

Capay Valley Invasive Species Mapping and Prioritization Project

Final Report

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Prepared for the Yolo County Resource Conservation District

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Introduction

The *Capay Valley Invasive Species Mapping and Prioritization Project* (Project) was initiated in Fall 2016 by the Yolo County Resource Conservation District (RCD). The overarching goal of the Project was to comprehensively assess the distribution and status of priority invasive plant species along the downstream portion of the middle reach of Cache Creek (Fig. 1) in order to inform invasive species treatment, habitat restoration, and adaptive management of the creek's biological resources. This Project built upon a successful Spring 2016 project initiated by the Cache Creek Conservancy (CCC) to comprehensively map 25 priority invasive plant species within the Cache Creek Resources Management Plan (CCRMP) area, which extends from the Capay Dam downstream to I-5 at Yolo (see Rayburn 2016).

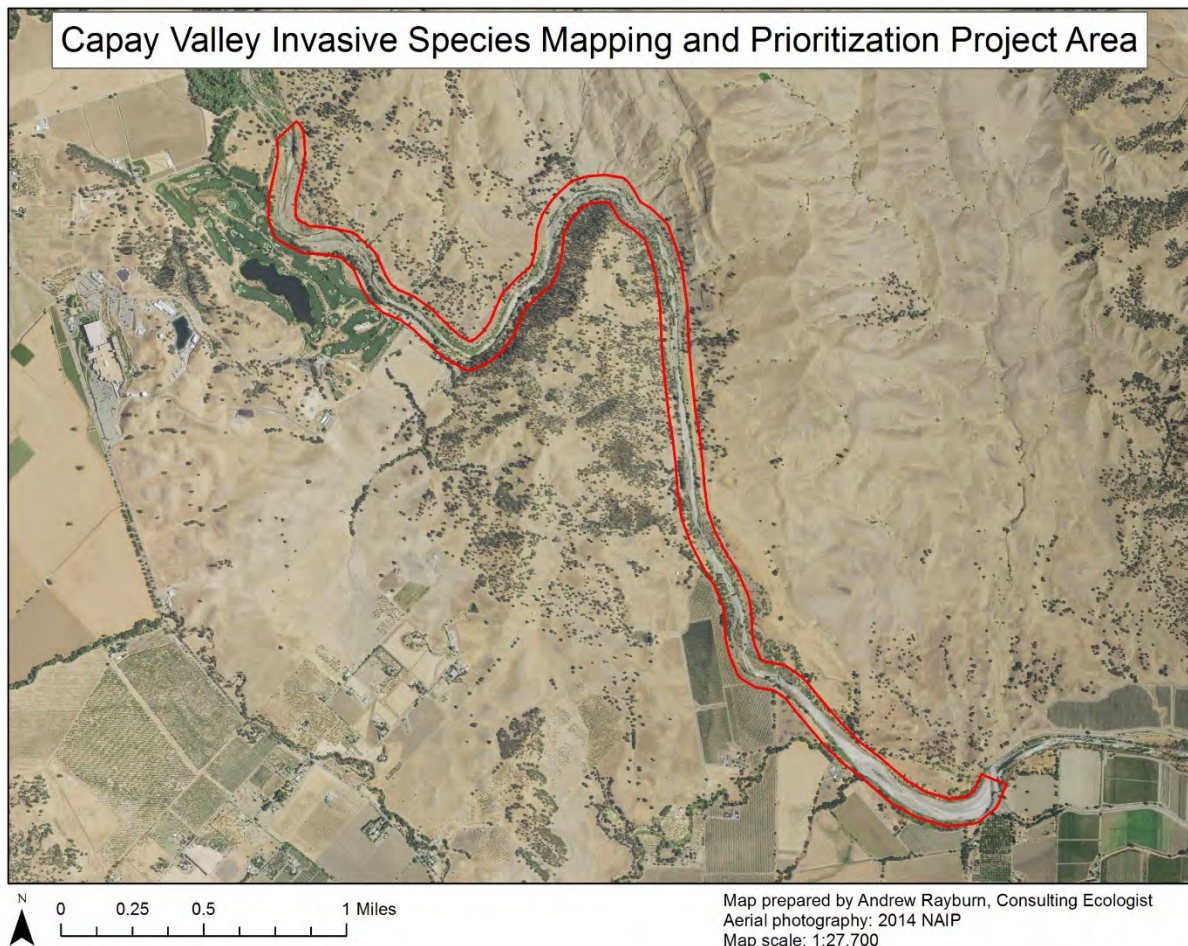


Figure 1. The approximately 298 ac. Project area, defined by a 250 ft. buffer of Cache Creek from Capay Dam (downstream end) to the northern border of the Yocha Dehe Golf Club (upstream end).

Project Objectives

1. Map extent and distribution of known priority invasive species including arundo, ravennagrass, and tamarisk;
2. Map extent and distribution of additional priority invasive species if present in the Project area, including edible fig, Himalayan blackberry, perennial pepperweed, poison hemlock, teasel, tree of heaven, and tree tobacco;
3. Produce a spatially-explicit baseline of invasive species extent and distribution for the purposes of assessing and informing potential treatment efforts;
4. Identify opportunities to implement restoration activities to reduce invasive species, restore native habitat, and enhance ecosystem services;
5. Engage land owners and managers in and adjacent to the Project area to provide information about the Project and to gauge support for future invasive species treatment and habitat restoration efforts.

Methods

Project Area

An approximately 250-ft buffer of the main Cache Creek channel was used to define the Project area (Fig. 1), which spanned approximately 5 river miles and 298 ac. from Capay Dam upstream to the northern border of the Yocha Dehe Golf Club at the Cache Creek Casino, owned and operated by the Yocha Dehe Wintun Nation. Invasive species were opportunistically mapped beyond this area whenever possible.

Landowner Engagement

Landowners and managers on both sides of the creek were contacted prior to the beginning of the Project in order to explain the survey and to determine if property access would be granted. On both the north and south sides of the creek, permission was given to access all but one property (the Pelayo property on the south bank, and the Lopez property on the north bank). Landowners and managers were continuously engaged throughout the mapping effort in order to advise them of when properties were to be accessed as well as parking arrangements and times of departure.

Species Selection

Eleven total species were mapped during the Project (Table 1). Factors that determined the selection of species as mapping targets included: 1) known presence and abundance along lower Cache Creek (Rayburn 2016), 2) State rankings of invasiveness and negative impacts (e.g., Cal-

IPC ranking), and 3) in the case of arundo (*Arundo donax*), ravennagrass (*Saccharum ravennae*), and tamarisk (*Tamarix* spp.), *a priori* knowledge that the species was common in the Project area.

The three high-priority species (arundo, ravennagrass, and tamarisk), were already known to be abundant in the Project area, as well as both upstream and downstream of the Project area. These three species are aggressive invaders of riparian corridors, choking out native species while greatly diminishing habitat value for wildlife and using more water than most native species. These three species have been the subject of more than a decade of intensive control within the CCRMP area on lower Cache Creek (see Rayburn 2016).

