

NATIONAL PARKS IN VICTORIA

Introduction

The passing of the Land Conservation Act in December 1970 began a new era in land-use planning in this State. The Land Conservation Act *inter alia* established the Land Conservation Council consisting of persons experienced in various aspects of land-use, with the object of producing a balanced plan for land-use for Victoria.

To appreciate the significance of the Government's action in establishing the Land Conservation Council, it is necessary to study the impact of the European settlers on the land and the philosophy of land tenure from the time of their first contact.

In the years following Bass's discovery of Wilsons Promontory in 1797, Europeans began to penetrate into Victoria. There developed a general pattern of exploration followed by use of the land for pastoral purposes. By 1880, nearly 30 years after Victoria achieved its separate identity as a Colony, almost all of the land then recognised as being suitable for agriculture had been alienated. There were few indeed who thought about the preservation of what we now call the natural heritage.

Nevertheless, the few men whose vision extended beyond the pastoral runs and the devastated forests combined to exert their powers of persuasion upon the Government, with the result that in 1892 the Tower Hill National Park Act marked the reservation of the first national park in Victoria. Following this, other reservations of national parks were made, but on a sporadic basis, and in response to pressures exerted by interested groups on the government of the day.

It was natural, perhaps, that the key to the health of the economy was seen to reside in the development of the land to produce saleable products and only land deemed to be unsuitable for agriculture or other purposes had much chance of being reserved as national park. During this period of expansion much of the great forests of Gippsland fell before the settler's axe and fire-stick.

Even though by early 1970 some twenty national parks had been declared, there was still no clear pattern to the reservation of land for this purpose. Towards the end of 1969 a controversy arose as to whether a part of the Little Desert should be used for agriculture or preserved as national park. The outcome was a decision by the Government to reserve an area of 35,250 hectares as the Little Desert National Park, and the *Land Conservation Act*

1970 followed soon after. This may be seen as an organised attempt to resolve a conflict of competing interests which had persisted for over 170 years.

If the reservation of land for national park purposes was slow in being recognised as a legitimate form of land-use, so too was the general acceptance of an official definition of a national park. It was only at the Fourth Ministerial Conference on National Parks, held in Melbourne in August 1970, that agreement was reached, namely, that a national park should be described as "a relatively large area set aside for its features of predominantly unspoilt landscape, flora and fauna, permanently dedicated for public enjoyment, education and inspiration, and protected from all interference other than essential management practices, so that its natural attributes are preserved".

The various stages of development which Victoria's national parks system has undergone are described in this article.

History

The first reservation of Crown lands in Victoria resulted from the Nicholson Land Act of 1860. Section 2 of this Act empowered the Governor in Council to reserve land from sale for any public purpose and, although its terms were initially utilised to meet public needs for hospitals, churches, corrective institutions, barracks, wharves, and cemeteries, it was later also used as the authority to reserve areas as sites for national parks.

The national parks concept originated in the United States of America where an area of 899,628 hectares, containing numerous spectacular geysers, waterfalls, rivers, mountains, forests, and an abundance of animal and bird life, and straddling the States of Wyoming, Montana, and Idaho, was reserved by Act of Congress in 1872 as the Yellowstone National Park, thus becoming the first national park in the world.

During this time more than 2,000 adventurers from North America, mostly "forty niners" from the Californian goldfields, were seeking their fortunes at Ballarat and Bendigo. It was not surprising, therefore, that in 1866 Victoria set aside a modest area of 597 hectares at Tower Hill near Warrnambool as a public park, to preserve its outstanding geological features. Tower Hill, as already mentioned, was raised to the status of a national park in 1892 by a special Act of Parliament, and thereby became Victoria's first national park.

At the turn of the century a number of areas in Victoria were reserved under the Land Acts as sites for national parks. In July 1898 an area of 36,842 hectares was initially and temporarily reserved at Wilsons Promontory and by 1909 subsequent permanent reservations had expanded the site to 41,449 hectares. In October 1898 an area of 1,166 hectares was temporarily reserved at Mount Buffalo and in 1909 similar reservations were made at Wyperfeld (3,887 hectares), Mallacoota Inlet (4,615 hectares), and Wingan Inlet (1,927 hectares). In 1926 the sister parks of Lind and Alfred were permanently reserved with areas of 1,167 hectares and 1,357 hectares, respectively. The Lakes (Spermwhale Head) followed in 1927, with a temporary reservation of 1,452 hectares, becoming permanently reserved two years later. In March 1928, Kinglake became the site for a national park with the permanent reservation of 5,587 hectares, and an area of 193 hectares, originally called Dandenong National Park but now known as Churchill National Park, was permanently reserved in 1930.

Early supervision

Though conservation of the environment was the immediate objective in the reservation of these areas, a number of factors contributed to operate against optimum environmental care. There was no special officer within the Department of Crown Lands to supervise activities within the reservations or to formulate a common policy. Individual committees of management, appointed under the Land Acts to administer the reserves, were composed almost entirely of devoted though unpaid citizens who had little access to finance and were without the assistance of trained staff. The care of the parks was made the responsibility of honorary bailiffs who, though they were appointed under the Land Acts, were often themselves members of these committees. Very few committees could afford the services of paid rangers, the exceptions being those at Wilsons Promontory, Mount Buffalo, Tarra Valley, Bulga, and Kinglake, which had resident workmen/caretakers whose salaries were paid from the meagre returns from visitors' and other fees. One possible source of revenue within the reservation was grazing rights and committees were faced with the dilemma of either encouraging the continuation of grazing as a source of much-needed revenue, or adopting a firm stand against grazing and thus risking the likelihood of unpopularity and lack of co-operation from neighboring agricultural and pastoral interests.

A factor which contributed markedly to improvement in the supervision of Crown lands and national parks was the appointment in 1907 of a Conservator of Forests. The Forests Department had been established as a result of an inquiry in 1897. Before this the Forests Branch, as it was then known, had been in turn attached to the Departments of Agriculture, Mines, and Lands. With enlarged activities and its subsequent establishment as an autonomous Commission in 1918, the Forests Department was able to provide better supervision over unoccupied Crown lands, and the national parks and reserves gained considerably in the spheres of fire protection and the control of forest products.

Administrative developments

Through the years, pressure continued for a more intensive form of control over the sites set aside for national parks and, in 1949, the Town and Country Planning Association published a report suggesting a *modus operandi* for the care and management of sixteen such areas, for their funding and development, and for their control by a National Parks Authority. These recommendations were reinforced by the conclusions of the Parliamentary State Development Committee which, in its report to Parliament in 1951, surveyed a number of potential conservation areas, nominated the constitution of a proposed National Parks Authority, and recommended the provision of finance for general and specific purposes. These efforts were brought to fruition in 1956 by the implementation of the inaugural enactment on Victorian national parks as a whole.

Under the *National Parks Act 1956*, the national parks were given a particular status with the establishment of a National Parks Authority consisting of eleven members whose chairman was a Minister of the Crown nominated by the Premier. Six of the members were *ex-officio* representatives from government departments, while the Victorian Ski Association, and certain other groups especially interested in national parks or flora and

fauna each provided one member. The Authority had a full-time director, the first appointment being that of the well-known naturalist, the late Phillip Crosbie Morrison, President of the recently formed Victorian National Parks Association which, with other conservation bodies, had lobbied strongly for the implementation of the Act.

The objects of the National Parks Act were :

- (a) to provide for the establishment and control of national parks ;
- (b) to protect and preserve indigenous plant and animal wildlife and features of special scenic, scientific or historical interest in national parks ;
- (c) to maintain the existing environment of national parks ; and
- (d) to provide for the education and enjoyment of visitors to national parks and to encourage and control such visitors.

Earlier dedicated national parks

The first national parks which were established under the 1956 inaugural Act were thirteen areas listed in the Schedule to the Act. All had been reserved earlier under the Land Act. These national parks, together with the acreages as shown in the Schedule, and their equivalent metric measurements, are listed below :

VICTORIA—SCHEDULE OF NATIONAL PARKS, 1956

Name of reserve	Area
Wyperfeld National Park	139,760 acres (56,583 hectares)
Kinglake National Park	14,079 acres (5,700 hectares)
Fern Tree Gully National Park	927 acres (375 hectares)
Wilsons Promontory National Park	102,379 acres (41,449 hectares)
Mount Buffalo National Park	27,280 acres (11,044 hectares)
The area known as The Lakes National Park	3,730 acres (1,510 hectares)
The area known as Lind Park	2,882 acres (1,167 hectares)
The area known as Alfred Park	5,406 acres (2,189 hectares)
Wangan Inlet National Park	4,730 acres (1,915 hectares)
Mallacoota Inlet National Park	11,225 acres (4,545 hectares)
Tarra Valley National Park	200 acres (81 hectares)
Bulga Park	91 acres (37 hectares)
The area known as Churchill National Park	477 acres (193 hectares)

When the Authority began to function in 1957 it had a total area of 313,166 acres (126,788 hectares) of national park land to care for.

Development of conservation attitudes

While the Act provided for the management of reserves listed in the Schedule, it did not make adequate provision for the selection of new areas which were required in order to give a fuller representation of ecosystems within the State. Procedures for the selection of further areas for national parks purposes were subject to severe restrictions because of the conflicting interests of conservationists, land developers, and local interests. Any assistance that could be obtained through expert opinion expressed by the Land Utilization Advisory Council, which was established in 1958 as an adjunct to the Soil Conservation Authority, was statutorily limited to catchment areas and though its function was extended in April 1966 by Government directive, mainly to cover regions where the Soil Conservation Authority had carried out basic investigations, it was still not equipped to provide advice on land-use on a comprehensive State-wide basis.

These conflicting interests had an effect on the extension of existing national parks. In 1969 the Yanakie Run of 7,247 hectares was included in Wilsons Promontory National Park ; but it continues statutorily to remain a dry-cattle agistment area for the hill country dairy farmers of South Gippsland. In the same year, however, under pressure from conservation groups, the Legislative Council appointed a Select Committee of six members to examine the status of the Little Desert. The conflict of interest between conservationists and land developers gave rise to a protracted controversy which culminated in a decision by the Government to increase the area of the Little Desert National Park from 1,165 hectares to 35,250 hectares and to make a scientific evaluation of the Little Desert before the fate of the remaining area was decided.

Land Conservation Act 1970

The State Government had by now become fully aware of the need for a thorough scientific appraisal of all uncommitted Crown land. As a consequence the Land Conservation Act became law in November 1970. Under this legislation, the Land Utilization Advisory Council was dissolved and the Land Conservation Council with a much wider field of operation and responsibility was established. This Council of twelve members included a full-time chairman and eight members who were *ex-officio* heads of government departments and authorities whose activities were closely allied to the Council's functions. The Soil Conservation and National Parks Authorities, the State Rivers and Water Supply and Forest Commissions, the Departments of Agriculture, Lands and Mines, and the Fisheries and Wildlife Division were all represented on the Council. The other vacancies on the Council were to be filled by two nominees from the Conservation Council of Victoria and one representative from the agricultural sector. This representative was expected to have experience in conservation techniques in developing land for primary production.

Under Section 5 of the Act the Council was required to carry out investigations into the use of public land and to make recommendations to the Minister for Conservation concerning the use of public lands to provide for the balanced use of land in Victoria. It was also to make recommendations to the Governor in Council about the constitution and definition of water supply catchment areas, and to advise the Soil Conservation Authority on the policy of land-use, whether Crown land or alienated land, in any water supply catchments. The functions in relation to water catchments were a legacy from the now defunct Land Utilization Advisory Council.

In its recommendations on balanced land-use, the Council was to have regard to the present and future needs of the State with particular reference to :

- (a) the preservation of areas which are ecologically significant ;
- (b) the conservation of areas of natural interest, beauty, and historical significance ;
- (c) the creation and preservation of areas of reserved forest, national parks, native plants, fish and wildlife ; and
- (d) land required by government departments and public authorities to perform their functions.

Under Section 7 of the Act the Council was required to prepare and submit to the Minister for the approval of the Governor in Council proposals as to :

- (a) the location of the districts and areas proposed to be investigated by the Council pursuant to Section 5 ;
- (b) the nature of the investigation proposed ; and
- (c) the order in which the Council proposed to carry out such investigations.

Furthermore, in accordance with Section 9 (3) of the Act, on completion of an investigation of a district or area under Sub-section 1 of Section 5, it was required to :

- (a) publish a report ;
- (b) give notice in the *Government Gazette* of its publication and invite submissions from the public in relation to the report within 60 days ;
- (c) publish in a newspaper with State-wide circulation and one with local circulation, the address at which the report could be obtained and a notice stating that submissions would be received thereon within 60 days ; and
- (d) issue notices of a similar nature to appropriate government departments, again, with the 60 day time limit for submissions.

