

FERC Project No. 14797
Devil Canyon Project
Non-Native Invasive Plants Study Approach

FIELD RESULTS AND DATA SUMMARY

April 9, 2018

The California Department of Water Resources (DWR) provides the following field results and data summary for the Devil Canyon Project, *Non-Native Invasive Plants Study Approach*, which includes work completed to date, key findings, and associated data files.

Completed Work:

DWR has completed all portions of the *Non-Native Invasive Plants Study Approach*, including gathering data, preparing for the field effort, performing surveys to identify occurrences of non-native invasive plants (NNIP) in the Study Area, and assessing and mapping field data. DWR's methodology followed the Non-Native Plants Study Approach. A summary of completed work is as follows:

- Existing data were assembled, and field maps were prepared.
- NNIP surveys were conducted in conjunction with the Botanical Resources Study Approach field surveys and NNIP general data forms were completed for any California Department of Food and Agriculture (CDFA)-rated species occurrences observed. In addition, U.S. Forest Service (USFS) Invasive Species Infestation Record Forms were completed for any occurrences of the CDFA-rated target species on USFS-owned lands. The USFS form was also completed for non-CDFA-rated plants identified by USFS as species of interest (see Table 1 for the complete Target NNIP Species list).
- Data documenting NNIP occurrences in the Study Area were analyzed and compiled, including preparation of Geographic Information System (GIS) shapefiles.
- Maps were prepared summarizing field data.

Table 1. Target NNIP Species Surveyed in the Study Area

| Scientific Name | Common Name | CDFA Rating ¹ |
|--|------------------------|--------------------------|
| <i>*Ageratina adenophora</i> | eupatory | -- |
| <i>**Ailanthus altissima</i> | tree of heaven | C |
| <i>**Arundo donax</i> | giant reed grass | B |
| <i>*Brassica nigra</i> | black mustard | -- |
| <i>*Brassica tournefortii</i> | Asian mustard | -- |
| <i>*Bromus diandrus</i> | ripgut brome | -- |
| <i>*Bromus madritensis ssp. rubens</i> | red brome | -- |
| <i>*Bromus tectorum</i> | cheatgrass | -- |
| <i>**Centaurea melitensis</i> | tochalote | C |
| <i>**Centaurea solstitialis</i> | yellow star-thistle | C |
| <i>**Cirsium vulgare</i> | bull thistle | C |
| <i>**Cortaderia jubata</i> | pampas grass | B |
| <i>*Cortaderia selloana</i> | Uruguayan pampas grass | -- |
| <i>*Eucalyptus globulus</i> | blue gum | -- |

| | | |
|--|--|----|
| * <i>Ficus carica</i> | fig | -- |
| * <i>Foeniculum vulgare</i> | fennel | -- |
| ** <i>Genista monspessulana</i> | French broom | C |
| * <i>Hedera helix</i> and <i>H. canariensis</i> | English ivy, Algerian ivy | -- |
| * <i>Helminthotheca echioides</i> | bristly ox-tongue | -- |
| * <i>Holcus lanatus</i> | common velvetgrass | -- |
| * <i>Lolium perenne</i> ssp. <i>multiflorum</i> | Italian ryegrass | -- |
| * <i>Medicago polymorpha</i> | burclover | -- |
| * <i>Nicotiana glauca</i> | tree tobacco | -- |
| * <i>Pennisetum setaceum</i> | fountain grass | -- |
| * <i>Potamogeton crispus</i> | curly pondweed | -- |
| * <i>Ricinus communis</i> | Castor bean | -- |
| * <i>Robinia pseudoacacia</i> | black locust | -- |
| * <i>Rubus armeniacu</i> | Himalayan blackberry | -- |
| ** <i>Salsola tragus</i> | Russian thistle | C |
| ** <i>Saponaria officinalis</i> | bouncing bet | C |
| * <i>Schedonorus arundinaceus</i> | tall fescue | -- |
| * <i>Schinus molle</i> | Peruvian pepper tree | -- |
| * <i>Schismus arabicus</i> , <i>S. barbatus</i> | Arabian schismus, common Mediterranean grass | -- |
| * <i>Silybum marianum</i> | milk thistle | -- |
| ** <i>Spartium junceum</i> | Spanish broom | C |
| ** <i>Tamarix parviflora</i> , <i>T. ramosissima</i> | saltcedar | B |
| * <i>Verbascum thapsus</i> | common mullein | -- |
| * <i>Vinca major</i> | periwinkle | -- |
| * <i>Vulpia myuros</i> | annual fescue | -- |

¹ CDFA Rating:

“B” = A pest of known economic or environmental detriment and, if present in California, it is of limited distribution. B-rated pests are eligible to enter the State if the receiving county has agreed to accept them. If found in the State, they are subject to State endorsed holding action and eradication only to provide for containment, as when found in a nursery. At the discretion of the individual county agricultural commissioner they are subject to eradication, containment, suppression, control, or other holding action.

