

of manuka/matagouri scrub. The present distribution of beech along this side of the Ben Ohau is related to fire damage.

Area : 31 ha
 Altitude : 640-760 m
 Veg. card : 526
 Ecol. unit : 63-3-19

9. Mount Ben Ohau Hall's Totara

S100 605660

- Hall's totara on Hill Sideslope
- "Site of Special Wildlife Interest, Moderate Value"

This very steep face supports snow tussock communities which are superceded by herb and fellfields near the summit. The lower slopes support the best example of a regenerating stand of Hall's totara in the district and represent some of the driest forests in New Zealand. This may be an example of the original dry woodland forest of the area (Molloy et al. 1976). The ground beetle *Megadromus alternus* (Coleoptera: Carabidae) was collected here. Chukor and California quail occur here.

Area : 215 ha
 Altitude : 510-1520 m
 Veg. card : 56, 189
 Ecol. unit : 63-3-16
 References : Molloy et al. (1976b)
 Wells (1972)
 Wildlife Service (1978)

10. Lake Ohau Moraine Scrub

S108 616623

- Matagouri scrub on Ablation Moraine
- Cassinia/Kowhai scrub on Ablation Moraine
- Tarn edge vegetation

An area of modified matagouri scrub with patches of Cassinia and *Sophora microphylla* scrub. There are many large tarns. The presence of wetlands in an arid climate is interesting. The rare scree skink *L. otagense form waimatense* was seen here. A diverse and abundant terrestrial fauna was present. *Megadromus alternus* (Coleoptera: Carabidae); *Setascutum ohauensis* (Orthoptera: Rhaphidophoridae), and *Celatoblatta anisoptera* (Blattodea: Blattidae), species endemic to the Mackenzie Basin, were collected here.

Area : 290 ha
 Altitude : 520-580 m
 Veg. card : 136, 137, 138
 Ecol. unit : 63-3-14, 63-3-15
 Reference : Johnson (1980)

11. Lake Ohau

S108 560690

- A large, NZED controlled, glacial lake providing good feeding areas for waders and waterfowl.

Native long finned eels, bullies, galaxids and introduced game species are present in moderate - high numbers. The lake edge flora is important as this is the only large lake in the region not to have been raised.

Area : 5843 ha
 Altitude : 520 m
 Ecol. unit : 63-3-13

LAND SETTLEMENT BOARD

PNA IMPLEMENTATION MACKENZIE ECOLOGICAL
REGION - UPPER DUNCAN STREAM

FILES: HO 22/5474/4 CASE NO: 10200 CANTERBURY LAND DISTRICT
 CL 14/1/15
 DO 3/423//9/1

PROPOSAL

To consider the implementation of the PNA identified in the upper Duncan Stream, and to provide direction to the department in preparing the final policies in the Ben Ohau Crown Land Management Area Management Plan.

PREVIOUS ACTION

- (1) Under Case No. 10061 of 2 July 1985 the board resolved to request the Director-General of Lands to instruct Commissioners of Crown Lands to note that it is the board's view that while exceptional circumstances may require other action, as a general principle:
 - (a) no authorisation for soil disturbance pertaining to Section 66(2) of the Land Act 1948 or for any activities under Sections 106 and 108 of the Land Act 1948 should be given over pastoral lease land identified as priority natural areas in protected natural area survey reports;
 - (b) that while a holding operation under existing management on pastoral lease land is appropriate for identified priority natural areas, no other restrictions should be imposed unless there are other factors (eg, threatened species) being considered;
 - (c) invite the PNA steering committee to attend the next board meeting to discuss the PNA programme and its implementation.

- (2) Under Case No. 10164 of 6 May 1986 the board considered the draft minutes of the Protected Areas Scientific Advisory Committee (PASAC) in relation to the implementation of PNAs in the Ben Ohau and Pukaki Ecological Districts (part of the Mackenzie Ecological Region). The board resolved:
 - (a) to note the recommendations from PASAC concerning the priority natural areas of the Ben Ohau and Pukaki Ecological Districts;
 - (b) to agree to the department proceeding with negotiations with landholders for protection of areas in accordance with PASAC's recommendations on the above areas;
 - (c) to note that firm proposals for protected natural areas, when successfully negotiated with lessees, will be submitted to the board for approval (subject to any delegation);
 - (d) to endorse PASAC's recommended approach to assessment of the remainder of the Mackenzie region;

- (e) to approve the maintaining of the moratorium on priority natural areas in the five Mackenzie districts yet to be assessed, while adjusting the moratorium areas in the Ben Ohau and Pukaki districts to reflect PASAC's recommendations.
- (f) to note the approach taken by PASAC in the implementation of the PNA programme in the Mackenzie Ecological Region which involved PASAC inspecting two ecological districts and setting the pattern and style to be followed in the remaining five districts. The board recommends to PASAC that this approach be adopted in all ecological regions, particularly those regions which contain land administered by the board.
- (3) Under Case No. 10185 of 5 August 1986 the board resolved to request pastoral lessees to refrain from topdressing identified PNAs in the spirit of the moratorium.

BACKGROUND

There are two main aspects to this proposal. PASAC has recommended that the greater portion of the upper Duncan Stream be included in a PNA; and the Mackenzie Highlands Development Co. Ltd has indicated a desire to develop a skifield in this valley.

The department has published a draft management plan for the Ben Ohau Crown Land Management Area which contains a policy concerning possible skifield development but no specific policy on PNA implementation. The policy and explanation on skifield development is:

"Objective

To acknowledge the interest shown and the apparent suitability of the Duncan and Mackenzie Basins for skifield development.

Explanation

This objective acknowledges the interest shown in developing the Mackenzie and Duncan Basins as a downhill ski area. It does not commit the Land Settlement Board or the department to agreeing to the establishment of such a skifield.

In the first instance it will be necessary for those entrepreneurs who can prove the necessary level of financial backing, to carry out feasibility studies which outline development proposals and environmental safeguards. The board will then deal with any satisfactory applications in terms of its current draft commercial recreation policy. Particular interest will be paid to roading plans."

Public submissions on the draft management plan commonly state that any skifield development should only be undertaken after an EIR has been prepared. Other submissions state that a decision should be made on whether a skifield is appropriate before the management plan is approved.

The question of skifield development has entered the political arena with the company putting its case for development to the Minister of Tourism.

Subsequently the Minister of Tourism has written to the Minister of Lands asking to be advised of the following:

- (1) Will designating the upper reaches of the Duncan Stream and the lower reaches of Boundary Stream as protected natural areas preclude downhill ski area and associated resort development in the Duncan Basin?;
- (2) If downhill skiing development is accepted as being a suitable use, what constraints to development can be expected considering the high ecological values attributed to the area?; and
- (3) When is the brief containing terms and conditions under which feasibility studies can be prepared likely to be available for potential developers?

In view of this and the nature of the decision to be made, both sides of the case are now being placed before the board.

CASE FOR PRESERVATION

The Mackenzie Ecological Region Protected Natural Areas Programme Report identified an area of 1800 hectares at the mid to high altitudinal range in the upper Duncan Valley as an area with priority for protection. The explanation to the proposal provided in the report is as follows:

"This area is an excellent example of the high altitude glacially derived tarns and cirques that typify the upper 1000 m of the Ben Ohau Range. At 900 m, depending on aspect, the fescue tussock intergrades with C. rigida which becomes the dominant tussock. This gives way at about 1700 m to excellent C. macra stands which, depending upon aspect, snow lie and soil depths, may be superseded by snowbank vegetation, scree, fellfields or dwarf Dracophyllum. Boulderfields support Podocarpus nivalis, Senecio cassinioides and Oleria scrub communities. The terrestrial insects are highly varied."

Subsequent to this report being published PASAC visited the PNA and made the following comments and recommendations:

"This area contains excellent examples of high altitude glacially derived tarns and cirques that typify the upper 1000 m of the Ben Ohau Range. It also includes a complete sequence of Pleistocene and Holocene aged moraines.

At approximately 900 m, depending of aspect, the fescue tussock intergrades with Chionochloa rigida which becomes the dominant tussock. This gives way at about 1500 mm to excellent C. macra stands which, depending upon aspect, snow lie and soil depths, may be superseded by snowbank vegetation, scree, fellfields or dwarf Dracophyllum. Boulderfields support Podocarpus nivalis, Senecio cassinioides and Oleria scrub communities.

Also notable are the occurrence of Phyllocladus alpinus and lower valley bog pool systems.

The catchment contains a wide diversity of invertebrates including 3 species of weta (being identified by Mr Johns) and a distinctive fauna of aquatic invertebrates, including blepharicerids, typical of high altitude

streams. This fauna also includes two species of the mayfly genus, Deleatidium, one of which may be undescribed. (D. Towns - pers. comm.)

