

# BATTLING BITOU BUSH FOR BIODIVERSITY

## Introduction

Bitou bush poses a significant threat to fragile coastal ecosystems in NSW. The Northern Rivers Catchment Management Authority (NRCMA) is working with partners across the region to reduce the impact of bitou bush on biodiversity, utilising a dual attack of biodiversity asset protection and containment line recession.

## The bitou bush threat

Bitou bush (*Chrysanthemoides monilifera* ssp *rotundata*) is a widespread environmental weed introduced from South Africa, posing a major threat to coastal biodiversity in NSW. Approximately 80% of the NSW coastline is infested, and 158 plant species and 26 ecological communities have been identified as at risk (DEC 2006).

Bitou bush possesses a range of attributes that contribute to its invasiveness and ability to out-compete native plant species. In northern NSW, seedlings may flower within their first year, and plants commonly flower all year round. Mature bitou bush plants can produce up to 48,000 seeds per year, and anecdotal evidence suggests that some seeds may remain viable for up to 10 years. Bitou bush fruit is appealing to both birds and mammals, resulting in seed dispersal over very long distances. It can tolerate salt spray, mild frost and some water-logged soil, and is able to grow in a range of coastal habitats (DEC 2006).

In response to its threat to biodiversity in NSW, Bitou bush has been declared as a noxious weed under the *Noxious Weeds Act 1993*. In 1999, *Invasion of native plant communities by bitou bush and boneseed* was listed as a Key Threatening Process under the *Threatened Species Conservation Act 1995*. Bitou bush has also been listed as one of 20 Weeds of National Significance (WONS). As well as threatening native plant communities, infestations also result in changes to the diversity of birds, native mammals and ground-dwelling insects. Bitou bush limits cultural and recreational access to coastal landscapes and their aesthetic appeal (DEC 2006).

## The Northern Rivers Catchment Management Authority

The Northern Rivers Catchment Management Authority (NRCMA) is the regional body responsible for guiding natural resource management (NRM) in the Northern Rivers region. The region extends from the Camden Haven catchment in the south, north to the Queensland border, west to the New England Tablelands, and includes marine waters to three nautical miles and the Lord Howe Island group.

With much of the Northern Rivers coastal zone under threat by bitou bush, management to protect and recover native plant species is an important issue for coastal land managers and communities.

## Policy framework

Management of bitou bush is guided by numerous national, state, regional and local plans and strategies. A number of key strategies guide the NRCMA's programs.

### ***National bitou bush management program***

The WONS are nationally agreed priority invasive plant species for control and management. Weeds have been selected based on their high potential for invasiveness, spread and impact on socioeconomic and environmental assets.

The National Bitou Bush and Boneseed Strategic Plan (ARMCANZ 2000) was prepared in response to the listing of bitou bush as a WONS. The Plan outlines a number of objectives, strategies and actions for the management of bitou bush in Australia, based on the principles and objectives of the Australian Weeds Strategy. National priorities for the Northern Rivers region include:

*Strategy 2.1.2.3 Establish national containment zones where appropriate – Establish and enforce a containment zone in northern NSW for bitou bush.*

*Strategy 2.2.2.1 Undertake control in high priority areas – Coordinate and implement on ground works to eradicate bitou bush from sites of high conservation significance.*

### ***NSW State-wide targets for natural resource management***

The NSW State Plan (Premier's Department 2006) sets 13 State-wide targets for natural resource management, including:

*Biodiversity 1: By 2015 there is an increase in native vegetation extent and an improvement in native vegetation condition.*

*Biodiversity 3: By 2015 there is an increase in the recovery of threatened species, populations and ecological communities.*

*Biodiversity 4: By 2015 there is a reduction in the impact of invasive species.*

The State Plan acknowledges implementation of Catchment Action Plans and the NSW Invasive Species Plan as contributing to achievement of these targets.

### ***The NSW Bitou Bush Threat Abatement Plan***

The NSW Bitou Bush Threat Abatement Plan (Bitou TAP) (DEC 2006) was prepared in response to the listing of bitou bush as a Key Threatening Process. The Bitou TAP aims to reduce the impact of bitou bush on biodiversity in NSW. It identifies 169 high priority sites where bitou bush control will have the greatest benefit to biodiversity, regardless of land tenure. It presents a new approach to weed management by prioritising weed control to protect the biodiversity most at risk.

