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Echinochloa esculenta - environmental weed risk assessment 2022

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Environmental weed risk assessment

Japanese millet (*Echinochloa esculenta*)

Japanese millet is a tall, fast-growing annual summer crop that has been domesticated since 2000BC from Japan. It has been cultivated both for human consumption and as a fodder by tribal communities in Asia including in India, Japan, and China (Sood *et al.* 2015).

Japanese (Shirohie) millet is a dual-purpose millet (grain and grazing), although generally grown for only one use to maximise production. It is a temperate grass that tolerates relatively cool soil temperatures for germination (14°C) compared with other species of millet (Hills and Penny 2005). In south-western Australia Japanese millet is a minor fodder crop sown in late winter-spring when seasonal conditions are favourable to provide green feed in late spring and over summer.

Japanese millet has not been evaluated under irrigation in northern Western Australia (WA), as the focus has been on pearl millet which is more drought and heat tolerant.

Weed lists

National-international:

- Not listed in Weeds of Australia (398 weed species) <https://weeds.org.au/weeds-profiles/>
- Not listed in Weeds of Australia website [Fact sheet Index \(lucidcentral.org\)](https://lucidcentral.org/fact-sheet-index/)
- In the Global Compendium of Weeds, Japanese millet is listed as an agricultural weed, casual alien, environmental weed, naturalised, weed (Randall 2017).

Western Australia:

- "...It has been collected occasionally in parts of Kimberley; also encountered occasionally in the lower south-west" (Hussey *et al.* 2007).
- Recorded as naturalised in the following IBRA Regions of WA – Victoria Bonaparte and Dampier land (Keighery and Longman 2004).
- Not listed in Environmental weeds of Western Australia (Keighery 1991).

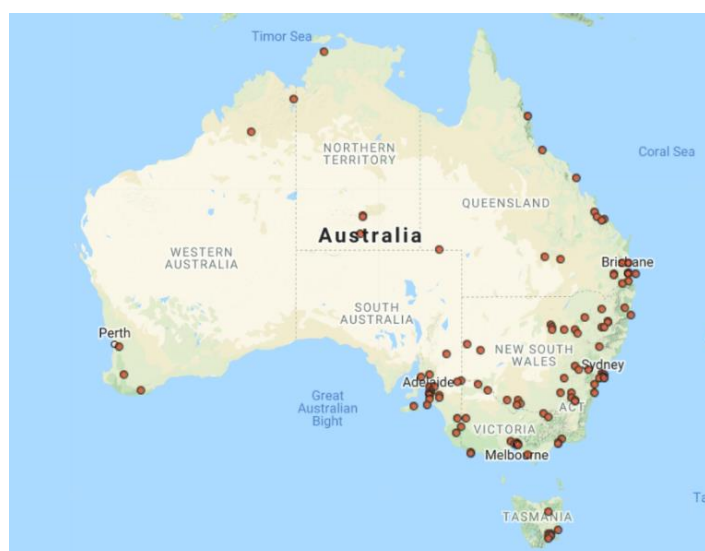


Figure 1. Distribution of Japanese millet (*Echinochloa esculenta*) in Australia (Source: 'The Australasian Virtual Herbarium')

Environmental weed risk assessment

Assessed using the 'Environmental weed risk assessment protocol for growing non-indigenous plants in the Western Australian rangelands' (Moore et al. 2022)

Region	Filter A	Filter B	Weed Risk Assessment rating
	Is the species a weed in similar environments in Australia or overseas?	Is the species likely to persist in the environment without management*?	
Kimberley	No	No	Negligible to low
Pilbara	No	No	Negligible to low
Gascoyne – Goldfields	No	No	Negligible to low
Agricultural area	No	No	Negligible to low

*Without management means no fertiliser, Rhizobia, irrigation, grazing management or control of competition from other species

References

- Hills A, Penny S (2005) Guide to growing summer grain and forages in the south coast region, Western Australia. Department of Primary Industries and Regional Development, Western Australia, Perth. Report 20/04.
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- Keighery GJ (1991) Environmental weeds of Western Australia. *Kowari*, **2**: 180-188.
- Keighery G, Longman V (2004) The naturalized vascular plants of Western Australia 1: Checklist, environmental weeds and distribution in IBRA regions. *Plant Protection Quarterly*, **19(1)**: 12-32.
- Moore G, Munday C, Barua P (2022) 'Environmental weed risk assessment protocol for growing non-indigenous plants in the Western Australian rangelands', Department of Primary Industries and Regional Development, *Bulletin no. 4924*, Perth.
- Randall RP (2017) 'Global compendium of weeds' (No. Ed. 3).

Sood S, Khulbe RK, Gupta AK, Agrawal PK, Upadhyaya HD, Bhatt JC (2015) Barnyard millet - A potential food and feed crop of future. *Plant Breeding* **134**: 135–147.

Weeds of Australia database

https://keyserver.lucidcentral.org/weeds/data/media/Html/trifolium_repens.htm Site accessed 30 November 2021

Assessment by G Moore and N Nazeri
January 2022

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