

Facsimile



TO: Manager

COMPANY: Knight Frank (NZ) Ltd Timaru

FAX NO: 03 688 0407

FROM: Manager Crown Property Administration

DATE: 9 August, 1996

PAGES: 1

REFERENCE: 5200-D13-B04

National Office
Charles Fergusson Building
Bowen Street
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Wellington
New Zealand
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Fax 64 4 460 0111

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SUBJECT: P1021 BALMORAL HO*226 FORESTRY CASE 9711

The Commissioner of Crown Lands has approved the submission to grant consent to forestry and oversowing on Balmoral pastoral lease as per your recommendation of 17 June and 1 August 1996 subject to the following.

Recommendation 5 is amended to read: *That prior to clear felling of the area that consent in principle is to be obtained from the lessor for future use. This will require the lessee to produce an interim plan for future use.*

The commissioner believes that this first significant application in the area should be given every opportunity.

The submission from the Department of Conservation is noted. The commissioner would not favour the withdrawal of periodic intensive grazing (used judiciously) as this is the most logical means of control of the spread of wilding trees


LE Porter
for
Manager Crown Property Administration

KNIGHT FRANK (NZ) LTD TIMARU

- 9 AUG 1996

RECEIVED

14 August 1996

R3370

Copy for your information:

Mackenzie District Council
P O Box 52
FAIRLIE

Department of Conservation
Private Bag
CHRISTCHURCH

Department of Conservation
Field Centre
Private Bag
TWIZEL

Received
Posted
14. 8. 96

Released under the Official Information Act 1982

File Ref: Pt 021

LAND RESOURCES DIVISION

1st Floor, Public Trust Building
Cnr Church and Sophia Streets
P O Box 564, Timaru
Telephone (03) 684-8340
Facsimile (03) 688-0407

13 August 1996

Mr And Mrs A W and K F Simpson
Balmoral Station
P O Box 91
LAKE TEKAPO

Dear Mr and Mrs Simpson

APPLICATION FOR FORESTRY CONSENT : BALMORAL STATION

The Commissioner of Crown Lands has consented to your application for forestry development on Balmoral Station subject to the following conditions:

- 1 That an area of 1,300 hectares as defined on the attached plan may be planted in exotic trees for forestry purposes for sale and is limited to planting or sowing the species of *Douglas Fir* and *Corsican Pine*.
- 2 That an area of 1,000 hectares being on the periphery of the exotic forest area, referred in (1) above, be managed for landscape and wilding tree control by oversowing and topdressing for enhanced grazing and by spasmodic planting of trees, not of a prolific spreading species, for landscape enhancement adjacent to the forest area.
- 3 That wilding tree spread be strictly controlled over the remainder of the pastoral lease outside of authorised planting areas by the elimination of such trees prior to cone bearing.
- 4 That the lessor be advised prior to logging commencing and that consent be obtained to any soil disturbance which would occur outside the designated forest area as approved under this consent.
- 5 That prior to clear felling of the area, that consent in principle is to be obtained from the lessor for future use. This will require the lessee to produce an interim plan for future use.

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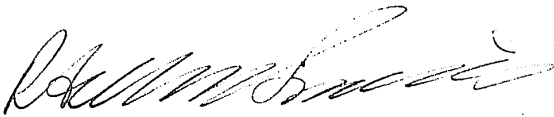
Knight Frank (NZ) Limited
(An LPL Group Company)

INTERNATIONAL PROPERTY CONSULTANTS

Mr & Mrs Simpson
Forestry Consent
13 August 1996

- 6 That if a joint venture is entered into with another party, that the formal consent of the Commissioner of Crown Lands is obtained.

Yours faithfully
KNIGHT FRANK (NZ) LIMITED



R A Ward-Smith
Manager - Timaru

R3370

**SUBMISSION TO THE
COMMISSIONER OF CROWN LANDS**

12 August 1996

Application for Forestry Consent under Section 108 Land Act 1948

KNIGHT FRANK (NZ) LIMITED PO BOX 564 TIMARU

R3370

KF Ref: Pt 021 **OCL Ref:** HO*226 **Case No:**97/1

Property Name: Balmoral

Lessee: A W and K F Simpson

Location: Situated on Braemar Road approximately 6 km north-west of Tekapo township.

Proposal: Forestry development of 2,300 hectares of which 1,300 hectares will be planted in exotic plantation forest and 1,000 hectares oversown and topdressed for the prevention of wilding tree spread and landscape enhancement.

Reason: To diversify utilisation of degraded short tussock land.

Vegetation Type: Degraded short tussock heavily infested with *hieracium*.

Altitude: 780 metres - 880 metres above sea level

Rainfall: 850 mm per year estimate.

LUC Class: VIe, upland and high country yellow-brown earths of the dry-hygrous Tekapo series.

Percent Bare Ground: Less than 20%

Visual Impact:

The site is located on the Braemar road approximately mid-way between Lake Tekapo and Lake Pukaki obscured from view from the State Highway due to terraces and land undulation. The site has low visual impact.

Effect on Water:

Forms part of the catchment for the Irishman Creek and the Maryburn, but is not the key source. The plan produced shows the planted area being kept well back, 500 metres, from the main stream of each, which run either side of the block proposed to be planted.

DOC Comments:

Have supplied a two-page letter following presentation to them of the full application by Simpson. They claim the information provided is insufficient and the quality of the application is most disappointing, going on to state that insufficient factual resource information has been provided and subsequent impact assessments are largely interpretations and questionable at best. They request the application be declined and that further information be provided by the applicant to enable an informed assessment to be made.

Comments:

The application is in response to a letter to the lessee following the submission submitted to you dated 19 September 1994. That submission was never approved and I refer to your fax dated 15 December 1994 (reference 5200-10-D13). The lessee was written to on 26 January 1995, copy attached as Ref. A, setting out information required from him to consider a forestry application of such scale. The applicant employed a forestry consultant from the Forest Research Institute at Rotorua to produce his application of some 11 pages plus financial analysis and forecasts which he showed me to demonstrate that he has fully investigated the implications of the regime on the total property. While it could be argued in the purist sense that further in-depth study could have been made, the proposal submitted has a long list of references, together with detailed cash flow analysis for the whole farm, including livestock, and does I believe largely meet the requirements set out in our letter of 26 January 1995. As the result of past applications for significant forestry on the property, the applicant has produced a comprehensive application in terms of the requirements for the Land Act. I believe he has avoided the most sensitive conservation areas, has selected a site to the west of the property and beyond the area more intensively used and developed for grazing purposes, utilised a site that would be difficult to develop further for grazing purposes, and selected a site that is degraded and would be difficult to enhance. Rainfall is generally sufficient but altitude is on the limits of generally considered economic forestry development. However, if forestry is to take place in the Mackenzie Basin, it needs to be in the better rainfall belt, and which generally encroaches on the higher altitude areas. It is my belief there is only a very narrow band of suitable land for economic forestry along the north-west fringe of the Mackenzie Basin below the mountain land. This site falls within that band.

The lessee has made application to the Mackenzie District Council for resource consent pursuant to Section 93 of the Resource Management Act 1991.

