

Invasive plants and animals

Hymenachne

Hymenachne amplexicaulis

DECLARED CLASS 2



Dense stand of hymenachne showing growth habit



Distinctive broad leaf with clasping base



Flower spikes



Regrowth in sugar cane

Hymenachne was introduced to Australia from South America to provide ponded pasture for cattle. It has become an unwanted pest of stream banks, wetlands and irrigation ditches in coastal areas of central and north Queensland. In some areas it has

invaded low-lying sugar cane, fish habitats and natural wetlands with high conservation value.

The problem

Hymenachne has been used as a ponded pasture species for cattle production but has escaped cultivation, invading waterways including drains, lagoons, wetlands, creeks and rivers. Heavy infestations can affect water bodies in a number of ways:

Flooding

Hymenachne can increase flooding by reducing the flow capacity of the drainage networks.

Interference with irrigation and infrastructure

Under flood conditions, plant material builds up at fences and bridges, collecting other floating debris. The combined weight may cause such structures to collapse.

Water flow to irrigation equipment can be reduced due to the restrictive action of the roots, thus increasing pumping times and costs.

Destruction of wildlife habitats

Hymenachne infestations are a physical barrier for aquatic and semi-aquatic animals, restricting their territorial movements and breeding activities. Fishery biologists believe that carrying capacity and fish populations available for both commercial and recreational uses are being significantly reduced.

Recreation and aesthetics

The presence of thick areas of hymenachne degrades water quality for swimming and makes fishing impossible. The natural beauty of an open water body can be spoilt and further degraded as native aquatic plants, birds and animals are displaced. Hymenachne also reduces access to waterways for recreation and wildlife.

Declaration details

Hymenachne is declared as a Class 2 species under the *Land Protection (Pest and Stock Route Management) Act 2002*. A Class 2 pest is one that has already spread over substantial areas of Queensland, but its impact is so serious that we need to try and control it and avoid further spread onto properties that are still free of the pest. By law, all landholders must try to keep their land free of Class 2 pests and it is an offence to keep or sell these pests without a permit. Local Governments may issue a notice upon a landholder requiring control of a declared pest.

Hymenachne has been classified as one of twenty Weeds of National Significance.

Description

Hymenachne is a robust, rhizomatous, perennial grass that can grow to a height of 2.5 m. Its stems are erect and contain white pith. Roots may be produced at the lower nodes. The leaf blades are 10–45 cm long and up to 3 cm wide, and strongly clasp the stem at the leaf base.

Flowers heads are spike-like, cylindrical, 20–40 cm long and sometimes branched. Main flowering occurs from April to June.

Related species

Native hymenachne (*Hymenachne acutigluma*) is found in northern Australia, Papua New Guinea, Assam, Burma, Malaysia, Vietnam and Polynesia. Care should be taken not to confuse native hymenachne with the introduced, weedy hymenachne (*Hymenachne amplexicaulis*). The introduced hymenachne has distinctive stem-clasping leaf bases, whereas native hymenachne does not. Native hymenachne is a tropical species and does not grow south of Mackay. Native hymenachne is not considered invasive or a threat to agriculture or other areas.

Life cycle

Hymenachne grows from seed and from broken stem fragments. Two main vectors for seed dispersal are water movement and migratory aquatic birds. Stem fragments are readily moved by flowing water and, in suitable conditions, provide rapid establishment of hymenachne in new locations.

In Queensland, the main flowering period usually occurs from April to June, depending on location, with seeds set from late autumn to early spring. However, plants have been observed flowering between March and September. There is anecdotal evidence that the plant can flower and set seeds over a longer period of time in unusually wet years.

A single flower stalk can produce more than 4000 seeds and there is the likelihood of a large soil seed bank. Trial work indicates that in field conditions seed viability is still 21% after six years.

Habitat and distribution

Originally from South and Central America, hymenachne was released to the Queensland grazing industry in 1988 for use in ponded pasture. It is now found in various locations from Cape York to as far south as Casino in New South Wales and in the top end of the Northern Territory. There is potential for hymenachne to colonise suitable habitats over much of coastal, northern Australia.

Management strategies

A control program requires a realistic view of how hymenachne impacts on overall property management and the control of hymenachne should be integrated in the overall property management plan.

1. Identify and prioritise problem areas

- Map hymenachne areas on your property.
- Prioritise areas for control and identify seed sources, seed and plant dispersal routes and areas prone to weed invasion.
- Focus initial efforts on small, isolated infestations.

2. Determine control options

- Decide on the most appropriate control methods in the given situation

- Consider integrating control techniques by using chemical, mechanical and good land management practices with regular follow-up treatments.

