Plant Risk Evaluator -- PRE™
Evaluation Report

Searsia lancea -- California

2021 Western IPM Grant Project

PRE Score: 15 -- Moderate Potential Risk
Confidence: 66 / 100
Questions answered: 20 of 20 -- Valid (80% or more questions answered)

Privacy: Public
Status: Completed

Evaluation Date: June 8, 2021

This PDF was created on February 21, 2025

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Plant Evaluated

Searsia lancea

Image by Ron Vanderhoff

Evaluation Overview

A PRE™ screener conducted a literature review for this plant (*Searsia lancea*) 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

This South African species has become a popular landscape plant in urban areas, especially our Southwestern deserts and also as a low water, heat tolerant species in coastal California where winter temperatures are relatively mild (>15-20f min). Mostly naturalized individuals or very small colonies are present, along the South Coastal zone to the western Deserts, but invasiveness is still somewhat uncertain. The tree appears to be moving toward invasiveness in parts of Arizona, with climates that mimic some portions of our Sonoran/Colorado deserts. A species to watch.

General Information

Status: Completed
Screener: Ron Vanderhoff
Evaluation Date: June 8, 2021

Plant Information

Plant: *Searsia lancea*

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:

Some documentation and publications discussing naturalization in portions of the Southwestern US, Southern Africa (outside of it's area of nativity), somewhat in New Zealand and portions of Australia iNaturalist, GBIF, et al). However, the populations at the Canary Islands are very small, only since 2013, and not appearing to naturalize (Verlove, 2020). Malta (Mediterranean basin) populations also appear small and not necessarily significant (Malta Wild Plants). Naturalization is Arizona seems pretty well established and is reported by several sources. Arizona websites state: - "In the Phoenix area, many horticultural plants are currently displaying invasive characteristics. Some of these plants include the tree Rhus lancea . . ." (Brock, Rhus lancea). - "This recently naturalized tree is native to the southern part of Africa (T. Kinsey)." - "Cultivated as an ornamental in the Sonoran Desert, escaping and naturalized in canyons in the Rincon and Tucson Mts. in Pima County" (SEINet, Rhus l.) Naturalization in California seems to be erratic and difficult to quantify. Many CA records and observations are of solitary individuals and not necessarily supporting naturalization (Calflora and iNaturalist). In California: - The Jepson eflora states: "Naturalized" (Jepson Flora Project). - "Re-seeds easily and naturalizes in urban landscapes and riparian areas" (Chambers, et al). In review, Michael Chamberland asked for additional source documentation on the statement re naturalization in the US: I added three additional references.

Reference(s):

- Mifsud, S. (0). Malta Wild Plants.
- Verloove, F., Suárez E. A. Déniz, & Pascual M. Salas (2020). New records of non-native vascular plants in Gran Canaria (Spain, Canary Islands). Flora Mediterranea. 30,
- Facility, GBIF—the. Global Bio (0). GBIF Searsia master page.
- Vanderhoff, R. (2021). iNaturalist, for Searsia lancea.
- GBIF.org (2021). Searsia Lancea GBIF Map.
- Calflora (2021). Searsia lancea.
- Brock, J. H. (0). Ecological Characteristics of Invasive Alien Plants. Environmental Resources Department, School of Planning and Landscape Architecture, Arizona State University, Tempe, AZ.
- Chambers, N., & Hawkins T. Oshant (0). Invasive Plants of the Sonoran Desert.

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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:

Some documentation and papers discussing naturalization in portions of the Southwestern US, Southern Africa (outside of it's area of nativity), New Zealand and portions of Australia. However, the populations at the Canary Islands are very small, only since 2013 and are not appearing to naturalize (Verloove, 2020). Malta (Mediterranean basin) populations also appear small and not necessarily significant (Malta Wild Plants). These two climate matches, without significant naturalization, suggest a low degree of naturalization. In review, Nikki Valentine suggested confidence could be rated as very high. Especially because several of the places included are considered similar climate. Excellent comment, confidence raised to Very High.

Reference(s):

- Verloove, F., Suárez E. A. Déniz, & Pascual M. Salas (2020). New records of non-native vascular plants in Gran Canaria (Spain, Canary Islands). Flora Mediterranea. 30,
- Mifsud, S. (0). Malta Wild Plants.

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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 **Medium** confidence in this answer based on the available literature.

Answer / Justification:

Some documentation discusses naturalization of the species. However invasiveness appears to only have been recently a possibility in portions of the Southwestern US, specifically the Phoenix and Tucson areas of Arizona. AZ State University states briefly "African sumac has a moderate to high invasive potential in urban areas and surrounding riparian habitats. Basically, seedlings can germinate anywhere there is constant or seasonal sources of water. Some people find African sumac to be a source of allergies due to the pollen from male flowers during desert winters. (Martin). USDA Southwestern Region states "This species generally occurs as a weed in wildland areas of the Southwestern Region rather than as an invasive plant". (USDA 2013). A 2002 Sonoran Desert Conservation document states that the species is displacing native vegetation, but provides no documentation. It also states that it is highly invasive in urban landscapes (Invasive Species, Pima County). In California, Calflora and the CCH combined report 56 occurrences, mostly in the South Coast region. However, of those with indications of abundance, counts or notes support invasiveness and instead suggest waifs or small naturalizations at this time (Calflora Searsia). All of these lead to 'potential' invasiveness or somewhat anecdotal references to invasiveness, but with no supporting documentation. Until more documentation of invasiveness is found I cannot assign it an invasive score. In review, Michael Chamberland suggested that Martin's use of the term "invasive" may be colloquial and not the same definition used by PRE. He also suggested additional source documentation, which I added. No change to the scoring.

Reference(s):

- United States Department of Agriculture, Forest Service (2013). Invasive Plants and Weeds of the National Forests and Grasslands in the Southwestern Region 2nd edition.
- Martin, C. (0). Virtual Library of Arizona Landscape Plants.
- County, A. Board of S. (2002). An Invasive Species Management Program for Pima County.
- Calflora (0). Calflora Searsia Observations 8-2021.

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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 **Medium** confidence in this answer based on the available literature.

