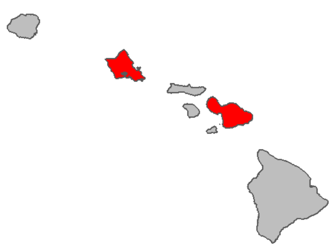
Fire risk report for *Distichlis spicata*

Full Species Name *Distichlis spicata* (L.) Greene	
Family: Poaceae	
Common names: saltgrass	
Synonyms:	
Known occurrences (as of 2020) 	
Year first documented as naturalized in Hawai'i: 1977	
This species has not yet been ranked by the Hawai'i Weed Risk Assessment program as of 2020.	
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 **high** fire risk in Hawai'i with a fire risk score of **0.70**.

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*	High
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?)	Fire-prone	"Prior to land use changes, grassland communities where saltgrass occurs burned regularly" https://www.fs.fed.us/database/feis/plants/graminoid/disspi/all.html
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	#most information on fire and this species seems to be controlled burns
Fire promoting plant in its introduced range (Same as Fire Promoting Native but within the species introduced range)	No	#not invasive anywhere else
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)	Yes	"Fire top-kills saltgrass. The seeds and rhizomes generally survive fire .... Saltgrass seed banks survive burns, allowing for on-site seedling germination [287,293]. Further, saltgrass seed dormancy [7,322] allows for germination on early seral burns. " https://www.fs.fed.us/database/feis/plants/graminoid/disspi/all.html
Promoted by fire (Does the plant increase in abundance after a fire?)	Yes	"Saltgrass coverage and frequency have been found to decrease [77,122], increase [108,194,327,328,352], and remain unchanged [189] following fire... annual and 3-year burn rotations were studied in 2 salt marsh communities in Maryland. In general, annual burns favored saltgrass more than less frequent burning. " https://www.fs.fed.us/database/feis/plants/graminoid/disspi/all.html

Reported flammable (Is the species described as being flammable, being a major wildfire fuel, or high fire risk?)	High	"Fuel load: Saltgrass fuel loadings vary considerably in Florida salt marshes and mangrove swamps. Generally, the fuel bed depth in saltgrass communities is only 1 to 2 feet (0.3-0.6 m)" https://www.fs.fed.us/database/feis/plants/graminoid/disspi/all.html ---------------------------- "Four monotypic vegetation types were studied: Scirpus maritimus, S. lacustris, Typha latifolia, and Distichlis spicata" #must be flammable if a monotypic stand was able to burn Smith, L. M., & Kadlec, J. A. (1985). Fire and Herbivory in a Great Salt Lake Marsh. Ecology, 66(1), 259–265. https://doi.org/10.2307/1941326
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 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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