PASAC were impressed by the whole upper Duncan Stream catchment in terms of its high educational, scientific and ecological values over a range of natural science disciplines. They recommended conditional extension of the original priority natural area identified to include the entire upper catchment of the Duncan Stream.

Moved : Wardle/Tonkin

PASAC RECOMMENDS A HIGH LEVEL OF PROTECTION FOR THE CATCHMENT OF THE UPPER DUNCAN STREAM ABOVE THE CROWN LAND BOUNDARY. THE SUBCATCHMENTS TO THE TRUE LEFT AND TRUE RIGHT IMMEDIATELY ABOVE THIS SOUTHERN BOUNDARY SHOULD, HOWEVER, BE INVESTIGATED TO CONFIRM THAT THEY ARE OF ADDITIONAL VALUE BEFORE THEY ARE INCLUDED.

Carried.

Professor O'Connor stated his concern about the skifield development proposed for this site. The committee considered that the exceptional natural values displayed here must outweigh any skifield development. They do not object to cross-country skiing nor heliskiing (unless the latter uses the catchment as a fuel-dump) but do object strongly to the impact roads, buildings and sewage schemes associated with a skifield would have on the area."

The relative importance of the upper Duncan Stream area is in its geomorphology, aspect, vegetation and lack of modification. The upper cirque basin has a gentle slope which almost forms a circle which, while having a general WNW-ESE aspect, gives the basin almost every other aspect possible. This gentle sloping upper basin has led to the formation of many tarns. Down valley there is a particularly large lake formed by land slip processes. The upper basin area has particularly good vegetation cover as does the lower valley. This is in contrast to other high altitude valley systems on this range.

Discussion with PASAC members has revealed that the values found in the upper Duncan Stream cannot be protected elsewhere. This valley is in the heart of the Ben Ohau Ecological District. It is the best representative example of a high altitude basin to be found on the range. Of particular importance are:

- (a) the general condition of the catchment.
- (b) the diversity of habitat from fellfield to stable scree slopes and mid altitude boulderfields.
- (c) the exceptionally rich terrestrial and stream fauna.

There are also some unique features that are not replicated elsewhere:

- (a) a large high altitude lake as well as smaller tarns. The large lake is oligotrophic and extremely vulnerable. This lake is fed by a stream abundant with fauna.

- (b) celery pine (*Phyllocladus alpinus*) with snow totara (*Podocarpus nivalis*) and bog pine (*Halocarpus bidwillii*) represent a remnant of a once extensive podocarp forest association in the greater Mackenzie region. At least one of these species is at its easternmost limit.

THE CASE FOR SKIFIELD DEVELOPMENT

Mackenzie Highland Development Co. Ltd have provided the following information in support of its case.

"The Mackenzie Highlands Development Co. is a group who have come to realise the need in New Zealand for a truly international skiing resort. Some 8 years ago the Duncan and Mackenzie Valleys were brought to the notice of the group and subsequent study has shown that this location is unique in New Zealand for this purpose.

|| For more than 6 years now the group has been negotiating with the Department of Lands and Survey in order to attain some commitment as to the future of the land. Such a commitment would enable the group to justify the expenditure of the necessary capital needed to carry out a full investigation.

Negotiations and discussions have also taken place with the Mackenzie County Council, Waitaki Catchment Commission, local community organisations and the runholders of Pukaki Downs and Ferintosh whose leases cover the access to the two valleys. The interest and support of the runholders is shown by their joining with us in this submission and their signatures at the end of this document.

The extreme interest shown by the international tourist industry has encouraged us to continue promoting this project in spite of the length of negotiations involved.

If this project proceeds to the full potential that preliminary studies indicate, New Zealand would gain the largest winter tourist resort to-date and tourism, presently our fastest growing export, would receive significant gains. The favourable economic impact which South Canterbury and New Zealand as a whole would receive from this project is readily apparent.

largest no of skiers in NZ but all unutilised

It is also apparent to anyone involved in tourism that there is an enormous market potential for skiers. This not only takes into account the rapidly growing sector of New Zealanders who increasingly are demanding better facilities but the enormous numbers in the Pacific Basin.

Contradicts their market rating of not so good

Research has shown that in Japan alone there are more than ten million skiers. Estimations of the markets in the Western United States and Canada indicate further untapped potential (see appendix).

Australia has traditionally been a prime market for New Zealand as the local Australian fields are limited geologically and suffer from extreme congestion.

To a limited degree the eastern US, Canada and Europe are also potential markets.

To-date these markets have not been significantly penetrated by New Zealand simply through lack of suitable facilities. All New Zealand ski areas at present are prevented from attaining the necessary standard because of

geological constraints of size and access. This includes our most heavily marketed resorts in Canterbury, Otago and Ruapehu.

We wish to bring to the board's attention the fact that the Duncan and Mackenzie Basins, if developed correctly, will give New Zealand for the first time the facility to penetrate these markets.

The uniqueness of the valleys can be described under the following headings:

(1) Geographical Position

The valleys are situated on an already busy tourist route within easy driving distance of the existing accommodation centres of Twizel, Mt Cook, Omarama and Ohau Village, all of which are under-utilised at present during the winter months. *so are existing ski fields*

The site is equi-distant between Christchurch and Dunedin and the same distance as Queenstown is from Dunedin.

The site is very close to three excellent airports - Twizel, Glentanner and Mt Cook.

(2) Geological

The size of the two basins encompasses some five and one-half square miles and embraces a skiable vertical drop of 2800 ft between 7200 ft and 4400 ft. This gives at least 6 times the skiable area of our present largest ski fields and is in line with the expectations of overseas markets.

Avalanche danger up valley.

Access to the Duncan Basin by way of the Duncan Stream would enable a road to be built with a maximum grade of 1:10 and no significant bends. Alternative access by way of the Boundary Stream would allow a shorter road of similar grade but with a significant winding stretch.

Compare this with the Mt Hutt road with a maximum grade of 1:7 and the tortuous route to the Remarkables Skifield.

Access to the Mackenzie Basin is unfavourable requiring steep grades and tortuous bends. It is only feasible to approach this valley through interconnecting lifts from the Duncan Basin.

contour interval no different from Duncan Str.

(Any difficult access makes the project unsuitable for the international market). *Blackmail!*

The presence of five large tarns in the Duncan Valley give sufficient reservoir of water to maintain a facility of the size proposed.

The slopes lie naturally in the correct direction for maximum retention of snow and are generally of "Beginner-Intermediate" gradient. No modification of the terrain (moving of boulders etc) would seem necessary.

Use of the Valleys

During the winter the valleys would be used for skiing both cross country and downhill. Water would be drawn from the natural reservoir available, to flat areas near the base facilities for skating. The use of

detachable type lifts would allow sightseers to be catered for with no disruption to the skiing.

Summer operations would consist of transporting of tourists to the top of Mackenzie Peak for sighting of Mt Cook and surrounding areas. Once again the use of detachable lifts makes this feasible. Walking, confined to prepared trails as widely maintained by the Departments of Forestry and Lands and Survey would enable the general public to view and appreciate the excellent examples of native alpine flora which are present.

Facilities Proposed

The following is the minimum required for an international type resort:

- (1) A two lane road to the 5000 ft level in the Duncan Basin.
- (2) High class accommodation facility and other base facilities at the road terminus.
- (3) Detachable chair-lift to 6500 ft level.
- (4) Minor base facility at this level.
- (5) Detachable lift from this base to the top of Mackenzie Peak (7200 ft).
- (6) Normal chair-lifts to selected places on the Duncan Basin Ridge (North of Mackenzie Peak).
- (7) Lifts in the Mackenzie Basin located to enable skiers to use the pass between the two valleys.
- (8) Other lifts as demand dictates.

International standards of ski resorts demand that some accommodation should be on site. Our Consulting Engineers report that there is sufficient reservoir from the five tarns in the basin to support this. However the amount and location of accommodation on site must always be guided by the environmental constraints of the valleys and consequently the bulk of accommodation to service this area will be from Twizel, Mt Cook and the surrounding areas. The Consulting Engineers also report it is feasible, once a certain scale is attained to transport all effluent completely out of the region (to Twizel's oxidation facility); we feel this is in keeping in consideration of the delicate nature of the area.

Preliminary Studies

The need for careful planning for such a project is self evident. On the granting of permission for this project to proceed, the Department of Lands and Survey may be assured that the need for careful study and planning relating to the use of the land will be given full consideration and co-operation.

Initial Studies will Consist of:

- (1) Environmental (as required by Department of Lands and Survey).
- (2) Marketing. (In depth studies of Japan, Canada, United States and Australian markets).
- (3) Meteorological.
- (4) Engineering. (Road design, lift placement, reticulation and sanitation).
- (5) Architectural and general area use planning.

In summary, we sincerely request the board to consider the following points:

what's
the main all?
about this?

