Plant Risk Evaluator -- PRE™
Evaluation Report

Pancratium maritimum -- California

2022 Western IPM Grant Project

PRE Score: 11 -- Low Potential Risk
Confidence: 75 / 100
Questions answered: 20 of 20 -- Valid (80% or more questions answered)

Privacy: Public
Status: Completed

Evaluation Date: December 16, 2022

This PDF was created on May 22, 2025

This project was funded in part by the USDA National Institute of Food and Agriculture through the Western Integrated Pest Management Center, grant number 2018-70006-28881.

Plant Evaluated

Pancratium maritimum

Image by Diana Wing

Evaluation Overview

A PRE™ screener conducted a literature review for this plant (*Pancratium maritimum*) in an effort to understand the invasive history, reproductive strategies, and the impact, if any, on the region's native plants and animals. This research reflects the data available at the time this evaluation was conducted.

Summary

Pancratium maritimum (Sea daffodil) is a perennial geophyte native to the Canary Islands and Mediterranean region of Eurasia to the Black Sea coast. It typically occurs in loose sandy soils, such as coastal sand dunes. It is available and popular as a curiosity in the ornamental trade. Sea daffodil has a low stature and is relatively slow growing, but able to reproduce both vegetatively and through seeds, its primary mode of reproduction. Its seeds can float and survive long periods of exposure to sea water without losing dormancy and the plant is mildly toxic to a variety of organisms. Sea daffodil has naturalized in California, the Bermuda, and the Azores. To date no other region has formally listed sea daffodil as invasive and, though it may disrupt some local ecological processes such as dune movement and grazing / herbivory patterns, there is currently insufficient evidence to conclude that it is invasive at a larger scale.

General Information

Status: Completed
Screener: Jutta Burger
Evaluation Date: December 16, 2022

Plant Information

Plant: *Pancratium maritimum*

Regional Information

Region Name: California

Climate Matching Map

To answer four of the PRE questions for a regional evaluation, a climate map with three climate data layers (Precipitation, UN EcoZones, and Plant Hardiness) is needed. These maps were built using a toolkit created in collaboration with GreenInfo Network, USDA, PlantRight, California Invasive Plant Council, and The Information Center for the Environment at UC Davis.

Click here to see the generated climate matching map for this region. This climate match database is hosted by GreenInfo Network and publicly accessible.

Evaluation Questions

These questions are based on an article published by PLOS One, which can be found here: https://doi.org/10.1371/journal.pone.0121053.

Invasive History and Climate Matching (Questions 1 - 6)

1. Has the species (or cultivar or variety, if applicable; applies to subsequent "species" questions) become naturalized where it is not native?

- Answer: **Yes**, which contributes **1** point(s) to the total PRE score.
- The *screener* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Pancratium maritimum has naturalized in California, the Azores, and Bermuda. It is also recorded from several other locations in the United States (e.g., Tennessee, Mississippi, Louisiana), with occurrences outside of gardens or cultivation and potentially naturalized. The first herbarium collection record in the wild in California was from El Segundo Dunes, in 1987, where the species apparently still persists. Since then it has been observed to be spreading locally in coastal dune habitat in Ventura County. It is native to the Mediterranean coastline of Eurasia and northern Africa, as well as the Atlantic coastline of Spain, the Canary Islands, and the Black Sea. Pancratium maritimum is considered a sensitive species in parts of its range, where open sand dune habitat is being lost through development.