Answer / Justification:

Invasiveness possibilities have recently surfaced in portions of the Southwestern US, specifically the Phoenix and Tucson areas of Arizona which has a similar climate match to portions of our Western Colorado/Sonoran deserts. AZ State University states briefly "African sumac has a moderate to high invasive potential in urban areas and surrounding riparian habitats. Basically, seedlings can germinate anywhere there is constant or seasonal sources of water. Some people find African sumac to be a source of allergies due to the pollen from male flowers during desert winters." (Martin). Nonetheless, this is described as "potential" and not as currently invasive. USDA Southwestern Region states "This species generally occurs as a weed in wildland areas of the Southwestern Region rather than as an invasive plant". (White, 2013). A 2002 Sonoran Desert Conservation document states that the species is "displacing native vegetation", but provides no documentation and also states it is highly invasive in urban landscapes, again with no documentation (Anonymous, 2012). All of these lead to 'potential' invasiveness or somewhat anecdotal references to invasiveness and no supporting documentation. Until more documentation of invasiveness is found I cannot assign it an invasive score. In review, Michael Chamberland reiterated that the use of "invasive" does not necessarily follow the PRE definition. Agreed and noted. No change to the scoring is needed.

Reference(s):

- Martin, C. (2021). Phoenix Virtual Library - Trees, Searsia lancea (formerly Rhus lancea).
- White, P.D. Mitchell R. (2013). Invasive Plants and Weeds of the National Forests and Grasslands in the Southwestern Region.
- Government, P. County (2002). An Invasive Species Management Program for Pima County.

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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 **High** confidence in this answer based on the available literature.

Answer / Justification:

Probably not. Rhus typhina (in a related genera) is native to much of the Eastern portions of North America and generally areas with more summer rainfall (CABI: Rhus typhina). Although native regionally, it is also an occasional invasive in non-native locations in the same and surrounding regions. CABI states: "R. typhina sprouts easily and grows rapidly, which can eliminate or reduce the abundance of many other species that cannot persist in the shade it creates. For this reason it has been identified as a weed or invasive in the USA and in the Czech Republic" (CABI: Rhus typhina). Schinus terebinthifoius, Schinus molle and Schinus polygamus are invasive in CA and elsewhere in similar climates, but are rather distantly related. Phylogenetics place these other taxa fairly distant. (YinngYang, 2016) Searsia lancea is best compared phlogenetically to the Rhus spp. which were segregated out as Seasia (a group of principally African species). Otherwise the genus Rhus as a whole is too large to draw correlations of invasiveness. Unfortunately, in the literature which predates the separation of Searsia (1943 & 1999) it is difficult to interpret which are now Searsia. In sum, this question is best answered as No. In review, Michael Chamberland correctly pointed out that R. typhina is native to much of the eastern U.S. I revised my statement and noted that it is native, but also invasive in neighboring regions. This is an example of a native plant, that can also act invasively in non-native regions. Michael also pointed out that Searsia lancea is best compared to those Rhus which have been segregated out as Seasia (a group of principally African species). Unfortunately, in the literature which predates this separation it is difficult to interpret which are now Searsia. Agreed in full. No change to the scoring. In review Jutta Burger, suggested additional reference sources, which I added. No change in the score.

Reference(s):

- -YingYang, Y. (2016). Phylogenetic analyses of Searsia (Anacardiaceae) from eastern Asia and its biogeographic disjunction with its African relatives. South African Journal of Botany. 106(Sept.),
- CABI (0). CABI: Invasive Species Compendium: Rhus typhina.

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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 **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Much of the species South African range, especially the areas of the Eastern Cape, match our western deserts climate and perhaps to a slightly lesser degree our Southern inland valleys. (iNaturalist, 06-2021) Regions with a high correlation of a CA climate match include South Africa (GBIF: Searsia and Stern 2008) and where naturalized in areas of New Zealand (GBIF: Searsia). In review, Nikki Valentine suggested the confidence here could be very high. I agreed and moved the confidence accordingly. In review, Jutta Burger requested additional citations for climate matching as well as regions that don't. I added the GBIF as a reference. No change to scoring.

Reference(s):

- Stern, M. (2008). Searsia lancea. South Africa National Biodiversity Institute - PlantZAfrica.
- SANBI (0). Searsia lancea - PlantZAfrica.
- GBIF.org (2021). Searsia Lancea GBIF Map.

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: **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:

The Arizona Native Plant Society states "it can displace mesquites" (Society). Anecdotal information in an Australian newspaper states "You can map an area out a hundred yards by a hundred yards, particularly where they are, and you'll just see that there's less and less of the natives in that area. They're just becoming a carpet of their roots running all over the ground and suckers coming up so there's just no opportunity for the natives at all." (ABC News 2016).

Reference(s):

- Gooch, D., & von Hörchner C. (2016). Alien tree species 'contributing to demise' of native flora in Sunset Strip.
- Society, A. Native Pla (0). Grow Native, Don't Plant a Pest.

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

- 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:

One reference from its native South Africa states "In contrast, many woody fuels are also volatile fuels high in fats, resins and volatile oils, which often produce enough firebrands to create great danger of igniting fuels a distance ahead of the fire. Examples of volatile woody fuels are Euclea crispa, Rhus lancea and Vitex rehmannii" (Goldammer, 2004). The species propensity to root sprout likely demonstrates a high adaptation to fire, although I can find no documentation of this. In review, Jutta Burger suggested a reference to its ability to resprout as evidence of fire adaptation, which I have added above.

Reference(s):

- Goldammer, J. G., & de Ronde C. (2004). Wildland Fire Management Handbook for Sub-Sahara Africa. 433.

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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: **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 foliage is an important food for many browse animals in its native range, so probably not harmful to livestock. (Venter, F. 1996) A S Africa newspaper article is not peer reviewed and could be suspect, but does quote a doctor and an arborist re significant allergic issues: "Dr Neil Crouch from the KZN Herbarium, said the Rhus tree has been around for decades and causes an allergic reaction in people manifesting as a rash with welts “that drives you scatty”. He said he has also suffered a rash from this tree. You need more than an antihistamine such as Allergex, you need cortisone cream. The plant, its sap, pollen or sawdust causes the severe dermatitis. Often kids are mysteriously affected with a rash after swimming as a result of the pollen landing up in swimming pools.” He said the rash can occur a day or two after contact." An arborist of some sort stated "Neil McGennis, a tree fella based in Kloof, said he has found the Rhus tree all over the upper highway area. When a tree needs to be chopped down, his staff wear masks and gloves. He said many people are not aware that this tree is toxic. “When kids climb this tree they get rashes.” A Kloof’s Dr Michael Westbrook said the allergic effect of the Rhus tree is quite common, usually children are brought in to see him. “The rash has the appearance of plant dermatitis as there is an acute skin reaction when coming into contact with the tree. It presents as a stripy, raised rash (not a wheel) and I have treated hundreds of people over the years.” Treatment for adults is a cortisone and antihistamine injection and if itching is excessive, then cortisone tablets and a cream are prescribed. A child is given a cortisone syrup, antihistamine and cream. Another doctor, Dr. Westbrook, said "what often happens is that immediately after treatment, it appears as if the rash is healing, however, it can recur on another part of the body. Eruptions can occur days later without having further contact with the Rhus tree." (Dennis) The plant does produce abundant pollen, which could cause allergic reactions to some people. Regardless, I will score this as a No, although with a Medium confidence. In review, Michael Chamberland mentioned a lack of information on whether the plant is a health risk to humans or animals/fish. He also noted publications mentioning allergenic pollen as likely minor allergies and suggested a possible "no" here and a maximum confidence scoring of "Medium." With additional research I was able to add more detail and references (as presented above) on both of these points. I retained the NO score, even with the references re allergic and dermal reactions. However the source of this report is a newspaper article and often these are not balanced. I found no mention of complications with grazing animals or livestock. This is a tricky question. Confidence moved to Low.

