Turimetta Headland Reserve

Plan of Management

Pittwater Council

Adopted October 21 2002

Landuse-Planning Table

Permissible Uses Exempt (these may be subject to approval under Part 5 of the EPA Act 1979)	**Permissible Uses Requiring Development Consent**	**Prohibited Uses (but not limited to)**
Bush regeneration, habitat restoration and weed control	Utility installations and similar	Extractive industries and agriculture
Bushfire management activities including hazard reduction and other activities included in the current Bushfire Risk Management Plan.	Buildings ancillary or incidental to the reserve	Sporting facilities
Ecological burns	Major public drainage works	Permanent private access across a reserve
Multi-use tracks other than motor vehicle	Major rock / soil stabilization works and earthworks	Commercial signage
Boardwalks and minor bridges	Major facilities (not buildings) being viewing platforms, bridges, educational facilities and the like	Dumping of refuse (including building materials, soil, fill, household wastes, etc.)
Temporary activities or developments requiring a lease or licence under the Local Government Act (1993)	Commercial Eco-tourism Activities	Vegetation removal not in accordance with Councils Tree Preservation and Management Order
Appropriate sustainable low impact recreation activities and facilities (other than buildings)	Vehicle access (emergency access, fire breaks and service trails).	Private alienation or encroachment
Minor public drainage and stormwater works	Non-intrusive memorials commemorating community members	Introduction of exotic flora and fauna
Minor fences		Playground facilities
Compliance, directional, interpretive, identification and safety signs		Flood structures (damming and reduction of environmental flows)
Environmental education activities		Removal of habitat features such as soil, leaf litter, rocks, stones, pebbles and the like
Any use as permitted under Council's Tree Preservation and Management Order		Recreational motor sports (including 4 wheel driving, motorbike riding, etc.)
Minor rock works and earthworks associated with soil stabilization and erosion control		Domestic drainage outlets
Any activity as defined in Management Plans consistent with the core objectives and management objectives		Horse riding facilities
Feral animal control and eradication.		Unleashed dog exercise areas
Biodiversity recovery and enhancement		Water extraction
Non commercial Hang-gliding and Paragliding Activities		

1. Introduction

Turimetta Headland is located east of Narrabeen Park Parade in the suburb of Warriewood. It is a prominent headland vegetated primarily with heath vegetation. The headland is a popular site for walking and sight seeing. This plan provides a framework for the management of this reserve that meets the requirements of the core objectives.

The reserve contains a number of vegetation communities including Headland Open Scrub, Cliff-face Open Heath, and Coastal Scrub. These vegetation communities and the associated rock platform areas provide habitat for a number of threatened and significant fauna species. Turimetta beach is one of the less disturbed ocean beaches in the Pittwater area and is a popular spot with the locals for this reason.

With a history of grazing and moderate disturbance the headland today is mostly natural Bushland, having been the focus of re-vegetation and regeneration activities for over a decade. It is of significant aesthetic value for the northern beaches and provides a sample of headland vegetation growing on clay soils.

2. Planning Context

2.1. Zoning

The land assessed in this Plan of Management is zoned 6(a): Existing Recreation, under the Pittwater Local Environmental Plan, 1993.

Figure 3 show the reserve boundaries and surrounding land. All land provided for under this plan is council owned land zoned 6 (a) Existing Recreation.

2.2. Tenure of Land

This Plan of management provides for the management of the Turimetta Headland Reserve land taking up the majority of Lot 4/DP 211455. This land is council owned, having been handed over to Warringah Council from the Cumberland County Council in 1964. The reserve in the Tenure documents is known as Warriewood Beach Reserve. It is recommended that this be changed to Turimetta Headland Reserve.

2.3. Legal context

2.3.1. Local Government Act, 1993

Under Section 36 of this Act Councils are required to prepare a Plan of Management for community land. This plan must identify the following

(a) the category of the land;
(b) the objectives and performance targets of the plan in respect to the land;
(c) the means by which the council proposes to achieve the plans objectives and performance targets; and
(d) the manner in which the council proposes to assess its performance with respect to the plans objectives and performance targets, and may require the prior approval of the council to the carrying out of any specified activity on the land.

Under section 36 (4) this reserve falls under the categorization of a **natural area,** and under Section 36 (5) is further categorized as **(a)bushland**
(b)escarpment

The Community land categories applying to Turimetta Headland Reserve are shown in Figure 1 . The community land categories of Council's open space and recreation settings inventory differ from those of the Local Government Act, 1993. Under Council's inventory the areas covered in this plan comprise the following categories: **Bushland** and **Hilltop/ Bluff/ Headland**.

As a requirement of the Local Government Act, 1993, Councils must prepare a Plan of Management for public land which is classified as community land. Plans of Management may also be prepared for Crown Land under the Crown Land Act, 1988.

2.3.2. Environmental Planning and Assessment Act

State Environmental Planning Policy No 19

State Environmental Planning Policy No 19 – Bushland in Urban Areas was made to protect remnant bushland in urban areas within New South Wales. The Policy applies to land zoned or reserved as Public Open Space. Under the Policy Councils may prepare plans of management for bushland areas within such land. Circular No B13 of the Department of Planning states that a management plan should :

- describe the bushland in light of the aims and objectives of the Policy;
- include measures to enable the recreational use of bushland, where appropriate;
- specify the intended methods of bushfire hazard reduction, measures to prevent bushland degradation and restore degraded areas.

The Department has also published management guidelines for urban bushland. The guidelines identify the need to prepare a resource inventory of the bushland area, to identify management objectives and strategies, and to derive an action plan for the bushland.

2.3.3. Coastal Protection Act

The State Government provides guidance to Local Government on policies that should apply to management of the coastline through the Coastal Protection Act and NSW Coastal Policy. While this plan does not apply to Sydney it provides helpful guidelines for the management of coastal environments such as this. As the reserve adjoins coastal land these guidelines are relevant to management of the reserve. It covers areas of water (and the seabed and the subsoil beneath and the airspace above any such area) that are not within the local government area.

2.3.4. NSW Coastal Policy

The Coastal Protection Act established the Coastal Council. This Council formulated the NSW Coastal Policy which has the following goals to:

- natural environment protected, rehabilitated and improved
- coastal processes and hazards recognised and accommodated
- aesthetic qualities protected and enhanced
- cultural heritage protected and enhanced
- ecologically sustainable development and use of resources
- ecologically sustainable human settlement
- appropriate public access and use
- information to enable effective management
- integrated planning and management

Objectives are

- to protect conservation values, conserve biodiversity, improve water quality, manage environment in the public interest
- natural processes and hazards given a high priority, climate change recognised and considered
- areas of high aesthetic quality protected, development to complement surrounding environment, towns to reinforce identities
- cultural heritage items and landscapes managed and conserved, rights and needs of

indigenous people recognised
- sustainable resource use facilitated, land use and management plans developed and "best practice" approaches developed
- minimise urban impact on environment, compact and contain urban development, rural residential development located to minimise impact; housing and lifestyle choice
- public access to be increased when environmentally sustainable and risks to human safety minimised
- data and information to be collected and co-ordinated; compatible databases to be developed; information to be made more accessible; education and awareness programs to be developed
- consistent and complimentary decision making; co-ordinated implementation of policy; local government management to be integrated; consider national coastal zone strategy.

2.3.5. Crown Lands Act

All of the adjoining foreshore land is Crown land and is subject to the Crown Lands Act, 1989. The Act allows for plans of management and lists the following principles (section 11) that:
- Environmental protection principles be observed in relation to the management and administration of Crown land
- The natural resources of Crown land (including water, soil, flora, fauna and scenic quality) be conserved wherever possible
- The public use and enjoyment of appropriate Crown land be encouraged
- Where appropriate, multiple use of Crown land be encouraged
- Where appropriate, Crown land should be used and managed in such a way that both land and its resources are sustained in perpetuity
- Crown land be occupied, used, sold, leased, licensed or otherwise dealt with in the best interests of the State consistent with the above principles.

This plan however does not provide for the management of Crown land areas.

2.3.6. Threatened Species Conservation Act

The objectives of the Threatened Species Conservation Act, 1995 are to:
- Conserve biological diversity and promote ecologically sustainable development
- Protect critical habitat of those threatened species, populations and ecological communities that are endangered
- Eliminate or manage certain processes that threatened the survival or evolutionary development of threatened species, populations and ecological communities
- Ensure that the impact of any action affecting threatened species, populations and ecological communities is properly assessed; and
- Encourage conservation of threatened species, populations and ecological communities by the adoption of measures involving co-operative arrangement.

For Council land that is declared "critical habitat" or included in a "recovery plan" or "threat abatement plan" there are special provisions for plans of management. However at present there are no declared critical habitats, recovery plans or threat abatement plans that apply to this land.

In assessing any development within the reserve requiring consent, Council must decide (based on the eight factors in Section 5A of the Environmental Planning and Assessment Act) whether the proposed development will have a significant effect on threatened species, populations or communities listed in the Act.
It also provides for the protection of species, populations, communities and habitats that are listed as threatened, endangered or vulnerable under the Act.

2.3.7. Council's Land Management Goals, Policies and Plans

Council's current management goals and strategies relating to parks and reserves are contained within Council's Management Plan 1999-2003 and Council's Landscape Management Policy, 1993. These documents have been used to guide the outcomes of this Plan. Council's Management Plan vision is 'to be leaders in the provision of local government services, to strive to conserve, protect and enhance the natural and built environment of Pittwater and to improve the quality of life for our community and for future generations.'

