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T H E B O R A N U P S

I T S P A S T A N D I T S F U T U R E

F O R E S T E R S E X A M I N A T I O N A S S I G N M E N T 1 9 8 2

PREPARED BY

WILLIAM TOWIE

William Towie

31st July 1982.

1. A well structured report.
2. Expression occasionally a little ambiguous, especially section 2.9. English usage non scientific, below standard on occasion.
3. Obviously you have done a lot of research into the topic. Weaknesses I found were
 - (i) more thought and discussion on future development of the forest. Problems associated with current and future developments could have been raised.
 - (ii) lack of knowledge of Forest Department policy as laid down in General Working Plan. This I do not believe was entirely through fault of your own. Better guidance from senior staff in this area would have been more helpful.

J. J. Kellens

I also consider this report to be well structured.

But consider the expression & syntax to be poor in many instances hard to understand some statements.

Content - comprehensive but there are some inaccuracies.

J.
2/9/82

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I N T R O D U C T I O N

The Boranups as we know it today is the whole of State Forest 45 (gazetted as such on 19.04.1929), and includes two timber reserves, 96/25 and 176/25. The total area is approximately 3757 hectares and is situated on the Leeuwin - Naturaliste ridge, which is predominately made up of pre-cambria Gneiss overlain by limestone and aslanite.

It is especially noted for its fine regrowth Karri forest, which is the largest area of Karri ^{in the State} growing on sands derived from coastal limestone. Following a recommendation by the Environmental Protection Authority, a National Park has been created along this coast by the amalgamation of all vacant Crown land and miscellaneous reserves under the one heading. (Not all is Nat Park - many reserves remain)

The Boranups compliments National Park adjoining to the north, west and south and private property to the east. Conservation has been given priority in its management.* Its value as an important segment of the Karri occurrence was considered more important than its recreational value - but in this case there is little clash between conservation and planned recreational use. ^{by the Forest Dept *}



FINE REGROWTH KARRI - BORANUP

Its historical significance as part of the original M.C. Davies empire late in the 19th Century has also been recognised, although ^{the relics of} much of this era has been destroyed by fire.

The Boranups has many attractions. The Karri occurrence is unique, there are magnificent regrowth stands, numerous world famous caves, and recreational facilities including scenic drives, walk trails and barbecues.

The area can be likened to an "Oasis". A comparatively small block of forest surrounded by heath country and private property.

With this assignment I hope to enlighten readers of the Boranups existence, its history, and its imminent future.

NOTE: Boranup - "The place of the male dingo" (Aboriginal)

PART 1 - THE BORANUPS - ITS HISTORY

The history of the Boranup area can be traced from the initial first settlements by settlers in the early 19th Century through to the eighties of the 20th Century. During this period of some 100 years two major happenings had a great influence on the discovery and change of the Karri forest. The period between 1877 to 1920 saw the milling of the tall virgin Karri forest by the Davies Empire, and the year of 1961 saw the almost total destruction of the fine regrowth stands by fire. Arguably the period from 1877 to 1920 had the biggest impact on the Boranups. This era belonged to a man called Maurice Coleman Davies. (Not sure)

PART 1.1 - MAURICE COLEMAN DAVIES - HIS EMPIRE

The Boranups or Karridale Estate (see Appendix 1) as it is known in 1879 was practically a terra incognita, an unoccupied forest wilderness. It would have taken someone with enormous courage and ability to open up this wilderness, establish a successful industry and empire (in its own right) without Government aid, and without any knowledge of the dominant timber in the area, Eucalyptus diversicolor or Karri.

Maurice Coleman Davies and his sons alone were responsible for the settlement of Karridale, the opening up of a wilderness, and also for the introduction of Karri as a timber to markets throughout the World.



M. C. Davies

M.C. Davies arrived in Western Australia in 1875 from South Australia, where he had already established himself as an astute businessman within the timber industry, and immediately became a share holder in already established sawmilling companies, such as the Jarrahdale and Rockingham Timber Companies. These mills were very successful because they owned their own railway systems, running from concession to the port of Rockingham for shipment overseas.

Two years after his arrival he became interested in the forested areas around Hamelin Bay. This area was of particular interest to him because of its magnificent stands of Jarrah, Karri and Marri, its mild and equable climate and good soils. His experience with the mills at Rockingham proved to him the need for easy transport to a port by railway for sales overseas, and in this era he had two ideal natural harbours - Flinders and Hamelin Bays.

A licence to cut timber in this area belonged to a Mr. Eldridge. Davies applied for a lease of 70,000 acres (28,000 ha) for 50 years, this was refused. However in 1882 he was granted a lease of 46,000 acres (18,400 ha) for 42 years at £150 a year. The actual site at Karridale was selected because of the proximity to both bays and also because of the Jarrah and Karri growing there.

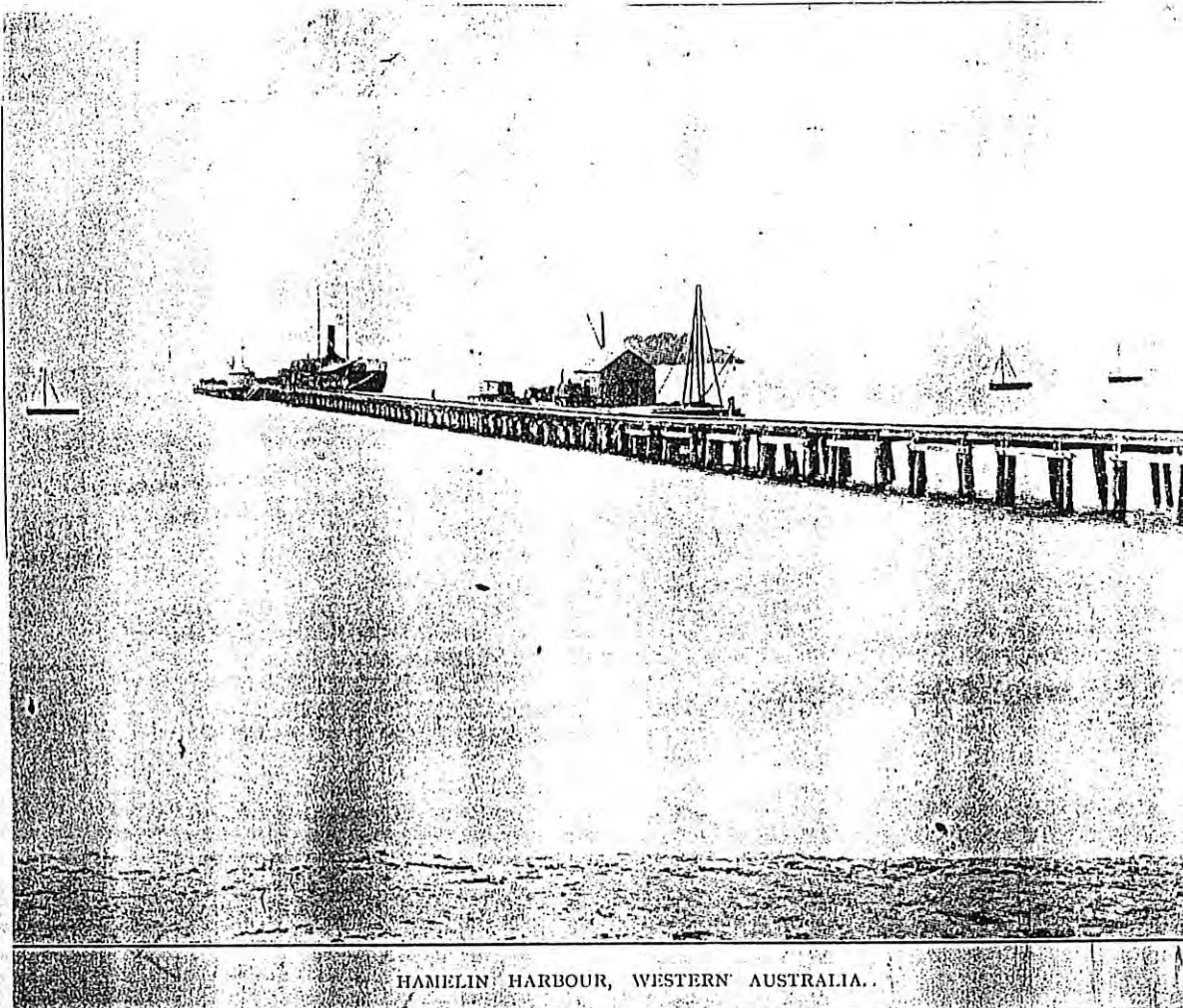
MILLARS, KARRI AND JARRAH COMPANY (1902), LIMITED.



FLINDERS BAY, WESTERN AUSTRALIA.

Davies ordered the construction of jetties at Flinders and Hamelin Bays, the idea of two jetties being that they would use whichever was the safest with the prevailing winds as each port was located on the opposite sides of the Cape.

The Hamelin jetty was constructed in 1881. It was 1800 feet (approximately 600 metres) long and was equipped to handle three ships at a time with cranes, storehouses and a pipeline for the supply of fresh water.



HAMELIN HARBOUR, WESTERN AUSTRALIA.