## ***The NSW Threatened Species Priorities Action Statement***

The NSW Threatened Species Priorities Action Statement (PAS) (DECC 2007) outlines the broad strategies and detailed priority actions to be undertaken in NSW to promote the recovery of threatened species, populations and ecological communities, and to manage key threatening processes. The PAS specifically identifies a number of actions involving strategic control of bitou bush for protection and recovery of many endangered species and communities.

### ***Northern Rivers Catchment Action Plan***

The NRCMA has worked with the community of the Northern Rivers region to develop the Northern Rivers Catchment Action Plan (CAP) (NRCMA 2005). The CAP identifies key NRM issues for the region and sets targets to address them by 2016.

The CAP recognises the impact of invasive species on the region's ecosystems, native vegetation and habitat. It includes a Biodiversity Threat Mitigation Management Target (B3):

*By 2016, 120 high priority actions implemented from adopted threat management plans to address invasive species and disruption to natural ecosystems.*

The CAP also includes a Biodiversity Threatened Species Management Target (B4):

*By 2016, implement priority actions of recovery programs for threatened species, populations and endangered ecological communities.*

## **Management of widespread environmental weeds**

Traditional weed management programs have often focused on eradication of individual weed species under the assumption that weed control will automatically lead to conservation outcomes. Often programs have operated under little understanding of the native species at risk of weed invasion and have not involved objectives or planning for native species recovery. Resources have been commonly prioritised to new and emerging weed threats over widespread weeds, as management of widespread weeds has not been considered cost effective. Unfortunately, it is usually widespread weeds having the greatest immediate impact on biodiversity (DECC 2009).

Current environmental weed management in NSW is undertaken according to four approaches (DPI 2008):

- Prevention – actions to prevent new weed species from arriving
- Eradication – actions to remove newly arrived and naturalised weeds where eradication is an achievable goal
- Containment – actions to reduce the spread and/or severity of established weed infestations using defined geographic boundaries where eradication is no longer feasible
- Asset protection – actions to protect environmental assets from the impacts of established weed species

As limited resources are available to manage infinite weed problems, it is necessary to carefully prioritise actions. Resources for management of widespread environmental weeds such as bitou bush should be allocated to protection of assets. In NSW, environmental assets are determined and prioritised according to a two stage process, involving:

1. identifying the biodiversity at risk from weed invasion
2. identifying the sites where weed control will maximise biodiversity outcomes (DECC 2009)

The NRCMA's bitou bush program uses a combined approach of containment and biodiversity asset protection.

### **Implementation of the NSW Bitou Bush Threat Abatement Plan in the Northern Rivers region**

The Bitou TAP uses a biodiversity asset protection approach to management of bitou bush. The Bitou TAP identifies 158 native plant species, 3 endangered plant populations and 26 ecological communities at risk of bitou bush invasion across NSW. It lists 169 high priority sites where control has the greatest potential to benefit biodiversity. Site prioritisation considered a number of factors including:

- Ability of bitou bush to invade the habitat of the native species
- Susceptibility of the native species to invasion
- Ability of the native species to persist
- Distribution of the native species relative to that of bitou bush
- Ability of control to be effective at the site
- Actual impact of bitou bush on the species at risk
- Condition of the native species

Over half of the high priority sites listed in the Bitou TAP are located within the Northern Rivers region.

#### **Partners**

In 2006, the NSW Department of Environment, Climate Change and Water (DECCW – then Department of Environment and Conservation) and the five NSW coastal Catchment Management Authorities (CMAs) commenced implementation of the Bitou TAP across NSW in partnership with the NSW Land and Property Management Authority (LPMA – previously Department of Lands), Community Reserve Trusts, Local Government and coastal community groups.

The NRCMA currently works in partnership with 9 land managers, numerous community groups and bush regeneration contractors to implement the Bitou TAP at 24 priority sites outside of DECCW estate across the Northern Rivers region. DECCW is implementing the Bitou TAP at a further 28 priority sites on its own estate. Sites have been selected for funding following close consultation with land managers and weed stakeholders throughout the region. Table 1 lists NRCMA funded Bitou TAP sites.