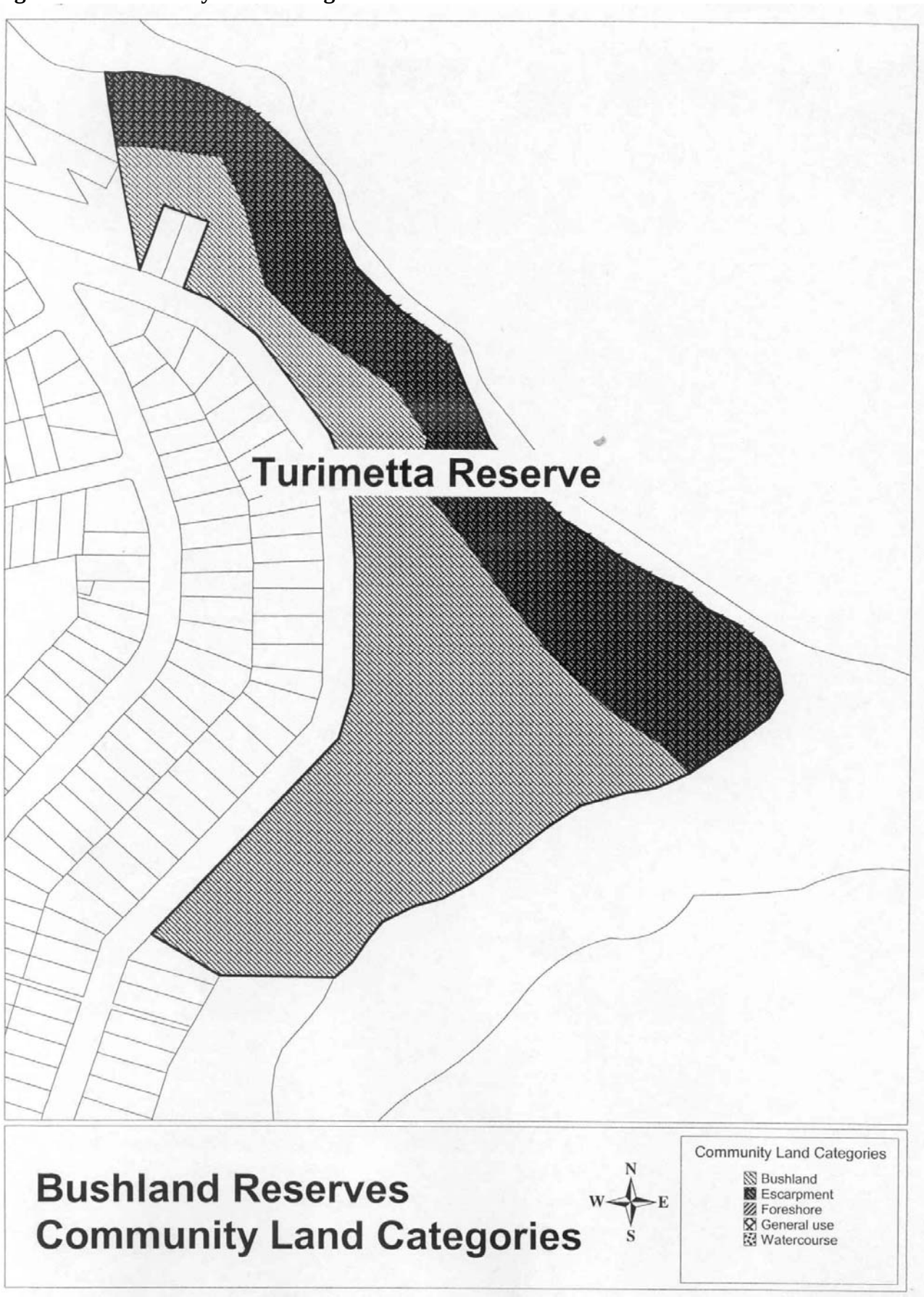
Council's Urban Bushland Management Plan, adopted in 1996, applies to the bushland areas of the Reserve. This plan sets out Council's management goals for natural vegetation and headlands which are key elements of the Reserve. The Coastal Flora and Fauna Study (1997) refers to the vegetation types and fauna species which exist in the reserve.

Council is currently preparing a Coastal Management Strategy to update the existing Strategy, which was prepared by Warringah Council in 1985. The updated strategy will address in detail Coastal Management issues for the Pittwater area as a whole.

The residential areas in the vicinity of the Reserve are addressed in the Warriewood-Turimetta Beach Locality Plan. This plan covers the aims and objectives for further developments within the area.

Most of the area covered by Turimetta Headland Reserve falls within the definition of bushland under the State Environmental Planning Policy 19 – Bushland in Urban Areas. This State policy sets aims and objectives to conserve and where necessary, regenerate the vegetation, its fauna and any cultural heritage items (such as any Aboriginal sites), to encourage appropriate and sympathetic use by the public. As is the case with all areas of Pittwater, the Tree Preservation and Management Order does apply to all areas of bushland and open space covered in this Plan.

Figure 1. Community Land Categories.



3. Reserve Description

3.1. Background

This draft Plan of Management provides a framework for the management of the Reserve and describes the management objectives, performance targets, actions and performance assessments to be used in the implementation of this Plan. This document will ensure that the natural and environmental sensitive areas are conserved and managed, and that the scenic and recreational values of the Reserve are fully realised, consistent with their environmental value.

3.2. Location and access

The reserve is located on the coast, east of Narrabeen Park Parade in the beachside suburb of Warriewood. The Land while including much of the headland does not include the beach and rock platform areas. The Reserve is situated on the coast and is bounded to the west by Narrabeen Park Parade, to the south by Turimetta Beach Reserve and to the north is Warriewood Beach Reserve. The site only includes those areas above the high water mark and not the rock platforms or the beach.

Access to the site can be gained at any point from Narrabeen Park Parade but is primarily accessed through the Coastal walkway. Residential land exists to the west of the Reserve and three parcels of land of the northern side of Narrabeen Park Parade adjoin the Reserve. The land to the east of the reserve encompassing the rock platforms and beach areas is Crown land and its management is not provided for under plan. The housing in the area is predominantly pre 1960's, when many of the dwellings were used on a holiday and weekend basis. Today, most of the houses are used as permanent residences.

Figure 2 shows the location of the reserve in the local area and figure 3 shows the areas covered by this Plan of Management and the Reserve boundaries in relation to the surrounding locality and adjoining land uses.

Figure 2. Reserve Location

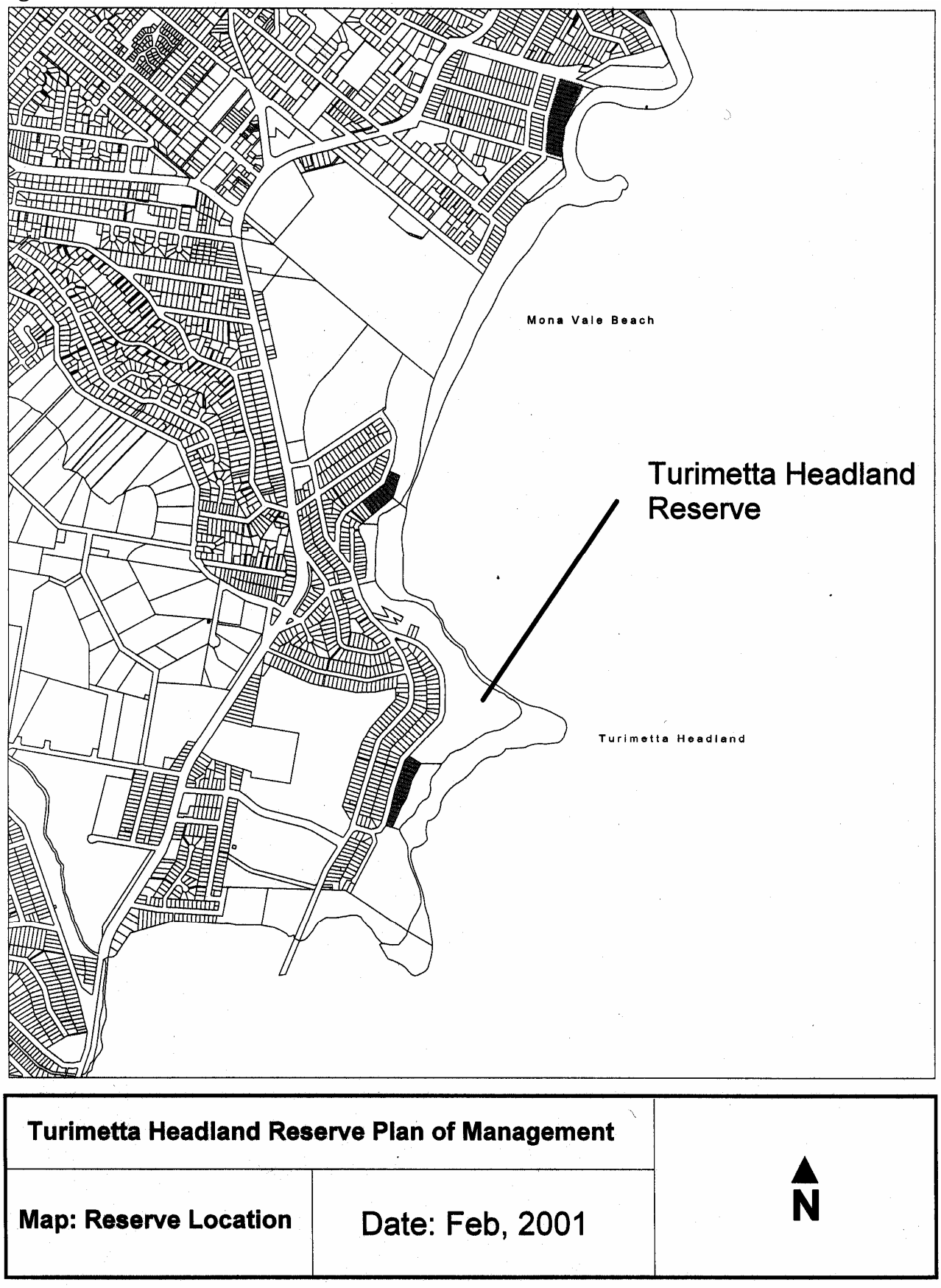
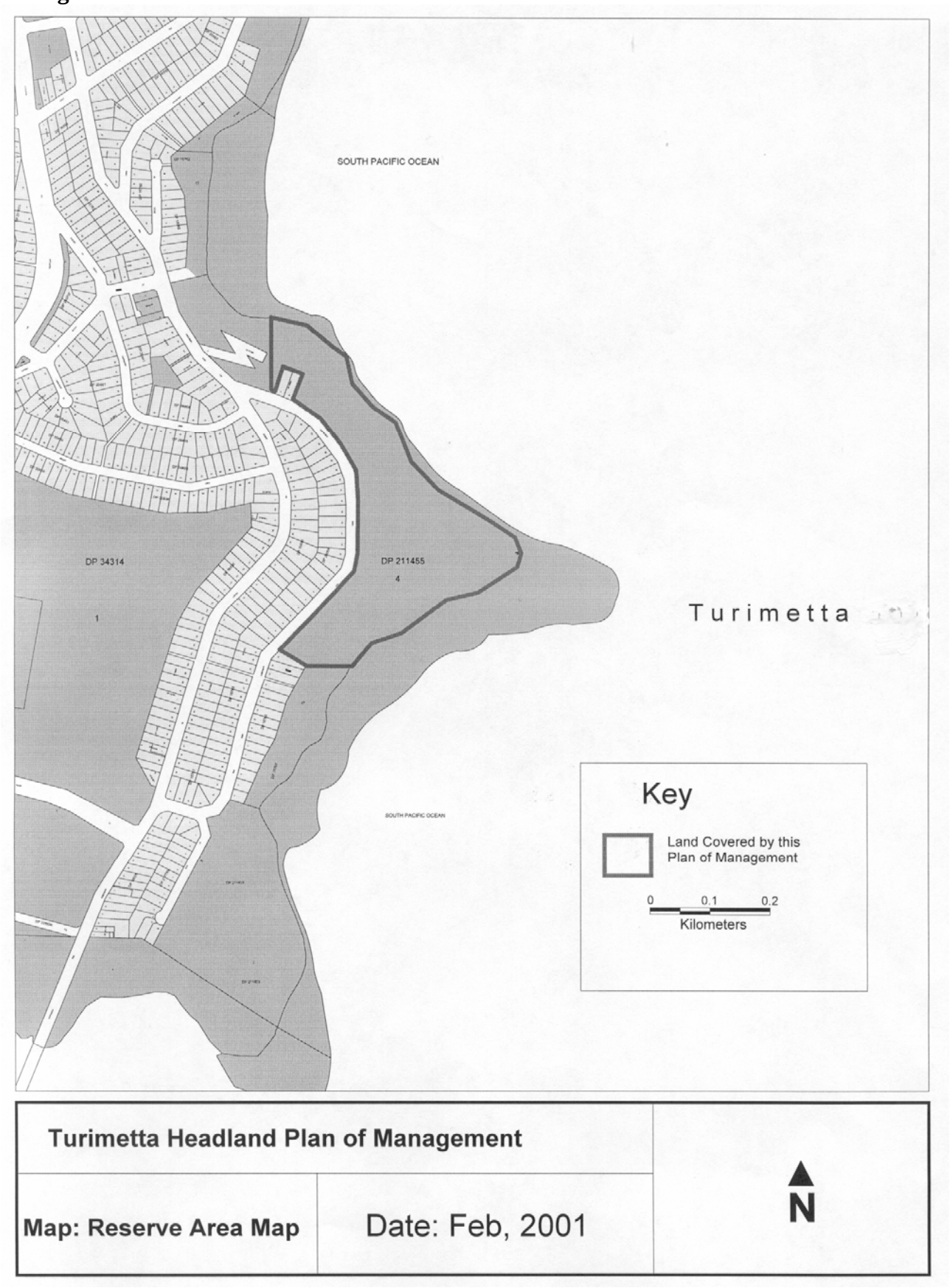


