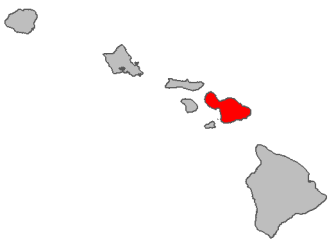


Fire risk report for *Cortaderia jubata*

Full Species Name <i>Cortaderia jubata</i> (Lemoine ex Carriere) Stapf
Family: Poaceae
Common names: pampas grass
Synonyms:
Known occurrences (as of 2020) 
Year first documented as naturalized in Hawai'i: 1989
This species has been ranked by the Hawai'i Weed Risk Assessment program as High Risk with a score of 26.
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 **0.72**.

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*	Yes
Regenerates after fire	Yes
Promoted by fire	Yes
Reported flammable*	High
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	"C. jubata is native to the Andes mountains of northern Argentina, Bolivia and Peru, at elevations of 2800 to 3400m, where it can form stands of several hundred hectares" https://www.cabi.org/isc/datasheet/113484#tosummaryOfInvasiveness
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	"Cortaderia jubata is distributed from northern Argentina along the Andes of Bolivia, Peru, and Ecuador where it frequently occurs along mountain streams (CostasLippmann 1976)." https://www.researchgate.net/profile/Paul_Schmalzer/publication/24296941_Species_biology_and_potential_for_controlling_four_exotic_plants_Ammophila_arenaria_Carpobrotus_edulis_Cortaderia_jubata_and_Gasoul_crystallinum_on_Vandenberg_Air_Force_Base_California/links/0c960539217e1ab846000000.pdf Schmalzer, P. A., & Hinkle, C. R. (1987). Species biology and potential for controlling four exotic plants (Ammophila arenaria, Carpobrotus edulis, Cortaderia jubata and Gasoul crystallinum) on Vandenberg Air Force Base, California.
Fire promoting plant in its introduced range (Same as Fire Promoting Native but within the species introduced range)	Yes	"has become a serious problem in new forestry areas where it suppresses the growth of young trees and creates a fire hazard" https://www.cabi.org/isc/datasheet/113484#tosummaryOfInvasiveness ----- "Buildup of dry material can significantly increase fire hazard." http://www.hear.org/pier/species/cortaderia_jubata.htm ----- "Madison (1994), however, found that the high silica content in the leaves of pampas grass acted as a fire retardant and was not very effective in eliminating the foliage." http://www.hear.org/hnis/reports/hnis-corjub.pdf ----- "TABLE 1. NON-NATIVE, INVASIVE PLANTS POTENTIALLY ASSOCIATED WITH CHANGE IN FIRE REGIME OR FUEL CONDITIONS IN CALIFORNIA [table 1 includes C. jubata]"

		http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.468.2022&rep=rep1&type=pdf#page=31 Lambert, A. M., D'antonio, C. M., & Dudley, T. L. (2010). Invasive species and fire in California ecosystems. <i>Fremontia</i> , 38(2), 29-36.
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	"[C. jubata] resprouts, establishes seedlings" Allen, R. B., Basher, L. R., & Comrie, J. (1996). The use of fire for conservation management in New Zealand. Wellington: Department of Conservation.
Promoted by fire (Does the plant increase in abundance after a fire?)	Yes	"C. Jubata (from Argentina) is common in logged coastal forests and maritime chaparral (97, 138) and can invade without obvious human disruption of the habitat, particularly in areas with natural canopy gaps or after fire." https://doi.org/10.1146/annurev.es.23.110192.000431 D'Antonio, C. M., & Vitousek, P. M. (1992). Biological invasions by exotic grasses, the grass/fire cycle, and global change. <i>Annual review of ecology and systematics</i> , 23(1), 63-87. ----- " Burning increases the bare ground in an area and may create a potential for Cortaderia to establish." Schmalzer, P. A., & Hinkle, C. R. (1987). Species biology and potential for controlling four exotic plants (<i>Ammophila arenaria</i> , <i>Carpobrotus edulis</i> , <i>Cortaderia jubata</i> and <i>Gasoul crystallinum</i>) on Vandenberg Air Force Base, California.
Reported flammable (Is the species described as being flammable, being a major wildfire fuel, or high fire risk?)	High	"highly flammable nature of pampas grass" Ducket, T. "Managing Tasmania's pampas grass problem: a strategy for control." <i>Tasforests</i> 1 (1) (1989) ----- "Pampas grass competes with other vegetation and creates a fire hazard with excessive build up of dry material (Haley 1997)." http://hear.its.hawaii.edu/Pier/pdf/pohreports/cortaderia_spp.pdf Starr, F., Starr, K., & Loope, L. (2003). <i>Cortaderia</i> spp. United States Geological Survey Biological Resources Division: Haleakala Field Station, Maui, Hawai'i.

Relative is flammable (Does a plant in the same genus meet the Reported Flammable criteria?)	Yes	"Invasion by Cortaderia can drastically alter ecosystem properties (eg, flammability, diversity, food webs)" Pausas, Juli G., Francisco Lloret, and Montserrat Vila. "Simulating the effects of different disturbance regimes on Cortaderia selloana invasion." Biological conservation 128, no. 1 (2006): 128-135.
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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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