Review of progress towards the National Athel Pine Strategic Plan 2008/ 2009

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Executive Summary

This report outlines progress towards the vision of the Athel Pine (*Tamarix aphylla*) National Strategy – Protecting Australia's biodiversity, landscape and industries from athel pine. In 2008/09 the Australian Government invested over $470,000 in the athel pine program, while investment from the five states and the Northern Territory, NRM Regions, local government and community groups exceeded $390,000. Landholder contribution to control efforts are in addition to this figure.

The genus *Tamarix* is native to a zone stretching from southern Europe to Asia. Three species currently inhabit Australia, these are Athel Pine *Tamarix aphylla*, *T parviflora* and *T ramosissima*, however only Athel Pine is declared in all states and territories and is a Weed of National Significance.

The fact that *T parviflora* and *T ramosissima* are not declared weeds does not diminish the risk of their spread in riparian areas including ephemeral streams and lakes. Evidence indicates the species have continued to naturalise and spread in some southern arid and semi-arid catchments and reservoirs in Australia. A further risk is the possible hybridisation between *T aphylla* (Athel pine) and *T ramosissima.* with concern that these hybrids may prove more invasive that either of the parent plants.

The National Athel Pine Management Committee (NAPMC) developed a National Management Map during 2009 that is available on the WoNS website. This map shows the distribution of *Tamarix* spp. and prioritises management action into areas targeted for eradication, for control of outliers and for containment within core infestations. These maps and associated lists of naturalised occurrences and catchments at risk have been updated to provide strategic planning tools for implementation and monitoring of coordinated national management activities and were used to guide the assessment process for the 2009/2010 Caring for our Country funding grant program.

To assist landowners with the management of athel pine, *T ramosissima* and *T parviflora,* the Athel Pine National Best Practice Management Manual was launched in March 2009. The 60 page book, with demonstration pictures and herbicide advice will ensure consistency in management practices across Australia. The Manual was distributed to over 800 individual land managers, weeds officers, nrm professionals, government officers and politicians, community Landcare groups and was provided at a number of events for the general community.

Recognition that *T. ramosissima* and possibly athel pine had naturalised in Victoria led to the seeking and nomination of a Victorian representative onto the National Athel Pine Management Committee during this period. This expanded membership will ensure communication with relevant stakeholders in that state and inclusion of those infestations in consideration of prioritisation for control activities.

As a result of education and awareness efforts, stakeholders across several states have more actively identified and reported both planted and naturalised athel pine. These stakeholders have been encouraged to determine whether the identified plants are high risk due to being within 100m of a watercourse and, if so, to actively develop a management plan to eradicate infestations and prevent spread and growth. The National Committee will continue to promote community awareness, with the aim of increasing surveillance, control and reporting of sightings and locations. A draft Communications Strategy was developed during the reporting period with the aim of implementation during 2009/2010.

A potentially exciting development was the glasshouse trials of the fungal isolates of the athel pine dieback located in the lower Finke River. Investment by the NT Government continues with the aim to run field trials in the next reporting period.

Future areas of focus for the committee include:

- Ensuring strategic control of high priority infestations;
- Investigating the issue of formal herbicide registration for athel pine and *Tamarix* spp. in Australia;
- Investigating potential native biocontrol agents for use in large-scale athel pine infestations; and
- Continuing to increase community awareness of the risk of *Tamarix* spp. throughout Australia.

Introduction

This report documents progress towards implementing the *National Athel Pine Strategic Plan 2001* throughout Australia during 2008/2009. It provides evidence for the benefits of a nationally coordinated program demonstrating that this has led to improved stakeholder understanding, involvement and commitment to the long-term management of athel pine (*Tamarix aphylla*) and other *Tamarix* species throughout Australia. The national strategy states that there are several *Tamarix* species that have shown weedy tendencies both in Australia and overseas. For Australia these additional species are smallflower tamarisk (*Tamarix parviflora)* and tamarisk (*T. ramosissima)*. The national strategy includes actions to address the threat that these additional two species pose to Australia.

Athel Pine, its history and impact in Australia

The genus *Tamarix* is native to a zone stretching from southern Europe and north Africa through to the Middle East and south Asia to China and Japan. Of the three species present in Australia, only Athel Pine is a Weed of National Significance and declared in all states and territories. Both *T. parviflora* and *T. ramosissima* present a significant risk and are naturalising in southern arid and semi-arid areas in Australia. *Tamarix* spp. invade riparian areas including ephemeral streams and lakes, and also mine sites and water storage areas and impact on water resources, biodiversity and pastoral management. A mature tree consumes up to 750 litres/ day, twice that of willows, and significantly increases local salinity levels.

Athel pine is classified as a 'sleeper' weed because it was present in Australia for some time before it became weedy. It was first promoted as a useful tree for wind and sun shelter at homesteads, communities, bores, stockyards and later for erosion and salinity control throughout semi-arid and arid Australia. Introduced in the 1930s and 1940s at Broken Hill NSW and Whyalla SA, widespread plantings occurred throughout Australia between the 1940s and 1950s. Salinity plantings by community groups occurred in WA during the 1970s and 1980s whilst mine rehabilitation plantings occurred in QLD and WA over the last 20-30 years. It was not until the 1970s and 1980s that the true weed potential of this species was recognised, by which time it had spread along 600 km of the Finke River in NT. This rapid and sudden expansion corresponded with several large summer floods which are thought to have provided the perfect environment for seed germination and establishment. In addition both *T. ramosissima* and *T. parviflora*, like athel pine, were introduced as ornamentals. However, documented history of their introduction is absent. In the WA wheatbelt area *T. parviflora*, together with athel pine was planted for salinity management by community groups during the 1970-1980s.

Experience in the Western USA with tamarisk (*T. ramosissima* and hybrids) was that it covered more than 1.5 million riparian acres and was expanding by 40,000+ acres each year. In addition hybrids between *T. aphylla* (athel pine) and *T. ramosissima* have been recorded. There is concern that these hybrids may prove more invasive than either of the parent plants.

Currently athel pine only occurs across a small fraction of its potential distribution in Australia, with infestations restricted to the northern arid zone, whilst *T. ramosissima* and *T. parviflora* appear to be a risk in the more southern arid and semi-arid zone. In addition any of these species may naturalise where there are plantings adjacent to permanent or semi-permanent water sources. Refer to Appendix C for current and potential distribution maps for athel pine.

