



Town of
Port Hedland



WEED MANAGEMENT STRATEGY

DOCUMENT REGISTER

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A	28.08.2019	Draft	MJ
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1.0 PURPOSE

The purpose of the Town of Port Hedland (the Town) Public Open Space (POS) and Urban Landscapes Weed Management Strategy is to provide an integrated approach to weed management; to prevent, monitor and control the spread of weeds and conserve the amenity, aesthetics and functionality of the Town's POS and Urban Landscapes.

The Strategy encompasses the following:

- Identify and prioritize local weed species
- Recommended integrated weed management strategies to control the spread of weeds
- Provide advice and recommendations for weed control strategies in specific sites and for priority weeds.

1.1 INTEGRATED WEED MANAGEMENT APPROACH

Integrated weed management involves using a variety of techniques to monitor, prevent and control weeds. Using a variety of control methods, rather than just one, ensures that weeds are less adaptable to the control methods and do not develop herbicide resistance. The integrated weed management approach for the management of weeds in the Town's POS and Urban Landscapes Areas are as follows:

- Weed monitoring
- Weed prevention
- Weed control (physical, mechanical and chemical)

2.0 PRIORITY WEEDS

The most common weeds which are managed in the Town's POS and Urban Landscapes Areas include:

- Kapok bush (*Aerva javanica*)
- Coffee bush (*Leucaena leucocephala*)
- Caltrop (*Tribulus terrestris*)
- Neem Tree (*Azadirachta indica*)
- Medic burr (*Medicago polymorpha*)
- Buffel Grass (*Cenchrus ciliaris*)
- Purple top Rhodes grass (*Chloris virgata*)

Calotropis procera and Noongoora burr (*Xanthium strumarium*) are declared pest plants in Western Australia under the *Biosecurity and Agriculture Management Act 2007 (BAM Act)*. Harmful organisms which are present in the state, such as *Calotropis* and Noongoora burr, are declared pests under the *BAM Act* so that they can be appropriately controlled. Under the *BAM Act* the Town is obliged to search for, and eradicate all *Calotropis* and Noongoora burr on Town owned and managed land. All *Calotropis* and Noongoora burr (see Appendix A for identification guide) must be reported to the WA Department of Primary Industries and Regional and treated to prevent spread within 48 hours.

The Department of Agriculture and Food can be notified in the following ways:

- Weed Watcher smartphone and tablet app, or;
- Online Reporting Tool on the Department of Primary Industries and Regional Development website

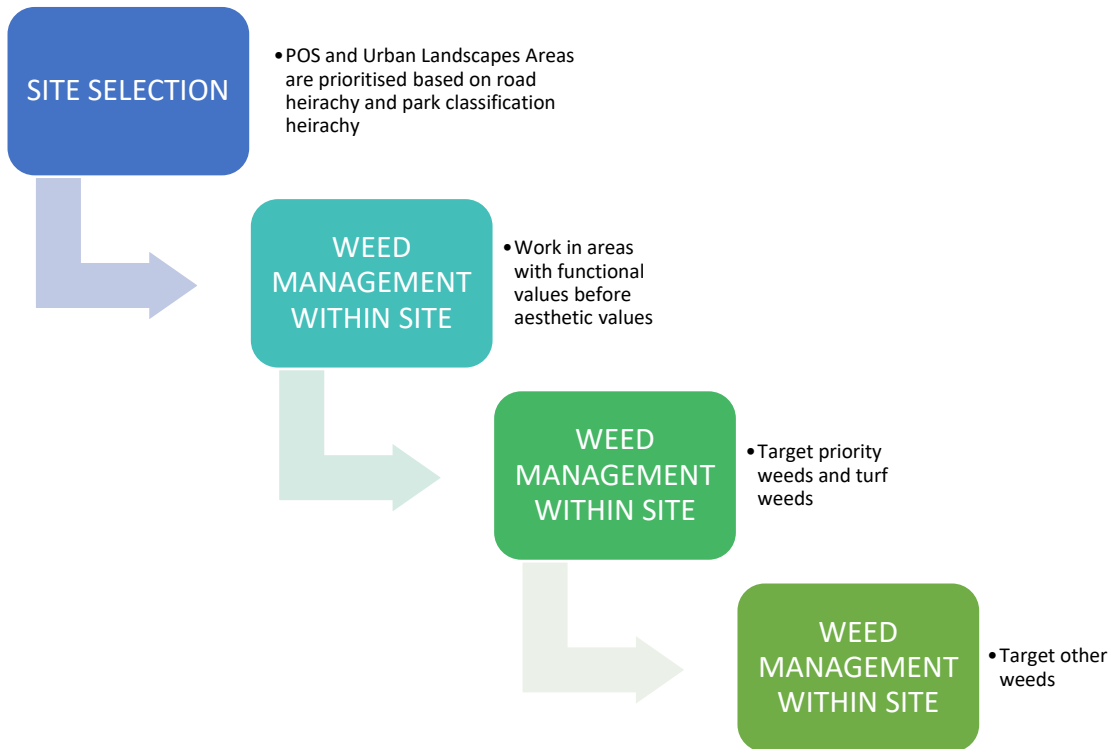
Weed identification guide in Appendix A and B.