Davies' first mill was built at Coodardup (now Kudardup) and originally the timber was hauled to Port along wooden rails by horses. Coodardup mill was closed in 1884. A newer and larger mill was constructed at Karridale with a capacity to cut 12,000 super feet/day ($28 \text{ m}^3/\text{day}$). Metal railway lines were constructed to both jetties - the business was booming.

In 1891 Davies built an even larger mill at Boranup, 3 miles north of Karridale, however it was destroyed by fire. It was immediately replaced by an even larger mill which employed about 300 people.

Davies built cottages for all.* He built a store, recreation hall, hospital with a resident doctor, church, public library, sports ground and race course.

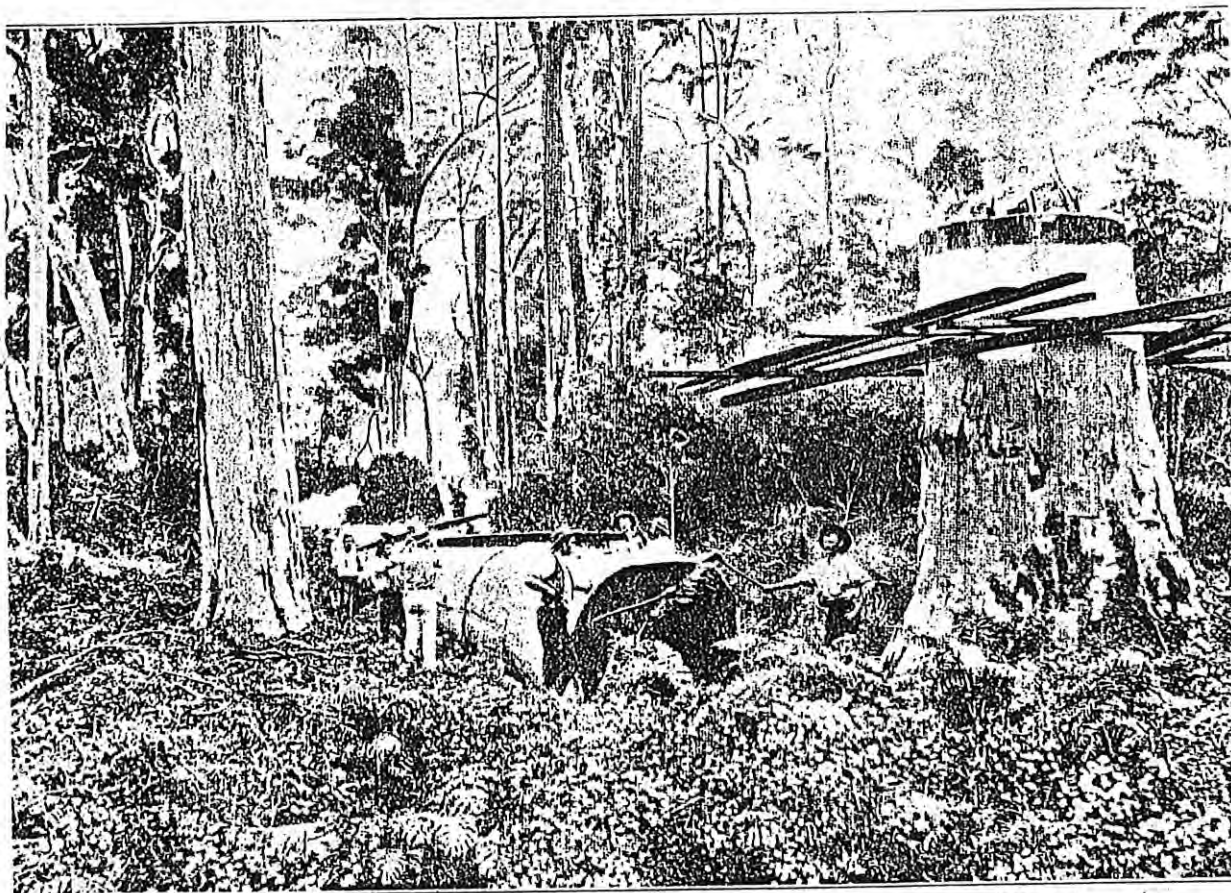
his employees

Karridale had its own currency and The settlement was practically self-sufficient. Working conditons were wonderful with rent-free houses, and no rates ^{and no} or taxes. Each man was supplied with a cheque book, and his wages were credited to his account.

By 1900 the company had 3 large mills in operation with the extra mill being built at Jarrahdene in 1895, with railways linking all mills with both ports and going as far north as Margaret River.

It was indeed an Empire!

The largest tree recorded in the Karridale Estate (See Appendix 1) had a girth of 10 metres, stood 80 metres high and would have cut 3,000 sleepers. This tree was known as the Davies Showpiece and was aptly named "The Giant".

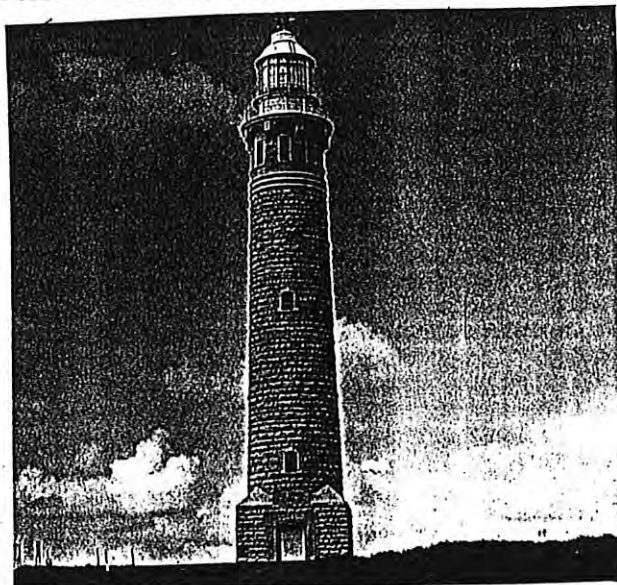


THE FALLEN GIANT.

The largest consignment of timber ever shipped by the company was by the S.S. Newton Hall. It was shipped to Liverpool and consisted of 2,000,000 super feet of Karri and Jarrah.

Although the ports were reasonably safe, they were at times subjected to heavy storms resulting in shipwrecks. In 1900 there were 5 ships sunk in Hamelin Bay (See Appendix 2).

It is also interesting to note that M.C. Davies and John Wishart were successful in tendering for the building of a lighthouse at Cape Leeuwin in 1895. Sir John Forrest laid the foundation stone.



LEEUWIN LIGHTHOUSE

The company was refloated in 1894 and the name was changed to "M.C. Davies Karri and Jarrah Co. Ltd" to incorporate all his sons. Walter became the agent in South Africa, Arthur went to Bombay to handle the Indian business, Frank went to America and Robert became the London director, Phillip went to the far east and Herbert remained at Karridale as Manager.

In 1902 the industry suffered a slump due to falling markets and price cutting by the opposition and the company was forced to amalgamate with seven other companies. Although reluctant, M.C. Davies agreed, and retired from the company leaving his sons in high positions in the newly formed company. ("Karridale Estate"; to the "M.C. Davies Karri and Jarrah Co. Ltd"; was now)
under control of the new company "Millar Timber and Trading Company".

The timber resources at Boranup cut out at Karridale Mill in 1913 and ironically this was the year that the man who had started it all - Maurice Coleman Davies died.

The railway lines and rolling stock were handed over to the P.W.D. and later on to the W.A.G.R. who extended their line from Busselton to Margaret River and then relaid the line from Margaret River right down to Flinders Bay.

It is a fact that many of London streets were paved with hardwood blocks from the Karridale mills, but today there is very little to show that Karridale ever existed.

In March of 1961, the most devastating fire ever experienced there, swept through the whole of the Davies concessions, destroying almost all evidence of the past, but it could never obliterate Maurice Coleman Davies; and the old burner at the Karridale millsite, formations in Boranup, the piles of the jetty at Hamelin, Old Kate (the steam locomotive) at Margaret River and the great Leeuwin Lighthouse continues to be a reminder of this great pioneer.

PART 1.2 - 1920's to 1960's

Operations concerning removal of timber from the area during the period from 1920 to 1960 revolved around several thinning operations. As has already been stated, the majority of Karri was cut out by the Davies Empire. and Thinning regimes were carried out to remove *by the Forests Dept*

1. Occasional fire damaged trees
2. *Generally*, the regrowth forest of the area required thinning to remove malformed and overcrowded stems. *from.*

continuing

Karri was removed for SEC poles and other timber was cut into tile battens by Moniers at Busselton, which is still operating - but receives all its wood from Manjimup via Chipmill. *(Karri thinning also)*

It must be re-iterated that milling during the 1940's and 1950's was on a comparatively small scale with all operations generally being based on a silvicultural regime, rather than in most cases purely production. ✓

The finest recorded sale of Karri logs was to a Mr. F. Poland in 1948 and the history of the various operators working in the area up until 1966 is listed below.

