

REGIONAL WEED MANAGEMENT PLAN

1.1 PLAN TITLE: Mysore Thorn Regional Weed Management Plan

1.2 PLAN PROPONENTS

Regional Weeds Advisory Committee: NSW North Coast Weeds Advisory Committee
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1.3 NAME OF PLANT

WONS No

Botanical name: *Caesalpinia decapetala* Common name: Mysore Thorn

1.4 PLAN PERIOD: Starting date: 1/1/2009 Completion date: 31/12/2013

1.5 AREA OF OPERATION:

Area of NSW North Coast Weed Advisory Committee - Coastal LCAs from Nambucca to Queensland border

1.6 AIM:

To control current infestations and prevent the future spread of Mysore thorn.

1.7 OBJECTIVES:

1. To completely restrict human spread of Mysore thorn by 31/12/2009.
2. To eradicate all isolated and scattered infestations by 30/6/2011.
3. To reduce all core infestations by 60% by the end of the plan.

2.0 STAKEHOLDERS

2.1 Stakeholder LCAs

Far North Coast Weeds, Clarence Valley Council, Coffs Harbour City Council, Bellingen Shire Council, and Nambucca Shire Council.

2.2 Other Stakeholders

Wholesale & retail nurseries including chain stores, Public and private gardeners, Landscaping organisations, NSW Department of Primary Industries (Weeds Section), NSW Department of Environment and Climate Change (including NSW National Parks and Wildlife and Environment Protection Authority), Northern Rivers Catchment Management Authority, Forests NSW, Local Council's Environmental and Parks and Gardens staff, Rural Lands Protection Boards, Australian Rail Track Corporation, Roads and Traffic Authority, NSW Farmers Federation, National Farmers Association, Landholders / Dairy Farmers / Cattle Producers, Coast / Land / Dune care, Australian Association of Bush Regenerators, private land occupiers.

3.0 BACKGROUND AND JUSTIFICATION

Mysore thorn is a vigorous growing thorny plant capable of climbing and engulfing native vegetation, fences, road signs, sheds, bridges and other infrastructure. It especially favours creeklines where it forms dense thickets restricting water flows, access and downstream movement of flood debris; leading to increased flood damage.

Mysore thorn is capable of growing in a range of environments and soil types. It severely impacts on biodiversity through restricting germination, reducing forest biomass through smothering, and severely restricting movement of native animals. The sprawling thickets provide habitat for foxes and other pest fauna.

Agriculture can be heavily impacted on by Mysore thorn due to its rapid growth smothering pasture, restricting movement of livestock and machinery and damaging infrastructure such as fencelines. The long spines of Mysore thorn can inflict serious injury to humans and animals.

Mysore thorn currently has an isolated distribution in the North Coast region. This plan outlines a strategic approach to eradicate it before it becomes more of a problem. Declaration as a Class 3 Regionally Significant Weed was gazetted as at 1 March 2006 in order to maximise stakeholder involvement.

3.1 Biology

Mysore thorn is a robust perennial 2-4m high shrub or sprawling climber to 15m high with long thorny branches. It readily forms dense impenetrable thickets.

Leaves of Mysore thorn are bi-pinnate and up to 300mm long. The leaflets are dark green above, paler beneath, approximately 8mm wide and covered with fine hairs. There are small prickles on the rachis. Stems have minute golden hairs. Thorns on the stems are straight or hooked and aid its ability to climb.

Mysore thorn has distinctive pale yellow flowers in long racemes that protrude up to 50cm above the main plant in winter-spring. The flowers have prickles at the base.

Flattened brown woody pods are produced by the plant in spring-summer. The many seeds are easily spread by water, and possibly rodents, and can remain viable in the soil for up to 10 years (Big Scrub Rainforest Landcare Group 2000).

Mysore thorn has both tap and lateral roots and hence has a strong competitive advantage over other species for access to water. A recent study in South Africa found that it was one of the biggest utilises of water of all introduced species. It has been estimated that Mysore thorn uses approximately 37.796 million m³ of water annually in South Africa (Versfeld *et. al.* 1999).

