Toitu te whenua
Land Information
New Zealand

# Crown Pastoral Land Tenure Review

## Lease name: MT PEMBER

## Lease number: PC 027

## Fish & Game report

As part of the process of tenure review Fish & Game councils may provide advice on significant inherent values within the pastoral lease, and the information may be incorporated in the conservation resources report. The advice is part of the information gathered and assessed for the development of a preliminary consultation document.

The report attached is released under the Official Information Act 1982.

July 04

# Fish and Game Resources of the Mt Pember Pastoral Lease, North Canterbury

*Prepared by the North Canterbury Fish and Game Council as a Contribution to the Drafting of a Preliminary Proposal for a Tenure Review Project Plan*

**July 1999**

**Preamble**
This report has been prepared under the provisions of the *Crown Pastoral Lands Act* (1998), Part 2, Tenure Review.

## Part 1 – Introduction

### 1.1 Mt Pember
Mt Pember is situated in the Lees Valley portion of the Ashley River catchment. It occupies a combination of grassed (introduced and native species) flats and hill country (forested, cleared or regenerating). The Valley was once dominated by red tussock wetlands, but these have been gradually replaced by exotic pasture. Predominately, rainfall comes from the southerly and westerly directions, with snowfall common over the winter months.

## Part II – Fish and Game Values on the Mt Pember Pastoral Lease

### 2.1 Sports Fish
Mt Pember Station has emerging on it and/or flowing through it a number of important waterways, which together form part of the upper Ashley catchment. These are the Townsend and Whistler rivers, and Five Gully Stream.

These waterways sustain a large portion of the upper Ashley trout fishery which is recognised regionally as an important brown trout (*salmo trutta*) fishery. The value of this fishery has been reflected in the concerns expressed by licence holders which lead to the establishment of catch and release provisions on the upper catchment for trout.

Spawning surveys undertaken on the lease have indicated that the waterways on Mt Pember form an essential part of the available spawning areas for trout in the upper Ashley catchment (see attached survey report). The limited existence of suitable spawning areas strongly suggests that the protection of these habitats from the adverse impacts of land use is important.

The upper Ashley is of marginal significance to chinook salmon (*oncorynchus tshawytscha*), although the occasional fish does find its way into these reaches. None the less, any values as a salmon fishery should be considered a second to the area's significance as a trout fishery.

### 2.2 Game Birds
Lees Valley once contained a number of large wetland areas. These red tussock wetlands have been extensively reduced and altered through land development and drainage. As a consequence the total amount of wetland left in the Valley, and on the Mt Pember lease, is small in comparison to what previously existed.

The wetlands would have sustained large populations of game birds, particularly the species of shoveller, mallard and grey duck. These species now exist in much reduced numbers in the Valley. Not unsurprisingly, the changes in land type in the Valley have benefited paradise shelducks and Canada geese, which favour the feeding conditions created by the development of pastoral lands in the Valley. Both of these species can reach high numbers in the Lees Valley area and may create management problems, in the form of crop and pastoral predation.

One remnant wetland area in particular has been recognised by the Council as having high potential ecological value (see map 1). This values would increase markedly if the main drainage ditches leading from it were dammed and water was permitted to backup into the adjoining swamp area.

### 2.3 Recreational Values

The Council has no significant data record on the recreational use of the sports fish and game resources on the Mt Pember lease. It is considered that the upper Ashley tributaries on the lease do provide anglers with a headwater wilderness trout fishery experience, within close driving distance to Christchurch. As pressure on these forms of fisheries increases, this value is likely to rise further.

Game bird hunting information is absent for the area. However, it is likely that access issues would (perceived or real) inhibit the amount of hunting that occurs on the Mt Pember lease. Never the less, habitat on the lease would be attractive to shelduck and Canada geese (as previously mentioned), in particular. Upland game birds may exist in the hilled portions of the lease, however numbers are not thought to be significant.

## Part III – Recommendations

To promote the ecological management of reviewable land in a way that is ecologically sustainable (as per Sec 24 (a) (i) of the *Crown Pastoral Land Act* (1998)) and to enable the protection of significant inherent values on reviewable land (as per Sec 24 (b) of the *Crown Pastoral Land Act* (1998)), the Council makes the following recommendations.

### 3.1 Sports Fish

Suitable riparian protection should be established along the portions of the Townsend and Whistler rivers, and Five Gully Stream, which occur on the Mt Pember lease. A minimum riparian buff size of twenty metres should be established on both sides of these respective waterways.