By December 1974 the Council had published reports on seven study areas : South-Western (District No. 1), South Gippsland (District No. 1), North-Eastern (District No. 1), North-Eastern (District No. 2), Melbourne, Mallee, and East Gippsland. In addition, it had presented and published Final Recommendations on the South-Western study area (District No. 1), South Gippsland study area (District No. 1), and North-Eastern study area (Districts Nos. 1 and 2). (See also pages 40-1.)

Legislative changes

The National Parks Authority continued to administer Victorian national parks until 1970. The national parks administration was a branch of the Premier's Department, with a Minister of the Crown, nominated by the Premier, as the person responsible to Parliament for its operation.

In 1970 legislation was passed establishing a Department of State Development. At the same time, the National Parks Act was substantially amended to abolish the National Parks Authority, and its duties were taken over by the Minister responsible for the new Department of State Development. The National Parks administration then became known as the National Parks Service, functioning as a Division of the Department of State Development, together with the Divisions of Tourism, Immigration, and Industrial Development.

One of the amendments to the National Parks Act in 1970 was to change the first of the four objects of the Act from "to provide for the establishment and control of national parks" to "to provide for the control of national parks". This amendment foreshadowed the role the Land Conservation Council was to play in succeeding years.

In December 1972 the State Government established a Ministry for Conservation, and those government agencies whose responsibilities were

conservation-oriented were grouped together in this Ministry. The Ministry includes the Environment Protection Authority, the Fisheries and Wildlife Division, the Land Conservation Council, the Port Phillip Authority, and the National Parks Service. The functions of the National Parks Service remained substantially the same.

National Parks Service staff

When the National Parks Authority began its operations in 1957, its staff consisted of a director, a secretary, a stenographer, and twelve park staff members distributed through the thirteen existing national parks. By June 1973, the number of national parks had increased to 24 and the total area from 126,765 hectares to 205,365 hectares. During this period the scientific staff of the Authority had increased to eight and one part-time engineer, while the administrative staff had increased to eight officers. Personnel employed in the parks had increased to 92. Of these, 32 were members of the Ranger staff, including five part-time Rangers, the 31 remainder being temporary rural relief workers, and other ancillary staff.

Location

The map facing page 34 indicates the locality of each of the present 24 national parks as well as the former national park, Tower Hill Game Reserve.

Descriptions

Descriptions of individual Victorian national parks are presented in the following pages. They include historically significant events, geological and ecological features, as well as unique or specific attributes. The description begins with the Tower Hill Game Reserve and is followed by the thirteen national parks dedicated by the Act of 1956. The final eleven parks described were dedicated after 1956.

Tower Hill Game Reserve

This former national park occupies a unique position in the history of Victoria's national parks. In addition to being Victoria's first national park established by legislation in 1892, as earlier described, it is also the only national park whose dedication has been revoked. This occurred in 1960 when it was formally included in the State's complement of game reserves.

An early protagonist for the preservation of Tower Hill appears to have been James Dawson who in 1840 occupied Kangatong Station, some 10 kilometres from Tower Hill, and who is thought to have been the first European settler in the district. Dawson was sufficiently interested in Tower Hill to commission Eugène von Guérard, a noted overseas artist who was visiting the Colony in 1855, to paint the surroundings of Tower Hill. Early surveyors' maps and other descriptions completely support the accuracy of the painting and it is reasonable to assume that the vegetation as then depicted was equally accurate. In the years following 1855, when agricultural and grazing land was made available in large quantities to resettle gold miners, the areas surrounding Tower Hill were severely damaged by grazing and burning which removed most of the vegetative cover. When the pressure to reserve and restore the area finally began to be effective in 1866, the knowledge of the pristine nature of the land derived from von Guérard's

picture became the blueprint for restoration which has proceeded during subsequent years.

In 1891, J. Dawson, who on returning from Scotland had resettled near Camperdown, wrote in the *Camperdown Chronicle* of the deteriorated state of the area and stimulated further the local pressure of opinion which urged the declaration of Tower Hill as a national park. However, when this eventuated in the following year, conservationists were to be rather surprised, for the care of the park was given by the Act to the Koroit Borough Council, which continued to issue licences for the quarrying of scoria, a stone much in demand for road surfacing, within the national park. Many years later, conservation groups such as the Natural Resources Conservation League and the Victorian National Parks Association pressed vigorously for complete protection within the reserve and subsequently the Fisheries and Wildlife Department was given charge of the area. The Department's charter was to proceed with the long-term restoration which Tower Hill so urgently needed. Though the revocation of Tower Hill as a national park and its reconstitution as a game reserve occurred in 1960, an extensive restoration programme for re-vegetation is still proceeding and an interpretative centre was opened on the reserve in 1971. The reserve now covers 640 hectares.

Tower Hill is situated between Warrnambool and Port Fairy and lies almost due south of Koroit. Seen from the Princes Highway, Tower Hill appears as a deep circular valley with a lake at its centre. This lake surrounds islands formed from small conical hills. The large basin-shaped volcanic depression forming its lake is described geologically as a nested caldera. It is one of Victoria's most recently active volcanoes and is a reminder of the great volcanic eruptions which shaped the plains of the Western District in past ages.

Wyperfeld National Park

With an area of 56,583 hectares, this national park is the largest in Victoria. It borders the northern extremity of the Wimmera River system and in geological terms is a part of the north-western basin submerged by the Miocene Sea. This subsequently became sandy desert land stabilised by vegetation only in comparatively recent times.

Initially the area had been part of the Pine Plains Pastoral Run, originally stocked in 1847 by J. M. Clow, the first European settler in the district. The first reservation of 3,846 hectares was of a temporary nature designed to protect the Mallee-fowl and other native birds. It was augmented between 1921 and 1948 by six successive permanent reservations to give the park its present area.

Taken from the parish title whose name, like that of Wilhelmina, reflected the influence of local German settlers, Wyperfeld may be a typographical corruption of Wipperfeld, the small Ruhr town in West Germany meaning "edge of the plain". Significantly, perhaps, the park forms the eastern segment of the Big Desert region and is on the northern edge of the plain-like country of the Mallee-Wimmera wheatlands.

Plant life within the park can be broadly divided into three ecological types. To the west lie large sand dunes, some reaching 50 metres in height and protected by a heath-type vegetation, characterised by banksia, casuarina, and tea-tree species. The central plain, on the other hand, is composed of dried-out flood plains supporting Black Box and Red Gum forests. The Wimmera River last inundated these plains in 1918 by filling

Lake Hindmarsh and Lake Albacutya to the south through Outlet Creek, and finally arriving at the dry lacustrine park network and Wirrengren plain to the north. In the eastern region, smaller sand dunes are found, covered by Mallee Eucalypt, while stands of Callitris (Native Pine) are scattered along the sand ridges throughout the park. The relatively low average annual rainfall of about 300 mm has contributed significantly to the nature of these plant groupings.

Wyperfeld National Park possesses more than 540 species of identified native plants. These include the rare Bell-fruit tree (Native Poplar), Blue Boronia, Guinea-flower, Golden Pennants, and fifteen species of Wattle.

Of the bird life in the park, perhaps the most interesting is the Lowan or Mallee-fowl, whose control of the incubating temperature of its huge mounded "nest" remains a scientific enigma. Emus and multi-coloured parrots including the Regent (Smoker), the Mallee Ringneck, and the Mulga, the Sulphur-crested and Pink Cockatoos, Galahs, Wrens, and Whistlers are common. The park also shelters many Black-faced Kangaroos.

In the Wonga Hut Tourist Area over 20,000 visitors use the park's amenities each year. These include a 14-kilometre car trail and two nature walks.

Anthropological information available from the Mallee and Wimmera is meagre. However, it is known that Wyperfeld is part of the area once occupied by the Wotju-Baluk tribe which was divided into five local hordes scattered around Dimboola, Warracknabeal, and Lakes Hindmarsh, Albacutya, and Coorong. Rapid pastoral and population expansion, following the gold rush of 1851, eliminated most of their hunting grounds and the tribe died out rapidly after 1860, the remnants being cared for at a Moravian Mission Station at Lake Hindmarsh.

The only remaining signs of Aboriginal life in the park are the scars left on a few old trees where bark has been removed to make canoes or shields, and Aboriginal artefacts such as microliths.

Kinglake National Park

Situated on the southern slopes of the Plenty Ranges and located approximately 70 kilometres north-east of Melbourne, Kinglake National Park is a spur of the Great Dividing Range. As earlier mentioned, the first reservation, gazetted on 7 March 1928, was an area of 5,587 hectares. Four small successive reservations by 1956 increased the size to 5,700 hectares, and by 1973 this had risen to 5,709 hectares.

The initial impetus for reservation stemmed from the splendid scenic features of the park, which include heavily forested mountain country intersected in places by deep fern gullies providing an ideal habitat for the Lyrebird. Some excellent views of the plains to the south and west are obtained from Mount Sugarloaf (550 metres) and Bald Spur (534 metres) on a fine day. Melbourne, Port Phillip Bay, and the Dandenong Ranges are all clearly visible.

The history of the park follows the familiar pattern of persistent importuning of the authorities by dedicated groups keen to preserve choice areas of land in perpetuity for the community. In February 1927, a representative of the National Parks Section of the Town and Country Planning Association waited on the Minister for Lands and pressed for the reservation of 4,049 hectares. The late Professor W. A. Laver set the stage for favourable gov-

ernment action by publicly announcing that he and his family wished to donate "the head and a good length of Jehosaphat Gully" for this purpose. Having secured the reservation of 5,587 hectares as park land on 7 March 1928, Professor Laver sought the reservation of the spectacular Wombelano Falls area of 55 hectares, and this was officially confirmed in October 1929.

Geographically the park has three segments: west, east, and north. The west segment includes Masons Falls which are about 50 metres high and Mount Sugarloaf. The eastern part is made up of Jehosaphat Gully, while the northern segment contains the Wombelano Falls. The greater part of the park is on the southern slopes of the Kinglake plateau, with a small portion belonging to the plateau itself.

The sedimentary rock formations belong to two main geological ages—Silurian and Lower Devonian—with the former generally steeply inclined. Rare marine fossils are present in the Silurian mudstone and sandstone. The soils are podsols, containing few nutrients and varying in depth over the dry aspects of the park.

The vegetative cover provides a representative sample of contrasting associations in the form of dry sclerophyll and wet sclerophyll forests, the former possessing Eucalypt species such as Red Stringybark and Peppermint, while the latter includes Mountain Ash. Within these broad associations over 200 species of native plants have been recorded. The bird list for this park shows more than 90 native species including the Lyrebird (*Menura superba*) and the colourful Swift Parrot. The Echidna, the Common Wombat, and the Black-tailed Wallaby are prevalent, and the Platypus is also present. There is little evidence, in this park, of early Aboriginal occupation. The reason probably is that the Aboriginals preferred open country where game abounded and the park in the main is densely timbered. However, Howitt records that the area lies in the former territory of the Wurun Jerri-Baluk tribe.

Fern Tree Gully National Park

Extending over 401 hectares east of Upper Ferntree Gully township, this small multi-purpose national park, 35 kilometres east of Melbourne, is conveniently situated for day visitors from the metropolitan area. As far back as March 1882, 167 hectares of the area was reserved for public recreation, the name being changed by Order in Council of 25 January 1887 to Ferntree Gully Recreation Reserve. By 1928 further additions had increased the area reserved to 226 hectares. Another permanent reservation of 150 hectares was made by Order in Council of 1 February 1956 and this increase, together with minor additions in recent years for fire protection purposes, has brought the park to its present size.

The park is a tribute to the far-sightedness of the early planners. Easily accessible by rail or road, it is a superb place for day picnics, with families, young people, and other groups from the metropolitan area being able to enjoy its recreational facilities under natural surroundings and close to home. Its popularity is indicated by the 100,000 visitors who visited the park during the year ended 30 June 1973.

Geographically the park is an integral portion of the south-western flank of the Dandenong Ranges, which geologists say are composed of an igneous complex of acid lavas extruded during Upper Devonian times. Of the five recognisable lava types in the Ranges only three are represented in the park. They are the three Dacite layers. These flows are occasionally separated by

agglomerate or tuff bands. A distinct blocking or scarping of the landscape is noticeable over the area.