F. Poland	1948
Cass Case Company	1949
Antonavitch	1955
	1961
Sawn Timber	1963
Monier	1966 to 1976

PART 1.3 - FIRE

The summer of 1961 struck the State in a devastating manner and is well remembered for its wild-fires - and their severity. This was the year of the famous "Dwellingup Fire" and only 2 months after that disaster, the Boranups had its own.

The wild-fire struck the Karri forest at a time when very little prescribed burning had been carried out, so with heavy fuels and extreme weather conditions the fire roared through the forest. The forest was damaged so severely, that some areas were considered useless for all practical purposes. It must be remembered that nearly the entire forest had been cut-over and was in various stages of regrowth. Large areas were completely "wiped out", and it was considered that the only possible treatment was regeneration. Other areas that managed *non-scientific* *wooding* *(Need for thinning and silviculture as a result of fire)* to handle the fire, were still badly damaged and required various degrees of thinning. A detailed description of thinning and regeneration practices following the 1961 fire can be found in Section 2.6.

The "Karridale Fire" not only destroyed large proportions of beautiful Karri forest, but also destroyed most of the evidence that had withstood the test of time of the Davies Empire.

The only other wild-fires of any real significance to the history of the Boranups occurred in 1972 and 1974.

By this time the Forests Department had learned from the 1961 fires and had engaged several new methods of fire control. It had undertaken a fuel reduction programme, increased fire-fighting manpower and machinery, had a better detection system and generally was far greater educated.

The fires of 1972 and 1974 were not very severe, but still covered extensive areas. The major affect of these fires concerning management was that they interfered considerably with regeneration ^{programme} ~~methods~~ ^{was} that were still going on *following* resulting from the 1961 fire.

These fires interfered because they either -

1. removed fuel before seed was ready, hence putting back the regeneration at most, one floral cycle (up to 5 years) until seed was plentiful, and also until there was enough fuel to complete a regeneration burn.
2. Caused regeneration when and where it was not desired. 7

The areas covered by these fires, 1961, 1972, and 1974 are shown on Appendix 3.

Undoubtedly fire has always been a major ecological factor to the Boranup Forest as Karri, Marri and Jarrah are all very much adapted to fire - however these fires, especially the Karridale fire, ¹⁹⁶¹ have had a huge and lasting bearing on the age and condition of the forest itself. Arguably these three major fires are directly responsible for the age and condition of composition various sections of the forest today.

(Not so except for 1961
from density data against
section that had
to be C/F)

AS IT IS TODAY

PART 2 THE BORANUPS AS IT IS TODAY

The C.T.R.C. - Conservation Through Reserves Committee - recommended that the areas described as Forest Parks be set aside within State Forest for the purpose of Conservation of fauna, flora and/or public recreation and that the Forest Act be amended to enable the Conservator of Forests to do so. *The Government did not follow the suggestion. Rowland did initiate the drawing up of the Boranup by P.O. 1975, which were the objectives of:*

State Forest 45 has been designated as such. Boranup is the largest occurrence of Karri on coastal limestone soils, and represents the western fringe of the Karri occurrence. ✓

PART 2.1 - LOCATION AND TENURE

The Boranups is situated approximately half way between Margaret River and Augusta and lies on the Leeuwin-Naturaliste Horst and is coloured red on the map attached. (Appendix 4.) The total area of State Forest is 3,757 hectares and is mostly concentrated within the one block; however 145 hectares of Timber Reserve 176/25, some 2 kms further south is also included as State Forest 45. Within the main block are 2 reserves A8436 and A8437, which are designated as such for the total protection of the numerous caves which are located there. To the west it is bounded by National Park and to the north by reserves A8434 and A8435, (reserved for the Protection of Caves also). Private property adjoins most of the eastern boundary.

PART 2.2 - GEOLOGY AND SOILS NAT PK

In the Boranup area of the Leeuwin-Naturaliste Horst or ridge, of which the parent rock is pre-cambrian gneiss, the parent rock is overlain by limestone and aelianite. The area is inundated with numerous sink holes, caves and cliff formations.

The area which is predominately Karri forest has a soil which is a neutral deep brown sand. This area is unique in that it has no defined creeks or stream systems, because it is so free draining. This soil type classification has been termed the Deepdene Association.

The Leeuwin Association (Smith 1951) occupies the area to the west of the Karri belt and consists mainly of undulating sand-dune systems with soils of a deep grey sands or shallow sandy loams nature.

The area to the east of Caves Road has soils of a sandy, gravelly, lateritic nature more typical to those of the rest of the forests in the South West.

A generalised soil plan is given in Appendix 5.

PART 2.3 - VEGETATION

Three broad vegetation types are recognised within the area.

1. Karri regrowth forest
2. Jarrah-Marri forest
3. Coastal scrub area

Appendix 6, the vegetation type plan shows the locations of the tenures.

PART 2.3.1

The Karri (Eucalyptus diversicolor) regrowth forest is primarily pure Karri, however there are minor pockets of Karri-Marri. The major understorey and ground flora species occurring in this type are Acacia pentadenia, Trymalium, Bossia, Adananthos, Hovea, Hakea and Pimelia species.

PART 2.3.2.

The Jarrah-Marri (Eucalyptus marginata and Eucalyptus calophylla) forests understorey and ground cover include Casurina fraseriana, Hakea, Kennedya, Pimelia, Acacia and Hibbertia species. Other tree species associated with the Jarrah and Marri include the W.A. peppermint (Agonis flexuosa) and bull banksia (Banksia grandis).

PART 2.3.3

The coastal heath type vegetation is dominated by Scaerola and Acacia species with several minor pockets of yate (Eucalyptus cornata) bullich (Euclyptus megacarpa), Eucalyptus calcicola, peppermint and blackboys (Xanthorrhoea preissii).

PART 2.4 - CLIMATE

Winters are wet but mild, and summers are relatively dry but noticeably cooler than Margaret River. It is not unusual to have lengthy durations of rainfall during the summer. The Boranup climate is categorised as Mediterranean.

A major feature of the area is the long growing season due to the lower temperature and assured light summer rainfall.

Officers stationed at Margaret River Forests Department have kept records of rainfall in the Boranup Forest since 1977. The results may be a little suspect however, as recordings were only done when an officer happened to be in the area and sometimes the gauge would not be checked for up to 6 weeks. Results of rainfall are shown below.

1977	1978	1979	1980	1981	1982 (Jan-Jul 22)
716.9 mm	830 mm	635.5 mm	934.5 mm	1259 mm	589.5 mm

Reliable official records of annual rainfall for nearby centres are

Margaret River	1230 mm per annum
Karridale	1270 mm per annum
Cape Leeuwin	1000 mm per annum

From our recordings our annual rainfall (averaged over 5 years) 1977 to 1981 is 875 mm. ?

The predominate winds are southerly and westerly and it seems that the salt ladden winds could be having a detrimental effect on the outlying Karri on the west most side of the major Karri belt. This really only applies to the section of Karri in the Davies - Donovan Road junction. In this area the Karri has the typical Jarrah dieback appearance in its tops. *Eucalypt*



KARRI TOPS DYING OFF FROM SALT LADDEN WINDS
DAVIES ROAD.

PART 2.5 - PROTECTION

PART 2.5.1 FIRE

The Boranups is managed for prescribed burning and fire fighting by the Forestry at Margaret River - some 30 kms away.

Because of its vast areas of regeneration and the costs that have been involved to regenerate these areas, the Boranups has been classified as a red-action area - identical to that of pine plantations.

The regeneration cannot be burnt until it is at least 15 years old, (the Karri simply will not withstand fire during this period) and so it is necessary to prescribe burn on a 5 year rotational basis those areas where the regeneration is 15 years old plus. These areas are mainly the Jarrah-Marri forest and the ^{heathland scrub} older regrowth Karri stands. See Appendix 7 for the "Master Burning Plan".

Since the prime management objective for the area is conservation of flora, fauna, landscape and recreation, prescribed burns have to be very mild and discreet. All burns are hand-burns due to the small sizes of the burning blocks.

(have done current burning)

The entire Boranup area is adequately roaded for quick access to all sections, and firebreaks are maintained around all regenerated areas.

Picnic areas, which are strategically placed along Boranup Drive will be slashed and burnt around during spring of each year to provide a buffer to prevent outbreaks of fire.

Areas outside of State Forest 45 itself, are prescribed burnt by the Bush Fires Board in conjunction with Margaret River Forestry.

PART 2.5.2 DISEASE

Phytophthora cinnamomi or "dieback" is not considered a threat to the Karri forest or coastal heath - however it is definitely present in the Jarrah-Marri forest area east of Caves Road. ^{the effect of the disease} This area is typical of the vast areas of Jarrah-Marri forests in the rest of the State.

The 1976-80 Working Plan for Boranup recommended that this particular area (See Appendix 8) should be quarantined and patrolled under the Forests Act Amendment Act 1974. This recommendation has not been carried out to date. *The purpose of the proposed was to limit disease spread in the J-M forest, and help conserve the Jarrah component of the mixed stands. .../16*

PART 2.6 - RECREATION

Recreation is the prime management objective for the Boranups. X

(Boranup Drive)

A scenic drive was constructed to run in a north-south direction taking in all aspects of the forest on its route. There are fine regrowth Karri stands in the northern section, the central section is mixed with regeneration, (cave reserves and regrowth Karri, and the southern section has Karri regeneration, Jarrah-Marri forest and coastal heath or scrub. The scenic lookout was established as part of the Boranup Drive and provided sightseers with an option of barbecues and tables as well as a majestic view of Cape Leeuwin and Hamelin Bay.

