TARGET TAUPO

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

NOVEMBER 1995 ISSUE 20

Department of Conservation
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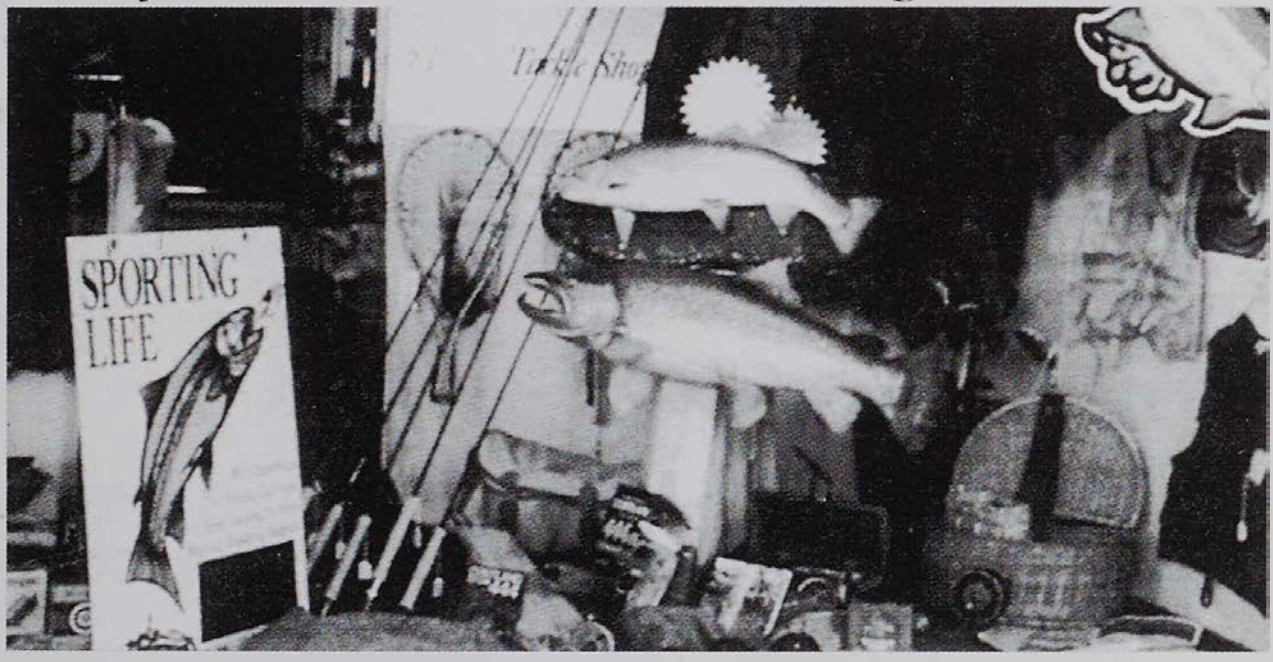

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Target Taupo

A newsletter for hunters and anglers in the Tongariro Taupo Conservancy

NOVEMBER 1995, ISSUE 20

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

ISSN 0114-5185

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Cover Photo: Winter 1995 dominated by nature. From left, Brendon Smith, Chris Harris, Mike Richards and Adrian Richards enjoy the unusual experience of fishing in heavy snow on the Tongariro River on 19 July.

Winter Hunting Summary

by Cam Speedy

Severe storms through July had a big impact on deer and deer hunting in the central North Island this winter. Record snow falls blanketed the high country above the 800 metre contour for most of July and August.

The few sika fawn jaws provided by hunters in August and September (sample size of 4) all had smaller than expected jaw lengths based on the averages from the present herd database of over 1500 sika jaws assessed since 1984 and was apparent even from the Clements Road area which usually produces deer 6% - 8% bigger than average. This suggests that fawn growth, and probably survival has been affected by the severe climatic conditions. If this is the case it will show up through the coming summer as reduced sika yearling numbers and generally smaller red and sika yearling size (both jaw length and body weight). Older animals may also have succumbed to the cold so the odd dead deer will not be unexpected, especially in the higher altitude sika habitats.

It is interesting to note that because of their larger body size and hence greater volume to surface area ratio, and perhaps for other physiological reasons, red deer appear to be more resilient to the extremes of winter than sika. Red deer are at home in the highlands of their native Britain, Europe and Asia while sika deer are a forest dweller of the lower altitude forests of central and eastern Asia.

The consistent cold, wet weather also restricted the hunting effort. Just over 1200 hunting permits were issued for the June to September period for the Tongariro/Taupo Conservancy which is well below the six year average of 1445. The six year high was in 1991 when 1794 permits were issued during the winter period. As at 20 October 200 hunting diaries had been received documenting just 750 days hunting during the winter. A massive 40% of diaries received showed no hunting done giving some indication of the influence the weather had on hunting effort. Just 21% of hunters reported at least one kill which reflects the difficulty of locating game tucked away for the winter out of the weather.

Most hunting tended to be close to the vehicle with Clements Road and Kiko Road accesses to Kaimanawa Forest Park being very popular. Tongariro Forest also appeared popular as did the southern end of Tongariro National Park in the Ohakune and Rangataua areas.

Hunters who have good local knowledge of their chosen area and of seasonal game distribution appeared to be the most successful through winter. Interestingly, deer numbers in that portion of Tongariro Forest poisoned with 1080 carrot in June do not appear to have been seriously affected by the poison operation. Local hunters and DOC staff report seeing plenty of sign and deer through September as the grass began to flush along the roads and on the clearings. Hunters are advised to visit the area and make up their own mind about the level of deer kill rather than listening to the rumours and thereby perhaps overlooking what is still a productive hunting opportunity.

A summary of the reported hunting effort and game harvest from the conservancy so far this year is provided in Table .. This data includes all reported hunting from the period 1 January to 30 September 1995 but reflects only those hunters who have returned hunting diaries (approximately 25% of hunters who obtained permits). It provides a useful guide as to just how many deer recreational hunters remove from the conservancy each year. The true hunting effort and harvest is approximately three times what is documented.

The most notable point from this data is that the average kill rate in the conservancy continues to fall overall with currently just under 200 deer being harvested per 1000 days of hunter effort. Based on current estimates the present deer harvest from public land in the conservancy is approximately 3000 animals. Other interesting points are that Tongariro National Park continues to be the most productive deer hunting area in the conservancy excluding Erua forest where a few local hunters account for small numbers of deer very efficiently. Also a reliable source has reported taking sika deer from Erua Forest for the first time this year. Sika have been known from the southern slopes of Ruapehu for some time now but they had not reportedly crossed State Highway 4 into Erua Forest.

TABLE 1:

Tongariro Taupo Conservancy Recreational Hunting Summary

Area	Days Hunted	Encounters				Kills				Kills/1000 Days Hunted
		Sika	Red	Pig	Goat	Sika	Red	Pig	Goat	
Kaimanawa Recreational Hunting Area	852	582	19	2	-	133	2	1	-	160
Kaimanawa Forest Park (excluding RHA)	846	450	136	2	-	122	47	1	-	202
Tongariro National Park	305	13	185	1	-	3	81	1	-	279
Tongariro Forest	390	-	192	3	133	-	72	2	62	190*
Erua Forest	65	2	42	-	96	2	24	-	33	400*
Rangitaiki Forest	76	68	10	4	-	16	2	-	-	237
Lakeshore Reserves	No Data Provided									
Unspecified Returns	210	-	-	-	-	11	18	-	2	138*
Totals	**2761**	**-**	**-**	**-**	**-**	**297**	**244**	**5**	**97**	**198***

* **Only deer and pig kills have been used for comparative purposes.**

Winners of the hunting diary prize draws for the autumn and winter permit periods follow. In total these hunters have shared over $2,500 worth of prizes:
Air

Transport with Air Charter Taupo: G Demsey, Taumarunui; M Benseman, Rotorua

Air Transport with Lakeland Helicopters: A Brassett, Auckland; P Lawrence, Katikati

Ammo from the NZ Ammunition Co. Ltd: P Harris, Whakatane; L Mischler, Auckland

Stoney Creek Outdoor Clothing: R Thorburn, Whangarei; R Hawkins, Whangarei

Bush Hunter Outdoor Clothing: A Sivyer, Owhango; R Budd, Putaruru

Sports Goods from "The Fly and Gun Shop": M Jones, Hamilton; B Taylor, Kawerau

Sika Safari Video from Neil Philpott: C Mitchel, Warkworth; S Featherstone, Auckland

Warm moist conditions for a prolonged period in September got spring off to a great start this year but unfortunately Mount Ruapehu may have had the last say on hunting conditions this growing season. Ash fall from the mountain is likely to have some impact on all forests east of Tongariro National Park for the next few months. A large eruption of ash on 11 October followed by what appears to have been almost non-stop ash eruptions since 15 October has blanketed most of the Kaimanawa/Kaweka area in several centimetres of ash. This will make clean water supplies hard to find for both hunters and deer for some time and has coated most of the vegetation making it less palatable to deer. The abrasive nature of the ash is likely to cause unusually high deer tooth wear this spring making age estimates from tooth wear patterns a little unreliable over the next few years.