Submission to CCL
Balmoral Forestry
17 June 1996

Recommendation:

That consent be granted to forestry and oversowing in terms of Section 108(1)(e) and (1A)(b) Land Act 1948 subject to the following:

- 1 That an area of 1,300 hectares as defined on the attached plan may be planted in exotic trees for forestry purposes for sale and is limited to planting or sowing the species of *Douglas Fir* and *Corsican Pine*.
- 2 That an area of 1,000 hectares being on the periphery of the exotic forest area, referred in (1) above, be managed for landscape and wilding tree control by oversowing and topdressing for enhanced grazing and by spasmodic planting of trees, not of a prolific spreading species, for landscape enhancement adjacent to the forest area.
- 3 That wilding tree spread be strictly controlled over the remainder of the pastoral lease outside of authorised planting areas by the elimination of such trees prior to cone bearing.
- 4 That the lessor be advised prior to logging commencing and that consent be obtained to any soil disturbance which would occur outside the designated forest area as approved under this consent.
- 5 That prior to clear felling of the area, that consent in principle is to be obtained from the lessor for future use. This will require the lessee to produce an interim plan for future use.
- 6 That if a joint venture is entered into with another party, that the formal consent of the Commissioner of Crown Lands is obtained.

Signed for Knight Frank (NZ) Limited

Signed R A Ward-Smith

R A Ward-Smith Manager 17 / 6 / 1996

Approved/Declined

Fax signed L E Porter for Manager Crown Property Administration

Commissioner of Crown Lands 9 / 8 / 1996

File Ref: Pt 021

LAND RESOURCES DIVISION

1st Floor, Public Trust Building
Cnr Church and Sophia Streets
P O Box 564, Timaru
Telephone (03) 684-8340
Facsimile (03) 688-0407

1 August 1996

The Commissioner of Crown Lands
Private Box 170
WELLINGTON

Attention : Lyn Porter

Dear Madam

BALMORAL HO*226 FORESTRY CASE 97/1

I refer to your fax of 3 July 1996.

1 Department of Conservation

I have spoken to the Regional Conservator, Mike Cuddihy, and received a copy of their submission to the Mackenzie District Council dated 12 July 1996. A copy is enclosed for your information.

I believe the key statement is under Clause 4 being the first bullet point as follows:

That any consent given be subject to conditions which mitigate the potential adverse effects of the proposal on landscape and ecological values.

I do not believe there are now any significant conflicts with my recommendations. DOC have suggested that there should not be more intensive grazing and oversowing along the southern western and northern fringes of the proposed forest. I believe it is desirable to intensify the vegetative cover surrounding the forest which will tend to preclude seedling trees developing which will assist in reducing the number of seedlings that strike and therefore assist in minimizing the intensification of grazing that may be required to graze off seedlings or reduce the effort needed to hand-cut wildings.

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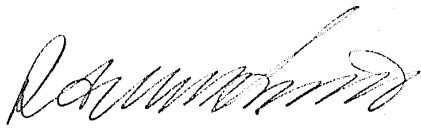
INTERNATIONAL PROPERTY CONSULTANTS

CCL
Balmoral Forestry Case 97/1
1 August 1996

Ministry of Forestry

The Ministry advise that " ... the forestry regimes and management appear to be appropriate."
They have formally supported the resource consent application.

Yours faithfully
KNIGHT FRANK (NZ) LIMITED



R A Ward-Smith
Manager - Timaru

Enc: Copy of submission - DOC to Mackenzie District Council - 12 July 1996

R3445

File Ref: Pt 021
Your Ref: OAS021

LAND RESOURCES DIVISION

1st Floor, Public Trust Building
Cnr Church & Sophia Streets
PO Box 564, Timaru
Telephone (03) 684-8340
Facsimile (03) 688-0407

1 August 1996

The Regional Conservator
Department of Conservation
Private Bag
CHRISTCHURCH

Attention : Mike Cuddihy

Dear Sir

APPLICATION FOR FORESTRY CONSENT : BALMORAL STATION

References:

- 1 Knight Frank letter dated 26 March 1996
- 2 DOC letter 17 May 1996
- 3 Knight Frank letter 10 July 1996
- 4 DOC fax 11 July 1996

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Posted
1-8-96

I refer to the last sentence of your letter at Reference 2 " ... the Department requests that the application be declined and that further information be provided by the applicant to enable an informed assessment to be made."

I was totally confused until receiving your call Friday 12 July and I thank you for that courtesy.

A submission was sent to the Commissioner of Crown Lands recommending consent be granted, copy of recommendation attached.

He replied that, he "... is in favour in principle of the proposal ... need more information upon which to assess the objections that the Department of Conservation is making ..."

.../2

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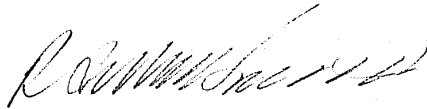
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Department of Conservation
Balmoral Forestry Application
1 August 1996

I believe our recommendations to the Commissioner are not now in conflict with the submission you have made for the Minister to the Mackenzie District Council on the matters for which the Commissioner has jurisdiction. A copy of my reply to him is enclosed for your confidential information.

Yours faithfully
KNIGHT FRANK (NZ) LIMITED



R A Ward-Smith
Manager - Timaru

Enc: Copy of recommendation to CCL R3370
Copy of letter R3445

R3439

File Ref: Pt 021

LAND RESOURCES DIVISION

1st Floor, Public Trust Building
Canterbury & Sophia Streets
PO Box 564, Timaru
Telephone (03) 684-8340
Facsimile (03) 688-0407

13 June 1996

The Commissioner of Crown Lands
Private Box 170
WELLINGTON

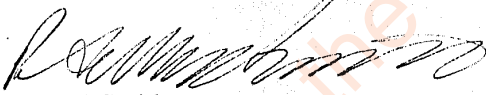
Attention : D Gullen

Dear Sir

BALMORAL STATION : FORESTRY APPLICATION

I refer to your fax of 15 December 1994. Enclosed please find a copy of a resource consent application made by the lessee of Balmoral Station to the Mackenzie District Council. It is the same area which is the subject of a separate submission to you applying for consent under the Land Act. I do not believe there is a need or justification for you to make a submission to the Mackenzie District Council on the application for resource consent by Balmoral Station.

Yours faithfully
KNIGHT FRANK (NZ) LIMITED



R A Ward-Smith
Manager - Timaru

Enc: Copy of letter Mackenzie District Council 10 June 1996 plus Resource Management Act Public Notification

cc Caroline Mason, Knight Frank (NZ) Limited, P O Box 142, Christchurch

R3369

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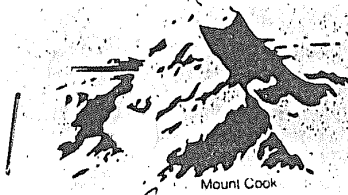
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Mackenzie District Council

REF: 960016
25300-18700

KNIGHT FRANK (NZ) LTD TIMARU

12 JUN 1996

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10 June 1996

Department of Survey & Land Information
C/- Landcorp
PO Box 564
TIMARU

Dear Sir/Madam

**A W SIMPSON, BALMORAL STATION
RESOURCE CONSENT APPLICATION - EXOTIC FORESTRY PLANTING**

Pursuant to Section 93 of the Resource Management Act 1991, you are identified as a potentially affected person in relation to the above application for a resource consent.

Attached is a copy of a notice issued by Council in this matter.

Submission forms are available wherever copies of the application are available for inspection.

Alternatively full details of the application can be provided upon request. Submission forms are also available upon request.

Should you require any assistance or have any queries in this matter, please do not hesitate to contact the writer.

