

**CONSERVATION MANAGEMENT PLAN
ALLISON CRESCENT RESERVE
HALL DRIVE RESERVE
MENAI, SHIRE OF SUTHERLAND**

DECEMBER 1999

**KEVIN MILLS & ASSOCIATES PTY LIMITED
AND
SUTHERLAND SHIRE COUNCIL**

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HALL DRIVE RESERVE
MENAI, SHIRE OF SUTHERLAND**

DRAFT

DECEMBER 1999

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Kevin Mills

Jacqueline Jakeman

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Rhian Greenrod, Property Officer

Ian Drinnan, Senior Environmental Scientist

Brendan Graham, Bushcare Officer

CONSERVATION MANAGEMENT PLAN ALLISON CRESCENT RESERVE HALL DRIVE RESERVE MENAI, SHIRE OF SUTHERLAND

INTRODUCTION

This Draft Plan of Management covers two public reserves located in the suburb of Menai, in the western part of the Shire of Sutherland. The Draft Plan was prepared in response to the need to improve the management of these reserves because of the continuing impact that inappropriate activities are having on the conservation values of the bushland and provide the framework for the management of these sites for their long term conservation. The primary importance of the reserves is the presence of Shale-Sandstone Transition Forest on each reserve; this community is an Endangered Ecological Community under the *Threatened Species Conservation Act 1995*.

The Draft Plan does not describe in detail the ecological resources of the reserves; that information can be found in the report by Kevin Mills & Associates (1999). That report should be viewed as a supplementary document to this Draft Plan.

The location of the reserves, known as Hall Drive Reserve and Allison Crescent Reserve, is shown on Figure 1. The reserves are about 500 metres apart to the west and north of the commercial centre of Menai, respectively.

This Draft Plan was prepared by Kevin Mills & Associates, ecological and environmental consultants, in conjunction with officers from Sutherland Shire Council.

The procedure for adoption of this Draft Plan of management will involve the following stages:

- Kevin Mills & Associates and relevant Council officers finalise Draft plan;
- Draft Plan is placed on public exhibition for a period of 28 days;
- Concurrently the Draft Plan is sent for review by the National Parks and Wildlife Service and is also reviewed internally by Council;
- Draft Plan is redrafted, if necessary, in light of submissions from the public, interest groups, Council staff and the National Parks and Wildlife Service;
- Council adopts the Final Plan and copies are deposited in Council's libraries.

PART 1: HALL DRIVE RESERVE

1.1 LOCATION AND DESCRIPTION

Hall Drive Reserve is located southwest of the intersection of Old Illawarra Road and Hall Drive, Menai. The reserve is located between Old Illawarra Drive in the east, Menai Public School to the west, and the suburban areas off Elliot Road in the south. This reserve is located about 500 metres west of Allison Crescent Reserve; see Figure 1.

The reserve is a backward "L" shape, about 400 metres by 300 metres at its widest points, and covers approximately 6.6 hectares. Surrounding land uses are mainly roads and the Menai Public School. Residential areas back onto the reserve in the south.

1.2 RESERVE STATUS

The Hall Drive Reserve is known as Lot 100 DP 846873 and Lot 602 DP 821377. The land is currently owned by the Department of Education, but will soon be transferred to the Department of Land and Water Conservation. Sutherland Shire Council will be appointed Trustee of the land for the purposes of environmental protection and management. The current zoning is Special Purposes (School), but this will soon be changed to Environmental Protection 7(b) - Bushland.

1.3 CONSERVATION VALUES

The reserve supports Shale - Sandstone Transition Forest (SSTF), an Endangered Ecological Community under the *Threatened species Conservation Act 1995*. The vegetation on the site is therefore important in demonstrating the transition from the remnant shale soil of the Menai plateau to the surrounding sandstone soils. The area of SSTF is about four hectares; the remaining area is mainly covered in typical sandstone woodland vegetation.

There are apparently no threatened plant species within the reserve, although several regionally significant species occur there.

The reserve is an important urban bushland reserve, with recreational and educational values; these values are likely to increase in significance in the future. These values are heightened because of its location immediately adjacent to Menai Public School.

1.4 GENERAL OBJECTIVES

The core objectives for the management of the Hall Drive Reserve are to:

- manage the reserve primarily as native bushland, and protect and enhance this bushland;
- manage public access and use so that nature conservation values are not compromised;
- control exotic pest species that have significant impacts on the nature conservation values of the reserve;
- manage bushfire so that life and property are protected and nature conservation values are maintained;
- educate the public, particularly reserve neighbours, about the natural values of the reserve;
- seek cooperation from neighbours and other interested persons in the management of the reserve; and
- promote the appropriate use of the reserve by the adjacent school.

1.5 MANAGEMENT POLICIES AND ACTIONS

The following section discusses the management policies for the reserve and develops a management approach through management actions. Management actions are provided for each policy area.

1.5.1 PUBLIC ACCESS

The public will be encouraged to enjoy the reserve, but public access will be managed. Access points and walkways will be clearly designated and sign-posted to limit the impact of visitor use. Vehicle access to the reserve will not be permitted, except for management and emergency vehicles. Vehicle entry onto the reserve will be controlled by appropriate fencing.