The five medium-priority species (Himalayan blackberry [*Rubus armeniacus*], perennial pepperweed [*Lepidium latifolium*], tree of heaven [*Ailanthus altissima*], tree tobacco [*Nicotiana glaucus*], and yellow starthistle [*Centaurea solstitialis*]; Table 1), are also troublesome invasive species present along lower Cache Creek (Rayburn 2016). Prior to the Project, it was not known to what extent these species were present along Cache Creek above Capay Dam. All but yellow starthistle are perennial species, and all five species can spread rapidly and form dense stands in riparian corridors.

The three low-priority species (common teasel [*Dipsacus fullonum*], edible fig [*Ficus carica*], and poison hemlock [*Conium maculatum*]; Table 1) are also invasive species present along lower Cache Creek, albeit to a lesser degree than other species (Rayburn 2016). Prior to the Project, it was not known to what extent these species were present along Cache Creek above Capay Dam. While these species can spread rapidly and form dense stands, patches along lower Cache Creek seemed to be more isolated and less likely to displace large amounts of native vegetation.

Table 1. Species selected for the Capay Valley Invasive Species Mapping and Prioritization Project.

Common Name	Scientific Name	Growth Form	Priority
Arundo	<i>Arundo donax</i>	Herbaceous	High
Common teasel	<i>Dipsacus fullonum</i>	Herbaceous	Low
Edible fig	<i>Ficus carica</i>	Shrub/tree	Low
Himalayan blackberry	<i>Rubus armeniacus</i>	Herbaceous	Medium
Perennial pepperweed	<i>Lepidium latifolium</i>	Herbaceous	Medium
Poison hemlock	<i>Conium maculatum</i>	Herbaceous	Low
Ravennagrass	<i>Saccharum ravennae</i>	Herbaceous	High
Tamarisk	<i>Tamarix</i> spp.	Shrub	High
Tree of heaven	<i>Ailanthus altissima</i>	Tree	Medium
Tree tobacco	<i>Nicotiana glauca</i>	Shrub/tree	Medium
Yellow starthistle	<i>Centaurea solstitialis</i>	Herbaceous	Medium

Field Data Collection

Beginning with the Yocha Dehe Golf Club on the south bank of the upstream end, the Project area was surveyed on-foot for the priority invasive species (Table 1) in late September 2016, with the exception of the last 0.5 mi of the north bank on the upstream end that could not be accessed due to a lack of permission of a downstream landowner through whose land the only road passed (see Fig. 8). Additional mapping was done by kayaking from the downstream end of the Yocha Dehe Golf Club to Capay Dam and recording data from within the channel. All priority species were discernable at this time of year, although some (e.g., common teasel, perennial pepperweed, poison hemlock, and yellow starthistle) had finished flowering and were mostly senesced. For these species, growth form, color, seedhead shape, and other characteristics were used for identification.

Data were recorded using a cloud-based mobile mapping application (AmigoCloud) on an iPad tablet, with an approximate accuracy of ± 2 m. Priority species occurring as discrete individuals were mapped as points and were assigned to either small, medium, or large size classes estimated for each individual species based on the observed size distribution (see Rayburn 2016). Invasive plants occurring in dense clusters were recorded as patches. When possible, the patch shape and extent were estimated in the field. Otherwise, the approximate length and width of priority species patches was recorded, and these values were used to approximate the patch size in ArcGIS 10.1 (ESRI) using a combination of 2014 NAIP imagery and 2016 imagery used as the baselayer in Google Earth Pro.

Data Analysis

Point and patch data for all Project species were downloaded from AmigoCloud and analyzed in ArcGIS. The total acreage of each Project species was estimated by combining calculated patch areas with estimated area of small, medium, and large points (plants); see Appendix 1 for point area estimates by species. For mixed patches (e.g., patches that were estimated as 50% arundo, 40% tamarisk, and 10% ravennagrass), the total area was divided between species in the patch according to their estimated percent composition. All data were exported as ESRI shapefiles, and were provided to the Yolo County RCD after completion of this report. Photographs from the field survey were organized by parcel (Appendix 2) and also provided to the Yolo RCD as high resolution images.

Results

Extent and Distribution of Priority Invasive Species

A total of 436 individual plants and 496 patches were mapped within the Project area (Figs. 2–8; Table 2). In total, approximately 79 ac. of the ~280 ac. Project area (~28%) was densely vegetated with invasive species. The most widespread species in terms of estimated area were

tamarisk (38.42 ac.), arundo (33.09 ac.), yellow starthistle (3.64 ac.), poison hemlock (1.83 ac.), and ravennagrass (1.61 ac.). The least widespread species were tree tobacco (0.040 ac.), common teasel (0.029 ac.), perennial pepperweed (0.014 ac.), edible fig (0.011 ac.), tree of heaven (0.0053 ac.), and Himalayan blackberry (0.0034 ac.).

Table 2. Acreage of invasive species mapped during the Project. Total area is the sum of the area of all patches and additional area estimated from individual points (plants).

Species	Patch area (ac)	Point area (ac)	Total area (ac)
Tamarisk	38.42	0.062	38.48
Arundo	33.05	0.043	33.09
Yellow starthistle	3.63	0.000031	3.64
Poison hemlock	1.83	0	1.83
Ravennagrass	1.58	0.028	1.61
Tree tobacco	0.034	0.0054	0.040
Common teasel	0.029	0	0.029
Perennial pepperweed	0.014	0.00031	0.014
Edible fig	0.0046	0.0066	0.011
Tree of heaven	0.000	0.0053	0.0053
Himalayan blackberry	0.0015	0.0020	0.0034
<i>Totals</i>	<i>78.59</i>	<i>0.15</i>	<i>78.74</i>

Overall, there was no clear pattern as to where invasive species were found with the exception of yellow starthistle that was largely confined to rangelands on upper banks (e.g., on the north bank just upstream of Capay Dam). As shown on the detailed maps (Figs. 3-8), there was a near-continuous corridor of invasive plants along the entire Project area, especially stands of arundo, ravennagrass, and tamarisk. In some locations, dense stands covered nearly the entire active floodplain, actually blocking access to the creek itself. Species other than arundo, ravennagrass, and tamarisk were scattered throughout the project area, mostly as isolated individual plants with the exception of patches of yellow starthistle and poison hemlock. Invasive plants were the least abundant along the border of the Yocha Dehe Golf Club, at least in terms of large patches, likely due to past invasive species control efforts implemented by the Yocha Dehe Wintun Nation.

