Kidney-leaf mud plantain

Heteranthera reniformis

Kidney-leaf mud plantain has glossy green kidney shaped leaves. (Photo: Jessica Grantley)

- Also known as: heteranthera
- This plant is a water weed
- This plant should not be sold in parts of NSW

Profile

How does this weed affect you?

Kidney leaf mud plantain is a water weed that forms dense mats in shallow freshwater and on damp soil at the water's edge.

Kidney leaf mud plantain:

- chokes dams, drains and water supply channels reducing water flow
- prevents native water plants from growing
- reduces food for fish and other aquatic life
- can significantly reduce rice crop yields (up to 70% in water sown rice in Europe).

What does it look like?

Kidney-leaf mud plantain is an annual or perennial plant. It grows 20–50 cm above the mud or water surface. The stems can either grow along the mud, under the water or the whole plant can float. Roots form at nodes along the stems.

Leaves are:

- bright green, spongy and glossy
- kidney-shaped
- up to 5 cm wide
- narrow when young, becoming wider as they age
- usually on a stalk 2–13 cm long
- alternate along the stem
- above the water or float on the surface.

Sometimes there is a cluster of stalkless leaves at the base of the stem.

Flowers are:

- white, mauve to pale-blue
- tubular with six petals, one has a yellow and brownish purple spot
- open in the morning and wilt by early afternoon
- on a spike, 1–9 cm long with 2–10 flowers per spike
- present in summer and autumn in temperate to subtropical areas.

Fruit are:

- small capsules containing 8–14 seeds
- 0.5–1.0 mm long.

Seeds are:

- 0.5–0.9 mm long
- 0.3–0.5 mm wide
- winged.

Where is it found?

In NSW, most infestation are in the North Coast, Hunter and Greater Sydney regions. Plants have also been found in rice growing regions near Leeton in the Riverina. All infestations are actively being controlled.

Kidney-leaf mud plantain was introduced to Australia as an ornamental pond plant. It comes from North, Central and South America. It has naturalised in Italy, Spain, Portugal and Macedonia and areas of the USA outside its native range. In Europe it has significantly reduced rice yields.

What type of environment does it grow in?

Kidney-leaf mud plantain grows in freshwater less than 15 cm deep and in damp soil at the edge of water bodies. It grows in rivers, drains, ditches, rice fields, irrigation channels and wetlands.

It can grow in shaded areas but grows best in full sun. It does not grow well among taller vegetation such as sedges, rushes and grasses.

How does it spread?

By seed

Wind and water disperse the winged seeds. Seeds may also be spread in mud that has stuck to birds and vehicles.

By plant parts

Any stem fragment containing one or more nodes is capable of producing a new plant. This is the main way it spreads. Plant fragments may be washed downstream. They can also be moved to new locations if they are in mud or debris stuck to animals, people or vehicles.

What type of environment does it grow in?

Kidney-leaf mud plantain will quickly colonise open sunny areas but does not grow well in shaded areas, or amongst taller growing vegetation such as sedges and tall grasses. It is most commonly found along roadside ditches, streams, ponds, drains and riverbeds.

References

Csurhes S (2008) *Kidney-leaf mud plantain Heteranthera reniformis Pest Plant Risk Assessment,* Queensland Government–Department of Primary Industries and Fisheries, Brisbane

Ferrero, A. (1996). Prediction of Heteranthera reniformis competition with flooded rice using day-degrees. *Weed research,* 36(2), 197-201.

Hosking JR, Sainty GR, Jacobs SWL & Dellow LL (in prep). *The Australian WeedBOOK.*

Karov, I., Mitrev, S., Mihajlov, L., Ristova, D., Nakova, E., & Kovacevik, B. (2013). Heteranthera reniformis Ruiz & Pavón new weed in rice field in the region of Kocani. *Journal of Agriculture and Plant Sciences,* 4(1), 147-155.

PlantNET (The NSW Plant Information Network System). Heteranthera reniformis. Royal Botanic Gardens and Domain Trust, Sydney. http://plantnet.rbgsyd.nsw.gov.au/cgi-bin/NSWfl.pl?page=nswfl&lvl=sp&name=Heteranthera~reniformis Accessed 20 April 2020.

