

**PART I**  
**PURPOSE AND AREA OF THE SURVEY**

## **1. PURPOSE OF THE SURVEY**

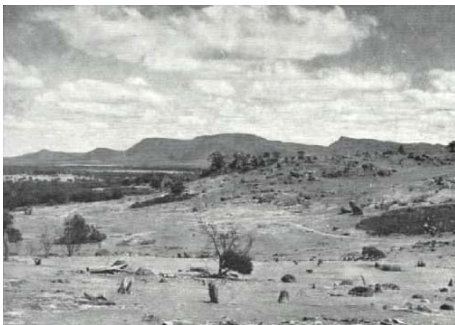
The purpose of the survey is to describe the natural environments within the Grampians area and from the information gained to assess the present and potential forms of land-use within each environment.

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The land within the area of this survey comprises farming land, uncleared Crown land, Reserved Forest and water supply catchments. In some parts of the area there are problems of land deterioration that have resulted from long periods of farming, while in other parts the problems are the result of competition between rival forms of land-use.

The Grampians survey was undertaken as part of the Soil Conservation Authority's programme of ecological and land-use surveys. It is regarded as an essential first step towards planned programmes of land rehabilitation and land development that will overcome the problems in the Grampians area.



*Plate 1 – The Grampians rise abruptly from the flat plains and dominate the landscape for many miles. Mt William (3,830 ft) is in the centre of the photograph.*

## 2. AREA OF THE SURVEY

### *Geography*

This survey of the Grampians area covers 3,000 square miles in central-western Victoria and it includes parts of the Wimmera and Western District Divisions of the State. The boundary follows the Wimmera River upstream from Horsham to Glenorchy and then the railway lines from Glenorchy, through Ararat, to Strathkellar, north-east of Hamilton. From Strathkellar north to Mitre, the area adjoins the survey area of the Shire of Kowree (Blackburn and Gibbons 1956) and South-Western Victoria (Gibbons and Downes 1964). From Mitre, the boundary follows the railway line eastwards to Horsham (Figure 1).

In the centre of the survey area are the rugged sandstone ranges of the Grampians rising above the western plains of Victoria to dominate the landscape. Flat depositional plains cover the northern parts, and elsewhere the plains are generally undulating and have formed on maturely dissected granitic and sedimentary rocks and on basalts.

The divide between coastal-flowing and inland-flowing streams crosses the centre of the area. The drainage system to the coast includes the upper tracts of the Glenelg River and its biggest tributary, the Wannon River. These streams rise close to one another in the Grampians and after following divergent courses eventually join, near Casterton, many miles to the south-west. The drainage system inland to the north has no large rivers but comprises a number of tributaries of the Wimmera River.

A variety of environments and several forms of land-use are encountered. Fine wool is grown over most of the plains and is the biggest primary industry. Beef-cattle raising is practised by some wool growers as an aid in pasture management and as a supplementary source of income. In the northern parts, wheat growing is of prime importance and there are also small areas of irrigated dairy farms, orchards and market gardens. The mountainous zone formed by the Grampians and western Black Range is primarily used as a source of domestic and stock water although small quantities of millable timber are obtained.

Cities and towns are located on the railway lines and the biggest are Horsham, Hamilton, Ararat and Stawell. There is also a number of small townships such as Dunkeld, Glenthompson, Willaura, Balmoral, Cavendish and Great Western on the railway lines. Halls Gap is a well-known tourist centre of the Grampians and caters mainly for holiday makers.

The area is well served by roads, and the Western, Glenelg, Henty and Wimmera Highways pass through it. Forests Commission roads give access to most parts of the Grampians.