Yours faithfully

**J.J. MCKENZIE
MANAGER - PLANNING AND REGULATIONS**

JJM:SMW

c:\mags\mp\lt\exotic.doc

P.O. Box 52, Main Street, Fairlie, South Canterbury, New Zealand. Tele. (03) 685-8514 :: Fax. (03) 685-8533

Address all correspondence to 'The Chief Executive'

EXOTIC FORESTRY PLANTING



RESOURCE MANAGEMENT ACT 1991 PUBLIC NOTIFICATION OF APPLICATION FOR RESOURCE CONSENT

DETAILS of the application for Resource Consent listed below may be examined during normal office hours at the following venues:

- Mackenzie District Council Chambers, Main Street, Fairlie
- Mackenzie District Council, Twizel Service Centre, Market Place, Twizel
- Air Safaris & Services Ltd, Main Road, Lake Tekapo

SUBMISSIONS can be made by notice in writing by any person and will be received by Council at PO Box 52, Fairlie, up to 5:00 pm on Friday 12 July 1996 on "Form 6A". A copy of every submission must be forwarded to the applicant at their address for service.

Site to Which This Application Relates:

Land situated at Braemar Road, Balmoral Station in the Mackenzie District at map reference 260-I37 950, 870 or thereabouts.

Proposal:

Forestry development of 2,300 ha of which 1,300 ha will be planted, and remainder landscaping and wilding control.

Applicants Name:

Andrew William Simpson
Balmoral Station

Applicants Address for Service:

Balmoral Station
PO Box 91
Lake Tekapo
South Canterbury

Phone / Fax: (03) 680 6834



133 Victoria Street
PO Box 25 022
Christchurch
New Zealand
Tel 64-3-379 1040
Fax 64-3-365 4519

28 July 1996

file 18.3.6

R A Ward-Smith
Knight Frank
P O Box 564
TIMARU

KNIGHT FRANK (NZ) LTD TIMARU

30 JUL 1996
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Dear Sir

PASTORAL LEASE : BALMORAL STATION

Thank you for your letter seeking the Ministry of Forestry's comments on the proposal to plant 1 300 hectares on Balmoral station with Douglas fir and Corsican pine.

The Ministry's views on this proposal are summarised in our submission to the Mackenzie District Council, lodged with respect to Andrew Simpson's resource consent application. The Ministry has supported the application for the reasons outlined on the attachment to the submission. (Copy enclosed).

These comments were made from our general knowledge of the area, and some are qualified in their support. For example, we have stated that "the forestry regimes and management appear to be appropriate". This reflects the fact that we have not yet visited ^{the} site, but hope to arrange a visit prior to the Mackenzie District Council's hearing of the resource consent application.

Yours sincerely


John Novis

Your Ref: 18.1.3

LAND RESOURCES DIVISION

File Ref: Pt 021

1st Floor, Public Trust Building
Cnr Church & Sophia Streets
PO Box 564, Timaru
Telephone (03) 684-8340
Facsimile (03) 688-0407

12 July 1996

The Regional Manager
Ministry of Forestry
P O Box 25-022
CHRISTCHURCH

Dear Sir


PASTORAL LEASE : BALMORAL STATION

On 19 March 1993 you wrote stating that an area on Balmoral Station was physically suitable for forestry. That proposal did not proceed, however the lessee, Mr Andrew Simpson, has now applied to plant 1,300 hectares in Douglas Fir and Corsican Pine with a periphery area of 1,000 hectares to be managed for landscape and wilding tree control. The area proposed for planting is adjacent to and south of the Braemar road as indicated on the plan attached.

I am required by the Commissioner of Crown Lands to seek your comments in line with government policy on pastoral lease administration.

Could you please either confirm the comments you made relating to the alternative block in the letter referred to above as appropriate for the now proposed project or supply further comments.

Yours faithfully
KNIGHT FRANK (NZ) LIMITED


R A Ward-Smith
Manager - Timaru

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Enc: Copy of plan

R3440

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12 JUL 1996

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Name Ray Ward-Smith

Organisation Knight Frank

Address Timaru.

Fax Number (03) 688-0407 Date 11-7-96.

From Mark Lewis. No. of pages 1.
(including cover sheet)

Statement of Confidentiality

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Ray,

To clarify matters on the Balmoral Forestry application in your letter of 10 July, there has been a misunderstanding. I have spoken to Dave and this was not the meaning he meant to convey - rather that we are in a consultation process now and there are no outstanding concerns in that regard. Bruce Arnold's RMA submission has just been typed & he will send you a copy of it. Essentially it is very similar to the Dept's views that were contained in my letter, but it is more detailed having been based on a field assessment & on-going discussions.

For these reasons, the Dept's original letter to you remains the basis for your response to the CCL. I hope this clarifies the matter for you.

Regards Mark

Canterbury Conservancy
Private Bag, 133 Victoria Street, Christchurch, New Zealand
Telephone 03-379 9758, Fax 03-371 3770

File Ref: Pt 021

LAND RESOURCES DIVISION

Your Ref: 0AS021

1st Floor, Public Trust Building
Can Church & Sophia Streets
PO Box 564, Timaru
Telephone (03) 684-8340
Facsimile (03) 688-0407

10 July 1996

The Regional Conservator
Department of Conservation
Private Bag
CHRISTCHURCH


Dear Sir

RE: BALMORAL FORESTRY CONSENT APPLICATION

On 20 May 1996 we received a letter dated 17 May 1996 from your Mark Davis in relation to the above application. Since that time I believe your staff have inspected the site in relation to the Resource Consent Application made to the Mackenzie District Council. I have spoken with Mr Dave Massam of your Twizel office and he advises that there is now little concern with the application. If this is the case, I would be pleased to receive prompt confirmation of that view.

I have reported to the Commissioner on the basis of your letter of 17 May 1996, and while he is in favour in principle of the proposed plan for forestry, he would like more information upon which to assess the objections as conveyed to him. If in fact there is no objection, I would be pleased to forward that information to him. This of course does not compromise you in any way in relation to your consideration of the application for Resource Consent.

Yours faithfully
KNIGHT FRANK (NZ) LIMITED


R A Ward-Smith
Manager - Timaru

cc Dave Massam
Field Centre
Department of Conservation
Private Bag
Twizel

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Posteel
10-7-96

R3429

Facsimile



TO: Manager

COMPANY: Knight Frank (NZ) Ltd Timaru

FAX NO: 03 688 0407

FROM: Manager Crown Property Administration

DATE: 3 July, 1996

PAGES: 1 of 1

REFERENCE: 5200-D13-B04

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SUBJECT: P1021 BALMORAL HO*226 FORESTRY CASE 97/1

The Commissioner of Crown Lands is in favour in principle of the proposal to plant forestry on Balmoral as per your recommendation of 19 June. Forestry plantings in the Basin are to be encouraged.

We need more information upon which to assess the objections that the Department of Conservation are making. Before the commissioner makes his decision please contact the Ministry of Forestry to make an assessment of the case.


LE Porter
for
Manager Crown Property Administration

KNIGHT FRANK (NZ) LTD TIMARU

3 - JUL 1996

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Department of Conservation
Te Papa Atawhai

File: OAS 021

KNIGHT FRANK (NZ) LTD TIMARU

17 May 1996

20 MAY 1996

RECEIVED

Ray Ward-Smith
Knight Frank
PO Box 564
TIMARU

Dear Ray

RE: BALMORAL FORESTRY CONSENT APPLICATION

The Department considers the application to contain insufficient detail and factual information from which an informed assessment can be made. This is of concern as it is not a good "model" for other such applications. To elaborate, the following matters are of specific concern.