- (1) The total lack of international class facilities available in New Zealand.
- (2) The fact that there is an enormous as yet untapped potential of winter tourists in Japan, Canada and the United States. *but can this be realised?*
- (3) The unique suitability of the Duncan and Mackenzie Basins geographically and geologically for this purpose. *not proven.*
- (4) The fact that our preliminary studies indicate that this facility can be attached with the minimal visual and environmental impact.
- (5) The potential for a sizeable, favourable economic impact for the region and a significant impact for all of New Zealand.

- "Geof. A. Mead, B.Com."
- "Gavin Francis Willis, FNZIA"
- "Brian D. Palliser, BA, LL.B."
- "L.J. Baikie"
- "R.A. Baikie", Pukaki Downs Station
- "G.D. Seymour", Ferintosh Station."

Discussion with company representatives has made a number of factors quite clear. These are:

- (a) The possibility of an easy grade almost straight two lane road is of paramount importance.
- (b) The valley's proximity to the main highway (13 km to Twizel) and to Twizel, Mount Cook, Tekapo and Omarama.
- (c) The largeness of the basin in terms of skiing opportunity.
- (d) That any development would include a major base with accommodation at 5000 feet. A chair-lift to 6000 feet where there would be another small base facility. From here there would be a system of chair-lifts to the top of various ski runs.
- (e) The target market is for overseas tourists although New Zealander's would not be excluded.
- (f) The water within the tarns and lake would be required for use within the facility complex, for skating and for snow making.
- (g) The company believes that the scale of the upper Duncan Stream is such that the proposed skifield development will be insignificant in the overall landscape.

DISCUSSION

Both the skifield proposers and the natural scientists believe the upper Duncan Stream to be special. PASAC, a committee of much scientific knowledge and experience, "were impressed with the valley's high educational, scientific and ecological values over a wide range of natural science disciplines." The committee recommends "a high level of protection for the catchment of upper Duncan Stream ...".

The skifield developers say that study "... has shown that this location is unique in New Zealand for this purpose." They say access is easy, that there is a skiable drop of 2800 feet which equals 6 times the skiable area of New Zealand's largest skifields. The snow "... lies naturally in the correct direction for maximum retention ...".

This is a clear case of a major tourist facility being proposed within an area that is particularly sensitive environmentally and that contains features that make it unique. There is no doubt that the skifield development would have a deleterious effect on natural values. The construction of roads, facilities, ski-lifts and the concentration of people will change aspects of the landscape and impose pressures that the sensitive subalpine environment cannot sustain.

PASAC's recommendation for the highest possible protection in the upper Duncan Stream has been made, after an extensive vegetation/landform based survey has been completed and after visiting the site to confirm its scientific integrity. The PASAC recommendation enlarged the proposed PNA substantially while at the same time removing another PNA proposal in the nearby Gladstone Valley, because the upper Duncan contains the same values plus more and in a far better condition.

The skifield proposers are currently looking for a commitment from the board that should a feasibility study be carried out (expected cost \$400,000), and show the proposal as being a viable proposition, that it will allow development to proceed. The company has negotiated sole access rights over both Pukaki Downs and Ferintosh Stations, effectively excluding any other developer from being able to gain access to the upper Duncan Stream.

Such a guarantee from the board would be contrary to the normal approach when dealing with concessions. However in this case no other developer could gain access. Also, is the outlay of \$400,000 for a feasibility study too much of a risk for the company given that the eventual development costs are likely to be in the tens if not hundreds of millions of dollars?

The Ben Ohau Crown Land Management Area comprises over 60% of the eastern portion of the Ben Ohau Range which forms the western boundary of the greater Mackenzie Basin. As such the management area is highly visible from the Mackenzie Basin and from the slopes of the other bounding mountain ranges. Any development on the range will have a high visual impact especially as could occur with the proposed skifield, if there was lighting at night.

The requirement right now is for the department to complete a final management plan for the Ben Ohau Crown Land Management Area and to submit this to the board for approval. The company's dissatisfaction at the policies in the draft management plan led it to involve the Minister of Tourism and to place pressure on the department to write a policy allowing downhill skifield development. Such a policy would be *ultra vires* the board's moratorium on the development of PNA's and hence the need now to seek a direction from the board.

Advice from the Centre for Resource Management, Lincoln, which teaches recreation and tourism planning, implies that a skifield of the scale and type envisaged may not be what the overseas tourists want. There is an increasing awareness in Europe of the sensitivity of the remaining unspoilt subalpine zones, with the result that development trends in this zone are changing. Major facilities such as hotel accommodation, restaurants etc are being located out of the subalpine zone with teleferiques (type of chair-lift) from

main highways and railway stations taking winter skiers and summer recreationalists up into the mountains. Such development lessens the concentration of facilities and people and so also lessens the deleterious effect on the environment.

CCL CHRISTCHURCH COMMENT

There is a firm well substantiated recommendation from PASAC to protect the upper Duncan Stream and there is a proposal not yet fully researched for a downhill skifield. Given the pressure being imposed for a direction now from the board on protection versus development, it would seem the board's approach should be to accept PASAC recommendation and to confirm its moratorium over this PNA. The Minister of Tourism should be advised however, that the board is not totally against skiing in the upper Duncan Stream but that the on-site facilities proposed are inappropriate in this particular valley. Skiing is currently enjoyed in the valley and this will be allowed to continue.

HEAD OFFICE COMMENT

Mackenzie Highlands Development Company has been in contact with the Minister of Tourism and sought his support. It feels the Land Settlement Board has not given consideration as to the uniqueness of the Duncan Basin area for the development of tourism. They see this as being because the board has had "no briefing whatsoever" on this aspect of the land use.

The Minister of Tourism has written to the Minister of Lands expressing his concern about the board's decision with regard to the PNA, as "at no stage has any indication been given as to whether designating the Duncan Basin a protected natural area will preclude down hill ski area and associated resort development".

The Minister of Tourism is keen to see this project progress and consequently any move to restrict or prevent development will not be favourably received. However this should not necessarily influence any decision which should be made balancing the competing demands of development and protection.

ATTACHMENTS

- (1) Extract from a report put together for PASAC consideration of the upper Duncan Stream PNA, plus a map showing the PNA recommended.
- (2) Photographs and market evidence supplied by Mackenzie Highlands Development Co. Ltd.
- (3) Copy of the draft management plan for the Ben Ohau Crown Land Management Area.

RECOMMENDATION

That the board:

- (1) Confirms its acceptance of PASAC's recommendation for the upper Duncan Stream and its moratorium on development.

- (2) Directs the department to finalise the management plan for the Ben Ohau Crown Land Management Area on the basis of (1) above but with a qualification that skiing is not prohibited, rather that the scale and impact of any proposed facilities is the limiting factor.

DECISION

That the Land Settlement Board on

PNA Report Description

Grid Reference: S100 735950

- | | |
|---|-----------------------------------|
| - Snow tussock/fescue grassland | on Hill Sideslope |
| - Mountain celery pine | on Hill Sideslope |
| - Snowbank community | on Mountainslope Moraine Deposits |
| - Snow/blue tussock | on Hill Sideslope |
| - Fescue/ <u>Dracophyllum</u> community | on Hill Sideslope |
| - Slim snow tussock | on Mountainslope Moraine Deposits |
| - Tree daisies | on Mountain Boulderfield |

This area is an excellent example of the high altitude glacially derived tarns and cirques that typify the upper 1000m of the Ben Ohau Range. At 900 m, depending on aspect, the fescue tussock intergrades with C. rigida which becomes the dominant tussock. This gives way at about 1700 m to excellent C. macra stands which, depending upon aspect, snow lie and soil depths, may be superseded by snowbank vegetation, scree, fellfields or dwarf Dracophyllums. Boulderfields support Podocarpus nivalis, Senecio cassinioides and Olearia scrub communities. The terrestrial insects are highly varied.

Area: 180 hectares

Altitude: 1115-1585 m

Additional Information

Vegetation: - The scrub community at the lower lake in the Duncan catchment is on a blockfield and has low weed impact.

Sen Cas 3, Ole Cym 3, Phy Alp 3, Pod Niv 3, Cop Pro 2, Dac Bid 1
Chi Rig, Cya Col, Ble Pen, Cya Fra, Lyc Sca, Hie Pra, Heb Sub,
Hym Alp, Cel Haa, Aci Aur, Cop Rig, Ani Aro, Heb Odo, Aci Sco,
Dra Uni, Dra Pro, Cop Pse.

- There is a C. rigida - C. macra transition near the top lake in the catchment in an area of severe sheet erosion and low weed impact.

Chi Mac 5, Dra Pro 3, Chi Rig 2, Poa Col 1, Fes Mat, Cya Col,
Hie Pra, Cel Lya, Car Wak, Rum Ace, Scl Uni, Pod Niv, Cel Gra,
Ble Pen, Wah Alb, Epi Als, Aca Cae, Hel Bel, Hyp Mil, Pol Cys,
Lyc Sca, Pim Ore, Ste Gra, Sch Tri, Luz Ruf, Gen Bel, Lyc Aus.