3.0 WEED MANAGEMENT SITE PRIORITISATION

The Town will approach weed management prioritisation of POS and Urban Landscapes Areas as detailed in the following sections.

3.1 PRIORITISATION OF SITES

The Town will conduct weed management on a priority basis using the criteria shown below.



1.3.2 SITE CATEGORIES

Public Open Space

Park sites are categorised based on the classification set out in the *Town of Port Hedland Public Open Space Strategy*. A brief description of these classifications and their weed management priority (1 – Very high priority and 4 – low priority) are as follows.

Local Open Space (Medium Priority - 3)

Local Open Space (LOS) are small parks which are designed to accommodate the daily recreation needs of the immediate population. Generally they are used for recreation and may include small areas of nature space but not usually suitable for formal or informal sport.

Neighbourhood Open Space (High Priority - 2)

Neighbourhood Open Space (NOS) serves as recreational and social focus of a community. A variety of features and facilities attract residents.

District Open Space (Very High Priority - 1)

District Open Space (DOS) are designed to provide for organised formal sports. DOS consists of space to accommodate a range of uses and serve several communities.

Regional Open Space (Very High Priority - 1)

Regional Open Space (ROS) accommodate recreation and organised sport spaces. They may also serve for significant conservation and environmental values and features.

Urban Landscapes Areas

Urban Landscapes Areas are contained within roads or along road reserves and thoroughfares including carparks. Also in this category includes areas which have functional requirements including the open stormwater drainage network. Urban Landscapes Areas are broken down into the following categories and weed management is based on priority rating:

Central Business District (Very High Priority – 1)

The Central Business District (CBD) includes POS, verges, road reserves and pedestrian access-ways in both the Port Hedland and South Hedland town centres. The CBD's should be maintained to a high standard of appearance and increased frequency of all aspects of landscape maintenance within these areas, including weed management.

Streetscapes (High Priority – 2)

The streetscape is the visual identity of a neighbourhood and includes footpaths, medians and landscaping along streets and roads. Streetscapes are prioritized by road hierarchy (Appendix C) with priority set as:

- Regional Distributor (High Priority – 2)
- Local Distributor (Medium Priority – 3)
- Access Road (Low Priority – 4)
- Primary Distributor covered under Private Works

Pedestrian Access Ways (Medium Priority – 3)

A pedestrian access way is any path in the public domain which is available for use by pedestrians and vehicles which are not regulated by the *Road Traffic Act 1974* (i.e. bicycles and skateboards).

Open Stormwater Drainage Network (Low Priority – 4)

The open drainage network include drains, sumps and swales will be maintained to ensure visual amenity and prevent the spread of weeds throughout the extensive drainage network of the Town.

Private Works

The Town is currently contracted to maintain the verge and footpaths of Great Northern Highway regional distributor (Appendix C) three times a year, or as per contract.

The Town also maintains the public school ovals. These ovals are maintained on a Medium – 3 priority basis.

4.0 WEED MONITORING

Weed monitoring is an important aspect of integrated weed management. Ongoing monitoring conducted will assist in effective identification and management of weed populations to ensure aesthetic appeal of POS and Urban Landscapes Areas. Weed monitoring will contribute to assessing the success of weed management strategies.

Observational weed monitoring will be conducted at a minimum on a monthly basis for all of the Town's POS and Urban Landscapes, by the Town's Parks and Gardens Leading Hand.

5.0 WEED PREVENTION

Prevention of weeds in POS and Urban Landscapes Areas are a contributor to effective weed control. Eradication usually required more effort than prevention.

Mulching

Pathogen and weed free mulch to Australian Standard 4454:2012 is to be applied to suppress weed growth in gardens beds or suitable non-turf areas. Alternatives to mulching are outlined in the *Town of Port Hedland Landscape Guidelines*.

Turf Management Practices

Fertiliser is to be applied to improve the quality of the turf and promote healthy turf. Healthy turf reduced the ability for weeds to grow in the turfed area. A yearly fertiliser program will be based on annual turf soils and leaf analysis.

