

Interim Core Map Documentation for La Graciosa Thistle

December 17th, 2024

Developed by US Environmental Protection Agency, Office of Pesticide Programs

Species Summary

La Graciosa Thistle (*Cirsium loncholepis*; Entity ID #531) is an endangered terrestrial plant (dicot). This species is restricted to coastal dune wetland, marsh and riparian habitats on sandy soils, along a small portion of the Central Coast of California. This species blooms from April-September and is pollinated by a variety of insects (ants, bees, beetles, butterflies, and flies). There is a designated critical habitat for this species. Additional information is provided in **Appendix 1**. This species is currently included in the Herbicide Strategy.

Description of Core Map

The core map for La Graciosa Thistle is based on critical habitat. The majority of known occurrences of this species fall within the critical habitat; those that are outside of the critical habitat are greater than 40 years old. EPA did not find evidence that any key areas for this species exist outside of the designated critical habitat. A long-term recovery action for this species is to re-establish several extirpated occurrences of La Graciosa Thistle, and the locations of all of the extirpated populations of this species also fall within the critical habitat. **Figure 1** depicts the interim core map for La Graciosa Thistle (green areas on map). The core map represents approximately 24,000 acres.

La Graciosa Thistle inhabits coastal dune wetland, marsh, and riparian habitats on sandy soils, along a small portion of the Central Coast of California which is captured in the species' designated critical habitat. Landcover categories within the core map area are included in **Table 1**. Landcover within the core map is predominantly shrub, grassland/herbaceous, which is consistent with the habitat of this species. Agricultural areas are also located within the critical habitat.

The core map developed for La Graciosa Thistle is considered interim. This core map will be used to develop pesticide use limitation areas (PULAs) that include La Graciosa Thistle. 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 expert feedback from FWS. This interim core map has a "limited" best professional judgment classification because it consists of the species' critical habitat without additions or subtractions. However, EPA did limit the core map only to designated critical habitat based on interpretation of FWS documentation. There is confidence in the core map because the species' critical habitat is highly refined, represents areas important for this species' conservation, and contains all of the known occurrences for this species that have been found within the last 40 years. This core map does not replace or revise any range or designated critical habitat developed by FWS for this species.

