



WYRRABALONG

*Five kilometres of coastal splendour between
Forrester's Beach and Bateau Bay
on the NSW Central Coast*



FOREWORD

This booklet aims to promote the optimum method of conserving for the future, a splendid piece of coastline on the Central Coast of New South Wales.

The area contains the highest point on the coast between Sydney and Newcastle, known as Cromarty Hill and marked by Wyrabalong Trig. Station. The point was identified and named "Wyrabalong" (a name adopted from the aboriginal people) in 1831 by Assistant-Surveyor Felton Mathew who commented upon the beauty of the area. Today, it is possible to experience some of the wilderness and splendour which still remain, either side of that point, between the settlements of Forresters Beach and Bateau Bay.

To maximize the conservation of the Wyrabalong coastline, it is proposed that some 120 hectares spread over two municipal areas should be brought together under one management. Most of this land is presently within Crown reserves, with three separate management bodies: Gosford City Council, Wyong Shire Council and the Trustees of Bateau Bay Flora Reserve (R. 85730 for the Preservation of Native Flora.) It is proposed to have established a Wyrabalong Park wherein the resources of nature will be managed as one unit and in such a manner that local communities and visitors may continue to enjoy them for all time.

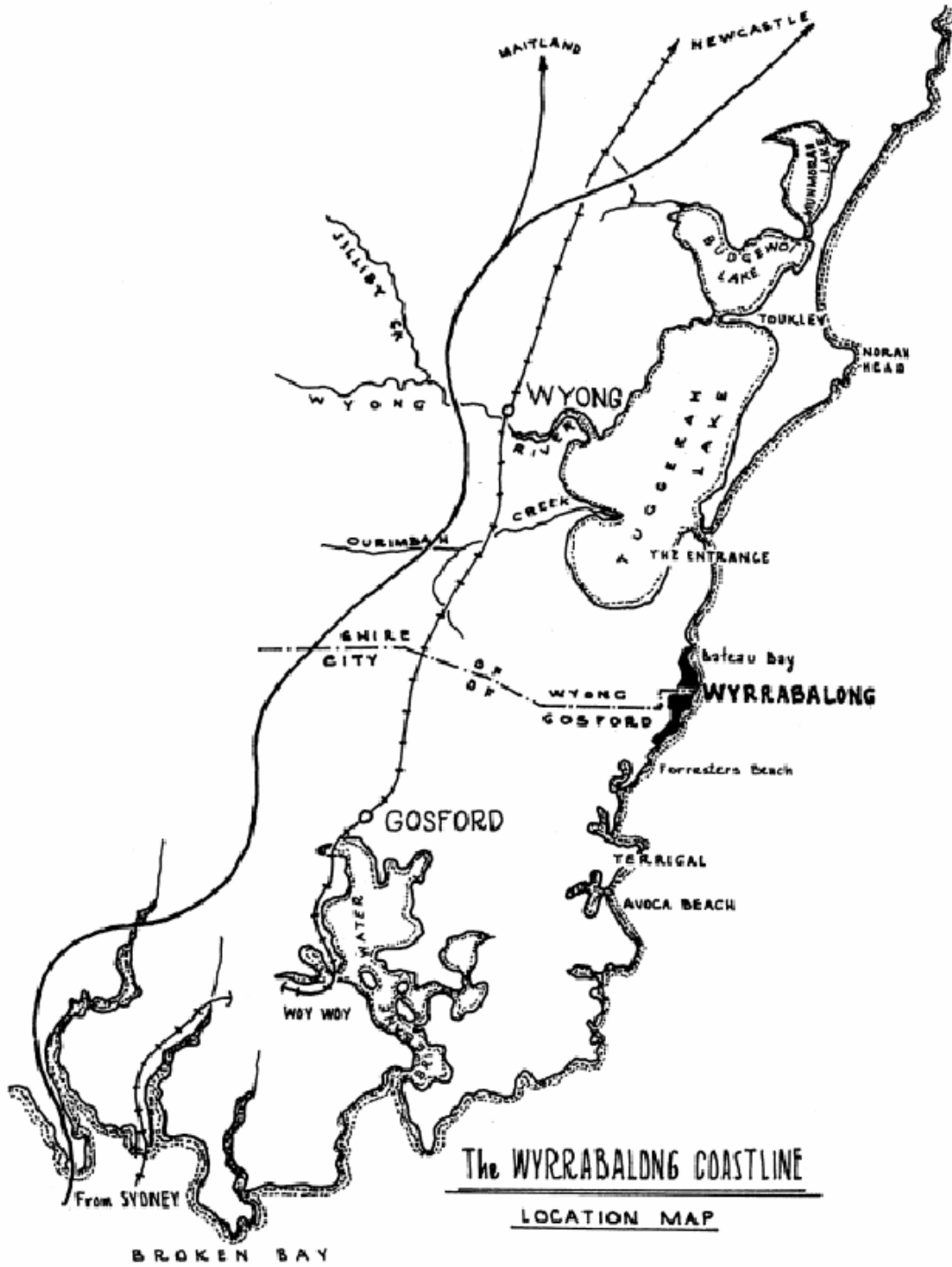
The following papers set out the resources and human values which the proposed park contains, and explain the processes which led to the park proposal.

This booklet has been produced by the voluntary efforts of many people with a concern for the environment of the Central Coast. It has been published by the Association for Environmental Education (NSW) – Central Coast Region.



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1987



CONTENTS

INTRODUCTION

Why the Wyrribalong Strip Remains in Public Ownership	4
Why a Wyrribalong Park?	6

SOME NATURAL RESOURCES OF WYRRABALONG

Landforms and Landscapes	8
Vegetation Communities	12
The Mangrove Colony	19
Plant List for the Wyrribalong Coastal Strip	21
Some Birds of Wyrribalong	31
The Rock Platform	34

“WYRRABALONG PARK”

Criteria, Design and Management	39
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Front cover: Two features on Cromarty Hill

- Wyrribalong Trig Station
- An Angophora costata (Red Gum)

“...the summit of the mountain as well as its land-sides are thickly clothed with wood, excepting on the highest point where it was cleared by Felton nearly three years ago, for the purpose making observations, when he was making a Trigonometrical survey of this part of the country.”

Mrs Felton Mathew, 1834

WHY THE WYRRABALONG STRIP REMAINS IN PUBLIC OWNERSHIP

Although the settlement at Port Jackson (Sydney) commenced in 1788, it was not until the 1820s that approval was given for land to be occupied between the Hawkesbury River and Newcastle (and hence on today's Central Coast).

When Willoughby Bean received a grant of 2000 acres (about 800 hectares) in 1833, the coastal fringe from Terrigal to Wamberal Lagoon was "alienated" (became private property). About the same time, Henry Holden was granted 640 acres (about 260 hectares) from Toowoan Bay to The Entrance, thus alienating another part of the coastline. The strip between Wamberal Lagoon (where it enters the sea) and Toowoan Bay remained "vacant Crown land" until 1876 when, along with much of the coastline between Port Stephens and Jervis Bay, it was reserved from sale "on account of coal". The reserve was about a quarter of a mile wide (400m). In 1884, it was further reserved "for defense and public purposes".

Over the years, the coastline reserve has been alienated in some places. On the Central Coast, most of this alienation came during and since the 1920s when the potential of the area for recreation became apparent, and means of traveling to the Central Coast improved. The motor vehicle and more direct access have brought urbanization even though the holiday potential is still considerable.

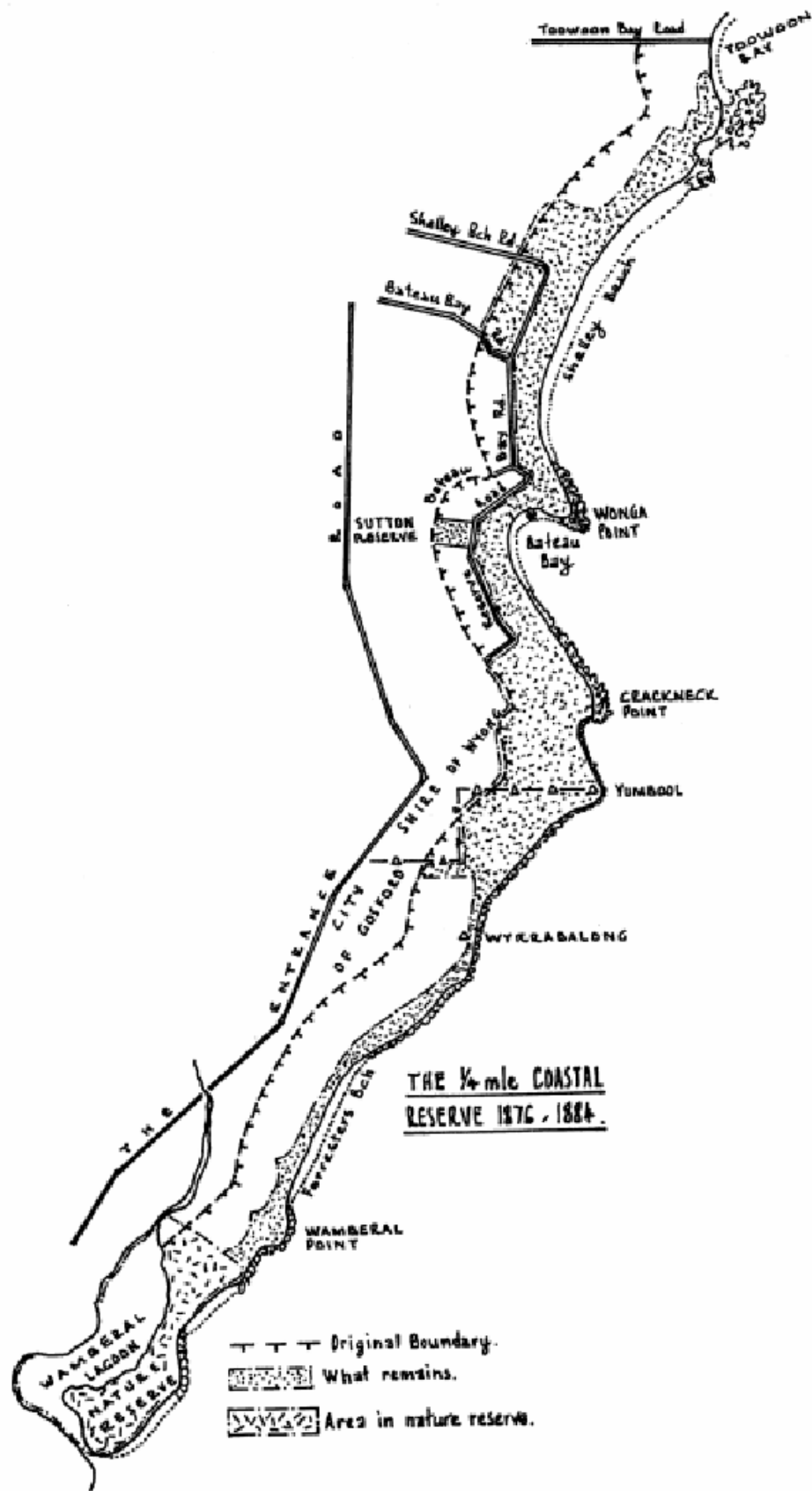
This study focuses on the strip of coastline from Forresters Beach to the north end of Bateau Bay. The southern end of the strip has been substantially included in the Wamberal Lagoon Nature Reserve whilst the area north of Bateau Bay (where it has not been alienated) contains specific recreation activities not amenable to the Wyrribalong concept.

Within the City of Gosford, large areas were lost to public ownership during the 1920s and 1930s, only to be seen as essential to the public interest forty or fifty years later – leading to acquisition by the Crown for coastline landscape purposes. In the meantime, sand mining was permitted in some of the more spectacular heathlands.

Within the Shire of Wyong, cash-crop production and dairy farming destroyed the natural systems, before being abandoned. The major inroad into the reserve, however, came with the expansion of the Village of Bateau Bay, firstly for weekend visitors and later for permanent residents.

What we have today are the remnants of land use which have survived from the past with little planning or thought. It is for us (of the present) to improve the record and this challenge is the inspiration for the Wyrribalong study.

The map on page 7 shows the original coastal-strip reserve from Wamberal Lagoon Entrance to Toowoan Bay and identifies how much is left following the alienation which has taken place since 1884.