Reference(s):

- USDA Plants Database (2022). Taxon page: Pancratium maritimum (accessed 19 Dec. 2022).
- Calflora (2022). Taxon report: Pancratium maritimum.
- Wikipedia contributors (2022). Pancratium maritimum –- Wikipedia, The Free Encyclopedia.
- CCH2 Portal (2022). Pancratium maritimum collection records (accessed 19 Dec. 2022).
- Sanaa, A., Ben Abid S., Boulila A., Messaoud C., Boussaid M., & Ben Fadhel N. (2015). Modeling hydrochory effects on the Tunisian island populations of Pancratium maritimum L. using colored Petri nets. BioSystems. 129, 19–24.
- Zahreddine, H., Clubbe C., Baalbaki R., Ghalayini A., & Talhouk SN. (2004). Status of native species in threatened Mediterranean habitats: the case of Pancratium maritimum L.(sea daffodil) in Lebanon. Biological Conservation. 120, 11–18.
- Kew Royal Botanical Gardens (2023). Plants of the World Online: Pancratium maritimum L..
- GBIF Secretariat (2022). Pancratium maritimum: GBIF Backbone Taxonomy. Checklist dataset https://doi.org/10.15468/39omei (accessed 20 Dec. 2022).

2. Is the species (or cultivar or variety) noted as being naturalized in the US or world in a similar climate?

- Answer: **Yes**, which contributes **2** point(s) to the total PRE score.
- The *screener* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Pancratium maritimum has naturalized in California. The first herbarium collection from the wild in California was from El Segundo Dunes in 1987 and it has since been well documented as persisting and reproducing locally in Ventura County coastal dune habitat. To date (2023), southern California is the only region worldwide where it has naturalized in a climate that matches the climate of California (see Climate Match map for California).

Reference(s):

- CCH2 Portal (2022). Pancratium maritimum collection records (accessed 19 Dec. 2022).
- USDA Plants Database (2022). Taxon page: Pancratium maritimum (accessed 19 Dec. 2022).
- Calflora (2022). Taxon report: Pancratium maritimum.
- McNeal, D.W. (2012). Pancratium L., in Jepson Flora Project (eds.) Jepson eFlora (accessed 20 Dec. 2022).

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3. Is the species (or cultivar or variety) noted as being invasive in the U.S. or world?

- Answer: **No**, which contributes **0** point(s) to the total PRE score.
- The *screener* has a **Low** confidence in this answer based on the available literature.

Answer / Justification:

I could not find any reports of Pancratium maritimum's status as an invasive plant in the U.S. or world. It is considered problematic in the coastal dunes of Ventura, CA (J. Beall, pers. comm.) and has naturalized in the Azores and the Bahamas.

Reference(s):

- Randall, R.P. (2017). A Global Compendium of Weeds. Third Edition..

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4. Is the species (or cultivar or variety) noted as being invasive in the US or world in a similar climate?

- Answer: **No**, which contributes **0** point(s) to the total PRE score.
- The *screener* has a **Low** confidence in this answer based on the available literature.

Answer / Justification:

I could not find any formal designation of Pancratium maritimum's status as an invasive plant in areas with climates similar to California. Randall (2017) does not list it as being invasive in any region and gives it a low global ranking for invasiveness. However, it is considered problematic in the coastal dunes of Ventura, CA (J. Beall, pers. comm.).

Reference(s):

- Randall, R.P. (2017). A Global Compendium of Weeds. Third Edition..

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5. Are other species of the same genus (or closely related genera) invasive in a similar climate?

- Answer: **No**, which contributes **0** point(s) to the total PRE score.
- The *screener* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

Other species of Pancratium appear to be less common than P. maritimum and none appear to have been identified as being invasive.

Reference(s):

- Randall, R.P. (2017). A Global Compendium of Weeds. Third Edition..

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6. Is the species (or cultivar or variety) found predominately in a climate matching the region of concern?

- Answer: **Yes**, which contributes **2** point(s) to the total PRE score.
- The *screener* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

The native range of Pancratium maritimum (Mediterranean coastal region of Europe, western Asia, and north Africa, as well as Atlantic coast of southern Europe) largely matches the climate of California. Overall, more than half of its distribution overlaps with areas matching California's climate, especially when areas of highest abundance are considered (see Climate Match map and GBIF).

Reference(s):

- GBIF Secretariat (2022). Pancratium maritimum: GBIF Backbone Taxonomy. Checklist dataset https://doi.org/10.15468/39omei (accessed 20 Dec. 2022).