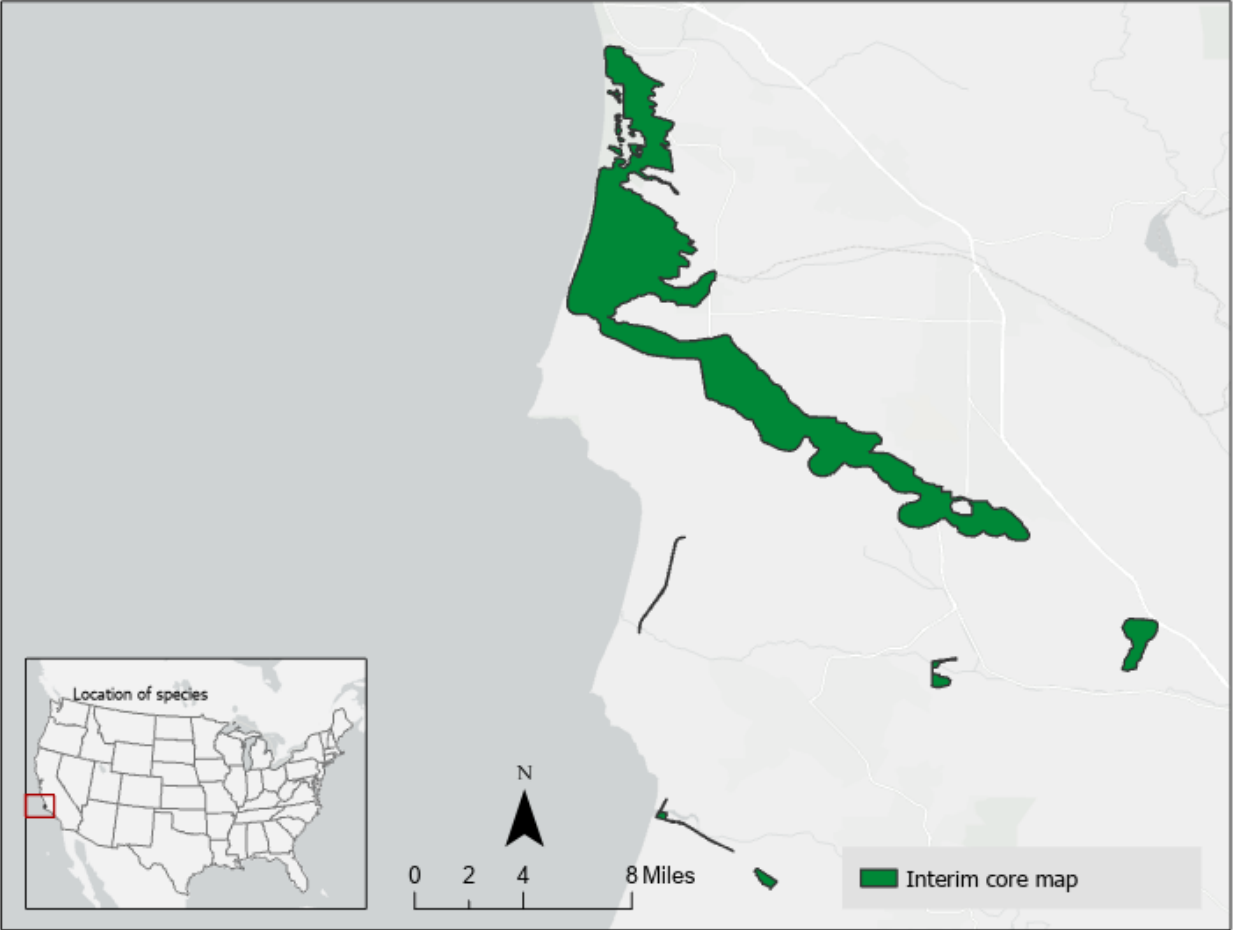


Figure 1. Interim core map for La Graciosa Thistle. Total acreage of core map is approximately 24,000 acres.

Table 1. Percentage of Interim Core Map Represented by NLCD¹ Land Covers and Associated Example Pesticide Use Sites/Types.

Example pesticide use sites/types	NLCD Landcover (Value)	% of core map represented by landcover	% of core map represented by example pesticide use
Forestry	Deciduous Forest (41)	0	1
	Evergreen Forest (42)	1	
	Mixed Forest (43)	0	
Agriculture	Pasture/Hay (81)	2	16
	Cultivated Crops (82)	14	
Mosquito adulticide, residential	Open space, developed (21)	2	4
	Developed, Low intensity (22)	1	
	Developed, Medium intensity (23)	1	
	Developed, High intensity (24)	0	
Invasive species control	Woody Wetlands (90)	3	79
	Emergent Herbaceous Wetlands (95)	7	
	Open water (11)	1	
	Grassland/herbaceous (71)	29	
	Scrub/shrub (52)	39	
	Barren land (rock/sand/clay; 31)	0	
Total Acres	Interim Core Map Acres	~ 24,000	

Evaluation of Known Location Information

There are four datasets with known location information for this species:

- Descriptions of locations provided by FWS,
- Occurrence locations in iNaturalist;
- Occurrence locations in GBIF; and
- Occurrence locations in NatureServe.

EPA evaluated these four sets of data before selecting the type of and developing the core map. FWS' 2020 Species Status Assessment (SSA) and most recent 5-year review (2024) detailed known locations of this species. FWS described 23 documented occurrences that are extant and extirpated. Currently, there are 8 extant populations, which have locations that are consistent with the critical habitat. iNaturalist had 8 research grade observations. NatureServe provided three documented locations. GBIF contained no additional data that were not already included in iNaturalist or NatureServe. The iNaturalist and NatureServe data had a coarse resolution and EPA could not determine conclusively if these data fell within the critical habitat; however, they generally appear to be consistent with the

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

locations of the range and critical habitat. **Appendix 1** includes more information on the available known location information.

