

TARGET TAUPO

A Newsletter for Hunters and Anglers
in the Tongariro/Taupo Conservancy

MARCH 1997, ISSUE 24



Department of Conservation
Te Papa Atawhai

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MARCH 1997, ISSUE 24

Published by
Department of Conservation
Tongariro/Taupo Conservancy
Private Bag, Turangi, New Zealand

ISSN 0114-5185

Telephone (07) 386 8607
Facsimile (07) 386 7086

Production and advertising by Fish & Game New Zealand
Telephone (09) 579 3000
Facsimile (09) 579 3993

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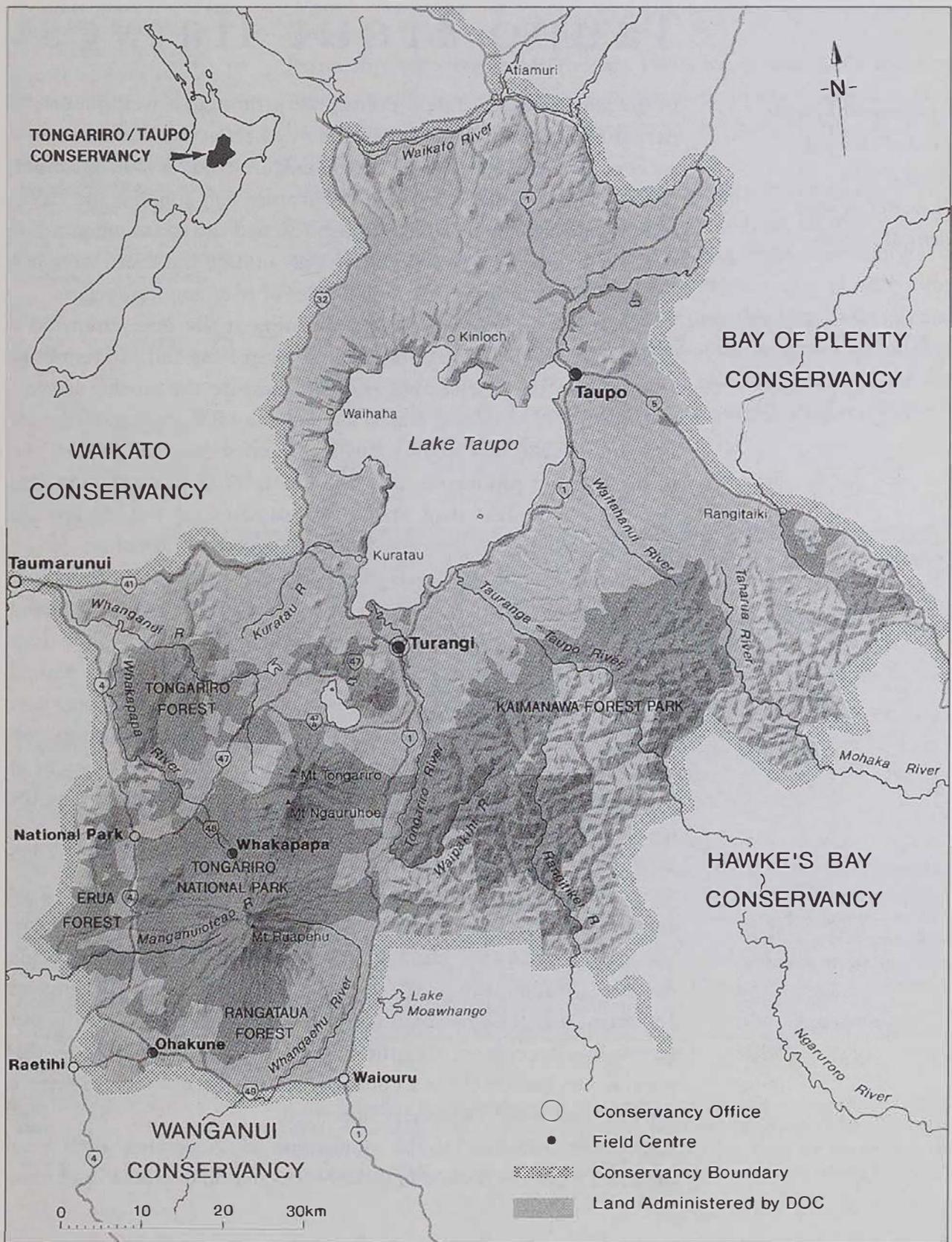
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Cover photo:
A lone angler at the
Hinemaiaia River
mouth.
Photograph by Len Birch

Tongariro/Taupo Conservancy



Reducing the Lake Taupo Trout Harvest

by Glenn Maclean,
Michel Dedual,
John Gibbs,
Rob McLay and
Iain Maxwell.

In the late 1980s the Taupo Fishery went through a well publicised period of decline. While this decline was reflected in the reduced success of lake anglers fishing for immature trout, it was felt much more by river anglers targeting the mature fish running the rivers each winter to spawn. Sufficient fish reached the spawning grounds to ensure the spawning redds were fully utilised but there were not enough fish to support the desired level of river angling success.

An intensive study of the trout population at the time estimated a total production in the lake of 540 tonnes in 1988 and 340 tonnes in 1989 (Cryer 1991). A second study to measure the angling harvest over the 1990/91 fishing season estimated a total angling harvest of 175 tonnes (113,000 trout). This represented 30% and 50% of the total estimated production in 1988 and 1989 respectively and was significantly higher than the best estimates of the theoretical 'maximum constant catch'; that is, the catch estimated to be sustainable at all future levels of production. Estimates of this catch derived using a simple model developed for a range of New Zealand fisheries ranged from 81 to 113 tonnes or 57,700 to 80,900 trout (Cryer 1991). The results confirmed that during periods of low natural production angling harvest could severely impact on the fishery, so that few fish survived long enough to reach large size or maturity and so run the rivers to spawn. Put simply too many fish were caught in the lake so that there were not enough fish remaining to support good river angling the following winter.

Too many fish were caught in the lake so that there were not enough fish remaining to support good river angling the following winter.

In an effort to reduce angling harvest fishery managers reduced the daily bag limit from eight trout to three in December 1990. This change, along with an increase in the practice of catch and release and an upturn in the natural production, saw the fishery quickly recover through the early 1990s. A consequence of anglers embracing catch and release was the general, though certainly not unanimous, acceptance that the opportunity to kill three Taupo fish per day was sufficient. As a consequence we did not seek to restore the bag limit when the fishery improved.

Acoustic monitoring of the population in November each year indicates numbers peaked in the 1994/95 season (Graph 1) and have

A cyclic pattern with a period of several years between each peak and trough is typical of wild fish populations and we expect trout numbers to decline further before the next upturn occurs.

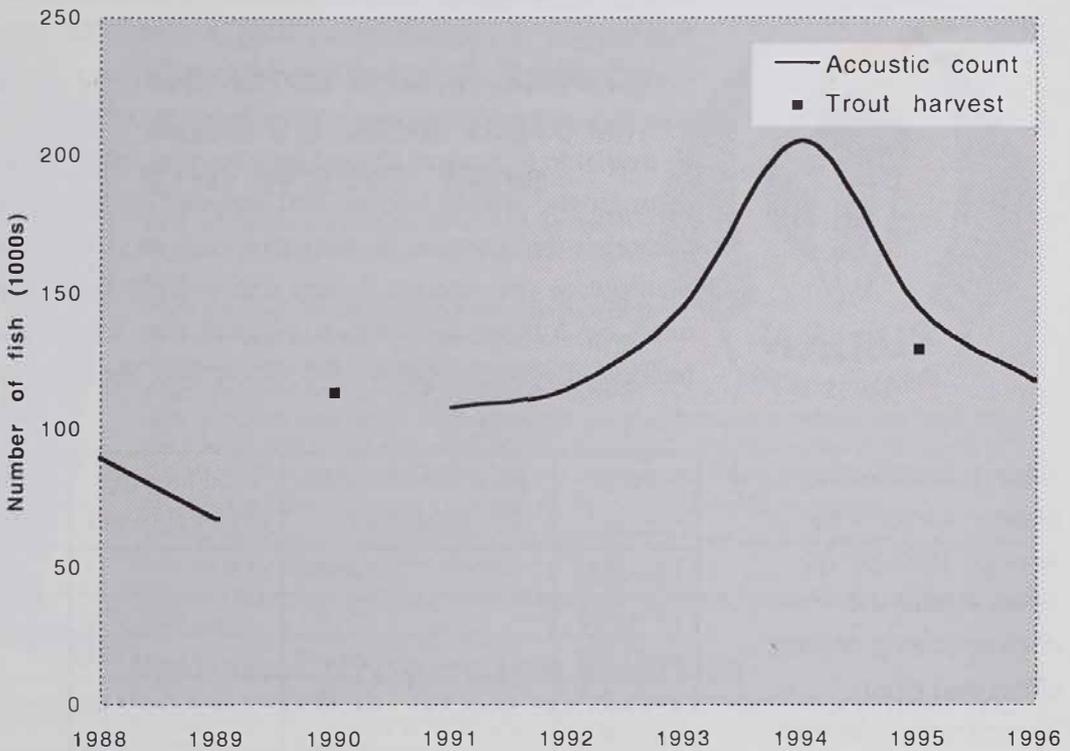
We expect that if the next trough is sufficiently low and coincides with another period of high harvest we may have to further restrict the harvest to protect the fishery through this period.

since declined. Such a cyclic pattern with a period of several years between each peak and trough is typical of wild fish populations (Davies and Sloane 1988) and we expect trout numbers to decline further before the next upturn occurs.

Based on what we learnt in the late 1980s we expect that if the next trough is sufficiently low and coincides with another period of high harvest we may have to further restrict the harvest to protect the fishery through this period.

Over the 1995/96 fishing season we repeated the harvest survey. This survey estimated a total harvest of 217 tonnes, an increase of 24% over that for the 1990/91 season. Total angling effort was slightly less than five years earlier but the reduction was not of the same magnitude as the decline in licence sales over this time (Table 1) and the increased harvest was a consequence of the larger average size of the fish caught (in 1995/96 lake caught fish averaged 1.52 kg and river caught fish 1.95kg compared to 1.40kg and 1.75kg respectively in 1990/91) and higher catch rates.

*Graph 1:
November
acoustic
counts of
the Lake
Taupo trout
population
1988 - 1996
and season
trout
harvest
1990/91
and
1995/96*



* The number of fish measured each November is not the total number of fish available through the whole year. The trout population is like a sink full of water with the plug out and the tap on. The level remains relatively constant but there are always new fish reaching legal size and other fish dying or moving into the spawning tributaries.

As the trout population declines catch rates are expected to fall. However the excellent condition of the fish this summer suggests that average size will not be affected unless the harvest is such that few fish reach maturity. Licence sales this season indicate angler numbers are similar to those measured in 1995/96 though monitoring of angler numbers over Christmas indicated an increase of 30% over numbers measured during the harvest survey. How angler numbers, and more importantly, total angling effort may vary over the next few years is difficult to predict. A recent study (Ambrose and Meaclem) found licence sales were most strongly influenced by licence price and by the state of the economy. On the basis of current economic forecasts we would not expect a major downturn in licence sales in the next 12 to 18 months. It is therefore likely that angling effort will continue around present levels and the harvest, while reduced as a consequence of lower catch rates, will also remain at high levels: somewhere in the vicinity of the 175 tonnes measured in 1990/91. While we expect an approaching trough in the numbers of trout it is difficult to know just how large it will be. All sorts of factors, some readily apparent but others much more subtle, influence the survival and growth of juvenile trout. Huge mortality occurs before the year class reaches legal size and only when the year class finally enters the lake fishery in spring do numbers begin to reflect how many fish will be available to anglers. The angling harvest begins almost immediately through the spring harling and summer trolling. The problem this creates is that there is no time in which to change the regulations to manipulate the harvest (given the current legal procedures which must be followed) between determining the population size and harvest of these immature fish occurring. We therefore must try and

It is likely that angling effort will continue around present levels and the harvest, while reduced as a consequence of lower catch rates, will also remain at high levels.

Table 1: Total fishing licence sales for the seasons 1989/90 to 1996/97 and the corresponding angling effort and trout harvest where known.

Fishing Season	Total licence sales (all categories)	Total angling effort (hours)	Total trout harvest (number of fish)
1989/90	78994		
1990/91	75767	665,000	113,000
1991/92	69038		
1992/93	66788		
1993/94	68142		
1994/95	70705		
1995/96	66844	643,000	129,600
1996/97	67000 (estimated)		

predict the likely extent of the trough.

This time mother nature has made it evident that the trough will likely be a deep one. A very large flood in September 1995 when many of the spawning redds had just been dug and worse still, a second equally large flood the following December coinciding with the emergence of the fry, are likely to have severely affected juvenile production in all the rivers. Perhaps in many decades these unseasonable events would be the principal cause of the trough but this time the impacts have been compounded by the eruption of Mount Ruapehu in the spring of 1995. The eruption did not directly kill many fish but the huge ash inputs into the Tongariro River over subsequent months had a very detrimental effect on spawning and the survival of fry in this river. Inspection of the Tongariro River over the summer of 1995/96 revealed very few fry, of concern given that the Tongariro is the single most important spawning tributary sustaining the Taupo fishery.