Impact on Native Plants and Animals (Questions 7 - 10)

7. Does this plant displace native plants and dominate (overtop or smother) the plant community in areas where it has established?

- Answer: **No**, which contributes **0** point(s) to the total PRE score.
- The *screener* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

This species occurs as sparsely distributed clumps in coastal sand dunes and is not described as a species that forms dense monocultures that overtop other species. Pancratium maritimum is also relatively low in stature (

8. Is the plant noted as promoting fire and/or changing fire regimes?

- Answer: **No**, which contributes **0** point(s) to the total PRE score.
- The *screener* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

The presence of seasonal leaves and low stature, in addition to its preferred habitat of active sand dunes with low vegetation cover strongly suggest that Pancratium maritimum does not alter fire regimes.

Reference(s):

- McNeal, D.W. (2012). Pancratium L., in Jepson Flora Project (eds.) Jepson eFlora (accessed 20 Dec. 2022).

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9. Is the plant a health risk to humans or animals/fish? Has the species been noted as impacting grazing systems?

- Answer: **Yes**, which contributes **1** point(s) to the total PRE score.
- The *screener* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

All species in the Amaryllidaceae produce alkaloids that have cytotoxic effects, and Pancratium maritimum is no exception. The bulb is considered toxic to humans, though alkaloids that it produces are also being studied for their anti-cancer and other medicinal properties. A mild toxic response was found in rats in feeding trials (Davo 2021). Pancratium and many other Amaryllidaceae are toxic to most generalist insects, a trait that may facilitate their spread in environments where they are not native. Zahreddine et al. (2004) report that high abundance of Pancratium maritimum at two sites within its native range is likely a result of rabbits being introduced and removing competing vegetation, but avoiding the species. The authors also mention a local report of the odor of Pancratium's flowers being so intense and apparently distasteful to sheep that they avoided a site with these plants. This inferred impact on a "grazing systems" supports the answer of "yes" with "medium" confidence. This species is not likely to directly cause poisoning in humans, livestock, or wildlife because the opportunity for exposure and ingestion is so low in the field.

Reference(s):

- Davo, A., Assogba M. Fidèle, Aïkpe J. Ahounou, Ahoton D., Kinsou L. D. C., Ladekan E. Yayi, et al. (2021). Sub-acute Oral Toxicity of Pancratium trianthum Herb.(Amaryllidaceae) Bulb’s Aqueous and Ethanolic Extracts in Wistar Rat. American Journal of Applied Chemistry. 9, 164–170.
- Zahreddine, H., Clubbe C., Baalbaki R., Ghalayini A., & Talhouk SN. (2004). Status of native species in threatened Mediterranean habitats: the case of Pancratium maritimum L.(sea daffodil) in Lebanon. Biological Conservation. 120, 11–18.

10. Does the plant produce impenetrable thickets, blocking or slowing movement of animals, livestock, or humans?

- Answer: **No**, which contributes **0** point(s) to the total PRE score.
- The *screener* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

This species occurs as sparse colonies coastal sand dunes. I could find no reports of Pancratium maritimum forming dense thickets. It is also relatively low in stature (

Reproductive Strategies (Questions 11 - 17)

11. Does this species (or cultivar or variety) reproduce and spread vegetatively?

- Answer: **Yes**, which contributes **1** point(s) to the total PRE score.
- The *screener* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Paradiso et al. (2009) report that the production of bulblets is a common form of clone expansion, though the rate of reproduction via bulblets is slow, with only 1-3 bulblets produced per bulb in a 2-year period. Zahreddine et al. (2004) quantified the number of bulbs per clump compared to number of clumps within populations and, based on high numbers of bulbs per clump concluded that a subset of populations studied had extensive vegetative propagation.

