

LATROBE VALLEY

SPECIAL INVESTIGATION



LCC LAND CONSERVATION COUNCIL



LAND CONSERVATION COUNCIL

Government of Victoria

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REPORT

Latrobe Valley

Special Investigation

This Report is published to allow all who are interested in the use of public land the opportunity to comment by making written submissions to the Land Conservation Council.

All such submissions must reach the Secretary no later than 30 March 1987.

These submissions will be considered by the Council before Proposed Recommendations are made on the use of public land in the study area.

SANDRA M. WHITTY
Secretary
Land Conservation Council

REPORT ON THE
LATROBE VALLEY
— SPECIAL INVESTIGATION —

JANUARY 1987



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CHAPTER 1 : INTRODUCTION

The Land Conservation Council, Victoria - established by the *Land Conservation Act 1970* - carries out investigations and makes recommendations to the Minister for Planning and Environment on the balanced use of public land throughout the State. Relevant extracts from the Act, setting out the roles and functions of the Council, are provided in an Appendix to this report.

In August 1986, the Council was directed to investigate certain public land in the Latrobe Valley, according to the following Order in Council.

'Whereas it is provided in Section 8 of the *Land Conservation Act 1970*, that where the Governor in Council is of the opinion that an investigation and recommendation of the Land Conservation Council in relation to any particular district or area of Victoria is necessary or expedient, the said Council may be required to make such investigation and recommendation within such time as is fixed by the Governor in Council.

And whereas the State Electricity Commission of Victoria (SECV) has identified land, some of which is surplus to its requirements and some, although it is to be retained, is not immediately required by the SECV for its purposes.

And whereas certain other public land in the Parish of Loy Yang left uncommitted in the final recommendations for the South Gippsland area, District 2, because of possible future requirements for coal production is not immediately required for that purpose.

Now therefore, His Excellency the Governor of the State of Victoria, by and with the advice of the Executive Council thereof, hereby requires the Land Conservation Council to carry out an investigation of SECV surplus land and certain uncommitted land within the area delineated on the plan hereunder and to make recommendations by the 30th day of October 1987 on the best use of this land including its disposal where appropriate and any conditions that must be satisfied where land, of strategic importance for the protection of the coalfields from fire, or for other reasons, is to be used as recommended.'

Aims and method

The impetus for this study - as foreshadowed in the May 1986 report 'Latrobe Region: Framework for the Future' - comes from a review by the State Electricity Commission of Victoria (SECV) of its land-holdings in the Latrobe Valley.

Land examined in this special study principally falls within the South Gippsland area, District 2, which was first inves-

tigated by the Land Conservation Council in 1978. Final recommendations on the use of the public land were published in November 1982. Some of the land north of the Latrobe River falls within the Melbourne area, for which final recommendations were published in January 1977. With a few minor exceptions these recommendations have been accepted by the government and have been or are being implemented. They are depicted on Map 1 at the back of the present report, and described in Appendix II.

This report briefly describes the physical and biological characteristics of the land under investigation, examines alternative forms of land use, and assesses the hazards and conflicts associated with such uses. The land to be investigated is identified on Map 2, and Map 3 shows present land use. To give a proper perspective, the report considers the general regional characteristics of both public and freehold land, as well as the specific nature of the land to be investigated.

It draws heavily on information contained in the original 'Report on the South Gippsland area, District 2', published in 1980. Where necessary, information has been updated, and additional material that was not then available has been incorporated. For a more comprehensive description of the study area, however, readers should refer to the original report, copies of which are held in many libraries and by many government departments. Copies are also available for inspection at the offices of the Land Conservation Council in Melbourne, Latrobe Regional Commission in Traralgon, and SECV Development Inquiry Centre in Morwell.

The present report is the first stage in the decision-making process. It does not contain recommendations - rather, it presents factual information on which land use decisions can be based. Information has been supplied by government departments, public authorities, and interested individuals, and has also been obtained from published reports and other sources.

The study area

The Latrobe Valley special investigation area, situated some 150 km east of Melbourne, comprises parts of the Shires of Narracan, Morwell, Traralgon, and Rosedale and covers an area of some 75 000 ha, including about 23 000 ha of public land. Land within the Cities of Moe and Traralgon is excluded from the study. The some 6000 ha to be investigated occurs in a number of parcels, around Anderson Creek, in the vicinity of Morwell-Driffield, and to the east and south of Loy Yang.

The Latrobe Valley produces 85% of the State's electrical power, and also has a substantial manufacturing and industrial base. No one city or town clearly dominates in terms of population and service provision, with some 60 000 people in total living in the three largest urban areas of Moe, Morwell, and Traralgon. Other than the 5000 people living in Churchill, all the remaining towns have populations of 1500 or less.

The Latrobe Valley has expanded its population more rapidly since 1945, in proportional terms, than any other non-metropolitan region in Victoria. In great part this has been due to the development of the substantial brown coal resources there. A key feature of these resources is that their development requires open-cut mining, with the potential for such operations to extend over very large areas.

Timber production and agriculture are also important land uses, while the area has a number of valuable nature conservation and recreation areas within, or near, its boundaries.

Public land and the Aboriginal people

The Aboriginal people occupied and used central Gippsland long before white settlement. Their descendants have strong emotional and cultural ties to this land and still use it for a variety of purposes. Aboriginal groups believe that particular significance attaches to certain places, including sacred sites and ceremonial grounds. Other areas provide valuable evidence of occupation and Aboriginal culture and are also regarded as highly important.

Investigations to identify sites have been conducted in the study area; however, knowledge is by no means complete and further archaeological studies may reveal previously unrecorded areas. No sites of particular significance have been recorded to date for the land under investigation.

Land use and tenure

The greater part of the land to be investigated is owned by the SECV. Section 23(1) of the *State Electricity Commission Act 1958* empowers the SECV to acquire land that it requires for its purposes within a 32-km radius of Morwell. Much of the land in the review has been acquired under this power. Included is land purchased in response to requests by individual land-owners who considered themselves adversely affected by planning controls imposed to prevent intensive development on land over recoverable coal. In most instances, this land was leased out after acquisition and existing uses maintained.

The government has also asked the Council to review some 1000 ha of public land near Traralgon South, recommended to be uncommitted land when the Land Conservation Council prepared its final recommendations for the South Gippsland area, District 2, in 1982. This land was similarly affected by uncertainty as to its requirement for coal-related development, but that uncertainty no longer applies and the land will be reviewed as part of this investigation.

Planning controls

Prior to the release of the government's 1984 'Energy Policy Statement' on brown coal, planning for coal-related development in the Latrobe Valley had been subject to a number of processes. The cumulative effect of these processes had been to create uncertainty in the community as to the areas

required for coal-related development, the sequencing, and the rate of development. As a result, the SECV had to acquire and hold land in excess of its immediate needs.

Recognizing an increasing need for a clear statement of coalfield development priorities, the government indicated its intention to revise the principal planning instrument - *Statement of Planning Policy No. 9 (S.P.P. No. 9)*, 'Central Gippsland Coal Deposits in the Context of Overall Resources'. This document, designed to facilitate coordinated planning and development of the coal resource, was first adopted in 1975.

Proposals for changes to the policy were incorporated in a report 'Latrobe Region: Framework for the Future', released for public comment in May 1986. Processes associated with the development of this document also permitted the SECV to identify some 2100 ha of land, surplus to its requirements, that could be disposed of and a further 3000 ha or so (not immediately required for coal-related development), that could be considered for other uses in the interim.

The interval before individual parcels of the latter category of land would be required cannot, however, be precisely identified at the present time. Currently there is no government approval to proceed with construction of brown-coal-fired electricity-generation plant in the Latrobe Valley beyond Loy Yang B Power Station, Units 1 and 2. However, to cater for growth in the system and retirement of existing plant, the SECV is investigating a number of options for electricity supply beyond the mid 1990s. This is subject to a Parliamentary Natural Resources and Environment Committee Inquiry, which commenced in late 1986 and is due to present its initial report by October 1987.

Among the options being considered are completion of the 4000-MW Loy Yang Project, further development of generating capacity in the Yallourn and Morwell areas, and others such as the use of black coal from Oakland, N.S.W., for power generation at a new facility situated in the Murray Valley.

As the sequence of development has yet to be established, and given the wide range of possible supply options, and load forecasts, it is not possible to specify in detail the interval before specific parcels of SECV land in the Latrobe Valley are required. Consequently, where particular parcels of land to be retained are discussed in this report, the period during which the land may be available for other uses will only be discussed in broad terms.

However, it is expected that the probable development sequence and timing will have been identified more precisely as a result of the Parliamentary Committee's investigation by the time that the Council prepares its final recommendations in October 1987.

Regional and local planning

The land to be studied in this investigation is subject to the provisions of various planning policies and controls.

As public land it is subject to processes under the *Land Conservation Act 1970*.

In addition, much of the SECV land is former freehold, and has been maintained under a variety of uses that are subject to planning ordinances. In this context, the Ministry for Planning and Environment and the regional and local government authorities are responsible for preparing land use strategies and controls for these areas and ensuring they are observed. The regional and local components of these planning processes are described below.