A national solution

The National Athel Pine Strategic Plan was developed by the NT government with full support from all states and territories and the Australian Government and was published in 2001. The National Athel Pine Management Committee (NAPMC) was formed in November 2005. A full time coordinator was appointed in December 2006 as the National WONS Coordinator for *Mimosa pigra* and athel pine funded by the Australian Government's Defeating the Weed Menace initiative. Prior to this an officer from NT NRETA held the national Athel Pine coordinator position on a part-time basis, focusing on the production and airing of a national TV commercial and the subsequent formation and support of the NAPMC. The formation of the committee led to increased control

programs nationally, rather than the previous NT focus. The NAPMC set national priorities based on the *National Athel Pine Strategic Plan 2001* and these are being effectively implemented by the National WONS Coordinator and stakeholders throughout Australia. Committee membership expanded during 2007 to include key NRM/ CMA representatives in areas where *Tamarix* spp. is a priority for management and then again in 2009 to include a Victorian representative. Capacity building of members resulted in increased understanding, ownership and strategic planning of local and regional control programs, location of new *Tamarix* spp. infestations in QLD, NSW, SA and WA during 2006/ 07 and the subsequent securing of funds for control works during 2007/ 08.

During 2007 the NAPMC and the national WONS coordinator expanded national networks with over 100 stakeholders engaged including state and local governments in NT, QLD, NSW, SA and WA; NRM/ CMA regions in NT, QLD, NSW, SA and WA; landcare groups and landholders. This enabled improved searching for and reporting of naturalised infestations, communication and knowledge sharing between states and territories on biology and effective control techniques and increased funding leading to improved on-ground control outcomes and local ownership for all known infestations nationally. Field visits during 2006/07 carried out by the then coordinator resulted in the development of best practice management strategies for previously untreated infestations in Queensland and improved understanding of adaptive management in WA and NSW.

Lack of a Coordinator for half of 2007/2008 slowed progress in the national coordination, setting and implementation of priorities for athel pine management. However, surveillance and on ground management of naturalised infestations continued to make significant headway in a number of key locations including the upper Finke River in the Northern Territory and the South Australian Arid Lands NRM Region.

Progress to date

The majority of known infestations of naturalised athel pine, *T ramosissima* and *T parviflora* in riparian areas throughout Australia now have had active eradication or control programs. Current activities build on the programs undertaken during the past 7 years reported in previous progress reports. Funding levels for management have led to improved on-ground control outcomes and local ownership for known infestations nationally. The challenge is to now maintain the resourcing level to ensure the follow up work is undertaken to ensure long term control.

The many achievements up to June 2008 included:

- Athel pine was a declared weed in all states and territories preventing its sale and movement;
- National Priority Action Framework for athel pine and *Tamarix spp* control available to assist stakeholders with strategic project planning;
- National Athel Pine Management Committee had been in operation for three years leading to improved communication and the setting of national priorities for management, capacity building and awareness raising;
- A full-time National Coordinator managed the program for twelve months from December 2006 to 2007 with funding through to June 2009, enabling more efficient delivery of actions in the National Strategy and facilitation of nationally coordinated projects;
- Systematic surveying and mapping of athel pine in riparian areas had been undertaken for the Finke River and Karinga Creek System in the NT as well as the South Australian Arid Lands (SAAL) and Alinytjara Wilurara (AL) NRM Regions in SA. Other known naturalised infestations throughout Australia had been added to a national spreadsheet and inspected by the state/territory NAPMC representative and / or the National Coordinator.
- Weed Risk Assessments (WRA) for athel pine completed for the NT, Queensland, Victoria, and the South Australian Arid Lands, Murray Darling Basin and Alinytjara Wilurara NRM Regions rating it as a high-risk species. WRA completed for other *Tamarix* spp. in NT also with a high risk rating.
- With considerable investment from both the Australian and the Northern Territory Governments and managed by the Weed Management Branch NRETAS, the long term control program (17 years) on the most significant infestation of athel pine in Australia

along 630 kms of the Finke River within the NT had successfully mechanically controlled the infestation in the upper 420kms.

- Active management programs had also been completed utilising Australian Government funding together with significant cash and in kind contributions by state governments, nrm bodies as well as local community groups at:
    - NT – Karinga Creek System, widespread non-riparian high risk infestations;
    - WA – Gascoyne River Carnarvon, Lake Boonderoo, Norseman, Toodyay, York, Shark Bay;
    - SA – Riverland, Murray-Darling Basin, SAAL and AW NRM Regions, Ernabella, Kangaroo Is;
    - NSW – Menindee Lakes, Bourke, Imperial Lake Broken Hill.
- Significant areas of dieback in athel pine infestations were identified in July 2007 in the lower reaches of the Finke River at the lower boundary of the mechanically controlled section. Contacts were made with Queensland University researchers to undertake trials of the fungal isolates found in samples with the potential for use as a method of biocontrol.
- Awareness of athel pine had risen as a result of the production and dissemination of national education and awareness products such as Weed Management Guides, a TV commercial, *Athel … a friend or foe* posters, and athel pine WoNS banners in each state and territory.

To achieve the above outcomes investment in *Tamarix* spp. has been made from a wide variety of sources including:

- Australian Government (Defeating the Weed Menace, Envirofund, Community Water Grants and Caring for Our Country);
- NT Dept. of Natural Resources, Environment, The Arts and Sport (DNRETAS); Dept Primary Industries and Fisheries (DPI&F)
- Biosecurity Queensland;
- SA Dept Water Land and Biodiversity Conservation (DWLBC); WA Dept of Environment and Conservation and Dept. of Water;
- NT Central Land Council;
- QLD's Gulf Catchments NRM and Desert Channels NRM;
- NSW Bourke Shire Council and the Western Catchment Management Authority and Country Energy and Water;
- SA Arid Lands and Alinytjara Wilurara NRM Boards;
- WA's Rangelands NRM, Toodyay Landcare, York Shire Council and Carnarvon LCDC.

Grant funding has been matched or exceeded by project proponents and stakeholders throughout Australia, resulting in an excellent return on investment and the widespread protection of water resources, biodiversity and pastoral enterprises throughout Australia.

During the reporting period of 2008/09, the National Coordinators position was again vacant for 4 months, which consequently again slowed progress this year. However, the National Committee members continued to achieve outcomes through their respective roles. This continued activity enabled surveillance and reporting of naturalised infestations, and communication and knowledge sharing between states and territories on species biology and effective control techniques. With the new Coordinator commencing in the position in March 2009, emphasis was placed on developing and implementing a national communications strategy and raising the awareness of athel pine throughout Australia as well as fine tuning the national mapping of athel pine and the *Tamarix* spp.

This report outlines key achievements made by national coordination of athel pine management in 2008/2009 relevant to the goals of the national strategy.

