

Interim Core Map Documentation for San Jacinto Valley Crownscale

Version 1

Review Completed: April 2026

Core Map Developer: U.S. Environmental Protection Agency (EPA), Office of Pesticide Programs

Species Summary

The San Jacinto Valley crownscale (*Atriplex coronata* var. *notatior*, Entity ID 1090) is an endangered annual herbaceous plant (dicot) associated with flooded, alkaline-saline soils. The U.S. Fish and Wildlife Service (FWS) has not designated a critical habitat for the San Jacinto Valley crownscale. This species is typically found in salty soils that flood and drain slowly with the winter and spring rain. Pollination is thought to be predominately performed by wind and seed dispersal via seasonal flooding. Currently, the San Jacinto Valley crownscale is found in only four floodplains in California (Upper San Jacinto River, Lower San Jacinto River, Upper Salt Creek, Alberhill Creek). Additional information on the species is provided in **Appendix 1**.

Description of Core Map

The core map for the San Jacinto Valley crownscale is based on biological information. The outer extent of the core map is defined by FWS species range. The core map was refined using a California Flood Hazard Layer and merged with FWS known locations (available via California Natural Diversity Database (CNDDDB) Areas of Conservation Emphasis (ACE) hexagons) that fell outside the range/floodplain to encapsulate areas the San Jacinto Valley crownscale may occur.

Figure 1 depicts the resulting interim core map for the San Jacinto Valley crownscale. The size of this core map is approximately 33,902 acres. Landcover categories within the core map area are included in **Table 1**. Landcover is predominantly cultivated crops and grassland/herbaceous areas. Cultivated lands were not removed from this biological information core map due to the high presence of this species in those areas.

The core map developed for the San Jacinto Valley crownscale is considered interim. This core map will be used to develop pesticide use limitation areas (PULAs) that include the San Jacinto Valley crownscale. This core map incorporates information developed by FWS and made available to the public; however, the core map has not been formally reviewed by FWS. This interim core map may be revised in the future to incorporate species expert feedback from FWS. This interim core map has an “average” (3) best professional judgment classification to describe major uncertainties/limitations. The map is based on species range, habitat type, and known locations described by FWS. This core map does not replace or revise any range or designated critical habitat developed by FWS for this species.

