

## **LAND USE**

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### *Land Use Past and Present Land Use*

This section provides some background to the present use and condition of the Park. Much of the information presented here has been derived from two valuable contributions to the recorded history of the Park: "The Romance of Mt. Buffalo", a Victorian Railways print of an address given at The Chalet on 16th February, 1929, by Dr. J. F. Wilkinson, and an article in *The Melbourne Walker*, 1967, by W. F. Waters, "The Buffalo Mountains—A Brief History". Additional information was derived from records of the Department of Crown Lands and Survey and the Mt. Buffalo Committee of Management, and several people who have been associated with the area for some time provided some of the details.

The frequency and intensity of the two main modifiers of the vegetation—fire and grazing—are difficult to discover and the record provided here is very fragmentary.

From the earliest days of settlement in the region, the mountain has had a strong appeal to tourists. The early recognition of Mt. Buffalo as an area worthy of preservation as a tourist attraction and the efforts made for its official reservation have been mentioned in the introduction to this study.

Access to the plateau was originally via Goldie's Spur to the Horn in the south-western corner of the plateau. As this was too long, a shorter route was sought up the eastern escarpment. The two elder sons of James Manfield located a track to the plateau from Eurobin Falls but this was too steep for popular use. Another track was located by W. H. and G. C. Weston and constructed by a man named Dennison. This climbed the Eurobin Spur and skirted the upper slopes of the Buffalo Creek. It was called Staker's Track after one of its sponsors. The present main road to the plateau was constructed by the Public Works Department and was officially opened for traffic on 9th October, 1908. It closely follows the route of Staker's Track. Extensive reconstruction and sealing of the road surface were completed in 1968.

The engineer who supervised the construction of the main road, Mr. C. Catani, was also responsible for the construction of the wall of the artificial lake which bears his name, and was responsible for the locating of many of the walking and riding tracks on the plateau.

The relics of an earlier dam, known as the Chinamans Dam, may be seen at the southern end of Kowan Plain. It was built in June, 1898 by a mining company but failed twelve months later. This is the site for the proposed new Cresta Dam.

Another small water storage, situated on the upper section of the Crystal Brook, has been used as a source of water for the Chalet.

Mt. Buffalo is drained by Buffalo Creek, Eurobin Creek, and other smaller streams many of which are tributaries of the Buckland River and Yarrarabula Creek. Buffalo Creek has been considered as a water source for the township of Myrtleford. Yarrarabula Creek is a tributary of Lake Buffalo.

Stream-flow records for Buffalo Creek are available for only a few years. These range from 45,220 ac. ft., in 1964 when rainfall at the Chalet was 90 inches to 7,751 ac. ft., in 1967, when rainfall was 29 inches (State Rivers and Water Supply Commission pers. comm.). The Park must be considered as a valuable water source, however the abundance of shallow soils and bare rock results in a higher proportion of rapid run-off than from other high mountains in the area. The deeper soils of the mountain, and particularly the peats of the drainage lines, are therefore of considerable value in delaying run-off.

Some claim that the first building on the plateau was erected about 1886. This was constructed of hessian and brown paper and lasted only one summer. It appears, however, that a hut had been built in 1879 by W. H. Weston near the present tennis courts below the Chalet. The first permanent commercial residence was built by E. Carlile in the late 1880's and this was soon followed by the Manfield Chalet.

The present Government Chalet was erected in 1910 and leased until 1924 when the Victorian Railways assumed control. Carlile's Hospice was demolished in 1917 or 1918 and the Manfield family's Alpine Lodge Guest House closed in 1935. Grazing appears to have started on the plateau in the late 1860's but there is no official reference to it. A group consisting of the Weston brothers and Messrs. Brady and Hughes of Porepunkah grazed cattle, varying from about 300 to 450 head, on the Plateau from about 1891 to 1922. (P. G. Weston pers. comm.).