Maps

These are insufficiently detailed to provide a clear picture of what is proposed, e.g. on Map 2, does the "area to be planted" include the land immediately below Braemar Road?

Resource Information

This is inadequate. The vegetation description is far too brief and does not recognise other communities present e.g. wetland communities associated with Irishman Creek, other streams/creeks, seepages and Swan Lagoon.

A description needs to provide sufficient information on composition and condition to enable its value to be assessed and later impact assessments to be validated. Hydrology is similarly poorly dealt with.

IMPACT ASSESSMENT

3.1 Landscape

The maps are too general and planting regimes should be mapped. Without factual information the interpretations made are difficult to assess. What does "area to be managed for landscape" mean?

3.2 Wildings

More detail is required on the mitigation of wilding spread. The problems associated with wildings in the Mackenzie appear to be understated. There is a lack of detail on OSTD and mob stocking and their impacts on natural values.

Canterbury Conservancy

Private Bag, 133 Victoria Street, Christchurch, New Zealand
Telephone 03-379 9758, Fax 03-371 3770

c:\msoffice\winword\md960517.docbkp

3.3 **Water Yield**

Without adequate resource information, the assessment is questionable. Little information has been provided on streams and wetlands, and what does water yield being affected "slightly" mean? No figures have been provided on set backs from seepages and streams and where they occur.

3.4 **Flora and Fauna**

Again, most inadequate. Plants do not need to be in RAPs or be threatened to be of significance. The suggestion of subsequent increase in native birds is without foundation and disagreed with.

3.6 **Soils**

Morainic soils have a greater component of fines compared with fluvioglacial outwash, and once disturbed are vulnerable to erosion. For this reason, the information provided on harvesting does not adequately address the impact. It may be necessary to specify minimum disturbance times during harvesting.

In conclusion, the quality of this application is most disappointing. Insufficient factual resource information has been provided and subsequent impact assessments are largely interpretations and questionable at best. The issues of soil conservation and water yield impacts cannot be properly assessed from the information provided. For these reasons, the Department requests that the application be declined and that further information be provided by the applicant to enable an informed assessment to be made.

Yours faithfully



Mark Davis
Senior Conservation Officer
for Regional Conservator

LAND RESOURCES DIVISION

1st Floor, Public Trust Building
Cnr Church & Sophia Streets
PO Box 564, Timaru
Telephone (03) 684-8340
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File Ref: Pt 021

26 March 1996

The Regional Conservator
Department of Conservation
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CHRISTCHURCH

Attention : Graeme Ayres

Dear Sir

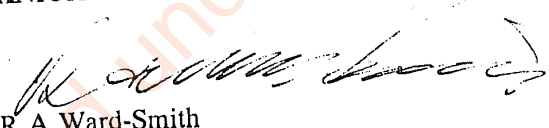
APPLICATION FOR FORESTRY CONSENT

Mr Andrew Simpson of Balmoral Station Lake Tekapo has applied to the Commissioner of Crown Lands for consent to plant up to 1,300 hectares in forestry. The principal species will be Douglas Fir - 1000 hectares and Corsican Pine - 300 hectares. A plan of the intended area is attached. Note that the total area under consideration is 2,300 hectares of which only 1300 hectares will be afforested and the balance will be managed for landscape and wilding control objectives. A preliminary review of the proposal indicates that it is located in an acceptable area, does not conflict with RAP areas or other conservation issues and is a low producing grazing area.

The scale of the operation will require the applicant to obtain resource consent at which time any public issues, if any, can be addressed.

Your comments would be appreciated.

Yours faithfully
KNIGHT FRANK (NZ) LIMITED


R A Ward-Smith
Manager - Timaru

RECEIVED
Posted
26.3.96

cc Field Centre Manager, Department of Conservation, Private Bag, TWIZEL

The Commissioner of Crown Lands, Private Box 170, WELLINGTON

R3181

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Knight Frank (NZ) Limited
(An LPI Group Company)
INTERNATIONAL PROPERTY CONSULTANTS

File Ref: Pt 021

LAND RESOURCES DIVISION

1st Floor, Public Trust Building
 Cnr Church & Sophia Streets
 PO Box 564, Timaru
 Telephone (03) 684-8340
 Facsimile (03) 688-0407

26 March 1996

Mr A W and Mrs K F Simpson
 Balmoral Station
 P O Box 91
 LAKE TEKAPO

RECEIVED
 Posted
 26.3.96

Dear Andrew and Karen

APPLICATION FOR FORESTRY CONSENT

Your application received on 26 March 1996 is acknowledged. The quality of the application is appreciated.

When speaking to you recently you were concerned that I may have conflicts of interest in my dealings with Defence Force and negotiations with them. The area which you wish to develop forestry does not appear to have any conflict with Defence interests as far as I am aware, however if you still do have concerns please let me know. I have raised the issue with the Commissioner of Crown Lands.

I have in the meantime requested comment from Department of Conservation as we are obliged to do.

In my letter dated 26 January 1995, copy enclosed, point number seven requested intended management regime for the balance of the property. I am well aware that there are many things happening, including conservation and defence interests together with your own development through cultivation. It would however be useful to have a plan of the whole property indicating your overall strategy for development and utilisation and it is acknowledged that there may be future changes or conflicts in some of those ideas. It is necessary to be able to present to the Commissioner of Crown Lands how your current proposal fits in to your overall long-term vision for the property. There also needs to be an indication how, if it does, that the proposed forestry will affect immediate cash flow from other sources such as stocking levels over the whole property. This over view can be in general terms and does not need to be rigid or precise.

..12

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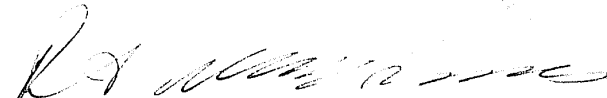
Knight Frank (NZ) Limited
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 INTERNATIONAL PROPERTY CONSULTANTS

Balmoral Station
Application for Forestry Consent
26 March 1996

There is a need to address the wilding tree-cum-forestry areas adjacent to Balmoral Military Camp. The area west of State Highway 8 is generally accepted as a managed forestry area and it would be desirable to have that situation formalised by either including it in your present application or by separate application. The area east of State Highway 8 and south of the army/golf links is rapidly being taken over by wilding trees and the issue as to whether it is to be managed as forest or the area controlled, ie cut out, needs to be resolved.

Looking forward to your response to the above issues.

Yours faithfully
KNIGHT FRANK (NZ) LIMITED



R A Ward-Smith
Manager - Timaru

R3182

KNIGHT FRANK (NZ) LTD TIMARU

1 JUN 1996

RECEIVED

P.O. Box 91, Lake Tekapo
Telephone / Fax: (03) 680-6834

Knight Frank,
Timaru.

Dear Mr. R. Ward Smith,

I write on a matter which was of quite a concern to us relating to the Department of Conservation's reply to you, re our forestry application.

We received a second hand response to that application from the Mackenzie District Council, which had ~~to~~ been addressed to your office. We incorrectly assumed you had sent it the fact that you didn't deserves an apology from us.

The fact that a private document addressed to you was sent to the District Council, without our knowledge and yours is totally unsatisfactory. We question the legality of DOC doing so.

We require an explanation as to why this occurred please?