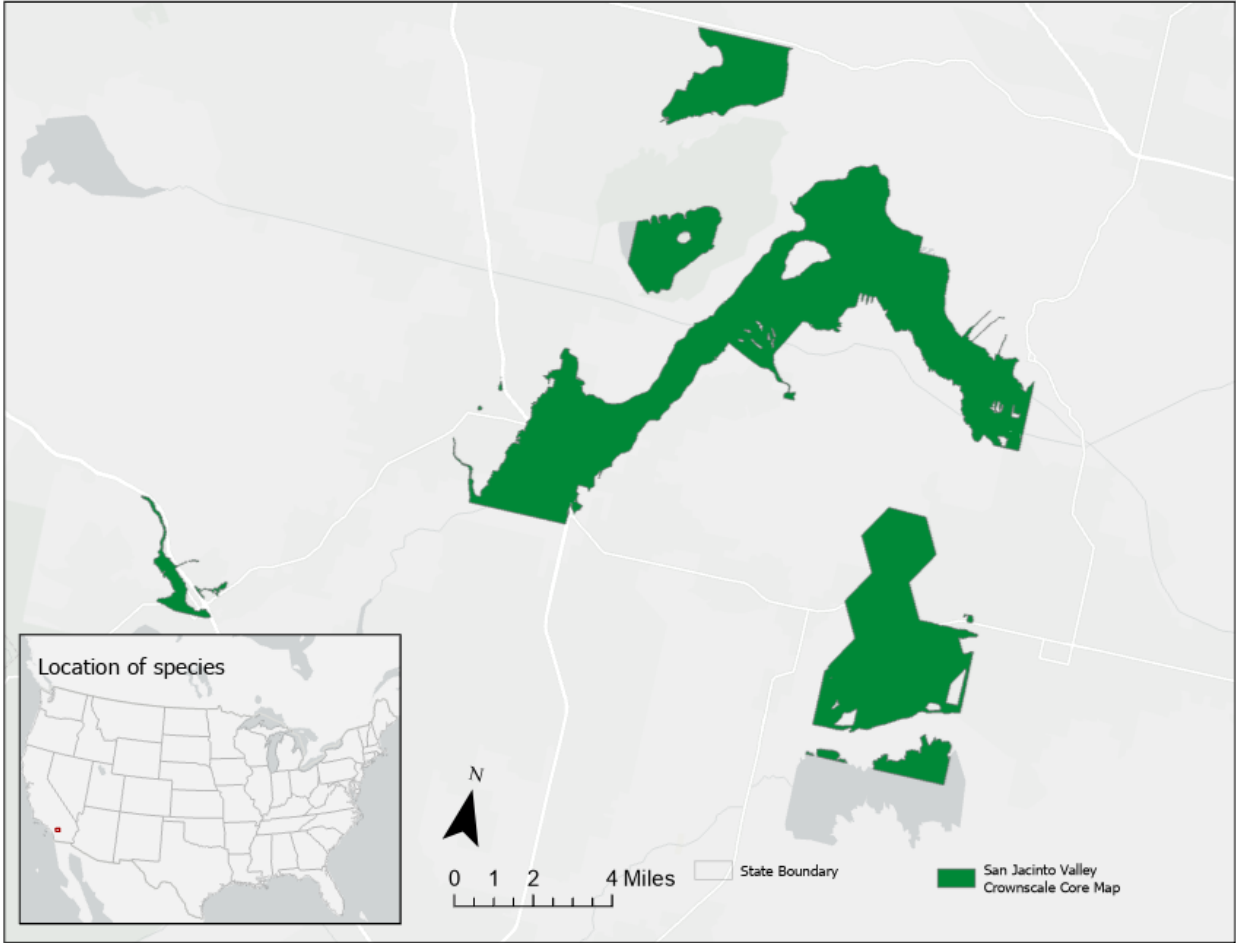


Figure 1. Interim core map for the San Jacinto Valley crownscale.

Table 1. Percentage of Interim Core Map Represented by National Land Cover Database (NLCD)¹ Land Covers and Associated Example Pesticide Use Sites/Types.

Example pesticide use sites/types	NLCD Landcover (Value)	% of core map represented by landcover
Forestry	Deciduous Forest (41)	0%
Forestry	Evergreen Forest (42)	0%
Forestry	Mixed Forest (43)	0%
Agriculture	Pasture/Hay (81)	3%
Agriculture	Cultivated Crops (82)	45%
Mosquito adulticide, residential	Open space, developed (21)	9%
Mosquito adulticide, residential	Developed, Low intensity (22)	3%
Mosquito adulticide, residential	Developed, Medium intensity (23)	2%
Mosquito adulticide, residential	Developed, High intensity (24)	1%
Invasive species control	Woody Wetlands (90)	0%
Invasive species control	Emergent Herbaceous Wetlands (95)	4%
Invasive species control	Open water (11)	9%
Invasive species control	Grassland/herbaceous (71)	21%
Invasive species control	Scrub/shrub (52)	2%
Invasive species control	Barren land (rock/sand/clay; 31)	0%
Total Acres	Interim Core Map Acres	~ 33,902 acres

Evaluation of Known Location Information

There are four datasets with known location information:

- Descriptions of locations provided by FWS (based on CNDDDB element occurrences)
- Occurrence locations in iNaturalist
- Occurrence locations in NatureServe
- Occurrence locations in Global Biodiversity Information Facility (GBIF)

EPA evaluated these four sets of data before selecting the type of and developing the core map. FWS appeared to have the finest resolution of the location information, providing a table and map of the 15 current extant/presumed extant locations within Upper San Jacinto River, Lower San Jacinto River, Upper Salt Creek, and Alberhill Creek. This data is based on CNDDDB element occurrences, which were available from CNDDDB to EPA as polygons for reference only. Occurrences in iNaturalist, GBIF, and NatureServe did not support expanding the core map outside of these four floodplains. **Appendix 1** includes more information on the available known location information.

¹ Dewitz, J., 2023, National Land Cover Database (NLCD) 2021 Products: U.S. Geological Survey data release, <https://doi.org/10.5066/P9JZ7AO3>

Approach Used to Create Core Map

The core map was developed using the “Process EPA Uses to Develop Core Maps for Draft Pesticide Use Limitation Areas for Species Listed by the U.S. Fish & Wildlife Service (FWS) and their Designated Critical Habitats”² (referred to as “the process”). EPA developed the core map using the 4 steps described in the process document:

1. Compile available information for a species
2. Identify core map type
3. Develop the core map for the species
4. Document the core map

For step 1, EPA compiled available information for the San Jacinto Valley crownscale from FWS, as well as observation information available from various publicly available sources (including iNaturalist, NatureServe, and GBIF). The information compiled for the San Jacinto Valley crownscale is included in **Appendix 1**. Influential information that impacted the development of the core map included:

- Occurrences and known locations of the San Jacinto Valley crownscale are within four floodplains in California (Upper San Jacinto River, Lower San Jacinto River, Upper Salt Creek, and Alberhill Creek).
- This species relies on floodplain habitats.
- Two FWS Element Occurrences (EOs 9 & 25) in the Upper Salt Creek Area are outside the range.