Reference(s):

- Paradiso, R., Buonomo R., De Pascale S., & Cardarelli M. (2009). Evaluation of spontaneous species for the innovation in floriculture: Pancratium maritimum L. as ornamental plant. II International Conference on Landscape and Urban Horticulture 881.
- Zahreddine, H., Clubbe C., Baalbaki R., Ghalayini A., & Talhouk SN. (2004). Status of native species in threatened Mediterranean habitats: the case of Pancratium maritimum L.(sea daffodil) in Lebanon. Biological Conservation. 120, 11–18.

12. If naturally detached fragments from this plant are capable of producing new plants, is this a common method of reproduction for the plant?

- Answer: **No**, which contributes **0** point(s) to the total PRE score.
- The *screener* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

While bulbs produce bulblets and can expand locally as clones in this manner, vegetative propagation is not the primary method of reproduction and spread. Bulblets are produced on deeply rooted bulbs (often over 50cm below the soil/sand surface) and therefore do not have means to detach and disperse. Reproduction by seed, in contrast, has commonly been observed.

Reference(s):

- Grassi, F., Cazzaniga E., Minuto L., Peccenini S., Barberis G., & Basso B. (2005). Evaluation of biodiversity and conservation strategies in Pancratium maritimum L. for the NorthernTyrrhenian Sea. Biodiversity & Conservation. 14, 2159–2169.
- Balestri, E., & Cinelli F. (2004). Germination and early-seedling establishment capacity of Pancratium maritimum L.(Amaryllidaceae) on coastal dunes in the north-western Mediterranean. Journal of Coastal Research. 20, 761–770.

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13. Does the species (or cultivar or variety) commonly produce viable seed?

- Answer: **Yes**, which contributes **1** point(s) to the total PRE score.
- The *screener* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Numerous authors have conducted studies on seed production and propagation of this species. Flowers typically produce around up to 20 mature seeds/capsule, though the number of ovules is over 50 in each ovary. High germination rates also indicate high seed viability. Pancratium maritimum is considered to be self compatible based on population genetic data (Zahreddine et al., 2004; Medrano et al, 2000).

Reference(s):

- Grassi, F., Cazzaniga E., Minuto L., Peccenini S., Barberis G., & Basso B. (2005). Evaluation of biodiversity and conservation strategies in Pancratium maritimum L. for the NorthernTyrrhenian Sea. Biodiversity & Conservation. 14, 2159–2169.
- Medrano, M., Guitian P., & Guitian J. (2000). Patterns of fruit and seed set within inflorescences of Pancratium maritimum (Amaryllidaceae): nonuniform pollination, resource limitation, or architectural effects?. American Journal of Botany. 87, 493–501.
- Zahreddine, H., Clubbe C., Baalbaki R., Ghalayini A., & Talhouk SN. (2004). Status of native species in threatened Mediterranean habitats: the case of Pancratium maritimum L.(sea daffodil) in Lebanon. Biological Conservation. 120, 11–18.

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14. Does this plant produce copious viable seeds each year (> 1000)?

- Answer: **No**, which contributes **0** point(s) to the total PRE score.
- The *screener* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Based on the various estimates of seed and flower production by different authors, individual Pancratium maritimum plants are not capable of producing more than 1000 seeds/plant. Maximum flower number per plant has been reported as 13 in at least one study, and number of seed per fruit appears to only rarely exceed 20. Therefore, a generous estimate of seed production per plant (bulb) would be 260.

Reference(s):

- Grassi, F., Cazzaniga E., Minuto L., Peccenini S., Barberis G., & Basso B. (2005). Evaluation of biodiversity and conservation strategies in Pancratium maritimum L. for the NorthernTyrrhenian Sea. Biodiversity & Conservation. 14, 2159–2169.
- Balestri, E., & Cinelli F. (2004). Germination and early-seedling establishment capacity of Pancratium maritimum L.(Amaryllidaceae) on coastal dunes in the north-western Mediterranean. Journal of Coastal Research. 20, 761–770.
- Medrano, M., Guitian P., & Guitian J. (2000). Patterns of fruit and seed set within inflorescences of Pancratium maritimum (Amaryllidaceae): nonuniform pollination, resource limitation, or architectural effects?. American Journal of Botany. 87, 493–501.