We have grave fears that this action could likely have placed the application in jeopardy.

Yours sincerely,

Andrew & Karen Simpson.

KNIGHT FRANK (NZ) LTD TIMARU

24 MAY 1996

RECEIVED

P.O. Box 91, Lake Tekapo
Telephone / Fax: (03) 620-6834Frank Knight,
Timaru.

Dear Mr R. Ward Smith.

We received a fax from the Mackenzie District Council concerning our forestry consent which had been forwarded to them from you. We felt disappointed you did not contact us first concerning this matter obviously the negativity surrounding it is quite a concern for us. While it is predictable to a point, it seems the basic plan is to squash the idea, we would appreciate your advice on where to go from here? We have several ideas, one of them of course is ^{go} to higher places, which is one we try to avoid. Simon Upton sent a good ~~fax~~ letter concerning the Resource Management Act and working with those on the land, it seems that theory sometimes gets extremely lost along the way. Maybe in this case it could be useful.

Change is a law and there is a time for every purpose under heaven. Onward & upward!

Yours sincerely,

Karen & Andrew Simpson.

File Ref PT 021

26 January 1995

Mr A W & Mrs K F Simpson
Balmoral Station
P O Box 91
LAKE TEKAPO

COPY

Dear Andrew and Karen

APPLICATION FOR FORESTRY CONSENT

The Commissioner of Crown Lands is not prepared to consider approval for your forestry application in principle without full information. In order to fully report your application for consent to afforest an area of your pastoral lease "BALMORAL P21", I require further information than that contained in your letter and attached plan received on 16 May 1994.

Section 108, Land Act 1948 states that a lessee may 'afforest ... any portion for the purpose of growing timber for sale' providing that prior consent in writing from the Commissioner of Crown Lands is obtained. This consent may be given subject to such conditions as the Commissioner may deem necessary.

The Commissioner has to be satisfied that your proposal will not be prejudicial to the Crown's interest in your pastoral lease or to surrounding pastoral leasehold properties and may need to impose certain conditions to ensure that the Crown's interest is protected.

In dealing with applications for substantial changes in land use, such as your proposal to afforest some 2,000 ha of your lease, a number of issues need to be considered.

In order to prepare a detailed report and recommendation for the Commissioner of Crown Lands, on your application, I will require further details of the proposed management regime for your property over the period of your proposal including details of:

1. The area you wish to plant specifying the species you wish to plant, the methods to be used and a plan outlining the areas you wish to plant on an annual basis.
2. The proposed silvicultural regime.

...2/

2

3. The likely harvesting programme (including timing, details of harvesting methods, requirements for tracks etc.)
4. Provisions for weed and pest control.
5. Wilding control programme.
6. Intention for the future management of the area post harvest.
7. Details of your proposed management regime for the balance of the property for livestock, forestry or other use, including intended stocking rates and types, pasture development/maintenance programme, other development/maintenance, weed and pest control and any other proposals you have to manage the land resource in the foreseeable future with indications of your intended ultimate vision of the property for the future.

It is acknowledged that any plan must be sufficiently flexible to enable you to respond to economic and environmental changes. Your proposals on reviewing the management plan to respond to these changes should be set out.

It is important to note that any consent granted by the Commissioner of Crown Lands would be solely in terms of his jurisdiction under the Land Act 1948 and would in no way exempt you from obtaining other necessary consents eg. under the Resource Management Act 1991.

I look forward to receiving a full and detailed proposal from you in due course which sets out the suitability of the resource for the uses you intend in terms of your lease.

Yours faithfully
LANDCORP PROPERTY LIMITED

R A Ward-Smith
Manager

R2339

COPY



pt021

P.O. Box 91, Lake Tekapo
Telephone / Fax: (03) 680-6834

DEAR RAY

PLEASE FIND ENCLOSED AN APPLICATION
FOR FORESTRY ON BALMORAL SIN, THIS APPLICATION
IS THE ONE THAT WE HAVE PUT TOGETHER.
TO PRESENT TO THE DISTRICT COUNCIL
SO HOPE THAT IT IS SUFFICIENT FOR
YOUR PURPOSES. IF NOT PLEASE LET ME

(RWD)

YOURS SINCERELY

ANDREW SIMPSON .

KNIGHT FRANK (NZ) LTD TIMARU

26 MAR 1996

RECEIVED

Released under the Official Information Act 1982

BALMORAL FORESTRY - STAGE 1

APPLICATION FOR RESOURCE CONSENT

1. INTRODUCTION

Balmoral Station has traditionally been managed for pastoral production (sheep, cattle and, more recently, deer). A description of the property and its farm management to date is attached (Appendix A). The economics of pastoralism in the high country have continued to decline over recent years. Many farmers feel that unless they diversify into alternative forms of land use, their properties will not remain viable units. As owners of Balmoral, we share these fears for the future, and feel that forestry offers one of the best options for reversing our eroding financial position.

There is plenty of evidence that plantation species such as Douglas-fir (*Pseudotsuga menziesii*), and Corsican and ponderosa pine (*Pinus nigra* and *P. ponderosa* resp.) can grow well in the high country (Ledgard and Belton, 1985) and that commercial forestry can be economically successful (Belton, 1993). The 1991 report of the Parliamentary Commission for the Environment on tussock grassland sustainability (Hughes, 1991) and the more recent decision of QC Hearn consequent to the Mackenzie District Council's Hearing on their proposed Scheme Change 21 (Mackenzie District Council, 1994) is supportive of a greater role for forestry in the Basin. As well as the supporting references, I have neighbours who have recently sold woodlots of the above species for considerable profit. They readily admit that this additional income at a time of depressed wool prices has allowed them to maintain a more efficient farming operation than if they had had to rely on pastoral products alone.

There is also evidence that forestry can be of environmental benefit by improving soil stability and fertility, reducing flood peaks, increasing aspects of species richness (such as birds), and absorbing CO₂. In the social arena forestry can create increased employment and enhance landscapes and recreational opportunities. On the other hand, introduced trees in the high country can have negative impacts on conservation, landscape and water yield, and natural regeneration or 'spread' can lead to 'wildings' growing where they are not wanted. All these effects are dealt with in more detail separately in this application.

Looking ahead to the future, we would like to place ourselves and those who follow us as managers of Balmoral in a more robust economic (and environmental) position than we are today, and for this reason we are seeking consent for the forestry development (planting and harvesting) described below. This is Stage 1 of what we hope will be an larger forestry programme in future years.

2.0 FARM DESCRIPTION

2.1 TENURE AND LEGAL DESCRIPTION

This property is high country lease-hold land farmed by Andrew and Karen Simpson.

The main block is an area of 9616.5 ha being Run 81 "Balmoral" in Jollie, Tekapo and Pukaki SD

2.2 LOCATION

"Balmoral" lies in the upper Waitaki catchment between Lakes Tekapo and Pukaki with access from SH 8 and the Braemar Road. Local towns are Tekapo 8 km, Twizel 41 km and Fairlie 51 km.

Latitude: 44° 00' S

Longitude: 170° 23' E

Grid Reference: Infomap 137 (1:50,000). Homestead - 004.895

Figure 1 shows location and extent of the property.