The impact of the ash covered vegetation on deer condition is difficult to predict at this early stage.

Hunting to the west of Ruapehu away from the main ash showers should still be productive this summer with the Hauhangatahi Wilderness Area of Tongariro National Park certainly worth a look. Good numbers of deer are also still to be found in Tongariro Forest. The Rangitikei catchment of Kaimanawa Forest Park will produce plenty of hinds for the fly-in parties during the helicopter access period through November/December if the ash doesn't have too much impact, but don't over look this area for the roar either. You will have to walk in, but the rewards will be worth the effort. Fewer hinds has reduced herd pressure on the vegetation which will allow the remaining deer to obtain better nutrition and will result in intense competition between well conditioned stags for mates in autumn. The hunting will be exciting!

Please keep the hunting diaries, deer jaws and wildlife sightings rolling in and please, take your rubbish out of the bush this year!!

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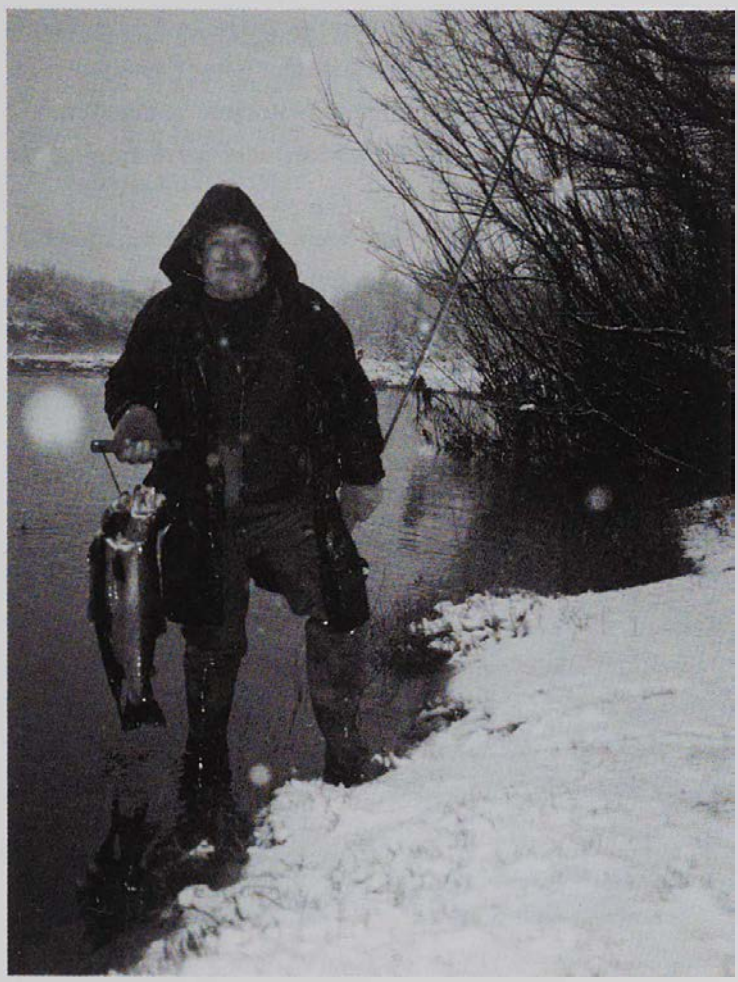
Something Fishy

WINTER FISHING SUMMARY

Nature has provided some awesome variations in fishing conditions this winter. An unusual weather pattern on 17 July provided the very rare opportunity to fish for Taupo rainbows amidst thick snow. Snow up to 150mm deep lay right down to the mouth of the Tongariro River for most of the day and combined with reasonable fishing at the time, provided a unique experience for most anglers.

A very memorable morning for Barry Ryan



Then on the 6 and 7 September a flood of 750 to 800 cumecs (normal flow about 30 cumecs) in the Tongariro re-arranged large stretches of the river. At this flow the whole bed moves and even large boulders can be heard bouncing along. Not surprisingly, the river has markedly changed shape and next season anglers will once again need to explore to find the new lies. Hot spots like the Cliff Pool and the bottom of Judges are gone, but a number of old favourites have regained their former glory. While this flood, which struck all the eastern rivers, will have had a very detrimental impact on spawning which had already occurred it is fortunate it did not occur a month or so later.

September is the peak month for spawning at Taupo and many fish were yet to spawn when the flood struck. These fish comfortably survived the flood and in the weeks following, intense spawning occurred. It is also evident that some eggs must have survived in the gravels, because newly emerged fry were present in streams like the Whitikau within three weeks of the flood.

Towards the end of winter Mount Ruapehu made its presence felt. While several highly acidic and toxic mud flows or lahars spilled down from the crater these did not enter any of the tributaries draining into Lake Taupo. The largest went into the Whangaehu River to the south which is the natural outfall from the crater lake and is always acidic. However, a second lahar washed into the Mangaturuturu Stream on the western side of the mountain. The ph (a level of acidity) was measured as low as 3.5 where State Highway 4 crosses the stream. Native fish such as torrent fish and bullies, along with trout, were found dead in this stream and in the Manganui-a-te-ao, into which the Mangaturuturu drains. However some fish will have survived in the Manganui-a-te-ao by swimming into the unaffected tributaries and in the lower river the effects will be diluted by water from other tributaries. A small lahar also washed into the Whakapapaiti but its impacts were negligible and no dead fish recorded.

A feature of the angling this winter has been the large number of anglers on both the Tongariro and Tauranga-Taupo rivers. Crowding was an issue last season on the Tongariro but really became an issue this year on the Tauranga-Taupo as well. The Tauranga-Taupo has fished well in recent seasons but it is not as easy a river to fish as first impressions often suggest. When conditions are favourable most people readily catch fish but particularly under low clear conditions many anglers are disappointed with their lack of success. Beginning anglers who lack a little finesse with their casting or fishing often get away with it on the deeper more turbulent Tongariro, but on the Tauranga-Taupo get very frustrated when their best efforts spook the fish.

Generally it has been a good season on the Taupo rivers characterised by very good spells and some relatively quiet spells rather than consistent success throughout the winter. Regular rain through autumn saw some very good early season runs enter all the rivers.

The Hinemaiaia and Waitahanui fished well but it was noticeable that anglers struggled to get onto the early fish in the Tongariro despite large numbers passing through the Whitikau trap.

Whether it was a consequence of the higher flows in the Tongariro or not it appeared that the trout held for longer periods in the lower river below the state highway bridge this year. Anglers who fished this area regularly commented to us that they had a good season whereas it was apparent that many experienced anglers found the fishing in the upper river quite patchy. It was noticeable though that some anglers nymph fishing did not adjust their technique to the higher flows which prevailed through much of the winter. This was brought home one morning when the author took a friend out to catch his first trout. After some fairly rudimentary casting lessons he was able to get his fly up to 10 metres on a regular basis. He nymph fished three popular pools during the day, inevitably only able to cover the very quiet water well inside the current line. He had at least six good strikes, lost a couple of good fish and finally landed a very worthy fish for his first. What was noticeable though was that for most of the day he had other anglers fishing around him, most of whom were very proficient casting sometimes twice as far as him. Yet between the lot of them they didn't have as many strikes as he had by fishing at his feet.

One of many big fish this winter. Conservation Officer Harry Hamilton holds a 5.55kg (12.2lb) Taupo rainbow taken in the Tokaanu Trap. Fish up to 5.9kg (13lb) have been reported from the Tongariro River

From mid-August flows diminished a little, the upper river began to hold more fish and catch rates improved but by the end of August most anglers had given the fishing away. This happens every year and every year those anglers who do continue fishing through September have some of the best

fishing of the winter coupled with having to compete with far fewer other anglers. This year was no exception.

Another feature of the fishing this winter has been the large size (though smaller than last year) and excellent condition of the fish. For example, the average size of rainbow trout through the Whitikau trap this year is 545mm long and 2kg in weight (see Whitikau Trap Update).

One of the advantages of the recent floods is that many of the kelts which have completed spawning have already been washed back into the lake where they should be able to regain condition quickly by feeding on smelt. This should aid the survival of these fish which might otherwise have died from the stresses of spawning while still in the river. These fish will feed vigorously and contribute much to the spring harling action in the lake.

