

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

California Endangered Species Act



Petition Evaluation for *Legenere* (*Legenere limosa*)

Report to the Fish and Game Commission
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LIST OF ABBREVIATIONS, ACRONYMS, AND TERMS

CESA – California Endangered Species Act
 CNDDDB – California Natural Diversity Database
 CNPS – California Native Plant Society
 Commission – California Fish and Game Commission
 CRPR – California Rare Plant Rank
 Department – California Department of Fish and Wildlife
 HCP – habitat conservation plan

EXECUTIVE SUMMARY

This petition evaluation for legenere (*Legenere limosa*) has been prepared by the California Department of Fish and Wildlife (Department) in response to the petition to list legenere as threatened under the California Endangered Species Act (CESA). The purpose of this petition evaluation is to provide a recommendation to the Fish and Game Commission (Commission) on whether the petition provides sufficient information to indicate the petitioned action may be warranted.

Legenere is an annual plant in the bellflower family (Campanulaceae) that blooms April through June. The petition describes legenere as being known from 83 occurrences in the southern Sacramento Valley and northern San Joaquin Valley, the Mount Hamilton Range and Santa Cruz Mountains in the San Francisco Bay Area, and portions of the southern North Coast Ranges, and occurring primarily in vernal pools. The petition provides an abundance estimate at 57 occurrences with population sizes ranging from one plant to more than 10,000 plants at each occurrence, with most occurrences having 100 to 10,000 plants, and provides information to suggest a declining population trend. The petition lists several threats to legenere including agricultural and developed land uses, climate change, invasive species, and incompatible grazing practices. The petition mentions that extirpation from much of its range or extinction of the species may occur because: most occurrences are threatened and the severity of some threats is increasing, many legenere occurrences are small or fragmented, and most sites occupied by the species are unprotected and not managed for the conservation of the species. Existing management efforts were reviewed and suggestions for future management actions were discussed in the petition. Information sources and a distribution map were also provided in the petition.

The Department has determined that the petition does not sufficiently address each of the required petition components listed in Fish and Game Code section 2072.3 and California Code of Regulations, title 14, section 670.1, subdivision (d)(1):

- Life history
- Range
- Distribution
- Detailed distribution map
- Kind of habitat necessary for survival
- Abundance
- Population trend
- Factors affecting the ability to survive and reproduce
- Degree and immediacy of threat
- Impact of existing management efforts

- Suggestions for future management
- Availability and sources of information

In completing its petition evaluation, the Department considered the information in the petition and other relevant information the Department possesses. The Department has determined that there is not sufficient scientific information to indicate that the petitioned action to list legere as threatened under CESA may be warranted. Therefore, the Department recommends that the Commission reject the petition for further consideration pursuant to CESA.

1 INTRODUCTION

1.1 Petition Evaluation Overview

This petition evaluation serves as the basis for the California Department of Fish and Wildlife's (Department) recommendation to the California Fish and Game Commission (Commission) on whether the petition to list legenere (*Legenere limosa*) as threatened under the California Endangered Species Act (CESA) should be accepted and considered. The recommendation is based on the sufficiency of scientific information in the petition, as well as other relevant information that was reviewed by the Department during the evaluation period.

A petition to list a species under CESA must include "information regarding the population trend, range, distribution, abundance, and life history of a species, the factors affecting the ability of the population to survive and reproduce, the degree and immediacy of the threat, the impact of existing management efforts, suggestions for future management, and the availability and sources of information. The petition shall also include information regarding the kind of habitat necessary for species survival, a detailed distribution map, and any other factors that the petitioner deems relevant" (Fish & G. Code, § 2072.3; Cal. Code Regs., tit. 14, § 670.1, subd. (d)(1)).

Once a petition is submitted to the Commission, the Department has 90 days (120 days with extension) to prepare a petition evaluation that assesses each of the petition components and makes a recommendation to the Commission as to whether there is sufficient scientific information to indicate that the petitioned action to list the species under CESA may be warranted (Fish & G. Code, § 2073.5, subds. (a)-(b)). Once completed by the Department, the petition evaluation is delivered to the Commission and placed on the agenda for receipt at the next available meeting of the Commission. At that time, the petition evaluation will be made available to the public for a 30-day public comment period prior to the Commission taking any action on the petition. The Commission then considers the petition, the Department's petition evaluation and recommendation, written comments received, and oral testimony, and will then make a finding at the next available meeting of the Commission as to whether the petition provides "sufficient information to indicate that the petitioned action may be warranted" (Fish & G. Code, § 2074.2, subd. (e)(2)). The standard for accepting a petition for consideration and assessing sufficiency of information is addressed in *Center for Biological Diversity v. California Fish and Game Commission* (2008) 166 Cal.App.4th 597.