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”). This core map was developed by EPA and was developed 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; and
4. Document the core map.

For step 1, EPA compiled available information for the La Graciosa Thistle from FWS as well as observational information available from various publicly available sources (discussed in previous section). The information compiled for the La Graciosa Thistle is included in **Appendix 1**. Influential information that impacted the development of the core map included:

- Current existing populations occur in locations consistent with the critical habitat;
- The species’ critical habitat is highly refined.

For step 2, EPA used the compiled information to identify the core map type, including the species range, critical habitat, and known location information. EPA compared known location data to the range and critical habitat and found that the FWS known locations of currently existing (extant) populations are consistent with the location of the designated critical habitat. The species range follows geopolitical boundaries (*i.e.*, counties) and is not likely limited to the areas containing habitat of the species. The range is also much larger than the areas where known locations occur. Based on this information, EPA used the designated critical habitat as the core map.

For step 3, EPA used the designated critical habitat provided by FWS for La Graciosa Thistle. EPA downloaded the critical habitat from FWS’s ECOS (<https://ecos.fws.gov/ecp/>).

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

Alternative approaches and data were not considered in the development of this interim core map.

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

Appendix 1. Information Compiled for Species During Step 1

1. Recent FWS Documents/Links

- [La Graciosa Thistle 5-year review 2024](#) – (8/27/2024)
- [Endangered and Threatened Wildlife and Plants; Initiation of 5-Year Status Reviews of 47 Species in California, Nevada, and Oregon](#) – (8/17/2023)
- [Revised Designation of Critical Habitat for *Cirsium loncholepis* \(La Graciosa Thistle\): Final rule.](#) – (11/3/2009)
- [La Graciosa Thistle Recovery Plan](#) – (12/13/2021)
- [Species Status Assessment for La Graciosa Thistle \(*Cirsium scariosum* var. *loncholepis* \[*Cirsium loncholepis*\] Version 2.0](#) – (8/1/2020)

2. Background information

- Status: Federally listed as endangered in 1990
- Resiliency, redundancy, and representation (the 3Rs)
 - There are currently eight extant occurrences of La Graciosa Thistle, which is down from 23 known occurrences in 2020. Therefore, the redundancy of this species is reduced, and, with it, the species' ability to survive a highly consequential event. Within these eight occurrences, representation analysis indicates that the genetic diversity and spatial extent of the species is in decline. Based on the Services' resiliency analysis, five of the eight extant occurrences have very low resiliency, two extant occurrences have moderate resiliency, and one extant occurrence has high resiliency (p. 4; Species Status Assessment for La Graciosa Thistle (*Cirsium scariosum* var. *loncholepis* [*Cirsium loncholepis*]) Version 2.0).
- **Habitat, Life History, and Ecology (Source: 2021 Recovery Plan)**
 - **Habitat:** "species is restricted to coastal dune wetland, marsh and riparian habitats on sandy soils, along a small portion of the Central Coast of California."
 - **Reproduction/pollinators:**
 - Blooms from April-September
 - Pollinators include: ants, beetles, bees, butterflies and flies
- **Taxonomy**
 - FWS Category: Flowering dicot plants with biotic pollination vectors with other reproductive mechanisms unknown (group 11)
- **Essential Physical Biological Features (PBFs) for Designated Critical Habitat:**
 - Moist, sandy soils associated with dune swales, margins of dune lakes and marshes, seeps, intermittent streams, and river margins from the Guadalupe Dune complex along the coast and inland to Cañada de las Flores;
 - Plant communities that support associated wetland species, including *Juncus* spp. (rush), *Scripus* spp. (tule), and *Salix* spp. (willow); and
 - Hydrologic processes, particularly maintenance of a stable groundwater table supporting the soil moisture regime that appears to be favored by the species (Service 2004, 69 FR 12559).

- **Relevant Pesticide Use Sites in FWS Documents**
 - Pesticide threats to the species listed in FWS documents include: vegetation management through use of herbicides; spraying of ditches with herbicides; and reduction of perennial grasses and weeds with herbicides. Recovery plan notes importance of herbicides for invasive species management.