A strong year class entered the legal size fishery last summer and this season's year class should also be large as it is unlikely to have been significantly affected by last spring's major floods. These floods however may have had an impact on the following year's juveniles which at the time were newly emerged from the spawning gravels.

It should be another good summer's fishing on the lake.

ERUPTION UPDATE

Since writing the winter summary the eruptions have continued. On the night of 11 October a large eruption deposited volcanic ash through the Kaimanawa Ranges to the north east of Mount Ruapehu. Significant ash deposits fell into all the eastern tributaries of Lake Taupo with the most obvious impacts in the Tauranga-Taupo south to the Tongariro. These rivers ran a 'concrete' grey, had no visibility into the water and gave off a strong foul smell. The rivers started to clear within 24 hours but heavy rain on the following Sunday (15 October) washed ash off the surrounding land into the streams and brought the rivers back to a similar state, though this time accompanied by high flows.

The initial deposits caused a localised kill of adult spawning trout in the Whitikau Stream but few other dead fish were reported. Early indications were that these deaths were as a result of the fish's gills becoming clogged rather than a toxic chemical effect. However, when results from analysis of the samples collected are available they will provide more information on this. For the second time this winter our radio tagged fish proved invaluable and we were able to use them to assess the impact of the ash laden water on the behaviour of fish in the Tongariro River. On the Friday (13 October) more than 90% of those tracked on the Wednesday, hours before the eruption, could still be located alive in similar positions in the river.

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AA HOST ACCOMMODATION

This is likely to be indicative of the overall survival in the rivers following the initial event. However, following the flood on the weekend it appeared many of the radio tagged fish had begun to drop down the river. Nearly all the fish can be accounted for but most are in positions many kilometres downstream from the previous week. Whether this was an active movement to leave the system or an indication the fish were sick and being swept passively downstream, is unknown.

However, by Tuesday, 17 October, anglers were reporting catching fish in the lower Tongariro as once again it had cleared.

Any impact on juvenile trout, the eggs in the gravels or the invertebrate populations is difficult to assess in the present murky conditions.

Fry have been observed swimming along the edges in all the affected rivers. Electric fishing in the Whitikau on 18 October turned up large numbers of juveniles so the outlook seems positive.

A number of agencies, including DOC, NIWA and the Regional Councils, will be involved in monitoring various physical and biological parameters over the next few months and studying the response of the streams to this eruption event.

The eruption almost certainly has had, or is having, some impact on the fishery. All sorts of scenarios are possible which are complicated by the possibility that the volcano has not yet finished erupting. At present we are optimistic but it's in the hands of mother nature!

WHITIKAU TRAP UPDATE

As this edition of *Target Taupo* goes to print the operation of the Whitikau trap is nearly over for this year. Predictions of a mild winter were quickly dispelled by some of the heaviest snow falls for many years. Twice the trap was blanketed by a foot of snow. However, the operation of the trap has gone relatively smoothly. Snow falls in the high country (instead of rain) enabled the trap to remain operational for most of the winter.

The very large flood in early September though, did result in the trap being out of action for four days.

The numbers of fish recorded this year are well up on last year. This is the result of a more efficient trapping operation and more fish in the river. The following table outlines the numbers of fish trapped each month, the running total for the year and how this compares with last year.

Of interest is the variation in average length of the trout. The following table gives a comparison of average lengths for 1994 and 1995 (up to the end of September). Such average sizes are very high for the Tongariro. For example, the average size of angler caught rainbows in the Tongariro between 1985 and 1989 fluctuated around 540mm in length. These averages tend to be biased upwards as anglers often release the small or poor conditioned fish, whereas all fish through the trap are included in the trap figures.

The Whitikau trap is run as part of a project to estimate the size of the spawning run into the Tongariro River each year. The trap is designed to be lowered during floods to prevent damage (see articles in previous editions of *Target Taupo*). In light of the September floods and October ash events this trap will be a very important tool to monitor any fluctuations in the trout population over the next few years.

TABLE 2: MONTHLY TOTALS OF FISH THROUGH THE WHITIKAU TRAP IN 1994 AND 1995

MONTH	1995 MONTHLY TOTAL	1994 MONTHLY TOTAL	% CHANGE
January	99	201	-102%
February	389	163	+139%
March	726	357	+103%
April	1030	527	+ 94%
May	1280	1116	+ 15%
June	1299	1009	+ 29%
July	1184	1140	+ 4%
August	915	264	+247%
September	1042	688	+ 51%
To date	8034	5465	+ 47%

TABLE 3: AVERAGE LENGTH (MM) OF RAINBOW AND BROWN TROUT THROUGH THE WHITIKAU TRAP IN 1994 AND 1995

SPECIES/SEX	AVERAGE LENGTH (MM)	
	1994	1995
Rainbow	553	542
Brown	588	584

SPAWNING COUNTS

Long periods of high, slightly discoloured flows in the Taupo rivers this winter have made counting of spawning fish difficult. Usually counts are made once a month over winter by walking or drift diving selected stretches of the Hinemaiaia, Waimarino and Whitikau streams. In addition, local members of Trout Unlimited count a section of the Waiotaka River within the Tongariro Prison. Regular floods have also complicated the counts by washing the kelts out of the rivers as soon as they have spawned. In normal years they would remain in the river for several more months and so appear in the totals for those months. Even so, counts in the Hinemaiaia are the highest since surveys began in 1990. The Waimarino count is also high. The counts in the Waiotaka and Whitikau are significantly smaller than those of the last two years. This illustrates the impact of the frequent freshes as the actual number of spawners passing upstream through the Whitikau trap is approximately 50% higher than last year.

The Whitikau trap provides the most accurate assessment of the size of the spawning population in this very important spawning tributary. However, this is not a practical option for the other streams and the counts, particularly if considered in light of the prevailing conditions and our own observations, provide some index of changes in the size of the spawning population.

TABLE 4:
MAXIMUM COUNTS OF SPAWNING FISH IN SELECTED STRETCHES OF FOUR TAUPO TRIBUTARIES BETWEEN 1990 AND 1995

	MAXIMUM MONTHLY COUNTS					
	1990	1991	1992	1993	1994	1995
Hinemaiaia	647	239	564	496	755	885
Waimarino		615	978	758	684	715
Waiotaka				927	839	493
Whitikau		977	1849	2287	2047	1331

The size of the spawning population is perhaps the best measure of the overall state of the fishery. These fish are nearing the end of their life cycle and have had to survive all of the natural hazards and man's influences to reach this stage. If large numbers are surviving to reach the spawning streams it is a reasonable indication that at least at present nothing too untoward is occurring in the fishery.

WINTER RIVER FISHING SURVEY RESULTS

During July and August many anglers fishing the Tongariro and the Tauranga-Taupo Rivers have been interviewed by fishery officers about how many fish they caught and how they felt about the fishing this winter. This satisfaction survey is now in its fourth year and shows some interesting trends. The catch rates (fish caught per hour of fishing effort) are shown below.

TABLE 5: OVERALL CATCH RATES FOR ANGLERS INTERVIEWED ON THE TONGARIRO AND TAURANGA-TAUPO RIVERS 1992 TO 1995

RIVER	1992	1993	1994	1995
Tongariro	0.27	0.30	0.21	0.24
Tauranga-Taupo	0.23	0.41	0.31	0.27

These catch rates show the Tauranga-Taupo is still producing more fish per hour of effort though the difference between the two rivers is not great. The continued drop in the number of fish caught per hour on the Tauranga-Taupo may be a reflection of the increase in angler numbers that has been observed on this river over the last few years. We don't have any records or estimates of total effort from earlier years on this river but flights undertaken this winter have shown that the Tauranga-Taupo can often have a higher density of anglers than the Tongariro (see Harvest Survey update). A further breakdown of catch data shows considerable differences between methods for the two rivers (Table 6).

It appears that nymph fishing is not always the most productive method and although wetfly anglers only expended 15% of the effort on the Tauranga-Taupo they caught more fish per hour than their friends nymph fishing.

TABLE 6: THE CATCH RATES FOR DIFFERENT FISHING METHODS IN THE AREAS SURVEYED

	TAURANGA-TAUPO	TONGARIRO
Floating Line - CPUE	0.27	0.26
Sinking Line - CPUE	0.34	0.15

TABLE 7: THE PERCENTAGE OF THE TAKEABLE FISH RETURNED FOR DIFFERENT FISHING METHODS IN THE AREAS SURVEYED

	TAURANGA-TAUPO	TONGARIRO
Floating Line - % returned	33%	44%
Sinking Line - % returned	19%	16%

It is interesting to note that there is generally a much higher percentage of fish returned by nymph fishing anglers than wet fly anglers (Table 7).