**Table 1: NRCMA funded Bitou TAP sites**

<b>Land manager</b>	<b>Partners</b>	<b>Sites</b>	<b>Biodiversity at risk</b>
Tweed Shire Council	Fingal Head Coastcare, Tweed Landcare, Bushland Restoration	SEPP 26 No 2a Fingal Head	<i>Archidendron hendersonii</i> , <i>Celtis paniculata</i> , <i>Caelospermum paniculatum</i> , <i>Cordyline congesta</i> , <i>Cryptocarya foetida</i> , <i>Cryptocarya triplinervis</i> var. <i>triplinervis</i> , <i>Glochidion sumatranum</i> , <i>Hibiscus tiliaceus</i> , Littoral Rainforest, <i>Pandanus tectorius</i> var. <i>australianus</i> , <i>Polyalthia nitidissima</i> , <i>Syzygium moorei</i>

	Services, DECCW	Wooyung Nature Reserve	Coastal Saltmarsh, Coastal Wetlands (SEPP 14), <i>Cryptocarya foetida</i> , <i>Geodorum densiflorum</i> , Littoral Rainforest, <i>Pandanus tectorius var. australianus</i> , <i>Polyalthia nitidissima</i> , Swamp Oak Floodplain, Swamp Sclerophyll Forest on Coastal Floodplains
Byron Shire Council	New Brighton Dunecare, South Golden Beach Dunecare, 7 Mile Beach Dunecare	Fern Beach – South Golden Beach	<i>Acronychia littoralis</i> , <i>Cryptocarya foetida</i> , Littoral Rainforest
		Belongil Beach	<i>Cordyline congesta</i> , <i>Cryptocarya foetida</i> , Littoral Rainforest
		Seven Mile Beach North – 1km south of Jews Point (SEPP 26 no. 34)	<i>Cordyline congesta</i> , <i>Cryptocarya foetida</i> , <i>Ischaemum triticeum</i> , Littoral Rainforest
Byron Shire Holiday Parks Reserve Trust	Byron Clean and Green, Bushland Restoration Services	Clarkes Beach Caravan Park	<i>Acmena hemilampra</i> , Byron Bay Dwarf Gramminoid Clay Heath, <i>Cryptocarya foetida</i> , Littoral Rainforest, <i>Pandanus tectorius var. australianus</i>
Ballina Shire Council	Lighthouse Beach Dunecare, Ballina Coastcare (Angels Beach Dunecare & East Ballina Landcare), Lennox Head Landcare, Lennox Head Residents Association, EnviTE	Lennox Head (headland)	<i>Plectranthus cremnus</i> , Themeda Grassland
		Boulder Beach, Ballina (including SEPP26 No 38 – Boulder Beach south)	<i>Arthraxon hispidus</i> , Freshwater Wetlands on Coastal Floodplains, Littoral Rainforest, <i>Plectranthus cremnus</i> , Swamp Sclerophyll Forest on Coastal Floodplains, <i>Syzygium hodgkinsoniae</i>
		Sharps Beach Ballina (Whites Head)	<i>Plectranthus cremnus</i> , Themeda Grassland
		Sharps Beach, Ballina	<i>Cryptocarya foetida</i> , Freshwater Wetlands on Coastal Floodplains, Littoral Rainforest, Swamp Sclerophyll Forest on Coastal Floodplains
		Angels Beach Ballina	<i>Acronychia littoralis</i> , <i>Archidendron hendersonii</i> , <i>Cryptocarya foetida</i> , Freshwater Wetlands on Coastal Floodplains, Littoral Rainforest, Swamp Sclerophyll Forest on Coastal Floodplains
		Shelly Beach Ballina	Freshwater Wetlands on Coastal Floodplains, Littoral Rainforest
		Shaws Bay, Ballina	<i>Acronychia littoralis</i> , <i>Cryptocarya foetida</i> , Littoral Rainforest
		Lighthouse Beach Ballina	Littoral Rainforest
Dirawong Reserve Trust	Evans Head Living Museum & Community Technology Centre, Bandjalang Aboriginal Corporation, E White & Associates	Dirawong Reserve	<i>Acronychia imperforata</i> , <i>Acmena hemilampra</i> , <i>Acronychia littoralis</i> , <i>Casuarina equisetifolia</i> , Coastal Banksia Woodlands, Coastal Sand Dune Complex, <i>Cupaniopsis anacardioides</i> , Dune Grasslands, Frontal Dune Vegetation Complex, <i>Geodorum densiflorum</i> , <i>Gleichenia mendellii</i> , <i>Hibiscus tiliaceus</i> , <i>Ischaemum triticeum</i> , Littoral Rainforest, <i>Lygodium microphyllum</i> , <i>Macarthuria neocambrica</i> , <i>Pandanus tectorius var. australianus</i> , <i>Pultenaea maritima</i> , <i>Stackhousia spathulata</i> , Themeda Grassland, <i>Vigna marina</i>
Clarence Valley Council	Angourie Dunecare	Angourie Reserve	Coastal Sand Dune Complex, Coastal Scrub, Coastal Wetlands (SEPP 14), Frontal Dune Vegetation Complex, <i>Ischaemum triticeum</i> , Littoral Rainforest, Themeda Grassland
		Wooli River	Coastal Banksia Woodlands, Coastal Saltmarsh, Coastal Sand Dune Complex, <i>Sophora tomentosa</i>
Kempsey Shire Council	Mid North Coast Weeds Advisory Committee, Macleay Landcare	Crescent Head	<i>Acalypha nemorum</i> (prostrate form), <i>Casuarina equisetifolia</i> , <i>Pandanus tectorius var. australianus</i> , <i>Pelargonium australe</i> , <i>Pultenaea maritima</i> , <i>Sarcostemma brunonianum</i> , <i>Stackhousia spathulata</i> , <i>Thesium australe</i> , <i>Thysanotus juncifolius</i> , <i>Viminaria juncea</i> (prostrate form)
Land and Property Management Authority – Goolawah State Park	Goolawah Dunecare, Macleay Landcare, DECCW	Racecourse Headland (including SEPP 26 No 104A, 105, 105A, 106)	Littoral Rainforest, <i>Marsdenia liisae</i>
		Delicate Nobby Headland - 1.5km north of Limeburners Creek NR (SEPP 26 no 105B)	Littoral Rainforest
Port	Port	Flynn's Beach & Shelly	<i>Sophora tomentosa</i>