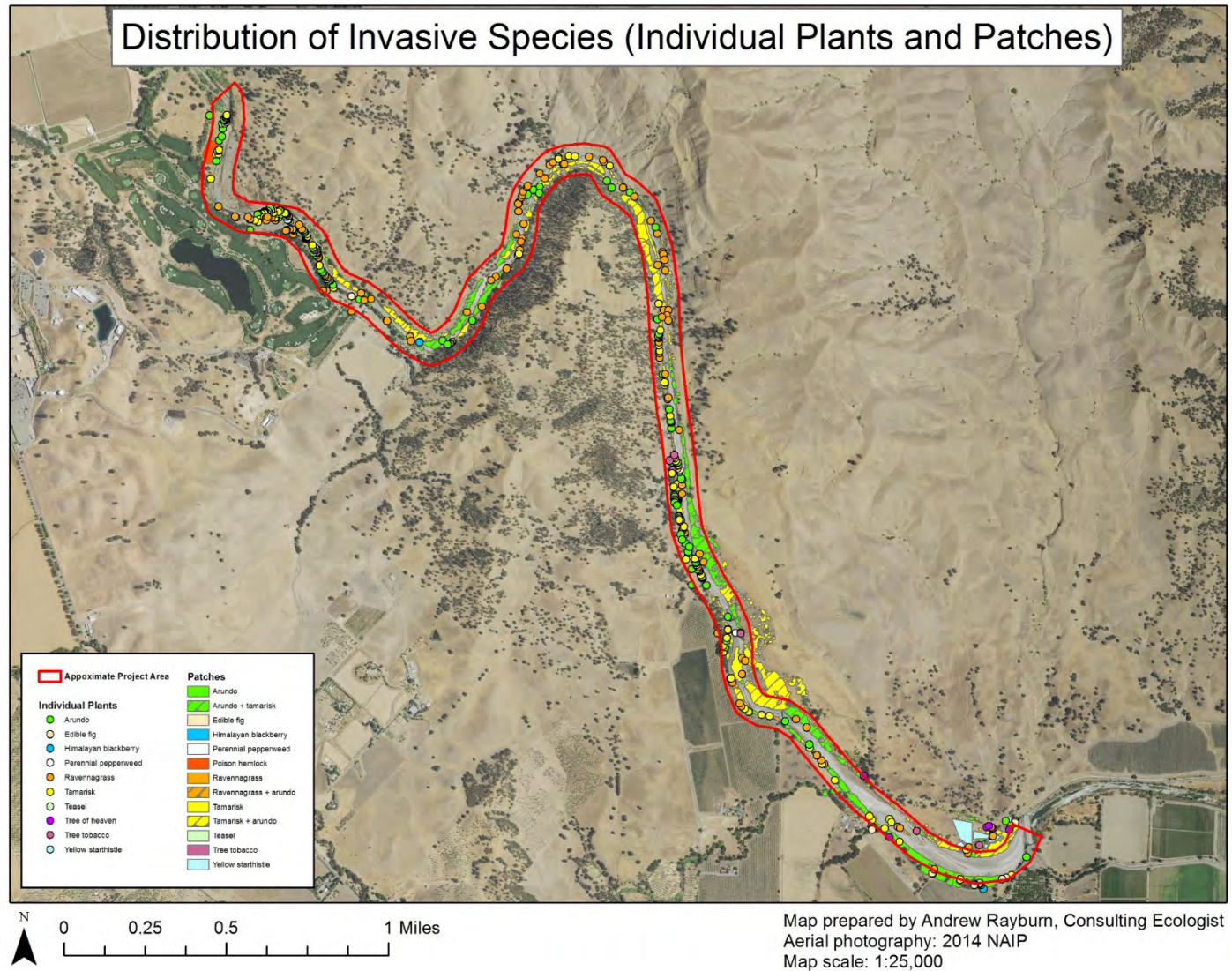


Figure 2. Results of invasive species mapping within Project area. See Figs. 3-8 for more finer-scale maps showing more details.

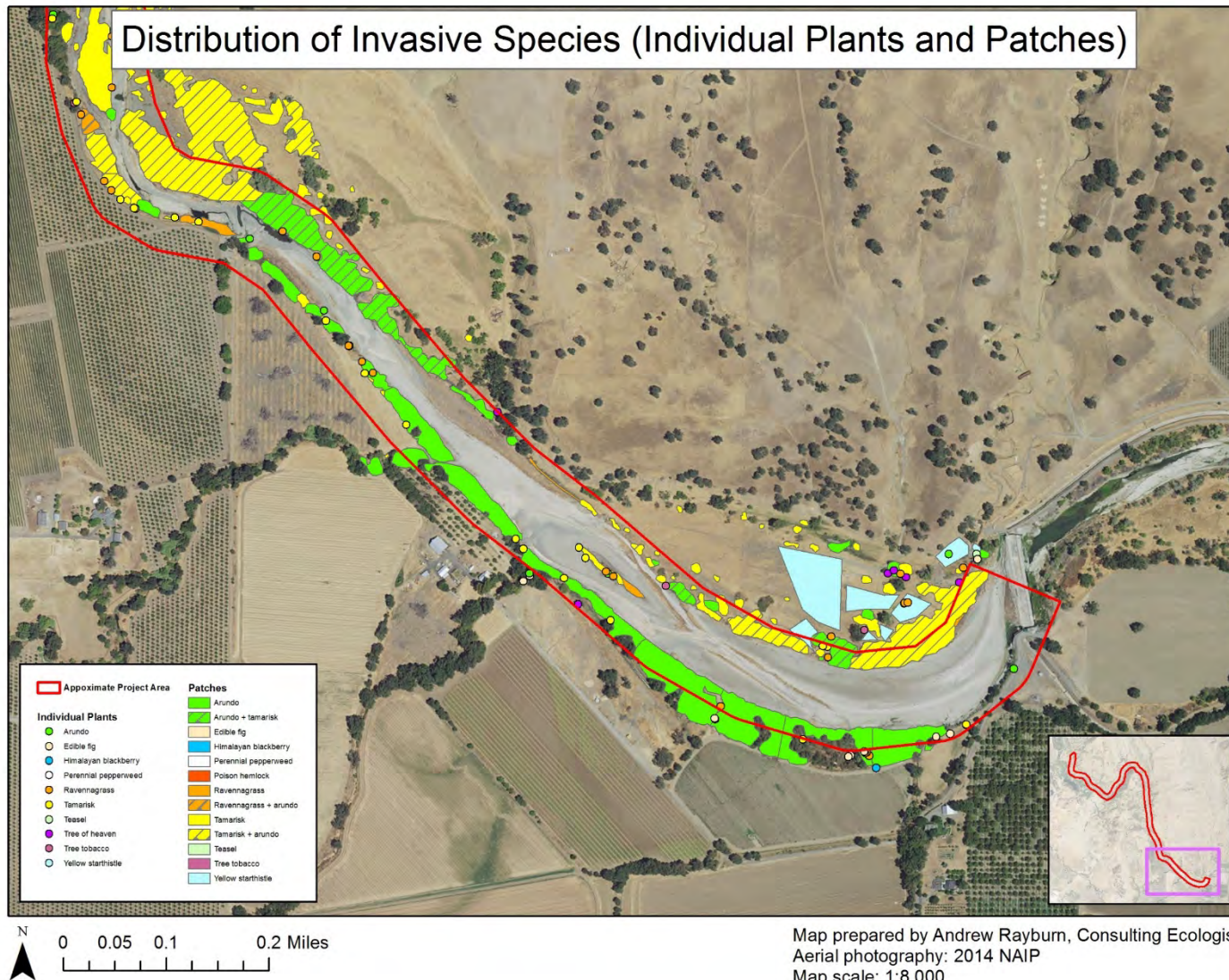


Figure 3. Detailed map of points (plants) and patches mapped within Project area, beginning with Capay Dam (see inset map for location).

