TALBOT ROAD BUSHLAND

MANAGEMENT PLAN

JULY 1999

TALBOT ROAD BUSHLAND MANAGEMENT PLAN

Prepared for the
FRIENDS OF TALBOT ROAD RESERVE
SHIRE OF SWAN
DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

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A report for the Friends of Talbot Road Reserve, Shire of Swan and Department of Conservation and Land Management, Western Australia.

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Photo on front cover: Honey Possum, Bert and Bab Wells/CALM.

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1. Executive Summary

The Talbot Road Bushland of 106.9 hectares includes an A class reserve for recreation purposes and a drainage easement vested in the Shire of Swan, two blocks of Unallocated Crown Land, Midland Cemetery vested in the Metropolitan Cemeteries Board, an unused road reserve and a water compensation basin vested in the Water Authority. The land is located entirely on the extensively cleared Ridge Hill Shelf of the Swan Coastal Plain, a narrow and dissected strip with soils derived from alluvium and colluvium from the Darling Plateau with some areas of residual laterite.

The land, particularly Blackadder Creek, is of very high cultural significance to the Aboriginal community. The Midland Cemetery was gazetted in 1899 and provides cemetery functions for a range of ethnic groups. Parts of the land have been used for gravel and sand extraction and a water compensation basin. The land is used by the local community and others for walking, nature observation, dog exercise, horse riding, trail bike riding and by four wheel drive vehicles. The land has been recognised for its heritage significance by the National Trust (WA) and the Australian Heritage Commission.

The native vegetation comprising woodlands of Wandoo, Marri and Banksia and 366 native species is generally in good to excellent condition with localised areas of degradation. The vegetation has very high conservation values including two vegetation complexes with less than 10% representation remaining. In addition the land contains two Critically Endangered ecological communities and 15 species of priority or significant flora. The land also has high faunal species richness with seven frog species, 13 reptile species, 47 bird species and three species of native mammal. The land has been recognised in *Perth's Bushplan* as warranting protection for its regional conservation significance.

The native vegetation is currently threatened by spread of Dieback caused by Phytophthora species, weed invasion, inappropriate human activities such as trail bike riding and rubbish dumping and drainage water entering the bushland. The native vegetation on the land vested in the Cemeteries Board for cemetery purposes has very high conservation values but is likely to be modified by expansion of the cemetery.

The management plan recommends that the Talbot Road Bushland be managed to conserve its very high nature conservation values and to protect the significant Aboriginal heritage values. The vision for the bushland is that it should become a haven for plants and animals native to the area and for members of the community.

Key recommendations in the plan include:

Naming

- the reserves and Vacant Crown Land comprising the bushland in the Talbot Road area be known as the Talbot Road Bushland.

Vestings

- A Class Reserve 23953 and unused road, extension of O'Connor Road, should be vested in the National Parks and Nature Conservation Agency (NPNCA) or the Shire of Swan and be for nature conservation purposes;
- unallocated Crown Land 11314 and 11764 be vested in the same body as Reserve 23953 and be for conservation purposes; and
- the very high nature conservation values in the cemetery land (Reserve 6955) are acknowledged. Its future use to be determined by a Ministerial Working Group managed by the Ministry for Planning.

Recreation and education

- the Bushland be available for walking and nature observation, and that uses such as dog exercising (some consider that dog exercising should be permitted provided the dogs are on a lead), horse riding, motor bike and push bike riding and use by four wheel drives be prohibited;
- key tracks be hard surfaced;
- interpretation of Aboriginal cultural and nature conservation values be provided through the media, signage, leaflets, interpretative walk trail and links with schools; and
- there be no provision for formal seating, picnic areas seating or other structures but that provision for casual seating using natural materials is acceptable.

Access

- the Bushland be completely fenced to prevent off road vehicle and horse use and that appropriate access for walkers, management and emergency vehicles be provided;
- many existing fences and some gates which are in poor condition need to be repaired;
- fences and gates should be maintained within seven days of a reported event;
- access tracks should be rationalised; and
- existing access tracks should be narrowed and designed to provide hard formed pedestrian access and access to vehicles for fire and management purposes.

Rehabilitation

- weed control be undertaken with priorities based on best bush regeneration principles such as working from the best areas to worst areas and dealing with small populations of potentially invasive weeds;
- land managers work closely with the Environmental Weeds Action Network to develop a more detailed weed control strategy;
- grassy weeds on road verges surrounding the Bushland should be controlled;
- drainage water from urban areas and road verges should be directed away from the Bushland;
- the gravel pits in the Reserve 23953 should be rehabilitated, but not the gravel/sand pit in Unallocated Crown Land 11764 until its use for cemetery purposes is determined; and
- the water compensation basin be modified to create a wetland environment utilising native rushes.

Corridors

- the Shire of Swan, CALM and the Friends group negotiate with Homeswest, the Ministry for Planning and other parties to maintain and improve the connection between the Bushland and Jane Brook.

Fire management

- any burning for management purposes be responsive to the condition of the vegetation and the species present rather than being determined by fixed time frames;
- a fire history for the bushland should be maintained by the vesting authority;
- fire prevention should be improved by controlling access, education and interpretive programs and good fire preparedness and reporting procedures;
- fire suppression should be according to the Fire and Rescue Service Fire Management Plan which should be written to reflect the conservation significance of the Bushland. It should aim to provide rapid response direct attack, contain fire within existing track boundaries, undertake no new firebreak construction, ensure fire is safe before leaving and rehabilitate affected areas; and
- firebreaks be rationalised with the aim of rehabilitating breaks close to bitumen roads where there is low fuel loads on road verges.

Disease management

- priority be given to Dieback control through track closures, good hygiene practices, community education and treatment of a buffer between affected and unaffected areas;
- treatment of disease free areas be implemented to try and retain their disease free status; and
- Dieback free areas be resurveyed at three year intervals.

Monitoring

- a monitoring program be implemented covering Dieback, fire, weed control, rehabilitation, fauna and people use;
- the community, including schools and universities should be encouraged to participate;
- an annual monitoring celebration be held; and
- a monitoring schedule be maintained by the Friends group.

Works program

The management plan has developed priorities and a three-year works program covering weed control; rationalisation of access; rehabilitation of degraded areas; fire management and disease control. Priorities for the works program:

1. completion of fencing around bushland and installation of people and management access;
2. Dieback management;
3. closure of track in Dieback free area;
4. weed control in very good and good condition bushland;
5. weed control of small populations of invasive weeds; and
6. redirecting stormwater from O'Connor Road to the water compensation basin.

2. Introduction

This management plan has been developed for the Shire of Swan with funding from the Natural Heritage Trust. The development of the plan has been guided by the Talbot Road Reserves Coordination Group with strong participation by the Friends of Talbot Road Reserve, the Shire of Swan, Department of Environmental Protection, Metropolitan Cemeteries Board and the Department of Conservation and Land Management.

The Friends of the Talbot Road Reserve had its beginnings as a group of mainly Swan View residents who were concerned by threats to their quiet part of the suburb posed by an extension of O'Connor Road and by possible development of the adjoining bushland. They soon found supporters in people who had a professional interest in bushland conservation and knew that the unique natural values of this bushland needed to be preserved. After these threats had been averted by representations to the Shire of Swan, Swan View and Stratton residents resolved to form a group for the care, maintenance and preservation of the Talbot Road Reserve. The Friends of the Talbot Road Reserve first met formally in December 1996 and became an incorporated body in July 1997.

2.1 Purpose of plan

The purpose of the Management Plan is to provide guidance and direction for the future management of the Talbot Road Bushland. The plan:

- identifies past disturbance/damage;
- identifies possible future threats;
- indicates (probable) community desires and requirements;
- provides strategies aimed at addressing management issues; and
- recommends management actions to repair past damage and ensure the bushland is capable of maintaining its high natural and cultural values and sustaining its community use.

2.2 The planning process and community involvement

The planning process was designed to gain an understanding of the issues facing the bushland and to give stakeholders an opportunity to input into the future direction of how this area is managed. This was achieved by:

- identifying relevant planning and management issues through literature review, discussion with experts and site inspection;
- guidance through regular meetings of the Talbot Road Reserves Coordination Group comprising the following membership:
  a) Friends of Talbot Road Reserve
  b) Blackadder Woodbridge Catchment Group
  c) Shire of Swan
  d) Department of Environmental Protection
  e) Metropolitan Cemeteries Board
  f) Department of Conservation and Land Management;
- liaison with stakeholders including:
  a) the Nyungah Circle of Elders
  b) Shire of Swan
  c) Shire of Mundaring
  d) Department of Conservation and Land Management
  e) Metropolitan Cemeteries Board

f) Fire and Rescue Services
g) Middle Swan Primary School
h) Swan View Senior High School;

- press release, advertisement informing people about the management plan and inviting them to a public meeting;
- press release and advertisement inviting public comment on the Draft Management Plan;
- comment on draft plan by community members, stakeholders and the Talbot Road Reserves Coordination Group. A list of people and organisations which commented on the Draft Management Plan is included as Appendix 7; and
- incorporation of suggestions by stakeholders and community members into the Draft Management Plan.

2.3 The vision for the Talbot Road Bushland

The Talbot Road Bushland should become a haven – a haven for both the plants and animals native to the area and for members of the community. The bushland will be valued by the community for its natural beauty, for its rich biodiversity, for its spiritual value, or for all of these qualities.

To make this vision a reality, we must:

- understand the very high nature conservation values of the bushland;
- identify, protect and then enhance the natural attributes of the bushland;
- identify the possible threats, both natural and man-made, to these attributes and take appropriate actions to negate or minimise them;
- identify compatible human uses such as walking, nature study and research and incompatible activities which must either cease altogether or be subjected to limitations which allow them to be compatible;
- gain a better understanding of the interdependence of native plants and animals;
- through community education foster a more general appreciation of the unique value of this natural heritage and its importance within our environment;
- acknowledge the need for strong (local) community ownership and involvement; and
- acknowledge that the cemetery land is currently used for cemetery development with future development proposed to be based on sensitive cemetery design which includes protection of conservation values.

The Shire of Swan has endorsed at a Council Meeting the significance of the area for conservation of flora and fauna, and recommended that the Talbot Road Reserve be listed by the Australian Heritage Commission for inclusion on the National Estate.

3. Talbot Road Bushland Study Area

Talbot Road Bushland is set in an urban context and is becoming increasingly isolated from other bushland.

The Bushland is within the catchment and close to the headwaters of Blackadder Creek, which starts in urban areas, flows through Natham Square, the Talbot Road Bushland and on through Stratton, Midvale and Midland to the Swan River (Map 1). The Blackadder Woodbridge Catchment Group is working, also with Natural Heritage Trust funding, to enhance conservation values within the Blackadder Creek environs of Natham Square and below the Talbot Road Bushland. The Blackadder Creek and its connection with the Swan River is of very high cultural significance for the Nyungah community.

The Talbot Road Bushland is also close to Jane Brook, providing a tenuous connection with the John Forrest National Park. This important connection is threatened by urban expansion adjacent to the bushland.

3.1 Tenure

The land comprising the Talbot Road Bushland comprises seven separate vestings, shown in Map 1:

• Reserve 23953	66.8 ha	Talbot Road Reserve, an "A" Class Reserve vested in Shire of Swan for recreation purposes;
• VCL 11314	10.9 ha	Unallocated Crown Land;
• Reserve 6955	23.7 ha	Midland Cemetery, vested in Cemeteries Board for cemeteries purposes;
• VCL 11764	4.0 ha	Unallocated Crown Land, past gravel/sand extraction;
• Reserve 37939	0.9 ha	Compensation basin, vested in the Water Authority;
• Reserve 43765	0.6 ha	Drainage easement, vested in Shire of Swan; and
•		O'Connor Road extension, unused road.

These reserves and Unallocated Crown Land are called the Talbot Road Bushland in this management plan.

3.2 Status of the management plan

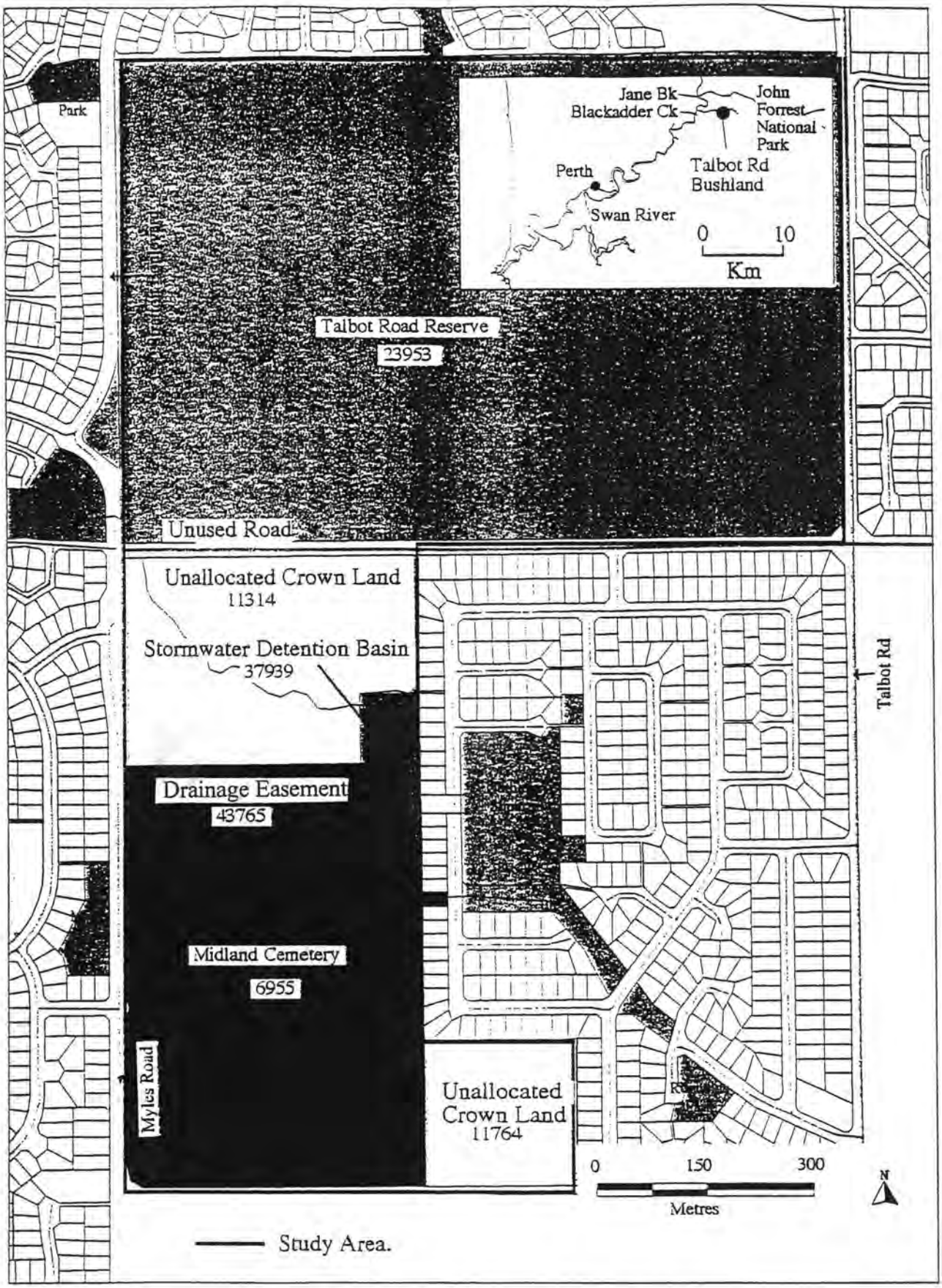
This management plan has been commissioned by the Shire of Swan, Friends of Talbot Road Reserve and the Department of Conservation and Land Management. The plan has been developed in close association with the Friends of Talbot Road Reserve and the Talbot Road Reserve Co-ordination Group formed to provide guidance to this plan. The plan is designed to guide the management of the Talbot Road Bushland over the next ten years with an informal review in five years by the vesting authorities.

The plan acknowledges that the bushland in the Midland Cemetery area is of very high conservation value. The plan recognises that the resolution of this matter will be achieved through a Working Group managed by the Ministry for Planning. This Working Group will investigate alternative sites suitable for cemetery purposes and the current conflicts relating to nature conservation values. *Perth's Bushplan* is one planning document that will be considered by the Working Group. Information on the conservation values of the Talbot Road Bushland contained in this management plan may be used by the Working Group.

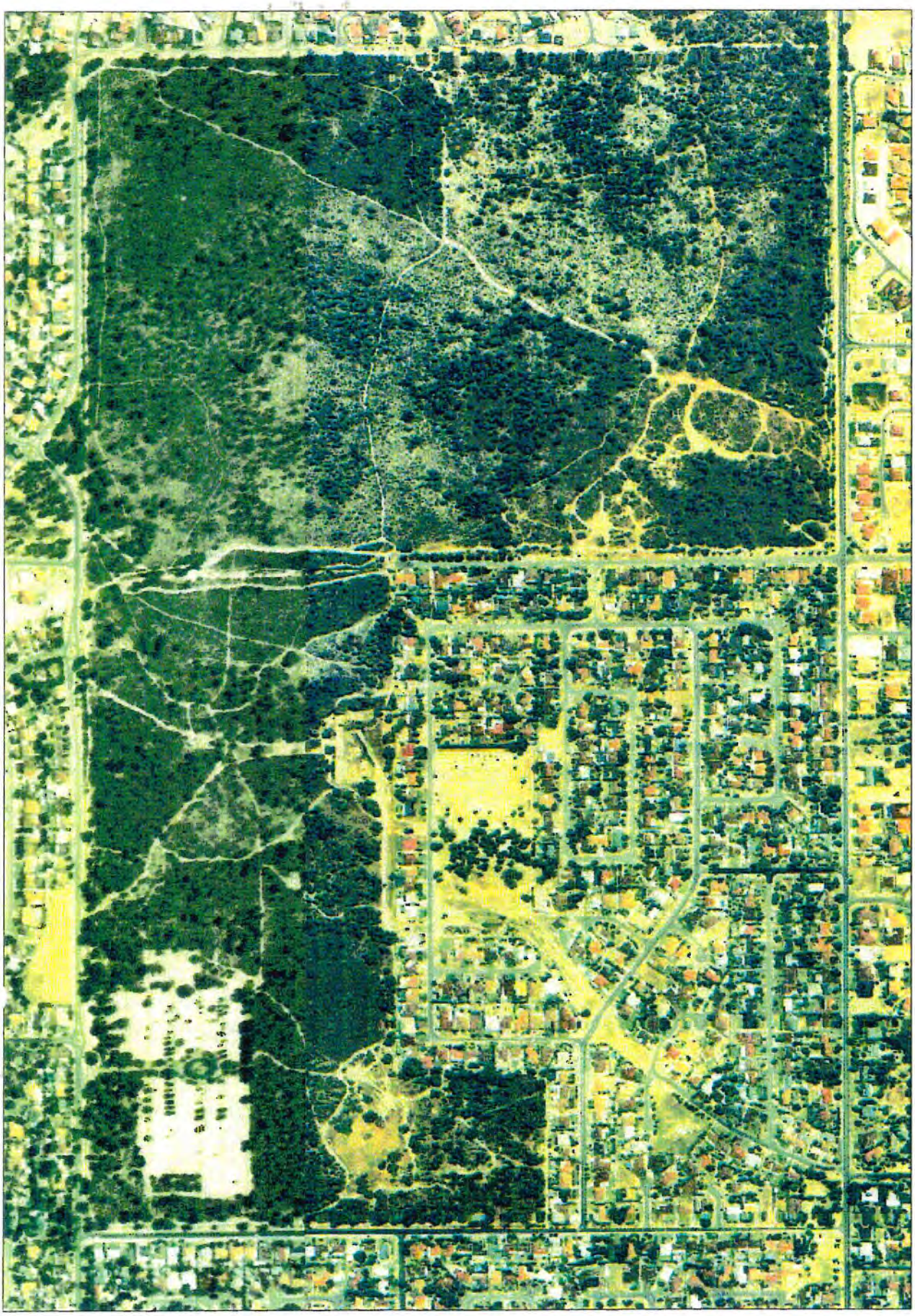
The plan recommends that Unallocated Crown Land blocks 11314 and 11764, and the unused extension of O'Connor Road have the same vesting as Talbot Road Reserve, but recognises that this will be dependent on negotiations between the Shire of Swan, the Cemeteries Board, Department of Land Administration and Ministry for Planning, CALM, Department of Environmental Protection and Water and Rivers Commission through *Perth's Bushplan*.

It is understood that tenure and vesting will be resolved at an appropriate level. Until that time, all on-ground works will be done in consultation with the relevant vesting body. It is not considered that the vesting and tenure issues will change or impact upon those on-ground works identified in this management plan. The management plan will be modified at an appropriate time to reflect any changes that occur.

Implementation of this management plan will be through the vesting authorities and be guided by a Management Team comprising Shire of Swan, Friends of Talbot Road Reserve, Department of Conservation and Land Management, Department of Environmental Protection, Urban Bushland Council and Cemeteries Board.



Map 1 Location and tenure for the Talbot Road Bushland (source DOLA).



Map 2 Air photo mosiac of the Talbot Road Bushland (source DOLA, Shire of Swan)

4. Physical Environment

4.1 Geomorphology and soils

Talbot Road Bushland is located entirely on the Ridge Hill Shelf of the Swan Coastal Plain, a strip of laterised low relief spurs along the base of the Darling Scarp between Bullsbrook and Harvey. This narrow, dissected strip is from one to three kilometres wide and slopes gently to the west to form the foothills of the Darling Scarp. The soils are predominately derived from alluvium and colluvium which is derived from the Darling Plateau and in some areas residual laterite occurs on the surface (Keighery and Keighery 1993).

Blackadder Creek passes through the bushland, and drainage water from O'Connor Road has formed an artificial gully.

The soils are deep, rapidly draining, siliceous yellow brown sands; well drained gravelly yellow or brown duplex soils, with a sandy top soil; lateritic outcrop with shallow moderately well-drained brownish or earthy sands; poorly drained areas of bleached grey sands over an iron organic hardpan; in the drainage channel (Blackadder Creek), poorly drained gravelly yellow or brown duplex soils; and variants of the above (Keighery and Keighery 1993). The soils are an important determinant of the location and diversity of the plant communities (Register of the National Estate, 1998).

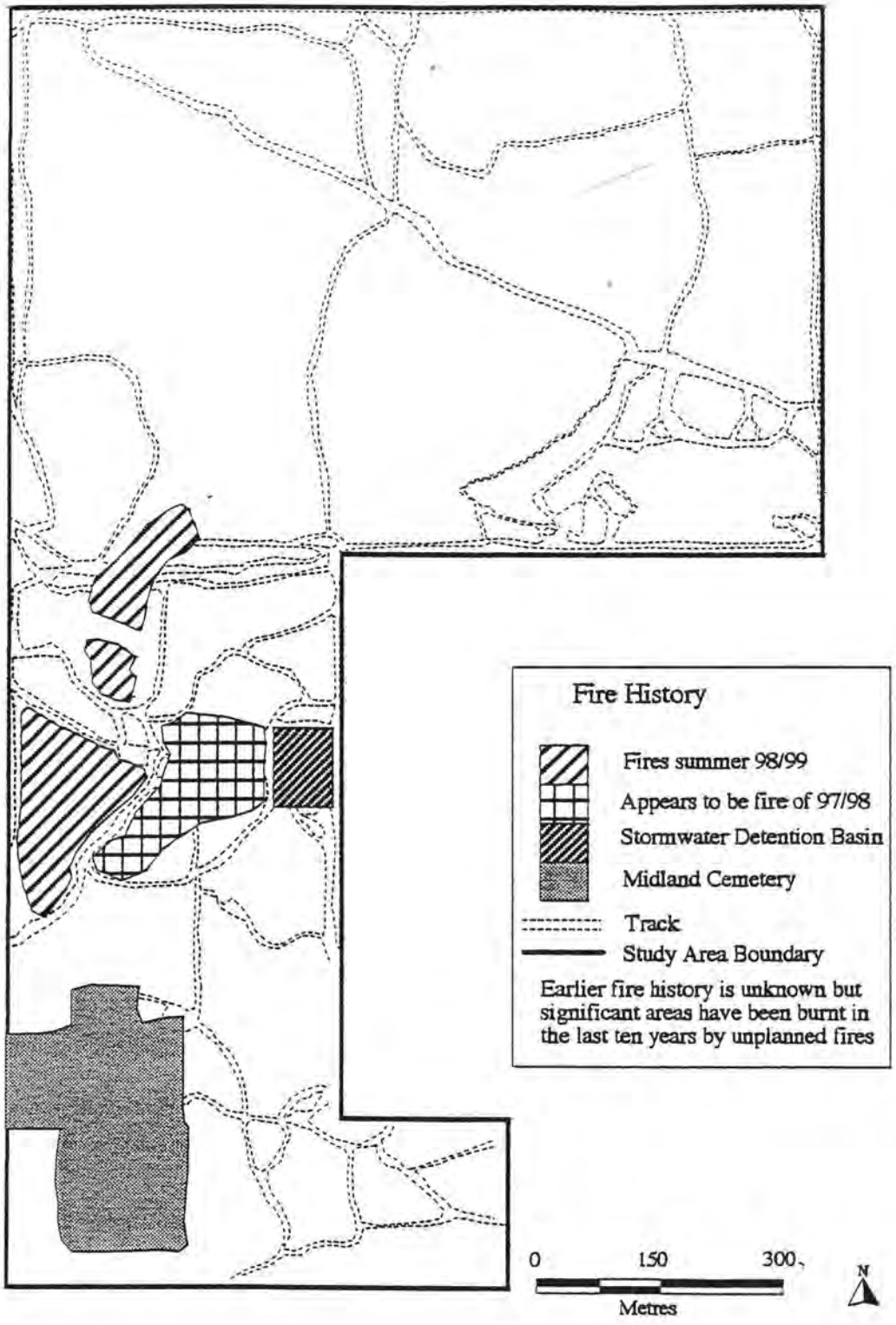
4.2 Fire

Fire is a natural part of the physical environment on the Swan Coastal Plain due to the Mediterranean type climate, with mild wet winters and long dry summers combined with frequent strong winds. The natural fire regime for the area prior to European settlement is not known and no history of fire occurrence or severity has been recorded. It is evident from fire scars that the Talbot Road Bushland has been subject to repeated fire in the past, with arson being the primary cause of fire (Map 3). There has been no recent controlled burning in the bushland. The high frequency of fire is probably the biggest threat to maintaining the condition of the vegetation.

If fire is too frequent, many plant species are unable to complete their life cycle, and may disappear from the bushland. Conversely, there are small areas at Talbot Road that have not burnt for a long time, and here some species requiring fire for germination may disappear from a site although soil stored seed may respond to future fire. Fire in isolated bushland can eliminate fauna if there are not viable populations to recolonise burnt areas. Fire also provides an opportunity for weeds such as Veldt Grass to invade the bushland.

4.3 Corridors

The Talbot Road Bushland is almost completely isolated. There is some connection to the Swan River along Blackadder Creek which is being improved by the Blackadder Woodbridge Catchment Group. There is a tenuous connection via Jane Brook to the Darling Ranges, one of Perth's recognised Greenway corridors. This connection is jeopardised by well advanced plans to develop urban housing on the bushland north of the Bushland.



