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SOIL CONSERVATION SERVICE
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The Future of the Kosciusko Summit Area :
A Report on a Proposed Primitive Area
in the Kosciusko State Park

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The Future of the Kosciusko Summit Area: A Report on a Proposed Primitive Area in the Kosciusko State Park

THE AUSTRALIAN ACADEMY OF SCIENCE

I. INTRODUCTION

In 1958 a large group of scientists and naturalists in Canberra and Sydney prepared a submission to the Kosciusko State Park Trust and to the Federal Government, favouring the establishment of a 'primitive area' or natural reserve in the Kosciusko State Park of New South Wales. The State Park Act of 1944-52 provides for the retention of such a 'primitive area' but to date no action along these lines has been taken. The submission was sent to the Prime Minister and to the Minister for National Development. It was, in some respects, critical of the Snowy Mountains Hydro-electric Authority, and the Minister for National Development, in replying to the signatories, virtually rejected the submission.

Subsequently, the Council of the Australian Academy of Science, feeling that there was some misunderstanding between the Snowy Mountains Authority and the scientific group interested in the primitive area, appointed a Committee to examine the whole position. The Committee visited the area and discussed the hydro-electric problems with senior officers of the Authority and with many others concerned. A draft report was submitted to the Authority and modified in the light of its suggestions. The report has been critically examined by appropriate Fellows of the Academy, including two engineers. The Council of the Academy has approved the publication of this final report.

II. THE PRIMITIVE AREA — GENERAL CONSIDERATIONS

The Kosciusko State Park Act of 1944, Section 5 (iii), states:

The Trust may retain as a primitive area such part of the Kosciusko State Park (not exceeding one-tenth of the area of that Park) as it may think fit.

A primitive area has been defined as an outstanding tract of land in a national park in which *preservation of natural conditions* is the *primary aim* of management.

The Kosciusko State Park is an enormous area of wild mountain country, mainly forested. A century of grazing, recurrent fire, and essential engineering works have considerably changed its character, and it would now be impossible to find any large tract in the Park which is in the virgin state. Nevertheless, we very strongly support the view that there should be a 'primitive area' set aside in the State Park, in which all further development should be at a minimum. We also recommend that this should include the Kosciusko Summit Area, in view of its unique scientific value. A serious difficulty arises, however, in that the Snowy Mountains Hydro-Electric Authority has planned for engineering works in the Summit Area. There is a conflict of interests which must be resolved.

The Authority has stated:

Where the interest is from the viewpoint of scenery, it cannot be agreed that proposed works should be abandoned or any

location other than the most economical one adopted. Scenic value is largely a matter of personal opinion, and in a number of countries hydro-electric works of the type associated with the Snowy Mountains scheme are considered to add to the natural attractions.

We agree with these views as far as the Kosciusko Park as a whole is concerned. The Snowy Mountains Authority has provided fine access roads, and has made it possible for thousands of tourists to visit the area. Probably the majority of these people would agree that well-designed power stations, dams, even pylons, add to the interest of heavily forested mountain scenes. Certainly thousands of people have visited and will continue to visit the area in order to inspect and to take a pride in the engineering achievements of the Snowy Mountains Authority. It is also obvious that skiing is an increasingly popular sport in Australia, and that there are legitimate demands for further development of skiing activities in the Park.

But any national park, in addition to catering for the tourist and certain types of recreational sport, must also comprise areas in which conservation is the prime object. This is particularly important in Australia, a continent whose endemic flora and fauna attract world-wide attention. All local and visiting biologists are impressed by the fact that, after only a short period of settlement, very few virgin areas of native vegetation survive in Australia. Native plants, birds and animals are rapidly disappearing from the scene, even in districts in which there is no settlement as yet. A number of primitive areas will be essential if we wish to preserve for posterity characteristic examples of the Australian biota still existing in their natural environment, so that they can be studied by the scientist and, at the same time, provide a living museum for the naturalist and layman. Such primitive areas must be large enough to ensure that hydrological features, soil, and local climate are undisturbed by man's activities; large enough also to ensure that the ecological balance of the plant and animal communities is maintained. It follows that grazing, forestry, roadmaking and all engineering activities are out of place in a primitive area.