2.3 CLIMATE

Between 350 - 1000 mm of rainfall falls through out the year, but strong dry NW winds combined with temperatures often approaching 30° C during summer create long periods of moisture deficiency. There is a 50% or less probability of receiving rainfall which is likely to sustain pasture growth for all growth season months (Landcare, 1992). Due to the relatively high altitude, spring and autumn growth will often be retarded by cool temperatures and out-of-season frosts. Days with ground frosts often exceed 200/annum and winters can be severe with temperatures down to -17° C. Snow risk is moderate to high, with snow often lying for some weeks over much of the station. The combination of high summer temperatures, strong winds and severe winters means that the 'Balmoral' climate represents one of the most difficult farming environments in the country.

2.4 TOPOGRAPHY

The property ranges in altitude from 730 - 1040 m, with a predominantly southerly aspect. Approximately 3% is river flat, 23% fans and terraces, 74% hills and rolling downlands and <1% steeplands.

2.5 LITHOLOGY AND SOILS

The property is composed of glacial till and outwash gravels, and weathered non-moraine gravels arranged in the Pleistocene glaciation. Soils are essentially upland yellow-brown earths (less than 3% being gley recent, recent and skeletal soils) formed under a low scrub/tussock vegetation cover. Being weakly weathered with a high amorphous colloid content and poor structure they are susceptible to wind erosion when exposed. Soil fertility status is moderate to low, the majority being strongly leached with low calcium and magnesium and pH values ranging from 4.9 to 5.4.

2.6 VEGETATION

Once predominantly tall tussock grassland (*Chionochloa rubra* dominant) with fescue tussock, *Aciphylla* and small scrub and swamp communities, late 19th century burning and subsequent grazing mainly by sheep and rabbits, has drastically altered plant cover and species composition. The present vegetation is predominantly short hard tussock (*Festuca nova-zelandiae*) remnants rapidly being replaced by *Hieracium pilosella* in the lower and more fertile fans and terraces, except in improved pasture situations.

2.7 FARM MANAGEMENT

Traditionally the farm has been run as a sheep unit. Over the last decade deer have been farmed and a small area has been cropped for cereals and small seeds. Current stocking is 5000 fine-wooled Merino sheep, and 200 deer (mostly stags for velvet and meat production) Annually about 80 ha is cropped for oats and clover seed as the first part of a pasture improvement cycle.

Since the early 1980s an annual tree planting programme has been followed mainly to establish shelterbelts using hardy species such as Corsican pine (*Pinus nigra*), ponderosa pine (*P. ponderosa*), Scots pine (*P. sylvestris*), dwarf mountain pine (*P. mugo*) and, where appropriate, Douglas-fir (*Pseudotsuga menziesii*) and silver birch (*Betula verrucosa*). In 1992 a 200 ha block near the Forks River/canal intersection was set aside for forestry research trials in a Joint Venture agreement with the NZ Forest Research Institute. This area now contains over 50 ha of trial plantings. In 1995 Andrew Simpson established (by machine) a further 40 ha of trees (Corsican pine and Douglas-fir) adjacent to the research area.

3. PROPOSED FORESTRY DEVELOPMENT - Stage 1

Area	2300 ha (of which 1300 ha or 56% will be planted - the remainder will be managed for landscape and wilding control objectives)
Location	See map
Access	Easy access from Tekapo to Mt Cook station road
Topography	Rolling low 'hills'
Current veg'tn and use	Unimproved fescue tussock / <i>Hieracium</i> country <1 su/ha carrying capacity
Species to be planted	Douglas-fir (<i>Pseudotsuga menziesii</i>) - 1000 ha (70%) Corsican pine (<i>Pinus nigra</i>) - 300 ha (30%)

Regimes		Harvest (tonnes/ha)
A. Douglas fir (waste thin)		
	Yr 1: Plant* 1450 stems/ha (3 x 2.3 m)	
	Yr 12-15: Thin (waste) to 600 stems/ha	
	Yr 40+: Harvest	900
B. Douglas-fir (production thin)		
	Yr 1: Plant* 1450 stems/ha (3 x 2.3 m)	
	Yr 20+: Thin (production) to 600 stems/ha	
	Yr 45+: Harvest	650
C. Corsican pine (sawlogs)		
	Yr 1: Plant* 1250 stems/ha (4 x 2 m)	
	Yr 12-15: Thin (posts) to 550 stems/ha. Prune to 2.5 m	
	Yr 40+: Harvest	500
D. Corsican pine (posts/poles)		
	Yr 1: Plant* 1660 stems/ha (3 x 2 m)	
	Yr 25+: Harvest (no thinning or pruning)	300

* Planting by planting machine except where too stoney or steep

References:

Belton, M.C. 1993: Economic potential of high country forestry. Proceedings of NZ Forest Owners Association Conference, Timaru, April, 1993: 6 pp

Hughes, H. 1991: Sustainable management for the dry tussock grasslands in the South Island. Parliamentary Commission for the Environment, P.O. Box 10 241, Wellington: 70 pp

Mackenzie District Council, 1994: Proposed Forestry Plan Change No. 21 to the Mackenzie District Council Transitional District Plan. A recommendation from Mr A. Hearn QC, the Hearing Commissioner to the Mackenzie District Council, in the above matter. Mackenzie District Council, P.O. Box 52, Fairlie: 75 pp

Ledgard, N.J.; Belton, M.C. 1985: Exotic trees in the Canterbury high country. NZ J of Forestry Science 15(3): 298-323