If the Commission determines that the petitioned action may be warranted, the species becomes a candidate for CESA listing and proceeds to the status review stage of the CESA listing process. The Department then prepares a peer-reviewed report that advises

the Commission on whether the petitioned action is warranted, based upon the best scientific information available (Fish & G. Code, § 2074.6). Finally, the Commission determines whether the petitioned action to list the species as threatened or endangered is warranted, based on the Department's status review and other information in the administrative record (Fish & G. Code, § 2075.5).

1.2 CESA Petition History

On August 29, 2025, Dr. John C. Hunter submitted a petition to the Commission to list *legenere* as threatened under CESA. On September 8, 2025, the Commission referred the petition to the Department for evaluation. At its meeting on October 8, 2025, the Commission officially acknowledged receipt of the petition. At its meeting on December 10, 2025, the Commission granted the Department's request for a 30-day extension of the period to review the petition and prepare this petition evaluation.

1.3 Federal Status

Legenere has no status under the Federal Endangered Species Act (16 U.S.C. § 1531 et seq.). In 1993, the U.S. Fish and Wildlife Service provided notice that it was possibly appropriate to propose listing *legenere* as endangered or threatened, but sufficient data was not then available to support a listing proposal (58 Fed.Reg. 51144 (Sep. 30, 1993)).

1.4 Additional Species Status Designations

1.4.1 NatureServe Conservation Status Ranks

NatureServe's conservation status ranks consist of a global conservation status rank (global rank or G rank), describing the status of a given taxon over its entire global distribution, and a subnational conservation status rank (subnational rank or S rank), describing the status of a given taxon over its state distribution (Master et al. 2012). NatureServe has assigned *legenere* a global rank of G2 and a subnational rank of S2, indicating that the species is imperiled both globally and within California, with a high risk of extirpation due to one or more of the following: restricted range, few populations or occurrences, steep declines, severe threats, or other factors (CNDDB 2020, 2025).

1.4.2 California Rare Plant Rank

The California Native Plant Society (CNPS) works in collaboration with botanical experts throughout the state, including Department biologists, to assign rare plants a California Rare Plant Rank (CRPR) reflective of their rarity status (CNDDB and CNPS 2020). CNPS has assigned *legenere* a CRPR of 1B.1 (CNPS 2025). Plants with a CRPR of "1B" are considered rare, threatened, or endangered throughout their range with the

majority endemic to California (CNDDB and CNPS 2020). The threat code extension of “.1” indicates that the species is seriously threatened in California, with over 80 percent of occurrences threatened and a high degree and immediacy of threat (CNDDB and CNPS 2020).

2 SPECIES DESCRIPTION AND TAXONOMY

2.1 Species Description

Legenere is a member of the bellflower family (Campanulaceae). It is an annual plant with stems that are 10 to 30 cm (3.9 to 11.8 in) long, hairless, and tend to recline on the ground or in water (Morin 2012). Leaves are shaped like narrow triangles, attached directly to the stem, and fall from the plant early (Morin 2012). Flowers are present above leaf-like structures called bracts, and the axis of the plant’s inflorescence (grouping of flowers) forms a zig-zag pattern (Morin 2012). The flower petals are white, two-lipped, and fused together to form two lower lobes and three upper lobes (Morin 2012).

2.2 Species Taxonomy

Legenere was first described by E. L. Greene in 1890 as *Howellia limosa* (Greene 1890). In 1943, the species was moved to the new genus *Legenere* (McVaugh 1943). The currently accepted name for legenere is *Legenere limosa* (Morin 2012). The only other member of the genus is *Legenere valdiviana* which occurs in Chile and Argentina. Despite similarities, a phylogenetic analysis by Kagame et al. (2021) supports that the two species of *Legenere* are distinct.