Management Actions

- Public access points will be formally provided at three locations on the boundary of the reserve; in the northeast corner, in the southeast corner and in the far western end of the reserve.
- Existing tracks will be upgraded between the above access points. These will be constructed on one metre wide all-weather walkways.
- Signs will be erected at each access point, stating the name of the reserve, showing a map of the reserve with walkways and giving other relevant information, including regulations.
- The reserve will be fenced with an appropriate style of fencing; this will exclude vehicles but not people. Simple bollards may be appropriate in most places.
- Discussions will be held with Council's Fire Control Officer about the need for fire fighting access to the reserve; gates may be required in certain locations.
- Picnic facilities will not be provided in the reserve because of its small size and availability of other facilities nearby. The provision of a few seats next to the walking track would be appropriate.

1.5.2 WEED CONTROL

The control of introduced (weed) plant species is a major management objective and is essential for the eventual regeneration of high quality native vegetation within the reserve. Two noxious weeds (*Noxious Weeds Act 1993*) occur in Hall Drive Reserve. These are the shrubs Blackberry *Rubus* sp. and Lantana *Lantana camara*. Lantana occurs in a small area of the northeastern corner of the reserve and can easily be removed. Small patches of Blackberry occur in a few places in the reserve, and like Lantana can be readily removed. Several environmental weeds also occur there, the most important are Asparagus Fern *Protasparagus aethiopicus*, Cootamundra Wattle *Acacia baileyana*, Winter Senna *Senna pendula*, Kikuyu Grass *Pennisetum clandestinum* and Whiskey Grass *Andropogon virginicus*.

Most weeds in this reserve occur in the eastern part of the reserve, particularly the northeast, because the sandstone soils elsewhere in the reserve do not support extensive weed growth.

Management Actions

- Remove the noxious weeds Blackberry and Lantana as soon as possible.
- Initiate removal of the environmental weeds Asparagus Fern, Cootamundra Wattle, Winter Senna, Kikuyu Grass and Whiskey Grass as soon as possible. These weeds require on-going treatment.
- In conjunction with Bushcare, develop and implement a weed removal program for the following 12 month period; such a program will be prepared annually.
- Include information in local letterboxing on the importance of not dumping garden rubbish into the reserve.

- Discuss the possibility of some school involvement in the weeding program. This would have to be very carefully organised as native plants and weeds look alike to many people.

1.5.3 FIRE MANAGEMENT

Fire management in small, isolated bushland reserves is a different matter to management in extensive areas of bushland. In January 1994 much of the bushland east of Menai was severely burnt. This fire burnt the southeastern part of Hall Drive Reserve, the fire coming across Old Illawarra Road from the east. More recently at least part of the reserve was burnt in 1997. Bushfire will continue to be a key management issue in the reserve, even though fires are now unlikely to reach the reserve from the bushland surrounding Menai because of extensive development since 1994.

Management Actions

- No burning off will be undertaken in the reserve in the foreseeable future.
- Council's Fire Control Officer will undertake an inspection of the reserve and prepare a report on any works required to protect nearby houses. The potential environmental impact of these works will be considered by relevant Council officers prior to undertaking any works.
- If necessary, gates will be provided on the boundary of the reserve to allow access to fire fighting vehicles. The location of these gates will be considered by the Fire Control Officer.

1.5.4 REMOVAL OF WASTE MATERIAL

Waste material in the reserve consists of three main types, these are piles of foreign soil and rock, dumped garden wastes and general rubbish, either dumped, washed or blown into the reserve. Actions are needed to remove the existing waste material and discourage future waste dumping.

Management Actions

- As far as practicable, all foreign soils will be removed from the reserve, as this material harbours weeds and hinders native plant regrowth.
- Piles of foreign soils and rock will be removed as soon as possible. Part of the high bund wall in the northeastern part of the reserve is well treed and should remain in place.
- A general clean-up of rubbish will be undertaken throughout the reserve.
- Any piles of garden waste will be removed and associated garden plants pulled up.
- Educational material will be produced to discourage the dumping of waste in the reserve, particularly aimed at garden waste from neighbouring houses.

1.5.5 REHABILITATION OF BUSHLAND

A major management aim is to ensure that the bushland in the reserve is not cleared or degraded, and that the native vegetation is given every encouragement to regenerate. In some places little work is required as the native species are regenerating well and there are few weeds, in other areas, weed removal is a major requirement, while in a few locations plantings of local native species is needed.

Management Actions

- Weeding, waste removal and other actions outlined elsewhere in this Draft Plan will assist in the regeneration of native species.

- Planting of local native species (grown from locally obtained material) will be undertaken over time in the cleared areas of the reserve along Old Illawarra Road and in the northeast corner near Hall Drive. The appropriate species for planting are listed in the species list in the Appendix.

1.5.6 RECREATION

Passive recreation, including walking, jogging and nature study will be encouraged on the walkways in the reserve.

Management Actions

- The signs at the access points to the reserve will show a map of the reserve and the location of the walking tracks.
- The above signs will indicate prohibited activities in the reserve, including the entry of vehicles, the playing of ball games, etc.
- The entry points and walkways will be wheelchair accessible.
- Interpretive and educational signs will be provided at relevant points along the walking tracks.

1.5.7 EDUCATION

Educational use and scientific investigation will be encouraged in the reserve, but this will not be to the detriment of the natural values of the reserve.

