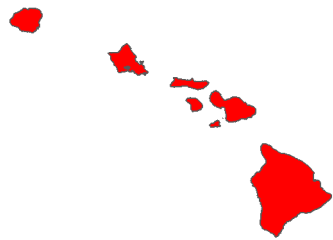


Fire risk report for *Digitaria insularis*

Full Species Name <i>Digitaria insularis</i> (L.) Mez ex Ekman
Family: Poaceae
Common names: sourgrass
Synonyms:
Known occurrences (as of 2020) 
Year first documented as naturalized in Hawai'i: 1913
This species has been ranked by the Hawai'i Weed Risk Assessment program as High Risk with a score of 20.
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 **0.31**.

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	Yes
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?)	Fire-prone	"Digitaria insularis is one of several grass species that dominate in fire-induced grasslands occurring after fires in the Chaco forest in the southwest part of Santiago del Estero." Kunst, C., Monti, E., Pérez, H., Godoy, J. 2006. Assessment of the rangelands of southwestern Santiago del Estero, Argentina, for grazing management and research. Journal of Environmental Management. 80:248-265.
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	"D. insularis, a native ruderal, was abundant on a single site where it grew amongst burnt slash on the border of a pasture; Digitaria was also present in fallowed swidden plots dominated by Imperata" ... "All natural savannas and 16 of 17 derived savannas showed signs of recent (within 5 years) fires, with median time since lastfire of 1 year. But whereas all natural savannas had burned within 1 year, time since fire in derived savannas ranged 1–5 years The positions of most derived savannas corresponded with the species scores of the following dominant grasses: Guadua, Urochloa brizantha and Urochloa maxima, Imperata brasiliensis, and Digitaria insularis(Fig. 3c)." #maybe fire promoting? It's listed last in the list so not super certain Veldman, J. W., & Putz, F. E. (2011). Grass-dominated vegetation, not species-diverse natural savanna, replaces degraded tropical forests on the southern edge of the Amazon Basin. Biological Conservation, 144(5), 1419-1429.
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)	Yes	"Digitaria insularis is one of several grass species that dominate in fire-induced grasslands occurring after fires in the Chaco forest in the southwest part of Santiago del Estero." Kunst, C., Monti, E., Pérez, H., Godoy, J. 2006. Assessment of the rangelands of southwestern Santiago del Estero, Argentina, for grazing management and research. Journal of Environmental Management. 80:248-265.

within approximately one year post fire)		
Promoted by fire (Does the plant increase in abundance after a fire?)	Yes	"Sourgrass was more abundant on abandoned dry areas and on ranges where native vegetation has been reduced in density and vigor by continued overgrazing or by fire" https://scholarspace.manoa.hawaii.edu/bitstream/10125/12041/1/uhm_phd_7616505_r.pdf Pyon, J. Y. (1975). Studies on the biology of sourgrass (<i>Trichachne insularis</i> (L.) Nees) and of its competition with buffelgrass (<i>Cenchrus ciliaris</i> L.) and guineagrass (<i>Panicum maximum</i> Jacq.) (Doctoral dissertation).
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	"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." http://www.mackay.qld.gov.au/__data/assets/pdf_file/0009/99450/Grasstree_Beach_SCSLP_Final.pdf . Sarina Landcare Catchment Management Association. 2008. Sarina Coastal Sustainable Landscapes Project - Grasstree Beach.

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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