3 SUMMARY OF PETITION COMPONENTS

Pursuant to Fish and Game Code section 2072.3 and California Code of Regulations, title 14, section 670.1, subdivision (d)(1), the Department evaluated whether the petition contained information on each of the following petition components:

- Life history
- Range
- Distribution
- Detailed distribution map
- Kind of habitat necessary for survival
- Abundance
- Population trend
- Factors affecting the ability to survive and reproduce
- Degree and immediacy of threat

- Impact of existing management efforts
- Suggestions for future management
- Availability and sources of information

The Department did not receive new information from the public during the petition evaluation period (Fish & G. Code, § 2073.4). Pursuant to Fish and Game Code section 2073.5, the Department evaluated the petition to determine whether there is, or is not, sufficient information to indicate that the petitioned action may be warranted. A summary of the relevant information from the petition for each of the petition components is presented below. For each petition component, the Department has also presented an assessment of the information provided in the petition and a summary of any relevant information in the Department's possession. Overall sufficiency of the petition is determined by looking at the information in the petition as a whole and is further discussed in the "Sufficiency of Scientific Information and Recommendation to the Commission" section of this petition evaluation. In this petition evaluation, the Department has grouped similar petition components together and renamed components to create a more cohesive and readable document.

3.1 Life History

This section summarizes the information in the petition regarding the species' life history (Fish & G. Code, § 2072.3; Cal. Code Regs., tit. 14, § 670.1, subd. (d)(1)). Section E on pages 6 and 7 of the petition provides information on the life history of *legenere*.

The petition provides a physical description of *legenere*, with descriptions of its habit, stems, leaves, flowers, inflorescence, fruits, and seeds. The petition describes *legenere* as an annual herb that germinates in late February through April and blooms April through June. The petition notes that populations of *legenere* have gone undetected for years before reappearing, indicating that the species' seed can remain dormant and viable for years. The petition also states that *legenere*'s dispersal mechanism has not been documented and may include water and animals.

3.1.1 Department Assessment

The Department considers the information provided in the petition on the life history of *legenere* to be adequate for assessing this petition component.

3.2 Range and Distribution

This section summarizes the information in the petition regarding the species' range and distribution and provides a detailed distribution map (Fish & G. Code, § 2072.3; Cal. Code Regs., tit. 14, § 670.1, subd. (d)(1)). A species' range for the purposes of CESA

and this petition evaluation is the species' range within California (Cal. Forestry Assn. v. Cal. Fish and Game Com. (2007) 156 Cal.App.4th 1535, 1551). Range describes the general geographical area in which a species occurs. Distribution describes the actual sites where individuals and populations of the species occur within the species' range. Section B on page 4 of the petition provides information on the range of legenera. Section C on pages 4 and 5 of the petition provides information on its distribution. Section L, Figure 2 on page 27 of the petition provides a distribution map, which has been provided as Figure 1 of this petition evaluation.

The petition describes legenera as a California endemic whose range includes the southern Sacramento Valley and northern San Joaquin Valley, the Mount Hamilton Range and Santa Cruz Mountains in the San Francisco Bay Area, and portions of the southern North Coast Ranges. The petition states that legenera's range comprises approximately 39,444 square kilometers (15,229 square miles), and that it occurs in Alameda, Lake, Monterey, Napa, Placer, Sacramento, Santa Clara, Shasta, San Joaquin, San Mateo, Solano, Sonoma, Stanislaus, Tehama, and Yuba counties at elevations of 1 to 880 meters (5 to 2,885 feet). The petition states that legenera is known from 83 occurrences that were documented between 1890 and 2015. The petition notes that the majority of occurrences are in either the Sacramento-Elk Grove or Vacaville-Fairfield areas, and only about one-eighth of occurrences are outside of the Central Valley. Twenty occurrences are noted in the petition as being nonspecific occurrences in which the precise location and boundaries of the species have not been documented. The petition also mentions that legenera does not have a small range and is an inconspicuous plant so it may occupy some additional, undocumented sites.