3. Schedule control activities

- Consider how effective various control methods will be at different times of the year
- Make hymenachne control a regular part of property management and allow for monitoring and follow-up after initial treatment. Ensure follow-up occurs within three months.

4. Managing existing populations.

- Heavy grazing in the dry season can decrease seed production and combined with chemical control can be a very effective control method.
- Treat populations in flood prone areas first.
- Use an appropriate herbicide.
- Wherever possible treat small actively growing plants as they should be easier to kill.

Prevention

Floodwater can deposit hymenachne in dams, lagoons, wetlands, rivers and creeks. Monitoring a short time after flood events should allow identification of new incursions. Treatment of new infestations should then be carried out to prevent establishment. Also you should:

- reduce nutrient/sediment loads entering water bodies since hymenachne thrives under nutrient-rich conditions
- maintain vegetation along riparian areas since hymenachne does not like shade or competition from trees.

Control

The best form of weed control is prevention. Always treat weed infestations when they are small. Weed control is not cheap but it is cheaper now than next year, or the year after. As there is no 'quick-fix' for the control of hymenachne, developing a management plan and committing to it is essential for the long-term effectiveness of your efforts.

A management plan should be structured yet flexible enough to allow for uncontrollable external influences such as drought, floods or fluctuating commodity prices.

The best approach is usually to combine different control options. Whatever methods are used, always follow-up and monitor progress.

Mechanical/physical control

Mechanical or physical removal will not completely eradicate hymenachne because of the plant's ability to reproduce vegetatively from very small pieces. The use of heavy earth moving machinery to remove hymenachne from drains has met with some success in north Queensland.

Grazing control

In western shires, constant heavy grazing in dry conditions has removed hymenachne from the ponded pasture system.

Biological control

There have been no biological control agents released for hymenachne control in Australia. Should a biological program commence, agents sought would need to be specific for Olive hymenachne to ensure that there are no impacts on the native species (*Hymenachne acutigluma*) or other desirable grasses.

Herbicide control

No herbicides are currently registered for control of hymenachne but there are four off-label minor use permits in existence. These appear in the table below.

Before using any herbicide always read the label carefully. All herbicides must be applied strictly in accordance with the directions on the label.

Spraying an entire heavy infestation can cause hymenachne to sink and result in biological hazards from the rotting vegetation. Large masses of decomposing hymenachne may use all the oxygen in the water leading to fish kills. This problem can be avoided by spraying strips of the weed.

Further information

Further information is available from the pest management staff at your local government office.

TABLE 1 – PERMITS FOR MINOR OFF-LABEL USE

Permit No	Herbicide	Situation
PER7485 Effective 1 July 2004 to 30 June 2009	360 g/L Glyphosate (includes Roundup Biactive & Weedmaster Duo) – 1 L/100L water or 10 L/ha delivered by boom	Spot spray in aquatic and wetland areas
PER6961 Effective 24 September 2003 to 30 September 2008	360 g/L Glyphosate (includes Roundup Biactive) – Max 14L/ha	For use in drainage reserves – Mareeba – Dimbulah water supply scheme only
PER7039 Effective 19 July 2004 to 30 June 2009	502 g/L Haloxypop (Verdict 520) – 770 mL/ha via knapsack, handgun or boomspray	Ponded and non-flowing drainage areas and banks of flowing waterways – for use by trained staff – Mackay area only
PER9076 Effective 19 January 2006 to 28 February 2007	502 g/L Haloxypop (Verdict 520) – 770 mL/ha via knapsack, handgun or boomspray	Ponded and non-flowing drainage areas and banks of flowing waterways – for use by trained staff – Cardwell shire only

The **DETAILS** and **CONDITIONS** on the permit must be adhered to by the person/s wishing to use the products for the purposes specified in these permits. Please refer to the following web site: www.apvma.gov.au for more information on conditions of use.



Hymenachne (dark green) invading a water storage



Hymenachne stems showing rooting at nodes. Broken nodes moved by floodwater or machinery can easily establish infestations elsewhere.

Fact sheets are available from DPI&F service centres and the DPI&F Information Centre phone (13 25 23). Check our web site <www.dpi.qld.gov.au> to ensure you have the latest version of this fact sheet. The control methods referred to in this Pest Fact should be used in accordance with the restrictions (federal and state legislation and local government laws) directly or indirectly related to each control method. These restrictions may prevent the utilisation of one or more of the methods referred to, depending on individual circumstances. While every care is taken to ensure the accuracy of this information, the Department of Primary Industries and Fisheries does not invite reliance upon it, nor accept responsibility for any loss or damage caused by actions based on it.
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