Management Actions

- Menai Public School will be encouraged to use the reserve for educational purposes.
- Interested persons will be encouraged to undertake studies to document the plants and animals found in the reserve.
- A brochure about the reserve will be prepared for distribution to the local community, interest groups and local schools.
- Educational signage will be placed at appropriate locations in the reserve. These could provide information on native species or restoration programs.
- A display detailing the attributes of the reserve and the management activities to be undertaken or being undertaken will be staged at Council's Administration Building, Menai Library and/or Menai Marketplace at least once per year. A display will also be prepared for the exhibition period of this Draft Plan.

1.5.8 HISTORIC SITES

The reserve contains the remnants of two concrete slabs, one is obviously a house site. These are located on the southeast corner of the school site and in the central part of the reserve adjacent to Old Illawarra Road. The historic value of these is not known at this stage.

Management Actions

- Undertake an assessment of the concrete structures to determine if they have any historic value.
- If these structures are found to have some local historic interest, then they should be retained and interpreted with appropriate signage.
- If the structures are of no historic value then they should be removed as soon as possible.

1.5.9 SURROUNDING LAND USE

To some extent, management of and activities on the land surrounding the reserve can compromise the values of the reserve. Some steps can be taken to minimise these impacts; several of these are noted elsewhere in this Draft Plan.

Management Actions

- Discussions will be undertaken between Council and Menai Public School to identify actions that must be undertaken by the school to reduce impacts on the reserve.
- There is scope for expanding the bushland towards Old Illawarra Road; whether this is road reserve or part of Hall Drive Reserve, planting of native species would be beneficial.
- The residents around the reserve will be made aware of the values of the reserve and management issues, through general publicity, signage and letterboxing local residences with pamphlets.

1.5.10 STORMWATER

At present there is no formal disposal of stormwater onto the site. Excess runoff from the site is collected in a catchdrain running along the southern side of the site and disposed of to the stormwater system. Several households dispose of stormwater directly into this catchdrain, notably from backyard pools.

Management Actions

- No stormwater is to be discharged onto the site.
- Households illegally disposing of stormwater to the site will be directed to cease.
- The condition of the catchdrain shall be monitored for weed invasion and erosion.

PART 2: ALLISON CRESCENT RESERVE

2.1 LOCATION AND DESCRIPTION

Allison Crescent Reserve is located in Allison Crescent, Menai, immediately north of Menai Marketplace; see Figure 1. The reserve is to the east of Allison Crescent, between Mina Road in the north and Scofield Place in the south. This reserve is about 500 metres to the east of Hall Drive Reserve.

Allison Crescent Reserve is about 190 metres by 210 metres, and covers approximately 3.5 hectares. The surrounding land uses include Menai Marketplace shopping centre to the south, and other commercial development to the east. Allison Crescent occurs on the western and northern boundaries of the reserve. The Menai indoor Sports Centre will be constructed to the south-west of the reserve, adjacent to Menai Marketplace.

2.2 RESERVE STATUS

The Allison Crescent Reserve is known as Lot 381 DP 839196 and is owned in fee-simple by Sutherland Shire Council. The current zoning is Business 'B', but this will soon be changed to Environmental Protection Bushland 7(b).

2.3 CONSERVATION VALUES

The reserve supports Shale - Sandstone Transition Forest (SSTF), an Endangered Ecological Community under the *Threatened species Conservation Act 1995*. The vegetation on the site is therefore important in demonstrating the transition from the remnant shale soil of the Menai plateau to the surrounding sandstone soils. The area of SSTF is about 1.5 hectare; the remaining area is covered in woodland, mallee and heathland vegetation typical of sandstone soils. The area of SSTF in the reserve is shown on Figure 2.

Melaleuca deanei occurs in the reserve. This species is listed as a vulnerable species under the *Threatened Species Conservation Act 1995*. *Melaleuca deanei* is a shrub that grows in woodland and heathland on sandstone soils in the Sydney region. Council has produced a survey map showing the location and number of *Melaleuca deanei* plants in the reserve; see Figure 2. Several regionally significant species also occur in the reserve.

The reserve is an important urban bushland reserve, with recreational and educational values; these values are likely to increase in significance in the future.

2.4 GENERAL OBJECTIVES

The core objectives for the management of the reserve are to:

- manage the reserve primarily as native bushland, and protect and enhance this bushland;
- manage public access and use of the reserve so that nature conservation values are not compromised;
- control exotic pest species that have significant impacts on the nature conservation values of the reserve;
- manage bushfire so that life and property are protected and nature conservation values are maintained;
- educate the public, particularly reserve neighbours, about the natural values of the reserve; and

- seek co-operation from neighbours and other interested persons in the management of the reserve.

2.5 MANAGEMENT POLICIES AND ACTIONS

The following section discusses the management policies for the reserve and develops a management approach through management actions. Management actions are provided for each policy area.

2.5.1 PUBLIC ACCESS

The public will be encouraged to enjoy the reserve, but public access will be managed. Access points and walkways will be clearly designated and sign-posted to limit the impact of visitor use. Vehicle access to the reserve will not be permitted, except for management and emergency vehicles. Vehicle entry will be controlled by appropriate fencing.