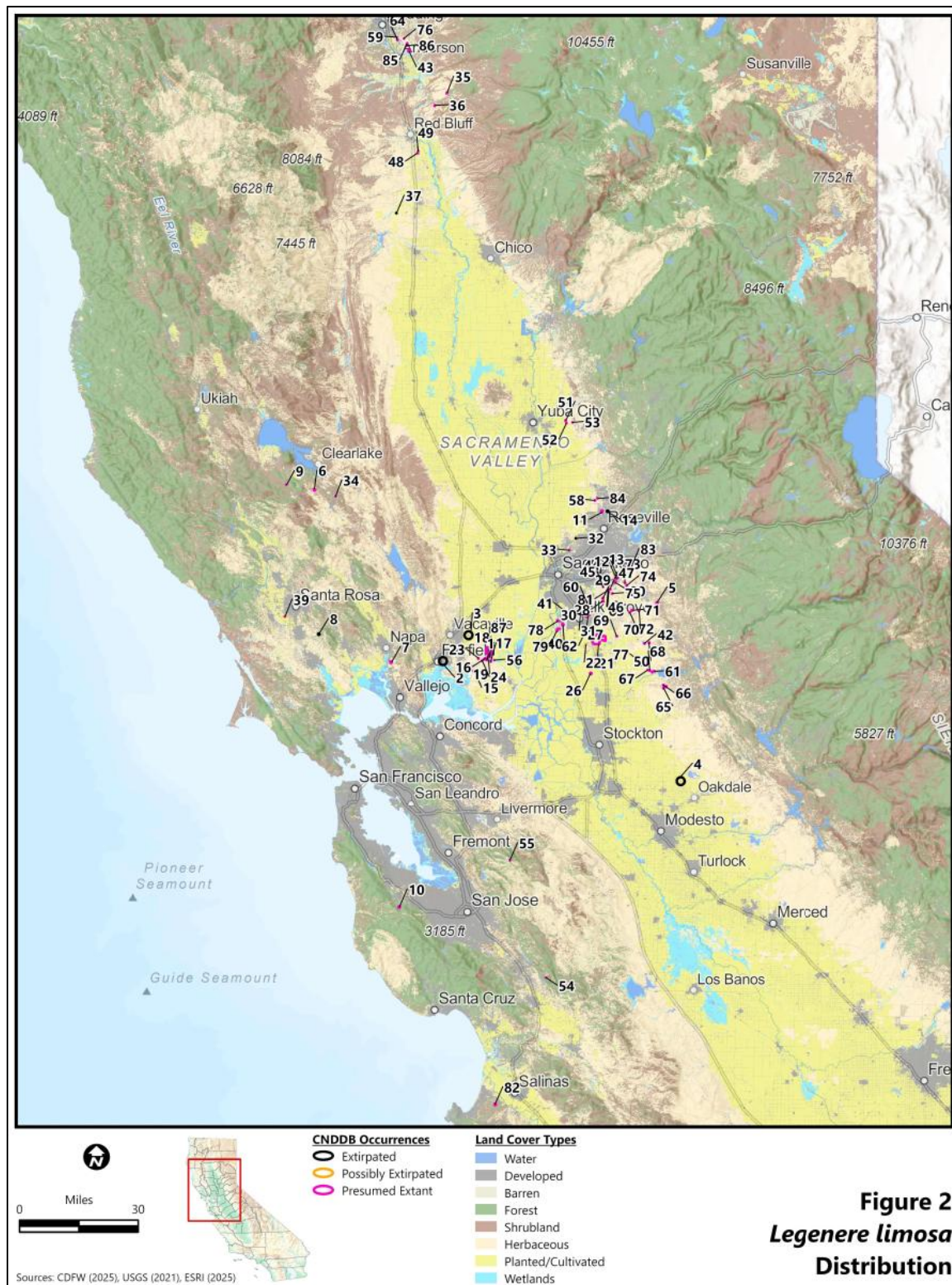


Figure 1. Map of the range and distribution of *legenere* as provided in Figure 2 of the petition. Occurrences from the California Natural Diversity Database (CNDDDB) are labeled with CNDDDB occurrence numbers. Some occurrences consist of multiple polygons.

3.2.1 Department Assessment

Range and distribution of *legenere* are presented in the petition based on data from the California Natural Diversity Database (CNDDDB); however, no discussion is provided on the completeness of the information presented including whether the CNDDDB data represents the complete range and distribution of the species, whether additional information on range and distribution is available for the species that is not reflected in the CNDDDB data, or whether any survey efforts have been made to confirm or ascertain the full range and distribution of the species. Without further discussion explaining why the information provided in the petition is a scientifically defensible assessment of the range and distribution of the species, the Department is unable to properly determine whether the petition provides a reasonable explanation of the range and distribution of the species, or whether other petition components that rely on knowing the range and distribution of the species have been properly assessed.

