

# Athel Pine

## National Best Practice Management Manual

Managing athel pine and other *Tamarix* weeds in Australia

July 2008



**Australian Government**



*This manual is sponsored by the Australian Government and supported by the Northern Territory Government's Department of Natural Resources, Environment and The Arts (NRETA).*

The Northern Territory Government respects Indigenous cultures and makes every attempt to ensure that this document contains no material that is offensive to Indigenous Territorians.

This manual is intended to provide information only. Readers rely upon all information contained in the manual entirely at their own risk. It is not intended to, nor does it constitute, expert advice. While all care has been taken in the preparation of this manual, the Northern Territory Government does not accept any responsibility for any loss or damage that may result from any inaccuracy or omission in the information contained within, or for any loss or damage which may be incurred as a result of the use of any of the control techniques or products referred to in this manual.

The naming of individual products (including herbicides) does not constitute any form of preference or criticism of any competitor of, or alternative to, the named product.

Control costs mentioned in this manual are indicative only and based on 2007 figures unless otherwise stated.

© Northern Territory Government 2008

This work is copyright. Apart from any use as permitted under the *Copyright Act 1968*, no part may be reproduced by any process without written permission from the Northern Territory Government.

Requests and enquiries concerning reproduction and rights should be addressed to:

NRETA  
PO Box 496  
Palmerston NT 0831 Australia

For copies of this manual please contact:

WoNS National Athel Pine Coordinator  
NRETA  
PO Box 496  
Palmerston NT 0831 Australia  
Ph: (08) 8999 4567

Manual compiled by the National Athel Pine Management Committee and funded by the Australian Government. Project Officer hosted by Department of Natural Resources, Environment and The Arts (NRETA), Northern Territory. About 170 relevant references were reviewed.

Expert interviews were conducted with around 20 land managers. This manual represents a rigorous review of successful and legal *Tamarix* control methods practiced in Australia.

Photography and maps: Kellie Agar, Dave Albrecht, Natasha Baldyga/Department of Primary Industries Victoria, Jim Balnaves, Chris Brown, Sylvia Clarke, Andrew Davies, Bryn Davies, Will Dobbie, Tom Dudley, Jonah Gouldthorpe, Land Management Staff Department of Natural Resources and Water Queensland, Greg Patterson, John Pitt, John M Randall/The Nature Conservancy, Barry A Rice/The Nature Conservancy, Les Tanner/North West Weeds, Tourism NT, Sam van Wyngaarden, Sandy Leighton, Kirk McDaniel, Michelle Foale, Prue Dufty and Mark O'Connor.

Editing and proofreading: National Athel Pine Management Committee, NRETA Weeds Publications Review Committee and Kerry Sharp.

ISBN 10: 1 920772 85 5

### Authors

Principal author: Jonah Gouldthorpe, Dept. Natural Resources, Environment and The Arts, Northern Territory (NRETA).

Participating authors: Sylvia Clarke, Wayne Clarke, Ashley Harvie, Sandy Leighton, Bethan Lloyd, Kirk McDaniel.

At the time of publication, the National Athel Pine Management Committee membership included: Kellie Agar/Dept. Environment and Conservation WA, Deb Agnew/South Australian Arid Lands NRM Board SA, Chris Brown/Dept. Natural Resources, Environment and The Arts NT, Colleen Costello/Community representative, Charles Curry/Southern Gulf Catchments QLD, Jim Forwood AM (Chairman), John Gavin/South Australian Arid Lands NRM Board SA, Peter Gray/Dept. Primary Industries NSW, Don Mackenzie/Bourke Shire Council NSW, Garry Pidgeon/Dept. Primary Industries and Fisheries QLD, John Pitt/Rural Solutions SA, Shauna Potter/Dept. Water, Land and Biodiversity Conservation SA, John Thorp/National Weeds Management Facilitator and Steve Wingrave/Dept. Natural Resources, Environment and The Arts NT.

## Acknowledgements

The Australian Government funded preparation of the manual.

Preparation of the manual was hosted by NRETA and overseen by the National Athel Pine Management Committee.

Weeds of National Significance Coordinators gave important assistance in preparation of the manual.

Participating authors, contributors and photographers shared their time and information generously. Their contribution to the manual including personal communications and quotes is gratefully acknowledged.

Private and community land managers kindly shared their time and experiences with the National Athel Pine Management Committee. Their stories contribute significantly to the management and case study sections of the manual.

Valuable editing and proofreading was undertaken by the NRETA Weeds Publications Review Committee, editor Kerry Sharp.



*Athel pine has been widely planted across inland Australia as a shade tree*

## Foreword


Athel pine, tamarisk and smallflower tamarisk could become some of Australia's worst weeds, with the potential to infest inland drainage systems across all mainland states and the Northern Territory. Because of its potential impacts on the Australian people, environment and economy, athel pine has been nominated as one of the country's 20 worst weeds, or a "Weed of National Significance".

Fortunately these weeds have a limited distribution at the moment, and now is the time for land managers to move against athel pine, tamarisk and smallflower tamarisk. We know that for every dollar spent acting early on a weed problem, we save \$16 in reactive weed control down the track. A relatively small investment now will safeguard our water supplies, grazing lands and unique wildlife against the negative impacts of these weeds forever.

This manual brings together the best management practices available to date on control options for athel pine, tamarisk and smallflower tamarisk. It also illustrates successful control programs with case studies that demonstrate how these weeds can be managed effectively in Australia.

