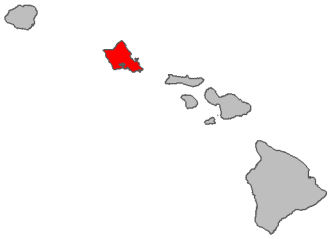
Fire risk report for *Pittosporum senacia*

Full Species Name *Pittosporum senacia* Putt.
Family: Pittosporaceae
Common names:
Synonyms:
Known occurrences (as of 2020) 
Year first documented as naturalized in Hawai'i: 2013
This species has been ranked by the Hawai'i Weed Risk Assessment program as High Risk with a score of 7.
View photos on Starr Environmental
View on Wikipedia
View occurrences on iNaturalist
View at Plants of Hawaii
View photos on Flickr

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Lowest risk ⇔ Highest risk

This species is likely a **low** fire risk in Hawai'i with a fire risk score of **0.22**.

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	Uncertain
Fire promoting plant in its native range	No
Fire promoting plant in its introduced range*	No
Regenerates after fire	no data
Promoted by fire	no data
Reported flammable*	No Data
Relative is flammable*	Yes

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

Detailed summary of Fire Ecology

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?)	Uncertain	
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?)	No	
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, reseeders, and recruiters which dispersed into the area within approximately one year post fire)	no data	
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?)	No Data	

Relative is flammable (Does a plant in the same genus meet the Reported Flammable criteria?)	Yes	"species presenting lower ignitabilitywere characterised by high GHC (Pittosporum tobira, Nerium oleander, Cupressus sempervirens)" https://hal.archives-ouvertes.fr/hal-00941751/file/ax2013-pub00039867.pdf Ganteaume, A., Jappiot, M., Lampin, C., Guijarro, M., & Hernando, C. (2013). Flammability of some ornamental species in wildland–urban interfaces in southeastern France: laboratory assessment at particle level. Environmental Management, 52(2), 467-480. --- "[P. viridiflorum was relatively flammable at around 1.5 on their flammability index, but that doesn't necessarily represent field conditions]" https://www.sciencedirect.com/science/article/pii/S0254629915003282 Calitz, W., Potts, A. J., & Cowling, R. M. (2015). Investigating species-level flammability across five biomes in the Eastern Cape, South Africa. South African Journal of Botany, 101, 32-39. --- "We do not know whether living P. undulatum trees are more flammable than native trees; the bark is resinous, the leaves seem quite volatile rich (in comparison with most Blue Mountain species) and the wood is dense and so would probably burn at a high temperature. There may be the possibility that areas with serious blowdown of P. undulatum could be vulnerable to fire. However, of the hundred or so P. undulatum trees seen after being blown down by H. Gilbert, only two had died, suggesting that the amount of dead and therefore flammable wood following a major blowdown of P. undulatum would be small." http://iwpt.bangor.ac.uk/pittorep.pdf Goodland, T., and John Robert Healey. The invasion of Jamaican montane rainforests by the Australian tree Pittosporum undulatum. Bangor: School of Agricultural and Forest Sciences, University of Wales, 1996. --- "P. halepensis. L. nobilis and P[ittosporum]. tobira were designated as fairly ignitable species as they did not show any significant difference in comparison to P. halepensis but had significantly longer ID when compared to P. lentiscus."

		https://downloads.hindawi.com/journals/jc/2014/970218.pdf Kauf, Z., Fangmeier, A., Rosavec, R., & Španjol, Ž. (2014). Testing vegetation flammability: the problem of extremely low ignition frequency and overall flammability score. Journal of Combustion, 2014. --- "[P. crassifolium, P. eugeniodes, P. tenuifolium were ranked as low to moderate flammability. Appendix 1]" https://fireandemergency.nz/assets/Documents/Research-and-reports/Report-20-A-Flammability-Guide-for-Some-Common-New-Zealand-Native-Tree-and-Shrub-Species.PDF A flammability guide for some common new zealnd native tree and shrub species 2001. Liam fogarty NZ fire service commission research report number 20. ISBN 0-908920-63-6 --- "WARNING: Recent research has shown that Pittosporum undulatum Sweet Pittosporum, which was previously on the fire retardant list, has now proven to be highly flammable once dried out and heated up by bushfires. It should NEVER be planted as it is also one of the most invasive weeds in our bushland. If you have already planted this species, it is recommended that you remove it immediately, as it is no longer safe to leave in your gardens or firebreaks, and is a serious threat to our bushland." https://apsvic.org.au/fire-resistant-and-retardant-plants/

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

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

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