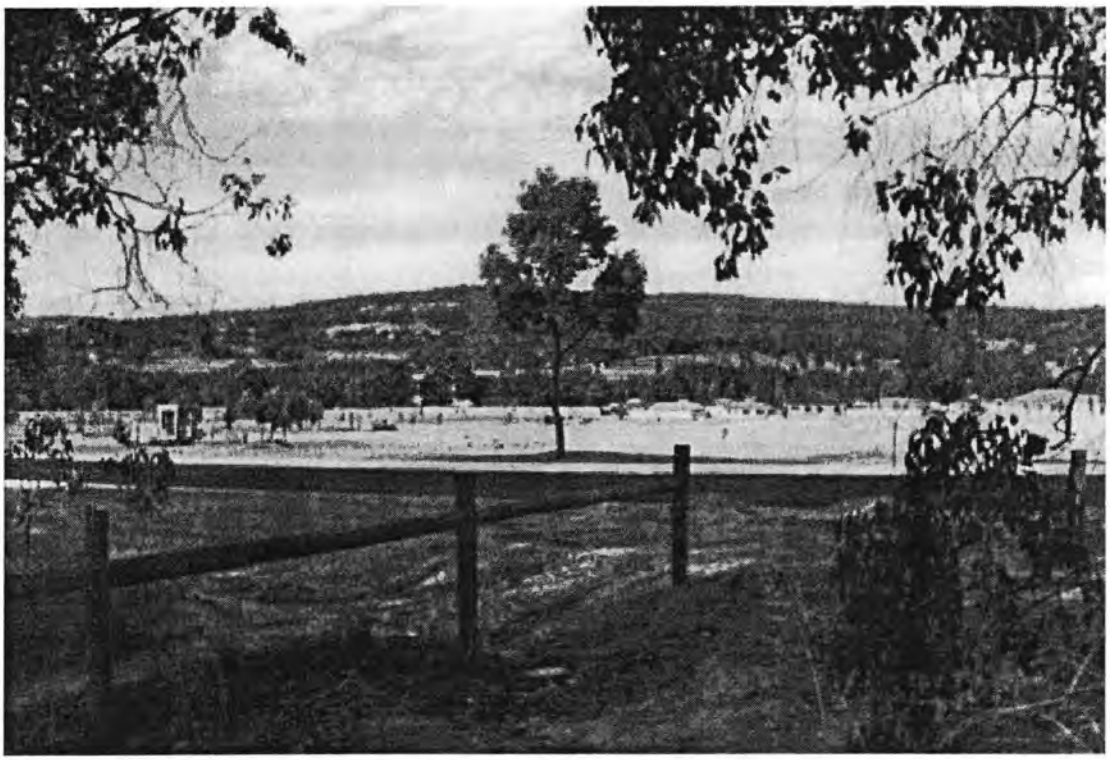
Map 3 Recent fire history for the Talbot Road Bushland.

4.4 Alterations to the natural environment

Talbot Road Bushland is remarkably intact but has been subject to a number of past disturbances (Map 4). Key disturbances include:

- gravel mines in two lateritic areas, with resulting large bare areas, unnatural landform and weed invasion. These areas have been ripped but are slow to regenerate naturally;
- rubbish dumping, particularly on the gravel mines, with resulting weed invasion and loss of aesthetic values;
- clearing for a drain and associated Water Authority water compensation basin on Blackadder Creek;
- drainage water directed into the bushland from adjacent roads and drains, changing hydrology and resulting in weed invasion;
- numerous tracks through the bushland, some associated with fire suppression activities, resulting in weed invasion and loss of aesthetic values;
- firebreaks and fencing adjacent to the bushland, resulting in weed invasion;
- development of the Midland Cemetery;
- frequent fires; and
- Dieback.

Fire during 1999 at Talbot Road Bushland



The tenuous corridor for Jane Brook to Talbot Road Bushland is being lost through urban development

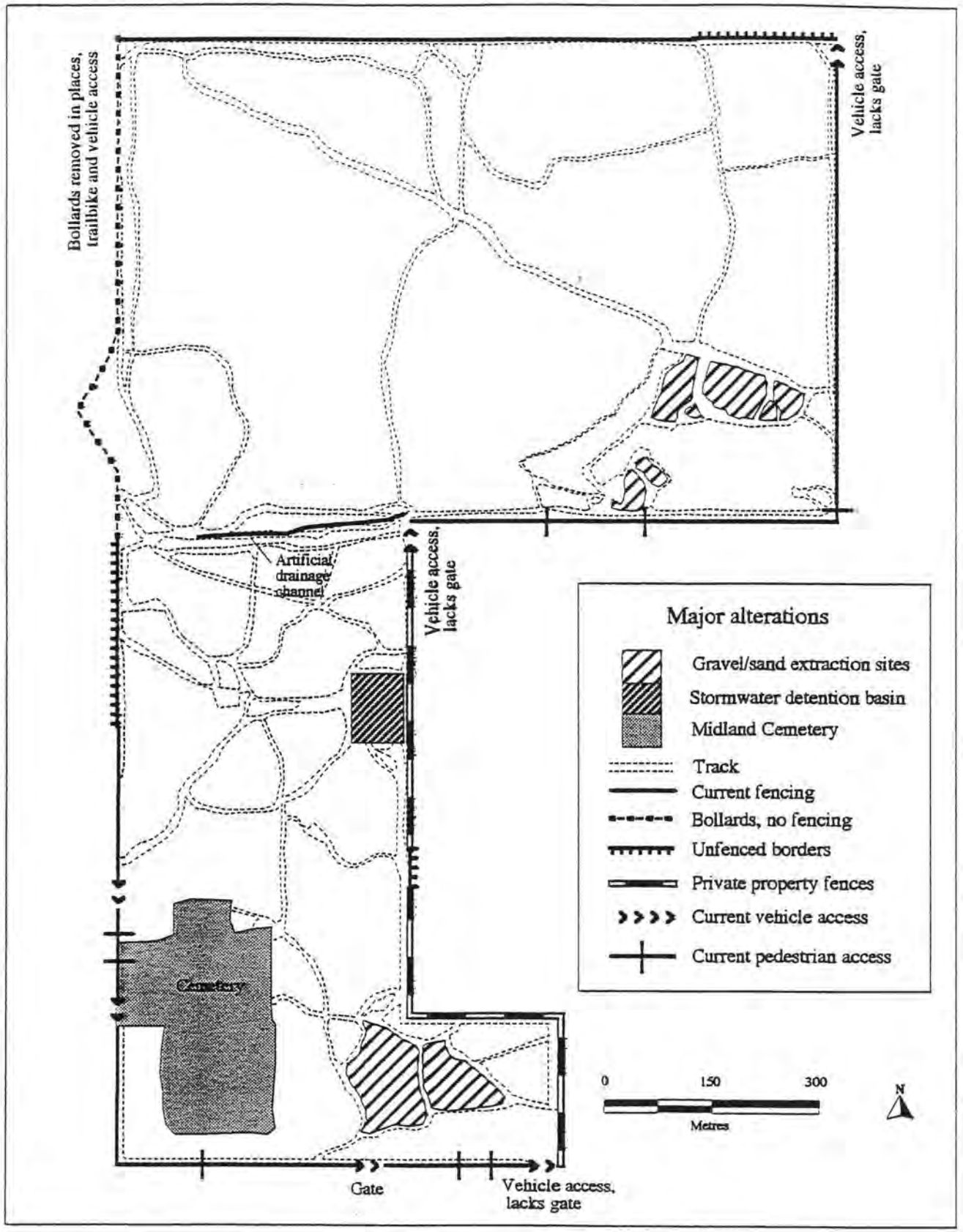
Stormwater drain along Blackadder Creek

Water compensation basin along Blackadder Creek

Rubbish dumping in gravel/sand pit near Midland Cemetery

Gravel pit and incompatible recreation use in Talbot Road Bushland

An attractive track within Talbot Road Bushland



Map 4 Major alterations to the natural environment within Talbot Road Bushland.

5. Biological Environment

5.1 Vegetation

Vegetation complexes

The bushland contains two vegetation complexes on a regional scale (Heddle *et al.* 1980):

1. The Forestfield Complex of the Ridge Hill Shelf, ranging from open forest of *Corymbia calophylla*, *Eucalyptus wandoo* and *E. marginata* to open forest of *E. marginata*, *C. calophylla*, *Allocasurina fraseriana* and *Banksia* species. 9% remaining, *Perth's Bushplan* Vol. 1, Appendix 6.

2. The Guildford Complex of the Pinjarra Plain being a mixture of open forest to tall open forest of *Corymbia calophylla*, *Eucalyptus wandoo*, *E. marginata* and woodlands of *E. wandoo*. 6% remaining, *Perth's Bushplan* Vol. 1, Appendix 6.

Vegetation

The Talbot Road bushland has been mapped into four principal plant communities by Keighery and Keighery (1993) in a more detailed site based study (Map 4).

- Wandoo (*Eucalyptus wandoo*) Open Woodland, Marri (*Corymbia calophylla*) and Wandoo Woodland and Lateritic Heath, on the lateritic areas with shallow moderately well drained gravelly brownish sands.

- Marri Open Woodland to Woodland and Marri and Jarrah (*Eucalyptus marginata*) Woodland, on well drained gravelly yellow or brown duplex soils with a sandy topsoil.

- Banksia Open Low Woodland to Low Woodland and a highly variable Sand Shrubland of *Adenanthos cygornum* and *Allocasuarina humilis*. Open draining siliceous yellow brown sands of varying depth.

- Marri Woodland, in the drainage channel on poorly drained gravelly yellow or brown duplex soils and *Hakea varia* and *Hakea trifurcata* Heath on the adjacent clays.

(Keighery and Keighery 1993).

Within the woodlands, patches of shrubland or heath occur. These areas are too small to be mapped but indicate the complexity of the vegetation.

The vegetation map places distinct boundaries between plant communities where a gradation from one community to the next is generally the actual situation. At Talbot Road this gradation is marked due to the overlaying of the sandy soils and silty soils. For example the areas described as being on sandy soils, *Banksia* Woodland and heaths/shrubland are all on soils with sand at the surface. However, the floristic composition of these communities is highly variable containing species that are typical of both sandy (e.g. *Conospermum stoechadis*, *Stirlingia latifolia*, *Tricostularia neesii*) and heavier soils (*Lambertia multiflora, Verticordia densiflora* and *Tricostularia neesii*) indicating that the underlying silts are influencing the floristics. The interleaving of the other soils such as the clays and laterites as well as the sands has resulted in a comparable floristic complexity in the other communities.

The floristic complexity is expressed in the dense shrub, herb and sedge strata. These strata occur in all plant communities and when the density of the dominant tree species, generally Marri, *Banksia attenuata* and/or *Banksia menziesii*, Marri and Jarrah and less commonly Wandoo is low the vegetation is mapped as shrubland or heath. This floristically rich understorey is characteristic of the plant communities of the eastern side of the Swan Coastal Plain (Keighery and Keighery 1993).

Regional Floristic Community Types

Thirteen permanent $100m^2$ sites were established in the Talbot Road Bushland in 1991 and 1992 for inclusion in a regional floristic survey of the southern Swan Coastal Plain (Gibson *et al.* 1994). Two regional floristic community types - type 3c (*Eucalyptus calophylla — Xanthorrhoea preissii* woodlands and shrublands) and type 20c (Eastern shrublands and woodlands) were identified from a series of $100m^2$ sites. This study and further floristic work for the System 6 Update found that these floristic community types are highly restricted in their occurrence and have been determined as threatened ecological communities by CALM's Threatened Species and Communities Unit (English and Blyth 1997) (see Map 6 and following section).

This floristic work and the work of Keighery and Keighery (1993) established that the Talbot Road Bushland is representative of the Foothills vegetation complex rather than the Guildford complex.

In a further regional floristic study of the Darling Scarp (Markey 1997) the Talbot Road Bushland floristic community type 3c sites were compared with the Darling Scarp sites as these sites are on soils similar to some Scarp soils and many species found in these sites are also found on the Scarp. These Talbot Road Bushland sites were found to form a distinct floristic grouping that was only found in the Talbot Road Bushland.

Flora and Rare Flora

The Talbot Road Bushland supports a diverse range of plant species, with over 384 plant taxa being identified and recorded within the study area. Of the 384 taxa, 366 are listed as being native (Keighery and Keighery 1993).

A list of the flora is provided in Appendix 1.

The following species of Priority Flora (PF)* and significant flora** have been recorded within Talbot Road Bushland.

Priority Flora*: *Isopogon drummondii (3), Synaphea acutiloba (3), Synaphea pinnata (3), Hakea myrtoides (3), Lambertia multiflora* var. *darlingensis (3), Thysanotus glaucus (4).*

*Significant flora**: Trichocline spathulata, Lomandra spartea, Haemodorum brevisepalum - Aristida contorta, Stylidium affine, Grevillea endlicheriana, Grevillea glabrata* subsp. *glabrata, Conospermum incurvum* (most southern population in a reserve in the Perth region) (*Perth's Bushplan* 1998).

* Priority Flora are listed by the Department of Conservation and Land Management. They are rare and poorly known, under some threat but they have not been gazetted as Declared Rare Flora.

** Significant Flora as listed by Keighery and Keighery (1993).

Threatened Ecological Communities

Ecological communities are naturally occurring biological assemblages that occur in a particular type of habitat (English and Blyth. 1997). Threatened Ecological Communities are communities that have been assessed and assigned one of seven categories related to the status of the threat to the community: Presumed Totally Destroyed; Critically Endangered; Endangered or Vulnerable. Other communities are Data Deficient, Not Evaluated or Lower Risk. A Critically Endangered ecological community is a community that is found to be facing an extremely high risk of total destruction in the immediate future (English and Blyth.1997). CALM is working with government agencies and private landowners to protect and manage threatened ecological communities.

The reserve contains two Critically Endangered ecological communities which are both considered to be facing an extremely high risk of total destruction in the immediate future (Map 6):

1) Eastern Shrublands and Woodlands

Floristic community type 20c (Gibson *et al.* 1994).

This community is located over the central and western parts of reserve number 23953, covering about 40 hectares of the 66.77 hectares included in the reserve. This community extends into Unallocated Crown Land 11314 and into the cemetery reserve 6955. Location of this vegetation community occurs on soils described as the Forrestfield Unit of the Ridge Hill Shelf, and dominant tree species are *Banksia attenuata* and *Banksia menziesii*. The community of Eastern Shrublands and Woodlands is one of only 2 occurrences of the community that have been identified in Western Australia in *Perth's Bushplan* (State of Western Australia, 1998). The community comprises the following plant communities shown in Map 6; Banksia low woodland, sand shrubland, and some Marri woodland and Marri and Jarrah woodland.

2) *Eucalyptus calophylla* (currently *Corymbia*) – *Xanthorrhoea preisii* Woodlands and Shrublands.

Floristic community type 3c (Gibson *et al.* 1994).

This plant community lies to the east of the Eastern Shrublands and Woodlands community in reserve 23953, and occupies about 27 hectares in this reserve. It also occurs in the south eastern section of reserve 6955, and in Unallocated Crown Land Swan Location 11764. The dominant plants of this community are the *Eucalyptus calophylla* (Marri) with occurrences of *E. wandoo* and *Xanthorrhoea preissii*. This community occurs on soils which are defined by the intersection of the Guildford and the Forrestfield Units of the Ridge Hill Shelf group. This floristic community is more common around Perth than the Eastern Shrublands and Woodlands, with Talbot Road Reserve supporting two areas of this community (State of Western Australia, 1998). The community comprises the following plant communities shown in Map 5; Lateritic heath, Marri woodland, Marri low open woodland, Marri and Wandoo low open woodland and Wandoo low open woodland.

Vegetation condition

The vegetation at Talbot Rd is generally in very good to good condition (as defined below), with all strata in the communities intact, and is relatively weed free. The main weeds are Veldt Grass *(Ehrharta calycina),* Love Grass *(Eragrostis curvula),* Wild Oats *(Avena fatua)* and Watsonia *(Watsonia bulbillifera).* Invasion from Veldt Grass and Love Grass is confined mainly to the firebreaks, the edges of paths and areas where there has been rubbish dumping or other disturbances.

Map 7 depicts vegetation condition and shows the location of weedy areas and weed species occurrences. The plant communities of the Ridge Hill Shelf, particularly those on lateritic soils, contain dense shrub and herb strata that apparently allow few opportunities for weed propagules to become established unless there is substantial soil disturbance such as gravel pits, tracks and rubbish dumping (Keighery and Keighery 1993).

The perimeter of the reserve and the firebreak surrounding it are heavily infested with grassy weeds, as well as a number of other weed species. These include Tagasaste *(Chamaecytisus palmensis)*, Tangier Pea (*Lathyrus tingitanus)*, Watsonia and an isolated occurrence of Prickly Pear *(Opuntia stricta)*. These species all occur along Blanchard Road, near the Midland Cemetery.

Vegetation condition was assessed, visually from tracks, independently for degree of weed invasion and other degrading influences. The following condition scales have been used:

Very good	Largely intact bushland with some weedy areas (mainly grassy weeds) predominantly within 10 metres of tracks. Approximately two-thirds of the bushland is in very good condition, with minimal invasion from Veldt Grass and Love Grass. Control of the existing grassy weeds should be carried out, as it will be easy to keep these areas weed free, reducing the risk of invasion following fire. Control through most of this area could be carried out by hand removal, or by spot spraying. Tracks would need to be walked annually and any new infestations removed.
Good	Largely intact bushland but with weeds (mainly grassy weeds) common within 10 metres of tracks. The remaining third of the bushland is in good condition, however invasion by Veldt Grass and Love Grass is more widespread. It is necessary to control these weeds to prevent infestations from worsening, and to prevent seeds blowing into the adjacent weed free areas. In order to control weeds in this area, it will be necessary to spray with a grass selective herbicide. There are a number of native grasses within the reserve which will be killed or damaged by the spraying, however they will be able to recolonise from the surrounding bushland. An alternative is to collect and store seed from the reserve, and direct seed them back into the area. However this should not be done until the weed infestation is under control, which may take many years. Blackadder Creek has portions which are good and small areas which are poor and is treated separately due to the special needs of this area.
Poor	Areas dominated by grassy weeds, particularly perimeter areas adjacent to firebreaks. The weeds along the firebreaks need to be controlled, as they provide a ready source of infestation into the bushland. Although a spray

program will greatly reduce the incidence of weeds in this area, it will probably require spraying every year to keep weed levels low.

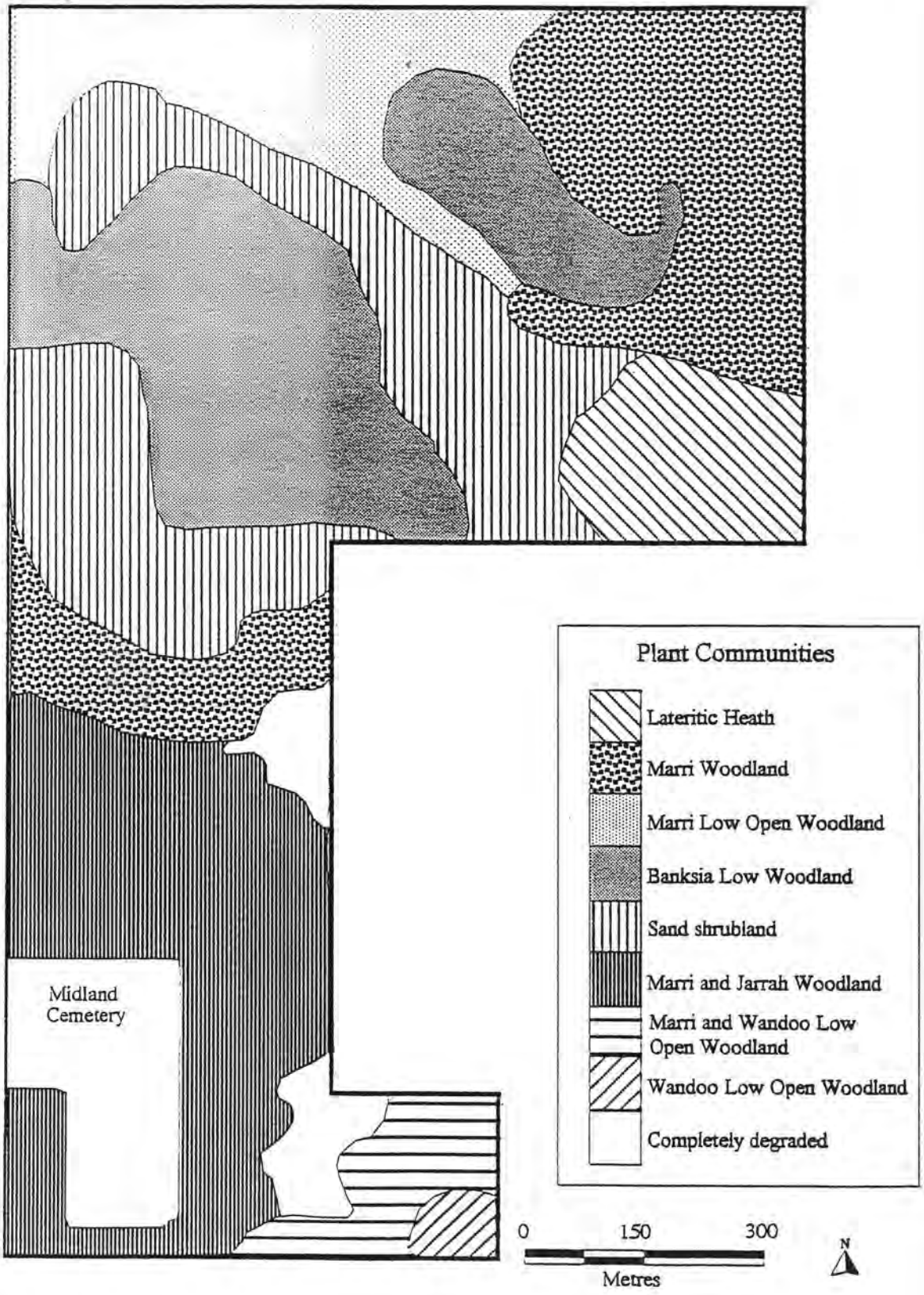
In many places the firebreak follows the perimeter of the reserve, however in others it runs up to 10m into the bushland, mainly along Myles Road and Stratton Boulevard. This results in a thin strip of bushland that is heavily affected by weeds and difficult to maintain. The firebreaks should be changed to skirt the perimeter, and the old track closed.

Degraded special treatment — Areas subject to gross disturbances such as gravel pits.

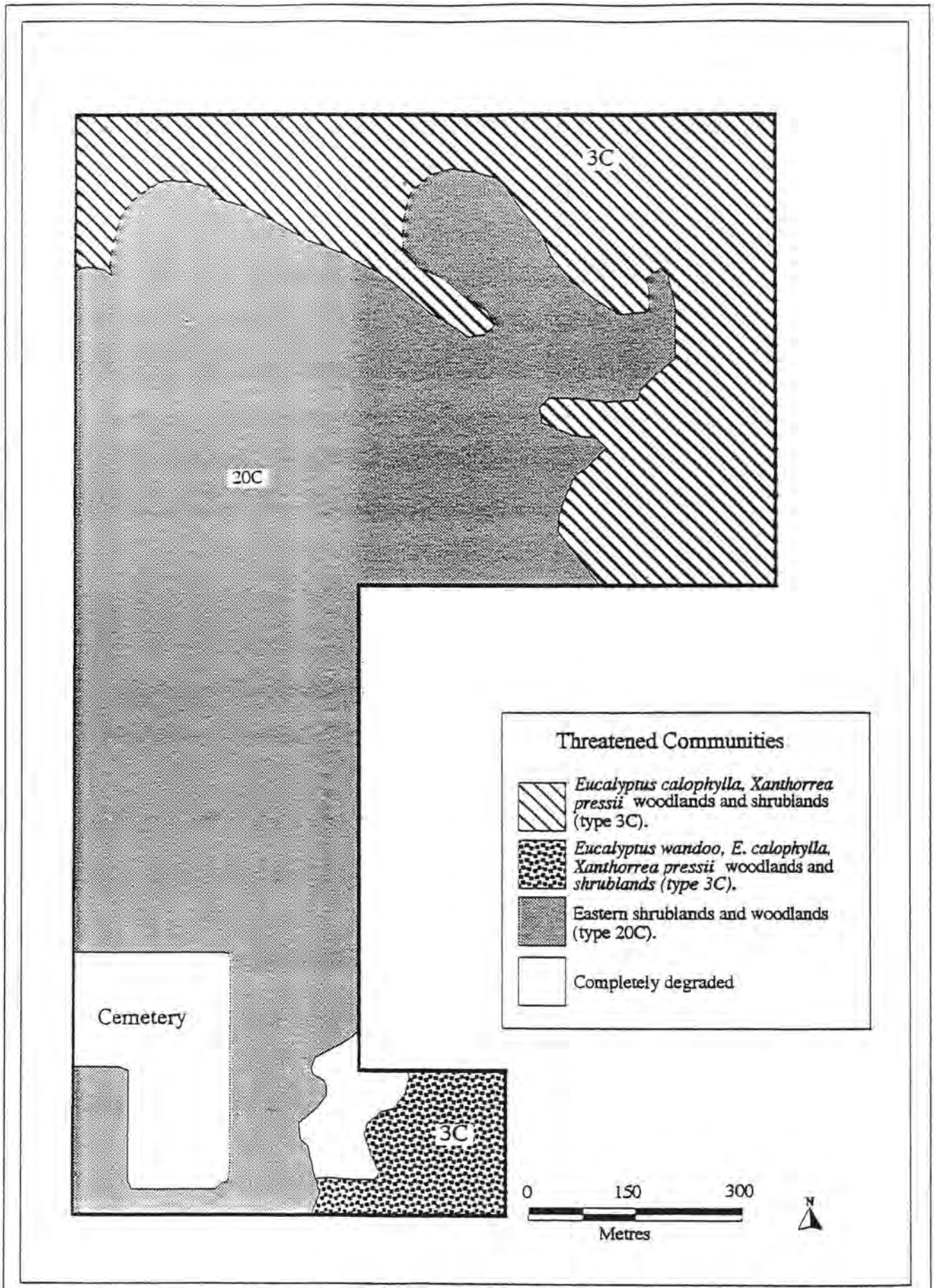
Disease

A study (CALM 1998) has shown that significant portions of the reserve are affected by Dieback (*Phytophthora cinnanomi*) as shown in Map 8. The impact of Dieback is not obvious in many areas but Jarrah and the Banksias are particularly affected as well as numerous understorey species. Some areas show more intense signs of the disease, for example, the old quarry site which has received heavier use than most of the reserve, with pressure from people walking, and from bikes and motorbikes (CALM 1998).