As a consequence of these events we believe a very weak year class will enter the lake fishery in spring 1997. At the predicted levels of



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A very weak year class will enter the lake fishery in spring 1997. At the predicted levels of harvest it is likely that the fishery would be susceptible to over-harvest in 1998.

harvest it is likely that the fishery would be susceptible to over-harvest in 1998 similar to what occurred in the late 1980s. This would be most evident by very low numbers of fish surviving to maturity and as a result very poor winter river angling as these few fish make their spawning migration. We do not expect the worst case scenario: that numbers could be so low as not to fully utilise the available spawning redds, which in turn could affect the long term sustainability of the fishery. It is our intention therefore to further restrict the harvest to ensure over-harvest does not occur. A number of options are available, the pros and cons of each of these are discussed below.

Over-harvest is most likely to occur in the lake fishery although the impacts are much wider reaching.

Over-harvest is most likely to occur in the lake fishery although the impacts are much wider reaching. It is very difficult for river anglers to over-harvest the spawning run simply because the fish are only susceptible for a short period of time between when they enter the river and pass into the sanctuary above the winter fishing limit. In the lake however, each fish is subjected to an average of 18 months of continuous angling pressure (providing they remain less than 35 meters deep and so are available to anglers), including two summers of intense fishing activity. While the odds of an individual fish being caught and killed on any one day are very low, the likelihood they will be caught at some time over a period of 18 months is much higher. The smaller the population the greater the odds that an individual fish will not survive the whole period to reach maturity. This raises the issue in years of low fish numbers of how should we

The effects of over-harvest are reflected most in the reduced success of the winter river anglers.



In years of low fish numbers how should we divide the fish resource up between the different users of the fishery. The Taupo Sports Fish Management Plan provides very clear guidance on this.

We are looking to restrict the lake harvest to a level which will allow acceptable river angling, while still allowing lake anglers a reasonable opportunity to keep a Taupo trout.

¹ Currently a trial is underway to assess whether downriggers should be permitted in the Taupo Fishery. Downriggers are limited to the same depth which can be fished using wirelines and so only provide an alternative way of catching the same fish. In the 1995/96 season they accounted for 6.7% of the total lake harvest. While opponents may claim the high harvest is as a consequence of trialing downriggers the harvest would have been very similar had anglers using the downriggers continued using wirelines instead.

divide the fish resource up between the different users of the fishery. The Taupo Sports Fish Management Plan provides very clear guidance on this.

A key goal in the management of the fishery is:

'To cater for as wide a range of recreational angling opportunity as possible within the confines of fishery sustainability and maintenance of recreational values'.

Furthermore a key objective is:

'Where control is necessary and more than one suitable option exists, implement an option having regard to the desire of anglers and the needs of the wider community'

Put simply we seek a balance which allows anglers the opportunity to fish in whatever currently accepted way they choose at Taupo. Our view is that the summer lake fishery and winter river fishery are equally important (53% of angling effort occurs on the lake, 47% on the surrounding rivers) and that it is just as acceptable to catch fish using a wireline on the lake as with a wetfly on the river. Angling is a personal thing and an angler should be able to pursue the sport in whatever way gives them pleasure, so long as the sustainability of the fishery and enjoyment of other anglers is not affected. Not all anglers will agree with this approach, often feeling their chosen method is more desirable than those they do not practice and so should be favoured. However that is the approach we are taking.

Therefore we are looking to restrict the lake harvest to a level which will allow acceptable river angling in subsequent winters while still allowing lake anglers a reasonable opportunity to keep a Taupo trout. Any restriction should not be at the expense of one method over another but shared equally among lake anglers.

Possible options to restrict harvest fall within two categories. Some seek to limit the ability to catch fish by limiting opportunity (e.g. closed seasons, prohibited methods, start and finish times) and others limit the number of fish anglers can remove in any given period of time. As our concern is with the number of fish killed and bearing in mind our underlying objective to maximise angling opportunity, only options which fall within the second category have been considered¹. Inherent in this approach is that anglers are able to catch and release trout and that these fish will survive and not also be lost to the fishery. Catch and release is also integral to other regulations, for example minimum size limits which require anglers to release undersize fish. On the basis of studies we have carried out (Dedual 1996) we are

confident that catch and release of larger fish if practised carefully is not detrimental to the Taupo fishery. The highest rates of mortality were associated with deep trolling and even then four out of every five fish survived with even higher rates of survival amongst fish caught by other techniques.

Options which fall within the second category revolve around limiting the fish an angler can legally keep, either the number (daily or seasonal limits) and/or the size (size restrictions). Within each option there is a range of ways it can be structured from a simple regulation applying across the whole fishery to all sorts of complex variations (e.g. differing by method or season). So long as the desired result is achieved we much prefer the regulation is kept simple so that it is easy to understand and comply with.

Possible options include:

Changing the daily bag limit - At present anglers can keep three legal sized trout per day. An assessment of the number of fish which would have been saved under a lower bag limit over the 1995/96 season is presented in Table 2. The data used is that obtained from 4325 interviews with anglers at the completion of their fishing trips on Lake Taupo, as part of the season long harvest survey.

Table 2: Percent of current harvest from Lake Taupo saved under a smaller bag limit

Size of the bag (number of fish)	Number of bags kept of this size	Number of fish kept	% of current harvest saved if bag limited to this size
0	2400	0	100
1	1230	1230	32.1
2	468	936	7.8
3	219	657	0
More than 3	8*		
TOTAL	4325	2823	

* Eight people exceeded the current daily bag limit. These fish are not included in any calculations.

Under the current three fish per day daily bag limit anglers were required to release 16.3% of their total catch of legal sized trout from Lake Taupo over the 1995/96 season so as not to exceed the limit. In fact anglers released 20% of their legal sized catch (one fish in five) indicating a voluntary release of a further 3.7% of fish (3,700 trout). Tables 2 and 3 indicate that by reducing the bag limit to two fish per

Options revolve around limiting the fish an angler can legally keep, either the number and/or the size.

Reducing the bag limit to two fish per day would have saved an additional 7.8% of the harvest and a reduction to one fish per day would have saved a third of all fish killed.

² Anglers are deemed to be restricted if under the bag limit they must either release the fish or stop fishing.

day would have saved an additional 7.8% of the harvest (6,200 fish) and restricted 16.1% of lake anglers (only 5.3% of anglers are affected by the existing bag limit)². A reduction to one fish per day would have saved a third of all fish killed and affected 44.5% of anglers. It is also evident from Table 3 that anglers tend to keep the first fish they catch each day but as their bag increases they release more and more of their catch.

Table 3: Anglers grouped according to the number of fish they caught and the percentage of anglers falling within each group (from angler interviews collected as part of the harvest survey) In addition the percentage of anglers in each group who kept all the fish they caught is listed.

Number of fish caught	Number of anglers with a catch of this size	% of anglers with a catch of this size	% of anglers who kept all fish caught
0	2262	55.5	
1	1177	28.4	87.6
2	514	10.8	80.8
3	256	5.1	73.5
More than 3	116	0.2	
TOTAL	4325	100	

Another option is to restrict the harvest of guided anglers given they have a disproportionate impact on the fishery. Guided anglers expend 9.3% of the total angling effort but are responsible for 13.7% of the total harvest. However the percentage of guided anglers who kill their limit is no different to that of non-guided anglers (Table 4) and the main difference is the much greater percentage of anglers who catch at least one fish.

Changing the minimum legal length - Currently anglers must release any fish smaller than 35 centimetres in length. In Lake Taupo most immature fish reach this length in spring which is why anglers harling

Table 4: Comparison of the harvest by guided and non-guided anglers interviewed over the 1995/96 season

Number of fish killed	Non-guided anglers		Guided anglers	
	Number of anglers	% of anglers	Number of anglers	% of anglers
0	2126	57.8	265	42.4
1	977	26.5	250	39.8
2	388	10.5	79	12.6
3	190	5.2	34	5.4
TOTAL	3681		628	

Any increase in the minimum length will delay exploitation of the year class during this period of intense harvest and so reduce the number of fish kept.

often catch a lot of small fish. These fish grow at approximately 1mm per day (Cryer 1991) so that by autumn they are 450 to 500mm long. Over the 1995/96 season 79,700 trout were estimated to have been harvested from Lake Taupo (Pitkethley 1997) of which 39,050 (49%) were caught during the spring and Christmas periods (including January). A further 20,300 trout (25.5%) were harvested in the late summer and autumn. In all 74.5 % of the lake harvest occurred through these periods. Any increase in the minimum length will delay exploitation of the year class during this period of intense harvest and so reduce the number of fish kept.

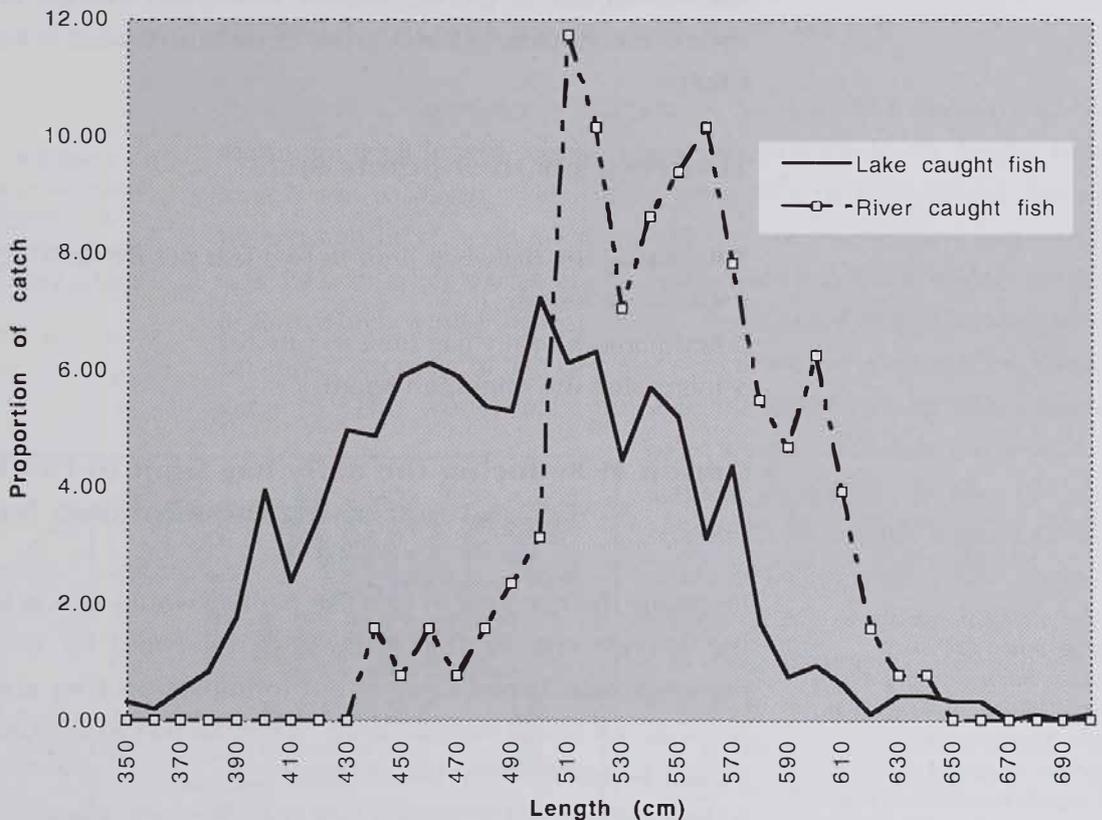
In recent seasons we have measured the length of all fish kept by anglers who have been stopped on the lake as part of routine creel and licence checks. This information is summarised in Table 5.

Included in Table 5 is the proportion of spawning fish passing through the Whitikau trap in 1995 (8795 fish were measured) which are less than the length listed in the left hand column. These are the same fish anglers are catching in the Tongariro river and this table gives an indication of how a larger minimum size would affect the

Table 5: Proportion of trout in lake creel surveys and the 1995 Whitikau trap run which are smaller than the listed length. Also included on the bottom line is the proportion of fish greater than 50 cm in length.

Length of fish (cm)	Percentage of Lake Taupo fish less than length			Whitikau	No. of fish affected in 1995/96 lake harvest
	1995/96	1996/97	Combined	1995	
35	0	0	0	0	0
36	0.4	0.4	0.4	0.2	320
37	0.4	0.8	0.6	0.4	480
38	1.1	1.3	1.2	0.5	955
39	1.6	2.4	2.0	0.7	1595
40	3.8	3.8	3.8	0.9	3030
41	7.3	8.1	7.7	1.3	6140
42	9.9	10.1	10	1.8	7970
43	13.9	13.1	13.5	2.4	10760
44	18.8	18.2	18.5	3	14745
45	24.1	24.4	24.2	3.6	19290
46	30.9	29.2	30.1	4.6	23990
47	36.4	35.8	36.1	6	28775
48	41.3	42.3	41.8	7.9	32920
49	48.1	46.6	47.3	10.3	37700
50	52.1	52.8	52.4	14.3	41765
>50	47.9	47.2	47.6	85.7	57375

winter river angler. It is apparent a larger minimum size could significantly reduce the lake harvest without impacting on the river angler. For example, a minimum size of 45 centimetres would have protected 25% of the lake harvest (one fish in four) but would only affect 3.5% of fish running the river (one fish in twenty eight).



Graph 2 shows the length distribution of angler caught fish from Lake Taupo and the Taupo rivers over the last two seasons. This graph clearly shows both the much wider size range of fish caught from the lake and larger average size of fish caught by river anglers.