The Park Regulations of 1908 indicate that grazing had to be licensed, and apparently there were periods during which grazing was not licensed. A report of February, 1909 refers to the illegal grazing of a "large number of stock" (later found to consist of about 160 cattle, 40 sheep and 8 to 10 horses) on the plateau. The sheep were owned by the proprietor of one of the guest houses and were used to supply fresh meat. The horses were also owned by the several residents on the plateau. Owners of the cattle claimed that the stock had wandered there as they were accustomed to grazing on the plateau in the past.

There was a period of no legal grazing from about 1922 until 1938, in which year the Committee of Management re-introduced licensed grazing in an attempt to eliminate the illegal grazing.

However this action did not have the desired effect, and although the licence to graze limited stock numbers to a maximum of 250, at times an additional 80 to 100 head of trespassing cattle were reported.

In 1939 a campaign against the grazing was begun by the Field Naturalists Club of Victoria. The agitation continued through the 1940's and early 1950's through various conservation-conscious organisations and individuals, and appears to have reached a peak in 1952.

In 1951 Cramer Brothers were granted the licence but they voluntarily surrendered it in 1958. Grazing has not been permitted in the Park since.

Horses are still used by tourists to traverse the Park. They are hired from the Chalet where they are stabled during the snow-free months. They are not allowed to free graze and are over-wintered outside the Park.

The history of fire in the Park is also difficult to sort out. It appears that graziers may have regularly burned parts of the Park to improve the grazing. Fires, deliberately lit by two men on horseback, were reported from the south-western end of the plateau in January, 1916. The current grazing licensee was accused of being involved, and it was stated that it was a common practice for graziers to set fire to the grass there at the end of the summer in order to ensure an abundance of sweet grass for the next spring. The licensee denied complicity.

In late autumn, the cattlemen used to burn patches along the western side of the Park as a fire break (P. G. Weston pers. comm. from notes prepared in 1952 by his father G. C. Weston). In March, 1914 a fire from the Buffalo River valley threatened the plateau but was held by two men on this line which extended from the Horn to the head of Crystal Brook. It was claimed by G. C. Weston that there were no serious fires on the plateau over the period that he was associated with grazing there (1891 to 1922).

In February, 1926 a severe fire, which originated in the Nug Nug area to the north-west, burned the southern end of the main plateau (P. C. Weston pers. comm.). Hodgson (1927) commented that "the whole of the mountain side is covered with a dense tangle of snow gums, through which a fire has evidently passed in recent years, practically every tree having been killed."

Possibly the most serious fire was one of many which ravaged the State in January, 1939. The main fire came from further west in the vicinity of the Black Range, but another originated in the Nug Nug area. This fire was contained to south of the Crystal Brook track (P.G. Weston pers. comm.). A small area in the saddle at the head of Buffalo Creek was burned in the spring of 1938 and this apparently saved the area from severe damage in the 1939 fire. (R. M. Rollason pers. comm.).

It appears that North Buffalo escaped the ravages of both the 1926 and 1939 fires but was burned at other times. A fire burned there for some time in July, 1918 (P. G. Weston pers. comm.).

Fires occasionally break out in the Park, sometimes as a result of lightning, sometimes because of carelessness. Occasionally fire from outside the Park encroaches, however, since 1939 serious damage has been prevented by the prompt action of residents on the plateau, and the Forests Commission.

### ***Present Condition of the Park***

During the discussions on climate, soils and vegetation, mention has been made of the relationships between the various components of the environment and how changes in one may lead to deterioration of others. The dependent variables, vegetation and soil, are those which usually suffer most from indiscriminate land-use.

Natural or geological erosion occurs at all times and would be relatively active on areas such as the scarps and in the steep gorges. Erosion mentioned in this section is that which has been accelerated by changes in the environment brought about by the activities of settlers.

The main activities which have been imposed on the environment of the Park since settlement are grazing (now discontinued), the construction of roads and tracks, the building of dams and the erection of buildings.