- **Relevant Recovery Criteria and Actions (Source: 2021 Recovery Plan)**
 - Downlisting criteria include: At least nine occurrences exist, with a minimum of two occurrences from each of two different population units, and they display stable or increasing trends over 10 consecutive years. Each of the nine occurrences is being consistently managed in a way that will support the continued existence of La Graciosa Thistle and its habitat.
 - De-listing criteria include: After downlisting criteria are met, then at least 13 occurrences exist, with a minimum of two occurrences from each of three different population units and they display stable or increasing trends of 10 consecutive years.
 - 1. Each of the 13 occurrences is secure from known, plausible threats including from groundwater decline, and are managed in a way that will support the continued existence of La Graciosa Thistle and its habitat.
 - 2. Recovery actions include re-establishing several extirpated occurrences including occurrence 1, 13, 14, and 16. These sites are described in the species recovery plan and are included in the designated critical habitat for this species.

3. Description of the species range

- The current geographic range is restricted to several sites within the Guadalupe-Nipomo Dunes Complex located in southwestern San Luis Obispo and northwestern Santa Barbara counties (Recovery Plan).
- Figure A1-1 depicts the current FWS species range (last updated 9/18/2019).
- The species range is approximately 316,000 acres.

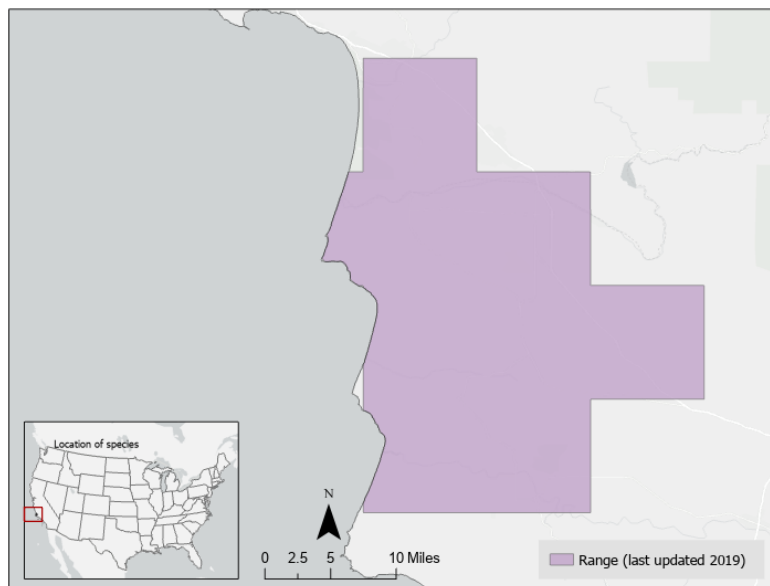


Figure A1-1. FWS Range of La Graciosa Thistle.

4. Critical Habitat (Source: 2024 Five Year Review)

- La Graciosa Thistle critical habitat designation was revised in 2009, reducing it to 24,103 ac (9,754 ha) across six units (Service 2009; 74 FR 56978–57046).
- The revised designated critical habitat units within San Luis Obispo and Santa Barbara counties included: Callender-Guadalupe Dunes (9,690 ac; 3,921 ha); Santa Maria River-Orcutt Creek (13,227 ac; 5,353 ha); Cañada de las Flores (740 ac; 299 ha); San Antonio Creek (185 ac; 75 ha); San Antonio Terrace (52 ac; 21 ha); and the Santa Ynez River (210 ac; 85 ha [Service 2009, 69 FR 56991]).
- **Figure A1-2** depicts the current critical habitat.