Reference(s):

- Venter, F., & Venter J. (1996). Making the Most of Indigenous Trees.
- Dennis, M. (2018). Rhus tree causes allergic reactions. Highway Mail. 2021,

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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 **Medium** confidence in this answer based on the available literature.

Answer / Justification:

I searched extensively, but can find little specific documentation of thickets and none re interference with the movement of humans, animals or livestock. The species in Africa appears to be associated with the margins of washes, rivercourses and of savannahs and there are no references to dense woodlands or thickets (Ebodes, Anonymous and SANBI). The Australasian Virtual Herbarium had two instances of anecdotal evidence of possible thickets forming: "Spreading tree 4-5 m tall, drooping willowy appearance. Part of a larger infestation spread 600 m along creekline NE to SW. Total area infested 5.5 hectares, varying densities and sizes. Thickets developing on floodplain at SW end of infestation." (Australasian Herbarium NSW1055336). "About 200 plants /clusters of plants mostly saplings around 2-3 metres, but some mature trees, mainly growing under and around mature eucalypts" (Australasian Herbarium NSW857009). Without better documentation and evidence of impacts to animal/livestock/human movement I am scoring No. In review, Nikki Valentine provided to excellent additional references providing additional information, which is noted above. I retained my "No" score, but lowered the confidence to "medium".

Reference(s):

- Ebedes, G. (0). Plantbook: Searsia lancea.
- Nursery, W. Wildflower (2018). Witkoppen Wildflower.
- SANBI (0). Searsia lancea - PlantZAfrica.
- Herbarium, A. Virtual (2018). Australasian Virtual Herbarium: Searsia NSW1055336.
- Herbarium, A. Virtual (2015). Australasian Virtual Herbarium, Searsia NSW857009.

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 **Medium** confidence in this answer based on the available literature.

Answer / Justification:

Numerous references discuss it suckering and spreading by root sprouts (Weedwise, Martin, Stern). Calflora photos, and a couple of comments, also indicate suckering (Calflora). Whether the plant propagates in this manner is less clear, although presumed to be unlikely. Generally, root suckers in the family Anacardiaceae, when detached or separated from the parent persist and grow well, but in a natural environment this method of reproduction would seem unlikely. I am conflicted about the documentation of the plants propensity to sucker and spread by root sprouts versus its propensity to "reproduce" itself it that manner. Nonetheless, I am scoring a Yes, since the species apparently does at least have this ability. But I am offering only a Medium confidence level, due to this uncertainty. In review, Lynn Sweet pointed out that because this sp. can reproduce vegetatively and that ability is document, that it may warrant a "Yes" answer. I agreed, but assigned only a medium confidence, as I am still uncertain of the plant propensity to do this in a natural setting. In review, Nikki Valentine correctly noted that I had omitted references on some of my comments. Those are now added. No change in the scoring.

Reference(s):

- Calflora (2021). Searsia lancea.
- WeedWise, NSW. (2018). NSW WeedWise Australian Weed.
- Martin, C. (0). Phoenix Virtual Library - Trees, Searsia lancea (formerly Rhus lancea).
- Stern, M. (2008). SANBI: Searsia lancea.

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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 **Low** confidence in this answer based on the available literature.

Answer / Justification:

Numerous references discuss it suckering and spreading by root sprouts (see Q11 also), but I can find no evidence of these segments naturally detaching and initiating new plants. Nor is this common in the family or related genera (all references below). In review, Jutta Burger requested additional references for or against. Without this, I lowered the confidence to "low".

Reference(s):

- Calflora (0). Calflora Searsia Observations 8-2021.
- WeedWise, NSW. (2018). NSW WeedWise: Willow rhus (Searsia lancea).
- Martin, C. (2021). Phoenix Virtual Library - Trees, Searsia lancea (formerly Rhus lancea).
- Stern, M. (2008). SANBI: Searsia lancea.

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:

Many references discuss abundant seed production. (Stearn, 2002), (AZ Native Plant Society), (Anonymous). It should be noted that the species is dioecious, requiring both male and female trees for pollination.

Reference(s):

- Stern, M. (2002). Searsia lancea.
- Society, A. Native Pla (0). Grow Native, Don't Plant a Pest.
- Oregon State University (0). Landscape Plants, Searsia lancea.

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

- 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:

I cannot locate documentation of specific seed counts per tree, but given the frequent comments of heavy seed production combined with the size of the tree it is reasonable to assume 1,000 or more seeds on a tree/year. At least two references (below) say "abundant seeds", but that is not quantifiable. My own observations of trees in August 2021 are as follows: Approx 10 semi-mature trees examined; trunk diameter ABH ca 6in. Trees were in full fruit. Two trees that looked representative were examined and seeds counted. Approx 20% of the canopy (divided vertically) were counted of fruit (1 seed per fruit). That total was then multiplied to generate a sum value for the entire tree (x5). From this method I estimated ca 1,600 seeds on one tree and 1,200 on another. Again, these were semi-mature trees, probably well under 50% of the biomass of a mature tree. (Calflora Searsia) Additionally, the images of many plants on Calflora show heavy flower and seed production, suggesting >1,000 seeds on a mature tree is reasonable. (Calflora, iNaturalist) In review, Lynn Sweet commented on using my own research and citing myself in my own evaluation. She supported it, as long as it was reasonably documented and credible. I edited my documentation accordingly. No change in scoring. In review, Michael Chamberland reminded me of the 2010 HEAR review. I did review the HEAR assessment, but could not reference the original document at the URL provided or via a search. It was second-hand information and did not seem conclusive. I remained with my score. In review, Jutta Burger suggested a reference for abundant seed production. I referenced some sources, none are are research driven or quantifiable. But the number of sources (and others not referenced) seem great enough to score this a "Yes". Nonetheless, I reduced the confidence to Medium.

