An aerial photograph of a vast, rugged mountain range. The terrain is characterized by numerous ridges, valleys, and peaks, some of which are covered in snow. In the foreground, a ski field is visible, with several ski lifts and tracks extending across the slopes. The overall scene is one of a high-altitude, mountainous environment.

SKIFIELD POTENTIAL  
IN THE  
WAKATIPU DISTRICT

B J MASON

SKIFIELD POTENTIAL IN THE  
WAKATIPU DISTRICT

An evaluation of the potential for, and the on-slope constraints  
to skifield development, principally at Coronet Peak and in the  
Rastus Burn basin of the Remarkables

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CONTENTS

	Page
Acknowledgements	1
Introduction	2
Section One : Stated Problems with Coronet Peak	
1.1 Unreliable Snow Season	5
1.2 Short Ski Season	7
1.3 Coronet Peak Near Capacity	9
1.4 Need for Better Slopes for Beginner and Intermediate Skiers	10
Section Two : Evaluation of Coronet Peak Skifield	
2.1 Ski Slope Extent	11
2.2 Slope Carrying Capacity	15
2.3 Current Utilisation	21
2.4 Skier Market Demand	22
2.5 Design Capacity	23
Section Three : Evaluation of Rastus Burn Skifield Proposal	
3.1 Extent of Skiable Terrain	26
3.2 Length and Reliability of Ski Season	26
3.3 Factors Affecting Snow Accumulation	26
3.4 Slope Analysis	35
3.5 Slope Capacities and Development Constrants	44
Section Four : Evaluation of Mount Cardrona Skifield	47
Section Five : Conclusions	49
Sources	51
Appendices	
1 Snow Conditions and Duration of Ski Season at Coronet Peak 1938-1979	53
2 Coronet Peak : Chalet Beginners' Area	55
3 Coronet Peak : Potential Beginners' Areas at Rocky Gully	56
4 Coronet Peak : Halfway Beginners' Area	57
5 Pitch : Gradient Conversion Graph	58
6 Maximum Potential Winter Radiation Received on Three Ski Runs in the Rastus Burn, and on Coronet Peak	59

	Page	
7	Chronology of Events : Rastus Burn Skifield Proposal	62
 Figures		
1	Location Map	4
2	Rastus Burn : Proposed Lift Alignments	25
3	Midday Sun Angle : Coronet Peak and Rastus Burn	33
4	Slope Profile : Wye Saddle to Valley Floor	36
5	Slope Profile : Shadow Basin	40
6	Slope Profile : Sugar Bowl	43
 Plans		
1	Coronet Peak : Extent Skiable Terrain Slope Analysis by Skier Ability	13
2	Rastus Burn : Extent Skiable Terrain Doolans, Wye : Slope Analysis by Skier Ability	27
 Photographs		
1	Coronet Peak : Lift Information Noticeboard	8
2	Coronet Peak : Double Chair to Halfway	17
3	Coronet Peak : Halfway on Double Chair to Summit	20
4	Rastus Burn Valley	28
5	Rastus Burn Base Area	29
6	Rastus Burn from Northern End of Remarkables Escarpment	34
7	Rastus Burn from Wye Saddle	38
8	Rastus Burn : Shadow Basin from lower Sugar Bowl	41
9	Rastus Burn Valley	46
10	Moun t Cardrona Skifield	48

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## INTRODUCTION

The Wakatipu District has long been known as a winter resort area. Since 1947 Coronet Peak has developed into one of the world's top ranking skifields<sup>1</sup>.

New Zealand's principal tourist resort of Queenstown, which is primarily summer orientated, has become solely dependent on tourism generated from Coronet Peak, to reduce a winter trough in occupancy rates of hotels and motels, and a downturn in business activity generally. A rapid increase in the provision of tourist beds in recent years has led to demands for new skifields in close proximity to Queenstown. Such developments are seen as necessary to sustain continuing growth of summer-orientated facilities.

Skifield development in the Remarkables has been advocated in response to assumptions that Coronet Peak is deficient in its capacity to meet present and future demands. Conversely, the Rastus Burn Basin in the Remarkables has been promoted as the answer to future skiing requirements in the district.

To date, no quantitative measure of skifield slope potential within the Wakatipu District has been available as a basis for assessment of development options.

In a major OECD study in Switzerland<sup>2</sup> it was found that:

1. "In general, the original development of a skiing area has been carried out on the best available slopes"
2. "It is the capacity of the skiing area which constitutes the limiting factors in the development of ski-tourism"
3. "In already developed ski areas, existing facilities are to be fully exploited. The transportation capacity should be co-ordinated to the carrying capacity of the slopes"
4. "The development of skiing areas already opened up should have priority over any development of still untouched areas"

Although by comparison with Switzerland, the intensity of skifield development is light in New Zealand, the planning principles arrived at in the OECD study should have international application. This is due

to common origins for development pressures. It should be noted that the OECD conclusions were reached in spite of there being up to 40% of total skiable areas remaining undeveloped in Switzerland<sup>2</sup>.