Recommendation

In light of all of the information our objective is to restrict the lake harvest so more fish are available to river anglers. To make a difference to the fishery the reduction in harvest needs to be significant. To define significant we have taken a best case scenario of a harvest of 100,000 trout (the harvest in 1990/91 adjusted by the subsequent drop in licence sales) and a worse case of 130,000 trout (the number harvested in 1995/96). Using the figures calculated for the maximum constant catch (57,700 to 80,900 trout), in the best scenario the harvest would be 123.6% of the maximum constant catch and in the worst case 225%. In the major decline in the late 1980s during which an eight fish daily bag limit applied, there was no

identified threat to the sustainability of the fishery, just angling satisfaction. Given that, we suggest a reduction in the lake harvest in the order of 20 to 30%.

At current levels of guided activity it is not possible to influence the harvest in a significant way unless the majority of guided anglers were prevented from killing a single fish. This is difficult to justify given the present impact of guided anglers. This could change in the future should the guiding industry grow to dominate what is a recreational fishery.

This restricts the options to:

- 1 Reducing the daily bag limit to two fish per day and increasing the minimum length
- 2 Reducing the daily bag limit to one fish
- 3 Increasing the minimum length

Option 1: Reducing the daily bag limit to two fish per day and increasing the minimum length

Reducing the bag limit to two fish per day would save at least 7.8% of the harvest and further fish could be spared by using a larger minimum size. However so as not to impact on river anglers where over-harvest is not such an issue any reduction in the daily bag limit should be restricted to Lake Taupo.

A disadvantage of this option is that angling opportunity is also likely to be constrained. Under a two fish limit anglers having caught a second fish, perhaps early in their trip, must decide whether to curtail their trip or release the fish and take the chance of catching another fish later on. Only 5.3% of anglers caught a third fish in the 1995/96 season so if anglers wish to continue the likelihood is they will only take one fish home. While this would result in fewer fish harvested it might equally result in anglers keeping their second fish and choosing to end their trip which reduces fishing opportunity.

Option 2: Reducing the daily bag limit to one fish

This would save at least 32.1% of the harvest and almost certainly would save much more. Forty five percent of anglers would face the

Under a two fish limit anglers having caught a second fish, perhaps early in their trip, must decide whether to curtail their trip or release the fish and take the chance of catching another fish later on.

If the bag limit was reduced to one fish per day, forty five percent of anglers would face the decision of releasing their first fish or to stop fishing having caught only one fish.

decision of releasing their first fish or to stop fishing having caught only one fish. Only 36.2% of these anglers (one angler in three) will catch another fish. If all these anglers chose to fish on nearly 84% of all lake anglers would not get to take a fish home. Or they can stop fishing, perhaps only five minutes into their trip. Either way this change seems unnecessarily restrictive.

Option 3: Increasing the minimum length

Increasing the minimum length of 45cm would make a noticeable difference to lake anglers bags; after all if it didn't, it wouldn't achieve anything.

To achieve a significant reduction in harvest by manipulating the minimum legal length would require an increase in the length by at least 7 cm to 42cm. This would save 10% of the current harvest whereas an increase to 44cm would save 18.5% and to 45cm would save 24%. In other words under a minimum length of 45cm one fish in four which would previously have been killed would now survive. An angler keeping 20 fish over the season would now only be able to keep 15. This would make a noticeable difference to lake anglers'

bags; after all if it didn't, it wouldn't achieve anything. In the 1995/96 season 28.4% of lake anglers caught only one fish of greater than 35cm of which 87.6% of these anglers kept this fish. Increasing the minimum length to 45 cm would mean one out of four of these fish would no longer be legal and that 7.1% of all anglers who presently keep at least one fish would now be unsuccessful. That raises the proportion of unsuccessful lake anglers on any one day in the 1995/96 season from 55.5% to 62.6%.

An advantage of using the minimum length is that its impact is shared by all anglers and not just by the more successful anglers. As is evident from Table 5 the impact on the winter river fishery is negligible as nearly all the fish in the run exceed this length. Whereas an angler might



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An advantage of using the minimum length is that its impact is shared by all anglers and not just by the more successful anglers. The impact on the winter river fishery is negligible as nearly all the fish in the run exceed this length.

currently keep 28 fish they would be able to keep 27 of these fish under a minimum length of 45cm.

One possibility of raising the minimum length is that it encourages anglers to target large fish and may actually increase the harvest of mature fish and so reduce the number of fish in the spawning run. However for that to occur would require anglers to kill fish they may currently release or for anglers to catch more fish. The reality is that very few lake anglers release large prime Taupo rainbows. Similarly 94.7% of all lake anglers catch two fish or less and while they might like to catch more, the only way for this to occur is to fish for a much longer period. This is not an expected outcome.

It is therefore our intention to amend regulation 20 (2) of the Taupo Fishing Regulations 1984 to increase the minimum legal length to 45cm. This should be in place for the start of the new fishing season on 1 July 1997.

On a much more optimistic note fry and fingerling numbers this summer (1996/97) are much greater than last year and the absence of any large floods through the spring and summer period should allow a much stronger year class to enter the lake fishery in 1998.



Regulation changes should limit the number of fish lake anglers can kill, not their opportunity to catch fish.

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FIG 190

Rangitikei Remote Experience Zone

Helicopter Access Spring 1996

by Cam Speedy

Four helicopter access landing sites were again open late last year within the Rangitikei Remote Experience Zone of Kaimanawa Forest Park. Between Labour Weekend and Christmas a total of 15 parties utilised this opportunity. Most parties shot deer but despite localised areas with high deer numbers and significant forest impact, the harvest was not high. Three parties were unable to reach their selected hunting destination during their allocated time due to strong winds and heavy rain and a number of the parties that did make it in encountered poor hunting weather while on their blocks. The following table summarises the data collected from the open period:

Hunters reported widely differing animal condition from the four sites. The Ecology Junction site (on the Rangitikei itself) produced reasonable animal numbers but the deer were in very poor condition. It is the site

Block	Number of Parties	Number of Hunters	Days	Sika Seen	Red Seen	Sika Stag Kill	Sika Hind Kill	Red Stag Kill	Red Hind Kill	Jaws
Ecology Stream	3	10	39	16	6	2	2	-	1	4
Ecology Junction	6*	19	96+	18+	21+	2+	-	4+	5+	11
Whakamarumaruru Tops	4	15	90	13	21	5	3	3	7	7
Otamateanui Tops	2	10	24	-	64	-	-	3	3	3
Totals	15	54	248	47	112	9	5	10	16	25

* = One party did not return any hunting information

that also has the most obvious habitat impact although this impact appears restricted to a very defined belt, four to six contour lines above the river which the deer seem to favour. This is most likely a function of climate and need for shelter. Snow pushes animals down in winter but cold-air-ponding (in the valley) keeps them off the valley floor. The result is a belt of impact on sunny faces about 100 metres up out of the river.

In contrast to the Ecology Junction site the Whakamarumaruru Tops site produced the most deer shot and they were reported to be in generally good condition. This is most likely due to be a combination of factors:

- The alpine environment at the Whakamarumaruru site as opposed to the densely beech forested river terrace/valley environment at the Ecology Junction site favours a larger harvest as deer are easier to locate and kill.
- The lower impact of deer in the alpine environment due to a long period of low deer use following the helicopter harvests through the 1970s and 80s. This removed and pushed deer from this habitat, allowing the habitat to remain in good condition and offering better nutrition to the deer now living there.
- Perhaps the large harvest from the site in 1995 may have helped improve the condition of the remaining deer.

Deer sightings and animal condition at the Otamateanui Tops site were also reported to be high, probably for similar reasons to those above. However, the observations do suggest red deer numbers are building again on the tops of the southern Middle Range. Some high quality velvet heads were also seen (but not shot) by one party.

Deer condition at the Ecology Enclosure was also reported to be good,

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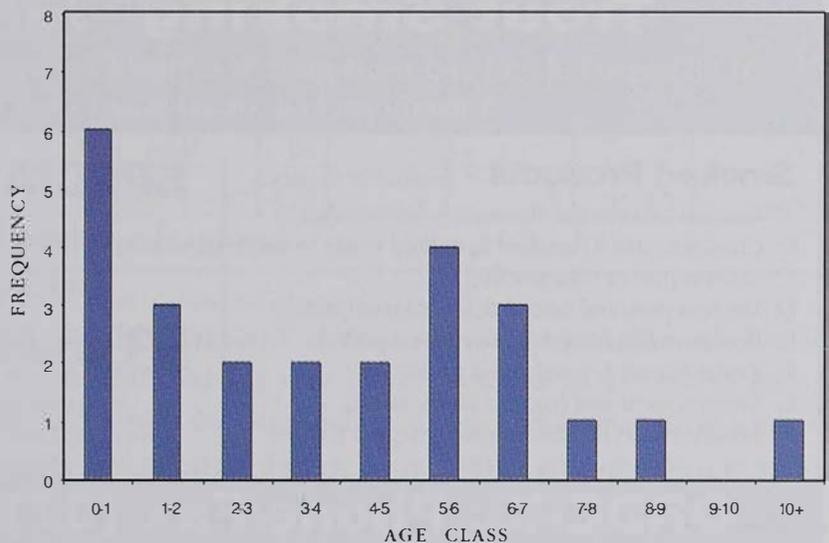
probably reflecting strong ongoing hunter interest in this site over five or six years and therefore more consistent harvest pressure. The low harvest partly reflects the difficulty in sighting animals in the dense beech habitat but numbers are clearly down since the early 1990s in this area.

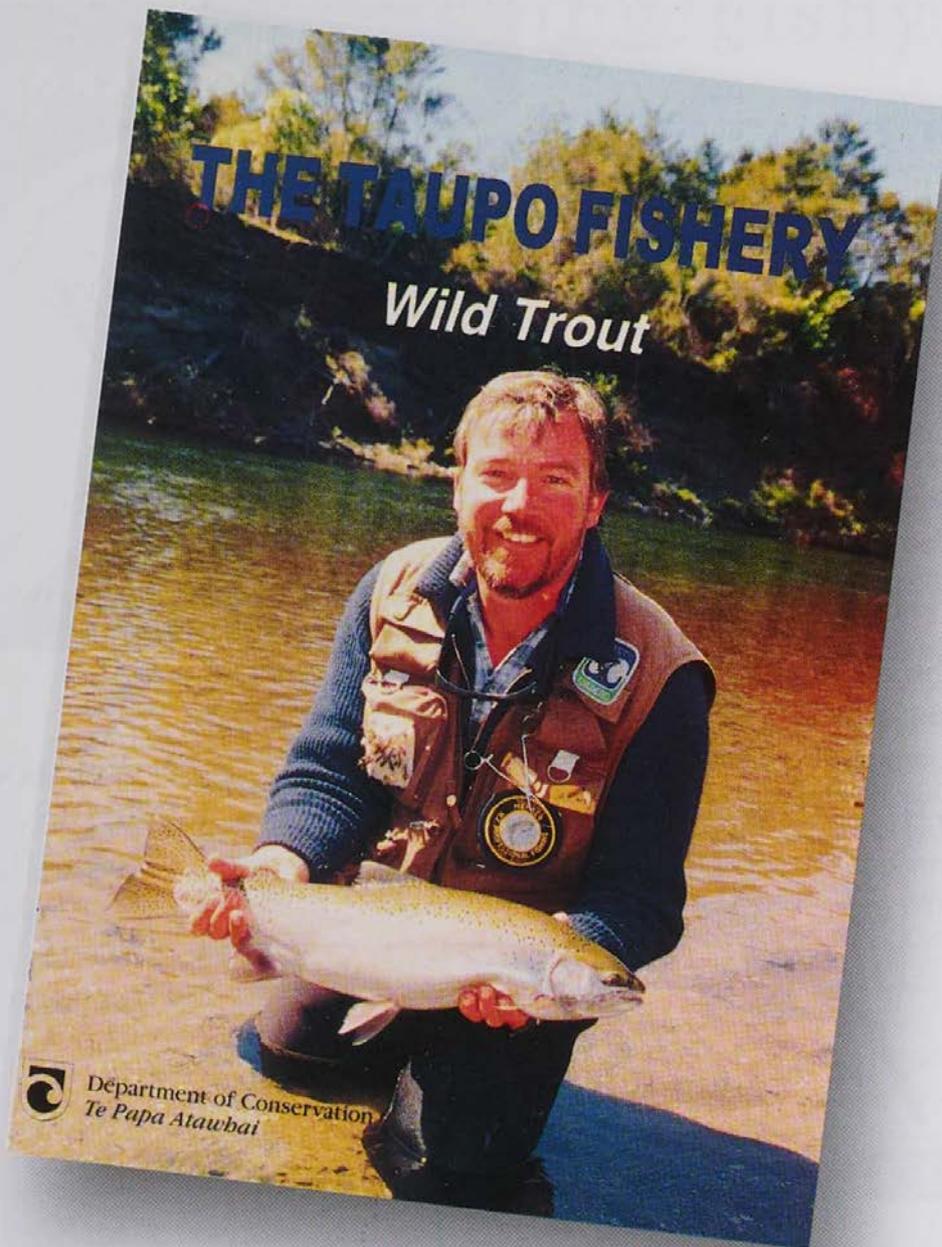
The overall age structure of the Rangitikei herd as determined by the 25 jaws provided this year is shown in Graph 3. Stag and hind jaws have been combined to improve the sample size in each age class. The age structure is very flat and the average age still seems a little on the high side reflecting generally poor reproductive success and low harvest pressure over the past five or six years. This age structure is typical of a herd which has been under-harvested and which is trying to hang on in stressed habitat.

Most parties seemed very pleased with their trips and appeared to enjoy the challenge of the area although there was some negative comment about the poor hunting on the Whakamarumarutops by later parties, especially those who had hunted the same site last year (when it was first opened) and had done very well.