Figure 3. Reserve Boundaries.



3.3. Topography, Soils, Coastal Processes and Geology

Turimetta Headland forms a impressive element in the landscape having been formed by erosion and weathering of Narrabeen Sandstone by coastal processes, predominantly wave action. It is comprised of rocks of the Bald Hill Claystone and Newport Formations, the uppermost sub-groups of the Narrabeen Group. Bald Hill Claystone is a distinctive red-brown claystone forming the rock platform and lower section of the cliff. The remainder of the headland is comprised of the Newport Formation's shales, siltstones and fine to medium grained sandstones (Coffey & Partners, 1987). Weathering of the Newport Formation has resulted in formation of yellow podsolic soils of the Watagan landscape (Chapman & Murphy, 1989).

Warriewood Blowhole is a geological feature of the coastal escarpment on the northern side of Turimetta Headland, consisting of a cavern like entrance in the seaward cliff face leading into a tunnel through the cliff and to a sea pool below sheer cliff faces.

Rock Platforms

Although not actually part of the reserve, the adjacent rock platform is significantly influenced by activities and process that occur within the reserve.

The Pittwater Council area has the highest number of rock platforms of any Metropolitan Local Government area. A wide range of life forms have been recorded and observed over time by both Council's Natural Resource Unit and also the University of Sydney's Marine Biology Section. An indicative species list for the rock platforms is given in Appendix A.

Figure 4. Soils map

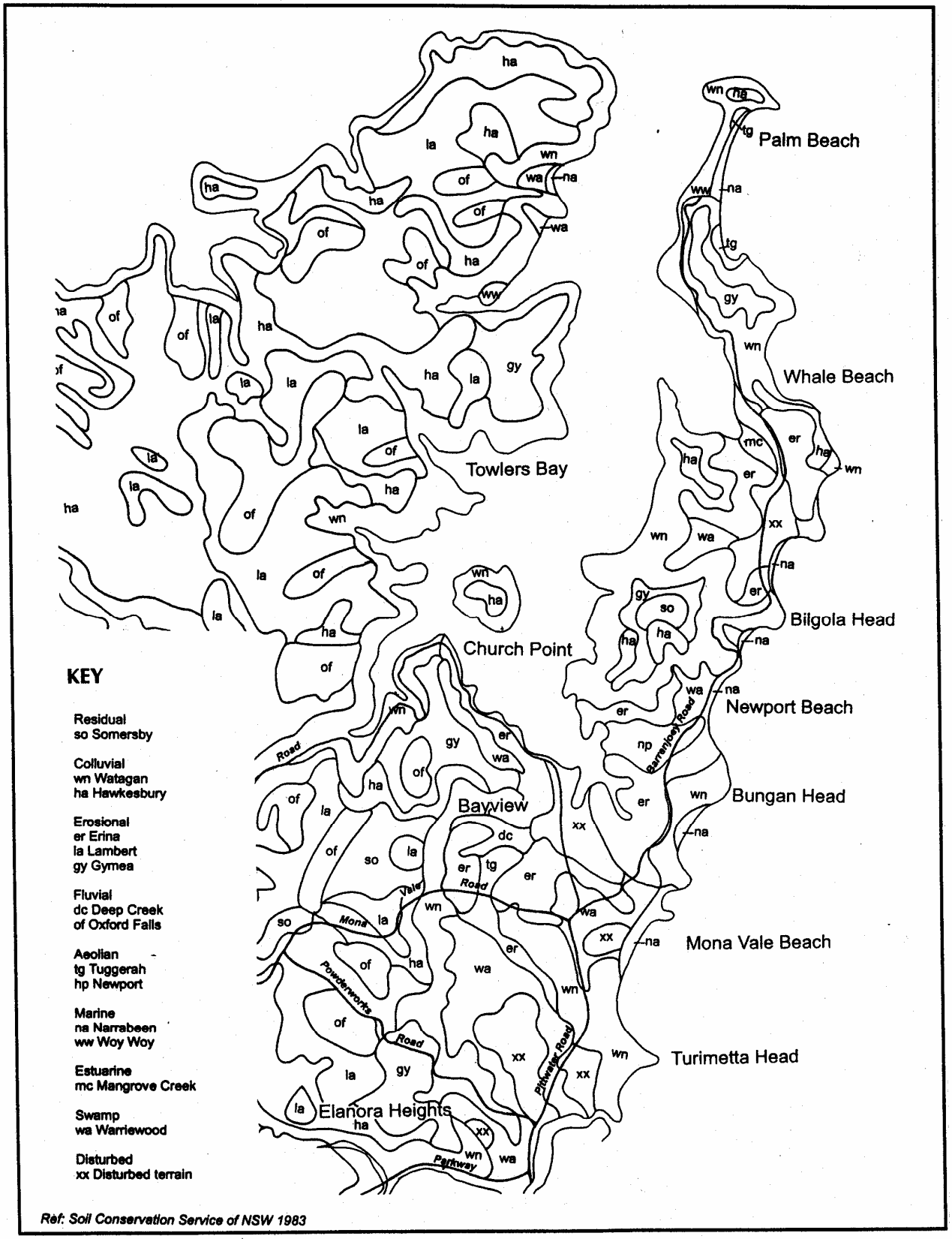
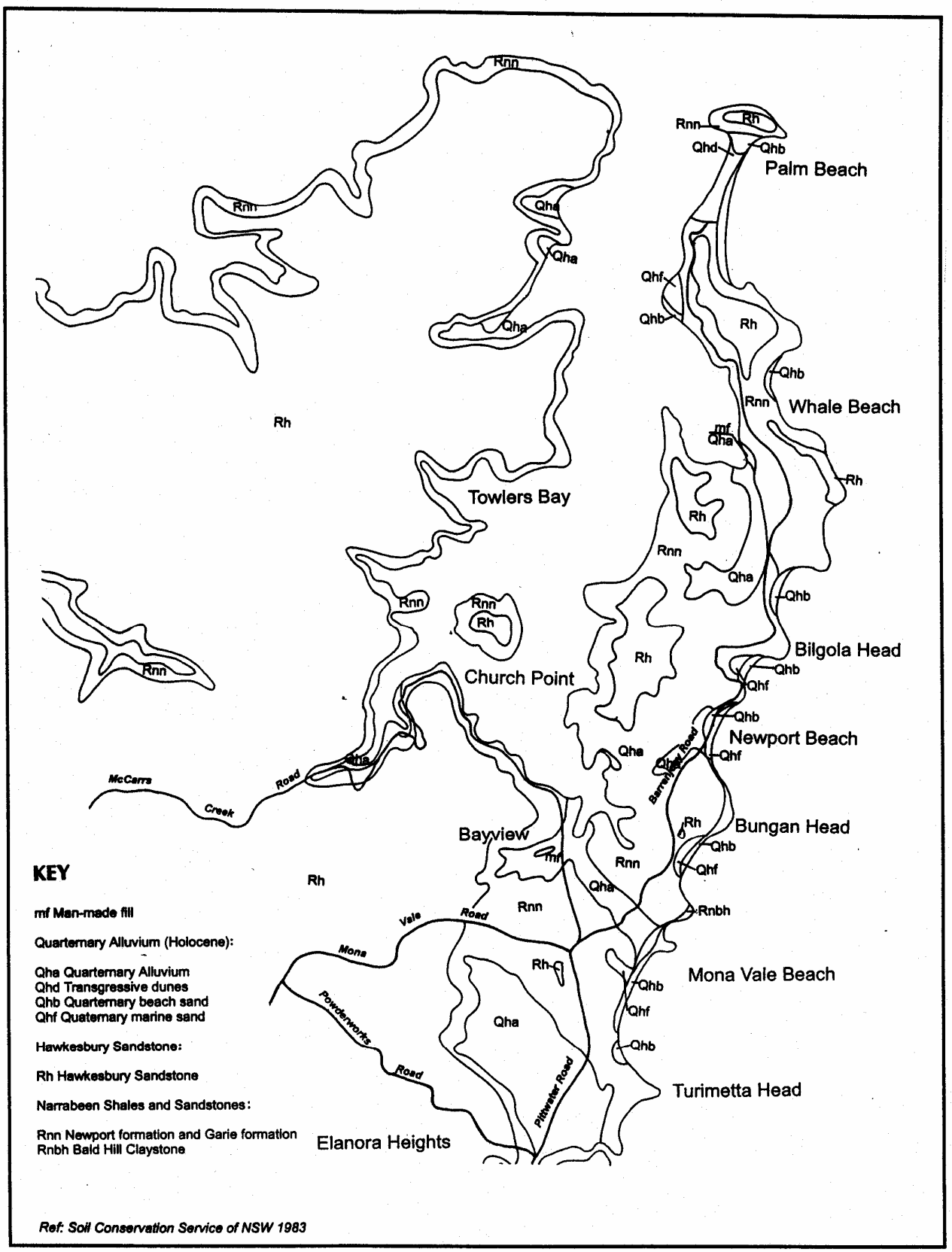


Figure 5. Geology map



3.4. Vegetation

Note: The species list, vegetation descriptions and maps provide in this plan have been collated from a range of sources of varrying age and reliability. They have not been accurately ground truthed as part of this process and therefore should not be considered to be of a high level of accuracy. They were intended only to be indicative of the vegetation in the reserve and to provide some record and description of the vegetation in the reserve.