Under which management plan? certainly not the Boranup W.P. or GWP 27.

out of context



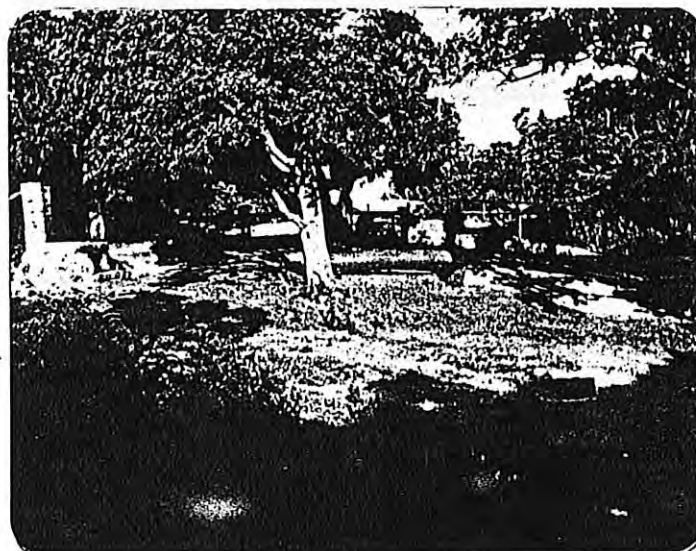
SCENIC LOOKOUT



BORANUP DRIVE

With recreation becoming an important segment in the Forests Department overall policy and the public trend towards more recreation, it has been deemed necessary to provide more facilities.

Stop-overs or resting places have been established along Boranup Drive consisting of barbecues and picnic tables.



RESTING PLACE - BORANUP DRIVE

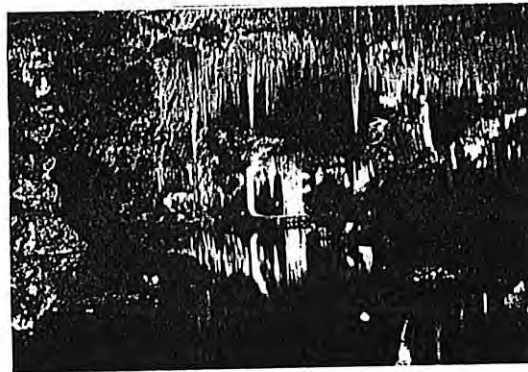
A small 10-15 minute nature walk trail has been constructed at the Scenic Lookout, starting and finishing at the Car Park or Lookout itself.



WALK TRAIL - SCENIC LOOKOUT

A walk trail is in the process of establishment that will take in coastal heath country, Jarrah-Marri forest, regeneration, thinning and fine regrowth stands. ~~and it is envisaged~~ that it will be a 2 day walk with an overnight stopping place. For further information on this walk trail please see section 3.3 which deals with recreation proposals and plans for the future.

Although they are not actually sited in S.F. 45 several caves have been opened to the public. Some are the finest in the World and include Lake, Mammoth and Jewel Caves.



Australia's Most Magnificent Caves.

PART 2.7 - CAVES

There are over 135 speleological features, of which 40 are major caves in the Boranups. Caves were discovered over 100 years ago by early settlers and surveyors, and in the last 20 years by Speleologists.

Some caves explored by members of the Western Australian Speleological Society have excellent displays of historical graffiti on their formations, giving away clues of original discoveries in 1848 and also several during the Davies era.

It is a point of interest that two huts have been built in the Boranups by Speleological Groups on a lease arrangement with the Forests Department, so that concentrated detailed excursions can be carried out. Major caves and sink holes have been located and are shown on ^{some} any of the appendices attached. ?

At one time (1901 to 1914) there were more than 14 caves developed for tourism, and several others partly developed but never opened. By the 1950's only five caves were open to the public; of which three of these are still open today.



BRIDES CAVE - NO LONGER OPEN TO PUBLIC GUIDED TOURS.

Caves developed and open to the public with guided tours in the Boranups include Lake and Mammoth situated on Caves Road just north of S.F. 45's boundary in Reserves 4171 and 8249 respectively.

There is an understanding between the Forests Department and the W.A. Museum (Speleological groups) to liaise with each other referring to any new developments. Arrangements were made during thinning and regeneration operations in the 1960's early 1970's to keep clear of any known cave ^{opening} or sink hole. 100 metres was a designated distance, however it was left to the discretion of the Officer in Charge to follow contours or geographical formations as a guide to how far or close he could bring machinery and fall trees etc. This especially applies to any works to be carried out within the nominated reserves.

PART 2.8 - FAUNA

PART 2.8.1 ANIMALS

A survey was carried out by Manjimup Research Branch in 1973. From this survey it can be determined that the best habitat for animals was in the Jarrah-Marri type forest and the coastal heath. The Karri forest itself appears to be a relatively poor fauna habitat - however with increased burning under a rotational system it is suggested that fauna will benefit greatly in the future.

(See Jan.)

PART 2.8.2. INSECTS

Regrowth Karri seems to suffer the occasional but severe attack from 2 borers.

- a. Cerambycid larvae
- b. Cossid borers

These borers seem to attack any class of Karri, whether fire damaged or not, and there seems no set pattern or relationship with site quality, tree quality or any other such factor.

PART 2.9 - SILVICULTURE

Structure of the
parag. is poor.

After the disastrous "Karridale Fire" of 1961 the Forests Department drew up a detailed Working Plan for State Forest 45. The period of the plan was for 5 years (1969 - 1974). The plan divided the forest into three management areas.

1. Karri which could be improved by thinning. These areas had enough trees of good form and crowns to form a crop.
2. Karri which was too poor to improve by thinning. These areas were restocked by clear-felling and regeneration methods.
3. Forest types other than Karri plus some areas of Karri where the trees were too badly fire damaged to regenerate and also the coastal scrub areas. These areas were to be converted to pine.

The total area for pine conversion was about 404 ha. with the proposition that approximately 80 ha be converted per annum. This plan did not eventuate.

no longer proposed

Trial plots were re-established at the old Boramup Pine Plantation on Anchor Road, which was destroyed by the fire in 1961, consisting of 2.5 ha of pine (Pinus radiata and Pinus pinaster) and 2 ha of assorted eucalypts including E. globulus, E. gomphocephala and E. muelleriana. Other plots were established at Davies Road, 3.0 ha and Arumvale Road 4.2 ha.

Generally the growth results from these plots reflect why, or was one of the reasons, the original conversion to pine plan was abandoned. The plots on Anchor Road were good in growth compared to the Arumvale, a Marri blackboy site on black loam over limestone, and the rolling coastal scrub/blackboy type at Davies Road.

WAS THE
GROWTH
POOR??

It was obvious that the conifers could grow on some sites, usually the better sites, however it would not grow to a satisfactory standard overall in the designated areas. ✓

The areas originally designated for pine conversion included a large area of coastal scrub west of Davies Road to the coast and bounded by Point Road in the north and Grace Road in the south. There were other areas also within the main Karri belt (See appendix 9).

Today all this section has been designated as National Park and other areas have been regenerated back to hardwoods.

The Silvicultural regime applied to the Karri forest was to these areas not badly fire damaged and to regenerate severely fire damaged forests.

2. suggest
definition

not clear

Areas that were severely fire damaged were regenerated under the clear-felling with seed tree system.

1. Clear fall all merchantable stems, leaving seed trees approximately every 50 metres (approximately 61 ha) 6 per ha?
2. Fall all cull trees - this is usually done by the Forests Department.
3. Bulldoze scrub flat.
4. Burn under warm conditions at right time of the Karri seed cycle. The burn is necessary to remove fuel from the ground, provide an ashbed for seeds, and to enhance seedfall.
5. Remove seed trees once germination is adequate.

Note: Areas that did not take were artificially planted, this especially applies to landings and snig tracks.

It must be stated that all areas were ^{not} ideally regenerated. Some areas were not burnt when they should have been, some were not burnt at all, some have seed trees removed and some areas do not.

Areas where it was thought fire damage was not so severe as to need complete regenerations, were thinned leaving the least fire affected trees and removing those that were badly damaged.

The main objective was to remove deformed, defoliated unhealthy stems so as to leave an attractive forest. There was no specific prescription for this operation, as each area was treated on its merits. As a general guide tree-markers were to thin areas down to 125 stems per hectare and in some cases, where it was uneconomic for milling operations, were left untreated. Milling was carried out by Moniers Pty Ltd. Appendix 9 shows areas that were to be converted to pine, those areas that were clear-felled and completely regenerated from scratch, and also those areas that were thinned.