Last winter's figures showed that Tauranga-Taupo anglers returned 41% of fish caught, compared to only 29% of the Tongariro catch returned. This trend can also be seen with the figures from this winters survey showing 39% and 30% of the total catch returned for the Tauranga-Taupo and Tongariro respectively.

Last year catch rates for nymph anglers on the Tongariro had fallen slightly from previous winters and we suggested that the increase in river flows had caused a few problems with some anglers having difficulty adjusting their approach.

Nymphing catch rates this winter are better than last year in the upper and middle Tongariro, though, particularly early in the winter, it was evident that some anglers were finding it hard. Wet fly anglers in general have also had a much better winter's fishing in the middle section of the Tongariro, but their catch rates for the lower part of the river are the lowest recorded since these surveys started. Interestingly though, some experienced wetfly anglers report that they have had a very good winter fishing this part of the river. The continually changing nature of the Tongariro can be seen after each flood and changes in flow also produce subtle or sometimes dramatic changes in everyone's favourite pool.

Another important factor in these annual surveys is the findings on how anglers rate various aspects of the Taupo fishery. Anglers are asked, from a scale of 1 to 5, where 1 is terrible and 5 excellent, how they rate the size and quality of the fish they caught and their success and enjoyment fishing this season. Table 12 below shows how anglers perceptions of the fishery have changed in the last four winters.

It is apparent that anglers have rated the size and quality of the fish this year slightly lower than those caught last year. It is interesting to note that the fish recorded running through the Whitikau trap this winter also show a similar trend (see Whitikau trap update) though the size of the fish is still high compared to past years.

A spectacular eruption of Mt Ruapehu

TABLE 8: AVERAGE RATING GIVEN BY ANGLERS INTERVIEWED 1992 TO 1995

	TONGARIRO				TAURANGA-TAUPO			
	1992	1993	1994	1995	1992	1993	1994	1995
Size of fish	3.7	4.2	4.2	3.8	4.0	4.2	4.2	4.0
Quality of fish	3.8	4.3	4.2	3.9	4.1	4.3	4.3	3.9
Your success	3.5	3.7	3.6	3.4	3.6	3.9	3.9	3.6
Your enjoyment	4.3	4.8	4.6	4.6	4.8	4.8	4.8	4.7

Anglers perceptions of their own level of success has fallen slightly for both rivers surveyed, but the level of enjoyment is still very high and is great to see that people get real pleasure from fishing these waters.

The final part of this survey looks at what anglers see as detractions to fishing on these rivers. On both the Tongariro and Tauranga-Taupo around 45% of anglers interviewed said there was nothing that detracted from their experience. Overcrowding came up again on the Tongariro with 24% of anglers commenting this winter compared to 17% last year and 30% in 1993. Another common detraction for both rivers surveyed was the lack of etiquette shown by fellow anglers, and rubbish caused concern for the Tauranga-Taupo anglers.

These perceptions are very useful as it gives us an important feel for how the users themselves see the fishery. As managers, this guides us on the allocation of our resources, and on anglers' ideas on how best to solve any issues. Thank you to all those 724 anglers who gave five minutes of their time to rate aspects of the fishery and tell us of any concerns they had this winter.

FULL SEASON HARVEST SURVEY UPDATE

The 1995-96 fishing season harvest survey is well under way and the Tongariro River section is nearly completed for this winter. Aerial flights over the Tongariro have given the highest single count this season of 96 anglers, which is considerably lower than that of 121 anglers recorded in early July 1990. However, a closer look at the total 1995 counts suggests that angler effort on the Tongariro is similar to that estimated for the same period in 1990.

Extra flights over the other eastern Lake Taupo rivers have been incorporated this season to help with the New Zealand Fish and Game Council's National River Angling survey. They have shown that the effort on the Tauranga-Taupo has indeed been as high as everyone has mentioned, with counts exceeding 30 anglers common for July and August. The Waiotaka, Waimarino and Hinemaiaia rivers generally attract very few anglers while the Waitahanui has a highest count of 23 anglers which reflects how popular the lower 300 metres of this river can be.

The Lake Taupo flights conducted so far this season have shown that effort over the winter has been predictably low, although a marked increase in the number of boats on the lake has been seen since late September. The fish are obviously moving into the shallower water as early morning harling catches have become much more apparent in the data. The winter catch rates have yet to be analysed fully but we will let you know how they compare with the 1990 figures in a later issue.

With around 50 survey days left this season there's still a lot of work to do and a lot of information to be obtained. The interviews themselves only take three minutes or so, and every one counts. If you are approached by a DOC interviewer, please give a few minutes of your time to answer some simple questions and have your chance to help the Taupo fishery.

FISHING LICENCE SALES

Taupo District fishing licence sales increased in the 1994/95 season by 2,656 (approximately 4%) from the previous season. The total number of licences sold was 70,705 compared to 68,049 for 1993/94.

The most significant increases were in adult season (+1281), child season (+609) and child day (+2813). Adult week and day licences increased by 376 and 280 respectively, with a drop in sales of adult month licences of 77.

From around 130 agents throughout the North Island who sell Taupo District licences the top selling agents for the 1994/95 season were Taupo Launchmen's Association, Punch's Place, Kinloch Store, Omori Store, Sporting Life, Te Rangiita Store, Fly & Gun Shop and Greig Sports. Thanks to **all** agents for their prompt reconciliations each month.

NEW UNIFORM

A new uniform for Department of Conservation staff was unveiled on the 4 October. Quite different in colour, the new uniform is based on natural tones of green and brown. The photograph on page 23 shows staff modelling the winter field uniform.

INFORMATION SIGNS

You may have noticed a difference in the fishery information signs. As part of annual maintenance of the signs we have taken the opportunity to modify them to fit with new Department of Conservation sign standards.

While on the subject of signs - has anyone seen the one that was installed just off State Highway One at the Waiotaka River access entrance? If you have any information regarding the whereabouts of this sign please contact the Fishery Manager.

Staff model new DoC uniforms

Conservation Officer Harry Hamilton stands beside an upgraded sign on the Waimarino River

FLOOD DAMAGE

What a mess the September flood left us! Access tracks are gone, debris is strewn throughout the rivers, bank erosion and silt piled up everywhere. Most affected is the Tongariro River where large areas of the river have been completely re-shaped. Similar but lesser damage has also affected the Tauranga-Taupo, Hinemaiaia and parts of the Waitahanui.

It's going to take us a while to sort through this one, so please have a little patience.

WALKING TRACK FROM THE BLUE POOL CAR PARK TO THE WHITIKAU POOL

This track on the true left bank of the Tongariro River is across Justice Department land and is for walking access only. Vehicles are not permitted and to ensure this rocks have been put across the track, along with a sign reiterating this message.

BLAKE ROAD SUBSIDENCE

Heavy rain in the middle of winter caused a portion of Blake Road to subside, just past the entrance to the Gordon Williams Pool car park on the Waitahanui River. As a precaution the Department installed signs warning anglers not to drive past this point until an engineering report on the road could be obtained. A number of anglers though have chosen to ignore this warning and are taking an unnecessary risk.

The report has recently been received and it suggests the road can be repaired but at a cost. However, no decision has yet been made as to whether the benefits to anglers of re-opening the road merit this cost which is not provided for in the current year's budget.

JULY *TARGET TAUPO* MAILOUT

The July mailout of *Target Taupo* to all adult season licence holders proved to be a great success and enabled us to get information out to many more Taupo anglers. We now have a much larger subscription list! Our booklet *Wild Trout* and the Taupo Fishing Regulations were also very popular and we hope you have been able to glean some useful information from these. For those of you who purchased copies of the regulations brochure we will distribute amendments when they occur.

The March issue of *Target Taupo* will have the names of those new subscribers' who have won themselves a complimentary adult season fishing licence for the 1996/97 season.

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TONGARIRO NATIONAL TROUT CENTRE

Visitor numbers for the first four months of the year were down by almost 10 percent compared with 1994. Then in May somebody pulled the counter out and threw it into the bushes, and it has not worked the same since. Children's fishing days were again popular and attended by a total of 1280 budding anglers. In addition, visits by school groups introduced another 560 young anglers to the art of fly fishing.

An interactive children's display is nearly completed at the Conservation Design Centre in Nelson and is expected to be installed in the viewing chamber in November, after the building has been repaired and re-roofed.

The flood in the Tongariro River in early September washed the river walk away and removed a 2 x 200 metre strip of riverbank between the Upper Birch and Birch Pools. It also backed up the Waihukahuka (Hatchery) Stream until it overflowed into the viewing chamber. The electrician who came to check the chamber after it had been pumped and mopped out discovered that water had also been descending from above and shorting out plugs and switches behind the walls, the leaky roof obviously more extensive than it had first appeared to be.