Within the park three different soil types are evident. Deep brown soils extend along the southern and eastern slopes, with skeletal or rudimentary soils generally stretching along the ridges and descents. In addition, shallow, light poorly-textured soils (podzols) overlying a belt of thick, yellow clay, spread mainly along the elevated area of One Tree Hill, particularly along the southerly and northerly aspects.

There are 150 species of recorded native plants. Blackwood, Manna Gum, Soft Tree-fern, and Fishbone Water-fern are characteristic of the deep fern gully, while the surrounding forest contains mixed stands of Red Stringybark, Long-leaf Box, Messmate, Candlebark, and Grey Gum.

Despite two serious bushfires in 1962 and the continuing number of visitors, the natural bird life is plentiful and diverse. Over 100 species of native birds have been seen in the park, including the Lyrebird, the Rufous-, Golden-, and Olive Whistlers, the Peregrine Falcon, the Grey and Rufous Fantails, the Eastern Whipbird, and the White-throated Tree-Creeper. Fauna include the Echidna, the Brush-tailed Possum, and the Long-nosed Bandicoot.

Wilsons Promontory National Park

Discovered by Bass on 2 January 1798 during his epic whaleboat journey from Port Jackson, the prominence was named later by Governor Hunter, on the advice of Bass and Flinders to honour a London merchant Thomas Wilson, a close friend of the latter explorer. Early in February 1841 a party of eight men in the barque *Singapore* called at Corner Inlet during an exploration of Gippsland, and gave the present Mount Singapore its name. In 1859 the lighthouse was built and by 1873 the telegraph line linking the lighthouse with Port Albert had been established.

Earlier, in 1853, the first Colonial Botanist Ferdinand (later, Baron) von Mueller had made a solo expedition to the coast near Sealers Cove. He returned to the area in 1874 accompanied by two other botanists to collect plant specimens around Mount Oberon. In 1884 Gregory, Lucas, and Robinson walked from Trafalgar to the lighthouse via Shallow Inlet and reported favourably on the nature of the land they had traversed, claiming it was a perfect tourist resort and eminently suitable for fishing.

In 1898 a temporary reservation of 36,842 hectares was made under the Land Act. Almost immediately, a government decision was made to cut up other parts of the Promontory into 405 hectare blocks for land settlement. Deputations to the Minister for Lands in 1887 and 1890 had urged very extensive reservations in this area and the proposal to open up part of it for settlement provoked strong public reaction culminating in another deputation to the Minister. The outcome, after a further deputation to the Minister in 1904, was a permanent reservation of 30,364 hectares, approved by an Order in Council of 25 January 1905. However, the coastal strip which had been included in the 1898 reservation of 36,842 hectares was omitted, thus depriving the park of all sea frontage. In August 1908 a further 10,526 hectares, including the coastal strip, was permanently set aside following continuous lobbying by conservation groups. Additions in 1909 of 296 hectares, and in 1969 (under the National Parks Act) of 7,287 hectares, have brought the park to its present area of 48,937 hectares.

The national park, which is the most southern portion of the visible mainland of Australia, is composed geographically of two distinct entities. One is the outlier mountain range of Palaeozoic granite connected to the mainland at the north of the park by a tombolo or isthmus of recent littoral siliceous windblown sand dunes, and the other is a region of alluvial and swamp deposits which extend to the coastline from the foot of the granite mountains and hills which form the backbone of the Promontory. These deposits, consisting mainly of detritus or material derived from weathering of the granite, have formed areas of flat, low-lying, and poorly drained country. The most extensive portion of these deposits is that running northwards from the foot of Vereker Range into Corner Inlet. Smaller accumulations of talus or scree developed at the heads of Oberon, Norman, and Waterloo Bays, at Sealers Cove, and at Five-Mile Beach and Three-Mile Beach.

Shoreline features show the results of coastal submergence. This occurred after the termination of the last world-wide glaciation which began to recede about 12,000 years ago. The melting of the glaciers resulted in significant eustatic changes, the most important being the ultimate overall rise in sea level by about 45 metres. The resultant inundation of the coastline produced Bass Strait, and the residual granite hills now forming Wilsons Promontory became a group of islands which were later linked by sand accumulation. The several small offshore islands, also granite, which remain, rise steeply from the waterline and are not easily accessible.

The soils vary from siliceous sands to podsols and are either very deep, as in the case of the dunes, or skeletal or gravelly as on the slopes and mountain tops. Mainly in the western section of the park, however, calcareous sands are in evidence while some peaty soils exist in areas of poor drainage. A number of streams flow down from the mountain slopes into the sea bordering the park. Most of them have small tidal estuaries.

Flora within the park shows affinity with that of Tasmania. Wide diversity is revealed by the 740 native species recorded, which include Lilly Pilly, Blackwood, Saw Banksia, Myrtle Beech, Grass-tree, She-oak, Mangrove, thirteen Eucalypts, and many species of ferns and orchids.

The rich flora provides habitat for 272 species of native birds. The colourful Crimson Rosella is extremely common and reacts favourably to the attention of visitors at Tidal River. Mobs of Emus and Grey Kangaroos are often seen beside the Yanakie access road. This national park offers spectacular scenery, varied recreational facilities such as angling, walking, camping and swimming, and a wealth of botanical species and fauna.

There is much evidence, in the form of artefacts and middens, to suggest that Aboriginals once roamed this extensive headland. A maximum age of approximately 6,500 years has been estimated by carbon dating of occupation material in the Yanakie West excavations. It has also been suggested that the Aboriginals appeared to favour the coastal regions, and tended to visit the Promontory in small groups. According to Howitt, this region appears to have been the hunting grounds of the Brabrolong, one of the five sub-groups of the Kurnai tribe, whose territory in Gippsland lay between the sea coast and the mountains from Andersons Inlet to Cape Everard. The Brabrolong claimed the land from the Latrobe River to Cape Liptrap and from the southern watershed to the sea, including Wilsons Promontory. Their territorial rights

were believed to be protected against other Aboriginals by a legendary figure called the Loo-ern who, armed with an enormous spear, dealt with strangers who entered the grounds of the Brabrolong without permission, or who failed to observe the necessary formalities.

Between 1908 and 1910 three botanical surveys of the reserve were made and in 1923 a small chalet was erected at Darby River to serve the ever-increasing number of nature lovers. This operated until 1942 when it was replaced by the Tidal River settlement established originally as the first commando training centre in Australia. The park suffered severe damage in 1951 when a fire, which started on adjoining land, escaped and enveloped about two-thirds of the park. Natural regeneration has hidden most of the scars, but mute evidence of this holocaust remains in the tall dead trees which outline the mountain tops.

Mount Buffalo National Park

About 322 kilometres from Melbourne and set in rugged north-eastern Victoria, Mount Buffalo National Park extends over 11,045 hectares. It is a large isolated granite plateau or batholith and its elevation varies between 1,220 metres and 1,524 metres. Subjected to erosion over a long period, it is in fact a "relic" mountain surrounded by Ordovician sediments to a height of about 1,000 metres above sea level. On the southern side it is connected to the main mass of the Great Dividing Range by a col or saddle. The granite head forms an extremely steep-sided plateau, which is dotted with tors, or great granite weathered rocks.

The streams and watercourses on the plateau are set out in a fairly rectangular pattern oriented along the two sets of almost vertical points, mainly on the northern and western scarps of the plateau, which descend precipitously to join the Buffalo River. The many permanent streams in this park swell considerably during September when the snow melts. The soils of the plateau are alpine humus, acid brown earths, and lithosols, while those of the surrounding sediment are amphipodsols and cryptopodsols.

The unsuitability of the terrain for alternative land-use probably assisted the cause of early conservationists seeking to preserve the area. Representations for reservation of this area emanated from ski- and bushwalking clubs, the Bright Progress Association, and a variety of other sources from as early as 1898. As a result, temporary reservations as sites for a national park were approved successively under the Land Act. These included 1,134 hectares in November 1898, 9,352 hectares in 1908, and 526 hectares in April 1948. All these areas were consolidated under the inaugural *National Parks Act* of 1956 and were listed as Mount Buffalo National Park.

The park's major assets are spectacular alpine scenery, unusual rock formations, and a general suitability for snow sports and recreation. From the early days, therefore, snow sports devotees were strongly attracted to this reserve during the winter, while bushwalkers and amateur naturalists favoured the warmer months.

Approximately 400 species of native plants have been identified within the park. Most of these fall within five main plant communities. The sclerophyll forest associations include Alpine Ash, Narrow-leaf Peppermint, Candlebark, Mountain Gum, Red Stringybark, Broad-leaved Peppermint, and other Eucalypts. The woodland community is mainly Snow Gum, while the Heath groups include Leptospermum, Callistemon, and Calytrix species, as

well as some of the Hoveas, Baekeas, and Epacris. In the grassland community, Snow Grass is dominant with some sedges. The most common species in the bogland community are the common Bog Moss and various heaths.

The Black-tailed Wallaby and the Common Wombat are reasonably numerous, while the bird list shows 131 native species, the Superb Lyrebird and the Pied Currawong being commonly seen. The Bogong Moth is characteristic of the area.

Mount Buffalo, a peak of 1,721 metres, was given its name in 1824 by Hume and Hovell, the first Europeans to visit the area. Thirty years later Ferdinand (later Baron) von Mueller and an associate, Dallachy, made the first ascent of the peak. In 1852, with the discovery of gold at Livingstones Creek and in the Ovens Valley, the plateau suffered from the effects of the widespread "gold fever". In 1854 James and John Manfield climbed the Horn via the long spur from the Lower Buckland area, and in the 1890s a contractor named Dennison constructed a track to the top of the plateau. The present road, which was first laid down in 1908, follows the line of Dennison's track. In 1909 a chalet was built and leased to tenants, only to be transferred in 1924 to the Victorian Railways. Subsequent additions and improvements now provide for 190 guests.

According to Howitt, the north-eastern alpine country including Mount Buffalo was occupied by Aboriginals of the Ya-itma-Thang tribe, commonly referred to as the Omeo tribe. Part of this tribe, the Theodora Mitung, occupied the sources of the Mitta Mitta River from its tributaries to Mount Gibbo along the Upper Kiewa and Ovens Rivers as far as Mount Buffalo. Although Europeans first penetrated the tribal hunting grounds in 1838, heavy settlement began in those areas only after 1852 with the discovery of gold at Livingstones Creek. The presence of the European brought about the disintegration of the tribe, and by 1862 only five of the original group of 500 members remained. It is likely that Mount Buffalo, with its severe winter climate, was not the tribe's permanent camping area; however, the presence of the Bogong Moth, considered a delicacy, was a great attraction to the tribe, and no doubt encouraged regular hunting expeditions to the plateau.

The Lakes (Spermwhale Head) National Park

This relatively isolated park is a peninsula projecting into the Gippsland Lakes between Lake Reeve and Lake Victoria. It is approached most easily by boat from Paynesville, a distance of over 5 kilometres. The remoteness of the park from the main centres of population, for it is about 320 kilometres from Melbourne and 65 kilometres from Sale, has contributed to the preservation of its natural attributes. Under the Land Act an initial permanent reservation of 1,450 hectares was made in 1929, the area being dedicated as a national park by the Act of 1956. The area has for long been known locally as Spermwhale Head Peninsula, since, when viewed from the air, the shape closely resembles the head of this species of whale.

In 1924, members of the Field Naturalists Club of Victoria and the Chief Inspector of Fisheries and Game recommended that an area of 1,397 hectares on Spermwhale Head, opened to the public by the owners Wilfred and Grace Barton, be made a wildlife sanctuary. Three years later, the area

was officially classified as a temporary reserve. The park was increased in size to 2,121 hectares in 1960 by the addition of land on the north-eastern side of the peninsula bought from another member of the Barton family.

Spermwhale Head is composed of recent swamp deposits and Pleistocene sand ridges which in places mark successive shorelines. It is built up from particles carried down by rivers emptying into the Gippsland Lakes, or blown ashore from the sea bed. Periodically the salinity of these lakes is relieved by spate flushing of a number of rivers flowing into them. Although there are no streams in the park itself, about 61 hectares are swamp or shallow lagoons. The main surface soils are poor, being particularly coarse loose particles with a low proportion of organic matter. Black peaty soils are evident in the swamp and depression areas.