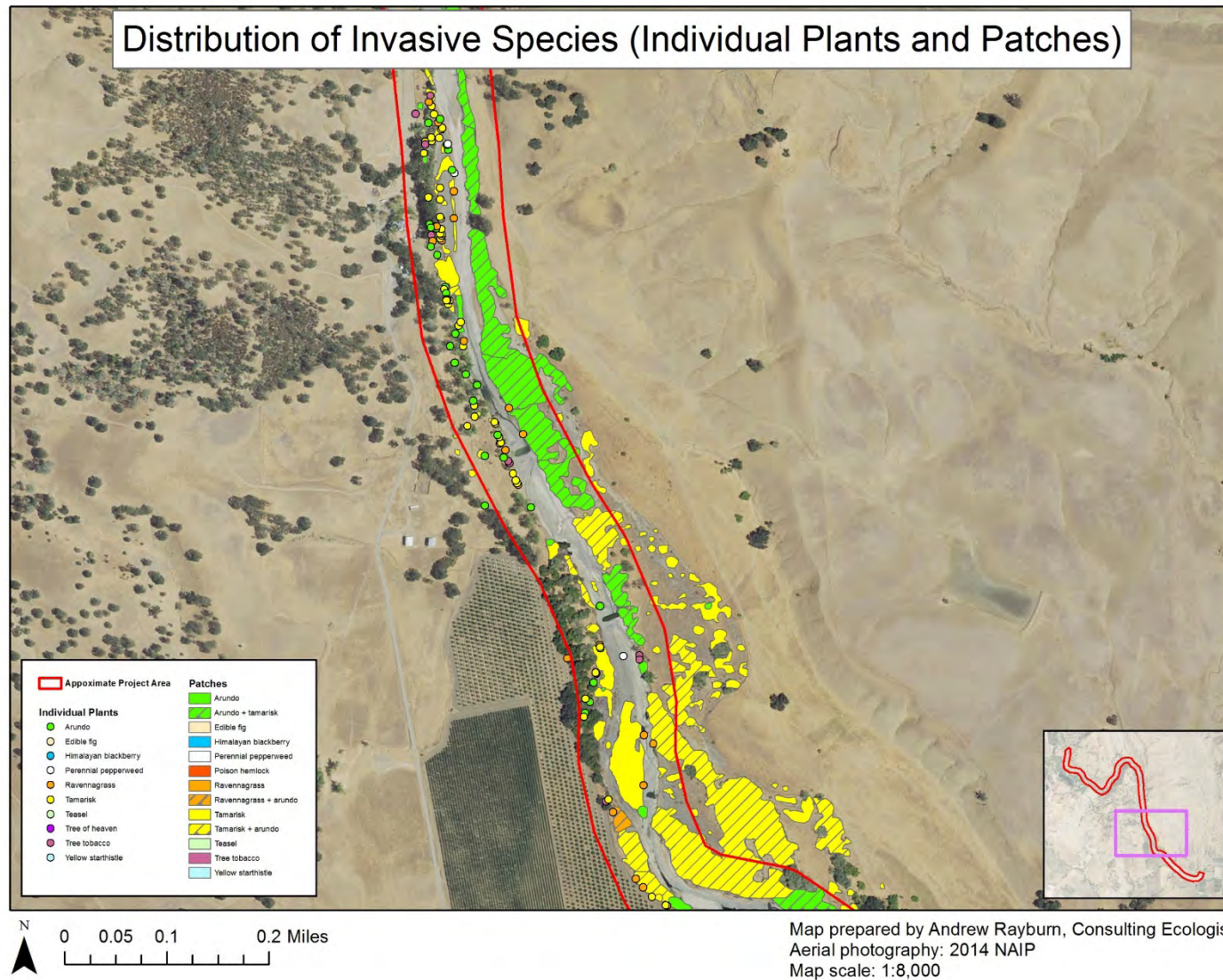


Figure 4. Detailed map of points (plants) and patches mapped within Project area, upstream from Fig. 3 area (see inset map for location).

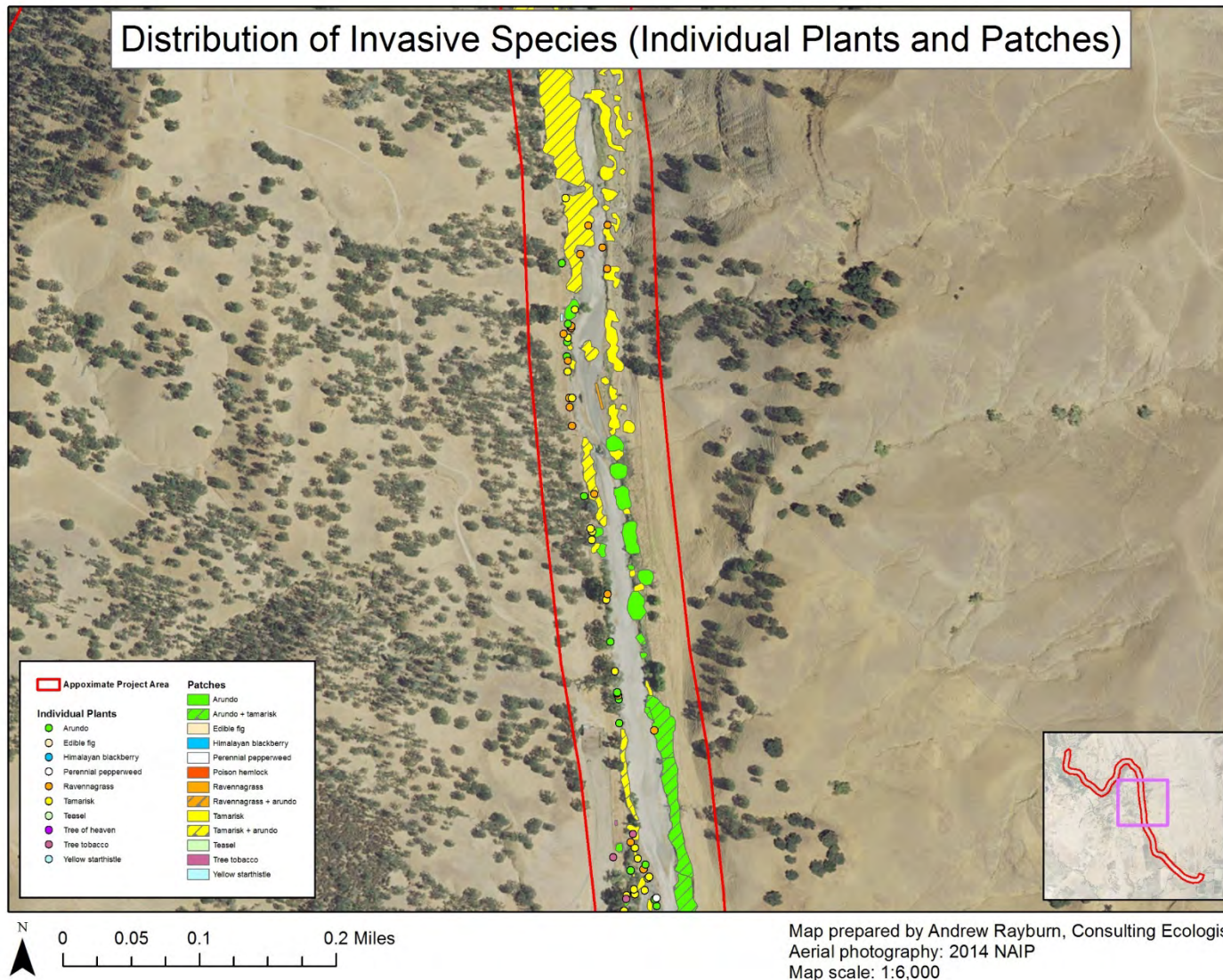


Figure 5. Detailed map of points (plants) and patches mapped within Project area, upstream from Fig. 4 area (see inset map for location).