Overall the impact at landing sites was acceptable but there is always room for improvement. Good numbers of large trout were seen around the Ecology Junction site suggesting the Rangitikei headwater fishery is still in good condition after five years of periodic helicopter access for hunters. Parties interested in utilising these sites in the Rangitikei next spring can book through the Turangi office from 1 October 1997. In the meantime, a walk-in trip during the roar will be well worth the effort for those hunters wishing to experience this magnificent part of the central North Island. The southern Middle (main Kaimanawa) Range will certainly be worth a look.

Graph 3: Age structure of a sample of deer harvested from the Rangitikei river catchment of Kaimanawa Forest Park, Spring 1996





This 28 page, full colour, informative booklet, containing all the information you need to know about the Taupo fishery, is available from the DOC office in Turangi, at a cost of only \$3.50.

This is an excellent publication for use as an information source for school projects and for local and overseas visitors.

For fishing licence agents and other retailers, wholesale rates apply.

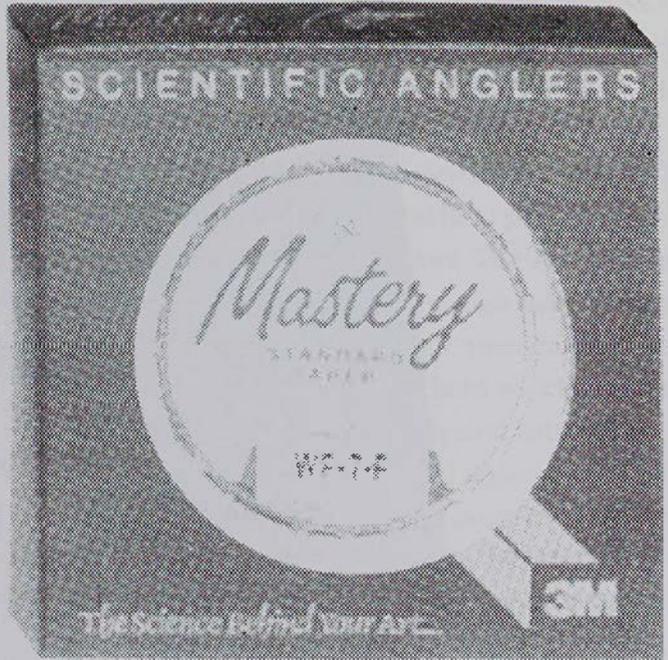
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Something Fishy

Lake Taupo Catfish Monitoring

In the November 1996 issue of *Target Taupo* we briefly outlined a programme to monitor the diet and density of brown bullhead catfish (*Ameiurus nebulosus*) at three sites around Lake Taupo. This monitoring got underway in early December. Two fyke nets are set overnight at each of the three study sites (two at the southern end of the lake and one at the northern end). The captured fish are weighed, measured, and sexed. When a large number of fish is captured, a random sample of 100 is processed. In December and February stomachs from a sample of thirty fish from each site were also removed for later food analysis. To date 1323 catfish have been captured.

Although the monitoring for this spring and summer is not yet complete, the following table outlines the results of the programme so far.

Table 6: Catfish catch rates (average number of fish caught per net per night) for the three Lake Taupo sites in December 1996 and January 1997.

Site	December	January	Overall
Waihi	169	412	290
Motuoapa	29	39	34
Whakaipo	6	5	5

Although little can be read into these preliminary results catch rates are slightly up on that found by the Masters student Grant Barnes in 1995/1996. When the programme is completed for the year in March the full results will be presented in *Target Taupo*.

Catfish Publicity

A recent item on the Holmes Show publicised the fact that catfish can be taken from Lake Taupo using any method and without the need to hold a fishing licence. This has generated a rash of interest in the fish to the extent that we may now have to consider regulating fishing for catfish to avoid confusion with trout fishing interests. We are happy for anglers to fish for catfish but it is important this is not in such a way that it impacts on the trout fishery.

Fishery volunteer Rob Marshall lifts a fyke net containing catfish as part of routine monitoring of the population. Catfish thrive in these shallow weedy areas around Lake Taupo.



Not a pretty sight

Lake Otamangakau Fish Tracking

In the last issue of *Target Taupo* we explained the radio tracking experiment currently occurring in Lake Otamangakau. As part of this experiment we have been following radio-tagged trout on a weekly basis since late August 1996. The first results have shown, that in general, the areas used by rainbow trout are different from those used by brown trout. Rainbow trout prefer the areas of the lake close to the

main channel which runs roughly from the inlet of Otamangakau Canal through the middle of the lake to finish in the Wairehu Canal. Conversely brown trout are mostly present in shallow areas of the lake, often well away from any deep water. However, within these types of habitat, certain areas of the lake appear to be more favoured than others. At the beginning of the tracking the trout were using the area of the lake close to the inlet. However, as the season has progressed the 'hottest' spot has shifted toward the north-eastern part of the lake. So far there is no clear explanation for this shift but we hope that the future tracking will help us to further understand the behaviour of these trout. Observations gathered through a 24 hour tracking period demonstrated that the fish are active at night. Most of the rainbows were using the areas of the lake closer to the shore and were closer to the surface even over deeper water. These fish began to return to the main channel at around 8 o'clock the next morning. So far two anglers have reported the capture of radio-tagged trout, one rainbow and one brown. It was pleasing to learn that the fish were in good nick and that they gave a good fight. Another rainbow was captured by angling and brought to the office. This trout was also in good condition internally and externally. Of disappointment though, was the discovery of a transmitter on one of the beaches, obviously discarded by an angler as they cleaned their fish. A much more extensive analysis of this experiment will be presented at the end of the trial in future issues of *Target Taupo*. We thank all the anglers who have returned tagged fish or reported their captures before release.

*Conservation Officer
Gordon McKenzie
locates another fish,
listening for its signal
in the headphones.
Volunteer Bevan
Clinch checks the
frequency for the next
fish. (Photograph by
Helen Mitchell)*



Summer Fishing on Lake Otamangakau

Once again this summer, anglers have not found the fishing easy on Lake Otamangakau. Results from creel surveys indicate an average catch rate amongst boat anglers of 0.13 fish per hour (one fish every 7.7 hours) and 0.10 fish per hour (one fish every 10 hours) for shore anglers. These catch rates are very similar to those measured in each of the last two years and reflect that trophy fish from this lake are usually hard earned. It is a lake which requires anglers to serve an apprenticeship before regular success is achieved. Typically during a creel survey we find most anglers will have caught, at the most, one or two fish but we may also encounter one of the expert regulars with a catch of five or ten or even more fish for the day.

A fish of 7.2kgs and several fish of approximately 6kg have been caught and released this season but the catch has been dominated by maiden rainbows of 2 to 3kg. As in recent years catch and release continues to be widely practiced with 70% of the catch returned to the water. Releasing these prime maiden fish is strongly encouraged as these are the fish, which in another year or two, will be the trophies anglers seek from Lake Otamangakau.

As we might expect from the radio tracking results shore anglers are catching predominantly brown trout. These comprise two thirds of the shore-based catch whereas three quarters of the catch by boat anglers are rainbow trout.

Publicity in the national press about a very large fish caught in December may have influenced numbers of anglers visiting the lake this summer - Waitangi Day 1997.



This summer was another poor year for cicadas and despite suitable weather conditions only very occasionally did anglers encounter rising fish.

As the summer has progressed the main body of the lake has become discoloured by ash carried in the snow smelt from the Whakapapa catchment. With low flows entering the lake, most of the ash has quickly settled out so that water in the outlet channel has remained clear. Anglers have preferred to concentrate in this area but the discoloured water does not appear to have affected the fish which are still present even in the dirtiest water.

In late February ECNZ closed the Whakapapa tunnel for six weeks to undertake repairs to the tunnel which has stopped any new inputs of ash into the lake. However, it means the only inflows through this period are restricted to the Te Whaiiau Stream and the Whanganui diversion.

If the weather is hot and settled some areas of the lake may become unsuitable for trout. The movements of radio-tagged fish during this period will provide some very useful information as to whether these conditions are a problem or not for the trout population. This information in turn will be valuable in discussions about possible operating regimes for the lake as part of the TPD consents process. To minimise any negative impacts, ECNZ have agreed to keep the lake at a high level. Another advantage of this level is that it should suit anglers stalking brown trout around the lake edges.

A Big Fish from Lake Otamangakau

A very large rainbow female was caught from Lake Otamangakau by an American angler in early December. Photographs of this fish clearly show it had a clipped left pelvic fin, indicating it had passed through the Te Whaiiau fish trap on its spawning migration last year. Fishery staff remove half of a different fin each year so that they can recognise fish which have been through the trap before. Usually the fin regrows but with a distinct scar across it, though in this case the fin was still largely as it was when it was cut. Almost certainly it was a rainbow female which weighed 6.9kg (15.2lb) when it went through the trap on the 3 July. It was processed by Fishery Planner Rob McLay who in his 22 years of experience described it as “one of the most impressive fish he had ever had the pleasure to handle”.

Female trout lose up to 30% of their body weight during spawning and it is evident from media photographs of this fish that it had not completely regained condition when caught.

However, just what it weighed will remain a mystery as, in a very gallant gesture, the angler returned the fish to the lake unharmed.

Club Liaison

Through the Taupo Fishery Advisory Committee, fishery management staff have re-confirmed their availability and willingness to attend angling club meetings and talk directly with members about issues within the fishery. This process will provide an excellent opportunity to share information and identify matters which may need to be addressed through management or research projects.

Deceiver Believers



Woolly Bugger, Olive
Hook: TMC 5263,
sizes 4-10, weighted
Thread: Olive, 6/0
Tail: Olive marabou
Rib: Fine gold wire
Body: Olive chenille
Hackle: Olive, painted

This American visitor, Barry Rapozo staying at Tongariro Lodge caught this magnificent rainbow using an Umpqua Olive Woolly Bugger and Umpqua Deceiver Tippet line. This magnificent 34 inch trout was released back into Lake Otomangakau after photos were taken. Barry Rapozo was guided by Mike Chapman.

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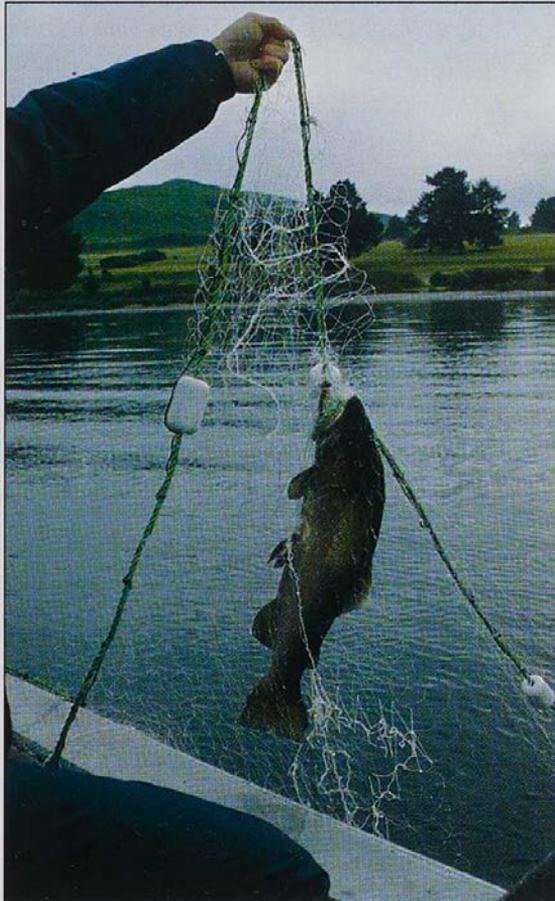
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Report Set Nets

Although not a common occurrence, anglers occasionally encounter set nets while fishing. When faced with this situation, many anglers are a bit unsure about the best course of action to adopt. Some may remove the net themselves and they may or may not notify us of the event. Others may simply leave the net where it is and go on about their business although we normally get to hear about it sometime later. In both scenarios, our chances of catching the perpetrators are about zero. We have found through experience that the best way of deterring 'poachers' is to catch them in the act and take them to court. Our success in apprehending these people is virtually 100% where we have been able to get to the site while the net is still set.

So what should you do if you find a net? The best thing to do is leave it where it is, withdraw discreetly and call us immediately. Do not shout out to your mate that you've found a net and are going to call the rangers. The offenders may be nearby and watching. Contact with our enforcement officers can be made at any time by telephoning the office

during work hours or referring to the after hours numbers at the front of this issue of *Target Taupo*. While we prefer to know who we are talking to, it is not essential that you identify yourself when calling. However, you will be asked for the exact location of the net and a description of any people, boats, etc., in the vicinity. Please try and take note of these factors before calling. Prompt reporting of a net or any other enforcement issue will greatly enhance our ability to conduct a successful apprehension.



To stop this happening, we need to apprehend the offenders

Winter Trapping Programme

Over recent winters we have trapped the spawning run in the Whitikau Stream, the major spawning tributary of the Tongariro River. In 1995 we estimated the size of the run to be 11,140 rainbow and 1,340 brown trout. Our radio tracking experiment carried out at the same time indicated 25% of the fish tagged in the lower Tongariro spawned in the Whitikau. If we assume that the Whitikau run is one quarter of the total run we can estimate the total Tongariro run in 1995 was in the order of 45,000 rainbow trout. This gives us a measure of the number of fish needed to sustain reasonable winter angling in the Tongariro.