The Trout Centre Trust Committee quickly approved finance for the repairs and the river walk has already been reinstated. The viewing chamber and carpets have been dried out and work is about to start on a new roof.

The leak into the bottom room occurs when the water level becomes higher than the sealed concrete foundation of the building - caused by the Tongariro River rising more than 2.5 metres and backing up the Waihukahuka Stream. Repairs would entail a rebuild which is unlikely unless the place was to get flooded more frequently than the once every 10 years as has happened so far. The previous flood was in January 1986.

The Centre did not escape the close scrutiny of the Occupational Safety and Health inspector following the Cave Creek tragedy. Several thousand (unbudgeted) dollars had to be spent on modifications to the rails around the stripping pens and on handrails for the bridge across the Waihukahuka Stream. The bridge handrails introduced another hazard, youngsters are observed doing acrobatics on them and an Asian visitor, one of the first to cross the bridge when it was re-opened, used the handrail to climb into a tree overhead to have his photograph taken.

MANAGEMENT PLAN APPROVED

The Minister of Conservation has approved the Taupo Sport Fishery Management Plan.

This is the first time such a plan has been prepared for the fishery and it sets out the management goals to be achieved over the next ten years.

The purpose of the Department's management of the fishery is to provide and enhance opportunities for trout angling. It is essential that the long term sustainability of the resource is protected and the plan establishes the guidelines for that purpose.

The document is currently being printed and its availability will be publicly notified. It will be obtainable through the Department of Conservation, Turangi.

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COMPLIANCE UPDATE

Labour Weekend will signal the start of the summer season for lake anglers and reports indicate some good early season catches. Confusion still appears to exist over allowable cable length for the use of downriggers. The maximum that can be fitted is 40 metres. If in doubt check to avoid the possibility of any inconvenience later.

The upper reaches of Taupo rivers are closed for spawning and re-open on 1 December. Check the map on your licence or contact our office if unsure of the boundaries.

If in doubt about the identity of an officer when asked to produce your fishing licence ask to see the identification of that person. From time to time bogus officers appear and try to seize fishing gear for mythical offences. Should you strike one of these people contact us as soon as possible.

Several offences were detected in the past few months because of prompt action by members of the public in passing on suspicious activity. Should you observe some activity that you are unsure of contact the Department as soon as possible.

At a recent court appearance two offenders were convicted and fined a total of $2,200.00 for netting trout, and also had their gear forfeited to the Crown. The information received proved timely and effective.

TE WHAIAU/OTAMANGAKAU DREDGING

As part of the maintenance of the Tongariro power scheme, ECNZ need to periodically remove accumulated sediment from Lake Te Whaiau and the Te Whaiau and Otamangakau canals to allow free passage of water from the western diversions to Lake Otamangakau. In past years this has been done with a cutter suction dredge chosen for its efficiency and least environmental disturbance. The corporation has applied for resource consents to undertake this dredging over a period of several months commencing late this year.

DOC liaised closely with ECNZ and the Manawatu Wanganui Regional Council to come up with a set of conditions to protect the trophy trout fishery. After some variations, consent has now been granted and it is expected construction of the settling ponds which receive the dredged silt and water will be under way soon.
The key conditions control the timing of dredging and the turbidity effects of dredging and settling pond discharge. ECNZ have also agreed to bring forward the start of the research project earlier agreed on to investigate the trout fishery. This will examine the effects of dredging as well as different lake level regimes on the fishery. No doubt the information collected by DOC over the last two years will be of great assistance to this study.

HINEMAIAIA EROSION

The long running saga of erosion in the lower Hinemaiaia River continues. Recent meetings between DOC, Taupo District Council, Opawa-Rangitoto Incorporation, Environment Waikato, Hatepe Residents Association and Forest and Bird Society have seen the basis of agreement reached on future management of the river banks below state highway one. The former Taupo Electricity Ltd was also represented and it is hoped its new owners will take part in future consultation.
DOC's view is that the erosion is part of a natural process which may have been accelerated by human intervention. We have, somewhat reluctantly, agreed to limited removal of instream debris (fallen trees) and stabilisation of some eroded bank areas with native plants. We do not wish to see wholesale removal of all instream debris as these provide important cover for juvenile trout rearing and shelter for migrating adult spawners. Similarly, we would not support hindering fishing access by close planting of the banks with species such as willows.

Quality Deer Management for New Zealand ?

by Cam Speedy

In June 1995, I was fortunate to spend a week in Tasmania in the company of American deer biologist, Brian Murphy, who was at that time under contract to the Tasmanian Deer Advisory Committee to help put their wild fallow deer management programme on track. The following article is a result of both the intense discussion and debate that dominated that week, and the enlightened attitudes Brian has to wildlife management, deer in particular, which stem from his professional training and personal knowledge. I gratefully acknowledge his work in the deer management field and his input into this article.

What is quality deer management?

Quality Deer Management is difficult to define precisely. Rather than a specific management regime, it is a management approach which offers a wide spectrum of opportunity to both hunter and landowner. However, because it is based on sound, ecological principles, it offers a guide for the effective management of deer in New Zealand. Something this country has not had in the 100 or so chaotic years the deer have been here.

A useful interpretation of Quality Deer management is:

"....the voluntary use of restraint in the harvesting of young stags combined with an adequate harvest of antlerless deer necessary to maintain a healthy population that is in balance with its habitat. This level of management involves the production of quality deer (stags, hinds and fawns), quality habitat, quality deer hunting and most importantly, quality deer hunters. Hunters involved in Quality Deer Management undergo a transformation from that of mere consumers, to that of active managers. The progression from education, to awareness, to understanding and finally to respect bestows an ethical obligation upon the hunter to practise sound deer and habitat management."

Joe Hamilton (Wildlife Biologist), South Carolina, U.S.A.

Obviously many New Zealand hunters have a long way to go to achieve the necessary mind set but such a change is not impossible. The change in hunter attitudes required to ensure a Quality Deer Management programme succeeds is nicely described by Dr David Guynn, a deer researcher and hunter from the U.S.A. who writes:

"Quality Deer Management is first and foremost an attitude, a means of self expression. The hunter views the deer not just as a resource for recreation and food, but as a part of nature to which the hunter willingly belongs. A self imposed restriction to take an antlerless deer while allowing young antlered bucks to pass provides the hunter with an opportunity to study deer, learn their behaviour, and to sharpen hunting skills. Deer hunting is the experience of giving to as well as taking from the deer."

"But this is in America," I hear some of you say, "New Zealand is different." Is it?

One of the main reasons Quality Deer Management will work in New Zealand is that a key element involves balancing the objectives of both landowner and hunters with the ability of the resource to meet those objectives. Where hunters are concerned, on the public conservation estate especially, that "resource" includes the forests as well as the deer that occupy them. Any management regime in such a situation will therefore involve the balancing of ecological, recreational and political considerations.

With that background in mind, let's not lose sight of the fact that for as far into the future as we can conceivably predict, deer are going to be a part of our modern natural ecosystems. Recreational hunters have a major role to play in reducing their negative impacts so they must be a part of any management regime that is imposed.

However, while some deer herds are so suppressed that they can not sustain significant harvest, hunters must realize that in many areas of public conservation estate, large numbers of antlerless deer must be harvested, not only to meet the needs of sustaining those habitats long term, but also to improve the overall quality of the herds.

Again, I hear the sceptics say, "Herd reductions will further reduce hunting opportunity". Not necessarily. Under a Quality Deer

Management Programme, more mature stags can be harvested from a lower overall population than can presently be taken from a typical New Zealand situation where the majority of stags are dead before they are fully mature, sex ratios favour females and reproductive rates are compromised by depleted habitat. By focusing the harvest more on females the sex ratios can be balanced and herd densities adjusted to more desirable levels. By allowing more stags to mature, better age structures can be developed in the stag population.

A herd at an appropriate density for the habitat in which it lives, with a balanced sex ratio and good stag age structure has many benefits.

Firstly the rut will be synchronised because more males mean more male pheromones in the environment (on rubs, in scrapes, etc.,) to help bring the hinds into season earlier and in a more synchronised manner. More mature males also means a more intense rut due to increased competition for mates. The major benefit of a short, intense rut is that breeding is dominated by the strongest males which is important for good genetic composition of the herd. If lots of young and/or inferior stags get to breed because they are the only sires available, the gene base of the herd will decline over time.

From a production point of view, a short intense rut will result in a short intense fawning period in late spring. A poor drawn out rut, typical of herds with sex ratios that favour females and poor age structure in the stag population, results in lengthy fawning periods. Fawns born early have a far better chance to grow through summer and be ready for their first winter. Late born fawns often die in their first winter because they are small or simply never recover from the bad start and remain poor specimens all their lives.