WHY A WYRRABALONG PARK?

Interest in walking along the coastline is known to have increased with the number of bushwalking clubs established in the late 1920s and the 1930s. It was not an uncommon jaunt to travel to Newcastle by train, catch a 'bus to Swansea and follow the coastline southwards, finishing at a convenient place where transport would be available back to the railhead. The trip might take several days, and since there was little settlement along the way, many ideal campsites could be obtained. The walk could also be done, of course, in reverse.

A "gem" of that traverse was the strip between Terrigal and The Entrance, which included the specially scenic and somewhat pristine part from Wamberal Lagoon through to Blue Lagoon. The majesty of Wyrabalong was a major feature, from where the route led down to Boat Harbour or Bateau Bay – a real jewel that one came upon unexpectedly, a strip of sand with a spring, almost completely hidden behind a forest of Blackbutt trees. Someone else had also discovered this place and established a "hideway", later to be known as Bateau Bay Lodge, for a few very privileged people who could spend some time in virtually a lost world.

The important feature of the coastal strip from Wamberal to Wonga Point and Blue Lagoon, was the substantial remains of the Reserve for coal and other public purposes, already mentioned. In the mid-1940s, subdivision was not yet apparent and at Bateau Bay much of the Reserve was still held by the Crown. The nature conservation bodies turned their attention to trying to secure it for conservation purposes. The earliest known attempt was by The Caloola Club, followed by the National Parks Association of NSW after its establishment in 1957.

The effort has continued over the last 30 years, admittedly in a somewhat spasmodic manner. Two special areas have been formulated from the old coal reserve. The first is the Wamberal Lagoon Nature Reserve which contains about 100 hectares and seeks to preserve the barrier dune system on the seafront to the lagoon as well as the lagoon itself. The nature reserve has excellent security since it is dedicated under the National Parks & Wildlife Act 1974 and is managed by the National Parks Wildlife Service. It is worth mentioning that it took from the 1950s to 1981 to achieve the dedication of this nature reserve.

The other special area formulated from the coal reserve is Bateau Bay Reserve for the Preservation of Native Flora, known as Bateau Bay Flora Reserve. It occupies about 3 hectares and was notified in 1966, under the Crown Lands Act.

All other land in what remains of the "Coal Reserve" between Wamberal Lagoon and Wonga Point, is within a reserve for public recreation and preservation of native flora, also notified under the Crown Lands Act.

Three separate authorities are involved in managing this coastal strip: a Trust of interested local persons manages the Bateau Bay Flora Reserve, and the two neighbouring Councils (Gosford City and Wyong Shire) as trustees, manage the sections of the reserve in their respective areas. The establishment of a Wyrabalong Park could ensure a single administrative authority for the whole coastal strip – a factor which is seen to be of considerable significance in the area's best possible management.

The reserves notified under the Crown Lands Act are known as Crown reserves. This means that the Crown (the Department of Lands) retains a continuing interest in their management. Recently the Department made moves expected to lead to management plans and schemes of operations for coastal Crown reserves.



".....at length the roar of the ocean was heard, and emerging from dense bush, we came upon a sheet of water, Wamberal Lagoon, merely separated from the sea by sand banks, and crossing these low sand hills, we found ourselves in a beautiful sandy bay sheltered by high projecting headlands, against whose rocky sides the waves were dashing violently, we rode along the fine hard sands, enjoying the delightful sea-breeze, and admiring the magnificent sea rolling in, each dark blue wave crested with white foam, sparkling in the sunshine; leaving the sands, we continued along the coast (though cut out from view of the sea by high banks) till gradually ascending we reached the summit of Wyrabalong, one of the highest among the headlands of this coast, and from which there is an extensive and beautiful view....."

**Mrs Felton Mathew, 1834
(en route from Erina to Tuggerah Beach)**

The geology of the coastal strip is quite simple. Firstly, there are sand-stones and shales belonging to the Narrabeen Series ...sediments laid down in shallow freshwater lakes of the Mesozoic Period (the Age of the Dinosaurs). Secondly, sitting on the Narrabeen Beds are wind blown sands of more recent origin.

The sandstones are soft, friable and in relatively thin bands, interbedded with shales. The drop into the sea is steep, but there is very little in the way of massive cliff faces. Hence the coastline, whilst bold in outline and profile, contains no walls of sandstone such as those seen further south around Broken Bay, where Hawkesbury Sandstones outcrop. Neither does the shale present a sheer face to the sea as it does along the Bouddi National Park coast.

Nevertheless, the original range from which the Wyrabalong coastline has been created, must have been quite outstanding with the peak at Wyrabalong dominating the landscape. The fall to the sea is steep but distinctly rounded whilst the fall to the west is less spectacular but still smooth. This smoothness is characteristic of weathered shale country and presumably it infers that shales dominate in determining the landform of the Wyrabalong landscape. The usual coastal platforms are well developed and at the southern end of Bateau Bay are sufficiently broad to provide habitat for a mangrove colony. The platforms were developed at an earlier time when the sea was at a different level than at present. The development of a platform would depend upon the outcropping of a rock material able to resist the weathering of the sea.

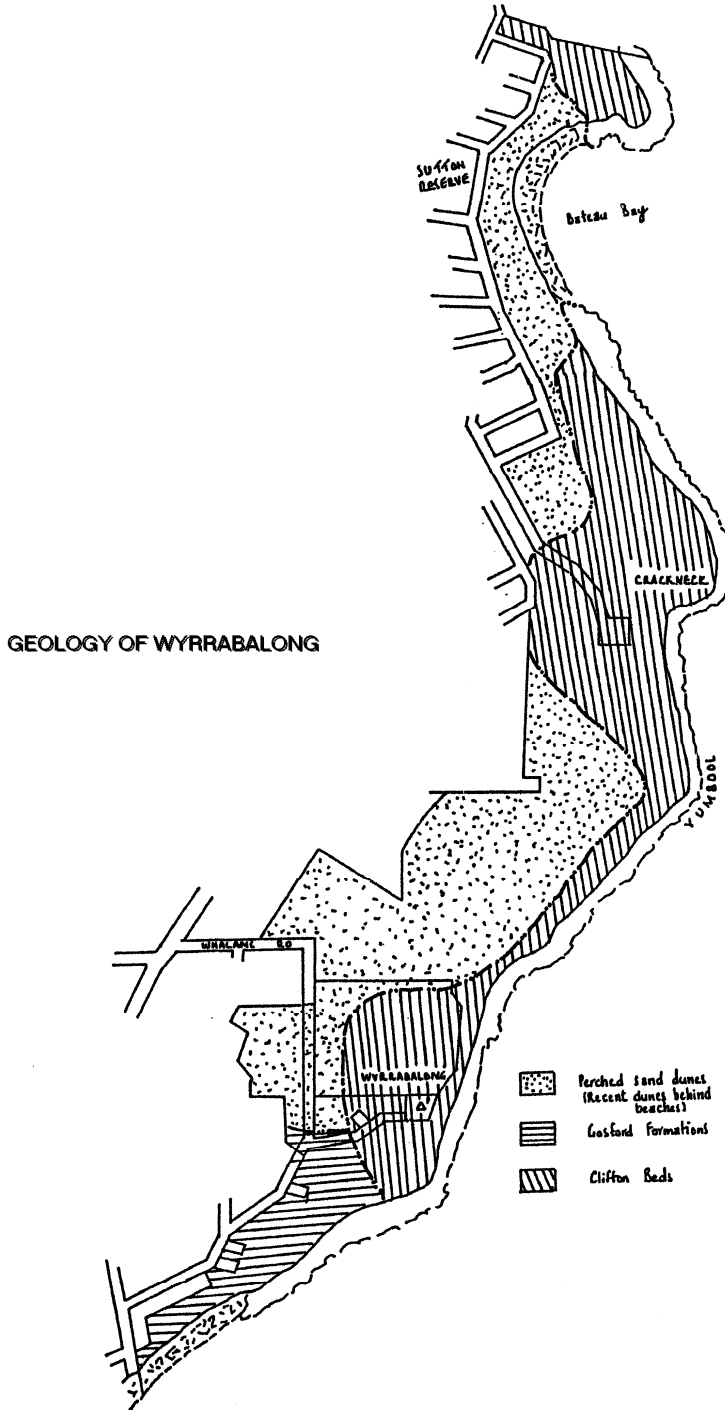
The platforms are extremely important as they are the habitat for a wide range of marine life (see "The Rock Platform"). It is essential that they be included in the proposed Wyrabalong Park so that the diverse life and high population of the intertidal zone may be protected and effectively managed.

There are two periods of rock type formations from the Narrabeen Series, represented in the area... the Clifton Beds and the Gosford Formations. The Gosford Formations are the younger of the two with the junction occurring just south of Wyrabalong Trig. Station. At this point they contain similar rocks and there is, therefore, little readily distinguishable change in solids and landforms. However, the most significant change in soil comes where large amounts of wind deposited sand are found laying on the Narrabeen Series rocks, or eroded surfaces of those rocks. The change in soil also brings a change in vegetation. At Bateau Bay, it would seem that the sand has been indurated with peats to provide layers of 'coffee rock'. This has given rise to aquifers that provide permanent spring water on Bateau Bay Beach.

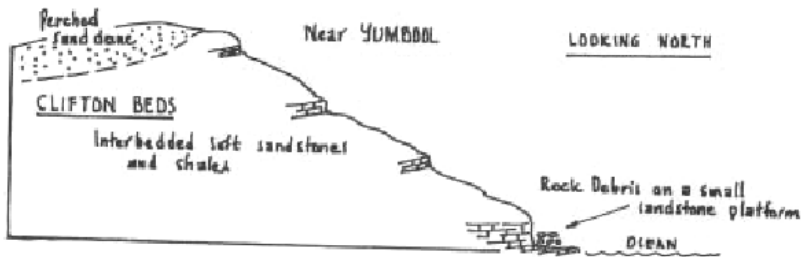
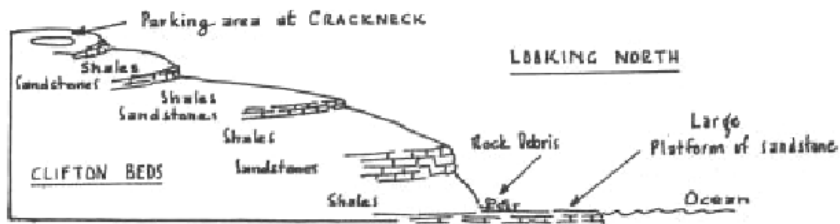
The sand deposits on the higher land are referred to as "perched sand dunes". It was most unfortunate that a large area of the perched sand dune near Whalans Road (and within an existing reserve for the preservation of flora) was mined some time ago. It is only now being re-habilitated by nature with assistance from the Soil Conservation Service of N.S.W.

The landscape has been strongly shaped by a history of unplanned landuse, the most damaging being firstly, the unthinking alienation of much of the remainder of the 400m reserve that once existed along the coastline, even as late as the 1950s and '60s; and secondly; the exploitation of the sand deposits. The results has been residential development along ridges and cliff lines that conflict with open spaciousness and the charm of the otherwise spectacular coastline. Erosion and damage in the heathlands has threatened the most spectacular part of the floral display in the area. At the same time, the public interest was completely ignored. It is ironical that the Coastal Council of New South Wales, the Department of Environment and Planning and other authorities are now actively seeking to return to public ownership at high cost, land which was earlier sold for a song.

Notwithstanding, the strip of coastline from Forrester's Beach to Bateau Bay with its elevation, rock response to weathering and vegetative cover, must rank amongst the most spectacular on the coast of New South Wales. Its special value lies in that it provides for a large proportion of the State's population near at hand.



The diagrams below, refer to the photographs on the next page and show how the landform relates to the rock structure.



IDEAL INTERPRETATION OF THE RELATIONSHIP OF LANDFORM TO ROCKS
FROM FOUR SIGHTINGS



These four photographs were taken by a friendly hang-glider, high above the Wyrabalong coastline.



VEGETATION COMMUNITIES

The vegetation communities which exist along the Wyrrabalong coastline provide a number of different and diverse vegetation types, all confined to a small and narrow coastal strip. These diverse communities, added to the high vantage points along the seaboard, justify the recognition of the Wyrrabalong coastline as having considerable natural and scenic beauty.