These buffers are considered necessary as a means for preventing the adverse impacts of land use, and in particular activities that result in adverse impacts on water quality. If the adjacent land use involves the grazing of animals other than sheep, then the Council would recommend that the landholder be required to fence the portions of these buffers on slopes of $< 45°$.

A field inspection in June 1997 indicated that stock damage had caused silting of the lower portions of Five Gully Stream. This was considered by Council staff to have detracted from the waterways' overall fisheries value. At this time it was noted that the excursion of stock from the bed and riparian margins of the stream would have seen the values of the waterway improve for spawning brown trout.

Public access for fishing and management purposes should be provided along the respective waterways, that is the Whistler and Townsend rivers, and Five Gully Stream. This access should be fair and reasonable, and should also ensure that access ways are provided when the waterways are not accessible from existing legal access routes (see map 1).

### 3.2 Game Birds

The area marked (a) on map 1 should be removed from the lease and fenced so to allow the rehabilitation of its habitat value. An adequate buffer should also be placed between the designated wetland area itself and adjacent land uses, as a means of ensuring the avoidance of adverse impacts from land practices on the wetland.

To facilitate the recovery of the wetland, drainage ditches should be dammed and fenced to allow water to back up and inundate the area.

A public access route to the wetland area should also be provided, for management and recreational purposes. Ideally, this access route should pass across to Crown ownership and, should make provision for the access of hunters and their dogs.

### Concluding Statement

This report summarises the sports fish and game habitat, and recreational values identified as significant on the Mt Pember pastoral lease. It also presents the recommendations of the Council for the protection of these values.

### Attachments:

1. Map 1
2. Map 2
3. Survey Report (from 1987 Annual Report, North Canterbury Acclimatisation Society)

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**Attachment One**

**Map of Recommendations – Mt Pember (south)**

**Attachment Two**

**Map of Recommendations – Mt Pember (north)**

**Attachment Three**

**Spawning Survey Report – North Canterbury Acclimatisation Society Annual Report – 1987.**

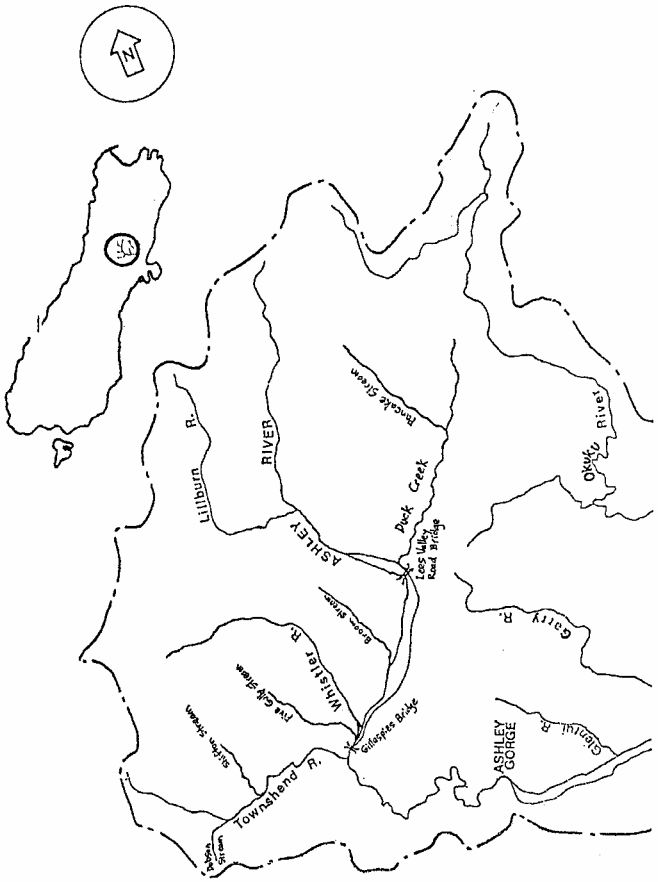


FIGURE 1. UPPER ASHLEY RIVER FISHERIES SURVEY— LOCATION MAP.



iver—Survey 26/5/88 (from Silverstream hatchery to Giles
d; live salmon = 6, carcasses = 0, redds = 15.

Stream (Rangiora)—Survey 3/6/88; live salmon = 3, car-
s = 2, redds = 10.

int — Survey 16/5/88, by Messrs S. Hawke, J. Sykes, L. Gledhill; live salmon = 45, carcasses = 46, redds = 40. From the scales collected 2 year olds represented 0%, 3 years 66.7%, 4 year olds 33.3%, 5 years 0%.