SEVEN YEAR OLD REGENERATION - DAVIES ROAD

ITS FUTURE

PART 3 - THE BORANUPS - ITS FUTURE

PART 3.1 - MANAGEMENT OBJECTIVES

Boranup has been classified as a Management Priority Area (M.P.A.) under the General Working Plan No. 87 Multiple land use Planning. The major priority uses recognised in the ^{this} current land-use management plan for State forests are -

(1982)

1. Flora, Fauna and Landscape
2. Wood Production
3. Water Production
4. Protection
5. Scientific Study and Education
6. Recreation
7. Public Utility
8. Mining

PART 3.1.1 - FLORA, FAUNA & LANDSCAPE (FFL)

The Boranups has been classified under the primary land-use management of Flora, Fauna and Landscape. These areas have been selected to represent major forest communities, systems or species. Under the broad title of Conservation of Flora, Fauna and Landscape, three types of management are recognised.

1. Preservation
2. Silvicultural
3. Improve or sustain nominated values

The Boranups comes under the Silvicultural heading, in which areas with specific aspects of stand dynamics are maintained and demonstrated. For the continual survival of the Karri forest, especially after the 1961 fire, it was essential that silvicultural thinning operations be carried out. *Future silvicultural thinning will be allowed.*

Although categorised as an M.P.A. for Flora, Fauna and Landscape. as the priority use, Secondary land uses such as recreation, scientific study and education are very compatible.

PART 3.1.2 - SCIENTIFIC STUDY AND EDUCATION

The Boranups is an undoubted value as an area of ecological study. It is very unique in that it is the most western outline of the Karri occurrence and it also grows on soil types quite different to the main occurrence of the species. ✓

It is also a good example of the Karri forest regenerated after clear felling. ✓

The caves in the area are of considerable archeological importance and are under active investigation by the Western Australian Museum and Speleologists.

PART 3.1.3 - RECREATION

Recreation is compatible with most land-use priority areas and in this case, the Boranups has recreation high on its management objectives. *Can't be put to use for recreation*

Recreation facilities will be orientated towards "passive" recreation which would include peace and solitude, sight-seeing, picnicking, camping, nature studies and simply driving for pleasure. *? the Department of ...*

Actual facilities to incorporate these types of recreation are barbeques, tables and scenic drives. In the short term there seems no need to provide much more than is already supplied. Recreation would tend to lean towards "passive" descriptions because of the condition of the forest. *yet has no policy on camping or S.F. No reason why it can't be planned for!*

In the long term, when the area will be a dominant mature Karri forest there could be a change from passive to active recreation of a non-motorised type. There is no scope for motorised activities such as car rallies and trail bike riding as they are incompatible with the areas priority land-use, that of conservation of fauna, flora and landscape. ✓

Active recreation in the Boranups would include cave exploring, orienteering, bushwalking and horse riding. Walk trails are and will be constructed as needed. A self-guided tour, similar to the Sunklands Scenic Tour is to be finalised in the imminent future. *Recreation development will take place under guidelines laid down by the Extension Branch.*

PART 3.1.4 - PROTECTION

Protection in this case refers to the protection of the Boranups on the whole, so that the forest retains its specific priority use. There must be protection from disease, fire and incompatible operations such as milling and mining, that would change the effective forest cover. The forests' identity must be perpetuated and its beneficial influence maintained for multiple land uses including honey production.

PART 3.2 - ROADING AND ACCESS

There is adequate roading within the Boranups at present, and no new roads should be constructed in the short term at least. Maintenance however, is lacking, and with an increase in popularity of the area the Department is obliged to keep roads to a safe and satisfactory standard. Boranup Drive, the major tourist road in the area needs first priority. Unfortunately there is a genuine lack of good gravel in the area and road surfacing is generally done with marl.

Access to the popular beaches and fishing places along the Boranup coast is provided. Most of these roads or tracks, most of which are 4-x-4 wheel drive, have never been up-graded since initial constructions.

In the imminent future I can see the National Parks Board being obliged to construct a first class road to the beach. When and if this occurs, there will have to be close liaison with the Forests Department and National Parks as there is every chance that access will have to be provided through State Forest.

The Shire of Augusta Margaret River is in the process of bitumenising Caves Road and is on a schedule of 5 kilometres a year. It is perceivable that once bitumenising is completed, the popularity of the Boranups will increase enormously.

PART 3.3 - LOOKING AHEAD

^{or} ^{is a MRA set aside for Conservation of flora, fauna, landscape, and}
The Boranups M.R.A. and Forest Park will always remain as such. Land-use priorities however, will have to change with the times.

Forests are living entities, they undergo the process of birth, adolescence, maturity, senescence and death. The forest as are known today, that of regenerations and regrowth stands, will age, and finally reach the end of its lifespan. It would be unrealistic and inappropriate to expect the forest to regenerate after it reaches this stage. I can imagine that at this stage land-use management will have to be changed. Regeneration processes will have to be instigated by milling (probably by clear-felling) and burning. The primary land-use priority would now be wood production with Conservation of Flora, Fauna and Landscape and Recreation a secondary management.

Not necessarily Timber removal is compatible with conservation if application of silvicultural measures.
Note definition of "Conservation" in GNP 1967.

S U M M A R Y

One can only re-iterate what has been printed to hammer the point home about the Boranups. They are a special significance to me and I know are a pride and joy to Foresters at Margaret River.

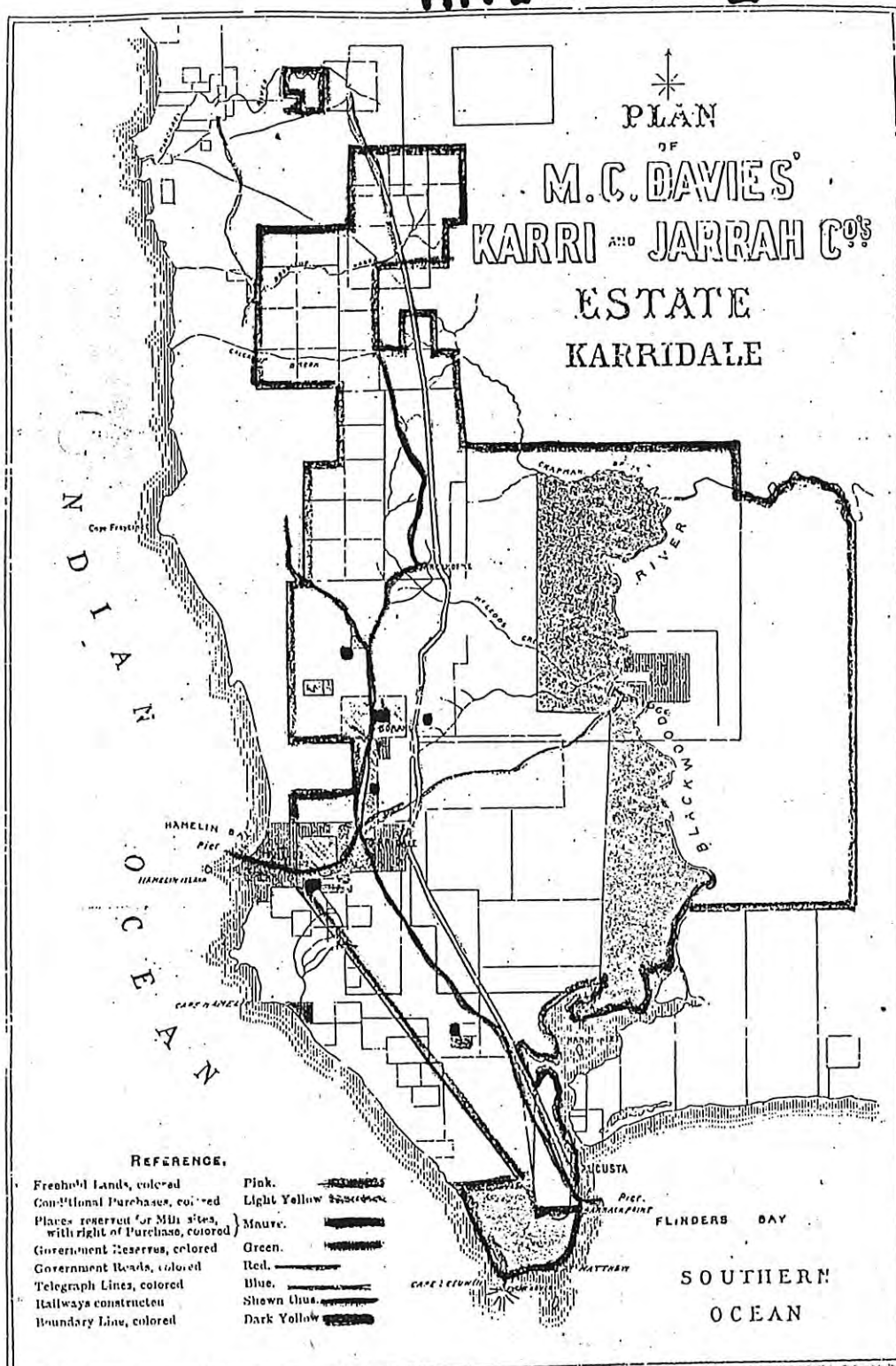
The one aspect that unsettled me during my research was probably the realisation that so much "living history" was destroyed in 1961 by the Karridale fire, only 21 years ago. Today the Davies Empire or era is forgotten, or not even known about by many.