Goals and achievements in 2008/09

In 2008/09, the National Coordinators worked together with the National Athel Pine Management Committee and a range of stakeholders across Australia to achieve significant progress towards goals in the Strategic Plan. During that year, the Australian Government invested over $470,000 in the athel pine program, while investment from the five states and the Northern Territory, NRM Regions, local government and community groups exceeded $390,000. Landholder contribution to control efforts are in addition to this figure. A summary of the significant outcomes in 2008/09 is presented below.

1: Prevention of New Infestations of Athel Pine.

Long term outcome: *Athel pine weed free areas of Australia are maintained*.
Intermediate outcome: *New infestations of Tamarix spp are prevented from establishing*.

Key activities contributing to this outcome for 2008/09:

Risk Assessment

- The WA Department of Environment and Conservation has undertaken a weed risk assessment for 4 of the DEC regions ranking each species occurring in the region based on invasiveness, impacts, current and potential distribution and feasibility of control. 3 of the 4 regions have *Tamarix* spp. Pilbara and Midwest region have *Tamarix aphylla* only and this was ranked high in both regions. Goldfields region have both *Tamarix aphylla* and *T. ramosissima* with both species in the top 25 list (*T. ramosissima* being rated slightly higher than *T. aphylla* due to its invasiveness). The Wheatbelt region prioritisation (taking in the Avon River infestations) is planned for the first half of 2009/10.

Legislative Control Mechanisms

- The SA Government Gazette of 14 August 2008 listed the changed declaration for athel pine - under section 182(2) of the *Natural Resources Management Act, 2004* for the areas of any lands within 100m of a watercourse in the SA Arid Lands, Alinytjara Wilurara, and SA Murray-Darling Basin natural resource management regions.
- Consideration was given by Queensland Government Invasive Plants & Animal Management team to changing the policy, and therefore the legislation, to change the status of athel pine from Class 3 (cant be sold) to Class 1 (all landholders required to keep their land free of the weed) if only limited athel pine was present and it could be eradicated. Decision was made to leave at Class 3 at this stage until delimitation surveys have been completed.

Public Awareness

- The launch of the Athel Pine Best Practice Management manual in March 2009 by the Chair of the Desert People's Centre, Mr Harold Furber, has not only provided land managers with the best known approach to managing athel pine, smallflower tamarisk and tamarisk, but also increased capacity to identify existing and new infestations. The 60 page book, with demonstration pictures and herbicide advice was distributed to over 800 individual land managers, weeds officers, NRM professionals, government officers and politicians, and community Landcare groups and was provided at a number of events (such as the NT Cattlemen's Association Conference) for the general community.
- Awareness and control of athel pine was also improved through the production and publication of seven articles on the Best Practice Manual and introducing the new National Coordinator between March and June 2009.
- Improvement of awareness and subsequent control of athel pine was also achieved through a presentation to the NSW Macquarie Valley Weeds Advisory Committee by the National Coordinator in May 2009. Athel pine locations have subsequently been identified, mapped, reported and, in some cases, controlled by local government weeds officers at 18 new sites in the Macquarie Valley region. The majority of these are high risk plantings occurring within 100m of a watercourse.

- Direct liaison with stakeholders in NSW, SA, NT and QLD by the National Coordinator and the members of the NAPMC raised the profile of athel pine in a number of areas, including the region surrounding Broken Hill and the Menindee Lakes in western NSW and eastern SA; the Macquarie Valley and the southern NT; and the Gemfields, Hughenden and Mt Isa areas within Qld.
- Improved understanding and awareness of the threat posed by athel pine and how to control it was gained through writing to landholders in the eastern SAAL NRM and the Western CMA regions as part of the replacement program funded under a Caring for our Country grant.
- Permanent display of the WoNS athel pine banners in a number of appropriate locations (such as the Alice Springs NRETAS office foyer and the Longreach DPI office foyer) act to raise awareness and remind the community of the impacts of the species.
- Liaison with outback residents during the survey and control activities for high priority athel pine plantings funded by Defeating the Weeds Menace and undertaken by the South Australian Government in December 2008 and the subsequent Caring for Our Country Open Grant project *Protecting and Restoring Arid Rivers from Invasive Athel Pine,* resulted in increased awareness of the threat that this weed poses to arid rivers and a significant step towards removal of often valued amenity and shade athel pine trees.
- District maps of athel pine distribution have been printed and are available electronically (arcreader format) for use by NRM District Groups within the SAAL Region to enable strategic planning of follow-up management action and prioritisation on a local level. Engagement of the NRM Groups as key stakeholders is identified as necessary for long term management of athel pine.

New Tamarix spp Invasion Monitoring and Clean Area Protection

- Cost effective aerial monitoring programs took place in the following areas during 2008/09:
    - A thorough aerial survey was undertaken in June 2009 by Weeds Management Branch NRETAS NT using funding from the Defeating the Weeds Menace, of the Karinga Creek Nationally Significant Wetland Area and associated ephemeral wetlands running approximately 250 kms from where the Karinga enters the Finke River to the edges of Lake Amadeus. This was a follow up to the 2004 survey and subsequent control work and covered a more extensive area. No infestations were located in the newly surveyed areas and only minor infestations (earmarked for control in 2009/10) were mapped in the lower sections near previous control work.
    - Planning took place for an aerial survey for athel pine in the entire Finke River to occur in July 2009.
    - The Tjuwanpa Ranger Group continued their annual survey of the upper Finke River and tributaries by quad bike patrols on Aboriginal Land Trust areas and within the Finke Gorge National Park. These patrols, in association with the NRETAS Weed Management Branch and follow up control work, maintain the clean status of the headwaters of the Finke River.
    - Rural Solutions South Australia partnered with the Western Catchment Management Authority NSW using funding provided under the Australian Government Caring for our Country Program, to extend the 2007 survey of the South Australian sections of Tilcha, Yandamma, Coonee and Wallace Creeks into the upstream sections of the creeks in western NSW. Whilst a limited number of high priority plantings were found within 100m of a watercourse, no naturalised athel pine was found. This knowledge will improve strategic management and planning for future control work.
    - SAAL board funded aerial survey of rivers in the NW of the SAAL region found no naturalised athel pine but identified 2-4 sites where planted athel pine pose a risk of future infestation. This survey included flying the SA section of the Finke River where no athel pine was found.
    - Ground survey of 14 kms of SA arid watercourses in high priority areas downstream and upstream of known naturalised athel pine infestations through the Defeating the Weeds Menace project.