Richardson, F. J., Richardson, R. G., & Shepherd, R. C. H. (2016). *Weeds of the south-east: an identification guide for Australia* (No. Ed. 3). CSIRO.

More information

- Weed futures: Determining current and future weed threats in Australia, Heteranthera reniformis. Macquarie University. (https://weedfutures.net/species.php?id=2063)
- PlantNET NSW FloraOnline, Heteranthera reniformis. Royal Botanical Gardens and Domain Trust. (http://plantnet.rbgsyd.nsw.gov.au/cgi-bin/NSWfl.pl?page=nswfl&lvl=sp&name=Heteranthera~reniformis)
- Kidney-leaf mud plantain model by Rachel Klyve (www.rachelklyve.com) (https://sketchfab.com/models/883ffd2b1a2d48799aa733103d4e9691/embed)

Control

If you suspect you have found kidney-leaf mud plantain contact a local council weeds officer as soon as possible. Weeds officers will assist with identification, control information, removal and eradication. Kidney-leaf mud plantain is capable of spreading from plant fragments and strict hygiene procedures are required for the control of this plant.

Prevention

- Avoid running boat motors or paddling through water plants
- Check and remove all plant material from boats, canoes, trailers, vehicles, machinery and fishing gear before leaving waterways.
- Never dump unwanted water plants.

Herbicide options

WARNING - ALWAYS READ THE LABEL
Users of agricultural or veterinary chemical products must always read the label and any permit, before using the product, and strictly comply with the directions on the label and the conditions of any permit. Users are not absolved from compliance with the directions on the label or the conditions of the permit by reason of any statement made or not made in this information. To view permits or product labels go to the Australian Pesticides and Veterinary Medicines Authority website www.apvma.gov.au

See Using herbicides (http://www.dpi.nsw.gov.au/biosecurity/weeds/weed-control) for more information.

PERMIT 92971 Expires 31/03/2028
Metsulfuron-methyl 660 g/kg (Various products)
Rate: 10 g / 100 L water (plus wetter at 200 mL per 100 L)
Comments: Only for enclosed water bodies (excludes areas within 400 m of potable water supply) Spray using high volume sprayer/knapsack. See permit for restraints and critical use comments.
Withholding period: Nil (recommended not to graze for 7 days before treatment and for 7 days after

treatment to allow adequate chemical uptake in target weeds).
Herbicide group: 2 (previously group B), Inhibition of acetolactate and/or acetohydroxyacid synthase (ALS, AHAS inhibitors)
Resistance risk: High

PERMIT 9907 Expires 31/03/2030
Glyphosate 360 g/L (Only products registered for aquatic use)
Rate: 200 mL per 10 L of water
Comments: Foliar application
Withholding period: Nil.
Herbicide group: 9 (previously group M), Inhibition of 5-enolpyruvyl shikimate-3 phosphate synthase (EPSP inhibition)
Resistance risk: Moderate

PERMIT 9907 Expires 31/03/2030
Metsulfuron-methyl 600 g/kg (Various products)
Rate: 10 g per 100 L of water
Comments: Foliar application in terrestrial situations only.
Withholding period: Nil (recommended not to graze for 7 days before treatment and for 7 days after treatment to allow adequate chemical uptake in target weeds).
Herbicide group: 2 (previously group B), Inhibition of acetolactate and/or acetohydroxyacid synthase (ALS, AHAS inhibitors)
Resistance risk: High

Biosecurity duty

The content provided here is for information purposes only and is taken from the *Biosecurity Act 2015* and its subordinate legislation, and the Regional Strategic Weed Management Plans (published by each Local Land Services region in NSW). It describes the state and regional priorities for weeds in New South Wales, Australia.