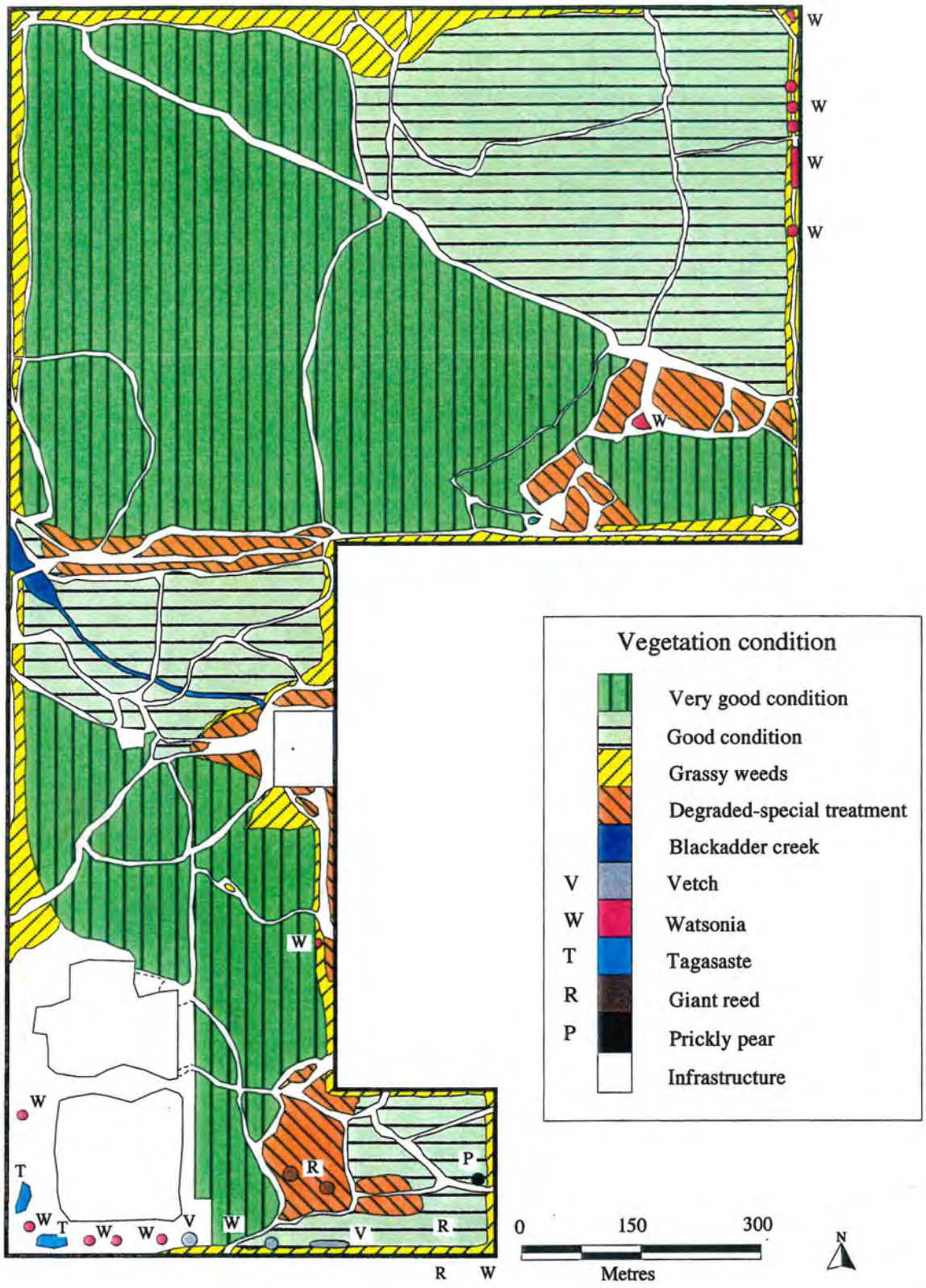
John Basell (Friends of Talbot Road Bushland), Rod Safstrom and Laurie Maddison (Glen Forest Superblock) injecting a Banksia with Phosphite to control Dieback



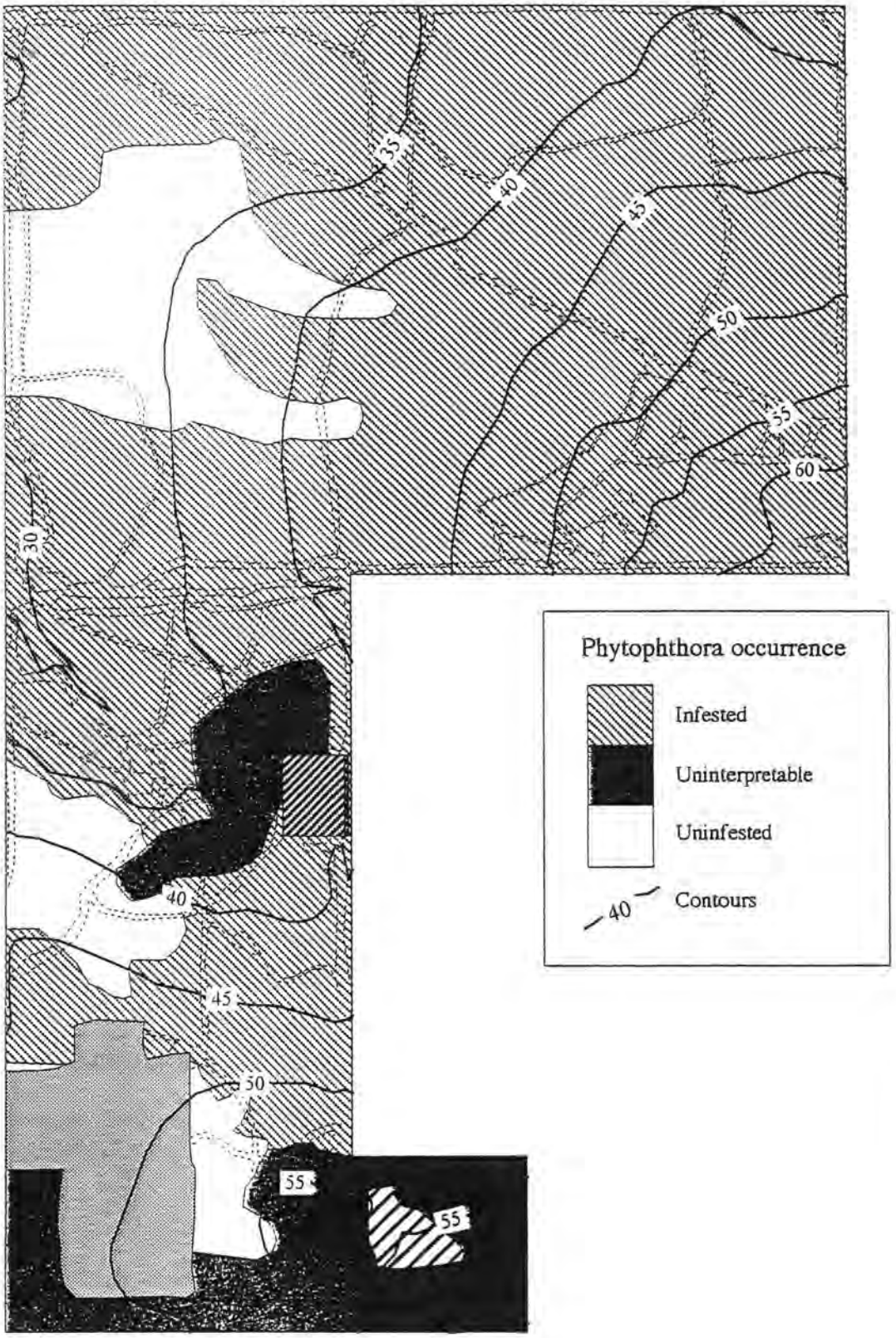
Map 5 Vegetation communities within the Talbot Road Bushland (adapted from Keighery and Keighery, 1993).



Map 6 Threatened ecological communities within the Talbot Road Bushland (source V English CALM, Community numbers as per Gibson *et. al.*, 1994)



Map 7 Vegetation condition within the Talbot Road Bushland.



Map 8 Phytophthora occurrence within the Talbot Road Bushland (source CALM, 1998).

5.2 Fauna

Talbot Road Bushland has been subject to several surveys by the Western Australian Museum of Natural Sciences. It has a high faunal species richness with birds (47), native mammals (3), reptiles (13), and amphibians (7) (How *et al.* 1996). Refer to Appendix 1 for species lists.

Amphibians - Frogs

Talbot Road Bushland has the richest frog assemblage (seven species) of 17 remnants examined on the Swan Coastal Plain, three of which have only been recorded at this location. Four of the five known frog species of the *Heleioporous* genus have been recorded. *Crinia georgiana*, *Heleioporous psammophilus* and *Heleioporous inornatus* being found only in the Talbot Road Bushland and *Crinia glanerti* which was recorded at only one other site (Urban Bushcare Application and How *et al.* 1996).

Reptiles - Snakes, lizards and goannas

Thirteen reptile species have been recorded with the Talbot Road Bushland being one of only three locations where the Half-ringed Snake, *Simosselaps semifassciata* and the Racehorse Goanna, *Varasnus tristis* were noted (of 17 remnants studied on the Swan Coastal Plain) (How *et al.* 1996).

Mammals

The following mammals have been recorded in the Talbot Road Bushland:

- The Honey Possum (*Tarsipes rostratus*) (How *et al.* 1996). There is only one other population of the Honey Possum found in urban bushland remnants within the Perth region. The survival of the Talbot Road population of Honey Possums may be at risk due to repeated wildfire occurring;
- A small population of Western Grey Kangaroos (*Macropus fuliginosus*) (English 1998a and Harvey *et al.* 1996) occurs but there are fears for the survival of this population as the reserve becomes isolated due to surrounding urban development;
- Quendas (*Isodon obesulus*) have also been recorded on or adjacent to the bushland (How *et al.* 1996); and
- Tracks of the Fat-tailed Dunnart (*Sminthopsis crassicaudata*) have been reported by a local resident who frequents the area.

Birds

Over 47 species of birds have been recorded in the reserve, with 24 being non-passerines and 23 being passerine species. The following species of special significance were recorded in the reserve: the Painted Button–quail; Common Bronzewing; Weebill; Yellow–rumped Thornbill; and the Australian Sittella.

Invertebrates

The invertebrate fauna has been found to be quite diverse, and heavily influenced by elements from the Darling Scarp including the spiders *Aganippe* sp. 2, *Teyl* sp., *Trachycosmus*? Sp., *Corinnidae* sp. 2, *Gmogala* sp. B, *Maratus mungaich*, *Cyrioctea* sp. and *Antichiropus variabilis*. A total of 54 spiders have been identified to date (How *et al.* 1996).

5.3 Summary of conservation values

The Talbot Road Bushland has been one of the most significant areas for establishing the values of the Ridge Hill Shelf vegetation and fauna. It is of very high conservation value as it contains:

- the largest area of plant communities representative of the Ridge Hill Shelf and the Foothills vegetation complex on the Swan Coastal Plain north of the Swan River, the Foothills complex has 14 percentage remaining on the Plain (State of Western Australia 1998);
- a unique combination of two highly restricted floristic community types;
- significant areas of two threatened ecological communities (floristic community types 3c and 20c, the area of 20c is the largest and most intact area of this type found on the Plain);
- a rare example of intact creekline plant communities;
- an area of very high biodiversity, 366 native plant taxa and 70 animal taxa being recorded for the 106.9 hectares;
- populations of six priority taxa and many other significant taxa; and
- a significant habitat area for populations of frogs, birds, reptiles and the honey possum.

These values make it an area of outstanding heritage value well deserving recognition in Western Australia as a key conservation area.

All studies of the flora and fauna of the Talbot Road Bushland have recognised its outstanding conservation value:

- Markey (1997) recommended that 'to encompass and protect the Talbot Road woodlands, Swan Locations 11764 and 11313 and Reserve #23 953 be amalgamated into a single A-class Nature Reserve with vesting in the NPNCA;'
- Keighery and Trudgen (1992) recommended the Talbot road Bushland be managed as a flora conservation area;
- the EPA 1994 GIS recognised the presence of Threatened or Poorly Reserved Plant Community;
- the Bushland has National Trust of Australia (WA) Classification;
- the Bushland has been recognised by the Australian Heritage Commission; and
- the Bushland has been recognised as regionally significant in *Perth's Bushplan* (State of Western Australia 1998).

6. Social Values

6.1 Aboriginal heritage

The Talbot Road Bushland is a very important site for the Aboriginal community.

The Nyungah people have inhabited the area now known as Swan View for a very long time. They believe that their people, the land and the spirits are one. Part of their tradition says that children are spirits before they are born, and that they have a permanent link to the place where their spirit used to dwell. Their spirit will return there when they die. To damage these places is to damage the people whose spirits are associated with them, and to deny them a place to go home to.

Blackadder Creek, which runs through the Bushland, is one of these important spiritual places for the Nyungah people. It is the home of the Green Bullfrog Dreaming Track, and of the Dreaming Track of the Ancestors. Nearby Jane Brook is the home of the Sacred Turtles. The whole area surrounding Talbot Reserve contained many archaeological sites as well as burial sites, and was obviously well used by Nyungah people long before Europeans arrived. The stories have been passed down by the Old People (most of whom are now deceased), and were told around campfires in the times when the Nyungah people lived in the area in mia-mias.

Although the section of Blackadder Creek which runs through Talbot Reserve is sacred to the Nyungah people, the Dreaming Tracks run all the way down to the Swan River, and the development of Stratton has seen the destruction of many areas which were equally important. It is important that the views of Aboriginal people are respected in any future plans for the area.

Recognition of the meaning of Talbot Road Reserve and surrounding areas is important. Signage which describes the Aboriginal significance of the site could help the community to understand how it fits into past and present Nyungah life.

6.2 European heritage

The bushland making up the Talbot Road Reserve has been interim listed on the National Estate register by the Australian Heritage Commission. This recognises the importance of this bushland area, especially the importance of conserving the natural environment (Urban Bushcare Application).

Cemetery

Talbot Road Bushland includes the Midland Cemetery, which is managed by the Metropolitan Cemeteries Board and located within a public reserve designated for Cemetery purposes. The Cemetery was gazetted in 1899 and received its first burial in 1904. A simple grid layout was established and landscaped with exotic trees and shrubs, particularly *Jacaranda mimosofolia*, *Pinus radiata* and *Casuarina cunninghamiana* and several ornamental rose gardens (Cala 1996). The cemetery reservation occupies an area of 24 hectares with approximately 6 hectares developed for intensive cemetery use.

Midland Cemetery has developed a master plan (Cala 1996) which provides for possible inclusion of Vacant Crown Land, Location 10477 and Location 11764. This proposal was not supported by the Department of Conservation and Land Management. The revised master plan suggests an approach which does preserve some bushland, but the Cemeteries Board will be developing a new master plan which will be based on using local native plant species. (P. Deague pers. comm.).

Other values

The bushland has also been the site of two gravel pits and an unused road reserve, an extension of O'Connor Road, but its use is not proposed for road construction (G. MacKinnon pers. comm.). There are no other European heritage values apart from the ecological values.

Friends group

Talbot Road Bushland has an active friends group, Friends of Talbot Road Reserve and this group has close links with the Blackadder Woodbridge Catchment Group. The Friends Group is taking a very active interest in the bushland, has been successful in gaining funding for management from a number of sources and has contributed to on ground works.

6.3 Recreation

There is no formal recreation infrastructure within Talbot Road Bushland but the bushland is frequented by people, particularly by the local community, for passive recreation and nature conservation utilising the many walking tracks. These tracks are also utilised for trail bike riding, occasional horse riding and by four wheel drive vehicles. Rubbish dumping, including car bodies has also been a common use.

6.4 Commercial

There are no current legal commercial interests within the bushland, although the cemetery is deemed to be a government trading undertaking.

6.5 Research and scientific study

Talbot Road Bushland has been the location of a number of detailed flora and fauna surveys (see Selected References) which have provided the base information for this management plan. These studies have been critical in identifying and cataloging the flora and fauna values of the Ridge Hill Shelf. Thirteen of the sites (plots) located in Talbot Road (Keighery and Keighery 1993) are permanent plots that could be used for monitoring, and as a baseline for future monitoring . There is no current evidence of use for research or scientific study by schools or universities.

7. Plan for Management

Talbot Road Bushland has survived despite numerous threats but management is needed if further degradation is to be avoided. The plan for management seeks to resolve incompatible land uses, provide zones for clear direction for planning and management, and provide management recommendations for weed and vermin control, fire management, disease control, access requirements and recreation usage.

7.1 Resolving incompatible land uses

The objective is to resolve competition between incompatible uses to ensure that those values which are high or irreplaceable are maintained.

Recommendation

The priority for management of the Talbot Road Bushland should be for protection of nature conservation and Aboriginal cultural values and therefore:

- **The bushland should be known and gazetted as the Talbot Road Bushland;**
- **A Class Reserve 23953 should be vested in the National Parks and Nature Conservation Agency (NPNCA) or the Shire of Swan and be for nature conservation purposes;**
- **A Class Reserve 23953 and unused road, extension of O'Connor Road, should be vested in the National Parks and Nature Conservation Agency (NPNCA) or the Shire of Swan and be for nature conservation purposes;**
- **Unallocated Crown Land 11314 and 11764 be vested in the same body as Reserve 23953 and be for conservation purposes;**
- **The very high nature conservation values in the cemetery land (Reserve 6955) are acknowledged. Its future use to be determined by a Ministerial Working Group managed by the Ministry for Planning;**
- **Unused road, extension of O'Connor Road be vested in NPNCA or the Shire of Swan and be for conservation purposes;**
- **The Bushland be available for walking and nature observation, and that uses such as dog exercising** (some consider that dog exercising should be permitted provided the dogs are on a lead), **horse riding, motor bike and push bike riding and use by four wheel drives be prohibited; and**
- **Drainage water from urban areas and road verges should not be disposed of in the bushland.**

The Talbot Road Bushland is subject to a number of competing uses including:

- protection of the very high flora and fauna values (refer section 5.3);
- high cultural value to the Nyungah people, particularly Blackadder Creek;
- provision for expansion of the Midland Cemetery;
- recreational use by off road vehicles and horses;
- passive recreation and nature study; and
- use for drainage of water from surrounding urban development.

Conflict between flora and faunal conservation, Aboriginal values and cemetery use

The major conflict lies between protection of the flora and faunal values, the disturbance of sites important to the Nyungah community and provision for expansion of the cemetery. There is almost complete incompatibility between traditional cemetery use as described in the master plan for the Midland Cemetery (Cala 1996) and the protection of Aboriginal, flora and fauna values.

The Cemetery Board will consider a revision of their master plan to accommodate protection of nature conservation values. Changes such as provision of memorials (a small brass plaque) in a bushland setting is a method which retains bushland but compromises conservation of plant communities. The Cemetery Board may be willing to maintain some areas with nature conservation values.

It must be recognised that:

- the Metropolitan Cemeteries Board has legislative rights to utilise 6955 Midland Cemetery for the purpose granted to it, subject to approval of its Master Plan by the Environmental Protection Authority;
- there is continuing demand for cemetery expansion and alternative sites in the region are currently not available;
- the Cemetery has developed its master plan to include the adjacent areas of Unallocated Crown Land because it anticipates it will need this area to service the needs of the growing community in the area into the long term;
- in a multicultural nation it is important to cater for a wide variety of different ethnic burial needs. It is anticipated that only a small proportion of people may desire a memorial in a bushland setting and that demand for this may grow slowly; and
- purchase of alternative land by the cemetery is very expensive and there are considerable planning difficulties involved, such as people not wishing a cemetery near their area.

Aboriginal cultural values are also very high, particularly along Blackadder Creek. Areas of high cultural value to the Nyungah community should not be disturbed.

The nature conservation values are very high namely:

- vegetation in excellent condition;
- part of the largest most intact area of Ridge Hill Shelf vegetation north of the Swan River;
- critically endangered ecological communities on the Talbot Road Reserve, both areas of Unallocated Crown Land adjacent to the cemetery and on the cemetery land;
- Priority Flora within the cemetery land (*Isopogon drummondii*) and possibly others as searches have not been carried out;
- very high floral diversity with elements such as the species rich wandoo woodland in reserve 11764 not being replicated elsewhere;
- high faunal values over all the bushland, particularly birds, frogs, and the honey possum
- vegetation communities such as the marri–jarrah woodland and the marri-wandoo woodland not represented in the A Class reserve 23953.

There are many factors which indicate that the whole of Talbot Road Bushland should remain intact if all the high fauna and flora values are to be maintained. These factors include:

- maintenance of faunal populations for many species being dependent on reserve area. In the bushland sites studied by How *et al.* (1996) there was a positive relationship between the number of reptile species and the area, and that the complete reptile assemblage is far more likely to be found on larger bushland remnants.

- the suggestion by How et al. (1996) that all the plant communities were important for the conservation of some birds with the Marri providing important nesting sites and nectar.
- fire as a major threat to faunal populations. Dell and How (1995) concluded that large fires in small isolated reserves could threaten faunal species unable to escape fire, if recolonisation from unburnt areas could not take place. There is also increasing incidence of fire as evidenced by three deliberate lighting events so far during 1998/99.

Whilst this management plan has identified that there are a number of land tenure and vesting issues relating to Talbot Road Bushland, it does not recommend any actions to resolve these issues. A proposed working party led by the Ministry for Planning is to address the requirements of the Metropolitan Cemeteries Board in the metropolitan area, alternative sites suitable for cemetery purposes and the current conflicts relating to nature conservation values. *Perth's Bushplan* is one planning document that will be considered by this working party.

As the vesting and purpose of the various lands at the Talbot Road Bushland is likely to be addressed at a more appropriate level, this management plan will not consider or make recommendations relating to this issue. Issues on the conservation values of the Talbot Road Bushland will remain in this management plan and may be used by this working party.

> Appendix 3 provides a list of local Talbot Road Bushland plants, their flower colour and flowering times that could be used for landscaping for memorials in a bushland setting and planting in disturbed areas. It should be recognised that such areas will require a high level of management and understanding of bush regeneration to maintain a weed free and attractive environment.

Conflict between protection of nature conservation values and recreation uses

There is conflict between the maintenance of nature conservation values and recreational use with the highest conflict arising from the use of off road vehicles and horses. Areas of conflict include:

- spread of disease such as Dieback;
- spread of weed propagules;
- track proliferation; and
- access for undesirable uses such as rubbish dumping and arson.

There is also conflict between different forms of recreation use. For example off road vehicles and horses detract from the quiet enjoyment of nature and can disturb nearby residents with dust and excessive noise. People walking dogs can disturb people without dogs and dogs can detract from wildlife values and increase nutrients particularly along tracks.

It is considered that the use of off road vehicles and horses is incompatible with the area's very high nature conservation values and provision for these uses has not been made in the management plan. It is recognised that dogs can have a very significant impact on fauna, but given the high degree of difficulty in excluding dogs it is suggested that dogs be permitted only if under control by a lead and provide dog bags/bin at entry points to Bushland pathways. If this does not work then the vesting authority will need to consider closing the Bushland for dog use.

Passive uses, such as walking and nature observation, are considered to be consistent with management for nature conservation.

Conflict between nature conservation values and use of the area for drainage of water from surrounding urban development.

Drainage water is entering the Talbot Road Bushland from a number of sources with the main impact being the drain which enters the unused section of O'Connor Road and along Talbot Road. Entry of drainage water brings excessive water nutrients and weed propagules which encourages a change to a weed dominated understorey.

7.2 Management Zones

The objective is to define management zones to create a clear distinction between the uses and purpose of different areas and to clearly guide future management actions.

Recommendation

The Talbot Road Bushland should be divided into five management zones: Nature conservation, Nature conservation with low impact visitor use, Rehabilitation, Cemetery and Water Management.

The Talbot Road Bushland has been divided into five management zones, as shown in Map 9, based on the ecological value and condition of the vegetation and existing uses. The zones are based on the understanding that the conservation of the bushland is the most important value to be protected.

Zone 1. Nature conservation

Natural bush areas which are largely unmodified areas and managed primarily to conserve and protect the natural and cultural values of the bushland. Zone 1 contains the largest Dieback free zone and control of this threat is the highest priority. There are no facilities and no formal access and low onsite visitor use is planned. Suitable activities include research and education and nature observation. Track closure treatment for Dieback and weed control adjacent to tracks will be required.

Zone 2. Nature conservation with low impact visitor use

Slightly modified areas with a predominately natural bush appearance. These areas are to be managed to conserve and protect the natural and cultural values of the bushland and to provide for low impact visitor use such as walking and nature observation. Facilities such as formed paths, interpretative signs and park furniture for casual seating purposes at strategic locations may be provided. A bird watching hide could be considered if there is a good area for bird observation and if inappropriate uses of the facility can be controlled. Some tracks to be closed or upgraded, gravel pits rehabilitated and weeds controlled.

Zone 3. Rehabilitation

Previously disturbed and degraded areas to be managed to restore a more natural condition. Special emphasis will be placed on restoring the road reserve, extension of O'Connor Road, the gravel pits, the area around the retarding basin and Blackadder Creek. Section 7.10 details suggestions for bushland restoration and enhancement.

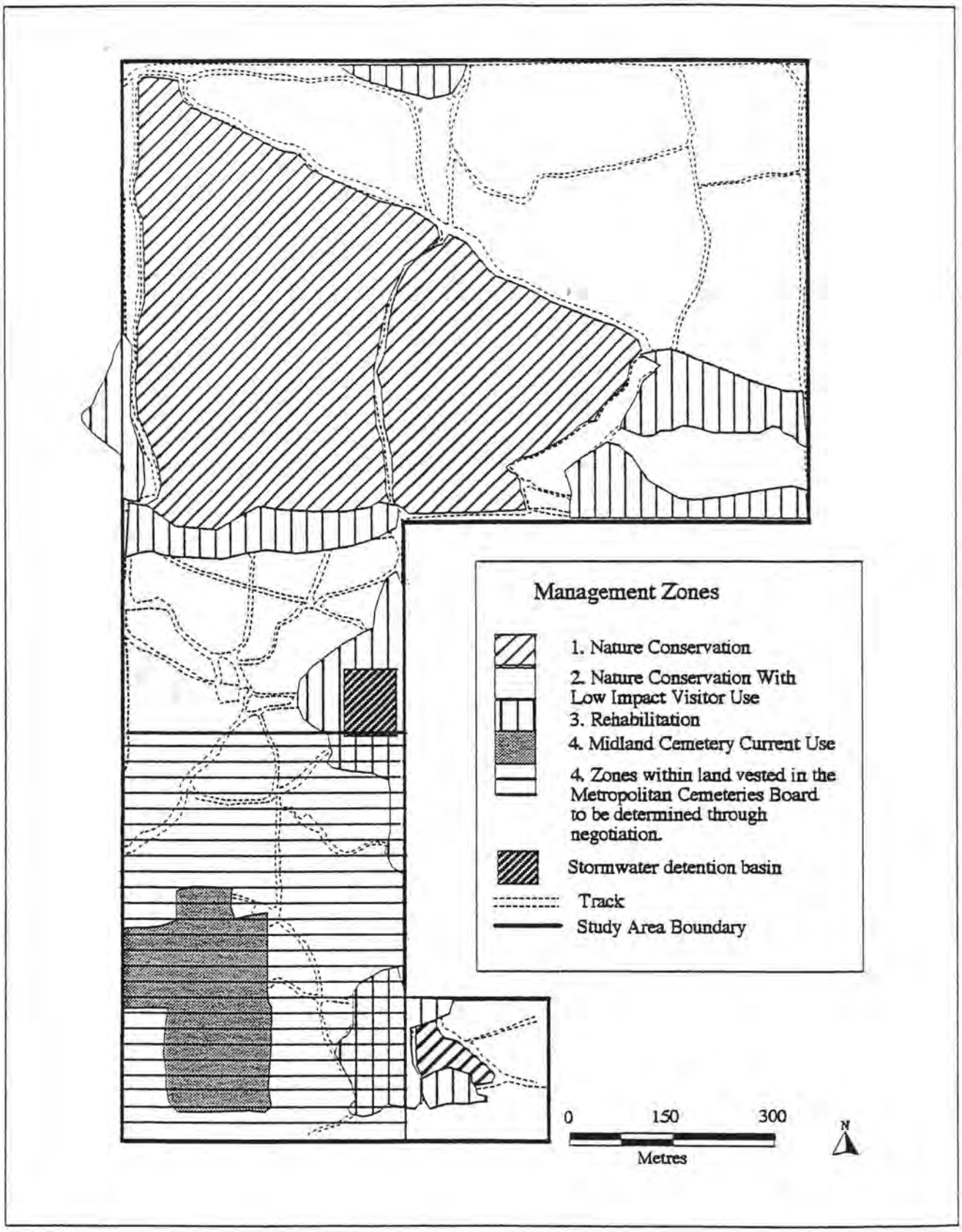
Zone 4. Cemetery

The future use of the cemetery is to be resolved through negotiations between the parties and through *Perth's Bushplan*. Options are:

- continue cemetery use as planned;
- modify cemetery use to retain some nature conservation values; and
- strictly limit cemetery use with expansion only into areas of degraded land.