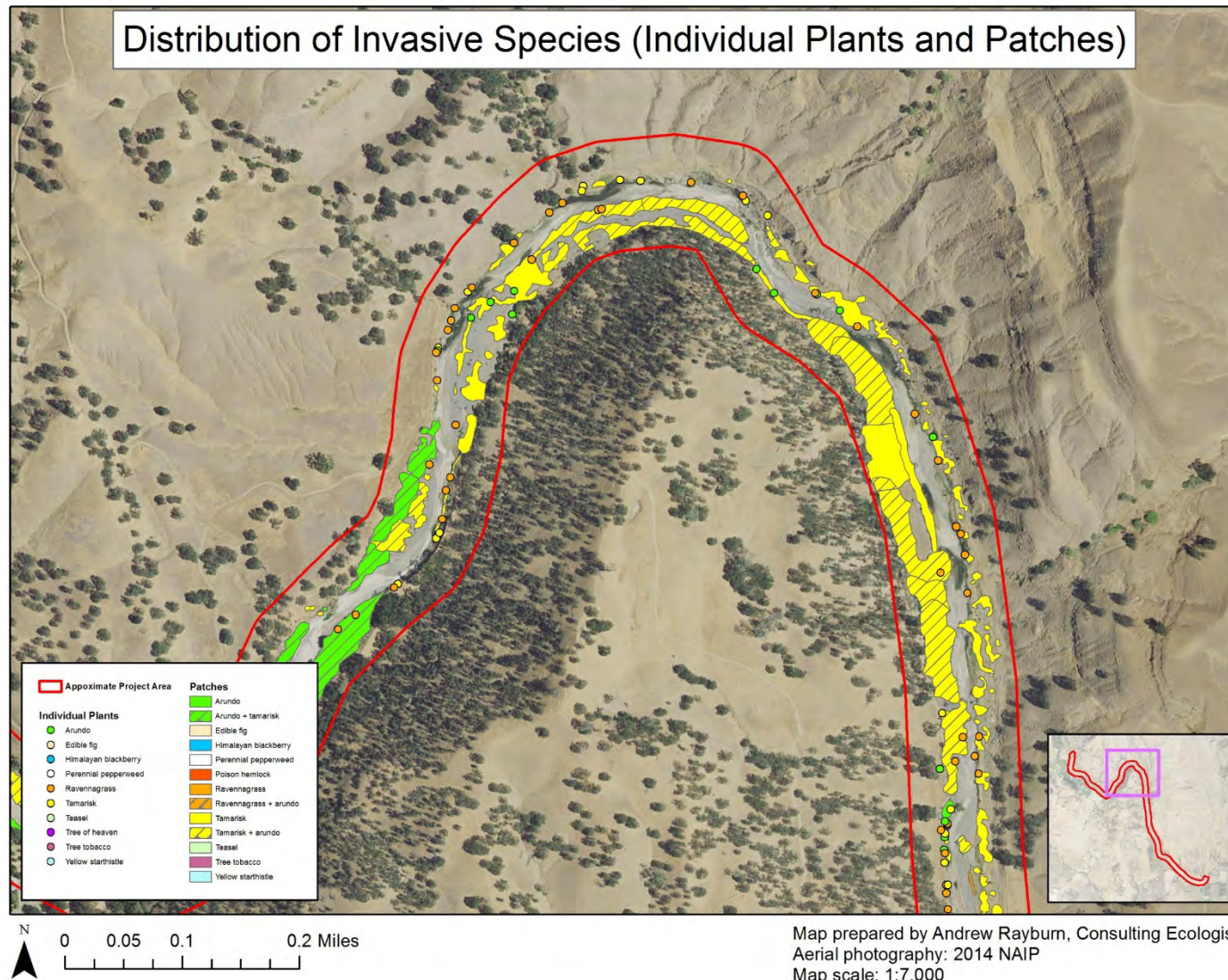


Figure 6. Detailed map of points (plants) and patches mapped within Project area, upstream from Fig. 5 area (see inset map for location).