Macquarie-Hastings Council	Macquarie Landcare, Lighthouse Beach Dunecare Bonny Hills Landcare	Beach	
		SEPP 26 113 – Miner’s Beach, South of Sea Acres NR	Littoral Rainforest
		Grants Head	<i>Casuarina equisetifolia</i> , <i>Comesperma sphaerocarpum</i> , <i>Isopogon anemonifolius</i> , <i>Leucopogon esquamatus</i> , <i>Pandanus tectorius var. australianus</i> , <i>Persoonia linearis</i> , <i>Thesium australe</i> , <i>Viminaria juncea</i> (prostrate form), <i>Zieria smithii</i>
		Googleys Lagoon – Camden Head – West of Kattang NR (SEPP 26 no 122)	Littoral Rainforest

**Funding**

In 2007/2008, the NRCMA received \$227,677 as part of a state-wide Australian Government Natural Heritage Trust Regional Competitive Component project to commence Bitou TAP implementation at an initial 14 sites.

In 2008/2009, the NRCMA allocated an additional \$112,500 from it’s investment program to continue implementation at those 14 sites.

Also in 2008/2009, the NRCMA submitted a successful application to the Australian Government’s Caring for our Country Open Grants Program for a statewide project *Strategic Bitou Bush Control to Protect Biodiversity in NSW*. The NRCMA received \$400,000 for continued Bitou TAP implementation across NSW, including \$146,500 to commence implementation at an additional 10 sites in the Northern Rivers region.

In 2009/2010, the NRCMA has allocated a further \$100,000 from it’s investment program to continue implementation at the 24 sites underway across the region.

This total funding support from the Australian and NSW Governments of \$586,677 for non-DECCW sites in the Northern Rivers region since Bitou TAP commencement has been complemented by significant cash and in-kind investment by partners. At June 2009, partners had invested more than \$55,876 in cash and \$211,175 in in-kind contributions to support the NRCMA’s investment.

**Action**

Bitou TAP implementation involves a number of consistent activities at each priority site.