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15. Is there significant germination (>25%) of seeds the next growing season, with no requirement of an infrequent environmental condition for seeds to germinate (i.e. fire) or long dormancy period?

- Answer: **Yes**, which contributes **1** point(s) to the total PRE score.
- The *screener* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Numerous studies have been conducted on germination patterns of Pancratium maritimum. All report high germination rates (up to 95%) without seed treatment. Grassi et al. (2005) report a bimodal germination pattern within a single germination season (winter). Balestri and Cinelli (2004) reported only 18% of seed remained ungerminated after a germination trial without treatment. Once germinated, seedlings are, however, highly vulnerable to desiccation in non-optimal conditions (Balestri and Cinelli, 2004). Germination success is higher when seeds are buried more deeply.

Reference(s):

- Grassi, F., Cazzaniga E., Minuto L., Peccenini S., Barberis G., & Basso B. (2005). Evaluation of biodiversity and conservation strategies in Pancratium maritimum L. for the NorthernTyrrhenian Sea. Biodiversity & Conservation. 14, 2159–2169.
- Balestri, E., & Cinelli F. (2004). Germination and early-seedling establishment capacity of Pancratium maritimum L.(Amaryllidaceae) on coastal dunes in the north-western Mediterranean. Journal of Coastal Research. 20, 761–770.
- Medrano, M., Guitian P., & Guitian J. (2000). Patterns of fruit and seed set within inflorescences of Pancratium maritimum (Amaryllidaceae): nonuniform pollination, resource limitation, or architectural effects?. American Journal of Botany. 87, 493–501.

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16. Does this plant produce viable seed within the first three years (for an herbaceous species) to five years (for a woody species) after germination?

- Answer: **No**, which contributes **0** point(s) to the total PRE score.
- The *screener* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

Paradiso et al. (2009) report that Pancratium maritimum typically requires five years from germination to flower.

Reference(s):

- Paradiso, R., Buonomo R., De Pascale S., & Cardarelli M. (2009). Evaluation of spontaneous species for the innovation in floriculture: Pancratium maritimum L. as ornamental plant. II International Conference on Landscape and Urban Horticulture 881.

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17. Does this plant continuously produce seed for >3 months each year or does seed production occur more than once a year?

- Answer: **Yes**, which contributes **1** point(s) to the total PRE score.
- The *screener* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

Multiple studies have reported a flowering period of over three months (from June through September) for Pancratium maritimum. Individual flower stems flower within a shorter timeframe.

Reference(s):

- Paradiso, R., Buonomo R., De Pascale S., & Cardarelli M. (2009). Evaluation of spontaneous species for the innovation in floriculture: Pancratium maritimum L. as ornamental plant. II International Conference on Landscape and Urban Horticulture 881.
- De Castro, O., Innangi M., & Menale B. (2020). Message in a bottle: the Mediterranean Sea currents acted as protagonists in shaping the distribution of the sea daffodil (Pancratium maritimum, Amaryllidaceae). Botanical Journal of the Linnean Society. 194, 207–220.

Dispersal (Questions 18 - 20)

18. Are the plant's propagules frequently dispersed long distance (>100 m) by mammals or birds or via domestic animals?

- Answer: **No**, which contributes **0** point(s) to the total PRE score.
- The *screener* has a **Low** confidence in this answer based on the available literature.

Answer / Justification:

The primary modes of dispersal for Pancratium maritimum appear to be wind and water. Grassi et al. (2005) make reference to the possibility of bird dispersal but do not provide any evidence for their claim beyond the likely nutritional value of seeds.