Reference(s):

- AZNPS (0). Arizona Native Plant Society Searsia lancea.
- Breen, P. (2021). Rhus lancea | Landscape Plants | Oregon State University. Oregon State University - Landscape Plants.
- Calflora (0). Calflora Searsia lancea observation.
- Vanderhoff, R. (2021). iNaturalist, for Searsia lancea.

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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 **Medium** confidence in this answer based on the available literature.

Answer / Justification:

Propagation from seed is reported as easy and reliable."Searsia lancea can be propagated easily from seed, cuttings or layers." (Stern, 2002) "Very easy to germinate from seed." (Martin) One of the more interesting references is a paper discussing and contrasting bird ingested seeds vs. non-bird ingested seed germination and speed. The conclusions were that bird ingested seeds (seeds through the birds gut) had significantly increased germination success and speed of germination for this sp. With passage through the gut = ca 28% germination, without passage through the gut = ca 8% germination. This complicates the answer. Assuming one agrees that birds are significant seed dipersers then this is a YES, if not it is a NO. Although strongly reported as easy to germinate, a consensus is lacking re whether the germination rate is above 25%. Scoring Yes, but reducing my confidence to Medium. In review, Michael Chamberland mentioned the literature may not be considered "highly credible or reviewed" to be given a "very high" confidence ranking. I added a new citation re germination related to bird ingested seed. With this additional information I retained the Yes score, but reduced the confidence to Medium.

Reference(s):

- Stern, M. (2002). Searsia lancea.
- Martin, C. (0). Virtual Library of Arizona Landscape Plants.
- Vukeya, L. R. (2021). Interspecific competition in germination of bird-dispersed seeds in a habitat with sparse tree vegetation in South Africa. Botanical Studies. 62(10),

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

Answer / Justification:

I can find no solid documentation of its reproductive age. However, it is documented as fast growing and is probably reproductive at a young age, as are other Anacardiaceae spp, but it remains uncertain. A few images show young plants in fruit (incl the Calflora and iNaturalist references). Although these do not quantify the 'five years' threshold, they seem likely. Leaving it with only medium certainty, in lieu of published documentation. I feel confident enough with the two, albeit sparse, records above to offer a Yes score, but with a Very Low confidence. In review, Lynn Sweet suggested perhaps this question be left unanswered, due to lack of information. Lynn's note and suggestion is well received. Regardless, I feel that based upon even just the two records cited and the nature of related Anacardiaceae that this nonetheless deserves a Yes score. It is a soft Yes, and I have reduced the confidence to Very Low.

Reference(s):

- Calflora (0). Calflora Searsia lancea observation.
- iNaturalist (0). iNaturalist Searsia lancea observation.

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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:

Trees of South Africa states a bloom of "April-Sept" and fruit "Sept-Jan". (Becking) Calflora indicates blooms in the months of March, April, May and June, although not necessarily on the same trees (Calflora). Jepson eflora states the same months (Jepson). Scoring Yes.

Reference(s):

- Becking, D. (0). Trees of Southern Africa, Searsia lancea.
- Calflora, E. (0). Calflora, for Searsia lancea.
- Miller, J. M., & Baldwin B. G. (2012). Jepson Flora Project, Searsia lancea.

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: **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:

Yes, from an Arizona secondary source:. "It is also spreading naturally through the action of birds, since seedlings are observed under nest or perching sites, and establishing without human action along stream channels. For example, it has been found several miles from residential areas along Skunk Creek in Maricopa County and is observed to be moving along washes in Pima County. Birds relish the fruit of African sumac and excrete the seeds under roost trees or perching sites, as seedlings of this species often are found under established trees. Seeds are dispersed primarily by birds and with flood flows in invaded channels. Fruit/seeds are a food source for birds and perhaps small mammals that subsequently can disperse the seeds to new locales" (PIER Assessment). Although this is a secondary report without published documentation it is from a reliable Australian Invasive Assessment. And Barbara Tellman, the source quoted, is a well known Arizona author and invasive plant biologist. Fruit a depressed-globose drupe 4–6.5 mm in diameter, often slightly asymmetric, dull yellow to greyish or brown, with fleshy pulp. An African plant database states "The flowers have a sweet smell and are visited by insects such as bees, which serve as pollinators. The fruits are eaten by birds such as guinea-fowl, francolins and bulbuls, which are probably the main seed dispersers." This is somewhat anecdotal and even includes "probably", but of interest (PROTA4U). Further, as this fruit contains a fleshy mesocarp, this mesocarp is frequently sought after by birds in many species of Anacardiaceae, the endocarp and viable seeds pass through the gut of the bird and are dispersed. In the same journal article this statement seems to confirm a high likelihood of bird dispersal: "Germination trials with defecated seeds of five plant species compared with the manually depulped seeds showed that only Searsia lancea had significantly higher seed germination success and improved germination speed after passage through the bird gut . . ." (Vukeya, 2021).

Reference(s):

- Pacific Island Ecosystems at Risk (0). PIER Risk Assessment: Searsia lancea.
- Wageningen, UF. (0). PROTA4U: Searsia lancea.
- Vukeya, L. R. (2021). Interspecific competition in germination of bird-dispersed seeds in a habitat with sparse tree vegetation in South Africa.

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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 **Low** confidence in this answer based on the available literature.

