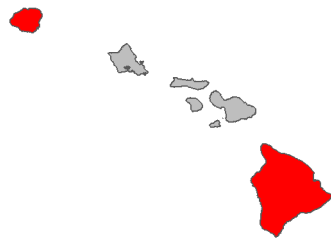


## Fire risk report for *Andropogon bicornis*

<b>Full Species Name</b> <i>Andropogon bicornis</i> L.
<b>Family:</b> Poaceae
<b>Common names:</b>
<b>Synonyms:</b>
Known occurrences (as of 2020) 
Year first documented as naturalized in Hawai'i: 1987
This species has been ranked by the Hawai'i Weed Risk Assessment program as High Risk with a score of 18.
<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                      **I**                      .5                      1  
 Lowest risk                      ⇔                      Highest risk

This species is likely a **high** fire risk in Hawai'i with a fire risk score of **0.69**.

This species was ranked by 49 managers on a scale of 'no risk', 'low risk', 'medium risk', or 'high risk'. The numerical score ranges from 0 to 1 with higher scores indicating more managers considered it a higher risk. A score of > .31 indicates high risk.

Summary of Fire ecology	
Native habitat fire proneness	Fire-prone
Fire promoting plant in its native range	Yes
Fire promoting plant in its introduced range*	No
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	"recurrent fires . . . other common species included the grasses <i>Andropogon bicornis</i> " <a href="https://doi.org/10.2307/1933412">https://doi.org/10.2307/1933412</a> Blydenstein, John. "Tropical Savanna Vegetation of the Llanos of Colombia." <i>Ecology</i> 48, no. 1 (1967): 1–15.
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?)	Yes	"Sunsunes catchment (Orinoco basin, Venezuela) . . . Herbaceous species from the drained savannas (i.e., <i>Andropogon bicornis</i> , <i>A. condensatus</i> , <i>Axonopus canescens</i> , <i>Paspalum multicaulis</i> and <i>Borreria capitata</i> ) also invaded the ground stratum. . . Water drawdown in the Sunsunes ecotone promoted fire because dead combustible vegetation tends to accumulate. Consequently, periodic fires affected species composition along the stream. During extended drought periods, fire spread into the ecotones from burning well-drained savanna." <a href="https://doi.org/10.1007/s12224-011-9115-8">https://doi.org/10.1007/s12224-011-9115-8</a> San-Jose, Jose, Ruben Montes, Carmen Buendia, Dirk Thielen, and Miguel Mazorra. "Response of Terrestrial-Aquatic Palm Ecotone (Morichal) to Anthropogenic Disturbance in the Orinoco Lowlands." <i>Folia Geobot</i> 47 (2012): 153–78.
Fire promoting plant in its introduced range (Same as Fire Promoting Native but within the species introduced range)	No	not widely introduced
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	"The Asteraceae family was the one that obtained greater representation, with a dominance of species such as <i>Hypoxis decumbens</i> , <i>Pteridium aquilinum</i> and <i>Andropogon bicornis</i> . [after fire]" <a href="http://www.scielo.org.co/scielo.php?script=sci_arttext&amp;pid=S0120-07392016000200002">http://www.scielo.org.co/scielo.php?script=sci_arttext&amp;pid=S0120-07392016000200002</a> Fernández-Méndez, F., Velasco-Salcedo, V. M., Guerrero-Contecha, J., Galvis, M., & Neri, A. V. (2016). Ecological recovery of affected areas by a forest fire in the Tintales

		watershed (Boyacá, Colombia). Colombia Forestal, 19(2), 143-160.
Promoted by fire (Does the plant increase in abundance after a fire?)	Yes	<p>"We analyzed four data set and observed that: (i) areas former submitted both to agricultural activity and fire showed lower species diversity (mainly Poaceae) and three abundant taxa (the ruderal grasses <i>Eragrostis airoides</i>, <i>Andropogon bicornis</i>.... In the sampled areas, fire strongly selected ruderal species as <i>Andropogon bicornis</i>, <i>Baccharis</i> spp, <i>Senecio brasiliensis</i>, and <i>Aster squamatus</i>, among others"</p> <p><a href="https://www.researchgate.net/profile/Rosemeri_Moro/publication/325741954_Spontaneous_recovery_and_the_structure_of_plant_community_after_agriculture_use_and_fire_in_grasslands_in_the_Vila_Velha_state_park_South_Brazil/links/5b2111a2a6fdcc69745ddb98/Spontaneous-recovery-and-the-structure-of-plant-community-after-agriculture-use-and-fire-in-grasslands-in-the-Vila-Velha-state-park-South-Brazil.pdf">https://www.researchgate.net/profile/Rosemeri_Moro/publication/325741954_Spontaneous_recovery_and_the_structure_of_plant_community_after_agriculture_use_and_fire_in_grasslands_in_the_Vila_Velha_state_park_South_Brazil/links/5b2111a2a6fdcc69745ddb98/Spontaneous-recovery-and-the-structure-of-plant-community-after-agriculture-use-and-fire-in-grasslands-in-the-Vila-Velha-state-park-South-Brazil.pdf</a></p> <p>Moro, R. S., Dalazoana, K., &amp; Novochadlo, T. H. (2018). Spontaneous recovery and the structure of plant community after agriculture use and fire in grasslands in the Vila Velha state park, South Brazil. <i>Biodiversity Int J</i>, 2(2), 223-228.</p>
Reported flammable (Is the species described as being flammable, being a major wildfire fuel, or high fire risk?)	High	<p>"Found in flammable grasslands"</p> <p>"Neotropical Savanna Grasslands." <i>Desert Plants</i> 29, no. 2 (2014): 90–96.)</p> <p>-----</p> <p>"periodic fires"</p> <p><a href="https://doi.org/10.1007/s12224-011-9115-8">https://doi.org/10.1007/s12224-011-9115-8</a></p> <p>San-Jose, Jose, Ruben Montes, Carmen Buendia, Dirk Thielen, and Miguel Mazorra. "Response of Terrestrial-Aquatic Palm Ecotone (Morichal) to Anthropogenic Disturbance in the Orinoco Lowlands." <i>Folia Geobot</i> 47 (2012): 153–78.</p>
Relative is flammable (Does a plant in the same genus meet the Reported Flammable criteria?)	Yes	<p>"After a few years without fire, broomsedge bluestem [<i>A. virginicus</i>] stands contain much of this dead, highly flammable material which carries fire well. It burns at relatively high relative humidities (80-90%) and high fuel moisture (20-25%) [14]."</p> <p><a href="https://www.fs.fed.us/database/feis/plants/graminoid/andvir/all.html">https://www.fs.fed.us/database/feis/plants/graminoid/andvir/all.html</a></p>

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](mailto:faccenda@hawaii.edu)) in November 2021. Data were prepared by Ronja Steinbach and 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.