The government established the Latrobe Regional Commission in 1984, with the key task to prepare a broad strategy plan for the region. For the intervening period, Interim Land Use Guidelines for the region - more specific about land use issues than *Statement of Planning Policy No. 9* - were adopted by the Minister for Planning and Environment and the Latrobe Regional Commission in 1984.

The process of preparing a Regional Strategy Plan is under way, and it is scheduled to be at adoption stage by the end of 1987. While the Plan has very broad aims, specific powers are provided under the *Latrobe Regional Commission Act 1983* to ensure its implementation. Local government planning schemes must be prepared or amended to comply with it once it is approved. Major works or undertakings carried out by or on behalf of any government department, public authority, or municipal council must conform with the Regional Strategy Plan.

At the same time, in preparing the Plan, the Latrobe Regional Commission is required to seek to give effect to major government policies. These include *S.P.P. No. 9*, the government 'Energy Policy Statement', and the 'Timber Industry Strategy'.

Land in the Latrobe Valley is also subject to one or other of the following existing local planning controls, administered by local government:

- * Shire of Narracan Interim Development Order
- * Shire of Morwell Planning Scheme
- * Shire of Rosedale Planning Scheme
- * Shire of Traralgon Interim Development Order

A planning scheme for the Shire of Narracan is currently under consideration by the Minister for Planning and Environment. Following acceptance, it will replace the Shire's Interim Development Order. In addition, the Shire of Morwell has advanced proposals for further expansion of the Morwell urban area.

Local planning control provisions

It is possible here to broadly describe the local planning controls that apply to the investigation land as a number of the provisions are similar.

Most of the SECV land under investigation carries a rural zoning, described variously as:

- * Rural Zone: Shire of Narracan Interim Development Order
- * Rural A Zone: Shire of Morwell Planning Scheme
- * Rural General Farming Zone/Forest Zone: Shire of Traralgon

The important common elements of this zoning are the limitation of uses that are, or may be, permitted to those generally considered appropriate in rural areas, and subdivision minima of 25 ha or more.

A few small portions of the subject SECV land have other types of zoning. These include: Rural Residential; Industrial; and Special Use.

In addition, conditions relating to the protection of brown coal may be superimposed over the basic zoning provisions in certain areas, limiting permitted uses and developments to those that are usually rural in nature. In these instances, virtually all developments require planning permits, which cannot be granted without the application for the planning permit being referred to appropriate government agencies with responsibilities in the energy planning and developments field.

References

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Department of Minerals and Energy (1984). 'Victorian Brown Coal: Government Energy Policy Statement No.2.' (Government Printer: Melbourne.)

Latrobe Regional Commission (1986). Preliminary strategic directions document. *Latrobe Regional Commission Discussion Paper No.3.*

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CHAPTER 2 : NATURAL FEATURES

Climate

Rainfall - the main form of precipitation in the area - ranges from 1000 mm per annum north of Moe to about 750 mm near Traralgon, in the east of the study area. It is fairly evenly distributed throughout the year. The growing season can be affected by summer drought.

Low temperatures will affect growth from June to August. Winds come principally from the west, with easterlies and north-westerlies occurring less frequently in winter. Wind speed and direction are affected by topography and therefore considerable local variation occurs.

Physiography and geology

The flat to gently undulating plains of the Latrobe Depression are flanked by a dissected plateau to the north and the rounded foothills of the Strzelecki Ranges to the south. The area is covered almost entirely by thin Tertiary to Quaternary alluvial sediments, beneath which lie the Tertiary Latrobe Valley Group of sediments that contain the brown coal measures.

Basalts of Tertiary age outcrop near Vinnar, while Palaeozoic and Mesozoic rocks outcrop on the northern boundary of the area.

The main streams in the study area are the Latrobe River and its tributaries - Tyers River, Morwell River, Traralgon Creek, Flynn Creek, and Anderson Creek. The area also contains a substantial groundwater resource. This groundwater, principally in the Latrobe Valley Group of sediments, is also a potentially important source of geothermal energy. Across substantial areas beneath Morwell, and extending towards Traralgon, the groundwater temperatures exceed 50°C at depths less than 600 m.

Soils

The soils of the study area have been surveyed broadly and certain tracts have been investigated in detail. Neutral, mottled yellow duplex soils found on the plains and downs of the Latrobe Valley are the principal soils found in the area. Their major agricultural use is for the production of pasture - cropping is rare.

Vegetation

Much of the land under investigation has been substantially altered in character due to clearing and development for agricultural or other uses. However, some does carry native vegetation.

A number of the districts that have previously been investigated by the Council impinge on the Latrobe Valley. Native vegetation on public land has been discussed in some detail in the descriptive reports published for these studies. Accordingly, this chapter only describes the native vegetation, as interpreted on Map 3, for the land in the current investigation.

Map 3 classifies this vegetation according to the height, crown density, and major species of the tallest stratum. The classification is based on that developed by Specht, but has been modified to better suit the vegetation of the study area and the data already available.

Within the structural framework, the vegetation has been grouped according to commonly occurring combinations of main species of the tallest stratum, or vegetation units. A more detailed description of the units is contained in the descriptive report for the South Gippsland area, District 2.

The largest area of native vegetation occurs near Traralgon South and comprises dry sclerophyll open forests and woodlands of yertchuk (*Eucalyptus consideniana*), shining peppermint (*E. nitida*), and narrow-leaf peppermint (*E. radiata*), with open forests of messmate (*E. obliqua*) in moist gullies.

Considerable variation occurs in the dominant understorey components of each of the vegetation units discussed below, with the principal cause being frequency of burning. Areas apparently less frequently burnt are dominated by various shrub species; those where burning has occurred with greater frequency, regardless of the overstorey, generally have an understorey dominated by austral bracken (*Pteridium esculentum*) and a reduced species diversity. As burning has occurred in a mosaic of varying intensity and frequency, variations in the understorey due to other site conditions tend to be obscured.

Open forest III

This vegetation type is restricted, within the land under study, to an area adjoining Lake Narracan, and three small locations near Traralgon South. The understorey varies from dense tall shrubs and ferns along drainage lines to a more open heath cover on drier more elevated areas.

Open forest II, woodland

Open forests dominated by yertchuk are common on the extensive and infertile outwash deposits of Haunted Hills gravels that flank the Strzeleckis, and constitute the major vegetation type on the public land under investigation.

Yertchuk may occur in pure stands, or as a co-dominant with other eucalypts and saw banksia (*Banksia serrata*). The understorey for the areas under investigation is dominated by either a rich heath flora or austral bracken.

Species commonly associated with this rich heath flora include smooth parrot-pea (*Dillwynia glaberrima*), broom spurge

(*Amperea xiphoclada*), common heath (*Epacris impressa*), showy bossiaea (*Bossiaea cinerea*), silver banksia (*Banksia marginata*), common raspwort (*Gonocarpus tetragynus*), spike wattle (*Acacia oxycedrus*), narrow-leaf wattle (*A. mucronata*), common beard-heath (*Leucopogon virgatus*), and burgan (*Kunzea phyllicoides*).

The golden grevillea (*Grevillea chrysophea*) has been recorded in the northern section of the uncommitted land within this vegetation type.

The plains and downs around Churchill, Morwell, and Traralgon, except for the wettest sites, originally carried low open forest and woodland of narrow-leaf peppermint, rough-barked manna gum, and but-but. Some of the land under investigation carries remnants of these species. In the areas receiving about 750 mm annual rainfall, east of Traralgon, this vegetation type was replaced by red gum woodlands with a grassy understorey similar in appearance to those in far western Victoria.

Open forest I and woodland

This vegetation type is restricted within the study area to near Traralgon South, and is found on both uncommitted land and some of the SECV land. Stunted shining peppermint and yertchuk are co-dominant, with saw banksia scattered to locally common. The dense heath understorey includes various species of tea-tree, banksia, heath, and wattle, holly lomatia (*Lomatia ilicifolia*), and small grass-tree (*Xanthorrhoea minor*).

Fauna

As much of the land under investigation is farmland, it has relatively little value for wildlife compared with areas carrying native vegetation. There are, however, some areas that carry remnant native vegetation, and these have a particularly important role in maintaining wildlife diversity in the Latrobe Valley.

The broad vegetation types described above also provide convenient groupings to use in the description of the distribution of fauna. They have been used in the following discussion of habitat. A fauna list is provided as Appendix III.

The value of an isolated patch of bushland varies with its size, shape, and distance from similar forested areas, and with its degree of disturbance. In general, those isolates of relatively large size, with least edge, and lying close to other bushland are the most viable. However, even patches as small as 10 ha can support viable communities of bush birds, amphibians, reptiles, and some mammals. This is especially so if they are protected from grazing and other forms of degradation.