Answer / Justification:

Yes from an Arizona source: ". . . It is also spreading naturally through the action of birds, since seedlings are observed under nest or perching sites, and establishing without human action along stream channels. For example, it has been found several miles from residential areas along Skunk Creek in Maricopa County and is observed to be moving along washes in Pima County" (PIER Assessment). This reference is somewhat confusing, as it is unclear if the mode of transport is referring to the birds or the water in the washes. Although this is a secondary report without published documentation it is from a reliable Australian Invasive Assessment. And Barbara Tellman, the source quoted, is a well known Arizona author and invasive plant biologist. However, fruit morphology as described, does support buoyancy in water and thus potential (probable?) water transport: "Fruit a depressed-globose drupe 4–6.5 mm in diameter, often slightly asymmetric, dull yellow to greyish or brown, with fleshy pulp" (PROTA4U). Furthermore, the fruit is indehiscent and the endocarp and seed is surrounded by a fleshy mesocarp, which almost guarantees buoyancy (Vukeya). Lastly, the fruit (a drupe) at 4-6.5mm in diameter (Vukeya), is rather large for the small and light seed of ca 3.5mm (my personal measurement), again implying a high likelihood of buoyancy and water dispersal. My own buoyancy test on 8-15-21 is posted briefly as (Vanderhoff, Calflora). In it, the fruits were strongly buoyant, after 24 hours all fruit still well above the water line. Scoring this as a Yes, but with low confidence, without better documentation. In review, Jutta Burger requested a description of features of seed/fruit that are / are not conducive to it being carried by water/wind. I added morphologial information above as well as results of a buoyancy test. No change to scoring and retained the Low confidence, although it could even go to Medium with this additional detail.

Reference(s):

- Pacific Island Ecosystems at Risk (0). PIER Risk Assessment: Searsia lancea.
- Vukeya, L. R. (2021). Interspecific competition in germination of bird-dispersed seeds in a habitat with sparse tree vegetation in South Africa.
- Wageningen, UF. (0). PROTA4U: Searsia lancea.
- Vanderhoff, R. (0). Calflora Searsia 8-15-21.

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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 **Low** confidence in this answer based on the available literature.

Answer / Justification:

I can find no evidence of this in the literature. The fruit and seed are rather large and with no apparent attachment or adhesion attributes. So it would not be likely to be picked up and transported in these ways. With no documentation of this type of transport, answering No, but with low confidence.

Reference(s):

- [Anonymous] .

Total PRE Score

PRE Score: 15 -- Moderate Potential Risk
Confidence: 66 / 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: 2021 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:

• Scott Oneto	February 4, 2022
• Nicole Valentine	August 31, 2021
• Jutta Burger	August 29, 2021
• Lynn Sweet	August 26, 2021
• Michael Chamberland	August 25, 2021

This evaluation has a total of 5 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 # 6948

Date Created: August 29, 2021 - 9:48pm
Date Updated: August 31, 2021 - 6:25pm

Submitted by: Jutta Burger

Status: Fixed
Type: Suggestion
Severity: Minor
Scope: Plant Information

Issue Description

Eliminate reference to evaluation being "practice/test" because it will be serving as an official evaluation.

Issue Resolution (Screener's Response to Issue)

Done.

Issue ID # 6941

Date Created: August 26, 2021 - 4:37pm
Date Updated: August 30, 2021 - 7:03pm

Submitted by: Lynn Sweet

Status: Fixed
Type: Comment
Severity:

Minor
Scope: Q14. Does this plant produce copious viable seeds each year (>1000)?

Issue Description

It's awesome that you counted yourself! I believe that you need to either make sure the link to your iNaturalist observation is available in the citation with that information (I didn't see it?), or cite yourself as the authority and add yourself to the Sources. By the way, the former is a very clever way to have it documented. -Lynn Sweet

Issue Resolution (Screener's Response to Issue)

I had not created the source documentation correctly for the iNat reference. I have fixed that issue and confirmed that the date is clear in the citation.

Issue ID # 6940

Date Created: August 26, 2021 - 4:35pm
Date Updated: August 30, 2021 - 6:51pm

Submitted by: Lynn Sweet

Status: Fixed
Type: Suggestion
Severity: Major
Scope: Q16. Does this plant produce viable seed within the first three years (for an herbaceous species) to five years (for a woody species) after germination?

Issue Description

I believe that from the guidance this answer should be left blank if there is not enough documentation, which is as you state and based on my read of the information it doesn't seem like we can say for sure. "If there is no information, either in the literature or observationally, then **leave answer field blank**." - Lynn Sweet

Issue Resolution (Screener's Response to Issue)

Lynn's note and suggestion is well received. Regardless, I feel that based upon even just the two records cited and the nature of related Anacardiaceae that this deserves a Yes score. It is a soft Yes, and I have reduced the confidence all the way down to Very Low.

Issue ID # 6921

Date Created: August 25, 2021 - 1:48pm
Date Updated: August 30, 2021 - 6:55pm

Submitted by: Nicole Valentine

Status: Fixed
Type: Suggestion
Severity: Minor
Scope: Q06. Is the species found predominately in a climate matching the region of concern?

Issue Description

I think the confidence here could be very high.

-Nikki Valentine

Issue Resolution (Screener's Response to Issue)

Agree. Confidence moved to Very High.

Issue ID # 6920

Date Created: August 25, 2021 - 1:44pm
Date Updated: August 31, 2021 - 5:58pm

Submitted by: Nicole Valentine

Status: Fixed
Type: Suggestion
Severity: Minor
Scope: Q10. Does the plant produce impenetrable thickets, blocking or slowing movement of animals, livestock, or humans?

Issue Description

The Australia Virtual Herbarium had anecdotal evidence of thickets forming. "Thickets developing on floodplain" (https://avh.ala.org.au/occurrences/97e4f664-62df-4eb3-88f4-08b2da30e99d). "About 200 plants/clusters of plants mostly saplings around 2-3 metres, but some mature trees, mainly growing under and around mature eucalypts." (https://avh.ala.org.au/occurrences/7cd308f7-18ab-43d7-b135-591f479fcfbe).

-Nikki Valentine

Issue Resolution (Screener's Response to Issue)

Thank you Nikki. I added both of these references. With this additional information I retained my "No" score, but lowered the confiodence to "medium".

Issue ID # 6919

Date Created: August 25, 2021 - 1:35pm
Date Updated: August 30, 2021 - 7:05pm

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

I think confidence here could be rated as very high. Especially because several of the places you included for question 1 are considered similar climate. -Nikki Valentine

Issue Resolution (Screener's Response to Issue)

Confidence raised to Very High.

Issue ID # 6878

Date Created: August 18, 2021 - 8:33pm
Date Updated: August 31, 2021 - 8:35am

Submitted by: Michael Chamberland

Status: Fixed
Type: Suggestion
Severity: Minor
Scope: Q15. 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?

Issue Description

The literature supporting question 15 may not be considered "highly credible or reviewed" to be given a "very high" confidence ranking. - Michael Chamberland

Issue Resolution (Screener's Response to Issue)

I added a new citation re germination related to bird ingested seed. With this additional information I retained the Yes score, but reduced the confidence to medium.