The distribution of vegetation types within the Reserve is related to geology and soil type, aspect, fire history and disturbance history. The level of weed infestation is relatively low. This is largely due to bush regeneration work undertaken by Council's Reserves Unit and local volunteers. The good condition of the native vegetation makes an important contribution to the overall scenic quality of the Reserve.

The Coastal Flora and Fauna Study (Burcher & Lembit, 1997) defines areas of vegetation and classifies them into broad plant communities. Four broad vegetation types exist within the reserve, these being: Headland Open Scrub, Coastal Scrub, Cliff Face Open Heath and Themeda grassland. All three vegetation types have been identified as having a limited distribution with the Pittwater Council area. The distribution of vegetation types at Turimetta Headland is indicated in Figure 6.

The Tree Preservation and Management Order exists for all areas of Pittwater, for trees (unless stated as undesirable) over three metres and any area of bushland. Each of these communities are identified in the Urban Bushland Inventory and Action Plan (volume 2, April 1997).

Coastal Clay-Heath Community: Headland Open Scrub (PC10)
This vegetation type consists of an open scrub formation dominated by Scrub She-Oak (*Casuarina distyla*) and Coastal Teatree (*Leptospermum laevigatum*). Shrub height is generally between 2 and 3 metres. Associated shrub species include Coastal Rosemary (*Westringia fruticosa*), Rusty Petals (*Lasiopetalum ferrugineum*) and Coastal Wattle (*Acacia sophorae*).

This community is dominant through much of the Reserve including most of the bushland in the vicinity of Turimetta Head itself.

There is a ground layer of medium to high density dominated by grasses and sedges. Ground layer species include Kangaroo Grass (*Themeda australis*) *Ptilothrix deustum, Xanthosia tridentata,* Spiny Mat Rush (*Lomandra longifolia*) and *Dianella caerula var. producta.*

Themeda Grassland:
Areas with a history of natural disturbance and clay soil, support small communities of grassland. These areas are generally dominated by Kangaroo Grass (*Themeda triandra*), but also contain patches of *Microleana stipioides* (Weeping Velt grass) and a variety of groundcovers and creepers.
The area below the trig station picnic area towards the lookout supports one such community and is interconnected with other area of grassland occurring near the Warriewood Blowhole, probably on former grazing land.
Exotic grasses *Paspalum dialatatum,* Kikuyu (*Pennisetum clandestinum*), Couch (*Cyndon dactylon*) and the herbaceous species, Common Plantain (*Plantago lanceolata*) and flat weed (Hypochaeris radiata) are currently invading this community.

Cliff- Face Open Heath (PC13)
Cliff-faces along the coast support an open-heath community dominated by Coastal Rosemary

and Coast Wattle. This community is often associated with Narrabeen group sediments. Associated native shrub species include Scrub She-Oak (*Allocasuarina distyla*), Coastal tea Tree (*Leptospermum laevigatum*), Hop Goodenia (*Goodenia ovata*) and Sweet Pittosporum (*Pittosporum undulatum*). Ground layer species include Kangaroo Grass (*Themeda triandra*) and Spiny Mat Rush .

Within the Reserve this community occurs along the escarpment from Turimetta Head southwards.

Coastal Clay Heath Community: Coastal Scrub (PC11)
Shale soils associated with the headland supports an open scrub dominated by Coast Banksia (*Banksia integrifolia*), Coast Rosemary and Coastal Tea Tree. Associated shrubs include Swamp She-Oak (C*asuarina glauca*)and Rusty Fig (*Ficus rubiginosa*).

There is a ground layer of medium density, with a range of grasses vines and grass like plants. These include Kangaroo Grass, Sea Rush (*Juncus krausii*), Dusky Coral Pea (*Kennedia rubicunda*), *Dianella revoluta*, Spiny Mat Rush, Scented Marsdenia (*Marsdenia suaveolens*) and Old Man's Beard (*Clematis aristata*).

Exotic weeds are evident in pockets throughout the reserve, particularly in disturbed areas or those affected by nutrient charged run off. Weed species include Mirror Plant (*Coprosma repens*), Gazania (*Gazania rigens*), Madeira Vine (*Anredera cordifolia*), Blackberry (*Rubus ulmifolius*), Fern Asparagus (*Protasparagus aethiopicus*), Lantana (*Lantana camara*), Bitou Bush (*Chrysanthemoides monilifera*), Kurnell Curse (*Hydrocotyle bonariensis*), Mother of Millions (*Kalanchoe tubiflora*), Passpalum (*Paspalum dialatatum*) and Sporobolus (*Sporobolus virginicus).*

This community occurs in smaller patches through the Reserve, generally in more situations more sheltered from coastal winds than Coastal Clay Heath.
Figures 6 and 7 show the distribution of the vegetation communities and weed densities in the reserve. Appendices C and D contain a flora species list and weed list for the reserve.

Figure 6. Vegetation Map.

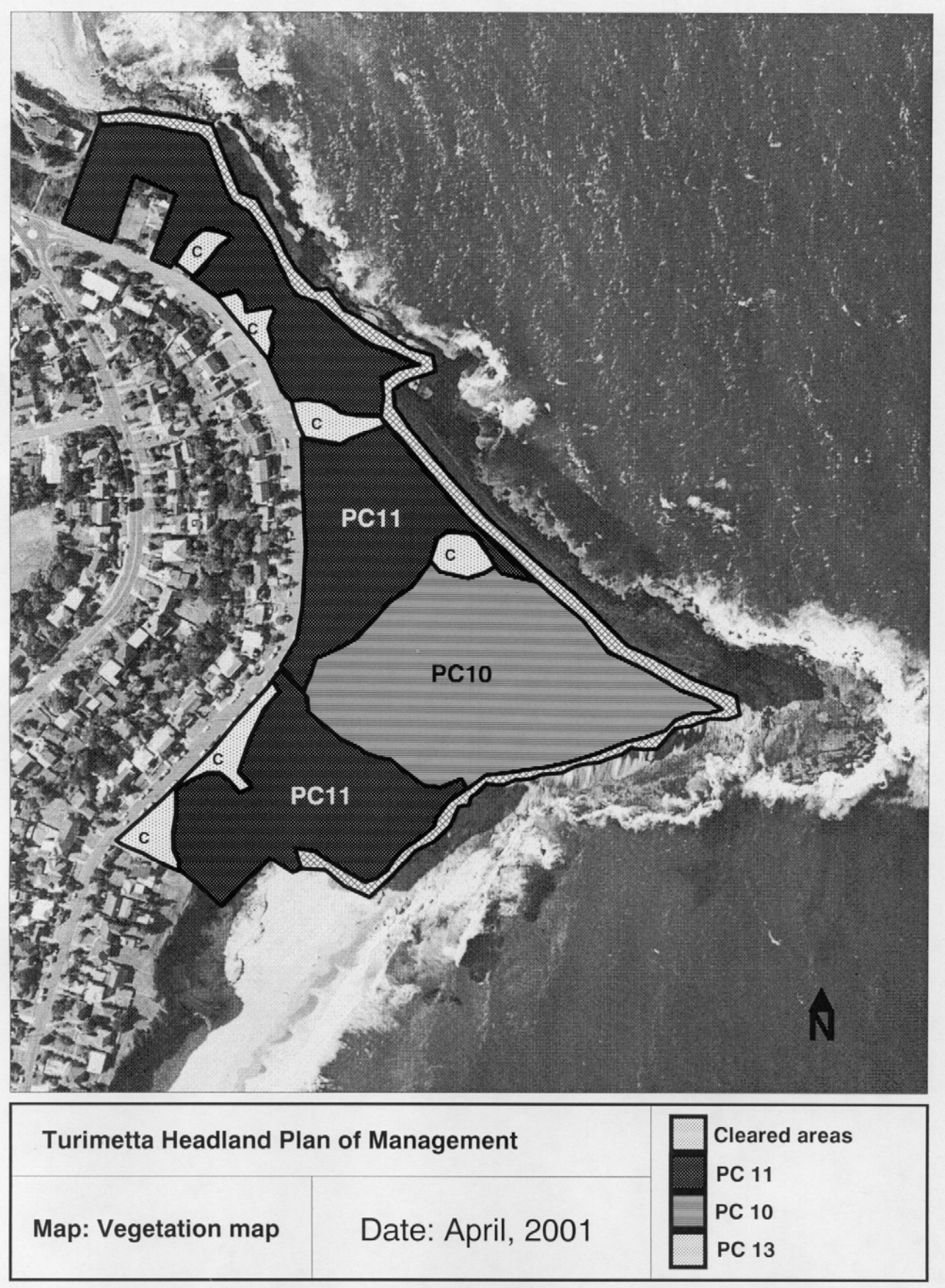


Figure 7. Weeds map.