Zone 5. Water drain and retarding basin

Enhancement of these areas to improve their natural values by planting of appropriate local and wetland species to complement the natural values of the Talbot Road Bushland. A list of species and management suggestions are included in Section 8.3.



Map 9 Management Zones for the Talbot Road Bushland.

7.3 Bushland restoration, enhancement and weed control

The objectives are to:

1. *Restore all degraded areas in Talbot Road Bushland to a stable condition, resembling the natural environment.*
2. *To eradicate all weeds which impact on biodiversity from within the bushland and from roadsides bordering the bushland.*

Recommendations

It is recommended that:

- **weed control be undertaken with priorities based on working from the best areas to worst areas and dealing with small populations of potentially invasive weeds;**
- **land managers work closely with the Environmental Weeds Action Network to develop a more detailed weed control strategy;**
- **grassy weeds on road verges surrounding the Bushland need to be controlled;**
- **the Bushland should not be used for disposal of drainage water and remedial actions are required, particularly redirecting drainage water from O'Connor Road into the water compensation basin;**
- **unnecessary access tracks should be closed;**
- **remaining access tracks should be narrowed and designed to provide a hard formed pedestrian access and access to vehicles for fire and management purposes using Dieback and weed free materials; and**
- **the gravel pits in Reserve 23953 be rehabilitated, but not the gravel/sand pit in Unallocated Crown Land 11764 until its use for cemetery purposes is determined.**

Control of grassy weeds within bushland

The majority of the weeds in the reserve are grassy weeds, with two species predominating, Veldt Grass and African Love Grass. There are also small infestations of Watsonia, Giant Reed, Tagasaste, Tangier Pea, Paspalum and Bulrush (Map 7). There are also a variety of annual grassy weeds such as Wild Oats in some areas of the reserve. Some weeds have only become apparent in the wetter months. During the winter Freesias (*Freesia aff. Leichtlinii*) have appeared near the corner of Talbot Road and O'Connor Road, and Red Natal Grass (*Rhynchelytrum repens*) is growing in the eastern section of the reserve near Talbot Road.

Where infestations are light, such as in the Very Good Condition Zones alongside tracks, hand removal may be appropriate or spot spraying with an appropriate herbicide.

Where infestations are heavier, such as in Good Condition Zones within 10 metres of tracks, control can be carried out by spraying with an appropriate herbicide. There are a number of native grasses within the bushland which will be killed or damaged by spraying, however they will be able to recolonise from the surrounding bushland or can be reseeded from locally sourced seed once the weeds are controlled, which may take many years.

Ongoing maintenance by annual inspection along tracks is required to remove infestations of existing weeds or new weed species.

Priority should be to work from areas in best condition to those in worst condition but with special emphasis on identifying small populations of potentially invasive weeds. Weed control in the cemetery land may be a lower priority until the future use of this area is determined. It is recommended that the vesting authority and Friends Group work closely with the Environmental Weeds Action Network to develop a more detailed weed strategy.

Table 1 lists the recommended methods of control for the major weed species in the Bushland.

Table 1. Recommended methods for control of major weeds in Talbot Road Bushland

Common Name	Latin Name	Method of Control
Veldt Grass	*Ehrharta calycina*	1. Hand removal – cut culms from roots just below ground level, or twist to break culm in summer. 2. Spray with grass selective herbicide at recommended rates in winter to mid-August. 3. If no native vegetation, spray with Glyphosate at recommended rates in winter to mid-August.
African Love Grass	*Eragrostis curvula*	Brushcut and spray with grass selective herbicide or spray with Glyphosate plus wetting agent while actively growing in summer, before seed set in March.
Watsonia	*Watsonia bulbillifera*	1. Hand remove small infestations in winter, removing the corm. 2. Spray clumps from Sept-Nov with Glyphosate at recommended rates.
Giant Reed	*Arundo donax*	Cut canes, and spray regrowth when 0.5–1m high with Glyphosate at recommended rates.
Tagasaste	*Chamaecytisus palmensis*	Cut and paint stumps with Glyphosate immediately.
Tangier Pea	*Lathyrus tingitanus*	Spray with Glyphosate while actively growing in winter/spring.
Paspalum	*Paspalum dilatatum*	Spray when actively growing spring/early summer with Glyphosate (use waterway safe form) or grass selective herbicide.
Water Couch	*Paspalum distichum*	Spray when actively growing spring/early summer with Glyphosate (use waterways safe form) or grass selective herbicide.
Bulrush	*Typha orientalis*	Cut and spray or paint regrowth when 0.5m high with Glyphosate (waterways safe form) while actively growing spring/summer.

Road verges surrounding the bushland

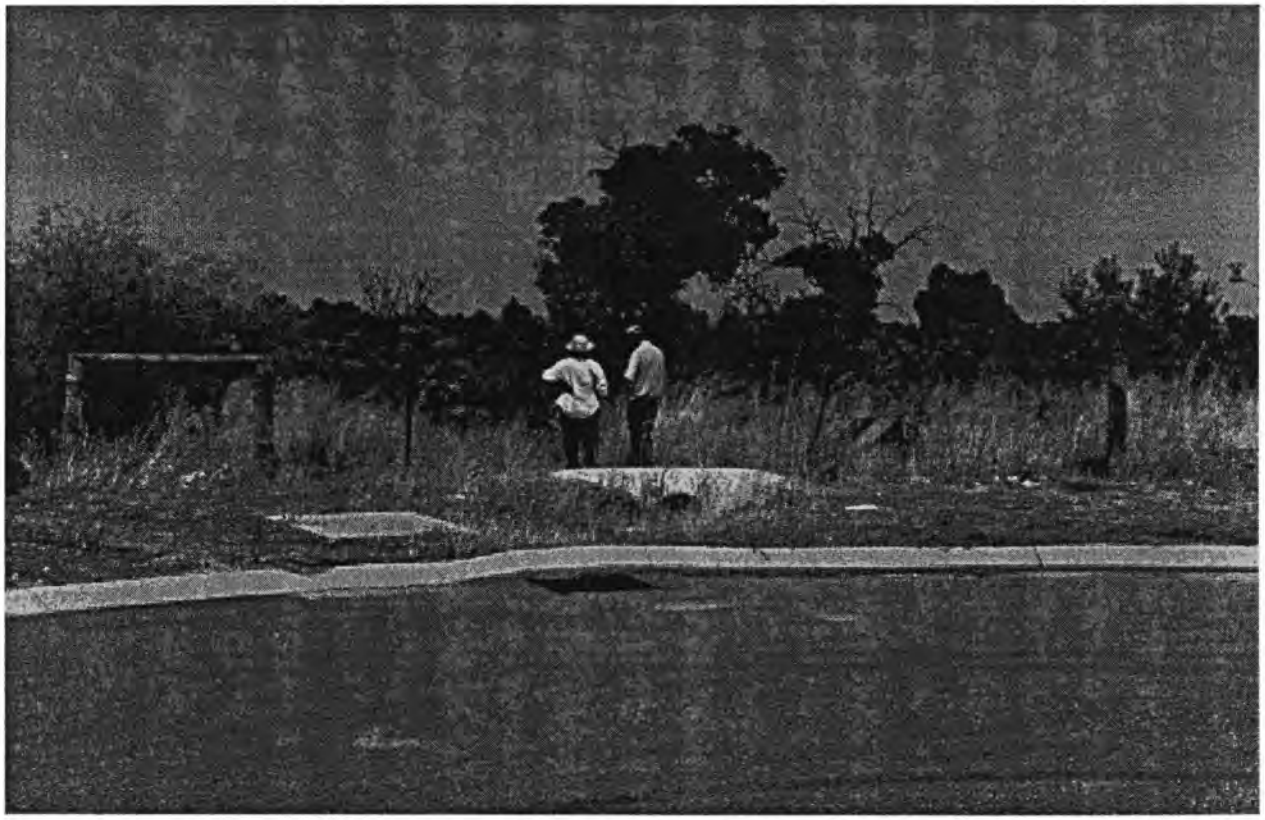
The road verges surrounding the Bushland have varying degrees of weed cover, many being largely lateritic gravel but others particularly along Myles Road, having a high density of grassy weeds.

Control of grassy weeds along the road verges surrounding the Bushland is a very high priority as these weeds provide a source of seed continually reinvading the bushland.

Drainage issues

Storm water drainage is causing concerns in many areas of the Bushland. Issues along Blackadder Creek and O'Connor Road are detailed later in this section.

Water from urban development along Talbot Road created erosion and weed proliferation, particularly Watsonia, in the past. This water has been redirected into compensating basins and pipes along Talbot Road and is no longer directed into the Bushland, except for water from very intensive storm events at the corner of O'Connor and Talbot Roads. Actions required are restitution of eroded areas, control of weeds and filling of the steep depression at the corner of Talbot and O'Connor Roads.



Storm water from O'Connor Road needs to be diverted out of the Bushland to the water compensation basin

Unwanted access tracks

There are numerous tracks, as indicated in Map 10, which are excess to requirements for recreation, management and fire protection. These tracks should be closed by closing the entry points to each track by covering with brush material cut from native species from the Talbot Road Bushland. The tracks should revegetate naturally but if this does not occur after three years then covering with brush, direct seeding and smoke treatment may be required. Weed control in these areas will also be required.

Narrowing of retained tracks

Many tracks are wider than required for either walking or fire and management access and with exposed soil are a ready entry point for weeds. It is suggested that the major tracks, as indicated in Map 10, be treated to:

- create a hard-formed but porous walking track of approximately 1.2 metres in width made from Dieback free materials. This track will also provide a fuel free edge for back burning;
- create a low cover of native vegetation up to 3 metres wide. This area would be managed by slashing to a maximum height of 25 cm at the far edge of the track, tapering down to 10 cm in height for a width of approximately 1.2 metres adjacent to the hard track. This area would allow access by fire fighting and management vehicles and the native ground cover will retard weed establishment.

Figure 1 provides a cross section of the proposed treatment for major tracks.

Minor tracks could be retained as narrow sand tracks in low use areas or upgraded to a hard formed track of one metre in width in higher use areas or where access by baby carriages is required.

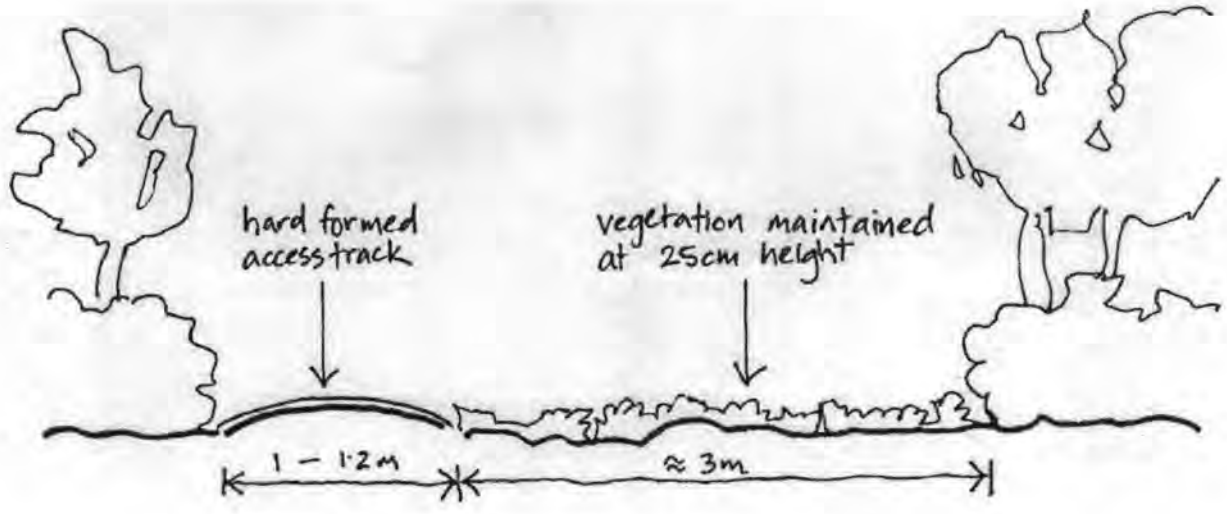


Figure 1. Schematic cross-section of major track providing for easy walking as well as fire and management vehicles

Duplicate access tracks within Talbot Road Bushland can be closed

Gravel and sand pits

The gravel pits near the corner of Talbot Road and O'Connor Road are no longer mined. They have been ripped however there has been little natural regeneration on the hard lateritic soils. The harshness of the environment has also resulted in little weed infestation of these areas. Watsonia does occur in this site however, and there is evidence of previous mounds of dumped material, which appear to be sites of weed contamination.

It is suggested that:

- Watsonia continue to be controlled. The Friends of Talbot Road Reserve have begun an eradication program, and it will prove very effective as long as the treatment is continuous. There is a very severe infestation of Watsonia in the bushland north of the reserve, and once this site is cleared for housing, reinfestation will be unlikely;
- extensive regeneration is unlikely without brushing and seeding. It is suggested that the areas be left until brush is available from the Homeswest site and that the area have a repeat light ripping prior to brushing. Care should be taken that no weed seeds are brought in with this material. A list of species suitable for direct seeding is supplied in Appendix 4; and
- smoothing of irregular features created by gravel stripping could be considered at the time of brushing. There would be some loss of native plant material but create a more natural appearance in the long term.

The sandpit at the southern end, near the cemetery, has been mined for sand, and a large open pit created. This area is now harbouring a number of weed species, including Veldt Grass, Love Grass, Watsonia, Wild Oats and Giant Reed (*Arundo donax*). The pit also contains car bodies and other rubbish. However, the area is also surrounded by threatened ecological communities in good condition. As the task of rehabilitation of this site is enormous, it is recommended that the area be developed for cemetery use in a manner which is compatible with the preservation of the surrounding bushland.

Provision of seed and brush material from the Homeswest site for rehabilitation of Talbot Road Bushland

Brushing followed by enrichment seeding is the recommended rehabilitation strategy for disturbed areas. Brush provides a seed source, niches and protection for seedling establishment in a harsh environment. Smoke treatment should also be tried on these areas.

CALM and Shire approval will be required and
brush should not be transported from disease areas to disease free areas, nor transported across disease free areas.

Homeswest have indicated verbally that seed can be procured from their site adjacent to the bushland now but that brush will not be available until immediately prior to the development of the site. Care will be required as the Homeswest site is a different vegetation community. Site development is not anticipated until the winter of 2001 (Personal Communication Tom O'Leary Homeswest). Given that there is no other source of brush much of the rehabilitation works should be delayed until that time.

Write to Manager Commercial Operations, Housing Production 99 Plain Street East Perth 6004 for permission for seed collection and rehabilitation.

O'Connor Road, unused road reserve

The unused road reserve between O'Connor Road and Myles Road has been severely degraded by uncontrolled stormwater runoff entering the area from the bottom of O'Connor Road. This area is sandy, and waterflow has created a deep ditch, which in places is three metres deep. The water flow could be a cause of Dieback spread in this part of the Bushland. The road reserve is also degraded with multiple tracks, some up to six metres wide.

It is recommended that:

a) the part of O'Connor Road which is currently undeveloped be officially vested in the major vesting authority for the Talbot Road Bushland;

b) the drainage water from O'Connor Road be piped into the water compensation basin to eliminate water, nutrient and weed entry into this part of the Bushland. The pipeline should be constructed to follow existing tracks or close to the fenceline. The Water Authority (Brian Laughton pers. comm.) has indicated that the retarding basin can handle the additional capacity. There is expected to be little additional impact on Blackadder Creek because the maximum volume of water entering Blackadder Creek is controlled by the retarding basin outlet;

c) only one track be maintained along the road reserve for fire fighting purposes and that the other tracks be rehabilitated; and

d) the existing erosion gully and depositional area be rehabilitated by brushing and direct seeding and smoke treatment. Appendix 4 provides a list of species suitable for direct seeding in this area. The use of mechanical means to smooth the erosion gully is not recommended due to cost when resources are limited and loss of native vegetation. The gully is some impediment to fire fighting vehicles but the distances are not great for access around each end of the gully.

Blackadder Creek

Blackadder Creek now has the outflow from the Water Corporation compensation basin as its headwaters. The stormwater flow entering the creek will be bringing weed seed and nutrients with it. Surprisingly, the creek is not overrun with weeds, and many areas are still fairly intact. Love Grass (*Eragrostis curvula*), Paspalum (*Paspalum dilatatum*), Water Couch (*Paspalum distichum*) and Bulrush (*Typha orientalis*) are the main problems along the creekline. The Blackadder Woodbridge Catchment Group have plans to rehabilitate the creekline in Natham Reserve upstream and the area downstream from the Bushland. In many stretches of the creek, hand removal may be possible. In this case the weeds should be cut with a knife at the base of the crown, rather than pulled out, as this will increase erosion. These plants can also be spot sprayed with a grass selective herbicide, which will leave the root systems intact to hold the banks together.

The point where the creek exits the Bushland has been dammed somewhat by a track, which cuts through the creek, and serious infestation of Water Couch, Paspalum and Bulrush has occurred. The track across the creek is also causing large amounts of silt to move downstream every winter, and needs to be closed and revegetated. The weeds should be removed and treated by a contractor, and the area replanted. Direct seeding is not very effective in wetland settings, particularly near stream banks, as seed washes away, and wetland weeds are extremely vigorous and out compete native seedlings. However back from the main channel flow this method can be tried.

7.4 Corridors

The objective is to link the Talbot Road Bushland with other bushland areas to provide a fauna corridor.

Recommendation

That the Shire of Swan, CALM and the Friends group negotiate with Homeswest and other parties to maintain and improve the connection between the Bushland and Jane Brook

Talbot Road Bushland is almost completely isolated and threatened with further isolation by the development of housing on the bushland to the north. Key requirements are to improve the link to the Swan River by improving the Blackadder Creek and to improve the connection via Jane Brook to the Darling Ranges.

The work of the Blackadder Woodbridge Catchment Group in improving Blackadder Creek is acknowledged.

Maintenance and enhancement of the tenuous corridor to Jane Brook will require negotiations with Homeswest who have an expectation of developing the bushland to the north of the Talbot Road Bushland. Retention of, at least, a strategic section of this bushland is desirable. The connection across Talbot Road to Jane Brook is very tenuous and but improvements may be possible. Improvements can include a revegetated strip using local species and encouragement of the use of local species in gardens in the area. Action will be required by CALM, the Shire and the Friends group.

7.5 Fire management

The objective is to protect people, property and natural values of the Talbot Road Bushland, by preventing fire from occurring, by providing rapid and appropriate response to fire, but with the provision for the use of fire for management purposes if required.

Recommendations

It is recommended that:

- **fire for management purposes will not be required during the next ten years due to the likelihood of unplanned fire;**
- **that any burning for management purposes be responsive to the condition of the vegetation and the species present rather than being determined by fixed time frames;**
- **a fire history for the bushland should be maintained;**
- **fire prevention should be improved by controlling access, education and interpretive programs and good fire preparedness and reporting procedures;**
- **fire suppression should be according to the Fire and Rescue Service Fire Management Plan (see Appendix 3) which should be written to reflect the conservation significance of the Bushland. It should aim to provide rapid response direct attack, contain fire within existing track boundaries, undertake no new firebreak construction and rehabilitate affected areas; and**
- **firebreaks be rationalised with the aim of rehabilitating breaks close to bitumen roads where there is low fuel loads on road verges.**

Ecological requirements

Fire is a natural part of the local environment but human fire regimes may be impacting on plant species due to possibly increased fire frequency, changes in seasonality, intensity, area burnt and patchiness effects and encouragement of weeds. Lack of fire can also affect plant communities requiring fire for recruitment. The species most vulnerable to frequent fires are fire sensitive obligate seeders with seed banks in the soil or in the canopy which can be depleted by too frequent fire. Recurrent fire at an interval which does not allow re-establishment of sufficient stored seed can lead to gradual attrition and elimination of species. Fire regimes should be designed with sufficient time between fires to accommodate the maintenance of fire sensitive obligate seeders present on the site with minimum time between burns being between 12 and 20 years. Fire timing should be based on monitoring, rather than fixed time periods and accommodate other disturbances which can affect fire sensitive species such as drought (Safstrom 1997).

Fire can also be detrimental to fauna particularly species which live and forage above the ground. Past studies have shown that some reptiles (i.e. *Cryptophlepharus plagiocephalus* and *Lialis burtonis*) are at a higher risk of having their local population significantly lowered as a result of a fire within the Bushland (Harvey *et al.* 1996). Dell and How (1995) report that a hot fire eliminated some species within the burnt area at Talbot Road Reserve, whereas adjacent unburnt areas had an increase in species diversity, possibly recruited from the burnt area. In a small reserve the burning of all of a particular habitat can easily eliminate a species with no opportunity for recolonisation for an isolated reserve.

It is therefore recommended that burning be responsive to condition of vegetation and species present rather than being determined by fixed timeframes. Fire management should be designed to maintain the presence of the naturally occurring species, whose long-term survival may be sensitive to particular timing and frequency of burns.

Fire also provides an opportunity for weeds such as Veldt Grass to invade the bushland. Weed species generally find it difficult to invade good quality bushland. However, fire creates bare open ground, which is ideal for the germination of many weed species. As most weeds are able to germinate and grow very quickly in disturbed bushland where weeds are present, they are able to out-compete the regeneration of native plants. Once established, weeds use water and nutrients needed by the native vegetation, reducing the amount and vigor of native species, and increase fire risk.

Fire frequency will be difficult to control in the Bushland, however degradation after fire can be minimised by careful weed control as weed species germinate. Areas which have been burnt very frequently and are losing species can also be direct seeded following fire with appropriate seed collected from the Bushland.

In bushland in an urban environment there is often little control on fire frequency due to arson, and the biggest concerns are too frequent fires and damage by fire control efforts. It is therefore important to reduce the likely incidence of fire, to handle fire control in a manner sensitive to the conservation values, to monitor fire location and time to build a fire history for management purposes or for revegetation or reintroductions of fauna if species are lost due to too frequent fires. Controlled burning is unlikely to be required in the next ten years due to the likely incidence of wildfire. A history of fires should be kept, detailing location, date, severity and impacts.

Fire prevention requirements

The following actions are recommended to reduce the incidence of fire:

- complete fencing around the perimeter of the bushland and ensure it is maintained in good condition;
- preparedness of suppression crews relating to the fire danger;
- a fire and vandalism reporting hotline, Shire or community based, to encourage rapid reporting of adverse incidents. For prompt fire suppression the public should call 000). In all cases the managing authority should also be notified as soon as possible;
- interpretation of the nature conservation values of the bushland through leaflets distributed to local residents, particularly neighbours, and interpretative signs and information at key locations at the bushland; and
- appropriate education through local primary and secondary schools, preferably practically based with on site activities to encourage an interest in and appreciation of the Bushland.

Fire preparedness requirements

Prior to every fire season particular attention needs to be placed on checking, and undertaking remedial actions where required, covering access, weed control, fuel level monitoring and provision of water supplies.

Response requirements

The following fire control practices are recommended:

- reduce fire size by rapid response and direct attack;
- where direct attack is not possible contain the fire within tracks as shown in Map 10;
- direct attack only through wheeled vehicular access, backburning from existing tracks or fire bombing. No construction of new firebreaks by heavy machinery although hand tool fireline construction is acceptable;
- vehicles should travel on existing tracks where possible;
- access gates will be provided at key points around the bushland;
- thorough mop up to ensure fire safety and reduce the likelihood of reignition; and
- areas degraded by fire fighting activities need to be first stabilised and then monitored for any rehabilitation or weed management work that may be needed.

The Fire and Rescue Service is the lead contact authority for all fires in the Talbot Road Bushland with assistance from other agencies. A copy of the Fire and Rescue Services fire management plan for the Talbot Road Bushland is attached as Appendix 3. It is anticipated that this plan will be updated according to the Fire and Emergency Services Authority Fire Management Plan Guidelines to be produced mid–late 1999.

Fire access

Good fire access is vital to allow direct attack but this is a small area of bushland with bitumen roads on a number of key boundaries. The following fire access strategy is recommended.

1.	Where there is a bitumen through road adjacent to the Bushland.	No internal ploughed firebreak or access track required. Control fires and backburn if necessary from road edge. Access at vehicular access gates. Rehabilitation of some existing firebreaks will be required. Refer Figure 2.
2.	Where there are linked hammerhead cul de sacs but no through vehicular access	Provide access along perimeter of bushland. Provide vehicular entry points at key locations.
3.	Where back fences of private residences abut the bushland	Provide a firebreak and access as close as possible to the rear boundary of the houses with the goal of minimising flammable material between the firebreak and the boundary fence. In some areas the existing firebreak is not adjacent to the fenceline and realignment is recommended. It is suggested that land owner liaison be an important component of this process. Rehabilitation of sections of track will be required.

Fire tracks adjacent to bitumen roads can be closed if the road verge is maintained as a low fuel zone

Firebreaks adjacent to rear fences of houses require careful management

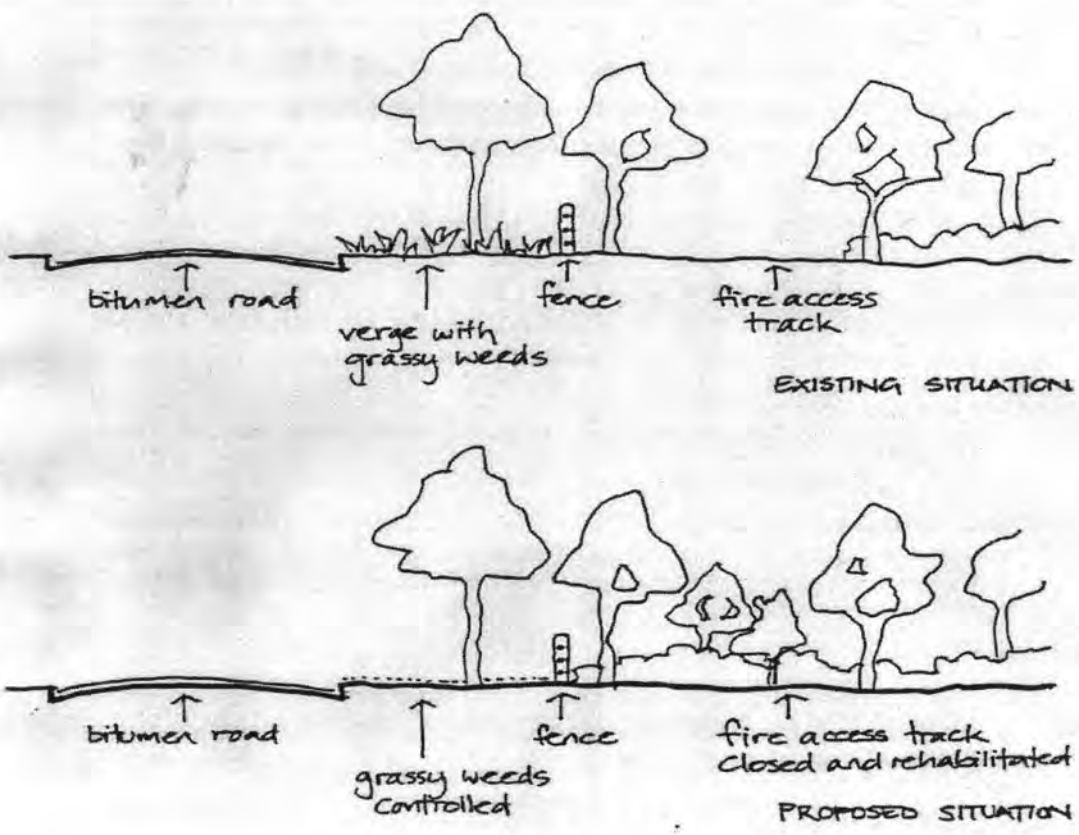


Figure 2. Fire tracks are recommended to be closed and rehabilitated where they are located adjacent to bitumen roads and where the road verge is maintained with a low fuel load

7.6 Disease control

The objective is to maintain the existing status of the disease free areas and to maintain the existing species composition throughout the Bushland.