Three broad wildlife habitats occur on the land under investigation: messmate open forest; drier heathy open forest and woodland dominated by yertchuk, but including narrow-leaf peppermint and shining peppermint, and farmland. Mess-

mate open forest is restricted in occurrence on the land under study. The open forest, often with a heathy understorey, is more extensive, being present in the south-east of the study area and in the far north-west.

Messmate open forest

Remnants of this forest type in the study area support a diverse mammal fauna, especially where the remnant is buffered by other native vegetation. Species recorded near Traralgon South include short-beaked echidna, brown antechinus, brush-tail possum, ringtail possum, sugar glider, koala, wombat, eastern grey kangaroo, black wallaby, grey-headed flying-fox, bush rat, and swamp rat. Up to eight species of insectivorous bats are also likely to be present, but no survey of the bat fauna has been conducted.

Similarly, no thorough survey of reptiles or amphibians in the investigation area has been conducted, but the following species at least are likely to be present in messmate open forest: McCoy's skink, metallic skink, Spencer's skink, southern water skink, copperhead, tiger snake, eastern froglet, *Geocrinia victoriana*, eastern banjo frog, and brown tree frog.

Birds here are typical of those inhabiting tall forest throughout Gippsland, except that species requiring large areas of habitat (such as the powerful owl) may no longer be present. Typical species include yellow-tailed black cockatoo, gang-gang cockatoo, brush cuckoo, rose robin, eastern yellow robin, satin flycatcher, rufous fantail, eastern whipbird, red-browed treecreeper, and crescent honeyeater.

Open forest and woodland

This is the most widespread natural habitat in the study area and reasonably extensive stands dominated by yertchuk occur near Traralgon South. The mammal community includes most of those species definitely recorded in the messmate open forest, but also includes white-footed dunnart and southern brown bandicoot.

Open forest with a heathy understorey supports a diverse community of birds and is characterized by species that depend upon a dense, low shrub layer. These include painted button-quail, brush bronzewing, spotted quail-thrush, superb fairy-wren, white-browed scrubwren, brown thornbill, new holland honeyeater, eastern spinebill, and red-browed fire-tail. Numerous other species utilize the eucalypt canopy.

Reptiles and amphibians found in this forest type include: jacky lizard, lace monitor, garden skink, weasel skink, three-lined skink, southern water skink, blotched blue-tongue, copperhead, eastern banjo frog, and southern toadlet.

Farmland

Few native mammals can survive in farmland. Common brush-tail possums, sugar gliders, and some bats can persist where

adequate eucalypt and acacia trees remain to provide food as well as shelter. Around the edges of bushland, herbivorous species such as kangaroos, wallabies, and wombats will graze in farmland, but they rely on the bushland for shelter and part of their diet.

In contrast, many species of birds have readily adapted to farmland and are now widespread and common in southern Victoria. However, since almost all species are dependent on patches of tree or shrub cover, their continuing ability to thrive in farmland depends upon successful regeneration or planting of clumps and shelter-belts of indigenous trees and shrubs. Wetlands, including farm dams and temporarily flooded pasture, are another particularly important feature for farmland birds.

Some reptiles and amphibians have also adapted well to farmland. In the study area these include long-necked tortoise, garden skink, southern water skink, blotched blue-tongue, copperhead, tiger snake, red-bellied black snake, eastern froglet, eastern banjo frog, brown-striped frog, spotted grass frog, southern toadlet, brown tree frog, *Litoria raniformis*, and Lesueur's frog.

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CHAPTER 3 : COAL PRODUCTION

Brown coal is the major source of primary energy in Victoria. Present production from the Latrobe Valley coalfield for power generation and briquettes is about 35 million tonnes (Mt) per annum.

The total brown coal resource in the Gippsland Basin has been estimated at 162 000 Mt, geological resource, in the government's 1984 'Energy Policy Statement' on brown coal. However, not all this coal is economically winnable, and in addition there are conflicts with urban development and nature conservation values in some areas.

Planning measures to protect this resource have a history going back over 40 years. In June 1975, the Executive Council adopted *Statement of Planning Policy No. 9: 'Central Gippsland Brown Coal Deposits in the Context of Overall Resources'*. This policy, directed primarily to planning land use and development necessary for the utilization and conservation of brown coal deposits, permitted Nominal Coal Protection Boundaries to be identified. Areas totalling 83 000 ha overlying the economically winnable coal were defined. Interim Development Orders administered by the then Town and Country Planning Board, now within the Ministry for Planning and Environment, were formally introduced on 12 April 1978.

In June 1978, planning guidelines were issued, aimed primarily at minimizing future development over the coal and restricting land use to agriculture and forestry where possible. On 20 December 1978, the Interim Development Orders were amended to create provisional SECV areas embracing coalfields required for electricity generation; other coalfields were designated as non-SECV areas.

Additional land outside provisional coal areas - required for power station development and major ancillary works, including overburden dumps and major stream diversions - was also identified by the SECV. This land was partially protected by Orders in Council.

The SECV investigated a number of sites for future development of open-cut coalfields and associated power stations. Land for future power stations and major ancillary works was provisionally identified in the report 'Latrobe Valley Power Station Siting', issued in May 1980. The SECV has since discarded or relocated some of the sites identified in the report, as a result of ongoing review and public comment.

Development of other coalfields in central Gippsland was considered as part of a 1982 study by the then Victorian Brown Coal Council (VBCC) into the most effective use of Victorian brown coal. This Council was established in 1979, to undertake and promote research into and development of

potential uses of Victoria's brown coal resources for purposes other than generation of electricity and the production of gas fuel as specified in the *Gas and Fuel Corporation Act 1958*. Such purposes include production of liquid fuels and chemical feedstocks and use in metallurgical processes.

The results of the VBCC study were published in 1983 as a report 'Victorian Brown Coal - Future Development'. A number of recommendations were made in this report, including review of estimates of the Victorian brown coal resource and reserves, the identification of several land use conflicts requiring resolution, and maintenance by the government of its policy of discouraging major developments on land overlying coal.

Action by the government on the report, as part of its Economic Strategy for Victoria, was announced in 'Victorian Brown Coal - Government Energy Policy Statement No. 2' released in July 1984. This statement covered major decisions on land use planning issues and the management of brown coal development. In particular, the government affirmed that future brown coal development must occur in circumstances that minimize social and environmental disruption.

In October 1983, an Interdepartmental Committee (IDC) on Brown Coal Resource Boundaries was established. This Committee, with a chairman appointed by the then Department of Minerals and Energy, was directed to consider the areas to be designated as required for 'economically winnable' coal in accordance with *Statement of Planning Policy No. 9*, in the light of information that had become available since the earlier Brown Coal Resource Interdepartmental Committee report in 1977.

The IDC was also directed to define urban and industrial areas where coal winning should be excluded, together with any necessary buffer areas. The IDC recognized it would be unrealistic to protect the total extent of the Gippsland brown coal resource. Consequently, criteria were developed that would permit identification of areas over the more attractive coal deposits. The Committee identified a protected coal resource, meeting the geological criteria it had adopted, of 98 000 Mt. From this total, losses due to various exclusions amounted to some 30 000 Mt, leaving a residual protected coal resource of 68 000 Mt.

Land acquisition and compensation measures were also being reviewed at that time, following submission to the government of a report on the subject prepared by Mr Stuart Morris. This process sought to ensure that, where land was required, owners would be compensated and that land would stay in productive use for as long as possible. Legislation dealing with these matters was passed in December 1986.

The 'Latrobe Region: Framework for the Future' document, released for comment in May 1986, brought together the revised *Statement of Planning Policy No. 9* and report of the Interdepartmental Committee on Brown Coal Resource Boundaries. The imposition of different development controls was

now proposed on land overlying those coalfields expected to be the first developed (Category A), compared with land overlying coalfields whose development is expected to take place later (Categories B and C). Recommendations were made for the protection of land required for development of Category A coalfields.

These processes also permitted the SECV to review its land-holdings in the light of changed requirements and development sequencing. The net effect of these proposals was to enable the SECV to identify land surplus to its requirements that might be disposed of. Some 2100 ha of land fell into this class.

Some 3000 ha of additional land not immediately required for coal-related development was also found. However, some uncertainty still remains as to the timing requirements for this land, as options for electricity supply beyond the mid 1990s are currently being examined by a Parliamentary Natural Resources and Environment Committee Inquiry, that is due to present its initial report by October 1987. In order to facilitate Council's investigation in the intervening period the provisional timings for land requirements affecting specific parcels are provided in Appendix IV.

Map 2, at the back of this report, shows the land that is subject to the Council's investigation. Map 3 depicts current land use, and in addition a key to the parcels of land is provided in Appendix IV.

With regard to revision of *Statement of Planning Policy* No. 9, the government's eventual decision will also provide a major input into the work of the Latrobe Regional Commission. The Commission is currently developing a detailed strategy for the Latrobe Region, dealing with the full range of social, environmental, and infrastructure impacts of new resource developments in the Region. The strategy is due for completion by late 1987.