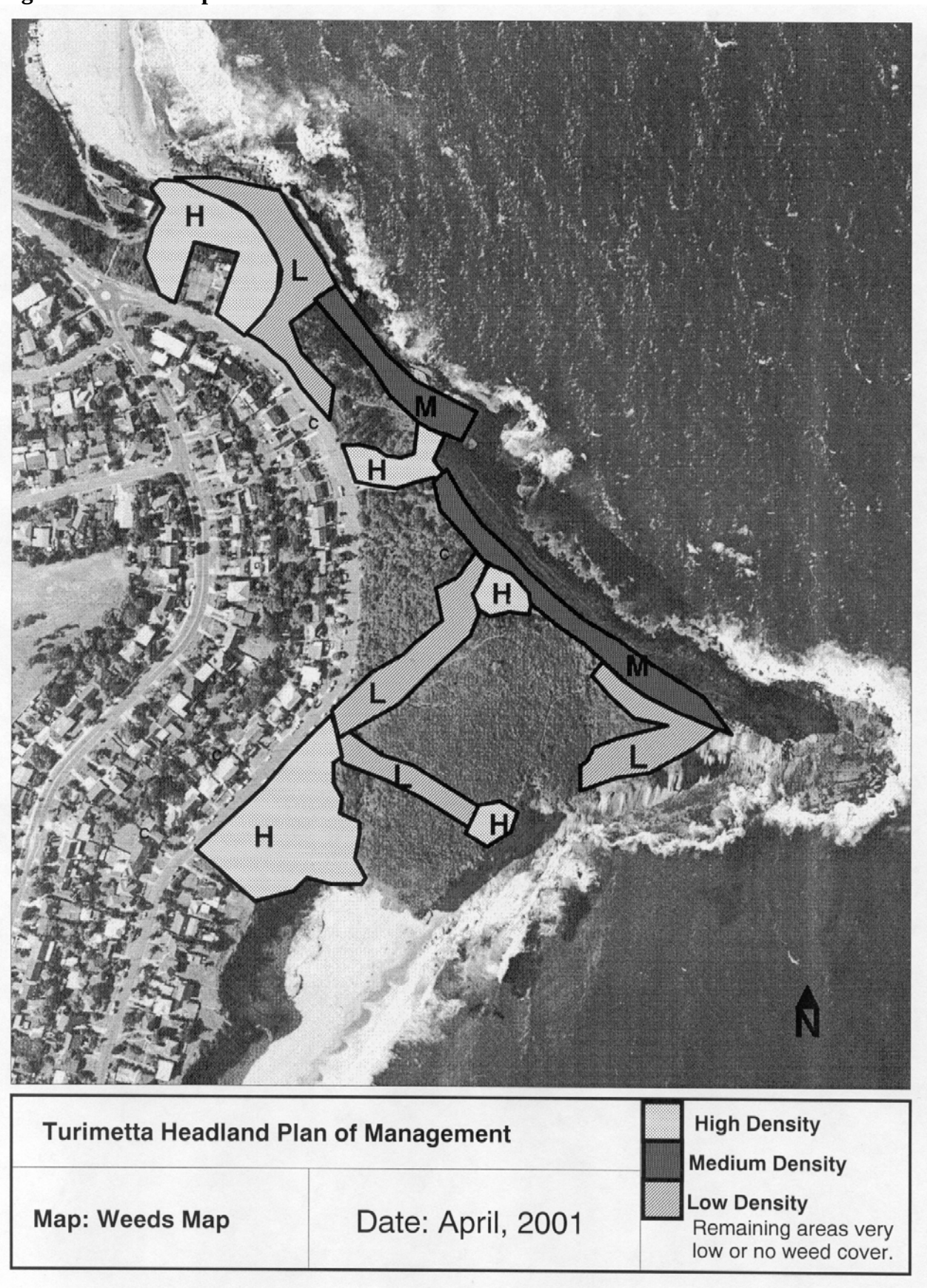


Figure 8. Fire map

3.5. Fauna

Endemic vegetation along the coast acts as valuable habitat for a variety of bird life in the area. In particular, the winter-flowering *Banksia integrifolia* and *Banksia ericifolia* attract large numbers of migratory and nomadic honey eaters and lorikeets. Insectivorous birds such as the White-browed Scrub Wren are also afforded protection by the thick vegetation cover of the headland. The small Raptors, the Black Shouldered Kite (*Elanus notatus*) and the Australian Kestrel (*Falco cenchroides*) are often found in this area and larger raptors such as the White-bellied Sea-eagle and the threatened Osprey and are also occasionally observed locally. The regionally significant Peregrine Falcon (*Falco* peregrinus) is also likely to prey on the large number of Feral Pigeons (*Columba livia*), Indian Mynas (*Acridotheres tristis*) and Starlings (*Sturnus vulgaris*) which shelter in the cliff near Warriewood Blowhole. The threatened Sooty Oystercatcher (*Haematopus fuliginosus*) and the regionally significant Reef Egret (*Egretta sacra*) have been detected on other rock platforms and foreshores elsewhere in the Pittwater LGA (Smith & Smith, 1998) and to the south at nearby Long Reef. They could also be expected to occur at Turimetta Headland.

Introduced animals, most notably Rabbits (*Oryctolagus cuniculus*), Feral Pigeons and Starlings (*Sturnus vulgaris*) are evident on Turimetta Headland. In particular, Rabbits need to be controlled, so that their presence does not continue to destroy the vegetation and fauna habitats of the area and accelerate erosion of the headland. Appendix B contains a Fauna species list for the reserve.

3.6. Cultural Heritage

Prior to European Settlement, the Guringai Tribe inhabited the local foreshores and headlands. This area would have provided an abundance of both shellfish and fish as well as bush foods, including fruits, nuts, seeds, leaves, roots, bulbs, honey, nectar and insect grubs. An Aboriginal Midden and shelter are located to the northern point of Turimetta Beach, at the foot of Turimetta Headland. No other sites are recorded or likely to be present due to the geology of the headland. The surrounding area has a number of Shelter caves, art sites, axe groves and middens having been subject to a relatively high density of Aboriginal people prior to European settlement.

It is believed that Turimetta Headland was grazed at some point, but most likely during the 1930's, as photos from this time depict open grasslands with little resemblance to the heath-like communities which exist today.

During the past 50 years the area has steadily grown in population, with most development in the area consisting of single and double story dwelling houses on moderate sized lots, many with expansive views of the ocean and the natural coastline.

From 1987 onwards, the Headland was formally linked to adjacent open space areas with the implementation of the Bicentennial Coastal Walkway, which links Manly to Palm Beach. The Walkway extends from the southern to the northern boundary of this Plan.

3.7. Recreation

Bicentennial Coastal Walkway

The Bicentennial Walkway was established in 1988, and is an integral part of the overall pedestrian use of the headland reserve. The establishment of the Coastal Walkway recognised the need to enable recreational users to access the headlands with a series of walks, and to provide a link with beaches and foreshores. This Walkway provides excellent opportunities for scenic viewing, meandering through different coastal vegetation communities and access to the headlands, beaches and rock platform. In keeping with its original intent, the Coastal Walkway is to be retained in as natural a state as practicable, maintained in a safe manner, with coastal vegetation being well maintained and regenerated where required.

From the south, this section of the Coastal Walkway begins at Narrabeen Park Parade near the northern end of Turimetta Beach Reserve. From this point the walk ascends the Headland to a cleared area on the crest where the Trig Station and seating are located. It then descends to the car park in Narrabeen Park Parade with an off shoot to a viewing point over the Warriewood Blowhole. The loop track back to Narrabeen Park Parade has recently been slightly diverted due to geotechnical instability in the northern cliff edge. The track has been moved south approximately ten metres for safety reasons. The main link of the Coastal Walkway through the reserve is shown in Figure 9.

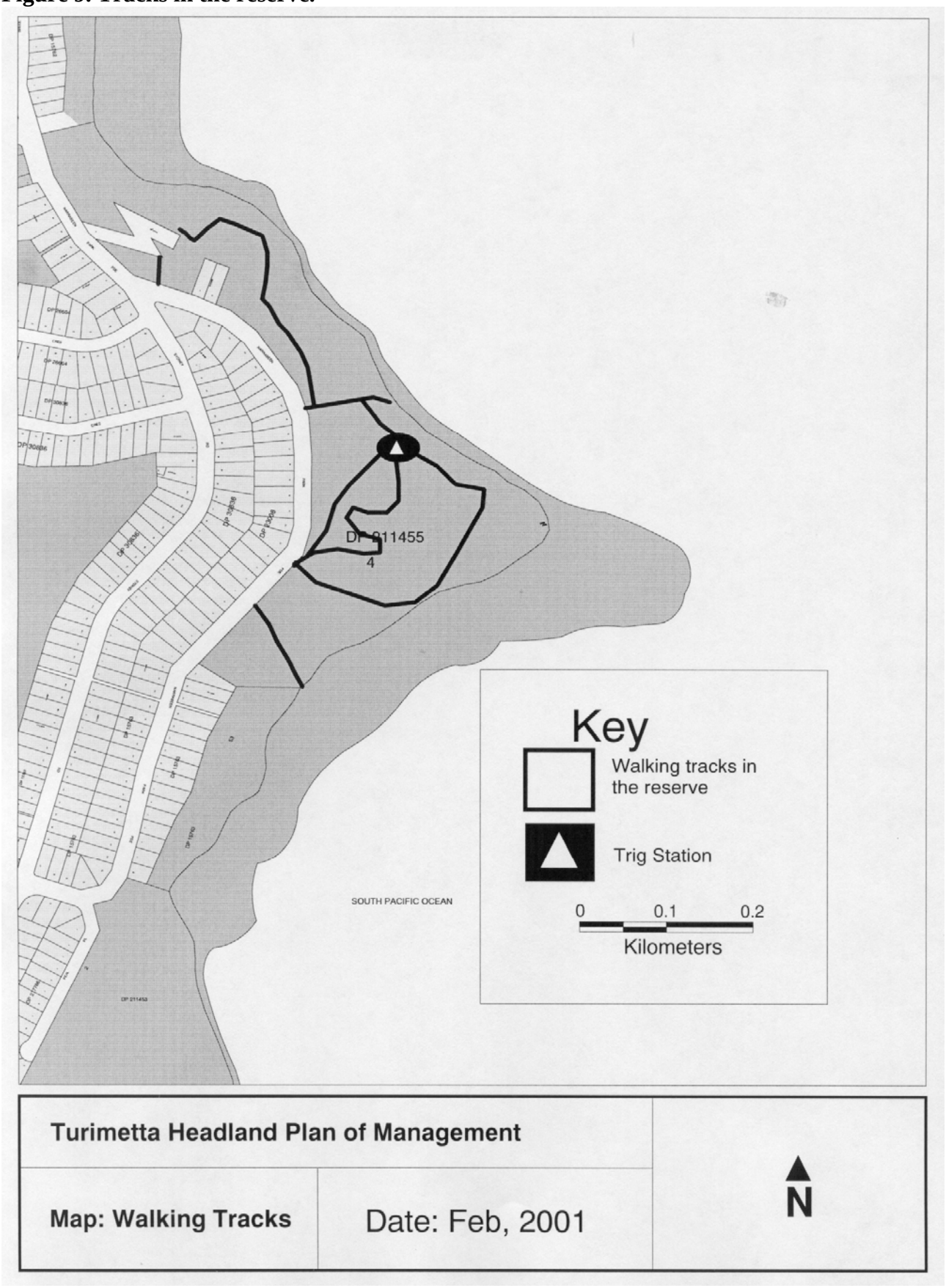
The walkway is generally constructed of path areas that have been mulched with materials that have been trimmed from track edges which not only has proved to be a sympathetic material visually but also as one which is easily maintained. The walk has many lookout points that afford impressive views. It also gives access to historical areas of interest and informal open grassed areas that are very popular for picnics and informal gatherings.

Access for patrons with disabilities is not provided for the entire length of the walkway, although paths have been provided to certain vantage points which comply with AS 1428 such as the access from Narrabeen Park Parade to the blowhole lookout.

The vegetation varies throughout the Headland and the views are spectacular. From within vegetated areas, users experience enclosed spaces which open out into the grassy open area on the knoll where spectacular views to the north and south can be appreciated.

Formal walking tracks area identified in figure 9. All other tracks should be closed and regenerated.

Figure 9. Tracks in the reserve.



4. Statement of Significance

The Reserve has significance as an example of the urban bushland in Sydney, which is one of few major cities in the world with substantial areas of natural bushland.