The main vegetation affinities noticeable in the park are Saltmarsh, represented by *Salicornia* species, tall shrubland of Swamp Paper-barks, and woodlands of Coastal Manna Gum, Mahogany Gum, Bassian Peppermint, Saw Banksia, Coast Banksia, and Black Wattle. *Thryptomene (micrantha)* grows profusely in the park, but its occurrence elsewhere in Victoria is rare. *Thryptomene* was the main reason for dedication of this area as a national park.

Most of the bird life is aquatic and includes marine and seashore species with water fowl breeding in the ephemeral swamps. Over 140 native species are recorded. Park fauna include the Black-tailed Wallaby and Brush-tailed Possum, while the cleared land on the eastern tip of the peninsula is the habitat of a few Grey Kangaroos and several Emus.

Spermwhale Head was originally occupied by the Brabrolong, a sub-tribe of the Gippsland Kurnai tribe. Brough Smyth records that during the summer the tribes fished for eels and mullet, generally at night, using their spears with uncanny skill, while in the winter they hunted "native bears" (koalas) and kangaroos. In 1845, when the first local pastoral run was taken up nearby by Boyd and Cunningham, the tribe numbered about 1,000. By 1882 it had decreased to 82 in number, who were being cared for at the Lake Tyers Aboriginal Mission. A few kitchen middens and steps cut into the trees with Aboriginal stone axes are the only remaining reminders of the former occupants of the park.

Lind National Park

Reserved for the main purpose of preserving an appropriate sample of Gippsland rain forest and other flora and fauna, Lind Park is located between Orbost and Cann River adjacent to the Princes Highway about 628 kilometres from Melbourne. A bonus for visitors is the scenic features which can best be enjoyed while travelling the Euchre Creek Road through the park. In this way, too, the splendid dense rain forest can be appreciated. Originally the Princes Highway passed through the park, but it has now been relocated to follow the northern boundary.

The initial area of 1,167 hectares for the park has not been increased since its first reservation. In 1925 the Director of Land Settlement had recommended to the State Government that areas of Euchre Creek and Mount Drummer (later Alfred National Park) be permanently reserved. Lind National Park, which was dedicated in 1956 by inclusion in the Schedule to the National Parks Act of that year, was named after Sir Albert Lind, a

former Minister for Lands who had represented an electorate which included the park region for many years.

The park's rock structure may be described as finely-grained metamorphic, with a well defined slate fissility, embedded with graptolites. The land-form is hilly, and deeply dissected with steep valleys. The soils are of the heavy deeper forest types with clays tending to predominate. Though there are no wet-land areas, the region lies in the drainage basin of the Bemm River, and to the south and east several perennial streams drain the park.

One of the most significant of the 220 listed native plants is the Gippsland Waratah (*Telopea oreades*) which has become relatively rare. The park contains tall Eucalypt forest of mixed species including Silver-top, Messmate, Grey Gum, and White Stringybark. The gullies support associations of Blackwood, Lilly-pilly, and Hazel Pomaderris with prolific areas of tree- and ground ferns.

Included in the 220 known species of native birds are the Eastern Whipbird, the Lyrebird, and the Gang-gang Cockatoo. Among the animal species the Allied Rat, the Long-nosed Bandicoot, and the Black-tailed Wallaby are quite common.

Alfred National Park

A sister park to the previous one, Alfred National Park is located on the slopes of Mount Drummer 483 kilometres east of Melbourne along the Princes Highway which runs through the park.

Two small areas were reserved temporarily in December 1925, and the first permanent reservation of 1,357 hectares was made only one month later. The 1956 Schedule to the Act gave its increased area as 2,189 hectares, and the 109 hectares of land purchased in December 1971 increased the park to its present 2,298 hectares.

Most of the park is composed of Palaeozoic granites which have intruded into Ordovician slates. The forested slopes are drained by several streams running in a south-easterly direction.

Botanically the park is significant, being a prime example of sub-tropical rain forest and the habitat of a wide range of rare ferns. Alfred Park contains more than 270 species of indigenous flora and a rich moss flora. The two notable plant communities are the dense tropical jungle, with the Jungle Grape, Kanooka, Gippsland Waratah, and many tree fern varieties, and the wet sclerophyll forest containing Eucalypt species such as Silver-top, Messmate, Eurabbie (*Eucalyptus st.-johnii*), and Grey Gum. Though most of the fauna is common to the two sister parks, Fluffy Gliders and Dingoes are more numerous in Alfred National Park.

Wingan Inlet National Park

First reserved in 1909 and included in the 1956 Schedule to the Act, Wingan Inlet was set aside to preserve the attractive coastal scenery, rich bird life, and jungle-type flora. This park of 1,915 hectares surrounds Wingan Inlet, which is on the far East Gippsland coast. Its attractive swimming beaches and suitability for fishing excursions have not, as yet, resulted in large numbers of visitors, undoubtedly because of its remoteness and relatively difficult access. About 500 kilometres east of Melbourne, the approach to this park is by way of a 32 kilometre unsealed road from the Princes Highway.

In 1770 Captain Cook on his historic voyage north along the east coast of the continent, passed the inlet, but though nearby Ram Head was sighted and named by him, Wingan Inlet was apparently obscured from his view by the Skerries, a series of small rock formations 367 metres offshore. Bass in his epic whaleboat voyage of 1797 landed near the inlet while looking for fresh water, and explored its surroundings for ten days while awaiting the abatement of a fierce storm.

Wingan Inlet is one of a number of inlets along the East Gippsland coast. These inlets have resulted from the damming of shallow river valleys by vast quantities of sand blown from the sea-floor. The quantity of sand thus moved is so extensive that during dry seasons the river flow is blocked for long periods until the weight of the pent-up fresh water forces a break-out. Sea-water flows in on the high tide and brackish water flows out on the ebb, leaving a sea-shore sand bar which is in a state of constant flux. Whereas most of the valleys on these inlets intersect the coast only in regions of low relief, Wingan Inlet does so at relatively high relief, forming a narrower inlet. The water therefore enters and discharges from it very rapidly. The Wingan River, a perennial stream which flows into the Inlet, behaves in this way.

Derived from granite *in situ*, most of the soils have coarse material in their profile. There are also some peats in the depressions mixed with pure ocean-floor sands. The Skerries are the home of a colony of fur seals whose presence is both a tourist feature and an incitement to shooting by vandals.

The 425 identified native plant species are found mainly in several broad associations. The sea-shore community is represented by Hairy Spinifex and Black She-oak, while the Eucalypt forest holds stands of Silver-top, Bloodwood, Mahogany, and Yellow Stringybark. Riparian affiliations are represented by sedges and ferns, and the jungle assemblies by Water Vine and Kanooka.

Wingan Inlet has over 80 species of recorded native birds, the Lyrebird, the White-breasted Sea Eagle, and the rare Eastern Bristle Bird being of special interest. Reptilian inhabitants include the Water Dragon, the Diamond Python, and the Lace Monitor. The park also provides a habitat for the Brown Phascogale, the Tiger Cat, the Yellow-bellied Glider, and the Dingo.

Mallacoota Inlet National Park

Approaching the border of New South Wales, Mallacoota Inlet is approximately 548 kilometres east of Melbourne. The township of Mallacoota, which adjoins the park, is a popular tourist and fishing resort. The park, with an area of 4,545 hectares, is a strip 1,200 metres wide around a network of smaller estuaries which form the inlet. This is the major portion of the 4,615 hectares first reserved temporarily as a site for a national park in 1909. Despite strong representations by the Victorian National Parks Division of the Town and Country Planning Association calling for further extension of the park, an area of approximately 71 hectares was excised from the reserve in 1917 and has remained outside the boundary ever since. The Schedule of the 1956 Act shows the present area of the park.

The district of Mallacoota is made up of base rock of Gabo granite covered by Ordovician sediments which are severely contorted. Gabo granite outcrops also exist in areas adjoining the park. Sandy beaches with some aeolian drifts are characteristic of the region, with Recent shell beds above the waterline.

Because of the low nutrient composition of the parent rock, the soils are generally poor with siliceous sand predominating. Most of the soils in this area may be described technically as yellow and mottled with a bleached A2 horizon. Mallacoota Inlet is one of the tidal estuaries of the East Gippsland coast. The main hydrographic theme is the Inlet itself, or the "drowned" Genoa River, which is tidal. This river, flowing into the Inlet from the north-west and the Wallagaraugh River flowing from the north, feed the estuary with fresh water, but there is little or no potable water in the park itself. The threat of siltation could pose a problem for the park in the future.

Some 560 species of native plants have been recorded. There are forests of Bloodwood and Angophora, mixed stands of Eucalypt forest and some sub-tropical jungle pockets typified by Kanooka, with small scattered areas of wet heath, particularly the Pink Swamp Heath. The Sandpaper Fig (*Ficus coronata*), a very rare species, is indigenous to the park.

The Rainbow Lorikeet is one of the most spectacular of the 200 varieties of native birds in the park. Oyster-catchers, Azure Kingfishers, Pelicans, and Sea Eagles are also common. The Black-tailed and Red-necked Wallaby and the Dingo are indigenous fauna, and the larger Lace Monitor and Eastern Water Dragon are important reptile inhabitants. The Grey-headed Fruit Bat is another interesting occasional visitor.

Tarra Valley National Park

This small and select segment of 136 hectares of forest lies between Traralgon and Yarram, 209 kilometres east of Melbourne. Its reservation was first suggested because of the scenic views and distinctive vegetation, particularly the wide variety of native ferns.

The reserve was created with a temporary reservation of 304 hectares in 1909 for "a road and scenic purposes". The original reservation was revoked in December 1941 and replaced by another, which set aside 59 hectares temporarily as a site for a national park. In 1944 this was increased to 81 hectares, and later, in April 1962, to 128 hectares with the purchase of land from a local conservationist who, incidentally, was the park ranger. The money for this acquisition was provided by the Bird Observers' Club. In December 1971 the Alberton Shire Council donated a further 9 hectares, making the total area 136 hectares.

The valley comprising the park is situated at the head of the Tarra River, which rises near Balook and empties into Corner Inlet. The river was visited by the barque *Singapore* on 13 March 1841, and the crew named it after Strzelecki's native guide Charlie Tarra, who is said to have accompanied some earlier expeditions to the area.

The underlying rocks are sedimentary, composed mainly of Mesozoic sandstones and mudstones with occasional lenses of black coal. Minor faulting is visible in cuttings near Balook. The rock system is about 150 million years old.

The vegetation in the valley may be classed as a remnant of the original Mountain Ash type forest with the main elements of a temperate rain forest—Sassafras, Myrtle Beech, and four types of tree ferns. Many species of small ferns are also found in the park.

The Common Wombat, Platypus, Koala, Echidna, Allied Rat, Ringtailed and Mountain Possums, as well as a number of species of Phascogales and

Gliders are indigenous ; of the birds, the Crimson Rosella, the Yellow-tailed Black Cockatoo, the Superb Blue Wren, and the Superb Lyrebird are probably the most distinctive and colourful.

Bulga National Park

This is a miniature national park, possessing similar ecological features to its sister park—nearby Tarra Valley. Set in the Strzelecki Ranges between Traralgon and Yarram, it is 193 kilometres east of Melbourne. Like Tarra Valley, it deserves preservation on account of its attractive scenery and special native vegetation. Some of the finest fern displays in the State may be seen in Macks Creek where Sassafras, Myrtle Beech, and Tree-ferns proliferate. The main gully is spanned by a suspension bridge nearly 50 metres long which is a feature of the park. Bulga Park lies at an altitude of 579 metres and is occasionally covered with snow in winter.

The park originated with a reservation in 1904 of 20 hectares. By 1941 this had grown to 23 hectares. In 1943 a further 13 hectares was added to bring the total reservation to its present size. Like Tarra Valley it was included in the Schedule of National Parks in 1956.

Exposures of sandstone are similar to those in the upper Tarra Valley and the rock formation below the deep forest soil is a buff-coloured sandstone. The tallest trees in the park are Mountain Ash, one of which exceeds 75 metres in height and 15 metres in girth. The forest understorey is composed of Tree-ferns, Musk, and Blackwood.

Churchill National Park

This small national park of 193 hectares is situated in the wooded hills near Melbourne between Dandenong and Ferntree Gully. It was originally the north-west corner of the former Police paddock and being on the perimeter of the metropolitan area, it was most suited for recreational purposes for suburban visitors. No additions have been made to the park since its initial reservation in 1930. It was included in the Schedule of National Parks in 1956.