Fire has probably always been a part of the ecosystem, and the way that white-man's presence has affected the incidence of fire is often difficult to assess. There is no doubt that the two severe fires in the recent history of the Park (p. 51) caused considerable damage to the vegetation and probably also contributed to soil erosion.

The vegetative communities most affected were the alpine ash forests and the snow gum woodlands, where mature trees were killed and regrowth now dominates. The abundance of dense scrub, of predominantly leguminous species, in much of the snow gum woodlands may also be attributed to these fires.

There is no evidence of the extent of fires lit by those with grazing interests, or of their effects.

The vegetative communities of the high-valley plains also appear to have suffered considerable change. Evidence of the previously widespread occurrence of peat and the hygrophilous bog vegetation (p. 42) suggests that the hydrologic condition of the plains has changed in modern times. The entrenched nature of most of the stream channels in the plains appears to be the cause. This would have the effect of lowering the water-table in the valleys and speeding up the drainage.

Stream entrenchment has sometimes been attributed to the effects of burning and grazing in damaging the bog vegetation of the drainage lines and causing increased run-off from the slopes (Costin 1957). The destruction of ground cover leads to excessive surface run-off which causes sheet erosion. The coarse sandy sediments deposited in the drainage lines tend to smother the bog and fen vegetation. With the bogs in an inadequate condition to slow the already excessive flows in the drainage lines, channels are soon enlarged and deepened, resulting in lowering of the water-table and a further deterioration of the hygrophilous vegetation.

The trampling of bogs by cattle in their search for palatable vegetation or water has been proposed as another possible cause of the development of defined drainage channels and the subsequent drying out of these plant communities.

It is possible that long-term changes in the climate, such as a decrease in total precipitation or increases in temperature, may have caused a decrease in the availability of moisture to maintain the moisture-loving bog vegetation (Costin 1954, p. 254). However, this seems unlikely to be the cause on Mt. Buffalo where healthy bog vegetation may still be found.

The occurrence of humified peats in the high-valley plains of the plateau may also be attributed to one or other of these causes.

The scarcity of sound bog vegetation elsewhere in the high mountains of Victoria gives this vegetation in the Mt. Buffalo National Park added importance. Its value as a stream-flow regulator is generally recognised. In an area such as this, where so much of the run-off is from bare rock or shallow soils, the bogs could be of even greater value in smoothing stream flows.

Many streams and non-perennial drainage lines have deposits of coarse sand or raw gravel which indicate that sheet erosion still occurs on the slopes, probably resulting from brief, high-intensity storms (Plates 16, 18, 23). The presence of soil lines on rocks indicates the extent of soil loss in some areas (Plate 17).



*Plate 16. Substantial gravel beds on the banks of Crystal Brook. Some of the gravel may have been derived from bank erosion resulting from the breached Reservoir wall but much must be from such sources as shown in Plates 18, 19, 20, 22 and 23.*



**Plate 17. Severe localised sheet erosion—note the lighter band at the base of the rock previously covered with a mat of rosy heath-myrtle.**

Some small gullies have developed, generally in drainage lines which are now fed by road drainage (Plate 18). The gullies, and the sediments which are now deposited over the vegetation further down slope, are detrimental. Care should be taken in the selection of out-flow sites for road drains and water-spreading devices should be used to prevent concentration of excessive water in drainage lines.

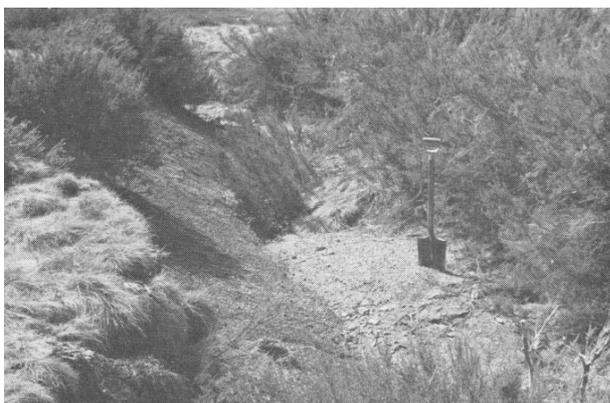
Access tracks for horse riding are usually entrenched and become eroded channels contributing to sedimentation (Plate 19).