- The South Australian Murray Darling Basin NRM Board have undertaken surveying and mapping along the Murray River locating sporadic outbreaks of athel pine along the River and a mass germination of athel pine (identification to be confirmed) together with other weeds in the lower lakes since the water levels have dropped.
- The AW board in north eastern SA actively sought permits during the year to access control sites for monitoring purposes.

Future activities required:
The following activities have been identified by the National Athel Pine Management Committee to fully achieve this goal:

Legislative Control Mechanisms:

- All states to complete Weed Risk Assessments for both athel pine and *Tamarix ramosissima* and *T. parviflora.*
- *Tamarix ramosissima* and *T. parviflora* to be declared in all states and territories.

Public Awareness:

- Finalise and systematically implement the National Athel Pine Communication Strategy and Action Plan to raise awareness of the need to prevent new infestations and ensure that those areas free of athel pine and the *Tamarix* spp are maintained.

New Tamarix spp Invasion Monitoring and Clean Area Protection

- Expand, using cost effective programs, the area surveyed and monitored for new infestations, including:
  - Follow up aerial survey for athel pine in the entire Finke River (planned for July 2009).
  - The need to undertake an aerial survey of the Finders River (Hughenden to the Gulf of Carpentaria) has been identified to assess if there are new infestations downstream of the 2008/09 controlled infestation at Hughenden.
  - Follow up monitoring of the seedling germination in the lower Murray River lakes required as a high priority (with control work if required).
  - Extending the survey in western NSW southwards in the Barrier Ranges to Broken Hill.
  - Complete surveys of high risk areas of northern SA that have not been undertaken.
  - Undertake mapping and surveys of creek lines in the rangelands of the SA Murray Darling Basin NRM Region.
  - Survey of entire infestation of *Tamarix parviflora* along the Avon River, Toodyay WA.

Quantification of Control Program Benefits

- This is an area of the national strategy that had not been addressed specifically. However in the Northern Territory, investigation of means to achieve analysis (including costs) of control programs will be undertaken for management of the Athel Pine on the lower Finke River.

2: Eradication of all Athel Pine occurrences in Riparian Zones.

Long term outcome: *Adverse impacts of athel pine on productivity and natural assets are minimised.*
Intermediate outcome: *Existing infestations under strategic management through maintenance of eradication programs for Tamarix spp in riparian zones.*

Due to the ability of Athel Pine to spread both vegetatively and by seed in moist conditions and its preference for watercourses, riparian zones remain at greatest risk from infestation.

Key activities contributing to this outcome for 2008/09:

Survey and Mapping of Riparian Areas

Surveying and mapping activities contribute at a national scale to the strategic planning of an effective eradication program. Such activities during 2008/09 were:

- The NT Karinga Creek System survey (see page 9) mapped the occurrence of athel pine over this entire riparian system. Coupled with the results of the proposed Finke River survey in July 2009 the majority of the high risk riparian areas within the NT will have updated survey data thus providing information for strategic follow up control work and an assessment of the effectiveness of the control work to date.
- The SA Arid Lands NRM Board funded aerial survey of rivers in the NW of the SAAL region in May 2009 (see page 10 above). This survey included flying the SA section of the Finke River where no athel pine was found.
- The May 2009 SA / NSW joint survey of creeklines and lakes in north western NSW completed the knowledge gathered on the riparian distribution of athel pine over a large section of northern SA and western NSW during the past two years. Prioritisation of current on ground control work has been a direct result. Adding the mapping data of the Murray River infestations gained by the SA Murray Darling Basin NRM Board during 2009 will enable the knowledge to be utilised to delineate clear targets for control of outliers and possibly containment lines for athel pine for all of South Australia. Further survey data for the known geographical gaps in knowledge can then be added as obtained.
- Mapping of athel pine locations by local government weeds officers in the Bourke, Wellington, Parkes and Narromine Shires of NSW identified a number of high risk riparian plantings. These records have been added to the national spreadsheet.
- Weed survey including athel pine completed on Mount Isa Mines Xstrata mine lease by Southern Gulf NRM under contract from the company as part of a comprehensive biodiversity assessment. This survey and assessment report will direct future weed management operations on the mine lease.
- Flinders River athel pine infestation mapped prior to the control work undertaken in September 2008.
- Distribution of *Tamarix spp* in North Central CMA in Victoria undertaken resulting in project identified to undertake control work of *T. ramosissima* in two Ramsar listed wetlands in the Lodden Rivers area.

Control Methods

- The launch on 4 March 2009 of the Athel Pine National Best Practice Management manual and its subsequent distribution is a major achievement and completes this action towards the Athel Pine Strategic Plan.
- Herbicide trials conducted at Bourke in NSW by the Bourke Shire Council using the Cut Stump method with and without painting with Grazon*Extra herbicide, resulted in:
    - with Grazon*Extra - 91 trees cut and painted and stump ground to 30cm – 98% success, however high cost of $7.89 per tree;
    - without herbicide at time of cut stump but allowing foliage to regrow to approx 2m then spray with Grazon*Extra plus water plus surfactant – 95% kill.
- Trials conducted by Department of Environment and Conservation on *T. ramosissima* at Lake Boonderoo, Kanandah Station in Western Australia using Arsenal Xpress™ plus Amend wetter plus Pulse plus Hammer as a foliar spray resulted in a good kill rate.

- Perhaps the most significant research into control methods for athel pine was the trials conducted during the first half of 2009 by Dr Victor Galea and a research student at the University of Queensland in association with the Weeds Management Branch, NT NRETAS. Initial glasshouse studies determined that 4 of the 5 fungal isolates found on stem samples from a patch of athel pine dieback found at Horseshoe Bend Station were effective in causing disease symptoms in potted athel pine plants. Funding provided by the Northern Territory Government during 2009/10 will enable field trials into the extent of the naturally occurring dieback as well as inoculation trials to be undertaken. If successful a training and field manual will be developed in association with the Weeds Management Branch for users to inoculate athel pine infestations thereby adding a new effective control method for land managers. If successful, this research has the potential to provide long term control for athel pine.

Strategic Control Planning

- During the reporting period the NAPMC undertook an assessment of available infestation data and developed a national map of Athel Pine Weed Spread and Management Actions. This map aims to prioritise according to current known information, management action on this weed and was a key strategic tool as part of the Caring for our Country Business Plan 2009/10 assessment package. This map will be updated by the NAPMC periodically as more accurate and comprehensive data becomes available.
- New occurrences of Athel Pine and the two Tamarisks in riparian areas were reported during 2008/09 and were recorded by the National WONS Coordinator. Relevant stakeholders have also recorded these outbreaks. Stakeholders are being encouraged to distinguish between naturalised or 'weedy' athel pine, high risk plantings within 100 m of a watercourse (adopting the SA legislated distances from a watercourse) and lower risk plantings.