Secondly, good age structure in the male population improves trophy potential because more stags survive into the 6 to 8 year (trophy) age classes. Trophy quality however, also depends on the availability of quality nutrition. On the public conservation estate, to ensure the herd has access to quality nutrition herd density must be kept down because habitat enhancement (e.g. crops, burning, fertiliser) is not an option.

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This would have a very positive outcome from a forest conservation point of view and should surely have the support from conservation oriented organisations - shouldn't it?

On private land however, the possibilities for habitat enhancement and hence increased availability of quality nutrition are enormous. Yet the hunting of well managed herds on private land or on the many thousands of hectares of pine plantation in this country, is still very much in its infancy. Quality management will produce outstanding results in such situations given a chance. Perhaps this is where the real future for managed hunting in NZ lies ?

The emphasis of Quality Deer Management is not so much about the old New Zealand "tally up" hunting mentality, but more on understanding and actively managing the deer. In a Quality Deer Management situation the hunter becomes the "manager", for it is ultimately the collective decisions made by hunters in the field that dictate where the herd will head long term.

Under a Quality Deer Management approach, when a high quality trophy is taken, the pride can be shared by all hunters.

For by allowing it to pass as a young stag and by keeping hind numbers to a level that restricts breeding and maintains high habitat quality, all hunters in that area have contributed to the production of that trophy.

The tangible benefits of this change in attitude include higher quality deer, more larger antlered stags, and higher quality venison. The less tangible benefits include an increased role in native forest conservation, an increased knowledge of deer through careful observation and a resultant increase in the hunters appreciation and respect for the animal, and for the environment in which it lives. These are important considerations in these days of strong conservation lobbies and an increasingly staunch anti-hunting lobby. Hunters must gain an image of respectful, humane, wildlife enthusiasts who are contributing to the welfare of the conservation estate if they are to ensure hunting remains a publicly acceptable recreation on conservation lands. The Quality Deer Management approach will help achieve this image. Hunter satisfaction will also increase, as many hunters who have matured to the point of selectively harvesting deer will already acknowledge. Hunting is much more than just killing animals.

Granted, many New Zealand hunters just want to shoot "a deer". They do not care if it is a trophy or not and this attitude is quite valid. But one of the great things about the quality management approach is that it caters for a wide range of hunter aspirations, including the pot hunter. The important point to take from this article is that hunters as a group must understand what to harvest, when and why, if deer management is to be effective here.

If you dream of taking that stag of a lifetime, every spiker or first head stag you shoot works against the achievement of your goal. Just as every hind that produces a fawn to further deplete marginal forest habitat works against that dream (and the dream of many conservationists who would like to see our forests restored more towards their pre-deer state).

The product of quality management. Quality forest habitat that not only allows our native fauna to flourish, but also produces quality trophy game animals.

The success or failure of a Quality Deer Management approach in New Zealand depends entirely on the people who harvest the resource. The biological aspects are not difficult to achieve because deer populations respond to management in a very predictable way. What will be hard to achieve is a collective change in the way hunters think about their hunting, their deer and the natural habitats these deer occupy. That is the challenge!

"Like winds and sunsets, wild things were taken for granted until progress began to do away with them. Now we face the question, whether a still higher standard of living is worth its cost in things natural, wild and free".

Aldo Leopold

Update on Radio Tracking in the Tongariro River

by Glenn Maclean

This winter the Department of Conservation undertook a major research project into the way rainbow trout move up the Tongariro River on their spawning migration. This involved radio tagging trout as they entered the lower Tongariro and then following their progress at two-day intervals as they moved up the river. In addition, information was also gathered for NIWA on the sort of habitat the fish selected to rest in during this migration, as part of their research project for the Tongariro Power Development consents process.

In all, 92 fish were radio tagged between 14 June and 1 September 1995 at our trap site at the Poplar Pool in the lower river. High river flows meant that for long periods the trap was largely inoperable and therefore most fish had to be caught by angling. Staff trialed a variety of methods but ultimately found that the traditional wetfly fished downstream was most effective. The lack of defined pools and runs and large size of the river makes it a difficult area to fish successfully. However, some much appreciated advice from local guide Louie the Fish certainly improved catch rates. One of the biggest obstacles to overcome was to get the fish back to the tagging site unharmed. To this end we used blackfloating canvas catch bags to hold the fish. These allowed the fish to lie quietly, much like deer in a dark shed. Once several fish had been caught the bag was rushed back to the trap site on the floor of our aluminium dinghy.

The trout were held for up to several days in the catch bags until sufficient were available to tag.

Radio tagging involved anaesthetising the fish and surgically implanting the transmitter into the stomach cavity which was then closed by stitching. For further details see the July 1995 issue of *Target Taupo*.

Surgery was usually done in the middle of the day and the fish held to recover until evening when they were then released.

On some occasions if sufficient numbers had been caught half the fish were instead marked with yellow floy tags, inserted under the dorsal fin. Floy tagged fish were always released with a pulse of radio tagged fish and acted as a check on the behaviour of the radio tagged fish. For example, if anglers reported catching floy tagged fish in the upper river or they were captured in the Whitikau trap while the radio tagged fish which were released at the same time were still in the lower river, it would be an indication that the surgery or presence of the tags was perhaps affecting the trout's behaviour.

Tagged fish in that part of the river between Delatour's Pool and the Fence Pool were tracked every Monday, Wednesday and Friday. This involved two staff covering the river using a handheld directional antenna. Each tag has its own distinct frequency which can be picked up from up to half a kilometre away. By taking several bearings from above and below the fish and using triangulation the fish's location in the pool or run can be determined. Once a week staff also rafted the upper river from Poutu Dam down to the Blue Pool to locate any fish in this stretch.

Of the 92 tags implanted one fish is known to have died from the operation. At the time of writing (3 October) ten fish have been caught and the tags returned by anglers. Another three, and probably more, have been caught and released and a further fish caught and the tag buried by someone reluctant to come forward.

The number of fish caught by anglers is likely to be a good indication that fish are not too bothered by the tags. If fish are unsettled they usually respond by keeping their mouths shut.

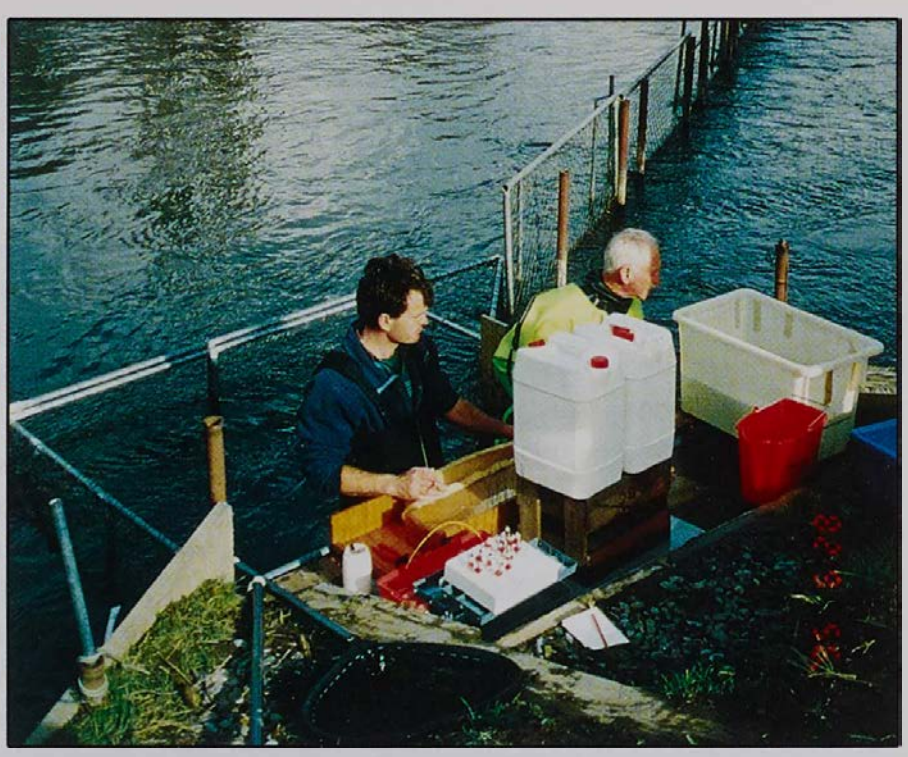
This is supported by a lack of any obvious difference in the behaviour of floy tagged trout and radio tagged trout released at the same time.

Nine tagged fish have been recovered through the Whitikau trap and ten fish tracked upstream of the winter limit above the Fence Pool.

A large number of others appear to have completed spawning in the lower river and many are still moving through the river.

Tracking will continue until the fish complete spawning or the batteries fail in November and December.