Much of the land, originally densely timbered, is now covered by a sparse Eucalypt forest. It is fairly representative, however, of the original Barry Ranges vegetation, with Eucalypts on the hills and Dogwood, Swamp Paper-bark, and a scattering of Sweet Pittosporum trees harboured in the gullies. The highest point in the park, 177 metres above sea level, provides excellent views of Western Port Bay. Unlike most of the other reserves, the perimeter of the park is surrounded by a chain-wire fence, and the gates are closed to the public at sunset. The erection of the fence was occasioned by damage by vandals in past years.

Special precautions are being taken to protect the few Black-tailed Wallabies from excessive attention by visitors. The Sugar Glider, the Long-nosed Bandicoot, the Ring-tailed and Brush-tailed Possums, and the Little Brown Bat may be seen after dark.

The area is a very important bird habitat, 108 native species having been recorded in the park.

Fraser National Park

Fraser National Park on Lake Eildon was named after the late Hon. A. J. Fraser, M.C., M.P., who was inaugural Chairman of the former

National Parks Authority from 1957 until 1964. Situated 18 kilometres east of Alexandra and about 145 kilometres north-east of Melbourne, the park lies along the Delatite arm of Lake Eildon.

It originally formed part of the Coller and Stone grazing properties and was purchased by the State Rivers and Water Supply Commission in connection with the construction of the Eildon Reservoir project. The lower eastern slopes were inundated when the enlarged Eildon water storage project was completed early in 1956. Following a conference between conservation-oriented State Government departments, it was recommended that the shoreline be "classified and nurtured as a national park", and accordingly an area of 2,672 hectares was dedicated by an Act of Parliament in 1951. Later adjustments to the boundary and other additions have resulted in an increase in the size of the park to 3,136 hectares. Scenic features and access for boating and angling were the main considerations commending this area for reservation. The park now possesses a network of pedestrian tracks constructed primarily for fire protection purposes, and the visitor is able to walk comfortably to many excellent vantage points to observe the splendid panoramas of the park and the lake.

Most of the land had earlier been cleared for grazing, with only some small areas of the original forest remaining. Natural regeneration, however, particularly of Eucalypts and Acacias, has been most marked since the cessation of grazing and this has been supported by a programme of replanting of native species on a long-term basis.

Geologically the area is made up mainly of Silurian sediments of siltstone, sandstone, shales, and clay stones with a few acid igneous dyke swarms or parallel intrusions. The uniformity of soil types in the park is pronounced. On the steep hills they are brown and alkaline with a shallow lime, with deeper lodgments of eroded alluvium in the gullies and some buckshot gravel on the ridges.

Two main vegetation communities are evident : one is the open, dry Eucalypt forest composed of Grey-, Yellow-, Red Box, and Red Stringybark, with sparse ground cover ; the other plant community is the "gully" association which includes Manna Gum and Rough Tree-ferns. Among indigenous bird species are the Wood Duck, the Wedge-tailed Eagle, the Grey Butcher Bird, and the Gang-gang Cockatoo. The noisy calls of the migrant Pied Currawong often attract attention. The more common forms of marsupial found in the park include such creatures as the Black-tailed Wallaby and the Eastern Grey Kangaroo.

Hattah Lakes National Park

Hattah Lakes National Park is part of the Kulkyne State Forest which embraces a number of lakes fed by the Murray River via the Chalka Creek and a large forest of Mallee, separated by wide rolling open plains.

Earliest records reveal that James Crawford occupied some of the lake region in 1847. Grazing of the area under annual licence continued until approximately 1920. In 1941, following strong representation for its reservation, the Lakes region of 17,004 hectares was added to the Kulkyne Forest Reserve which continues to be controlled by the Forests Commission of Victoria.

In 1960 an area of 17,814 hectares containing Lake Hattah and 16,000 hectares of Mallee country was excised from the Kulkyne State Forest and dedicated as Hattah Lakes National Park.

Quaternary dunes of aeolian origin make up most of the park, and the soil is composed of deep brown sands with some raw dunes, resulting from grazing. The lake bed, when dry, shows black cracking clays. The flood plain community is one of four main plant associations and is composed mostly of River Red Gum and Black Box Eucalypts. The saline flats, particularly the Lendrook Plain, holds Sea-heath, Nitre-bush, and Glassworts. Within the park itself over 560 species of indigenous plants are preserved.

Of the 200 species of native birds, the well-known mound-building Mallee-fowl or Lowan, the Mallee Emu-wren, the Emu, the Ibis, and the Black Swan are the most notable. Reptiles common to the region are the giant Lace Monitor and the Sand Goanna. The Black-faced Kangaroo is a common sight and there are some Red Kangaroos in the park.

Mount Richmond National Park

Mount Richmond National Park has an area of 824 hectares, but is capable of substantial extension. It is located in the coastal western district of Victoria, 3 kilometres inland from the Southern Ocean, and approximately 403 kilometres from Melbourne.

The park includes the volcanic core of Mount Richmond and, although it is only 230 metres above sea level, may be seen for many kilometres due to its distinctive rounded hump, which stands out from the flat terrain. It is one of the many long-extinct volcanoes which are a feature of Western Victoria. Sand drifts from nearby Discovery Bay have blown over the original basalt, providing a sandy loam ideal for the growth of heath species. Pleistocene dune limestone surrounds the park with a few basalt tuff exposures. The soils are acid podsols with light-coloured horizons and leached sandy soils with an impervious pan below the first horizon. Though there is little free surface water, the park possesses a perennial spring.

Initially dedicated in 1960, as a result of strong representations from the Portland Field Naturalists Society and other conservation groups, the park, originally 621 hectares in area, had increased to 824 hectares by December 1968. These conservation bodies appreciated the fact that the Mount Richmond area possessed prime examples of the coastal flora and fauna of Western Victoria.

The Henty brothers, generally accepted as the first Europeans to arrive in the district, named the feature Mount Richmond in July 1835. Richmond, one of the Henty children, was the first European child to be born in the Portland region. The Duke of Richmond had also earlier provided the Hentys with finance for their activities. Apart from very early pastoral licences, the park has not been occupied. Some of the land on the southern slopes outside the park, however, is privately owned.

Access to the summit is now provided by an all-weather road. A picnic area with amenities including water supply has been constructed at the summit. A feature of this park is the Noel Learmonth Lookout Tower at the top of Mount Richmond. It commemorates the services of Noel Learmonth, a local historian and naturalist who died in September 1970 at the age of ninety.

Situated 26 kilometres north-west of Portland, the park is composed mainly of forest and open heathlands holding scattered swamps. The steeper mountain slopes contain forests with stands of Brown Stringybark, Manna, and Swamp Gums, and some Shining Peppermints.

Many of the 450 species of native plants are arrayed in a vast mass display. Hairy Boronia and Heaths spread over most of the heathlands provide colour contrasts to the mauve Heath Honey-myrtle. The rare Oval-leaf Logania, restricted to the Portland district, is in the park along with 58 species of native orchids. Small marsupials such as Possums, Gliders, and Bandicoots are among the fauna and Red-necked Wallabies and Emus are often seen. Of the 100 or more native birds perhaps the most interesting are the Beautiful Firetail, the Bristle-bird, and the Fantail-warbler.

Mount Eccles National Park

Mount Eccles National Park, of 394 hectares, is important for its outstanding geological features. According to Noel Learmonth, the first reference to Mount Eccles may be found in Matthew Flinders' *Voyage to Terra Australis*, where reference is made to "a round hill" noted on 20 May 1802.

Learmonth also presents considerable evidence to suggest that Major Mitchell named this hill Mount Ecles in 1838 in memory of a young lieutenant with whom he had served in the Peninsula War, but the typographical corruption to Eccles came about shortly after and a Surveyor-General's map records this spelling in 1855.

Mount Eccles is situated in the western district of Victoria about 322 kilometres from Melbourne and 10 kilometres from Macarthur. The first sales of land in the region began in 1857, the original blockholders being mainly potato farmers. Thirty-two hectares on Mount Eccles were reserved in November 1926 as Macarthur Public Park, and the Lands Department formed a Committee of Management to care for this tourist asset. The reserve was among those dedicated by the National Parks Amending Act of 1960, and was increased to its present size by a similar Statute in October 1968.

The central feature of the park is a series of volcanic craters the largest of which, a caldera, contains Lake Surprise. Further south there are two other craters, but both of these are dry. Until about 5,000 years ago Mount Eccles, Mount Napier, and other neighbouring mountains were active volcanoes, and Mount Eccles was probably the last to become extinct. Twenty million years ago, eruptions from these volcanoes produced a large rough stony basalt plain covered with reddish lightweight rocks. These rocks, which are full of gas-holes, are known scientifically as scoria.

Though there are no streams entering or discharging from the lake, its water level rises in winter and falls in summer because of groundwater seepage from the surrounding countryside. The lake is 700 metres long and 180 metres wide with a maximum depth of 13 metres. It has a cone-shaped bottom covered by a layer of ooze a metre thick.

The mountain itself is a mound of scoria 179 metres above sea level. The prevailing westerly winds have built this hill on the eastern rim of the crater by carrying the cindery scoria to this site. Scoria has also been blown as far east as Macarthur where it is quarried for road surfacing.

The last of the liquid lava to flow from the crater formed a canal which runs in a westerly direction for about three kilometres. When the lava within the crater subsided, some of the molten rock ran back into the volcanic vent

leaving behind this distinct channel. A by-product of the lava invasion was a series of lava caves, many large enough to shelter and hide small herds of cattle and horses. The causes of these caves may have been pressure from the hot gases which finally escaped from the molten mass. Thomas Alexander Browne, who wrote *Robbery Under Arms* under the pseudonym of Rolf Boldrewood, and who held a pastoral run near Port Fairy from 1849 to 1856, wove the geographical features of this area into his story of cattle and horse thieves.

Native species of plants feature Silver Banksia, Kangaroo Apple (a food source for the Aboriginals), a number of ferns, and Manna Gum. Learmonth and others have recorded 64 species of indigenous birds including the Boobook Owl, the Australian Goshawk, the Brown Bittern, and the Spur-winged Plover.

Glenaladale National Park

This is another of the smaller national parks, having an area of 163 hectares. It is situated approximately 40 kilometres north-west of Bairnsdale; access is by way of a gravel track leading in from the Dargo Road. Proclaimed in 1962, the land was donated by A.P.M. Forests Pty Ltd.

The Mitchell River, which forms the northern boundary of the park, flows between high reddish sandstone cliffs, and its tributary creeks have cut deep gorges as they enter the parent stream. Two of these creeks, Deadcock (or Woolshed) and Bull, run through the park.

The sandstone cliffs which rise to over 120 metres above the junction of Deadcock Creek and the Mitchell River, consist mainly of brown fine-to-medium sandstone with silt and clay components. Not infrequently, flakes of mica lie parallel with the bedding, causing the rock to split along the bedding planes. The sandstone layers, varying in thickness from 30 to 90 centimetres, are set approximately horizontal or dip slightly to the south. Beds of pinkish-red and buff-coloured mudstones are also prominent. Minor deposits of pebbly sandstone are found in the base of the cliffs. Glenaladale is part of a dissected plateau which was elevated at the end of the Tertiary period thereby starting a new cycle of erosion leading to the present gorge-like valleys of the Mitchell River tributaries. Steps and rapids in these valleys show that the streams are still down-cutting their beds, the gradient of the banks depending on the type of surrounding rock, with the valleys steeper where sandstones and conglomerate prevail.

The Den of Nargun, located on Deadcock Creek a short distance from the Mitchell River, is a cave-like hollow about 20 metres wide by 5 metres deep, with an irregular floor which is about a metre above the water level of the creek. The roof, which is from 2 to 3 metres above the floor, is the base of a hardened sandstone bed and forms a semi-circular ledge about 3 metres thick. The creek overflows this ledge after heavy rain and falls into a pool immediately below the entrance to the hollow. Through successive floods, over a long period, the stream has worn back the soft thick mudstone bed, and coupled with the effects of the backwash as it falls into the pool below, has formed this natural cave. Minute calcite veins exist throughout the sandstone, and have impregnated the stream with calcium carbonate. This has resulted in the formation of stalactites and stalagmites several centimetres long. On the southern side of the entrance, two huge columns of calcite partly obscure the entrance.

Brough Smyth reports an Aboriginal myth concerning the Den of Nargun when he refers to Howitt's account of a journey down the Mitchell River to investigate the Iguana Creek beds. Howitt was accompanied by two local Aboriginals—the elder of whom advised them not to enter the cave as it was the haunt of a fearsome creature called Nargun. It was said to inhabit a number of caves along the Mitchell River into which it dragged the unwary stranger. Howitt, who was an expert in the habits and language of the Kurnai tribe of Gippsland, was able to record this myth in detail. It would seem that the Nargun served to protect the territorial rights of the Kurnai tribe in this area as the Loo-ern did for the Brabrolong at Wilsons Promontory.