- A C. rigida - fescue tussock grassland with low weed impact but cattle have grazed the area.

Chi Rig 4, Fes Mat 3, Hie Pra 1, Cel Lya, Dra Uni, Dra Pro,
Cya Col, Poa Col, Cra Lan, Ble Pen, Vio Cun, Scl Uni, Aci Aur,
Pod Niv, Pim Tra, Hel Bel, Aca Cae, Car Gra, Cel Den, Cel Arg,
Rao Hec, Ger Ses.

Fauna: There is no specific information on the fauna of this PNA. This whole side of the Ben Ohau Range had a number of fauna sightings or captures which included - spiders, cockroaches, devil's darning needles, short horned grasshoppers, cicadas, weevils, ground beetles, flies, red admiral butterflies, black mountain butterflies, tussock butterflies, bees, ants, common skinks, harrier hawks, skylarks, New Zealand pipits, green finches, chaffinches, blackbirds, starlings and house sparrows.

Mammals such as thar, chamois, deer, mustelids, hares etc are all present in low numbers. On the lower lake in the Duncan Stream a nesting colony of black shags is reported (Beale, 1985). Beale (1985) outlines the fauna of the Ben Ohau Management Area, of which PNA 1 is included at its southern extreme.

Physical: The upper Duncan Stream is a formerly glaciated valley system with troughs, rock basin cirques and flights of lateral moraine terracing. Today they contain no perennial snow or ice. A prominent fault line runs north-east along the lower Duncan Stream. The bedrock in the PNA area is weakly schistose non-foliated greywackes and argillites of Triassic to Permian age (Haast Schist Group, Chlorite Subzone II). Soils are alpine set skeletal soils at high altitudes and Kaikoura steep-land soils at lower levels. Kaikoura soils have a very low nutrient status and are very susceptible to erosion. There is a large landslide deposit damming the upper lake with unique tree daisy scrub.

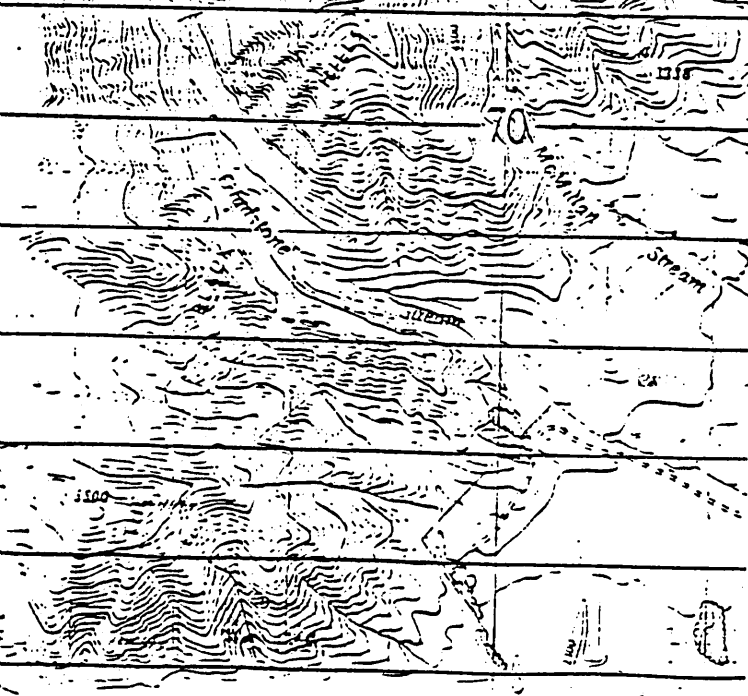
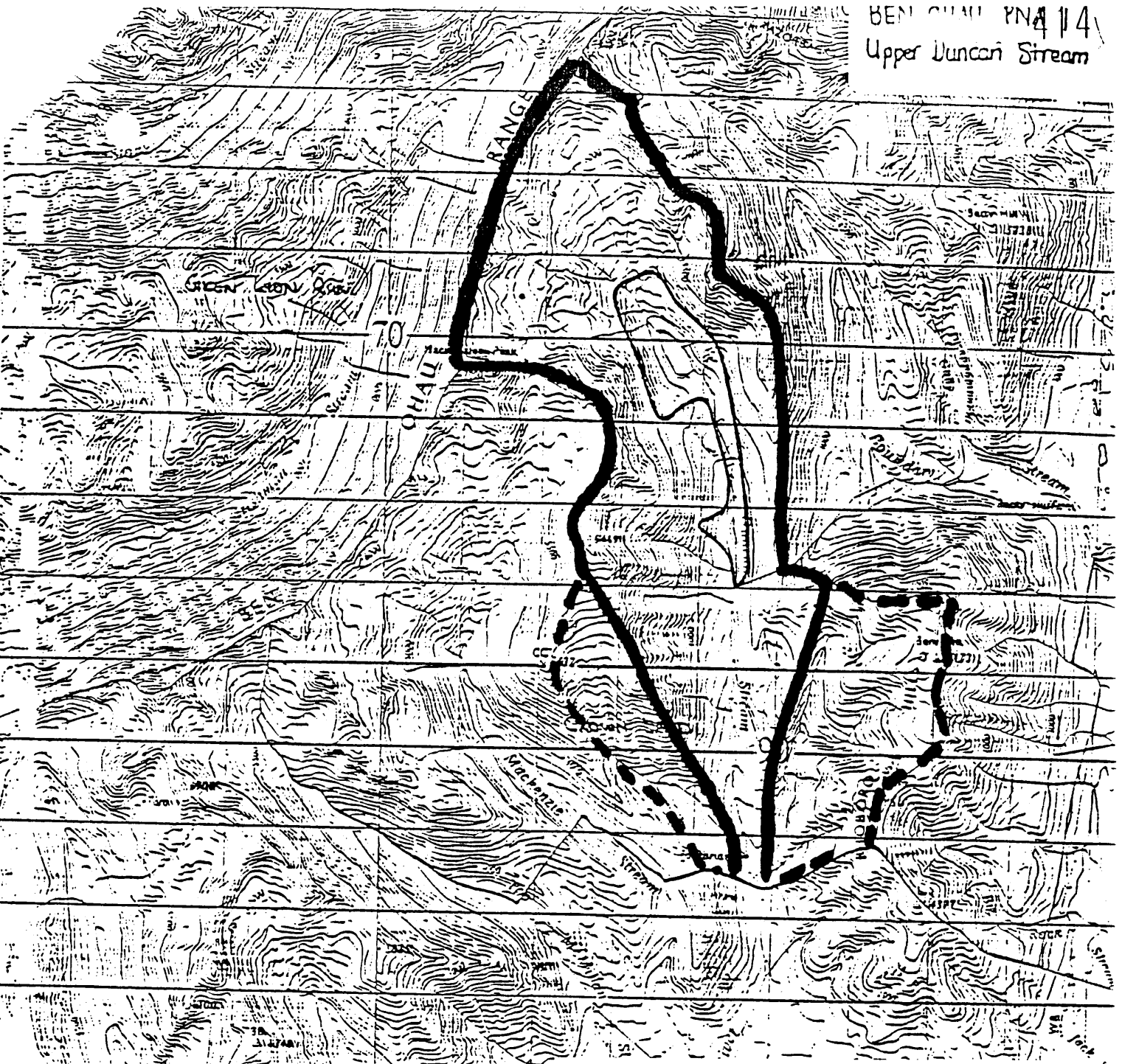
Rainfall: 1200-1400 mm

Tenure: Crown land

Recreation: This area has been proposed for a major commercial skifield development. It is already an important area for heliskiing ventures.

Any boundary changes to this PNA should only extend the PNA. The vegetation associations represented here are extremely good.