A lot of the value of fish trapping comes from operating the trap over a number of years. The information obtained allows us to monitor changes in the age structure and size of the population and in trout growth and condition. This information is integral to managing a wild trout fishery. A current example is the use of information from the Te Whaiiau fish trap which monitors the spawning run from Lake Otamangakau. These fish are relatively old and many have passed through the trap two or three times previously. This fishery is very susceptible to over-harvest which would be highlighted by fewer fish surviving to old age. By monitoring the proportion of old fish in the spawning run we can detect if harvest starts to have a significant impact and so are then able to take any necessary measures.

Our experience at the Whitikau Stream suggests though, that it is not feasible to trap this stream over a long period. It is a highly unstable river prone to flash flooding and our last effort to hold a trap in place for two and a half years is likely to be as long as we can reasonably expect. As we were successful in our primary goal to estimate the size of the Tongariro run we have now decided to look elsewhere for our long term trapping site. In the past, traps have tended to be used primarily to monitor changes in the trout population size. In a system like Lake Otamangakau where nearly all the spawning fish are using the Te Whaiiau Stream this works very well. However in the Taupo fishery evidence suggests that fluctuations in the spawning run in any one stream may not necessarily reflect what is occurring in all the other streams. To overcome this problem we have decided to instead undertake an acoustic survey of the trout population in the lake each March, prior to the majority of fish making their spawning migration. While not all the fish counted will run the rivers to spawn, with some correction this will provide a much better

estimate of the size of the spawning stock. As well we will continue our monthly winter counts of spawning fish in the Hinemaiaia, Waimarino, Waiootaka, Tauranga-Taupo and Whiti kau rivers which will allow us to follow trends in each of these.

However, in order to obtain the information on the age structure of the population, and on trout growth and condition, we still need to regularly trap a portion of the spawning run, preferably in the Tongariro system. Currently we are looking at possible sites which are feasible to trap over a long period, are easy to work and maintain, and preferably from which we can obtain data for both the rainbow and brown trout populations. We have located one suitable site, though there are a few issues to work through yet. More on this in the next *Target Taupo*.

Fish traps are a vital tool for obtaining data about the characteristics of the spawning run. Conservation Officer Iain Maxwell measures a fish while Glenn Maclean looks on.



National Trout Centre News

TALTAC Kids' Fishing Days

The children's fishing pond at the Tongariro National Trout Centre will be open on the following days in 1997:

Sunday, 4 May

Sunday, 1 June

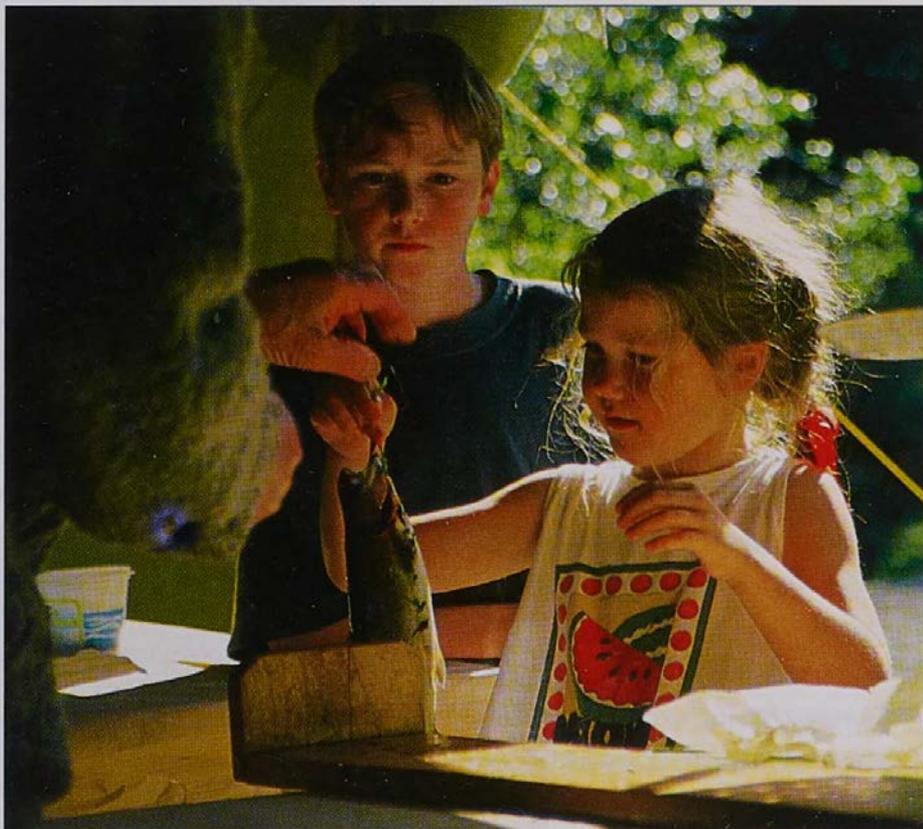
Sunday, 6 July

Sunday, 17 August

Sunday, 28 September

Children aged six to 14 years (inclusive) will be assisted at the poolside to catch a trout, which will be weighed and measured and

A proud little angler receives her fish after it has been weighed and measured.



they will also receive a certificate to take home. The children can purchase their licence (\$2.00) when they register and all gear is provided for them. The fish do not always bite on command and there may be some delays. Enjoy a stroll in the grounds and view our displays while you wait.

Parking space is adjacent to SH 1. There are picnic areas near the pond and along the nearby Tongariro River. Barbequed food and hot drinks will also be on sale.

Last year the Tongariro and Lake Taupo Anglers' Club (TALTAC) open days were well patronised with 1370 children attending the five days; the total close to that of 1994 and better than 1992, 1993 and 1995.

As well during the year another 1250 children from 34 school groups were assisted to catch a trout by trout centre staff and a small band of stalwart volunteers.

Lake Otamangakau Releases

Brown and rainbow fry raised from Lake Otamangakau parents were finclipped and released back into the system during January (500 of each species). This is the third annual release of these juveniles and

fish from the first release in 1994 should start appearing in the monitoring programmes this year.

Visitor Facilities

The NTC car park was re-sealed and parking lines painted during January. Boom gates are almost completed so it will very soon be possible to secure the car park at night. Work is progressing slowly on installing a boardwalk alongside the Tongariro River and the re-carpeting the viewing chamber - both these jobs outstanding legacies of floods during 1995.

Whangamata Stream Spraying

For many years access for spawning trout into the Whangamata Stream has been impeded by excessive growth of musk weed within the stream bed. Following trials in February 1994 (*Target Taupo*, issue 11) a resource consent was obtained to spray herbicide on the

*Before and after
photographs showing
the results the
spraying of the musk
weed has had.*



weed each summer using a hand sprayer to minimise the potential for the stream to be affected. Follow-up monitoring has confirmed that this has had no impacts on water quality or instream life. However, the operation has been very successful, with 95% of the weed being removed by autumn and access for trout spawning runs restored.

Reduction in Trout Numbers

As expected the November acoustic survey of legal sized trout numbers in Lake Taupo showed a decline in 1996. This survey, which estimates the size of the trout population each spring, has been repeated each November since 1988.

Year	Number of trout (thousands)
1988	89.9
1989	67.7
1990	-
1991	108
1992	115
1993	145
1994	205.2
1995	144.7
1996	117.8

Wild fisheries typically fluctuate through a series of troughs and peaks, the Taupo fishery last passing through a trough in 1989 and 1990 before peaking in 1994.

The November 1996 estimate was higher than perhaps expected given the likely effects of the spring 1995 floods and the eruption of Mount Ruapehu on juvenile trout survival. Many of the fish now present in the lake were one year old fish in the

river at the time of these events and some at least obviously survived. Things do not look so promising for the year class which was in the spawning gravels at the time and trout numbers are expected to decline further in the lake before the next improvement occurs (see feature article).

An improvement appears to be under way already in the spawning tributaries with very good numbers of fry evident. Rearing conditions are excellent and an absence of spring and summer floods should see a much stronger year class enter the lake fishery in late 1998.

Guides Licensing

Through amendment to the Conservation Act, fishing guides throughout New Zealand will soon be required to be licensed. A working group of Fish and Game Council and DOC managers are

Table 7: November acoustic estimates of the size of the Lake Taupo trout population

currently working on developing regulations in consultation with the industry. The regulations will define the detail of licensing requirements and will be designed to avoid duplicating matters already covered in existing legislation. It is expected that it will be some months before the regulations are in place and licences can then start to be issued. Any payments as a consequence of this will be collected by Fish and Game Councils (DOC at Taupo) to be spent back into the management of the resources that guides use.

Licence Sales

At the end of February total licence sales were very similar compared to 1995/96 with the child categories having the highest increases. Adult season licence sales have also increased slightly on the previous year but day sales are down. Sales to the end of February are as follows (1995/96 season sales in brackets):

Adult Season	10,922	(10,775)
Child Season	4,974	(4,807)
Adult Month	587	(620)
Adult Week	5,384	(5,383)
Adult Day	19,832	(21,207)
Child Day	4,987	(4,169)

Review of the Taupo Fishing Regulations

Later this year, in association with the Taupo Fishery Advisory Committee, we are planning to undertake an extensive review of the regulations controlling the Taupo fishery. The objective of the review is to consider the appropriateness and/or effectiveness of each regulation and to identify and remove redundant regulations, with an underlying intention to simplify proceedings.

The regulations are a collection of rules which have been added to over many years. Some date back to a much different time, both in anglers' attitudes and available technology. For example, the restrictions on canning of trout originated in the days before freezers when canning was the only way of keeping trout for a long period. It is not the intention to drastically alter current practices though some subtle changes may come out of the review.

Summer Track Maintenance and Snag Removal from the Hinemaiaia River



Another successful summer programme of angler track maintenance has been completed. Willow control in selected parts of most east Taupo rivers and Lake Otamangakau has also been carried out.

Further work to remove instream debris from the lower Hinemaiaia was completed in late February. This involved divers cutting off snags lying in otherwise productive fishing runs which were then pulled from the river by a team of strong workers. Small pockets and runs were created all the way from the mouth to the state highway bridge. This work will make it easier for anglers to hook fish, though it will still be an interesting challenge to land them amongst the many snags that remain.

Keeping the walking tracks clear for anglers' access is an ongoing job throughout the year.



Fisbery staff clear another small run in the lower Hinemaiaia.

Waitahanui River Rubbish Problem

The illegal dumping of rubbish in the reserve adjacent to the Waitahanui River continues to be a problem for anglers and local residents. Local fishing identity John Johnson has been clearing rubbish from the river banks over the past 12 years. John organises cleanup working bees in May and November each year. The Department has also removed truck loads of rubbish from the site in the past. John Johnson believes that a rubbish transfer station located between Hatepe and Waitahanui would go a long way toward relieving the problem.

New Coastguard Rescue Vessel

Boat anglers on Lake Taupo now have the added security of a dedicated rescue vessel based at Taupo.

The Lake Taupo Volunteer Coastguard recently launched a purpose-built 6.8 metre Naiad rigid hull inflatable rescue boat. Powered by twin 115 hp Johnson outboard motors, ECNZ Taupo is fully equipped with up to date rescue, navigation and communications equipment, including fire extinguishers, towlines, emergency battery, radar, GPS chart plotter, VHF radios and searchlight. Plans for the future include equipping with a rescue stretcher, line thrower and dual purpose fire pump.



Taupo District Mayor Joan Williamson and other guests check out the new coastguard rescue vessel after its launching.

Major sponsors for the boat were the Lottery Grants Board, ECNZ Northern Generating Group, Taupo District Council and TrustBank Community Trust. Several other local businesses also contributed and power company Trust Power provided a four wheel drive utility for launching and retrieving the rescue craft.

Previously Coastguard volunteers used their own private boats for emergency work. ECNZ Taupo now joins a sister boat operated by the Turangi Volunteer Coastguard at the southern end of the lake in providing a dedicated rescue service on Lake Taupo.

Licence Fees

The current Taupo fishing licence fees have remained unchanged since the 1994/95 season. Over the ensuing three year period, inflation has eroded the value of our licence revenue by around 8%. During our business planning for this current year, we were forced to defer some important management projects because of a lack of funds. The Government does not contribute tax money toward the Taupo fishery, all projects being funded solely by licence revenue. Therefore, the Department will seek a fee increase for the coming season and as a start point, we will seek to regain the equity which has been lost through inflation over the last three years. Further adjustment may be necessary once budget requirements through business planning become clear. The Department will be discussing its budget planning with the Taupo Fishery Advisory Committee at its March meeting.

Summer Lake Fishing

The harling began very early last spring with anglers reporting excellent results in early October. However, as noted elsewhere in this issue, the spring weather deteriorated and fishing became a battle. However, those who braved the elements reported that on occasions the harling was nothing short of exceptional.

Those who fished right into dark were rewarded with some frenzied action for the last hour of daylight and reports of 10 to 15 well conditioned fish in an evenings session were common. Areas such as Stump Bay and Mission Bay appeared to be the hot spots with the action being more consistent at the southern end of the lake. As the

summer drew on, the harling success fell off as the fish moved deeper in response to the warm surface temperatures and all the boating activity.

By late summer the fish were unavailable to all but the deep fishing techniques (wireline and downriggers).