Issue ID # 6877

Date Created: August 18, 2021 - 8:29pm
Date Updated: August 31, 2021 - 6:25pm

Submitted by: Michael Chamberland

Status: Fixed
Type: Comment
Severity: Minor
Scope: Q14. Does this plant produce copious viable seeds each year (>1000)?

Issue Description

The question about copious viable seeds is a difficult one. See HEAR.org (2010). HEAR Searsia lancea risk assessment for Hawaii. Although, their assessment is a bit difficult to interpret. - Michael Chamberland

Issue Resolution (Screener's Response to Issue)

I did view the HEAR assessment Michael. I could not find the original document at the URL provided or via a search. It was second-hand information and did not seem conclusive. I am remaining with my score.

Issue ID # 6876

Date Created: August 18, 2021 - 8:23pm
Date Updated: August 31, 2021 - 6:00pm

Submitted by: Michael Chamberland

Status: Fixed
Type: Suggestion
Severity: Minor
Scope: Q10. Does the plant produce impenetrable thickets, blocking or slowing movement of animals, livestock, or humans?

Issue Description

There is a scarcity of information on the formation of impenetrable thickets (but see Stern, M. (2008). Searsia lancea. South Africa National Biodiversity Institute - PlantZAfrica. for a stronger statement about dense growth). A choice of "no" here would be an inference, which has a maximum confidence scoring as "Medium." - Michael Chamberland

Issue Resolution (Screener's Response to Issue)

I did add two somewhat reliable documented records, but without more info on interference with anumals, livestock or humans I am retaining the "No" answer. I am lowering the confidence to "Medium".

Issue ID # 6875

Date Created: August 18, 2021 - 8:22pm
Date Updated: August 31, 2021 - 8:59am

Submitted by: Michael Chamberland

Status: Fixed
Type: Suggestion
Severity: Minor
Scope: Q09. Is the plant a health risk to humans or animals/fish? Has the species been noted as impacting grazing systems?

Issue Description

There is a lack of information on whether the plant is a health risk to humans or animals/fish. Although there are publications mentioning allergenic pollen (probably minor allergies). A "no" here would be an inference, which has a maximum confidence scoring as "Medium." - Michael Chamberland

Issue Resolution (Screener's Response to Issue)

I retained the NO score, although I did add references re allergic and dermal reactions. However the source is a newspaper article and often these are not balanced reports. I find no mention of complications with grazing animals or livestock, but some with humans. This is a tricky question, with conflicting information. Confidence moved to Low.

Issue ID # 6874

Date Created: August 18, 2021 - 8:11pm
Date Updated: August 31, 2021 - 5:30pm

Submitted by: Michael Chamberland

Status: Fixed
Type: Comment
Severity: Minor
Scope: Q05. Are other species of the same genus invasive in a similar climate?

Issue Description

Searsia lancea will be best compared to those Rhus which have been segregated out as Seasia (a group of principally African species). Otherwise the genus Rhus as a whole is too large to draw correlations of invasiveness. Unfortunately, in the literature which predates the separation of Searsia it is difficult to interpret which are now Searsia. - Michael Chamberland

Issue Resolution (Screener's Response to Issue)

Agreed in full. No change to the scoring.

Issue ID # 6873

Date Created: August 18, 2021 - 7:54pm
Date Updated: August 31, 2021 - 6:43pm

Submitted by: Michael Chamberland

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

Issue Description

Check for consistency in reference citations. I have noticed these cited as (Author) or (Author date) or (Author, date). - Michael Chamberland

Issue Resolution (Screener's Response to Issue)

I edited a few. My citations are given only as quick keys to the references cited on each question detail. Although not always consistant, I used an acronym to make it easy for the reader to identify the correct citation. With a couple of edits I have made it now seems pretty straightforward.

Issue ID # 6872

Date Created: August 18, 2021 - 7:52pm
Date Updated: August 31, 2021 - 5:19pm

Submitted by: Michael Chamberland

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

The phrase "Invasiveness possibilities" may be one to reconsider. The use of the term "invasive" in many accounts probably follows a colloquial use which is not the same definitition used by PRE. The PRE is defining invasive as causing significant economic or environmental damage. Reviewing additional published literature on Searsia naturalization in Arizona can add more data on its degree of naturalization, which can be seen in Arizona as not causing significant economic or environmental damage. - Michael Chamberland

Issue Resolution (Screener's Response to Issue)

Agree with Michael that "invasive" is often used in a more relaxed manner than used by PRE or Cal-IPC. No change to the scoring.

Issue ID # 6871

Date Created: August 18, 2021 - 7:38pm
Date Updated: August 30, 2021 - 6:36pm

Submitted by: Michael Chamberland

Status: Fixed
Type: Suggestion
Severity: Major
Scope: Q05. Are other species of the same genus invasive in a similar climate?

Issue Description

The evaluation states that Rhus typhina is highly invasive in the eastern USA. It is a native plant in the

eastern USA. - Michael Chamberland

Issue Resolution (Screener's Response to Issue)

I was not clear that R. typhina occurs in both native and invasive positions in portions of Eastern North America. I re-stated my narrative and added a reference.

Issue ID # 6870

Date Created: August 18, 2021 - 7:31pm
Date Updated: August 31, 2021 - 6:46pm

Submitted by: Michael Chamberland

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

Issue Description

Several references have a (0) for publication date. For undated web material, it may be prefeerable to list the current year (being the year the site was accessed). - Michael Chamberland

Issue Resolution (Screener's Response to Issue)

I am unclear on this protocol. If a website, publication dates are often not available. It would be assumed that the site was referenced during the preperation of this evaluation, which is a fairly narrow period and I am not comfortable entering the "access date" as the "publication date". Sorry, not making much of a change here.

Issue ID # 6869

Date Created: August 18, 2021 - 7:29pm

Date Updated: August 31, 2021 - 6:56pm

Submitted by: Michael Chamberland

Status: Fixed
Type: Comment
Severity: Minor
Scope: Evaluation as a whole

Issue Description

Several references are authored by "Anonymous." While many web articles do not include an author name, it would be helpful to indicate something, an organization or project name, in the author field. - Michael Chamberland

Issue Resolution (Screener's Response to Issue)

Yes, that is annoying. I corrected all from "anonymous" to something at least a bit more descriptive. Generally it was the publising entity.

