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LAND USE ON THE CENTRAL PLATEAU
WITH SPECIAL REFERENCE TO THE GRAZING INDUSTRY

Considerations relevant to the preparation of a Regional Land Use Plan.

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INTRODUCTION

Regional land-use planning is a relatively new concept in Tasmania. At present no land-use plans are in operation, though it is the intention of the new Labor Government to legislate for a State Planning Authority early in 1973; regional planning forms part of the intended planning process.

The process can be divided into primary, secondary and tertiary stages. Primary planning consists of an ecological inventory of the resources of a region and includes information on climate, physiography, geology, pedology, hydrology, vegetation and wildlife. The secondary stage is one of evaluating the suitability of past and present uses of the land. Tertiary planning involves the examination of the region's suitability for various uses in relation to the community's needs. Decisions are then reached, policies formulated, and a plan developed which ensures the proper management and conservation of all resources of the region consistent with meeting the needs of the various sectors, segments and individuals comprising the community. Plans need to be updated at intervals as new information and technology becomes available and community requirements change.

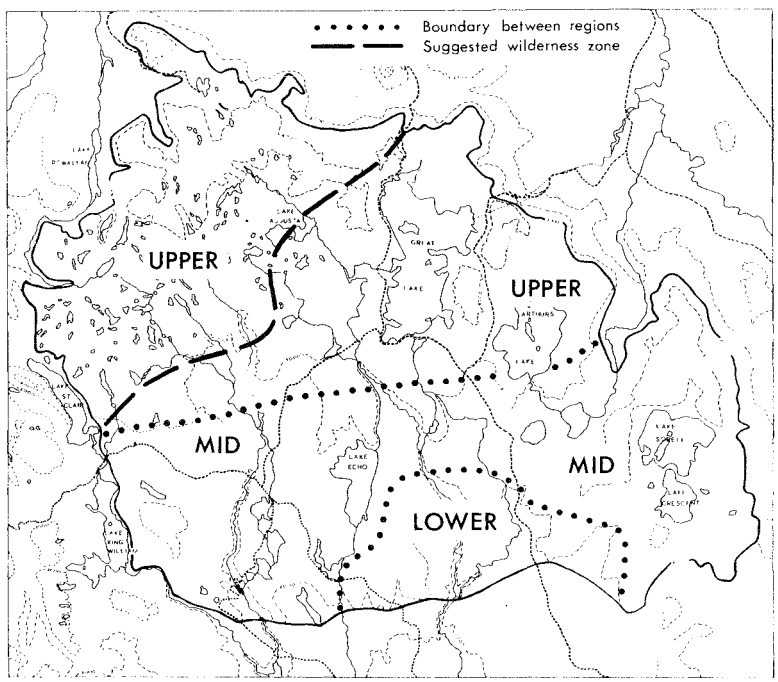
The Central Plateau is one of the most important regions in the State. It is by far the most important water catchment in Tasmania; more than half the State's electricity is generated from the plateau run-off. In addition, the Central Plateau is used for grazing and forestry and its recreational use is increasing. The use of the region is controlled by many authorities including the Lands Department, Hydro-Electric Commission, Forestry Commission, Inland Fisheries Commission and private landowners. At present,

there is little or no co-ordination of policies between departments to ensure proper management and conservation of the region's resources.

This paper outlines man's past and present uses of the Central Plateau, particular attention being paid to the grazing industry and evaluation of damage to the landscape through deterioration in the plant communities and subsequent erosion. A general land-use plan is suggested on the basis of this information.

THE ECOLOGICAL INVENTORY

Details of the ecological inventory are given elsewhere in this volume. The Central Plateau exhibits a wide range of environments, and three main divisions of the landscape have been defined (Davies 1959; and fig. 10, p.56. Similarly, on the basis of land-use, three main regions can be recognised; these are the lower, mid and upper regions corresponding generally to the areas between 1800-2400 ft (550-730 m), 2400-3000 ft (730-910 m), and land over 3000 ft (910 m). Figure 27 shows the boundaries of these regions.