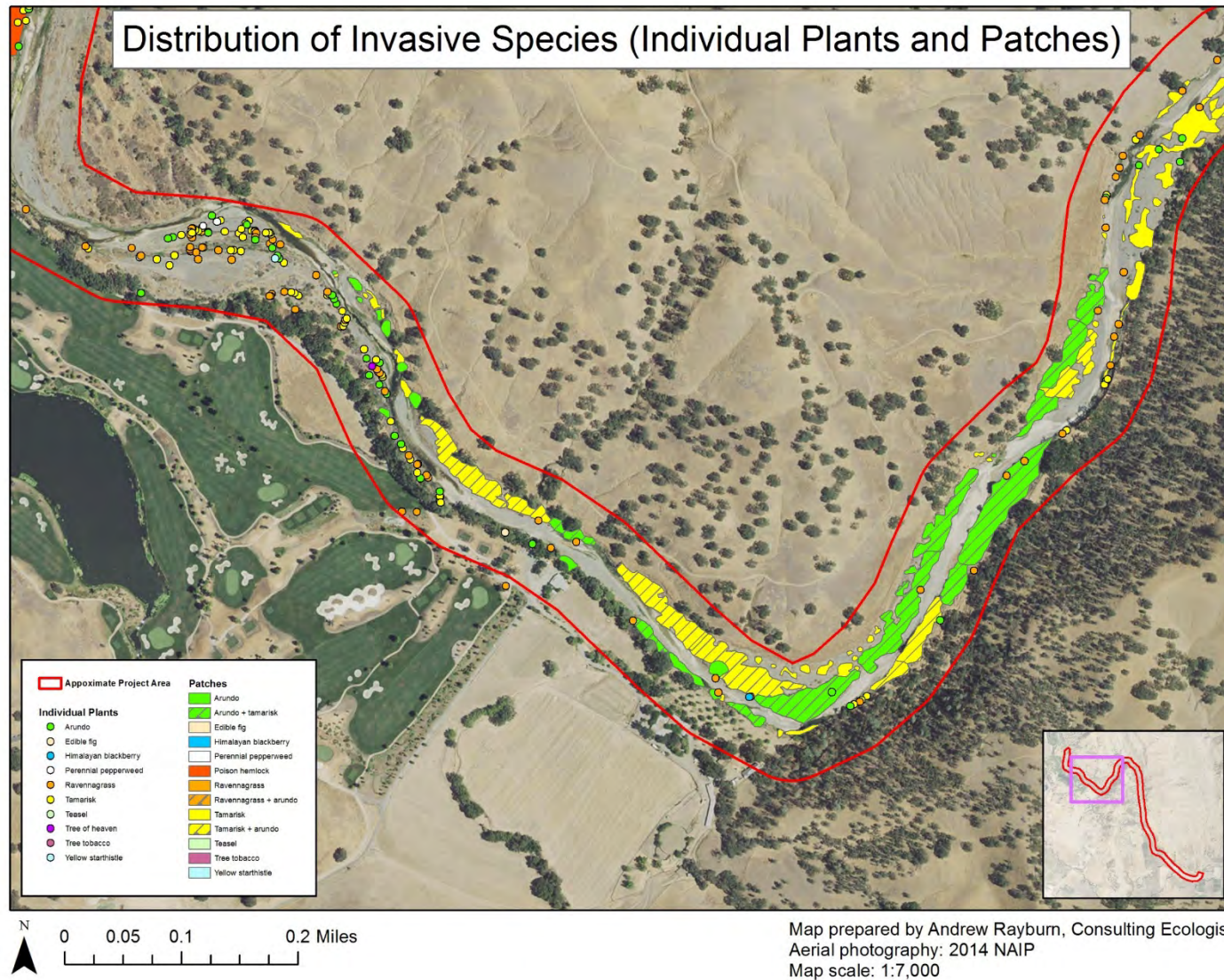


Figure 7. Detailed map of points (plants) and patches mapped within Project area, upstream from Fig. 6 area (see inset map for location).

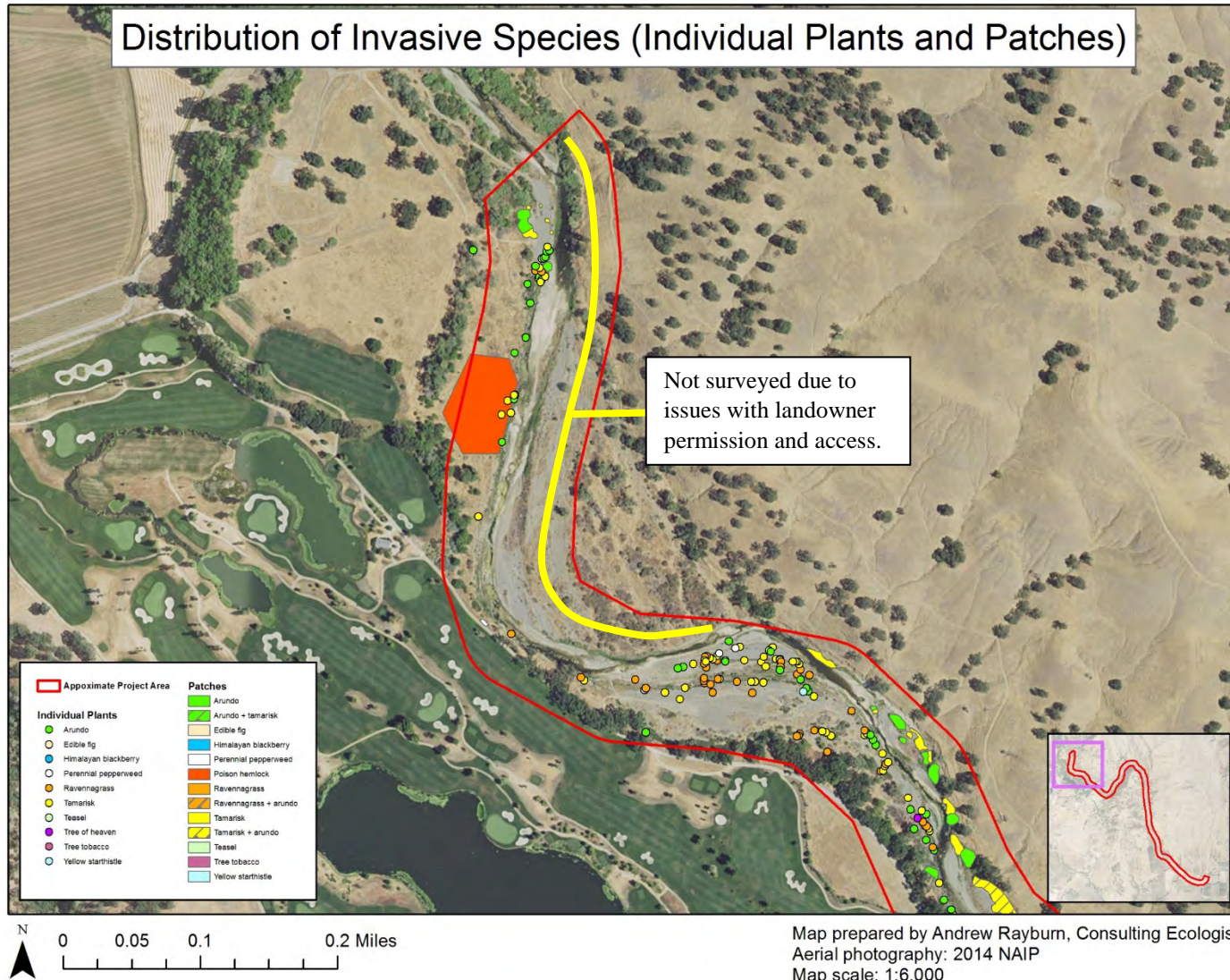


Figure 8. Detailed map of points (plants) and patches mapped within Project area, upstream from Fig. 7 area (see inset map for location).

Native Species

While the focus of the Project was on mapping invasive plant species, observations were also made of native plants, animals, and invertebrates. Native woody plants included black walnut (*Juglans* spp.), bluecurls (*Trichostema* spp.), blue elderberry (*Sambucus nigra* ssp. *caerulea*), buckeye (*Aesculus californica*), California wild rose (*Rosa californica*), common manzanita (*Arctostaphylos manzanita*), Fremont cottonwood (*Populus fremontii*), ghost pine (*Pinus sabiniana*), Goodding's black willow (*Salix gooddingii*), live oak (*Quercus agrifolia*), and Valley oak (*Quercus lobata*).

Native herbaceous species observed included annual sunflower (*Helianthus* spp.), California mugwort (*Artemisia douglasiana*), California wild grape (*Vitis californica*) with abundant berries, creeping wildrye (*Elymus triticoides*), deergrass (*Muhlenbergia rigens*), giant blazingstar (*Mentzelia laevicaulis*), leptosiphon (*Leptosiphon* spp.), purple needlegrass (*Stipa pulchra*), seaside heliotrope (*Heliotropium curassavicum*) trailing blackberry (*Rubus ursinus*), and Western goldenrod (*Euthamia occidentalis*; Fig. 9). Locations of patches of native herbaceous species were also recorded in the field and included in the spatial data provided to the Yolo County RCD.