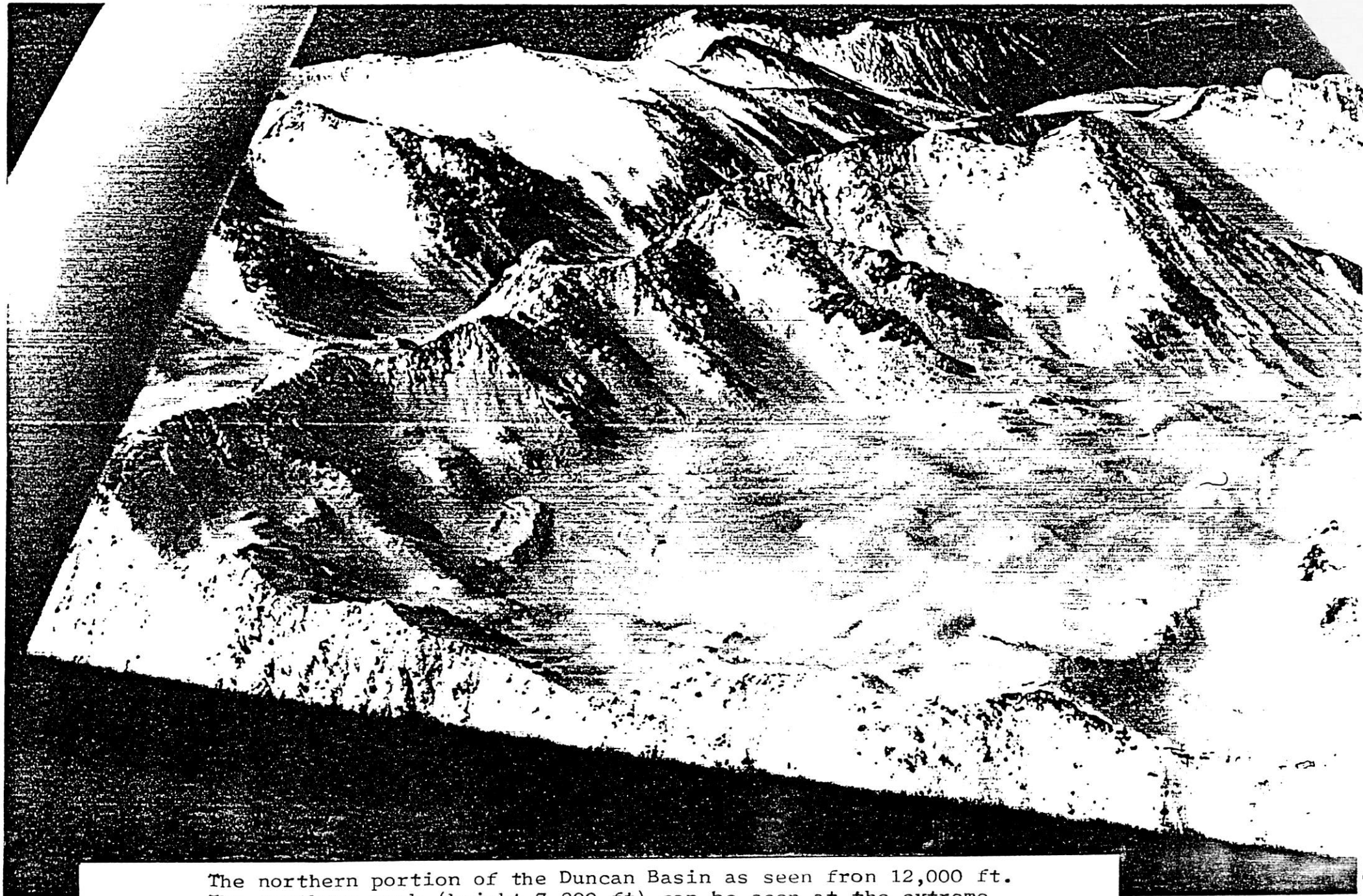
Reference: Beale, S.H., 1985 - Ben Ohau Crown Land Management Plan, Management Plan Series No. 10, Department of Lands and Survey, Christchurch.