Reference(s):

- Grassi, F., Cazzaniga E., Minuto L., Peccenini S., Barberis G., & Basso B. (2005). Evaluation of biodiversity and conservation strategies in Pancratium maritimum L. for the NorthernTyrrhenian Sea. Biodiversity & Conservation. 14, 2159–2169.
- De Castro, O., Innangi M., & Menale B. (2020). Message in a bottle: the Mediterranean Sea currents acted as protagonists in shaping the distribution of the sea daffodil (Pancratium maritimum, Amaryllidaceae). Botanical Journal of the Linnean Society. 194, 207–220.
- Sanaa, A., Ben Abid S., Boulila A., Messaoud C., Boussaid M., & Ben Fadhel N. (2015). Modeling hydrochory effects on the Tunisian island populations of Pancratium maritimum L. using colored Petri nets. BioSystems. 129, 19–24.

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19. Are the plant's propagules frequently dispersed long distance (>100 m) by wind or water?

- Answer: **Yes**, which contributes **1** point(s) to the total PRE score.
- The *screener* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

DiCastro et al., (2020) and others have provided a linkage between the genetic composition of Pancratium maritimum populations and water current patterns. Werker and Fahn (2005) showed that seeds could both float and stay viable after over two weeks in saltwater due to aerenchyma and other specialized seed anatomy, though flushing with fresh water was required to stimulate germination. Balistri and Cinelli (2005) reported that saltwater inhibited germination. The distribution of Pancratium maritimum across widely dispersed coastal dune sites also supports movement of seed by water.

Reference(s):

- Balestri, E., & Cinelli F. (2004). Germination and early-seedling establishment capacity of Pancratium maritimum L.(Amaryllidaceae) on coastal dunes in the north-western Mediterranean. Journal of Coastal Research. 20, 761–770.
- De Castro, O., Innangi M., & Menale B. (2020). Message in a bottle: the Mediterranean Sea currents acted as protagonists in shaping the distribution of the sea daffodil (Pancratium maritimum, Amaryllidaceae). Botanical Journal of the Linnean Society. 194, 207–220.
- Sanaa, A., Ben Abid S., Boulila A., Messaoud C., Boussaid M., & Ben Fadhel N. (2015). Modeling hydrochory effects on the Tunisian island populations of Pancratium maritimum L. using colored Petri nets. BioSystems. 129, 19–24.
- Werker, E., & Fahn A. (1975). Seed anatomy of Pancratium species from three different habitats. Botanical Gazette. 136, 396–403.
- GBIF Secretariat (2022). Pancratium maritimum: GBIF Backbone Taxonomy. Checklist dataset https://doi.org/10.15468/39omei (accessed 20 Dec. 2022).

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20. Are the plant's propagules frequently dispersed via contaminated seed (agriculture or wildflower packets), equipment, vehicles, boats or clothing/shoes?

- Answer: **No**, which contributes **0** point(s) to the total PRE score.
- The *screener* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

I found no evidence of human dispersal via contaminated seed or equipment. Most likely its dispersal to distant new locations is a result either of ornamental introduction or of long-distance dispersal by sea. Fruits are dry and dehiscent upon maturity. In contrast to at least one congener, the seeds of P. maritimum do not have eliasomes; they do contain "two or three compressed outer layers of cells of the testa..." and "large, dead, air-fi]led cells with large inter- cellular spaces between them." (Werker and Fahn, 1975)

Reference(s):

- De Castro, O., Innangi M., & Menale B. (2020). Message in a bottle: the Mediterranean Sea currents acted as protagonists in shaping the distribution of the sea daffodil (Pancratium maritimum, Amaryllidaceae). Botanical Journal of the Linnean Society. 194, 207–220.
- Sanaa, A., Ben Abid S., Boulila A., Messaoud C., Boussaid M., & Ben Fadhel N. (2015). Modeling hydrochory effects on the Tunisian island populations of Pancratium maritimum L. using colored Petri nets. BioSystems. 129, 19–24.
- Werker, E., & Fahn A. (1975). Seed anatomy of Pancratium species from three different habitats. Botanical Gazette. 136, 396–403.