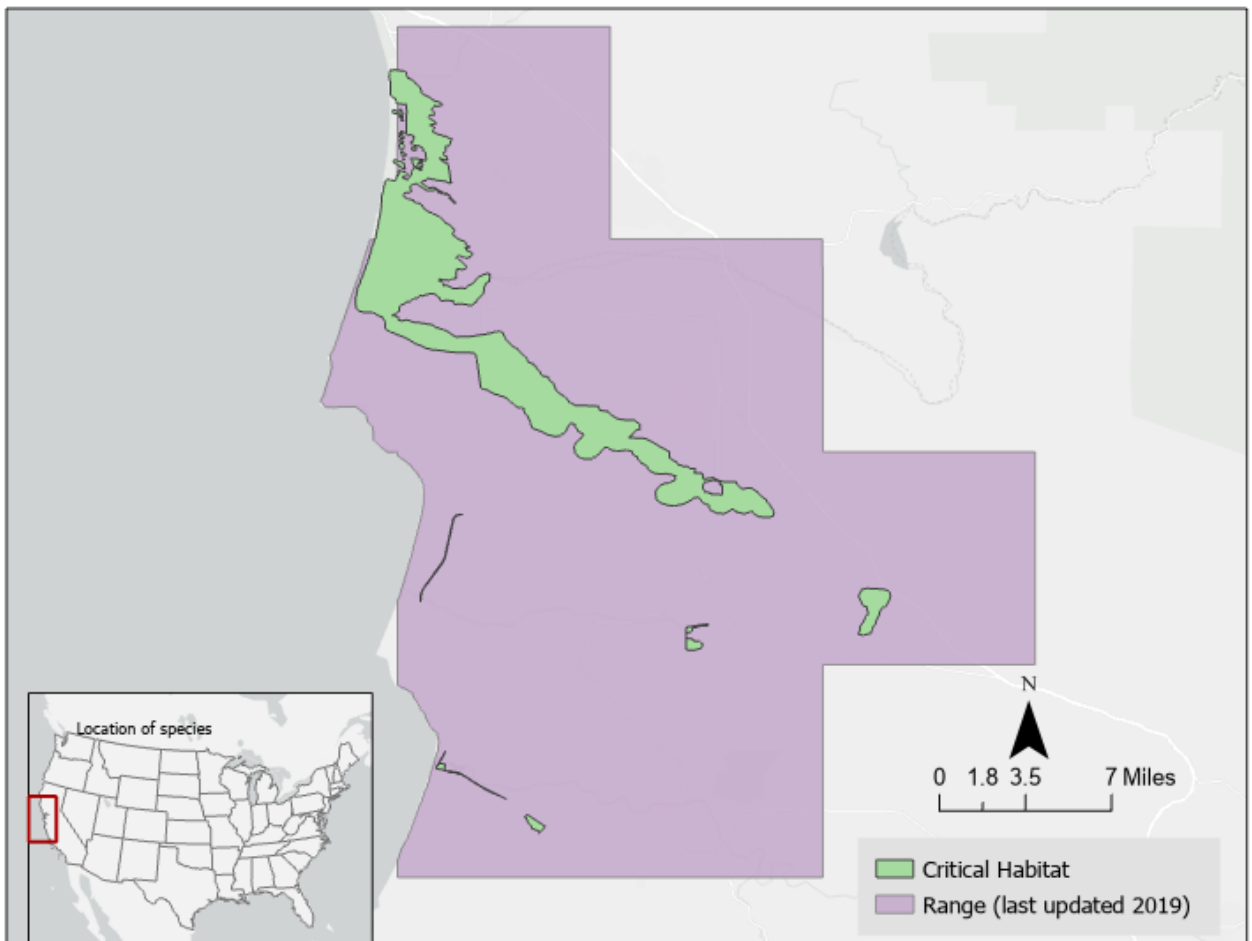