Urban bushland areas throughout the Sydney region are significant because they:

- Contribute to the landscape quality of the city,
- Provide habitat for plants and animals, which would otherwise become regionally extinct,
- Provide a corridor for the movement of migratory and nomadic animals, particularly birds, through the urban area,
- Provide an educational resource and the first contact point with nature for many urban residents,
- Enable urban residents to undertake recreational pursuits in a bushland setting,

Turimetta Headland Reserve has particular significance because it:

- Provides a unique landscape formation which plays a significant role in the aesthetic landscape of Sydneys Northern Beaches.
- Includes three vegetation types that have been identified as having a limited distribution within the Pittwater Council area.
- Supports a populations of the regionally significant plant species and communities, *Pomaderris species B*, and, *Eriostemon buxifolius ssb. buxifolius* and *Themeda* Grasslands
- Provides habitat for two threatened fauna species, Osprey and Sooty Oystercatcher, and the regionally significant Reef Egret and Peregrine Falcon.

5. Management

5.1. Core Objectives

Amendments to the Local Government Act have required that new objectives be met in relation to community lands. Community lands that make up the reserve are classified as "natural" areas and then further categorised as "bushland" and "escarpment" each of which has its own set of core objectives which are set out below.

The core objectives for management of community land categorised as a *natural area* (Section 36 E) are:

> (a*) to conserve biodiversity and maintain ecosystem function in respect of the land, or the feature or habitat in respect of which the land is categorised as a natural area, and*
>
> (b) *to maintain the land, or that feature of habitat, in its natural state and setting, and*
>
> (c) *to provide for the restoration and regeneration of the land, and*
>
> (d) *to provide for community use of and access to the land in such a manner as will minimise and mitigate any disturbance caused by human intrusion, and*
>
> (e) *to assist in and facilitate the implementation of any provisions restricting the use and management of the land that area set out in a recovery plan or threat abatement plan under the Threatened Species Conservation Act 1995 or the Fisheries Management Act 1994.*

The core objectives for management of community land further categorised as *bushland* (Section 36J) are:

> (a) *to ensure the ongoing ecological viability of the land by protecting the ecological biodiversity and habitat values of the land, the flora and fauna (including invertebrates, fungi and micro-organisms) of the land and other ecological value of the land, and*
>
> (b) *to protect the aesthetic, heritage, recreational, educational and scientific values of the land, and*
>
> (c) *to promote the management of the land in a manner that protects and enhances the quality of the land and facilitates public enjoyment of the land, and to implement measures directed to minimising or mitigating any disturbance caused by human intrusion, and*
>
> (d) *to restore degraded bushland, and*
>
> (e) *to protect existing landforms such as natural drainage lines, watercourses and foreshores, and*
>
> (f) *to retain bushland in parcels of a size and configuration that will enable the existing plant and animal communities to survive in the long term, and*
>
> (g) *to protect bushland as a natural stabiliser of the soil surface.*

The core objectives for management of community land further categorised as an *escarpment*

(Section 36L) are:

> (a*) to protect any important geological, geomorphological or scenic features of the escarpment, and*
>
> (b) *to facilitate safe community use and enjoyment of the escarpment.*

5.2. Local Objectives

In accordance with the core objectives set out above, Council's broad management goals as stated in Section 1.5 of this draft Plan, and through identification of the functions, use and key issues relating to Turimetta Headland, the following additional local objectives have been established, to:

- Protect and enhance the natural environment and scenic landscape qualities of the reserve.
- Prevent weed invasion and control weed species occurring in the reserve.
- Consolidate the areas of bushland which have and will continue to regenerate, through the use of approved bush regeneration techniques.
- Continue the maintenance and where necessary the upgrading of the Coastal Walkway.
- Identify areas of bushland which are in need of regeneration and subsequently set an action plan for this process.
- Continue to provide opportunities for low impact recreational, scientific and educational use of the reserve.
- Achieve a balance between the needs of recreational users and the sustainability and specific demands placed on the natural coastal environment.
- Identify inaccessible areas for safety reasons and where appropriate erect appropriate signage and fencing.
- Rename the reserve from Warriewood Beach Reserve to Turimetta Headland Reserve.

5.3. Management Issues

5.3.1. Coastal Management

Council is preparing a Coastal Management Strategy, which will involve a major review of the Warringah Shire Coastal Management Strategy (1985). The study will encompass both public and private land, and be concerned with all matters relating to the coastal zone. Coastal areas such as Turimetta Headland will be integral parts of the eventual management strategy.

The Coastal Management Strategy will be an umbrella document with broad policies, addressing coastal processes and hazards, coastal ecology and management. The Plans of Management for coastal community land will direct policy and management of the reserve, to meet the requirements of the Local Government Act.

This Plan of Management may require amendment following the more detailed investigations of the Coastal Management Strategy.

Protection of Intertidal Areas

While the intertidal areas are not provided for under this plan as they are vacant Crown land the local residents have brought to Council's attention concern over the removal of intertidal invertebrates. In the case of the rock platform at Turimetta Headland, standard bag limits apply.

Elsewhere in Pittwater, residents have instigated an 'early warning system', regarding breaches of the Fisheries Management Act, whereby the residents inform Council's rangers if anyone is seen collecting intertidal invertebrates from the platforms. It is hoped that this "custodial" behaviour will be adopted by local residents, thus assisting Council and NSW Fisheries in protecting these fragile habitats.

Pittwater Council has undertaken a community awareness program "Project Aware – On the Rocks!". Community volunteers are trained in this program in ecology, awareness and conservation of rock platform habitats and component species and threats to their survival. In association with the IPA monitoring program, students, staff and volunteers organised by Council under Project Aware – On the Rocks undertake summer and winter surveys of anglers and foragers using the rock platforms. The aim of this survey is to quantify user behaviour, identify user groups and canvass and increase their understanding of user impacts.

An ocean outlet was constructed off Turimetta Beach during the 1970's for treated sewage outflow. The discharge point is on the rock platform below Turimetta Headland. Given the ecological importance and sensitivity of the rock platforms at Turimetta Headland, disposing of treated sewerage and stormwater in their vicinity is undesirable and at conflict with other strategies aimed at conserving the rock platforms' biota.

Sydney Water is intending to reinstall a settling pond at the Warriewood STP by sometime in 2002, and possibly introducing more advanced treatment techniques. The settling pond is supposed to reduce the number of by-pass events from about 12 per year to about 3 per year (though this may not allow for future population increase after the development of Warriewood Valley).

Objectives:

- To minimise impacts on the rock platforms, beaches and aquatic environment from the reserve and activities associated with it.
- To education the community on coastal processes and impacts on these areas.

Performance targets:

- A reduction in impacts on the rock platforms, beaches and aquatic environment from the reserve and activities associated with it.
- To increase awareness of coastal environments and impacts associated with community use.

Actions:

- Investigate and implement strategies to minimise impacts associated with drainage, pollution and access.
- To continue the support of Project AWARE on the Rocks and enforce prohibited uses of the area.

Performance assessment:

- Assess sediment, nutrient, and pollutant quantities as well as recreation activity impacts on the rock platforms, beaches and aquatic environments adjoining the reserve.
- The survey of rock platform condition, community understanding and attitudes.

5.3.2. Vegetation Management

The main vegetation management issues at Turimetta Headland are regeneration of bushland, weed encroachment, fire management, tree vandalism and impacts associated with the Coastal Walkway.

Bush regeneration along the Headland has been very successful and the bushland is generally in good condition. The continued work of Council's Bush Regeneration team and local volunteers has made a significant contribution. Records from Warringah Council from the late 1980's show that the density and distribution of weed species has reduced. The philosophy behind the management of the regenerated areas is to maintain and consolidate smaller and contiguous parcels of land with similar characteristics, rather than gradually expanding out to include the entire system.

Reserves adjacent to residential areas can become dumping grounds for household waste and, in some instances, construction waste. Waste materials disposed of in the Reserve are not only an eyesore, but can be dangerous for pedestrians utilising the area, particularly where large pieces of material are involved. Refuse can also bring with it new weed propagules and create a fire hazard. The plant communities of the Headland are significant and must be protected against additional invasive species.

Tree vandalism along Narrabeen Park Parade has become a significant issue. Specimens of *Banksia integrifolia* and *Casuarina glauca* have been targeted by residents to "improve ocean views".

Objectives:

- To conserve the vegetation diversity and structure in the reserve.
- To control, contain or eradicate introduced flora species in the reserve.
- To increase awareness of the public in relation to the flora and their impacts on the flora of the reserve.

Performance targets:

- The reduction in diversity and distribution of weeds in the reserve.
- The management of drainage, nutrient, pollution and seed sources that contribute to the degradation of bushland.
- The reduction in cases of dumping, clearing and vandalism as a result of community awareness programs and enforcement.
- Community better informed as to the likely negative impacts of nutrient runoff.
- Community better informed regarding the positive effects of bush regeneration through education of neighbours and effective recruitment of residents as bushcare volunteers.
- Increased community awareness of the illegal nature and detrimental impacts of disposing of rubbish and clearing of vegetation on the Headland.
- Decreased incidence of waste disposal on the headland.

Action:

- Initiate new volunteer Bushcare groups in the area where appropriate.
- Instigate community education programs regarding bush regeneration, the problems of vegetation clearing and the adverse visual and ecological impacts of dumping.
- Provide and maintain educational and interpretive signs as part of the Bicentennial Coastal walkway.
- Increase surveillance and fines in relation to tree/bushland vandalism and dumping.

Performance assessment

- Evaluate intensity and distribution of weeds for comparison and assessment of regeneration programs.
- Attitudes of neighbours to be monitored through response to information days, written complaints and compliments.
- Compare number of cases of tree vandalism, illegal clearing and dumping to assess success of education and enforcement programs.
- Formal survey of attitudes and understanding to be considered every five years.

5.3.3. Drainage and Erosion

There are no significant drainage lines in the reserve, however threats of erosion and land slip are a result of coastal processes and recreation impacts. The Headland is bounded on the north east to south east sides by the coastal cliff lines that are battered by the ocean waves. This has the result of a slowly receding cliff line than breaks away mostly in a series of minor land slips that go unnoticed. Clearing of cliff top vegetation and walking tracks close to cliff edge accelerates this process. One walking track has been recently diverted to reduce erosion effects and increase user safety.

Minor drainage lines entering the reserve from the road provide a source of nutrients, sediment and water as well as a primary source of weed propagules entering the reserve. These areas should be managed to reduce these effects on the reserve.

Objectives:

- To preserve the natural landform through the preservation of natural vegetation and landscape processes.
- To minimise processes which accelerate erosion.

Performance targets:

- The reduction of impacts that increase erosion rates.

Actions:

- To assess and formulate management actions to mitigate impacts associated with fire, recreation, feral species control, and other associated issues.
- The identify erosion problem areas and implement strategies to reduce rates to natural levels.

