

REVIEW OF PROGRESS
TOWARDS IMPLEMENTATION
OF
THE HYMENACHNE
STRATEGIC PLAN
2006-2007

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EXECUTIVE SUMMARY

Hymenachne (*Hymenachne amplexicaulis*), also commonly known as Olive hymenachne, is an invasive semi-aquatic grass officially released in Australia in 1988 as a fodder source for cattle. It is rapidly invading rivers, creeks and wetlands in northern Australia. A national strategy has been developed to progress the management of hymenachne in Australia and the National Hymenachne Management Group established to oversee implementation of the strategy. This report outlines key achievements and progress made through national coordination of hymenachne management in 2006/07.

On-ground control, survey, mapping, extension and coordination were funded by the Australian Government's Defeating the Weed Menace and Natural Heritage Trust. Support and in-kind contributions were made by the Department of Primary Industries and Fisheries (Qld), Department of Natural Resources, Environment and the Arts (NT), Environmental Protection Agency (Qld), Department of Natural Resources and Water (Qld), NSW Department of Primary Industries, Far North Coast Weeds (NSW), Terrain (formerly Far North Queensland Natural Resource Group), Far North Queensland Regional Organisation of Councils and local governments. Other organisations funding hymenachne management include various local governments in Queensland with support from their regional natural resource management groups and land managers in the Northern Territory.

In 2006/07 control efforts focused on eradication of outlying infestations and containment in areas where hymenachne is well established such as the Wet Tropics, Queensland.

Key education and awareness achievements included the production and launch of the National Hymenachne Management Manual, a comprehensive guide to current best practice management. A community forum was held in conjunction with the manual launch, showcasing the latest research and addressing issues related to hymenachne and ponded pastures. Awareness materials were also produced as part of the National Extension and Communication Plan.

The national management group held a workshop to address problems associated with delays in obtaining permits and onerous permit conditions required for off-label chemical permits issued by the Australian Pesticides and Veterinary Medicines Authority.

Investigation into the possible use of native hymenachne as an alternative ponded pasture species has shown that it is unlikely to be suitable due to poor performance in grazing systems and further research is unlikely to be value for money.

Development of a workable code of practice for ponded pasture species, a goal of the national strategy, has not been possible to date due to restrictions in the Queensland Government's ponded pasture policy. The national management group has requested a review of this policy.

The greatest challenge for hymenachne management is the lack of effective control measures to stop this very aggressive weed. Once established hymenachne is virtually impossible to contain using available, cost effective methods. Considerable emphasis is now being placed on early detection and rapid response control in areas generally free of hymenachne. Ongoing cooperation from the grazing industry is also essential.

INTRODUCTION

Hymenachne (*Hymenachne amplexicaulis*), also commonly known as Olive hymenachne, a Weed of National Significance, is an invasive semi-aquatic grass officially released in Australia in 1988 as a fodder source for cattle. It is rapidly invading rivers, creeks and wetlands in northern Australia.

It is expected that continued proliferation will cause substantial losses to the sugar cane industry and serious damage to wetlands and waterways including freshwater fisheries and conservation areas. Control remains a challenge in aquatic situations due to the selection of chemicals available for use in waterways and problems with application.

The total area of Australia infested with hymenachne is estimated to be 14,000 hectares (ha). Of this at least 8,000 ha is in Queensland (compiled by Ann Doak based on local government and land protection officer estimations). This is up from the previous estimate of 1,000 ha reported in Queensland in the Hymenachne Pest Status Review (Csurhes et. al. 1999). An estimate of 5-6000 ha in the Northern Territory (Wingrave, S 2005 pers. comm., 2 September) and 55 ha in northern New South Wales (Ensbey, R 2007 pers. comm., 20 August).

Hymenachne forms dense stands that reduce plant diversity and destroys habitat for native organisms. It invades permanent water bodies and seasonally inundated wetlands. It blocks waterways, potentially increasing flooding and degrading water quality. Hymenachne also infests and blocks drainage and irrigation channels and invades crops such as sugar cane.

Hymenachne reproduces by both seed and vegetatively through plant segments. It tends to be spread by water, animals, vehicles and machinery. Once established hymenachne is difficult and costly to manage, so considerable emphasis is now being placed on early detection and rapid response control.