Table 8: Angler catch rates by method for the summer of 1996/1997 on Lake Taupo

	Harling	Leadline	Wireline	Downrigger
Hours	1131.95	1219.05	183.9	262.05
Kept	237	201	33	106
Returned (legal size)	76	29	7	9
CPUE (indiv)	0.27	0.19	0.26	0.39
Hours to catch a fish	3.7	5.3	3.8	2.6

The catch rate in this table is the per angler estimate. Each angler's catch rate is calculated and then the average of the group determined. This average is considered a better measure of the average angler's degree of success.

It should be noted that due to the small sample size of the wireline and downrigger (12.3% of total effort) data the catch rates should be viewed with some caution. Catch rate data is, due to its very nature, subject to bias. This bias can be very significant in small samples sizes, resulting in unusually high or low catch rates.

We also gauge angler opinion of how they feel their fishing is progressing for the season, by asking them a series of questions as part of the survey. Anglers are asked how they rated the size and quality of the fish and their angling success and enjoyment, using a scale from one to five where one is terrible and five is excellent. The average responses for these questions are shown in table 9 below.

Table 9: Average score for satisfaction measures over recent seasons on Lake Taupo.

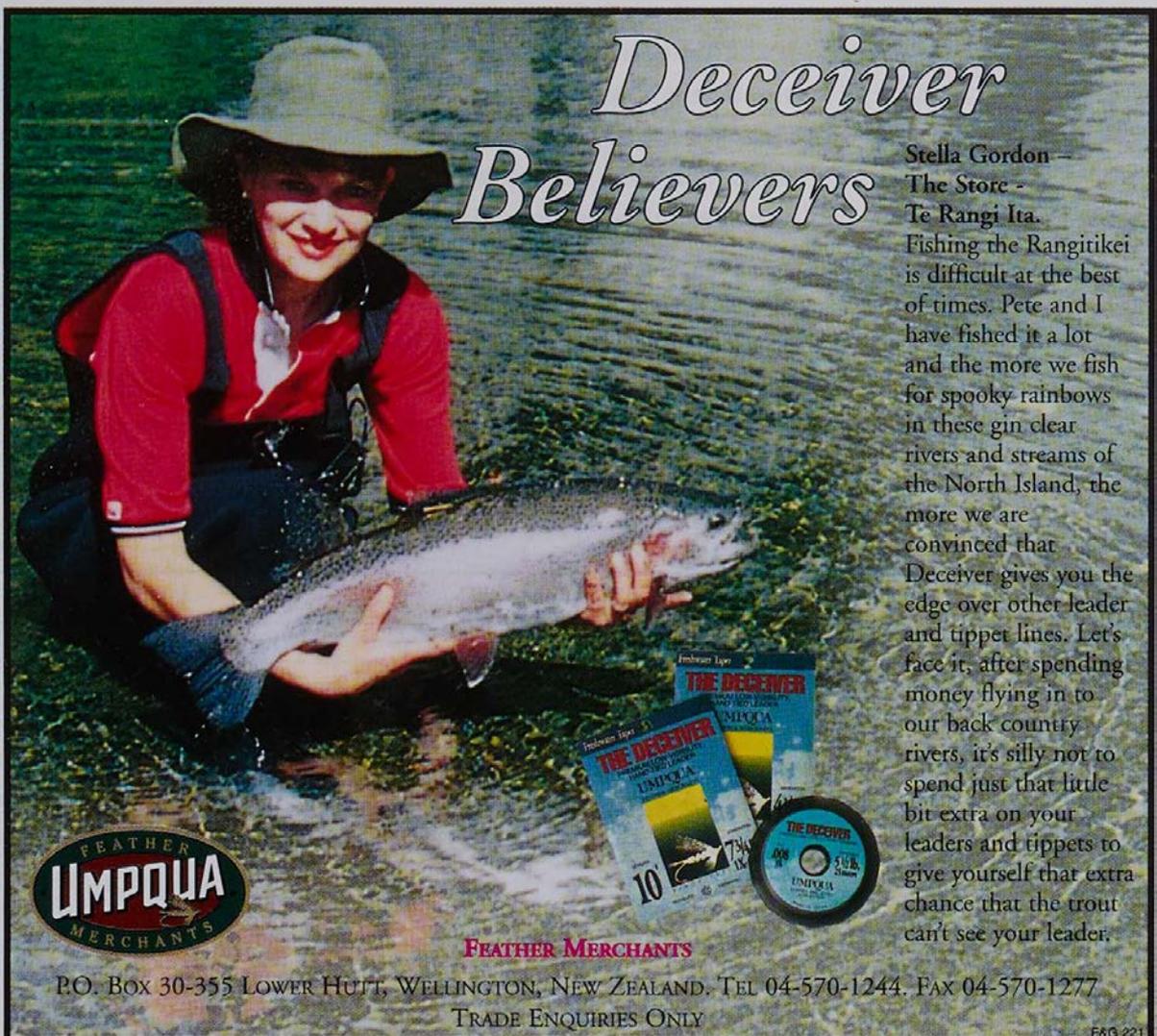
Measure	1993/94	1994/95	1996/97
Size and quality	3.7	3.7	3.6
Success	3.6	3.4	3.5
Enjoyment	4.6	4.7	4.6

As the table shows, most people are enjoying their angling experience on Taupo which is, after all, one of our key management objectives. As part of these questions, anglers are asked to comment, in their own words, on what things detract from their angling

enjoyment. Seventy five percent of people had no concerns while nearly nine percent complained of speeding boats, jet skiers and water skiers. The control of these other recreational water users is the responsibility of the Harbourmaster, and anglers are encouraged to contact the harbourmaster's office when a problem occurs so that it can be acted on.

As part of our surveying programme we have incorporated small scale harvest monitoring into the routine creel data collection. Our flights of the lake over peak times in the summer showed that the angler numbers were generally up on last year (up to 30%). The maximum counts for the Christmas break over the summer of 1995/1996 were between 350 and 400. This summer (1996/1997) they were between 450 and 500. This monitoring continues until late April

This summer saw the return of the evening rise on the Tongariro, although not yet at its best due to the continued movement of



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volcanic ash through the river. The middle and lower reaches of the river have produced some exciting fishing at times with voluntary worker Bevan Clinch proving the worth of getting to know your water by landing several double figure browns out of the Tongariro. Another technique working well at the moment is the river mouth fishing at night. Although sometimes patchy it is well worth trying your local stream mouth on a moonless night, but remember to finish your fishing at midnight.

Compliance and Law Enforcement News

From 26 October 1996 to 19 February 1997, 1944 anglers were checked on lakes Taupo and Otamangakau.

Only 13 offences were detected, the most prevalent being fishing without a licence and fishing within 300 metres of a river mouth. Anglers are reminded that licences must be carried while they are fishing.

Six anglers were apprehended for fishing within 300 metres of a river or stream mouth. All the streams which flow into the lake are marked with a white, black and yellow pole at their mouth. This pole indicates the position of the river mouth around which a 300 metre boat fishing restriction applies.

Anglers are reminded that fishing from a boat, moving or otherwise, within 300 metres of the pole is prohibited, except that you may fish from an anchored boat at the Tongariro and Tauranga-Taupo river mouths. No restriction applies at the mouths of the Waikino and Otupoto streams so that anglers may troll past these waterfalls.

At recent court hearings offenders were convicted, with fines totalling over \$2,000 and periodic detention totalling 18 months. The most serious offences were taking fish with a net, taking fish with a spear, fishing prohibited waters, and disturbing spawning grounds.

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Spring and Summer Hunting Summary

by Cam Speedy

September 1996 with its nice sunny days and warm nights gave the impression that the growing season of 1996/97 was going to be excellent. Unfortunately, from Labour Weekend to Christmas the sun was somewhat of a stranger in the central North Island. Cooler temperatures and high winds were the norm while rain and occasional snow flurries lashed the high country regularly until after new year. The first snowfall of the year was 4 January!! While the weather settled after this, the lack of rain dried up much of what was left of the growing season. Some moisture in mid-February has helped a little but the tops hunting has really only just started to happen and the roar is virtually upon us.

However, despite the wild inconsistency in the weather there has been some good hunting experienced in varying parts of the conservancy. The Waipakihi Valley was in top form through December, Tongariro Forest produced well for some hunters with local knowledge and Rangataua Forest has continued to shine as a very productive hunting destination.

A number of parties managed to enjoy the Rangitikei again this past spring (see article on page 18 this issue), and the various air transport companies report that most of the central high country provided a good quantity (if not quality) of venison for their clients.

Permit issues for the 1 October to 31 January period totalled 2324 which is average for this period. As of late February some 300 hunters had returned hunting information and had their name and address put on the *Target Taupo* mailing list. This data has been added to the conservancy hunting database and a summary of the annual statistics for the past five years is shown on page 46.

While not all the 1996 data is in and the number of days hunting reported is still on the low side, the sample currently available does show some interesting trends. Overall success rates are on a par with other years despite some of the 1080 possum control programmes decreasing deer density in parts of the conservancy and control operations which continue to chip away at the feral goat herds.

Tongariro Forest seems to have become less popular relative to other parts of the conservancy. During 1996 only 9.4% of the specified

reported hunting effort was expended in Tongariro Forest. The average relative hunting interest here over the past six years has been 12% of the conservancy total. Again this is likely to be as a result of 1080 possum control putting hunters off because they perceive that deer numbers are down in the area. However, the kill rate for red deer in Tongariro Forest has only dropped 16% since 1994 and the forest still produces an estimated 200 to 250 high quality red deer per annum.

The data for Tongariro National Park (15% of the total effort) on the other hand suggests increased hunter interest in this area with an increase in its relative proportion of the total specified conservancy hunting effort. This is likely to relate to both the fact that some hunters are looking for alternative hunting destinations following the use of 1080 in some areas, and publicity about concerns the Department of Conservation has over deer impact in western parts of the Park. With the increase in attention, the Tongariro National Park red deer harvest appears up on previous years. Except for Erua Forest where pockets of high goat numbers pull up overall hunting success rates, Tongariro National Park remains the most productive hunting destination in the conservancy.

The conservancy kills/1000 days hunting figures confirm the trend that goat numbers continue to fall overall, despite some areas still having higher than desirable numbers, and that red and sika deer kill rates are still comparable to previous years.

Some areas to concentrate on for the roar this year include the southern Middle (main Kaimanawa) Range from the Thunderbolt Stream south for red deer; the Rangitikei valley floor between the Ecology/Rangitikei Junction and the park boundary with the Maori land in the head of the catchment for both red and sika deer; the upper Rangataua Forest for red deer; and the headwaters of the Makatote and Manganui-a-te-ao Rivers south of Hauhangatahi on the western slopes of Ruapehu for red deer. If you are looking for that trophy of a life time, Erua Forest is the place for you but don't expect high deer density. One of the reasons it produces such good heads is that deer numbers are limited.

If you do visit the conservancy through the autumn, please respect our hunting areas by removing your rubbish and following appropriate environmental care principles, and let us know how you get on through your hunting diary return when your permit expires on 31 May. If you have a diary from a previous period, don't throw it away - send it in! You never know, you might win one of the \$1250 worth of prizes we give

away each period, and as well you will get a copy of this magazine. Winners of the respective winter and spring/summer hunting diary prize draws (total of \$2500 worth of prizes kindly donated by our sponsors) were as follows:

Air transport with Lakeland Helicopters: Paul Campbell, Paraparaumu; Sean Stanning, Papakura.

Air transport with Air Charter Taupo: Graham McFadyan, Raetihi; Phil Hoare, Glenfield.

\$100 worth of sporting goods from 'The Fly and Gun Shop', Taupo: Kevin McIlroy, Ohakune; Alfred Davy, Tokoroa.

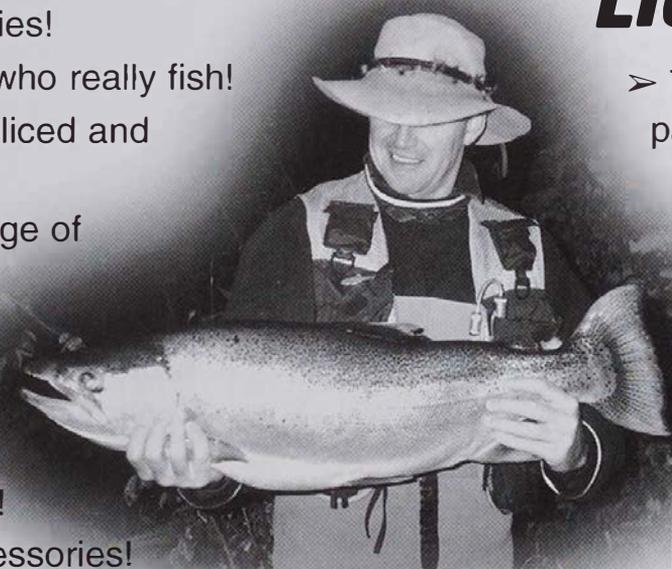
100 rounds of Federal ammunition from the New Zealand Ammunition Co. Ltd: J. Ratima, Raetihi; H. Luckman, Epsom.

Sika Safari video from Neil Philpot: Toby Drake, Beachhaven; Stuart Gerritsen, Mangakino.

