NELSON/MARLBOROUGH CONSERVANCY
Internal Report No.19

Conservation Values of Raglan Pastoral Lease Wairau Valley, Marlborough (and recommendations for protection)

by

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1.0 INTRODUCTION

This report describes the conservation values of the Raglan Pastoral Lease in the Wairau Valley in Marlborough. It identifies areas on the property that are significant for nature conservation, recreation, landscape, and historic resources protection. The assessment of these values is based on available literature and a field inspection of the property over three days in April 1995.

The purpose of this report is to identify the Department of Conservation's (DoC's) interest in the property as the first stage of a process of negotiated tenure review. It has been initiated in response to a request from the lessee of Raglan and this report will form the basis for the DoC input to the joint Landcorp/DoC submission to the Commissioner of Crown Lands.

The first part of this report describes the natural values of the property, including its geology, soils, flora, fauna, landscape, recreation, and historic values. The second part of the report describes the significant areas in more detail and recommends protection of these areas. The recommendations in this report are based on the readily-available information at the time of the field survey. It is likely that other significant values will be identified in the future, and DoC reserves the right to alter these recommendations in response to new information and to negotiate further protection for features on the property. The report does not investigate land use sustainability issues.

The Raglan Pastoral Lease covers approximately 2083 hectares on the northern flanks of the Raglan Range (the southern side of the Wairau River), including the alluvial terraces of the Wairau River. The property is leased by Bill and Robin Lacey and is a standard pastoral lease under the Land Act 1948. It is presently stocked with about 3700 sheep and about 100 cattle (Bill Lacey, pers.comm.). The property is fenced into three main blocks, and is subdivided into smaller units near the homestead.

2.0 CONSERVATION VALUES

2.1 GEOLOGY AND LANDFORMS

Basement rocks of the Raglan Range are comprised of strongly indurated, mostly graded and bedded greywacke and argillite formed from sediments deposited in the New Zealand Geosyncline during the Triassic Period. Collectively known as the Torlesse Group, this series includes minor conglomerates and volcanics (DSIR 1964). Outcropping rocks are predominantly weathered greywacke and argillite, and are generally confined to minor mid-slope bluffs or to the higher summits of the Raglan Range beyond the property boundary. The alluvial flats of the Wairau Valley are comprised of glacial outwash gravels of the Otira Glaciation, and more recent river and fan gravels. The flats closer to the river frequently have deep layers of river silt, deposited by recent floods.

The lower boundary of the property along the Wairau River follows the major Wairau (or Alpine) Fault, forming a marked geological boundary between the sedimentary rocks of the Marlborough mountains to the south and the ultramafic rocks of the Red Hills to the north. The property rises from 420 metres in the Wairau Valley, at the Wash Bridge, to about 1150 metres at its highest boundary approximately halfway up the slopes of the Raglan Range, over a distance of about 2 kilometres.

About 250 hectares of the leasehold property are recent silty flats; a further 450 hectares are comprised of glacial, river and fan gravels; and, the remainder of the property is located on gentle to steep slopes or ridges. The most prominent landform features of the property are the glacially-carved front slopes of the Raglan Range, facing the Wairau Valley. These slopes are bisected by small rivers which have cut down through the bedrock to form incised valleys with steep and broken upper headwaters. The property boundary cuts across these slopes, traversing the lower catchments of the small tributary rivers.

2.2 SOILS

The steeper upper slopes on the property support steepland yellow-brown earths (Gibbs 1980). These Class VIIe soils are prone to moderate sheet and slip erosion and generally support short tussock grassland or shrubland associations. On the lower slopes these soils are deeper and less erosion-prone, and support denser pasture or shrubland. The alluvial flats support soils with only negligible to slight potential for erosion and a cover of high-producing pasture or, in some places, shrubland or kanuka forest. Soils throughout the property support good vegetative cover and only minor areas of bare ground were observed.

2.3 VEGETATION AND FLORA

Vegetation History:

There is scant record of the early vegetation of the Wairau Valley. It seems likely that the upper Wairau Valley was entirely forested in pre-human times, possibly with the exception of the more recent alluvial flats beside the river. There is good evidence, from charcoal deposits, that there was widespread burning throughout the eastern South Island in pre-human times (Molloy 1977) but it is unlikely that these fires would have spread as far west as the upper Wairau Valley. The wetter climate, and denser beech forests, of this area would probably have remained relatively intact until the first deliberate burning occurred. There is no mention of the need to burn the countryside when Nathaniel Morse and Dr.John Cooper squatted on 'open country' to graze 1000 sheep on the 'Tophouse Run' (now part of Raglan and Rainbow) in 1846 (Newport 1962). Presumably pre-European fires had removed forest from at least the valley floor. The recent alluvial flats of the Wairau River would have supported plant communities very similar to those present today. Frequent flooding would have maintained a mosaic of open gravels, low herb communities, kanuka shrublands, and patches forest containing kowhai (*Sophora microphylla*), beech, lancewood (*Pseudopanax crassifolius*), and podocarps. However, it is possible that the bed of the Wairau River is less stable today due to greater sediment loads. Newport (1974) notes that the Wash Bridge was 76 feet above the river when constructed in 1926, but only 20 feet above the river in 1972.

The existing vegetation on Raglan is a mixture of intact beech forest in the side streams and gullies that have escaped burning; strongly regenerating kanuka forest on previously burnt slopes; modified short tussock grasslands on the upper slopes of the main valley sides; pasture on the lower slopes and alluvial flats; and, patches of tall kanuka and mixed shrubland on lower terrace faces or flats. Smaller areas of mixed kowhai, kanuka, and lancewood are present at lower altitudes near the Wairau River, and there is a large raupo wetland on the lower flats between Bush Camp and Possum Stream. These plant communities are described in more detail below.

Beech forests:

Extensive areas of intact forest are confined to the main tributary valleys that dissect the northern flanks of the Raglan Range, and smaller remnants in gullies on the front faces, where fires have not penetrated. These mixed beech forests are representative of the original plant communities that covered most of the property in pre-human times. They are dominated by red beech (*Nothofagus fusca*), silver beech (*N.menziesii*), and black/mountain beech (*N.solandri*). Red beech is more dominant at lower altitude and warmer sites; silver beech is scattered throughout; black beech is more common along the lower stream sides; and, mountain beech dominates at higher altitudes and on drier ridges. Common sub canopy species present include broadleaf (*Griselinia littoralis*), putaputaweta (*Carpodetus serratus*), *Coprosma linariifolia*, lancewood (*Pseudopanax crassifolius*), mountain totara (*Podocarpus hallii*), and occasional pokaka (*Elaeocarpus hookerianus*).

Understorey and forest floor species include: bush lawyer (*Rubus cissoides* and *R.schmidelioides*), *Coprosma rhamnoides*, *Coprosma* aff.*parviflora*, prickly mingimingi (*Cyathodes juniperina*), mingimingi (*L.fasciculatus*), weeping matipo (*Myrsine*

divaricata), *Pseudopanax anomalus*, *Gaultheria antipoda*, *Helichrysum aggregatum*, prickly shield fern (*Polystichum vestitum*), *Blechnum penna-marina*, leather-leaf fern (*Pyrrosia eleagnifolia*), and *Lagenifera* sp.

