



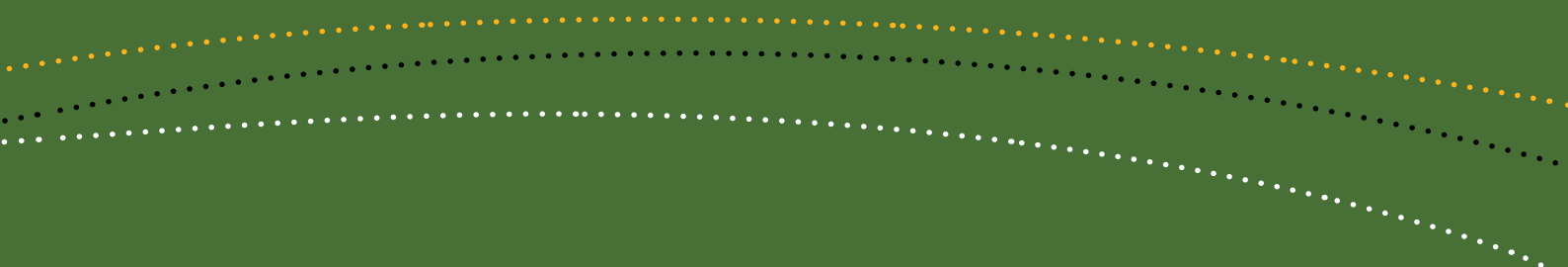
Australian Government

**Department of Sustainability, Environment,
Water, Population and Communities**



Threat abatement plan

to reduce the impacts on northern Australia's
biodiversity by the five listed grasses





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Photo credits

FRONT COVER IMAGES (left to right)

Andropogon gayanus (Colin Wilson), *Urochloa mutica* (Queensland Department of Agriculture, Fisheries and Forestry), *Hymenachne amplexicaulis* (Robert Miller), *Hymenachne amplexicaulis* in melaleuca swamp (Queensland Department of Agriculture, Fisheries and Forestry)

BACK COVER IMAGES (left to right)

Cenchrus polystachios syn. *Pennisetum polystachion* & *Cenchrus pedicellatus* syn. *Pennisetum pedicellatum* (Colin Wilson), *Cenchrus polystachios* syn. *Pennisetum polystachion* (Colin Wilson), *Cenchrus polystachios* syn. *Pennisetum polystachion* (Colin Wilson), *Andropogon gayanus* (Colin Wilson), *Andropogon gayanus* (Colin Wilson)



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INTRODUCTION

This national threat abatement plan (TAP) has been developed to address the key threatening process (KTP) ‘**Ecosystem degradation, habitat loss and species decline due to invasion of northern Australia¹ by introduced gamba grass (*Andropogon gayanus*), para grass (*Urochloa mutica*), olive hymenachne (*Hymenachne amplexicaulis*), mission grass (*Pennisetum polystachion*) and annual mission grass (*Pennisetum pedicellatum*)**’. This KTP was listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) in 2009. The introduced grass species that are the subject of this KTP and of this TAP will be referred to in this document as ‘the five listed grasses’.

This TAP should be read in conjunction with its associated background document, which provides information about each of the grasses, their impacts on the environment, their social and economic impacts and values, and their current management. The background document also includes details about recent changes to the names of *P. polystachion* and *P. pedicellatum* to *Cenchrus polystachios* and *C. pedicellatus*, respectively. For clarity, the common name ‘perennial mission grass’ has been adopted for *C. polystachios*, to avoid confusion with annual mission grass.