The stabilisation of roadside batters and borrow pits with vegetation is a persistent problem (Plate 20).

The technique which has been widely used on Mt. Buffalo consists in sowing a mixture of grass and clover seed with a heavy dressing of a slow-acting balanced fertiliser, and mulching of the surface with grass hay which is held in place with wire netting. This is an expensive method, and whilst providing temporary stability, has not generally resulted in re-establishment of native plant species, which should be the ultimate objective (Plate 21).

Costin and co-workers have studied this problem in the Snowy Mountains area. Some of their published work may prove useful (Costin and Wimbush 1963a, 1963b; Hely, Costin and Wimbush 1964). A close study of the indigenous species which volunteer on borrow pits and road batters may provide valuable information. Ivy Goodenia (*Goodenia hederaceae*) is one such species which may be worthy of investigation.

Clothier and Condon (1968) describe a technique for providing stability to raw batter slopes on the Kosciusko road which uses bitumen—straw mulching. The area described is between 4,000 feet and 5,500 feet and the soil parent material is gneissic granite so that the environment is similar to that on the Buffalo



**Plate 18. A culvert drain on the Reservoir track. Much erosion has resulted in retreat of the sides to form a sizeable gully**



***Plate 19. A horse track near the Reservoir. In places the track is entrenched from two to three feet.***

The sensitivity to disturbance of the soils and vegetation of the steep rock slopes has been mentioned. Although the normal succession on these areas probably involves occasional failure of the stability of the soils, the extensive loss of soil from shelving rock cut by the main road appears to be a direct result of road construction (Plate 22).

The lack of trees and rocks and the generally gentle slopes of the high-valley plains make these areas attractive locations for the construction of roads and tracks. However the existence of these treeless non-rocky plains is partly the result of a harsh environment which makes vegetative regeneration on bare soil difficult. It would be desirable to keep all future roads or tracks out of these areas. If it is unavoidable, the alignment should be as close to the tree line as possible. Roads and tracks should never cross the bog or fen vegetation of the high-valley plains except by way of some elevated structure which does not affect the natural drainage.

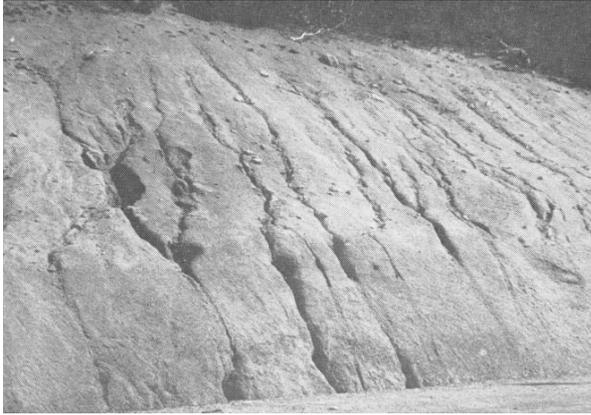
The grasslands of snow grass were described by Costin (1957b p. 40) as being in fairly sound condition in some areas, but there were areas of severe deterioration. The cessation of grazing has removed one of the main damaging agencies and generally the grasslands are now in good condition. Snow grass appears to be easily damaged by pressure on the crown of the tussock, particularly early<sup>in</sup> the growing season. The critical pressure appears to be somewhat in excess of that caused by a man but less than a vehicle exerting a pressure of about 25 lb. /sq. in. Cattle and horses exert higher pressures than this. All vehicular and horse traffic should be confined to prepared tracks.