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Recreational Hunting Statistics - Tongariro/Taupo Conservancy 1992-1996
(as at 20 February 1997)

Area Hunted	Year	Days of Hunting Reported	Proportion of total Specified Hunting Effort %	KILLS				CPUE*
				Sika Deer	Red Deer	Pig	Goat	Kills/Day
Kaimanawa RHA	1992	1923.5	35.0	318	27	10	-	0.184
	1993	1886.5	35.9	300	8	5	-	0.166
	1994	1580.0	31.0	210	18	5	-	0.148
	1995	1209.0	29.1	197	2	1	-	0.165
	1996	968.0	32.5	155	5	2	-	0.167
Kaimanawa Forest Park (excluding RHA)	1992	1860.0	33.9	300	210	5	-	0.277
	1993	2016.5	38.4	350	200	11	-	0.278
	1994	1679.5	32.9	169	126	2	-	0.177
	1995	1378.0	33.1	202	123	1	-	0.237
	1996	1141.0	38.4	158	84	2	-	0.214
Tongariro National Park	1992	731.0	13.3	14	192	5	1	0.290
	1993	741.0	14.1	12	244	4	-	0.351
	1994	643.5	12.6	7	194	5	-	0.317
	1995	458.0	11.0	6	133	4	-	0.312
	1996	447.5	15.0	10	188	1	-	0.443
Tongariro Forest (including Pukepoto)	1992	718.5	13.1	-	146	4	88	0.331
	1993	663.0	12.6	-	143	5	95	0.367
	1994	515.5	10.2	1	115	2	61	0.347
	1995	514.0	12.4	-	99	3	72	0.339
	1996	280.0	9.4	-	53	2	16	0.253
Erua Forest	1992	147.0	2.7	-	35	-	65	0.680
	1993	185.0	3.5	-	42	1	73	0.627
	1994	135.0	2.7	-	35	-	37	0.533
	1995	97.5	2.3	2	42	-	47	0.933
	1996	65.5	2.2	-	25	4	33	0.946
Rangitaiki Forest	1992	84.5	1.5	17	4	-	-	0.248
	1993	120.0	2.3	19	7	1	-	0.225
	1994	130.5	2.6	24	3	-	-	0.207
	1995	90.5	2.2	16	2	-	-	0.199
	1996	69.5	2.3	7	1	1	-	0.125
Unspecified Returns	1992	640.5	-	21	91	19	35	0.259
	1993	446.0	-	25	65	15	7	0.252
	1994	377.0	-	17	64	3	28	0.289
	1995	367.0	-	20	33	-	4	0.155
	1996	537.5	-	25	61	-	-	0.160
TOTALS	1992	6131.5	-	672	710	43	189	0.263
	1993	5698.0	-	682	679	43	162	0.275
	1994	5099.0	-	439	556	17	143	0.227
	1995	4160.0	-	450	436	9	123	0.248
	1996	3533.5	-	358	417	12	50	0.237
Conservancy Totals Corrected per 1000 days hunting effort	1992		-	110	116	7	31	-
	1993		-	120	120	8	28	-
	1994		-	87	109	4	28	-
	1995		-	109	105	3	30	-
	1996		-	101	118	4	14	-

* CPUE = Catch per unit effort (that is, kills per day hunted)

	1992	1993	1994	1995	1996 (To Date)
- No. of 4-month hunting permits issued	6,668	6,344	7,237	6,641	6,813
- Average return rate (% of issues)	29.0%	26.5%	23.1%	19.8%	15.6%
- Proportion of successful hunters	33.9%	35.4%	31.8%	31.1%	36.4%

Bitz 'n' Pieces

News from Turangi Field Centre

It has been a routine summer so far for Turangi staff. Tasks have included a limited amount of track maintenance in the Kaimanawas - Ngapuketuruua and Ignimbrite Sadddle areas, as well as the more regular work on tracks around Turangi and in Tongariro National Park. We've also undertaken hut inspections through the Kaimanawas which indicate a bit of work coming up for us such as painting and fireplace replacement.

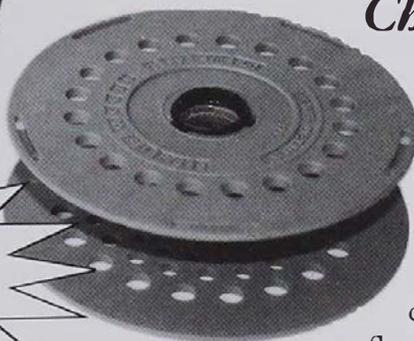
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Kaimanawa Tb Deer Survey

Landcare Research, together with Environment Waikato have been involved in an Animal Health Board funded bovine tuberculosis survey of feral deer in the north-western Kaimanawa Range again this summer. Poor weather has plagued the operation but as of mid-February a total of 28 deer (5 sika stags, 4 sika hinds, 6 red stags and 13 red hinds) had been taken, though full autopsy information was only available from 15 animals at the time of writing. Only two deer, a mature sika hind and a mature red hind have tested Tb positive. This is a major improvement on the 1993/94 disease levels which were as high as 41% of deer examined.

Deer numbers are starting to increase again in the Waiotaka, Whiti-kau and Waimarino catchments and while they are not anywhere near as numerous as they were prior to the 1994 1080 poison operation, they are in excellent condition.

White Sika

A visiting hunter reported seeing an albino sika hind from the Helisika Hughes 500 while flying over the Golden Hills airstrip area near Otutu Bush last spring. Albino sika are very rare so if you are hunting that area over autumn, keep a look out and if someone does shoot the animal, a photo would be much appreciated.

Stoats

It appears that this summer is a bad year for stoats in central North Island forests. Numerous reports from hunters in December and January prompted us to set a trap index line at Clements Road in the northern Kaimanawa Range which subsequently obtained catch rates of one stoat every 10 trap nights (one trap night equals one trap set over one night). In Tongariro Forest where we have been trapping stoats for over two years as part of a kiwi management programme, catch rates reached one stoat for every 37 trap nights in December. While these catch rates do not sound high, when one considers the national average is a catch rate of around one stoat per 200 trap nights, one can appreciate why so many stoats have been seen at Clements Road this year. Hunters can expect to see higher than usual

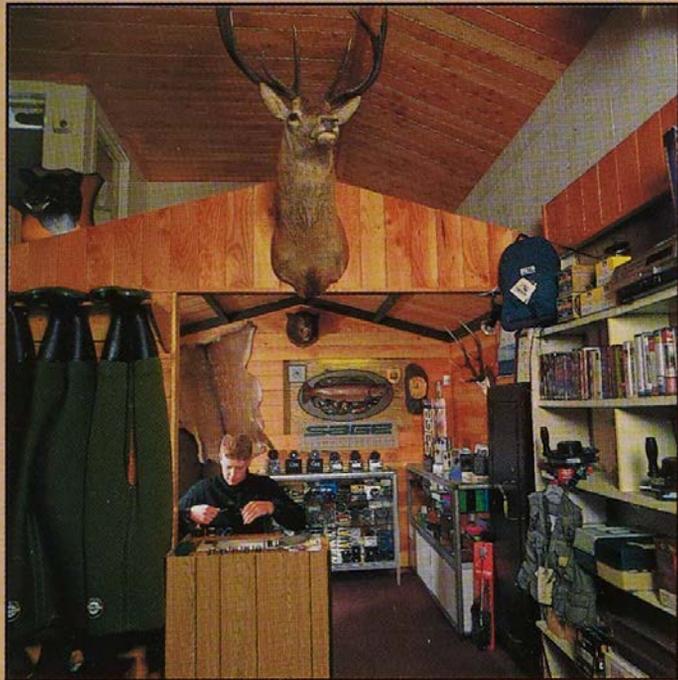
stoat numbers in Kaimanawa beech forests until about the end of May when dwindling food supplies start to result in high mortality.

Dog Policy

As a result of the new Dog Control Act (1996), the Tongariro/Taupo Conservancy is required to prepare a public discussion document identifying proposals to declare various conservation lands as 'open' or 'controlled' dog areas. Until the public consultation process is complete nothing will change but to keep interested parties informed

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the following summary of the legislative requirements has been prepared:

Controlled Dog Areas - are those areas where dogs shall not be taken or allowed unless the owner is issued with a Dog Control Permit which states the activity and purpose for which it is issued. In issuing such a permit the department must be satisfied that:

- the dog is essential for the proposed activity;
- the proposed activity is lawful;
- the proposed activity is not inconsistent with the purposes for which the land is held.

Certain people may be refused a Dog Control Permit including those who have been convicted of an offence against the Wildlife Act, National Parks Act, Marine Mammals Act, Dog Control and Hydatids Act or Trade in Endangered Species Act, those who have been declared 'Probationary' or 'Disqualified' dog owners under the Dog Control Act (1996), or where an owner seeks a permit for a dog classified as a 'Dangerous Dog' under the Dog Control Act .

A permit is not required for a guide dog, a companion dog, a Police dog, a Search & Rescue dog, or a dog certified by the Department of Conservation for work on conservation management activity.

Guide Dog - means any dog certified by the Royal New Zealand Foundation for the Blind as being a guide dog or a dog in training as a guide dog.

Companion Dog - means any dog certified by the Top Dog Companion Trust as being a companion dog or a dog in training as a companion dog.

Any dog found in a controlled dog area without a permit may be seized and if that is not practical the dog may be destroyed.

Open Dog Areas by law, cannot include any of the land classifications listed below so all such areas must, once classified under the Dog Control Act, become controlled dog areas:

- a) Wilderness Areas;
- b) Ecological Areas;
- c) Wildlife Sanctuaries;
- d) National Reserves;
- e) Scenic Reserves;
- f) Nature Reserves;
- g) Scientific Reserves;
- h) Wildlife Management Reserves;

In the Tongariro/Taupo Conservancy these include significant parts of Kaimanawa Forest Park, the Waimarino Scientific Reserve, Rotokuru Ecological Reserve, and numerous Scenic Reserves throughout the District. Once considered under the Dog Control Act, these areas must be classified controlled dog areas. However, until they are considered nothing will change.

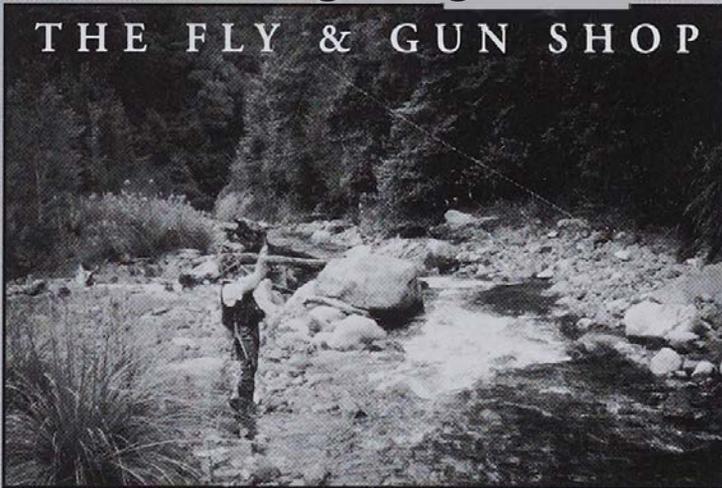
National Parks have already been classified controlled dog areas as of 1 July 1996. Tongariro National Park falls under this designation.

Open Dog Areas - If the Minister of Conservation is satisfied that:

- Allowing access to dogs does not go against the purposes for which the land is held; and
- the land is not designated as one of the land classifications above; and
- allowing access to dogs will not result in significant risk of injury to or disturbance to vulnerable wildlife; and

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- allowing access to dogs will not result in adverse effects on recreational use or enjoyment of an area by people without dogs; then the minister may declare that area an open dog area. Some conditions may apply to the taking of dogs into some open dog areas such as requiring owners to keep their dogs on a leash, but permits will not be required.

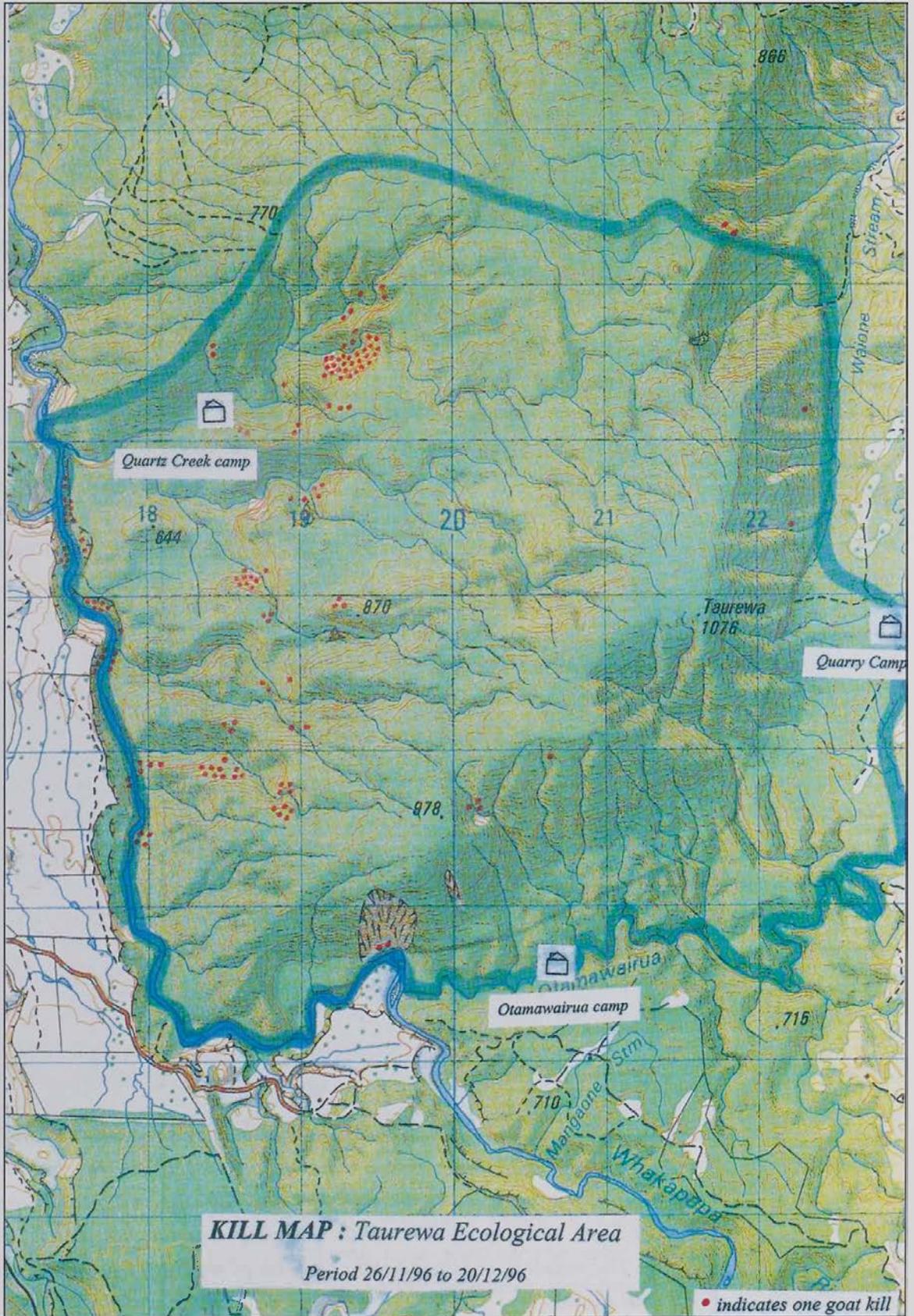
The penalty for allowing a dog to enter a controlled dog area without a permit of failing to control a dog in a controlled dog area or an open dog area is a fine not exceeding \$10,000 or a term of imprisonment not exceeding 12 months. If any protected wildlife has been injured by the dog the dog shall be destroyed.