The old mill site, just north of Karridale on the Caves Road has been set aside for preservation of artifacts from the Davies empire. A plaque has been inserted on the old burner and an archway has been erected at the entrance. This park is now run down and uncared for. A determined bid by the Forests Department and the local Shire Council could turn this site into a popular open air museum - maybe it is not too late?

Tourism is an important industry to the Shire of Augusta Margaret River and the much publicised "Leeuwin Way" incorporates the Boranups as an important segment. It is now up to us to keep this forest as it is today, and to reconstruct some forgotten history for future generations. ✓

APPENDICES

APPENDIX 1 26



Cable Address:-

- "DETHRONED, LONDON."
- "DAVIES, ADELALDE."
- "DAVIES, KARIBALE."
- "FARRI, JOHANNESBURG."

Codes used:- A.B.G., M., SCOTT, WILKINS.

*South & West Australian
London & South Africa*

HEAD OFFICE:-
3, GRACECHURCH ST. LONDON.
SOUTH AUSTRALIA:- ADELALDE,
UNIVERSAL BUILDINGS, GREENHILL ST
WEST AUSTRALIA:- PERTH AND
KARIBALE.
SOUTH AFRICA:- P.O. BOX 2940,
JOHANNESBURG, S.A.

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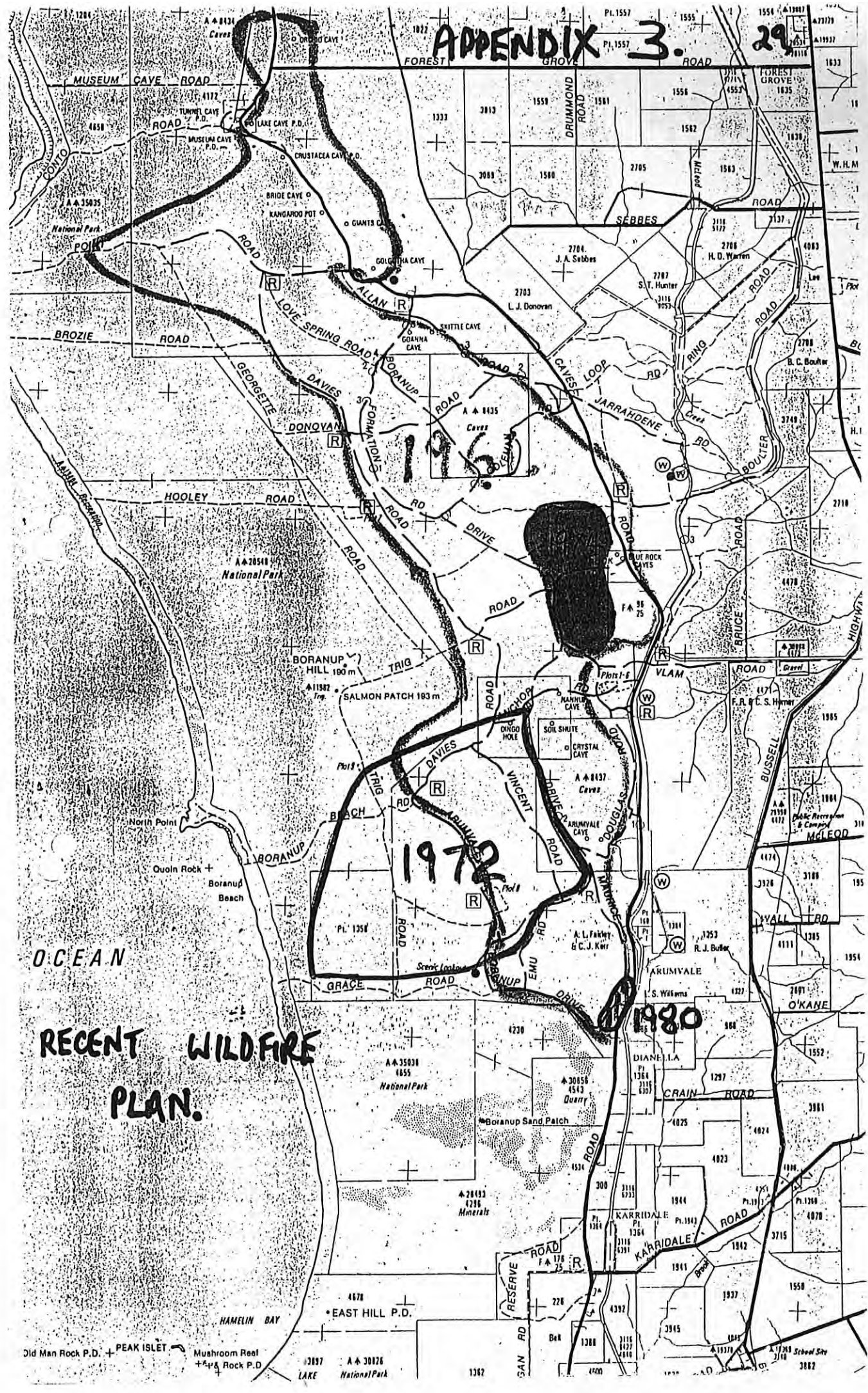
APPENDIX 2. 28

SHIPPING DISASTERS

.... Hamelin Bay although necessary and well placed, proved hazardous under certain conditions. The first boat lost was the barque 'Agincourt' of 433 tonnes in April 1882. In July the following year the barque 'Chandiere' sank and was followed in September 1889 by the French barque 'Aristide'. But nothing equals the year 1900 in which no less than 5 boats sank. On the 20th June the 'Aleaborrie' sank with a full cargo of timber. On the 22nd July, there were 4 boats at the jetty, they were 'Katinka', 'Lovespring', 'Northwester' and 'Elsie'. During the afternoon the north west breeze began to strengthen and it rained very heavily. The Captain of the 'Katinka' was at Karridale and the First mate decided to take the boat out to one of the moorings, as it was considered dangerous to have a boat moored to the jetty during a storm. The Captain arrived back to the jetty at 3.30 and signalled that it was too rough for him to make the boat. The First mate had then to decide whether to go to sea and ride the storm out or stay at the mooring. He decided to stay and during tea, about 7.30pm, the main cable broke, and soon after the little cable broke in half and the 'Katinka' was adrift. Not long after the boat broke in half and the stern sunk immediately. The crew on the other half either climbed the rigging or swam ashore during the terrible storm. Those on the rigging were picked up next morning. Five were drowned, including the cabin boy.

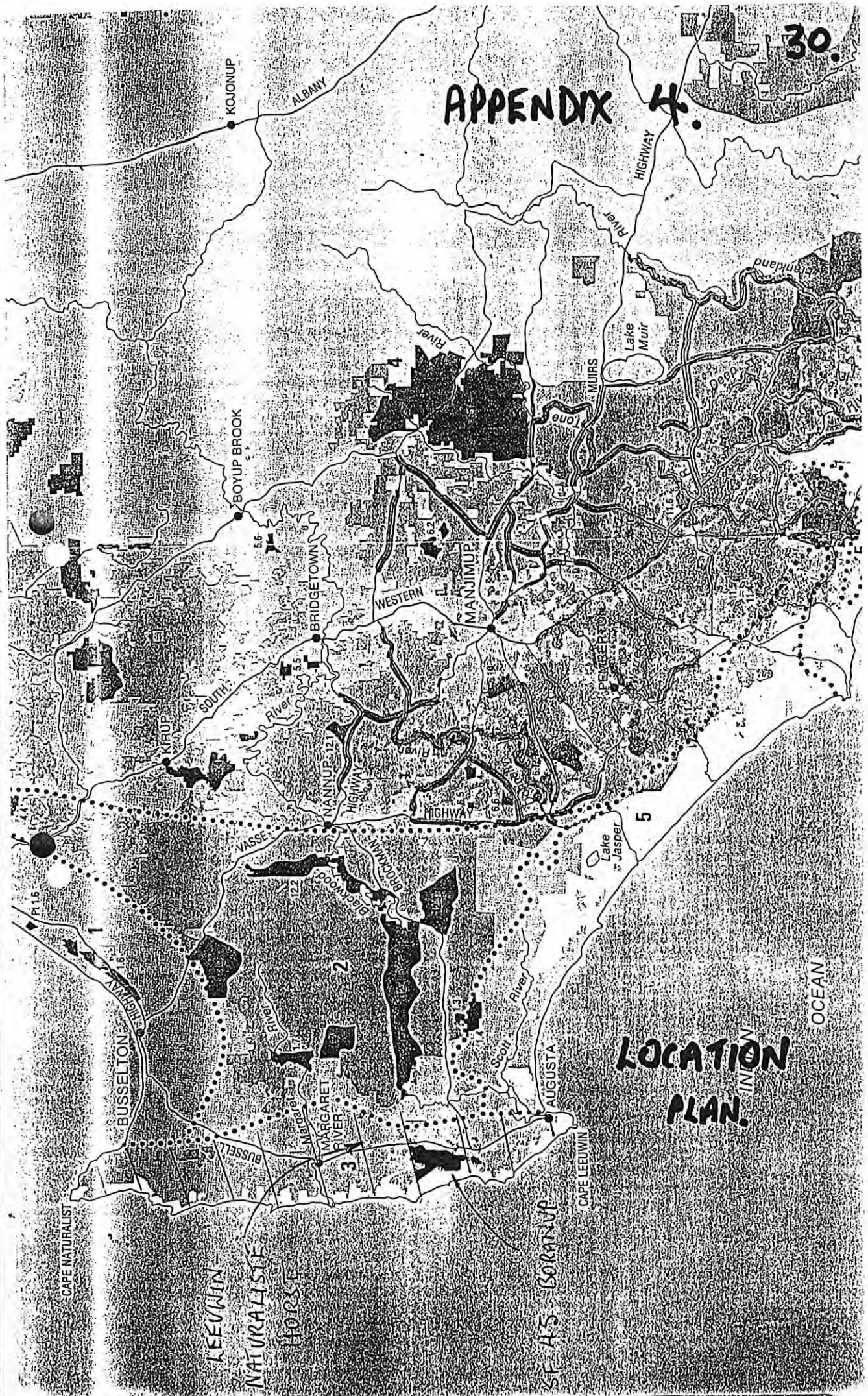
The 'Northwester' came aground on the south side of the jetty and next morning was refloated, but the 'Lovespring', tied to the jetty, swung out and sank when it broke its front hawser. The 'Elsie' also finished at the bottom of the sea.