MAP 2

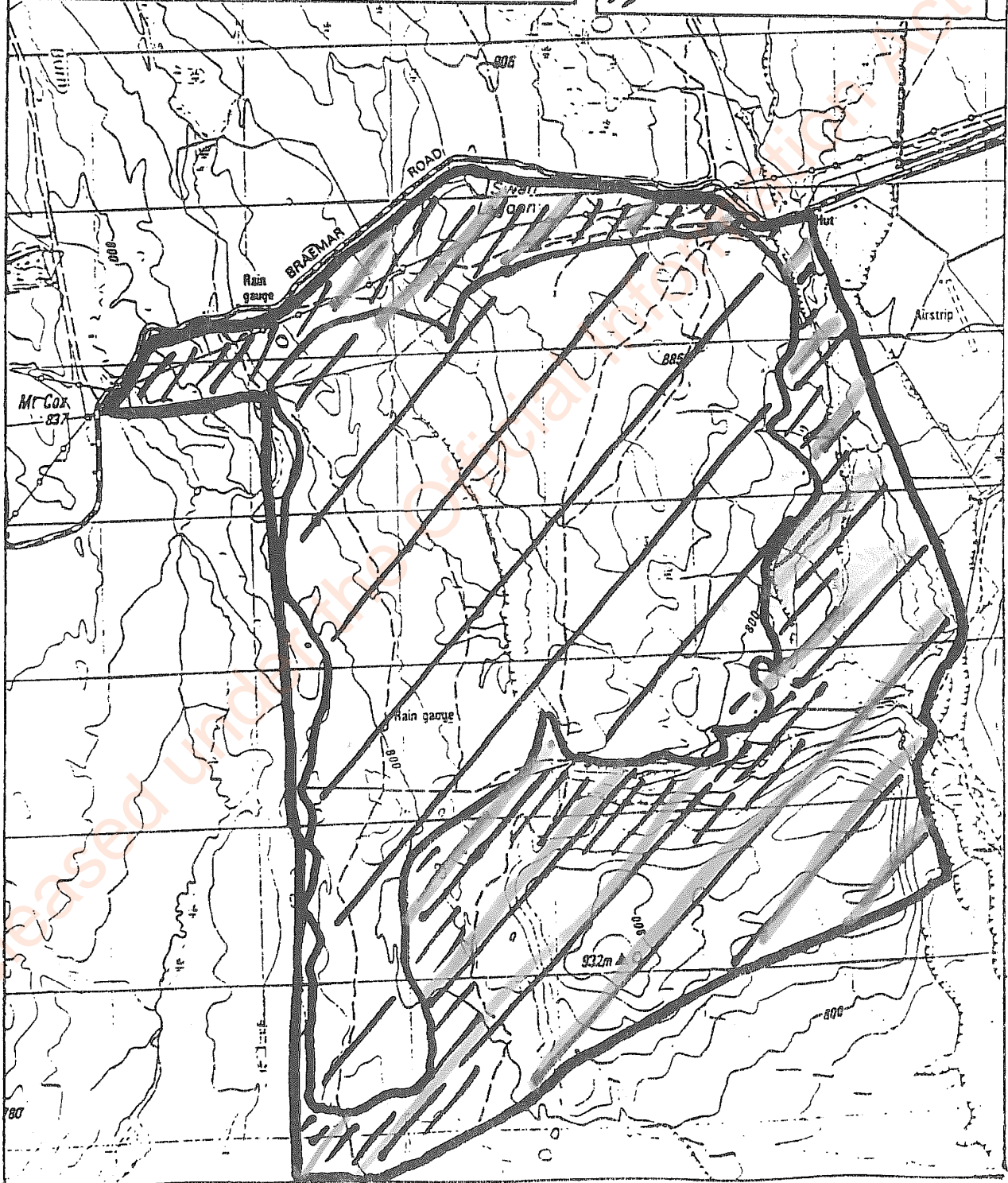
BALMORAL FORESTRY
PROPOSAL

Stage 1

Planting area and management strategy

KEY:

-  Fenced area managed for forestry purposes
-  Area to be planted
-  Area managed for landscape and wilding control
-  Area oversown and topdressed for improved grazing



BALMORAL FORESTRY PROPOSAL

Impact assessment

The impacts from the proposed forestry development at Balmoral fall into three categories.

1. Commercial
2. Social
3. Environmental (landscape, wilding spread, water yield, flora and fauna, atmosphere, soils, fire risk and recreation).

1. Commercial

There are many recent examples of the commercial productivity of forestry relative to farming in the hill and high country. Belton (1993), comparing sustainable nett returns/ha/yr, states forestry to be from 55 to 125 times more profitable than sheep on unimproved rangelands. The major reason for the increased returns is not product prices but the better utilisation of the growing environment by trees; on an unimproved high country site trees are capable of producing 20-30 tonnes of dry matter/ha/yr compared to 1-2 tonnes from herbaceous species (mainly grasses).

It is estimated that the annualised nett return from Douglas-fir at Balmoral should be at least \$1000/ha/yr (Knowles *et al*, in press). There are many advantages arising from an increased financial return/ha. One is that more money is available for long-term sustainable management strategies.

References:

- Belton, M.C. 1993: Economic potential of high country forestry. Paper presented to Forest Owners Association Annual Conference, Timaru, April, 1993.
- Knowles, L.; McElwee, H.; Ledgard, N.J. in press: The productivity and commercial potential of forestry options on Balmoral Station, L. Tekapo. NZ FRI Project Record, 1996. (unpublished)

2. Social

The increased productivity of forestry leads to more jobs both on the forest estate and down-stream in the region. Recent estimations for the Mackenzie Basin are 4.6 FTEs (Full Time Equivalents) per 1000 ha of forestry in the immediate locality of the growing site and 7.1 FTEs/1000 ha for the Canterbury/Otago Region, compared to 0.4 and 1.0 FTEs for farming (Butcher, 1995). Using these figures Balmoral's 1300 ha of forest has the potential to provide 6 FTEs in the Region compared to less than 1 FTE if it remains in pastoral farming.

Road traffic. A 25-ha woodlot amounts to approximately 600 truck loads of wood (Maclaren, 1994). After a growing period of 25+ years this produce is extracted over a

relatively short period of time. There is likely to be an impact on local infrastructures such as roads, although this is unlikely to be greater than the same number of trucks of equal weight containing agricultural and other non-forestry produce which may have used the road over the previous 25+ years. The possible impacts on roads should be discussed with affected parties before harvesting commences. Successful precedents have been set for such discussions, but they have been held in the years immediately before logging begins, NOT before the trees have even been planted. The factors pertinent to harvesting and log haulage in 30 year's time are likely to be quite different to those which prevail at present. The current owners of Balmoral have every intention of holding such discussions prior to the commencement of harvesting.

References:

Butcher, Geoff (1995): Regional income and employment impacts of farming and forestry in the Mackenzie/Waitaki Basin. NZ FRI Project Record No 4099. (unpublished)

Maclaren, J.P. 1994: Radiata pine growers' manual. NZ FRI Bulletin No 184: 140 pp

3. Environmental

Amongst the environmental concerns often expressed about forestry in the high country, landscaping, the spread of wilding trees and, to a lesser extent, water yield, appear to be the most often mentioned. These are covered below along with the likely impacts of the Balmoral forestry proposal on flora and fauna, atmosphere, soils, fire risk and recreation.

3.1 Landscape

The proposed Balmoral planting is not in the 'visually disruptive' zone or in one of the 'significant landscape' areas as identified by Allan Rackham and Bruce Scott respectively in the reports they prepared as part of the Mackenzie District Council's Scheme Change 21 deliberations (Mackenzie District Council, 1992). The site will only be visible from the unsealed Tekapo to Braemar / Mt Cook station road; it will not be visible from any of the major highways in the Basin. Despite this, considerable importance has been placed on species choice and siting to meet the basic high country landscaping requirement of planting in sympathy with natural landforms (Boffa, Boffa Miskell Partners Ltd, 1994; Ministry of Forestry, 1994). Landscaping is one reason why edges following straight fence lines have been avoided and why 46% of the 2300 ha 'paddock' originally ear-marked for forestry (see map) will not be planted. This includes a wide unplanted zone (over 100 ha) between the Tekapo / Mt Cook station road, which is being left unplanted primarily for landscape reasons. By planting according to landform and using site specific species with variable rotation lengths, harvesting times will be evenly spread so that the visual impact is never large. This ties in with the economic aim of sustained harvesting of small areas every year once maturity is reached.

Tracking. In the high country there are many examples of access tracks which have not been sited to minimise their impact on the natural landscape. The gently rolling topography of the proposed Balmoral forestry block means that minimal tracking involving soil disturbance will be required, and that very little of these tracks will be visible from off the site. The major access tracks are marked on the map.

References:

- Mackenzie District Council, 1992: Mackenzie Transitional District Plan, Mackenzie Council District Scheme, Proposed Change 21 - Forestry. Mackenzie District Council, P.O. Box 52, Fairlie: 12 pp
- Ministry of Forestry, 1994: South Island high country forest design. MoF, Christchurch: 36 pp
- Boffa Miskell Partners Ltd, 1994: Landscape guidelines for forestry in the Mackenzie / Waitaki Basins. Supplement to Contract Report 'Landscape change in the Mackenzie / Waitaki Basins' prepared for Mackenzie District Council: 27 pp

3.2 Wildings

The risk of wilding spread in the high country is acknowledged. An assessment of risk has been made according to Ledgard (1994) and it is not high. Other precautions will be taken such as pasture improvement and strategic mob stocking on the unplanted areas immediately downwind (Ledgard, 1988; Ledgard and Crozier, 1991). Over 300 ha will be oversown and topdressed (see map) to this end. In addition, the proposers agree to search for and remove any unwanted wildings originating from the plantation which may establish outside the 2300 ha fenced 'paddock' within which the planting and management strategies for wilding control are planned. Searches will begin at year 12 when the first wildings are likely to appear (Ledgard, 1988) and will be conducted every 5 years thereafter so that all wildings are removed before they produce seed (usually not before age 10).