*Site planning*

Before Bitou TAP implementation can commence, a site-specific management plan must be prepared using a standard Bitou TAP proforma. A vegetation survey is usually required to provide the information necessary for the site plan. Each 5 year plan requires mapping of the extent of bitou bush, the location of all native species and communities at risk, and the areas planned for staged control. Plans list stakeholders and cultural heritage issues at each site. They detail the site history, attributes, tasks to be undertaken, time frame, and associated costs. Once a plan is approved by

DECCW, associated works are automatically covered by a generic scientific licence permitting work near threatened species and endangered ecological communities.

### *On-ground works*

Implementation of the Bitou TAP on the ground involves staged control using best-practice management techniques. Control stage 1 involves reducing the initial infestation of bitou bush in the immediate vicinity of threatened biodiversity. Stage 2 expands the control of bitou bush to include suitable habitat for the threatened biodiversity to expand into, while controlling bitou bush recruitment in stage 1. Stage 3 aims to remove bitou bush from surrounding areas to prevent re-infestation while controlling recruitment in stages 1 and 2.

Control techniques include aerial and ground application of herbicides, biological control, physical removal, slashing and burning. Fencing and planting may also be required to protect and recover native biodiversity at risk.

The TAP highlights the need to reduce re-invasion by either bitou bush or secondary weed species, and the importance of rehabilitating and revegetating each site with locally occurring natives where required.

### *Monitoring*

To ensure works are effective in protection and recovery of native biodiversity, each site plan includes an essential monitoring component to assess the response of native plant species and communities at risk, bitou bush and other environmental weeds to control. Monitoring at each site includes a minimum of annual photo points, observational data and mapping. A NSW Monitoring Manual for Bitou Bush Control and Native Plant Recovery has been prepared to guide land managers and volunteers through the steps required.

### ***Resources to support implementation***

A number of resources have been produced to assist the community with implementation of the Bitou TAP.

A Bitou TAP Co-ordinator based with DECCW has been available to guide land managers, volunteers and other stakeholders through the site planning, control and monitoring processes.

A Bitou TAP web site at <http://www.environment.nsw.gov.au/bitoutap/> provides advice and resources on bitou bush, native species at risk, TAP implementation and best-practice management. It includes case studies of Bitou TAP implementation.

A colour Field Guide to Native Plant Species at Risk of Bitou Bush Invasion (Hamilton *et al* 2008) has been prepared to help land managers and volunteers to identify each of the native plant species at risk, so that they can then undertake actions for their protection and recovery.

Best-practice management manuals for bitou bush management (DECC 2008) and aerial spraying are available to guide the community through appropriate management options and control techniques.

The Monitoring Manual for Bitou Bush Control and Native Plant Recovery (Hughes *et al* 2009) assists land managers and volunteers to undertake consistent monitoring across all sites in NSW. It provides three monitoring program options. Each option varies in complexity, allowing the community to select the program best suited to the available skills and resources. The simplest option guides users through the necessary steps to:

- establish permanent photopoints to provide a visual representation of vegetation change over time
- undertake mapping to show changes in the location and extent of native species and communities at risk, bitou bush and other environmental weeds in relation to control areas
- collate observational data to assess cover and density of vegetation present
- collate information on the costs of control, both cash and in-kind

Advisory signage has been installed at each site where appropriate to raise wider community awareness of the threat bitou bush poses to native plant species and communities, and the important work underway to mitigate that threat. WONS bitou bush brochures, a Weeds Attack multimedia education resource, fridge magnets, rulers and stickers are also available to raise community awareness of the bitou bush threat.

## **Outcomes**

At June 2009, implementation of the Bitou TAP in the Northern Rivers region had achieved the following:

- 9 land managers and over 25 partners engaged in strategic control of bitou bush for protection of biodiversity.
- 24 Bitou TAP site management plans developed and approved by DECCW, covering 616 hectares of coastal land.
- Best-practice on-ground works underway at 24 sites to protect and recover 43 priority species and 13 ecological communities listed as at risk in the Bitou TAP, including 6 endangered species, 7 vulnerable species and 7 endangered ecological communities.
- Works contributing to implementation of 71 PAS actions.
- Monitoring underway, including a minimum of mapping and photopoints at 24 sites.
- Over 50 media items released to raise awareness of the threat posed by bitou bush and the work underway.
- Over 834 hectares of primary and follow-up bitou bush control undertaken.