The operating table at the trap site in the lower river. Glenn Maclean (left) and Norrie Ewing wait for the next fish in the white fish bin to feel the effects of the anaesthetic.



Almost finished. As one person performs the operation the other person monitors the state of consciousness of the fish. He keeps the fish quiet by running anaesthetic through the gills and then fresh water to revive the fish.

Some very interesting behaviour is already obvious in the data including that of tagged fish over the peak and subsequent recession of the major flood in early September and volcanic ash events in mid-October. This information will be written up over the next couple of months as the tracking comes to an end. However it is apparent that many long held ideas by both anglers and fishery staff are not consistent with what we have actually observed. To get the full story, make sure you read Dr Michel Dedual's analysis in the March issue of *Target Taupo*.

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The 1995 Lake Otamangakau Spawning Run

by Glenn Maclean

A feature of the Lake Otamangakau trout fishery is that nearly all spawning occurs in the Te Whaiau Stream. This stream flows off the slopes of Mount Tongariro to enter Lake Te Whaiau just downstream of the Whakapapa tunnel outfall. Water from the headwaters of the Whanganui Stream is also diverted into the Te Whaiau Stream. Fish spawned in the upper Whanganui often migrate to Lake Otamangakau as juveniles and as mature adults attempt to return to the Whanganui. However, these trout are unable to negotiate the diversion tunnel and collect at its outfall in the Te Whaiau Stream.

By trapping the Te Whaiau Stream at this point fishery managers are able to record nearly all the mature fish from Lake Otamangakau. In addition those fish which previously were unable to reach spawning gravels above the Whanganui Outfall can be lifted above the trap in the Te Whaiau Stream to spawn there. Additional detail of the traps is discussed in the July 1994 issue of *Target Taupo*.

The traps were first operated last winter and again this winter from 1 April to 31 August.

In total 1031 trout were trapped in this period which compares with 915 in 1994. All fish trapped are finclipped by removing half a fin. This year the right pelvic fin was clipped which will regrow over the summer, leaving a distinct scar. By collecting a sample of the spent fish as they return to the lake after spawning we can work out the proportion of spawning fish which bypassed the trap, from the proportion of kelts lacking a trap clip. For brief periods during large floods the stream overtops the barrier and upstream migrants are able to bypass the trap.

Totals for each species, broken down by sex and adjusted to take account of the number of fish missed during floods, are given in Table 9.

The total number of rainbow trout is slightly down on the 1994 total but the brown trout run is up approximately 20%.

At the height of flood flows, fish moving upstream are able to avoid the trap. Recapturing fish as they return downstream after spawning so as to estimate the proportion missed overcomes this problem.

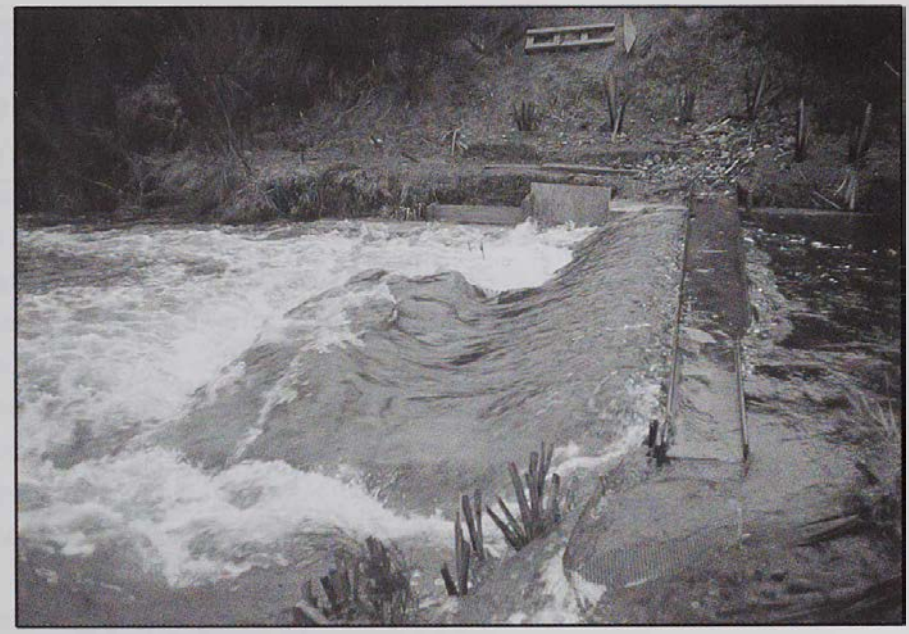


TABLE 9: ADJUSTED TOTALS BY SPECIES AND SEX FOR THE SPAWNING RUN IN THE TE WHAIAU STREAM, 1994 AND 1995

SPECIES & SEX	1994	1995	% CHANGE IN NUMBERS
Rainbow male	151	183	+21.9
Rainbow female	427	361	-15.6
All rainbows	**578**	**544**	- 5.9
Brown male	201	235	+16.9
Brown female	497	591	+18.9
All browns	**698**	**826**	+18.3

TABLE 10: MALE TO FEMALE RATIO FOR RAINBOW AND BROWN TROUT IN LAKE OTAMANGAKAU IN 1994 AND 1995

	MALE TO FEMALE RATIO
Rainbow trout 1994	1 : 2.8
1995	1 : 2.0
Brown trout 1994	1 : 2.5
1995	1 : 2.5

However, the male to female ratio has altered in the rainbow population though not in the brown trout population, as shown in Table 10. Amongst juvenile fish males and females tend to be equally common (a ratio of approximately 1 : 1).

A change in the adults towards an abundance of females often reflects a population which comprises a number of old fish which have spawned several times. Spawning is much harder on the males which spend longer in the spawning tributaries, and mate with a number of females and engage in aggressive interactions with other males. As a consequence more females survive spawning than males causing the ratio to favour females.

In Lake Otamangakau the spawning population is dominated by repeat spawners. Sixty percent of the rainbow run and 65 percent of the brown trout are repeat spawners.

As long as conditions in the lake are conducive to continued growth then the older the fish the larger it is likely to be. A feature of the spawning run is the large average size and the proportion of trophy sized fish. Table 11 gives a breakdown of average lengths and weights by species and sex for the last two years.

A significant increase in the average length and weight for both species is apparent this year. This also highlights that larger fish tend to increase in size by getting thicker and deeper rather than increasing in length. In keeping with Table 11 is the proportion of trophy sized fish in the run.

TABLE 11: AVERAGE LENGTHS AND WEIGHTS BY SPECIES AND SEX, 1994 AND 1995

Table 12 compares the number and percentage of the run larger than 4kg, 4.45kg (10lb) and 5kg in 1994 and 1995.

Almost 20% of the mature rainbow trout are larger than 4 kilograms and 3.5% larger than 5 kilograms.

YEAR	RAINBOW				BROWN			
	MALE		FEMALE		MALE		FEMALE	
	Length (mm)	Weight (kg)	Length (mm)	Weight (kg)	Length (mm)	Weight (kg)	Length (mm)	Weight (kg)
1994	593	2.63	600	2.82	598	2.62	572	2.34
1995	617	3.07	614	3.17	627	3.08	600	2.85
% increase	4.1	16.7	2.3	12.4	4.9	17.6	4.7	21.8

SPECIES	>=4.0kg	% of run	>=4.45kg	% of run	>=5.0kg	% of run
Rainbow 1994	26	6.7	15	3.9	3	0.8
1995	82	19.7	36	8.6	15	3.6
Brown 1994	6	1.2	2	0.4	0	0
1995	39	6.4	9	1.5	1	0.15

TABLE 12: NUMBER OF FISH AND PERCENTAGE OF THE RUN LARGER THAN 4, 4.5 AND 5KG IN 1994 AND 1995

However, to keep it in perspective the total run is only equivalent to that of last year. The harvest survey last summer measured an average catch rate of only 0.11 rainbow trout per hour or one legal sized fish for every 10 hours of effort (see July 1995 issue of *Target Taupo* for further information). The odds of catching a trophy rainbow trout are still not high.

The largest fish of each species recorded through the trap in 1995 are listed in Table 13.

In total there were nine brown trout in excess of 4.45kg (10lb) compared to two last year. These fish, along with several caught by anglers in the last two seasons, are the first brown trout over 4.45kg we have been able to verify and the fish of 5.1kg is the largest confirmed brown trout we are aware of from the lake. It appears that the maximum size reached by brown trout in the lake has increased over recent seasons though still less than 2% of the mature population reaches the 4.45kg mark.