III. THE SUMMIT PRIMITIVE AREA OR ALPINE RESERVE

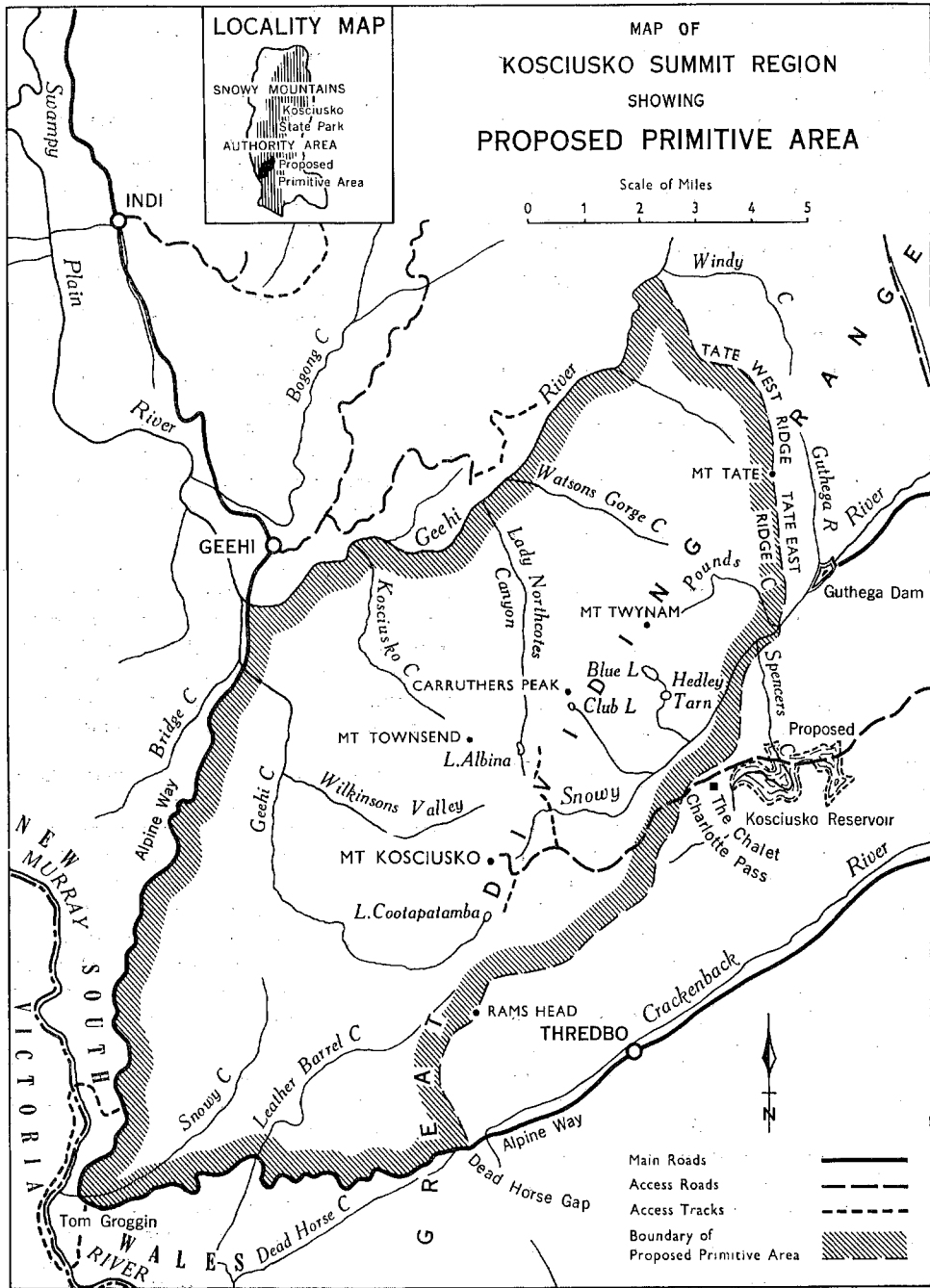
There are four regions within the Kosciusko National Park which could be set aside as primitive areas. These are (1) The Pilot region, (2) Mt. Jagungal and its environs, (3) a northerly region around Cooleman Plain and (4) the Summit area of Kosciusko.