Issue ID # 6866

Date Created: August 18, 2021 - 5:34pm
Date Updated: August 30, 2021 - 6:53pm

Submitted by: Nicole Valentine

Status: Fixed
Type: Suggestion
Severity: Minor
Scope: Q03. Is the species (or cultivar or variety) noted as being invasive in the U.S. or world?

Issue Description

Typo in last sentence: non should be none

Issue Resolution (Screener's Response to Issue)

Thanks. Fixed.

Issue ID # 6863

Date Created: August 18, 2021 - 4:02pm
Date Updated: August 31, 2021 - 6:20pm

Submitted by: Nicole Valentine

Status: Fixed
Type: Suggestion
Severity: Minor
Scope: Q11. Does this species (or cultivar or variety) reproduce and spread vegetatively?

Issue Description

Numerous references are mentioned in your justification but only Calflora is listed.
-Nikki Valentine

Issue Resolution (Screener's Response to Issue)

I added three citations. No changes to the scoring.

Issue ID # 6860

Date Created: August 17, 2021 - 11:17pm
Date Updated: August 31, 2021 - 5:05pm

Submitted by: Michael Chamberland

Status: Fixed
Type: Comment
Severity: Minor
Scope: Q03. Is the species (or cultivar or variety) noted as being invasive in the U.S. or world?

Issue Description

Martin's use of the term "invasive" is probably following a colloquial use and not the same definitition used by PRE. The PRE is defining invasive as causing significant economic or environmental damage. Reviewing additional published literature on Searsia naturalization in AZ can add more data on its degree of naturalization. Correct, the answer for this question is "no." - Michael Chamberland

Issue Resolution (Screener's Response to Issue)

Michael, good comment. I did add a citation and link to my Calflora/CCH remark, which I had forgotten to include. No change in the scoring. Agree with your comments on "invasive" not necessarily having a meaning the same as defined by PRE.

Issue ID # 6858

Date Created: August 17, 2021 - 11:01pm
Date Updated: September 4, 2021 - 7:07pm

Submitted by: Michael Chamberland

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

Issue Description

The evaluation states that papers discuss naturalization in portions of the Southwestern US. These should be discussed further and cited as references as they are likely more significant for the issue of Searsia in California than are records from Malta and Canary Islands. - Michael Chamberland

Issue Resolution (Screener's Response to Issue)

Michael, I added a few sources to the California and Arizona statements I made re naturalization in these areas. I think that should cover it.

Issue ID # 6686

Date Created: July 12, 2021 - 3:42pm
Date Updated: July 21, 2021 - 8:34pm

Submitted by: Jutta Burger

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

No evidence with no reference = low confidence. - Jutta Burger

Issue Resolution (Screener's Response to Issue)

07-21-2021: Changing confidence to Low. - Ron Vanderhoff

Issue ID # 6685

Date Created: July 12, 2021 - 3:40pm
Date Updated: July 31, 2021 - 6:51pm

Submitted by: Jutta Burger

Status: Fixed
Type: Suggestion
Severity: Minor
Scope: Q19. Are the plant’s propagules frequently dispersed long distance (>100 m) by wind or water?

Issue Description

Describe features of seed/fruit that are / are not conducive to it being carried by water/wind. Remove long-distance transport information for birds (belongs in Q18). - Jutta Burger

Issue Resolution (Screener's Response to Issue)

I did not make any references to the seed NOT being conducive to being carried by wind/water. Confused.

I left in the text regarding birds in order to provide context to the adjoining statement about the seed being moved in water flow. I think it relates, but will remove it if you feel otherwise.

Issue ID # 6684

Date Created: July 12, 2021 - 3:38pm
Date Updated: August 6, 2021 - 6:13pm

Submitted by: Jutta Burger

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

Tellman reference is missing from sources. Can't get to USGS Plant PDF source online. - Jutta Burger

Issue Resolution (Screener's Response to Issue)

Jutta, this one is a bit tricky and I am uncertain.

Yes, is from an independent RiskAssessment performed by an Australian/New Zealand organization. In it is included a second-hand quote from an Arizona source. Seems legit, but I can't verify any of the information as it is "pers communication". Not sure how to handle this, but I did lower the confidence to medium. Q19 and Q20 have similar challenges.

Issue ID # 6683

Date Created: July 12, 2021 - 3:37pm
Date Updated: August 6, 2021 - 5:59pm

Submitted by: Jutta Burger

Status: Fixed
Type: Suggestion
Severity: Minor
Scope: Q16. Does this plant produce viable seed within the first three years (for an herbaceous species) to five years (for a woody species) after germination?

Issue Description

Check Carr, M. E., C. T Mason Jr., and M. O. Bagby. 1986. Renewable Resources from Arizona Trees and Shrubs. Forest Ecology and Management, 16: 155-167. Lists fast growth rate but no confirmation that it can mature in 5 yr. - Jutta Burger

Issue Resolution (Screener's Response to Issue)

I did some additional research and have raised this to a Yes score, but with only medium confidence. I cannot access the reference suggested by Jutta, but referenced two others.

Issue ID # 6682

Date Created: July 12, 2021 - 3:35pm
Date Updated: August 3, 2021 - 7:10pm

Submitted by: Jutta Burger

Status: Fixed
Type: Suggestion
Severity: Minor
Scope: Q14. Does this plant produce copious viable seeds each year (>1000)?

Issue Description

Cite source for abundant seed production (could use https://aznps.com/documents/PlantPress-Vol24-No2.pdf if nothing better). Reduce confidence down to Moderate for lack of data unless you find a clear reference. - Jutta Burger.

Issue Resolution (Screener's Response to Issue)

I reerenced some sources, none are are research driven or quantifiable. But the number of sources (and others not referenced) seem great enough to score this a Yes. Reduced confidence to medium.

Issue ID # 6680

Date Created: July 12, 2021 - 3:33pm
Date Updated: July 21, 2021 - 8:30pm

Submitted by: Jutta Burger

Status: Fixed
Type: Suggestion
Severity: Minor
Scope: Q12. If naturally detached fragments from this plant are capable of producing new plants, is this a common method of reproduction for the plant?

Issue Description

Add reference. If there are no good references for or against, confidence should go to "low". - Jutta Burger

Issue Resolution (Screener's Response to Issue)

07-21-2021: Changing confidence to "low", as no solid references found.

Issue ID # 6679

Date Created: July 12, 2021 - 3:29pm
Date Updated: August 3, 2021 - 6:51pm

Submitted by: Jutta Burger

Status: Fixed
Type: Suggestion
Severity: Minor
Scope: Q10. Does the plant produce impenetrable thickets, blocking or slowing movement of animals, livestock, or humans?