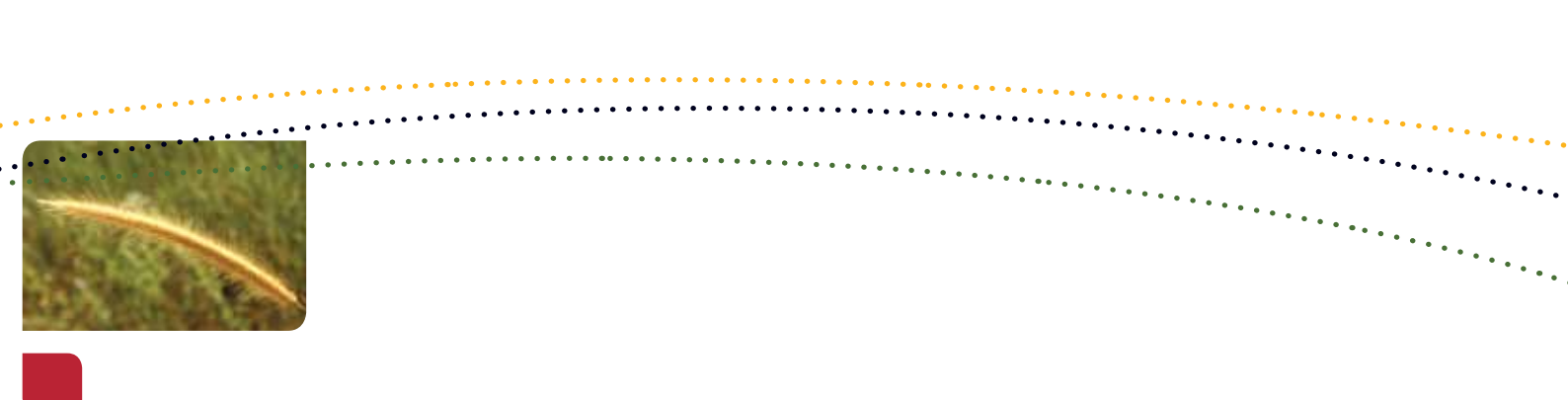
This TAP is considered to be a feasible, effective and efficient approach to abating the threat to Australia’s biodiversity from the five listed grasses spreading across northern Australia. It provides a framework for prioritising investment in threat abatement and identifies management and other actions required to ensure the long-term survival of native species and ecological communities affected by these grasses. It is appreciated that considerable progress has already been made in the coordinated management of some of these grasses and in the development of policies, tools and management procedures relating to them. This TAP will use and adapt existing mechanisms, where appropriate, to ensure efficient implementation and avoid duplication.

The focus of this TAP is on identifying and protecting key environmental assets (threatened species and ecological communities listed under the EPBC Act and other matters of national environmental significance). Such an asset-based management approach to widespread weeds has been endorsed by the Australian Weeds Committee (AWC). While this TAP aims primarily to abate the threat to key assets, it also recognises that these grasses have wider environmental impacts as well as social, cultural and economic impacts.

This TAP further acknowledges that the five listed grasses may threaten areas outside northern Australia, and that other high-biomass invasive grasses may pose a threat to biodiversity. Although this TAP has been developed to address the KTP identified above, the concepts and approaches contained in this TAP may be applied to other localities or grasses, or to protect other assets where appropriate opportunities arise.

The Australian Government acknowledges that some introduced grasses have high production and economic values and, when appropriately managed and contained for pastoral purposes, do not necessarily contribute to the decline of environmental assets in northern Australia.

¹ This KTP covers the jurisdictions of Western Australia, the Northern Territory and Queensland.



1. Threat abatement plan to reduce the impacts on northern Australia's biodiversity by the five listed grasses

1.1. Description of the process and its impacts

The KTP addressed by this national TAP covers five species of introduced grasses: gamba grass (*Andropogon gayanus*), para grass (*Urochloa mutica*), olive hymenachne (*Hymenachne amplexicaulis*), perennial mission grass (*Cenchrus polystachios* syn. *Pennisetum polystachion*) and annual mission grass (*Cenchrus pedicellatus* syn. *Pennisetum pedicellatum*). Each of these grasses was imported into Australia for testing and/or use as pasture grasses. However, these invasive high-biomass species can increase fuel loads and/or alter nitrogen cycling and water availability within systems (Douglas et al., 2004; Rossiter et al., 2004; TSSC, 2009), resulting in ecosystem degradation, habitat loss and biodiversity decline. Table A provides a list of threatened species and ecological communities that are under immediate threat from the grasses.

1.2. Managing the threat

Weed management is based on the principles of prevention, eradication, containment and asset protection. Preventing invasive plant species from establishing is the most cost-effective form of weed management. Where infestations are small or newly established, the goal should be intense suppression aiming to eradicate. In areas where this is not feasible or economically viable, suppression seeking containment is important to lessen the impacts of the grasses and to prevent them from spreading into unaffected areas. Within core or large infestations, management should focus on identifying and protecting priority assets. Management necessarily involves all levels of land managers from Australian Government agencies, state and territory agencies, local councils, community groups, individual land managers and the general public.

Understanding the population biology of an invasive plant is important when developing effective management strategies. Knowledge of factors such as plant longevity, methods of spread, seed bank viability, and recruitment patterns allows the development of predictive models which can then be used to develop surveys to predict pathways of spread and assist with the detection of outlier populations and new incursions (Campbell and Grice, 2000).

