp. micranthos (Gugler) Hayek*	5	5	4	4	5	**23**
Diffuse Knapweed *Centaurea diffusa Lam.*	3	4	4	3	4	**18**
Leafy spurge *Euphorbia virgata*	5	2	5	3	5	**20**
Medusahead *Elymus caput-medusae*	4	4	3	3	3	**17**
Russian Thistle *Salsola tragus*	3	3	3	3	3	**15**
Puncture Vine *Tribulus terrestris*	4	3	3	3	3	**16**

Reference: Land Manager's Guide to Developing an Invasive Plant Management Plan (2018)