Mysore thorn was ranked the 22nd worst environmental weed on the NSW North Coast following assessment in 2001 by leading environmental weed practitioners and use of decision matrix computer software. It is currently listed as a high priority species in the Northern Rivers Invasive Species Strategy (NCWAC 2007).

3.2 Current distribution

Mysore thorn originates from tropical and eastern Asia but is now a serious weed in many locations such as South Africa, Tanzania, Zimbabwe, Hawaii, Portugal, New Zealand and Norfolk Island. The first record of Mysore thorn in Australia was in 1911 near Ryde, Sydney. Serious infestations are now located in Eastern Queensland, NSW Mid North Coast (Lake Innes, Stroud, Port Stephens and Johns River) and NSW South Coast (Wollongong and Mt Kembla areas) (Phillips 2001, Pullen 1993, Trounce 1995, Swarbrick and Timmins 1997).

Although favouring full sun, it readily invades rainforest edges, roadsides and riparian zones. It will grow in a range of soils including dry rocky environments.

Within the NSW North Coast region only isolated infestations currently occur, however, it is spreading rapidly. The most serious infestations are found at Uralba (south of Ballina) where it is smothering native vegetation including 20m high trees, at Coraki in overburden quarries, Boyd River flats (near Dalmorton) where it infests approximately 50 hectares, Green Ridge (south east of Casino) where it is smothering lantana over 100m of fenceline, two substantial infestations in Dans and Weigal Creek near Dunoon (Lismore) and Woolgoolga Creek (Coffs Harbour) where it infests over 1ha. Other infestations occur at Lawrence, Tucabia, Blaxlands Flat, Goonellabah (Lismore), and several infestations in the Tweed and Nambucca catchments.

Two native species, *Caesalpinia scortechinii* and *C. subtropica*, are of similar appearance and hence careful identification is required before control occurs.

3.3 Null hypothesis

Mysore thorn is currently spreading at a rapid rate in several parts of the region. Many land occupiers / managers put off controlling the weed due to its sharp spines and poor access caused by its smothering nature. As it particularly favours riparian zones, if left uncontrolled, it will continue to spread rapidly downstream from these locations. Any expansion in its distribution will dramatically increase the difficulty of control and ability to obtain community support / involvement.

If left uncontrolled many mid-lower catchment streambanks as well as numerous roadsides, forest and farmland areas will become infested with the weed. In other areas with a similar climate such as South Africa and South East Queensland Mysore thorn has invaded large areas to the detriment of biodiversity and agriculture. Control of Mysore thorn within the north coast region is still regarded as being achievable in the short term. If declaration is removed this smothering spiny plant will continue to spread unabated.

4.0 LEGISLATIVE SITUATION

4.1 Current declaration

Mysore thorn is currently declared a Class 3 noxious weed for the whole of the area covered by the North Coast Weeds Advisory Committee.

4.2 Declaration changes

Not proposed during the life of this plan.

4.3 Enforcement strategy

Where the weed is present on private or public lands, enforcement will be in accordance with provisions under the Noxious Weeds Act 1993.

5.0 CONSIDERATIONS AND OPPORTUNITIES

5.1 Opportunities to be exploited

The main opportunity existing with Mysore thorn is its current isolated distribution in the north coast region. If these infestations are controlled at an early stage they can be easily controlled.

Mysore thorn can be easily located due to its characteristic appearance. It has very bright yellow flowers that protrude above the plant in winter-spring, but at other times of the year it can still be readily seen by its characteristic leaves and general form of the plant. Although plants can be readily seen, careful identification is still required due to the close resemblance of Mysore thorn to two native species.

Mysore thorn is rarely sold within the region. This will help ensure that re-infestation does not occur following control of the species.

A number of control techniques have been found to be effective at controlling Mysore thorn both within the north coast and elsewhere.

5.2 Industry sectors

Beef cattle farmers and other agricultural industries in the region will support control of the species due to the potential injuries caused by the sharp spines on the plant. The plant can also dramatically reduce access where it is present. Seeds from Mysore thorn can contaminate agricultural produce and remain viable in the soil for up to 10 years and hence farmers, rural distributors and local weed control authorities need to promote and guard against its transportation.