The vegetation communities have been mapped and described. Most of the vegetation is Open Woodland grading through to Closed Heathland on the more exposed sites.

Four geomorphological units were recognized for the survey (see notes on the geology):

- Clifton Beds and Gosford Formations from the Narrabeen Series... both comprised of claystones, sandstones and shales;
- Perched Sand Dunes containing leached sands;
- Recent Sand Dunes and slopes comprising beach sands and podsolised coffee rock.

Plateau tops, coastal slopes and dune side slopes, have influenced the development of the vegetation communities.

The descriptions of the communities is by structure and floristics, following the nomenclature suggested by Specht (1970).

DESCRIPTION OF VEGETATION COMMUNITIES

Fifteen communities were identified and are shown on the Map. Plateau tops are mainly covered by Woodlands whilst the windswept slopes are characterized by Heathlands and mixed Grasslands. Each vegetation community is described in terms of its vegetation, structure, floristics and habitat. There is considerable variation within each community which is mainly related to changes in topography, aspect, drainage and fire occurrence history.

The following communities have been described

1. Open Forest on Clifton Beds in inland valley slopes.
2. Woodland on podsolised coffee rock on coastal slopes.
3. Open Woodland on podsolised coffee rock on plateaux.
4. Woodland on perched sand dunes on plateaux.
5. Open Woodland on recent sand dunes on lower coastal slopes.
6. Low Woodland on Clifton Beds on inland valley slopes.
7. Tall Open Shrubland on recent coastal dunes on coastal slopes
8. Tall Open Shrubland on Clifton Beds on valley slopes.
9. Closed Heathland on Clifton Beds on plateaux.
10. Closed Heathland on the perched sand dunes which sit on the Plateaux.
11. Grassland on Clifton Beds on coastal slopes.
12. Closed Grassland on Clifton Beds on valley slopes.
13. Low Open Shrubland/Mangroves on tidal and flats

14. Coastal Grassland/Herbfield on recent coastal sands.

[N.B. It will be noted from the geology that Gosford Formations replace Clifton Beds south of Wyrabalaong Trig. Station (Cromarty Hill). Since the constituent rocks are similar in both systems, it is appropriate to use the same vegetation references.]

COMMUNITY 1 – Open Forest on Clifton Beds in inland valley slopes.

Structure:	Trees up to 20m high with a mid-dense canopy cover. Understorey is dry, sparse with a cover of graminoids and xeromorphic shrubs.
Habitat and Distribution:	Plateau tops but mainly western slopes around Crackneck Lookout.
Main Species Present:	Eucalyptus maculata dominates this community. Understorey shrubs include Pittosporum undulatum, Casuarina glauca and Persoonia levis. Grasses and monocots mainly comprise Imperita cylindrical and Gahnia spp.
Remarks:	This community is somewhat disturbed due to fire intrusion. There is also stringybark present.

COMMUNITY 2 – Woodland on podsolised coffee rock on coastal slopes.

Structure:	Trees up to 15m high with an open to mid-dense canopy. Understorey varies from dry to moist, depending upon aspect, with a mid-dense cover at of smaller xeromorphic and some mesophyll shrubs.
Habitat and Distribution:	Plateau tops and valley side slopes down to the sea. Usually on clay soils. Mainly north of Crackneck Lookout.
Main Species Present:	Dominated by Eucalyptus pilularis but Angophora costata occurs as an isolated tree. Shrubs and small trees include Eupomatia laurina, Pittosporus revolutum, Acacia longifolia, Leptospermum laevigatum, Banksia integrifolia, Persoonia levis, Banksias errata, and Breynia oblongifolia. Ferns and monocots mainly comprise Pteridium esculentum and Gahnia spp., with a large variety of graminoids.
Remarks:	Better examples of this community occur along the southern end of Reserve Drive. Near the Blue Lagoon Caravan Park the community has been depauperised by burning and clearing. Below the urban development, the soft clay soils become saturated after heavy rain and a number of mud slides have occurred.

COMMUNITY 3– Open Woodland on podsolised coffee rock on plateaux.

Structure:	Trees up to 15m high with a wet understorey which is dense and comprising a mixture of twiners, ferns and sedges.
Habitat and Distribution:	An isolated pocket on top of plateau at Sutton Reserve.
Main Species Present:	Dominated by Eucalyptus robusta with shrubs of Pittosporum revolutus, Omalanthus populifolius, Hibbertia scandens and Cyperus tetraphyllus on the floor.

COMMUNITY 4– Woodland on perched sand dunes on plateaux

- Structure: Trees up to 20m high with an open canopy. Understorey dry with a mid-dense cover of xeromorphic smaller trees and shrubs.
- Habitat and Distribution: Plateau tops and the slopes in the Bateau Bay Flora Reserve.
- Main Species Present: Trees are mainly *Eucalyptus gummifera* and *Eucalyptus pilularis* whilst tall shrubs include *Banksia serrate* and *Persoonia levis*. The lower understorey contains *Macrozamia communis* and *Pteridium esculentum*.
- Remarks: This community is in prime condition. Sheltered spots contain *Angophora floribunda*.

COMMUNITY 5– Open Woodland on recent sands on lower coastal slopes

- Structure: Trees up to 5m high with an open canopy.
- Habitat and Distribution: Coastal and lower slopes adjacent to the sea below Crackneck Lookout.
- Main Species Present: *Casuarina glauca* only.

COMMUNITY 6– Low Woodland on Clifton Beds on inland valley slopes

- Structure: Woodland up to 6m high, with an open canopy cover. Understorey dry and sparse dominated by monocots and graminoids.
- Habitat and Distribution: Northern sheltered valley slopes below Wyrabalong.
- Main Species Present: *Eucalyptus saligna* and *Jacksonia scoparia*. Some *Eucalyptus botryoides* present.
- Remarks: This is an unusual situation for *E. saligna* and probably indicates a high water table.

COMMUNITY 7– Low Woodland on Clifton Beds on inland valley slopes

- Structure: Woodland up to 6m high, with an open canopy cover. Understorey dry comprising a cover of twiners, low shrubs, monocots and graminoids.
- Habitat and Distribution: Plateau tops and slopes around the Cromarty Hill.
- Main Species Present: Dominated by *Eucalyptus botryoides* and *Eucalyptus resinifera*. Low shrubs are mainly *Breynia oblongifolia*.
- Remarks: This community has been disturbed by human interference and it is difficult to be positive about the original understorey.

COMMUNITY 8 – Tall Open Shrubland on recent coastal dunes on coastal slopes.

- Structure: Trees up to 8m high with a very sparse canopy cover. Understorey moist to dry, dense to mid-dense with a cover of littoral rainforest species and xeromorphic shrubs.
- Habitat and Distribution: Coastal slopes adjacent to the sea behind Bateau Bay. Subject

to onshore winds and salt spray.

Main Species Present: Tall shrubs include *Banksia integrifolia*, *Leptospermum laevigatum* and *Monotoca elliptica*. Smaller shrubs include *Lantana camara*, *Chrysanthemoides monilifera*, *Pimelia linifolia*, *Actinotus helianthi*, *Acacia glaucescens*, *Acacia longifolia* and *Cassinia uncata*. Also noted were *Melaleuca nodosa*, *Rapanea variabilis*, *Ficus coronata*, *Eupomatia laurina*, *Acmena smithii*, *Brachychiton acerifolius*, *Clerodendron tomentosum*, *Duboisia myoporoides* and *Cupaniopsis anacardiodes*. There is a ground cover which includes *Pteridium esculentum* and *Hydrocotyle bonariensis*.

Remarks: This community is quite diverse carrying a large number of species suffering badly from the invasion of *Lantana*.

COMMUNITY 8A – Tall Open Shrubland on Clifton Beds on valley slopes.

Structure: Trees up to 8m high with a very sparse canopy cover. Understorey mid-dense to sparse, dry with a cover of smaller shrubs and graminoids.

Habitat and Distribution: Valley slopes at the back of Crackneck Lookout

Main Species Present: Dominated by *Banksia integrifolia* and similar to Community 8 but much less diverse.

COMMUNITY 9 – Closed Heathland on Clifton Beds on Plateau

Structure: Heath species up to 2m high with a mid-dense canopy cover. Understorey dry and where open patches occur, graminoids are present.

Habitat and Distribution: Plateau side slopes facing the sea from Crackneck Lookout to Cromarty Hill. Mostly on clay soils.

Main Species Present: Dominated by *Allocasuarina distyla* on slopes but may be replaced by *Melaleuca nodosa* on plateau tops.

Remarks: Where sheltered locations exist, the community reaches up to 4m high. In these situations a littoral rainforest understorey occurs dominated by *Glochidion ferdinandi*, *Rapanea variabilis*, *Pittosporum undulatum*, *Acmenia smithii* and *Eupomatia Laurina*. There are invasions of *Lantana camara* in these sheltered sites.

COMMUNITY 10 – Closed Heathlands on the perched sand dunes which on the Plateaux.

Structure: Heath species up to 2m high with a mid-dense to dense canopy of shrubs. Understorey dry.

Habitat and Distribution: Western facing slopes of perched dunes between Crackneck Lookout and Cromarty Hill.

Main Species Present: Dominated by *Leptospermum laevigatum* and *Persoonia lanceolata*.

Remarks: This area suffered from sandmining and is being captured by these more virulent species.

COMMUNITY 11 – Grassland on Clifton Beds on coastal slopes.

- Structure: Dense to mid-dense cover of grass on coastal slopes facing the sea. At times community mixed with low shrubs and herbs that are wind pruned.
- Habitat and Distribution: Coastal slopes facing the sea from Crackneck Lookout south to Forresters Beach. Subject to constant onshore winds and salt spray.
- Main Species Present: Dominated by *Themeda australis*. Shrub species include *Westringea fruticosa*, *Lomandra longifolia* (et al.), *Banksia integrifolia*, *Cassia colluteoides*. Climbers include *Ipomoea cairica* and *Kennedia rubicunda*.

COMMUNITY 12 – Closed Grassland on Clifton Beds on valley slopes.

- Structure: Dense to mid-dense cover of grass interspersed with low shrubs. Understorey dry.
- Habitat and Distribution: Northern slopes below Crackneck Lookout. Subject to onshore winds.
- Main Species Present: Dominated by *Themeda australis* and low shrub units of *Jacksonia scoparia*.
- Remarks: This community has had very little disturbance.

COMMUNITY 13 – Low Open Shrubland/Mangroves on tidal mud flats.

- Structure: Sparse cover of trees up to 3m high.
- Habitat and Distribution: On tidal flats at the southern end of Bateau Bay beach.
- Main Species Present: Dominated by *Avicennia marina* var. *australasica*. There is one plant of *Aegiceras corniculatum*.
- Remarks: This is a small community that appears to be increasing in size.

COMMUNITY 14 – Coastal Grassland/Herbfield on recent coastal sands.

- Structure: Succession of sedges, grasses and herbs landward from the mangrove colony. Community ranges from dense to sparse, depending upon the species.
- Habitat and Distribution: South end of Bateau Bay beach and below Crackneck, only. Subject to onshore winds and salt spray. Located immediately above the high tide mark.
- Main Species Present: *Hydrocotyle bonariensis*, *Sporobolus virginicus*, *Paspalum vaginatum*, *Eleocharis* sp. With succession into *Casuarina glauca*.
- Remarks: This is an important community for the Central Coast as it is not well represented, particularly on the seaboard.

DISCUSSION

The plant communities reflect changes in geology, soil, topography and aspect. Attention is drawn to the fact that two of the communities, Nos. 3 and 14, are uncommon in the area of the Central Coast. Both have survival difficulties because neither management nor the general public is aware of their significance.

The overall vegetation regime of the Wyrabalong coastline reflects the controls of the dominant geological systems . . .

1. shales, claystones and soft sandstones derived from the Narrabeen Series which could be called 'country rock',
2. sand dunes and coffee rock of secondary derivation.

The communities represented on the slopes derived from the coastal dunes and podsolised coffee rock, are fragile. They succumb to weed infestation, cannot withstand intensified usage and have no resistance to urban run-off. The soils which form the substrate, add to the threat produced by heavy use and misuse. The only answers lie in management control and education, and in that order. Community 4 is also under threat because it is located on the foreshore pathway and, in addition to receiving foot traffic, has been observed to be intruded by motor bikes. The understorey of Community 8 has been almost replaced by *Lantana camara* and other exotic species.