All tracks, and particularly those in the high-valley plains are prone to erosion. The abandoned wood-carters' tracks in the Hospice Plain provide good examples of continued deterioration (Plates 23, 24). These at present intercept seepage waters and act as drains. They have developed into gullies.

The environment of the lower parts of the Park is more resilient than the high elevation areas. Fire does not appear to have caused much damage other than the opening up of fire-scars on the lower trunks of trees and possibly the altering of the dominance of some ground flora species. There may have been loss of valuable topsoil from areas severely burned, but the present-day vegetation is well established and long lived so that no vegetative changes attributable to loss of soil nutrients are apparent.

Grazing does not appear to have caused any changes in the lower parts of the Park. It was probably not as actively pursued in this area as on the plateau.

Construction of the main access road has resulted in some damage to the vegetation but regeneration appears to be relatively rapid and spoil slopes are soon stabilised.



*Plate 20. The bare eroding batter of the recently (1968) enlarged vehicle park at Dingo Dell.*



*Plate 21. A road batter on which seed and fertiliser were applied and covered with a mulch of hay held in place with wire netting. The mulch has rotted. Establishment of vegetative cover is not satisfactory.*



*Plate 22. Shelving rock on the eastern escarpment. The light coloured patches show where some of the dry heath vegetation and shallow organic soil have been eroded. These rocky areas produce high rates of surface run-off*



*Plate 23. Gully erosion started by a wood-carter's track (now disused) on the eastern side of Hospice Plain.*



*Plate 24. Gully erosion along an old track at the head of Hospice Plain. The natural drainage was in the vicinity of the darker shrubs beyond the gully on the right. The main drainage of this small valley is at a lower level on the left mid-distance. It is in reasonably sound condition.*

### ***A Classification of National Parks***

National Parks are created for a variety of purposes and it is necessary to recognise this fact and to plan development and management of the Parks accordingly. A sub-committee of the National Parks Authority has recommended the following categories of use as a basis for classification of National Parks and the development of management plans. Clearly in a large park such as Mt. Buffalo there may be areas suitable for management for several of these purposes.

#### **(a) Environment Preservation Area**

Such an area is intended to preserve a particular kind of environment, usually a combination of land forms, vegetation and fauna. It should be of sufficient size to be a viable unit and to allow access by the public without materially altering the nature of the environment.

#### **(b) Primitive Area**

A primitive area should be sufficiently large to ensure that the particular species of plants or animals concerned have the requisite living area to survive. It should not be subject to disturbance except that which is required for its protection and for the maintenance of limited means of access, if necessary.

#### **(c) Scenic Area**

This is generally a large area in which there are pleasing landscape views. Sometimes the value of such an area is only to provide vantage points for the viewing of scenic landscapes beyond the boundaries of the area which has been reserved.

#### **(d) Recreation and Accommodation Areas**

Such areas are specifically intended for the provision of space for people from crowded urban areas and for the particular recreational activities for which such an area is best suited. It is also to provide accommodation so that the public may enjoy the facilities of the park.

#### **(e) Special Purpose Area**

A generally small area for the preservation of a geological or landscape feature or an object of historic or ethnological interest.

There is no doubt that the main use of the Park over its whole history since settlement has been as a scenic area, with a few enthusiasts appreciating it as a unique environment. The greater public awareness of the need for environment preservation should now result in ready acceptance of this as an aim of management. There appear to be few reasons why management for both environment preservation and as a scenic area should be in conflict. The provision of access tracks is the most contentious question.

Areas around the Chalet, Lake Catani, Dingo Dell and the Cresta development should adequately provide for the needs of recreation and accommodation.

Because of the long established freedom of access enjoyed by the public to all parts of the Park, it may be difficult to establish a primitive area there, owing to the scarcity of suitably undisturbed and remote areas available within the present Park boundaries. The North Buffalo area may be the most suitable from the point of view of limited accessibility and relatively undisturbed condition. However it does not have good examples of some of the high plateau environments, notably the high-valley plains.