27. Map of the Central Plateau showing boundaries between land-use regions and a suggested boundary for a wilderness zone in the upper region.

PAST LAND USE

Aboriginal Use

The aborigines were the first to use the Central Plateau. They were nomadic hunters and wallabies formed their main item of food. It is known (Ross 1830; Plomley 1966) that aborigines burned considerable areas of bushland to promote grassy areas on which large numbers of wallabies grazed. Many of these areas can be identified by their savannah-type vegetation.

Timber Getting

The Central Plateau has been an important timber-producing area. High-quality saw-log timber has been produced in quanity from the mid and lower regions but most of the best timber has now been extracted, leaving low-quality, low-volume forests over much of the area.

Mitchell (1962) recorded 21 mills using timber from the Central Plateau with an annual output of some 20 million super feet hoppus (6×10^4 cubic metres). The number of mills has declined sharply in recent years and the trend is to close the smaller, isolated mills and to cart the timber to larger centres, especially Hobart and Launceston, for sawing. The main reason for this change is the problem of finding and retaining suitable labour and the cost of introducing automation into small, country sawmills.

Water Use

Use of the water resources of the Central Plateau for hydro-electric purposes began in 1911 with the exploration of the waters of the Great Lake catchment. Since then, further major developments have taken place, and water harvesting for electricity production is now the major and most productive economic use of the resources of the Central Plateau. This is the subject of another paper in this volume and will not be treated further here.

Grazing

Early white settlers found the open grassy plains well suited for sheep and cattle grazing during the summer

(Ross 1830). The successful shipment of wool to the United Kingdom in the 1830's stimulated the growth of pastoralism even further and led to a rapid increase in the number of land grants and leases of Crown Land issued on the Central Plateau. Land on the Plateau, or Lake Country as it was called by graziers, was keenly sought by lowland pastoralists. In many instances, pastures and water supplies on lowland properties were exhausted by the end of December (there were no "improved" pastures and water holes were small and infrequent). In contrast, the growing season on the Lake Country does not begin until about November, green feed is usually available throughout the summer, and there is always a plentiful supply of water. The Lake Country therefore provided summer grazing which complemented the grazing available on the lowland properties. Stock were sent to the Lake Country during December and January and returned to the home properties in April and May. Cheap labour was readily available for shepherding stock.

In the late 19th century, approximately 350,000 sheep and 6,000 cattle were sent to the Lake Country annually for summer grazing. In addition, small flocks of sheep were wintered in the more favourable areas, even in the upper region. During the 20th century, the number of stock sent to the Lake Country for summer grazing has declined progressively (Scott 1955). Table 9 shows the trend; to-day the practice of transhumance has declined to a quarter of its maximum past importance.

TABLE 9

Decline in numbers* of stock using Lake Country for summer grazing.

Year	Sheep	Cattle
1933	200,000	4,000
1953	135,000	2,600
1971	91,000	2,000

* numbers do not include stock run permanently on the Lake Country properties.

Most of the decline in the number of stock sent to the Lake Country has taken place in the upper region. A number of properties in this region have been abandoned. Consequently the stocking rate per acre has decreased considerably in the upper region where no land improvement has been carried out. In contrast, the stock numbers and the stocking rate per acre have increased in both lower and mid regions, mainly due to land improvement.

Over the last 40 years the decline in the number of stock summered on the upper region of the Plateau has coincided with a general deterioration in the pasture. In addition, rising costs have reduced profitability and suitable labour has been hard to obtain for supervision of stock and property. At the same time, land improvement on the lowland properties has been making the use of the Lake Country unnecessary.