For Step 2, EPA used the compiled information to identify the core map type including range, habitat type, and known location information. The extant populations are consistent with floodplains in the species range except for two occurrences that are just outside the range perimeter in the Upper Salt Creek area. Therefore, EPA based the core map on the biological information for species range, floodplain habitat, and FWS known locations. The entire range of the species was not used as the core map because the range contains areas where the species does not occur. Cultivated lands were not removed due to the presence of this species in such areas.

For step 3, EPA used the best available data sources to generate the core map. Data sources are discussed in the process document. For this core map, EPA used FWS species range refined by National Flood Hazard Layer for California. EPA also merged excluded FWS known locations in the Upper Salt Creek area (available via CNDDDB ACE hexagons) with the range/floodplain map to encapsulate areas the San Jacinto Valley crownscale may occur. **Appendix 2** provides more details on the Geographic Information System (GIS) analysis and data used to generate the core map.

² Dated 2024, available online at: <https://www.epa.gov/endangered-species/process-epa-uses-develop-core-maps-pesticide-use-limitation-areas>

Discussion of Approaches and Data that were Considered but not Included in Core Map

Before deciding to merge the CNDDDB ACE hexagons in the Upper Salt Creek area into the core map to capture known locations, EPA considered using parks/preservation sites or California vernal pool data to delineate the two excluded occurrences. However, the occurrences did not overlap with either available site data.

Cultivated lands can be removed for biological information core maps when a species' habitat is not compatible with cultivated lands. However, this species known locations largely overlap with cultivated lands. Therefore, cultivated lands were not removed from this core map to keep relevant known locations within the map.

Appendix 1. Information Compiled for the San Jacinto Valley Crownscale

1. Recent FWS documents/links and other data sources

- Five Year Review (2012) - https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/2024.pdf
- Five Year Review (2021) - https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/3493.pdf
- Recovery Plan - No current Recovery Plans available for this species.
- Revised Designation of Critical Habitat (2013) [Final ruling = No critical habitat designation] - https://www.fws.gov/sites/default/files/federal_register_document/2013-08364.pdf

2. Background information

- **Status:** Federally listed as endangered in 1998
- **Resiliency, redundancy, and representation** (the 3Rs)
 - Information for this species not available within the ECOS documents.
- **Habitat** (Five Year Review 2021)
 - “Limited to floodplains within the vicinity of San Jacinto, Perris, Menifee, and Elsinore Valleys in western Riverside County”.
 - “The local abundance and distribution of *A. c. var. notatior* differs from year to year in response to rainfall, winter flooding events, and temperature”.
 - Associated with alkaline-saline soils.
- **Pollinator/reproduction** (Five Year Review, 2012)
 - “Is monoecious (plants bear separate male and female flowers on the same plant) and is believed to be wind-pollinated”.
 - “Produces fruits capable of floating that may be dispersed during seasonal flooding”.
 - “Seeds generally germinate in the spring as flows recede, flower in April and May, and set fruit by May or June”.
- **Taxonomy**
 - Terrestrial/Aquatic Flowering plant (Dicot), goosefoot family (Chenopodiaceae)
 - FWS Category: Flowering dicot plant, CONUS-8
- **Relevant Pesticide Use Sites**
 - No information specific to pesticides. However, agriculture is a threat to the species’ habitat. (Five Year Review, 2021)
- **Threats**
 - Agriculture, Development, Altered Hydrology, Discing, Grazing, Nonnative Plants and Climate Change (Five Year Review, 2021).
- **Recovery Criteria/Objectives**
 - No Current Recovery Plans available for this species.
 - Recovery Priority Number: 9C

- **Recovery Actions/Conservation**

- No Current Recovery Plans available for this species.
- Recommendations for future actions (Five Year Review, 2021)
 - Survey all historical and extant occurrences during the late spring-early summer after rainy seasons featuring average to above-average annual precipitation.
 - Preserve occurrences on private lands
 - Conduct life history research
 - Develop an approach for restoring degraded alkali vernal pool and alkali meadow habitat suitable for reintroducing the species
 - Manage occurrences to prevent potential impacts from recreational activities, dairy waste deposition, or other human-related activities
 - Conduct research on nonnative plant impacts and develop appropriate techniques for managing nonnative plant species
 - Develop a Population Viability Analysis model to determine the key features for survival
- Conservation programs include The Western Riverside County Multiple Species Habitat Conservation Plan, the Riverpark Mitigation Bank, and the California Botanical Garden for seed bank collections. (Five Year Review, 2021)

3. Description of Species Range

- Figure A1-1 depicts the FWS range. The range was last updated on 04/28/2015.