This forest community is more diverse along streamsides and in damp gullies, and includes the following additional species: kanuka (*Kunzea ericoides*), manuka (*Leptospermum scoparium*), kowhai, wineberry (*Aristotelia serrata*), fuchsia (*Fuchsia excorticata*), mahoe (*Melicytus ramiflorus*), kohuhu (*Pittosporum tenuifolium*), lemonwood (*P.eugenioides*), karamu (*Coprosma robusta*), *C.robusta* x *propinqua*, *C.crassifolia*, stinkwood (*C.foetidissima*), *Hebe "squalida"*, *H.traversii*, koromiko (*H.salicifolia*), three finger (*Pseudopanax "ternatus"*), tree daisy (*Olearia avicenniifolia*), ongaonga (*Urtica ferox*), mountain flax (*Phormium cookianum*), *Astelia fragrans*, climbing rata (*Metrosideros diffusa*), *Parsonsia capsularis*, water fern (*Histiopteris incisa*), tarawera (*Pellaea rotundifolia*), crown fern (*Blechnum discolor*), *B. fluviatile*, kiokio (*B.*aff.*capense*), and hound's tongue fern (*Phymatosorus diversifolius*)

Kanuka forests/shrublands:

Kanuka is the most common woody plant colonising pastureland on the property. It forms extensive shrublands on sites that have escaped recent fires and provides the main habitat for the strongly-regenerating beech forests. Beech forest margins, especially along ridgelines, have tall senescent kanuka in the subcanopy, indicating the re-emergence of beech through earlier kanuka shrublands.

On drier ridges and slopes the even-canopied kanuka shrublands include the following understorey species: manuka, prickly mingimingi, mingimingi, *Gaultheria antipoda*, *Helichrysum aggregatum*, tauhinu (*Cassinia vauvilliersii*), bracken (*Pteridium esculentum*), *Lycopodium scariosum*, frequently with seedlings of broadleaf, lancewood, and beech.

Taller kanuka forest, particularly stream side forest, contains a greater diversity of subcanopy and understorey species, including (in addition to the above species): kohuhu, putaputaweta, karamu, *C.robusta* x *propinqua*, *C.linariifolia*, *C.rhamnoides*, koromiko, *Hebe vernicosa*, tree daisy, weeping matipo, mountain wineberry (*Aristotelia fruticosa*), ti tree (*Cordyline australis*), *Astelia fragrans*, and kiokio. These mature kanuka forests frequently grade into the stream side mixed beech forest described above, as beech replaces kanuka as the main canopy species.

On fertile alluvial sites, kanuka forms dense-canopied stands, with a sparse understorey which includes: *Coprosma linariifolia*, *C.propinqua*, bush lawyer (*Rubus schmidelioides*), *Corokia cotoneaster*, *Pseudopanax anomalus*, and weeping matipo. These forests have a dense and diverse ground cover of herbs, including: *Ranunculus reflexus*, *Nertera depressa*, *Lagenifera pumila*, selfheal (*Prunella vulgaris*), *Chiloglottis cornuta*, *Lycopodium fastigiatum*, and occasionally *Botrichyum biforme*. On damper sites, where the canopy is more open, additional species include: bracken, *Lycopodium scariosum*, kiokio, and pokaka.

Tall kanuka is also the dominant species in a slightly different plant community, present on the terrace faces (risers) on the lower altitude parts of the property. This diverse

community includes large broadleaf, kowhai, putaputaweta, lancewood, and *Coprosma linariifolia*, with, *Coprosma rhamnoides, C.propinqua*, weeping matipo, tree daisy, *Corokia cotoneaster*, prickly mingi mingi, mingimingi, *Gaultheria antipoda*, matagouri, koromiko, *Hebe "squalida"*, tutu (*Coriaria sarmentosa*), bracken, kiokio, crown fern, *Blechnum penna-marina, Lycopodium scariosum*, mountain flax, *Gingidia montana*, and *Celmisia monroi*.

Mixed hardwood forest:

At scattered low-altitude sites on the property, usually near alluvial fans or terrace edges, a kowhai-dominated forest is present. This usually includes some tall kanuka, lancewood, and, on damp sites, fuchsia. These forest remnants are very confined and, at two sites, include remnant matai (*Prumnopitys taxifolia*) trees (Bill Lacey, pers,comm.).

Shrublands:

Most shrublands are dominated by kanuka, as described above. However, on the fertile flats, often near kanuka stands, are scattered plants of *Coprosma propinqua, Corokia cotoneaster*, weeping matipo, matagouri, and *Pseudopanax anomalus*, frequently with *Rubus schmidelioides*, and *Muehlenbeckia complexa*.

At higher altitude sites, and frequently invading depleted grasslands, is a sparse shrubland of: inaka (*Dracophyllum longifolium* and *D.uniflorum*), tauhinu, *Hebe anomala*, and *Coprosma pseudocuneata*, with occasional mid-ribbed snow tussock (*Chionochloa pallens*).

Grasslands:

Modified short tussock grasslands dominate on open sites on the upper slopes. Prominent species include: fescue tussock (*Festuca novae-zelandiae*), sweet vernal (*Anthoxanthum odoratum*), brown top (*Agrostis capillaris*), *Rytidosperma* sp., *Raoulia subsericea*, snowberry (*Gaultheria* "nz"), *Leucopogon fraseri, L.suaveolens, Helichrysum bellidioides*, harebell (*Wahlenbergia albomarginata*), *Ranunculus foliosus, Geranium sessiliflorum, Gaultheria macrostigma, Acaena caesiiglauca*, creeping pohuehue (*Muehlenbeckia axillaris*), *Pimelea oreophila, Gnaphalium audax, Gentiana* aff. *tenuifolia, Anisotome aromatica, Viola cunninghamii, Blechnum penna-marina, Lycopodium fastigiatum, Luzula rufa, Polytrichum juniperinum*, sheep's sorrel (*Rumex acetosella*), clover (*Trifolium* sp.), catsear (*Hypochoeris radicata*), and mouse-ear hawkweed (*Hieracium pilosella*).

On open rocky ground, particularly steeper ridges, the following additional species are present: *Gingidia montana, Scleranthus uniflorus*, cotton daisy (*Celmisia spectabilis*), and occasionally *Coprosma acerosa* ssp.*brunnea*.

At higher altitudes, especially on depleted sites, these grasslands are dominated by: cotton daisy, *Raoulia subsericea, Racomitrium* moss, blue tussock (*Poa colensoi*), *Lycopodium fastigiatum*, and patches of mouse-ear hawkweed. Frequently they are being colonised by kanuka, manuka, tauhinu, or inaka.

At lower altitudes these grasslands grade into a denser sward of introduced pasture grasses, and a correspondingly reduced diversity of native herbs Silver tussock (*Poa cita*) and Yorkshire fog (*Holcus lanatus*) are also present. These grasslands form the dominant cover on the recently-burnt and topdressed lower country On all except very lush pasture, they are being colonised by kanuka, manuka, tauhinu, and other shrubs.

Wetlands:

There is one major wetland on the property, on the lower terraces between Bush Camp Stream and Possum Stream. It extends over approximately 20 hectares, with minor areas of adjoining damp pastureland. The wettest parts of the wetland, where the standing water is at least 300mm deep, are dominated by dense raupo (*Typha orientalis*). Surrounding the raupo, in shallower water, are the rushes *Baumea rubiginosa*, *Juncus gregiflorus*, and jointed rush (*J.articulatus*), and sedges *Carex secta* and *C.geminata*. Other species within the wetland are: *Pratia angulata*, *Potamogeton cheesemanii*, kiokio, *Parsonsia capsularis*, blackberry (*Rubus fruticosus*) and lotus (*Lotus pedunculatus*).