— ORIGINAL PRIORITY NATURAL AREA PROPOSAL

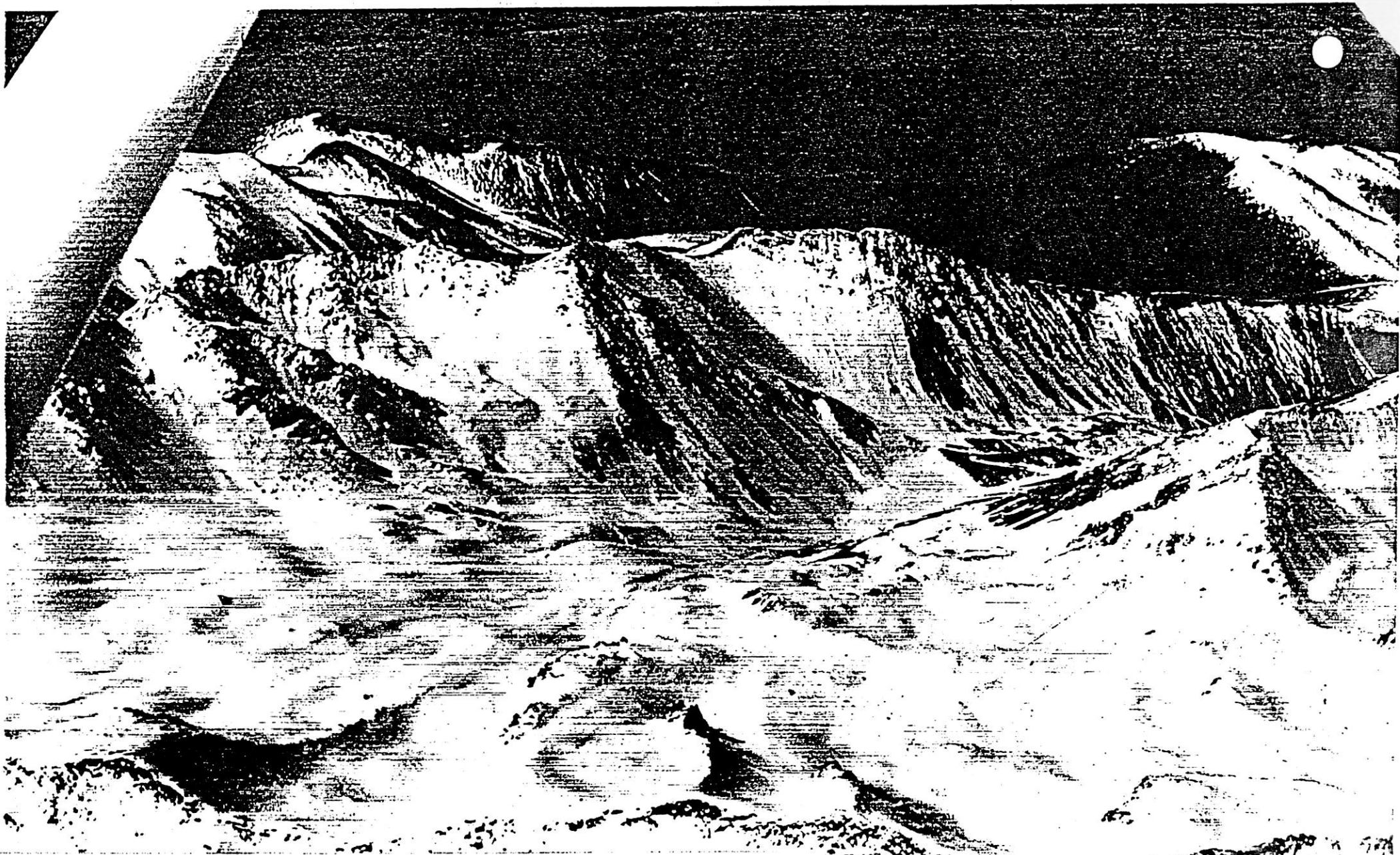
— PASAC RECOMMENDATION

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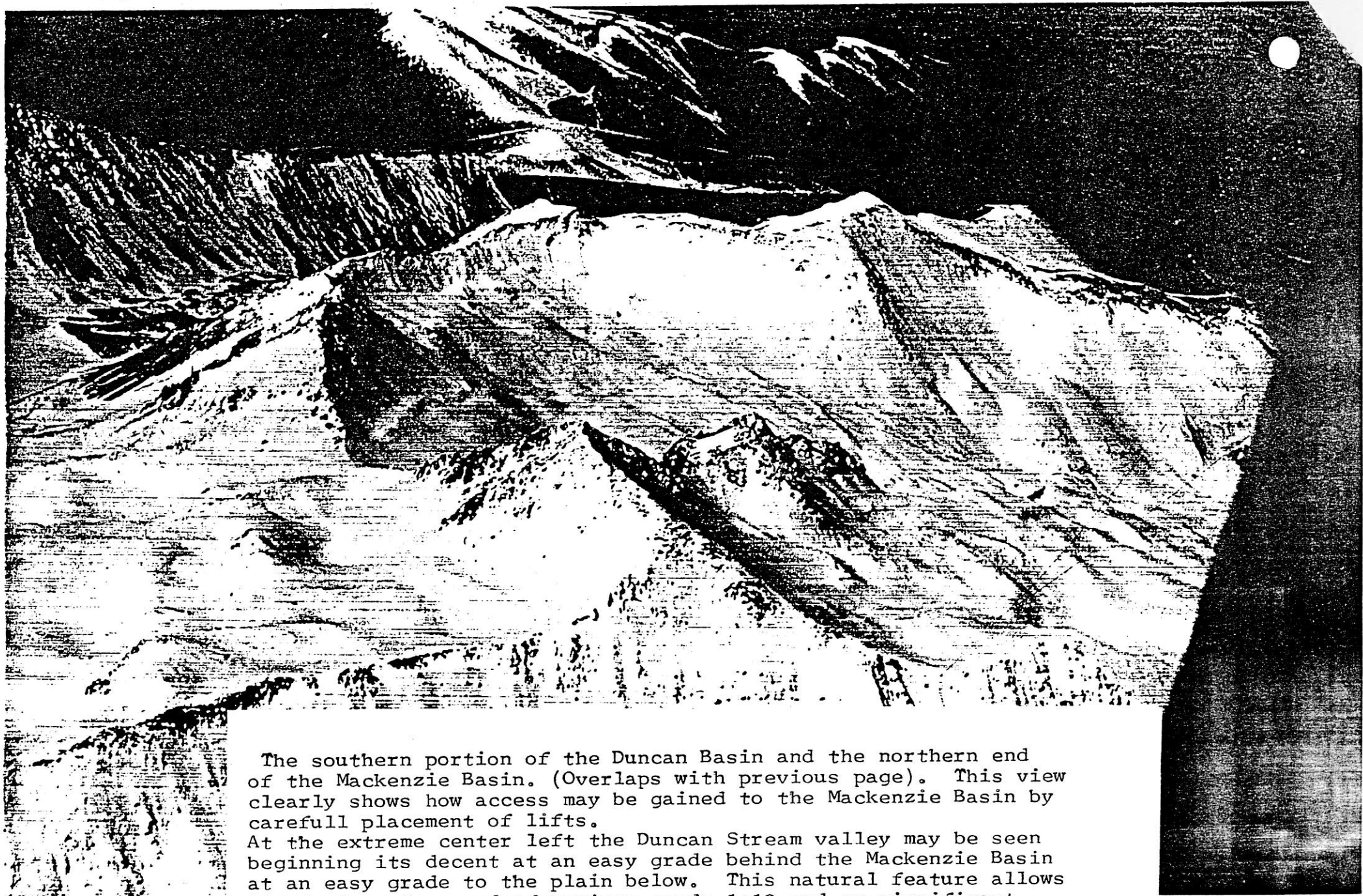
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too gentle??



The central portion of the Duncan Basin. (overlaps with the previous photograph). Lake Pukaki is visible in the background. The basin is so vast that even after complete development (an investment of more than \$100 Million) few places would be intensively skied.

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The southern portion of the Duncan Basin and the northern end of the Mackenzie Basin. (Overlaps with previous page). This view clearly shows how access may be gained to the Mackenzie Basin by careful placement of lifts.

At the extreme center left the Duncan Stream valley may be seen beginning its descent at an easy grade behind the Mackenzie Basin at an easy grade to the plain below. This natural feature allows the design of a road of maximum grade 1:10 and no significant bends.

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The population and economic trends of each country were also examined and an idea of the number of future skiers was attained.

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<u>Population Trend</u>	- Alberta: 45%	Canadian Ski Industry Study
	- B.C.: 8%	
<u>Economic Trend</u>	- Oil: Rich Western Provinces showing significant growth.	
<u>Rating as Potential Market</u>	- Very good although only small segment and would be as demanding as American segment.	

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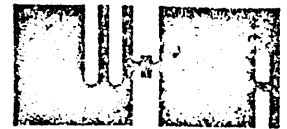
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	- Growth of Ski Population is indicated by 40% annual increase in snow ski imports between 74 - 74 and 77 - 78	
<u>Economic Trend</u>	- Average of 11% growth in G.N.E./Head of population in real terms.	
	:1980 Year Book.	
<u>Rating as Potential Market</u>	- Excellent.	
	- Promimity to New Zealand.	
	- Shortage of places to ski in Australia.	
	- Favourable exchange rate make Australia probably the biggest potential market.	

NEW ZEALAND

<u>Total No. of Skiers</u>	- No figures available
<u>Skiers at Mt Hutt</u>	- 130,000 skier visits 1982
<u>Population Trend</u>	- Imports of skis into N.Z. are declining - Large bulge of population entering 30+ age group
<u>Economic Trend</u>	- Decline in Real G.P.D./Labour Force Member between 75-76 and 77-78
<u>Rating as Potential Market</u>	- Not so good - It appears that taxation on equipment and the economic decline is showing its effect on the New Zealand Skier.

If cost/value is maintained at a favourable level this project could probably rely on up to 75,000 skier/visits drawing from Christchurch Ashburton, Timaru, Oamaru and Dunedin. A limited number would be expected from the North Island.

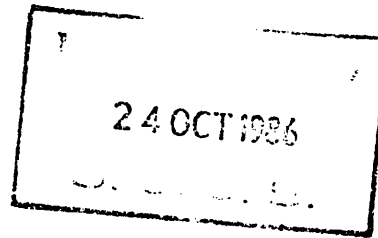
WILLIS & ASSOCIATES - ARCHITECTS



The Mackenzie Highlands Development Company

P.O. Box 380
Telephone 67-363
Christchurch
New Zealand

20th October 1986



Mr A. Evans,
South Canterbury Catchment Board.

Dear Sir,

... Enclosed are details of the above proposal which has extremely important implications for the economy of the South Canterbury District and for the New Zealand economy as a whole.

A directive will be sought by the Dept. of Lands and Survey on this issue during the November sitting of the Lands Settlement Board.

We are taking this somewhat forward step in writing to you, partly because of the extreme importance attached to the proposal, but mainly because we have been unsuccessful until now in getting it on the agenda in spite of vigorous efforts on our part for the last four years.

... Enclosed is our portion of the actual submission which should appear in front of you in November, as well as a submission prepared some four years ago. Although the earlier submission has become slightly out of date as new information on the project has been accumulated, it still holds much relevant detail and should fill you in on the subject should any questions arise.

Although there are environmental considerations to be taken into account it is our belief that with proper management this project can co-exist with the need to protect the natural environment.

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FILE		
Refer to	Acron	Date
CK	✓	20/10/86
CT	✓	

G. Francis Willis F.N.Z.I.A. W. J. Dark A.M.N.Z.I.D. N.Z.C.D.(Arch)

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We sincerely request that you consider the information enclosed, in the belief that thus informed you can make a balanced decision when it is presented formally at the November Land Settlement Board meeting.

Should you request further details we are pleased to assist. We can be contacted at the above address or at the following numbers.

Yours faithfully,

Geof. A. Mead B.Com. (Telephone Ch.Ch. 294.894. 810.460 Bus.)

G. F. Willis

B. D. Palliser B.A. LLB.

Encl...



The Mackenzie Highlands Development Company

P.O. Box 380
Telephone 67-363
Christchurch
New Zealand

6th October 1986

The Members of The Land Settlement Board,
Dept. of Lands and Survey,
WELLINGTON.

Dear Sirs,

In the Matter of the Designation of the Retired Land known as the Duncan Basin.

The Mackenzie Highlands Development Company is a group who have come to realise the need in New Zealand for a truly International Skiing Resort. Some eight years ago the Duncan and Mackenzie Valleys were brought to the notice of the group and subsequent study has shown that this location is unique in New Zealand for this purpose.

For more than six years now the group has been negotiating with the Department of Lands in order to attain some commitment as to the future of the land. Such a commitment would enable the group to justify the expenditure of the necessary capital needed to carry out a full investigation.

Negotiations and discussions have also taken place with the Mackenzie County Council. Waitaki Catchment Commission, local community organizations and the Runholders of Pukaki Downs and Ferintosh whose leases cover the access to the two valleys. The interest and support of the runholders is shown by their joining with us in this submission and their signatures at the end of this document.

The extreme interest shown by the International Tourist Industry has encouraged us to continue promoting this project in spite of the length of negotiations involved.

If this project proceeds to the full potential that preliminary studies indicate, New Zealand would gain the largest Winter Tourist Resort to date, and Tourism, presently our fastest growing export would receive significant gains. The favourable economic impact which South Canterbury and New Zealand as a whole would receive from this project is readily

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apparent.

It is also apparent to any one involved in tourism that there is an enormous market potential for skiers. This not only takes into account the rapidly growing sector of New Zealanders who increasingly are demanding better facilities but the enormous numbers in the Pacific Basin.

Research has shown that in Japan alone there are more than ten million skiers. Estimations of the markets in the Western United States and Canada indicate further untapped potential (see appendix).

Australia has traditionally been a prime market for New Zealand as the local Australian fields are limited geologically and suffer from extreme congestion.

To a limited degree the eastern U.S., Canada and Europe are also potential markets.

To date these markets have not been significantly penetrated by New Zealand simply through lack of suitable facilities. All New Zealand Ski areas at present are prevented from attaining the necessary standard because of geological constraints of size and access. This includes our most heavily marketed resorts in Canterbury, Otago and Ruapehu.

We wish to bring to the Board's attention the fact that the Duncan & Mackenzie Basins if developed correctly will give New Zealand for the first time the facility to penetrate these markets.

The uniqueness of the Valleys can be described under the following headings.