Data relating to historic and current distribution are essential for monitoring the success of management activities. Monitoring provides the necessary feedback for adaptive management. Knowledge of distribution allows for the efficient planning and coordination of weed management actions.

In the KTP listing advice on the five grasses covered by this TAP, the Threatened Species Scientific Committee concluded that the majority of these species were in relatively early stages of invasion, and that management and control were therefore possible and practical. It proposed that the threats posed by these species could be reduced by preventing their further spread into new habitats and by rehabilitating invaded areas (TSSC, 2009).

1.3. Implementation

Under the EPBC Act, the Australian Government develops TAPs and facilitates their implementation. The EPBC Act requires the Australian Government to implement TAPs to the extent to which they apply in areas under Australian Government control and responsibility. In addition, Australian Government agencies must not take any actions that contravene a TAP. Where a TAP applies outside Australian Government areas in states or territories, the Australian Government must seek the cooperation of the affected jurisdictions, with a view to jointly implementing the TAP.

The Australian Government Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) will work with other Australian Government agencies and with state, territory and local governments, national and regional industry and community groups towards implementing this TAP. By providing a national framework, this TAP will assist in the coordination and enhancement of relevant strategies and activities across affected jurisdictions.

Where the grass species fall under state or territory regulations, the enforcement of weed management actions that apply under the relevant state or territory legislative requirements is the responsibility of that jurisdiction.

The national coordination of weed management activities occurs under the Australian Weeds Strategy (AWS). This strategy provides a mechanism for identifying and resolving weed issues at national level. The AWC supports the implementation of the strategy by facilitating and coordinating consistent national action on weed tasks. The AWC comprises representatives from the Australian Government and from all state and territory governments. The Commonwealth Scientific and Industrial Research Organisation and Plant Health Australia are observers on the committee.

This TAP provides guidance on the management of the five listed grasses across northern Australia within the broader goals of the AWS, namely, to:

- reduce the spread of weeds to new areas within Australia
- implement coordinated and cost-effective solutions for priority weeds and weed problems
- develop approaches to managing weeds based on the protection of values and assets
- raise awareness and motivation among Australians to strengthen their commitment to act on weed problems
- build Australia's capacity to address weed problems and improve weed management
- manage weeds within consistent policy, legislative and planning frameworks
- identify and prioritise weeds and weed management problems and determine their causes
- monitor and evaluate the progress of Australia's weed management effort.

1.4. Identifying priority areas for action

Given that there are finite resources available for the management of the five listed grasses, total eradication is not possible. Therefore, the identification of high-value areas that would benefit most from management actions is important. A nationally agreed methodology for prioritising areas for protection will assist in maximising conservation benefits.



2. Objectives and actions

The overarching goal of this TAP is to minimise the adverse impacts of the five listed grasses on affected native species and ecological communities. To achieve this goal, the TAP has six main objectives that were developed in consultation with experts in relevant jurisdictions. These objectives are to:

1. develop an understanding of the extent and spread pathways of infestation by the five listed grasses
2. support and facilitate coordinated management strategies through the design of tools, systems and guidelines
3. identify and prioritise key assets and areas for strategic management
4. build capacity and raise awareness among stakeholders
5. implement coordinated, cost-effective on-ground management strategies in high-priority areas
6. monitor, evaluate and report on the effectiveness of management programs.

Each objective is accompanied by a set of actions which, when implemented, will help to achieve the goal of the TAP. Performance indicators (outcomes and outputs) have been established for each objective. Reports on progress against the objectives may be sought by DSEWPaC in years 3–5 for the purpose of assessing the effectiveness of the TAP.

Objective 1: Develop an understanding of the extent and spread pathways of infestation by the five listed grasses

Gaining information in the short term about where the grasses are and where and how they are likely to spread will help to inform the planning of control and surveillance activities.