**N.B.:** No coded wire nose tagged salmon (fin clipped) were found in any of the above listed streams.

(g) Hydra waters—Survey 17/5/88; live salmon = 221, carcasses = 166, redds = 172. From the scale samples collected 2 year olds = 4.8%, 3 year olds = 81.0%, 4 years = 14.3%, 5 years = 0%.

(h) Double Hill Flats Stream—Survey 11/5/88; live salmon = 151, carcasses = 139, redds = 172. From scale samples collected, 2 year olds represented 5.5%, 3 years 80.2%, 4 years 14.2%, 5 years 0%.

(i) Silverstream Hatchery Quinnat salmon returns 1988; 201 salmon total of which 117 were males, 84 females (57 fin-clipped fish). From scale samples collected 2 years were 37.6% of run, 3 year old 50.0%, 4 years 17.5%, 5 years 0%.

(j) **Silverstream Hatchery release 1988:**

**Silverstream Origin, Reared at Silverstream**

— Released from Silverstream; 24/2/88; 23,600 total (5000 tagged); 58.5gm average weight.

— Released Winding Creek ex Silverstream; 1-2/3/88; 26,000 total (5000 tagged; 42.6gm average weight.

**Experimental Transfer 60,000 (average weight 8.0gm), ex Glenariffe and Reared at Silverstream Hatchery**

From the above, the following releases were made:—

45,000 — Released into Kaiapoi River ex Silverstream 5/8/88, 51.0gm average weight (5000 tagged).

5,000 — Released in to Cora Lynn River, 24/8/88; 46.0gm average weight (5000 tagged).

5,000 — Released into Winding Creek, 24/8/88; 44.0gm average weight (5000 tagged).

12. **Upper Ashley River Fisheries Survey, 1987 (by F/O B. J. Ross).**

(a) **Introduction**

As per the North Canterbury Acclimatisation Society's Fish Priorities 1987, a fisheries survey of the upper Ashley River was undertaken. The principle objectives of the survey were to identify suitable spawning and habitat areas for trout (Rainbow and Brown) and also Quinnat salmon. The survey was defined as the Ashley River and its tributaries upstream from the top end of the gorge, i.e., in Lees Valley (see Figure 1). The survey was completed in mid-

June 1987. In the text of this report, when either the left or right bank of a river or stream is mentioned, this in fact refers to the true bank (ie., looking downstream).

(b) **Fisheries Survey Results**

Set out below are brief outlines of the areas surveyed:

1. **Ashley River**

Top of gorge (Townshend R. confluence) up stream to Broom Stream. Q.S. — 3; Q.S. Redds — 5; Q.S. Dead — 2; B.T. Redds — 3. The Q.S. mainly appear to utilise the smaller side braids of the river. Here, the shingle is less consolidated than in the main stream which is much more bouldery in appearance. Small spring-fed streams flow into the Ashley River especially from the "right" bank.

2. **Broom Stream**

Q.S. — 0; Q.S. Redds — 5; Q.S. Dead — 1; B.T. — 0; B.T. Redds — 3. Broom Stream has previously been described in an earlier report. All redds were observed in that part of the stream which flows along the base of the terrace on the edge of the river bed.

3. **Ashley River confluence with Broom Stream, upstream to Lees Valley Road bridge.**

Q.S. — 0; Q.S. Redds — 5; Q.S. Dead — 0, B.T. and Redds — 0. The Ashley River is a bit braided in this section. Some Q.S. redds were observed downstream of the ford at Wharfedale Road; 2 more redds were seen at the area of the multi-coloured cliffs near where the small Ribbonwood Stream enters (on the left bank). It was thought that the algae present on the streambed substrate was nowhere near as thick upstream from the cliffs which are comprised of numerous types of material e.g. sandstones, clays, etc.

4. **Ashley River upstream from Lees Valley Road Bridge to the mouth of the gully**

No fish (Q.S. or B.T.) or redds (Q.S. or B.T.) were observed in this section. Area is generally bouldery, with only odd gravel areas present. A few pools and some large boulders were seen near the mouth of the gully. The river is a bit braided for much of this section, until confined by the gully. Very few mayfly nymphs, caddis larvae etc., were found under the stones.

