

# Identifying & Controlling Fire Prone Invasive Grasses in Hawai'i





| Species               | Description & Location <sup>1, 2</sup>   | Potential Wildfire Threats & Impacts <sup>3</sup>  | Weed Fire Risk Score <sup>4</sup> | Control Methods <sup>2</sup>   |
|-----------------------|--|--|-----------------------------------|--|
| <b>Buffel grass</b>   | Perennial bunchgrass up to 5 ft. tall. Common from sea level up to 400 ft in dry, sandy & disturbed zones on main Hawaiian islands except Ni'ihau.   | Dries out rapidly in hot conditions. Produces fast moving, yet low intensity wildfires and low flame heights. Fuels are flashy and will mostly burn completely. Easy to extinguish.  | 0.85                              | Good for grazing especially in drier pastures. Sensitive to glyphosate.<br><br>*Formerly known as <i>Pennisetum ciliare</i>  |
| <b>Cane grass</b>     | Forms thickets up to 26 ft tall, naturalized in mesic to wet sites, and found on roadsides, in fields and pastures (up to 4,000 ft) on Kaua'i, O'ahu, Lāna'i, Maui, and Hawai'i Island.  | Has high water content. When lit wildfires spread slowly, producing embers/spotting. Fuel sometimes burns only partially and presents a fire hazard in the future.   | 0.72                              | Good grazing species. A 2% solution of glyphosate is highly effective on seedlings. For more mature and established plants, glyphosate at 2% is effective for spot treatments. <sup>5</sup><br>*Formerly known as <i>Pennisetum purpurea</i>                     |
| <b>Guinea grass</b>   | 2 - 10 ft tall & grows in dense bunches and is shade tolerant. Found from sea level up to 2800 ft. Common in wet and mesic lowland areas, open disturbed zones along roadsides on all main Hawaiian Islands. The species is highly variable and shorter varieties are also called "green panic grass." | Can create large, tall continuous fuel loads requiring large fuel breaks to prevent wildfire spread. Creates high intensity fires with large flame heights, spreading rapidly. Produces embers and spot fires. Fuel sometimes burns only partially and presents a fire hazard in the future. | 0.89                              | Good grazing species. Susceptible to glyphosate, including drizzle application. Young plants are susceptible to selective grass-killers.   |
| <b>Fountain grass</b> | Dense bunchgrass, up to 4 ft tall. Found in dry, open places such as barren lava flows, exposed soils, fire prone areas and cinder fields up to 7,000 ft. Widespread on Hawai'i Island with some populations reported from O'ahu, Maui, Lāna'i, and Kaho'olawe.  | Produces fast moving and high intensity wildfires.   | 0.99                              | Sensitive to glyphosate applied by spraying or drizzle method.   |
| <b>Kikuyu grass</b>   | Grows with long runners, forming dense, perennial mats up to 2 ft tall or even higher (when ungrazed). Found in wet to dry forests and open sites, golf courses, parks, especially upland pastures up to 6,000 ft. Found on O'ahu, Maui, Lāna'i, Hawai'i Island.                                       | Creates large fuel loads. Fires smolder and are difficult to extinguish since the dense mat can grow into the soil or in between rocks. Kikuyu grass fires have been observed re-kindling fires days later and across fuel breaks, likely due to burning root structures underground.        | 0.59                              | Good grazing species and a common pasture grass. Sensitive to glyphosate & imazapyr. 1% Glyphosate in water applied to wet the green foliage is reported effective. Susceptible to the two-lined spittlebug. *Formerly known as <i>Pennisetum clandestinum</i> . |
| <b>Molasses grass</b> | Sprawling perennial up to about 3 ft tall with a strong, sweet smell and sticky, hairy leaves. Usually in open areas, but also in dry to mesic zones. Found on all main Hawaiian islands, except Ni'ihau.  | Leaves exude flammable oil. Creates large fuel loads with high intensity wildfires and high flame heights. Fuels mostly burn completely.   | 0.83                              | Sensitive to glyphosate. Control with foliar application of glyphosate at 1% product in water is reported effective.   |

## What happens next?

- ◆ Glyphosate and imazapyr combinations are broad spectrum herbicides and can be effective for controlling grasses in Hawai'i when applied during the growing season. Always consult the manufacturer's label to ensure the herbicide is intended for the target species in the appropriate environment.
- ◆ Re-planting with shrubs and trees can be an effective longer term solution, as many grasses do not tolerate shade. Note that repeated herbicide treatments on grasses (which take time to work), may be necessary prior to re-planting.
- ◆ Cutting grass to the ground level or weed whacking can be effective in the short-term, although re-growth can happen if grasses aren't dug out completely.
- ◆ Target grazing by livestock (goats and/or cattle) can likewise reduce hazardous wildfire fuel loads. Consulting livestock and herding professionals ensures effective reduction of target grasses, while conserving soil and reducing potential erosion.
- ◆ Refer to the PFX Fuel Breaks for Pacific Island Grasslands & Savannas at <https://pacificfireexchange.org/resource/pacific-island-fuel-breaks-management-strategies/>

**References and Notations:** 1. W. L. Wagner, D. R. Herbst, S. H. Sohmer, 1999. Manual of the Flowering Plants of Hawai'i (U. of Hawai'i Press) 2. P. Motooka et al., 2003. [Weeds of Hawai'i's Pastures and Natural Areas](#), (U. of Hawai'i at Mānoa) 3. Source: unpub. interviews from Hawai'i fire fighters. 4. K. Faccenda & C. Dahler's [Weed Fire Risk Assessment](#) (2020) scores species between 0 (no wildfire risk) to 1 (where> .31 indicates high potential concern as a wildfire promoter). 5.D.C. Odera, 2005. [Napiergrass: biology and control in sugarcane](#) (U. of Florida Extension).