The Department has some additional, readily available information from the CNDDDB not presented in the petition. The CNDDDB updated its information on *legenere* in November 2025 and added nine additional occurrences of the species for a total of 92 documented occurrences. The CNDDDB also has an unprocessed online field survey form for the species which appears to be an update to an existing occurrence. While this additional, readily available information contributes to our current knowledge on the range and distribution of *legenere*, this information does not compensate for deficiencies in data in the petition for these topics. The information presented in the petition, considered alongside readily available information from the Department, is not adequate for assessing the range and distribution of *legenere*.

3.3 Habitat

This section summarizes the information in the petition regarding the kind of habitat necessary for species survival (Fish & G. Code, § 2072.3; Cal. Code Regs., tit. 14, § 670.1, subd. (d)(1)). Section F on page 7 of the petition provides information on the kind of habitat necessary for *legenere* survival.

The petition states that *legenere* occurs in vernal pools. The petition states that these pools may be deeper pools that may be inundated for long periods, shallower pools with shorter periods of inundation, and also saline/alkaline pools. The petition also notes that *legenere* may grow in artificial ponds and along intermittent streams. The petition mentions that 74 plant species were documented to co-occur with *legenere* in sample plots with 14 of the 74 plant species in the plots being not native (Barbour et al. 2007).

3.3.1 Department Assessment

The Department considers the information provided in the petition on the kind of habitat necessary for survival of *legenere* to be adequate for assessing this petition component.

3.4 Abundance and Population Trend

This section summarizes the information in the petition regarding the species' abundance and population trend (Fish & G. Code, § 2072.3; Cal. Code Regs., tit. 14, § 670.1, subd. (d)(1)). Section D on pages 5 and 6 of the petition provides information on the abundance of *legenere*. Section A on pages 3 and 4 of the petition provides information on the population trend of *legenere*.

The petition summarizes information on the abundance of *legenere* at 57 CNDDDB occurrences with population sizes ranging from one plant to more than 10,000 plants at each occurrence, with most occurrences having 100 to 10,000 plants. The petition explains that 10 occurrences have population counts for more than one year and abundance at these occurrences varied substantially among years. The petition states that range-wide, multi-year monitoring of *legenere* has not been conducted and, thus, a rigorous estimate of the total number of plants cannot be made. The petition estimates the area of occupied habitat to be less than 241 hectares (596 acres) based on CNDDDB polygon data.

The petition states that, based on information from the CNDDDB and land cover mapping from the U.S. Geological Survey, *legenere* has a decreasing population trend because of loss and degradation of occupied habitat at many of the 83 sites where the species has been observed. The petition lists 29 occurrences that are either extirpated, possibly extirpated, not observed during recent site visits, have a declining population trend, or have a poor or fair population viability in the CNDDDB, and reports 22 occurrences that are either likely extirpated or likely experiencing degradation or loss of habitat based on land cover mapping. The petition states that the species may have had additional, undocumented reductions in its populations that occurred before the distribution of *legenere* was well documented.

3.4.1 Department Assessment

Abundance of *legenere* is provided in the petition based primarily on population estimates reported in the CNDDDB; however, no discussion is provided on the completeness of the information including whether there have been efforts to estimate population sizes at all occurrences, whether the population estimates are historical or recent, and whether the population estimates are based on complete or partial surveys

of the occurrences. Area of occupied habitat is estimated in the petition as an indicator of abundance using CNDDDB polygon data which the Department considers to be an inappropriate use of CNDDDB data. CNDDDB polygons are typically mapped to include a buffer that represents the locational accuracy of the data and therefore should not be used to determine area occupied by the species.

Population trend of *legenere* is determined in the petition to be declining based on: 1) the number of CNDDDB occurrences that are designated as extirpated, possibly extirpated, not observed during recent site visits, with a decreasing population trend, or with a poor or fair population viability, 2) the use of CNDDDB polygon data overlaid on land cover mapping to report the extent of any overlap between the CNDDDB polygon data with development or agriculture, and 3) the historical and ongoing changes to vernal pool landscapes. No discussion is provided in the petition on the completeness of the information, including whether any recent efforts have been made to update information on the presence and condition of *legenere* occurrences or whether population declines at some occurrences have resulted in a population decline throughout the species' range. The petition uses CNDDDB polygon data overlaid on land cover mapping to report on the extent of overlap between CNDDDB polygons with development or agriculture to determine additional occurrences that may be experiencing a declining population trend. CNDDDB polygons are typically mapped to include a buffer that represents the locational accuracy of the data, and the petition does not indicate if development or agriculture shown on aerial imagery overlapped with the portion of the CNDDDB polygon that was previously occupied by the species or within areas that were once appropriate habitat for the species. In addition, the statements in the petition about changes to vernal pool landscapes likely causing additional, undocumented habitat losses, population reductions, or both to *legenere* are too general and do not specifically identify impacts to habitat likely to have contained *legenere*.