The vegetation in both Deadcock and Bull Creeks is an outpost of the luxuriant sub-tropical jungle of East Gippsland. Many species of lianes and two species of trees, the Kanooka and the Yellow-wood, are not found further west in Victoria. Lilly-pilly and Sweet Pittosporum are common. Lyrebirds, Wonga Pigeons, King Parrots, and Bell Miners are among the birds represented.

During March 1965 a severe forest fire considerably damaged the rain forest in Bull Creek and to a lesser extent, Deadcock Creek. In the succeeding years natural regeneration has been substantial.

Port Campbell National Park

This reserve of 708 hectares was dedicated as a national park in May 1964 at the same time as Glenaladale. It consists of a narrow coastal strip some 24 kilometres long, stretching along the western Victorian coast. It lies about 242 kilometres from Melbourne and is bounded on the north by the Great Ocean Road. Local interest in the area came first from the Shire of Heytesbury and from conservation groups which drew the attention of the Victorian Government to various features that merited preservation.

The earliest history of the area dates back to the 1840s. Smythe surveyed the coast from Hopkins River to Moonlight Head in 1847, the first settlements being the pastoral runs of Buckley Creek, taken up by Boyle in 1846, and Glen Ample by Brown in the following year.

The long narrow stretch of coastline of sedimentary rock is composed of Tertiary limestone, clays, and sands exposed in high sheer cliffs and also extending inland. Offshore, there are a number of rock-stacks of similar material. Fossils are embedded in the limestone, while australites (tektites) are found on the surface. The spectacular rock features include London Bridge, a long neck of the mainland with two large archways. The Arch, and a series of rock-stacks known as the Twelve Apostles. Other coastal features are the Loch Ard Gorge and nearby Blow Hole. Between 1855 and 1908 at least five sea-going vessels were wrecked along this treacherous coast, the most spectacular tragedy perhaps being that of the *Loch Ard*—a three-masted iron clipper of 1,600 tonnes which foundered in 1878 near the gorge now bearing its name, with the loss of 50 passengers and crew. Their remains lie buried in the small *Loch Ard* cemetery nearby. The adjoining Blow Hole is a large hole over 15 metres deep and 35 metres wide, located about 400 metres from the shore. An underground tunnel permits the rising tide to enter this hole.

Soils are of a hard-setting to loamy nature, with sub-soils of clay. Pans of buckshot gravel can be found between these two dissimilar horizons.

Sherbrook River crosses the park towards the eastern boundary, while further west, the Port Campbell Creek runs close to the northern boundary of that part of the park. Although there are no major wetlands, there are small swamps adjacent to Port Campbell Creek. Artesian water exists near the park and is used for camping amenities. The principal vegetation alliance is Coastal Heath with Casuarina species, together with scattered Swamp Gum and stunted Messmate. Red-necked Wallabies and the Great Grey Forester Kangaroo live in the narrow coastal park, which is also the home of the Fairy Penguin and Mutton-bird.

Morwell National Park

One of the major reasons for the reservation of this small park in 1966 was to preserve the rare epiphytic Gunn's Orchid or Butterfly Orchid (*Sarcocilus australis*). The initial reserved area of 138 hectares, which had been private land, was purchased jointly by the Shire of Morwell and the National Parks Authority for the Crown. The area was increased in December 1966 by 2 hectares following a gift of land by the Shire of Morwell. It is hoped that the park may be further expanded so as more fully to protect the habitat of the Butterfly Orchid.

The park, which is about 160 kilometres west of Melbourne, consists of the timbered slopes of a Gippsland valley. Its vegetation is typical of the area—large Southern Blue Gum and Grey Gum Eucalypts with an abundance of understorey plants.

Little Desert National Park

The Little Desert National Park stands today at 35,251 hectares. It is located in the west-central region of the State between Dimboola and Nhill. Access to the park is through the farming centre of Kiata about 354 kilometres from Melbourne and from the Nhill-Gymbowen Road.

The soil of the park consists almost entirely of Quaternary siliceous sands and clays of aeolian origin. Occasional outcrops of poor quality sandstone occur on the low ridges. The mineral content of the deep surface sands is low, holding a number of pans of buckshot gravel. There are some saline flats and limited areas of clay soils and alluvial soils such as those along the Wimmera River.

The 500 species of native vascular flora are grouped into the broad associations of Mallee Eucalypts occurring on the long deep dunes, the open Heathland on the deep white sandy plains, where Desert Banksia, Desert Oak, and Silky Tea-tree predominate, and the Heath-woodland on the deep white dunes. River Red Gum and Black Box form a further vegetation growing near the scattered clay pans. A Stringybark and Broombrush alliance is evident on the lateritic yellow sandstone ridges.

The Emu, the Dark Thornbill, the Southern Scrub Robin, the Rufous-, Golden-, and the Gilbert Whistlers are important bird species, but the Mallee-fowl evokes the greatest interest from visitors. The small Painted Dragon and the Bearded Dragon are relatively common, while the Marbled Gecko is sometimes found hidden under loose bark. The Black-faced Kangaroo, Feather-tail Glider, and Echidna are abundant in the Little Desert. The Silky Desert Mouse, a small rodent about 10 centimetres long which seldom drinks water, is another interesting inhabitant.

Lower Glenelg National Park

Lower Glenelg became Victoria's twenty-second national park through legislation in 1969. Extending over an area of 9,069 hectares, it is traversed by the lower reaches of the Glenelg River, which enters the sea about 8 kilometres from the South Australian border and 50 kilometres west of Portland. The area dedicated is less than half of the area suggested to the Land Utilization Advisory Council in 1967 by the National Parks Authority and represents a compromise to meet the wishes of competing land users. It includes within its boundaries portions of the Kentbruck Heath and the southern bank of the Glenelg River.

In April 1973 the Land Conservation Council (see also pages 40-1) recommended to the Minister that the area of the Lower Glenelg National Park be increased to 25,900 hectares. A Bill was before Parliament at the time of writing.

The following geological formations are present in the park : widespread (surface) wind-blown sand of Recent age varying in depth from a few centimetres to 6 metres ; Pleistocene dune limestone forming elongated ridges ; Whalers' Bluff Formation composed mainly of marine limestone of Pleistocene age in the eastern half of the park (this is flat horizontal-lying stone on which the Pleistocene dune limestone formation rests) ; and Pliocene basalt as seen in the Jones Ridge escarpment in the eastern section of the park. The bedrock for the four formations listed is thick horizontal marine limestone of Myocene age which extends throughout the park. This is known geologically as Gambier limestone.

The Gambier limestones contain extensive cave systems holding sub-fossils. Scientific investigation of prehistoric animal remains found in the caves has led to the conclusion that about 15,000 years ago the Giant Kangaroo and the Marsupial Lion roamed the countryside. Some of the limestone caves, such as Princess Margaret Rose Cave, which lies just beyond the park's boundary, are very attractive.

The Glenelg River, a deep large southerly-flowing stream, drains this region. It has eroded its bed deep into the limestone, creating a precipitous gorge bounded by limestone cliffs where caves are plentiful. A high slowly draining wet heath area to the north-east (Kentbruck Heath) also feeds the river.

The varied soil structure of the Nelson Land System includes podsols and terra rossas. The dune system is heavily leached. The Normanby Platform comprises deep sands overlying basalt, while the Cobbooboonee Land System is made up of podsolised gravelly loams from weathered basalt. The park also contains many free sands.

Probably one of the most ecologically diverse regions of the State, the Lower Glenelg National Park and its environs contain 660 native plant types, 320 species of fungi, 80 different classes of mosses, as well as 45 lichen and 35 liverwort species. The plant communities include Heathlands, represented by Swamp She-Oak, Leucopogon, and Astroloma species ; gully types including the Rough Tree Fern, King Fern, and Maidenhair Fern ; dry sclerophyll forest with Brown Stringybark, Messmate, and others ; dunal vegetation with Coast Wattle and Austral Bugle ; and wetland vegetation of Common Reed, Sedges, and Rushes.

Of the 160 species of identified native birds, the Peregrine Falcon, the Southern Emu-Wren (a threatened species), and the Bristle-bird are of special interest.

The Platypus, the Red-necked Wallaby, the Grey Kangaroo, the Sugar Glider, and the Koala are also plentiful in the park.

Captain James Cook National Park

This national park, with an area of 2,713 hectares, was established by Act of Parliament in 1969. Extending along the East Gippsland coast for over 6 kilometres, it is located between Wingan Inlet and Marlo, and stretches as far east as the lower Thurra River. The park is representative of the East Gippsland coastal country, possessing unspoiled beaches, a virgin forest, and immense coastal dunes. Within the parkland, but fronting on to the shoreline, is an area of 130 hectares of Australian Government Territory, which includes Point Hicks, upon which the lighthouse stands.

The cape is a granite boss protruding from immense deposits of white dune sands. Deep inter-dune swales, or marshy depressions, stretch along the coastline. The rock types are Bega granite of the Lower Devonian age, a limited area of Upper Ordovician shale sediments, Pliocene gravels, sands and silts, and Quarternary dune-sand. The huge dune-sand masses, reaching a height of more than 180 metres, create shifting dunes and swales. Originally swept up from the sea floor, they are siliceous, their formation being a continuing process. A relatively large stream—the Thurra River—drains the park and has formed a small lagoon estuary at its mouth. Occasional sandhill slips block the outlet causing the river to back up to form an external swamp until the slip eventually breaks down.

The dedication of this park commemorated Captain Cook's Australian landfall at Point Hicks in 1770 on his voyage along the east coast of the continent. Cook named Point Hicks after Lieutenant Zachary Hicks, the Officer of the Watch who sighted the cape on 20 April 1770. In 1843, Captain Fitzroy in the *Beagle* surveyed the coastline and renamed the area Cape Everard. On 20 April 1970, following the passage of enabling legislation, the Hon. Sir Henry Bolte, then Premier of Victoria, opened the park at an official ceremony and renamed the historic prominence Point Hicks.

Silver-top and Stringybark Eucalypts make up most of the park's tree flora with the open areas containing Casuarina, Rushes, and Paper-barks. The large wind-swept dunes bear scattered thickets of Coast Banksia and Coast Tea-tree. Twenty species of native marsupials and 200 native bird species are known residents. The rare Potoroo, the Tiger Cat, and the Eastern Native Cat are included among the fauna, while the more characteristic birds include the rare Ground Parrot, the Swift Parrot, and the Southern Emu-Wren.

Organ Pipes National Park

Only 26 kilometres from Melbourne, along the Calder Highway, this park of 66 hectares was made possible by the donation of land to the Crown from the estate of the late E. A. Green. Dedicated in 1971, the park is a deep valley carved into the volcanic Keilor Plains by Jacksons Creek.

The main attractions of the park are the geological features commonly referred to as the Organ Pipes and Tessellated Pavements. These features were created by the filling of an ancient river bed with lava at the same

time as the surrounding volcanic plain was set down, and by the lava in the narrow river bed cooling at a slower rate than the surrounding plain. The resultant lateral pressure caused vertical fracturing in the newly formed basalt rock and, thereby, the formation of hexagonal shaped columns. Erosion over a long period by Jacksons Creek has exposed these columns and has hewn out the Tessellated Pavements which are really columns viewed from above.

Ecologically, this area is in a poor condition, having been used for grazing as far back as 1850. Like the rest of the Keilor Plains, it harbours many introduced plants and animals. However, a restoration programme has commenced which aims at reproducing the former plant communities and native fauna. The National Parks Service is using this area to illustrate to school excursion groups the effects of incorrect land-use and to demonstrate the techniques of restoration.

Management

Committees

For many years prior to the formation of the National Parks Authority in 1957, the administration of a number of the reserves had been the responsibility of individual Committees of Management which operated under the Land Act. Of the thirteen reserves which were included in the Schedule to the National Parks Act of 1956, only those in the more remote part of East Gippsland were without such Committees.

The National Parks Act of 1956 provided for the continuation of Committees of Management but incorporated machinery to enable such Committees to come under the control of the National Parks Authority and, in due course, this took place. The park Committees conducted the day-to-day affairs of the respective parks through Rangers and other ancillary staff, but since they came under the control of the Authority a very close liaison between the two bodies has been developed. The control of visitors, collection of fees, hygiene, law and order, maintenance, and works within the parks are examples of the areas of Committee responsibility. To ensure an equitable distribution of available finance, it has been the practice, since the Committees became responsible to the Authority (now Service), for the two bodies to prepare an annual budget covering maintenance and capital works for the respective parks and by close liaison to see that such works programmes are implemented.