On the other hand, most other communities, including the Bateau Bay Flora Reserve, are in prime condition. Community 9 has very little disturbance except for some soil wash along the existing walking tracks and weed intrusion appears to be minor.

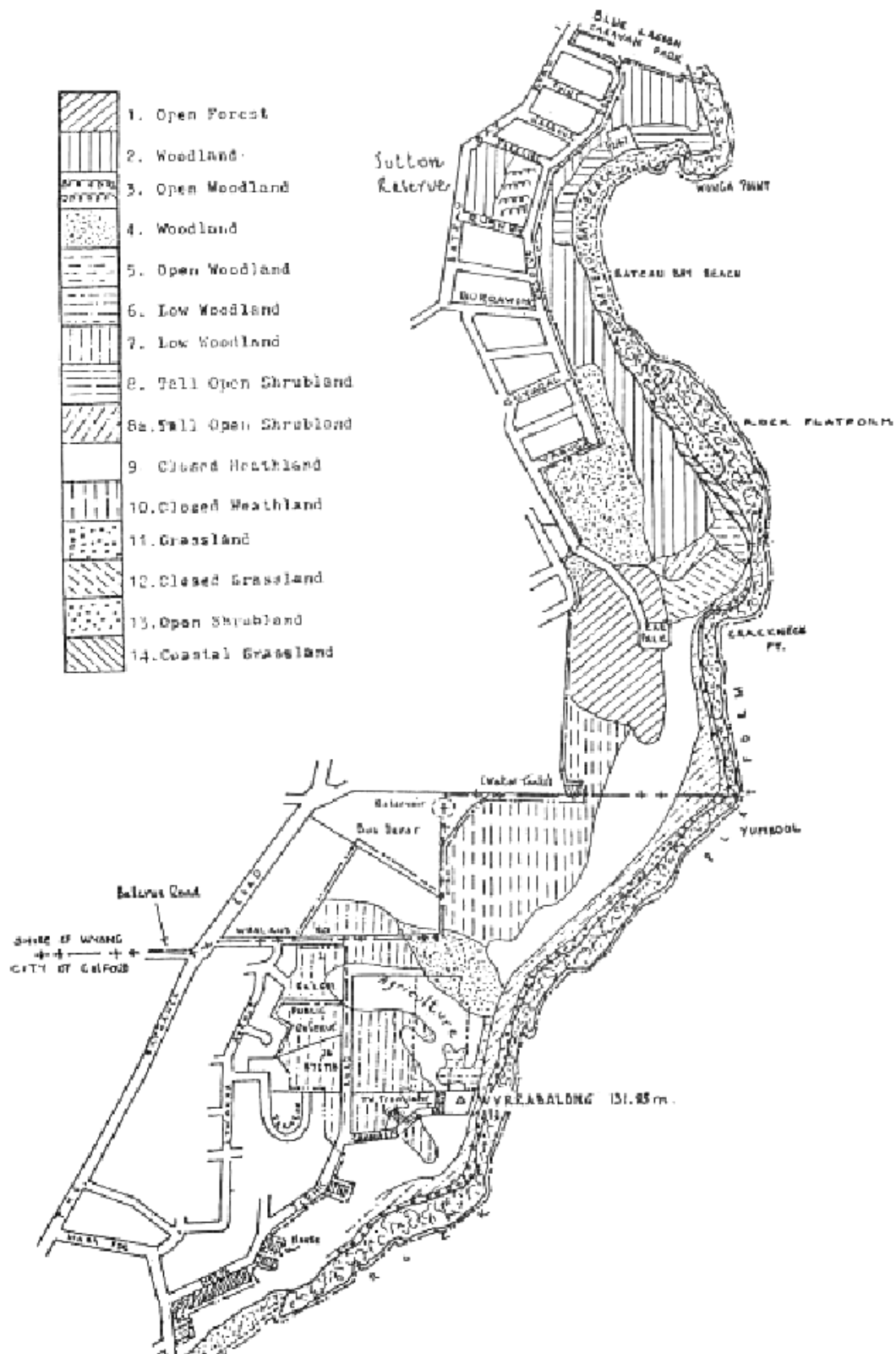
Fire will be an important factor to consider in the management of the communities. Fire has been found to be most significant in communities dominated by *Allocasuarina distyla*. Repeated burning on a short term basis will eliminate this species. As Community 9 contains *A. distyla* as a dominant, the whole community must be regarded as fragile in a management scheme. It would seem that faulty fire management has been responsible for depauperising the understorey of Community 1.

CONCLUSION

Fifteen communities have been identified along the Wyrabalong Coastal Strip from Forresters Beach to Bateau Bay. For such limited area, this must be a significant feature and points up its floristic diversity. A plant list accompanies this study but is by no means exhaustive. Although there is some disturbance arising from careless and thoughtless use of the resources of the area, the opportunity still exists for expert management to establish and maintain a natural resource of national significance.

VEGETATION COMMUNITIES

- | | |
|--|-------------------------|
| | 1. Open Forest |
| | 2. Woodland |
| | 3. Open Woodland |
| | 4. Woodland |
| | 5. Open Woodland |
| | 6. Low Woodland |
| | 7. Low Woodland |
| | 8. Tall Open Shrubland |
| | 8a. Tall Open Shrubland |
| | 9. Closed Heathland |
| | 10. Closed Heathland |
| | 11. Grassland |
| | 12. Closed Grassland |
| | 13. Open Shrubland |
| | 14. Coastal Grassland |



THE MANGROVE COLONY

The Mangrove colony to the south of Bateau Bay is a very valuable educational resource as the zonation which occurs here is not usually so readily observable. However, the site is fragile and in planning the management of the area particular attention should be given to the regulation of the number of visitors. Too many visitors could result in the damage to the mangrove pneumatophores and cable roots with subsequent damage the aerial parts of the plants. While it would be difficult to restrict access, the average visitor to the rock platform would probably not enter the mangroves and the main danger would probably be from parties specifically visiting the stand.

Other factors which need to be considered in the management of the site are:

- (a) the walking track behind the colony is continually cutting into the vegetation of the salt marsh,
- (b) the saltmarsh is becoming seriously infested with Pennywort,
- (c) minor problems have occurred in the past with camping and rock removal, and
- (d) the colony lies in the intertidal zone and the sound management of the area would required that steps are taken to include the whole system including the lagoon, into the control of the management body.





PLANT LIST FOR THE WYRRABALONG COASTAL STRIP

This Plant List has been compiled from random sightings by several people and does not pretend to be exhaustive. The list does indicate, however, the diversity of species within the area commensurate with the number of plant communities identified and recorded to date.

PLANT NAME	OCCURRENCE IN IDENTIFIED COMMUNITIES														
	1	2	3	4	5	6	7	8	8A	9	10	11	12	13	14

PTERIDOPHYTA (Ferns)

Adiantaceae

Adiantum aethopicum (Maiden Hair Fern)		X														X
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Cheilanthes tenuifolia (Rock Fern)	X	X														
---------------------------------------	---	---	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Blechnaceae

Blechnum cartilagineum (Gristle Fern)			X	X												X
--	--	--	---	---	--	--	--	--	--	--	--	--	--	--	--	---

Doodia aspera (Rasp Fern)			X	X												X
---------------------------	--	--	---	---	--	--	--	--	--	--	--	--	--	--	--	---

Cyathaceae

Culcita dubia (False Bracken, Rainbow Fern)		X	X	X												X
--	--	---	---	---	--	--	--	--	--	--	--	--	--	--	--	---

Davalliaceae

Davallia pyxidata (Hare's-foot Fern)		X														
---	--	---	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Dennstedtiaceae

Pteridium esculatum (Bracken)	X			X				X	X		X					
-------------------------------	---	--	--	---	--	--	--	---	---	--	---	--	--	--	--	--

Gleicheniaceae

	X	X	X													
--	---	---	---	--	--	--	--	--	--	--	--	--	--	--	--	--

Gleichenia dicarpa (Pouched Coral Fern)																
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Sticherus flabellatus (Umbrella Fern)	X	X	X													
--	---	---	---	--	--	--	--	--	--	--	--	--	--	--	--	--

Osmundaceae

Todea Barbara (King Fern)		X														X
---------------------------	--	---	--	--	--	--	--	--	--	--	--	--	--	--	--	---

Schizaeaceae

Schizaea dichotoma				X												
--------------------	--	--	--	---	--	--	--	--	--	--	--	--	--	--	--	--

GYMNOSPERMAE (Gymnosperms or Cone Bearers)

Cupressaceae

Callitris rhomboidea (Port Jackson Pine)				X												
---	--	--	--	---	--	--	--	--	--	--	--	--	--	--	--	--

	1	2	3	4	5	6	7	8	8A	9	10	11	12	13	14
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	1	2	3	4	5	6	7	8	8A	9	10	11	12	13	14
Podocarpaceae															
Podocarpus spinuiosus (Plum Pine)		X						X		X					
Zamiaceae															
Macrozamia communis (Burrawong)		X		X							X				
ANGIOSPERMAE (True Flowering Plants)															
Aizoaceae															
Carpodrotus aequilaterus (Pig Face)								X							
Apiaceae (Umbelliferae)															
Actinotus helianthi (Flannel Flower)		X		X				X	X		X				
Actinotus minor (Minature Flannel Flower)		X		X				X	X		X				X
Hydricittke vibaruebsus (Pennywort)				X				X	X						
Platysace lanceolata		X													
Platysace linearifolia		X									X				
Xanthosa pilosa		X								X					
Araliaceae															
Polyscias sambucifolia (Lace-leafed Panax)		X													
Asteraceae (compositae)															
Brachycome augustifolia		X													
Brachycome multifida		X													
Cassubua uncata								X	X						
Chrysanthemoides moniliferus (Bitou Bush – exotic pest)								X	X						
Cotula coronopifolia (Waterbuttons)				X				X							
Cotula australis (Common cotula)				X				X							
Helichrysum bracteatum (Yellow Paper Daisy)	X	X		X											
Helichrysum diosmefolium	X	X													
Helichrysum elatum (White Paper Daisy)	X	X		X											
Olearia nernstii		X													
Olearia tomentosa		X													
Olearia ramulosa		X													
Senecio lautus (Grounsel)		X													
Senecio velleiodes		X													
Bignoniaceae															
Pandora pandorana (Wonga Wonga Vine)		X									X				

1 2 3 4 5 6 7 8 8A 9 10 11 12 13 14

	1	2	3	4	5	6	7	8	8A	9	10	11	12	13	14
Casesalpiniaceae															
Cassia coluteoides (Garden escape)												X			
Campanulaceae															
Wahlenbergia gracili (Bluebell)		X													
Cassythaceae															
Cassytha glabella (Devil's Twine)		X					X								
Casuarinaceae															
Allocasuarina distyla								X	X						
Allocasuarina littoralis (Black Oak)	X								X						
Allocasuarina torulosa (Forest Oak)	X														
Casuarina glauca (Swamp Oak)	X				X			X							X
Chenopodiaceae															
Rhagodia baccata (Coastal Saltbush)			X												
Convolvulaceae															
Ipomea cairica												X			
Cyperaceae															
Caustis flexuosa		X		X							X				
Cyperus tetraphyllus			X												
Eleocharis spp. (Common Rushes)															X
Gahnia melanocarpa	X	X													
Schoenus imberbis											X				
Dilleniaceae (Guinea Flowers)															
Hibbertia dentate		X													
Hibbertia fascicularis		X													
Hibbertia linearis		X													
Hibbertia ibtusifolia		X													
Hibbertia scandens		X	X												
Droseraceae (Sundews)															
Drosera peltata		X	X												
Drosera spathulata		X	X												
Elaeocarpaceae															
Elaeocarpus obovata		X													
Elaeocarpus reticulates (Blueberry Ash)		X													