Severe changes have been wrought in the plant communities during white man's occupation of the Central Plateau. Denuding the landscape of vegetation has been widespread and erosion of the thin skeletal soil has prevented plant re-establishment. Contributing factors in this process have been:

(a) the practice of frequent and severe burning of the vegetation to produce a "green pick" for sheep;

(b) overstocking, often done deliberately to produce "hunger fine" wool;

(c) the rabbit population which reached plague proportions between 1920 and 1953; subsequently myxomatosis has had some ameliorating effect.

PRESENT LAND USE

Present land use on the Central Plateau reflects past history. There is some change in the degree of importance attached to some forms of land use, but the dominant resource of the region is still its water yield for hydro-electric power generation, for domestic and industrial use and for irrigation purposes. Other important land use activities involve forestry, grazing and recreation and tourist uses. Of lesser importance are the skin, honey,

eel and peat moss industries. Further details of current practices are given below with particular emphasis being placed on the grazing industry.

Water Use

Practically all the water from the Central Plateau is used for hydro-electric power generation in the many stations sited round the boundaries of the plateau. Water yield and hydro-electric power generation are topics of papers elsewhere in this volume. However, attention must be drawn to the prevailing practices in Tasmania which allow no criteria other than economic considerations to prevail in the management of resources. Costin (1970) has outlined the position with regard to the ecological hazards of the Snowy Mountains Scheme. Similar neglect of flora, fauna, vegetation and soils in the operations of the Hydro-Electric Commission has resulted in a contribution to erosion by the Commission's own actions, not least of which is the complete neglect of restoration activities to minimize the effects of road-making and quarrying for dam construction. Pollution by land use on the Central Plateau has been discussed by Lynch (1969).

Forestry

Little information exists on the forest resources, or the forestry potential, of the Central Plateau. Details of the volume of timber cut annually are available only for the areas controlled by the Forestry Commission and the Hydro-Electric Commission (Table 10). Similar details are

TABLE 10

Timber extracted under exclusive forest permits and Hydro-Electric Commission permits.

	Super Feet Hoppus	
	1969-70	1970-71
Exclusive Forest Permits	15,912,100	13,375,210
H.E.C. Permits	5,548,056	5,082,029
Total	21,460,156	18,457,239

Source: Marketing Office, Forestry Commission, Tasmania.
1 super-foot Hoppus = 0.003 cubic metres.

not available for private land, but the consensus of opinion amongst timber experts is that production from private land is about half the total production from the combined Commission lands. The total volume of timber extracted from the Central Plateau is therefore approximately 30 million super feet hoppus of which sawlogs comprise 95.1%, pulpwood 3.6% and other products 1.3%. This production represents approximately 8.5% of the total for the State.

Present forests on the Central Plateau are low volume, low quality forests suitable in the main for pulping and chipping purposes only. Tasmanian Pulp and Forest Holdings Ltd., Triabunna, hold the forest concession rights for wood chips from all Crown land on the Central Plateau. The company is required to make a feasibility study for the establishment of a pulp and paper plant using timber from the area before 1986. Private land owners in the region dispose of their timber as they wish.

Recreation and Tourism

Information on the use of the Central Plateau for recreation and tourism is limited. The main activities are:

(a) fishing - most of the larger lakes and waterways have been stocked with exotic trout;

(b) hunting and shooting - rabbits, wallabies, deer, wattlebirds and snipe are the main game species;

(c) bushwalking - an activity to which the open landscape is particularly suited;

(d) sightseeing - the many hydro-electric works and the natural lake scenery are attractions for tourists;

(e) cross-country riding on trail bikes and bush buggies - open spaces in this attractive Lake Country setting are "ideal" for this developing "sport".

Supervision of recreational activities is practically non-existent, particularly in the upper region of the plateau. Many users show disregard for the ownership of the land and for the need to appreciate the fragility of the landscape. There is no restriction on access and fishermen, hunters, and cross-country riders use four-wheel-drive vehicles to penetrate

to the more remote areas. These vehicles destroy the vegetation and form ruts along which water is channelled; the ruts also drain boggy areas which leads to the death of the bog plant communities.important in the slow release of water to the streams. In a few instances, bulldozers have been used to construct tracks to shacks erected near remote lakes. Such tracks are then used by motorized sightseers leading to the inevitable fire outbreaks with consequent damage to vegetation and soil.

