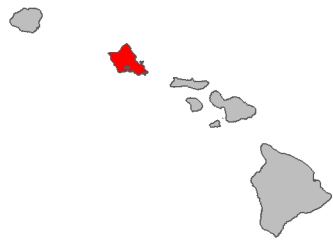


Fire risk report for *Phytolacca dioica*

Full Species Name <i>Phytolacca dioica</i> L.
Family: Phytolaccaceae
Common names: bella sombra ombu
Synonyms:
Known occurrences (as of 2020) 
Year first documented as naturalized in Hawai'i: 2010
This species has been ranked by the Hawai'i Weed Risk Assessment program as High Risk with a score of 9.
View photos on Starr Environmental
View on Wikipedia
View occurrences on iNaturalist
View at Plants of Hawaii
View photos on Flickr

0 **I** .5 1
Lowest risk ⇔ Highest risk

This species is likely a **low** fire risk in Hawai'i with a fire risk score of **0.25**.

This species was ranked by our machine learning algorithm using the data presented on the next page. A predicted score of > .34 suggests the plant is a high fire risk.

Summary of Fire ecology	
Native habitat fire proneness	Fire-prone
Fire promoting plant in its native range	No
Fire promoting plant in its introduced range*	No
Regenerates after fire	Yes
Promoted by fire	no data
Reported flammable*	Low
Relative is flammable*	No

*These values were used by the model to predict fire risk

Detailed summary of Fire Ecology

<p>Native habitat fire proneness (In any part of the plant's native range is its habitat described as fire prone due to natural or human caused fires?)</p>	<p>Fire-prone</p>	<p>"For dry forests under the outcrop in Minas Gerais, Pedralli (1997) describes an arboreal stratum with discontinuous canopy, and where the forest presents canopy, it presents itself with greater density, and the occurrence of natural clearings can also be observed. Individuals who pass over (emergent) can reach heights of 20m. In this stratum Anadenantheracolubrina (angico), Myracrodruon urundeuva (aroeira), Phytolacca dioica (cebolão), Celtisguanea (spur-of-cock), Cedrela odorata (cedar), Enterolobium contortisiliquum (anglerfish), among other species, occur [machine translated to english]"</p> <p>#dry forests may be fire prone</p> <p>Nascimento, A. R. T., Felfili, J. M., & Meirelles, E. M. (2004). Floristic and structure of a seasonal deciduous forest fragment, Monte Alegre, GO, Brazil. Acta Botanica Brasilica, 18(3), 659-669.</p> <p>https://core.ac.uk/reader/33541853</p> <p>-----</p> <p>"The Ombu's massive, fire resistant trunks contain water storage tissue, an excellent adaptation for intense grassland fires which are common in this region. The "trees" have enlarged bases in which they store water. This plant is plentiful in the pampas regions. It grows naturally in these areas."</p> <p>http://www.blueplanetbiomes.org/ombu.htm [9 Nov 2007]</p> <p>-----</p> <p>"The massive, fire-resistant trunk contains water storage tissue, an excellent adaptation for raging grass fires that periodically sweep across the pampas."</p> <p>http://waynesword.palomar.edu/ecoph24.htm [9 Nov 2007]</p>
<p>Fire promoting plant in its native range (Does the species act as a major fuel source, increase fire severity, frequency, or modify fuel bed characteristics within its native range?)</p>	<p>No</p>	

Fire promoting plant in its introduced range (Same as Fire Promoting Native but within the species introduced range)	No	
Regenerates after fire (Does the plant regrow after fire by any means? This includes resprouters, reseeder, and recruiters which dispersed into the area within approximately one year post fire)	Yes	<p>"[seed germination increased from 13 percent to 52% after burning; table 6]" https://core.ac.uk/reader/293602322 Pierry, R. B. (2017). Atributos das sementes e germinação de espécies arbóreas: perspectivas para restauração ecológica ----- "The Ombu's massive, fire resistant trunks contain water storage tissue, an excellent adaptation for intense grassland fires which are common in this region. The "trees" have enlarged bases in which they store water. This plant is plentiful in the pampas regions. It grows naturally in these areas." http://www.blueplanetbiomes.org/ombu.htm ----- "No evidence of fire was found in group 4 [the only group which had P. dioica; table 1]" #uncertain how to interpret this https://www.jstor.org/stable/pdf/41508757.pdf Sirolli, H., & Kalesnik, F. A. (2011). Effects of fire on a forest-grassland ecotone in De La Plata River, Argentina. Plant ecology, 212(4), 689-700.</p>
Promoted by fire (Does the plant increase in abundance after a fire?)	no data	
Reported flammable (Is the species described as being flammable, being a major wildfire fuel, or high fire risk?)	Low	<p>"The trunk and branches contain up to 80% of water." http://www.worldagroforestrycentre.org/SEA/Products/AFDbases/AF/asp/SpeciesInfo.asp?SpID=1294 [9 Nov 2007]</p>
Relative is flammable (Does a plant in the same genus meet the Reported Flammable criteria?)	No	<p>"Fire Risk Rating: medium flammability [P. americana]" https://plants.ces.ncsu.edu/plants/phytolacca-americana/</p>

Text in quotes are direct quotes from the source

Text in square brackets was added by the assessor to clarify something or to summarize from a figure.

Text preceded by a “#” is comment from the assessor

The data presented were assembled from literature and database searches for each species using as much data as could be collected regarding the plant’s fire ecology under natural conditions. Searches aimed to be exhaustive and consist of as much data as could be located in 2020. Our machine learning algorithm was trained on 49 species of plants which had their fire risk ranked by 49 managers in Hawai’i in November 2020. The model used a conditional random forest regression algorithm to predict scores for each species using the manager score as the response variable and the fire ecology traits of each plant as the predictor variables to generate a fire risk score. This trained model was then used to predict the fire risk for all species which were not ranked by managers. The model was calibrated such that it is 90% accurate at predicting high fire risk plants and 79% accurate at predicting low fire risk plants. This research and the resulting fire risk model has been published in the journal [Biological Invasions](#) by [Kevin Faccenda](#) and [Curt Daehler](#) (both at the University of Hawai’i at Mānoa).

Note that the analysis doesn’t account for a plant species’ spatial distribution, population density, or distinct climate and ecosystem conditions (which can also influence fire risk). The fire risk of these species are mostly under “worst case” environmental conditions where the climate is dry enough to maintain fire, but wet enough to allow for plant growth and fuel accumulation. The fire risk ranking should not be taken as a stand-alone risk metric in prioritizing weed control efforts. Rather, this information may also be useful for determining if a newly discovered species poses a potential fire threat in wildland areas.

More general information on the weed risks and ecology of non-native plants in Hawai’i is available from the Hawai’i Invasive Species Committee’s [Weed Risk Assessment database](#).

View more fact sheets at <https://www.pacificfireexchange.org/weed-fire-risk-assessments>

Fact sheet prepared by Kevin Faccenda (faccenda@hawaii.edu) in November 2021. Data were prepared by Kevin Faccenda in 2020.

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