Fire risk report for *Eragrostis ciliaris*

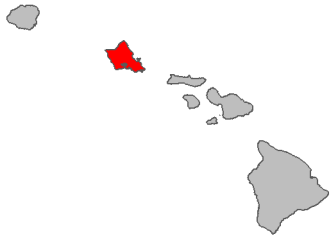
Full Species Name
Eragrostis ciliaris (L.) R.Br.

Family: Poaceae

Common names:
lovegrass

Synonyms:

Known occurrences (as of 2020)



Year first documented as naturalized in Hawai'i: 1976

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

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	No
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	
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 after fire by any means? This includes resprouters, reseeders, and recruiters which dispersed into the area within approximately one year post fire)	No	"[density changed from 1.2 before fire to 0 after fire; table 3]" Mamede, M. D. A., & De Araújo, F. S. (2008). Effects of slash and burn practices on a soil seed bank of caatinga vegetation in Northeastern Brazil. Journal of Arid Environments, 72(4), 458-470. https://doi.org/10.1016/j.jaridenv.2007.07.014 Mamede, M. D. A., & De Araújo, F. S. (2008). Effects of slash and burn practices on a soil seed bank of caatinga vegetation in Northeastern Brazil. Journal of Arid Environments, 72(4), 458-470.
Promoted by fire (Does the plant increase in abundance after a fire?)	no data	"In contrast, some weedy herbaceous species, that typically arrive in the environment following disturbance (e.g. after slash and burn to install field crop or pasture), were also present in the two environments studied. These included Cyperus diffusus Vahl., Lindernia crustacea (L.) F. Muell., Lindernia diffusa (L.) Wettst., Physalis angulata L., P. conjugatum and D. ciliata, that were more abundant in the

		pastures and others such as B. latifolia, P. Peltata, Eragrostis ciliaris(L.) R. Br. and Fimbristylis miliacea (L.) Vahl. (Table 3), that exhibited similar density in the two environments." #this isn't direct evidence, but worth including. Miranda, I. S., Mitja, D., & Silva, T. S. (2009). Mutual influence of forests and pastures on the seedbanks in the Eastern Amazon. Weed Research, 49(5), 499-505. https://doi.org/10.1111/j.1365-3180.2009.00719.x
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	"Plant adaptations to fire: Lehmann lovegrass is a seed-banking species. Following fire, soil-stored seeds germinate when moisture conditions become favorable. Within a few months after fire seedling establishment is typically abundant, resulting in replacement stands even after hot fires that kill mature plants. Fire promotes germination because (1) heat from the fire scarifies the hard seed coat and (2) removing the grass canopy results in greater soil temperature fluctuations and greater irradiance of red light, which increase germination [25,27]." https://www.fs.fed.us/database/feis/plants/graminoid/eraleh/all.html#FIRE%20ECOLOGY

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

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Fact sheet prepared by Kevin Faccenda (faccenda@hawaii.edu) in November 2021. Data were prepared by Kevin Faccenda in 2020.

This research was funded by the Department of the Interior Pacific Islands Climate Adaptation Science Center. The project described in this publication was supported by Grant or Cooperative Agreement No.G20AC00073 to Curt Daehler from the United States Geological Survey. The views and conclusions contained in this document are those of the authors and should not be interpreted as representing the opinions or policies of the U.S. Geological Survey. Mention of trade names or commercial products does not constitute their endorsement by the Pacific Islands Climate Adaptation Science Center or the National Climate Adaptation Science Center or the US Geological Survey.