This special investigation must thus be seen in the context of an ongoing process of consideration of planning issues and brown coal development in the Latrobe Valley. At the same time, the intention of the SECV in identifying surplus land has been to provide clear affirmation of the substantial reduction in immediate land requirements for coal-related development in the Latrobe Valley.

Uncommitted land

The Council recommended that about 1000 ha of public land near Traralgon South be uncommitted land when it prepared final recommendations for the South Gippsland area, District 2, in 1982. Existing uses, which included extraction of gravel, were permitted to continue until such time as the area was required for coal production.

Subsequent planning processes with regard to the coal resource now enable the status of this land to be reviewed. The May 1986 report, 'Latrobe Region: Framework for the Future', identified areas adjacent to the Category A coal-

fields that might be required for development to proceed, as shown on Map 1 of that report.

The uncommitted land near Traralgon South falls outside the areas that could be required for development associated with Category A coalfields over the next 30 years. However, the northern portion forms part of a Category B coalfield and, as such, is included within the protected brown coal resource described in Schedule 1 to *Statement of Planning Policy* No. 9.

Within these other protected coal areas, including Categories B and C coalfields, *S.P.P. No. 9* provides a general protection against any uses of this land that could prejudice the winning or processing of the underlying coal.

The boundary of the Category B coal area, as it affects uncommitted land near Traralgon South, is depicted on Map 2 at the back of this report.

References

Department of Industry, Technology and Resources and Ministry for Planning and Environment (1986). 'Latrobe Region: Framework for the Future.' (D.I.T.R.: Melbourne.)

Department of Minerals and Energy (1984). 'Victorian Brown Coal: Government Energy Policy Statement No. 2.' (Government Printer: Melbourne.)

CHAPTER 4 : CURRENT LAND USE

Grazing is the main use of private land in the study area, and also of the SECV land in this investigation as depicted in Map 3. Pastures are perennial, with the main species being perennial ryegrass, cocksfoot, white clover, and subterranean clover.

The use of agricultural land and the value of production in the Shires covering the study area are shown in the following table. Most land is used for grazing of beef cattle, dry dairy stock, or sheep.

AGRICULTURAL LAND USE 1984/85

SHIRES OF MORWELL, NARRACAN, AND TRARALGON

	Shires covering study area	State	Percent- age of State
Number of establishments	988	45 884	2.2
Total area of establishments ('000 ha)	106.8	14 195	0.8
Average area of establishments (ha)	108	309	-
Gross value of production (\$ million)			
Potatoes	9.5	57.0	6.7
Dairy	17.3	473.4	3.6
Cattle	16.1	484.1	3.3
Wool and sheep	2.7	228.0	1.2
Other	5.6	2 031.0	0.3
Total	51.2	3 273.5	1.6

Note: Shire data relate to a total area greater than the study area.

Source: Department of Agriculture and Rural Affairs, 1986

There are four dairy farms in the Anderson Creek area, and one dairy property east of Anderson Creek near the Tyers Road. These farms, all on SECV land, each milk from 120 to 250 cows and supply milk to Drouin Butter Factory. Their production has a gross value estimated at about \$400 000 per annum. The gross value of production from SECV land currently leased for grazing of beef, sheep, or dry dairy stock is estimated at some \$700 000 annually.

Levels of production achieved on SECV land leased for grazing depend on the management of individual leases, and the amount of fertilizer applied. Lessees are required to adopt a regular maintenance fertilizer program. Currently, the majority of grazing leases are for 2 years, with a 2-year option, while lease terms in excess of this (some with options to 1994) apply for operating farms and larger holdings.

Other existing land uses include occupation for rural residential purposes. A number of parcels of land fall into this category, although not all lots have been built on. In addition, the SECV has made a number of the areas under investigation available for recreation and nature conservation purposes. These uses are also depicted on Map 3 and described in Appendix IV.

The forests and woodland on uncommitted public land near Traralgon South are available for beekeeping. Apiculture may complement agriculture, since bees also serve the useful function of cross-pollination of crops. Some of the SECV land in this locality also carries native vegetation.

Hardwood timber production is not an important use of the land under investigation, and is supplementary to recreation, nature conservation, and apiculture.

As well as the vast open cuts of the Latrobe Valley, a number of quarries and sand and gravel pits occur throughout the study area. Some of the land under investigation, principally the uncommitted public land near Traralgon South, is currently used for stone production. Limited data are available on production from individual sites. The most recent production figures for stone for the Latrobe Valley as a whole are provided in the table below.

STONE PRODUCTION UNDER THE *EXTRACTIVE INDUSTRIES ACT* 1966
(year ending June 1983)

Material	Quantity (tonnes)	Value (1982/83 \$)
Gravel	167 000	250 000
Sand	792 000	4 150 000
Basalt	690 000	4 760 000

Source: Department of Industry, Technology and Resources
1986, from ABS data

While all of the land in the study area forms a catchment for the watercourses that drain the Latrobe Valley, few of the streams within the study area are proclaimed water supply catchments. Tyers River Water Supply Catchment abuts, but does not incorporate, the Anderson Creek catchment. To the south of the study area, the Billy Creek Water Supply Catchment similarly does not contain any subject land.

Only the Tanjil River Water Supply Catchment includes any of the land under investigation. A Land Use Determination has been prepared for this catchment, and its requirements apply to particular areas of SECV land to the north of Lake Narracan, bounded by Brocks Track and Purvis Road. About 200 ha of the land is affected.

At the same time there is a need for all land, including that outside proclaimed catchments, to be managed to protect the values of the land and the water resources. In a similar fashion, non-urban land also makes a significant contribution to the visual landscape amenity of the Latrobe Valley.

CHAPTER 5 : CAPABILITIES

This study is considering the future use of SECV land having a total current value of \$18 million - comprising some \$8 million worth of land for disposal, and land not immediately required for coal-related development that is worth about \$10 million.

It is government policy that the SECV yield a dividend on total assets employed. The SECV land under investigation forms part of these assets, and accordingly is included when the dividend payable to the government is calculated.

The land has the capability to be used for a number of purposes. Its status is depicted in Map 2. (Current land use is described in Appendix IV, and depicted in Map 3.) This chapter describes the capabilities of the land, and provides a regional context against which requirements for various purposes can be interpreted.

Agricultural production

The principal use for the land under investigation is agricultural production. For simplicity, the land can be considered to lie in four main areas:

- * Anderson Creek--Yallourn North
- * North of Morwell
- * South of Yallourn and Morwell
- * South-east of Traralgon

The agricultural capability of the region has been assessed by Swan and Volum, and their agricultural quality classes have been used in the description of each area below. For the purpose of this investigation, the classes may be briefly described as follows.

Class 2 land is highly versatile, capable of the majority of agricultural uses, with a 10- to 11-month growing season.

Class 3 land has limited versatility, but is very good dairying and grazing land, with a 9- to 10-month growing season.

Class 4, 4a land is capable of extensive grazing, but generally unsuitable for cropping, with a 8- to 9-month growing season.

The references listed at the end of this chapter provide further information on land systems and agricultural land capability.

Anderson Creek--Yallourn North

Land under investigation totals about 1600 ha, and consists principally of Class 3 and Class 4 land. At present it is

used mainly for dairy farms and beef cattle. Some 680 ha in Anderson Creek and a further 100 ha to the east, near Tyers Road, support dairying.

North of Morwell

This land lies in close proximity to the Morwell urban area. A great deal of it supports grazing, and is Class 2 and Class 3 land. Some of the area is low-lying and may be subject to local flooding following heavy rain.

South of Yallourn and Morwell

Most of the land under consideration is Class 2 and Class 3 land, currently being used for grazing of beef cattle and dry dairy stock. Some land adjacent to the Hazelwood cooling pond could be developed for intensive horticulture, or other activity using the heated waters from the power station.

Part of the more elevated area around Hernes Oak, in the Haunted Hills, is only Class 4 and 4a land. Currently it is being used for grazing. However, a regular fertilizer program and adequate bracken control are essential to make it productive. At present, parts of this land require bracken control.

Area south-east of Traralgon

This area consists mainly of Class 3 land and a small amount of Class 2. The main agricultural enterprises are sheep and cattle grazing. Two large grazing blocks lie close to the Princes Highway; one block of 300 ha is part of the 800-ha sheep property 'Banool'; other blocks include a 90-ha dairy farm now used for beef production, and some land in the vicinity of Traralgon Creek, used as turn-out paddocks for a dairy farm and beef property.

Not all of the SECV land has a capability for agriculture. Some small parcels near Callignee North comprise rural residential subdivisions of essentially uncleared and undeveloped land.

Impact of rural residential subdivision on agriculture

The effects of rural residential subdivision on agricultural capability have been covered in detail in a report on agriculture in the Latrobe Valley Strategy Plan area, prepared in 1981 by officers of the then Department of Agriculture.

Some of the issues are: subdivision raises land prices of surrounding agricultural land; it restricts necessary agricultural pursuits such as applications of pesticides and weedicides; it can lead to problems with dogs and vandalism; and small land-holders' may have less control of notifiable animal diseases and of noxious weeds.