All these areas have many valuable features and properly form part of a national park. The first three lack the magnificent scenery of the Summit area and, what is much more important, they do not carry truly alpine vegetation. They are also devoid of the glacial character of the Summit; they are much less valuable to the scientist. On other grounds—those of isolation and distance from engineering operations—it would be tempting and easy to select one of them as the major primitive reserve. But we are unanimous in considering any one of them as greatly inferior to the area described below and in the Appendix. As this area is less than one half of the specified one tenth of the Kosciusko Park which could, by Act, be reserved as a primitive area, it would be proper to consider either the Mt. Jagungal region or the Cooleman Plain as a second primitive area, supplementing but not replacing the Summit area.

There is then no difficulty whatever in selecting the most important area within the Park for reservation as a primitive or wilderness area. This *must* include the Summit area of Kosciusko, aptly described by the Park Superintendent as 'the heart of the Park'. The minimum area which, in our opinion, should be reserved is that outlined in Figure 1.

The following are the major reasons for selecting it:

- a. It is the only extensive alpine area in the whole mainland continent of Australia, and no area in the whole continent more truly merits reservation.
- b. It includes, within a few miles of traverse, the highest mountains in the continent, with an unmatched altitudinal sequence from 1,500 to 7,300 feet.
- c. Within it are well-defined moraines, cirques, polished pavements, glacial varves, and a series of glacial lakes, unique in the Australian mainland.



NMP/61/204

Drawn by Division of National Mapping, Department of National Development, Canberra, A.C.T. 1961

Figure 1

- d. It contains the best development of alpine flora of the mainland, including two plant communities (fjældmark) not represented elsewhere, and several species not found elsewhere in the Continent. (See Appendix.)
- e. It is watered by permanent alpine streams, some containing the original fauna and flora as yet unaltered by the introduction of trout or by stream diversion.

Apart from these features of scientific interest, the scenery in the area is unequalled. At present the only engineering work within the area is the old access road to the summit of Kosciusko, and its associated gravel pits.

The area is not in a primitive state, and part of it has been seriously damaged by fire and erosion connected with early sheep grazing. However, it is for the most part showing recovery since the exclusion of grazing animals. It is not practicable to recommend that the whole area should revert to a completely primitive state. The road to the Summit and the walking track would always be retained.

The importance of this Summit area as a catchment is shown by the fact that some half of it was taken out of grazing 15 years ago. Its reservation as a primitive area would minimize erosion in the most vulnerable area of the whole Park.

In comparison with many alpine reserves this one is very small. It comprises only some 70 square miles and is dangerously small as a primitive area. The Snowy Mountains Authority informs us that the main Snowy-Murray scheme requires the construction of the Geehi Dam close to the junction of the Geehi River and Windy Creek. Developments here must seriously affect areas which could quite properly have been included in an alpine reserve, but we have regretfully felt it impossible to support contentions that these engineering operations should be abandoned in favour of the preservation of a larger primitive area.

We conclude, therefore:

- a. That the area outlined in Fig. 1 is the minimum which can be considered as a worthwhile alpine reserve or primitive area, within the Kosciusko State Park.

b. That every possible effort should be made to prevent further disturbance in this area, and that in particular

- (i) grazing should be completely and permanently excluded from it;
- (ii) no further tourist roads should be constructed in this small area;
- (iii) no permanent ski lodges or ski lifts should be allowed within its boundaries;

(There are excellent plans for the further development of ski centres and ski lifts in a large area east of this reserve, e.g., at Thredbo, The Perisher, Smiggins' Hole and at Guthega.)

- (iv) an extension of hydro-electric works into this area would seriously threaten its integrity.

It will be shown that the planned engineering developments near the Summit would cost between £12 and £15 million; that they would add only about 5 per cent. to the total energy production of the Snowy Mountains Scheme and would contribute very little to irrigation.

We believe that in view of erosion hazards and of the requirements of the National Park, any constructional work at elevations exceeding 6,000 feet could be justified only if it could be proved to lead to a significant and economic increase in the irrigation potential of the Snowy Mountains Catchment.

IV. THE THREAT TO THE PROPOSED ALPINE RESERVE

In selecting the alpine reserve we have been fully aware that the Snowy Mountains Authority has long established plans to extend into this area, and that it is unique both scientifically and hydrologically. The Authority has offered serious and sustained objections to the suggestions that no further hydrological developments should take place above 6,000 feet. The remainder of this report puts the case for and against such development in an area of outstanding scientific importance.