On the wetland margins a scattered shrubland is present, dominated by kanuka, lancewood, kowhai, ti tree, karamu, *Coprosma propinqua*, *C.robusta* x *propinqua*, *C.crassifolia*, and swamp broom (*Carmichaelia arborea* var.).

Riverbeds:

The beds of most of the small rivers that cross the property are active and unstable, as they carry large quantities of gravel from the upper catchments to the lower valleys. A distinctive flora is present on these riverbeds, especially on the more stable gravel terraces. Species present include: tutu, tree tutu (*Coriaria arborea*), *Raoulia tenuicaulis*, *R.glabra*, *R.hookeri*, creeping pohuehue, *Helichrysum bellidioides*, *Blechnum penna-marina*, mouse-ear hawkweed, white clover (*Trifolium repens*), and occasional ragwort (*Senecio jacobaea*). More stable sites are frequently colonised by matagouri, *Coprosma propinqua*, manuka, and kanuka.

Flora:

The property was probably once entirely forested, with the exception of stream beds, wetlands, and the recent alluvial flats. The mixed beech forest present on the property has a greater affinity, due to rainfall, to the forests of Nelson Lakes National Park and North Westland, rather than to the forests of inland Marlborough. The absence of West Coast species, such as kamahi (*Weinmannia racemosa*), and the presence of some typically dry-forest species, such as mountain totara, suggest that the forest is transitional between the two regions. The mixed beech forests on the property are not unique, but they do represent an important eastern extension of the forests of the upper Wairau Valley and Nelson Lakes area and are important for forest bird populations, especially at lower altitudes (see 'Fauna' below).

The presence of kowhai forest remnants, and isolated matai, indicates that a mixed hardwood/podocarp forest may have been more common on the fertile river flats, where tall kanuka and pasture are now dominant. Podocarps are rare in the upper Wairau Valley and, with the associated kowhai forest, would have provided a very important seasonal

food source for forest birds. Kowhai is still common along stream sides and on river flats on the property and is probably still very significant for forest birds in the area.

The kanuka shrublands on the property are generally successional communities which, if protected from fire, will eventually regenerate back to mixed beech forest. The older stands of kanuka, with a high closed canopy, are more isolated, but provide important habitat for the native robin. However, the primary significance of most shrublands on the property is their role as a successional species, allowing the eventual establishment of taller beech forest.

Grasslands on the property have been induced by burning and grazing. They are, in most cases, highly modified. Only the higher altitude grasslands (above about 850 metres) have a significant component of native species, and these are typical of eastern South Island short tussock grasslands.

There is a significant absence of introduced woody weeds on the property. Pine plantings are confined to the homestead area, willow is virtually absent from the river bed, and isolated occurrences of broom and gorse are well controlled. Blackberry and lotus are present in the wetland, and a range of herbaceous weeds are present in the grasslands. Sweet brier (*Rosa rubiginosa*), and Spanish heath (*Erica lusitanica*) are also present, but are nowhere common.

No endangered or vulnerable plant species were observed on the property, though severally locally rare or interesting species are present, notably *Coprosma acerosa* var.*brunnea*, *Botrychium biforme*, *Gentiana* aff.*tenuifolia*, and matai.

2.4 FAUNA

A thorough investigation of fauna was not undertaken as part of the field inspection of the property, as the survey focussed on plant communities. However all animals encountered were observed and noted.

Common bird species observed in forest or shrubland communities were: bellbird, rifleman, fantail, redpoll, blackbird, chaffinch, yellowhammer, grey warbler, silvereye, tomtit, song thrush, and brown creeper. Robin, tui, parakeet, and falcon were also observed in some areas. Kereru are occasionally seen (Bill and Robin Lacey pers.comm.) on the property, and both kaka and kea are present in the area. On open country the following additional species were observed: harrier, welcome swallow, goldfinch, hedgesparrow, skylark, NZ pipit, magpie, paradise duck, spur-winged plover, black shag, and California quail. Fernbird were heard in the vicinity of the wetland. Other species recorded from the area during the Ornithological Society survey between 1969 and 1979, were morepork and kingfisher (Bull et al, 1985).

The common skink (*Leiolopisma nigriplantare polychroma*) was observed during the field inspection of the property, and the common gecko (*Hoplodactylus maculatus*) and rough-scaled gecko (*Heteropholis rudis*) have been recorded from the area by Pickard and Towns (1988). A green lizard (possibly the Nelson green gecko *Heteropholis stellatus*) has been observed in tall manuka forest at the western end of the property (Bill and Robin Lacey,

pers.comm.). It is possible that a fuller survey of the property would reveal the presence of other lizard species.

Feral red deer were observed in Dover Stream, and deer sign was abundant in the forested valleys. Possum sign was seen throughout, and pig sign was observed at the western end of the property near Bull Paddock Flat. Hares and rabbits were seen, but were nowhere abundant. A stoat was sighted near the wetland, and wasps (especially the common wasp) were very common in the beech forest. Cats, ferrets, hedgehogs, rats, and mice are also likely to be present.

2.5 LANDSCAPE

Visually, the property is dominated by the steep flanks of the Raglan Range, especially the open glacially-smoothed faces which rise from the alluvial flats of the Wairau River to the main side ridges of the range. These faces dominate the views gained by travellers from the Wairau Valley highway (State Highway 63), between Marlborough and the West Coast. When forested, these slopes would have appeared similar to the valley sides further up the Wairau, or in the Nelson Lakes area. Now they are prominently patterned by more than a century of burning. While the effects of burning are very obvious, burning has been influenced by the natural contour of the landscape - deeper gullies have remained fully forested and smaller gullies have dense kanuka, sometimes with a core of beech forest - as successive fires have swept up the drier ridges and open faces. Apart from the re-afforestation of these faces through natural succession, the best option for landscape protection is to prevent the further burning of kanuka and beech in the gullies and to only allow burning of the existing open faces at lower altitudes that are absolutely necessary to maintain farm production. Furthermore, a significant feature of the alluvial flats on the southern side of the Wairau River is the almost complete absence of introduded trees and shrubs, such as willow, pines, broom, or gorse. Ideally, tree planting should be prevented and weed control should continue.

The property forms a significant landscape feature in the region and is especially important because of its visibility from a tourist highway. While the recommendations above are far from ideal, they should at least ensure that the scenic values of the property are maintained, rather than degraded.

2.6 HISTORY

The earliest recorded settlement in the region was Te Waikawa o Omaka near the Wairau River Lagoon (Ngatapuwae Trust 1994). The Wairau River was named Nga Wai o Rauone and provided access to the hinterland. Another settlement (Te Ata Po) is recorded in the upper Motueka River, on a route from Tasman Bay to Lake Rotoiti and then on to Canterbury via Tophouse and the upper Wairau River (Ta Ara Whanui A Maui) (ibid). Brailsford (1984) describes the Wairau Valley as a subsidiary pounamu (greenstone) trail, connecting with the Buller River Trail to the West Coast, and the Wairoa - Wairau Trail to Nelson. There are no known pre-European historic sites on the property.

