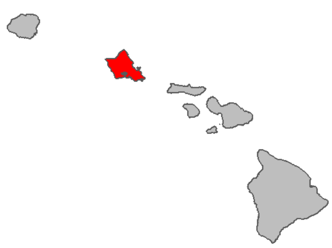
Fire risk report for *Sporobolus piliferus*

Full Species Name *Sporobolus piliferus* (Trin.) Kunth
Family: Poaceae
Common names: Barundi dropseed
Synonyms:
Known occurrences (as of 2020)



Year first documented as naturalized in Hawai'i: 1996
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 **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	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?)	Fire-prone	"From historical record it may be assumed that annual burning has been practiced throughout the colonial period as well as in more recent times." Allen (1955) [table 2 lists S. ciliatus in the survey area which was recently burned]" https://www.jstor.org/stable/2989810 Clewell, A. F. (1973). Floristic composition of a stand of Pinus oocarpa in Honduras. Biotropica, 175-182. ---------------------------- "Besides humidity, another ecological factor affecting habitat selection was the occurrence of fires. Geophytes and hemicryptophytes were the prominent life forms in grasslands (Fig. 4), indicating dry conditions with recurring fires. [table 2 lists S. pilifer as occuring in grasslands]" https://onlinelibrary.wiley.com/doi/pdf/10.1055/s-2001-17729 Hemp, A. (2001). Ecology of the pteridophytes on the southern slopes of Mt. Kilimanjaro. Part II: Habitat selection. Plant biology, 3(5), 493-523. ---------------------------- "[lists S. ciliatus as occuring in fire prone grasslands]" Longhi-Wagner, H. M., Dorneles Welker, C. A., & Waechter, J. L. (2012). Floristic affinities in montane grasslands in eastern Brazil. Systematics and Biodiversity, 10(4), 537-550.
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	No Data	

after fire by any means? This includes resprouters, reseeders, and recruiters which dispersed into the area within approximately one year post fire)		
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	"Most of the grassland areas are tall, bunch-grass communities. Dominant species are Themeda triandra, Sporobolus pyramidalis, Eragrostis curvula, and Hyparrhenia filipendula. These communities produce a peak biomass each year of 400–700 g/m2 and are highly flammable" https://doi.org/10.1890/03-5210 Archibald, S., Bond, W. J., Stock, W. D., & Fairbanks, D. H. K. (2005). Shaping the landscape: fire–grazer interactions in an African savanna. Ecological applications, 15(1), 96-109.

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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