Issue Description

Add reference for its abiliilty to create dense thickets. Provide link / clearer reference for Clotrimix (it is not coming up on web). Confidence may need to go down to medium if there is no solid published reference. - Jutta Burger

Issue Resolution (Screener's Response to Issue)

I could not recreate my "Clotrimix" reference, so I dropped it.

With additiional research I added threee references indicating environments other than thickets. I actually kept my confidence at High with this additional detail.

Issue ID # 6678

Date Created: July 12, 2021 - 3:25pm
Date Updated: July 31, 2021 - 7:56am

Submitted by: Jutta Burger

Status: Fixed
Type: Comment
Severity: Minor
Scope: Q08. Is the plant noted as promoting fire and/or changing fire regimes?

Issue Description

Could also make reference to its ability to resprout as evidence of fire adaptation. - Jutta Burger

Issue Resolution (Screener's Response to Issue)

Excellent point. Noted.

Issue ID # 6677

Date Created: July 12, 2021 - 3:24pm
Date Updated: July 30, 2021 - 6:44pm

Submitted by: Jutta Burger

Status: Fixed
Type: Suggestion
Severity: Minor
Scope: Q06. Is the species found predominately in a climate matching the region of concern?

Issue Description

Add reference to occurrences in other regions with matching CA climate (e.g., NZ) as well as regions that don't to give us an what proportion of regions matching CA climate host the species (should be >50%). Consider also using GBIF. - Jutta Burger

Issue Resolution (Screener's Response to Issue)

References added to support my conclusion of a high correlation of naturalization to a CA climate match.

Issue ID # 6676

Date Created: July 12, 2021 - 3:11pm
Date Updated: July 21, 2021 - 8:28pm

Submitted by: Jutta Burger

Status: Fixed
Type: Comment
Severity: Minor
Scope: Q05. Are other species of the same genus invasive in a similar climate?

Issue Description

Consider adding reference to comment about invasiveness of Rhus typhina in other regions where climate does not match. https://www.cabi.org/isc/datasheet/47400#toDistributionMaps. - Jutta Burger

Issue Resolution (Screener's Response to Issue)

7/21/2021: Reference added - Ron Vanderhoff

Issue ID # 6675

Date Created: July 12, 2021 - 2:56pm
Date Updated: July 21, 2021 - 7:25pm

Submitted by: Jutta Burger

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

Issue Description

Well answered. Consider providing reference for naturalization in CA and AZ as well. - Jutta Burger

Issue Resolution (Screener's Response to Issue)

7-21-2021: I have added a Calflora/CCH2 reference with a few CA naturalized sites. - Ron Vanderhoff

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Issue ID # 6674

Date Created: July 12, 2021 - 2:53pm
Date Updated: July 21, 2021 - 7:02pm

Submitted by: Jutta Burger

Status: Fixed
Type: Suggestion
Severity: Major
Scope: Regional Information

Issue Description

Climate match map is only for SW region, not all of California. Redo for CA and check climate-associated questions once this is corrected. - Jutta Burger

Issue Resolution (Screener's Response to Issue)

7/21/2021: Deleted the prior map and attached a new map, including all of CA. I reviewed any climate related questions and made no changes to the scoring, but did make minor edits to the text and one change to te confidence score. - Ron Vanderhoff

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Issue ID # 6649

Date Created: July 11, 2021 - 9:49pm
Date Updated: July 31, 2021 - 7:15pm

Submitted by: Lynn Sweet

Status: Fixed
Type: Suggestion
Severity: Minor
Scope: Q19. Are the plant’s propagules frequently dispersed long distance (>100 m) by wind or water?

Issue Description

This is a tough one, guidance suggests it happens, but I can't find morphology info to support it. Probably a yes? "For water movement, plants that have buoyant seeds structures (e.g., corky appendage, wings, porous tissues) or plants that grow in close proximity to water would likely disperse long distance by this means"

-Lynn Sweet

Issue Resolution (Screener's Response to Issue)

Yes. it is tricky. I added a reference re the seed morphology in order to support at least some potential for

bouyancy and water dipersal. I'm almost certain the seed flats, but can't get specific reference on that.

Issue ID # 6648

Date Created: July 11, 2021 - 9:47pm
Date Updated: July 31, 2021 - 8:26am

Submitted by: Lynn Sweet

Status: Fixed
Type: Comment
Severity: Minor
Scope: Q14. Does this plant produce copious viable seeds each year (>1000)?

Issue Description

Could include citation to a photo or specimen, or botanical description listing #flowers or fruits, infl type.

-Lynn Sweet

Issue Resolution (Screener's Response to Issue)

I ded two references, although not difinitive. Reduced confidence to moderate.

Issue ID # 6647

Date Created: July 11, 2021 - 9:47pm
Date Updated: July 21, 2021 - 7:17pm

Submitted by: Lynn Sweet

Status: Fixed
Type: Suggestion
Severity: Major

Scope: Q11. Does this species (or cultivar or variety) reproduce and spread vegetatively?

Issue Description

This is probably my misdirection here-- In almost every question except this one, we do evaluate whether the behavior is likely to be significant in a wildland setting. However, here, simply because it can do this at all, it is documented to do it frequently, it should be a yes, guidance being it can, "can spread vegetatively without the need for seed production ...by rhizomes, stolons, tubers, corms, bulbs or bulblets in herbaceous species, or via root sprouts/suckers,"

-Lynn Sweet

Issue Resolution (Screener's Response to Issue)

Excellent comment from Lynn. I re-read this question, added some additional notes to the questions and re-scored the quested to a "Yes". However, I am still unueasy with the question/my answer.

I am conflicted about the documentation that states the plants propensity to sucker and spread by root sprouts, but not finding any documentations stating its propensity to "reproduce" itself it that manner. "Spreading" vs. "reproducing" is a bit ambiguous. Nonetheless, I am scoring a Yes, since the species apparently does at least have some of this ability. But I am offering only a Medium confidence level, due to this uncertainty.

Issue ID # 6646

Date Created: July 11, 2021 - 9:46pm
Date Updated: August 6, 2021 - 6:20pm

Submitted by: Lynn Sweet

Status: Fixed
Type: Comment
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

Omit mention of confidence here since it could be confused with the categorical assignment for the question.

-Lynn Sweet

Issue Resolution (Screener's Response to Issue)

Lynn, I don't see that "confidence" reference in Question 02. Perhaps you mixed this up with a different question?

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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