In 2001 a National Hymenachne Strategic Plan was completed. The plan consists of four goals:

1. Prevent spread
2. Minimise impacts
3. Achieve national coordination
4. Avoid release of additional ponded pasture species with weed potential

National coordination of hymenachne commenced in September 2003 on a part time bases (a full time position shared between pond apple and hymenachne). The National Hymenachne Management Group was established in 2004 to oversee implementation of the strategy. The management group includes key stakeholders including the grazing industry, environmental perspective and state agencies with representatives from New South Wales, Queensland, Northern Territory and Western Australia. Queensland has taken on the role of lead state with Biosecurity Queensland, Department of Primary Industries and Fisheries hosting the National Hymenachne Coordinator to support the management group and assist with implementation of the strategy (note – the responsibilities for invasive weeds were transferred from the Department of Natural Resources and Water on 1 March 2007).

Since the inclusion of hymenachne as a Weed of National Significance, there has been \$2.2 million committed to its management by the Australian Government with a

matching or better contribution from the Queensland Government and local governments. Land managers including many local governments, state agencies and individuals have also contributed additional resources to this program.

CSIRO with support of \$530k of Defeating the Weed Menace funding is currently researching hymenachne's phenology (reaction to climate) using a range of sites in both Queensland and the Northern Territory (Rockhampton, Ingham, Mareeba, Ayr, and Darwin). Preliminary results indicate that while the major reproductive events occur at similar periods across all sites, flowering and seeding events continue longer in all these locations than previously recorded (Wearne, L 2007 pers. comm., 8 August).

This report outlines key achievements made by national coordination of hymenachne management in 2006/07 relevant to the goals of the national strategy.

GOALS AND ACHIEVEMENTS

GOAL 1 Prevent the spread

Cultivation and trade

Prevention of spread remains a serious challenge for the national management of hymenachne. All long distance spread seems to be attributable to historic plantings for pasture use. The surviving plantings tend to go undetected until the hymenachne is further dispersed by natural means, usually seed spread by water downstream.

Since the recognition of hymenachne as a Weed of National Significance, there has been a reduction in intentional spread of hymenachne in northern Australia. Other factors such as a general decline in ponded pasture production systems may have also contributed.

Hymenachne is declared nationally, banning sale and requiring control measures in place.

The grazing industry generally accepts the declaration status of hymenachne and usually complies with direct requests to control the species. However, the biggest difficulty is creating awareness and change amongst all landholders. Many still seem unaware that it is declared and must be controlled. The lack of financial benefit from its removal and for some a significant financial loss is also hindering the control of hymenachne in grazing situations.

For graziers in the Northern Territory, hymenachne has up until recently, been widely used to suppress mimosa (*Mimosa pigra* - also a WoNS) seedling establishment. Changing attitudes and behaviours of these graziers is difficult. To date there has been no enforcement of legislation stopping the planting of hymenachne in the Northern Territory.

Herbicides

The registration of chemicals and their use for the control of hymenachne continues to be problematic. In 2006, the Department of Primary Industries and Fisheries engaged with relevant chemical companies and provided research data supporting the on-label registration of glyphosate. To date there remains a market failure, with no on-label registration.

The National Hymenachne Management Group hosted a special workshop with representatives from the Australian Pesticides and Veterinary Medicines Authority (APVMA) to address delays and onerous monitoring associated with off-label permits including permits for aerial application. The need for further research assessing environmental impacts associated with aerial application was identified and a project was submitted to the Australian Government's Defeating the Weed Menace program. Unfortunately, this project was unsuccessful in gaining funding. Other funding options will be pursued.

Eradication of outlying infestations

New infestations were found near Amamoor and Caboolture in South East Queensland. The discovery of hymenachne in areas thought to be free of the weed, resulted in surveys with further infestations found. All infestations are subject to locally funded control campaigns with the aim of eradication.

Follow-up work occurred at the hymenachne site near Nanango, this site remains on track for eradication.

Kakadu National Park management continue to control and conduct follow-up work on all known hymenachne outbreaks in the park. Hymenachne is targeted for eradication in Kakadu, with over 110 hymenachne sites detected and controlled since 2004.

Hymenachne was found in the Darwin River Dam. The Northern Territory's Power and Water Corporation have controlled the hymenachne with support from Department of Natural Resources, Environment and the Arts (NT).

Control of hymenachne in northern NSW is progressing well. The responsible county council, Far North Coast Weeds, has treated about 45 hectares of a total 55 hectares. Australian Government Defeating the Weed Menace funds are assisting with this eradication campaign. There is a target for a 75 % reduction in the current known hymenachne infestations in northern NSW by June 2008.

Infestations at Bamaga and near Cooktown have been controlled by Cape York Weeds and Feral Animals Program with assistance from Defeating the Weed Menace funding. Follow-up work is continuing.