The Nursery Industry is aware of the declaration of Mysore thorn as a Class 3 noxious weed through regular inspections by Local Control Authorities. A substantial number of non-weedy alternative species are currently available for use as replacement species for street and garden plantings.

All major stakeholder organisations of the NCWAC are aware of the impacts and potential threat posed by the species through committee discussions, various publications, media releases and promotions. These stakeholder organisations, which include NSW DPI, NSW DECC - NPWS, Forests NSW support declaration of the species in order to control it before it becomes more of a problem.

The Catchment Action Plan (CAP) for the Northern Rivers Catchment Management Authority lists invasive species like Mysore thorn under the Biodiversity Theme -

Management Target B3 that aims to implement actions to manage native ecosystems/habitats to reduce the threat of invasive species and disruption to natural ecosystems.

The CAP further recommends that resources be directed to restoring significant habitats such as riparian zones. As Mysore thorn could potentially have a severe impact on these areas, there may be opportunities for funding and improved coordination and involvement from a range of stakeholders. In some situations there are opportunities for environmental restoration projects using Green Corps, Work-for-the-dole and / or Conservation Volunteers Australia participants. Green Corps workers have already been involved in control programs on some Mysore thorn infestations.

The growth and spread of Mysore thorn restricts access in forest, roadside and riparian areas, reduces aesthetic values and can potentially cause serious injury and hence can impact on tourism assets / values.

5.3 Ecological

Mysore thorn infestations dramatically alter natural ecosystems they invade to the detriment of native flora and fauna species. Native regeneration is substantially reduced through reduced light and smothering. Any mature species present are generally smothered and either killed or their growth severely restricted. Mysore thorn infestations often create dense monocultures and hence provide restricted habitat for native fauna. The sharp barbs on its branches can also injure wildlife. Mysore thorn can provide useful habitat for introduced pest animals such as foxes, cats and rabbits.

No biological control agents or pathogens are currently available for the control of Mysore thorn in Australia. Due to the restricted current distribution of the plant it is more economical to eradicate the plants using a range of other methods rather than biocontrol.

Great care is required in controlling infestations in riparian zones, wetlands and other significant environments in order to minimise any adverse environmental impacts such as off-target damage to native plants and aquatic fauna species such as frogs from herbicides.

5.4 Species management

Integrated management, where a combination of techniques is used against the weed, provides the best approach. The individual techniques used will depend on the location, size and character of the infestations and a range of other factors.

Small and isolated infestations should be given a high priority for control in most situations due to the relative ease of control and potential for them to infest larger areas. Actions should aim at controlling the plant before seeding. Care needs to be exercised to minimise off-target damage to any native species being crowded out by Mysore thorn.

Metsulfuron methyl-based herbicides are currently registered for the control of Mysore thorn in Australia. A permit has been approved for the use of glyphosate-based herbicides on the plant. These herbicides have shown some success controlling the plant. The main issue regarding control of the plant is poor access. Most success has been found by controlling the edges of the plant and gradually working towards the middle over time.

5.5 Community

Some environmentally aware members of the community are aware of this plant. This is evidenced by the small number of infestations present, but the large number of people / groups acknowledging the potential impact of the species. The potential of this weed has been noted and DECC - NPWS, bush regenerators, Landcare groups and green corps participants have been undertaking some control for a number of years. There has been

some success but community groups need more support and a more coordinated approach is required.

5.6 Extension and education

Declaration will lift the profile of the weed in the minds of a wider cross section of the community. Many of the extension and education efforts will be funded by a number of different stakeholder organisations listed in section 2 of this plan. The role of local control authorities will be mainly one of enforcement and control.

Awareness raising activities include workshops undertaken throughout the region aimed at mapping the distribution and abundance of this and other weed species. Workshops and forums can be held to further raise awareness of the issue.

Future extension programs highlighting the threat posed by the weed and its identification include the following:

- Field days;
- Identification brochures;
- Media releases;
- Training days for community groups etc. on control options, and;
- Control trials.