The first recorded European visitor to the upper Wairau Valley was J.S. Cotterell, who crossed the 'Tophouse Pass' in November 1842 and visited Lake Rotoiti in January 1843 (Newport 1974). The first sheep were driven into the Wairau Valley from Nelson in 1846

by Nathaniel Morse and Dr. John Cooper, who squatted on open country that now forms parts of the Raglan and Rainbow properties (Newport 1962). They built their house (named Tophouse) on a terrace within hearing distance of the Wairau River and established the first sheep station in the upper Wairau Valley, with 1000 sheep (ibid). When depasturage licences were first issued in 1849, the Raglan Run covered the southeastern side of the Wairau River from the Branch River to the Wairau Gorge, and the licensee was Charles Christie (Denton 1981). In 1854 the licensee was Dr.Joseph Foord Wilson and the run's eastern boundary was at its present position just east of the homestead. The Raglan Run transferred to George Schroder in 1855 and then to Dr.Thomas Renwick and Samuel Robinson, who added it to their Birch Hill Run, in 1858 (ibid).

While part of Birch Hill, Raglan was mustered by crossing the Wairau at Woolshed Flat (between Tophouse and Rainbow), crossing the Raglan Range into 'Misery Gully', and taking the sheep out to the Branch River down Silverstream (Newport 1962). The original Tophouse was deserted by 1853 and an accommodation house was built on Manuka Island to provide shelter for travellers crossing the treacherous Wairau River. The Birch Hill Run was resumed by the Crown in about 1900 and the component runs (Raglan, Leatham, Branch Point, and Manuka Island) were re-issued as separate units (Newport 1962). The Wash Bridge was constructed across the Wairau River, near the homestead, in 1926. In 1976 approximately 590 hectares of steep upper country were surrendered from the lease as part of a Soil and Water Conservation Plan. The present lessees, Bill and Robin Lacey, took up the Raglan Lease in 1979. No buildings on the property are of sufficient age to warrant further investigation for historic resources protection.

2.7 RECREATION AND ACCESS

The Raglan Pastoral Lease is rarely, if ever, used by trampers. The main focus for trampers in the area is the summit of the Raglan Range beyond the property boundary. A four-wheel-drive road provides access to the range, formerly for soil conservation plantings of introduced species. This is a popular walk (Marlborough Tramping Club, pers.comm.) and provides opportunities for longer trips back to the Branch River. Hunters occasionally seek permission for access across the property (Bill Lacey, pers.comm.) and there is likely to be other informal use of the area by hunters, especially in the forested headwaters of the small rivers on the property. There has been no apparent interest expressed in four-wheel drive, horse, or mountain bike access. Fishermen frequently use the Wairau River adjoining the property.

There are no public huts on the property, and small huts and bivouacs in the Dover Stream and Netting Stream catchments have been recently relocated to other areas in the Conservancy. Marginal strips traverse all the significant streams on the property, from the Wairau River to the public conservation land on the Raglan Range, except for Possum Stream where the strip only extends as far as the forest margin.

3. TENURE REVIEW RECOMMENDATIONS

3.1 RATIONALE AND BACKGROUND

The Department of Conservation's mandate:

The Department's mandate for conservation is defined in the Conservation Act 1987 and in the Acts specified in the First Schedule of this Act, including the Reserves Act 1977 and the National Parks Act 1980. The Conservation Act gives the department the responsibility to (among other things) manage public conservation lands, to advocate for the protection of natural and historic resources, to promote the benefits of conservation, and to foster the use of natural and historic resources for recreation (section 6). The Reserves Act 1977 requires the department to as far as possible ensure "...the survival of all indigenous species of flora and fauna, both rare and commonplace, in their natural communities and habitats, and the preservation of representative samples of all classes of natural ecosystems and landscape which in the aggregate originally gave New Zealand its own recognisable character (section 3(b)). The Reserves Act led to the establishment of the Protected Natural Areas Programme, which aims to set aside representative reserves in each ecological district.

Other important nature conservation directives include the Government's Indigenous Forests Policy, adopted in 1990, which aims to "maintain or enhance, in perpetuity, the current area of indigenous forest, either by protection, sustainable management, or reafforestation of native species". More recently New Zealand has become a signatory to the International Convention on Biological Diversity which requires Government to conserve and sustain biological diversity for present and future generations, particularly by the *in situ* conservation of ecosystems and natural habitats; the rehabilitation and restoration of damaged ecosystems; the recovery of threatened and endangered species; and, catchment protection, including the protection of mountain slopes and riverbanks and the restoration of degraded catchments (Ministry for the Environment 1993).

In summary, legislation and Government policy require the department to advocate protection for, and effective management of, areas with conservation, recreation, landscape, or historic value.

Requirements for nature conservation:

In applying its mandate the department takes heed of contemporary nature conservation theory. The key concepts that are well established in nature conservation theory are representativeness, sustainability, and landscape integrity. These concepts have most recently been defined by the Forest Heritage Fund as follows (Harding 1994):

Representativeness:

The extent to which the area proposed for protection is representative of the full range of community variation that was originally present in the natural landscape, including:

- both commonplace and rare indigenous species, habitats, and communities;
- the ecological processes that link them; and

- the extent to which the ecosystems are already protected in the proportion they were originally present in the ecological district.

Sustainability:

The extent to which the area proposed for protection is likely to continue to be viable and evolve in a natural way in the long term, including the extent to which area is:

- protected by its size and shape;
- buffered from the effects of adjoining land uses or activities;
- linked to or dependent on other protected areas (either physically or by ecological processes) for its continued viability;
- expected to maintain its ecological integrity through major natural disturbance events;
- resilient to the depredations of introduced species;
- able to be managed to protect its ecological values; and
- expected to contribute to sustaining existing protected areas, through additional scale, buffering, linkages or restoration.

Landscape integrity:

The extent to which the area proposed for protection contributes to and maintains the original integrity of the landscape, including the extent to which it:

- protects the original character;
- protects the original context;
- protects the range of processes that link the ecosystems present;
- maintains the natural nutrient cycles, energy flows, and hydrological regimes;
- maintains the functional coherence of the original and remaining natural landscape values;
- protects an uninterrupted ecological sequence; and
- eliminates unprotected enclaves in an otherwise protected landscape.

The recommendations contained in this report propose that the Department's obligations are met by the setting aside of protected areas for management by the Department; the placing of conditions on any revised lease for other areas on the property; and, by further surveying and monitoring of the natural values of the area. These recommendations are based on the information that is presently available. There are likely to be values identified in the future for which the Department may later wish to negotiate protection.

Existing Protection:

The Raglan Pastoral Lease lies entirely within the Bounds Ecological District (within the Inland Marlborough Ecological Region) (McEwan 1987) which encompasses an area of steep partially-glaciated greywacke mountains with beech forest on montane slopes. The Raglan Range and upper Wairau River forests, adjoining the property, are now administered by DoC as conservation lands. The higher altitude areas in the ecological district are well protected, but the valley floor areas, such as the alluvial flats of the Wairau, on the boundary of the district, are less well protected.

Key objectives to meet the nature conservation criteria:

To effectively meet the criteria for nature conservation, and to satisfy the department's statutory obligations, the following key objectives should be met on Raglan:

- buffering of existing intact forest: by defining an appropriate boundary between the modified open country and the existing forests and regenerating shrublands;
- protection of representative ecosystems at all altitudes: by setting aside protected areas on the valley floor and low-altitude slopes as well as at higher altitudes;
- protecting altitudinal sequences: by protecting corridors of vegetation that link the valley floor with the Raglan Range;
- protection of both rare and commonplace plant and animal species and communities: by ensuring that the populations of streamside vegetation, beech forests, kanuka forests and shrublands, mixed hardwood forest remnants, grasslands, and wetland plant communities are adequately protected;
- protection of ecosystem processes: by ensuring that important food sources, such as nectar and fruit bearing plants, and habitats, such as riparian vegetation, toe-slope forests, and wetlands, are adequately protected;
- protection of regenerating plant communities to restore depleted ecosystems: by protecting sufficient areas on the lower altitude parts of the property to allow regeneration of mixed hardwood and beech forest;
- protection of landscape values: by protecting the scenic integrity of the highly visible areas, such as the front slopes and spurs of the Raglan Range, and the margins of the Wairau River, from inappropriate development;
- protection of opportunities for recreation: by providing legal access-ways across the property to other recreation areas.