1. *The Kosciusko Project* (Table I)

The Snowy Mountains Authority plans to construct, in about ten years' time, a high level reservoir, with an earth dam, at Spencer's Creek. A small power station would be built below the dam. Forty-five per cent. of the water of the reservoir would be

diverted to it by a short tunnel from the upper reaches of the Snowy River. Another 25 per cent. could be obtained by further diversion of water from several of the streams *within the Alpine Reserve*—streams which at present flow into the Murray River.

Present plans show that a covered aqueduct would be required, picking up the water of the Cootapatamba Creek to the west of Mt. Kosciusko and discharging this into a tunnel through the mountain to the Snowy River itself.

The Authority has stated that the plans for the reservoir could not be proceeded with unless the Snowy River diversion tunnel were built, but that 'investigations would have to be much further advanced before it could be stated whether the project could

succeed without construction of the Cootapatamba aqueduct'. It has also been stated that the elimination of this aqueduct and its associated tunnel to the Snowy River 'would have a most adverse effect on the over-all economy of the Kosciusko project'.

In 1955 the Authority's official descriptive booklet stated 'Because of the very great power potential of water at this altitude (Kosciusko Reservoir), many miles of race-lines can be justified economically, to collect mountain streams from the surrounding areas and lead them into the reservoir'. However, in the 'Notes on the Authority's views on the primitive area Submission' (1958) it was stated 'Earlier proposals for an extensive series of aqueducts . . . are not likely to be implemented'. These aqueducts (additional to those named in Table I) are not marked on the recent maps provided by the Authority, but we are informed that no finality has been reached regarding any portion of the Kosciusko Project and a more definite statement than that quoted above from the Authority's notes cannot be made. There still remains the possibility that, for instance, the water draining from the glacial Club Lake would be tapped.

The Authority's reasons in support of this project are as follows:

- (i) Snow-melt water from these high altitudes is capable of providing a considerable quantity of electrical power (Table I) as the water could pass through all power stations associated with the Snowy-Murray Diversion.
- (ii) The water would be fully regulated and 'in this way additional water will be provided for irrigation'.
- (iii) The Guthega project, already constructed, relies on the ultimate construction of Kosciusko Reservoir to make firm its existing capacity and to enable another power unit to be added—provision for this unit has already been made in the size of the tunnel and power station building.

(a) *The Kosciusko Reservoir and Power Station*

These works are outside the proposed primitive area, but lie astride the main access road to that area, i.e., the main road to the Summit. The aspect in this region is not

TABLE I.

A Summary of Some Aspects of the Projects Affecting the Proposed Primitive Area

Project and Location	Kosciusko Project		(c) Geehi Project.
	(a) Kosciusko Reservoir and all associated works including (b), Power Station and Snowy River Tunnel to Reservoir	(b) Cootapatamba Creek Aqueduct and Tunnel to Snowy River	Lady Northcote's Canyon Aqueduct to Geehi Reservoir
Date of construction	1970-	1970-	1963-67
L.T.A. yield, usecs.	—	40	78
Average annual energy prodn.	160×10^6 kWh	110×10^6 kWh	125×10^6 kWh
Est. capital cost	£10-£12,000,000	£2,110,000	£2,550,000
Capitalised value	—	£7,390,000	£8,340,000
Percentage total capitalised value of SMA scheme and of total annual energy production	3%	2%	2%

Notes.

- (1) The Cootapatamba Aqueduct would provide some 25% of the water available for the Kosciusko power station; the Snowy River diversion would provide a further 45% of this water.
- (2) The Lady Northcote's Canyon Aqueduct would provide some 6% of the water passing through the two major power stations, Murray 1 and Murray 2; these together provide about one-third of the capacity of the SMA Scheme.
- (3) The figures under (a) are only approximate, as no decisions have yet been reached as to the type of dam, capacity of power station, etc.
- (4) This table has been prepared from information supplied by the Snowy Mountains Hydro-Electric Authority.