Total PRE Score

PRE Score: 11 -- Low Potential Risk
Confidence: 75 / 100
Questions answered: 20 of 20 -- Valid (80% or more questions answered)

PRE Score Legend

The PRE Score is calculated by adding the point totals for each (answered) question.
< 13 : Low Potential Risk
13 - 15 : Moderate Potential Risk
> 15 : High Potential Risk

Questions Answered Legend

It is important to answer at least 16 questions to consider a PRE Score as "valid".
>= 16 : valid (80% or more questions answered)
<= 15 : invalid (not enough questions answered)

Organization Ownership and Content Privacy

Organization: 2022 Western IPM Grant Project
Content Privacy: Public

Evaluation Reviewers

The PRE approach is to base decisions on science and make decisions by consensus of diverse horticultural stakeholders. The literature review and process of answering PRE's questions are based on science; the decisions of which plants to prioritize are based on consensus. To ensure this process is in place and that PRE is collaborative, volunteer stakeholders are recruited from each region to review evaluations. The following experts in their profession (plant science, conservation, or horticultural trade) have participated as volunteer PRE reviewers for this evaluation:

• Ron Vanderhoff	February 26, 2023
• Tom Reyes	February 20, 2023
• Elizabeth D. Brusati	February 10, 2023
• Nicole Valentine	January 3, 2023
• Alex Simmons	December 29, 2022
• Marie Jasieniuk	December 27, 2022

This evaluation has a total of 6 reviewer(s).

Evaluation Issues

The following section lists all public issues for this evaluation. Issues provide a way for stakeholder reviewers to communicate any concerns or suggestions they might have with the plant or evaluation. Please email info@plantright.org if additional action is required to resolve open issues.

Issue ID # 8912

Date Created: February 26, 2023 - 9:59am
Date Updated: February 26, 2023 - 4:35pm

Submitted by: Ron Vanderhoff

Status: Fixed
Type: Suggestion
Severity: Minor
Scope: Q01. Has the species (or cultivar or variety, if applicable) become naturalized where it is not native?

Issue Description

Glancing through a fre of the GBIF occurrences in the midwestern U.S. it appears that several could be easily justified as naturalized. They are in natural areas well away from cultivation.

If you agree, consider re-writing to something like "It is also recorded from several other locations in the United States (e.g., Tennessee, Mississippi, Louisiana), with occurrences outside of gardens or cultivation and potentially naturalized." - Ron

Issue Resolution (Screener's Response to Issue)

I agree that that is fairly safe to say. I've modified the text accordingly.

Issue ID # 8696

Date Created: January 3, 2023 - 2:42pm
Date Updated: February 6, 2023 - 3:11pm

Submitted by: Nicole Valentine

Status: Fixed
Type: Suggestion
Severity: Minor
Scope: Q02. Is the species (or cultivar or variety) noted as being naturalized elsewhere in the US or world in a similar climate?

Issue Description

Could be useful to mention it's only in Southern California. -NV

Issue Resolution (Screener's Response to Issue)

I've added a note about it as yet only occurring in southern CA.

Issue ID # 8695

Date Created: January 3, 2023 - 2:40pm
Date Updated: February 7, 2023 - 2:18pm

Submitted by: Nicole Valentine

Status: Fixed
Type: Comment
Severity: Minor
Scope: Q18. Are the plant’s propagules dispersed long distance (>100 m) by mammals or birds or via domestic animals?

Issue Description

I thought that questions answered yes with confidence of low or very low were not scored, but this question counted towards the overall score. -NV

Issue Resolution (Screener's Response to Issue)

So did I...! Thanks for catching. I have changed the answer to "no".

Issue ID # 8694

Date Created: January 3, 2023 - 2:34pm
Date Updated: February 7, 2023 - 2:08pm

Submitted by: Nicole Valentine

Status: Fixed
Type: Suggestion
Severity: Minor
Scope: Q01. Has the species (or cultivar or variety, if applicable) become naturalized where it is not native?