5. **Ashley River from mouth of gully upstream to Lillburn River confluence**

No fish or redds were seen here. The river here is mostly bouldery rapids with some pools also present. The pools had fine gravel particles in them — not much use for spawning purposes. Very little trout food was to be found under the stones, only 1-2 small nymphs.

6. **Lillburn River — upstream from confluence with the Ashley River**

Q.S. — 0; Q.S. Redds — 2; B.T. Redds — 1. Redds were observed nearer the top end of the section surveyed. The river is flood prone —



as evidenced by debris etc. It is bouldery in places, but there were some reasonable areas of gravel present.

7. **Ashley River — upstream from Lillburn River**

No fish or redds were observed in this section, however only a relatively short distance was surveyed (500m approx.) because of time constraints. The river here is very bouldery (large boulders) in appearance, and quite fast flowing. The area was thought to be unsuitable for spawning purposes, but did have some redeeming features as possible habitat for trout e.g., rainbows which may prefer this type of river. The major limiting factor would appear to be the relatively sparse food supply found under the boulders.

8. **Townshend River — downstream from Dobson Stream**

Q.S. — 0; Redds — 13; B.T. — 7; B.T. Redds — 15. Some Redds were seen in the area of, and upstream from the Townshend Hut. Good to excellent quality gravel is present here. Downstream the bed is bouldery in places, but interspread with some excellent gravel area. Pools of 1-2m depth also occur. It would appear that most of the spawning occurs in the top 3/4 of the Townshend River. Discussion with two D.O.C. officers revealed that trout have been seen in the pool opposite the hut — redds observed in this area tend to confirm their sightings. The river is subject to flooding however, and debris etc on the banks indicates very high levels at times. The wooden pole-bridge at Townshend Hut, was in fact washed away recently by a flood. It was a bit difficult to identify positively, if redds attributed to Q.S. were in fact theirs, because no salmon (dead or alive) were seen. However, redd size etc. was indicative of Q.S. Sidestreams e.g. Moody Stream and Storm Stream were of limited or no value to fish, for spawning or habitat purposes (except possibly by native fishes). Only the bottom end of Shifton Stream was surveyed. Some reasonable gravel present, but no redds or fish were seen. The side streams contribute a lot of run-off water during flood times.

9. **Five Gully Stream**

No fish or redds were observed during the survey. The stream joins the Ashley River via the Whistler River, a short distance upstream from Gillespies Bridge, on the right bank. Upstream from the confluence for 2-300m the streambed is fairly bouldery, however, once past this area, some good gravel is to be found. Fish passage is not possible to further areas of good spawning gravels in the top half of the stream, because of a waterfall/log jam. Here the stream flows down through willow roots etc., which would effectively prevent any upstream movement of fish. Floods in the order of half a metre have been down the stream, judging by debris etc., left on the banks. The Lees Valley Road crosses the top end of the stream, a short distance past Mt Pember Station.

10. **Whistler River**

Q.S. — 3; Q.S. Redds — 1; B.T. — 2; B. T. Redds — 5. The Whistler River joined the Ashley River on the right bank approx. 500m upstream from Gillespie Bridge this year. At other times, the main stream of the Whistler River has carried on down the right bank of the Ashley River riverbed, to join the Ashley River at, or near Gillespies Bridge —

this includes water from Five Gully Stream also. To make things even more confusing Oxford County had diverted part of the Ashley River down the right bank as well, to take pressure off a damaged section of Gillespies Bridge while repairs were undertaken. Surveys in the past, revealed both Q.S. and trout, including their redds, the section of Whistler River from the confluence with Five Gully Stream downstream to its confluence with the Ashley River. This year was no exception. The Whistler River was a bit braided across a flood plain, but as one went further upstream it was confined to one stream — towards the area of the bridge at Lees Valley Road. The Whistler River is rather swift and bouldery upstream from the bridge. Because of its flood-prone nature, the area is not really suitable for spawning purposes, however, salmon have been observed at the area of the bridge by locals.