3.2 SIGNIFICANT CONSERVATION AREAS

To meet the mandate and objectives outlined above, this report recommends the formal protection of areas and resources that are significant for nature conservation, landscape protection, and recreation. These areas are described below.

It should be noted that these areas and resources have been identified with the objective of protecting conservation values. While suggested boundaries have been marked with farm and reserve management in mind, there may be practical considerations which constrain the achievement of these recommendations. Any boundary details should obviously be discussed with the lessee as part of any negotiations for tenure review which arises from this report.

It should also be noted that an area of freehold land, beyond the western end of the pastoral lease, is owned by the Laceys. The conservation values of this area were inspected (with the lessees' consent) during the field survey. Recommendations for protection for this area are discussed as Area 4 below, as it is appropriate that the future of this area be considered in conjunction with the pastoral lease tenure review negotiations if the lessee wishes.

Area 1	Raglan Range (c.550 hectares)

Description:

This area encompasses the upper, north-facing, slopes of the Raglan Range within the property, including most of the intact beech forest communities and areas of kanuka forest and shrubland. It also includes the higher-altitude short tussock grasslands, where they link existing areas of shrubland and forest.

Significant features:

- adjoins and buffers the protected Branch Conservation Area;
- includes most of the remaining areas of intact mixed beech forest, and therefore the most important montane forest bird habitat on the property;
- includes the most diverse short tussock grassland communities on the property including remnant snow tussock grasslands;
- includes the only open rock plant communities on the property, including the local *Coprosma acerosa* aff.*brunnea*;
- includes important habitat for falcon, kea, and harrier;
- includes a good altitudinal sequence of beech forest communities, from the mountain beech-dominated ridge forest to the red beech-dominated valley floor forests, from 1150 metres to 550 metres;
- includes the most visible part of the property, with important landscape values;
- includes the steeper, more erosion-prone land on the property;
- includes sufficient areas of kanuka shrubland to buffer the existing beech forest remnants, and to provide for continued regeneration of beech.

Discussion:

The suggested lower boundary of this area traverses the front faces, descending to include forest or shrubland-filled gullies, and ascending to exclude the open and recently-burnt faces. It separates the existing 'productive' land from land that supports continuous indigenous plant communities. The proposed boundary also perpetuates the existing visual boundaries - between forest/shrubland and grassland - thus protecting the significant (albeit modified) landscape character of the slopes of the Raglan Range when viewed from State Highway 63. Fencing of this boundary should not be necessary for most of its length, as the thick kanuka shrubland provides a fairly effective buffer at present, however strategic fencing for farm management should be discussed with the lessee. It is recommended that this area transfer be protected.

Area 2	Bush Camp Stream corridor (c.20 hectares)

Description:

This area encompasses the streamside beech and kanuka forest along the lower reaches of Bush Camp Stream. Its primary purpose is to provide an effective forest corridor linking the protected montane forests with regenerating shrubland and forest remnants on the

lower alluvial flats. The existing forest within this area has been well protected from stock by existing fences and the steep stream banks.

Significant features:

- includes an excellent example of the diverse mixed forest communities present at lower altitudes along the stream sides on the property;
- links existing montane forests on the Raglan Range with remnant and regenerating forest communities on the lower-altitude alluvial flats;
- links Area 1 with Area 3.

Discussion:

The suggested boundary of this area follows existing fencelines along the terrace edge above Bush Camp Stream, between Area 1 and Area 3. It provides an important ecological corridor through the centre of the property, protecting indigenous communities at an altitude where most surrounding land is very modified. It complements the useful (but narrow) corridors provided by marginal strips along the other streams on the property. The effectiveness of this corridor is dependent to some extent on the protection of Area 1 and Area 3. It is recommended that this area be protected.

Area 3	Wairau River Flats (c.65 hectares)

Description:

This area encompasses the lowland alluvial flats, and the adjoining terrace face, between Bush Camp Stream and Possum Stream in the centre of the property. It includes a significant wetland, areas of kanuka forest and shrubland, hardwood forest remnants, and areas of pasture that link these plant communities. It is traversed by the main farm road that runs through the property and contains some good grazing land.

Significant features:

- includes forest and shrubland communities representative of the lower-altitude plant communities in the Bounds Ecological District;
- represents some of the best remaining lowland alluvial plant communities on the property including wetland, kowhai remnants, kanuka forest and shrubland, and mixed kanuka/hardwood forest;
- is the only location on the property, and one of the few in the upper Wairau Valley, with a permanent wetland of significant size;
- includes important permanent habitat for fernbirds - close to their eastern distributional limit in the South Island;
- includes a prominent and scenic (though recently burnt) terrace face visible from State Highway 63;
- represents one of the best opportunities to protect a lowland area in this part of the Wairau Valley, with considerable potential for regeneration of the original forest communities.

Discussion:

Parts of this area have been seriously modified, but significant parts of the alluvial flats still support remnant or regenerating indigenous plant communities. The terrace face has been recently burnt but, like other steep and stony slopes on the property, will recover quickly if grazing pressure is low. Although the portions of this Area that have high conservation value are somewhat scattered, it is important that they are protected together as one unit, so that they are buffered from surrounding pastoral activities, and so that the plant communities can adequately regenerate. The area should be fenced, though provision could still be made for stock and vehicle access through the area. It is recommended that this area be protected.

Area 4	Bull Paddock Flat freehold (c.80 hectares).

Description:

This area encompasses the significant plant communities present on the freehold block that adjoins the western end of the pastoral lease. It includes tall red beech forest on gentle toe slopes, tall kanuka forest, and an induced frost-flat community. The forested areas contain the best forest bird populations encountered on the field survey with tui, robin, and parakeet common. The tall kanuka forest contains a seepage area with relatively dense pokaka, and a well-drained area with a complete ground cover of indigenous herbs, including *Botrichyum biforme*. The frost flat area has an unusual grassland community of *Gaultheria macrostigma*, *Leucopogon fraseri*, *Gnaphalium audax*, *Geranium sessiliflorum*, browntop, and abundant mouse-ear hawkweed (up to 50% cover). This grassland area provides only limited grazing and is slowly being colonised by kanuka.

Significant features:

- includes the best toe-slope red beech forest on the properties;
- includes the best habitat for threatened forest birds (robin and parakeet);
- includes an interesting mix of plant communities, including beech, wet kanuka, dry kanuka, and open grassland;
- adjoins and buffers existing protected low-altitude valley floor beech forest;

Discussion:

Though this area is part of a freehold property, it is appropriate that protection for its important conservation values is considered as part of the pastoral lease tenure review negotiations, if the lessee wishes. If protected, the area should be fenced along most of its length, depending upon stock management on the adjoining farmland.