The risk of wilding spread is often used to counter exotic forestry proposals in the hill and high country. In reality, the majority of exotic plantings in the high country are not spreading. Ledgard (1985) in a survey of all exotic plantings in the Canterbury high country found only 39% of plantations to have associated wildings and in many instances these seedlings were only found inside the stand margin. Adjacent to Balmoral station there are many examples of mature stands where wilding spread is not an issue - and this is despite the fact that deliberate strategies to minimise wilding spread (as proposed for Balmoral) have rarely been practised. Where wilding spread has occurred, such as at Mt Cook station and adjacent to the Balmoral Army camp, this is largely because the risk was never assessed at planting and no precautions or management to minimise risk were taken. An exception is around the Soil Conservation Reserve alongside the main highway as Tekapo is approached from the east. This was planted (to control soil erosion) in the 1960s, using a range of species, including the most spread-prone of all, Lodgepole pine (*P. contorta*). Despite this choice of species and the exposed, windy nature of the site, spread outside the plantation has almost been a non-issue, thanks to simple but appropriate management (pasture improvement and mob stocking) being deliberately applied to the unplanted land immediately downwind.

In summary, the Balmoral proposers are aware of the risks of wilding spread and, using the guidelines available (Ledgard and Crozier, 1991) have planned to minimise those risks, as well as act responsibly in undertaking to remove any unwanted wildings which may eventuate.

References

- Ledgard, N.J.; Belton M.C. 1985: Exotic trees in the Canterbury high country. NZ JI of Forestry Science 15(3): 298-323
- Ledgard, N.J. 1988: The spread of introduced trees in NZ's rangelands. Tussock Grasslands and Mountain Lands Institute Review 44: 1-7

Ledgard, N.J. 1994: A form for assessing the risk of conifer spread in the South Island high country. NZ Forestry 39 (1): 26-27.

Ledgard, N.J.; Crozier, E.R. 1991: Guidelines for the control and management of wilding trees in the Canterbury high country. Ministry of Forestry Contract Report for DoC, Landcorp, local Regional Bodies: 13 pp.

3.3 Water yield

Exotic forests are capable of significantly reducing water yield from formerly unforested catchments (Fahey, 1994). However, the Balmoral plantations are not a major component of any significant catchment. The water supply to the few wetter gullies in the block will be affected slightly even though the seepages and the central portions of the major gullies supplying them are not to be planted.

Poor roading can adversely affect water quantity and quality (Coker *et al*, 1992). However, the easy topography of the Balmoral block means that minimal tracking will be required and virtually all of this will be on flat or gently sloping surfaces.

References

Coker, R.J.; Fahey B.D.; Payne J.J. 1993: Fine sediment production from truck traffic, Queen Charlotte forest, Marlborough Sounds, New Zealand. *Jl of Hydrology (NZ)* 31(1): 56-64

Fahey, Barry. 1994: The effect of plantation forestry on water yield in New Zealand. *NZ Forestry* 39(3): 18-23

3.4 Flora and fauna

There are no PNAs or RAPs, or rare native flora or fauna identified within the area proposed for planting.

Plants. Once canopy closure of planted trees has occurred, all native plants under the trees will be completely suppressed. However, 46% of the area will not be planted.

Birds. The combination of mixed species planting and areas of native scrub and herbaceous species is likely to increase the bird numbers on the Balmoral block. There is evidence from other exotic tree sites in the high country that tree planting can enhance both native and introduced bird numbers (Ledgard, 1994).

Reference

Ledgard, N.J. (1994): Native birds in high country exotic conifers. *NZ Forestry* 40(1):

3.5 Atmosphere

The role of forests in storing carbon to counter rising world CO₂ levels is a topical issue at present (Maclaren and Wakelin, 1991) and the Balmoral forests will contribute towards reducing atmospheric CO₂ levels. It is estimated that the proposed Balmoral plantation will, when mature hold approximately 100 tonnes of carbon/ha on-site compared to the present amount of less than 3 tonnes/ha of herbaceous material.

Reference:

Maclaren, J.P.; Wakelin, S.J. 1991: Forestry and forest products as a carbon sink in New Zealand. *NZ Forest Research Institute Bulletin* No 162: 40 pp

3.6 Soils

Forests are also well known for their ability to insulate soils from erosion. The likelihood of erosion on Balmoral is not high, although recent research suggests that it has been occurring, even on relatively intact and vegetated sites in the Mackenzie Basin, at around 0.8 mm/yr over the last 40 years (Basher and Webb, 1995). A forest cover is likely to minimise such erosion risks.

There is increasing evidence that exotic conifer forests improve the structure and increase the available nutrient status of high country soils (Davis, 1991). Some of this pioneering research was done at the NZ Forest Research Institute's trial site on Balmoral station.

Harvesting. Poor harvesting practices can have a dramatic effect on soils, especially on steep slopes. The proposed Balmoral site has very few steep slopes on which trees will be planted. Logging will be by skidders operating to the NZ Code of Practice (Vaughan, 1993). Trees will be limbed where they fall to encourage an even spread of slash. 'Slash retention' is more conducive to sustained site productivity (Balneaves and Dyck, 1992). If slash has to be moved to allow for replanting, it will be by windrowing with a buck rake which leads to minimum soil and litter disturbance.

References:

- Basher, L.R.; Webb, T.H. 1995: Estimating surface erosion on terraces in the Mackenzie Basin using caesium-137. Unpublished contract report prepared for Canterbury Regional Council, PO Box 345, Christchurch
- Balneaves, J.B.; Dyck, W.J. 1992: Slash retention a viable option to ensure sustained site productivity. *New Zealand Forestry* 31(1): 13-16
- Davis, M.R. 1991: Increased nutrient availability in topsoils under conifers in the South Island high country. *NZ J For Science* 21(2/3): 165-179
- Vaughan, L. 1993: NZ forest Code of Practice. 2nd edition revised by R. Visser and M. Smith. NZ Logging Industry Research Organisation, Rotorua.

3.7 Fire risk

A widespread but incorrect view is that fire is the most common and most disastrous of the physical risks to forestry. Historically, fire has destroyed less than 0.1% of forest area per annum (Maclaren, 1994). Nationally, there is a 98% chance that a given stand will survive through to harvest without being burnt, although risks in Canterbury are higher. At Balmoral, fire risk will be reduced by grazing, low pruning and by leaving an unplanted area between the trees and the Tekapo-Mt Cook station road - this zone will be regularly grazed to minimise the likelihood of rank grass growth.

Reference

- Maclaren, J.P. 1994: Radiata pine growers' manual. NZ FRI Bulletin No 184: 140 pp

3.8 Recreation

Elsewhere in the high country the presence of trees has often invited increased recreational activity (eg., camping). The Balmoral plantings will increase the options available to the owners if they wish to diversify into recreation, and such activities as camping, horse riding, hunting, moto-cross.