particularly scenic, and the natural vegetation has been seriously damaged by fire and interfered with by skiing developments. A reservoir here could actually add to the scenic value as does the Rocky Valley Reservoir in Victoria. However, this Reservoir would partly submerge the David Moraine and the Trappyard Creek varves. Furthermore, if an earth dam is to be constructed and soil found from neighbouring borrow pits in the valley, then any actual scenic attractions provided by the reservoir itself could be, to a large extent, nullified by the scars caused by borrow pits. The experience of the Authority at the Eucumbene borrow pits *at a much lower altitude*, coupled with our knowledge of the climate and vegetation near Charlotte's Pass, suggest that the rehabilitation of the extensive damaged areas around the new dam would be extremely slow and difficult, and very much more expensive than at Eucumbene Dam (elevation 4,000 feet) where, in 1955-59, some £75,000 was spent on the early stages of the reclamation of borrow pits. Foundation conditions at the site make a concrete dam impracticable. The Authority hopes to locate borrow areas for an earth dam within the site but we have no assurance that this will be possible.

While, therefore, there is no strong objection to the Kosciusko reservoir and power station in themselves, we consider that their construction would be detrimental to the Primitive area, because they would apparently require the construction of the Cootapatamba Aqueduct and Tunnel System.

(b) *Cootapatamba/Snowy River Aqueduct*

This covered aqueduct would require the initial bulldozing of a road or roads at the very high elevation of more than 6,000 feet. The finished aqueduct would not be visible from the high mountain range. If it could be put in without any disturbance of the vegetation it would not be regarded as interfering with the scientific aspect of the primitive area, any more than does the present road to the Summit. However, it is well known that soil conservation at this altitude is extremely difficult, and we are not convinced that this aqueduct could be constructed economically in such a way that the approach

roads, turning points, camp sites, etc., could be adequately treated to prevent further erosion, still less to retain the natural features. Erosion caused at this height by grazing is extremely serious on the nearby Carruthers Peak and it has gone so far that economic reclamation seems to be out of the question. All reclamation work would certainly require the use of plants not native to the area. Other disadvantages associated with this aqueduct are that it requires the construction of a tunnel from its northern end through the mountains to the Snowy River, supplementing the tunnel from the Snowy River to the Kosciusko Reservoir. Each tunnel would have a diversion dam or weir and probably a permanent access road. Construction of these tunnels and the spoil heaps derived from them must inevitably mar the appearance of the highest part of the National Park and *still further reduce the primitive area*. Finally, the Snowy River itself would be diverted, and a considerable length of the river bed would be largely deprived of water.

We should regard the construction of this aqueduct and its associated tunnels as seriously affecting the integrity of the primitive reserve, and we repeat what was said in the Academy's report on grazing, page 29:

We recommend, in the interests of erosion control and national park values, that at elevations above 6,000 feet any constructional work should only be undertaken if it can be proved that it is essential to an efficient irrigation scheme.

We point out that the Kosciusko project as a whole will add only about 3 per cent. of the total annual power production of the whole Snowy Mountains Scheme. We do not consider that the regulation of the alpine streams additional to that already provided, will add significantly to the irrigation potential.

2. *The Geehi Project—Lady Northcote's Canyon Aqueduct (Table I)*

The Geehi project, which involves the construction of a dam on the Geehi River, must be regarded as 'an integral part of the main Snowy-Murray development'. As a part of this project the Authority proposes to construct, within the proposed Alpine Reserve,

a long covered aqueduct. This would pass along the N-W escarpment from the Lady Northcote Canyon. It would pick up the water of creeks running to the Geehi River (and to the Murray River) and discharge it upstream into the Geehi Pond. The aqueduct would provide only 6 per cent. of the water of this reservoir but is nevertheless regarded by the Authority as essential to the Geehi project. It is estimated to provide 2 per cent. of the total power production of the Snowy Mountains Scheme (Table I). Here again, it is suggested that the further regulation of this water would add to irrigation potential. We regard it, however, as primarily a means of slightly increasing power production.