The Department has some additional, readily available information not presented in the petition. The CNDDDB updated its information on *legenere* in November 2025 and added nine additional occurrences of the species and updated 28 existing occurrences; some of these additions and updates included abundance data and/or updated observation dates. The CNDDDB also has an unprocessed online field survey form for the species which appears to be an update to an existing occurrence; this form also includes abundance information. In addition, regional Department staff indicate that *legenere* is never very common at Dales Lake Ecological Reserve. While this additional, readily available information contributes to our current knowledge on abundance of *legenere*, this information does not compensate for deficiencies in data for these topics. The information presented in the petition, considered alongside readily available information from the Department, is not adequate for assessing the abundance and population trend of *legenere*.

3.5 Threats

This section summarizes the information in the petition regarding the factors affecting the ability of the species to survive and reproduce, and the degree and immediacy of threats (Fish & G. Code, § 2072.3; Cal. Code Regs., tit. 14, § 670.1, subd. (d)(1)). Section G on pages 8 through 14 of the petition provides information on factors affecting the ability of legenera to survive and reproduce (threats). Section H on pages 14 through 16 of the petition provides information on the degree and immediacy of threats to legenera.

The petition lists several prominent range-wide threats to legenera: agricultural and developed land uses, climate change, invasive species, and incompatible grazing practices. The petition states that disease, disking, feral pigs, foot traffic/trampling, landfill, mining, recreation use including off-road vehicle activity, road/trail construction/maintenance, and vandalism/dumping have been observed by botanists as additional threats affecting occurrences based on CNDDDB data.

The petition describes agricultural and developed land uses as major threats to legenera because these land uses have been directly eliminating, fragmenting, and increasing threats to the remaining habitat. The petition notes that according to the CNDDDB and the interpretation of land cover mapping in the petition showing agriculture and development in relation to CNDDDB occurrences of legenera, 77% of specifically mapped, extant occurrences have experienced loss or degradation of habitat due to agriculture and development.

The petition states that climate change directly and indirectly threatens legenera by altering growing conditions, water availability, and frequency and intensity of disturbances. The petition also notes that climate change can alter interactions of the plant with pollinators, dispersers, fungal symbionts, seed predators, herbivores, and competitors. The petition states that the magnitude of climate change impacts on legenera is uncertain but may be substantial, particularly because of the species' limited range, rarity, habitat specificity, and distribution in relatively small and isolated areas.

The petition states that invasive species are likely a significant, range-wide threat to legenera. The petition notes that invasive species are already widespread and abundant in vernal pools and surrounding grasslands and the invasive species low manna grass (*Glyceria declinata*) is spreading in legenera's range. The petition states that infestations of invasive species can directly affect the conditions or resources legenera relies on, thereby reducing abundance and making the species more vulnerable to extirpation from other causes.

The petition states that incompatible grazing practices have been identified as a threat to more than half of legenera occurrences. The petition provides information that heavy livestock grazing can directly threaten occurrences by trampling and consuming plants

and by damaging the soil surface, particularly at locations where livestock may congregate, such as near water features. The petition also notes that the cessation of grazing can also threaten occurrences of legenera because ungrazed vernal pools have substantially greater cover of nonnative invasive grasses, shorter inundation periods, and less cover and richness of native species.

The petition states that without additional management actions, there is a moderate to high likelihood that legenera will be extirpated from much of its range or become extinct. The petition mentions that this may occur because: most occurrences are threatened and the severity of some threats is increasing, many legenera occurrences are small or fragmented, and most sites occupied by the species are unprotected and not managed for the conservation of the species.

3.5.1 Department Assessment

Factors affecting the ability of legenera to survive and reproduce, and the degree and immediacy of threats, are presented in the petition based primarily on threat data reported in the CNDDDB. Threats listed in the CNDDDB can be representative of various types of threat data, including current threats, future threats, past threats, threats affecting a small portion of the site, threats in one year but not another, etc. The petition also presents climate change as a threat to legenera that is not listed in the CNDDDB. None of these threats are described in adequate detail in relation to legenera and the petition does not provide information on the degree and immediacy of these threats for the species.