Management Actions

- Public access points will be formally provided at four locations on the boundary of the reserve; in the northeast and northwest corners, in the southeast corner and from the Indoor Sports Centre site.
- Existing tracks will be upgraded between the above access points. These will be constructed as one metre wide all-weather walkways.
- Signs will be erected at each access point, stating the name of the reserve, showing a map of the reserve with walkways and giving other relevant information, including regulations.
- The reserve will be fenced with an appropriate style of fencing; this will exclude vehicles but not people. Simple bollards may be appropriate in most places.
- Discussions will be held with Council's Fire Control Officer about the need for fire fighting access to the reserve; gates may be required in certain locations.
- Picnic facilities will not be provided in the reserve because of its small size and availability of other facilities nearby. The provision of a few seats next to the walking track would be appropriate.

2.5.2 WEED CONTROL

The control of introduced (weed) plant species is a major management objective and is essential for the eventual regeneration of native vegetation within the reserve. No noxious weeds (*Noxious Weeds Act 1993*) occur in the Allison Crescent Reserve, although several environmental weeds occur there. The most important weeds are Whiskey Grass *Andropogon virginicus*, Crofton Weed *Ageratina adenophora* and Kikuyu Grass *Pennisetum clandestinum*.

Most weeds in this reserve occur in the southeastern part of the reserve, because the sandstone soils elsewhere in the reserve do not support extensive weed growth. Most weeds outside the southeast corner of the reserve are associated with dumped foreign soils along the tracks and on the edges of the reserve.

Management Actions

- As far as practicable, ensure the removal of all foreign soils from the reserve, as this material harbours most of the weeds in the area.
- Initiate removal of the environmental weeds Crofton Weed, Kikuyu Grass and Whiskey Grass as soon as possible. These weeds require on-going treatment.

- In conjunction with Bushcare, develop and implement a weed removal program for the following 12 month period; such a program will be prepared annually.
- Include information in local letterboxing on the importance of not dumping garden rubbish into the reserve.

2.5.3 FIRE MANAGEMENT

Fire management in small, isolated bushland reserves is a different matter to management in extensive areas of bushland. In January 1994 much of the bushland east of Menai was severely burnt. This fire burnt through Allison Crescent Reserve, the fire coming from the east through bushland that has since been removed. The reserve has not burnt since 1994. Bushfire will continue to be a key management issue in the reserve, even though fires are now unlikely to reach the reserve from the bushland surrounding Menai because of extensive development since 1994.

Management Actions

- No burning off will be undertaken in the reserve in the foreseeable future.
- Council's Fire Control Officer will undertake an inspection of the reserve and prepare a report on any works required to protect nearby development. The potential environmental impact of these works will be considered by relevant Council officers prior to undertaking any works.
- If necessary, gates will be provided on the boundary of the reserve to allow access to fire fighting vehicles. The location of these gates will be considered by the Fire Control Officer.

2.5.4 REMOVAL OF WASTE MATERIAL

Waste material in the reserve consists of three main types, these are piles of foreign soil, rock and concrete, dumped garden wastes and general rubbish, either dumped or blown into the reserve from neighbouring land. Actions are needed to remove the existing waste material and discourage future waste dumping.

Management Actions

- As far as practicable, all foreign soils will be removed from the reserve, as this material harbours most of the weeds in the area.
- A general clean-up of rubbish will be undertaken throughout the reserve.
- Any piles of garden waste will be removed and associated garden plants pulled up.
- Educational material will be produced to discourage the dumping of waste in the reserve, particularly aimed at garden waste from neighbouring houses.

2.5.5 REHABILITATION OF BUSHLAND

A major management aim is to ensure that the bushland in the reserve is not cleared or degraded, and that the native vegetation is given every encouragement to regenerate. Over much of the reserve, little remedial work is required as the native plant species are regenerating well and there are few weeds. Along the main central track, waste and weed removal is a major requirement, while around the edges of the reserve plantings of local native species is needed.

Management Actions

- Weeding, waste removal and other actions outlined elsewhere in this Draft Plan will assist in the regeneration of native species.

- Planting of local native species (grown from locally obtained material) will be undertaken around the edges of the reserve along Allison Crescent, where little or no native vegetation occurs. The appropriate species for planting are listed in the species list in the Appendix.

2.5.6 RECREATION

Passive recreation, including walking, jogging and nature study will be encouraged on the walkways in the reserve.

Management Actions

- The signs at the access points to the reserve will show a map of the reserve and the location of the walking tracks.
- The above signs will indicate prohibited activities in the reserve, including the entry of vehicles, the playing of ball games, etc.
- The entry points and walkways will be wheelchair accessible.

2.5.7 EDUCATION

Educational use and scientific investigation will be encouraged in the reserve, but this will not be to the detriment of the natural values of the reserve.

Management Actions

- Schools and other groups will be encouraged to use the reserve for educational purposes.
- Interested persons will be encouraged to undertake studies to document the plants and animals found in the reserve.
- A brochure about the reserve will be prepared for distribution to the local community, interest groups and local schools.
- A display detailing the attributes of the reserve and the management activities to be undertaken or being undertaken will be staged at Council's Administration Building, Menai Library and/or Menai Marketplace at least once per year. A display will also be prepared for the exhibition period of this Draft Plan.

2.5.8 THREATENED PLANT SPECIES

The shrub *Melaleuca deanei* occurs in the Allison Street Reserve. This species has recently been added to the list of threatened species under the *Threatened Species Conservation Act 1995*.