Area	Duty
All of NSW	**General Biosecurity Duty** *All pest plants are regulated with a **general biosecurity duty** to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable.*
Central West	**Regional Recommended Measure** *Land managers should mitigate the risk of the plant being introduced to their land. Land managers should eradicate the plant from the land and keep the land free of the plant. A person should not deal with the plant, where dealings include but are not limited to buying, selling, growing, moving, carrying or releasing the plant. Notify local control authority if found.*
Greater Sydney	**Regional Recommended Measure** *Land managers should mitigate the risk of the plant being introduced to their land. Land managers should eradicate the plant from the land and keep the land free of the plant. A person should not deal with the plant, where dealings include but are not limited to buying, selling, growing, moving, carrying or releasing the plant. Notify local control authority if found.*
Hunter	**Regional Recommended Measure** *Notify local control authority if found. Land managers should eradicate the plant from the land and keep the land free of the plant. A person should not deal with the plant, where dealings include but are not limited to buying, selling, growing, moving, carrying or releasing the plant.*
Murray	**Regional Recommended Measure** *Land managers should mitigate the risk of the plant being*

Area	Duty
	introduced to their land. Land managers should eradicate the plant from the land and keep the land free of the plant. A person should not deal with the plant, where dealings include but are not limited to buying, selling, growing, moving, carrying or releasing the plant. Notify local control authority if found.
North Coast An exclusion zone is established for all land in the North Coast region, except the core infestation zone in the Coffs Harbour City LGA.	**Regional Recommended Measure** *Whole of region: Land managers should mitigate the risk of the plant being introduced to their land. A person should not buy, sell, move, carry or release the plant into the environment. Exclusion zone: Notify local control authority if found. Land managers should eradicate the plant from the land and keep the land free of the plant. Core infestation: Land managers should mitigate spread of the plant from their land. Land managers should reduce the impact of the plant on assets of high economic, environmental and/or social value.*
North West	**Regional Recommended Measure** *Land managers should mitigate the risk of the plant being introduced to their land. Land managers should eradicate the plant from the land and keep the land free of the plant. A person should not deal with the plant, where dealings include but are not limited to buying, selling, growing, moving, carrying or releasing the plant. Notify local control authority if found.*
Northern Tablelands	**Regional Recommended Measure** *Land managers should mitigate the risk of the plant being introduced to their land. Land managers should eradicate the plant from the land and keep the land free of the plant. A person should not deal with the plant, where dealings include but are not limited to buying, selling, growing, moving, carrying or releasing the plant. Notify local control authority if found.*
Riverina	**Regional Recommended Measure** *Land managers should mitigate the risk of the plant being introduced to their land. Land managers should eradicate the plant from the land and keep the land free of the plant. A person should not deal with the plant, where dealings include but are not limited to buying, selling, growing, moving, carrying or releasing the plant. Notify local control authority if found. Your local biosecurity weeds officer can help to identify, advise on control, and how to remove this weed.*
South East	**Regional Recommended Measure** *Land managers should mitigate the risk of the plant being introduced to their land. Land managers should eradicate the plant from the land and keep the land free of the plant. A person should not deal with the plant, where dealings include but are not limited to buying, selling, growing, moving, carrying or releasing the plant. Notify local control authority if found.*

Roots grow from stem nodes. (Photo: Suzanne Hayward)

Kidney-leaf mud plantain leaves can float. (Photo: Suzanne Hayward)

Kidney-leaf mud plantain infestation in a drain. (Photo: Charlie Mifsud NSW DPI)

Kidney-leaf mud plantain seedlings have narrow leaves. (Photo: Charlie Mifsud NSW DPI)

Sprouting kidney-leaf mud plantain seeds. (Photo: John Hosking NSW DPI)

Kidney-leaf mud plantain leaves are up to 5 cm in diameter. (Photo: Graham Pritchard)

Kidney-leaf mud plantain has white, mauve or pale blue flowers with 6 petals. (Photo: Suzanne Hayward)

There are 2-10 kidney-leaf mud plantain flowers per spike. (Photo: Rob Gleeson NSW DPI)

The leaves often have distinctive lines of darker and lighter green running from the base to the tip. (Photo: Paul Marynissen)

Reviewed 2025