Current Control Programs

The regular meetings of the National Athel Pine Management Committee provided for discussion on progress of on-ground control programs, any common issues and future direction and priorities. The national coordinator provided assistance with funding applications and contact with stakeholders.

The following control programs were undertaken during 2008/09:

- <u>Finke River, NT</u>
    - The Defeating the Weed Menace 2007-09 project *Progression of downstream control of Athel pine along the Finke River* managed by the Weeds Management Branch NRETAS was completed, resulting in mechanical control to progress downstream of the boundary of the 2003 mechanical control program for a total further distance of 10 kms with 850 hectares of dense athel pine removed from this significant inland riparian area. Follow up chemical control was supported by NRETAS. The resulting outcome of this downstream extension of the Finke River Athel Pine eradication program include additional benefits for biodiversity conservation, water conservation and station management.
    - Due to the significant past control work focussing on prolific regrowth and recruitment in the main river channel, control work during 2008/09 was easier and concentrated on locating and controlling the more isolated mature trees on levee banks. This follow up work during the reporting period by the Weeds Management Branch resulted in 135 kms of the Finke River being successfully monitored and treated. The athel pine control program in the upper 420 kms of the Finke River has been successful in treating the athel pine infestations to the stage of requiring follow up surveys (to be undertaken in July 2009), annual monitoring and chemical treatment of any reinfestation.

- The June 2009 survey of the Karinga Creek System identified the majority of the catchment to be free of athel pine, with infestations in the lower area programmed for control work later in 2009.

- Queensland. The following work was completed during the 2008/09 reporting period as part of the Queensland Government "Blueprint for the Bush" funding for 2006 – 09:
  - Mt Isa.
    - The Mount Isa City Council treated amenity plantings adjacent to the Leichhardt River and issued notices to residents with largely favourable responses. However considerable follow up is required with the Southern Gulf Catchment guaranteeing adequate herbicide.
    - The weed survey of the MIM Xstrata mine lease (mentioned above) completed as part of the biodiversity assessment will result in on ground weed management operations of the athel pine infestations of the processing areas such as the roadside and tailings dams. Further high priority naturalised riparian infestations occur in other tributaries to the Leichhardt and Georgina Rivers.
  - Flinders River, Hughenden. In September 2008 a 7 ha site along 1 km of the Flinders River was mechanically cleared of athel pine (as well as other WoNS such as rubber vine, mesquite and prickly acacia). Follow up spraying of regrowth has taken place and will continue by the Flinders Shire Council.
  - Gemfields near Emerald. Chemical treatment of the infestation between Rubyvale and Sapphire commenced in June 2009 using cut stump and paint and foliar spray. Further control work is proposed by the Central Highlands Regional Council.

  These infestations remain the highest priority for control and management within Queensland.

- New South Wales.
  - Monitoring of past control work at Bourke and north Bourke was undertaken by the Bourke Shire Council. Regrowth of previous cut stump treatments is requiring follow up treatment.
  - An inspection was undertaken in June 2009 by the National Coordinator, the NSW representative on the NAPMC and an officer from the Western CMA of the results of previous control work at Imperial Lake and status of athel pine plantings at Menindee Lakes. Both locations provide concern for possible riparian spread in the future.

- South Australia. The current and planned control of strategic *Tamarix spp.* infestations in northern and eastern SA is reducing the potential for further invasions in northern SA and protecting vital water resources and biodiversity.
  - Control work, funded through the Defeating the Weeds Menace and the Department of Water, Land and Biodiversity Conservation, on naturalised, isolated and high risk amenity plantings of athel pine at strategic riparian locations.
  - Rural Solutions South Australia commenced mechanical removal of one of the largest infestations in South Australia at Starvation Lake and the creeks to the north adjacent to the New South Wales border. Funding for this work was through the Open Grant program of Caring for our Country. This control work was undertaken in conjunction with an aerial survey (see page 10 above) and a replacement program with landholders. Data on control activities was added to the Arid Areas WoNS Database, managed by Rural Solutions SA and uploaded to ALIS (Arid Lands Information Service) administered by SAAL.
  - State funding was provided to the Alinytjara Wilurara NRM Board to continue the previous DWM removal of athel pine around Ernabella. Board aims to eradicate athel pine from the Region as mostly isolated plants.

- Western Australia. The ongoing control works on *Tamarix* spp in Western Australia during 2008/09 undertaken by community groups and state government agencies continued to protect significant riparian and wetland systems as follows:
    - The Carnarvon Land Conservation District Committee has reported that as a result of ongoing community work over the past 16 years the naturalised infestation of athel pine from a 3km stretch near the mouth of the Gascoyne River has been controlled within the river bed. However future follow up work will be required as seedlings germinate from remaining river bank plantings that can only be treated in stages due to bank-stability concerns. Moves are also being made to remove all athel pine suckering regrowth from other sites that were originally plantations for soil stabilisation.
    - Although the Lake Boonderoo infestation of *Tamarix ramosissima* on Kanadah Station was subject to several control attempts by the Department of Environment and Conservation (DEC)and the Rangelands NRM between June 2006 (using Access^{TM} and diesel) and 2008 (using Arsenal Express (Imazapyr)), DEC has been unable to continue this work due to lack of a coordinator and funding. The kill rate from the Arsenal Express spraying of 25% of the infestation in April 2008 was initially thought to be very low. However, more recent inspection has shown a slower reaction and a higher than expected kill rate. The decision by the station owners to become organic has also added to the uncertainty regarding future control of this infestation.
    - Toodyay, Northam and York – Work has continued on *Tamarix spp* control by a Green Corps Team as well as the Toodyay Friends of the River and the Department of Water.

- Victoria. The North Central CMA commenced control work on *Tamarix ramosissima* infestations in Lake Murphy and Lake Meran as part of the Loddon Stressed Rivers project.

Future activities required:
The following activities have been identified by the National Athel Pine Management Committee to fully achieve this goal:

Control Methods

- There continues to be no herbicides formally registered to control *Tamarix spp.* This is a major concern for the National Athel Pine Management Committee.
- Investigation of the residual time for herbicides used for *Tamarix* control and whether the chemicals are approved by the various certifiers for organic certification.
- Appraisal of a native stem-borer (*Maroga melanostigma*) as a biocontrol option for athel pine to be investigated. This borer has been found affecting athel pine along parts of the Finke River.

Strategic Control Planning

- Mapping and prioritisation of riparian infestations for systematic and coordinated control required in NSW, SA and WA.
- Monitoring of previous control programs required in SAAL and AW Regions of South Australia.