| Action | Priority/ timeframe | Outcome/output |
|--|----------------------------|---|
| <p>Action 1.1: Undertake mapping of the five listed grasses at a scale that allows for appropriate planning and an adaptive management approach</p> <p>Some mapping has been completed; however, most is not at a scale that allows for the development of management plans at 'property level'. Detailed mapping will allow identification of spread pathways and of uninfested areas at risk of invasion. This is especially important around key assets. Regularly updated maps will help monitor new incursions and determine the effectiveness of the management program. Improved mapping and monitoring that incorporates changes in distribution, density and impacts over time may also increase understanding of potential future invasion.</p> | High priority Years 1–3 | <p>Nationally agreed mapping guidelines used by all affected jurisdictions</p> <p>Website identified or developed and used to upload maps</p> |
| <p>Action 1.2: Develop a better understanding of spread pathways</p> <p>There is limited information on the spread of invasive grasses, particularly wetland grasses. While some management plans focus on transport corridors as spread pathways, other key pathways include riparian zones and animals. Genetic studies may help determine spread pathways and sources of infestation. The National Weed Spread Prevention Action Plan (AWC, 2011) highlights the importance of identifying, analysing and prioritising pathways for management. It also sets out actions to help stakeholders recognise and address pathways for weed spread.</p> | High priority Years 1–3 | <p>Spread pathways identified and preliminary information made available as soon as possible</p> <p>Information publicised within four years of the publication of this TAP</p> |

Objective 2: Support and facilitate coordinated management strategies through the design of tools, systems and guidelines

A number of tools, guidelines and protocols are required for the successful coordinated management of the five listed grasses. Fortunately, these already exist for some of the grasses and for some of the situations in which they occur. Noting that the grasses vary in their habitat, biology and economic function, these actions propose to identify gaps and to use and adapt existing tools, guidelines and management strategies to cover the five listed grasses. Ensuring that land management plans include consideration of these grasses is an important step in reducing the impacts they can have.

| Action | Priority/ timeframe | Outcome/output |
|---|--------------------------------------|--|
| <p>Action 2.1: Encourage complementary weed status for the five listed grasses across all jurisdictions to which the TAP applies</p> <p>Declaration of these species as weeds across all affected jurisdictions would raise the profile of the problem, allow enforcement of management actions and help address border control issues. However, the category of regulation may need to vary according to jurisdictional goals.</p> | <p>Low priority Years 1–5</p> | <p>Jurisdictions working towards amending legislation to achieve complementary weed status</p> |
| <p>Action 2.2: Develop best-practice guidelines for use and/or management of the five listed grasses in agricultural and conservation contexts, and encourage their implementation</p> <p>Some of these species are valuable pasture grasses. While manipulation of grazing levels can be an effective management tool in a pastoral setting, this method is unsuitable in other sites. If managed inappropriately, these grasses become unpalatable to cattle, present a fire hazard and are more likely to spread beyond property borders. Recognising this, the development and dissemination of best-practice invasive grass management information and protocols for the use of exotic pasture plants may help minimise their adverse impacts.</p> | <p>Medium priority Years 2–4</p> | <p>Existing guidelines promoted and further guidelines developed, where required, for management and control in agricultural/conservation contexts</p> |
| <p>Action 2.3: Develop hygiene protocols, focusing on high-priority spread pathways</p> <p>Preventing the spread of weeds is the most efficient and cost-effective method of control. Understanding spread pathways and implementing effective hygiene protocols will reduce the chances of these grasses spreading into new areas. Several actions under the National Weed Spread Prevention Action Plan (AWC, 2011) are designed to increase stakeholder awareness and understanding of weed spread issues, including the importance of hygiene. Community access to information about best-practice hygiene and spread-prevention techniques is important. The identification of groups responsible for spreading these grasses will enable the development of targeted communication strategies.</p> | <p>High priority Years 2–4</p> | <p>Hygiene protocols developed and provided to land managers, contractors and affected communities for implementation</p> |
| <p>Action 2.4: Further develop prioritisation tools to identify high-priority areas for monitoring and management actions</p> <p>Tools and systems that allow evidence-based identification of high-risk and high-priority areas are necessary to maximise the efficient use of resources. These will help in identifying sites in which management will deliver the greatest benefits to biodiversity. Existing tools may be adapted for use with the five listed grasses.</p> | <p>High priority Years 1–2</p> | <p>Appropriate prioritisation tools made available for use by land managers and others making decisions on the management of natural resources</p> |