1. Geographical Position

The Valleys are situated on an already busy tourist route within easy driving distance of the existing accommodation centres of Twizel, Mt Cook, Omarama and Ohau Village, all of which are under utilized at present during the winter months.

The site is equidistant between Christchurch and Dunedin and the same distance as Queenstown is from Dunedin.

The site is very close to three excellent airports. Twizel, Glentanner and Mt Cook.

2. Geological

The size of the two basins encompasses some five and one half square

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miles and embraces a skiable vertical drop of 2800 ft between 7200 ft and 4400 ft. This gives at least 6 times the skiable area of our present largest ski fields and is in line with the expectations of overseas markets.

Access to the Duncan Basin by way of the Duncan Stream would enable a road to be built with a maximum grade of 1:10 and no significant bends. Alternative access by way of the Boundary Stream would allow a shorter road of similar grade but with a significant winding stretch.

Compare this with the Mt Hutt road with a maximum grade of 1:7 and the tortuous route to the Remarkables Ski Field.

Access to the Mackenzie Basin is unfavourable requiring steep grades and tortuous bends. It is only feasible to approach this valley through interconnecting lifts from the Duncan Basin.

(Any difficult access makes the project unsuitable for the International Market).

The presence of five large tarns in the Duncan Valley give sufficient reservoir of water to maintain a facility of the size proposed.

The slopes lie naturally in the correct direction for maximum retention of snow and are generally of "Beginner-Intermediate" gradient. No modification of the terrain (moving of boulders etc) would seem necessary.

Use of the Valleys.

During the winter the valleys would be used for skiing both cross country and downhill. Water would be drawn from the natural reservoir available, to flat areas near the base facilities for skating. The use of Detachable type lifts would allow sightseers to be catered for with no disruption to the skiing.

Summer operations would consist of transporting of tourists to the top of Mackenzie Peak for sighting of Mt Cook and surrounding areas. Once again the use of detachable lifts makes this feasible. Walking, confined to prepared trails as widely maintained by the Dept of Forestry and Lands & Survey would enable the general public to view and appreciate the excellent examples of native alpine flora which are present.

Facilities Proposed.

The following is the minimum required for an International Type Resort.

- 1) A two lane road to the 5000 ft level in the Duncan Basin.

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- 2) High class accommodation facility and other base facilities at the road terminus.
- 3) Detachable chair lift to 6500 ft level.
- 4) Minor base facility at this level.
- 5) Detachable lift from this base to the top of Mackenzie Peak (7200 ft).
- 6) Normal chair lifts to selected places on the Duncan Basin Ridge (North of Mackenzie Peak).
- 7) Lifts in the Mackenzie Basin located to enable skiers to use the pass between the two valleys.
- 8) Other lifts as demand dictates.

International standards of Ski Resorts demand that some accommodation should be on site. Our Consulting Engineers report that there is sufficient reservoir from the five tarns in the basin to support this. However the amount and location of accommodation on site must always be guided by the environmental constraints of the valleys and consequently the bulk of accommodation to service this area will be from Twizel, Mt Cook and the surrounding areas. The Consulting Engineers also report it is feasible, once a certain scale is attained to transport all effluent completely out of the region (to Twizels Oxidation Facility), we feel this is in keeping in consideration of the delicate nature of the area.

Preliminary Studies.

The need for careful planning for such a project is self evident. On the granting of permission for this project to proceed, the Lands Department may be assured that the need for careful study and planning relating to the use of the land will be given full consideration and cooperation.

Initial Studies will consist of:

1. Environmental (as required by the Dept of Lands)
2. Marketing. (In depth studies of Japan, Canada, United States and Australian markets).
3. Meteorological.
4. Engineering. (Road design, lift placement, reticulation and sanitation).
5. Architectural and general area use planning.

In summary, we sincerely request the Board to consider the following points.

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- 1) The total lack of International Class Facilities available in New Zealand.
- 2) The fact that there is an enormous as yet untapped potential of winter tourists in Japan, Canada and the United States.
- 3) The unique suitability of the Duncan & Mackenzie Basins geographically and geologically for this purpose.
- 4) The fact that our preliminary studies indicate that this facility can be attained with the minimal visual and environmental impact.
- 5) The potential for a sizeable, favourable economic impact for the region and a significant impact for all of New Zealand.

Geof. A. Mead, B. Com.

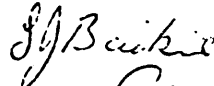
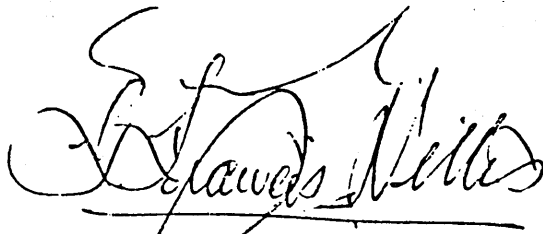
Gavin Francis Willis, F.N.Z.I.A.

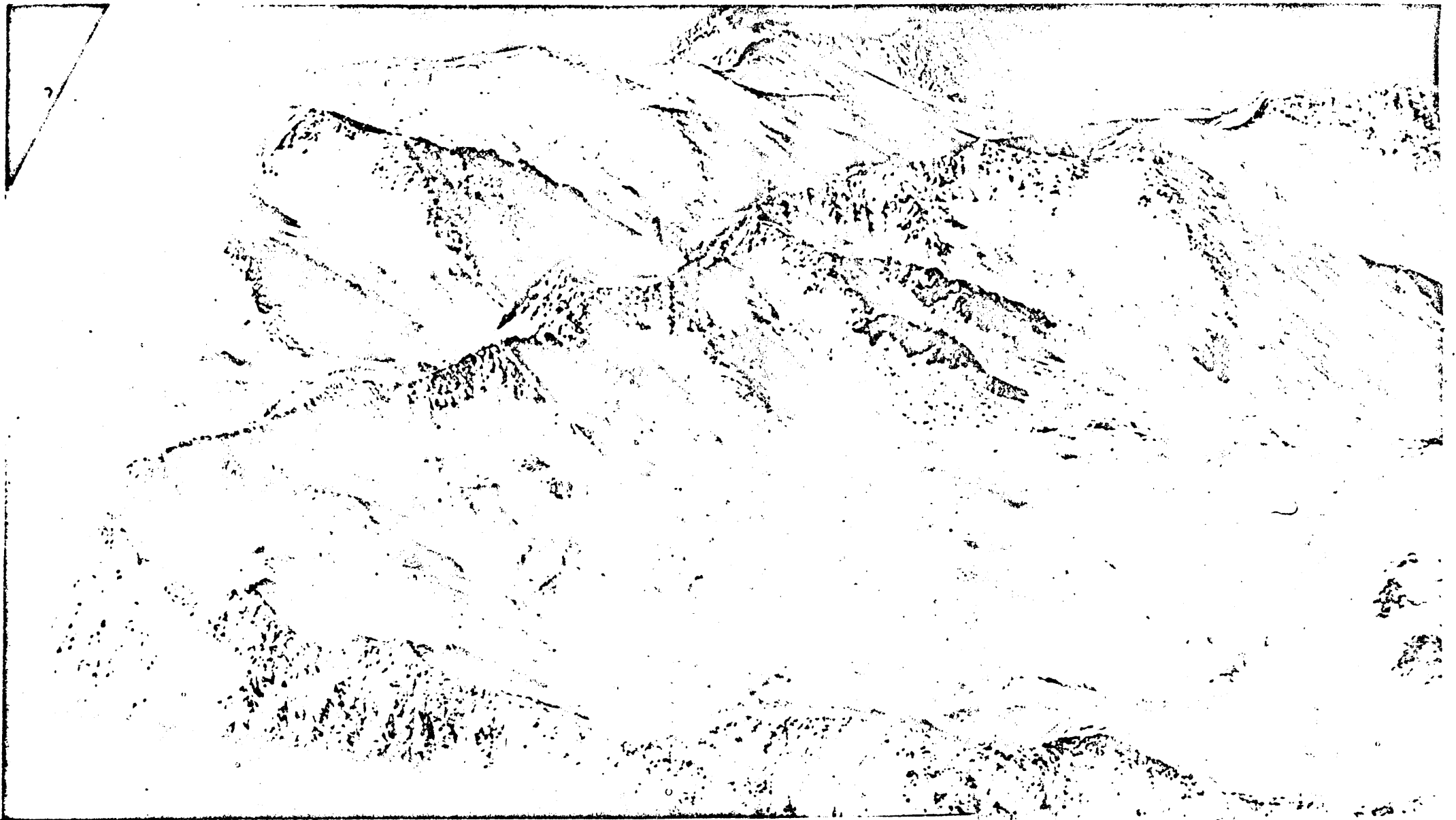
Brian D. Palliser, B.A. LL.B.