Turf renovation works

Turf renovation works will be undertaken annually to improve the density and coverage of turf.

Suppression of weed seed bank

Weeds are suppressed through the use of chemical pre-emergent herbicides. These types of chemicals can only be applied to certain areas such as hardstands.

Hygiene practices

Horticultural hygiene is important to ensure that weeds, pathogens and pests are not spread between POS and Urban Landscapes Areas. Town staff and contractors will undertake hygiene measures on vehicles and plant used for turf maintenance and renovation at the end of each day, and between sites where necessary.

6.0 WEED CONTROL STRATEGIES

Weed prevention is important for reducing the number of new weed infestations from occurring or spreading between POS and Urban Landscapes Areas; weed control is necessary to reduce or eradicate weed infestations. Failure to control weeds can have significant impacts such as affecting the quality of playing surfaces, and the aesthetics and amenity of POS.

A component of the Town's integrated weed management strategy includes the use of approved herbicides. Weed control can involve the use of a number of methods to reduce infestations to manageable levels, or where possible eradicate infestations. Weed control methods for POS and Urban Landscapes Areas include chemical and mechanical controls.

6.1 PHYSICAL WEED CONTROL

Physical control is primarily undertaken in Public Open Space. This method is used when weed infestation area significantly impacting the presentation of the landscape and chemical application has been determined to not be the most effective control method. Physical controls include weed removal by hand, mowing or mulching.

6.2 MECHANICAL WEED CONTROL

Mechanical weed control is primarily reserved for large, low priority urban landscape areas. This method is for use in areas to improve road safety and visual amenity; it includes the use of the slasher, movers and graders.

6.3 CHEMICAL WEED CONTROL

The majority of weeds controlled in the POS and Urban Landscapes Areas are managed through the use of approved herbicides as they are effective, economical and less labour intensive on large infestations. Two main methods of chemical application used by the Town are blanket spraying and targeted application.

Blanket Spraying

Blanket spraying will be undertaken with the vehicle mounted boom sprayers, as this is the most efficient and effective method to apply chemicals over large areas such as sporting ovals.

Targeted Application

Targeted application is undertaken using backpack/handheld sprayers, vehicle mounted spray units, hand applicator or paint/basal bark treatment. Targeted application is generally for small areas of where large machinery are unable to reach.

Considerations

Given the climate of Port Hedland, there must be consideration on the selection of pre-emergent herbicides based on the requirement for set amount of rain or irrigation within a defined period after application to ensure the full pre-emergent effect.

To ensure efficiency and consistency of chemical application, SDS and Label should be checked to determine at what temperature spraying should cease, procedure should change (including addition of water or surfactant) or alternative controls considered.

In addition, if wind speeds exceeds 15km/h or the maximum speed outlined in the SDS (whichever is lower) adjustments must be made to the application procedure. These adjustments may include ceasing application until wind speed decrease or alternative control method selected.

All pesticide applications are to be as per the manufactures specifications and guidelines.

6.4 SITE SPECIFIC CONTROL STRATEGY

POS

Weed control on all parks, recreational and sports facilities will be through the following methods:

- Turf
 - Pre- and post-emergent broadleaf selective blanket spray.
 - Target spray of grasses surrounding infrastructure (i.e. fences / light posts)
 - Turf management practices
- Garden beds
 - Target spray
 - Hand weeding
 - Mulch application
- Hardstands and footpaths
 - Targeted application, use of pre-emergent herbicides where appropriate

Streetscapes

Weed control in the streetscapes is to be conducted through the following methods:

- Kerbs
 - Targeted application, use of pre-emergent herbicides where appropriate
- Median strips
 - Blanket spraying, use of pre-emergent herbicides where appropriate
 - Targeted application, use of pre-emergent herbicides where appropriate
- Hardstands and footpaths
 - Targeted application, use of pre-emergent herbicides where appropriate

Central Business District

Weed control through the CBD is given a high priority due to the requirement for a high standard of visual appearance required in these areas. Weed control in the CBD is conducted through the following methods:

- Turf
 - Pre- and post-emergent broadleaf selective blanket spray.

- Target spray of grasses surrounding infrastructure
 - Turf management practices
- Garden beds
 - Selective targeted application
 - Hand weeding
 - Mulch application
- Hardstands and footpaths
 - Targeted application, use of pre-emergent herbicides where appropriate
- Kerbs
 - Targeted application, use of pre-emergent herbicides where appropriate
- Median strips
 - Blanket spraying, use of pre-emergent herbicides where appropriate
- Streetscapes
 - Hand weeding
 - Targeted application
 - Mulch application

Pedestrian Access Ways

Weed control is conducted in Pedestrian Access Ways through the following methods:

- Fence lines
 - Targeted application
- Hardstands and footpaths
 - Targeted application, use of pre-emergent herbicides where appropriate

Open Stormwater Drainage Network

Weed control in drains must primarily occur during the dry season. It should consist of mowing and herbicide application. Care must be taken to ensure that herbicide chosen for use in drains has low or no aquatic life toxicity, this information can be found on the specific herbicide's SDS and Label.