| Action | Priority/ timeframe | Outcome/output |
|---|--------------------------------------|--|
| <p>Action 2.5: Include strategic management of the five listed grasses in management plans for all affected land tenures, giving priority to identified key assets</p> <p>Effective control and spread prevention of the five listed grasses requires management across a wide range of land tenures and uses (including Commonwealth, state, territory and local government lands, conservation areas, transport corridors and private property). Encouraging land managers to address the control of these grasses in relevant management plans may lead to the containment of existing infestations. To maximise efficiency, these plans could also consider site rehabilitation and integrated management of weeds, fire and feral animals. The suppression of smaller outlier populations is important and often more feasible and cost-effective than managing larger infestations. Efforts to protect key assets in more heavily infested areas may have a greater likelihood of success.</p> | <p>High priority Years 1–3</p> | <p>In areas containing key assets, management plans that address the suppression of outlier infestations</p> <p>Management plans across land tenures that include control of the five listed grasses</p> |
| <p>Action 2.6: Improve and promote understanding of invasive grass control and land rehabilitation methods to maximise native vegetation restoration and minimise site damage</p> <p>It is important to employ management practices that ensure best practice for native vegetation restoration, particularly in areas containing key assets. Appropriate land rehabilitation requirements will vary between sites. Identifying and developing effective and appropriate methods will increase the likelihood of successful outcomes.</p> | <p>Medium priority Years 2–5</p> | <p>Guidelines identified and modified or developed for distribution to land managers</p> |
| <p>Action 2.7: Facilitate collaborative applied research that can be used to inform or support improved management of the five listed grasses</p> <p>While a management response cannot await the completion of well-aligned applied research, an adaptive management approach may facilitate progress by supporting priority research being undertaken in parallel with the testing and improvement of management strategies and tools.</p> <p>It is important that joint/collaborative research be used to inform and update knowledge of ecology, impact and, in some instances, the most effective management techniques (e.g. timing of herbicide application, grass selective herbicides, biological control options and fire response), as this information is incomplete for most of these grasses.</p> <p>Without this, there is an increased risk of management efforts being misdirected or ineffective.</p> | <p>High priority Years 2–5</p> | <p>Collaborative applied research projects undertaken to test and improve management of the five listed grasses</p> |



Objective 3: Identify and prioritise key assets and areas for strategic management

The key purpose of this TAP is to address the KTP; that is, to reduce ecosystem degradation, habitat loss and species decline caused by the five listed grasses. It is therefore necessary to identify the important ecosystems, habitats and species that may need protecting. For the purposes of the Australian Government, these are the EPBC Act listed assets. There may also be state, regional and/or local assets that should be identified to help prioritise management activities. In areas of invasion or potential invasion, identified assets need to be prioritised for monitoring and management activities in order to best use limited resources.

| Action | Priority/ timeframe | Outcome/output |
|---|---------------------------------------|---|
| <p>Action 3.1: Identify key assets for priority protection</p> <p>The complete removal of the five listed grasses from all areas is not possible for several reasons, including social, economic and technical limitations. Ongoing monitoring will help to identify the expansion of small infestations and the establishment of new ones requiring management. By identifying key assets, resources can be focused strategically to gain maximum benefit.</p> | <p>High priority</p> <p>Years 1–2</p> | <p>Key assets prioritised for protection</p> |
| <p>Action 3.2: Identify areas at risk of invasion, prioritise for monitoring and determine appropriate management actions</p> <p>Preventing spread into 'clean' areas is the most cost-effective management approach. Many areas susceptible to invasion are sparsely populated, and the area of potential invasion is vast. Regular surveys will enable the detection of small incursions before they spread. Prioritising areas for monitoring and management will allow for greater efficiency in planning survey programs in remote areas where fieldwork is expensive. This could include incorporating monitoring for these grasses into other activities such as maintenance works or wildlife surveys. If new outbreaks are detected, the implementation of early control actions will have a greater likelihood of success than later intervention.</p> | <p>High priority</p> <p>Years 2–5</p> | <p>Management zones developed to help prioritise and plan for monitoring and management actions</p> |



Objective 4: Build capacity and raise awareness among stakeholders

Raising awareness of the grasses and of their environmental impacts may improve the likelihood of the success of this TAP through increased support for implementing management actions, alerting of new infestations and complying with weed legislation. As Indigenous land managers may have limited access to available management tools, and are often required to contribute to biodiversity conservation, an action to better assist the capacity of Indigenous land managers to participate in managing these grasses has been included.