	1	2	3	4	5	6	7	8	8A	9	10	11	12	13	14
Epacridaceae															
Astroloma humifusum										X	X				
Astroloma pinifolium										X	X				
Brachyloma daphneoides										X	X				
Epacris microphylla			X							X	X				
Epacris obtusifolia										X	X				
Epacris pulchella										X	X				
(Epacres are heaths)															
Leucopogon amplexicaule		X													
Leucopogon ericoides										X	X				
Leucopogon lanceolatus										X	X				
Leucopogon parviflorus										X	X				
(Leucopogons are whitebeards)															
Lissanthe strigosa										X	X				
Monotoca elliptica								X	X	X	X				
Sprengelia sprengelioides		X						X							
Styphelia viridis		x													
(Green Five Corners)															
Woollisia pungens										X	X				
Euphorbiaceae															
Ampherea xiphoclada								X		X	X				
Breynia oblongifolia	X	X	X				X								
Glochidion ferdinandi		X								X					
(Cheese Tree)															
Omalanthus populifolius			X												
(Bleeding Heart)															
Ricinacarpus pinifolius		X								X	X				
(Wedding Bush)															
Eupomatiaceae															
Eupomatia larina (Bolwarra)		X							X	X	X				
Fabaceae (Papilionaceae)															
Aotus ericoides		X								X	X				
Bossiaea ensata										X	X				
Bossiaea heterophylla										X	X				
Bossiaea scolopendria										X	X				
Dillwynia floribunda		X								X	X				
Dillwynia glaberrima										X	X				
Dillwynia retorta										X	X				
Desmodium varians		X								X	X				
Glycine clandestina		X													
Gompholobium latifolium		X								X	X				
(Golden Glory Pea)															
Gompholobium glabratum		X													
Hardenbergia violacea		X								X	X				
Hovea linearis		X							X						
Jacksonia scoparia (Dogwood)					X								X		
Kennedia rubicunda (Red Bean)		X													
Mirbelia rubiifolia		X								X					
Mirbelia speciosa		X										X			
Platylobium Formosa		X													
(Handsome Flat Pea)															
Pultanea daphnoides		X													
Pultanea flexilis		X													
Pultanea retusa												X			
Pultanea scabra												X			
Viminaria juncea (Native Broom)										X					

	1	2	3	4	5	6	7	8	8A	9	10	11	12	13	14
Geraniaceae															
Pelargonium australe (Coastal Geranium)	X														
Goodeniaceae (Fan Flowers)															
Dampiera purpurea		X									X				
Dampiera stricta		X									X				
Goodenia bellidifolia	X	X													
Goodenia decurrens		X													
Goodenia hederacea		X													
Goodenia heterophylla		X													
Goodenia stelligera		X													
Scaevola anmula				X											
Scaevola calendulacea								X							
Scaevole ramosissima				X							X				
Haemodoraceae															
Haemodorum planifolium (Bloodroot)				X							X				
Haloragaceae															
Haloragis teucroides		X								X	X				
Iridaceae (Native Iris)															
Patersonia glabrata		X									X				
Petersonia sericea		X									X				
Juncaceae															
Juncus krausii	X							X							
Lamiaceae (Labiatae)															
Plectranthus parvifloris	X	X													
Westringia fruticosa												X			
Lauraceae															
Endiandra sieberi (Hard Corkwood)		X						X							
Liliaceae															
Bulbine byulbosa (Bulbine Lily)											X				
Burchardia umbellate (Milmaids)		X								X					
Dianella caerulea		X								X	X				
Dianella laevis (Flax Lily)		X													
Schelhammera undulate	X	X													
Sowerbaea juncea (Vanilla Plant)	X	X						X							
Stypandra caespitosa (Flax Lily)		X								X	X				
Thysanotus tuberosus (Fringed Lily)		X								X	X				

	1	2	3	4	5	6	7	8	8A	9	10	11	12	13	14
Lobellaceae															
Isotoma fluviatilis		X													
Lobelia gracilis		X													
Pratia purpurascens		X													
Loganiaceae															
Mitrasacme polymorpha (Bishops Mitre)		X									X				
Meliaceae															
Synoum glandulosum	X							X							
Menispermaceae															
Sarcopetalus harveyanum (Pearl Vine)		X													
Mimosaceae															
Acacia (Wattles):															
decurrens (Green)	X	X													
glaucescens (Coastal Myall)		X							X	X					
implexa (Hickory)	X														
linifolia		X													
longifolia (Sydney Golden)		X							X	X		X			
longifolia var. sophorae (Coastal)		X							X						
myrtifolia (Myrtle-leafed)	X	X									X	X			
parramattensis	X	X													
prominens (Gosford)		X													
suaveolens (Sweet-smelling)		X									X	X			
terminalis (Sunshine)		X		X											
ulicifolia (Prickly Moses)		X		X									X		
Moraceae															
Ficus coronata (Sandpaper Fig)								X	X						
Myoporaceae															
Myoporum insulare (Boobialla)		X													
Myrsinaceae															
Aegicercus corniculatum (Black or River Mangrove)														X	
Rapanea variabilis (Mutton Wood)						X			X	X	X				
Myrtaceae															
Acmena smithii (Lillypilly)		X						X	X	X					
Angophora costata (Red Gum)		X									X				
Angophora floribunda (Rough Barked Apple)				X											
Eucalyptus															
botryoides (Bangalay)						X	X								
gummifera (Bloodwood)		X		X						X	X				
haemastoma (Scribbly Gum)				X											
maculata (Spotted Gum)	X														
	1	2	3	4	5	6	7	8	8A	9	10	11	12	13	14

	1	2	3	4	5	6	7	8	8A	9	10	11	12	13	14
Myrtaceae – cont															
Eucalyptus															
pilularis (Blackbutt)		X		X											
resinifera (Red Mahogany)							X								
robusta (Swamp Mahogany)		X	X												
saligna (Sydney Blue Gum)						X									
Leptospermum attenuatum (Weeping Teatree)											X	X			
Leptospermum flavescens (Yellow Teatree)		X													
Leptospermum laevigatum (Coastal Teatree)		X					X	X	X	X					
Melaleuca sieberi (Paperbark)												X			
Melaleuca nodosa (Prickly-leafed Paperbark)								X	X	X			X		
Syncarpia glomulifera (Turpentine)		X									X		X		
Syzygium paniculatum (Brush Cherry)		X													
Tristania neriifolia (Water Gum)									X						
Orchidaceae															
Caladenia carnea (Pink Fingers)		X		X											
Cymbidium suave		X		X											
Dendrobium linguiforme (Tongue Orchid)										X					
Dendrobium speciosum (Rock Lily)										X					
Dendrobium teretifolium (Pencil Orchid)										X					
Dipodium punctatum (Hyacinth Orchid)		X									X				
Diuris maculata (Double Tails)		X									X				
Glossodia major		X													
Pterostylis spp. (Greenhoods)		X													
Thelymitra ixiodes (Sun Orchid)		X									X				
Philesiaceae															
Eustrephus latifolius (Wombat Berry)		X	X												
Geitinioplesium cymosum		X	X								X				
Poaceae (Gramineae)															
Anisopogon avenaceus (Oat Spear Grass)												X			
Danthonia sp. (Wallaby Grasses)											X	X			X
Imperata cylindrical (Blady Grass)		X	X									X			
Paspalum vaginatum (Saltwater Couch)															X
Phragmites australis (Common Reed)								X							

Pacaeae – cont.

	1	2	3	4	5	6	7	8	8A	9	10	11	12	13	14
Spinifex hirsutus (Coastal Spinifex)								X							
Sporobolus virginicus (Sand Couch)															X
Stipa spp. (Spear Grasses)												X			X
Themeda australis (Kangaroo Grass)		X										X	X	X	
Pittosporaceae															
Billardiera scandens (Dumplings)		X													
Pittosporum revolutum (Yellow Pittosporum)		X	X												
Pittosporum undulates	X	X		X						X					
Polygalaceae															
Comesperma (Milkworts)										X					
erocinum										X					
sphaerocarpum										X					
volubile	X	X													
Proteaceae															
Banksia															
aemula (Wallum)										X	X				
ericifolia (Heath)		X								X	X				
integrifolia (Coastal)		X						X	X		X	X			
serrata (Old Man)		X		X							X				
collina											X				
Conospermum (Cone Seeds)															
ellipticum										X	X				
ericifolium										X	X				
longifolium										X	X				
tenuifolium		X								X	X				
Hakea (Needlebushes)															
dactyloides (Flat-leafed)		X		X						X	X				
gibbosa (Large fruited)										X	X				
sericea (Needle-leafed)										X	X				
teretifolia (Dagger Bush)										X	X				
Isopogon (Drumsticks)															
anemonifolius				X							X				
anethifolius											X				
Lambertia Formosa (Mountain Devil)				X						X	X				
Persoonia (Geebungs)															
Lanceolata (Lance-leafed)		X		X						X	X				
Levis (Broad-leafed)	X	X		X							X				
Kubearus (Narrow-leafed)		X									X				
Petriophile sessilis (Conesticks)											X				
Rhamnaceae															
Cryptandra amara			X							X					
Pomaderris andromedifolia	X							X							
Pomaderris lanigera	X							X							

	1	2	3	4	5	6	7	8	8A	9	10	11	12	13	14
Ranunculaceae															
Clematis aristata		X		X											
Ruticeae															
Correa reflexa (Native Fuschia)	X									X	X				
Correa alba	X														
Eriostemon australasius (Pink Wax Flower)		X	X							X	X				
Santalaceae															
Choretrum candollei												X			
Exocarpus cupressiformis (Native Cherry)		X													
Leptomaria acida (Native Current)		X		X											
Sapindaceae															
Cupaniopsis anacardioides (Tuckeroo)	X							X	X						
Didenaea triquetra		X	X		X										
Smilacaceae															
Smilax australis (Lawyer Vine)		X													
Smilax glycyphyllia (Sarsparilla)		X													
Solanaceae															
Duboisia myoporoides (Corkwood)		X						X	X						
Solanum spp. (Kangaroo Apple and Wild Tobacco)		X		X							X				
Sterculiaceae															
Brachychiton acerifolium (Flame Tree)		X						X							
Lasiopetalum (Rust Plants)															
ferrugineum (sub-species)		X		X						X					
rufum		X		X						X					
Stylidiaceae															
Stylidium (Trigger Plants)															
graminifolium				X				X							
lineare				X				X							
Thymelaeaceae															
Pimelea linifolia (Slender Rice-Flower)		X	X					X	X						
Wikstroemia indica		X						X							

1 2 3 4 5 6 7 8 8A 9 10 11 12 13 14

	1	2	3	4	5	6	7	8	8A	9	10	11	12	13	14
Tremandraceae															
Tetratheca (Black-eyed Susan)															
ericifolia										X	X				
thymifolia		X													
Ulmaceae															
Trema aspera (Native Peach)		X													
Verbenaceae															
Avicennia marina (Grey Mangrove)														X	
Chloanthes steochadis										X					
Clerodendrum tomentosum		X						X	X						
Violaceae															
Hybanthus vernonii (Ladies Slipper)		X													
Viola hederacea (Ivy-leaved Voilet)		X													
Vitaceae															
Cissus antarctica (Native Grape)		X													
Xanthorrhoeaceae															
Lomandra filiformis															X
Lomandra longifolia		X								X					X
Lomandra multiflora															X
Lomandra oblique		X													X
Xanthorrhoea arborea (Grass Tree)		X								X					X
Xanthorrhoea minor (Grass Tree – small)		X								X					X
	1	2	3	4	5	6	7	8	8A	9	10	11	12	13	14

Note: The table is by no means complete. There are probably additional species and some species may occur in communities additional to those marked here.