Council has produced a survey map showing the location and number of *Melaleuca deanei* plants in the reserve; see Figure 2. Although it is difficult to accurately count the number of plants because the species suckers readily, it has been estimated that there are about 116 plants in the reserve.

Management Actions

- Because some of the plants are very close to waste soils and other rubbish that will be removed, an appropriate person will be present during this activity so that none of these plants are destroyed.
- As part of the annual inspection of the reserve, note will be taken of the health and distribution of the plants.

2.5.9 STORMWATER

The present lack of weeds on the site may largely be attributed to the absence of stormwater discharged to the site. There is a lack of significant natural drainage lines on the site.

Management Actions

- No stormwater to be discharged onto the site.

PART 3: IMPLEMENTATION OF PLAN

3.1 RESPONSIBLE AUTHORITIES

The Council of Sutherland Shire has the primary responsibility or management of the reserves. Where appropriate, Council will seek advice from the National Parks and Wildlife Service and/or the Department of Land and Water Conservation in addressing management problems in the reserves. Within Council the following officers will be responsible for the carrying out of this Draft Plan of Management:

Ian McNaught - Manager, Parks Operations

Gwynn Cleeves - Manager, Parks and Waterways.

3.2 PRIORITIES AND TIMETABLE FOR ACTIONS

This Draft Plan identifies the following priorities and timetable for the implementation of the management actions outlined in this Draft Plan. Timing means the time within which the action must be completed, and is from the time of formal approval of the Draft Plan by Council.

Action	Timing	Draft Plan Ref.
HIGH PRIORITY		
Hall Drive Reserve		
- Remove noxious weeds from the reserve	3 months	1.5.2
- Remove environmental weeds from the reserve	6 months	1.5.2
- Remove dumped earth and concrete material from the reserve	3 months	1.5.4
- Identify the boundary of the reserve and the school	3 months	1.5.1
- Install fencing and signage around the reserve	6 months	1.5.1, 1.5.3, 1.5.6
- Identify route of tracks and construct hardened track surface	12 months	1.5.1, 1.5.6
Allison Crescent Reserve		
- Remove dumped earth and concrete material from the reserve	3 months	2.5.4
- Undertake initial weed removal program	6 months	2.5.2
- Remove all environmental weeds from the reserve	12 months	2.5.2
- Remove litter and rubbish from the reserve	6 months	2.5.4
- Install fencing and signage around the reserve	6 months	2.5.1, 2.5.3, 2.5.6
- Identify route of tracks and construct hardened track surface	12 months	2.5.1, 2.5.6
- Ensure protection of <i>Melaleuca deanei</i> plants during initial reserve clean-up.	3 months	2.5.8
MODERATE PRIORITY		
Hall Drive Reserve		
- Prepare a display for public exhibition	12 months	1.5.7
- Liaise with relevant bodies to prepare a bushfire plan	12 months	1.5.3
- Continue weed removal	continuing	1.5.2
- Rehabilitate vehicle tracks	5 years	1.5.1
- Letterbox neighbours about reserve	12 months	1.5.2, 1.5.9
- Establish contact with the Menai Public School	12 months	1.5.2, 1.5.7
- Undertake plantings of indigenous native species	continuing	1.5.5
- Undertake annual inspections of condition of the reserve	annually	3.3
Allison Crescent Reserve		

- Prepare a display for public exhibition	12 months	2.5.7
- Liaise with relevant bodies to prepare a bushfire plan	12 months	2.5.3
- Continue weed removal	continuing	2.5.2
- Rehabilitate vehicle tracks	5 years	2.5.1
- Letterbox neighbours about reserve	12 months	2.5.2
- Undertake plantings of indigenous native species	continuing	1.5.5
- Undertake annual inspections of condition of the reserve	annually	3.3

LOW PRIORITY

Hall Drive Reserve

- Investigate historic value of concrete remnants in the reserve	24 months	1.5.8
- Prepare a brochure about the reserve	24 months	1.5.7
- Encourage appropriate scientific/educational use in reserve	continuing	1.5.7

Allison Crescent Reserve

- Prepare a brochure about the reserve	24 months	2.5.7
- Encourage appropriate scientific/educational use in reserve	continuing	2.5.7

3.3 RESEARCH AND MONITORING

Studies into the plants and animals in the reserves will be encouraged and the results documented and maintained at Council's central library. When the opportunity arises, Council will encourage scientific research into the biota of the reserves.

The reserves will be inspected at least once per year by Council Officers. A report will be prepared that will include the following information:

- a statement on the proliferation of weeds in the reserves
- a statement on any changes to species composition of the SSTF
- a statement on the condition of the native vegetation in the reserves
- a statement on the condition of *Melaleuca deanei*
- a statement on the works undertaken during the year, including removal of rubbish, weeds and other material from the reserves, and facilities constructed or removed
- a statement on any bushfire matters, such as uncontrolled and controlled fires
- identification on any scientific investigations undertaken within the reserves
- any significant management issues that have arisen during the year the management actions taken.

A summary of the results of the above report will be incorporated into Council's annual State of the Environment Report.