Where herbicide application, in drainage infrastructure is deemed necessary South Australia Environmental Protection Agency recommends using a herbicide with the following characteristics:

- Low eco-toxicity
- Nil or low volatility at all temperatures (eg. <10-6mm Hg)

- Low water solubility (eg. <3mg/L)
- High soil absorption coefficient (eg. $K_{oc} > 1900 \text{cm}^3/\text{g}$)
- Short half-life (eg. in water <15days; aerobic soil metabolism <610 days; anaerobic soil metabolism <9 days).

All weed control within the Open Stormwater Drainage Network will be carried out based on seasonal and tidal conditions fluctuations.

Private Works

The Town will mow, whip and spray Great Northern Highway three times a year, or as per contract. Preferably, pre-emergent herbicides will be used where appropriate. If no suitable non-selective pre-emergent herbicide is identified. Consideration must be given for alternating between selective herbicides each time the contract is carried out.

The Public School ovals are primarily maintained by mowing and whipping. Should infestations of weeds be present on the oval, all effort should be made to treat them through school holidays using an appropriate control method.

7.0 TRAINING

While a Pesticide Technician Licence is not essential for local government as the pest management is not for a profit. It is recommended that all employees undertake formal chemical certification training to ensure that safe chemical handling and application practices are understood and adhered to. Additionally, persons using pesticides while working for, or with, the Town must be inducted on all machinery including spray units. Safe Work Method Statements must be supplied to all employees who are undertaking weed control activities.

8.0 REVIEW

As per the Town of Port Hedland Landscaping Policy 10/003, the Town of Port Hedland Weed Management Strategy is to undergo an internal review on a yearly basis, on the direction from the Manager of Infrastructure Operations.

APPENDIX A - BIOSECURITY AND AGRICULTURE MANAGEMENT ACT 2007 DECLARED WEEDS

CALOTROPIS

Botanical name: *Calotropis procera*

Declared pest in Western Australia.

Growth form: Shrub or small tree growing approximately 4m tall.

Recommended control: Cut stump/ basal bark or foliar application on smaller specimens. Using following herbicides Picloram + 2,4-D amine, Access™, Picloram + triclopyr.



NOONGOORA BURR

Botanical name: *Xanthium strumarium*

Declared pest in Western Australia

Growth form: erect annual herb growing up to 2.5 m tall.

Recommended control:

Seedling stage: 2,4-D amine; MCPA

Apply to actively growing plants:
Metsulfuron

Before plants reach height of 20cm:
Fluroxypyr

Early as possible before flower formation: 2,4-D ester

Prior to burr formation: Glyphosate

Older weeds:

MCPA; Picloram + 2,4-D



APPENDIX B – LOCAL PRIORITY WEEDS

KAPOK BUSH

Botanical name: *Aerva javanica*
Growth form: Small slightly woody shrub or herbaceous plant
Recommended control:
There is currently no recognised control for this species. The Town of Port Hedland will undertake trial to determine if there is a herbicide which is suitable for control. Trials will be undertaken in a safe and efficient manner.



CALTROP

Botanical name: *Tribulus terrestris*
Growth form: Ground cover
Recommended control: dicamba (80g/L) + MCPA (340g/L), Glyphosate 360g/L, Metsulfuron methyl 10g/100L



NEEM TREE

Botanical name: *Azadirachta indica*

Growth form: Tree reaching 15-20m, often multiple stem.

Recommended control: Seedling – foliar spray; adult – cut stump. Using the following herbicides Triclopyr 300 g/L + Picloram 100 g/L

Note: In numerous locations throughout the Town Neem trees have been planted as shade trees. These trees do not warrant treatment. Focus for treatment of neem trees should be where they have self-seeded and pose the risk of spreading, such as in the drainage network.



MEDIC BURR

Botanical name: *Medicago polymorpha*

Growth form: groundcover herb

Recommended control: Metsulfuron methyl 10g/100L and or Glyphosate 360g/L



COFFEE BUSH

Botanical name: *Leucaena leucocephala*

Growth form: tree growing to a height of 10m. Produces many suckers and seeds.