Recommendations

It is recommended that:

- **priority be given to Dieback control through track closures, good hygiene practices, community education and treatment of a buffer between affected and unaffected areas;**
- **treatment of unaffected areas be implemented to try and retain their disease free status; and**
- **Dieback free areas be resurveyed at three year intervals.**

Dieback is located through most of the Bushland. Two responses are required:

a) Protection of those areas currently free of Dieback from introduction of the disease. Measures include:
   - closure of tracks in disease free areas;
   - advice to contractors, shire workers and fire fighters about appropriate hygiene if working in disease free and diseased areas;
   - maintenance of firebreaks and other operations that move soil to be carried out under dry soil conditions;
   - no introduction of soil material from infected areas; and
   - treatment of a 10 metre wide strip on uninfected land adjacent to the Dieback front with Phosphite to stop or retard the disease from spreading along infected roots.

b) Treatment of susceptible species in unaffected areas to reduce the impact of the disease. The Friends of Talbot Road Bushland have recently received a grant from Alcoa for control of Dieback by stem injection and spraying with Phosphite. These practices should be continued to maintain ecological values of the bushland and the Dieback front and Dieback impact monitored.

Further information about impacts of Dieback and control strategies can be obtained from the Dieback Working Group.

7.7 Pets and feral animals

The objective is to minimise the impact of pets and pest animals on the Talbot Road Bushland.

Recommendation

That dogs only be permitted on a lead and that neighbouring residents be offered information on the adverse impact of cats on fauna.

Pets such as dogs, cats and horses are impacting on the natural values of the Bushland. There is no research but feral cats and foxes are likely to occur. Dogs are likely to have a negative impact on the honey possum and bandicoots. Horses appear to be introducing weed seed and are making tracks soft and difficult to traverse.

Prohibition of dogs is considered to be possible as this is the position taken for Brixton Street and Shenton Park bushland areas. Prohibition however, may be difficult and alienate local people who enjoy exercising their dogs in the Bushland. Dogs should not be permitted but some consider dog use acceptable provided they are restrained on a leash at all times and that excrement collection facilities be provided at entrances to the Bushland.

Cats from nearby residences are likely to be impacting on native fauna. Residents should be encouraged, through education about the adverse impacts of cats, to apply a curfew to their cats so that they are not free to roam at night. In the long term cat sterilisation and registration, combined with active cat control in the Bushland is recommended. Such measures would need to be covered under Local Government Laws and may not be acceptable at present.

7.8 External access

The objective is to control access to the Bushland to prevent the entry of off road vehicles and to encourage pedestrian access by residents and visitors at strategic locations around the perimeter.

Recommendation

It is recommended that the Talbot Road Bushland be completely fenced to prevent off road vehicle and horse use and that appropriate access for walkers, management and emergency vehicles be provided.

The bushland should be completely fenced (with fire resistant materials) around the perimeter with the following fencing styles and access arrangements.

1.	Where there is road access adjacent to the Bushland, e.g. O'Connor Road.	Fence with farm style ringlock fencing. Provide locked vehicle entry gates at strategic locations (refer Map 9) where there are to be vehicular tracks, provide pedestrian only entry points at strategic intervals to coincide with internal access tracks.
2.	Where there are linked hammerhead cul de sacs.	Fence with farm style ringlock fencing. Provide pedestrian only entry points at the end of every second or third cul de sac.
3.	Where back fences of private residences abut the bushland.	Landowner preference for fencing style and access is acceptable.

The purpose of fencing is to deter entry for undesirable uses such as trail bike riding while providing entry for desirable uses such as nature observation. There are a number of designs for allowing entry of walkers only but the challenge is to provide access for baby carriages and the disabled and still deter trail bike use. The following entry point designs are suggested.

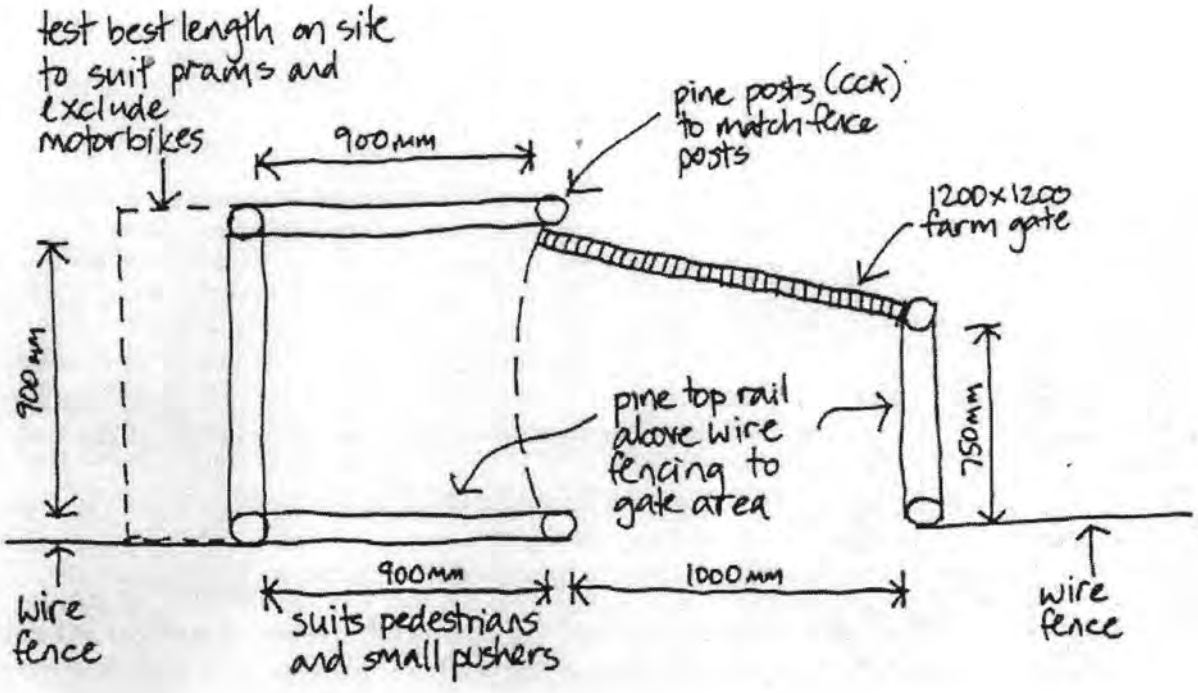


Figure 3. Design for Controlled Gateway allowing people entry with small baby carriages/pushers but excluding motor bikes

Preferred fencing style for Talbot Road Bushland – pine posts with ringlock fencing and a plain top wire

7.9 Recreation and internal access

The objective is to provide for passive recreation activities such as walking and quiet nature observation that complement the maintenance of nature conservation values.

Recommendation

It is recommended that:

- **off road vehicles and horses be prevented from entering the Bushland;**
- **pedestrian only access be provided at strategic locations;**
- **fences and gates should be maintained on a seven day cycle;**
- **tracks be rationalised;**
- **key tracks be hard surface;**
- **interpretation of Aboriginal cultural and nature conservation values be provided; and**
- **no provision for seating or other structures be made, but a facility such as a bird hide may be considered.**

The Talbot Road Bushland currently provides for quiet activities such as walking and nature observation as well as uses such as trail bike riding which conflict both with the quiet enjoyment of the natural environment and nature conservation. There are no facilities such as picnic tables or outdoor games areas. Use of the bushland for recreation appears to come mainly from local residents although no visitor survey has been undertaken. The bushland is a key area for observing the Ridge Hill Shelf vegetation by individuals and groups.

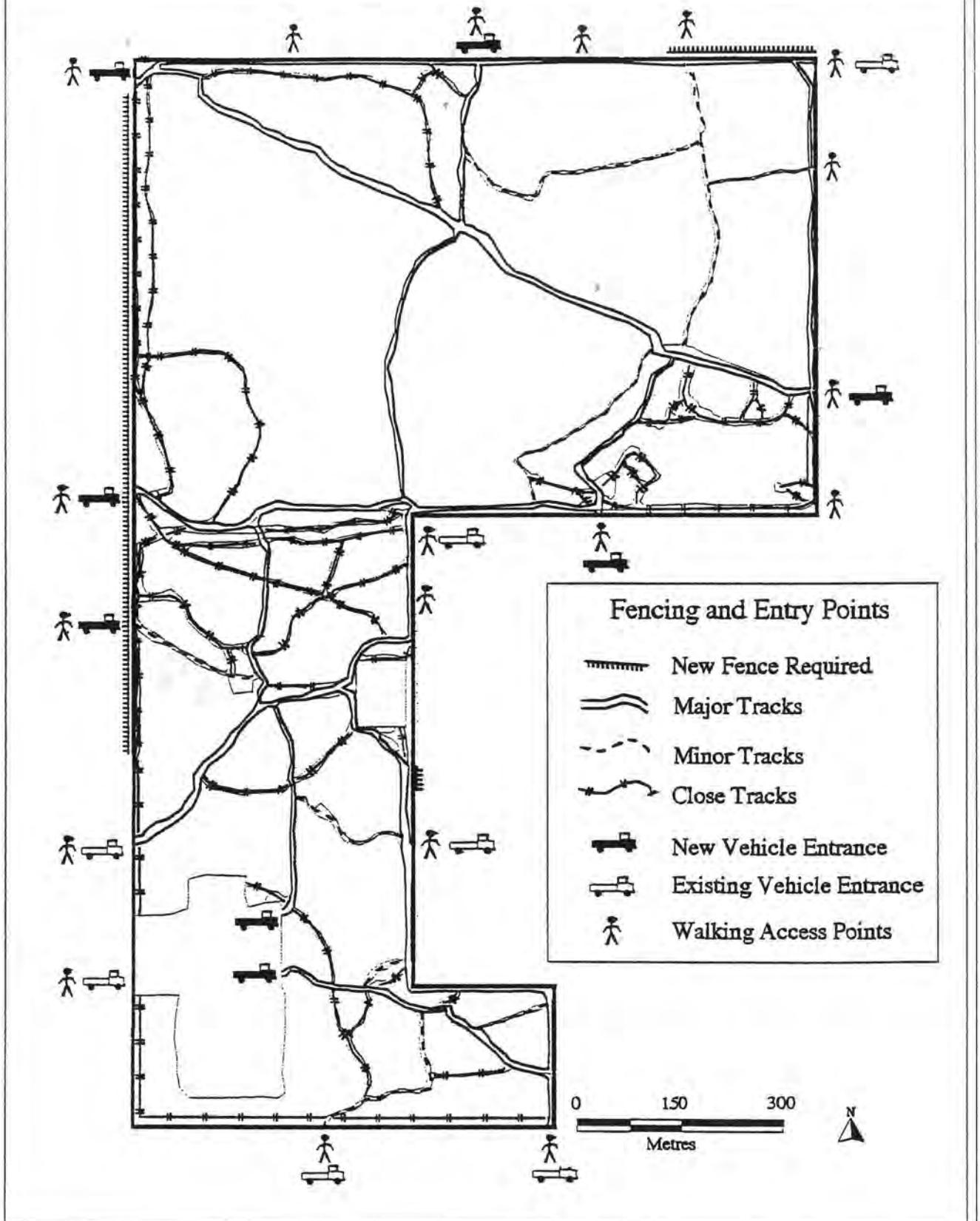
The many tracks through the bushland are unformed and many soft and difficult to traverse by pedestrians. There are no tracks that appear to be important routes, e.g. between schools and shops. There appears to be little demand for picnics and other informal recreation activities with opportunities for these activities in parkland settings in reserves in close proximity to the Talbot Road Bushland. There are no options for off road vehicle use in the immediate neighbourhood. Horse riding appears to be a minor use and there are opportunities for this activity in the Darling Ranges nearby.

There are opportunities for improving the enjoyment of walking and nature observation particularly by providing surfaced tracks, by closing duplicate tracks and by rehabilitation of degraded areas. The gentle terrain also creates easy opportunities for providing access for the disabled. There are also opportunities for interpretation of Aboriginal cultural values and nature through signage, interpretative walk trails and a bird hide.

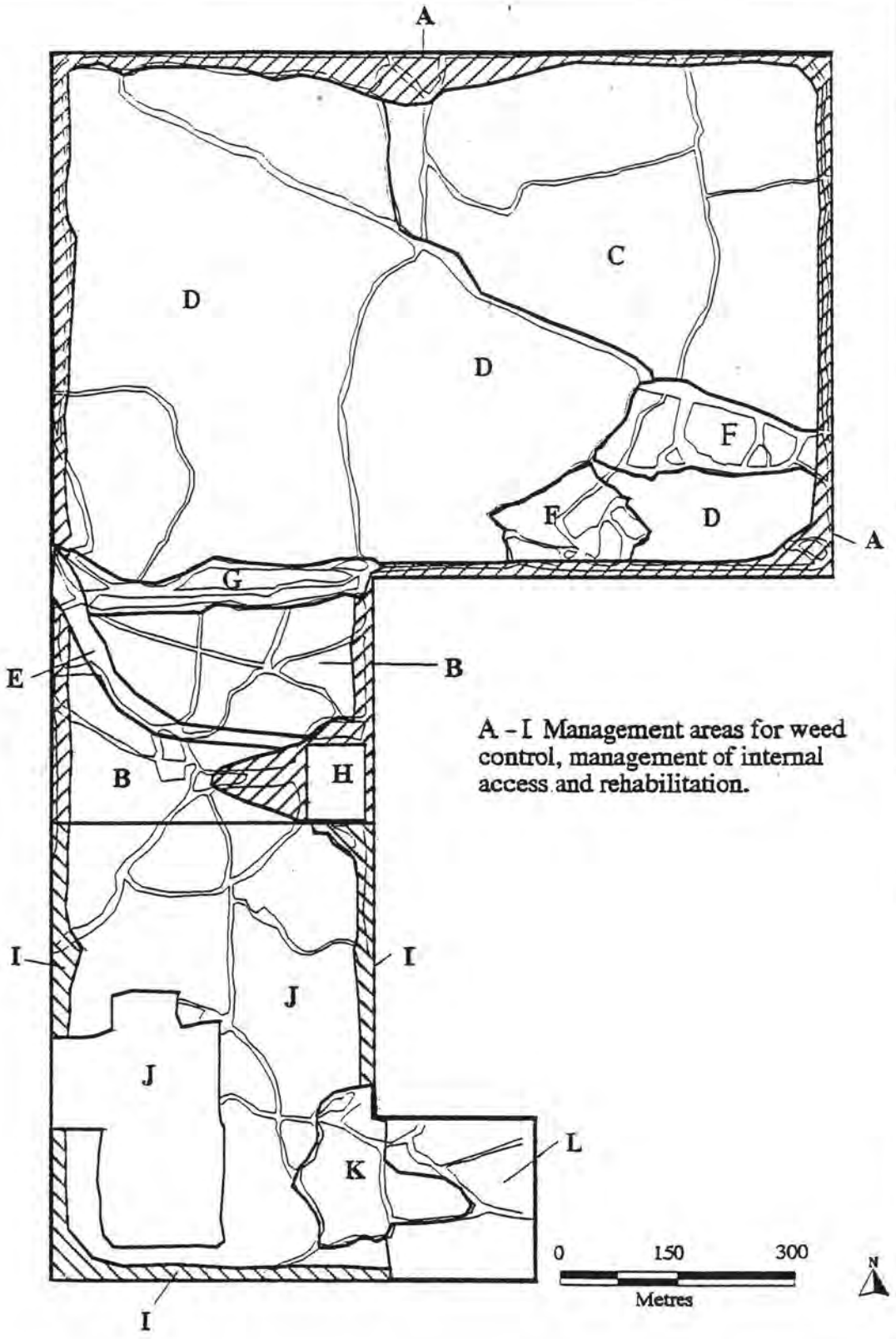
Suggestions to improve walking and nature conservation experiences are provided, in priority order, in the Table 2 below. No provision for other recreational activities should be made due to conflict with nature conservation values and the quiet enjoyment of the area.

Table 2. Recommendations for improving walking and nature observation experiences in the Talbot Road Bushland

No.	Desired works	Outcome
1.	Fence and provide access to the Bushland according to the recommendations under Access in this management plan. Fences should be repaired as soon as possible, preferably within 7 days to deter entry from undesirable uses and to promote an attitude of people caring for the Bushland.	Fencing will deter use for undesirable activities such as rubbish dumping and trail bike riding
2.	Rationalise tracks and provide a hierarchy of tracks to cater for: vehicles for management purposes; access in strategic locations for the disabled; narrow hard surfaced tracks for easy walking and access for baby carriages; and narrow sandy footpads for nature observation (will require monitoring of level of use as not appropriate in high use areas). Figure 9. depicts the suggested system of vehicle and pedestrian tracks across the bushland.	The bushland will be available for a wider variety of users. The experience will be enhanced by easier conditions
3.	Many of the tracks recommended as permanent need to be narrowed, as some are up to 5m wide, increasing the occurrence of weed invasion. Designated tracks through the bushland should be kept as narrow as possible while still allowing access, and the sides should be revegetated or allowed to naturally regenerate. Note use of leaving brush along key fire access tracks is inappropriate due to the fire hazard created.	Enhancement of appearance and reduced weed invasion at edges.
4.	Provide interpretation of Aboriginal cultural and nature conservation values of Talbot Road Bushland at the strategic locations, such as the end of Sava Cove, the end of O'Connor Road, at Midland Cemetery and along Blanchard Road. Interpretative materials should be simple and designed with materials that are readily replaced and easy to maintain.	Interpretative materials will help the community to understand the natural and cultural values of the Talbot Road Bushland. Vandalism is expected in the current environment but with provision of a quality environment and use by an increased variety of people it is anticipated that vandalism will decrease.
5.	The provision of seating and parkland settings within the reserve is not recommended due to the high intensity of use. At Sava Cove facilities can be provided in the parkland adjacent to the reserve.	Provision of seating at entrances will require high maintenance of impacted areas.



Map 10 Implementation Plan - Track Rationalisation, Entry Points and Fencing.



Map 11 Implentation Plan - Weed Control and Rehabilitation for the Talbot Road Bushland.

7.10 Special use areas

Storm water management facilities and the Midland Cemetery are special uses in the Talbot Road Bushland.

The objective is to incorporate these activities and where possible to improve the nature conservation values to complement the values of the Bushland.

Recommendations

It is recommended that:

- **the water compensation basin be modified to create a wetland environment utilising native rushes; and**
- **the cemetery land in good and very good condition not be used for cemetery purposes and that future use of the area be resolved through negotiation between the parties and through *Perth's Bushplan*.**

Water management facilities

The headwaters of Blackadder Creek now flow from a storm water compensation basin, managed by the Water Corporation, which collects runoff from the surrounding urban areas. The compensation basin and adjacent areas are degraded with some large infestations of grassy weeds. Weeds from the compensation basin and urban areas upstream are a constant source of weed reinvasion along Blackadder Creek. The following measures are recommended:

- rationalisation of tracks around the retarding basin, some ripping, brushing and direct seeding of hard and impermeable areas will be required;
- weed control and creation of a wetland environment within the compensation basin which will improve the quality of water flowing into Blackadder Creek. This is a challenging site due to the clay base and periodic inundation. The following native species are suitable: *Baumea juncea, Baumea rubiginosa* and *Lepidosperma longitudinale*.

Midland Cemetery

This plan recommends that no further bushland in good or very good condition be cleared for cemetery use, but acknowledges that the future use of the Cemeteries Land will be resolved through negotiations between the parties and through *Perth's Bushplan*. A disturbed area of Unallocated Crown Land, 11764, has potential for cemetery use.

Appendix 3 provides a list of plants, together with flower colour and flowering times suitable for use in the cemetery, particularly for landscape planting in areas with memorials in bushland and for rehabilitation.

Memorials amongst bushland within Midland Cemetery

7.11 Interpretation and education

The purpose is to promote awareness and understanding of the natural and cultural values of the Talbot Road Bushland through publicity, the development of interpretative information and through an Aboriginal inspired interpretative trail.

Recommendation

It is recommended that an interpretation and education strategy be implemented utilising the media, signage, leaflets and interpretative walk rail and links with schools.

Talbot Road Bushland with its very high nature conservation values and its significance for the Nyungah community offers many opportunities for interpretation and education. Community education is essential so that people using the Bushland appreciate its conservation values, so that they understand the reason for management works and so that users are likely to promptly report adverse uses of the Bushland.

The interpretation and education strategy is in five parts:

a) Media. Ongoing stories in the media about activities in the Bushland, e.g. Dieback control, fencing program;
b) Signage.
   - information stands at key locations. Suggested design and wording are provided below;
   - signage at major entrances to the Bushland indicating the purpose of the Bushland, its conservation values and a reporting authority, e.g. the Shire. Signage should have positive messages, be robust, cheaply replaced if vandalised and be simple in design. Suggestion for sign wording at major entrances is provided below;
   - signage at minor entrances. Suggested sign wording for minor entrances is provided below;
   - prohibition signs, e.g. dogs, horses vehicle use are recommended together with good maintenance of fences to keep out undesirable uses; and
   - signage at Dieback free areas restricting access. It is suggested that the Management Team recommend final signage styles and that the style be compatible with the vesting authority's signage standards;
c) Leaflets. A leaflet outlining the values of the Bushland, its conservation values, reporting authority and about the Friends group to be distributed to neighbours and those living in proximity to the Bushland;
d) Interpretative walk trail. Provide an interpretative walk trail utilising existing tracks as far as possible. An Aboriginal focus for the trail is a possibility; and
e) Links with schools encouraging use of the Bushland for educational activities.

Information stand

Signage for information stand

Talbot Road Bushland

This bushland is very special, a haven for wildlife, for community enjoyment and is of Aboriginal cultural significance.

It is a small patch, one of the few remaining examples of the natural vegetation types for this area.

It contains 366 species of native plants and provides homes and food for 47 bird species, 3 different native mammals, 13 species of reptiles and 7 different frogs.

This bushland may be used for walking on the tracks, for dogs on a leash and for nature observation.

Please take care of this very special patch of bush.

Shire of Swan
Phone 9267 9401 Ranger Services
Phone 000 to report fires

Signage for major entrances

Signage for minor entrances

TALBOT ROAD BUSHLAND

CONSERVATION AREA

PLEASE TAKE CARE OF THIS AREA

7.12 Research and monitoring

The purpose is to encourage research and monitoring of visitor use and impacts and natural processes within Talbot Road Bushland.

Recommendation

It is recommended that:

- **a monitoring program be implemented covering Dieback, fire, weed control, rehabilitation, fauna and people use;**
- **the community, including schools and universities, be encouraged to participate;**
- **that an annual monitoring celebration be held; and**
- **a monitoring schedule be maintained by the Friends group.**

There are many opportunities for research and monitoring within the Talbot Road Bushland. Visitor use, management regimes and external influences all need to be evaluated for their impact on the Bushland.

Key research and monitoring requirements include:

a) monitoring of Dieback, movement of the Dieback front and the effectiveness of remedial actions;

b) monitoring of flora and vegetation including: burnt areas for regeneration; flora composition, weed control strategies; and rehabilitation works through permanent quadrants and/or transects assessed on a periodic basis. The 13 plots established by the Swan Coastal Plain Survey form a good basis for this work;

c) fauna surveys to investigate fauna population dynamics; and

d) monitoring of people use.

Community involvement in monitoring and research should be encouraged. The Bushland offers challenging studies for university students, projects for secondary and primary schools and opportunities for community members to monitor aspects within their particular interest.

An annual monitoring celebration to bring together all the people with an interest in the Bushland to report their results is recommended.

Table 3 provides a sample of a monitoring schedule, which could be maintained by the Friends group. A proforma is attached in Appendix 5.

Table 3. Monitoring schedule for Talbot Road Bushland

No.	Aspect	Organisation and contact	Method	Frequency
1	Dieback	Vesting Authority, CALM, Friends	Survey every three years	Every three years
2	Fire	Vesting Authority, Friends, school or university	Marked quadrats in burnt and similar unburnt areas,	Twice per year
3	Restoration and weed control	Vesting Authority, Friends, school or university	Marked quadrats or transects through a range of weed control sites	Twice per year
4	Rehabilitation	Vesting Authority, Friends, school or university	Marked quadrats or transects through rehabilitated areas	Twice per year
5	Fauna surveys	Vesting Authority, Friends, school, university or museum	Methods appropriate for different species from permanent sites to enable replication	Twice per year, suggest an individual species focus
6	People use	Vesting Authority, Friends, school or university	Observations and/or questionnaires	Every three years

8. Implementation

8.1 Management authority

It is recommended that the Talbot Road Bushland be vested in the Shire of Swan or the National Parks and Nature Conservation Authority (NPNCA) for the following reasons:

1. the very high nature conservation values;
2. the poor representation of the nature conservation values in other reserves; and
3. all bushland is in good or very good condition.

Future vesting of Midland Cemetery bushland will be resolved through a Ministerial Working Group.

The issue of long term vesting with the Shire of Swan or with the NPNCA has not been addressed in this management plan and needs to be resolved between the parties.

Close cooperation between CALM and the Shire of Swan is required to gain the best advantage of strong local interest provided by the Shire and the ecological expertise available through CALM.

The contribution of the Friends of Talbot Road Reserve will be vital for the long term management of the Bushland and this group will require strong support if it is to contribute strongly to the management of the whole Bushland area.

8.2 Funding

The following sources of funding have been identified (not including funds provided by the vesting authorities).

Source	Applications due	Contact
Natural Heritage Fund	February	
Gordon Reid Foundation for Conservation. Small (up to $5000) and large grants.	Ongoing	Michael Sanford 9340 5270
Swan Urban Landcare, Alcoa.	October (and earlier)	
Community Conservation Grants. Minister for the Environment.	November	
World Wide Fund for Nature Threatened Species Grants.	April-May 1999 (may be later)	9387 6444
Swan Shire		
CALM Western Australia's Threatened Species and Communities Unit (WATSCU), Bankwest Landscope Conservation Visa Cards (up to $5000).		WATSCU 9405 5128
DEP Alinta Gas Bushcare.	January/February	Margo O'Byrne (Ecoplan) 9222 7000
Greencorps. A Federal project, managed by ATCV, six month projects with small team of young people. Talbot Road meets most of the criteria.		ATCV 9336 6911

8.3 Physical work, priorities and costings

Protection and enhancement of the Bushland requires the following key actions listed in priority order. The priorities are based on first controlling ongoing threats, then managing existing problems in order of perceived threat. The works are presented in priority order and a budget has been completed for an intensive three year effort to address most of the major issues. It is recognised that the works program will be subject to ongoing review with issues brought forward as funding becomes available.

The budget is for out of pocket expenses and does not include estimates for Government contributions, Friends Group labour or routine maintenance such as firebreaks, rubbish removal and security patrols.

1. Management of Dieback (*Phytopthora*), a serious threat to conservation values.
2. Management of external access.
3. Implementation of a community education strategy to reduce threats from human activities.
4. Diversion of storm water entering the bushland that results in weed invasions and Dieback spread.
5. Management of weeds. Some weeds can be eliminated and most controlled over a number of years. Early action will reduce future work.

6. Management of internal access by track closure, hard surfacing and rehabilitation, to reduce spread of weeds
7. Rehabilitation of degraded areas to enhance the conservation values.