Control Programs

- Continuation of current control programs to ensure follow up and long term control / eradication of athel pine and *Tamarix spp* in these locations.
- Removal of outlier, isolated, scattered athel pine trees in high risk situations near watercourses where there is a high risk of spread.

3: Management of Athel Pine in Non-riparian Areas.

Long term outcome: *Adverse impacts of athel pine on productivity and natural assets are minimised.*
Intermediate outcome: *Existing infestations under strategic management through maintenance and progression of containment lines for Tamarix spp in non-riparian areas.*

Tamarix spp. were planted as ornamentals from the 1930s until recently. This has resulted in widespread plantings throughout arid and semi-arid Australia. Many of these plantings are near to water sources and present a risk for the future invasion of these adjacent waterways. In addition Athel Pine has been used in mine revegetation programs until relatively recently. This is a national issue as, in some instances, trees have naturalised in adjacent riparian areas.

Key activities contributing to this outcome for 2008/09:
Identification and Management Options

- The aerial survey undertaken in May 2009 by Western CMA and Rural Solutions SA in western NSW identified no naturalised infestations but mapped several amenity plantings at Homesteads and outposts away from arid rivers or creeks as well as high priority amenity trees adjacent to riparian areas.
- Monitoring of prior athel pine control work for trees in Alice Springs township and of non-riparian athel pine plantings at various locations including Tennant Creek.
- In Queensland the annual Pest Distribution Survey indicated that athel pine is weedy and spreading at nine sites the majority of which are shade trees and being monitored.
- Identification and mapping of non-riparian athel pine undertaken at Broken Hill and local government areas within the Macquarie Valley region of NSW. Majority of these trees were in low risk locations.

Control in Non-riparian Areas
The following control programs were undertaken in non-riparian areas during 2008/09:

- NT. Weed Management Branch NRETAS undertook the following treatment work:
    - approx 20 mature amenity trees of athel pine were controlled at Titjikala community (2 large trees remain as they were too close to building to safely cut/stump).
    - 1 large amenity athel pine in Blatherskite Park , Alice Springs. This tree had been the major seed source for infestations within the sewerage treatment area and artificial wetlands at Illparpa, on the southern outskirts of Alice Springs (the small infestations in sewerage treatment ponds were also controlled at the same time).
- Follow up control of athel pine regrowth from large previously controlled amenity plantings at the abandoned Jay Creek community west of Alice Springs.
- Approx 6 massive amenity athel pines at the old Abbattoirs site, Smith Street Alice springs were controlled by the Alice Springs Town Council.

- SA . A small number of strategic athel pine trees were removed from along highways on Kangaroo Island.

- WA - Shark Bay - No Regrowth was observed in follow up monitoring of the 33 mature athel pine trees at old bores and homesteads removed in 2006/07 by cut stump using Grazon DS™ through state government “Save our Species” funding.

Public Awareness
The public awareness activities reported on pages 9 and 10 above applied to both riparian and non-riparian areas.
A draft communication plan for Athel Pine was prepared and remains a high priority for the National Athel Pine Management Committee for completion and implementation.

Future activities required:
The following activities have been identified by the National Athel Pine Management Committee to fully achieve this goal:

- Monitoring, collection and analysis of distribution and control data for non-riparian areas on a national basis as well as for each state and territory jurisdiction.

4: Coordination of Strategic Athel Pine Management.

Long term outcome: *Adverse impacts of athel pine on productivity and natural assets are minimised.*
Intermediate outcome: *Capability and willingness to manage athel pine and other Tamarix spp increasing.*

Key activities contributing to this outcome for 2008/09:

National Coordination

- The National Athel Pine Management Committee (NAPMC) continued to operate throughout the year holding one face to face meeting in Alice Springs in conjunction with the launch of the Athel Pine National Best Practice Management Manual and one teleconference meeting.
- Recognition that *T. ramosissima* and possibly athel pine had naturalised in Victoria led to the seeking and nomination of a Victorian representative onto the National Athel Pine Management Committee during this period. This expanded membership will ensure communication with relevant stakeholders in that state and inclusion of those infestations in consideration of prioritisation for control activities. 2008/09 membership is shown at Appendix A.
- The National Coordinator's position was filled from July to November 2008 and a new Coordinator again appointed in March 2009. The efforts of other members, particularly Steve Wingrave, Principal Weeds Officer, NRETAS NT, in again keeping the NAPMC functioning during the periods without a Coordinator is to be commended.
- The national network of stakeholders involved in athel pine and *Tamarix spp.* identification, research and management was expanded by the new National Coordinator in 2009 resulting in improved coordination, efficiency and knowledge sharing. This will continue into the next reporting period.

Evaluation of Strategy

- An audit of athel pine projects was commenced in 2008 by the then Coordinator to identify gaps and assist in strategic planning for the future of Athel Pine management. The key recommendation of this draft audit was that the education and awareness campaigns continue.
- In May 2009, the National Coordinator commenced updating a number of national strategic planning documents for Athel Pine with the assistance of the NAPMC. These documents will assist with achievement of implementation and monitoring of the effectiveness of the Athel Pine Strategic Plan and included a list of known naturalised infestations in Australia; a list of catchments at risk and a national list of known Tamarisk projects.
- The National Coordinator attended a Monitoring, Evaluation, Reporting and Improvement (MERI) / program Logic training and prepared a retrospective program logic of the athel pine program based on the 2001 Athel Pine National Strategy. This will be used to assist with the Review of the Athel Pine WoNS Program.
- The NAPMC reviewed the Athel Pine Priority Action Framework 2009-11 to include the investigation of athel pine dieback for potential biocontrol as a priority and to broaden the reference to all high risk salinity plantings not only those in the Avon Catchment.

Future activities required:

The following activities have been identified by the National Athel Pine Management Committee to fully achieve this goal:

- Continuation of the NAPMC and funded National Coordinator position.
- Development of a MERI strategy for the athel pine program.
- Review of the National Athel Pine Strategic Plan.