Monitoring data and observations indicate a reduction in the extent and density of bitou bush at all sites. Priority native species and communities have responded positively to control. Many sites have observed an increase in the number and extent of threatened species. Bitou bush density has been reduced to sparse or absent at some sites.

Control of bitou bush for protection and recovery of priority native species and communities will continue at these sites. As healthy native plant communities are established following control, resources can be allocated to other priority sites for control, ensuring our biodiversity assets are not lost to this widespread environmental weed.



## **Control of bitou bush in the National Northern Containment Zone**

The potential national distribution of bitou bush includes spread to the coast of central Queensland (QLD). A consistent effort in QLD over a number of years has reduced bitou bush infestations to a surveillance level only. A National Northern Containment Zone (NNCZ) for bitou bush has been established on the NSW north coast directly adjacent to the Queensland border. Control in the NNCZ is essential to support Queensland's programs if the northern distribution of bitou bush is to be reduced in Australia.

The major coastal land managers in the NNCZ have invested resources into the control of bitou bush on their land for a number of years, but limited resources have prevented effective control. Although control of bitou bush in the NNCZ has been identified as a priority for action in a number of national, state and regional strategies, until recently it had not been defined, and the necessary on-ground actions had not been identified.

### ***Partners***

Since 2007, the NRCMA has been working with partners to develop and implement a plan for recession of the bitou bush NNCZ. Bitou bush infestations occur across 6 primary land tenures in the NNCZ, with key land managers including Tweed Byron Local Aboriginal Land Council, Tweed Shire Council and DECCW. Other partners include the NSW Land and Property Management Authority (previously Department of Lands), Tweed Landcare Inc and Far North Coast Weeds. These partners are members of Tweed Shire Council's Tweed Coastal Vegetation Management Committee, which is supporting action in the NNCZ.

### ***Funding***

In 2007, the NRCMA submitted a successful application to NSW Environmental Trust for the project *Border Security - Control of Bitou in the Northern Containment Zone*. Between 2008 and 2011, the NRCMA will receive \$100,000 from the Trust to undertake actions to recede the NNCZ. The NRCMA has allocated a further \$75,000 from its investment program to enhance the outcomes of the Trust proposal. Significant cash and in-kind contributions are also expected from NNCZ partners.

### ***Action***

#### *Planning*

In 2008, Tweed-based Bushland Restoration Services (BRS) was contracted to map the extent and density of bitou bush in the NNCZ. In consultation with NNCZ partners, BRS developed the Bitou Bush National Northern Containment Zone Management Plan (BRS 2009), which for the first time defined an area for the NNCZ and identified the specific actions necessary to recede the NNCZ over the next 5 years.

### *On-ground works*

In partnership with NNCZ land managers and the local Madhima Gulgan indigenous bush regeneration team, BRS commenced implementation of on-ground actions from the plan in mid 2009. This involves strategic best-practice control of bitou bush and secondary weed species to maximise natural regeneration from the QLD border south through the NNCZ.

A community education program will commence to identify and control isolated occurrences. Community education and surveillance programs will increase as bitou bush infestations are reduced.

### *Monitoring*

Baseline monitoring in accordance with the Monitoring Manual for Bitou Bush Control and Native Plant Recovery has been undertaken, including photopoints, mapping and observational data. Monitoring will be repeated after each year of on-ground works.

### *Legislative support*

NNCZ partners have commenced a proposal to upgrade the classification of bitou bush under the NSW *Noxious Weeds Act 1993* from a Class 4 to a Class 3 noxious weed in the Tweed Shire. Reclassification to Class 3 is a key objective of the Bitou Bush National Northern Containment Zone Management Plan.

In all of Queensland, bitou bush is declared a Class 1 plant under the Queensland *Land Protection (Pest and Stock Route Management) Act 2002*. This means that over the border from the Tweed Shire, all landholders are required by law to 'keep land and waters under their control free of bitou bush'. It is a serious offence to introduce, keep or sell bitou bush without a permit, and the goal of the Queensland Government is eradication.