The budget includes the involvement of the Australian Trust for Conservation Volunteers (ATCV) for some activities. ATCV utilises volunteers to undertake conservation works for the community. Standard charges are $330 a day plus travel expenses for a team of 10 people with a trained team leader. ATCV also manages the Greencorps program, which is a Federal Government funded initiative to help train young unemployed people in conservation works. Greencorps teams are available for six month periods and can undertake a wide variety of tasks. The majority of the costs are borne by the Greencorps program. The Talbot Road Bushland offers a suitable variety of and quantity of tasks to be able to utilise a Greencorps team.

Currently primary responsibility for actions lies with the Shire of Swan while the Shire of Swan is the vesting authority.

Summary of estimated management costs

No.	Item	Year 1 $	Year 2 $	Year 3 $	Year 4 $	Year 5 $
1.	Dieback management	4 100		800		
2.	Management of external access	5 775	5 100	5 100		
3.	Education and Interpretation	2 830	1 440	7 850		
4.	Diversion of storm water	600	24 687			
5.	Management of weeds	21 600	20 000	19 800	29 050	29 050
6.	Management of internal access	8 000	6 560	5 450	7 920	0
7.	Rehabilitation		2 610	7 440		
	Total	**42 925**	**60 397**	**46 440**	**36 970**	**29 050**

1. Management of Dieback

Management of Dieback involves:

- treating disease free areas, particularly tree species by stem injection every three to five years to prevent loss of trees and spread of disease along roots;
- treating a 10 metre buffer around the boundary of disease free areas by spraying and injection every three years to prevent disease entering the disease free area;
- identification of DRF and priority species that are susceptible to Dieback and treat with Phosphite;
- monitoring disease incidence and modifying treatments accordingly; and
- reduction in sources of Dieback spread by track closure and implementation of management recommendations and Dieback works procedures.

Action required	Responsibility	Cost est. year 1	Cost est. year 2	Cost est. year 3
Treatment of disease free areas, creation of a buffer and closure of internal track in disease free area. Funding received from Swan Urban Landcare, Alcoa	Vesting Authority, Friends and ATCV	ATCV 10 days $3500 Materials and equip. $600		
Monitoring	Vesting Authority and Management Team			$800
Total		**$4 100**	**$0**	**$800**

2. Management of external access

Entry to the Bushland by four wheel drive vehicles, motor bikes and horses is undesirable. The solution is to complete fencing of the Bushland, construct vehicular gates at key access points and people gates, which allow entry by pedestrians and baby carriages but restrict entry by other forms of transport.

Key:

ATCV	Australian Trust for Conservation Volunteers
BWCG	Blackadder Woodbridge Catchment Group
Friends	Friends of Talbot Road Reserve
Shire	Shire of Swan

Action required	Responsibility	Cost est. year 1 $	Cost est. year 2 $	Cost est. year 3 $
Fence remaining boundary, except adjacent to the Homeswest site with farm ringlock style fence. One kilometre @ $3000 (50/50 labour and materials). Remove and sell? existing bollards.	Vesting Authority, Management Team and works by contractor	3 000		
Fence adjacent to Homeswest site. 250 metres kilometre @ $3 per metre (50/50 labour and materials). This is a priority but Homeswest may not contribute until their land is developed.	Homeswest	750		
Supply and erect 9 non-removable vehicular gates, with locks @ $225 per gate including labour. Note there are 4 gates required at existing vehicular entrances and 5 gates at new entrances.	Vesting Authority, Management Team and works by contractor/ ATCV	2 025		
Supply and erect 17 pedestrian gates @ $600 per gate. (Possibly cheaper if prefabricated in steel).	Vesting Authority, Cemeteries Board, Friends and works by contractor/ATCV		5 100	5 100
Maintain fences and gates on seven day cycle.	Vesting Authority and Friends.	Not costed	Not costed	Not costed
Total		**5 775**	**5 100**	**5 100**

3. Implementation of a community education strategy to reduce threats from human activities

Action required	Responsibility	Cost est. year 1 $	Cost est. year 2 $	Cost est. year 3 $
Media. Five media releases per year on current activities. Costing assumes input from Friends Group with support from CALM and Shire.	Management Team	250	250	250
Signage. Four major signs 800 x 600 mm @ $220 per sign plus $50 erection and posts.	Vesting Authority and Management Team	1 080		
Signage. Fourteen minor signs 400 x 300 mm @ $50 each plus $35 erection and posts.	Management Team		1 190	
Leaflets. Design and printing of 1000 leaflets @ 35c each. Assumes significant input by Friends Group and editorial support from CALM and Shire.	Management Team	1 500		
Interpretive walk. A walk trail utilising existing tracks. Costs for track surfacing and signage. Track 1 km @ $1650 for ATCV, $850 for ten signs, $5000 for hard surfacing, $350 for leaflets. Assumes donation of scientific and cultural information.	Vesting Authority, Management Team, Nyungah community and ATCV			7 850
Links with schools.	Management Team, and Friends	Not costed		
Total		**2 830**	**1 440**	**7 850**

4. Diversion of storm water entering the Bushland

Storm water is impacting on the bushland particularly at the end of O'Connor Road and along Talbot Road. Remedial actions involve diverting the water entering from O'Connor Road to the water compensation basin and reinstating the drain along Talbot Road to a standard to keep water out of the Bushland.

Action required	Responsibility	Cost est. year 1 $	Cost est. year 2 $	Cost est. year 3 $
Divert water from O'Connor Road to the water compensation basin. Piping and installation $22,656; headwall, barrell and trap $785; site restitution $1000	Shire, Water and Rivers Corporation and Management Team		24 687	
Reinstate drain along Talbot Road	Shire	600		
Total		**600**	**24 687**	

5. Weed control

The Bushland has been divided into management areas (see Map 11) for weed control based on the bushland condition mapping. The strategy has been based on optimistic expectations of financial resources and while some areas are programmed to commence in later years, ideally earlier commencement is desirable.

The strategy calls for a concerted effort to control grassy weeds in the Very Good Condition and Good Condition bushland as well as controlling small pockets of other weeds with potential to spread in year one, with efforts to control weeds on the perimeter from year four. In each case follow up work will be required for at least five years with spot treatment of residual weeds following up to five consecutive years of intensive treatment. The weed strategy will require a parallel effort by the Shire to control grassy weeds on the adjacent road verges. The Project Officer for the Environmental Weeds Action Network is facilitating the preparation of a detailed weed management plan but this work is not sufficiently advanced to incorporate in this management plan.

The costings are based on commercial rates save for non spraying tasks where it is considered that the Australian Trust for Conservation Volunteers (ATCV) can be utilised, when costs appropriate to their services have been applied.

Action required in priority order	**Responsibility**	**Cost est. year 1 $**	**Cost est. year 2 $**	**Cost est. year 3 $**	**Cost est year 4 $**	**Cost est year 5 $**
Area D – Very Good Condition bushland to south and west 1. Hand pull or spot spray Veldt Grass in June-Aug.	Vesting Authority and Management Team	700	350	350	150	150
Area C – Good Condition bushland in NE corner 1. Spray for Veldt Grass with a grass selective herbicide in June-Aug. 2. Continue spraying of Watsonia with Glyphosphate.	Vesting Authority and Management Team	11 250	11 250	11 250	5 600	5 600
Area B – Bushland in Crown Land 1. Spray for Veldt Grass with a grass selective herbicide in June-Aug.	Vesting Authority and Management Team	6 750	6 750	6 750	3 400	3 400
Area J – Cemetery Bushland in Good Condition 1. Spray for Veldt Grass with a grass selective herbicide in June-Aug.	Cemeteries Board and Management Team	1 500	750	750	400	400
Area L – Crown Land 1. Spray for Veldt Grass with a grass selective herbicide in June-Aug. 2. Spray for Love Grass with Glyphosphate in summe.r	Vesting Authority and Management Team				3 000 1 000	3 000 1 000
Area E – Blackadder Creek 1. Hand cut or spot spray Love Grass with a grass selective herbicide or Glyphosphate without surfactant in summer. Spray Paspalum with Roundup Biactive or a grass selective herbicide in summer. 2. Cut and spray Typha in summer with Glyphosphate without surfactant.	Vesting Authority and Management Team	600 600	600 300	600 100	300 100	300 100

Area A – Perimeter 1. Spray for Veldt Grass with a grass selective herbicide in June-Aug. 2. Spray for Love Grass with a grass selective herbicide or Glyphosphate in summer.	Management Team				5 600 2 000	5 600 2 000
Area I – Perimeter Cemetery land 1. Spray for Veldt Grass with a grass selective herbicide in June-Aug. 2. Spray for Love Grass with a grass selective herbicide or Glyphosphate in summer. 3. Remove/spray with Glyphosphate other weeds along Blanchard Rd including Tangier Pea, Watsonia, Tagasaste and Prickly Pear.	Cemeteries Board and Management Team	 200			5 000 2 500	5 000 2 500
Total		**21 600**	**20 000**	**19 800**	**29 050**	**29 050**

6. *Management of internal access*

Internal access needs to be modified by track closure, narrowing/revegetation of tracks and hard surfacing as indicated on Map 10. The following works are in order of priority. Refer to Map 11 for location of Areas A–L.

Action required in priority order	Responsibility	Cost est. year 1 $	Cost est. year 2 $	Cost est. year 3 $	Cost est. year 4 $	Cost est. year 5 $
Area D – Very Good Condition bushland 1. Close narrow loop track by brushing ends with material sourced from Dieback free areas and signpost. 2. Narrow and revegetate tracks as recommended. 0.5 ha @ $500 per ha. Assumes most seed collected on site professionally and applied by volunteers, no ripping on sand with brushing or raking to incorporate seed. 3. Hard surface tracks, 1.2 m wide. 1.5 km @ $5000 per kilometre.	Vesting Authority, Friends/ATCV and Management Team	250 250 7 500				
Area C – Good Condition bushland 1. Narrow and revegetate tracks as recommended. 0.3 ha @ $500 per ha. 2. Hard surface tracks, 1.2 m wide. 1.3 km @ $5000 per km.	Vesting Authority, Friends/ATCV and Management Team		150 6 500			
Area B – Good Condition bushland 1. Close tracks as recommended. 2. Narrow and revegetate tracks as recommended. 0.2 ha @ $500 per ha. 3. Hard surface tracks, 1.2 m wide. 0.6 km @ $5000 per km.	Vesting Authority, Friends/ATCV and Management Team			250 100 1 800		
Area L Crown Land 1. Close tracks as recommended. 2. Narrow and revegetate tracks as recommended. 0.2 ha @ $500 per ha. 3. Hard surface tracks, 1.2 m wide. 0.6 km @$5000 per km.	Vesting Authority, Friends/ATCV and Management Team			200 100 3 000		
Area J and I Cemetery Works not costed until Cemetery Master Plan finalised.	Cemeteries Board and Management Team					
Area A 1. Close and rehabilitate tracks as recommended. Closure of firebreaks is conditional on control of grassy weeds on road verges. 2. Narrow and revegetate tracks as recommended. 0.5 ha @ $500 per hectare plus ripping of 650 metres on gravel @ $150 per 100m. 3. Hard surface tracks on sand, 1.2 m wide 1.2 km @ $5000 per km.	Area A Vesting Authority, Friends/ATCV and Area I Cemeteries Board and Management Team				700 1 220 6000	
Total		**8 000**	**6 560**	**5 450**	**7 920**	**0**

7. *Rehabilitation of degraded areas*

The key areas for rehabilitation are the unused section of O'Connor Road, the water compensation basin and the gravel pits in section F. There is no proposal to rehabilitate the quarry in Area K as it is likely to be used for cemetery purposes.

Action required in priority order	Responsibility	Cost est. year 1 $	Cost est. year 2 $	Cost est. year 3 $
Area G – Unused road reserve O'Connor Road 1. Close and brush tracks as recommended. ATCV $1650, truck hire from Shire 3 days @ $40 per hour. Direct seed with pretreated seed, if required, in year 3.	Friends/ATCV, Vesting Authority and Management Team		2 610	500
Area F – Gravel Pits 1. Lightly rip gravel pit. 2. Mulch area with branches from nearby future residential area. ATCV $1650, Truck hire from Shire 3 days @ $40 per hour. 3. Direct seed area April/May with pretreated seed.	Vesting Authority, Management Team and Friends			1 500 2 610 500
Area H Water Corporation Basin 1. Control weeds. 2. Replant 20 m alongside drainage lines in basin, total 200 sq. metres @ $9.00 per square metre, with *Baumea juncea* (4/sqm), *Baumea rubiginosa* (4/sqm) and *Lepidosperma longitudinale* (4/sqm). ATCV 1 day @ $330.	Water Corporation BWCG/ATCV and Management Team			200 1 800 330
Total			**2 610**	**7 440**

8.4 Community involvement

The Friends of Talbot Road Reserve are playing a key role and providing a forum for management of the Bushland. The group in the past have restricted their interest to the Talbot Road Reserve but with this management plan have become involved in the management of the whole Bushland.

The role of community is vital for the successful management of remnant bushland in urban areas because they provide excellent local knowledge, a passion for the area and often contribute very considerable physical and mental energy to management. Unfortunately in new suburbs the local community have not created a sense of place and local ownership and few have knowledge of the significance of the area resulting in a small pool of people to contribute to the Friends group. For this reason it is vital that the Friends of Talbot Road Reserve receive excellent support from the Shire of Swan, CALM and the DEP Ecoplan project.

It is recommended that the Friends of Talbot Road Reserve extend their charter to the broader Talbot Road Bushland and that the Shire of Swan and CALM provide resources to assist with management of the Bushland. Resources will include assistance with funding applications, assistance with publicity, in organising events and financing works by contractors and ATCV and freeing the Friends Group to contribute where they are most able.

8.5 Management plan review

This management plan is designed to guide management of the Talbot Road Bushland over the next ten years but with a review in five years time. The management plan has recommended that the Unallocated Crown Land and the cemetery land in good condition will be managed for conservation purposes with an option for managing the cemetery land for conservation and cemetery purposes. The management plan will need to be revised when decisions regarding future cemetery use are made.

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Urban Bushland Application No. 7.

Appendix 1. Fauna of the Talbot Road Bushland

(Source: How *et al*, 1996)

Birds (excluding seabirds and trans-equatorial migrant waders)

Common Name	Biological Name
White-faced Heron	*Ardea novaehollandiae*
Mountain Duck	*Tadorna tadornoides*
Wood Duck	*Chenonetta jubata*
Black-shrouded Kite	*Elanus caeruleus*
Square-tailed Kite	*Lophoictinia isura*
Collared Sparrowhawk	*Accipiter cirrocephalus*
Australian Kestrel	*Falco cenchroides*
Painted Button-quail	*Turnix varia*
Domestic Pigeon	*Columba livia*
Common Bronzewing	*Phaps chalcoptera*
Spotted Dove	*Streptopelia chinensis*
Laughing Dove	*Streptopelia senegalensis*
Red-capped Parrot	*Platycercus spurius*
Ring-necked Parrot	*Platycercus zonarius*
Elegant Parrot	*Neophema elegans*
Carnaby's Cockatoo	*Calyptorhynchus latirostris*
Red-tailed Black Cockatoo	*Calyptorhynchus magnificus*
Galah	*Cacatua roseicapilla*
Little Corella	*Cacatua sanguinea*
Pallid Cuckoo	*Cuculus pallidus*
Shining Bronze Cuckoo	*Chrysococcyx lucidus*
Laughing Kookaburra	*Dacelo gigas*
Sacred Kingfisher	*Halcyon sancta*
Rainbow Bee-eater	*Merops ornatus*
Welcome Swallow	*Hirundo neoxena*
Tree Martin	*Hirundo nigricans*
Black-faced Cuckoo-shrike	*Coracina novaehollandiae*
Rufous Whistler	*Pachycephala rufiventris*
Grey Fantail	*Rhipidura fuliginosa*
Willie Wagtail	*Rhipidura leucophrys*
Western Flyeater	*Gerygone fusca*
Weebill	*Smicrornis brevirostris*
Yellow-rumped Thornbill	*Acanthiza chrysorrhoa*
Rufous Songlark	*Cincloramphus mathewsi*
Australian Sittella	*Daphoenositta chrysoptera*
Mistletoebird	*Dicaeum hirundinaceum*
Striated Pardalote	*Pardalotus striatus*
Grey-breasted White-eye	*Zosterops lateralis*
Brown Honeyeater	*Lichmera indistincta*
Singing Honeyeater	*Meliphaga virescens*
White-cheeked Honeyeater	*Phylidonyris nigra*
Western Spinebill	*Acanthorhynchus superciliosus*
Red Wattlebird	*Anthochaera carunculata*
Little Wattlebird	*Anthochaera chrysoptera*
Magpie-lark	*Grallina cyanoleuca*
Australian Magpie	*Cracticus tibicen*
Grey Butcherbird	*Cracticus torquatus*
Australian Raven	*Corvus coronoides*

Amphibians

Genus	Species
Leptodactylidae	
	Crinia georgiana
	Crinia glauerti
	Crinia insignifera
	Heleioporus eyrei
	Heleioporus inornatus
	Heleioporus psammophilus
	Limnodynastes dorsalis

Reptiles

Genus	Species
Gekkondidae	
	Diplodactylus spinigerus
Pygopodidae	
	Lialis burtonis
	Pletholax gracilis
Agamidae	
	Pogona minor
Scincidae	
	Cryptoblepharus plagiocephalus
	Ctenotus fallens
	Lerista elegans
	Menetia greyii
	Tiliqua rugosa
Varanidae	
	Varanus gouldii
	Varanus tristis
Typhlopidae	
	Ramphotyphlops australis
Elapidae	
	Simoselaps semifasciata

Arachnida

Family	Genus	Species
Araneae		
	Idiopidae	
		Aganippe sp.2
	Nemesiidae	
		Aname diversicolor
		Aname sp. 1
		Teyt sp.
	Anapidae	
		Chasmocephalon sp.
	Araneidae	
		Argiope trifasciata
		Eriophora biapicata
	Corinnidae	
		sp. 2
		Supunna albopunctata
		Supunna picta
	Deinopidae	
		Deinopis sp.
	Desidae	
		Badumna insignis
	Gnaphosidae	
		Trachycosmus sp.
	Heteropodidae	
		Isopeda leishmanni
		Neosparassus sp. 1
		Neosparassus sp. 3
	Liocranidae	
		Orthobula sp.
	Lycosidae	
		Artoria sp. 1
		Lycosa leuckartii
		Lycosa sp. 2
		Lycosa sp. 4
		Lycosa sp. 6
	Mimetidae	
		Australomimetus sp. 2

	Miturgidae	
		sp. 1
		sp. 2
		sp. 3
		sp. 4
		sp. 7
	Oonopidae	
		Gamasomorpha sp.
		Grymeus sp. 1
		Myrmopopaea spp.
		Opopaea sp.
	Salticidae	
		Maratus mungaich
	Stiphidiidae	
		Baiami volucripes
		Corasoides sp.
		Forsterina sp. 1
	Theridiidae	
		Achaearanea spp.
		Ancocoelus sp.
		Enoplognatha sp.
		Euryopis spp.
		Gmogala sp. B
		Gmogala sp. U
		Latrodectus hasseltii
		sp. A
		sp. E
		Steatoda sp.2
	Thomisidae	
		Stephanopis sp. 1
	Zodariidae	
		Asteron sp. 1
		Cyrioctea sp.
		Habronestes australiensis
		Habronestes sp. 1
		Habronestes sp. 2
		sp. 5
		Storosa sp.
Opilionida		
	Megalopsalidae	
		Megalopsalis sp.
Pseudoscorpionida		
	Chthoniidae	
		Austrochthonius sp.
	Olpiidae	
		Beierolpium bornemisszai
	Buthidae	
		Lychas marmoreus
	Scorpionidae	
		Urodacus novaehollandiae

Myriapoda

Family	**Genus**	**Species**
Scolopendrida		
	Scolopendridae	
		Cormocephalus aurantiipes
		Cormocephalus rubriceps
		Cormocephalus strigosus
		Cormocephalus turneri
		Notiasemus glauerti
		Scolopendra laeta
Polydesmida		
	Paradoxosomatidae	
		Akamptogonus novarrae
		Antichiropus sp. 2
		Antichiropus variabilis
Polyxenida		
	Polyxenidae	
		Unixenus ssp.

Cockroaches

Family	Genus	Species
Balattodea		
	Balattidae	
		Polyzosteria fulgens
		Polyzosteria sp. 1
		Platyzosteria sp. 3
		Platyzosteria sp. 4
		Platyzosteria sp. 5
		Platyzosteria sp. 6
		Platyzosteria sp. 7
		Platyzosteria sp. 8
		Platyzosteria sp. 9
		Platyzosteria sp. 12
		Platyzosteria sp. 13
		Zonioploca bicolor
	Blattellidae	
		Paratemnopteryx sp. 2
		Richanitchia sp.
		Robshelfordia sp.
		sp. 1
		sp. 7
		Calolampra sp.
Hymenoptera		
	Baeini	
		Idris sp. 1
		Idris sp. 2
		Idris sp. 5
		Idris sp. 7
		Idris sp. 9
		Hickmanella sp. 1
		Ceratobaeus giraulti
		Mirobaeoides tasmanicus
		Mirobaeoides scutellarus
		Mirobaeoides kerryi
		Mirobaeoides sp. 2
		Mirobaeoides sp. 3
		Mirobaeoides sp. 4
		Baeus leai
		Baeus sp. 1

Appendix 2. Flora of the Talbot Road Bushland

(Source: Keighery and Keighery 1993)

Records from quadrat data and opportunistic collecting, 1989-92. Families in alphabetical order and according to Marchant et al., (1987) unless indicated.

Key
opportunistic record
* non-native taxa

Plant Communities (see Map 2T, p 19)
wW Wandoo Low Open Woodland (Site 12)
wm W Marri&Wandoo Low Open Woodland (Site 13)
mj W Marri and Jarrah Woodland (Sites 14, 15 & 17)
m W Marri Woodland (Sites 2 & 4)
b W Banksia Low Woodland (Sites 3, 10 & 11)
s S Sand Shrubland (Sites 7, 8 & 9)
l H Lateritic heath (Site 1)

Taxon	wW	wmW	mjW	mW	bW	sS	lH
Gymnosperms							
Zamiaceae							
#Macrozamia riedlei							
Angiosperms							
Aizoaceae							
#Macarthuria australis					+		
Amaranthaceae							
#Ptilotus declinatus			+				
#Ptilotus drummondii				+			
Ptilotus manglesii				+			
Ptilotus stirlingii		+		+			
Anthericaceae							
Arnocrinum preissii					+	+	
Arthropodium capillipes	+			+			
Arthropodium preissii	+	+					
Borya scirpoidea							+
Borya sphaerocephala	+	+		+		+	
Caesia micrantha	+	+		+			+
Chamaescilla corymbosa				+	+	+	+
Chamaescilla versicolor	+	+		+			+
Johnsonia pubescens				+	+	+	
Laxmannia grandiflora				+			+
Laxmannia ramosa	+			+	+	+	
Laxmannia sessiliflora			+	+	+	+	
Laxmannia squarrosa	+	+		+		+	
Sowerbaea laxiflora				+			
#Stypandra grandiflora				+			
Thysanotus arenarius				+			+
Thysanotus dichotomus				+			
Thysanotus glaucus					+		

Flora of the Talbot Rd Bushland (cont.)

Taxon	wW	wmW	mjW	mW	bW	sS	lH
Casuarinaceae							
#Allocasuarina fraseriana			+				
Allocasuarina humilis			+		+		
Centrolepidaceae							
Aphelia cyperoides				+			
Centrolepis aristata			+	+		+	
#Centrolepis drummondiana			+		+		
#Centrolepis inconspicua				+	+		
Colchicaceae							
Burchardia multiflora			+	+		+	+
Burchardia umbellata	+	+		+	+	+	+
Crassulaceae							
#Crassula colorata				+			
#Crassula pedicellata					+		
Cyperaceae							
Caustis dioica				+		+	
Cyathochaeta avenacea	+	+		+	+		
Cyathochaeta clandestina					+		
Isolepis marginata				+	+	+	+
Lepidosperma angustatum	+	+		+			
#Lepidosperma ?gladiatum				+			
Lepidosperma leptostachyum					+		
#Lepidosperma scabrum					+		
Lepidosperma ?tenue	+	+		+	+		+
Mesomelaena pseudostygia				+	+	+	
Mesomelaena tetragona	+			+		+	
Schoenus bifidus				+		+	+
Schoenus brevisetis			+				
Schoenus caespititius					+	+	
#Schoenus clandestinus					+		
Schoenus curvifolius					+	+	
#Schoenus gramatophyllus				+			
Schoenus nanus							+
Schoenus subflavus				+		+	+
#Schoenus subbulbosus					+		
Schoenus unispiculatus	+			+			
Tetraria octandra				+	+	+	
Tricostularia neesii					+	+	
Dasypogonaceae							
Calectasia cyanea				+		+	
Dasypogon bromeliifolius				+	+	+	
#Dasypogon obliquifolius			+				
Kingia australis			+	+		+	
Lomandra caespitosa				+	+	+	
Lomandra hermaphrodita				+	+	+	
Lomandra odora				+		+	
Lomandra preissii	+			+		+	
Lomandra sericea						+	
Lomandra spartea	+			+			

Flora of the Talbot Rd Bushland (cont.) Taxon	wW	wmW	mjW	mW	bW	sS	lH
Dilleniaceae							
Hibbertia acerosa	+					+	
Hibbertia aurea				+	+		
#Hibbertia commutata				+			
Hibbertia huegelii				+	+	+	
Hibbertia hypericoides	+			+	+	+	+
#Hibbertia racemosa					+		
Hibbertia subvaginata					+		
Droseraceae							
Drosera erythrorhiza	+	+	+				+
Drosera glanduligera				+	+	+	
Drosera macrantha 'robust' 1p58		+		+		+	+
Drosera menziesii ssp menziesii				+			
Drosera menziesii ssp penicillaris	+	+	+		+	+	+
Drosera palacea					+	+	
#Drosera pallida				+			
Drosera platystigma	+						
Drosera pycnoblasta					+	+	
Drosera stolonifera			+	+	+	+	
Epacridaceae							
Andersonia lehmanniana				+	+		
#Astroloma macrocalyx					+		
#Astroloma pallidum				+			
Conostephium pendulum				+	+	+	
Conostephium preissii					+	+	
Leucopogon conostephioides				+	+	+	
Leucopogon polymorphus		+					+
Leucopogon propinquus					+		
Leucopogon sprengelioides				+	+	+	
#Leucopogon gracillimus							
#Leucopogon cymbiformis							
Lysinema ciliatum				+	+	+	
#Styphelia tenuiflora			+				+
Euphorbiaceae							
Monotaxis grandiflora					+		
#Poranthera microphylla				+			
Fabaceae (Papilionaceae)							
Bossiaea eriocarpa				+	+	+	
Chorizema dicksonii	+			+			+
*Cytissus prolifera		+					
Daviesia decurrens				+			
Daviesia horrida	+						
Daviesia podophylla				+		+	
Daviesia triflora					+	+	
#Dillywinia ?cinerascens				+			+
Gompholobium aristatum				+		+	
Gompholobium confertum				+		+	
Gompholobium marginatum				+			+
Gompholobium tomentosum					+	+	

Flora of the Talbot Rd Bushland (cont.) Taxon	wW	wmW	mjW	mW	bW	sS	lH
#Hovea trisperma				+		+	
Isotropis cuneifolia					+	+	
Jacksonia alata				+			+
Jacksonia condensata				+			+
#Jacksonia decumbens					+		
Jacksonia densiflora					+	+	
Jacksonia sternbergiana				+			+
#Kennedia prostrata					+	+	
Nemcia capitata						+	
Nemcia spathulata	+						
Pultenaea ericifolia	+	+					+
Templetonia biloba				+		+	
*Trifolium campestre	+	+					
*Trifolium angustifolium	+	+					
#Viminaria juncea				+			
Fumariaceae							
#*Fumaria capreolata	+						
Gentianaceae							
#Mitrasacme paradoxa				+	+		
#*Centaurium erythraea				+			
Goodeniaceae							
Goodenia caerulea	+	+		+			+
#Goodenia pulchella	+			+			
Goodenia micrantha				+			
Lechenaultia biloba		+		+		+	
#Lechenaultia expansa					+		
Scaevola canescens					+	+	
#Scaevola glanduligera				+			
Scaevola repens				+	+	+	
Haemodoraceae							
#Anigozanthos bicolor	+			+			
#Anigozanthos humilis					+	+	
Anigozanthos manglesii				+	+	+	
Conostylis aculeata				+	+	+	
Conostylis aurea					+	+	
Conostylis caricina		+		+	+		+
Conostylis setigera					+		
#Haemodorum brevisepalum					+		
Haemodorum laxum				+	+	+	
#Haemodorum paniculatum							
Haemodorum spicatum				+	+	+	
Phlebocarya ciliata					+	+	
Phlebocarya filifolia					+	+	
Tribonanthes brachypetala	+	+					
Tribonanthes longipetala				+			
Haloragaceae							
#Glischrocaryon aureum				+			
Gonocarpus pithyoides		+		+			

Flora of the Talbot Rd Bushland (cont.) Taxon	wW	wmW	mjW	mW	bW	sS	lH
Hypoxidaceae							
Hypoxis occidentalis	+			+			+
Iridaceae							
*Hesperantha falcata	+	+		+			
*Gladiolus caryophyllaceus	+	+	+	+	+	+	+
#Orthrosanthos laxus				+			
Patersonia juncea	+						+
Patersonia occidentalis				+	+	+	
*Romulea rosea	+	+		+			+
*Sparaxis bulbifera				+			
Juncaceae							
#*Juncus bufonius							
Juncaginaceae							
#Triglochin centrocarpa				+			
Lamiaceae							
Hemiandra linearis					+	+	
#Hemiandra ?pungens					+		
Lauraceae							
#Cassytha aurea			+				
Cassytha pubescens	+	+					
Cassytha racemosa			+				+
Lobeliaceae							
#Lobelia heterophylla	+						
Lobelia tenuior					+		
Loranthaceae							
#Ameyema miquelii	+						
Nuytsia floribunda						+	
Loganiaceae							
#Logania campanulata					+		
#Logania vaginalis				+			
Mimosaceae							
Acacia auronitens				+	+	+	
Acacia ericifolia			+				+
#Acacia extensa				+			
Acacia huegelii			+		+	+	
#*Acacia longifolia				+			
#Acacia obovata			+				
Acacia lasiocarpa	+						
Acacia pulchella	+	+		+		+	
Acacia sessilis			+	+	+		
#Acacia teretifolia			+				
Acacia willdenowiana				+	+	+	

Flora of the Talbot Rd Bushland (cont.)