The unauthorised and uncontrolled erection of unsightly and poorly-constructed shacks and the dumping of litter have seriously despoiled the Lake Country from a sightseeing point of view. Approximately 1000 shacks presently mar the countryside. It is apparent that considable recreational use is made of the Central Plateau at present; future use for recreation must be expected to increase exponentially. Since such demands are legitimate uses for public land, there is a strong case for careful management to maintain the resource for future recreation purposes.

Grazing

The grazing industry, as it affects the Lake Country, has been the subject of the most detailed recent study. A comprehensive questionnaire was designed and each grazier using part of the Lake Country was visited. Sixty-seven graziers were interviewed and 81 questionnaires completed, one for each separate property (12 graziers had two or more properties associated with the Lake Country. Of the 67 graziers interviewed, 15 resided on their Lake Country properties (Table 11); none reside in the upper region. Of the remainder, five lived in nearby townships and 47 on their lowland properties.

Table 12shows the distribution of stock on the Lake Country in 1971. As far as permanent stock are concerned, most sheep and cattle are run on the lower region, followed by the mid and upper regions in that order. Very few stock use the upper region permanently. By contrast, few stock are sent for summer grazing to the lower region of the Lake Country. The majority of sheep and cattle summered on the Central Plateau are sent to the mid and upper regions; considerable numbers of sheep use the upper

region but cattle are summered mainly in the mid region.

TABLE 11

Number of graziers (a) using Lake Country, (b) residing on their lake properties in 1971.

Region	No. of Graziers - Using Lake Country	Residing in Region
Lower	15	8
Mid	38	7
Upper	28	0
Total	67*	15

* 12 graziers have more than 1 lake property.

TABLE 12

Distribution of stock on the Lake Country in 1971.

Region	Sheep: Summer Only Grazers	Sheep: Permanent Grazers	Cattle: Summer Only Grazers	Cattle: Permanent Grazers
Lower	300	49,451	370	3,632
Mid	54,702*	36,354	1,385	1,407
Upper	46,118*	5,100	286	38
Total	88,020	90,905	2,041	5,077

* Includes 13,100 sheep summered on both upper and mid regions.

The main value of Lake Country to present-day lowland graziers is its insurance value against dry periods and fires on the home properties, enabling them to run more stock at higher stocking rates on their lowland properties. Table 13 shows the difference in stocking rates between properties in two municipalities. Those properties associated with Lake Country show much higher stocking rates

compared with those without this degree of freedom.

TABLE 13

Number of stock and stocking rate per hectare on lowland properties run (a) with (b) without Lake Country in 1971

Municipality	Lowland properties - Av.D.S.Es* Run (No.)	Av.Stocking Rate (D.S.Es*/ hectare)
Hamilton Properties with Lake Ctry	15,412	7.53
" without " "	2,273	2.89
Bothwell Properties with Lake Ctry	17,998	5.31
" without " "	4,837	1.63

* D.S.Es = Dry sheep equivalents.
Note: Other factors, such as managerial ability, could also account partly for these differences.

Some graziers depend on the Lake Country for a substantial proportion of their total grazing enterprise. Up to 20% of the total for some farmers is Lake Country grazing, and farmers in the Hamilton and Bothwell municipalities are the most dependent on the Lake Country (Table 14).

TABLE 14

Lake Country grazing as a percentage of total farming enterprise grazing in 1971.

Lowland properties (Region)	Lake Country grazing/ total enterprise grazing (%)
Hamilton	20
Bothwell	20
Oatlands/Ross/Campbell Town	11
Cressy/Deloraine	16

The economics of using Lake Country are set out in Table 15. Gross income per acre is based on the additional stock run within the total farm enterprise as a

result of the insurance value provided in having the use of additional pasture during summer stress periods. The figures are based on the average wool prices received in 1971.