Recommended control: cut stump or basal bark

Using the following herbicides
Triclopyr 300 g/L + Picloram
100 g/L



BUFFEL GRASS

Botanical name: *Cenchrus ciliaris*

Growth form: tufted perennial grass

Recommended control: Use the following herbicide follicular application: Haloxypop or other Group A herbicide



PURPLE TOP RHODES GRASS

Botanical name: *Chloris virgata*

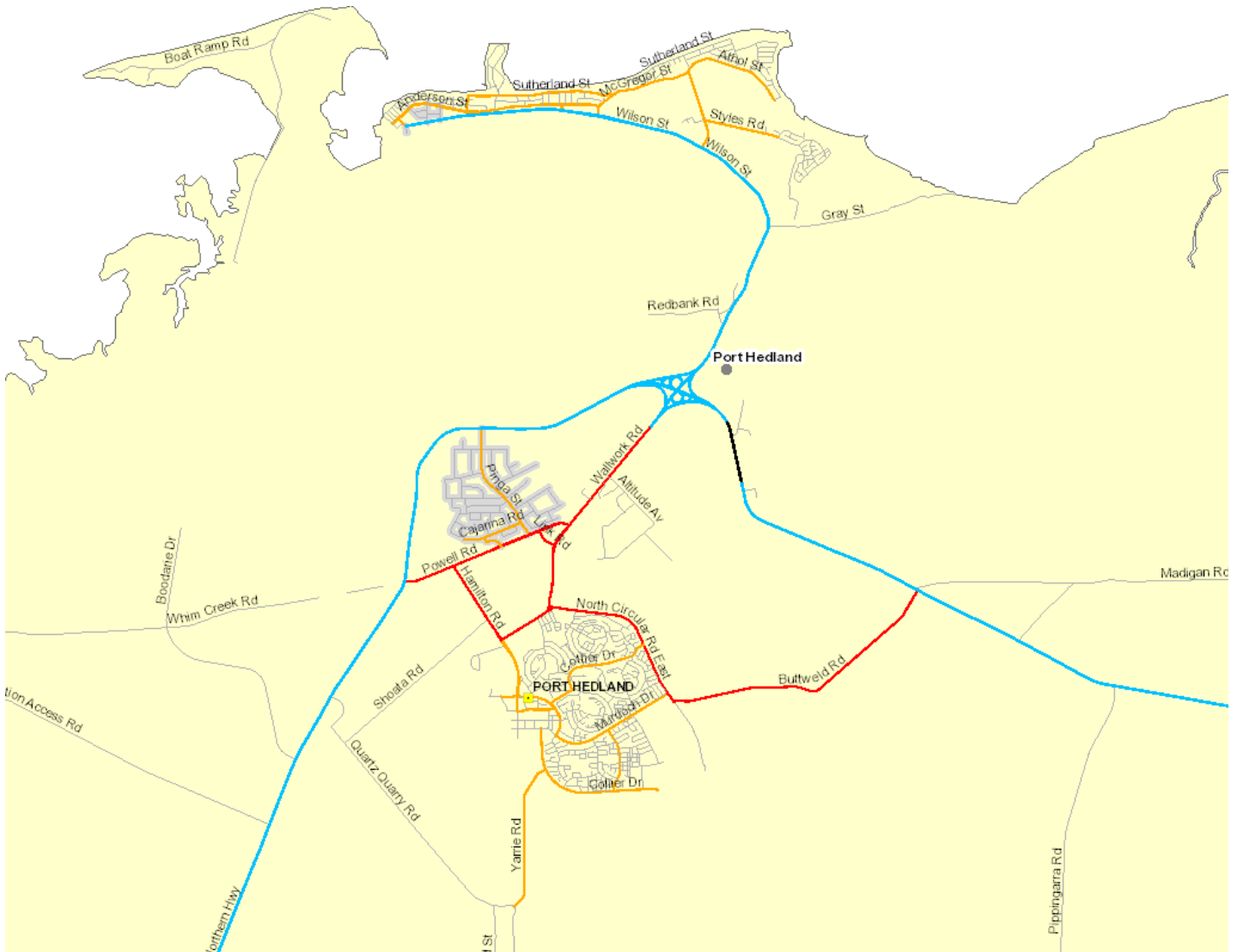
Growth form: Annual grass

Recommended control: Targeted herbicide for annual grass , pre-emergent herbicides, hand weeding when small population other alternative.

Using the following herbicides: Haloxypop or other Group A herbicide



APPENDIX C - ROAD HIERARCHY



- Road Hierarchy
- Hierarchy
 - Primary Distributor
 - Regional Distributor
 - Distributor A
 - Distributor B
 - Local Distributor
 - Access Road