5.7 Links to other strategies

This Regional Plan is linked with Local Control Authorities' Local Weed Plans. This plan also links to:

- The National Weeds Strategy
- NSW Invasive Species Plan 2008-2015.
- The NSW Biodiversity Strategy
- Northern Rivers Invasive Plants Action Strategy (NRIPAS)

Using the NRIPAS Weed risk assessment for the region Mysore thorn scored:

Aa in Coffs Harbour, Kyogle, Richmond Valley (absent)

A in Tweed, Bellingen

B in Byron, Lismore, Ballina, Clarence & Nambucca

5.8 Contingencies

A. Hard to access some infestations;

Some infestations are located in rough terrain. The habit of the plant also restricts access. Control of these infestations will need to be undertaken in a gradual manner.

B. Lack of awareness of the weed within the general community;

Promotion needs to focus on identification and the potential threat posed by the species to as broad an audience as possible; particularly land managers in the Casino-Lismore area.

C. Rapid rate of spread;

Control programs focusing on small, isolated infestations as well as restricting further spread of the main infestation will address this important issue.

D. Some infestations may be hard to locate;

Wide community consultation will assist. Education (including identification) of key land managers will dramatically reduce this potential problem.

E. Many infestations are located near waterways and hence a licence to pollute may be required from the EPA.

6.0 ACTION PLAN

Abbreviations listed at end

Objective 1. To completely restrict human spread of Mysore thorn by 31/12/2009.		
Action	Performance Indicator	Who
Liaise with nursery industry, distributors and market organisers regarding enforcement of noxious weed declaration	Inclusion of NGINA in communication with NCWAC Nurseries & market stalls inspected at least annually	NCWAC, LCA's
Train key officers in the ID of Mysore thorn	LCA Weeds Officers, relevant Councils, NPWS, and Landcare groups trained in the ID of Mysore thorn by March 2009	Project Officer, NCWAC, LCAs NSW DPI, NPWS, Landcare
Develop local Mysore thorn management plans	Local Mysore thorn management plans developed by March 2009	LCAs
Continue a community awareness program	-A press release prepared every 2 years - Noxious Weed Guide prepared and updated -Volunteer care groups, bush regeneration groups & garden clubs notified -WBW, local and regional displays to include Mysore thorn	LCAs, NCWAC, NSW DPI
Promote suitable replacement species	Replacement species list circulated to all key stakeholders and included in press releases, brochures and displays upon declaration	NCWAC, Landcare
Enforce declaration	- Nurseries & market stalls inspected at least annually	LCA's
Promote identification of the species and the threat of transport in agricultural produce to affected land managers	Affected land managers made aware of the threat posed by the species by 31/12/2009	LCA's
Objective 2. To eradicate all isolated and scattered infestations by 30/6/2011.		
Action	Performance Indicator	Who
Update map infestations within each LCA area	Updating of 1:25,000 scale distribution maps produced by NCWAC by 31/12/2013	NCWAC, LCA's, NPWS, Landcare, community
Further develop and promote effective control techniques	- NSW DPI & other researchers consulted by December 2009 - Control techniques promoted in brochure and displays upon declaration	NCWAC, Project Officer, LCAs
Liaise with EPA regarding control near waterways	Licence to pollute waterways requested (if required) by April 2009	LCAs, EPA

Determine priority areas for control in-conjunction with key stakeholders	Establish priority areas by February 2009	NCWAC, LCAs, CMA, NPW, NSW DPI, Landcare
Develop coordinated and consistent programs with all key stakeholders	Coordinated programs developed prior to treatments	NCWAC, LCAs, CMA, NPW, NSW DPI, Landcare
Inspect public and private land as part of routine inspection programs	Inspection programs implemented annually.	LCA's
Implement control programs for all isolated and scattered infestations	All isolated and scattered infestations controlled by 31/12/2013.	LCA's, Land managers
Enforce declaration	- Landowners encouraged to control as soon as possible. - Control notices issued where required.	LCA's
Ongoing inspection and control programs maintained	New infestations recorded and mapped.	LCAs, Landowners, NPW, Landcare
Objective 3. To control 60% of core infestations by the end of the plan.		
Implement control programs for core Mysore thorn infestations	- Control program implemented by 31/12/2013 - 60% of all core infestations controlled by the end of the plan	NCWAC, LCAs, CMA, NPW, NSW DPI, Landcare
Ongoing inspection and control programs maintained	New infestations recorded and mapped	NCWAC, LCAs, CMA, NPW, NSW DPI, Landcare
Implement control programs for new infestations	Programs in place for new infestations within 6 months of detection	NCWAC, LCAs, CMA, NPW, NSW DPI, Landcare
LCA's report annually on the progress of programs	Regional report prepared annually and presented to NWAC	LCAs, Plan coordinator, NCWAC