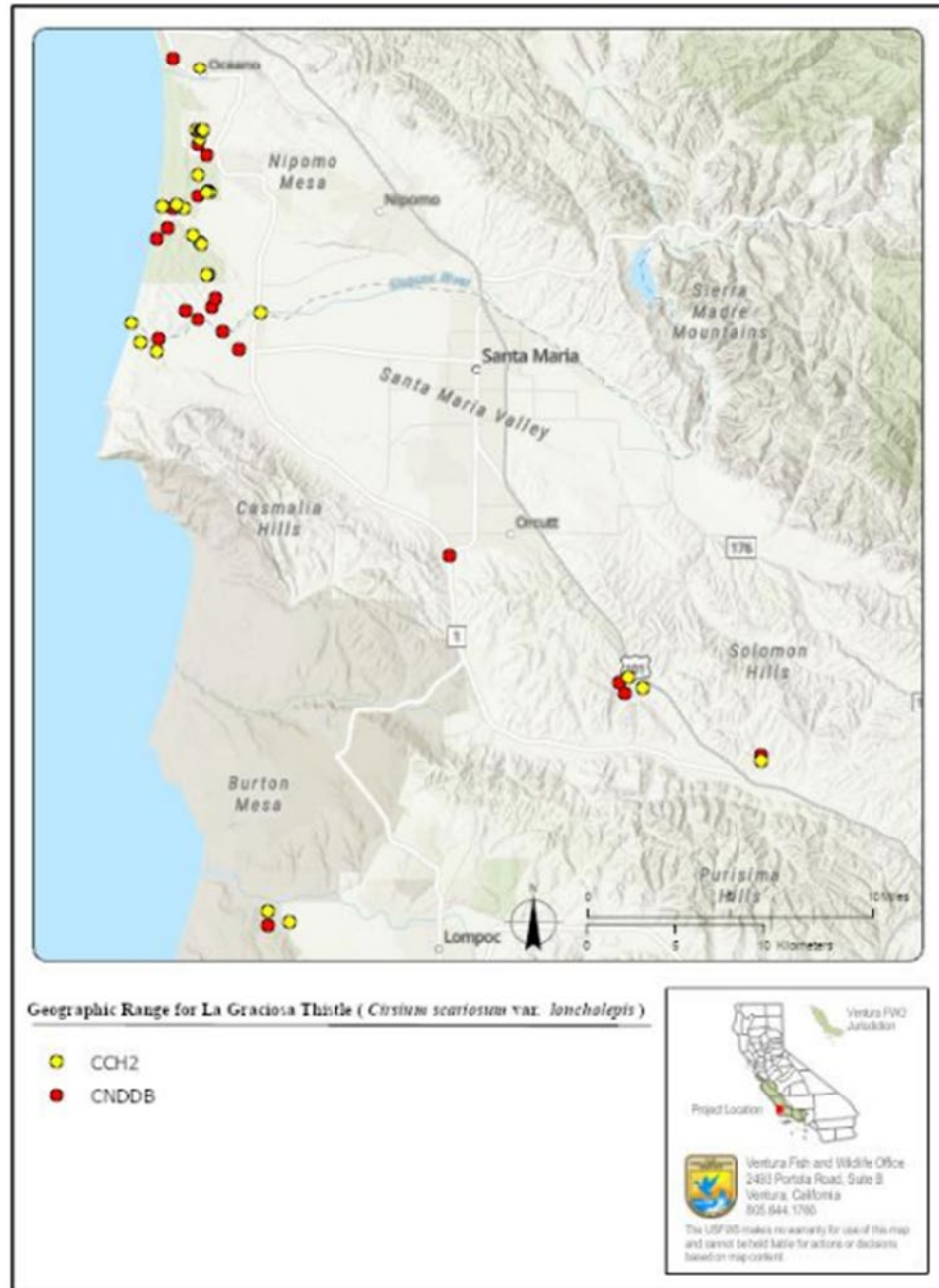