Taxon	wW	wmW	mjW	mW	bW	sS	lH
Myrtaceae							
Baeckea camphorosmae	+				+		+
#Baeckea crispiflora				+			
Beaufortia purpurea				+			+
Calothamnus sanguineus				+			+
#Calothamnus hirsutus				+			
#Calothamnus torulosus							+
Calytrix angulata					+	+	
#Calytrix aurea						+	
#Calytrix flavescens					+	+	
Eremaea pauciflora					+	+	
Eremaea aff brevifolia D.Coates MI175				+	+		
Eucalyptus calophylla		+	+	+			
Eucalyptus marginata			+				
#Eucalyptus todtiana						+	
Eucalyptus wandoo	+	+					+
Hypocalymma angustifolium	+			+			+
Kunzea recurva				+	+	+	
#*Leptospermum laevigatum				+			
#Leptospermum erubescens				+			
#Melaleuca acerosa				+			
Melaleuca scabra	+	+		+	+	+	+
Melaleuca trichophylla					+	+	
Scholtzia involucrata 'erect'					+		
Scholtzia involucrata 'prostrate'						+	
Verticordia densiflora						+	
Verticordia pennigera							+
Orobanchaceae							
#Orobanche minor					+	+	
Orchidaceae							
Caladenia deformis				+			
Caladenia discoidea					+		
Caladenia filamentosa						+	
Caladenia gemmata							+
Caladenia huegelii				+			
Caladenia longicauda	+						
Caladenia sericea				+		+	
Diuris longifolia	+						
Eriochilus dilatatus			+	+	+		
Leporella fimbriata				+	+	+	+
Lyperanthus nigricans				+	+	+	
Lyperanthus serratus	+						
*Monadenia bracteata			+	+	+		
Prasophyllum fimbriata	+	+					
Pterostylis barbata	+						
Pterostylis recurva				+			+
Pterostylis vittata				+		+	
Thelymitra canaliculata				+			+
Thelymitra crinita	+	+		+			+

Flora of the Talbot Rd Bushland (cont.) Taxon	wW	wmW	mjW	mW	bW	sS	lH
Oxalidaceae							
#*Oxalis pes-caprae	+						
#Oxalis perennans	+						
Philydraceae							
#Philydrella pygmaea							+
Phormicaceae							
Agrostocrinum scabrum				+			
Pittosporaceae							
Pronaya fraseri						+	
#Sollya heterophylla			+				
Poaceae							
#Aristida contorta					+		
*Aira caryophyllea				+		+	
Amphipogon turbinatus				+	+	+	+
*Avena barbata	+						+
*Briza maxima	+	+		+	+	+	+
*Briza minor				+			
#*Bromus diandrus							+
Danthonia caespitosa				+	+	+	+
Danthonia pilosa	+						
*Ehrharta calycina			+	+	+		
*Eragrostis curvula					+		
#Eragrostis elongata	+						
#Microlaena stipoides				+			
Neurachne alopecuroidea	+	+			+	+	
*Pentaschistis airoides						+	+
Poa drummondiana	+			+		+	
*Rhyncheletrum repens							
#Stipa elegantissima				+			
#Stipa campylachne				+			
Stipa compressa					+		
Stipa pycnostachya	+	+		+	+	+	+
#Stipa semibarbata				+			
Polygalaceae							
Comesperma calymega				+		+	
Portulacaceae							
#Calandrinia corrigioloides				+	+	+	
#Calandrinia granulifera					+		
#Calandrinia liniflora				+	+	+	
Proteaceae							
Adenanthos cygnorum					+	+	
Banksia attenuata					+		
Banksia grandis					+	+	
Banksia menziesii					+		
Conospermum acerosum					+		
#Conospermum huegelii				+			

Flora of the Talbot Rd Bushland (cont.) Taxon	wW	wmW	mjW	mW	bW	sS	lH
#Thysanotus manglesianus				+	+		+
#Thysanotus multiflorus				+			
Thysanotus patersonii		+		+		+	
Thysanotus thyrsoides	+	+					
Thysanotus triandrus					+		
Tricoryne elatior				+		+	
Tricoryne humilis							+
Apiaceae							
Actinotus leucocephalus	+			+			
Eryngium pinnatifidum	+	+					
Homalosciadium homalocarpum	+	+		+			
Hydrocotyle diantha				+			
Hydrocotyle pilifera		+					
#Platysace juncea				+			
Trachymene pilosa	+			+	+	+	
Xanthosia candida	+	+		+			+
Xanthosia ciliata							+
Xanthosia huegelii			+	+		+	
Asteraceae							
Brachycome iberidifolia				+			
Craspedia pleiocephala	+						
*Hypochaeris glabra	+	+		+		+	
Hyalospermum cotula				+		+	+
Lagenifera huegelii	+	+					
Olearia elaeophila				+	+	+	
#Olearia paucidentata				+			
Pithocarpa pulchella	+			+			
Podolepis gracilis				+	+	+	+
Podolepis lessonii				+			
Podotheca angustifolia						+	
Quinetia urvillei			+		+	+	
#Siloxeris humifusus				+	+		
*Sonchus oleraceus						+	
Trichocline spathulata	+	+		+			
*Ursinia anthemoides	+		+	+	+	+	
Waitzia citrina					+		
Waitzia paniculata					+		
Brassicaceae							
#Stenopetalum gracile			+				
Campanulaceae							
*Wahlenbergia capensis					+		
Wahlenbergia preissii					+		
Caryophyllaceae							
#*Cerastium glomeratum				+			
#*Silene gallica				+			
#*Spergula arvensis				+			

Flora of the Talbot Rd Bushland (cont.)

Taxon	wW	wmW	mjW	mW	bW	sS	lH
#Conospermum incurvum						+	
Conospermum stoechadis					+	+	
Dryandra armata	+			+			
Dryandra nivea			+	+	+	+	+
#Dryandra sessilis			+	+			
Grevillea bipinnatifida				+			
#Grevillea endlicheriana				+			
#Grevillea glabrata				+			
#Hakea auriculata				+			
Hakea candolleana							+
Hakea erinacea				+			+
Hakea incrassata				+			+
Hakea lissocarpha	+	+					
Hakea myrtoides	+						
Hakea prostrata				+	+	+	+
Hakea ruscifolia			+	+	+	+	
#Hakea stenocarpa				+			
Hakea trifurcata				+		+	+
Hakea undulata				+			+
#Isopogon asper				+			
Isopogon drummondii					+	+	
#Isopogon dubius					+		
#Isopogon scabra				+			
Lambertia multiflora var. 'darlingensis' ms			+			+	
Persoonia saccata			+		+	+	
#Petrophile biloba				+			
Petrophile linearis				+	+	+	
#Petrophile striata				+			
Stirlingia latifolia			+		+	+	
Synaphea acutiloba	+			+			+
#Synaphea pinnata	+						
#Xylomelum occidentale			+				
Restionaceae							
Harperia lateriflora				+			+
Hypolaena exsulca				+	+	+	
Lepidobolus chaetocephalus				+	+		+
#Lepyrodia macra				+			
Loxocarya cinerea	+	+		+	+	+	
Loxocarya fasciculata	+			+	+	+	
Loxocarya flexuosa						+	
Lyginia barbata				+	+	+	+
Restio 'sinuosus' ms						+	
Restio sphacelatus						+	
Rhamnaceae							
Cryptandra arbutiflora	+		+				
#Cryptandra glabriflora			+	+	+		
Cryptandra pungens				+			
#Cryptandra spinescens							
Spyridium tridentatum				+		+	

Flora of the Talbot Rd Bushland (cont.)

Taxon	wW	wmW	mjW	mW	bW	sS	lH
Rubiaceae							
Opercularia vaginata	+	+		+			+
Rutaceae							
Boronia ramosa					+	+	
Eriostemon spicatus				+	+	+	
Stackhousiaceae							
#Stackhousia pubescens				+			
Tripterococcus brunonis	+			+			
Sterculiaceae							
#Thomasia foliosa			+				
#Thomasia grandiflora			+				
Stylidiaceae							
#Levenhookia pusilla					+		+
Levenhookia stipitata					+		
Stylidium affine	+						
Stylidium breviscapum				+			+
Stylidium brunonianum	+	+		+	+	+	
Stylidium bulbiferum	+	+					+
#Stylidium calcaratum				+	+	+	
Stylidium dichotomum				+			+
#Stylidium maitlandianum			+				
Stylidium petiolare							+
Stylidium piliferum					+	+	
Stylidium repens			+		+	+	+
Thymelaeaceae							
Pimelea imbricata var. piligera		+		+			+
Pimelea rosea			+	+			
Tremandraceae							
#Tetratheca nuda				+			
Violaceae							
Hybanthus calycinus			+		+	+	
Xanthorrhoeaceae							
Xanthorrhoea preissii	+	+		+		+	
#Xanthorrhoea acanthostachya						+	

Appendix 3. Fire and Rescue Services Fire Management Plan for the Talbot Road Bushland

Bushplan Site 300.
High Environmental Significance

MANAGEMENT PLAN FOR URBAN BUSHLAND AREA

INFORMATION SHEET

OBJECTIVE

This plan is to identify the stake holders concerned with an environmentally sensitive area with the aim to minimise the potential for, and the impact of incidents in urban bushland areas arising from fire, other hazards and emergency rescue situations, thereby ensuring preservation of environmentally sensitive features.

SITE DESCRIPTION

Reserve 23953 - Talbot / O'Connor Roads, Shire of Swan
Reserve 3304 - Dola
Reserve 8658 - Vacant
Reserve 37939 - Natham Square, Shire of Swan
Reserve 6955 - Myles / Banchard Roads, Metropolitan Cemetries Board.
Lot 11764 - Blachard Road, Vacant Crown Land

RISK CATEGORY

PLAN NO. E435 HIGH X MODERATE [ ] LOW [ ]

AREA OF BUSHLAND(Ha): 66

PLAN DEVELOPERS:
Date developed: 30.7.96 Station: 06 S.O Mason Shift "C"

STAKEHOLDERS AND THEIR ROLE

List the stakeholders and detail their role in the protection of the area.

1 Fire and Rescue Service of W.A. - Fire Suppression

2 Shire of Swan

3 Department of Conservation and Land Management

4 Metropolitan Cemeteries Board.

5 Department of Land Administration.

POST INCIDENT ANALYSIS
Statement declaring that a PIA will be conducted, with the stakeholders, within 3 weeks of significant incident.

Liaise with vested authority as to requirements. The District Officer is to attend the Post Incident Analysis

REVIEW
Indicate latest date for review.

Annually, prior to 30th October.

STAKEHOLDERS' AGREEMENT

	Signed	Date
Fire and Rescue Service of W.A.		23/10/97
Shire of Swan		5/11/97
Department of Conservation and Land Management		13/11/97
Metropolitan Cemeteries Board		19/11/97.
Department of Land Administration		5/11/97

CONTACT NAMES & TELEPHONE NUMBERS

GROUP:	NAME/POSITION:	TELEPHONE:
1 Fire & Rescue Service of WA	1 S/O Mason - Station Officer	1 9274 1478
2 Shire of Swan	2 Tony Pestell Tom Chalker	2 9267 9409 9267 9401
3 CALM	3 John Carter - Mundaring	3 9295 1955
4. Cemeteries Board	4. Brian Danby	4 9401 2955
5 DOLA	5 Compliance Officer	5 9273 7264

COMMUNICATION WITH LOCAL AUTHORITY AND ENVIRONMENTAL GROUP

Liaise with stakeholders for PIA's and inspection reviews. Liaison with the Shire of Swan has occurred.

SPECIAL RISK AREAS

Special areas of significance eg. flora and fauna.

Within the Talbot Road bushland area, two critically endangered plant communities are located , both in reserve 23953 and one in Lot 11764

RISK MANAGEMENT STRATEGIES

- Fuel monitoring, using CALM fuel measurement techniques, will be used to assist in determining fire ecology and habitat maintenance.
- Selective hand clearing of dead plant material and scrub is the preferred method of fuel reduction.
- Firebreaks, 3 metres wide and between 0.5 and 5 metres high around the perimeter of the property, are to be maintained by the landowners, during the period 30th November and 31st March. As the vested controller, Swan Shire Council will maintain bushland firebreaks. Internal firebreaks are to be incorporated into existing pathways, and maintained in a state which enables firefighting vehicles to move along unhindered.
- Weed control is to be monitored by Swan Shire Council and maintained by appropriate means. Weeds are recognised as a means of rapid fire spread and flash fuel source.
- No prescribed burning is to take place without prior consultation with CALM.
- All vehicles and machinery to be free of soil and plant propogules prior to being used in the remnant bushland.

SPECIAL CONSIDERATIONS

Items that may cause problems in firefighting.

Uneven and rough terrain.

HAZARDS

Identify major hazards in the plan area only.

Loose sand

VULNERABLE PROPERTY

Urban developments on all boundaries.
Midland Cemetery Office and stores.

ACCESS

Route to area and any anticipated problems associated with access.

Morrison Road to Talbot Road. Morrison Road to Myles Road or
Myles Road to Stratton Boulevard.

CONTROL POINT LOCATION

Dependant on the wind direction and the likelihood of a sea breeze.

STRATEGY

- Evaluate factors affecting fire spread.
- Consider available resources and requirements for property and exposure protection.
- Instigate appropriate fire suppression techniques, considering special risks and hazards.
- Prioritise objectives and reassess with climactic changes.
- Reference: Bushfires 2 Chapter 7.
- Protect the Northern perimeter, close the roads to traffic. Evacuate residents if fire intensity is high. Request police assistance for traffic control, road closures and/or evacuation.
- All vehicles and machinery to be free of soil and plant propogules prior to being used in the remnant bushland.
- No new firebreaks will be constructed and, wherever possible. fire suppression will be carried out from existing tracks.

TACTICS

- Knockdown; initial attack to reduce fire front and slow rate of fire spread. Head or flank attack with indirect/direct methods of attack, dependant on fire size.
- Containment; reduce bushland losses with direct attack methods, and fuel clearing.
- Blackout and patrol; completely extinguish all burning material and remove unburnt fuels from the immediate vicinity. Patrol area as required.
- Reference: Bushfires 2 Chapter 7.
- Light tankers and 4WD access only.

RESPONDING FIRE APPLIANCES / NORMAL TURNOUT

Midland pump and light tanker, backup at the request of the OIC

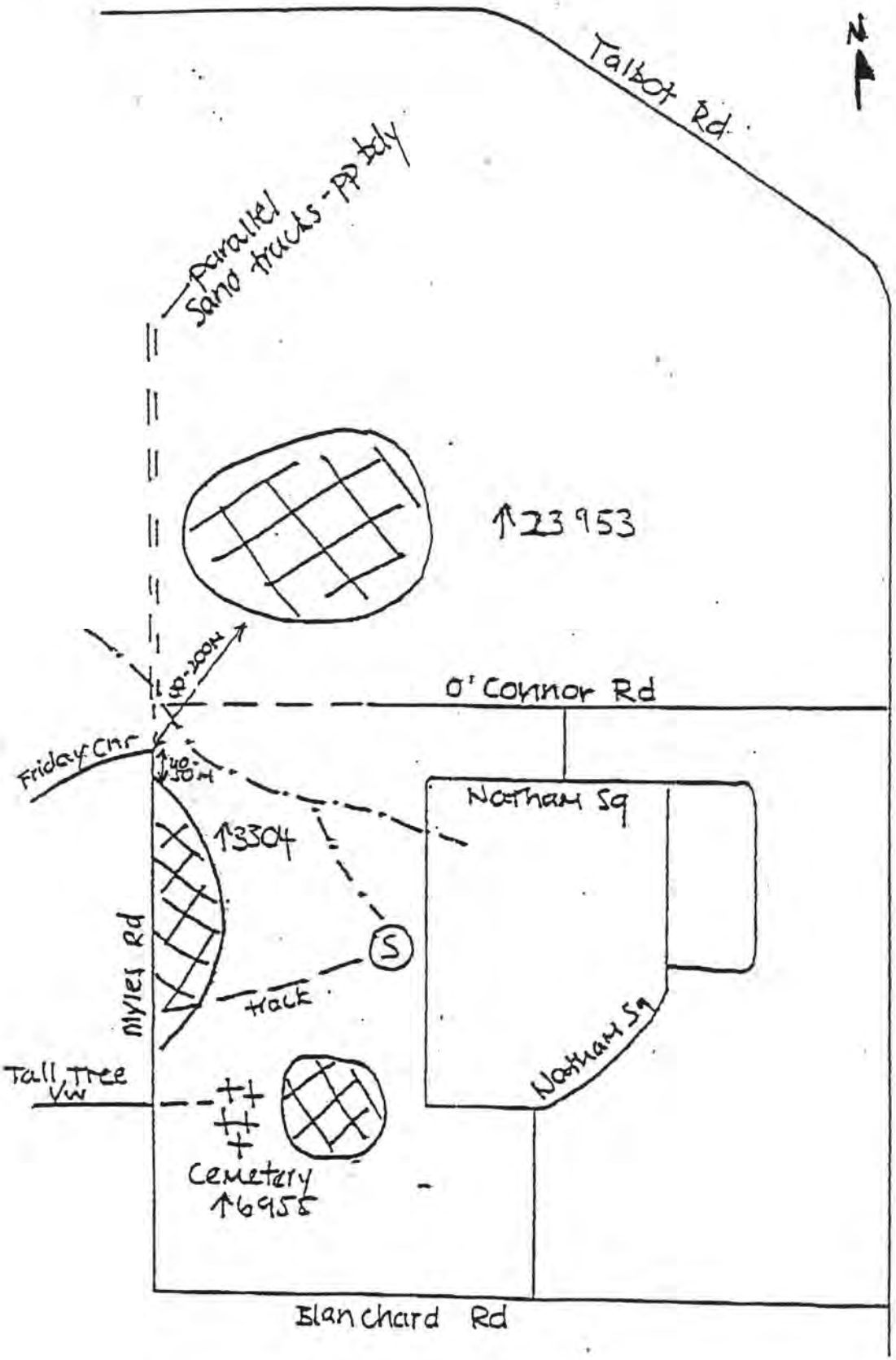
ADDITIONAL INFORMATION

TRACKS FOR VEHICULAR MOVEMENT	4WD only
HOW AREA COMPARTMENTED	Partly divided with sand tracks.
METHOD OF FIRE BREAKS	3.5 m external, 3 m internal
POINTS OF ENTRY	Cut ring lock fence. Vehicle gate on N/E corner of Reserve on Talbot Road. Through cemetery main entrance.
ACCESS TO WATER	Adequate number of hydrants in adjacent streets.
SENSITIVE AREAS	As shown on plan
TYPE OF VEGETATION	Low scrub. denser in the Northern / Western areas.

TRAINING PLAN

Detail process for training and when it is to occur.

Familiarisation with annual inspection. Crews from Perth need to be familiar with bushfire training

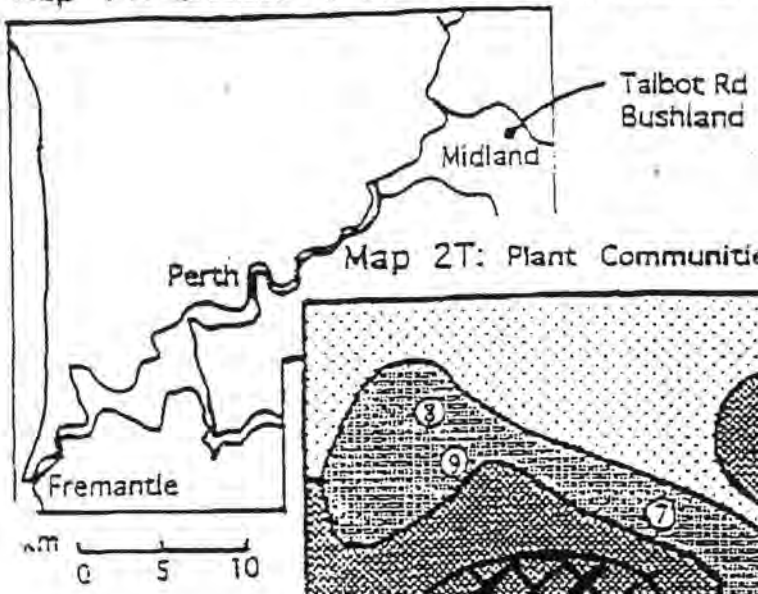


⁂ Isopogon drummondii (also in other locations).

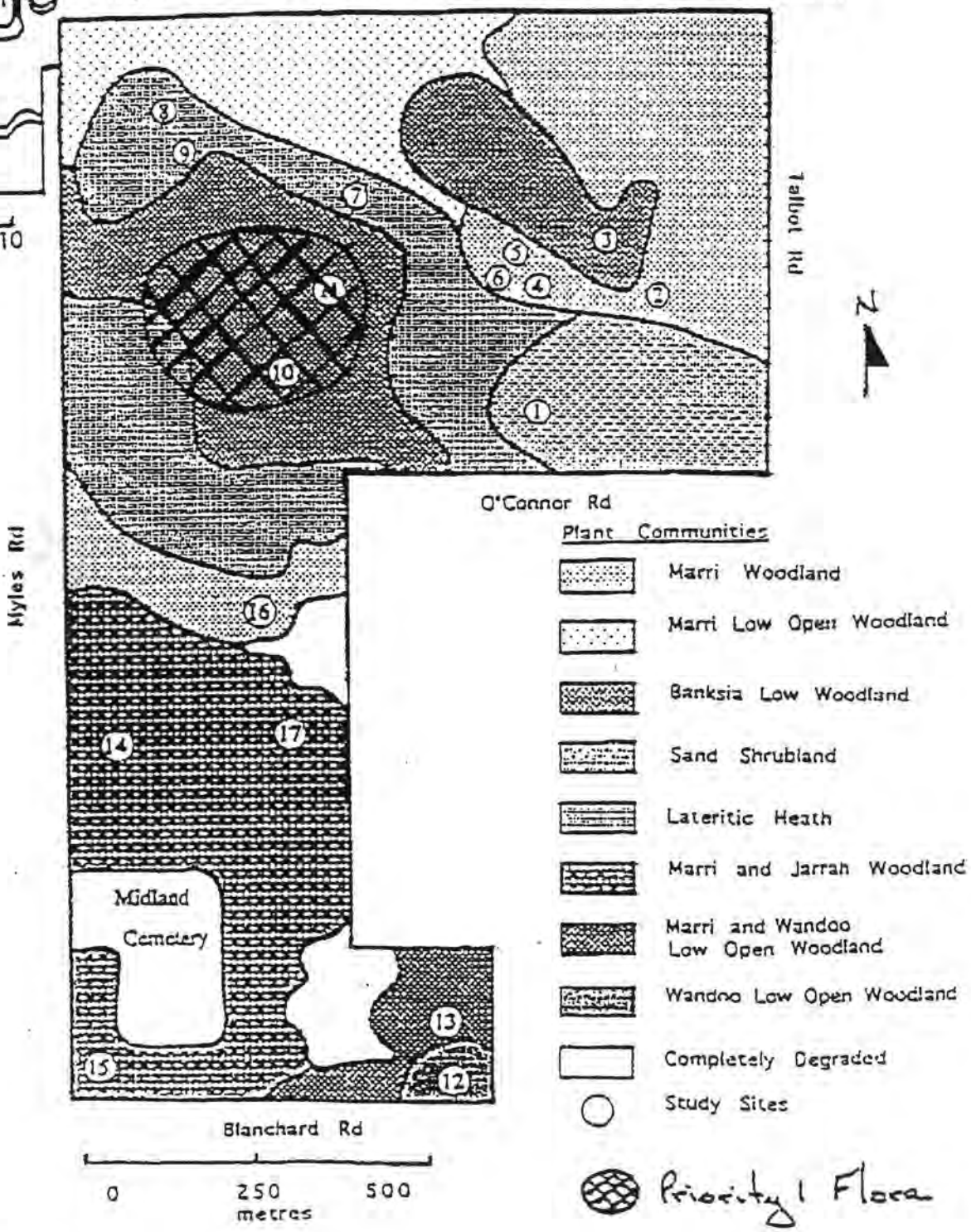
(S) H_2O SUMP.