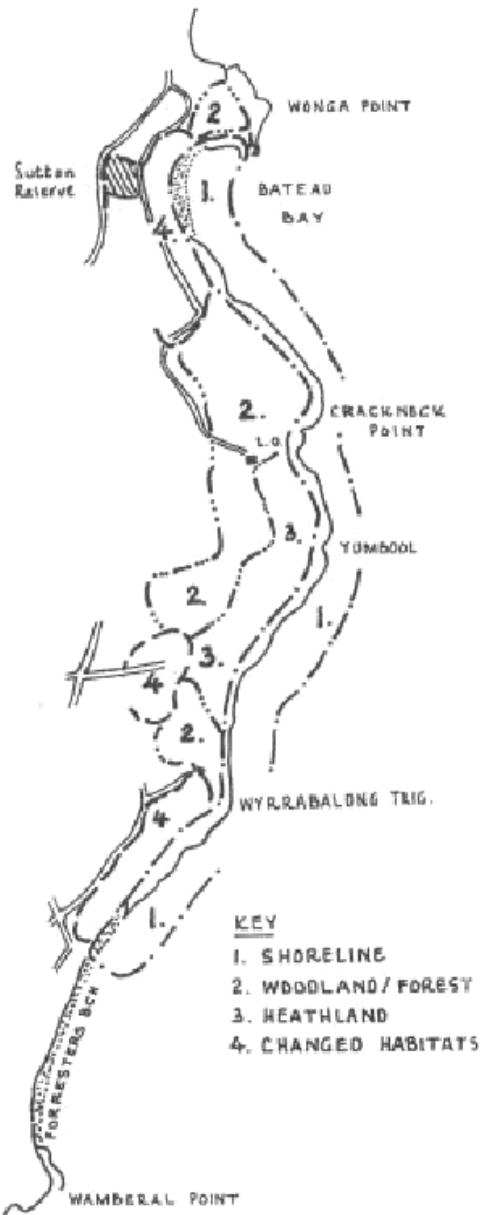
SOME BIRDS OF WYRRABALONG

BIRDS AND HABITATS

Birds may be wide-ranging or appear to be so. The truth is that each species has its preferred habitat. The habitat provides food supply, resting and nesting sites and the locations where (presumably) the species finds it most satisfying to live.

Some birds are migrants, coming and going with the season; others are permanent residents, spending perhaps all their lives within an established and well-defined territory of not great dimensions. So, we can expect sea-birds to live along the coastline, feeding on the beaches, roosting in the craggy cliff lines, fossicking amongst the rocks and waterholes, or perhaps diving into the sea. Others favour the woodlands and forests and some the heaths. Some even learn to live in suburbia, either becoming resident there, or being frequent in their visitation to open fields or backyards.

One thing is certain of course, if the habitat of a certain species is destroyed, or polluted, or changed significantly, some inhabitants will disappear. It is commonly believed that the disappearance means they have gone elsewhere to live and to enjoy the conditions left behind. Doubtless some will find new "territory" but it will not be without deaths, either of the resident species or invaders. Conservation of birds is about maintaining their living spaces and living places. It is as simple as that.

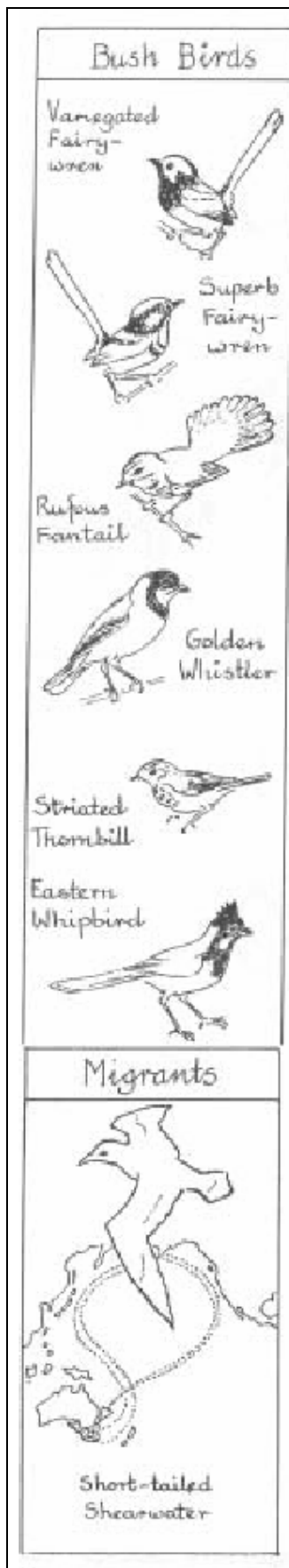


Habitats at Wyrabalong

In listing the birds of Wyrabalong, we have determined to name the habitats which given species are known to frequent. This does not mean that a given species will never be seen elsewhere, but that the species is most likely to be seen in the habitat named.

To make the job a little easier, we have reduced the habitats used to four and in doing so have to amalgamate some of the plant communities recorded elsewhere in this booklet.

For the purpose of recording the birds, we have nominated these habitats:



SHORELINE – The sandy beaches, rocky platforms, the potholes along the platforms, the sea itself and the margin where sea and land meet. The intertidal zone between land and sea is said to be the richest area for life on earth. The birds expected to be sighted in this habitat have (S) after their names.

HEATHLAND – Heath is the area of low shrubby vegetation, frequently on sandy soil. There are very few trees and if there are trees they will be dwarfed, perhaps by wind and perhaps because the soil is shallow and water supply may be restricted at times. Shrubs tend to have many stems rather than one large stem, the vegetation of heath is crowded and breaks into a wonder of colour and flower over lengthy periods of late winter, spring and early summer. Many of the flowers carry an abundance of nectar which attracts insects and birds to feed on the nectar or the insects. Many small birds find the heath a haven of protection. The birds expected to be sighted in this habitat have (H) after their name.

WOODLAND/FOREST – This grouping into a habitat is an attempt to bring together all the tall tree areas. The woodlands of Spotted Gum do not have a dense understorey of low shrubs, but may have some intermediate tall shrubs. Birds that perch in tall timbers like the woodlands best. The Forest area refers to the mixed timberlands of Blackbutt, Angophora (Red Gum), Bloodwood and Banksia. The understorey is often quite dense with many species of low shrubs that also like the heathlands. It is possible to have some birds from the woodland/forests mixed with birds from the heaths, because of the complex vegetation associations. Birds expected to be sighted in this habitat have (W/F) after their names.

CHANGED HABITATS – These habitats vary according to the changes caused by landuse and the way in which nature (or man) has attempted to use the land or heal the damage. Sometimes it amounts to recolonisation with grasses, sometimes with lantana and other exotics, and sometimes backyards and parklands offer “sanctuary”. The non-native birds use these areas very effectively but so too do some of the more adventurous native species. Birds expected to be sighted in these habitats have (CH) after their names.

If it is significant, a bird may have more than one identified habitat shown in the list which follows. The names used have been restricted to the so-called “Common Names” since good bird reference books identify birds using common names. But there are some variations and common names are subject to change by certain international authorities. We have attempted to use the most up-to-date names.

AN ALPHABETICAL LIST OF BIRDS FOR MYRRABALONG

Boobook, Southern (W/F)	Bulbul, Red-whiskered (CH) (exotic)
Bower-bird, Satin (W/F)	Butcher-bird, Grey (W/F) (CH)
Bronzewing, Brush (H) (WF)	
Cicada-bird(W/F)	Cormorant, Pied (S)
Cockatoo, Yellow-tailed (W/F)	Cuckoo, Channel-billed (W/F)
Cockatoo, Sulphur-crested (W/F)	Cuckoo, Fan-tailed (W/F)
Cormorant, Great (S)	Cuckoo, Pallid (W/F)
Cormorant, Little Black (S)	Cuckoo-shrike, Black-faced (W/F)
Cormorant, Little Pied (S)	Currawong, Pied (W/F) (CH)
Dollarbird (W/F)	Duck, Manded or Wood (CH)
Drongo, Spangled (W/F)	
Emu-wren, Southern (H)	
Fairy-wren, Superb (H) (CH)	Firetail, Red-browed (W/F) (CH)
Fairy-wren, Variegated (H)	Friarbird, Noisy (W/F)
Fantail, Grey (W/F) (H)	
Fantail, Rufous (W/F) (H)	
Galah (CH) (W/F)	Goshawk, Brown (H) (CH) (W/F)
Gannet, Australasian (S)	Gull, Silver (S)
Heron, White-faced (S)	Honeyeater, White-cheeked (H) (W/F)
Honeyeater, Black-chinned (H) (W/F)	Honeyeater, White-naped (H) (W/F)
Honeyeater, Lewin (H) (W/F)	Honeyeater, Yellow-faced (H) (W/F)
Honeyeater, New Holland (H) (W/F)	
Kestrel, Australian (W/F) (H) (CH)	Kite, Black-shouldered (W/F) (H) (CH)
Kingfisher, Sacred (W/F)	Koel, Common (W/F)
King-parrot, Australian (W/F)	Kookaburra, Laughing (W/F) (CH)
Lorrikeet, Rainbow (W/F) (CH)	Lorrikeet, Scaly-breasted (W/F)
Magpie, Australian (W/F) (CH)	Martin, Fairy (CH) (S)
Magpie-lark (CH)	Miner, Noisy (W/F) (CH)
Oriole, Olive-backed (W/F)	Oyster-catcher, Sooty (S)
Pardalote, Spotted (W/F)	Pigeon, Crested (CH)
Pigeon, Brown (W/F)	Pigeon, Wonga (W/F)
Quail, Brown (W/F) (H)	
Rainbow Bird (W/F)	Rosella, Crimson (W/F) (CH)
Raven, Australian (All)	Robin, Eastern Yellow (W/F)
Rosella, Eastern (W/F) (CH)	
Scrub-wren, White-browed (W/F)	Sparrow, House (CH) (exotic)
Sea-eagle, White-bellied (S)	Spinebill, Eastern (W/F) (H) (CH)
Shearwater, Short-tailed (S)	Swallow, Welcome (CH)
Shrike-thrush, Grey (W/F)	Swift, Spine-tailed (W/F) (H)
Silver-eye (W/F) (H) (CH)	
Tern, Crested (S)	Tree-creeper, Brown (W/F)
Thornbill, Brown (W/F) (H)	Tree-creeper, White-throated (W/F)
Thornbill, Striated (W/F) (H)	Turtledove, Spotted (CH)
Thornbill, Yellow (W/F) (H)	
Warbler, Brown (W/F)	Whistler, Golden (W/F)
Wattlebird, Little (W/F) (H)	Whistler, Rufous (W/F)
Wattlebird, Red (W/F) (H)	Willie Wagtail (CH)
Whipbird, Eastern (W/F)	

THE ROCK PLATFORM

INTRODUCTION

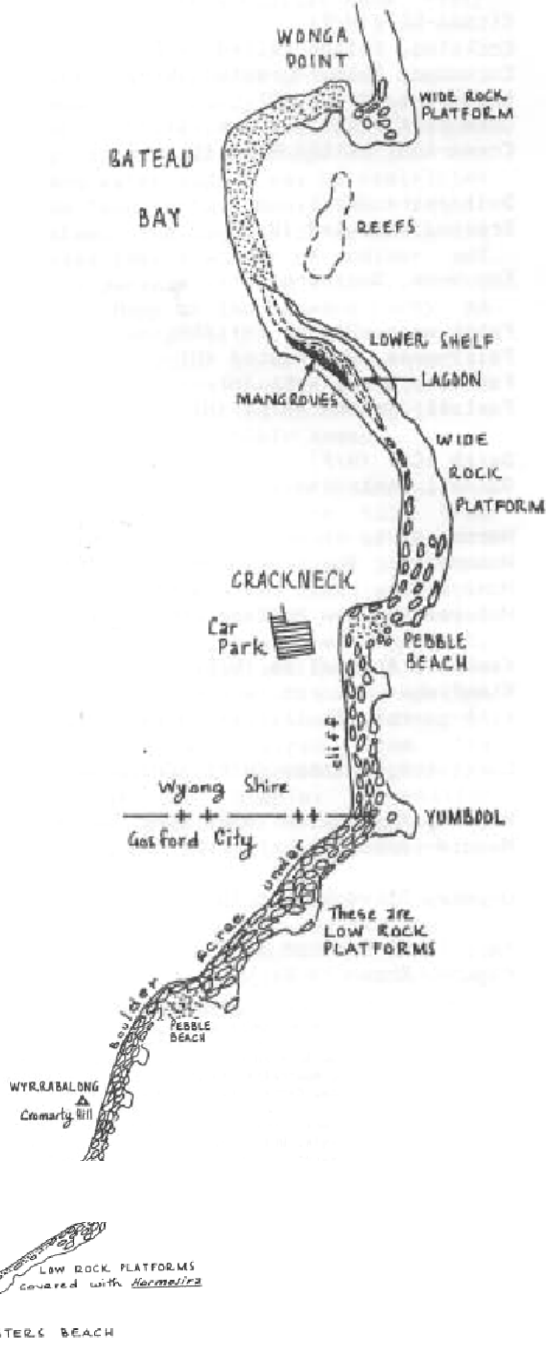
The intertidal zones would be a very valuable addition to the proposed Wyrabalong Park. They feature a variety of habitats including sandy and pebbly beaches, rock platforms, boulder scree, and a semi-estuarine "lagoon". Along the rocky shore, boulders continue into the sublittoral zone and these, together with shelving underwater rock platforms, support extensive kelp growth and a wide variety of fish and invertebrate life.