Abbreviations:

CMA Northern Rivers Catchment Management Authority
DECC Department of Environment and Climate Change
EPA Environment Protection Authority
ID Identification
LCAs Local Control Authorities

NCWAC NSW North Coast Weeds Advisory Committee
NPW National Parks and Wildlife
NSW DPI New South Wales Department of Primary Industries
NWAC NSW Noxious Weeds Advisory Committee
WBW Weed Buster Week

7.0 MONITOR AND REVIEW PROCESS

The plan will be reviewed by the NCWAC on an annual basis to assess the achievements and performances of the various actions. The Plan Coordinator will then collate the relevant information and report back to the NSW Noxious Weeds Advisory Committee annually. The Regional Management Plan will be amended as necessary.

A full review of the Plan will be undertaken by 31/12/2013.

8.0 BENEFITS

Control of Mysore thorn will provide many benefits to the region due to its thorny smothering habit which can reduce flora and fauna habitat, injure and restrict access for livestock and damage fences, sheds, road signs and other infrastructure.

This Plan provides a unique opportunity to eradicate Mysore thorn from the NSW North Coast region before it becomes fully established. A number of suitable alternative species are available, including several native species. The cost to eradicate the plant now is minor compared to the cost of maintaining it, should it continue to spread at current rates within the region. The plan continues to require relatively small amounts of funding from the Noxious Weeds Advisory Committee as only small infestations are currently present and due to the number of stakeholders involved.

LCAs should have a minimal input of additional time as many of the actions will be run in conjunction with other weed control plans.

9.0 RESOURCES

- Big Scrub Rainforest Landcare Group (2000) *Common Weeds of Northern NSW Rainforests*. A practical manual on their identification and control. ISBN 0 9585 439 1 7.
- Bromilow, C. (1995). *Problem plants of South Africa*. Briza Publications, Arcadia.
- Harden, G.J. (2002). *Flora of NSW*. Vol. 2, p. 367. University of NSW press, Kensington.
- Phillips, S. (2001). *Pest Strategy. Mysore thorn at Lake Innes ruins*. A report for the National Parks and Wildlife Service.
- Pullen, R. (1993). *Occurrence of a potential noxious weed Mysore thorn*. In-service report, National Parks and Wildlife Service, Port Macquarie, NSW.
- Stanley, T.D. & Ross, E.M. (1983, 1986, 1989). *Flora of southeastern Queensland*. Vol. 1, 2 3. Queensland Dept of Primary Industries.
- Swarbrick, J. and Timmins, S. (1997). *Annotated bibliography of environmental weeds in Australia and New Zealand*. Environment Australia, Canberra, ACT.
- Trounce, R. (1995) Weed alert. In: *Proceedings of 8th Biennial NSW Weeds Conference*. NSW Agriculture.
- Versfeld, D.B., D.C. Le Maitre and R.A. Chapman. (1999). *Alien Invading Plants and Water Resources in South Africa*. Report prepared by the CSIR Division of Water, Environment and Forestry Technology Stellenbosch for the Water Research Commission, Pretoria, South Africa.
- Wagner, W.L., D.R. Herbst, and S.H. Sohmer. (1990). *Manual of the Flowering Plants of Hawaii*. University of Hawaii Press, Bishop Museum, Honolulu.
- A number of websites feature information on Mysore thorn such as:
www.hear.org/AlienSpeciesInHawaii/maps/CaeDeck_.htm
www.plants.usda.gov/