Figure A1-2. FWS critical habitat of La Graciosa Thistle. Range also included for reference.

5. Known Locations

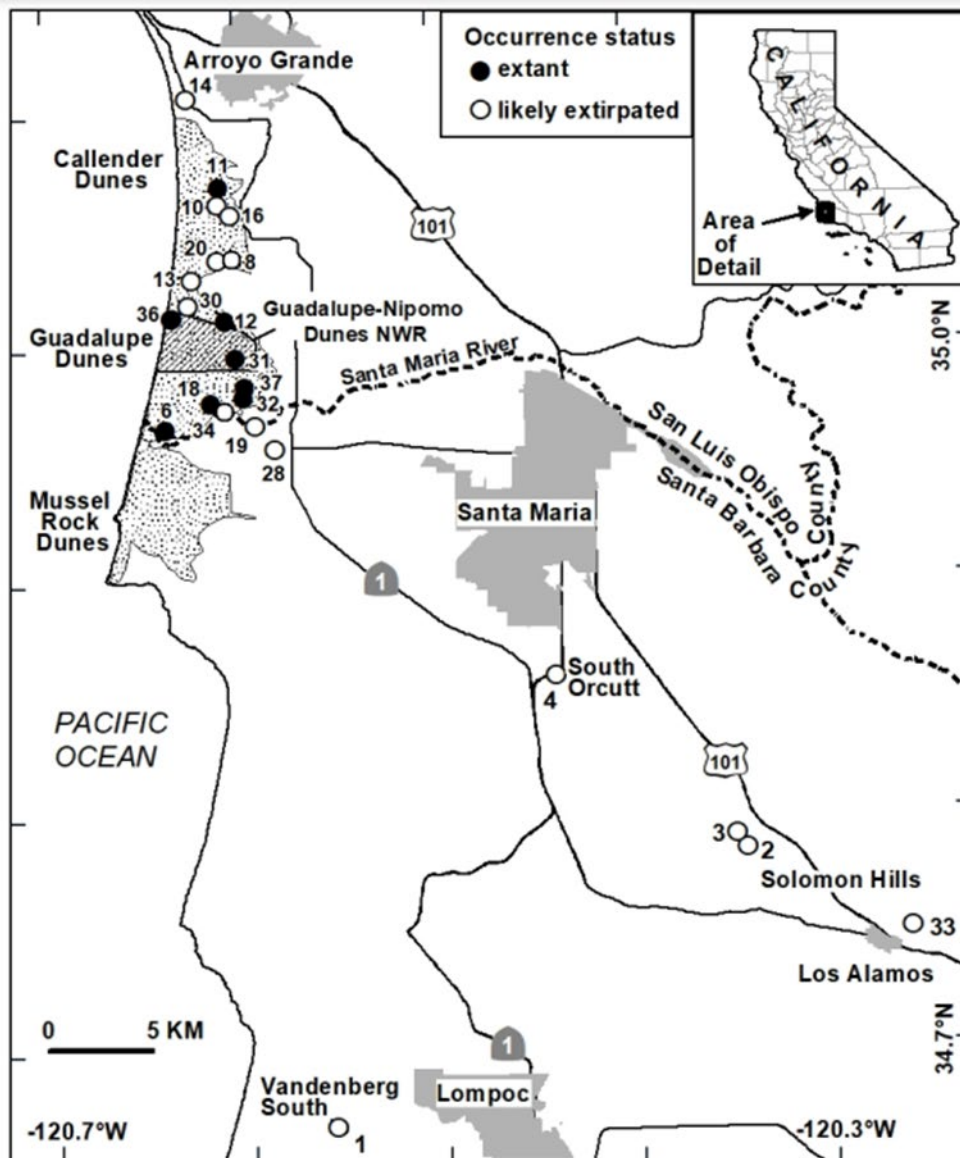
- **Known Locations Described in FWS Recovery Documents**
 - There are currently 23 known occurrences of La Graciosa Thistle.
 - Of these, eight occurrences are currently known to be extant, which includes a new occurrence established by outplanting.
 - Fifteen historically known occurrences are likely extirpated.
 - **Figure A1-3** depicts the known location data in FWS' most recent 5 year review.

- **Figure A1-4** depicts the known location data from FWS's Species Status Assessment, including extant and extirpated populations.
- When considering the locations of the current extant populations (**Figure A1-3**), they are consistent with the location of the Critical habitat (**Figure A1-2**).



Geographic range and distribution of La Graciosa thistle (*Cirsium scariosum* var. *loncholepis*), San Luis Obispo and Santa Barbara counties, California based on data from the CNDDDB and CCH2 Data Portal (CNDDDB 2024b, website; CCH2 2024, website).