Appendix A. National Athel Pine Management Committee members 2008/09

Members

Chair
Jim Forwood

National WoNS Coordinator – *Mimosa pigra* & Athel Pine
Renee' Long (July to November 2008)
Kay Bailey (March to June 2009)

WA Department of Environment and Conservation
Kellie Agar
Program Coordinator – Invasive Plants

NSW Bourke Shire Council
Don Mackenzie
Senior Weeds Officer

SA Department of Water, Land & Biodiversity Conservation
Shauna Potter
SA WoNS Coordinator

NT Dept Natural Resources, Environment, The Arts and Sport
Steve Wingrave
Principle Weeds Officer

South Australia Arid Lands NRM Board
Deb Agnew
Operations Manager

Southern Gulf Catchments NRM QLD
Charles Curry
Senior Projects Officer

QLD Department of Primary Industries & Fisheries
Garry Pidgeon

Central Land Council
Will Dobbie
Tjuwanpa Ranger Coordinator

National Weeds Management Facilitator
John Thorp

Department of Agriculture, Fisheries and Forestry
Desley Darbie
Section Leader Weeds and Pest Management

Corresponding Members

NSW DPI
Peter Gray
Regional Weed Control Coordinator

QLD Department of Primary Industries & Fisheries
Earl Sparkes
Operations Manager
Invasive Plants and Animals

SA Rural Solutions
John Pitt
Manager

NT Dept Natural Resources, Environment, The Arts and Sport
Chris Brown
Regional Weeds Officer

Central Land Council
Simon Abbott
Regional Land Management Officer

Landholder
Colleen Costello

Appendix B. Publications and Articles, 2008/09

* Denotes resource available at www.weeds.org.au/WoNS/athelpine

Anonymous (2009), Athel Pine – a big weed creating big problems, *ABC Rural Country Hour*, 5 March 2009.

Anonymous (2009), Shady killer in sights, *Centralian Advocate*, 6 March 2009.

Anonymous (2009), Manual launched to combat pesky weed, *Northern territory News*, 7 March 2009.

Anonymous (2009), $1m for the fight against NT weeds, *Centralian Advocate*, 1 May 2009.

Bailey, Kay (March 2009), Introducing the New National Coordinator for Athel Pine and Mimosa*, Land Talk*, March 2009. Centralian Land Management Association.

Bailey, Kay (April 2009), Introducing the New National Coordinator for Athel Pine and Mimosa*, Network Notes* 24 April 2009. Natural Resource Management Board NT.

Bailey, Kay (April 2009), New Best Practice Guide for Athel Pine, *Network Notes* 24 April 2009. Natural Resource Management Board NT.

Bailey, Kay (May 2009), *Athel Pine National Best Practice Management Manual*, presentation to Macquarie Valley Weeds Advisory Committee, NSW.

Crosier, Andrew (2009), *Athel Pine in the Wellington Council Area*, report to National Coordinator.

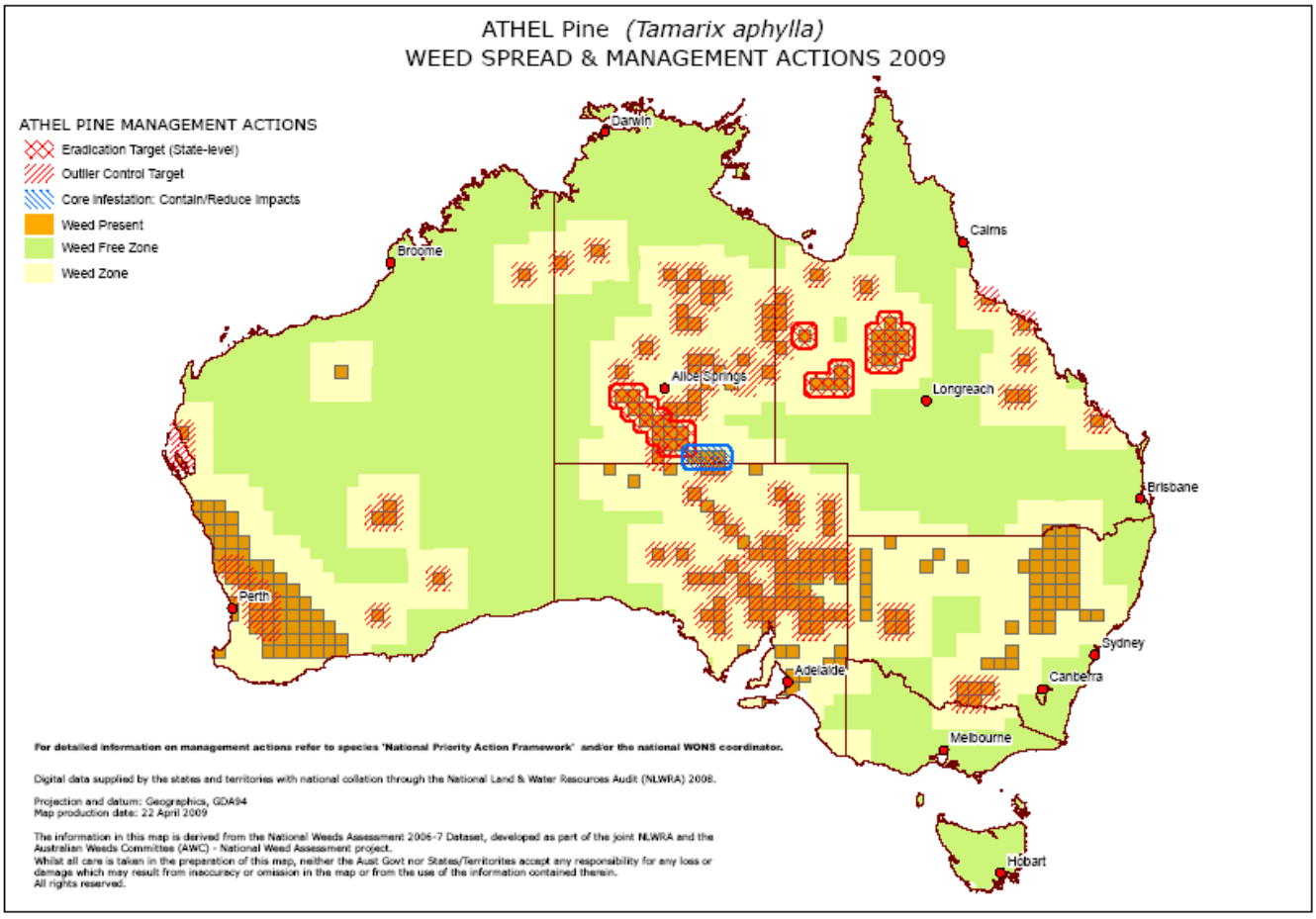
Long, R (2008). Introducing the new National Coordinator for Athel Pine and Mimosa, *Weed All About It*, NRETA Weed Management Branch, Darwin, Northern Territory.