It is proposed to begin work on this aqueduct in 1963, it is envisaged that it would be necessary to drive a bench along the contours at a height of 3,600-4,100 feet, this to be wide enough to carry the machine for bringing in the pipes, digging the trench and laying the pipes. It is, therefore, equivalent to putting a road along the face of the steep slopes running up to the main summits of the range. Such an aqueduct, if very carefully constructed, would not interfere to any great extent with the natural vegetation, i.e., could not be regarded as detrimental to the purely scientific aspects of the proposed primitive area. The aqueduct would run in forested country on an aspect where the recovery of the vegetation would not be too difficult. Objections to this scheme are, therefore, scenic. The view of this slope, e.g., from Olsen's Lookout, is undoubtedly the grandest in the whole of Australia, and many people would wish to see it preserved in its primitive state. Even with the most expensive methods of construction the aqueduct would inevitably be clearly visible from below. The ground is extremely steep and in parts rocky, and a good deal of blasting would be necessary. The Authority assures us that the design and construction of the aqueduct would be planned to cause the minimum possible disturbance. But, judging from road construction in the similarly steep region of T1 and T2 Power Stations, there would be a good deal of overcasting, and also considerable danger of landslips. It seems probable, therefore, that the line of the aqueduct would be accom-

panied by a series of extensive rocky scree running sharply downhill towards the Geehi. These scars would be permanent.

CONCLUSION

We believe that a sufficient case has been made to indicate that the proposed high level works, and especially the Cootapatamba aqueduct, the Snowy Tunnel (and, therefore, the Kosciusko Reservoir) should be examined again in all their aspects before the decision to construct is made. We recognize the strength of the case for development; this article has been written to show that there is also a strong case—we think a stronger—in favour of reserving the whole Summit area as a primitive alpine reserve, a key feature of the Kosciusko National Park. We appreciate that the Commissioners, as their plans go forward, will do all in their power to preserve the essential character of this area. They have shown that it is possible to protect their lower works from erosion and they believe that their methods would also succeed at the higher elevations. Sir William Hudson has offered to allow scientists outside the Authority to advise on the best methods of minimizing damage to the Summit vegetation and soils. We hope that it will not become necessary to attempt to take advantage of this offer. Quite apart from the extreme hazard of soil erosion at heights above 6,000 feet, we believe that the necessarily extensive operations by economic methods must inevitably create there a 'Landscape of Power' (as at Guthega). Such landscape has some scenic but little ecological interest. The only hope of rehabilitating the damaged areas would lie in the introduction of exotic plant species in the only truly alpine reserve in the whole of mainland Australia.

APPENDIX I

Scientific Aspects of the Proposed Kosciusko Primitive Area

A. COSTIN*

A. Vegetation

The most outstanding feature of the vegetation of the proposed Kosciusko Primitive Area is the occurrence, within a distance of a few miles, of a wide altitudinal sequence of plant communities between 1,500 and 7,300

* Division of Plant Industry, C.S.I.R.O.

feet. These include savannah woodland, dry sclerophyll forest, two wet sclerophyll forest communities, subalpine woodland, and alpine herbfield.

The savannah woodland communities are found mainly along the River Murray and its tributary creeks. *Eucalyptus stellulata* and *E. camphora* are the chief components, as at Tom Groggin.

Lower, drier slopes in the Tom Groggin area support dry sclerophyll forest. The dominants are mainly *Eucalyptus dives*, *E. rubida*, and *E. maculosa*, often with extensive communities of *Banksia marginata*.

In more favourable sites, and extending up to about 3,500 feet, wet sclerophyll forests of *E. viminalis*, *E. radiata*, *E. bicostata* and *E. fastigata* are strongly developed. These often carry a luxuriant undergrowth of *Bedfordia salicina*, and tree-ferns, as in the Geehi area. The occurrence of *E. fastigata* is of special interest. This species has a predominantly coastal distribution, and the Geehi communities are thought to be relic in character.

The 3,500-5,000 ft. belt supports another wet sclerophyll forest community, in which the main dominants are *E. delegatensis*, *E. dalrympleana* and *E. pauciflora*. This grades into subalpine woodland, characterized by the snow gum, *E. niphophila*, which extends from about 5,000 to 6,000 feet.

The alpine tract above the tree-line provides the best example of high mountain vegetation in Australia, including some communities which are found nowhere else.

There are three main alpine herbfield communities: the extensive tall alpine herbfields of *Poa caespitosa*, *Celmisia longifolia* and other brilliant alpine herbs; the chomophyte vegetation of *Brachycome nivalis*, *Danthonia alpicola* and various ferns, on cliff faces and other steep rocky places; and the short alpine herbfields below snow patches, characterized by *Plantago muelleri*, *Montia australasica* and *Caltha introloba*. These communities are enriched with species of *Euphrasia*, *Craspedia*, *Ranunculus*, *Aciphylla*, etc., and the grass *Danthonia frigida*, some of which are either relatively common or absent in other high mountain areas.