“C” = A pest of known economic or environmental detriment and, if present in California, it is usually widespread. C-rated organisms are eligible to enter the State as long as the commodities with which they are associated conform to pest cleanliness standards when found in nursery stock shipments. If found in the State, they are subject to regulations designed to retard spread or to suppress at the discretion of the individual county agricultural commissioner. There is no State enforced action other than providing for pest cleanliness.

* Indicates species for which data collection only occurred on USFS-owned lands

** Indicates species for which NNIP general data collection forms were completed wherever the species was observed within the Study Area

Key Accomplishments/Summary of Findings:

The completed work referenced above resulted in the following:

- The Study Area was evaluated between April 4 and June 16, 2017 for the presence of NNIP. Some areas of steep terrain could not be surveyed on foot, but were visually evaluated via boat using binoculars.

- Field forms were completed for all target NNIP in the Study Area (see Completed Work above). A total of 177 occurrences of 13 different NNIP species were observed during field surveys. These occurrences are summarized in Table 2 and depicted on maps (see Associated Data Files).
- In addition to the target species, information on other non-native and/or invasive species occurrences were recorded on NNIP datasheets. A complete botanical inventory was conducted in conjunction with the Botanical Resources Study, including all species recorded during NNIP surveys (see Associated Data Files), which provides additional information about the presence of non-target, non-native, and/or invasive species. The inventory also includes some species in Table 1 that were observed outside of USFS-owned lands.

Table 2. NNIP Target Species Occurrences in the Study Area Documented during 2017 Field Surveys

| Scientific Name | Common Name | CDFA Rating | Number of Occurrences in the Study Area (one mapped unit*) |
|---|----------------------|-------------|--|
| <i>Ailanthus altissima</i> | tree of heaven | C | 3 |
| <i>Brassica nigra</i> | black mustard | -- | 2 |
| <i>Bromus diandrus</i> | ripgut brome | -- | 2 |
| <i>Bromus madritensis</i> ssp. <i>rubens</i> | red brome | -- | 1 |
| <i>Bromus tectorum</i> | cheat grass | -- | 1 |
| <i>Centaurea melitensis</i> | toçalote | C | 29 |
| <i>Cirsium vulgare</i> | bull thistle | C | 61 |
| <i>Robinia pseudoacacia</i> | black locust | -- | 1 |
| <i>Salsola australis/tragus</i> | Russian thistle | C | 4 |
| <i>Saponaria officinalis</i> | bouncing bet | C | 10 |
| <i>Silybum marianum</i> | blessed milk thistle | -- | 1 |
| <i>Spartium junceum</i> | Spanish broom | C | 38 |
| <i>Tamarix parviflora</i> , <i>T. ramosissima</i> | saltcedar | B | 24 |
| | | Total: | 177 |

* Please refer to field datasheets for information on density and size of occurrence.

Associated Data Files: (All associated data can be found at the file location below on DWR's Devil Canyon Project Relicensing Website. (<http://devil-canyon-project-relicensing.com/>))

| File Name | Data Description | File Type | File Location |
|--|------------------|-----------|---|
| Various. Naming convention is date_dc_nnip-[crew number]-[# of datasheet by crew per day]. 'usfs' is appended to the end of file name for those species that occur on USFS-owned lands, and for which USFS datasheets were completed | NNIP datasheets | PDF | Studies/Study-3-Non-Native-Invasive-Plants/Associated Data Files/Datasheets |

| File Name | Data Description | File Type | File Location |
|---|--|------------------|--|
| 20170906_DC_NNIP | Zip file with GIS shapefile containing NNIP occurrence polygon, line, and point data, with descriptive information | Shapefile | Studies/Study-3-Non-Native-Invasive-Plants/Associated Data Files/Maps and GIS Data |
| 20170910_DC_NNIP.pdf | Maps depicting NNIP occurrences in the study area | PDF | Studies/Study-3-Non-Native-Invasive-Plants/Associated Data Files/Maps and GIS Data |
| dwr_dc_botanical_observed_species_list_compiled | List of all plant species observed during 2017 botanical field surveys | MS Excel | Studies/Study-3-Non-Native-Invasive-Plants/Associated Data Files/Botanical Inventory |

Variances from Study Methods, Schedule, or Approach and Abnormalities in Expected Field Conditions:

There were no variances in Study Methods, Schedule, or Approach encountered during the NNIP Study Approach.

Remaining Work:

The Study is complete.