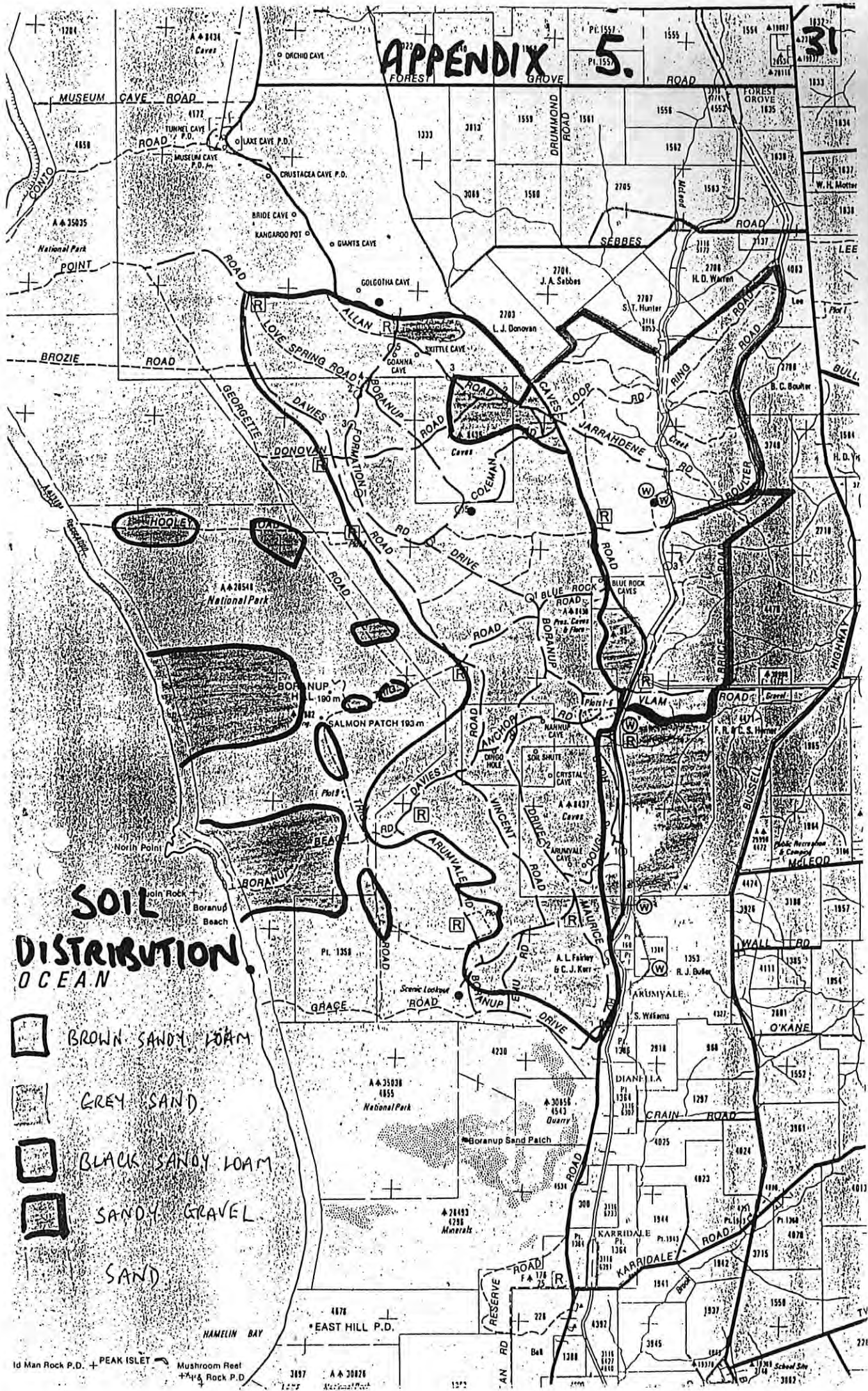
The last of the wrecks was the tug 'S.S. Waterlily' in 1907....

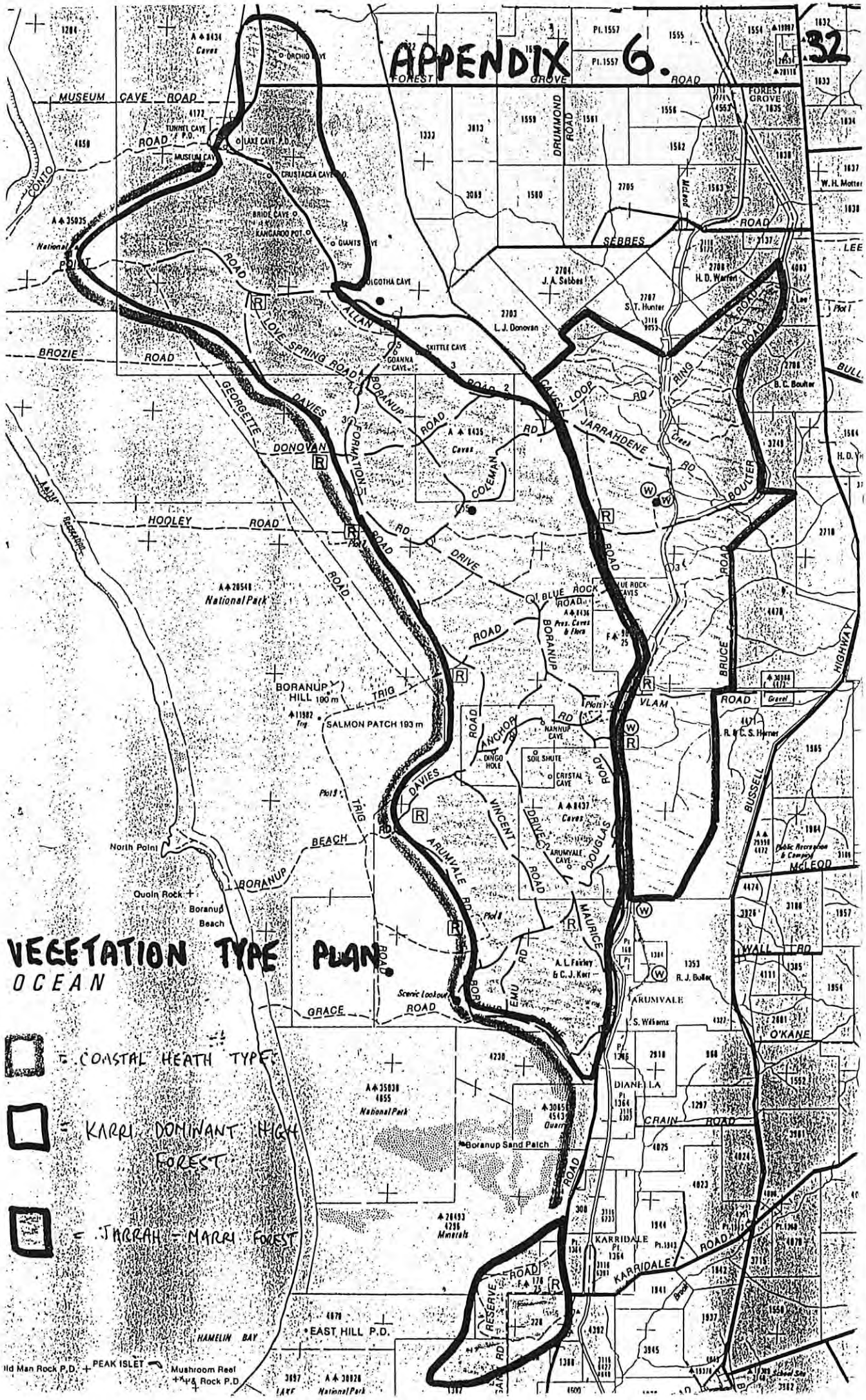


RECENT WILDFIRE
PLAN.