3.4 VOLUNTEER WORK

There is considerable scope for involving volunteers in the management activities undertaken within the reserves. Council will pursue this matter with local community groups as well as Bushcare. Tasks assigned to volunteers will be at the level of the ability of the volunteers, such that all volunteers will have the technical knowledge required for the work undertaken by them. Council will liaise with the National Parks and Wildlife Service, Bushcare and any other appropriate organisations to identify opportunities to provide instruction classes for volunteers involved in the reserves.

3.5 PERFORMANCE INDICATORS

The following performance indicators are proposed for this Draft Plan; these are designed to measure the success of the management actions outlined in this Draft Plan. These performance indicators will be highlighted in the annual reports referred to above.

- The decrease in the diversity of weeds in the reserves.
- The increase in native plant growth and cover within the reserves.
- The decrease in impacts caused by people within the reserves.
- The decrease in the distribution and abundance of weeds.
- No decrease in the plant species diversity in the areas of SSTF.

REFERENCES

Kevin Mills & Associates Pty Limited (1999). Species Impact Statement, Business 'B' Land, including the Menai Indoor Sports Centre, Menai, Shire of Sutherland. Prepared for Sutherland Shire Council, January.

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APPENDIX

LIST OF NATIVE PLANT SPECIES FOR THE RESERVES AT MENAI

	Sandstone or Shale Species	Reserves 1,2
<i>Acacia brownii</i>	ss	1,2
<i>Acacia decurrens</i>	sh	1,2
<i>Acacia elongata</i>	ss	2
<i>Acacia falcata</i>	sh	1,2
<i>Acacia hispidula</i>	ss	2
<i>Acacia implexa</i>	sh	1
<i>Acacia linifolia</i>	ss	1
<i>Acacia longifolia</i>	ss	1,2
<i>Acacia myrtifolia</i>	ss	1,2
<i>Acacia parramattensis</i>	sh	1,3
<i>Acacia parvipinnula</i>	sh	1,2
<i>Acacia suaveolens</i>	ss	1,2
<i>Acacia terminalis</i>	ss	1
<i>Acacia ulicifolia</i>	ss	1,2
<i>Actinotus helianthii</i>	ss	2
<i>Actinotus minor</i>	ss	1
<i>Allocasuarina littoralis</i>	sh	1,2
<i>Angophora bakeri</i>	ss	1
<i>Angophora costata</i>	ss	1,2
<i>Angophora hispida</i>	ss	1,2
<i>Anisopogon avenaceus</i>	ss	1
<i>Aristida ramosa</i>	sh	1
<i>Aristida vagans</i>	sh	1,2
<i>Baeckea diosmifolia</i>	ss	1
<i>Baeckea ramosissima</i>	ss	1
<i>Banksia ericifolia</i>	ss	2
<i>Banksia marginata</i>	ss	1,2
<i>Banksia oblongifolia</i>	ss	1,2
<i>Banksia serrata</i>	ss	1,2
<i>Banksia spinulosa</i>	ss	1,2
<i>Billardiera scandens</i>	ss	1,2
<i>Boronia ledifolia</i>	ss	1
<i>Bossiaea ensata</i>	ss	1
<i>Bossiaea heterophylla</i>	ss	1,2
<i>Bossiaea prostrata</i>	sh	1
<i>Brachyloma daphnoides</i>	ss	1
<i>Bracteantha bracteata</i>	sh	2
<i>Breynia oblongifolia</i>	sh	1
<i>Brunoniella pumilio</i>	sh	1
<i>Burchardia umbellata</i>	ss	1,2
<i>Bursaria spinosa</i>	sh	1,2
<i>Caesia parviflora</i>	ss	1,2
<i>Caladenea carnea</i>	ss	2
<i>Caladenia catenata</i>	ss	1,2
<i>Callistemon linearis</i>	ss	1,2
<i>Callistemon pinifolius</i>	ss	2
<i>Calochilus campestris</i>	ss	1
<i>Calochilus paludosus</i>	ss	1
<i>Cassinia uncata</i>	sh	2
<i>Cassytha glabella</i>	ss	1
<i>Cassytha pubescens</i>	ss	1,2
<i>Caustis flexuosa</i>	ss	1,2
<i>Centella asiatica</i>	sh	2
<i>Ceratopetalum gummiferum</i>	ss	1,2
<i>Cheilanthes sieberi</i>	sh	1,2