L. J. Baikie

R. A. Baikie, Pukaki Downs Station.

G. D. Seymour, Ferintosh Station.





The northern portion of the Duncan Basin as seen from 12,000 ft. The northern peak (height 7,200 ft) can be seen at the extreme left of the picture. Also clearly visible is a portion of the excellent beginner - intermediate slopes which typify 70% of the skiable area in the Duncan Basin.



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- Rating as Potential Market - Not so good
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SKI AREA DEVELOPMENT PROPOSALS

MACKENZIE HIGHLANDS

WILLIS & ASSOCIATES - ARCHITECTS



P.O. Box 380
Telephone 67-363
Christchurch
New Zealand

POSSIBLE PLAN OF DEVELOPMENTPreliminary Stages:

1. Study of weather and snow patterns.
2. Market research to confirm trends already evident in New Zealand.
3. Negotiations with Dept of Crown Lands and runholders with respect to the appropriate leases and easements.
4. Negotiations with the appropriate public bodies aiming at the retention of Twizel, or rather its infrastructure, so that a suitable tourist town can be built in its place.
5. Company formation and the raising of the necessary capital to carry out project.

YEAR ONE.Required:

- Road, two lane highway from main road to 5000 ft. level in Duncan basin.
- Detachable type chairlift from 5000 ft. level to 6000 ft. level over easy terrain.
- Stage one of daylodge and skating complex at top of chair lift.

YEAR TWO.Required:

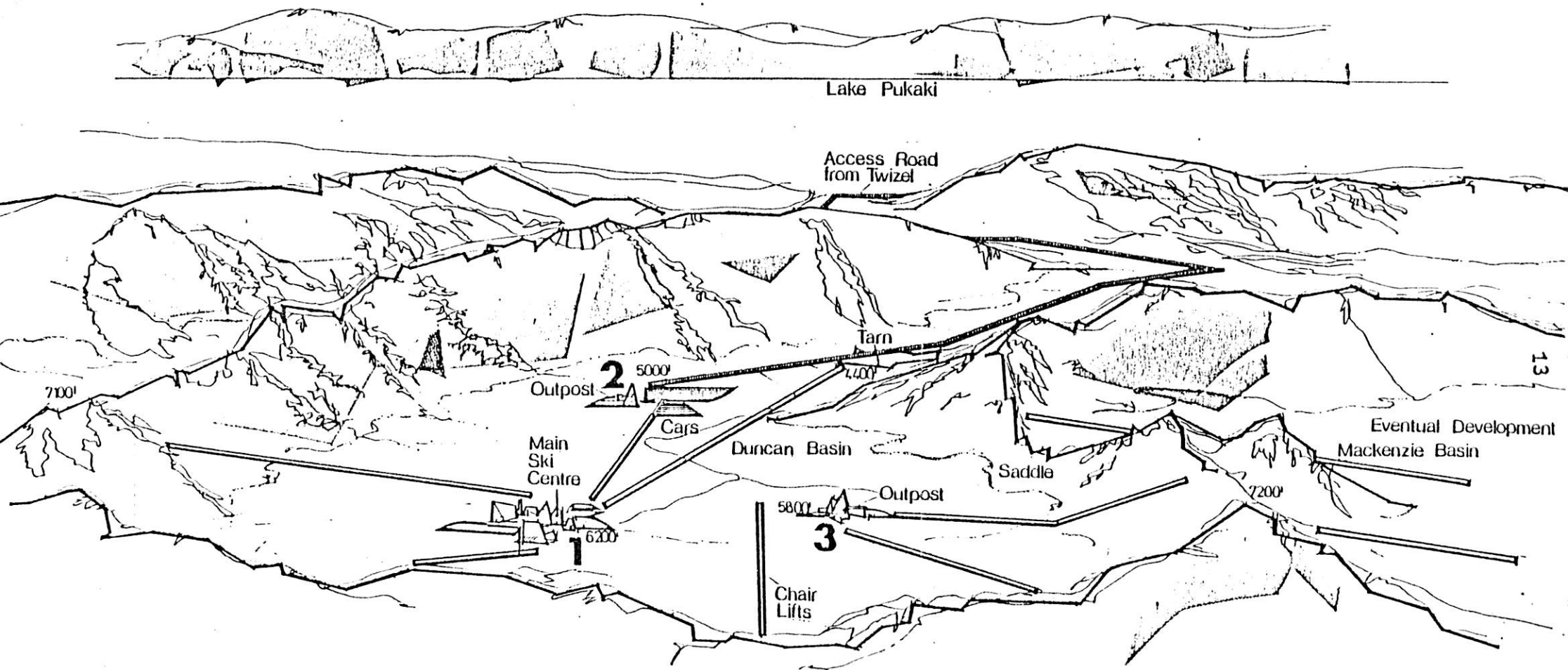
- Chairlift from 6000 ft. level to 7000 ft. level.
- Further development of daylodge and ancillary facilities.

YEAR THREE.Required:

- Chairlift from 6000 ft. level to 7000 ft. level, ie. from lodge complex vicinity to another place on ridge or between 4400 ft. level and 6000 ft. level in order to open eastern end of basin.
- Further extension of ancillary services depending on demand.

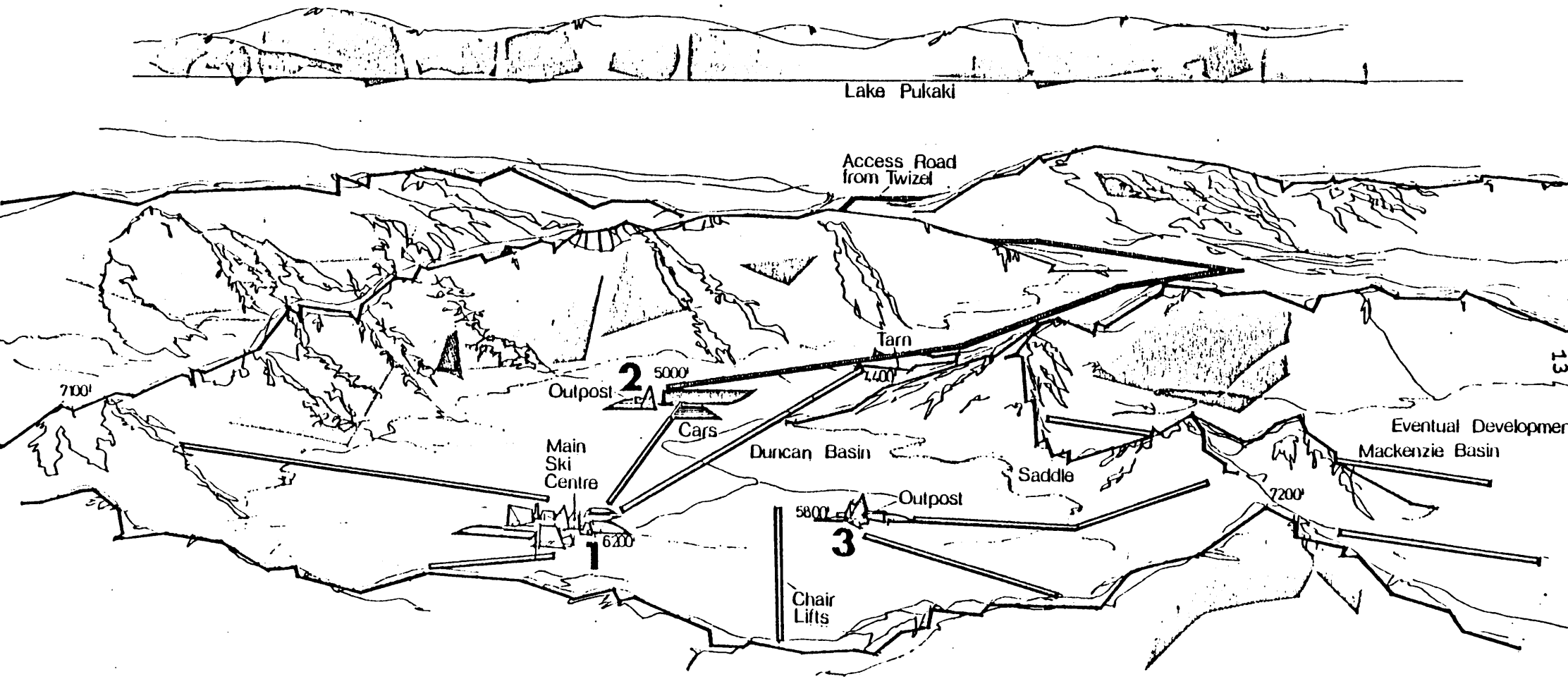
FULL POTENTIAL.

The full potential of this area would only be realised when as many as seven or eight lifts are in operation along with the associated facilities. There is obviously ample room for further expansion. Further potential exists in the Mackenzie Basin. The two basins could be linked by lifts near the pass dividing these two areas.



Sketch of Duncan Basin and Surroundings

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