For the SECV land under consideration here, parcels with existing rural residential subdivision planning approval are shown on Map 3. Most of the land is zoned for other pur-

poses, and zoning amendments would be required to accommodate this type of development.

A substantial stock of land for both urban and rural residential subdivision exists in and adjoining the study area. Some indication of the extent of this stock has been provided in a background paper recently released by the Latrobe Regional Commission - 'An Overview of the Latrobe Regional Environment' - which provides the most recent available information.

While the Latrobe Region covers a much larger area than the current study, the information still has relevance for this investigation. Approximately 1900 ha of land are zoned or committed for urban purposes in areas adjoining the Region's towns with populations of 500 or more. The Regional Commission considers that, generally, the zoned urban land is ample to cater for medium-term population growth, although acknowledging that this general statement should not be taken as implying that no shortfalls will occur in needs for particular areas.

A trend to living on rural-residential and bush blocks, which has become evident in the last decade, has resulted in land at a number of locations in the region being subdivided in the expectation of sale for this purpose. More than 2000 such lots of between 1 and 10 ha were created in the Region in only 10 years. The background paper notes that, until 1981, houses had been built on only 500 of the 2000 small lots within the existing rural residential zones. While the paper provides the most recent detailed data available, the pace of this development apparently continued in the early 1980s, but has abated somewhat since 1984.

The background paper suggests that it would be inappropriate to rezone further areas to rural residential use until such time as a greater amount of development occurred in already subdivided areas.

While some of the SECV land for disposal could be subdivided and serviced for rural residential purposes, conflict could arise between this use and agricultural production. Moreover, a need for additional subdivision stock in that locality would have to be demonstrated. However, some parcels, such as those near Calignee North that have not been developed for agriculture, may be suitable for this purpose.

In terms of estimating demand, the nature and extent of population changes in the Latrobe Valley will be influenced by the rate of coalfield-related development. Additional information on these aspects will become available during this investigation, as a result of other studies under way at the present time.

Recreation and nature conservation

Various areas of SECV land are used for recreation and nature conservation. Some 45 000 people visited SECV undertakings in the Latrobe Valley in 1985/86. Lake Narracan and Hazelwood cooling pond provide venues for boating and fish-

ing, while a number of organizations - including golf clubs, pistol clubs, a scouting group, and an astronomical society - lease sites. In addition, lands at Sayers Trig, near Morwell, and north of Lake Narracan carrying native vegetation are used for nature study, picnicking, and walking.

There are also a number of holiday camps within the area or nearby. Some are operated commercially, and others are run by school and private groups. Within the investigation area the Warragul Inspectorate has a camp overlooking Lake Narracan; and to the east, the Wirilda Environment Park abuts Tyers Regional Park.

Those areas to be investigated that are used at present for recreation and nature conservation are identified on Map 3 and described in Appendix IV. Parcels of public land recommended for recreation and nature conservation by the Council in previous investigations are shown on Map 1.

Some other areas of SECV land may have a capability to support recreation in conjunction with an existing reserve. For example, 5.7 ha of SECV surplus land near Billy Creek could be managed in conjunction with the 283-ha Morwell National Park. However, this parcel, which is in a rural residential subdivision, is physically separated from the park. Its value lies in the access that it would provide to other areas adjoining Billy Creek, as part of a broader program of land purchase by the Department of Conservation, Forests and Lands in this area.

About 1000 ha of uncommitted public land near Traralgon South could be used for nature conservation. The open forests and woodland, principally of yertchuk, in parts carry a rich heath flora. However, the northern portion overlies a protected coal area. This aspect is discussed in Chapter 3. In addition, parts of the land are used for the production of gravel.

Regional recreation

A number of areas of outstanding recreational and nature conservation significance occur close to the Latrobe Valley. Wilsons Promontory National Park, to the south, provides a spectacular rugged landscape and some of the State's finest coastal scenery. Visitors spend some 390 000 days each year in this park.

The Gippsland Lakes, an interconnected group of coastal lagoons covering approximately 30 000 ha, lie immediately to the east. The Lakes' broad expanses of relatively shallow water are ideal for nearly all forms of water sports, including boating, yachting, swimming, and water skiing, attracting some 400 000 visitors annually.

To the north, winter sports are catered for at Mount Baw Baw Alpine Resort, and bushwalking within the Alpine National Park and the Avon Wilderness - one of the two substantial areas of the State set aside solely for recreation in solitude.

The Latrobe Valley itself contains a number of areas for nature conservation and recreation close to, and readily accessible from, the major population centres. Moondarra State Park and Tyers Regional Park together provide an area of some 8000 ha of diverse vegetation and scenic views over the valley. Near Yinnar a 283-ha nature reserve, the Morwell National Park, has been developed to permit recreational usage, while protecting the area's special conservation values.

Aboriginal communities

Aboriginal communities regard the establishment of viable economic enterprises that provide employment for their members as the key to their security and independence from government assistance in the future. They have therefore expressed interest in acquiring or leasing areas of public land to establish viable agricultural or other projects to provide income and employment.

Timber production

Much of the land under investigation has been cleared of native vegetation and substantially altered in nature. In addition, the areas still carrying native vegetation, north of Lake Narracan, at Sayers Trig, north of Morwell, and near Traralgon South, generally carry open forests or woodland not suitable for intensive timber production, although these could yield minor forest produce such as firewood, fencing timbers, and poles on an intermittent basis.

At the same time, substantial parcels of land could lend themselves to timber production through either agroforestry or plantation establishment. These uses are considered separately below.

Agroforestry

This activity provides the benefit of some timber production while maintaining land in agricultural production. However, the minimum standards for site productivity and soil fertility and trafficability must be taken into account when considering specific areas. In general, sites should have slopes less than 25° to allow machinery access for both agricultural and forest production. Agroforestry may provide benefits in terms of reduced fire hazard compared with forest plantation. However, the nature of the crop is such that frequently timber products such as sawlogs and veneer logs are produced, rather than pulpwood, and this requires rotations in excess of 20 years for softwoods.

A separate consideration relates to the minimum area for economic harvesting of forest produce. Much of the cleared land under investigation is in individual parcels of 100 ha and less. It is principally the land in Anderson Creek and south-west of Morwell that may be suitable for this use.

Land disposal of treated effluent by flood irrigation may also merit consideration. This form of land use could be considered as an alternative to the duplication of pipe-

lines. However, site capability and the heavy metal and salt content of treated wastes place significant limitations on the location of such areas. In addition, construction of separate treatment facilities would be expensive and subject to a range of planning procedures before approval could be given. The land under consideration would have limited capability in this regard.

Hardwood production

The area is not particularly suited to the establishment of plantations of hardwood species for timber production. An additional consideration is the lengthy period of time, often in excess of 40 years, before produce becomes available.

While plantation establishment could be considered for certain parcels of land for amenity, landscape, or recreation purposes, the fire hazard associated with establishing large continuous areas of such species near to open cuts must also be borne in mind when assessing a site's capability.

Softwood production

Softwood production and the conversion of softwood to pulp, paper, panelboard, sawn timber, and preservative-treated round timber comprise a major decentralized industry in Victoria, which is increasing in importance. Both the government and private individuals and organizations have established extensive softwood plantations, and radiata pine (*Pinus radiata*) accounts for 98% of the total area planted. That hardy species can achieve high rates of growth on a range of sites.

The Latrobe Valley forms part of the Latrobe Softwood Management Area, an important softwood-producing zone identified by the government in its Timber Industry Strategy. The Area already carries more than 60 000 ha of softwood plantations, of which some 14 200 ha have been established by the Department of Conservation, Forests and Lands. These plantations supply the Australian Paper Manufacturers pulp and paper mill at Maryvale, and softwood sawmills, veneer mills, and preservation plants at Morwell and elsewhere.

The government's 'Timber Industry Strategy', which was released in August 1986, sets goals for managing State softwood plantations and defines targets for the expansion of softwood plantation areas. It is planned to expand the area of State softwood plantation in the Latrobe Softwood Management Area to 25 000 ha. This will ultimately enable the supply of saw- and veneer logs to be increased to at least 150 000 cu.m per annum, from the present 41 000 cu.m. Softwood roundwood is also supplied to the pulp and paper mill at Maryvale in accordance with a legislated agreement, which provides for supply of this material to rise from 50 000 cu.m per annum in 1986/87 to 100 000 cu.m per annum from 1 July 1999, and 200 000 cu.m per annum for the period 1 July 2004 to 30 June 2024.

Under the legislated agreement, the company will make payments totalling \$950 000 by 30 March 1988, which will assist

the Department of Conservation, Forests and Lands to purchase land necessary for plantation development to provide the later supply commitments.

Over the last 40 years, substantial amounts of land in the Latrobe Softwood Management Area that had been alienated and cleared for agriculture have been purchased for reforestation with softwoods and hardwoods. About 70% of the present softwood plantation here has been planted on purchased land. The Department of Conservation, Forests and Lands has an active local land-purchase program, and during the last two financial years (1984/85 and 1985/86) has purchased 21 properties for softwood planting, with a total area of 1327 ha.

