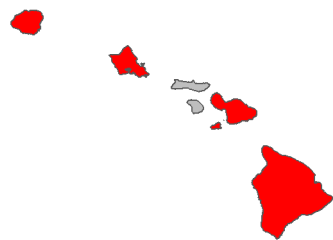


Fire risk report for *Digitaria eriantha*

Full Species Name <i>Digitaria eriantha</i> Steud.	0 .51 Lowest risk ⇔ Highest risk																	
Family: Poaceae	This species is likely a high fire risk in Hawai'i with a fire risk score of 0.70 .																	
Common names: pangola grass	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.																	
Synonyms:																		
Known occurrences (as of 2020) 	<table><tr><th colspan="2">Summary of Fire ecology</th></tr><tr><td>Native habitat fire proneness</td><td>Fire-prone</td></tr><tr><td>Fire promoting plant in its native range</td><td>No</td></tr><tr><td>Fire promoting plant in its introduced range*</td><td>Yes</td></tr><tr><td>Regenerates after fire</td><td>No</td></tr><tr><td>Promoted by fire</td><td>No</td></tr><tr><td>Reported flammable*</td><td>High</td></tr><tr><td>Relative is flammable*</td><td>No</td></tr></table>		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*	Yes	Regenerates after fire	No	Promoted by fire	No	Reported flammable*	High	Relative is flammable*	No
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*	Yes																	
Regenerates after fire	No																	
Promoted by fire	No																	
Reported flammable*	High																	
Relative is flammable*	No																	
Year first documented as naturalized in Hawai'i: 1939																		
This species has been ranked by the Hawai'i Weed Risk Assessment program as High Risk with a score of 8.																		
View photos on Starr Environmental																		
View on Wikipedia																		
View occurrences on iNaturalist																		
View at Plants of Hawaii																		
View photos on Flickr																		

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

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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?)	Fire-prone	<p>"Okavango Delta in north-western Botswana are low soil water availability during the dry season, periodic flooding, generally low soil fertility, fire and grazing... Vegetative cuttings of a tillering perennial, <i>Digitaria eriantha</i> Steud (NADP-ME), a tufted perennial <i>Eragrostis lehmanniana</i> Nees (NAD-ME), and a rhizomatous perennial <i>Panicum repens</i> L. (PCK), were collected from a floodplain in the Okavango Delta. <i>Digitaria eriantha</i> is native to Southern Africa. It is regarded as drought tolerant, and considered to have low shade tolerance, but high fire tolerance (Bogdan, 1977; Gibbs Russel et al., 1990)."</p> <p>Mantlana, K. B., Veenendaal, E. M., Arneth, A., Grispen, V., Bonyongo, C. M., Heitkonig, I. G., & Lloyd, J. (2009). Biomass and leaf-level gas exchange characteristics of three African savanna C4 grass species under optimum growth conditions. <i>African Journal of Ecology</i>, 47(4), 482-489.</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?)	No	
Fire promoting plant in its introduced range (Same as Fire Promoting Native but within the species introduced range)	Yes	<p>"Environmental weeds such as Guinea grass (<i>Panicum maximum</i>) and couch (<i>Digitaria eriantha</i>) are also present and pose a fire risk due to the large flammable fuel loads they create."</p> <p>http://www.mackay.qld.gov.au/__data/assets/pdf_file/0009/99450/Grasstree_Beach_SCSLP_Final.pdf.</p> <p>Sarina Landcare Catchment Management Association. 2008. Sarina Coastal Sustainable Landscapes Project - Grasstree Beach.</p>
Regenerates after fire (Does the plant regrow after fire by any means? This includes resprouters, reseeder,	No	<p>"For <i>D. eriantha</i> a three-fold increase in the average number of individuals was recorded from the annual burn to the protected site but only the differences between the annual bum and the protected site were significant ($P <$</p>

and recruiters which dispersed into the area within approximately one year post fire)		0,01). [the protected area had 3x as much cover compared to the annual burn]" #weakly regenerates Yeaton, R. I., Frost, S., & Frost, P. G. H. (1988). The structure of a grass community in <i>Burkea africana</i> savanna during recovery from fire. South African Journal of Botany, 54(4), 367-371.
Promoted by fire (Does the plant increase in abundance after a fire?)	No	" <i>D. eriantha</i> , a palatable species, is reduced in both number of individuals present and in its total mean basal area by frequent burning." Yeaton, R. I., Frost, S., & Frost, P. G. H. (1988). The structure of a grass community in <i>Burkea africana</i> savanna during recovery from fire. South African Journal of Botany, 54(4), 367-371.
Reported flammable (Is the species described as being flammable, being a major wildfire fuel, or high fire risk?)	High	" <i>Digitaria eriantha</i> was the dominant grass species in all the fire break transects. The high flammability factor of this grass species contributed significantly to the spread of the fire even though the percentage grass curing was relatively low, and resulted in a clean burn. ... The explanation for this phenomenon is that <i>Digitaria eriantha</i> , <i>Themeda triandra</i> and many other species of grass dry off in the winter from the bottom up resulting in higher levels of dead material at the base of the grass tufts thereby facilitating the ignition of the grass tufts and the spread of the fire." de Bruno Austin, C., Trollope, W. S., Trollope, L. A., Sowry, R., & Connolly, B. 2011. Development of Open Ended Fire Breaks in the Kruger National Park, South Africa. In: Living with Fire Addressing Global Change through Integrated Fire Management. Sun City, South Africa, 9-13 May 2011
Relative is flammable (Does a plant in the same genus meet the Reported Flammable criteria?)	No	

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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