| Action | Priority/ timeframe | Outcome/output |
|---|------------------------------------|--|
| <p>Action 4.1: Develop and deliver communication strategies to raise awareness of the threats posed by the five listed grasses</p> <p>This will involve assessing information needs, as well as customising, preparing and distributing extension materials. Increased awareness of the potential impacts of the five listed grasses should help to build community momentum in tackling the associated issues. Efficiencies may be achieved by engaging stakeholders and encouraging their involvement in activities such as mapping and monitoring. Communication through appropriate means should be specifically targeted to particular groups, including:</p> <ul style="list-style-type: none"> • Indigenous communities • pastoralists • conservation agencies • the general public • relevant state and territory agencies. | <p>High priority Years 1–5</p> | <p>TAP promoted in affected communities and extension materials developed and made available</p> <p>Community ownership of the issue and increased awareness among stakeholders of the importance of managing invasive grasses</p> |
| <p>Action 4.2: Better assist the capacity of Indigenous people to participate in the management of the five listed grasses</p> <p>Large areas of northern Australia are under Indigenous management. These include pastoral leases, jointly managed national parks and Indigenous Protected Areas, where Traditional Owners have entered into voluntary agreements for the purposes of biodiversity and cultural resource conservation. Mechanisms such as ranger programs will assist with the management of the five listed grasses over large areas of land. This is particularly valuable around key assets and outlier infestations, where the adverse impacts and risk of spread are high.</p> | <p>High priority Years 1–5</p> | <p>Indigenous land managers better engaged to address impacts of the five listed grasses on their land</p> |

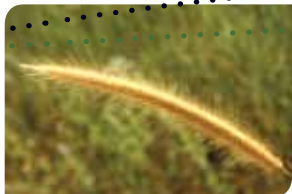


Objective 5: Implement coordinated, cost-effective on-ground management strategies in high-priority areas

To achieve efficiencies in management activities, it is accepted that sharing information and coordinating activities will result in the greatest gains. Applying immediate management to high-priority areas that contain key assets is an important first step, to be followed by efforts to manage and reduce, where feasible, the density and area of occupancy of the grasses in other areas. Applying appropriate land rehabilitation activities will be important to support the land to regenerate following management actions. Identifying resources available at state, territory and Australian Government levels, and facilitating the acquisition of these resources to protect priority assets, is key to achieving the goal of this TAP.

| Action | Priority/ timeframe | Outcome/output |
|--|--------------------------------------|--|
| <p>Action 5.1: Foster a coordinated partnership approach to the management of the five listed grasses. Facilitate information sharing and encourage coordination of the implementation of management and monitoring actions across all land tenures to maximise the efficiency and effectiveness of management programs</p> <p>Generally, the five listed grasses were brought to Australia to support pastoral production. It is therefore important to develop cooperative management and monitoring programs with pastoral land managers and organisations as well as other stakeholders. Engagement with all key stakeholders across jurisdictions will help to establish partnerships to identify solutions and achieve coordinated action. Facilitating regional coordination would improve communication and encourage the sharing of information on spread pathways, impacts and control methods. Ready access to this information by land managers and agencies at all levels of government will enable more effective and efficient management.</p> | <p>High priority Years 2–5</p> | <p>Identification of key agency contacts and formation of advisory group (e.g. a grasses TAP advisory group)</p> <p>Cooperation across all land tenures towards implementation of management programs</p> <p>Development/ identification of a website to share information</p> |
| <p>Action 5.2: Where feasible, implement immediate management actions in high-priority areas around key assets and spread pathways</p> <p>Immediate management actions (including the implementation of hygiene protocols) should be undertaken around key assets and/or in close proximity to known spread pathways.</p> | <p>High priority Years 1–5</p> | <p>Immediate management actions implemented in high-priority areas around key assets and spread pathways</p> |
| <p>Action 5.3: Where feasible, implement management actions in other infested areas to reduce the area and/or density of occupancy of the five listed grasses</p> <p>The permanent removal of large infestations of these grasses is beyond current capabilities. However, the containment and, where possible, reduction of area and/or density of infestations is important, particularly where they occur around key assets and/or in close proximity to known spread pathways.</p> | <p>Medium priority Years 1–5</p> | <p>Management actions implemented to reduce plant density and/or areas infested</p> |





| Action | Priority/ timeframe | Outcome/output |
|---|---|---|
| <p>Action 5.4: Where feasible, apply land rehabilitation methods to high-priority areas as they are cleared of the five listed grasses</p> <p>Once the risk of reinvasion and other disturbances (e.g. land clearing, feral animals and fire) has been minimised, the application of appropriate land rehabilitation will help to reduce the likelihood of grass infestations re-establishing. Restoration will allow for the return or protection of values such as ecosystem function, biodiversity, Indigenous heritage and amenity.</p> | <p>Medium priority</p> <p>Years 3–5</p> | <p>High-priority areas subject to land rehabilitation programs where feasible</p> |
| <p>Action 5.5: Liaise with land managers of areas containing key assets to identify resources available for the implementation of priority actions</p> <p>Weed management should be a consideration in all responsible land management programs. It can, however, be expensive, depending on the control methods available and the size and extent of infestations. Working with land managers to identify appropriate sources of funding or other resources required (e.g. volunteer groups) will assist in the implementation of management actions.</p> | <p>High priority</p> <p>Years 2–5</p> | <p>Resources identified to implement priority management actions</p> |