The petition uses CNDDDB polygon data overlaid on land cover mapping to see if there is any overlap between the CNDDDB polygon data with development or agriculture to determine additional occurrences that may be experiencing threats. CNDDDB polygons are typically mapped to include a buffer that represents the locational accuracy of the data, and the petition does not indicate if development or agriculture shown on aerial imagery overlapped with the portion of the CNDDDB polygon that was previously occupied by the species or within areas that were once appropriate habitat for the species. Further discussion is needed on the use of aerial imagery to provide an accurate reflection of the degree of threat that development and agriculture are currently having on legenera.

The petition also mentions small size of occupied sites, few individuals, and lack of protection and management, as additional reasons why legenera is likely to be extirpated from much of its range or become extinct. The petition has not accurately represented the size of the occupied sites and has not fully assessed the number of individuals. The petition also does not discuss what the unprotected lands with legenera

are being used for and how that land use is threatening, or potentially threatening, the species.

The Department has some additional, readily available information not presented in the petition. The CNDDDB updated its information on legenera in November 2025 and added nine additional occurrences of the species and updated 28 existing occurrences; some of these additions and updates included threat information. In addition, regional Department staff indicate that most of the legenera occurrences in Tehama County have been converted to development or orchards. While this additional, readily available information contributes to our current knowledge on threats for legenera, this information does not compensate for deficiencies in data for these topics. The information presented in the petition, considered alongside readily available information from the Department, is not adequate for assessing the factors affecting the ability of legenera to survive and reproduce, or the degree and immediacy of threats to legenera.

3.6 Existing Management

This section summarizes the information in the petition regarding the impact of existing management efforts on the species (Fish & G. Code, § 2072.3; Cal. Code Regs., tit. 14, § 670.1, subd. (d)(1)). Section I on pages 16 through 19 of the petition provides information on the impact of existing management efforts on legenera.

The petition states that management of legenera has been very limited, has not sufficiently addressed threats to the species, and consequently has not resulted in significant conservation of the species. The petition describes the impact of several management categories including legal protection, preservation and seed banking, management and monitoring, restoration, and surveys and research.

The petition describes legenera as having no legal protection but says that the species is covered by several federal habitat conservation plans including the South Sacramento Habitat Conservation Plan (HCP), Pacific Gas & Electric Company San Joaquin Valley Operations and Maintenance HCP, San Joaquin County Multi-Species Habitat Conservation and Open Space Plan, and Natomas Basin HCP. The petition describes habitat loss permitted and preservation goals for legenera under the South Sacramento HCP and avoidance and minimizations under the Pacific Gas & Electric Company San Joaquin Valley Operations and Maintenance HCP. The petition explains that neither temporary disturbance nor permanent loss of legenera habitat are allowed without additional approval under the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan. The petition states that legenera is covered by the Natomas Basin HCP but the species has not been documented in the Natomas Basin. The petition notes that legenera has a CRPR of 1B.1 and should be treated as a special-status species during

environmental review under the California Environmental Quality Act. The petition also notes that legenera has been designated by the Bureau of Land Management as a sensitive species and impacts to the species should be considered during environmental review under the National Environmental Policy Act.

The petition states that approximately 25% of legenera occurrences are on land managed for biodiversity. The petition mentions that seeds of legenera have been collected and placed in long-term storage at University of California Botanical Garden at Berkeley.

The petition notes that approximately a quarter of legenera occurrences are at least partially on lands that are managed to maintain habitats, and that land managers routinely implement avoidance and minimization measures for habitats. The petition mentions that none of the legenera occurrences are the subject of systematic, formal monitoring.

The petition states that no efforts have been made to restore or create habitat occupied by legenera although vernal pools have been created as part of mitigation to offset the destruction of natural vernal pools and these pools could provide habitat for legenera. The petition discusses how surveys have not been conducted to confirm the continued existence of legenera at all sites, surveys have not been conducted to more precisely map nonspecific occurrences of legenera, and range-wide surveys of potential habitat have not been conducted to search for additional, undocumented populations. The petition states that research has not been conducted on the species' genetic diversity, pollination, dispersal, establishment, interactions with other species, population dynamics, or other aspects of its ecology, and therefore understanding of the species' ecology is based primarily on observations by botanists.