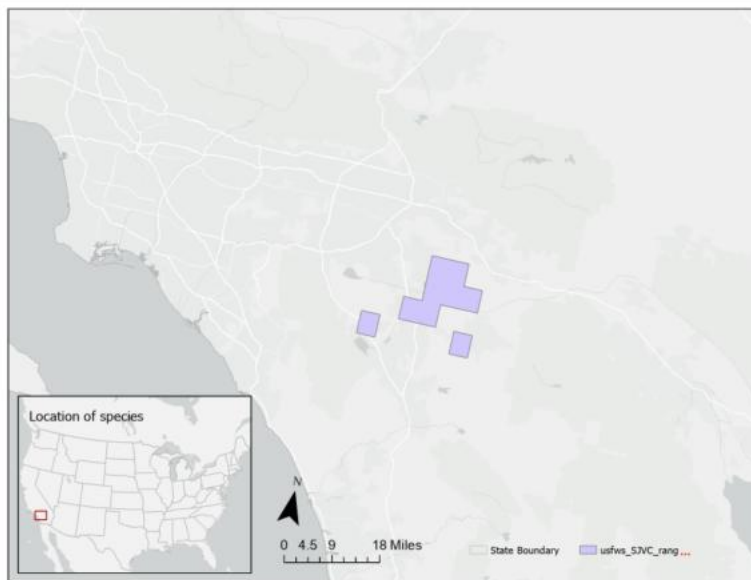


Figure A1-1. FWS range for the San Jacinto Valley crownscale. The total acreage is around 89,3002 acres.

4. Critical Habitat

- On April 16, 2013, the FWS final ruling did not designate any critical habitat for the San Jacinto Valley crownscale (Revised Designation of Critical Habitat, 2013).

5. Known Locations

- “Based on currently available information, there are 15 occurrences of *A. c. var. notatior* extant or presumed extant within the four geographic localities [Upper San Jacinto River, Lower San Jacinto River, Upper Salt Creek, Alberhill Creek]” (Five Year Review, 2021).
- Most occurrences, except two EOs in the Upper Salt Creek area, are within the species range.

- **Occurrences Included in Public Databases** (EPA queried iNaturalist, GBIF, and NatureServe on 07/23/2025)
 - iNaturalist (available [here](#)) had 21 research grade observations from 2019-2023 for this species, all of which appear to be within the species range when accounting for positional accuracy.
 - GBIF (available [here](#); filter for present occurrences in the USA) included 28 occurrences/human observations from 1990-2023 with all observations also in iNaturalist or NatureServe. The 12 of the 28 GBIF points that included coordinate data largely coincide with the species range. Those that fall outside of the range extent may be accounted for by the resolution of the location data.
 - Occurrences in NatureServe were consistent with other occurrence data and the range (linked [here](#)).

Appendix 2. GIS Data Review and Method to Develop Core Map

This core map (“San Jacinto Valley Crownscale Core Map.shp”) was created based on biological information, including occupied location and species habitat.

1. Dataset References and Software

- FWS Species Range from ECOS (available [here](#)) – last updated on 04/28/2015
- National Flood Hazard Layer (NFHL) feature class S_Fld_Haz_Ar for California (available [here](#)) - last updated Mar 6, 2024
- ACE hexagons from California Natural Diversity Database (CNDDDB), 2025. California Department of Fish and Wildlife, <https://wildlife.ca.gov/Data/CNDDDB>
- National Land Cover Database (NLCD) 2021 (available [here](#))
- EPA’s Modified Cultivated Layer (available [here](#)) - last updated 12/16/2024
- Software used: ArcGIS Pro 3.6.0

2. Datasets Used in Core Map Development

All datasets used in core map development are described in EPA’s process document.

3. Core Map Development

- EPA started with the FWS species range refined to the National Flood Hazard Layer (NFHL). This range/floodplain map was then compared to FWS known locations. Since some occurrences in the Upper Salt Creek area fell outside this map, the CNDDDB ACE hexagons that intersected with those occurrences were merged with the range/floodplain map to encompass all known locations and areas of interest.
 - Clip National Flood Hazard Layer to FWS species range
 - Select the CNDDDB ACE hexagons that intersect with occurrences the Upper Salt Creek area (HEX_ID equal to 59332, 59101, 59255, and 59409) and export the select features
 - Merge exported Upper Salt Creek ACE hexagons to range/floodplain map
 - Dissolve features to create the core map (Shapefile folder: SanJancintoValleyCrownscale_CoreMap)

This area is also representative of other occurrence data sources including iNaturalist, GBIF and NatureServe when accounting for positional obscuring. Cultivated lands were not removed from this biological information core map due to high presence of this species within those areas.