<i>Comesperma ericinum</i>	ss	1
<i>Comesperma</i> sp.		1
<i>Commelina cyanea</i>	sh	1
<i>Conospermum longifolium</i> ssp. <i>angustifolium</i>	ss	1
<i>Correa reflexa</i>	ss	1
<i>Cryptandra amara</i>	ss	1,2
<i>Cryptandra propinqua</i>	ss	1
<i>Cyathochaeta diandra</i>	ss	1
<i>Cyperus sanguinolentus</i>	sh	2
<i>Dampiera stricta</i>	ss	1,2
<i>Danthonia tenuior</i>	ss	1
<i>Daviesia acicularis</i>	ss	1
<i>Daviesia corymbosa</i>	ss	1,2
<i>Daviesia ulicifolia</i>	sh	1
<i>Deyeuxia quadriseta</i>	ss	1
<i>Dianella caerulea</i>	ss	1,2
<i>Dianella revoluta</i>	sh	1
<i>Dichelachne micrantha</i>	ss	1
<i>Dichondra repens</i>	sh	1,2
<i>Dillwynia floribunda</i>	ss	1
<i>Dillwynia juniperina</i>	sh	1,2
<i>Dillwynia parvifolia</i>	sh	1,2
<i>Dillwynia retorta</i>	ss	1,2
<i>Dillwynia sericea</i>	ss	1,2
<i>Dipodium punctatum</i>	sh	1
<i>Dipodium variegatum</i>	sh	2
<i>Diuris aurea</i>	ss	1
<i>Diuris maculata</i>	ss	1
<i>Dodonaea triquetra</i>	ss	1,2
<i>Drosera peltata</i>	ss	1,2
<i>Echinopogon caespitosus</i>	sh	2
<i>Entolasia marginata</i>	sh	2
<i>Entolasia stricta</i>	ss	1,2
<i>Epacris longifolia</i>	ss	2
<i>Epacris microphylla</i>	ss	1,2
<i>Epacris pulchella</i>	ss	1,2
<i>Epacris purpurascens</i>	ss	2
<i>Eragrostis brownii</i>	ss	1,2
<i>Eriostemon australasius</i>	ss	1,2
<i>Eriostemon scaber</i>	ss	1,2
<i>Eucalyptus capitellata</i>	ss	1,2
<i>Eucalyptus eugenioides</i>	sh	2
<i>Eucalyptus globoidea</i>	sh	1,2
<i>Eucalyptus gummifera</i>	ss	1,2
<i>Eucalyptus haemastoma</i>	ss	1,2
<i>Eucalyptus oblonga</i>	ss	1,2
<i>Eucalyptus paniculata</i>	sh	1
<i>Eucalyptus punctata</i>	ss	1
<i>Eucalyptus racemosa</i> x <i>E. haemastoma</i>	ss	1,2
<i>Eucalyptus resinifera</i>	sh	1,2
<i>Eucalyptus squamosa</i>	ss	1
<i>Exocarpos cupressiformis</i>	sh	1
<i>Glossodia major</i>	ss	2
<i>Glossodia minor</i>	ss	1,2
<i>Glycine clandestina</i>	ss	1
<i>Glycine microphylla</i>	sh	1,2
<i>Glycine tabacina</i>	sh	2
<i>Gompholobium glabratum</i>	ss	1
<i>Gompholobium grandiflorum</i>	ss	1,2
<i>Gompholobium latifolium</i>	ss	1,2

<i>Gompholobium pinnatum</i>	ss	1,2
<i>Gonocarpus tetragynus</i>	ss	1,2
<i>Gonocarpus teucroides</i>	ss	1,2
<i>Goodenia bellidifolia</i>	ss	1,2
<i>Goodenia hederacea</i>	sh	1,2
<i>Goodenia paniculata</i>	ss	1
<i>Grevillea buxifolia</i> ssp. <i>buxifolia</i>	ss	1,2
<i>Grevillea buxifolia</i> ssp. <i>sphacelata</i>	ss	1
<i>Grevillea mucronulata</i>	ss	1
<i>Grevillea sericea</i>	ss	1,2
<i>Haemodorum corymbosum</i>	ss	1
<i>Haemodorum planifolium</i>	ss	1
<i>Hakea dactyloides</i>	ss	1,2
<i>Hakea sericea</i>	ss	1,2
<i>Hakea teretifolia</i>	ss	2
<i>Hardenbergia violacea</i>	sh	1,2
<i>Helichrysum collinum</i>	sh	2
<i>Helichrysum scorpioides</i>	sh	1
<i>Hibbertia obtusifolia</i>	sh	1,2
<i>Hibbertia nitida</i>	ss	1
<i>Hibbertia riparia</i> s. lat.	ss	1
<i>Hibbertia serpyllifolia</i>	ss	1
<i>Hovea linearis</i>	ss	1,2
<i>Hybanthus monopetalus</i>	ss	1
<i>Imperata cylindrica</i> var. <i>major</i>	sh	1,2
<i>Indigofera australis</i>	sh	1
<i>Isopogon anemonifolius</i>	ss	1,2
<i>Juncus continuus</i>	sh	2
<i>Juncus usitatus</i>	sh	2
<i>Kennedia rubicunda</i>	sh	1
<i>Kunzea ambigua</i>	ss	1,2
<i>Kunzea capitata</i>	ss	1,2
<i>Lagenifera stipitata</i>	ss	1
<i>Lambertia formosa</i>	ss	1,2
<i>Lasiopetalum ferrugineum</i>	ss	1,2
<i>Lasiopetalum rufum</i>	sh	1,2
<i>Laxmannia gracilis</i>	ss	1
<i>Lepidosperma filiforme</i>	ss	1,2
<i>Lepidosperma laterale</i>	ss	1
<i>Leptomeria acida</i>	ss	1
<i>Leptospermum arachnoides</i>	ss	1
<i>Leptospermum polygalifolium</i>	ss	1,2
<i>Leptospermum trinervium</i>	ss	1,2
<i>Lepyrodia scariosa</i>	ss	1
<i>Leucopogon ericoides</i>	ss	2
<i>Leucopogon juniperinus</i>	sh	1
<i>Leucopogon microphyllus</i>	ss	1,2
<i>Lindsaea linearis</i>	ss	1,2
<i>Lindsaea microphylla</i>	ss	1,2
<i>Linum marginale</i>	sh	2
<i>Lissanthe strigosa</i>	sh	1,2
<i>Lobelia dentata</i>	ss	2
<i>Lobelia gracilis</i>	ss	1,2
<i>Logania pusilla</i>	sh	1
<i>Lomandra brevis</i>	ss	1
<i>Lomandra filiformis</i>	ss	1
<i>Lomandra filiformis</i> ssp. <i>coriacea</i>	ss	1
<i>Lomandra glauca</i>	ss	1
<i>Lomandra longifolia</i>	sh	1,2
<i>Lomandra multiflora</i>	ss	1,2

