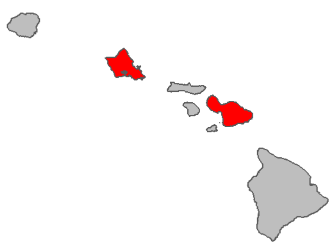
Fire risk report for *Neustanthus phaseoloides*

Full Species Name *Neustanthus phaseoloides* (Roxb.) Benth.	
Family: Fabaceae	
Common names: tropical kudzu	
Synonyms: *Pueraria phaseoloides*	
Known occurrences (as of 2020) 	
Year first documented as naturalized in Hawai'i: 2007	
This species has been ranked by the Hawai'i Weed Risk Assessment program as High Risk with a score of 17.	
View photos on Starr Environmental	
View on Wikipedia	
View occurrences on iNaturalist	
View at Plants of Hawaii	
View photos on Flickr	

0 | .5 | 1
Lowest risk ⇔ Highest risk

This species is likely a **low** fire risk in Hawai'i with a fire risk score of **0.16**.

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	No Data
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*	No

*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?)	No Data	#unlikely; grows in wet areas in SE asia
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	"Puero is a tropical species requiring a long reliable wet season with at least 1200-1500 mm of rainfall and no regular dry season; it will grow through a mild winter but will drop its leaf if the temperature falls below 10°C. "[unlikely fire hazard, wet environments] http://www.dpi.qld.gov.au/pastures/4573.html
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?)	No	"Because kudzu tends to be more opportunistic than predictable in its occurrence, it is difficult to ascribe particular fire regimes to it. To the extent that abundant, moist, green kudzu foliage can inhibit fire, kudzu may alter historic fire regimes by lengthening fire return intervals. Conversely, substantial fuel loading from dense mats of kudzu litter may enhance dormant-season fire potential. Additionally, the presence of kudzu in forest canopies may provide ladder fuels that enhance the likelihood of crown fires, particularly in areas where frequent surface fires may otherwise maintain seral pine or oak dominants. As kudzu invades shrub and forest communities, increases in standing and ground-layer fuels from dead woody plants that have succumbed to invasion could also increase fire intensity and severity. These scenarios are speculative." https://www.fs.fed.us/database/feis/plants/vine/puemonl/all.html#FIRE%20ECOLOGY KEEP IN MIND contradictory

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 Hawaiʻi 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 Hawaiʻi is available from the Hawaiʻi 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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