Objective 6: Monitor, evaluate and report on the effectiveness of management programs

To help determine the success of management actions, management plans should identify assets and include monitoring of managed sites. Reporting on progress and on the effectiveness of control activities will help to refine methodologies and priorities and assist in evaluating the success of this TAP.

| Action | Priority/ timeframe | Outcome/output |
|--|------------------------------------|---|
| <p>Action 6.1: Ensure that management plans for high-priority areas include recognition of the asset being protected as well as appropriate monitoring of managed sites. Encourage monitoring to enable the effectiveness of actions to be determined</p> <p>Ongoing and coordinated monitoring of managed sites around high-priority areas should occur to allow assessment of success and to inform the development of improved rehabilitation methods. Monitoring will also aid in the early detection of reinfestation and in the implementation of further control measures.</p> <p>Linking management plans to threatened species recovery plans would help to maintain awareness of any listed species or ecological communities potentially affected by management actions.</p> | <p>High priority Years 1–5</p> | <p>Management plans for high-priority areas that include monitoring and evaluation components</p> <p>Management plans linked to threatened species recovery plans where appropriate</p> |
| <p>Action 6.2: Report on progress and effectiveness of management programs against their goals</p> <p>The development of a process to report on and evaluate the implementation of management actions will help to maintain momentum, motivation and direction. Regular reporting on the implementation of management programs will help to identify effective methodologies and prioritise any key areas requiring greater management effort.</p> <p>Agreement on monitoring and evaluation methods will assist with the implementation of procedures and processes. This could include appropriate reporting at national, state, territory and regional levels and the use of existing frameworks such as MERI (monitoring, evaluation, reporting and improvement).</p> | <p>High priority Years 1–5</p> | <p>Reports provided on management programs</p> |





3. Duration, cost and evaluation

3.1. Duration and cost

Investment in many of the actions listed in this TAP will be determined by the level of resources that stakeholders commit to managing the problem. As knowledge regarding the full extent of the problem is unavailable, the total cost of implementation cannot be quantified at the time of writing.

This TAP provides guidance to identify priority areas and undertake actions targeted at these areas. Budgetary and other constraints may affect the achievement of the objectives of this TAP and, as knowledge changes, proposed actions may be modified over the ten-year life of the TAP. Australian Government funds may be available to implement key national environmental priorities, such as relevant actions listed in this TAP and actions identified in regional natural resource management plans that are consistent with this TAP. Achievement of the overarching goal of the TAP will require ongoing management beyond the life of the TAP. Ongoing support by all partners is therefore essential.

3.2. Evaluating the implementation of the TAP

Section 279 of the EPBC Act provides for the review of TAPs at any time, and requires that TAPs be reviewed at intervals of not longer than five years. Recommendations from any reviews are to be used to inform the development of the revised TAP if necessary.

Table A: Examples of threatened species and ecological communities listed under the EPBC Act that are under immediate threat from the five listed grasses. Other matters of national environmental significance that may be adversely impacted are also included

