

## Hymenachne

### *Hymenachne amplexicaulis*



Dense stand of hymenachne showing growth habit



Distinctive broad leaf with clasping base



Flower spikes



Regrowth in sugar cane

Originally introduced to Australia from South and Central America to provide ponded pasture for cattle, hymenachne has become a major pest of stream banks, shallow wetlands and irrigation

ditches, primarily in the coastal wet tropics of north Queensland. In some areas it has invaded low-lying sugar cane, fishery habitats and natural wetlands with high conservation value.

# Description

Hymenachne is a robust, rhizomatous, perennial grass that can grow to a height of 2.5 metres. Its stems are erect or ascending from a prostrate base and contain a 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

There is a native hymenachne (*Hymenachne acutigluma*) which should not be confused 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.

## The problem

Hymenachne can invade waterways including drains, lagoons, creeks and rivers. The banks and shallow water areas (less than 3 metres deep) of the Fitzroy River, for example, have been invaded for approximately 20 km above the barrage. Heavy infestations can affect water bodies in a number of ways:

### **Flooding**

Hymenachne can choke drains and small watercourses, increasing flooding by reducing the flow capacity of the drainage networks. This is of particular concern to cane farmers.

### **Safety and health risk**

Children and livestock may be in danger of drowning if they become entangled in the roots and stolons of a heavy infestation. Moreover, the mats that the plants form create a haven for mosquitoes that are vectors of Ross River Fever and encephalitis.

### **Interference with irrigation and stock watering**

Stock may have difficulty gaining access to water to drink if the surface is completely covered by plants.

Under flood conditions, rafts of plant material build 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.

### **Degradation of water quality**

Heavy infestations reduce the infiltration of sunlight necessary for photosynthesis in the plant life of creek and river beds. Heavy plant cover also prevents the exchange of air, which normally occurs on an open water surface.

As plant material decomposes it uses oxygen, causing water pollution and stagnation. This affects the water quality and may result in the death of aquatic animals.

### **Destruction of wildlife habitats**

A large infestation of hymenachne is a physical barrier for aquatic and semi-aquatic animals, restricting their territorial movements and breeding activities. Fishery biologists believe that the carrying capacity and fish populations available for both commercial and recreational uses are being significantly reduced because hymenachne tends to stagnate water and reduce oxygen levels.

### **Recreation and aesthetics**

Overseas, hymenachne forms floating mats and grass islands that interfere with shipping. Damage can occur to propeller shafts, cooling systems and rudders. The mats of weed also degrade the quality of swimming and make fishing impossible. The natural beauty of an open water body can be spoiled and further degraded as native aquatic plants, birds and animals are displaced. Hymenachne also reduces access to waterways for recreation and wildlife.

## 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, with seeds set from late autumn to early spring. However, plants have been observed flowering in September and there is anecdotal evidence that the plant can flower and set seeds over a longer period of time in unusually wet years.

A large viable seed bank is produced and trial work indicates that in field conditions the seed viability is still high after more than a year.

Limited trial work at Charters Towers indicates a good correlation between day length and flowering. This work indicates that hymenachne flowers once the day length is shorter than 12 hours.

## Habitat and distribution

Originally from South and Central America, hymenachne was released to the Queensland grazing industry in 1988 for use as a ponded pasture. It is now found in various locations from north of Cairns to as far south as the Burnett. There is potential for Hymenachne to colonise suitable habitats over much of coastal, northern Australia.

## Declaration details

Although hymenachne has been identified as a weed of national significance it is not currently a declared plant under Queensland legislation.

Several local authorities along the Queensland east coast have declared this species within their shire under the local laws. Land managers should check the declaration status of hymenachne with their relevant local council.

## Prevention

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

## 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. Proper planning ensures you get value for each dollar spent.

Look at your weed problem carefully. What are you required to do by legislation? How does weed control fit into your property management plan? What can you do to restore areas and prevent re-establishment?

The best approach is usually to combine different methods. Control may include chemical, mechanical, fire and biological methods, combined with land management changes. The control methods you choose should suit your particular situation.

### Mechanical/physical control

Physical removal by hand is not easy, even for small infestations, as the plant snaps readily at the nodes. The use of heavy earth moving machinery to remove hymenachne from drains has met with some success in north Queensland.

## Biological control

In western shires, constant heavy grazing in dry conditions has removed hymenachne from the ponded pasture system. This is the only known biological control at this stage and obviously of limited application.

### Herbicide control

No herbicides are currently registered for control of Hymenachne but there are three off-label 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 pollution from the rotting vegetation. Large masses of rotting hymenachne may use all the oxygen in the water leading to fish and wildlife kills. This problem can be avoided by spraying strips of the weed.

## Further information

Further information is available from the vegetation management/weedcontrol/environmental staff at your local government.

**TABLE 1 - PERMITS FOR MINOR OFF-LABEL-USE**

Permit No	Herbicide	Situation
PER3931 Effective 4 January 2001 to 4 January 2004	Verdict 520, Fusilade, Arsenal	Rights of way, non-agricultural areas, non aquatic
PER4718 Effective 1 July 2001 to 30 September 2004	360g/L glyphosate isopropylamine salt	Water bodies and margins of streams, lakes, channels and drains
PER4567 Effective 19 June 2001 to 31 December 2004	Verdict 520	Ponded and drainage areas

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 sites (<http://permits.nra.gov.au/PER3931.PDF>, <http://permits.nra.gov.au/PER4567.PDF>, <http://permits.nra.gov.au/PER4718.PDF>) for a copy of each permit.



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.

Find more *NRM Facts* at [www.nrm.qld.gov.au](http://www.nrm.qld.gov.au) and on PrimeNotes CD-ROM (phone 1800 816 541 for purchase details).  
You can also find information on environmental weeds at [www.nrm.qld.gov.au/pests/environmental\\_weeds/weed\\_info\\_series.html](http://www.nrm.qld.gov.au/pests/environmental_weeds/weed_info_series.html)

The control methods suggested above should be used in accordance with restrictions (for example, federal and state legislation, local government laws, product manufacturer's guidelines) directly or indirectly relating to each control method. These restrictions may prevent the use of one or more of the methods referred to, depending on individual circumstances. While every care is taken to ensure the accuracy of the information in this fact sheet, the Department of Natural Resources and Mines does not invite reliance upon it, nor accept responsibility for any loss or damage caused by actions based on it.