I speak for all members of the National Athel Pine Management Committee in recognising that all land managers, be they primary producers, community groups or government, need to live up to their responsibilities and work together to overcome the threat posed by athel pine, tamarisk and smallflower tamarisk.

This manual will be an asset to any land manager dealing with this suite of weeds and I give it my highest recommendation.



J.B. Forwood AM  
Chairman  
National Athel Pine Management Committee

## Contents

Introduction.....	6
A Weed of National Significance .....	6
A national approach .....	6
Using the manual.....	6
<b>1. Ecology and threat</b>	
1.1 Description .....	8
1.2 Life cycle, reproduction and spread .....	12
1.3 Origin and history of spread.....	14
1.4 Distribution.....	15
1.5 Potential spread .....	16
1.6 Impacts.....	17
<b>2. Managing athel pine, tamarisk and smallflower tamarisk</b>	
2.1 Planning .....	20
2.2 Identify which <i>Tamarix</i> species you are dealing with .....	21
2.3 Combine two or more control options for success, then follow up .....	22
2.4 Control options.....	22
2.4.1 Preventing spread .....	22
2.4.2 Mechanical clearing .....	24
2.4.3 Herbicides.....	26
2.4.4 Hand pulling.....	30
2.4.5 Flooding .....	30
2.4.6 Biological control .....	30
2.5 Suitability of control options for <i>Tamarix</i> - summary .....	31
2.6 Choosing a program for <i>Tamarix</i> control .....	32
2.7 Revegetation .....	33
2.8 Monitoring progress with photo points.....	33
<b>3. Case studies</b>	
Finke River, NT – integrated techniques against athel pine ( <i>Tamarix aphylla</i> ) .....	37
Florina Station, SA – Lessons learned on tamarisk ( <i>Tamarix ramosissima</i> ) .....	40
Lake Boonderoo, WA – Lessons learned on tamarisk ( <i>Tamarix ramosissima</i> ) .....	43
Avon River, WA – Lessons learned on smallflower tamarisk ( <i>Tamarix parviflora</i> ) .....	46
Successful tamarisk control in the USA ( <i>Tamarix ramosissima</i> ) .....	49
<b>4. Further information</b>	
4.1 Weed contacts – phone numbers and web sites.....	52
4.2 Declaration status .....	53
4.3 Mapping standards and photopoints.....	54
4.4 Off-label permits for <i>Tamarix</i> and woody weed control .....	54
4.5 Mechanical clearing - permits and enquiries.....	55
4.6 Protecting Indigenous cultural heritage .....	56
4.7 Machinery hygiene guidelines .....	56
4.8 Herbaria .....	57
4.9 More information on controlling athel pine.....	57
4.10 References.....	58

## Introduction

### A Weed of National Significance

Athel pine (*Tamarix aphylla*) is one of the worst weeds threatening inland Australia today. It was identified as a Weed of National Significance (WoNS) in 1999 because of its invasiveness, its potential to spread and its impacts on the environment and primary industry. Although athel pine has already overrun 600 km of the Finke River in central Australia with devastating results, its potential impact in Australia has hardly been realised. Most of this country's inland river systems, lakes, springs, waterholes and bore drains are at risk.

Athel pine has been introduced around the world for shelter and erosion control. It arrived in Australia in the 1930s and was widely planted for shade and windbreaks into the 1970s. Athel pine has naturalised - or gone wild - at only 20 locations, but any of Australia's thousands of domesticated athel pine trees could potentially start a devastating new infestation.

Athel pine threatens Australia's pastoral industry because it dries up or salts the waterholes, springs and rivers where stock could otherwise drink and makes mustering difficult and expensive. It threatens the environment by out-competing the river red gums, coolbahs and endemic herbs which birds, reptiles and invertebrates rely on for food and shelter. Finally, athel pine impacts on the Australian people by damaging the natural landscapes we value.

Australia's state and territory governments have taken the threat from athel pine seriously by making it a "declared", or "noxious" weed. This imposes restrictions on growing or selling athel pine, and in many instances obliges all land managers - government, private or community - to control this weed on their land.

Athel pine has two close relatives – tamarisk (*Tamarix ramosissima*) and smallflower tamarisk (*Tamarix parviflora*) – which have recently naturalised and demonstrated their potential to become equally serious weeds in Australia. Tamarisks have invaded a million hectares of river systems in south western USA, forcing out endemic plants and animals and sucking up to 27 million megalitres of water out of rivers every year. This manual recognises the threat these weeds pose to Australia and looks in detail at their control.

### A national approach

A national strategy was developed in 2001 to tackle the current and potential threat from *Tamarix* weeds to the nation. The vision of the *Weeds of National Significance athel pine (Tamarix aphylla) strategic plan* is "Protecting Australia's biodiversity, landscape and industries from athel pine (*Tamarix aphylla*)" but the plan also establishes the need to deal with tamarisk and smallflower tamarisk at a national level. The plan's four outcomes are:

1. The prevention of new infestations of athel pine
2. The eradication of all athel pine occurrences in riparian zones
3. The management of athel pine in non-riparian areas
4. The coordination of strategic athel pine management nationally.

Implementation of the strategic plan is led by the National Athel Pine Management Committee, a group comprising community, agency and industry representatives.

### Using the manual

Section 1 of this manual outlines the ecology and threat of athel pine, tamarisk and smallflower tamarisk. Section 2 discusses proven control options and talks about how to plan and prioritise work and deliver a program which leads to eradication. Section 3 showcases successful Australian and overseas programs against these weeds. Section 4 gives useful links, contact numbers and ideas about where to find more information on weed and land management.