BATEAU BAY

The extensive rock platform at Wonga Point is low and flat with lush growths of algae and kelp in the sub-littoral zone. Bream, groper and rock blackfish are caught when seas are calm.

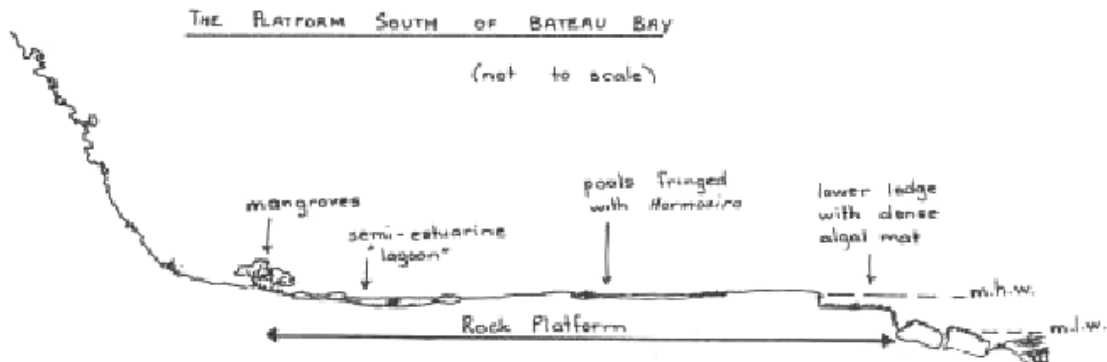
The sandy beach is relatively sheltered by an offshore reef and provides an excellent recreational area especially for young families.

The bay is also used by surf ski and board riders, board sailors and snorkellers. Fishermen catch whiting and bream off the sandy shore and try for luderick in the gutter at the southern end of the beach after rough weather. Because of the surrounding reefs, the beach is also a rewarding spot for shell collecting.



BATEAU BAY TO CRACKNECK POINT

Between Bateau Bay and Crackneck Point the platform of soft fine grained sedimentary rock is very wide and flat. The platform is low, being submerged by high tides and rough seas. Most of the area is in the upper littoral zone and supports blue periwinkles and limpets. Extensive shallow pools are fringed with *Homosira* (Neptune's necklace) and hide numerous species including small fish and periwinkles. The rock surface is water eroded and pock-marked, and in places each depression has its own waratah anemone.



The seaward edge of the rock platform has eroded to form a narrower ledge which is thickly carpeted with short brown and coralline algae, and patches of sea lettuce. Surf barnacles are numerous on exposed edges of the platforms but *Galeolaria* is confined to sheltered crevices where crabs are also plentiful.

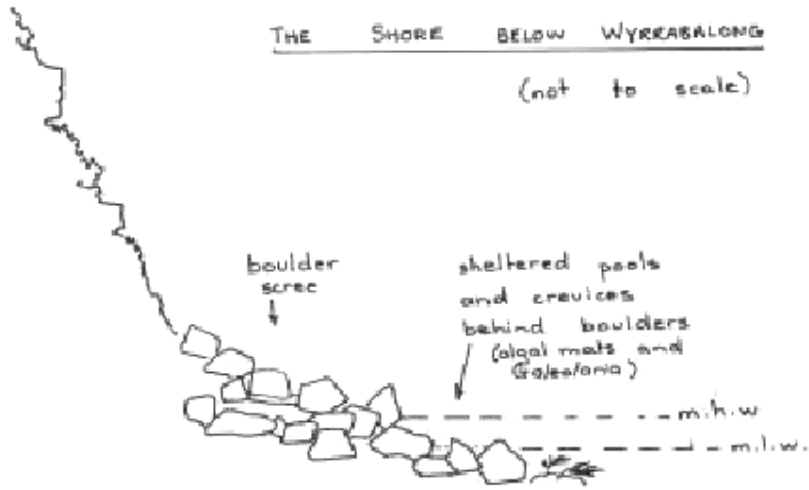
The sublittoral zone right along the rocky shore has extensive kelp beds supporting a wealth of invertebrate animals including a few remaining abalone, and many species of fish such as wirrahs and wrasse.

The platform slopes back toward the land and creates a semi-estuarine environment near the base of the mountain. Sand and mud have been deposited on the rocks and a shallow lagoon remains even at extreme low tide. Mangroves are colonizing the landward shore of the pool, oysters are attached to boulders and a few isolated clumps of sea grass are growing the lagoon. Whelks, small blue swimmer crabs and fish such as mullet also live in the atypical habitat.



CRACKNECK POINT TO WYRRABALONG

South of Crackneck Point the wide platform virtually disappears. Below the lookout is a pebbly beach and a small bay strewn with boulders which are submerged at high tide. The bay is somewhat protected and has thick kelp beds extending some way offshore.

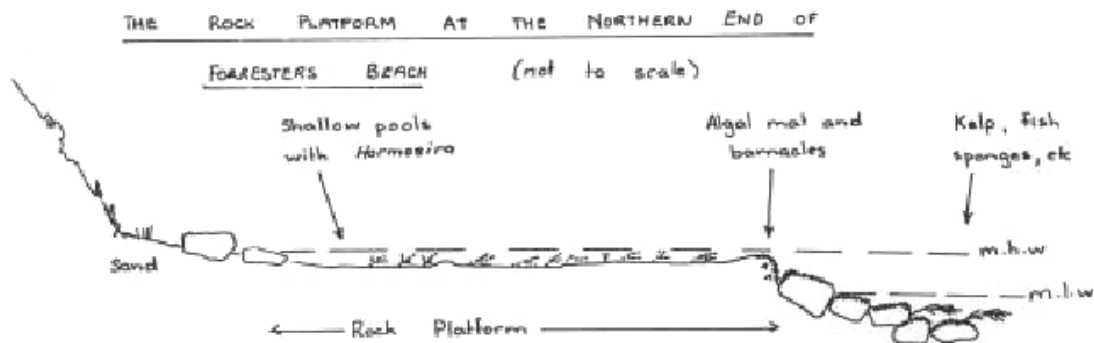


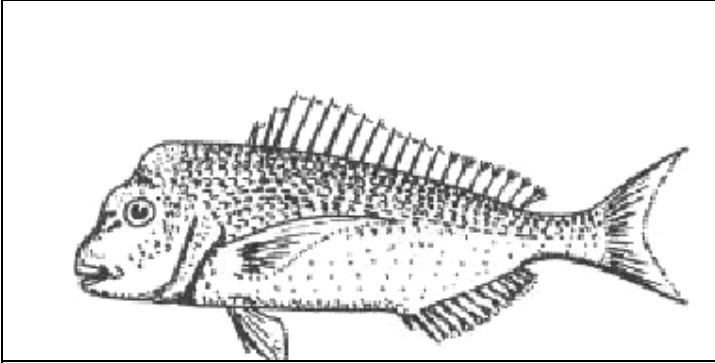
Unfortunately the scarp and rocks here are littered with the remains of dumped cars.

Further south the shore is composed of a scree of large boulders with occasional small isolated platforms which are submerged at high tides. Another pebbly beach lies a little to the north of Wyrrabalong Trig. The boulder and rectangular fissures in the platforms provide sheltered habitats at mid tide levels for a variety of marine life.

WYRRABALONG TO FORRESTER'S BEACH

The scree of large boulders continues both above and below tide level to the point at the northern end of Forrester's Beach. In places they form a break wall sheltering pools and crevices filled with brown and coralline algae and their communities of animal life. Exposed surfaces support bands of *Galeolaria*. Unfortunately, below Wyrrabalong, more wrecked cars spoil the landscape.





Fishermen catch snapper and rock blackfish between Forrester's Beach and Bateau Bay but there are few safe rock-fishing sites because of the low platforms.

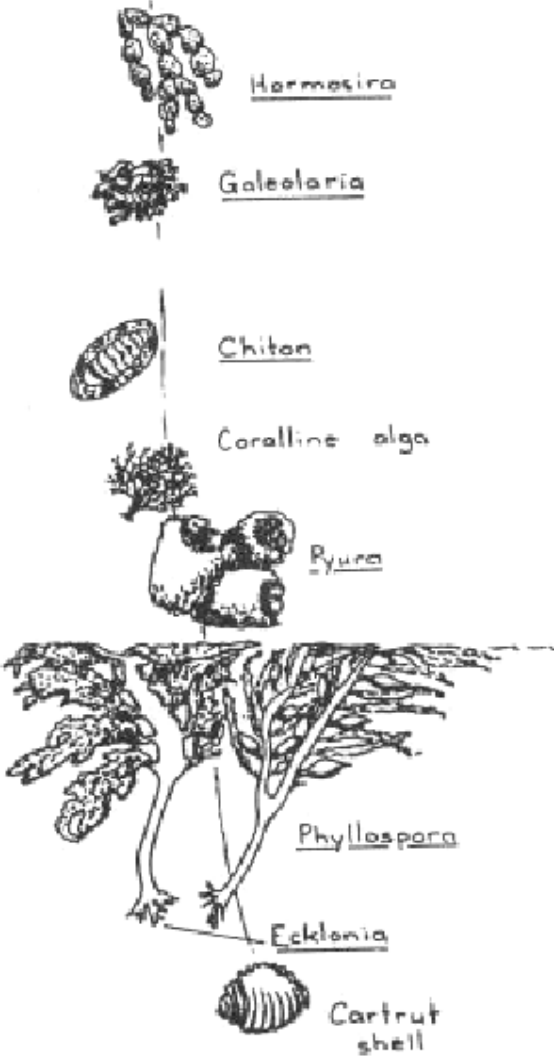
It is this lack of elevation which makes the platform at the northern end of Forrester's Beach so interesting and educational.

The rock platform is fairly wide and has only a few scattered boulders above tide level. Most of the rocky area forms a shallow pool whose bottom is covered with *Hormosira* and hides fish and innumerable cryptic animals. Deeper pools are found toward the edges of the platform.

During low spring tides or with a snorkel in calm seas, the rich sub-littoral zone near this rock platform can be explored.

Undersea boulders provide hiding for many species of fish from tiny sweep to large rock cods.

The upper surfaces of the boulders are smothered with coralline algae and the holdfasts of kelp. The undersurfaces hold colourful arrays of sponges and bryozoans.





"...on the side next the sea Wyrrabalong is upwards of 400 feet perpendicular, presenting an immense wall against which the sea dashes with almost deafening roar: I allowed my horse to be led to the edge of the precipice, to look down, but I soon retreated from the dizzy height, with a sensation of terror, for the enormous waves dashing against the rocks so far beneath, had an awfully grand effect ... We descended on the opposite side of the mountain, making our way with some difficulty among the trees down the steep and rocky declivity: on reaching the plain, our route lay for some miles across an open, desolate country principally composed of low sandy hills..."

Mrs Felten Mathew, 1834
(en route from Erina to Tuggerah Beach)

"WYRRABALONG PARK"

CRITERIA FOR THE PARK

The coastal strip from Forresters Beach to Bateau Bay has been shown to be a resource of considerable value to nature conservation. Landforms, plant systems and shoreline habitats make up a valuable and remarkable region. Lack of time and manpower for fieldwork has made possible only a casual observation of the mammals and reptiles which make up the ecosystems. No attempt has been made to list these animals. Nevertheless, it is realized that if the plant systems are diverse and self-sustaining, the whole biomass is maximized and capable of survival, provided human usage is suitably adjusted. The authority deputed to the task of managing the Park should plan as part of its function, the preparation of an inventory of the entire biota so that management procedures may be effectively directed into a scheme of operations which, in turn, will direct human usage.