Native birds observed included acorn woodpecker (*Melanerpes formicivorus*), American robin (*Turdus migratorius*), belted kingfisher (*Megaceryle alcyon*), black-crowned night heron (*Nycticorax nycticorax*), black phoebe (*Sayornis nigricans*), bushtit (*Psaltriparus minimus*), California quail (*Callipepla californica*), California scrub-jay (*Aphelocoma californica*), California towhee (*Melospiza crissalis*), double-crested cormorant (*Phalacrocorax auritus*), great blue heron (*Ardea herodias*), great egret (*Ardea alba*), greater yellowlegs (*Tringa melanoleuca*), green heron (*Butorides virescens*) killdeer (*Charadrius vociferous*), Northern flicker (*Colaptes auratus*), red-tailed hawk (*Buteo jamaicensis*), turkey vulture (*Cathartes aura*), and wood duck (*Aix sponsa*).

Other native wildlife and invertebrates observed included black-tailed jackrabbit (*Lepus californicus*), blue-tailed skink (*Cryptoblepharus egeriae*), Columbian black-tailed deer (*Odocoileus hemionus columbianus*), monarch butterfly (*Danaus plexippus*; Fig. 9), and Western fence lizard (*Sceloporus occidentalis*).



Figure 9. Monarch butterfly (*Danaus plexippus*) on native Western goldenrod (*Euthamia occidentalis*) on creek bank within Project area. Photograph taken on Sep. 19, 2016.

Discussion and Recommendations

Extent and Distribution of Priority Invasive Species

The results of this mapping effort confirm that arundo, ravnagrass, and tamarisk are widespread within the Project area. In many locations, all available space (e.g., the active floodplain) has been colonized by dense stands of these species in which few, if any, native plants were observed (Fig. 10). These three species are also known to be abundant along Cache Creek in many locations further upstream, and have been the subject of more than a decade of intensive control efforts downstream within the CCRMP area. Prior to this effort, these three species were likely as widespread within the CCRMP area as they presently are within the Project area upstream of Capay Dam. Significant resources and coordination with landowners will be required for successful treatment of these species within the Project area (see *Recommendations*).



Figure 10. Representative photograph of dense stands of arundo, ravnagrass, and tamarisk along the north bank of Cache Creek in the Project area. See also the cover photograph for this report and Appendix 2 for more photographs.

The eight other priority invasive species mapped during the Project were far less abundant, which is encouraging. Below the Capay Dam, species such as perennial pepperweed, Himalayan blackberry, poison hemlock, and tree tobacco have in some ways replaced arundo, ravnagrass, and tamarisk as the most widespread invasive plants (Rayburn 2016). Within the Project area, and potentially further upstream, these species seem to occur as isolated plants and patches, which could make control efforts more manageable.

Given the number of individual plants and patches mapped during this Project, it is anticipated that the results will be most useful for 1) establishing a spatially-explicit database for future invasive species treatment efforts, 2) site, subreach, or reach-scale project planning efforts, and 3) providing compelling information useful for writing grants, establishing collaborations, informing research, and generating momentum towards expanding invasive species treatment efforts on Cache Creek.

Conservation Implications

The riparian corridor within the Project area has been thoroughly infested by woody and herbaceous invasive species, which has likely reduced habitat quality for wildlife substantially. In addition, native plant species have been displaced leading to reductions in biodiversity, and the high levels of evapotranspiration associated with arundo, tamarisk, and other invasive species is almost certainly having impacts on surface flows (and potentially groundwater) in Cache Creek. In addition, invasive plant species within the Project area and further upstream, especially arundo, ravennagrass, and tamarisk, often disperse downstream over Capay Dam during periods of high flow. These propagules then establish within the CCRMP area along lower Cache Creek, requiring treatment during the annual “Creek Spray” and hampering long-term efforts to improve wildlife habitat and other biological resources. Without eventual removal of invasive species and replacement with native riparian vegetation, downstream dispersal will continue.

Active habitat restoration will almost certainly be required after treatment due to the abundance of invasive species upstream of the Project area. If invasive species within the Project area are treated without subsequently planting native woody and herbaceous species (a passive restoration approach), invasive species will almost certainly recolonize treated areas. Invasive species that favor disturbed areas, such as perennial pepperweed, could also rapidly expand from the limited areas in which they are presently found. In addition, erosion of creek banks and adjacent properties must be minimized during invasive species removal efforts. Planting a diverse array of native woody and herbaceous riparian species, many of which will rapidly establish on the active floodplain on which most of the invasive species were found, should substantially reduce the potential for bank erosion.

Management Recommendations

This Project represents a significant step forward in terms of managing invasive species and enhancing biological resources along middle and lower Cache Creek. Based on the results of this Project, the following management recommendations are made:

1. Create a formal list of priority invasive species on middle Cache Creek to guide habitat management efforts. The list should be flexible and updated as needed to reflect changes in species distribution and priority.
 - a. The highest-priority species are presently arundo, ravennagrass, and tamarisk based on their current extent and potential for downstream dispersal into the CCRMP area.
 - b. Medium-priority species are presently Himalayan blackberry, perennial pepperweed, tree of heaven, tree tobacco, and yellow starthistle based on their current extent and potential to spread rapidly across the Project area.

- c. Low-priority species are presently common teasel, edible fig, and poison hemlock, although one large patch of poison hemlock was mapped on the upstream end of the Project area.
 - d. Based on the results of invasive species mapping downstream within the CCRMP, create a “watch list” of additional species including: barbed goatgrass (observed outside of Project area), eucalyptus, fan palm, fennel, medusahead, oleander, purple loosestrife, pampas grass, stinkwort, nonnative thistles (bull, Italian, milk), and yellow flag iris.
2. Utilize the results of this Project as impetus to seek grant funding to implement invasive treatment efforts within the Project area in collaboration with landowners, managers, agencies, and other stakeholders. Consider invasive species control efforts as habitat “enhancement” projects that complement active restoration projects, especially for the purpose of grant writing.
3. Remove debris after invasive species treatment to maintain flows and allow for natural recruitment of native species. Arundo, tamarisk, and other woody plants should be cut during or after treatment and either burned on site or otherwise transported off-site.
4. Implement habitat restoration projects using local native species immediately after invasive species treatment.
 - a. Plant a diverse mix of rapidly establishing native woody species, including cottonwoods, willows, blue elderberry, wild rose, and other species. Although slower to establish, plant native Valley oaks, live oaks, ghost pines, and manzanita shrubs on upper terraces to restore oak woodland habitat. Consider balancing the removal of invasive species that provide resources for native wildlife (e.g., tree tobacco, which hummingbirds utilize as nectar resources) with local native species that provide the same service to wildlife (e.g., hummingbird sage).
 - b. Include native understory species in all restoration projects. Develop a standard, cost-efficient mix of competitive herbaceous native species that will establish and spread without the need for intensive and costly follow-up management. Such a mix would likely include creeping wildrye, mugwort, various sedges or rushes, and other species. Consider additional species when feasible (e.g., pollinator mixes including milkweeds).
5. Once invasive species treatment begins, repeat the mapping methods used for this Project every five years over at least the next twenty years in order to gauge progress in controlling invasive species as well as to inform adaptive management actions.
 - a. Use spatially-explicit methods (e.g., mobile mapping technology) to implement and assess treatment efforts in order to ensure that all known plants and patches are

treated, that treated plants and patches are monitored for resprouts, and that new plants and patches are recorded and added to the database.