APPENDIX 4







VEGETATION TYPE PLAN

-  = COASTAL HEATH TYPE
-  = KARRI DOMINANT HIGH FOREST
-  = JARRAH - MARRI FOREST

Old Man Rock P.D. + PEAK ISLET
Mushroom Reef
+ + + + + Rock P.D.

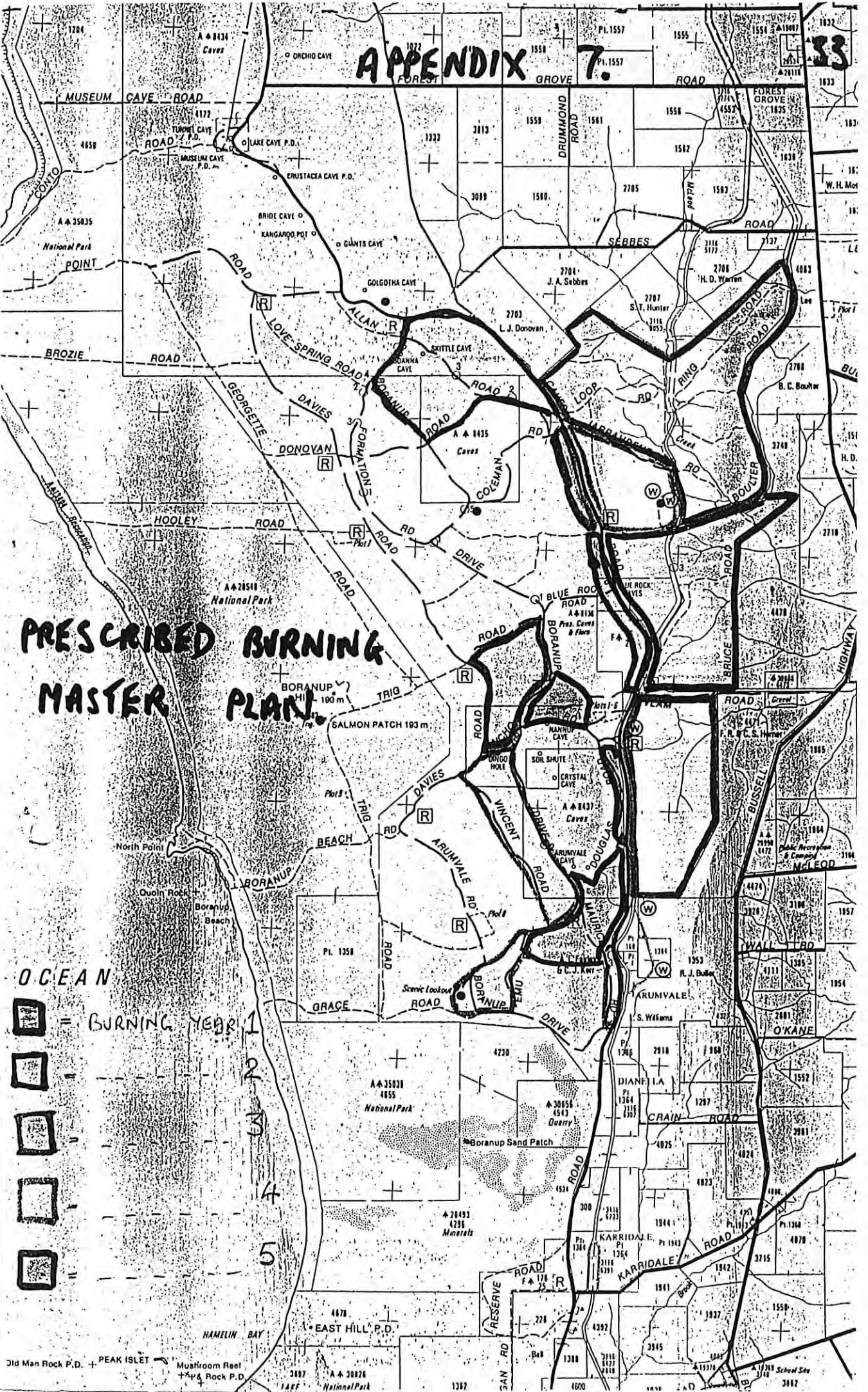
APPENDIX 7.

33

PREScribed BURNING MASTER PLAN.

OCEAN

-  = BURNING YEAR 1
-  = 2
-  = 3
-  = 4
-  = 5



APPENDIX 8 31



'GS

GT

GU

GV

GW

GX

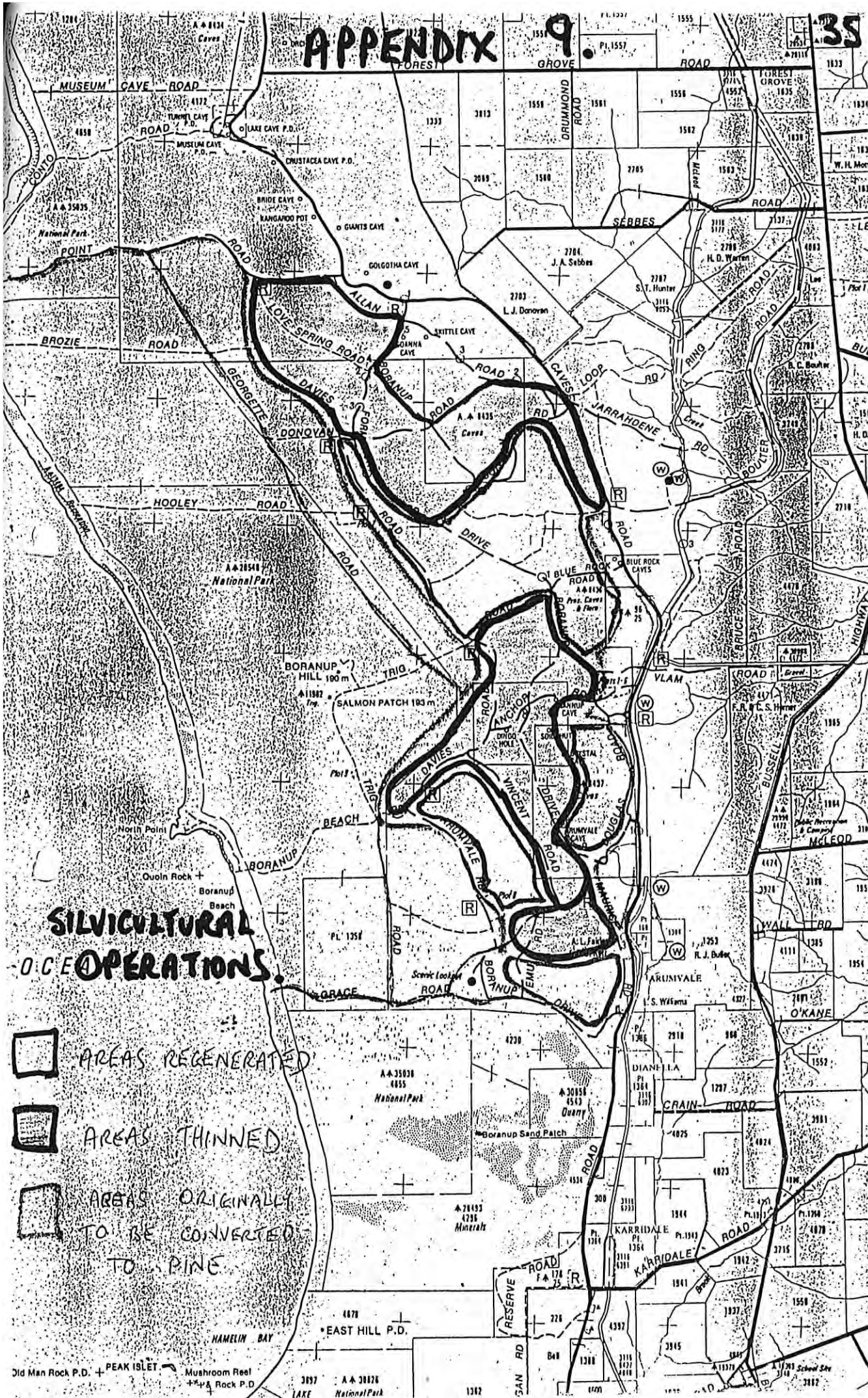
GY



DIE BACK

- | | |
|---|---|
|  | NO KNOWN INFECTION |
|  | DIEBACK OR SUSPECT |
|  | CLEAR CUT FOR DIEBACK |
|  | D/B PROBABLY PRESENT
BUT NO OBVIOUS SYMPTOMS |
|  | NOT PROTECTABLE |
|  | DOUBTFUL PROTECTABLE |
|  | PROTECTABLE |
|  | RESISTANT INCLUDING SPECIES |
|  | RESISTANT (PLOTS & MINING
REHABILITATION) |
|  | WATER RESERVOIR |

PROPOSED QUARANTINE AREA
1976-80 W.P.
SECTION.



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12. Personal knowledge from Foresters stationed at Margaret River.