It is government policy that no further clearing of native forests for the establishment of softwood plantations should take place. To achieve the government's plantation target of 25 000 ha by 1996, it will be necessary for the Department to increase the rate of softwood planting in the Latrobe Softwood Management Area to about 1000 ha per annum and acquire a further 9000 ha, net, of plantable land. This could be achieved either by purchasing cleared freehold land or by obtaining access to parcels of cleared public land that are suitable and available for softwood plantations.

For a land parcel to be considered for softwood plantation establishment it must be on a soil type of adequate fertility, stability, and trafficability. Mean annual rainfall should exceed 700 mm, and more than 0.5 m of topsoil should overlie any soil layer that may impede root development or water percolation. The time required for trees to reach a merchantable size must also be taken into consideration, where land may be required for coal-related development.

As noted in Chapter 3, some uncertainty remains as to the timing requirements of land for coal-related development. For this reason, the time estimates for individual parcels provided in Appendix IV are conservative. That is, they are based on medium-demand forecasts contained in the SECV part I submission to the N.R.E.C. Inquiry. In broad terms, to yield merchantable softwood timber, the land must be available for some 15 years from crop establishment.

A further consideration is the minimum economic size of plantation. Usually the net area for planting should be greater than 20 ha for any particular parcel of land. However, proximity to existing plantations may permit reduction in this requirement. Other considerations relate to the need to be clear of easements - especially power lines - and compliance with any planning, zoning, or regulatory requirements imposed by responsible authorities.

In particular, the need to protect open cuts from fire must be borne in mind. This aspect is dealt with at greater length in the section on hazards, below.

Stone production

Industrial development in the Latrobe Valley has generated a demand for substantial quantities of sand and stone for

building and construction purposes. While some materials like sand and gravels are relatively plentiful, high-quality crushed rock aggregate must be brought long distances from outside the area.

The uncommitted land near Traralgon South contains a large resource of gravel, which is currently exploited from a number of pits. Stone is quarried from two sites near Yallourn North in the Anderson Creek catchment.

Utilities

The study area is traversed by major transmission lines, gas pipelines, and waste-water disposal lines. For example, Esso-BHP oil pipelines traverse the SECV land in Anderson Creek. Localized and smaller-scale services affect some other SECV allotments.

Hazards

Protection of coal assets from fire

Most of the State's electricity is generated from brown coal won from open cuts situated at Yallourn, Morwell, and Loy Yang. These workings, with their exposed coal faces and costly coal-winning plant - together with associated power stations and other facilities - are subject each year to risk of damage by rural fires.

Experience has shown that when fires start under extreme weather conditions, unless they are rapidly extinguished, major fire development causing widespread damage will occur despite advances in fire-fighting organization, equipment, and techniques. Since the commencement of operations in 1921, ten large rural fires have burned onto SECV land, five of which invaded open cuts and disrupted coal production. The transfer of burning material from tree stands near the open cuts was a major factor in these invasions. In this regard, native eucalypts pose a special hazard.

While softwood plantation is acknowledged as a lesser fire risk, spotting up to 2 km from pine forest has been recorded under extreme conditions. Thus, while measures can be taken to reduce the fire hazard, special care is required when considering plantation establishment near open cuts. However, in both instances, some available measures, such as pruning and fuel-reduction burning, can reduce the hazard.

All SECV lands, including those under investigation, are currently subject to a number of fire-protection measures. However, the development of a regional fire-prevention strategy, as part of the Latrobe Regional Strategy Plan, and the identification of fire-hazardous land uses on areas strategic to electricity generation facilities through planning controls are also worthy of consideration.

Soil erosion

The hazard of soil erosion is low to moderate on the land under investigation, provided a vegetative cover is main-

tained. Four principal types of soil erosion can occur in the study area: landslips, and sheet, gully, and wind erosion.

While much of the land has been cleared, and thus the original balance between soil and vegetation in their natural state lost, pastures have been established on most areas and leases are managed to ensure that over-grazing does not occur.

An erosion hazard could arise during and immediately after planting should conversion of some areas to softwood plantations be considered. However, it should be less likely to do so than where native vegetation is cleared, as areas capable of use for this purpose have already been cleared, and provided with an existing roading system.

Only about 200 ha of the SECV land under investigation falls within a proclaimed water supply catchment. This land, bounded by Brocks Track and Purvis Road, lies to the north of Lake Narracan. It is within the Tanjil River Water Supply Catchment, for which a Land Use Determination has been made.

Salting

Soil salting is localized in the drier pastoral country in the east, and to the north-east of the study area, but is not a major hazard for the land under investigation.

Flooding

The most severe general flooding in the area in recent times occurred in 1934/35, due to unprecedented intense summer rains.

In the Latrobe Valley, flooding can be particularly severe in those areas where major tributaries converge within a short distance. However, the controlled development of towns, flood-plain management, and river improvements have reduced the extent and incidence of flood damage over recent years.

Weeds and feral animals

Noxious weeds are plants proclaimed under legislation, whose spread will lower the productivity of the land, degrade the landscape, harbour vermin, and prevent the regeneration of preferred plant species.

Weeds are generally found on farmland and disturbed areas. Blackberry can be a problem along drainage lines if not controlled. Ragwort is poisonous to cattle and can invade good pasture. It is found in areas of higher rainfall, specifically in the Jeeralang area, and requires control if land is to remain in use for grazing.

Spear thistle, variegated thistle, shore thistle, and perennial thistle can pose serious threats to pasture production, while several species that have not been proclaimed also

affect production. These include austral bracken, various herons'-bills, cape weed, dock, bidgee-widgee, fireweed, yarrow, and various buttercups.

Feral cats, foxes, and rabbits are common throughout the study area and all require control, although their populations fluctuate greatly. Roaming domestic dogs, especially in packs, can be a local problem.

European carp is a common species in the Latrobe River. It discolours the water while feeding, thereby degrading the riparian habitat for other fish. Removal of vegetation from the banks of streams and poor control of road drainage discharge can also contribute to stream turbidity.

Grazing in remnant bushland

Where grazing by stock occurs in remnant areas of bushland, a reduction in species diversity can result. In the absence of stock the native ground and shrub vegetation can survive and support many species of birds, mammals, amphibians, and reptiles, which in turn can have a positive effect on the health of the trees.

For example, noisy miners are usually present in bush remnants where grazing has depleted the shrub and ground cover and replaced these with pasture grasses and weeds. These birds live in colonies, are extremely aggressive, and can exclude most other bird species from their territories. The resulting depletion of the diversity and abundance of the bird community greatly decreases the control birds once had on outbreaks of insects in the eucalypts. This frequently leads to eucalypt die-back and further degradation of the bushland remnant.

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Appendix I

EXTRACT

LAND CONSERVATION ACT 1970

Public Land

Section 2.

(1) "Public land" means -

(a) land which is not within a city town or borough and is -

(i) unalienated land of the Crown including land permanently or temporarily reserved under section 4 of the *Crown Land (Reserves) Act 1958* and State forest and parks within the meaning of the *National Parks Act 1975*;

(ii) vested in any public authority (other than a municipality or a sewerage authority within the meaning of the *Sewerage Districts Act 1958*); or

(iii) vested in the Melbourne and Metropolitan Board of Works; and

(b) any other land which the Governor in Council declares under sub-section (2) to be public land for the purposes of this Act

"Reserved forest" and "State forest" have the same meanings as in section 3 of the *Forests Act 1958*.

(2) The Governor in Council may on the recommendation of the Minister made after consultation with -

(a) any Minister of the Crown in whom any land is vested; or

(b) the Minister responsible for a public authority in which any land is vested -

by proclamation published in the *Government Gazette* declare any such land to be public land for the purposes of this Act.

Functions of the Council

Section 5.

(1) The Council shall -

(a) carry out investigations and make recommendations to the Minister with respect to the use of public land

in order to provide for the balanced use of land in Victoria;

- (b) make recommendations to the Governor in Council as to the constitution and definition of water supply catchment areas under the *Soil Conservation and Land Utilization Act 1958*; and
 - (c) advise the Soil Conservation Authority concerning policy on the use of land (whether public land or any other land however vested) in any water supply catchment area.
- (2) In making any recommendation the Council shall have regard to the present and future needs of the people of Victoria in relation to -
- (a) the preservation of areas which are ecologically significant;
 - (b) the conservation of areas of natural interest beauty or of historical interest;
 - (c) the creation and preservation of areas of reserved forest;
 - (d) the creation and preservation of areas for national parks;
 - (e) the creation and preservation of areas for leisure and recreation, and in particular of areas close to cities and towns for bushland recreation reserves;
 - (f) the creation and preservation of reserves for the conservation of fish and wildlife;
 - (g) the preservation of species of native plants; and
 - (h) land required by government departments and public authorities in order to carry out their functions.
- (3) Where the Council recommends the alienation of any land the recommendation shall include the Council's opinion as to the best method of alienating the land to ensure the most satisfactory use and management of land in the public interest.
- (4) Any person or body may make submissions to the Council as to how any public land can be better used to meet the needs of the people of Victoria and the Council shall consider any such submissions before making any recommendations under paragraph (a) of sub-section (1).

