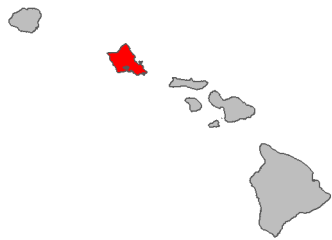


Fire risk report for *Melinis nerviglumis*

Full Species Name <i>Melinis nerviglumis</i> (Franch.) Zizka
Family: Poaceae
Common names: ruby grass
Synonyms:
Known occurrences (as of 2020) 
Year first documented as naturalized in Hawai'i: 2009
This species has been ranked by the Hawai'i Weed Risk Assessment program as High Risk with a score of 7.
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 **high** fire risk in Hawai'i with a fire risk score of **0.38**.

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	No Data
Reported flammable*	Low
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	"Management practices such as mowing of natural grasslands and changing the natural veld fire frequency also have an effect on these natural ecosystems" https://doi.org/10.4102/koedoe.v45i1.13 Grobler, C, G Bredenkamp, and L Brown. "Natural Woodland Vegetation and Plant Species Richness of the Urban Open Spaces in Gauteng, South Africa." <i>Koedoe</i> 45, no. 19 (2002): 19–34. ----- "The <i>L. simplex</i>–<i>M. nerviglumis</i> Major Grassland is represented by plant communities that are mainly associated with shallow lithosols on rocky quartzite, dolomite or chertridges and hills of the Ib land type. This grassland represents typical Rocky Highveld Grassland (Bredenkamp and VanRooyen, 1996c) and in the Acocks (1988) classification, typical Bankenveld grassland. Scattered tree or bush-clump communities may occur in this grassland" https://doi.org/10.1016/j.sajb.2005.10.008 Grobler, C, G Bredenkamp, and L Brown. "Primary Grassland Communities of Urban Open Spaces in Gauteng, South Africa." <i>South African Journal of Botany</i> 72, no. 3 (2006). ----- "Firees occur regularly (at intervals of between 2 and 3 years) in both the SEP and LGVS as a result of accidental ignitions... [later lists <i>M. nerviglumis</i> as occurring]" https://core.ac.uk/reader/82717618 Ellery, W. N., Balkwill, K., Ellery, K., & Reddy, R. A. (2001). Conservation of the vegetation on the Melville Ridge, Johannesburg. <i>South African journal of botany</i>, 67(2), 261-273.
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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	"[only occurred at very low frequency in plots, likely not modifying fire regimes]" Trollope, W., van Wilgen, B., Trollope, L. A., Govender, N., & Potgieter, A. L. (2014). The long-term effect of fire and grazing by wildlife on range condition in moist and arid savannas in the Kruger National Park. African Journal of Range & Forage Science, 31(3), 199-208.
Fire promoting plant in its introduced range (Same as Fire Promoting Native but within the species introduced range)	No	#not widely introduced, no data expected
Regenerates after fire (Does the plant regrow after fire by any means? This includes resprouters, reseeder, and recruiters which dispersed into the area within approximately one year post fire)	Yes	"[Described as an increaser with respect to grazing]" #often plants which increase after grazing will often regenerate after fire Trollope, W., van Wilgen, B., Trollope, L. A., Govender, N., & Potgieter, A. L. (2014). The long-term effect of fire and grazing by wildlife on range condition in moist and arid savannas in the Kruger National Park. African Journal of Range & Forage Science, 31(3), 199-208. ----- "Firees occur regularly (at intervals of between 2 and 3 years) in both the SEP and LGVS as a result of accidental ignitions... [later lists M. nerviglumis as occurring]" #regeneration implicit if fires occur so frequently https://core.ac.uk/reader/82717618 Ellery, W. N., Balkwill, K., Ellery, K., & Reddy, R. A. (2001). Conservation of the vegetation on the Melville Ridge, Johannesburg. South African journal of botany, 67(2), 261-273.
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?)	Low	"[a low fuel factor of 2/10. table 3]" Trollope, W., van Wilgen, B., Trollope, L. A., Govender, N., & Potgieter, A. L. (2014). The long-term effect of fire and grazing by wildlife on range condition in moist and arid savannas in the Kruger National Park. African Journal of Range & Forage Science, 31(3), 199-208.

Relative is flammable (Does a plant in the same genus meet the Reported Flammable criteria?)	Yes	"The dry biomass of [<i>Melinis repens</i>] leads to an increase in fire frequencies and its dense growth crowds out native early successional species" https://www.cabi.org/isc/datasheet/116730
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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 Ronja Steinbach and Kevin Faccenda in 2020.

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