The above requirements set out in the legislation will be used as guidelines in the preparation of a conservancy dog policy. However, the actual content of that policy is yet to be determined. To help achieve this we will produce a public discussion document and invite submissions from interested parties on dog access to various conservation lands within the conservancy. Your submissions will shape the ultimate policy, so make sure you have your say. There is much confusion about the implications of the new legislation but dog owners should remember that nothing will change until the final dog policy is in place. The discussion document is due to be drafted before June 1997 so keep an eye out in newspapers or in later issues of this publication for details on how to have your say.

Taurewa Goat Control

The western parts of Tongariro Forest Conservation Area have been a major focus for the Department of Conservation in terms of goat control over the past six years. A combination of sponsored recreational hunter initiatives, aerial hunting and contract ground hunting has significantly reduced goat numbers in priority areas within the forest over that time. As a result the casual recreational hunter harvest of goats from Tongariro forest has dropped by 60%.

However, the isolated and rugged terrain on the southern end of the Taurewa Ecological Area, known locally as 'Blue Hill' has remained a problem in terms of effective control. Aerial shooting has been employed here with decreasing effectiveness over the past five years as goat behaviour has changed (helicopter-shyness). To try and maintain higher harvest pressure on goat populations in this area



during December 1996 the Department employed the services of a professional contract hunting firm.

The team covered the whole treatment block with a complete sweep using four DOC certified hunter/dog teams. A total of 84 effective hunter days resulted in the removal of 143 goats, four pigs and eight deer. Each goat kill was mapped to provide a distribution map for future reference (see map, page 53).

As a result of this map, future reworks of the area are likely to focus on the areas of higher goat concentrations identified during 1997. The contract will be repeated over three consecutive years before being reviewed.

Chatham Island Visit

In January co-editor Cam Speedy spent two weeks on the Chatham Islands catching up with friend and (temporary) ex-colleague Dave



Chatham Island wild sheep and cattle country. Relentless grazing and browsing has opened up the coastal forest to the stinging bite of southern ocean storms. The canopy dies and the lack of regeneration causes forest collapse. The result is grassland which provides no future for the native flora and fauna.

*Typical
Chatham
Island rams.*



Lumley, previously Field Centre Manager at Turangi, who has been seconded to the Chatham Islands Field Centre for two years.

While principally an R & R trip, Cam managed to get in some off-shore Islands and to look into a few local animal management problems, in between catching, collecting and sampling the still plentiful (but for how much longer?) sea food.

A day in the rain-forest of the 'Taiko country' on the south coast hunting wild sheep and cattle was a real highlight although the impact these animals are having on the forest ecology is a sobering reminder of the devastation introduced animals can have if they are not managed.

Kaimanawa Goats

Hunters in the Waipakihi Valley of Kaimanawa Forest Park have reported seeing feral goats in the valley and this has now been confirmed. A young billy goat was found dead on the true left

(eastern) river flats about 3km downstream from the Urchin Track, but above the gorge, in the mid-valley area in December. A second billy was also seen alive in the same area but was not shot. The hunter is confident about what he saw and while he feels there may only be very few animals present, any goats in such a place is a real concern. How feral goats got into the valley is a real mystery as there are no close farmed or feral populations. If it is a malicious act aimed at DOC it is a very foolish one, for goats in the valley will compromise the habitat values as much for deer hunters as it will for native fauna and flora.

Hunters who have further information or who visit the area this autumn and see or shoot goats in the valley are asked to provide details on their hunting diaries or to telephone the Turangi office. Any assistance hunters can provide on this matter would be appreciated.

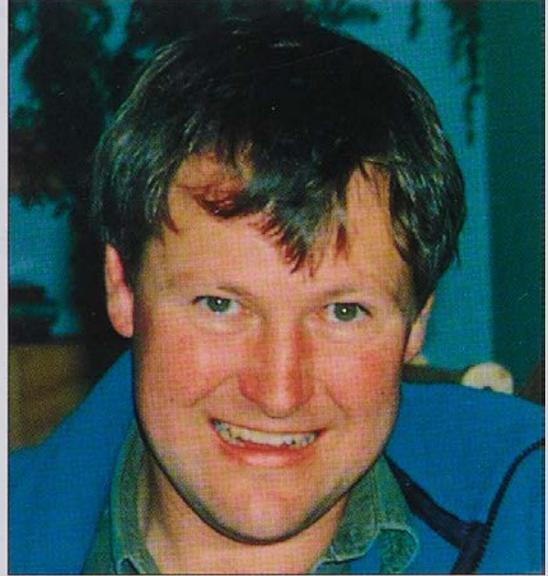


Have feral goats been released or escaped into the Waipahibi Valley?

Team Profile

Terry Slee

Terry Slee took over as manager of Turangi Field Centre in November last year when Dave Lumley left for a two-year secondment to the Chatham Islands. Since 1990 Terry has coordinated the management of recreation facilities, tourism concessions and historic sites in the Tongariro/Taupo



Conservancy. He has a broad knowledge of areas throughout the conservancy, especially those with high visitor use and recreation issues that have needed more intensive management and allocation of resources.

Prior to moving to Turangi in 1990 Terry spent two years getting a taste of head office life in Wellington with the then New Zealand Tourism Department, working on various conservation/tourism issues and developments. Before that he spent three years in Franz Josef, at Westland National Park, and did stints at numerous other South Island national parks and forest service areas in between studying parks and recreation management at Lincoln.

In the last 18 months he has been an integral part of the setting up of quality management systems for recreational facilities in this conservancy, as part of the Department's national programme to introduce such management systems across all conservation work.

Terry sees the opportunity created by Dave heading to the Chathams as one that allows him to become involved in a broader range of conservation work at a more operational level - and he's had to move only across the deck and 20 metres down the hallway. He's hoping that in the next two years he'll be able to develop a better knowledge

of the Kaimanawas, a major part of the field centre but an area that required little involvement from him in the conservancy recreation role.

At 35 Terry says he has a fairly settled life. Julie, his wife, is the local Conservation Board executive officer, and a past member of the *Target Taupo* production team. Son Adam is four. Family, home improvements and a splattering of outdoor leisure activities and sport keep him occupied outside of work.

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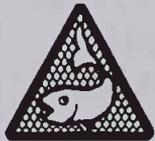
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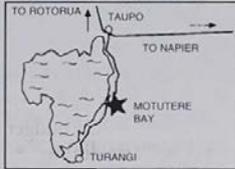
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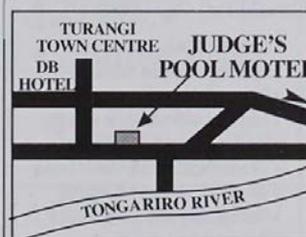
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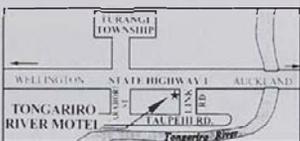
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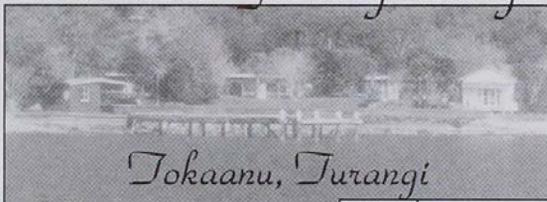
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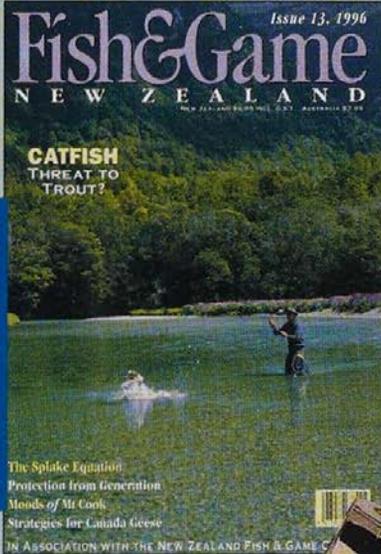
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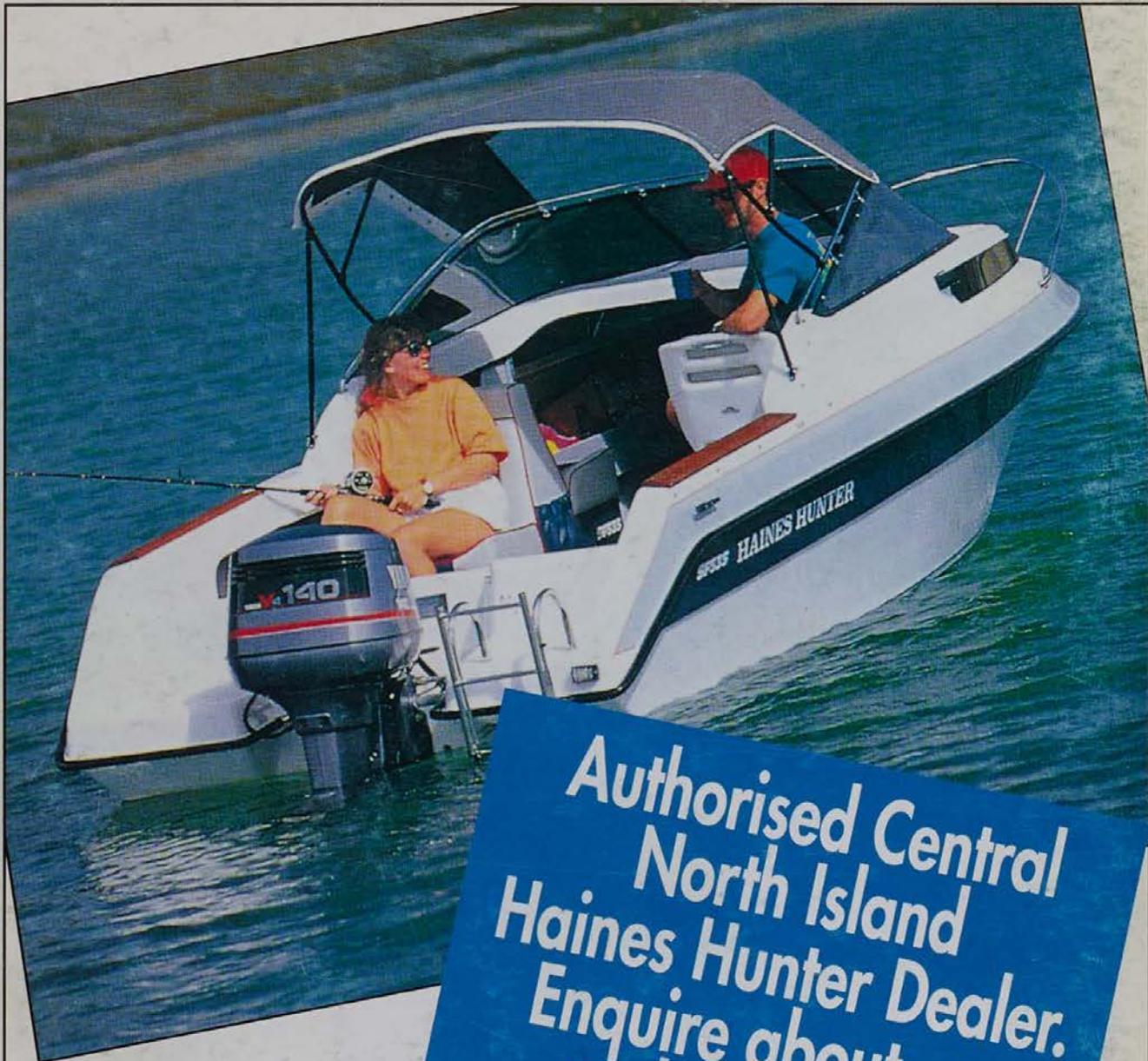
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