Investigations, Notices and Reports

Section 9.

- (1) The Council shall not make any recommendations under this Act in relation to any district or area without a prior investigation of the district or area.

- (2) Before commencing any investigation under paragraph (a) of sub-section (1) of section 5 the Council shall publish a notice in the *Government Gazette*, in a newspaper circulating throughout the State and in a newspaper circulating particularly in or in the vicinity of the area or district to be investigated stating that an investigation of that district or area described in the notice is to be carried out for the purposes of this Act.
- (3) On completing an investigation of a district or area under paragraph (a) of sub-section (1) of section 5 the Council shall -
 - (a) publish a report of the investigation;
 - (b) give notice in the *Government Gazette* of the publication of the report, the address where copies of the report may be obtained or inspected and stating that any submissions to the Council in relation to such report will be considered by the Council if they are made within 60 days of such notice; and
 - (c) publish notice in a newspaper circulating throughout the State and in a newspaper circulating particularly in or in the vicinity of the area or district investigated of the publication of the report, the address where copies of the report may be obtained or inspected and stating that submissions may be made to the Council and the date before which they should be made.
- (4) The Council shall consider any submissions in relation to such report made by any person or body within 60 days of notice being given under paragraph (b) of sub-section (3).

Notice to be given to public departments and authorities in certain cases.

Section 10.

- (1) Not earlier than 60 days after notice being given under paragraph (b) of sub-section (3) of section 9, the Council shall send a copy of its proposed recommendation to -
 - (a) the Council of any municipality in the municipal district of which any part of the area or district to which the recommendation relates is situated;
 - (b) any other public authority or government department that in the opinion of the Council has an interest in the area of the proposed recommendation; and
 - (c) any person or body who made a submission under section 9 -

and shall consider any submissions received within 60 days of the sending of such copy to the council, authority, department, person or body or in the case

of a public authority or government department within such longer period as may be agreed upon between the Minister and the Minister administering the department or responsible for that authority.

- (2) Where any recommendation is made to the Minister under this Act it shall be accompanied by a copy of any submissions received from any person body department authority or council pursuant to the provisions of sub-section (4) of section 9 or sub-section (1) of this section.
- (3) Where the Council has made a recommendation to the Minister under paragraph (a) of sub-section (1) of section 5 the Minister may, after he has given not less than fourteen days notice of his intention so to do to the Minister administering a government department or responsible for a public authority recommend to the Governor in Council that notice of the recommendation or that part of the recommendation that affects the government department or public authority be given to the government department or public authority concerned and where notice of that recommendation or part is so given by the Governor in Council it shall be the duty of the government department or public authority to use all diligence and dispatch to give effect to such recommendations so far as it affects any land vested in or controlled by it.

Copy of every recommendation and of proposals to be tabled in Parliament.

Section 11.

A copy of every recommendation of the Council made under sub-section (1) of section 5 and of the proposals of the Council submitted to the Minister pursuant to section 7 shall be laid before both Houses of Parliament within fourteen days of the making thereof if Parliament is then sitting and if Parliament is not then sitting within fourteen days after the meeting of Parliament.

A copy of the *Land Conservation Act 1970* can be obtained from the Victorian Government Bookshop, 318 Little Bourke Street, Melbourne, 3000.

Appendix II

KEY TO PUBLIC LAND RECOMMENDATIONS - REFER MAP 1

Category	Ref. no.	Name	Previous recommendations		
			SG2	MELB	HILL END
Parks					
- National	A10	Morwell	G14 ¹		
- Regional	A20	Tyers	A4	A20	
Water production	D2	Billy Creek	D2		
	D19	Various	D19		
	D20	Various	D20		
	D21	Various	D21		
	D95	Lake Narracan		D95	
Hardwood production	E1	Eastern Strzeleckis	E1		
	E9	Jeeralang North	E9		
	E10	Yinnar	E10		
Softwood production	F1	Various	F1		
Bushland reserves	H32	Parish of Yinnar	H32		
	I105	Anderson Creek		I105	
	I106	Gooding		U1	F1
Water frontage, streamside reserves	K1	Various	K1	K1	
	K4	Various	K4		
Roadside conservation	L7	Princes Highway	L7		
Education reserves	M1	Jeeralang North	M1		
	M1	Woorabinda		U3 ²	
Recreation reserves	O4	Various	O4		
	O42	Lake Narracan		O42	
SECV land	P1	Various	P1	U3	
Minerals and stone	R6	Parish of Yinnar	R6		
Utilities (various)	S3		S3		
	S8			S8	
	S12		S12		

Appendix II (*continued*)

Category	Ref. no.	Name	Previous recommendations		
			SG2	MELB	HILL END
Township land	T1 T2/Q2		T1	T2/Q2	
Uncommitted land	U1	Various	U1		
Other public land	W1	Various	W1		

Note: 1 Change to flora and fauna reserve recommended by Council, not accepted by government.

2 Woorabinda camp.

Appendix III

FAUNA

Key:

General lists only. Details for specific areas are provided in Chapter 2. The following abbreviations are used for habitat:

F	General forest habitat	W	Wetlands, rivers, and creeks
H	Heathland	S	Softwood plantations
A	Agricultural land and grasslands	T	Towns

Note:

The study area has not been subjected to a detailed fauna survey, so the species lists do not purport to be complete.

* Introduced species

Common name	Scientific name	Habitat
Mammals		
Short-beaked echidna	<i>Tachyglossus aculeatus</i>	FHS
Brown antechinus	<i>Antechinus stuartii</i>	FHS
White-footed dunnart	<i>Sminthopsis leucopus</i>	FH
Southern brown bandicoot	<i>Isodon obesulus</i>	FH
Wombat	<i>Vombatus ursinus</i>	FH
Koala	<i>Phascolarctos cinereus</i>	F
Brushtail possum	<i>Trichosurus vulpecula</i>	FAST
Ringtail possum	<i>Pseudocheirus peregrinus</i>	FST
Sugar glider	<i>Petaurus breviceps</i>	F
Eastern grey kangaroo	<i>Macropus giganteus</i>	FAS
Black wallaby	<i>Wallabia bicolor</i>	FHS
Grey-headed flying-fox	<i>Pteropus poliocephalus</i>	AT
European rabbit	<i>Oryctolagus cuniculus</i>	FHAS
Bush rat	<i>Rattus fuscipes</i>	FHS
Black rat*	<i>Rattus rattus</i>	HAST
Swamp rat	<i>Rattus lutreolus</i>	FHW
House mouse*	<i>Mus musculus</i>	FHAST
Fox*	<i>Vulpes vulpes</i>	FHAS
Cat (feral)*	<i>Felis catus</i>	FHAS
Birds - non-passerines		
White-faced heron	<i>Ardea novaehollandiae</i>	AW
Sacred ibis	<i>Threskiornis aethiopica</i>	AW
Straw-necked ibis	<i>Threskiornis spinicollis</i>	AW
Pacific black duck	<i>Anas superciliosa</i>	W
Grey teal	<i>Anas gibberifrons</i>	AW

Appendix III - (continued)

Common name	Scientific name	Habitat
Birds - non-passerines (continued)		
Maned duck	<i>Chenonetta jubata</i>	AW
Australian kestrel	<i>Falco cenchroides</i>	A
Painted button-quail	<i>Turnix varia</i>	F
Masked lapwing	<i>Vanellus miles</i>	AWT
Brush bronzewing	<i>Phaps elegans</i>	F
Yellow-tailed black cockatoo	<i>Calyptorhynchus funereus</i>	F
Gang-gang cockatoo	<i>Callocephalon fimbriatum</i>	F
Crimson rosella	<i>Platycercus elegans</i>	F
Brush cuckoo	<i>Cuculus variolosus</i>	F
Southern boobook	<i>Ninox novaeseelandiae</i>	F
Laughing kookaburra	<i>Dacelo novaeguineae</i>	FA
Birds - passerines		
Skylark*	<i>Alauda arvensis</i>	A
Welcome swallow	<i>Hirundo neoxena</i>	FHA
Blackbird*	<i>Turdus merula</i>	FHAT
Rose robin	<i>Petroica rosea</i>	FA
Eastern yellow robin	<i>Eopsaltria australis</i>	F
Golden whistler	<i>Pachycephala pectoralis</i>	F
Rufous whistler	<i>Pachycephala rufiventris</i>	F
Grey shrike-thrush	<i>Colluricincla harmonica</i>	F
Satin flycatcher	<i>Myiagra cyanoleuca</i>	F
Rufous fantail	<i>Rhipidura ripifrons</i>	F
Grey fantail	<i>Rhipidura fuliginosa</i>	FHAS
Willie wagtail	<i>Rhipidura leucophrys</i>	A
Eastern whipbird	<i>Psophodes olivaceus</i>	F
Spotted quail-thrush	<i>Cinclosoma punctatum</i>	F
Superb fairy-wren	<i>Malurus cyaneus</i>	FHS
White-browed scrub-wren	<i>Sericornis frontalis</i>	F
Brown thornbill	<i>Acanthiza pusilla</i>	FHW
White-throated tree-creeper	<i>Climacteris leucophaea</i>	F
Red-browed treecreeper	<i>Climacteris erythrops</i>	F
Yellow-faced honeyeater	<i>Lichenostomus chrysops</i>	F
White-eared honeyeater	<i>Lichenostomus leucotis</i>	F
Crescent honeyeater	<i>Phylidonyris pyrrhoptera</i>	FHS
New Holland honeyeater	<i>Phylidonyris novae-hollandiae</i>	F
Eastern spinebill	<i>Acanthorhynchus tenuirostris</i>	F
Spotted pardalote	<i>Pardalotus punctatus</i>	F
Silvereye	<i>Zosterops lateralis</i>	FH
European goldfinch*	<i>Carduelis carduelis</i>	AT
House sparrow*	<i>Passer domesticus</i>	AT
Red-browed firetail	<i>Emblema tgemporalis</i>	F
Starling*	<i>Sturnus vulgaris</i>	AT
Myna*	<i>Acridotheres tristis</i>	AT
Australian magpie	<i>Gymnorhina tibicen</i>	AT