Performance assessments:

- To assess effects of management activities in reducing erosion and effects of drainage in the reserve.

5.3.4. Fauna

Rabbits are present on the Headland and burrows are evident in several areas. It is believed that domestic rabbits were at one point disposed of in this area and have since bred in the area. Although numbers are unknown, the breeding capabilities of rabbits is widely known and as such they can not go unchecked.

The headland provides habitat for a range of fauna species including many small birds that gain protection in the dense vegetation. Two threatened and two locally significant species have been recorded on or from the headland. These were the Osprey (threatened), Sooty Oystercatcher (threatened), Reef Egret (locally significant) and the Perigrine Falcon (locally significant). Special consideration should be given to the protection of these species.

Objectives:

- To monitor and improve the habitat and resource values of the reserve for native species, particularly for those that are threatened or significant.
- To promote awareness of native fauna and activities which threaten these species.
- To conserve and enhance populations of Osprey (threatened), Sooty Oystercatcher (threatened), Reef Egret (locally significant) and the Perigrine Falcon (locally significant).
- To control or eradicate introduced fauna in the reserve

Performance targets:

- Increase in the abundance, diversity and distribution of habitats and resources for native fauna species.
- Increase in awareness of and reduction in threatening processes such as cats, dogs and foxes in the reserve.
- Reduction in the abundance and distribution of introduced fauna in the reserve such as cats, foxes, dogs, and rabbits.

Actions:

- Continue regeneration and revegetation programs with a focus on fauna habitat and resource trees and plants.
- Conduct neighbor education programs about native fauna and the threats cats and dogs pose to native fauna if not contained.
- Implement a program of feral animal control or eradication.

Performance assessments:

- Monitor the numbers and distribution of introduced fauna species to assess effectiveness of control and eradication programs.
- Attitudes of neighbors will be monitored through response to education programs, written complaints and compliments.
- Formal survey of attitudes and understanding will be considered every 5 years.

5.3.5. Fire

Fire management in urban bushland needs to ensure that the threat of fire to life or property is minimised whilst protecting the natural features of the bushland. Fires have occurred as a natural disturbance to bushland in the Sydney region for tens of thousands of years. Many of the plant species found in Sydney's bushland areas have characteristics which enable them to regenerate after wildfires. Changes to the fire regime (the frequency, intensity and season of fires) can have a severe effect on some species to the point where they may become locally extinct. For instance, on coastal headlands, the rare plant *Rulingia hermaniifolia* has been detected shortly after fires but then declines due to over shading by taller shrubby species.

Several fires in the past years have occurred in the Reserve, with the majority of these having been unplanned, deliberately lit fires. For example two separate fires have occurred in the year 2000 alone. Both are mapped in figure 8 Fire history of the reserve.

The fires however have proved to be a positive catalyst in the regeneration of the Headland and fire has been used on occasions as part of the bush regeneration strategy, with increased seeding of Kangaroo Grass being observed in the season following fire. Conversely, a number of species present in coastal plant communities are fire-sensitive and too frequent or un-planned fires can cause declines in abundance and lead to local extinction.

Objectives:

- To maintain biodiversity and vegetation structure through implementation of appropriate fire management.
- To minimise danger to the public from wildfire.

Performance targets:

- Effective fire management strategies are in place.

Actions:

- To investigate and implement an appropriate fire regime with consideration to biodiversity and community safety.
- To undertake community awareness program explaining ecological burning and fire risk.
- To develop a fire action plan for the reserve in consultation with the Rural Fire Service to be approved by the Bushland Management Committee.

Performance assessments:

- Periodic reviews of fuel loads and biodiversity to ascertain effectiveness of fire management.
- Attitudes of neighbors will be monitored through response to education programs, written complaints and compliments.
- Formal survey of attitudes and understanding will be considered every 5 years.

5.3.6. Recreation and Access Management

Recreation in the reserve is primarily restricted to walking and sight seeing. The coastal walkway which includes a number of look out areas is the primary access into the reserve. Access to the rock platform is from Turimetta Beach to the south and via an unauthorised fixed rope at the blowhole and therefore is not provided for in this plan. The majority of the visitors to the reserve are exercise walkers, bushwalkers and sightseers.

Paragliding and Hang gliding

Paragliding and hang gliding are increasingly popular activities on the northern beaches with one popular launch site located in the reserve. These sports have minimal impact on the reserve as they occur mostly in the air only touching the ground on take off and landing and requiring minimal space to do so. These activities have also been successfully provided for in Warringah council area at Long Reef Reserve.

These sports also have an ever increasing safety standard and are regulated under the Hang Glider Federation of Australia (HGFA) as weight shift aircraft. The HGFA are contracted by Civil Aviation Safety Authority (CASA) to manage these sports in Australia and all pilots are required to be members of the HGFA which provides for 10 million dollars insurance cover. This site is also considered an intermediate to advanced flying site for these craft and therefore is not a site used for training or teaching. These sports will be allowed to continue on a non-commercial basis from the reserve as long as they comply with requirements of this plan and can satisfy license and insurance requirements. (HGFA can be contacted on 02 6947 2888). An active local club "Northern Beaches Flyers" are keen to maintain use of these sites and are happy to undertake maintenance, regeneration and construction of sites if required.

Dog Discipline

Dogs are not prohibited on the Coastal Walkway, but must be controlled by a lead. Section 13 (parts 1 and 2) of the Companion Animals Act (no 87) state:

> "(1) a dog that is in a public place must be under the effective control of some competent person by means of an adequate chain, cord or leash.
>
> (2) If this section is contravened, the owner of the dog is guilty of an offence."

Council is to provide more information to local residents and visitors regarding the location of unleashed dog areas. South Mona Vale Headland is the closest dog exercise area.

Reserve Bookings

Different sections of the Headland are able to be booked through Council's Reserves Section for purposes such as group picnics, special events, weddings and filming (commercial, feature films and photography). Turimetta Headland is a popular venue for weddings and these bookings are often in combination with a booking at the Warriewood Surf Club for the reception. These bookings attract fees and are subject to special conditions.

Coastal Walkway

There is a requirement for maintenance of the Walkway through the Reserve to ensure the track continues to be attractive to users. The management of the walking tracks must take into account environmental impacts and safety of the reserve users and users of the rock platform below.

Cliff Face Management/ Risk Management

The reserve is designated as having slip potential. Warning signs placed both along the headland and on rock platforms below, have been erected to attract the attention of users as to the likely risks involved with rock falls. During 1998, Longmac and Associates carried out a geotechnical assessment of stability conditions and possible instability impacts on the

public walking tracks at Turimetta Headland. They found that users of the existing walking track are at low, but potentially fatal, risk due to the instability of soil and rock masses along the crest of the headland at several locations.

Warriewood Blowhole

Warriewood Blowhole has an infamous reputation as being the site of three separate drowning incidents over the past few years. "Jumpers" leap from the cliff face approximately 20 metres to the water and swim into the hole and subsequently along the cavern and out the other side. Rock fishermen also use this area as a fishing spot and ropes have been fixed by persons unknown to assist them in climbing up and down the cliff.

The cliff top is in the area provided for in this plan but the rock platform and water at the base of the cliff is not. Council has been advised legally as to the appropriate course of action to ensure adequate management of the area. It was proposed several years ago by the Senior Management Team that the existing rope should be removed as it only acted as an aid in allowing access to the jump point. However, on advice this was discouraged as the rope was installed by persons unknown and if it were to be removed it would possibly be replaced again. Also swimmers in the area, knowing of the rope's existence may need it in an emergency.

It was therefore decided that additional signage should be erected, warning people of the dangers associated with the blowhole. Signage is to target the activity of jumping. It was also proposed that the signage, like most of the warning signs along the Coastal walkway, incorporate graphic representations. Jumping from the cliff is not an authorized activity and is strongly discouraged.

Objectives:

- To provide for appropriate, low impact, sustainable recreation activities on the headland reserve.
- The ensure safety of the reserve users from risks associated with areas provided for under this plan.
- To provide appropriate interpretive signage in the reserve (directive, environmental and prohibitive).
- To prohibit the inappropriate access, use and vandalism of the reserve.

Performance targets:

- The continuation of appropriate recreational activities in the reserve.
- The provision of appropriate signage.
- No inappropriate use or access to the reserve.

Actions:

- The implementation of a construction and maintenance program for track and facilities in the reserve.
- Identify inappropriate uses and implement strategies to cease those activities.
- The review and development of appropriate signage in the reserve.

Performance assessments:

- Walk through assessment of impacts resulting from recreation is to be undertaken periodically and management activities prescribed.
- Attitudes of neighbors will be monitored through response to education programs, written complaints and compliments.
- Formal survey of attitudes and understanding will be considered every 5 years.

5.3.7. Cultural Heritage Management

Only one Aboriginal site has been identified on the subject site. This is a cave at the base of the cliff at the northern end of Turimetta Beach which is also the site of a large midden, the result of easy access to shell-fish and other foods from the shore line. This cave is fairly degraded due to the ease of access to the public and natural processes. The surrounding area contains a number of Aboriginal sites including shelter caves, art sites and middens. The remainder of the site is not likely to have been the site of significant cultural activities due to its geology, with most of the Aboriginal sites being located on Hawkesbury Sandstone.

Objectives:

- To survey and record European and Aboriginal heritage of the headland and surrounds.
- To conserve the cultural heritage values of the headland.

Performance targets:

- The collation and survey of cultural heritage values and sites related to the Turimetta Headland.
- The protection from further degradation of heritage sites.

Actions:

- To research and collate all available historical information on Turimetta Headland
- To undertake cultural heritage survey if information is incomplete.
- To prescribe management actions aimed at the conservation of the cultural values of the headland.
- To consult with the Local Aboriginal Land Council in regard to cultural values of the reserve.

Performance assessments:

- Whether complete documentation of heritage values is recorded.
- The identification and protection of heritage values.

6. References

Burcher, P. & Lembit, R. (1997) *Coastal Flora & Fauna Study.* Report prepared for Pittwater Council.

Chapman, G.A. & Murphy, G.L. (1989) *Soil Landscapes of the Sydney 1:100 000 Sheet.* Soil Conservation Service of NSW.

Coffey & Partners (1987) *Coastal Headlands in Warringah Shire*. Report to Warringah Shire Council.

Longmac & Associates (1998) *Geotechnical Stability Assessment - Turimetta Headland Walking Track.* Report prepared for Pittwater Council.