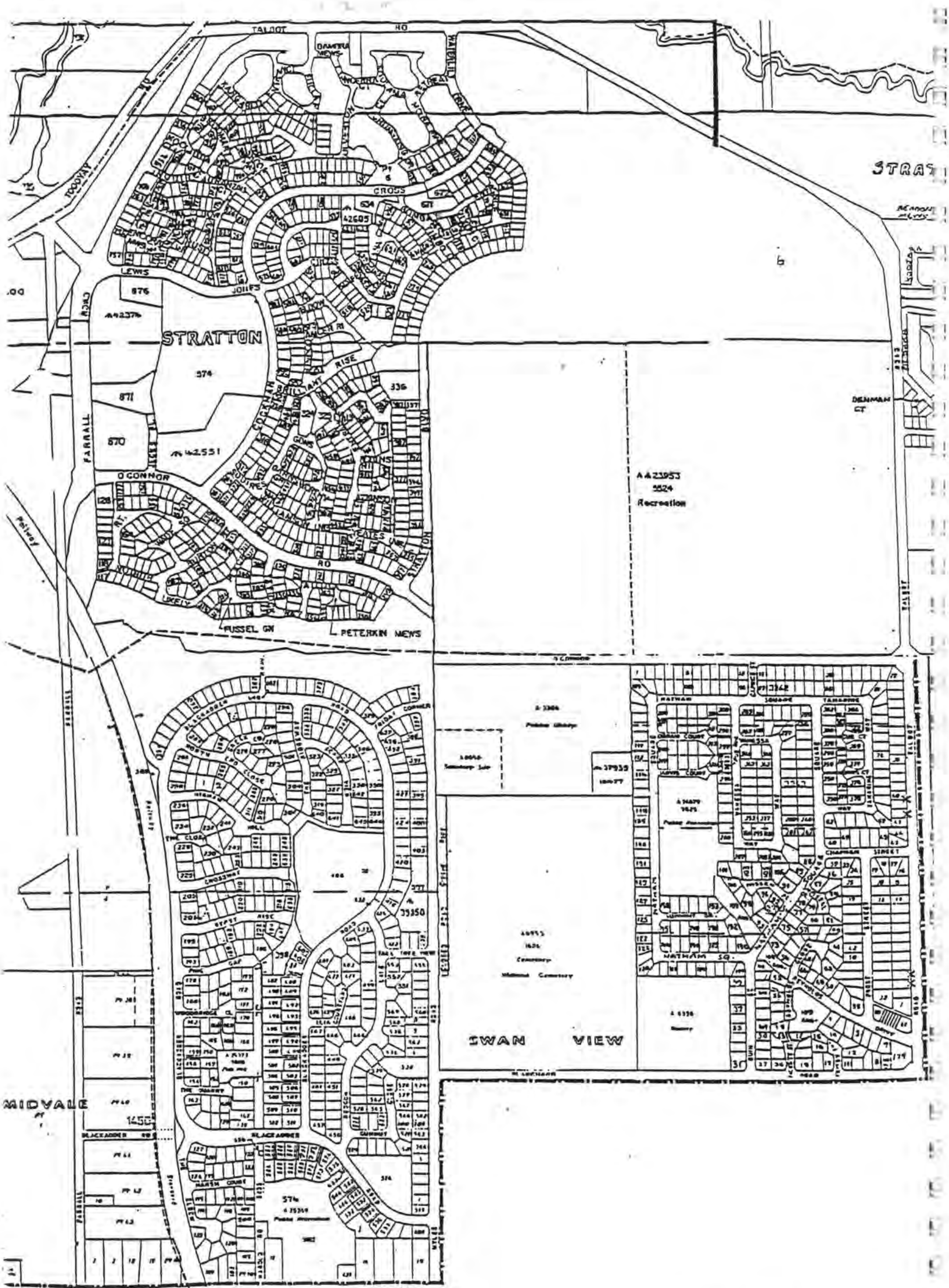
—·—·— creek

Map 1T: Location of the Talbot Road Bushland



Map 2T: Plant Communities of the Talbot Road Bushland




TALBOT RD
STRATTON
LEWIS
JONES
CROSS
BRILLIANT RISE
O'CONNOR
PUSSEL GN
PETERKIN MEWS
A 42551
A 23953
5524
Recreation
DENMAN CT
NATHAM SQ.
CHAPMAN STREET
SWAN VIEW
MIDVALE
BLACKADDER
MARSH COURT
FARRALL
TOODYAY
HOSPITAL
35350

Appendix 4. List of species suitable for planting from locally collected seed in the natural area of the cemetery

Species	Common Name	Height	Flowering time	Colour
**Acacia lasiocarpa*	Dune Moses	1m	Jun-Oct	Yellow
**Acacia pulchella*	Prickly Moses	2m	Jun-Oct	Yellow
Acacia willdenowiana	Grass Wattle	0.5m	Jun-Oct	Yellow
**Anigozanthus bicolour*	Little Kangaroo Paw	0.5m	Aug-Oct	Red/Green
**Anigozanthus humilis*	Catspaw	0.5m	Aug-Oct	Yellow/Red
Anigozanthus manglesii	Mangles Kangaroo Paw	0.5m	Sept-Nov	Red/Green
Baeckea camphorosmae	Camphor Myrtle	1m	Jul-Feb	Pink
Beaufortia pupurea	Purple Beaufortia	1m	Oct-Jan	Red/Purple
Bossiaea eriocarpa	Common Brown Pea	0.5m	Jul-Oct	Brown/Yellow
Brachycome iberidifolia	Swan River Daisy	0.2m	Aug-May	Blue
Burchardia umbellata	Milkmaids	0.5m	Aug-Oct	White
Calothamnus sanguineus	Silky Leaved Bloodflower	1m	Mar-Nov	Red
Calytrix angulata	Yellow Starflower	1m	Sept-Dec	Yellow
Calytrix flavescens	Summer Starflower	0.5m	Nov-Jan	Yellow
**Chamaescilla coymbosa*	Blue Squill	0.3m	Aug-Oct	Pink
Chorizema dicksonii	Yello-eyed Flame Pea	1m	Aug-Oct	Yellow/Red
Conospremum incurvum	Plume Smokebush	1m	Aug-Oct	White
Conostylis aculeata	Prickly Conostylis	0.5m	Sept-Oct	Yellow
Conostylis setigera	Bristly Cottonhead	0.5m	Sept-Oct	Yellow
Daviesia decurrens	Prickly Bitter Pea	0.5m	Jun-Aug	Yellow/Red
Daviesia horrida	Prickly Bitter Pea	Im	Jul-Sept	Red/Orange
Daviesia triflora		0.5m	May-Sept	Yellow/Orange
**Dryandra lindleyana*	Couch Honeypot	0.2m	May-Sept	Gold
Eremaea pauciflora		1m	Sept-Dec	Orange
**Eriostemon spicatus*	Salt and Pepper	0.5m	Aug-Sept	Mauve
Gompholobium aristatum		0.5m	Jul-Dec	Yellow
Gompholobium confertum		1m	Sept-Dec	Yellow
Gompholobium marginatum		0.5m	Aug-Sept	Yellow
Gompholobium tomentosum	Yellow Pea	0.5m	Aug-Dec	Yellow
**Grevillea bipinnatifida*	Fuschia Grevillea	1m	Mar-Nov	Red
Hakea candolleana		0.5m	Jun-Sept	White
Hakea erinacea	Hedgehog Hakea	1m	May-Sept	White
**Hakea lissocarpha*	Honey Bush	1.5m	Jun-Sept	White
**Hemiandra pungens*	Snakebush	Low	Oct-April	Purple
Hibbertia racemosa	Stalked Guinea Flower	0.3m	Jul-Nov	Yellow
**Hovea trisperma*	Common Hovea	0.5m	Jun-Sept	Purple
Isopogon dubius	Pincushion Coneflower	1m	Jul-Oct	Pink
Isotropis cuneifolia	Granny Bonnets	0.2m	Aug-Oct	Red
**Kennedia prostrata*	Running Postman	Low	Jul-Nov	Red
Lechenaultia biloba	Blue Leshenaultia	0.6m	Oct-Dec	Blue

Lobelia tenoiur	Slender Lobelia	0.3m	Oct-Jan	Blue
**Melaleuca acerosa*	Coastal Honeymyrtle	1m	Sept-Dec	Cream
**Melaleuca scabra*	Rough Honeymyrtle	0.5	Sept-Dec	Purple
Melaleuca trichophylla		0.7m	Nov-Jan	Pink/Purple
**Nemcia capitata*	Bacon and Eggs	0.5m	Jun-Sept	Yellow
**Patersonia occidentalis*	Western Patersonia	0.5m	Sept-Dec	Purple
Pimelea rosea	Rose Banjine	1m	Aug-Nov	Pink
Pronaya fraseri	Elegant Pronaya	Climber	Jan-Feb	Blue
**Scholtzia involucrata*	Spiked Scholtzia	1m	Dec-Mar	White
Sowerbaea laxiflora	Purple Tassels	0.4m	Aug-Oct	Purple
Stylidium brunonianum	Pink Fountain	0.2m	Sept-Nov	Pink
Templetonia biloba		0.5m	Sept	Yellow/Red
Thysanotus multiflorus	Many Flowered FringeLily	0.5m	Sept-Nov	Purple
**Verticordia densiflora*	Compacted Featherflower	1m	Nov-Jan	Pink

*Species with significant natural variants

The plants listed above are all small and colourful. By carefully selecting according to flowering time, it will be possible to have colour all year. The following nurseries may be able to propagate plants from local seed:

Apace WA	North Fremantle	9336 1262
Carramar Coastal Nursery	Rockingham	9524 1227
Men of the Trees	Hazelmere	9250 1888
The Native Plant Nursery	Orange Grove	0411 479 453
Helena Bush Plants	Darlington	9299 6086

Appendix 5. Seed supplies for revegetation and rehabilitation

The following species have been selected from the species list for the areas concerned. They have been chosen because they are listed as available from the seed companies but note that local seed should be used. Other seed can be collected on site and added to the mix. Most companies will pretreat seed for scarification and smoke.

List of species suitable for direct seeding in gravel pit area:

Chamaescilla corymbosa
Burchardia umbellata
Burchardia multiflora
Jacksonia alata
Pultenaea ericifolia
Baeckea camphorosmae
Beaufortia purpurea
Calothamnus sanguineus
Calothamnus torulosus
Melaleuca scabra
Verticordia pennigera
Dryandra lindleyana
Hakea candolleana
Hakea incrassata
Hakea erinacea
Hakea prostrata
Hakea trifurcata
Hakea undulata
Synaphea acutiloba

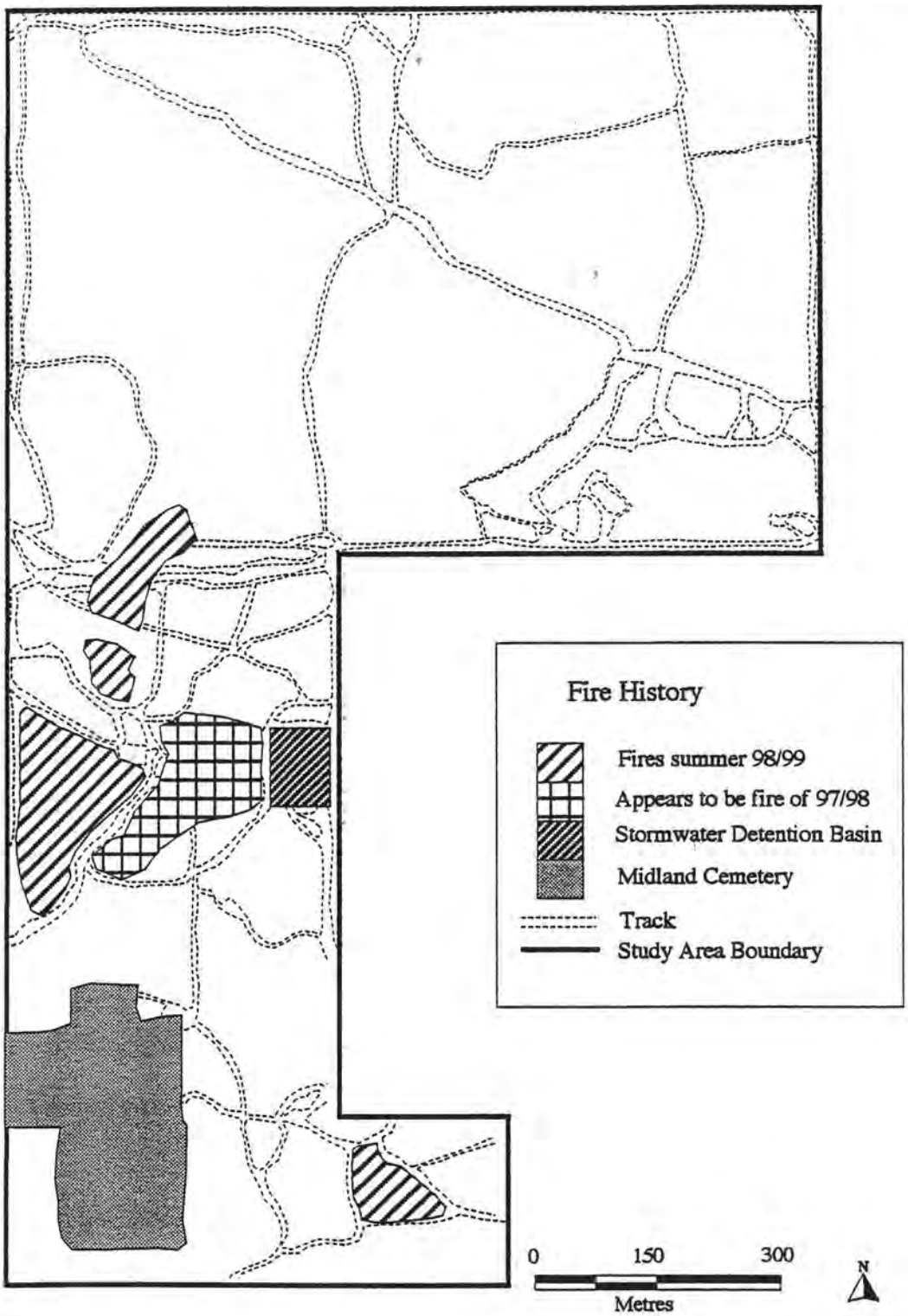
List of species suitable for direct seeding in sand shrubland (drainage area from O'Connor Rd):

Chamascilla corymbosa
Laxmannia squarrosa
Burchardia multiflora
Burchardia umbellata
Dasypogon bromeliifolius
Hovea trisperma
Isotropis cuneifolia
Kennedia prostrata
Nemcia capitata
Templetonia biloba
Lechenaultia biloba
Anigozanthus humilis
Anigozanthus manglesii
Conostylis aculeata
Conostylis aurea
Haemodorum laxum
Haemodorum spicatum
Calytrix angulata
Calytrix aurea
Calytrix flavescens
Eremaea pauciflora
Eucalyptus todtiana
Kunzea recurva
Melaleuca scabra
Melaleuca trichophylla
Scholtzia involucrata
Verticordia densiflora
Conospermum incurvum
Conospermum stoechadis
Dryandra lindleyana
Hakea prostrata
Hakea trifurcata
Persoonia saccata
Petrophile linearis
Stirlingia latifolia
Cryptandra arbutiflora

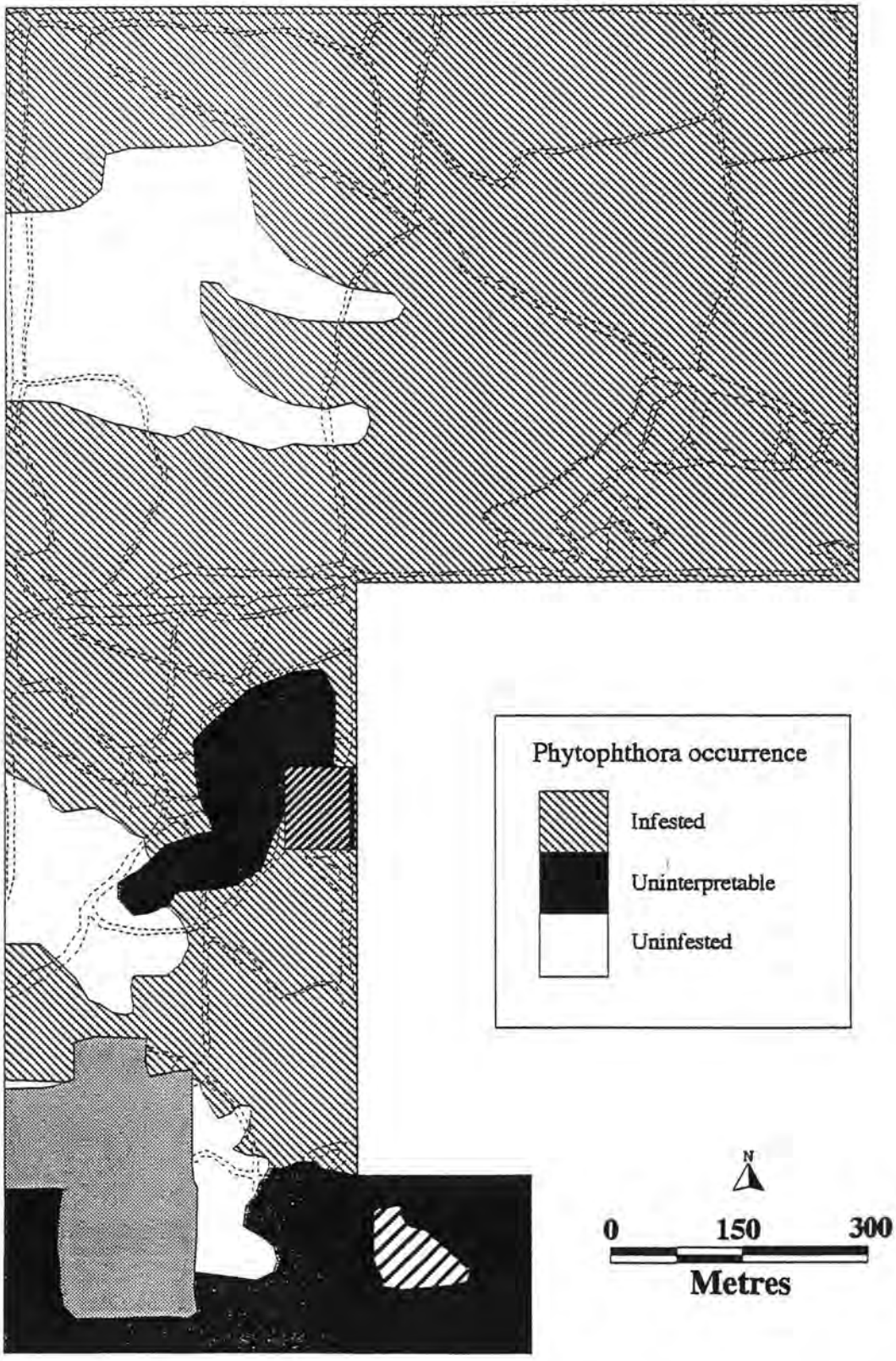
Appendix 6. Forms and maps for recording activities in the Talbot Road Bushland

Monitoring schedule for Talbot Road Bushland

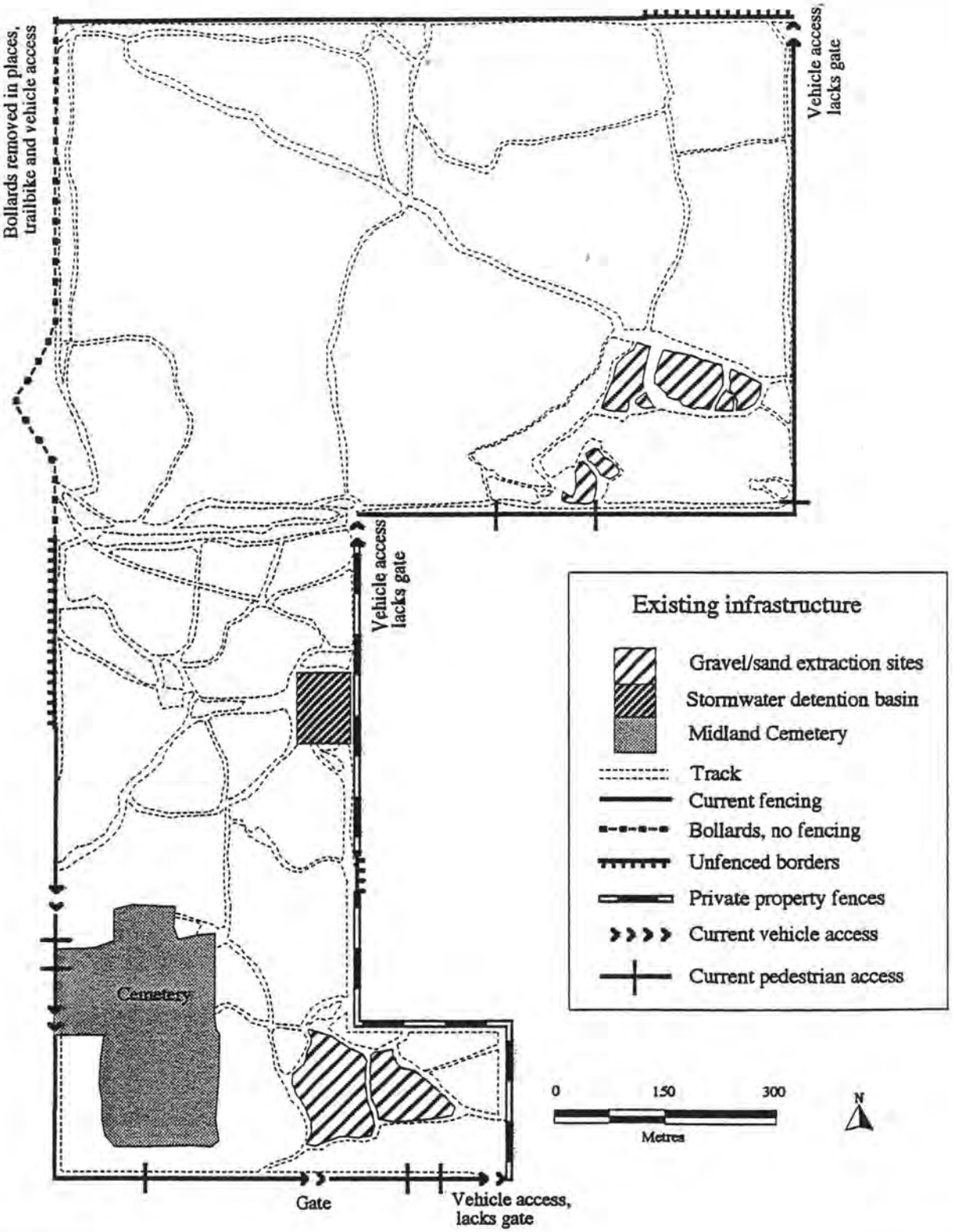
No.	Aspect	Organisation and contact	Method	Reporting
1	Dieback			
2	Fire			
3	Weed control			
4	Rehabilitation			
5	Fauna surveys			
6	People use			
7				
8				



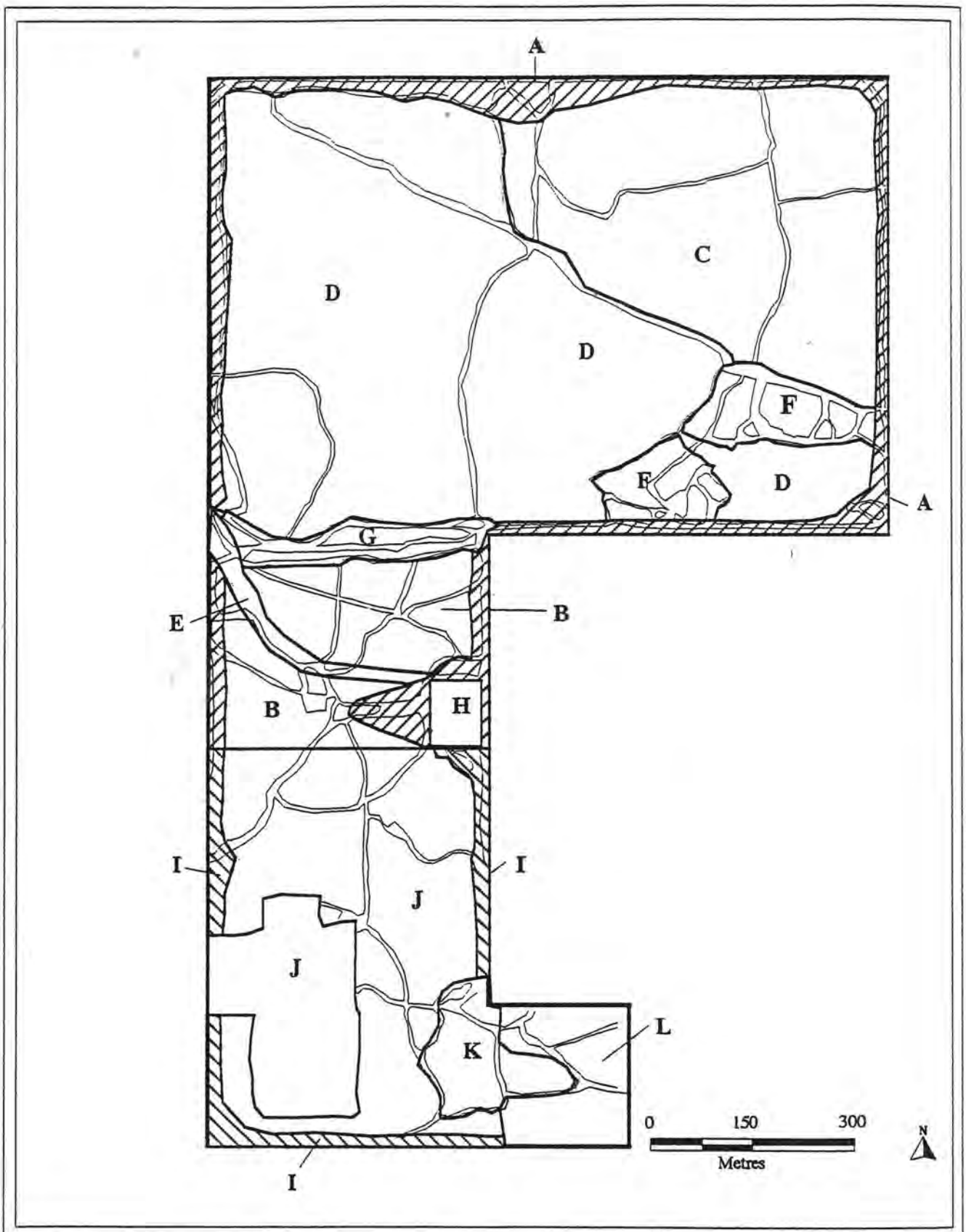
Map A1 Working plan - Fire history for the Talbot Road Bushland.



Map A2 Working plan - Phytophthora control for the Talbot Road Bushland.



Map A3 Working plan - Track rationalisation entry points and fencing.



Map A4 Working Plan - Weed Control and Rehabilitation for the Talbot Road Bushland.

Appendix 7. Organisations and community members who commented on the Draft Talbot Road Bushland Management Plan

No.	NAME	ORGANISATION
1	Sharon Kilgour and Ian Colquhoun	Dieback Working Group
2	Marjon de Winter	Resident
3	Alan Diggin	Homeswest
4	Christine Farrall	Resident
5	Kevin Richardson	Shire of Swan
6	Thomas Chalker	Shire of Swan
7	Joanne Smith	Shire of Swan
8	John Nicolson	Shire of Swan
9	Frederick Frost	The Friends of Talbot Road Reserve
10	Mark Gloyn	The Friends of Talbot Road Reserve
11	Peter Deague	Metropolitan Cemeteries Board
12	Julie Deague	
13	Stephanie Rowett	
14	Michael Kidd	
15	Steve James	
16	Graeme Robson Brown	
17	Val English	CALM
18	Rob Towers	CALM
19	John Carter	CALM
20	Angela Carr	Urban Bushland Council
21	Kirstin Tullis	Urban Bushland Council
22	Margo O'Byrne	Department of Environmental Protection
23	Bronwen Keighery	Department of Environmental Protection