Bitou bush is currently classified as a Class 4 noxious weed in the Tweed Shire. Under the relevant Class 4 Management Plan, current control requirements for bitou bush are:  
*Numbers and distribution reduced and prevented from flowering and spreading.  
The species must not be sold, propagated or knowingly distributed.*

Upgrade of this classification to a Class 3 noxious weed would strengthen control requirements to:  
*The plant must be continuously suppressed and destroyed. The plant may not be sold, propagated or knowingly distributed.*

Bitou bush is currently classified as a Class 3 noxious weed in the Bega Valley local control area in southern NSW and Class 3 reclassification is pending for the Eurobadalla local control area. These classifications strengthen ongoing efforts to recede the National Southern Containment Zone.

A Class 3 classification in the Tweed Shire will:

- support implementation of the Bitou Bush National Northern Containment Zone Management Plan and the Tweed Shire Bitou Bush Control Strategy
- support the efforts of partners to recede the NNCZ and prevent spread of bitou bush in the Tweed and neighbouring areas

- increase community awareness of the national distribution of bitou bush and the threat it poses to native plant communities
- increase community engagement in efforts to recede the NNCZ
- support Queensland's Class 1 classification of bitou bush and efforts to prevent bitou bush spreading north
- complement the Class 3 classification of bitou bush at the National Southern Containment Zone
- assist to ensure investment in control of bitou bush in the NNCZ achieves the best possible outcomes on the ground.

### **Outcomes**

While on-ground work in the NNCZ has only recently commenced through the current project, achievements so far include:

- A strong partnership of 9 key stakeholders working together to achieve biodiversity outcomes.
- Local Aboriginal people engaged in achieving biodiversity outcomes on their own land, providing training and employment opportunities.
- The extent and density of bitou bush in the NNCZ re-mapped.
- The bitou bush NNCZ defined and strategic actions identified for its recession for the first time.
- Baseline monitoring established.
- Best-practice on-ground works underway to recede the NNCZ and recover healthy native plant communities.
- 4 hectares of bitou bush and secondary weed control undertaken.

### **Conclusion**

While the threat posed by bitou bush as a widespread environmental weed can seem overwhelming, the NRCMA is working with partners in the region to prioritise the limited resources available to reducing the national distribution of bitou bush, and protecting environmental assets at risk. Just as the bitou bush threat is not constrained by land tenure, a consistent approach across our coastline is essential to meet the bitou bush challenge. While the problem is still immense, strong partnerships are achieving positive biodiversity outcomes.

## References

- Agriculture & Resource Management Council of Australia & New Zealand, Australian & New Zealand Environment & Conservation Council and Forestry Ministers, (2000) *Weeds of National Significance Bitou Bush and Boneseed (Chrysanthemoides monilifera ssp. rotundata and monilifera) Strategic Plan*. National Weeds Strategy Executive Committee, Launceston.
- BRS (Bushland Restoration Services) (2009) *Bitou Bush National Northern Containment Zone Management Plan*. Northern Rivers Catchment Management Authority, Grafton.
- DEC (Department of Environment and Conservation) (2006) *NSW Threat Abatement Plan – Invasion of native plant communities by Chrysanthemoides monilifera (bitou bush and boneseed)*. Department of Environment and Conservation (NSW), Hurstville.
- DECC (Department of Environment and Climate Change) (2007) *NSW Threatened Species Priorities Action Statement*. Department of Environment and Climate Change (NSW), Hurstville.
- DECC (Department of Environment and Climate Change) (2008) *Bitou Bush Management Manual: current management and control options for bitou bush (Chrysanthemoides monilifera ssp rotundata) in Australia*. Department of Environment and Climate Change (NSW), Sydney.
- DECC (Department of Environment and Climate Change) (2009) *Draft regional weed management priorities for biodiversity conservation: a sitebased assessment for the 13 Catchment Management Authorities in NSW to guide investment until 2015*. NSW Department of Environment and Climate Change, Hurstville.
- Hamilton, MA, Winkler, MA and Downey, PO. (2008) *Native plant species at risk from bitou bush invasion: a field guide for New South Wales*. NSW Department of Environment and Climate Change, Hurstville.
- Hughes, NK, Burley, AL, King, SA, and Downey, PO (2009) *Monitoring manual for bitou bush control and native plant recovery*. Department of Environment and Climate Change (NSW), Hurstville.
- NRCMA (2005) *Northern Rivers Catchment Action Plan*. Northern Rivers Catchment Management Authority, Grafton.
- Premier's Department (2006) *A new direction for NSW – State Plan*. NSW Government, Sydney.