The eleven national parks dedicated after 1956, which do not have Committees of Management, are administered from the Head Office of the Service through resident Rangers and other staff.

Fire protection

The original National Parks Act required the Authority "to protect national parks from injury by fire". Initially a Fire Protection Committee was formed within the Authority and the Forests Commission prepared fire protection plans for all national parks needing them. These plans involved such matters as the construction of fire access tracks, provision of watering points for tankers, fuel reduction (by control burning and rotary slashing), radio communications, training personnel, and the purchase of fire suppression

equipment. This close collaboration between the Commission (which was represented on the Authority) and the Authority, was continued by the National Parks Service.

The present National Parks Act requires the Minister for Conservation "to protect national parks from injury by fire". However, an amendment to the Forest Act in 1974 clarified the responsibility of the Forests Commission to protect national parks from fire. An agreement has now been drawn up between the Commission and the Service setting out the modus operandi of a joint committee comprising two members from each body which will handle fire protection for these parks, ensure that suitable plans are drawn up and executed, and maintain effective liaison between the departments represented.

An important step forward in co-ordinated planning of fire protection for a fire prone region in Victoria and one in which the national parks administration participated, was taken in 1969 when, following the disastrous bushfires of 1962 and 1968 in the Dandenongs, the Government instigated and endorsed a plan drawn up in collaboration between a number of instrumentalities concerned for "Fire Prevention and Suppression in the Dandenongs". To carry out the planned fire protection works in the two national parks affected—Fern Tree Gully and Churchill—the Service was allocated a special annual grant of \$20,000. From 1 July 1969 to 30 June 1973 a total of \$96,405 of this grant was spent. In addition, the Victorian Government bought private land in the area required for fire buffer zones and other purposes under this plan.

Total expenditure by the national parks administration on fire protection works throughout the national parks system from 1958 to 1973 amounted to \$322,356.

Control burning

Reference has already been made to the fact that one of the methods employed to prevent fire damage to national parks by wildfire is control burning. Its use in this context is, however, opposed by some conservationists, who argue that it introduces fire to ecosystems at a time of the year when fires are not normally experienced. Another contention is that frequent control burning tends to damage the habitat of certain native birds, for example, the Ground Parrot and the Lyrebird. Reptiles and other ground-dwelling creatures, it is claimed, may also be affected. As against this view, however, protagonists stress that the recurrent presence of fire is necessary for the regeneration of certain native species, such as Mountain Ash.

While there may be conflicting views regarding the application of "control burning" in national parks for fire protection purposes, the Service takes the view that control burning should be used as a management tool according to the requirements of the individual national parks. Control burning has been carried out in such parks as Wilsons Promontory, Kinglake, Mount Buffalo, Mallacoota Inlet, Mount Richmond, Mount Eccles, and Port Campbell National Parks.

Water supply

To cater effectively for visitors, the provision of an assured water supply of good quality is necessary throughout the national parks network. A plentiful and ready supply of water, not necessarily potable, is required for fire protection purposes, while both "day-visitors" and "overnight" parks require water for drinking and tourist amenities.

The availability of water differs widely throughout the scattered national parks system. At Wyperfeld, for example, the annual average rainfall is 300 mm compared to 2,000 mm at Mount Buffalo. Similarly, the demand for water varies considerably, depending on the annual visitor intake, which differs widely from park to park. For instance, there were approximately 2,000 visitors to Wingan Inlet and Alfred National Parks, respectively, for the year ended 30 June 1972, while during the same period the number at Wilsons Promontory exceeded 120,000.

Apart from the differing availabilities of water the standard of water also differs to an extent at each park. The Service uses a number of sources of water, and depending on the climate and geography, these vary from pumped water from running streams, as at Kinglake, Wilsons Promontory, and Bulga Park, to a natural perennial spring as at Mount Richmond, and to bores at Fraser, Port Campbell, and Jehosaphat Gully at Kinglake. At Wyperfeld an ironclad catchment made of galvanised iron and covering one tenth of a hectare is used to supplement other smaller roof catchments, because there is no natural source of water other than rain water. The rain water is stored in covered concrete tanks to minimise loss by evaporation. At Hattah Lakes drinking water is obtained from roof catchment and for other purposes from Lake Hattah when the latter contains water.

Provision for tourists

Much of the work undertaken in national parks is ultimately planned for the benefit of visitors. These works range from fire protection to the provision of water, tracks, toilet amenities, picnic facilities, car parks, accommodation, nature trails, and interpretation. In addition, the Ranger Service may also be said to exist mainly for the benefit of the visitor, but Rangers are also concerned with the protection of the parks themselves against various types of human activities, for example, shooting, poaching, and burning.

The quality of access roads to and within national parks has steadily improved, particularly since 1963-64, when an annual allocation of \$100,000 was added to the Country Roads Board's Fund to allow the Board to make improvements to this system. This money is used by the Country Roads Board to implement a road works programme prepared by the Board and the National Parks Service in consultation, and is separate from money spent by the Board on declared tourist roads, such as the Promontory Road and the Mount Buffalo Road. Money provided over the years for the construction of fire access tracks has served a dual purpose, since the network of access routes now provides a series of walking tracks for visitors.

In addition, substantial sums of money provided by the Victorian Government have been spent over the years in the national parks in providing tourist amenities. During the two years preceding 30 June 1973 considerable improvements to tourist amenities were made possible at the Lakes, Kinglake, Mount Richmond, Port Campbell, Wyperfeld, and Fern Tree Gully National Parks by funds provided under the Australian Government Rural Relief Scheme. Major improvements recently made at Fern Tree Gully National Park have been in the "Lower Picnic Area" and nearby "Janesleigh Dell Area" and include improved picnic facilities and three large car parks constructed by the Country Roads Board. Provision

has been made in the development plan at Fern Tree Gully National Park for the construction of a new kiosk to serve the "Lower Picnic Area". In addition, an attractive picnic shelter has been built at Glenaladale National Park thereby, at the same time, enabling a supply of rain water to be collected for tourist use. Previously no drinking water was available at the picnic area.

The Special Road Fund administered by the Country Roads Board has enabled the Board to construct car parks in various national parks including Wilsons Promontory. Other improvements at Tidal River (Wilson's Promontory National Park) include the expansion of overnight accommodation facilities by the construction of a block of six new flats with 24 beds, thereby increasing the overnight capacity to 177 visitors. Plans are already well advanced to replace the former septic tank disposal system by a central collecting basin from which effluent is pumped to a sewage lagoon situated approximately 800 metres from the main centre. Stage I of this scheme, costing \$80,000, has already been completed, and Stage II, estimated to cost \$120,000, will be undertaken as soon as finance is available.

As part of the interpretative service to the public, senior officers of the Service and certain of the Park Rangers have given hundreds of talks to various groups (including schools) throughout the State and in the national parks. In addition, nature trails have been constructed in a number of parks such as Wyperfeld, Wilsons Promontory, Little Desert, and Hattah Lakes. In August 1973 the former Kiata State School (which had been acquired through the co-operation of the Education Department) was converted into an interpretative centre for the Little Desert National Park.

Ranger staff

The duties of the Ranger staff are varied. Rangers are required first of all to protect the national parks in every way possible, but they are also required to function as public relations officers, revenue collectors, visitor supervisors, interpreters of natural phenomena, fire protection functionaries, and general maintenance men. The Ranger Service grew considerably between 1957 and 1973, but is still far from adequate. Since 1963, six Ranger Training Courses have been conducted, the last being held in October 1973 at Little Desert National Park and Kiata. Such courses extend over one week and are residential. They include the practical aspects of park management, with lectures covering such diverse subjects as visitors' reception, fire protection and equipment, ecology, conservation, vehicle maintenance, first aid, track location, and maintenance and interpretation of national park regulations.

With the continuing growth of visitors and the prospect of an increased number of national parks, it is anticipated that the Ranger Service will be greatly expanded.

Plans for national parks

The continual increase of visitors to most parks over the last 10 years has emphasised the need for master plans, particularly in the more popular parks. Between 1959 and 1973 the number of visitors to Tidal River has increased at a compound rate exceeding 10 per cent per annum. The first major step in the Tidal River Village Master Plan was the installation of a new and expanded power supply in 1971. The first stage of the human

waste disposal system, which was recently carried out, marks the completion of a further phase of this plan. Master plans, approved in recent years, have been for the Coller Bay section of Fraser National Park, and for the Lower Picnic and Janesleigh Dell areas at Fern Tree Gully. Draft plans for five other parks have also been prepared.

Signs

In recent years the Service has developed standard designs and procedures in regard to sign-posting (size, shape, and colour) in national parks. In addition to being helpful to the public, the signs are also attractive and the Service has purchased three routing machines which facilitate sign lettering. The colour scheme adopted consists of yellowish-gold letters on a reddish-brown background, similar to the colours used in American parks and other Australian States.

Leases

The National Parks Act contains statutory provisions for the granting of both short-term and long-term leases to concessionaires to enable them to provide services for visitors within national parks. Short-term leases are generally for three years. At Wilsons Promontory it has been the practice to arrange for leasing of the café and store for this period. The provision of overnight accommodation at Mount Buffalo is shared by the Victorian Railways Chalet and the privately owned Tatra Inn. Tatra Inn was built in accordance with a 60-year lease in 1964 within the leased area of 4 hectares and provides beds for 84 guests. A less formal arrangement operates for the kiosk at Fern Tree Gully National Park, where a tenancy right for 12 months only exists.

Care of native species

Control of exotics

Section 8(a) of the *National Parks Act* 1970, while defining the Minister's obligation to preserve natural ecological associations, native animals, and physical features within national parks, also requires that as far as practicable he should ensure the extermination of all exotic plants and animals within the parks.

A major problem which exists in most national parks is the control of the European rabbit. This animal proliferates quickly and, by close cropping of the vegetation, destroys the habitat and fodder for native animals. From the very beginning, the National Parks Authority/Service has collaborated with the Vermin and Noxious Weeds Destruction Board and has been very active in the destruction of rabbits in national parks. Procedures used vary according to the conditions within the parks. Destruction of habitat by ripping of warrens and burning of fallen timber, shooting, fumigation by means of chloropicrin (now superseded by phostoxin), and of the poison 1080 (in such a manner as to destroy the rabbits without producing serious deleterious effects among the native fauna) are among the methods employed. While it has been found possible to use 1080 without inflicting serious damage on kangaroos and birds, wallabies and possums are very susceptible to the poison and areas where they occur require special treatment.

NATIONAL PARKS

The birds, wildflowers, and lizard in the illustrations are found in appropriate habitats in Victoria's national parks.

Photographs by Dr L. H. Smith



Little Oberon Bay with Mount Oberon in the background, in Wilsons Promontory National Park.



Lake Surprise is a small volcanic lake in Mount Eccles National Park.

Sunset in the Little Desert National Park.





Reflections in the placid waters of Hattah Lakes National Park.

Limestone rocks belonging to the group known as 'The Apostles' in Port Campbell National Park.



A picnic near Dickson's Falls in Mount Buffalo National Park.