The alpine tract of the Kosciusko Plateau also contains two fjældmark communities which are unique. One, in upper snow patch situations, characterized by *Coprosma pumila* and *Colobanthus benthamianus*, provides a strong phytogeographic and ecological link with the subantarctic islands and South America. The other community, in wind-swept peaks and cols, characterised by *Epacris petrophila* and *Veronica densifolia*, is the only Australian example of a specialized type of high latitude vegetation found under exposed near-glacial conditions.

Wet situation in the alpine tract support two bog communities, containing the peat-

forming moss *Sphagnum cristatum* with or without shrubs, and a fen community of *Carex gaudichaudiana*. These communities are of considerable historical value, in so far as the underlying peat preserves identifiable remains of past floras of the area, and is itself capable of being dated. Recent determinations of a sequence of peats, giving ages of 8,500, 4,500 and 2,500 years, indicate the scientific value of these materials.

Heath vegetation is represented by two main communities. *Podocarpus alpinus*, *Oxylobium ellipticum* and related shrubs occur in rocky alpine situations such as glacial moraine. An undescribed species of *Epacris* (affin. *E. serpyllifolia*) and *Kunzea muelleri* characterize poorly aerated but not necessarily wet soils, often associated with sod tussock grasslands of snow grass.

Thus, as with the 1,500-7,300 ft. sequence of vegetation from Geehi to Kosciusko, it is the occurrence together of a large number of plant communities (eleven) which gives the alpine tract much of its scientific importance, in addition to features such as the two fjældmark communities which are themselves unique.

Species Confined to or Centred on the Kosciusko Area

- Antennaria uniceps* F. Muell.
- Brachycome stolonifera* G. L. Davis
- Danthonia frigida* J. Vickery
- **Dioschadium ranunculaceum* Domin.
- **Kelleria tasmanica* Domke
- Ranunculus anemoneus* F. Muell.
- Ranunculus dissectifolius* F. Muell. ex Benth.
- Ranunculus muelleri* Benth. var. *brevicaulis* B. G. Briggs
- Ranunculus niphophilus* B. G. Briggs
- Seseli algens* F. Muell.
- Veronica densifolia* F. Muell.

* Also in Tasmania.

Undescribed Forms

- Cardamine* sp. (Blue Lake area)
- Craspedia uniflora* Forst. f. dwarf swamp form
- Craspedia uniflora* Forst. f. Lake Albinia form
- Epilobium glabellum* Forst. f. dwarf form
- Euphrasia glacialis* Wettst. snowpatch form
- Luzula campestris* D. C. dwarf fjældmark form
- Myosotis australis* R. Br. Ethridge Range form
- Montia australasica* Pax. and K. Hoffm. pink form.

B. Geology

The glacial features of the Kosciusko Summit Area have already been mentioned; they are unique on the mainland.

C. Fauna

The animal life of the area has not yet been intensively studied, but there is little doubt that the fauna includes rare species found in few other places, if at all.

APPENDIX II

Boundaries of Proposed Kosciusko Primitive Area

(See Fig. 1)

The Snowy River, between Pounds Creek and Twynam Creek; Twynam Creek to the northern end of Guthrie Range; Guthrie Range and its continuation through Charlotte's Pass to Mt. Stilwell; Mt. Stilwell to the Ramshead Range; the Ramshead Range to

the North Ramshead, Ramshead, and the Alpine Way at Groggin Gap (Dead Horse Gap); the Alpine Way, via Tom Groggin, to the Swampy Plains River at the junction of the Geehi River and Geehi Creek; the Geehi River 13 miles upstream to Middle Creek; Middle Creek to the northern end of Tate West Ridge; Tate West Ridge to Mt. Tate, and Tate East Ridge; Tate East Ridge to the Snowy River at the entrance of Pounds Creek.

Note: If the Middle Creek-Geehi River junction comes within the scope of the proposed Windy Creek works, the proposed boundary in this area (now at 13 river miles) could be brought back a mile or so (to 11 or 12 miles).