11. **Duck Creek**

Q.S. — 1; Q.S. Redds — 4; Dead Q.S. — 1; B.T. — 1; B.T. Redds — 0. Duck Creek joins the Ashley River approx. 4-500m upstream from the Lees Valley Road bridge, on the left bank. The creek is mostly muddy bottomed from the confluence upstream for 500m or more. This area has been extensively modified in the past, with a series of drainage channels etc., particularly through the "Island Hill" property. Reasonable trout habitat exists past the muddy area, but it is of little value for spawning purposes — with small gravel size and silty/sandy areas predominant. The creek narrows considerably, flowing between grassy banks, but with a muddy creek bed — possibly reasonable trout habitat. Further upstream, there is gravel in the creek which could be utilised for spawning. However, this deteriorates into a series of slow moving silt-filled stretches. Spring-fed/swamp water enters from the left bank — just upstream from "Lees Valley Estates" farmyard. Upstream from this area, some good gravel stretches are found, but it would appear that there is a higher silt content than I would consider ideal for spawning purposes. Nevertheless, this area has been used in the past by Q.S. for spawning purposes (pers.com Mr I. Stokes). Just before the confluence with Pancake Stream which joins on the right bank, the streambed consists mostly of algae covered, consolidated boulders.

12. **Pancake Stream**

Pancake Stream was surveyed for a short distance upstream. No fish or redds were seen. It was found to contain a reasonably good gravel for 200m, but was rather consolidated. Further upstream the stream narrows and the bed becomes very bouldery. Pancake Stream is apparently quite flood prone, judging by the amount of gravel where it joins Duck Creek, and also by debris etc., on the bank, especially in the narrow section — some 2m + higher than the normal flow.

13. **Duck Creek — remainder upstream from Pancake Stream confluence**

No fish or new redds seen. The creek contained some gravel areas, but with silty slow-moving pools (1m or more in depth) present also Discussion with Mr G. Burnett, property owner, revealed that this area used to be well used in some years by spawning Q.S. — depending on the flow of the Ashley River when the salmon were migrating upstream from the sea. Also he mentioned a number of trout and large eels were usually to be found here, but once again, not during recent years. One possible Q.S. redd site was found in the gravel area at the tail of a



pool, however it was thought not to be from this year's spawning — possibly last year's. Algae is present on stones in the creek bed. Duck Creek is of little or no use for spawning purposes — the further upstream one goes it develops into a wetland area eventually.

(c) **Comparison of Flow Data and Catchment Area**

Set out below are the average annual flows, and the catchment areas of some of the rivers and streams surveyed as part of the upper Ashley River Fisheries Survey (all figures taken from N.C.C.B. data):—

| | Average annual Flow in Cumecs | Catchment Area in km² |
|---|---|---|
| Ashley River at Gillespies Bridge | 11.0 | 346 |
| Ashley River at Lees Valley Recorder | 4.69 | 12.5 |
| Townshend River at Ashley River Confluence | 2.17 | 76.7 |
| Townshend River at top hut | 0.69 | 22.6 |
| Shifton Stream at Townshend confluence | 1.01 | 25.1 |
| Whistler River at Ashley River confluence | 2.96 | 67.58 |
| Duck Creek at Ashley River confluence | 1.24 | 69.6 |
| Lillburn River at Ashburn River confluence | 1.87 | 51.3 |

(d) **Acknowledgements**

Thanks must be extended to the following: Messrs Rod Morris — "Mt. Pember"; Nigel Duckworth — "Wharfedale"; Robert Ensor — "Kingsdown"; Ian Stokes — "Lees Valley Estates"; Graeme Burnett — Duck Creek; and N.C.A.S. Councillor Mr A. J. Ross for invaluable assistance with the field work.

(e) **References**

Bowden, M. J. 1982 — **The Water Resources of the Ashley Catchment**—a report to the N.C.C.B. and R.W.B. — 176 pages.

Bonnett, M. L., Davis, S. F., Unwin, M. J. 1982 — **Submission on the Value of the Ashley Fishery Resources** — Fisheries Environmental Report No. 25 M.A.F. — 36 pages.

13. **South Branch of Waimakariri River, Stream Survey September 1987 (by F/O R. T. Novis)**

**Section 1** — from mouth of South Branch to bridge at Dickeys Road (about 2.5kms).

The last kilometre of the South Branch is similar to a mud bed drain. This would be the results of the many years pollution that entered the stream from the local freezing works. The water at this point was clear, the stream had very little growth of weed and looked a long way from being good waters for trout etc. I would not know how to improve this; possibly now the freezing works have stopped discharging into the stream, this part of the bed will consolidate and grow weed over it — it may just gradually flush out into the Waimakariri.

At the first major bend in the stream's course (this would be about 1 km upstream from the Waimakariri River), there is an old swampy bed entering the South Branch on the true left. This area is good for waterfowl and about 50 wild ducks were seen here. From here upstream, the stream looks more like a trout stream — the edges of the stream have shingle out from them for about