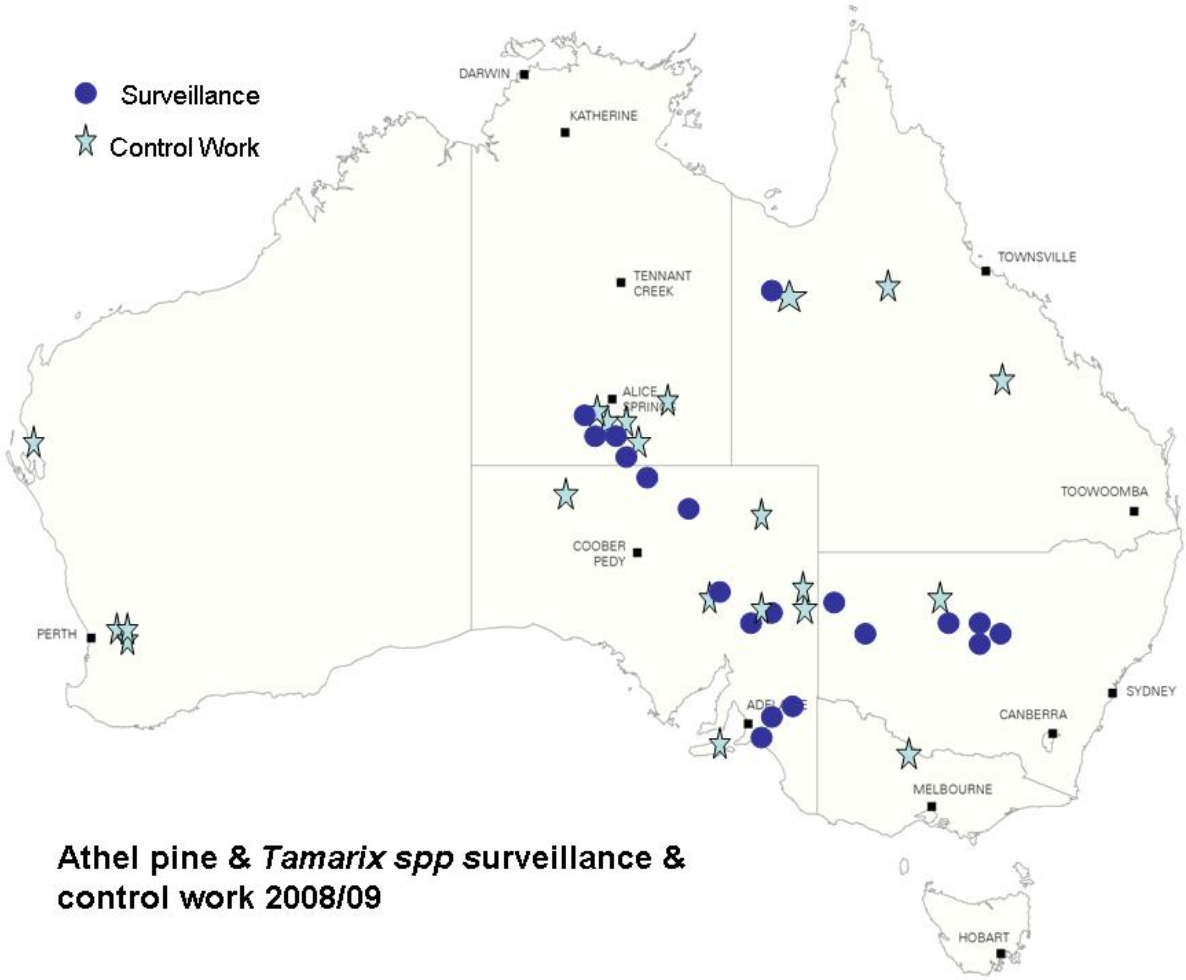
*National Athel Pine Management Committee (July 2008) *Athel Pine Best Practice Management Manual, Managing athel pine and other Tamarix weeds in Australia*, Northern Territory Government.

Shepherd, Ben (December 2008), *Athel Pine Survey and Control Activities funded by the DWLBC in December 2008*, report by Rural Solutions SAouth Australia for Defeating the Weeds Menace project.

Shepherd, Ben (May 2009), *Aerial Survey of Major Rivers in Western NSW*, report by Rural Solutions South Australia for Caring for Our Country Open Grant.

Appendix C. Athel Pine National Distribution and Management Priorities





Athel pine & *Tamarix spp* surveillance & control work 2008/09

Appendix D

Financial Statement

Financial Reporting Table

	2008-09	Planned budget		Actual Expenditure	
	Employees & Positions Held	**Recipient's Contributions** (without GST)	**Funds paid by the Commonwealth** (without GST)	**Recipient's Contributions Expended** (without GST)	**Commonwealth Funds Expended** (without GST)
	Salary and on-costs	0.00	95,000.00	0.00	83,644.40
	Management, admin support, research officers	20,000.00	0.00	17,307.53	0.00
	NRM groups, state /territory community support inputs	28,000.00	0.00	21,281.00	0.00
A	**Total Employment Costs**	**$48,000.00**	**$95,000.00**	**$38,588.53**	**$83,644.40**
	Operating Cost Items	**Recipient's Contributions** (without GST)	**Funds paid by the Commonwealth** (without GST)	**Recipient's Contributions Expended** (without GST)	**Commonwealth Funds Expended** (without GST)
	Travel & meeting expenses	0.00	13,000.00	0.00	7,889.32
	General operating costs	0.00	0.00	0.00	0.00
	Coordinator local travel (vehicle costs)	10,000.00	0.00	500.00	0.00
	Coordinator administration	13,000.00	0.00	11,105.00	0.00
	Coordinator training	1,000.00	0.00	250.00	0.00
	National workshops	0.00	12,000.00	0.00	0.00
	Management group – general	0.00	6,000.00	0.00	4,844.40
	Management group – community representatives	0.00	8,000.00	0.00	8,295.33
	Management group – Depart representatives	12,000.00	0.00	5,870.00	0.00
	Chairpersons expenses	0.00	10,000.00	0.00	8,496.58
B	**Total Operating costs**	**$36,000.00**	**$49,000.00**	**$17,725.00**	**$29,525.63**
C	**Total Cost (without GST) (A+B)**	**$84,000.00**	**$144,000.00**	**$56,313.53**	**$113,170.03**
D	**GST (10%)**	**$8,400.00**	**$14,400.00**	**$5,631.35**	**$11,317.00**
E	**Total Cost (including GST)**	**$92,400.00**	**$158,400.00**	**$61,944.88**	**$124,487.03**

Signature	
Print name	Joanna Frankenfeld
Position	Financial Controller
Date	~~July 2009~~ 10 August 2009

Note: Actuals reclassified to match the budget. ie Accommodation + travel shown in Salaries