The scenic qualities of the coastal strip have been emphasized in this booklet. To allow enjoyment of these qualities, vehicular access has been provided to two of the most spectacular viewing points along the cliffline. From the south, a road leads up from Forresters Beach to Cromarty Hill and terminates at Wyrabalong Trig. Station which, at a height of 131m, provides a wide and extensive vista over the coastline and many ridges and outstanding points in the City of Gosford. It is possible to identify Wondabyne Trig. Station, the sandstone residual above Woy Woy Tunnel and the surrounding plateau of Brisbane Waters National Park; the Avoca Ridge (or Kincumber Mountain) near Kincumber, and First Point (of Captain Cook' Cape Three Points) at Copacabana, closer at hand are The Skillion (at Terrigal); the beaches and cliff lines through to Wamberal Point at Forresters Beach; the greenery and water of Wamberal Lagoon Nature Reserve that seems to be almost at the foot of the vantage point. To the west, the rounded slopes occupied by small rural homesites drop smoothly into the valley of Forresters Creek and Wamberal Lagoon, in contrast to the precipitous fall to Forresters Beach, the rock platforms and the ocean, in the east.

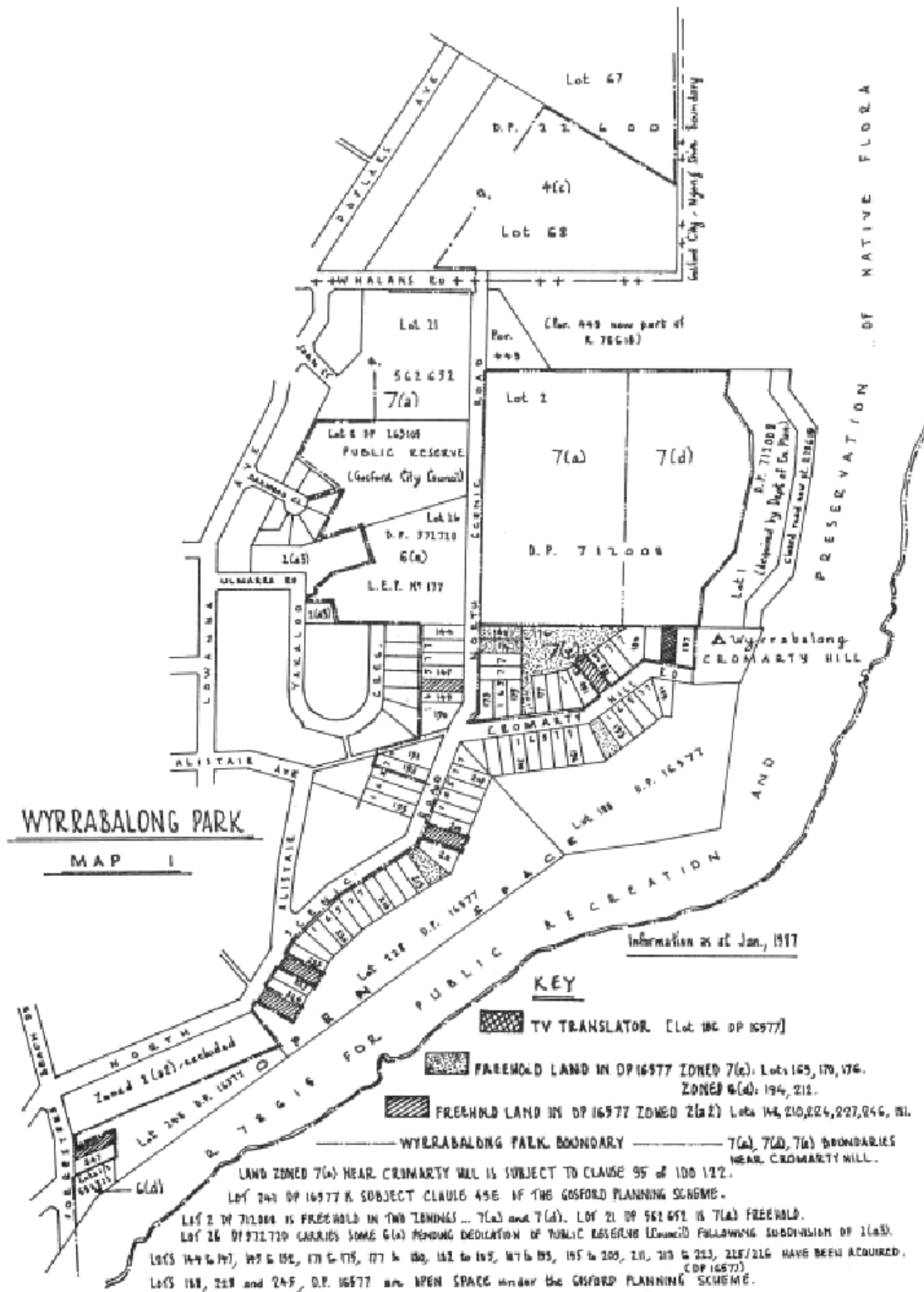
From Bateau Bay in the north, vehicular access is to Crackneck Point. Here the prospect is northwards, along the coastline to the Entrance, Norah Head and Wybung in the Munmorah State Recreation Area. West of this coastline are the Tuggerah Lakes and on the skyline is the divide between the drainage systems of the Hunter Valley and the Central Coast.

Both viewing points are exhilarating and provide the viewer with a clear picture of the nature of the country which comprises the Central Coast. They make valuable contributions to understanding how landforms influence the development of landuse patterns ... for economic, social, cultural and recreational purposes.

The conclusion is the "Wyrabalong Park" must be managed for passive recreation and education. The natural systems and scenic charm are the resources for those uses.

DESIGNING THE PARK

In designing the "Wyrabalong Park", the reality is that it must be produced from what remains of the quarter-mile reservation of the 1870s, plus those segments which an enlightened and recent administration has been able to salvage, or will salvage in the future, from the alienated lands within the quarter-mile reserve or adjacent to it. The important process is to bring all the "bits and pieces" into one package under a single management authority which may set to work to assess the condition of the resources and take whatever steps are needed to rehabilitate as well as protect them.



WYRRABALONG PARK

MAP I

KEY

- TV TRANSLATOR. [Lot 184 DP 16977]
- FREEHOLD LAND IN DP 16977 ZONED 7(c). Lots 145, 179, 176. ZONED 6(a). 194, 211.
- FREEHOLD LAND IN DP 16977 ZONED 2(a2) Lots 14, 210, 224, 227, 246, 251.
- WYRRABALONG PARK BOUNDARY
- 7(a), 7(b), 7(c) BOUNDARIES NEAR CROMARTY HILL.

LAND ZONED 7(a) NEAR CROMARTY HILL IS SUBJECT TO CLAUSE 95 OF 100 122.
 Lot 243 DP 16977 IS SUBJECT TO CLAUSE 45E OF THE GOSFORD PLANNING SCHEME.
 Lot 2 DP 712008 IS FREEHOLD IN TWO TENINGS... 7(a) and 7(d). Lot 21 DP 562492 IS 7(a) FREEHOLD.
 Lot 26 DP 712710 CARRIES SOME 6(a) PENDING DEDICATION OF PUBLIC RESERVE (Landed) FOLLOWING SUBDIVISION OF 1(a3).
 LOTS 144 & 147, 149 & 152, 171 & 175, 177 & 180, 182 & 185, 174 & 183, 195 & 205, 210, 215 & 213, 218/216 HAVE BEEN ACQUIRED. (DP 16977)
 LOTS 184, 228 and 245, DP 16977 are OPEN SPACE under the GOSFORD PLANNING SCHEME.

An attempt has been made to collect as much as information as possible about the land tenure of an area which has been defined as having the potential for the final “Wyrribalong Park”. The detail is shown on Maps 1 and 2, Wyrribalong Park.

MAP 1: The following lands are involved ...

- a. R.78616 for Public Recreation and Preservation of Native Flora, extending along the coastline from Forresters Beach Road to the municipal boundary at Yumbool. This now includes the closed road adjacent to Lot 1 DP712008, Portion 442 (parish Kincumber) and certain other residual Crown lands adjacent to Portion 442.

The land is Crown reserve with the Gosford City Council as Trustees.

- b. Wyrribalong Trig. Reserve, Portion 242 (parish Kincumber). Crown land.
- c. All lots acquired within DP16577, together with those yet to be acquired (which would mean excluding only those occupied at this time by a dwelling house).

The lots already in public ownership are shown on Council records in the name of the Department of Environment and Planning, but some could be Crown land within the meaning of the Crown Lands Consolidation Act.

- d. That part of Lot 26 DP 572720 zones 6(e) in LEP No 177 (Gosford). This land is expected to become Public Reserve (Gosford City Council) when subdivision of the 2(a3) land in Lot 26 is registered.
- e. Lot 8 DP 263108, which is Public Reserve (Gosford City Council).
- f. Lot 21 DP 562652, This land is zoned 7(a) Conservation , under IDO 122 (Gosford). It is occupied by a residence. It is suggested that part of this land should be negotiated for addition to the Park.

(N.B. The land contained in items d, e and f above, is steep and well covered with vegetation. It is sandy and would erode rapidly if developed. Inclusions of this land in the Park would have the additional value to the environment of protection soil stability.)

- g. Lot 68 DP 22600. This land is zoned 4(c) under the Wyong Planning Scheme and was the subject of sand mining when the contiguous area within R. 78616 was mined some years ago. Land within R. 78616 is being rehabilitated. Some part of Lot 68 could be acquired in order to maximize the area of the Park in this location.
- h. Portion 346 (“Hollydell Farm”) is now in two lots of DP 712008. Lot 1 has been acquired by the Department of Environment and Planning and should be added to the park.

Lot 2 of DP 712008, as shown on the map, is in two zonings under IDO 122 (Gosford): 7(a) Conservation and 7(d) Coastal Land Protection. It is undesirable to have Lot 2 remain as an enclave within the Wyrribalong Park. It is suggested that it should be rezoned 6(e) or 6(d), pending negotiation for acquisition.

MAP 2: Only three areas are involved ...

- a. R. 78618 for Public Recreation and Preservation of Native Flora, extending from the municipal boundary at Yumbool north to Wonga Point where it junctions with Portion 292 parish Tuggerah.

The land is Crown Reserve with the Wyong Shire Council as Trustees.

- b. Portion 247 (parish Tuggerah) which is zoned 7(e) to be acquired and added to R. 78618.
- c. R. 85730 (known as Bateau Bay Flora Reserve) with a Trust of private citizens appointed under the Crown Lands Consolidation Act.

NOTE: The proposal is to proceed with the proclamation of the Wyrribalong Park and the appointment of a management authority without delay, using those lands already held in public ownership, as the nucleus.

MANAGEMENT

It is not possible, nor is it the intention, to list all the matters which will form the basis for the Management Plan of the Wyrribalong Park. However, the limited size of the area involved in the park proposal, along with the fragile nature of the soils and systems, requires that Wyrribalong Park must be seen as already developed to its maximum. There are two points of vehicular entry: Cromarty Hill and Crackneck Lookout. There should be no others. A walking route already exists along the ridgeline joining Cromarty Hill and Crackneck Lookout. It would be valuable to construct this walking route to a path of good quality, well drained. The seclusion and charm of Bateau Bay Beach is a precious resource. It should remain accessible only by foot with all vehicles being prohibited. No camping should be permitted within the park. Every endeavour should be made to direct foot traffic away from the mangrove colony and to publicise (where appropriate) the special importance of this site. In the past, less than appropriate attention has given the disastrous effect of draining being directed onto the Bateau Bay beachfront from the urban development nearby. Steps must be taken to resolve the problems which the drainage presents.

This booklet has shown that the area proposed as Wyrribalong Park is an homogenous whole, largely managed by three separate authorities: Gosford City Council, Wyong Shire Council and the Trustees of Bateau Bay Flora Reserve. *A single body is essential for optimum management.*

In October 1986, the Lands Office at East Maitland held a seminar to explain a "Draft Policy" seeking to provide management and conservation of Coastal Crown Lands for the maximum benefit of the community. High on the list of priorities for that management are Schemes of Operations which lay down development and usage commensurate with the environments reserved.

Encouraged by that Draft Policy, we are recommending that a Trust be set up for "Wyrribalong Park", under the provisions of the Crown Lands Consolidation Act, to include representatives from the three existing Trusts that exercise administrative authority over the three Crown reserves. This arrangement would include Gosford City Council which also controls certain other public reserves and lands in the area. The Trust should also include a person or persons with interest and expertise in managing the proposed Park.

A single authority, devoted to the management of a "Wyrribalong Park" through an appropriate Scheme of Operations, would assure the optimum in conservation of a splendid coastal area for the maximum benefit of the community.