<i>Lomandra obliqua</i>	ss	1,2
<i>Lomatia silaifolia</i>	ss	1,2
<i>Macrozamia spiralis</i>	sh	1
<i>Melaleuca deanei</i>	ss	1
<i>Melaleuca nodosa</i>	ss	2
<i>Melaleuca styphelioides</i>	sh	2
<i>Melaleuca thymifolia</i>	ss	1,2
<i>Melichrus procumbens</i>	sh	1,2
<i>Micrantheum ericoides</i>	ss	1,2
<i>Microlaena stipoides</i>	sh	1,2
<i>Micromyrtus ciliata</i>	ss	1
<i>Microtis parviflora</i>	sh	1
<i>Microtis</i> sp.		2
<i>Mirbelia rubiifolia</i>	ss	2
<i>Mitrasacme polymorpha</i>	ss	1
<i>Monotoca scoparia</i>	ss	1,2
<i>Olearia microphylla</i>	sh	1,2
<i>Opercularia varia</i>	sh	1,2
<i>Ozothamnus diosmifolius</i>	sh	1,2
<i>Panicum simile</i>	ss	1
<i>Patersonia glabrata</i>	ss	1
<i>Patersonia sericea</i>	ss	1,2
<i>Persoonia lanceolata</i>	ss	1,2
<i>Persoonia laurina</i>	ss	1,2
<i>Persoonia levis</i>	ss	1,2
<i>Persoonia linearis</i>	ss	1,2
<i>Persoonia pinifolia</i>	ss	2
<i>Petrophile sessilis</i>	ss	1,2
<i>Phyllanthus hirtellus</i>	ss	1,2
<i>Phyllota phyllicoides</i>	ss	1,2
<i>Pimelea linifolia</i>	ss	1,2
<i>Pittosporum undulatum</i>	sh	1,2
<i>Platysace ericoides</i>	ss	1,2
<i>Platysace linearifolia</i>	ss	1,2
<i>Poa</i> sp.		1
<i>Polymeria calycina</i>	sh	2
<i>Polyscias sambucifolia</i>	sh	2
<i>Pomaderris lanigera</i>	ss	1
<i>Pomax umbellata</i>	ss	1,2
<i>Poranthera corymbosa</i>	ss	1
<i>Poranthera ericifolia</i>	ss	1
<i>Prasophyllum australe</i>	ss	2
<i>Prasophyllum elatum</i>	ss	1
<i>Pratia purpurascens</i>	sh	1
<i>Pteridium esculentum</i>	ss	2
<i>Ptilothrix deusta</i>	ss	1
<i>Pultenaea elliptica</i>	ss	1,2
<i>Pultenaea linophylla</i>	ss	1,2
<i>Pultenaea retusa</i>	sh	2
<i>Pultenaea stipularis</i>	ss	1,2
<i>Pultenaea villosa</i>	sh	1,2
<i>Ricinocarpus pinifolius</i>	ss	2
<i>Scaevola ramosissima</i>	ss	1
<i>Schizaea bifida</i>	ss	2
<i>Schoenus brevifolius</i>	ss	1
<i>Schoenus ericetorum</i>	ss	1
<i>Schoenus moorei</i>	ss	1
<i>Senecio hispidulus</i>	sh	1
<i>Solenogyne bellioides</i>	sh	1
<i>Stipa pubescens</i>	ss	1,2

<i>Stylidium graminifolium</i>	ss	1,2
<i>Stylidium lineare</i>	ss	1,2
<i>Styphelia tubiflora</i>	ss	1
<i>Syncarpia glomulifera</i>	sh	1,2
<i>Tetradthea ericifolia</i>	ss	1,2
<i>Tetradthea neglecta</i>	ss	1,2
<i>Thelymitra ixiooides</i>	ss	1,2
<i>Thelymitra</i> sp.		1
<i>Themeda australis</i>	sh	1,2
<i>Thysanotus juncifolius</i>	ss	1
<i>Thysanotus tuberosus</i>	ss	2
<i>Tricoryne simplex</i>	ss	1,2
<i>Tricostularia pauciflora</i>	ss	1
<i>Veronica plebeia</i>	sh	1
<i>Viminaria juncea</i>	ss	1,2
<i>Wahlenbergia gracilis</i>	sh	1
<i>Woollsia pungens</i>	ss	2
<i>Xanthorrhoea concava</i>	ss	1
<i>Xanthorrhoea resinifera</i>	ss	1
<i>Xanthosia pilosa</i>	ss	1
<i>Xanthosia tridentata</i>	ss	1,2
<i>Xylomelum pyriforme</i>	ss	1
<i>Zieria pilosa</i>	ss	1

Sites: 1 - Allison Crescent Reserve; 2 - Hall Drive, Reserve.