Figure A1-3. Known locations of La Graciosa thistle. Reproduced from FWS 5-year review (2024).



Geographic distribution of the 23 known occurrences of La Graciosa thistle (*Cirsium scariosum* var. *loncholepis*) in San Luis Obispo and Santa Barbara Counties, California. We recognize four geographic populations, which from north to south are the following: Sand Dune Complexes (18 occurrences), South Orcutt (1 occurrence), Solomon Hills (3 occurrences), and Vandenberg South (1 occurrence). Map credit Mark Metevier.

Figure A1-4. Known locations of La Graciosa thistle. Reproduced from FWS Species Status Assessment (2020).

- **Occurrences in iNaturalist**
 - Searched on 12/11/24
 - https://www.inaturalist.org/observations?nelat=37.290859730099946&nelng=-99.73438480565868&subview=map&swlat=27.087716942194135&swlng=-127.48584964940868&taxon_id=160614
 - There are 8 research grade observations available from 2019-2024.
 - **Figure A1-5** depicts the locations of these observations.
 - Due to the coarse resolution of these data, many of the observations are mapped in the ocean. Therefore, it is unclear if these observations are in the core map area or not.

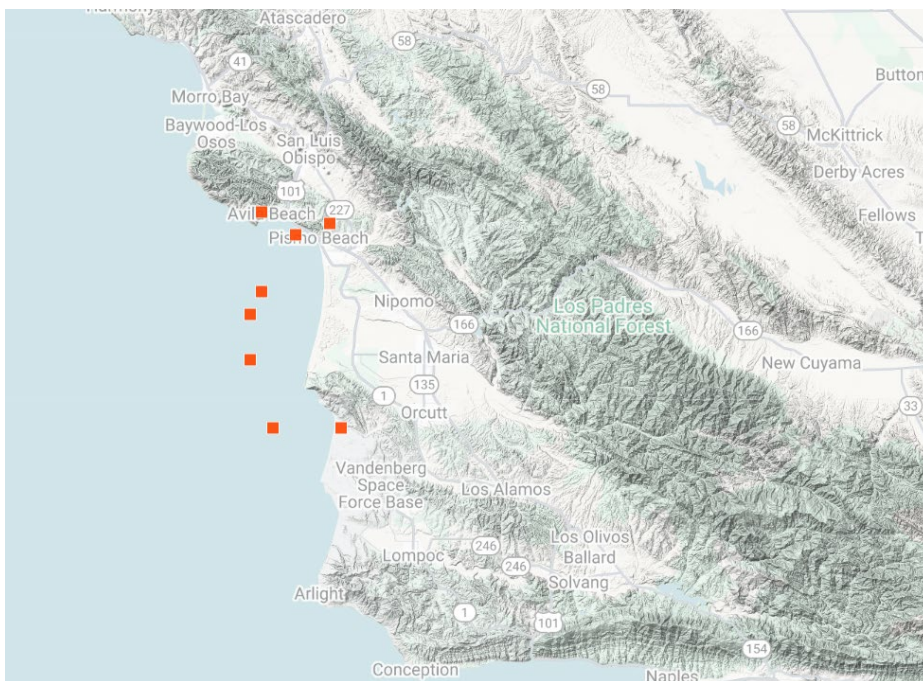


Figure A1-5. Screenshot from iNaturalist observations for La Graciosa Thistle. Area depicted is on similar scale and location as species range depicted in Figure A1-1.

Occurrences in NatureServe

- NatureServe was searched on 12/10/24
- <https://explorer.natureserve.org/pro/Welcome>
- NatureServe has 3 documented locations located within Santa Barbara County
- These locations are generally consistent with the location of the range and critical habitat

Occurrences in GBIF

- GBIF was searched on 12/11/24
- There were 26 “human observations” available for this species.
- All observations were included in either iNaturalist or NatureServe.
- https://www.gbif.org/occurrence/search?offset=0&basis_of_record=HUMAN_OBSERVATION&taxon_key=4221235

Collectively, the occurrence data from iNaturalist, GBIF, and NatureServe do not support expanding the core map beyond the designated critical habitat.