Only one comprehensive ski area assessment has been undertaken in New Zealand. The 1977 Whakapapa Skifield Survey<sup>3</sup>, resulted in the Tongariro National Park Board determining that better slope utilisation could be achieved within the existing developed area by upgrading the lift capacity, rather than expanding the lift-serviced area.

The goal of this treatise is to assess physical carrying capacities and other factors relevant to skifield operation at three locations in the Wakatipu District.

It is the hypothesis of this paper that Coronet Peak plus the recently opened Mount Cardrona Skifield can satisfy skifield slope requirements in the district, without development of the Rastus Burn which is itself inherently unsuitable for skifield use.

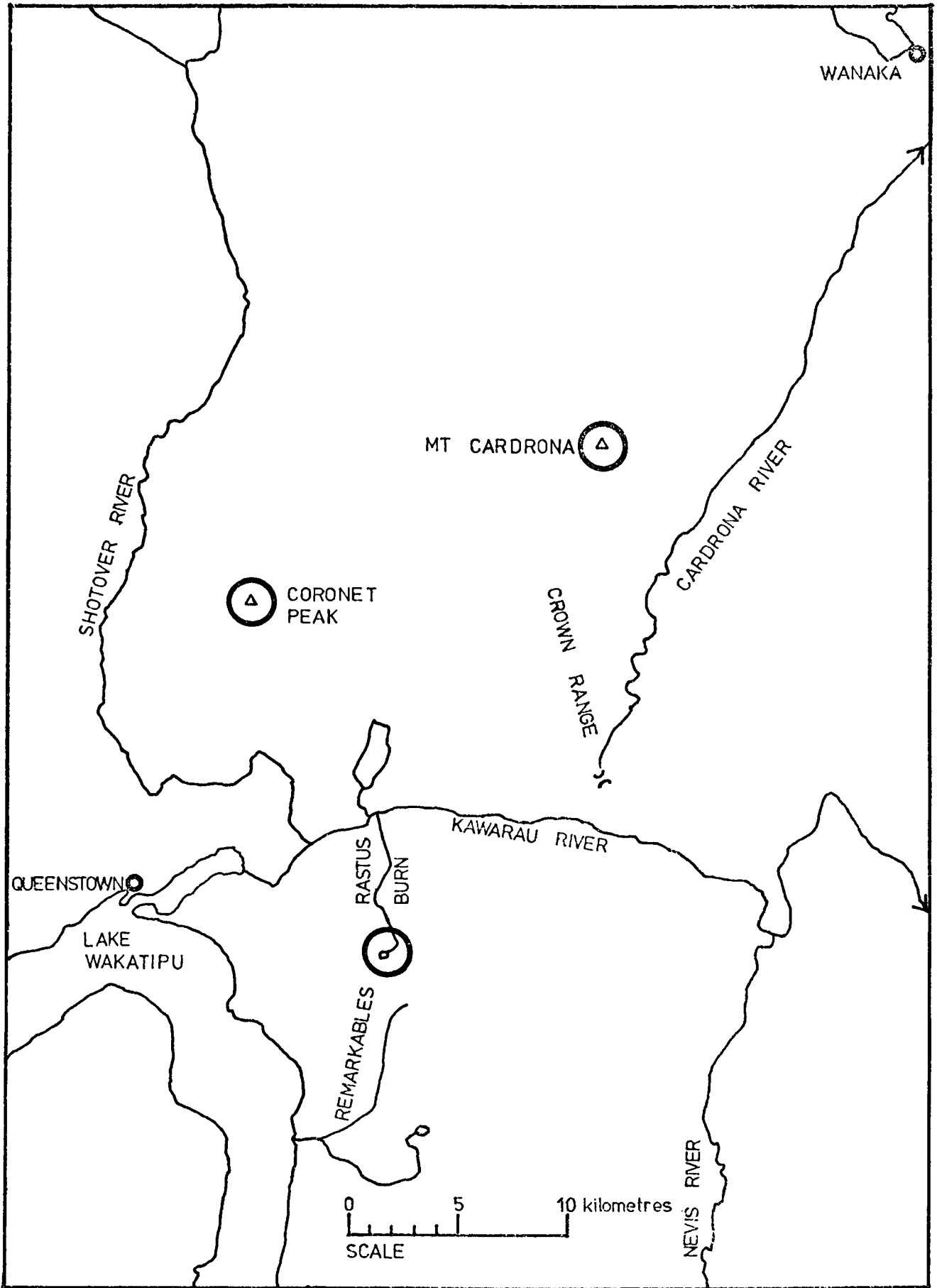


FIGURE 1 QUEENSTOWN DISTRICT



SECTION I

STATED PROBLEMS WITH CORONET PEAK

1.1 Unreliable Snow Season

Several witnesses for the Mount Cook Group before the Lake County Council in April 1979, stated that the **"vagaries of the weather result in unreliable snow seasons"** at Coronet Peak<sup>4</sup>. It was also stated that **"more particularly in recent years, there has been a disappointingly short season at the Coronet Peak skifields"**<sup>5</sup>.

With intensive publicity, particularly since 1973, of 'unreliable snow' statements by the Mount Cook Group, an erroneous impression could be gained that this is a recent phenomenon. A review of recorded statements by the Mount Cook Company and Ski Clubs since 1938 show that skiing at Coronet Peak has always been subject to the vagaries of the weather (Appendix 1).

Coronet Peak was first promoted as a skifield in 1940 when the Mount Cook Company erected a ski hut not far above the Skippers Saddle (975m) and near the Skippers Road.

Despite assurances from some locals that heavy snow lay on the Saddle year after year from the beginning of June, the Company found that there was insufficient snow for skiing at that altitude in the 1940 winter. The higher, smoother slopes, one hours' walk from the Skippers Road were used instead<sup>6</sup>. Therefore, the snow cover proved to be 'unreliable' for the Company's purposes during the first year of operation as a skifield.

Sir Henry Wigley<sup>6</sup> recorded that in 1945 and 1946: **"The winter snowline settled down at nearer 1200 metres; they (the winters) also taught us that the slopes of the mountain were much more suitable above this altitude, and further to the north"**

In 1947 the Company installed the first rope tow with its lower terminal at 1067m. A determining influence on its location was ease of access, as at that stage there was no road access from the Skippers Road. **"There was no point in putting a rope tow on the best slopes of the mountain if the skiers could not reach it"**<sup>6</sup>. The 1947 winter confirmed the 1945 and 1946 observations, so in 1948 the tow was moved higher up the mountain.