- b. If contractors are used to implement invasive species treatments, they should be proficient with mobile mapping technology as a condition of the contract.
- c. Continue negotiations with landowners to allow for site access in order to map and treat invasive species populations.

Conclusion

This Project represents the first field-based invasive species mapping effort along middle Cache Creek above Capay Dam, and complements similar mapping that took place along lower Cache Creek earlier in 2016. Invasive species including arundo, ravenagrass, and tamarisk were abundant throughout the Project area, and will require substantial funding and effort to remove. Landowner coordination will be imperative, and headway has already been made with some landowners who are willing to consider treatment options. The results of this Project will serve as a spatially-explicit baseline that will enable more precise planning, implementation, and monitoring of invasive species treatment projects. Such projects should be implemented in conjunction with habitat enhancement and restoration efforts to maximize benefits for native species and ecosystem processes along middle and lower Cache Creek.

References

Rayburn, A.P. 2016. Lower Cache Creek Invasive Species Mapping and Prioritization Project. Prepared for the Cache Creek Conservancy.

Appendices

Appendix 1. Area estimates used to calculate approximate area (ft², subsequently converted to acres) of individual plants (points) of Project species. General size classes were: small, medium, and large.

Species	Size class		
	Small (ft ²)	Medium (ft ²)	Large (ft ²)
Arundo	2.69	10.76	24.22
Common teasel	0.17	0.67	2.69
Edible fig	2.69	10.76	43.06
Himalayan blackberry	2.69	10.76	43.06
Perennial pepperweed	0.17	0.67	2.69
Poison hemlock	0.17	0.67	2.69
Ravennagrass	0.67	2.69	10.76
Tamarisk	2.69	10.76	24.22
Tree of heaven	2.69	10.76	43.06
Tree tobacco	2.69	10.76	24.22
Yellow starthistle	0.17	0.67	2.69

Appendix 2. Description of representative photographs from field survey. Photographs were provided to the Yolo RCD and organized from upstream to downstream by property/parcel that was most visible in the photograph. Specific Landowner and parcel information is removed here to protect landowner privacy. For additional information please contact the Yolo County RCD.

South bank and river corridor

- Photo G1. Arundo resprouting from beneath pile of dead arundo stems.
- Photo G2. Small tamarisk establishing on south bank; note dense stands of tamarisk and arundo across the creek on the north bank.
- Photo G3. Tree of heaven sapling.
- Photo G4. Arundo and tamarisk growing together on gravel bar.
- Photo G5. Dense tamarisk stand at north end of reach.

North bank across from photos described above

- Photo CV1. Dense, contiguous stand of arundo (right), ravennagrass (foreground along water's edge), and tamarisk (left to center behind ravennagrass) along north bank.
- Photo CV2. Looking upstream from south bank; dense stands of arundo and tamarisk on north bank.

South bank

- Photo SR1. Native ghost pine and manzanita (foreground) with dense stand of tamarisk interspersed with arundo on lower floodplain along south bank. Creek is between tamarisk stand and native valley oaks in background.
- Photo SR2. Panoramic view of dense tamarisk stand interspersed with arundo on south bank; creek lies beyond stand at base of hills in background.
- Photo SR3. Looking downstream from south bank; entire creek corridor is filled with dense tamarisk interspersed with arundo. Native manzanita and ghost pine in foreground. Creek lies beyond tamarisk stand at base of hills.
- Photo SR4. Dense stand of tamarisk interspersed with arundo on south bank (foreground), and dense stand of arundo across the creek on the north bank (background).

North bank across from photos described above

- Photo SM1. Dense stand of ravennagrass with arundo and tamarisk patches in background on the north bank.
- Photo SM2. Dense tamarisk stand interspersed with arundo on the north bank.
- Photo SM3. Dense tamarisk stand (foreground) and arundo stand (background) along north bank.
- Photo SM4. Panoramic view of "green wall" of arundo along north bank; vegetation height was estimated as at least 25 ft.
- Photo SM5. Mixed tamarisk and arundo stand on north bank.

Northeast bank

- Photo L1. Panoramic view of dense stand of arundo, ravennagrass, and tamarisk along north bank. Estimated height of invasive vegetation was greater than 20 ft.

Northeast bank

- Photo L2. Dense arundo stand interspersed with tamarisk on north bank.
- Photo L3. Dense arundo, ravennagrass (center), and tamarisk stands on north bank; note small arundo plants establishing in channel (bottom right).

Southwest bank

- Photo D1. Looking stream from southwest bank; dense stands of arundo, ravennagrass, and tamarisk line both banks.
- Photo D2. Dense stands of arundo and tamarisk along the lower southwest bank reduce erosion along deer fence along orchard border; sticks at base of t-post fill a small gully that eroded away in recent years. Large native cottonwood in background (center).
- Photo D3. Looking northeast from southwest bank; dense stands of arundo and tamarisk line both sides of the creek, which is not visible in the middle of the photograph. Note native riparian forest in background on northeast bank.
- Photo D4. Native elderberry shrub (left) growing among a mixed tamarisk/arundo stand.

North bank just upstream of Capay Dam

- Photo J1. Panoramic view of dense, mixed stands of arundo, ravennagrass, and tamarisk along north bank just above Capay Dam, taken from south bank. Note dense, contiguous arundo stand on south bank proceeding upstream.

South bank upstream of Capay Dam

- Photo T1. Dense arundo stand along north edge of field; stand continues upstream and northward to edge of creek.
- Photo T2. Dense arundo stand along north edge of field. Estimated height of vegetation greater than 20 ft.
- Photo T3. Dense arundo stand along slough on north edge of field.
- Photo T4. Dense arundo stand along north edge of grassy area just upstream of Capay Dam.
- Photo T5. Large ravennagrass plant under canopy in patch of mixed native/invasive woody vegetation along north edge of field upstream of Capay Dam.

Cache Creek Invasive Weed Mapping and Prioritization Project Area photos
Sequentially from upstream to downstream, north then south, 9/2016. See photo descriptions in Project Final Report



CV1, upstream-most, across from Golf Course.



CV2, upstream-most, across from Golf Course.



G1, golf course, south side



G2, golf course, south side



G3, golf course, south side



G4, golf course, south side



G5, golf course, south side



SM1 across from Sugar Loaf, north side



SM2 across from Sugar Loaf, north side



SM3 across from Sugar Loaf, north side



SM4 across from Sugar Loaf, north side



SM5 across from Sugar Loaf, north side



L1 across from Sugar Loaf, north side



L2 adjacent to downstream-most reach, north side



L3 adjacent to downstream-most reach, north side



D1 middle of project area, south side



D2 middle of project area, south side



D3 middle of project area, south side



D1 middle of project area, south side



T1 adjacent to downstream-most reach, south side



T2 adjacent to downstream-most reach, south side



T3 adjacent to downstream-most reach, south side



T4 adjacent to downstream-most reach, south side



T5 adjacent to downstream-most reach, south side



J1 downstream-most reach, north side