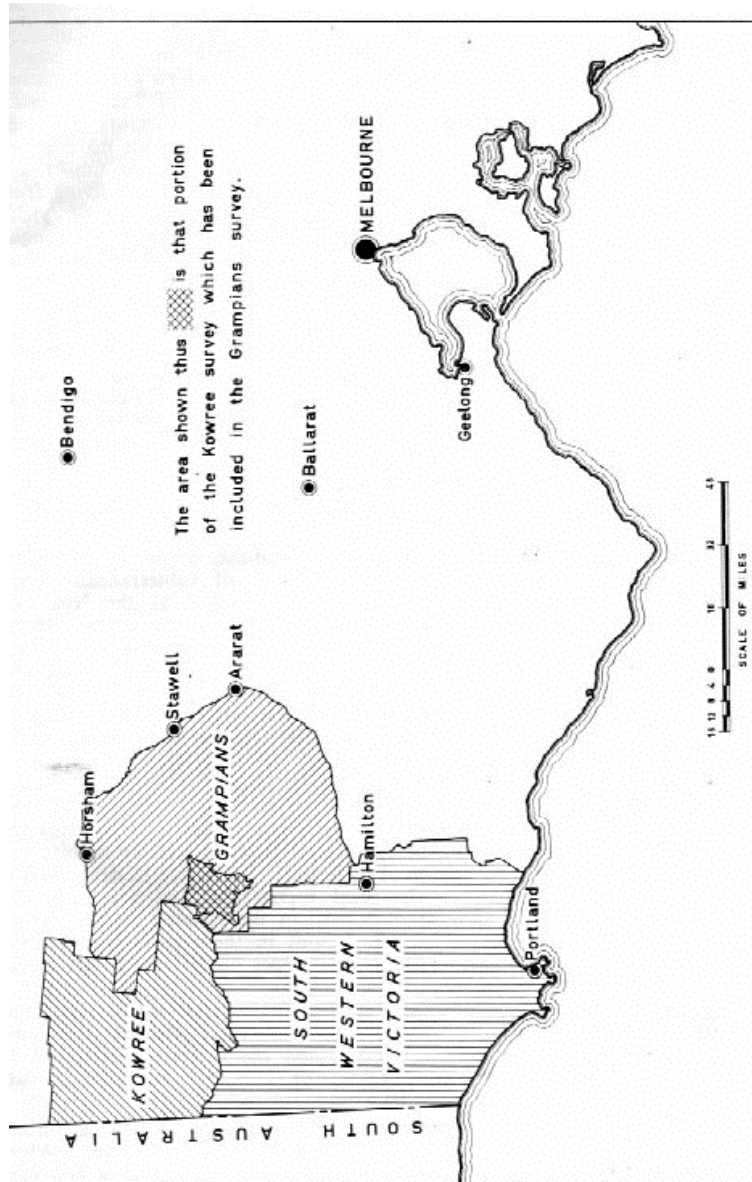
### *History of Land-Use*

News of the excellent grazing lands discovered by Major Mitchell in 1836 spread rapidly through the then colonies of New South Wales and Van Dieman's Land (now Tasmania), and pastoralists ready to pioneer the new country were soon moving in with their sheep and cattle. By the end of the 1840's all western Victoria, from Portland Bay northwards to the fringe of the Mallee, had been taken up as grazing runs by the squatters. From the available information a picture is formed of extensive unfenced sheep runs, usually between 30,000 and 150,000 acres, with sheep lightly grazing the native pastures at approximate stocking rates of one animal to six and more acres.

From 1840 to 1870, the squatters held vast areas of good land by paying a nominal licence fee. However, after the gold rushes of the 1850's had subsided, out-of-work miners started a strong campaign to unlock the large estates. A series of Land Acts culminated in the Land Act of 1869 which gave applicants the right to select 320 acres of "first class land or 640 acres of second class land. After 1870, the struggle between the squatters and selectors gradually swung in favour of the selectors as thousands of men, many with no previous farming experience, settled on their blocks and began clearing the timber and sowing crops of wheat and oats. However, in an effort to make a living from the soil, many men cropped continuously, and soil fertility and crop yields quickly declined. To make the task even more difficult, problems of drought, unassured water supply, primitive implements and an ignorance of how to adapt farming techniques to the climate and soil seemed insurmountable.

During the 1880's and 1890's many selectors admitted defeat, and the squatters and successful selectors added the abandoned blocks to their own properties. Farms expanded in size and many changed over to wool growing. By the turn of the century both wheat and wool growing had ceased to be the crude and uncertain ventures of earlier years. Scientific developments in wheat and sheep breeding and the use of superphosphate were gaining wide acceptance. Improved techniques of cultivation, the invention of mechanical aids to wheat growing and the construction of water supply schemes also helped to bring a comparative measure of stability to the rural industries.

Pasture improvement, the next big advance in land-use, began in the 1920's. During these years the now well-known combination of subterranean clover (*Trifolium subterraneum*) and superphosphate was established as the basis for pasture improvement in southern Australia. It was found that sown pastures containing subterranean clover produced a greater bulk and quality of herbage than the native perennial grasses, and that this could be achieved only by the use of superphosphate to stimulate a vigorous clover growth. Unfortunately the economic depression of the 1930's and the world war of the 1940's helped to delay the widespread adoption of pasture improvement until more recent years.



**Figure 1 – Locality Plan**

During all this time, the agricultural settlement of the area resulted in the development of soil erosion in varying degrees. The almost total removal of trees, their replacement initially by sparse native pastures with root systems far shallower than those of the trees, and the grazing pressures exerted by rabbits and sheep caused a loss of soil and a depletion of its fertility. The rate of deterioration varied across the area according to the local topography and soils and the standard of farm management. Fortunately, most of the farming land is flat or gently undulating and erosion never became serious in these parts. It became most severe in the east and south-west where the slopes are comparatively steep.

The development of pasture improvement provided a new and valuable technique for the reclamation of eroded land. Patterns of conservation farming based on pasture improvement have now been developed, and the increasing adoption of such patterns may be regarded as the current phase of land-use in the grazing areas.

To the east and west of Horsham, wheat growing on the "black soils" became the main industry in contrast to wool growing elsewhere. When accustomed to cultivating the self-mulching clays, the growers used a two-year rotation of wheat-fallow for many years. Gradually the levels of nitrogen in the soil and protein in the grain declined, the soil structure deteriorated and wind erosion on the fallows increased. Once again, however, the value of pasture improvement in reversing these trends has been appreciated and recent and current practice is to lengthen the rotation to three years by including a year of barrel medic (*Medicago tribuloides*) pasture.

Through the years the central mountainous zone, although not settled, has suffered from bush fires that have regularly swept through parts of the ranges. Ever since Wartook Reservoir began operating in 1886, the Grampians have been regarded as a vital source of water for the farms and towns of the Wimmera and Mallee, and this function is an important consideration in their management.