Gross income and profit are greatest for the lower region, least for the upper region. The low capital investment required for land in the Lake Country tends to give higher returns on capital invested than might be expected. In relation to most other forms of agriculture at the present time, the returns from grazing on the lower and mid regions can be considered satisfactory, while those on the upper region are very marginal.

TABLE 15

Economics of using Lake Country in 1971

Region	Gross Income Per Acre ($)	Profit Per Acre ($)	Return on Capital Investment (%)
Lower	4.10	1.92	10.3
Mid	1.72	0.68	10.3
Upper	0.33	0.13	7.6

There is, therefore, no case for continuing to allow grazing on the upper region of the Central Plateau. This region is the most denuded, its environment is the most fragile and the effects of grazing are accelerating the processes of deterioration. By contrast, this upper region receives the highest rainfall of the Central Plateau, its run-off has great potential energy and any deterioration in vegetation or soil reduces its usefulness as the most valuable catchment in the State.

Graziers using the upper region of the Central Plateau are issued with temporary licences, valid for one year at a time. This practice, begun in 1965, was instituted presumably so that the Department of Lands could exercise control over the use of the region. However, the

Department renews temporary licences without prior inspection of the land under lease, in spite of the fact that most areas in the upper region exhibit a high percentage of bare ground as a result of over-burning or over-grazing. Liawenee Plains are now 30-50% devoid of vegetation and the area west of Lake Pillans is largely devoid of soil following the devastating fires in 1961. The Department does not even regulate the numbers of stock using the region.

The issuing of temporary licences has led to mismanagement by the lessees as well. Such short-term land-use offers no incentive for graziers to erect new fences, or even to maintain existing ones, or otherwise manage the land for its long-term benefit. Since no action is taken against stock straying and grazing unleased Crown land, the grazier has been given virtually free rein over a valuable catchment area by measures introduced to increase Departmental control for enhancement of catchment values. When the low return to the grazier is added to these considerations, present management by the Department of Lands of the upper region of the Central Plateau is shown to be totally irresponsible.

Many of these criticisms can be extended to areas of the mid region. The apparent economic return to graziers using this region is made possible by the permissive attitude of the Lands Department, so that capital investment in fencing, land management and pest control is not as high as it ought to be if responsible administration of public lands were practised. When the public costs of decreased amenity for recreation purposes and landscape deterioration as a threat to watershed values are considered against these doubtful economic returns for a few graziers, it becomes apparent that grazing is probably an unsuitable land use activity for much of the mid region as well.

A LAND USE PLAN FOR THE CENTRAL PLATEAU

Costin (paper in this volume) has shown how a simple approach can be used for evaluating the land use potential of the Australian high mountains. Clearly the Central Plateau is one of Australia's outstanding areas for water harvesting and nature conservation. A land use plan for the Central Plateau must therefore stand or fall on its

ability to highlight and preserve these values.

There are areas of the Central Plateau which must be put aside solely for the preservation and possible enhancement of their water yield. Other areas, while adding to the water yield, have outstanding wilderness value and these could easily be zoned for this purpose. Water yield would be conserved at the same time, but not improved except by the effects of natural revegetation of damaged and denuded areas.

Parts of the Central Plateau, largely in the lower region, are suitable for continued development as long as the primary purpose of preserving catchment values is maintained. Stock numbers and stocking rates could be increased with careful attention to pasture improvements, though this will be more expensive than at lower elevations. Areas not used for grazing could be managed as forests for sawn logs and wood chipping, though it would be essential to control such operations to ensure reforestation and to prevent erosion. The lower region has few erosion problems at the present time but, since most of it is settled freehold land and no legislative control presently exists over private sale of forests, some apprehension must exist for future landscape preservation.