The year 1949 was recorded as "a light snow year" with skiing not commencing until the first fall of snow on 26 June<sup>7</sup>. Also in that year, the Company shifted the tow again, this time close to the present alignment of the double chair lift, with its lower terminal at 1190m. Some of the extremes between ski seasons are worth quoting from the NZ Ski Year Books, as a reminder that the present climatic variability at Coronet Peak is not new:

- 1956 "In October, two Otago Ski Club parties made an assault on Mount Kyeburn on Dansey's Pass near Naseby, prospecting for a new ski-field which would be usable before and after the short ski season at Coronet"
- 1957 "Recent seasons at Coronet Peak have been regrettably short and some (Otago Ski Club) members felt that new areas offering late-season skiing would be popular"
- 1961 "The Otago Ski Club reported that the snow season at Coronet Peak was the best for many years, giving members the largest number of man skidays ever"
- 1967 "Last season (1967) must have been one of the worst on record for skiing at Coronet, because of lack of snow" (Report of the Wakatipu Ski Club)
- 1968 "1968 was, of course, absolutely fabulous at Coronet Peak, with more snow than we knew what to do with" (Report of the Southland Ski Club)

Trenberth<sup>8</sup> concluded that "Special attempts should be directed at reducing the sensitivity of human activities to the fluctuations in climate that will surely continue to occur"

Couple that statement to Sir Henry Wigley's acknowledgement that Coronet Peak has a "comparitively low snowfall"<sup>6</sup>, which is a reflection of relatively low precipitation in the Queenstown district, and there is a clear warning against over-dependence by Queenstown on skiing to continue to sustain investment for peak summer tourist development.

The relative 'reliability' of the Rastus Burn for skiable snow is discussed further in Section III .

## 1.2 Short Ski Season

The Mount Cook Company has repeatedly stressed the need for 'extended' ski seasons, both earlier and later than that available at Coronet Peak. The need for, as well as the availability of suitable conditions are both factors which must be considered.

### 1.2.1 Beginning of Season:

From a review of Appendix 1, it can be concluded that the commencement of the ski season at Coronet Peak has been highly variable. This variability is due to the relatively low and variable frequency of cold fronts each winter. Owens states<sup>9</sup>: **"the frequency of cold front passage has an important influence on snowfall amounts recorded at Coronet Peak"**.

The commencement date for skifield operation is highly variable throughout New Zealand and is not peculiar to Coronet Peak<sup>10</sup>.