3.6.1 Department Assessment

The Department considers the information provided in the petition on impact of existing management efforts on legenera to be adequate for assessing this petition component.

3.7 Future Management

This section summarizes the information in the petition regarding suggestions for future management (Fish & G. Code, § 2072.3; Cal. Code Regs., tit. 14, § 670.1, subd. (d)(1)). Section J on pages 19 through 21 of the petition provides suggestions for future management of legenera.

The petition provides a list of suggestions for future management including:

- list the species under CESA and prepare a recovery plan for it,
- include the species as a focal species in regional conservation investment strategies and as a covered species in natural community conservation plans,
- preserve occupied sites in perpetuity,
- develop and implement site-specific monitoring and management plans,
- manage extant populations to prevent the spread of invasive species and eradicate existing infestations,
- implement compatible grazing practices,
- implement measures to prevent impacts from recreational activities,
- establish a memorandum of understanding with Sacramento County Department of Transportation and Napa Valley Public Works Department regarding maintenance activities,
- coordinate and share information among organizations working to conserve the species,
- coordinate with and support private landowners implementing conservation practices in occupied habitat,
- restore degraded, occupied habitat,
- establish additional populations,
- conduct surveys to improve data on distribution and abundance,
- document genetic diversity, and
- investigate the species' population ecology to inform conservation and management.

3.7.1 Department Assessment

The Department considers the information provided in the petition on suggestions for future management of legnere to be adequate for assessing this petition component.

3.8 Availability and Sources of Information

This section summarizes the information in the petition regarding availability and sources of information (Fish & G. Code, § 2072.3; Cal. Code Regs., tit. 14, § 670.1, subd. (d)(1)). Section J on pages 21 through 24 of the petition provides the sources of information used in the legnere petition. Digital copies of references cited were also provided to the Commission and Department.

3.8.1 Department Assessment

The Department received digital copies of references cited in the petition and considers this to be adequate to address the availability and sources of information mentioned in the petition for legenera.

4 OTHER RELEVANT INFORMATION AVAILABLE TO THE DEPARTMENT

Pursuant to Fish and Game Code section 2073.5, the Department also evaluates petitions in relation to other relevant information the Department possesses or receives. The Department evaluated readily available information relating to legenera that is available from the Department's document library and the CNDDDB, including data housed in the CNDDDB's unprocessed data layer. Regional Department staff were also contacted to determine if additional information on the species was readily available and in the possession of Department staff. Any relevant information from these sources is mentioned within the "Department Assessment" section for each petition component.

To the extent the Department was able to review other relevant information in its possession as it relates to the petition, the Department concluded that none of the additional information compensates for data deficiencies in the petition. If the Commission accepts the petition for consideration, regardless of the Department's recommendation, all reasonable attempts will be made by the Department to notify affected and interested parties and to solicit data and comments on the petitioned action (Fish & G. Code, § 2074.4). At that time, the Department will commence a review of the status of the species and produce a written peer-reviewed report, based upon the best scientific information available to the Department, which indicates whether the petitioned action is warranted (Fish & G. Code, § 2074.6).

5 SUFFICIENCY OF SCIENTIFIC INFORMATION AND RECOMMENDATION TO THE COMMISSION

The Department evaluated the petition components set forth in Fish and Game Code section 2072.3 and California Code of Regulations, title 14, section 670.1, subdivision (d)(1) for sufficiency of information pursuant to Fish and Game Code section 2073.5. Based upon the information contained in the petition and other relevant information, the Department determined there is not sufficient information to indicate that the petitioned action may be warranted (Fish & G. Code § 2073.5).

In this petition evaluation, the Department has assessed the information in the petition for each petition component individually; however, sufficiency of the petition as a whole is ultimately determined by looking at all petition components taken together. The

Department considers scientifically defensible information on range and distribution to be critical for determining sufficiency of the petition. For *legenere*, the Department has determined that information is lacking for the following petition components: range, distribution, abundance, population trend, factors affecting the ability of the species to survive and reproduce (threats), and the degree and immediacy of threats. Due to the lack of adequate information on these petition components, the Department does not consider the information in the petition to be sufficient as a whole for assessing whether listing *legenere* under CESA may be warranted and recommends the Commission reject the petition and not consider it further under CESA.

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