7. Appendix A: Indicative Species List for Turimetta Headland Rock Platform.

Foliose Green
Cladophora sp.
Chaetomorpha
Enteromorpha intestinalis
Ulva lactuca
Green Laurencia

Foliose Brown
Colpomenia sinosa
Dictoyota dichotoma
Dilphus marginatus
Ectocarpus sp.
Padina sp.
Petalonia fascia
Petrospongium rugosum
Sargassum sp.
Zonaria crenata
Brown filamentous
Brown sticks

Foliose Red
Amphiroa anceps
Ceramium sp.
Champia sp.
Corallina officianalis
Gigartina sp.
Gracilaria sp.
Griffithsia monilis
Hypnea sp.
Laurencia sp.
Martensia fragilis
Peysonnelia capensis
Polysiphonia sp.
Porphyra columbina
Pterocladia capillacea
Rhodymenia australis
Wrangelia plumosa
Long Red Tubular
Red Glob
Red Parsley
Red Pointy
Red Sausage
Green Encrusting
Codium lucasii
Brown Encrusting
Ralfsia verrucosa

Red Encrusting
Hildenbrandia rubra
Nongeniculate red coralline
Orange encrusting

Blue Green
Aphanothece australis
Oscillatoria erythraea
Unidentified Blue Green

Barnacles
Austromegabalanus nigres
Austrobalanus imperator
Catomerus polymerus
Chamaesipho tasmanica
Chthamalus antennatus
Tesseropora rosea
Tetraclitella purpursacens

Bivalves
Saccostrea commercialis

Polychaetes
Galeolaria caespitosa
Hydroides sp.
Spirorbids

Sponges
Haliclona sp.
Unidentified sponges

Ascidians
Botrylloides sp.
Didemnum moseleyi
Pyrura stolonifera
Orange ascidian
Purple ascidian
Solitary ascidian

Bryozoans
Encrysting bryozoan
Bugula sp.

Anemones
Actinia tenebrosa
Anthothoe albocinata
Cnidopus verater
Oulactis muscosa

Chitons
Onithochiton quercinus
Plaxiphora albida
Unidentified juvenile chitons

Gastropods
Austrocochlea porcata
Bembicium nanum
Cantharidella picturata
Littornia acutispira
Littornia unifasciata
Nerita atramentosa
Turbo undulatus
Columbellids

Limpets
Amblychilepas nigrita
Cellana tramos tramoserica
Montfortula rugosa
Notoacmaea flammea
Patella peroni
Patelloida alticostata
Patelloida latistrigata
Patelloida mufria
Siphonaria denticulata
Siphonaria virgulata

Small Brown Siphonaria

Whelks
Agnewia tritoniformes
Morula marginalba
Thais orbita

Opisthobranchs
Aplysia sp.
Unidentified nudibranch
Echinoderms
Heliocidaris erythrogramma

Sea Stars
Patriella calcar
Patriella exigua

Ophiuroides
Unidentified Brittle Stars

8. Appendix B: Indicative Fauna Species List Turimetta Headland

Key

Bold Italic - threatened species; **Bold** - regionally significant species

Common Name	Scientific Name
Birds	
Reef Egret	***Egretta sacra***
Osprey	***Pandion haliaetus***
Black-shouldered Kite	*Elanus notatus*
White-bellied Sea-Eagle	*Haliaeetus leucogaster*
Whistling Kite	*Haliastur sphenurus*
Australian Kestrel	*Falco cenchroides*
Peregrine Falcon	***Falco peregrinus***
Sooty Oystercacther	***Haematopus fuliginosus***
Feral Pigeon*	*Columba livia*
Spotted Turtle-dove	*Streptopelia chinensis*
Sulphur-crested Cockatoo	*Cacatua galerita*
Galah	*Cacatua roseicapilla*
Eastern Rosella	*Platycercus eximius*
Rainbow Lorikeet	*Trichoglossus haematodus*
Common Koel	*Eudynamys scolopacea*
Spine-tailed Swift	*Hirundapus caudacutus*
Welcome Swallow	*Hirundo neoxena*
Richard's Pipit	*Anthus novaeseelandiae*
Black-faced Cuckoo-shrike	*Coracina novaehollandiae*
Red-whiskered Bulbul	*Pycnonotus jocosus*
Willie Wagtail	*Rhipidura leucophrys*
Eastern Whipbird	*Psophodes olivaceus*
Superb Fairy-wren	*Malurus cyaneus*
White-browed Scrubwren	*Sericornis frontalis*
Eastern Spinebill	*Acanthorhynchus tenuirostris*
Red Wattlebird	*Anthochaera carunculatus*
Little Wattlebird	*Anthochaera chrysoptera*
Yellow-faced Honeyeater	*Lichenostomus chrysops*
Scarlet Honeyeater	*Myzomela sanguinolenta*
Noisy Miner	*Manorina melanocephala*
White-naped Honeyeater	*Melithreptus lunatus*
White-cheeked Honeyeater	*Phylidonyris nigra*
New Holland Honeyeater	*Phylidonyris novaehollandiae*
Silvereye	*Zosterops lateralis*
Red-browed Finch	*Emblema temporalis*
Common Mynah	*Acridotheres tristis*
Common Starling	*Sturnus vulgaris*
Australian Magpie Lark	*Grallina cyanoleuca*
Grey Butcherbird	*Cracticus torquatus*
Australian Magpie	*Gymnorhina tibicen*
Pied Currawong	*Strepera graculina*
Australian Raven	*Corvus coronoides*
Common Myna*	*Acridotehres tristis*
Common Starling*	*Sturnus vulgaris*
Mammals	
Black Rat*	*Rattus rattus*
Chocolate Wattled bat	*Chalinolobus morio*
Gould's Wattled Bat	*Chalinolobus gouldii*
Rabbit*	*Oryctolagus cuniculus*
Reptiles	
Golden-crowned Snake	*Cacophis squamulosus*
Eastern Water Skink	*Eulamprus quoyii*

Common Name	**Scientific Name**
Copper-tailed Skink	*Ctenotus taeniolatus*
Grass Skink	*Lampropholis delicata*
Garden Skink	*Lampropholis guichenoti*
Weasel Skink	*Saproscincus mustelina*
Blue Tongue Lizard	*Tiliqua scincoides*

9. APPENDIX C: Native Flora (planting) Guide

Ferns

Adiantaceae
Adiantum aethiopicum

Blechnaceae
Blechnum cartilagineum

Cyatheaceae
Calochlaena dubia

Dennstaedtiaceae
Hypolepis mueleri
Pteridium esculentum

Lindsaeaceae
Lindsaea linearis

Flowering Plants – Dicotyledons

Acanthaceae
Bruoniella pumilio
Pseuderantherum variabile

Apiaceae
Actinotus helianthi
Centella asiatica
H. acutiloba
Xanthosia tridentata

Apocynaceae
Parsonsia straminea

Asclepiadaceae
Marsdenia flavescens

Asteraceae
Brachycome angustifola
Bracteanthera bracteata

Bigoniaceae
Pandorea pandorana

Cassythaceae
Cassytha panicualata

Casurinaceae
Allocasuarina distyla
Caurarina glauca

Convolvulaceae
Dichondra repens
Polymeria calycina

Dilleniaceae
Hibbertia empetrifolia
H. pedunculata
H. scandens

Epacridaceae
Astroloma humusifusum
Epacris sp.
Leucopogon parviflorus

Euphorbiaceae
Breynia oblongifolia
Glochidion ferdinandi
Micrantheum ericoides
Omalanthus populifolius

Fabaceae
Glycine clandestina
Hardenbergia violeacea
Kennedia rubicunda
Jacksonia scoparia
Mirbelia rubifolia
Platylobium formosum
Pultenaea daphnoides
Pultenaea retusa
Viminaria juncea (prostrate form)

Goodeniaceae
Goodenia hederacea
G. ovata

Haloragaceae
Gonocarpus teucrioides

Lamiaceae
Westringia fruticosa

Lobeliaceae
Lobelia alata
Pratia purpurescens

Mimosaceae
Acacia brownii
A. myrtifolia (coastal form/prostrate)
A. longifolia var. sophorae

A. suaveolens

Mytaceae
Angophora
Eucalyptus
Kunzea ambigua
Leptospernum laevigatum
Melaleuca ericifolia
M. nodosa
M hypericifolia

Oxalidaceae
Oxalis cornicualata

Pittosporaceae
Billardiera scandens
Pittosporum undulatum
P. revolutum

Proteaceae
Banksia integrifolia
B. oblongifolia
Hakea gibbosa
H. salicifolia
H. teretifolia

Ranunculaceae
Clematis sp.

Rhamnaceae
Pomaderris species B

Rubiaceae
Opercularia aspera

Rutaceae
Eriostemon buxifolius spp buxifolius

Santalaceae
Exocarpus cupressiformis

Sterculiaceae
Lasiopetalum ferrugienum

Thymelaeaceae
Pimelia linifolia
Wikstroemia indica

Violaceae
Viola hederacea

Flowering plants – Monocotyledons

Commelineaceae
Commelina cyanea

Cyperaceae
Gahnia spp
Isolepis nodsa
Baumea juncea
Ptilanthelium deustum

Iridacea
Patersonia sericea

Liliaceae
Caesia vitata
Dianella caerulea
Tricoryne elatior
Thysanotus tuberosus
Burchardia umbellata

Poaceae
Danthnia tenuior
Dichelachne micrantha
Echinopogon caespitosus
Eragrostis brownii
Microlaena stipoides
Oplismenus sp.
Stipa sp.
Themeda triandra
Entolasia marginata

Restoniaceae
Restio gracilis

Xanthorrhoeaceae
Lomandra longifolia
L. multiflora
L. obliqua
L. glauca
Xanthorrhoea sp

10. APPENDIX D: Weed Species List

Flowering Plants – Dicotyledons

Apiaceae
**Hydrocotlye bonariensis*

Asteraceae
**Ageratina adenophora*
**Ambrosia spp*
**Bidens pilosa*
**Chrysanthemoides monilifera*
**Conyza albida*
**Coreopsis lanceolata*
**Erechities valerianifolia*
**Hypochaeris radicata*
**Sonchus oleraceus*

Caesalpiniaceae
**Senna pendula var. glabra*

Caprifoliaceae
**Lonicera japonica*

Convolvulaceae
**Ipomea cairica*
**I. Indica*

Crassulaceae
**Bryophyum delagonense*

Fabaceae
**Psoralea pinnata*
**Medicago polymorpha*

Malvaceae
Lagunaria patersonii

Mimosaceae
Acacia saligna

Oleaceae
**Olea europea ssp. africana*

Plantaginaceae
**Plantago lanceolata*

Rosaceae
**Raphiolepis indica*

Solanaceae
**Solanum nigrum*

Verbenaceae
**Lantana camara*
**Verbena bonariensis*

Flowering plants – Monocotyledons

Alliaceae
**Agapanthus orientalis*

Cannaceae
**Canna indica*

Commelineaceae

Cyperaceae
**Cyperus eragrostis*

Asparagaceae
**Protasparagus densiflorus*

Poaceae
**Cyndon dactylon*
**Paspalum dilatatum*
**P. quadrifarum*
**Pennisetum clandestinum*