From my observations of Coronet Peak and other skifields throughout the South Island, the commencement of the ski season closely correlates to the first substantial snow falls, except in the case of some very early isolated falls.

The ability of the Rastus Burn to provide earlier ski seasons is discussed in Section III.

### 1.2.2 End of Season:

The end of the ski season does not necessarily indicate unsuitability for skiing. The Mount Cook Group has consistently closed operations at Coronet Peak near the last week of September since at least 1971, except in the case of 1975 (see Appendix 1). In the last decade, Company management decisions appear to be related to declining patronage and not to snow conditions.

Disinterest by skiers in spring skiing is not new. In 1958 Pairman<sup>11</sup> wrote **"the cry among our keener members has often been 'oh, for longer end-of-season skiing' and this season (1957), with its severely delayed start, should have seen the enthusiast off to every available patch of snow from August onwards, but what happened? Immediately after the August school holidays, Coronet was almost deserted although conditions were excellent for at least two weekends.**

PHOTOGRAPH 1



CORONET PEAK LIFT INFORMATION NOTICEBOARD  
24 September 1979

B J Mason

Despite good snow conditions and cover, there is only sufficient skier patronage to run the Double Chair at half speed. Snow conditions are wet granular, not 'packed and powder'.

The fact seems to be that regardless of snow conditions, skiers in the south have either had a surfeit of skiing, run out of money or are looking towards the summer commitments after the end of August. Consequently the few remaining diehards are insufficient in numbers to warrant expenditure in promoting late-season skiing."

It appears that in most seasons there is the opportunity for extended spring skiing at Coronet Peak which remains unutilised due to disinterest by skiers.

### 1.3 Coronet Peak Near Capacity

Rogers<sup>12</sup> projects that within two years Coronet Peak will reach its peak capacity, without stating the nature of the capacity he refers to, or the basis for his statement. He records that growth in skier-days "is now placing severe strains on the facilities at Coronet Peak, over-crowding of the base facilities and waits in the chairlift queues of 30-45 mins are not uncommon during the peak periods." Messrs Robinson<sup>4</sup> and Grant<sup>5</sup> appear to have equated facility congestion with slope congestion.

It is not only growth in skier-days, but also Company management that is straining facilities. It is the Company's practice of catering for sightseers on the double chair lift during the peak August holiday period, that creates queues of 30-45 mins<sup>10</sup>.

I have seen this lift running at half speed for foot passengers for up to 1-1 1/2 hours per day during the August holidays. At full speed, without interruptions to the ski cycle (i.e. queuing, loading, transport by lift, and downhill skiing), queues are reduced to 15-20 mins during peak periods. This period is acceptable in my view, although naturally most skiers would prefer a shorter time.

Rogers<sup>12</sup> identified three components of 'Comfortable Carrying Capacity' as:

1. Extent of skiable terrain and acceptable skier densities on the slopes
2. Uphill lift capacity to service the slopes
3. Capacity of supporting facilities

He acknowledged that "the available attractive ski terrain is a major physical constraint to feasibility, since in general the ski area

developer designs to the physical capabilities of the site, the key measure of the ski areas ultimate capacity is the extent of attractive ski terrain available and the skier-density acceptable".

At no stage has the Mount Cook Group quantified these 'key measures' for either Coronet Peak or the Rastus Burn, and so provide a measurable basis for their claim that an additional skifield is needed in the Queenstown district, and that the Rastus Burn can meet such a need. Branch and Rowan<sup>13</sup> consider that "the most critical factor in planning any facility is the establishment of the comfortable carrying capacity (CCC) of the recreation complex. The CCC is the maximum number of participants who can utilise the facility at any one time without excessive crowding and without damaging the quality of the environment. Once the CCC is established, the planner can bring into balance the uphill capabilities of the lifts, the downhill capabilities of the trails (by ability level), the size of the base lodge, utilities requirements, and access and parking requirements. The CCC is a key factor in the economic assessment of the facility, along with such other critical elements as the length of season and revenue per skier visit".

Therefore, to make any valid judgements on the ability of Coronet Peak to meet future requirements, the key factors of 'ski-slope extent and the carrying capacity of the slopes must be determined'. These factors are determined in Section II.

#### 1.4 Need for Better Slopes for Beginner and Intermediate Skiers

Forward and Robinson<sup>4</sup> state that the majority of skiers are in the beginner to intermediate category, and that beginners in particular are not particularly well catered for through shortage of suitable terrain.

From my own observations during the last 10 years, beginner-novice slopes that are being used tend to be congested during peak periods in August. However, intermediate slopes are generally underutilised. The extent of slopes and their capacities for all skier abilities are further discussed in Section II.