The infestation near Thallon on the Moonie River has had minimal control with some grazing. There has been resistance from the land owner who has very little feed available for his stock due to the drought. Further action on this infestation is required, especially due to its proximity to New South Wales and other areas free of hymenachne.

Public awareness of possible impacts

A National Hymenachne Extension and Communication plan was developed and implementation commenced. The plan contains background objectives, key messages, a comprehensive action plan targeting all key stakeholder groups, an extensive stakeholder list and monitoring and evaluation mechanisms. Products include an awareness flyer, sticker and magnet aimed at alerting the public of hymenachne, its impacts and features for identification (see Appendix 1).

During 2007 the general public was targeted by over 20 media releases from a range of organisations including community groups, local governments, canegrowers, researchers, environmental activists, state agencies and regional bodies.

A hymenachne forum was held in Rockhampton by the Capricorn Pest Management Group in conjunction with the National Hymenachne Management Group. The forum included expert presentations and sessions for discussion of relevant issues.

GOAL 2 Reduce the impact

Local control

Most local control in core infestation areas of the Wet Tropics, the central Queensland coast and the top end of the Northern Territory is focused on limiting the further spread of hymenachne and protecting infrastructure such as water treatment plants. Pest management staff across impacted areas in Queensland including Cardwell Shire, Johnstone Shire and Cairns City Council were involved in the Tropical Cyclone Larry clean-up effort for most of 2006 impacting on their scheduled pest work. A prolonged wet season in the Wet Tropics, also limited control to about 280 ha. The Australian Government's Defeating the Weed Menace program contributed in part towards this control work. No enforcement of legislation is occurring due to difficulties local government pest officers encounter as hymenachne is hard to manage, a weed of waterways and its historical introduction as a pasture species.

Further control of small areas along the national highway was carried out by the Department of Main Roads (Qld) to protect road infrastructure and in an effort to stop problems associated with flood water congestion.

Improving awareness of control methods

The completion and launch by Senator Ian MacDonald of the National Hymenachne Management Manual provides a comprehensive guide to current best practice management techniques and case studies as practical examples for land managers. The manual was complimented with the development of demonstration workshops aimed at empowering landholders including reinforcing best practice management approaches.

Local governments have a key role in educating land managers of the best approaches to controlling hymenachne. Local governments in Far North Queensland achieved a combined 600 hours of landholder awareness raising and collaborative work as an essential part of their Defeating the Weed Menace funded on-ground control program.

Information packs were produced, as part of the implementation of the national extension plan, to support local governments in their extension activities. The pack containing samples of products and product ordering procedures, a compact disc with support materials such as photographs and media releases for general use.

A National Hymenachne Extension and Communication plan was developed and implementation has commenced with product development to support the plan.

Understanding ecology and management

CSIRO with support of Defeating the Weed Menace funding is currently researching hymenachne's phenology (reaction to climate) using a range of sites in both Queensland and the Northern Territory (Rockhampton, Ingham, Mareeba, Ayr, and Darwin) (Wearne, L 2007 pers. comm., 8 August).

Preliminary results indicate that while the major reproductive events occur at similar periods across all sites, flowering and seeding events continue far longer than previously recorded. A single stem can have multiple flowering and seeding events in the one season. All populations are continuing to flower and seed, although at far lower levels than earlier in the season. The influence of water depth and nutrients on the promotion of flowering and seed production in hymenachne is currently being

investigated via glasshouse experiments. This information will provide insights into what drives the phenological patterns of hymenachne (Wearne, L 2007 pers. comm., 8 August).

Leaf rolling insects were found to be doing damage to populations of hymenachne in the Northern Territory. This is being further investigated with the help of Department of Natural Resources, Environment and Arts (Weed Management Branch), Northern Territory (Wearne, L 2007 pers. comm., 8 August).

GOAL 3 Achieve national coordination

The National Hymenachne Management Group (NHMG) continues to address the challenges associated with the management of this weed. The group believes working with the grazing industry is essential for achieving implementation of the strategy. In 2006 the NHMG confirmed the priority of eradication of hymenachne in Cape York Peninsula and outlying infestations in Queensland, outlying infestations in the Northern Territory and all hymenachne in New South Wales.

In 2007 the group held a meeting dedicated to addressing difficulties associated with onerous conditions and obtaining timely off-label chemical permits from the Australian Pesticides and Veterinary Medicines Authority (APVMA). The outcome was an action plan to progress the individual issues.