Appendix III - (continued)

Common name	Scientific name	Habitat
Reptiles		
Long-necked tortoise	<i>Chelodina longicollis</i>	W
Jacky lizard	<i>Amphibolurus muricatus</i>	H
Lace monitor	<i>Varanus varius</i>	F
McCoy's skink	<i>Anotis maccoyi</i>	F
Garden skink	<i>Lampropholis guichenoti</i>	FH
Weasel skink	<i>Lampropholis mustelina</i>	F
Metallic skink	<i>Leiopisma metallica</i>	F
Three-lined skink	<i>Leiopisma trilineata</i>	FH
Spencer's skink	<i>Pseudemoia spenceri</i>	F
Southern water skink	<i>Sphenomorphus tympanum</i>	FHAW
Blotched blue-tongue	<i>Tiliqua nigrolutea</i>	FHAW
Copperhead	<i>Austrelaps superba</i>	FHAW
Tiger snake	<i>Notechis scutatus</i>	FHAW
Red-bellied black snake	<i>Pseudechis porphyriacus</i>	FW
Amphibians		
Eastern froglet	<i>Crinia signifera</i>	FW
-	<i>Geocrinia victoriana</i>	W
Eastern banjo frog	<i>Limnodynastes dumerillii</i>	FHAW
Brown-striped frog	<i>Limnodynastes peronii</i>	FHAW
Spotted grass frog	<i>Limnodynastes tas-</i> <i>maniensis</i>	AW
Southern toadlet	<i>Pseudophryne semi-</i> <i>marmorata</i>	FAW
Brown tree frog	<i>Litoria ewingii</i>	FW
Lesueur's frog	<i>Litoria lesueurii</i>	FW
-	<i>Litoria raniformis</i>	W
-	<i>Litoria verreauxii</i>	FHAW

Appendix IV

CURRENT LAND USE - REFER MAP 3

Map 3 ref.	Area (ha)	Current use	Provisional status (ha)		Conditions
			Dispose	Retain	
1	952.6	Grazing	135.3	817.3	1, 2c
2	14.1	Native forest/ vacant	-	14.1	2c
3	2.0	Residential	-	2.0	2c, 4
4	552.2	Dairying	57.4	494.8	2c
5	122.2	Dairying	-	122.2	2c
6	36.6	Dairying	-	36.6	3a
7	49.4	Vacant	-	49.4	3a
8	24.7	Grazing	-	24.7	3a
9	36.8	Grazing	36.8	-	
10	35.2	Grazing	35.2	-	3a
11	2.9	Residential and grazing	2.9	-	3a, 4
12	63.8	Dairying	63.8	-	3b
13	69.5	Grazing	-	69.5	2c
14	8.1	Residential	-	8.1	2a, 4
15	20.7	Grazing	-	20.7	2a
16	4.0	Grazing	-	4.0	2a
17	4.0	Residential/ community	-	4.0	2a, 4
18	12.1	Grazing	-	12.1	2a
19	140.1	Golf course/ bushland/tip/ LVWSB pond	89.2	50.9	2c
20	84.1	Grazing	84.1	-	
21	1.2	Residential	1.2	-	4
22	4.2	Gun club	-	4.2	2a
23	94.7	Grazing	-	94.7	2a
24	1.0	Vacant	-	1.0	2a
25	0.5	Residential	-	0.5	2a, 4
26	3.8	Grazing	3.8	-	
27	76.0	Grazing	2.4	73.6	2a
28	4.0	Residential	4.0	-	4
29	4.0	Grazing	4.0	-	
30	4.1	Grazing	4.1	-	
31	14.9	Residential	14.9	-	4
32	3.9	Grazing	3.9	-	
33	9.6	Vacant	9.6	-	
34	79.5	Grazing	79.5	-	3b
35	162.6	Grazing/ residential	162.6	-	3a, 4
36	20.5	Native forest	20.5	-	3a
37	46.4	Grazing	-	46.4	2a
38	33.4	Vacant/native forest	-	33.4	2a
39	3.5	Vacant	-	3.5	2b

Appendix IV (continued)

Map 3 ref.	Area (ha)	Current use	Provisional status (ha)		Conditions
			Dispose	Retain	
40	2.0	Residential	-	2.0	2b, 4
41	86.7	Grazing	29.4	57.3	2b, 3a
42	7.0	LVWSB pump/ industry	5.4	1.6	2b, 3a
43	4.4	Grazing	-	4.4	2a
44	246.0	Grazing	-	246.0	2a
45	2.0	Residential	-	2.0	2a, 4
46	27.4	Grazing and dairying	-	27.4	2a, 3a
47	6.1	Residential	-	6.1	2a, 4
48	4.9	Recreation	-	4.9	2a
49	101.3	Grazing	-	101.3	2a
50	5.6	Grazing	-	5.6	2b
51	101.2	Grazing/LRC	39.4	61.8	2b, 3a
52	20.5	Accommodation	10.3	10.2	2b
53	0.5	Residential	-	0.5	2b, 4
54	62.4	Grazing	16.5	45.9	2b
55	130.1	Grazing	10.5	119.6	2b, 3a
56	2.1	Vacant	-	2.1	2b, 3a
57	85.7	Grazing	41.7	44.0	2b
58	15.3	Grazing	-	15.3	2b
59	13.2	Native forest	-	13.2	2b
60	39.3	Grazing	30.6	8.7	2b
61	5.7	Residential	5.7	-	4
62	168.8	Grazing	168.8	-	
63	355.6	Grazing	227.2	128.4	2b, 3a
64	59.0	Grazing	-	59.0	2a, 3a
65	4.1	Grazing and residential	-	4.1	2a, 4
66	24.6	Grazing	-	24.6	2a
67	90.0	Grazing	90.0	-	
68	19.6	Vacant	-	19.6	
69	93.1	Grazing	93.1	-	
70	5.9	Residential	5.9	-	4
71	97.2	Grazing	97.2	-	3a
72	12.0	Archery	12.0	-	3a
73	196.1	Native forest	196.1	-	3a
74	4.0	Residential	4.0	-	3a, 4
75	25.2	Vacant/grazing	25.2	-	
76	12.3	Residential/ grazing	12.3	-	4
77	8.1	Vacant/ residential	8.1	-	4
78	4.2	Grazing	4.2	-	
79	63.0	Grazing	63.0	-	
80	4.8	Residential	4.8	-	4
81	37.7	Scrub/grazing	37.7	-	
82	12.2	Vacant/ residential	12.2	-	4
83	36.1	Grazing	36.1	-	

Appendix IV (continued)

Map 3 ref.	Area (ha)	Current use	Provisional status (ha)		Conditions
			Dispose	Retain	
84	12.1	Vacant/ residential	12.1	-	4
85	6.3	Residential/ grazing	6.3	-	4
86	10.6	Vacant/ residential	10.6	-	4
87	2.0	Residential/ grazing	2.0	-	4
88	2.1	Vacant/ residential	2.1	-	4
89	955.0	Uncommitted land; various	-	-	

Conditions on land use

1. Portion within Proclaimed Water Supply Catchment - land use determination applies (see text)
2. Retained land only - timing of requirement for coalfield-related development *
 - (a) 1990-1999
 - (b) 2000-2019
 - (c) 2020 +
3. Fire hazard management **
 - (a) relevant
 - (b) important
4. Currently rural residential lots

Notes:

* indicative interval based on State Electricity Commission of Victoria medium-demand forecasts - currently subject of Inquiry by Parliamentary Natural Resources and Environment Committee; draft recommendations due October 1987

** protection of urban areas and SECV assets from fire a consideration