| Scientific name | Common name | EPBC Act status |
|--|-------------------------------------|-----------------|
| Birds | | |
| <i>Erythrura gouldiae</i> | Gouldian finch | E |
| <i>Epthianura crocea tunneyi</i> | yellow chat (Alligator Rivers) | E |
| <i>Epthianura crocea macgregori</i> | yellow chat (Dawson) | CE |
| <i>Falcunculus frontatus whitei</i> | crested shrike-tit (northern) | V |
| <i>Geophaps smithii smithii</i> | partridge pigeon (eastern) | V |
| <i>Geophaps smithii blaauwi</i> | partridge pigeon (western) | V |
| <i>Malurus coronatus coronatus</i> | purple-crowned fairy-wren (western) | V |
| <i>Melanodryas cucullata melvillensis</i> | hooded robin (Tiwi Islands) | E |
| <i>Poephila cincta cincta</i> | back-throated finch (southern) | E |
| <i>Psephotus chrysopterygius</i> | golden-shouldered parrot | E |
| <i>Tyto novaehollandiae kimberli</i> | masked owl (northern) | V |
| <i>Tyto novaehollandiae melvillensis</i> | masked owl (Tiwi Islands) | E |
| Mammals | | |
| <i>Conilurus penicillatus</i> | brush-tailed rabbit-rat | V |
| <i>Dasyurus hallucatus</i> | northern quoll | E |
| <i>Notomys aquilo</i> | northern hopping-mouse | V |
| <i>Phascogale pirata</i> | northern brush-tailed phascogale | V |
| <i>Zyomys maini</i> | Arnhem rock-rat | V |
| Reptiles | | |
| <i>Lucasium occultum</i> | yellow-snouted gecko | E |
| <i>Egernia obiri</i> | Arnhem Land Egernia | E |
| Invertebrates | | |
| <i>Euploea alcathoe enastri</i> | Gove crow butterfly | E |
| Plants | | |
| <i>Acacia praetermissa</i> | a shrub | V |
| <i>Helicteres sp.</i> Glenluckie Creek (N.Byrnes 1280) Cowie | a shrub | E |
| <i>Hibiscus brennanii</i> | a shrub | V |
| <i>Hibiscus cravenii</i> | a shrub | V |
| <i>Typhonium jonesii</i> | a herb | E |
| <i>Typhonium mirabile</i> | a herb | E |
| <i>Xylopia monosperma</i> | a shrub | E |
| Ecological communities | | |
| Arnhem Plateau Sandstone Heath ('potential threat') | | Nominated |
| Ramsar wetlands | | |
| Bowling Green Bay | | |
| Shoalwater and Corio Bays | | |
| World Heritage List | | |
| Kakadu National Park | | |
| Uluru-Kata Tjuta National Park | | |
| National Heritage List | | |
| The West Kimberley | | |
| Ngarrabullgan | | |
| Wave Hill Walk Off Route | | |

CE = critically endangered; E = endangered; V = vulnerable



GLOSSARY

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|--------------------------------|---|
| EPBC Act | The <i>Environment Protection and Biodiversity Conservation Act 1999</i> , the Australian Government's environment legislation. |
| Invasive species | A species occurring as a result of human activities beyond its accepted normal distribution which threatens valued environmental, agricultural or personal resources by the damage it causes (Beeton et al., 2006). |
| Key asset | A threatened species and ecological community listed under the EPBC Act or another matter of national environmental significance under immediate threat from the five listed grasses. |
| Key threatening process | A threatening process listed under the EPBC Act that meets any of the following criteria: <ul style="list-style-type: none">• could cause a native species or an ecological community to become eligible for listing in any category, other than conservation dependent• could cause a listed threatened species or a listed threatened ecological community to become eligible to be listed in another category representing a higher degree of endangerment• adversely affects two or more listed threatened species (other than conservation dependent species) or two or more listed threatened ecological communities. |
| KTP | Key threatening process. |



| | |
|--|--|
| Matter of national environmental significance | <p>A matter defined and protected under the EPBC Act. In 2012 there were eight:</p> <ul style="list-style-type: none">• World Heritage properties• National Heritage places• wetlands of international importance (listed under the Ramsar Convention)• listed threatened species and ecological communities• migratory species protected under international agreements• Commonwealth marine areas• the Great Barrier Reef Marine Park• nuclear actions (including uranium mines). |
| TAP | <p>Threat abatement plan.</p> |
| Threat abatement plan | <p>A plan made or adopted under section 270B of the EPBC Act which establishes a national framework to guide and coordinate Australia's response to the impacts of a KTP.</p> |
| Threatened ecological community | <p>An ecological community listed under the EPBC Act as being critically endangered, endangered or vulnerable.</p> |
| Threatened species | <p>A species listed under the EPBC Act as being critically endangered, endangered, vulnerable or conservation dependent.</p> |
| Threatening process | <p>A process listed under the EPBC Act that threatens or may threaten the survival, abundance or evolutionary development of a native species or ecological community.</p> |
| Weed | <p>A plant that requires some form of action to reduce its harmful effects on the economy, the environment, human health and amenity (NRMCC, 2006).</p> |





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TSSC – see Threatened Species Scientific Committee.