Funding

The national coordinator assisted the development of five priority projects for Defeating the Weed Menace funding. Two projects were successful. Defeating the Weed Menace funding is continuing to assist local governments with on-ground control work in the Wet Tropics, Queensland.

Planning

Hymenachne has been included in relevant regional plans. In 2006/07 seven property pest management plans were developed in conjunction with the relevant local government to compliment and ensure an ongoing cooperative approach to the Defeating the Weed Menace on-ground control program. These plans also incorporate hymenachne management as a part of normal property management and encourage landholder ownership of the problem.

All local governments in Queensland, with the exception of the Torres Strait, have pest management plans in place including prioritisation of management of declared species such as hymenachne.

GOAL 4 Avoid release of additional ponded pasture species with weed potential

Public awareness of ponded pasture species impacts

Products such as the National Hymenachne Management Manual discuss the issues related to ponded pasture species and problems with the introduced species used in these systems. A hymenachne forum held at Yeppoon (Qld) by the Capricorn Pest Management Group in conjunction with the National Hymenachne Management Group (NHMG) discussed the broader issues of introduced ponded pasture species as well as more in depth focus on hymenachne. Impacts of introduced ponded pasture species are generally included in the awareness materials associated with hymenachne as a WoNS.

Variances to the strategy

A goal of the strategy is to “Develop codes of practice for the use of hymenachne and the establishment and management of ponded pastures”. With the declaration of hymenachne across northern Australia prohibiting its cultivation and distribution, the NHMG considers that a code of practice is no longer relevant for hymenachne, as it would breach the legislation.

In 2001, the Queensland Government released a ponded pasture policy (Queensland Government 2001). The policy prohibits the discussion in regards to pasture use of hymenachne, para grass and aleman grass by state government employees. As a result, the NHMG has experienced the problem that experts in the field of pasture agronomy and management employed by the Queensland Government, are unable to discuss options for the responsible use and management of other species, which are not declared and may possibly assist the grazing industry with the removal of hymenachne. It should be noted that the management group is very conscious about promoting any species that may have adverse impacts on the environment and at this stage believes that discussion is important to explore all options. The NHMG has requested that the Queensland Government’s Ponded Pasture Policy be reviewed so that discussion of species that are not declared is allowed.

A goal of the national strategy is “Develop and promote use of native hymenachne and other grasses”. This strategy was discussed at length by the NHMG and investigations undertaken by the Department of Primary Industries and Fisheries (Qld) Agronomist Bruce Cook, with consideration to past research in the Northern Territory (Department of Primary Production Division of Agriculture and Stock, 1981). Research in the Northern Territory identified that establishment and survival of native hymenachne was low in a pasture situations. It was concluded that further research into the use of native hymenachne as a possible replacement to introduced hymenachne would be unlikely to produce the desired outcome and is unlikely to be value for money.

Mr Cook also advised the group that it is unlikely that any other species would be introduced into Australia that would serve as a suitable replacement species for hymenachne. The characteristics of these ponded pasture species that make them desirable for pastoral use are the same characteristics that also make them an aggressive weed and as a result, any new plants would fail a weed risk assessment. The NHMG considers it is impossible to contain ponded pasture species in a grazing context, however, in some situations it may be possible that management strategies can be incorporated to reduce their negative impacts.