Issue Description

Appears to have naturalized in other areas in the US as well: https://tennessee-kentucky.plantatlas.usf.edu/plant.aspx?id=259 https://warcapps.usgs.gov/PlantID/Species/Details/119-NV

Issue Resolution (Screener's Response to Issue)

There is no clear information about its naturalized status in either Tennessee or Illinois (where it is also reported). There are also other gbif records in central and southern US that couldn't really be verified as naturalized. I've added mention of its occurrence elsewhere but will hold off on calling it naturalized there. USDA GRIN and invasives.org also only refer to California in their distribution maps.

Issue ID # 8693

Date Created: January 3, 2023 - 2:29pm
Date Updated: February 7, 2023 - 2:22pm

Submitted by: Nicole Valentine

Status: Fixed

Type: Suggestion
Severity: Minor
Scope: Regional Information

Issue Description

Include link with state and plant selected: https://weedmap.cal-ipc.org/climatematch/?areaType=states&areaList=06&mapView=4%2C-84.68262%2C35.56798&datalayer=PRE+Combined&datalayeropacity=60&gbif_taxonkey=2853283&gbif_search=Pancratium+maritimum

-NV

Issue Resolution (Screener's Response to Issue)

Done

Issue ID # 8678

Date Created: December 29, 2022 - 10:49am
Date Updated: February 7, 2023 - 2:31pm

Submitted by: Alex Simmons

Status: Fixed
Type: Suggestion
Severity: Minor
Scope: Q20. Are the plant’s propagules frequently dispersed via contaminated seed, equipment, vehicles, boats or clothing/shoes?

Issue Description

Please add references for base of assumptions/inferences. -Alex Simmons

Issue Resolution (Screener's Response to Issue)

Good tip. I added more information about fruit and seed structure, along with associated references.

Issue ID # 8677

Date Created: December 29, 2022 - 10:48am
Date Updated: February 7, 2023 - 10:52am

Submitted by: Alex Simmons

Status: Fixed
Type: Suggestion
Severity: Major
Scope: Evaluation as a whole

Issue Description

Please add Summary to Evaluation. -Alex Simmons

Issue Resolution (Screener's Response to Issue)

Done.

Issue ID # 8661

Date Created: December 27, 2022 - 2:51pm
Date Updated: February 7, 2023 - 2:13pm

Submitted by: Marie Jasieniuk

Status: Fixed
Type: Suggestion
Severity: Minor
Scope: Q04. Is the species (or cultivar or variety) noted as being invasive in the US or world in a similar climate?

Issue Description

Please add the phrase "in areas with" before "climates similar to California."

Issue Resolution (Screener's Response to Issue)

Done

Issue ID # 8660

Date Created: December 27, 2022 - 2:44pm
Date Updated: February 7, 2023 - 10:53am

Submitted by: Marie Jasieniuk

Status: Fixed
Type: Suggestion
Severity: Major
Scope: Q02. Is the species (or cultivar or variety) noted as being naturalized elsewhere in the US or world in a similar climate?

Issue Description

In the answer to this question, please state how the climate of the native region compares to that of the naturalized region by pointing to the Climate Match tool. - Marie

Issue Resolution (Screener's Response to Issue)

I have added more detail in the answer and reference to the Climate Match tool.

Issue ID # 8659

Date Created: December 27, 2022 - 2:29pm
Date Updated: February 7, 2023 - 2:22pm

Submitted by: Marie Jasieniuk

Status: Fixed
Type: Suggestion
Severity: Minor

Scope: Plant Information

Issue Description

"It" should be added at the beginning of the sentence "is mildly toxic..." - Marie

Issue Resolution (Screener's Response to Issue)

Done

About PRE and this Plant Evaluation Report

The Plant Risk Evaluator (PRE) is an online database and platform designed to assess the risk of a plant becoming invasive in a given region.This tool offers many benefits, and we encourage you to visit the PRE website (https://pretool.org) for more information.

If you would like to learn more about PRE, please email us at info@plantright.org, requesting a PRE Account.

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