


# Fire risk report for *Phyllostachys aurea*

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| <b>Full Species Name</b><br><i>Phyllostachys aurea</i> Carriere ex<br>Riviere & C.Riviere                           |
| <b>Family:</b> Poaceae  |
| <b>Common names:</b><br>dwarf bamboo  |
| <b>Synonyms:</b>  |
| Known occurrences (as of 2020)<br> |
| Year first documented as naturalized<br>in Hawai'i: 1992  |
| This species has been ranked by the<br>Hawai'i Weed Risk Assessment<br>program as High Risk with a score of<br>9.   |
| <a href="#">View photos on Starr Environmental</a>  |
| <a href="#">View on Wikipedia</a>   |
| <a href="#">View occurrences on iNaturalist</a>   |
| <a href="#">View at Plants of Hawaii</a>  |
| <a href="#">View photos on Flickr</a>   |

0 | .5 1  
Lowest risk ⇔ Highest risk

This species is likely a **high** fire risk in Hawai'i with a fire risk score of **0.70**.

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                 | No Data |
| Fire promoting plant in its native range      | No      |
| Fire promoting plant in its introduced range* | No      |
| Regenerates after fire                        | Yes     |
| Promoted by fire                              | No      |
| 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?)  | No Data |  |
| 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      | #This may meet the requirement based on how flammable it is, but it doesn't seem fire is too common  |
| 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     | "As of 2009, fire studies in golden bamboo stands or habitats were lacking. Based on information from a review and a personal communication, golden bamboo sprouts following cutting and fire [38,50]. Without additional fire studies, it is unknown whether or not golden bamboo could be killed by high-severity fire. In Georgia, a researcher reports burning in a golden bamboo stand where stems were cut and left on site. In the burned area, golden bamboo sprouted and recolonized the site (personal communication [38]). Because seed production is extremely rare, seedling establishment on burned sites is unlikely."<br><a href="https://www.fs.fed.us/database/feis/plants/graminoid/phyar/all.html#Seed%20production">https://www.fs.fed.us/database/feis/plants/graminoid/phyar/all.html#Seed%20production</a> |
| Promoted by fire (Does the plant increase in abundance after a fire?)   | No      |  |

|   |      |  |
|---|------|--|
| Reported flammable (Is the species described as being flammable, being a major wildfire fuel, or high fire risk?) | High | <p>"Altered fire frequency, severity, or behavior in habitats invaded by golden bamboo was not described in the available literature (2009). David Taylor, a botanist for the Daniel Boone National Forest in Kentucky, reports that fire spread is unlikely in bottomland habitats where golden bamboo grows, unless the area experiences an extreme drought. In extreme drought conditions, Taylor suggests golden bamboo may fuel a "fire storm". In an experiment, dry golden bamboo leaves and stems burned "hot" (personal communication [47]).</p> <p>Although fire behavior and severity in golden bamboo stands have not been studied or reported in detail, pictures below suggest that stand and fuel structure can vary by time since cutting and/or site conditions. Although the golden bamboo stand in the picture on the left lacks basal leaves, fire is likely to carry through these stands if there are dead stem and leaves present on the ground. Flames typically reach the leafy canopy, producing "spectacular" fires. Stems make popping sounds as the moisture in the nodes is heated and expands to split open the nodes [38]."</p> <p><a href="https://www.fs.fed.us/database/feis/plants/graminoid/phyaur/all.html#Seed%20production">https://www.fs.fed.us/database/feis/plants/graminoid/phyaur/all.html#Seed%20production</a></p> |
| Relative is flammable (Does a plant in the same genus meet the Reported Flammable criteria?)                      | No   | #other bamboos likely have similar fire response, but no data  |

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

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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](mailto:faccenda@hawaii.edu)) in November 2021. Data were prepared by Kevin Faccenda in 2020.

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