Certain practices of land use are detrimental to high country management. Burning has such outstanding long-term effects on vegetation, soils, water yield and natural beauty that it is doubtful that it should be permitted except under the strictest controls. Indiscriminate and uncontrolled burning still takes place on the Central Plateau. Whereas graziers were largely responsible in the past, the increasing numbers of people interested in recreations such as fishing, hunting and sightseeing are responsible for an increasing number of small fires. It is apparent that the Lake Country's increasing attraction as a recreational area will necessitate management practices which strictly regulate individual actions if the vegetation is to be spared further damage and deterioration.

For the same reason, it will not be possible to condone the use of such fragile landscape for motorized sports such as trail-bike riding and cross country trail blazing in 4-wheel drive vehicles. Just as grazing is an

incompatible use of the land in the upper region and many parts of the mid region because of the inevitable deterioration to the landscape which follows, recreational activities which cause similar damage should not be permitted.

Preservation of the landscape will not be achieved by restrictions on human activities alone. Over many years, rabbits have added considerably to the grazing pressure exerted by sheep on many of the natural pastures. Rabbits first appeared on the Central Plateau about 1910 (Allison, personal communication) and reached pest proportions during the period 1920-1953 (skin buyers purchased approximately one million rabbit skins annually from trappers on the Central Plateau). Despite the introduction of myxomatosis in 1953, rabbit populations have remained relatively high in certain areas (skin buyers purchased 80,000 skins from trappers on the Central Plateau in 1971) and rabbits must remain a problem for those who would manage the Central Plateau for preservation of its plant communities.

A regional land use plan for the Central Plateau must be able to define the uses to which the area is suited, it must set out zones in which specified uses are permitted and it must detail the behaviour of users and the management practices approved for the long-term preservation of all the values of the region. A necessary first step in the achievement of these goals would be the creation of the Central Plateau as a Conservation Area.

In this concept, the whole region is regarded as a management unit. Existing uses of the land would be preserved as long as they proved economic and ecologically sound. Thus, much of the lower region would be regarded as suitable for grazing and forestry, but grazing would not be permitted in the upper region or in many parts of the mid region. On the other hand, more control would be exercised over private owners than in other places; for example, forestry activities would not be permitted unless reforestation was practised on sound forestry principles. Again, burning would be strictly controlled and limited to that under departmental supervision.

Special zoning of much of the remaining land would discriminate between areas suitable for commercial tourism, natural recreation, water harvesting and nature

conservation. Where private ownership is incompatible with these zoning arrangements, the Crown should acquire the land. Thus, much of the upper region of the Plateau would be reserved for water harvesting. All activities and uses which detract from catchment values would be banned. In addition, remedial treatment would be undertaken in badly damaged areas, and all construction works would have to minimize ecological damage and make restoration of disturbed areas.

Parts of the upper region are outstanding wilderness areas. The north-west is specially distinctive in its alpine vegetation, with some of the most extensive forests of the unique Tasmanian pines (*Athrotaxis cupressoides*) in the island. In addition, there are many areas of special beauty, such as the area round Mt. Jerusalem. This north-west section of the upper region is ideally suited for wilderness preservation, particularly as the park-like landscape, studded with small lakes, provides easy walking for anyone who would sample an accessible wilderness. A suggested boundary to the wilderness zone of the Central Plateau is shown on Figure 27.

Other zones need to be decided for recreational use such as hunting, fishing and pony-trail riding. Areas for tourist development are required. These details are the subjects for careful investigation and decision once the basis of the management plan has been laid. At present separate and exclusive control of parts of the Plateau is vested in a number of departments. The Lands Department administer approximately 60% of the region, the Hydro-Electric Commission 10%, and the remainder is vested in either the Forestry Commission or in private owners. Such an arrangement is administratively cumbersome and likely to result in conflict between these departments. By declaring the whole of the Central Plateau a Conservation Area and placing land management under the control of one authority, these problems could be averted and land use properly controlled. What is needed now is the acceptance of the concept of Conservation Areas. Once this has been achieved a reasonable land use plan for the Central Plateau can be implemented.

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