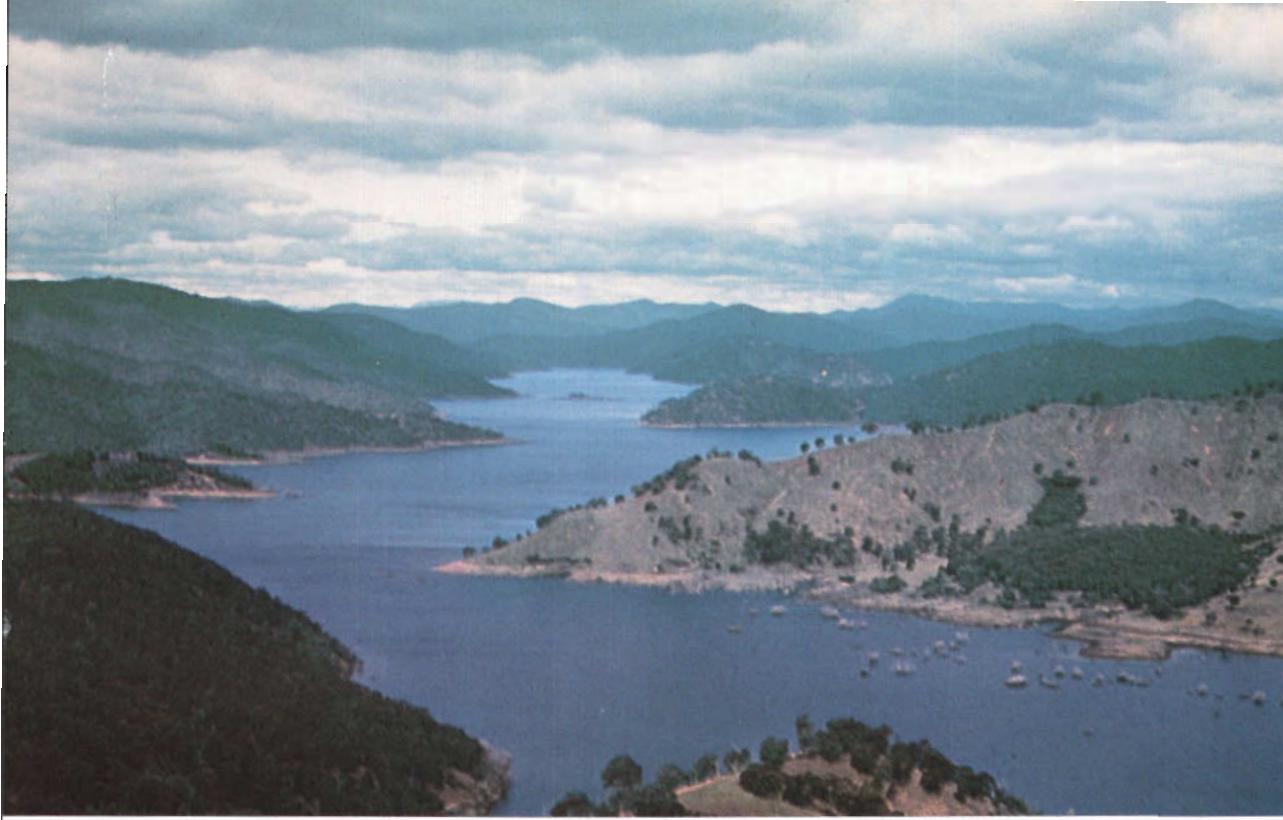


The township and camping area in Port Campbell National Park.



Ski runs at Cresta in Mount Buffalo National Park.





A view of Fraser National Park and Lake Eildon.

Red Gums (*Eucalyptus camaldulensis*) in Wyperfeld National Park, glowing in the light of the setting sun.



An ancient River Red Gum (*Eucalyptus camaldulensis*) in Hattah Lakes National Park.



Wallowa (*Acacia calamifolia*), one of Victoria's many wattles.



The Mallee-Fowl (*Leipoa ocellata*).



Desert Banksia (*Banksia ornata*).

The Mountain Gentian (*Gentiana diemensis*).



Male Lyrebird (*Menura superba*) displaying on mound.



Female Rufous Whistler (*Pachycephala rufiventris*) with young.



The Grass Trigger-plant (*Stylidium graminifolium*).

The Wallflower Orchid (*Diuris longifolia*).



The Satin Bower-bird (*Ptilonorhyncus violaceus*) at his bower.



The Painted Dragon (*Amphibolurus pictus*).



Grey Fantail (*Rhipidura flabellifera*) on nest.

Considerable use has been made of the virus Myxomatosis, but success fluctuates with the seasons, according to the availability of the vector. The Service has been active in destroying foxes, feral cats, pigs, and goats, using appropriate procedures in each case. Rangers are authorised to shoot such animals on sight and are provided with firearms for the purpose.

Noxious weeds

In general, the vegetation in national parks consists of natural bushland which fortunately is not conducive to the growth of weeds. However, in some cases, because of the use to which the land was put before it became national park, noxious weeds are common in some parks such as Wyperfeld, Hattah Lakes, and the Organ Pipes. Moreover, the introduction of roads and tracks into the parks for tourist and fire protection purposes has been a significant factor in the introduction of weeds. The Authority/Service has been active wherever possible in dealing with such noxious weeds as blackberries, horehound, St John's wort, artichoke thistle, box thorn, and African Bone Seed, etc. The methods adopted vary with the conditions, but are designed to avoid injurious effects on the native vegetation.

*Cinnamon fungus (*Phytophthora cinnamomi*)*

Brief mention must be made of the activities of this destructive fungus within the national parks. Although "dieback" has resulted in plant loss in Western Australia for over forty years, it was not realised until 1963 that the cinnamon fungus was the cause. Between 1969 and 1972 it killed over 60,000 native plants in the Canberra Botanic Gardens and has been responsible for the destruction of over 324,000 hectares of Jarrah forest in Western Australia. In Victoria the fungus is active in Wilsons Promontory and particularly in the Brisbane Ranges.

The fungus attacks the fine root structure of susceptible plant species, thereby minimising their ability to absorb sufficient water. The result is frequently fatal under hot dry conditions. Of the 720 plant types known to be susceptible to this fungus, over 400 are Australian natives.

A number of research bodies situated in Canberra, Western Australia, and Victoria are endeavouring to solve the problem of control of this fungus, and although no final answer has yet been found, it has been noted that its spread is along water courses and roadways, probably by way of soil carried on earth moving equipment. Such equipment should, therefore, be carefully washed before it is moved from an infected area.

In 1972 the Service, concerned over this threat to its national parks, and in order to limit its further extension, convened a seminar in Melbourne, with the help of the University of Melbourne and the Forests Commission, to bring the nature of the fungus before the Victorian Government and private authorities involved in earth-moving activities.

Statistics

A careful assessment of tourist numbers at regular intervals at each national park is necessary in order to be able to provide for the "education and enjoyment of visitors", and to be able "to encourage and control such visitors". Their significance in management planning and for assessing tourist pressure on the ecology is clear.

Since the early 1960s there has been a marked increase in visitors to Victoria's national parks. In 1961 the total number was estimated to be 174,000; four years later it was 273,400. For the year 1972, the figure had risen to 712,000.

Mention has already been made of wide variations in visitor use between parks. Figures showing details of visitors to each park separately tend to highlight the growing popularity of certain national parks. The following table shows visitor statistics for six of the most popular parks:

VICTORIA—NUMBER OF VISITORS TO SELECTED NATIONAL PARKS
('000)

National Park	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74
Wilsons Promontory	84	94	104	120	130	152
Fraser	23	33	45	41	38	56
Mount Buffalo	50	45	55	80	80	75
Kinglake	97	99	106	112	98	97
Fern Tree Gully	70	75	85	86	110	135
Churchill	24	33	35	41	46	51

Revenue for the year ended 30 June 1959 from all parks was \$32,256, with the total expenditure for the same period reaching \$94,626. Figures for the year ended 30 June 1968 indicate that revenue had risen to \$122,666, while expenditure on capital works and maintenance had grown to \$402,479. The figures for the year ended 30 June 1972 show revenue at \$265,058 and expenditure at \$616,065.

The annual allocation of \$100,000 to the Country Roads Board for the development of roads within or leading to national parks as mentioned elsewhere was created in 1963. By 30 June 1972, \$790,162 had been spent for this purpose.

Conclusion

The origin and development of Victoria's national parks system show that during the last 100 years a growing national parks consciousness has been created in a social climate which has now clearly recognised the need for conservation of our natural resources and for outdoor recreation. This situation has been achieved in spite of frequent opposition by the supporters of competing land-use, and it is worthy of note that the earlier insights of the pioneer conservationists should have been followed by a considerable acceptance in the community of the need to preserve the essential nature and beauty of the environment for posterity.

Further references

- BASSETT, MARNIE. *The Hentys*. London, Oxford University Press, 1954.
- BEAGLEHOLE, A. C. *Indigenous vascular flora of far south-west Victoria*. 1966.
- BIRD, E. C. F. *Coastal landforms*. Canberra, Australian National University, 1964.
- BROUGH SMYTH, R. *Aborigines of Victoria*. Melbourne, Government Printer, 1878.
- BROUGH SMYTH, R. *Geological Survey of Victoria*. Melbourne, Government Printer, 1874-1899.
- CARSON, RACHEL. *Silent Spring*. London, Hamish Hamilton, 1963.
- COCHRANE, G. R., FUHRER, B. A., ROTHERHAM, E. R., and WILLIS, J. H. *Flowers and plants in Victoria*. Sydney, A. H. and A. W. Reed, 1968.
- COUTTS, P. J. F. *Archaeology of Wilsons Promontory*. Canberra, Australian Institute of Aboriginal Affairs, 1970.
- DEPARTMENT OF CROWN LANDS AND SURVEY OF VICTORIA. *Official records and documents*.

VICTORIA

AREAS CONTROLLED BY THE NATIONAL PARKS SERVICE

- 1 ALFRED
 2 ARTHURS SEAT
 3 BRISBANE RANGES
 4 BULGA
 5 CAPE SHANCK/POINT NEPEAN
 6 CAPTAIN JAMES COOK
 7 CHURCHILL
 8 FERNTREE GULLY
 9 FRASER
 10 GLENALADALE
 11 HAINING
 12 HATTAH LAKES
 13 KINGLAKE
 14 THE LAKES
 15 LIND
 16 LITTLE DESERT
 17 LOWER GLENELG
 18 MALLACOOTA INLET
 19 MORWELL
 20 MOUNT BUFFALO
 21 MOUNT ECCLES
 22 MOUNT RICHMOND
 23 ORGAN PIPES
 24 PORT CAMPBELL
 25 TARRA VALLEY
 26 WARRANDYTE
 27 WESTERFOLDS
 28 WILSONS PROMONTORY
 29 WINGAN INLET
 30 WYPERFELD



- FRANKENBURG, JUDITH. *Nature conservation in Victoria—a survey*. Melbourne, Victorian National Parks Association, 1971.
- HOWITT, A. W. *Native tribes of South East Australia*. London, Macmillan, 1904.
- LEARMONTH, NOEL. *A few early references to Mount Eccles*. National Parks Service records 7/18, 1962.
- MCARTHUR, A. G. *Control burning in Eucalypt Forests (Leaflet No. 80)*. Canberra, Forestry and Timber Bureau, Commonwealth of Australia, 1962.
- NATIONAL PARKS AUTHORITY AND NATIONAL PARKS SERVICE OF VICTORIA. *Annual Reports from 1956-57 to 1971-72*. Melbourne, National Parks Authority and National Parks Service.
- NATIONAL PARKS SERVICE OF VICTORIA. *Cinnamon fungus (Phytophthora cinnamomi)—Record of Seminar, 9 November 1972*. Melbourne, National Parks Service, Victoria, 1973. 2nd edition.
- POWELL, J. M. *The public lands of Australia Felix*. Melbourne, Oxford University Press, 1970.
- RIDE, W. D. L. *A guide to the native mammals of Australia*. Melbourne, Oxford University Press, 1970.
- ROBERTS, S. H. *History of Australian land settlement 1788-1920*. Melbourne, Macmillan, 1924.
- ROWE, R. K. *Study of the land in Mount Buffalo National Park*. Melbourne, Soil Conservation Authority, 1970.
- STACEY, H. C. T. et al. *A handbook of Australian soils*. South Australia, Pellim Technical Publications, 1972. Reprint.
- TROUGHTON, E. *Furred animals of Australia*. Melbourne, Angus and Robertson, 1965. 8th edition.
- VICTORIAN YEAR BOOK. 1970. *Mount Buffalo*.
1971. *Wilsons Promontory*.
1972. *Wyperfeld*.
- WAKEFIELD, N. A. *Ferns of Victoria and Tasmania*. Melbourne, Field Naturalists Club of Victoria, 1955.
- WESTE, GRETNA. *Phytophthora cinnamomi—the cause of severe disease in certain native communities in Victoria*. Melbourne, Australian Journal of Botany, Vol. 22, 1974.
- WHEELER, W. R. *A hand list of birds in Victoria*. Melbourne, Victorian Ornithological research group, 1967.
- WILLIS, J. H. *A handbook to plants in Victoria. Vols. 1 and 2*. Melbourne, Melbourne University Press, 1970 and 1972.
- WORRELL, ERIC. *Reptiles of Australia*. Melbourne, Angus and Robertson, 1963.
- History of Victoria, 1961; Land flora, 1962; Mammals, 1963; Soils, 1964; Palaeontology, 1965; Birds, 1966; Fish, 1967; Molluscs, 1968; Insects, 1969; Minerals, 1970; Amphibians and reptiles, 1971; Forests, 1972; Meteorology, 1974