3.3 OTHER PROTECTION REQUIREMENTS

Marginal strips:

Areas have previously been set aside as marginal strips along all the significant streams on the property. All of these strips provide useful access from the Wairau River bed to the existing public conservation land beyond the lease, except for in Netting Stream where a small waterfall is sidled, and in Possum Stream, where the strip ceases 400 metres short of the existing protected land. In this case, the existing strip would be adequate if Area 1 did transfer to DoC, otherwise it should be extended. Crown land strips exist on the property boundary along the Wairau River, though in places they no longer follow the present riverbed.

Landscape protection:

The front faces of the Raglan Range within the property are an important landscape feature, and they should be protected from inappropriate activities. Setting aside Area 1 would help ensure that the existing landscape character is retained. Ideally there should be restrictions on tree planting, farm tracking, and cultivation on the other parts of the property, as part of any revised or special lease. There should also be restrictions on the burning of visually sensitive sites, such as the lower terrace faces.

Recreation and public access:

Public access through the property to the public conservation land beyond is available via the existing marginal strips. While demand for access appears to be low at present, provision should be made for legal access routes from the Wairau River up one or more of the main leading spurs to the Raglan Range. The most appropriate routes would be up the eastern boundary fence from the Wash Bridge to Blowhard, and up the spur immediately west of Dover Stream. If Area 3, containing the wetland, is protected, foot access along the existing farm road from the Wash Bridge to this area should be provided. There appears to be insufficient existing or anticipated demand to warrant the provision of horse or mountain bike access along farm roads.

Historic resources:

No historic resources of any significance are known to be present on the property.

4.0 ACKNOWLEDGMENTS

The preparation of this report would not have been possible without the assistance of Shannel Courtney, the conservancy botanist, during the report preparation. The assistance of Andy Dennis (FMC) during the field inspection is also greatly appreciated. The final preparation of this report has also benefited from comments provided by Kevin O'Connor, Shannel Courtney, and Andy Dennis. The information and advice of Bill and Robin Lacey was also of great assistance, and our stay on the property was made very enjoyable by their friendliness and hospitality.

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PHOTOGRAPHS

All photos by Mike Harding

1. Typical mixed beech forest in Dover Stream, within the pastoral lease (Area 1)

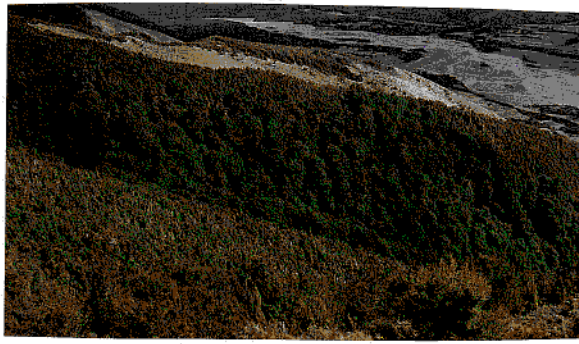
2. Mixed beech forest interior, Dover Stream, within the pastoral lease (Area 1).

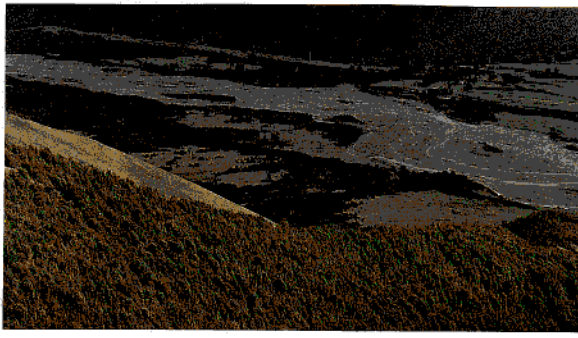
3. Stream-side kanuka - beech forest in lower Dover Stream. Marginal strips, along the main streams, provide good access to public conservation lands beyond the pastoral lease, on the Raglan Range.

4. Areas of mixed beech forest remain in sheltered gullies on the front (north-facing) faces of the Raglan Range, within the pastoral lease. They are typically surrounded by areas of strongly regenerating kanuka, such as this area west of Dover Stream (Area 1).

5. Bull Paddock Flat (freehold land) from the slopes below point 1158 metres, west of Dover Stream. Rich beech toe-slope forests are present at the extreme left (Area 4), with kanuka forest and shrublands scattered across the flats.

6. The front faces of the Raglan Range west of Dover Stream, viewed from State Highway 63 across the Wairau River. All the cleared slopes lie within the pastoral lease. The Raglan Range is visible in the distance.