References

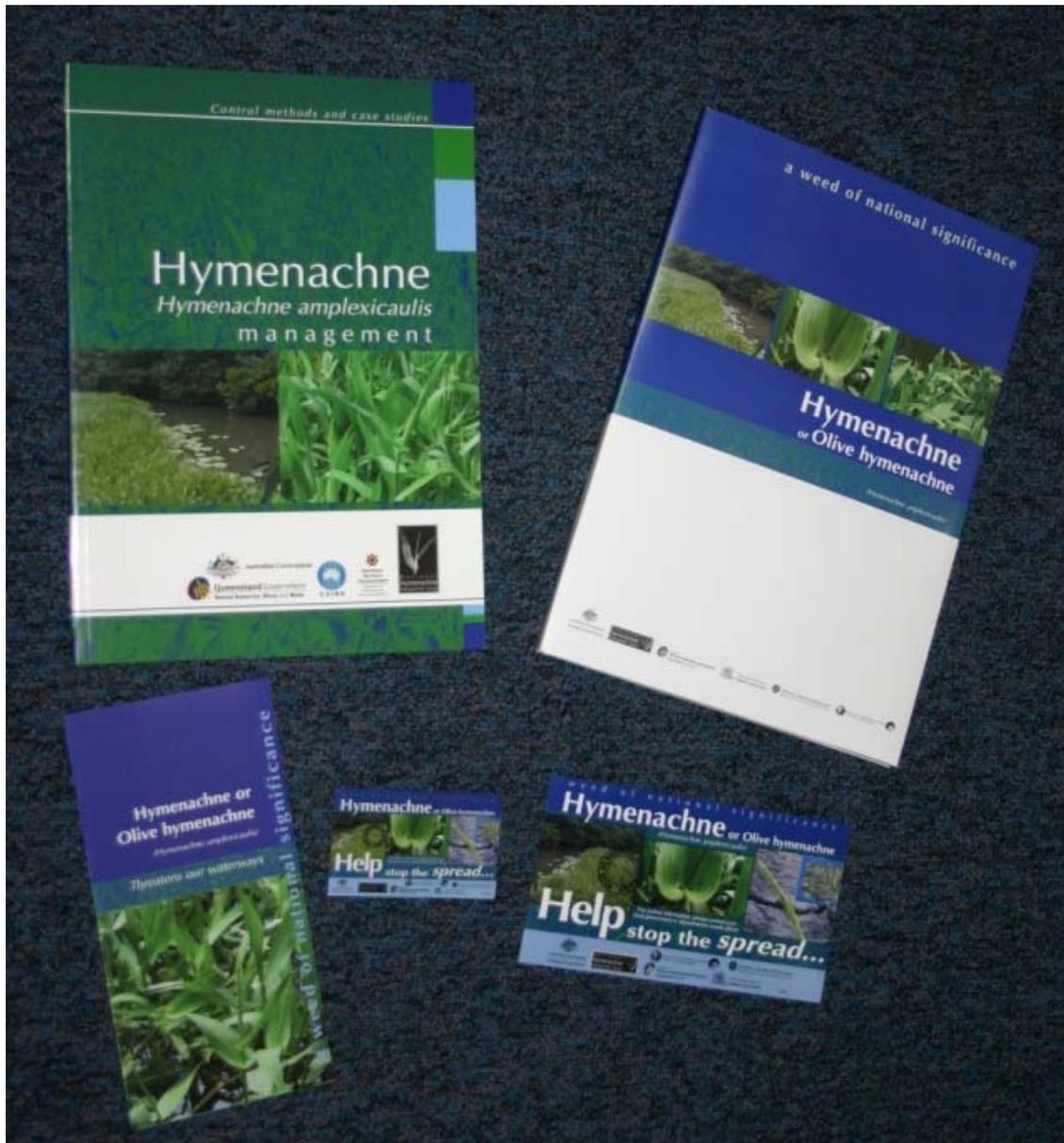
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Queensland Government, 2001 *Policy for Development and Use of Pounded Pastures*.

APPENDIX 1

Hymenachne products developed in 2006/07.



Attachment A.
Expenditure Statement
Detailed expenses for 2006/2007 funding

	Planned budget		Actual Expenditure	
	Proponent Funds (without GST)	Australian Government Funds Sought (without GST)	Recipient's Contributions Expended (without GST)	Australian Government Funds Expended (without GST)
Coordinator (AO6) 1.0 FTE including on-costs x 12 months		44,000		48,552
Manager and land protection staff	25,000		26,928	
National management groups member's time (including meeting attendance)	45,000		46,200	
A Total employment costs	\$65,000	\$44,000	\$73,128	\$48,552
Operating Cost Items	Proponent Funds (without GST)	Australian Government Funds Sought (without GST)	Recipient's Contributions Expended (without GST)	Australian Government Funds Expended (without GST)
Vehicle (0.5 use of vehicle including fuel & insurance)		4,200		4,140
Travel (coordinator)		6,500		3,250
National Hymenachne Management Group – 2 meetings/yr expenses (venue & equipment hire, catering, 3 teleconference/yr costs)		5,200		282
National Hymenachne Management Group –4 community reps' expenses (travel & accommodation)		8,000		4,149
National Hymenachne Management Group travel and accommodation expenses – 10 departmental, agency and industry representatives	15,000		1,500	
Admin, office support accommodation, IT	9,250		9,250	
National community awareness activities, education and publications (individual brochures & posters for pond apple and hymenachne. Includes hymenachne forum)	1,500	4,750		828
B Total operating costs	25,750	28,650	10,750	12,649
D Total Cost (without GST) (A+B+C)	\$90,750	\$72,650	\$83,878	\$61,201