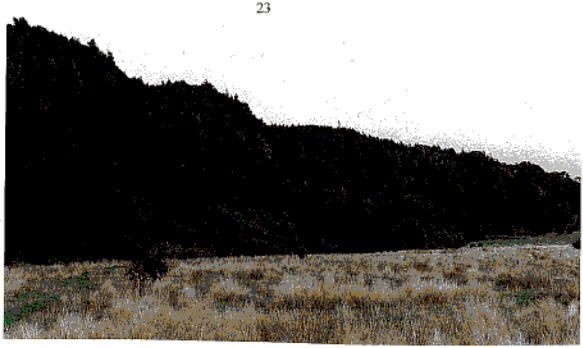


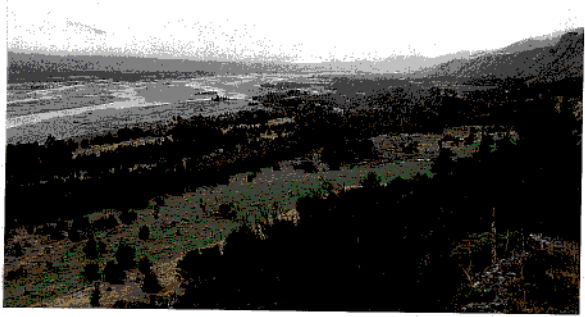


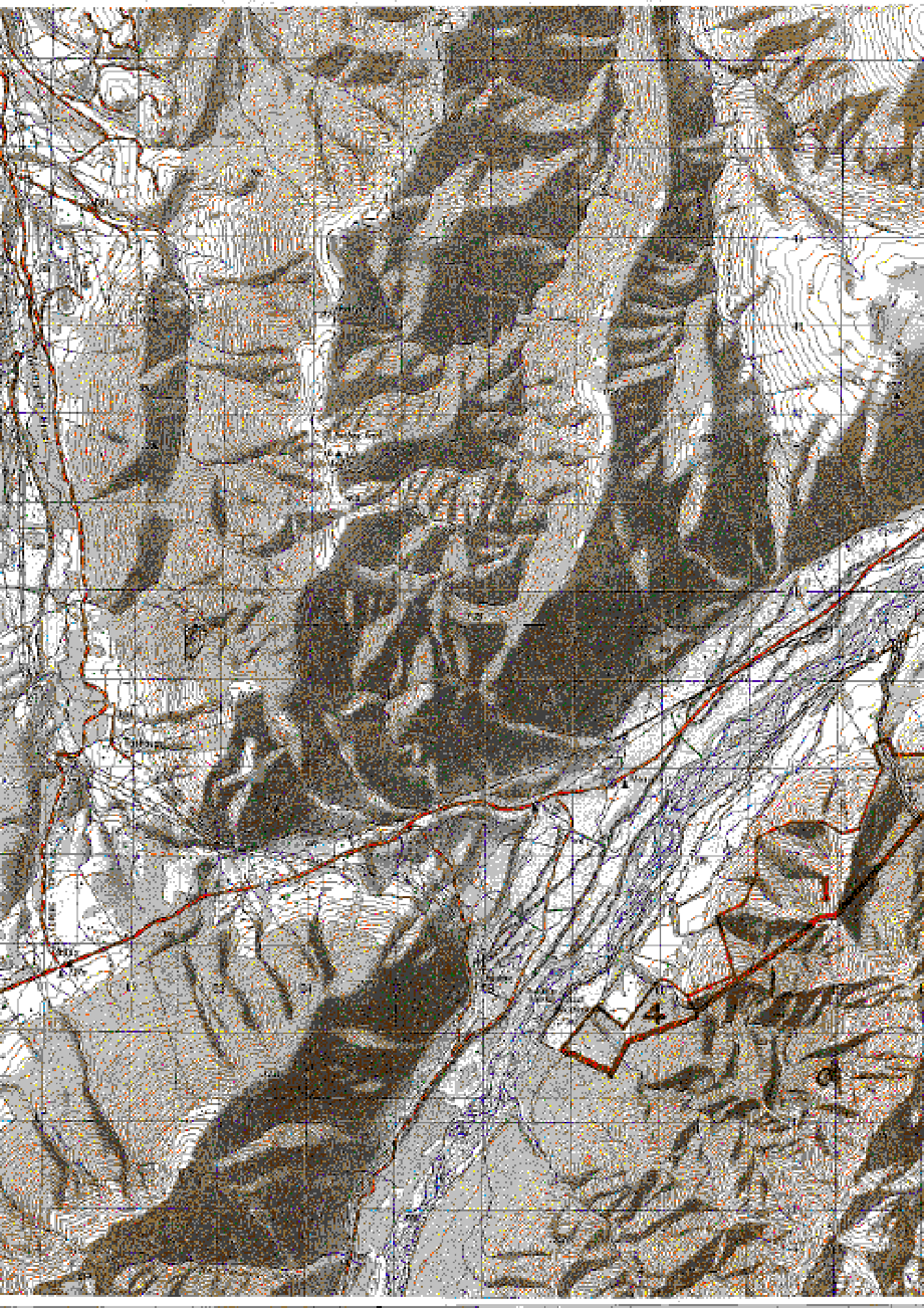
7. Mixed kanuka-hardwood forest on the terrace face at Bull Paddock Flat. The rich pasture in the foreground is typical of the lower silty river flats on the property. The terrace face proposed for protection as part of Area 3 has the potential to support forest such as this if protected from burning.

8. Mixed pastureland, kanuka shrubland, and wetland (distance) east of lower Bush Camp Stream, proposed for protection as Area 3.

9. Part of the raupo wetland proposed for protection as Area 3.








RAGLAN STATION
Significant Conservation Areas
Scale 1 : 50 000

CONSERVATION RESOURCE REPORT TO KNIGHT FRANK LTD ON TENURE REVIEW OF RAGLAN PASTORAL LEASE

Department of Conservation

26th May, 1999

PART 4: RECOMMENDATIONS AND JUSTIFICATIONS "FOR OFFICIAL USE ONLY"

4.1 RECOMMENDATIONS

4.1.1. That the proposals described below be submitted to the CCL's Agent, during the consultation process on the preliminary proposal for this tenure review, as representing the views developed under delegated authority from the Director-General of Conservation.

4.1.2 Note that no statutory consents will be required.

4.1.3 Note that any disposition of land by the Crown will be subject to the relevant provisions of Part IVA Conservation Act.

4.2. PROPOSALS AND JUSTIFICATIONS

4.2.1 Land to be Restored to or Retained in Full Crown Ownership and Control

4.2.1.1 Raglan Range

Existing Status: Pastoral Lease

Authority: Section 35 (2) (a) (i) Crown Pastoral Lands Act

Proposal: That an area of approximately 550 hectares be designated as a conservation area to be managed by the Department of Conservation.

Description: This area encompasses the upper, north-facing slopes of the Raglan Range within the property, including most of the intact beech forest communities and areas of kanuka forest and shrubland. It also includes the higher altitude short tussock grasslands where they link existing areas of shrubland and forest.

Justification

The land is characterised by areas that have the following significant inherent values:

- Includes important landscape values that sustain the special natural quality and integrity of the High Country.
- Includes most of the remaining areas of intact mixed beech forest and, therefore, the most important montane forest bird habitat on the property.
- Includes diverse short tussock grassland; in particular remnant snow tussock grasslands that are uncommon in the ecological district.
- Includes open rock plant communities especially *Coprosma acerosa* aff. *Brunnea*

which are uncommon in the ecological district.
- Includes important habitat for falcon, kea and harrier.
- Includes a good altitudinal sequence of beech forest communities, from the mountain beech-dominated ridge forest to the red beech-dominated valley floor forests.
- Adjoins and buffers the protected Branch Conservation Area.
- Includes sufficient areas of kanuka shrubland to buffer the existing beech forest remnants and to provide for continued regeneration of beech.

Management and Boundary Issues

Management issues to be taken into account if this proposal proceeds include:
1. Fencing- It should not be necessary to fence the proposed boundary as the thick kanuka shrubland provides a fairly effective barrier at present. Strategic fencing for farm management purposes may be needed.
2. Track/access maintenance-No access tracks are proposed.
3. Animal pest control. -There will be a need to extend control work already carried out in the area.
4. Fire control.- Firebreaking may need to be carried out adjacent to the forest areas. The department could be expected to meet half the cost of the breaks.
5. Weed control. Gorse control will be needed on the boundaries.

4.2.1.2. Bush Camp Stream Corridor

Existing Status: Pastoral Lease

Authority: Section 35 (2) (a) (i) Crown Pastoral Lands Act

Proposal: That an area of approximately 20 hectares be designated as a conservation area to be managed by the Department of Conservation.

Description: This area encompasses the streamside beech and kanuka forest along the lower reaches of Bush Camp Stream. Its primary purpose is to provide an effective forest corridor linking the protected montane forests with regenerating shrubland and forest remnants on the lower alluvial flats. The existing forest within this area has been well protected from stock by existing fences and the steep stream banks.

Justification: The land is characterised by areas that have the following significant inherent values:
- Includes an excellent example of diverse mixed forest communities present at lower altitudes along streamsides. Such communities are uncommom in the ecological district.
- Links existing montane forests on the Raglan Range with remnant and regenerating forest communities on the lower-altitude alluvial flats.
- Links previous area described with the next area described

Management and Boundary Issues: Management issues to be taken into account if this proposal proceeds include:
1. Fencing-Some fencing exists already. There may be further fencing fencing required depending on farming requirements.

2. Track/access maintenance-No access tracks are proposed.
3. Animal pest control- There will be a need to extend control work already carried out in the area.
4. Fire control. Firebreaking may need to be carried out adjacent to the freehold areas. The department could be expected to meet half the cost of the breaks.
5. Weed control. Gorse control will be needed on the boundaries.

4.2.1.3 Wairau River Flats

Existing Status: Pastoral Lease

Authority: Section 35 (2) (a) (i) Crown Pastoral Lands Act

Proposal: That an area of approximately 65 hectares be designated as a conservation area and managed by the Department of Conservation.

Description: This area encompasses the lowland alluvial flats and the adjoining terrace face between Bush Camp Stream and Possum Stream in the centre of the property. It includes a significant wetland, areas of kanuka forest and shrubland, hardwood forest remnants and areas of pasture that link these plant communities. It is traversed by the main farm road that runs through the property and contains some good grazing land.

Justification: The land is characterised by areas that have the following significant inherent values:

- Includes a prominent and scenic terrace face visible from State Highway 63.
- Represents one of the best opportunities to protect a lowland area in this part of the Wairau Valley, with considerable potential for regeneration of the original forest communities.
- Includes forest and shrubland communities representative of the lower-altitude plant communities in the Bounds Ecological District
- Represents some of the best remaining lowland alluvial plant communities on the property including wetland, Kowhai remnants, kanuka forest and shrubland, and mixed kanuka/hardwoodforest.
- Is the only location on the property, and one of the few in the upper Wairau Valley, with a permanent wetland of significant size.
- Includes important permanent habitat for fernbirds – close to their eastern distributional limit in the South Island.

Management and Boundary Issues: Management issues to be taken into account if this proposal proceeds include:

1. Fencing-Some fencing exists already. Further fencing would be required to provide complete protection.
2. Track/access maintenance-Allowance would need to be made for the farm access track to be used and maintained by the lessee.
3. Animal pest control- There will be a need to extend control work already carried out in the area.
4. Fire control- Firebreaking may need to be carried out adjacent to the freehold areas. The department could be expected to meet half the cost of the breaks.
5. Weed control. Gorse control will be needed on the boundaries.

4.2.1.4. Bull Paddock Flat

Existing Status: Freehold

Authority: Section 35 (2) (a) (i) Crown Pastoral Lands Act

Proposal: That an area of approximately 80 hectares be designated as a conservation area and managed by the Department of Conservation.

Description: This area encompasses the significant plant communities present on the freehold block that adjoins the western end of the pastoral lease. It includes tall red beech forest on gentle toe slopes, tall kanuka forest and an induced frost-flat community. The forested areas contain the best forest bird populations encountered on the field survey with tui, robin and parakeet common. The tall kanuka forest contains a seepage area with relatively dense pokaka and a well-drained area with a complete ground cover of indigeneous herbs, including *Botrichyum biforme*. The frost flat area has an unusual grassland community of *Gaultheria macrostigma, Leucopogon fraseri, Gnaphalium audax, Geranium sessiliflorum,* browntop and abundant mouse-ear hawkweed (up to 50% cover). This grassland area provides only limited grazing and is slowly being colonised by kanuka.

Justification: The land is characterised by areas that have the following significant inherent values:

- Includes toe-slope red beech forest which is uncommon in the ecological district.
- Includes the best habitat for threatened forest birds (robin and parakeet).
- Includes an interesting mix of plant communities, including beech, wet kanuka, dry kanuka and open grassland.
- Adjoins and buffers existing protected low-altitude valley floor beech forest.

Management and Boundary Issues: Management issues to be taken into account if this proposal proceeds include:

1. Fencing-approximately 2 kms of fencing will be needed to protect this block.
2. Track/access- None required.
3. Animal pest control- There will be a need to extend control work already carried out in the area.
4. Fire control- Firebreaking may need to be carried out adjacent to the freehold areas. The department could be expected to meet half the cost of the breaks.
5. Weed control. Gorse control will be needed on the boundaries

4.2.2. Land to be Restored to or Retained in Crown Control

Not applicable.

4.2.3. Existing Reserve

Not applicable.

4.2.4. Existing Conservation Area

Not applicable.

4.2.5. Land Being Disposed of Subject to a Protective Mechanism

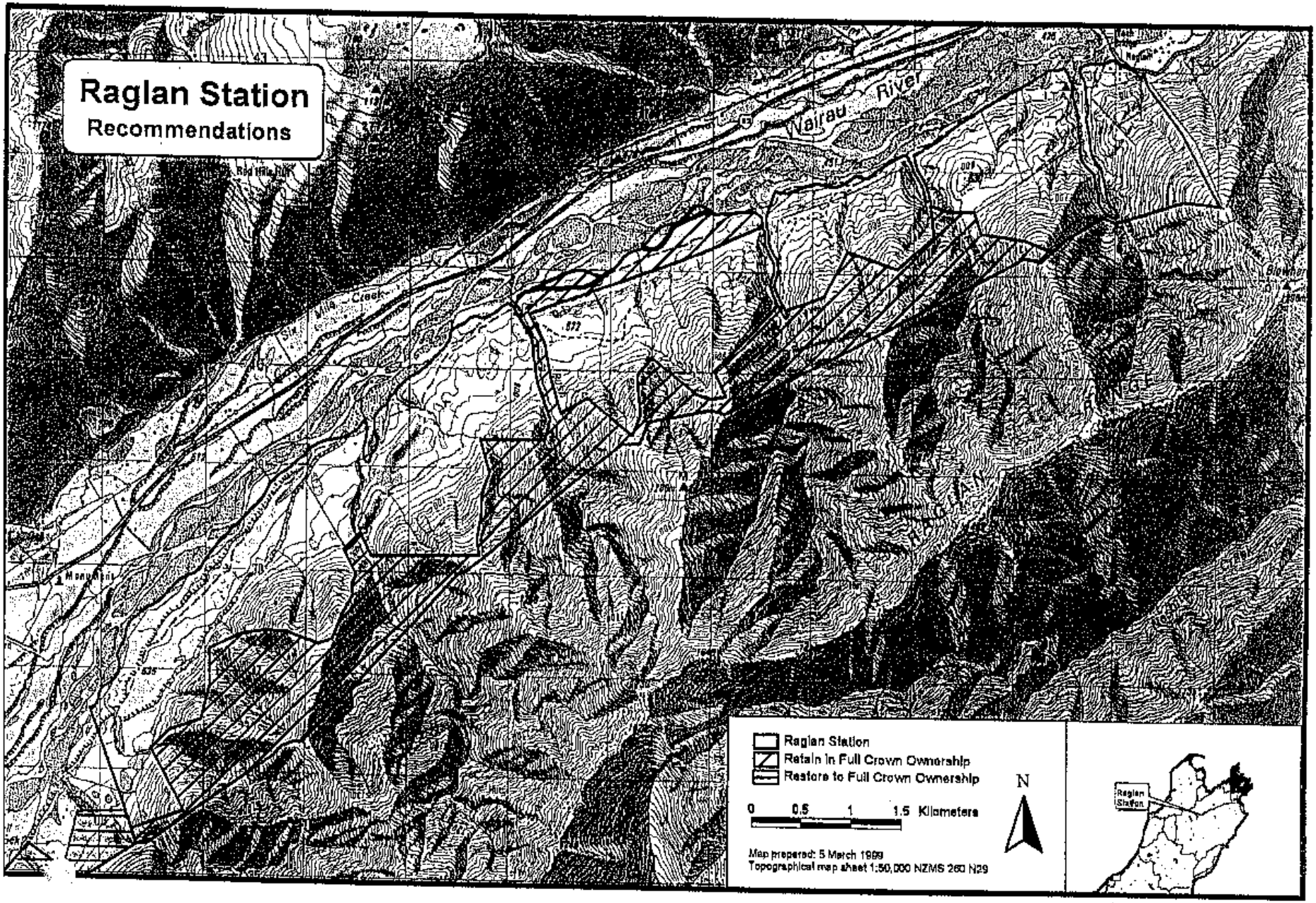
No access easements or covenants are proposed.

4.2.6. Exemption or Variation of a Marginal Strip Width.

None proposed.

4.2.7. Other Matters

Not applicable.


Raglan Station
Recommendations
Waitau River
Mills Creek
Raglan Station
Retain in Full Crown Ownership
Restore to Full Crown Ownership
0 0.5 1 1.5 Kilometers
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Map prepared: 5 March 1999
Topographical map sheet 1:50,000 NZMS 260 N29
Raglan Station