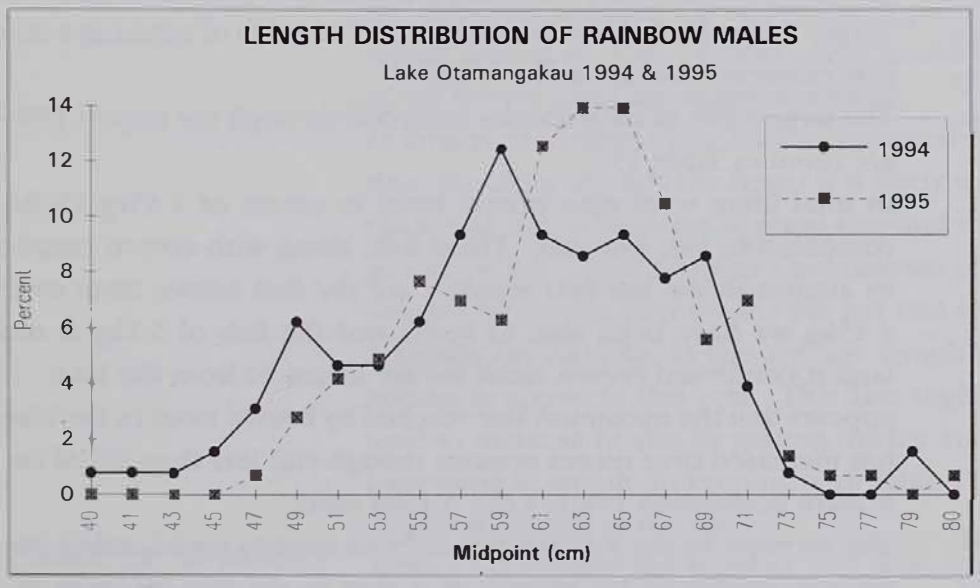
TABLE 13: THE THREE LARGEST RAINBOW AND BROWN TROUT RECORDED THROUGH THE TRAP IN 1995

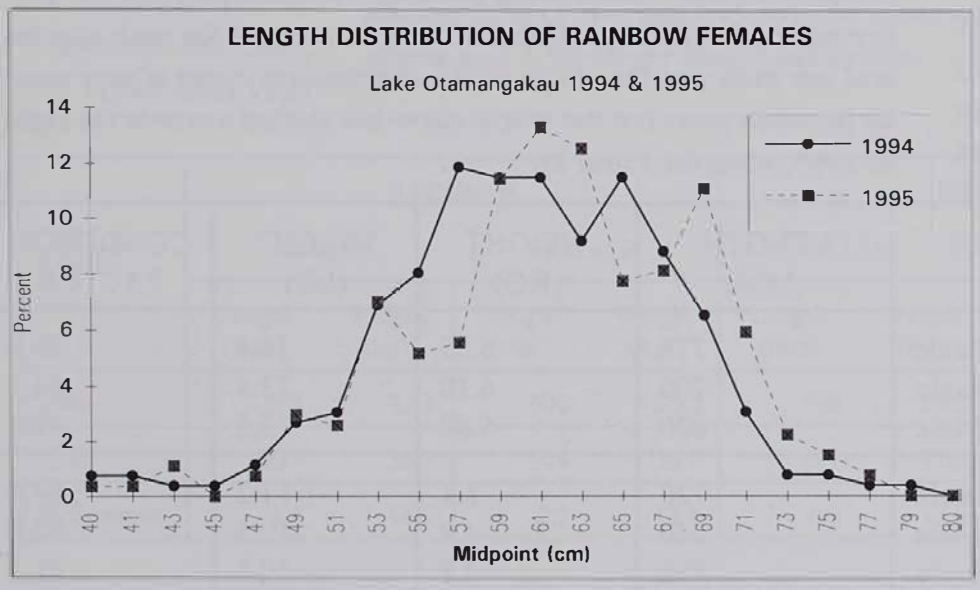
The increase in the average size of both species could reflect improved conditions for growth or a shift in the age structure towards older fish. Comparing plots for 1994 and 1995 of the percentage of fish falling within 2cm length intervals for each species and sex indicates the shape of the distribution curve is very similar between years but the whole curve has shifted towards the right in 1995, (Graphs 1 and 2).

SPECIES	SEX	LENGTH (MM)	WEIGHT (KG)	WEIGHT (LB)	CONDITION FACTOR
Rainbow	Male	775	6.55	14.4	50.8
	Female	790	6.10	13.4	44.7
	Male	800	5.90	13.0	41.6
Brown	Female	720	5.1	11.2	49.4
	Male	740	4.8	10.5	42.8
	Female	750	4.8	10.5	41.1

GRAPHS 1 AND 2: PLOTS SHOWING THE PERCENTAGE OF RAINBOW MALES AND FEMALES FALLING WITHIN 2CM LENGTH INTERVALS FOR 1994 AND 1995

The graphs for brown trout show a very similar picture. This tends to support the suggestion that growth rates have increased, but on its own is not conclusive. Next year we will be able to compare the proportion of previous spawners as marked by a trap clip to assess changes in the population structure. At present it is extremely difficult to distinguish maiden fish and previous spawners from Lake Otamangakau simply on the basis of appearance. For example, many unspawned brown trout have scarred lower tails, not as a result of digging spawning redds but as a consequence of living in the very shallow margins around the lake.





Also, once the first fin clipped juveniles return through the trap we will have a good measure of growth rates each year. These juveniles were released in December 1994 at approximately 80mm and should start to appear in the 1997 spawning run. Another 1500 fin clipped juveniles hatched from eggs stripped from parents taken from this year's spawning run will be released this December for further investigations.

In summary, the size of the rainbow population does not appear to have changed significantly and remains smaller than the brown trout population. On the basis of our work so far, including last summer's harvest survey, we believe the limitation on the population size is related to the level of juvenile recruitment into the lake. As the stocked trout start to appear amongst anglers' catches and in the trap run we will be able to assess this. For example, if nearly all the fish of a similar size bear a hatchery fin clip (a missing fin) it suggests that the 1500 fish we released as juveniles is far greater than the corresponding wild recruitment.

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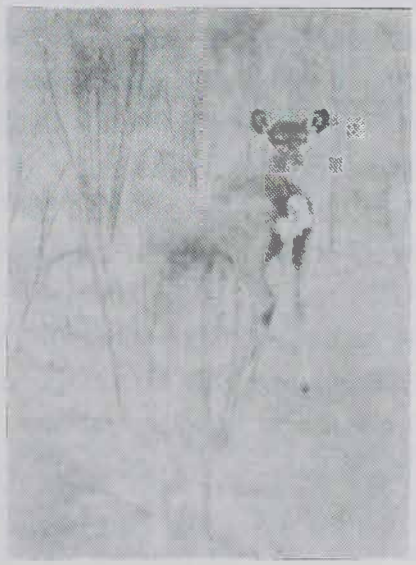

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Once in the lake though, conditions appear ideal for growth as reflected in the very large average size and condition of spawning rainbows (average condition factor of rainbow males is 47, rainbow females is 49).

The brown trout population has increased both in numbers and in average and maximum size. The recent incidence of 'double figure' browns in the run indicates conditions have improved for growth to large size.

The results suggest that some very good fish will be taken from Lake Otamangakau this summer. However catch rates will remain low and most trophies are likely to be hard earned.

Bitz 'n' Pieces

KIWI AND 1080

Staff from the Tongariro/Taupo Conservancy placed a number of kiwi signs around the conservancy earlier this year to inform the public that kiwi were still present in various areas and to ask visitors taking dogs into such areas to ensure they were under control. It is widely recognised that uncontrolled dogs are one of the many threats that kiwi face in modern New Zealand forests. Several large "AA" type kiwi road signs were also erected following road kills in the conservancy.

Unfortunately all the road signs have since been souvenired and a number of the kiwi dog signs defaced, most with anti 1080 slogans which make reference to 1080 killing kiwi. A few militant hunters appear to be the major group involved in this vandalism. This is not unexpected given the strong feelings many hunters have regarding the use of 1080 poison.

The situation regarding kiwi and 1080 has been largely resolved in the last two years with strong evidence to suggest New Zealand's remaining wild kiwi populations are not at risk from aerial 1080 possum control operations.

Up to 1991 there had only been one field trial in which 8 radio-tagged brown kiwi had been exposed to aerially distributed 1080 pellet baits used for possum control. Clearly, with the amount of 1080 being used for possum control around the country there was a need to expand the sample size to be sure kiwi populations were not being put at risk.

In Northland earlier this year, 22 North Island brown kiwi (14 male and 8 female) were exposed to 1080 pellet baits; 13 kiwi (8 male, 4 female and 1 juvenile) were exposed to 1080 jam baits; and 2 kiwi (both male) were exposed to a combination of both 1080 pellet and jam baits. Two months after the operations, all birds were still alive and doing well.

In June of this year, 2 radio-tagged male North Island brown kiwi were exposed to 1080 carrot bait in Tongariro Forest.

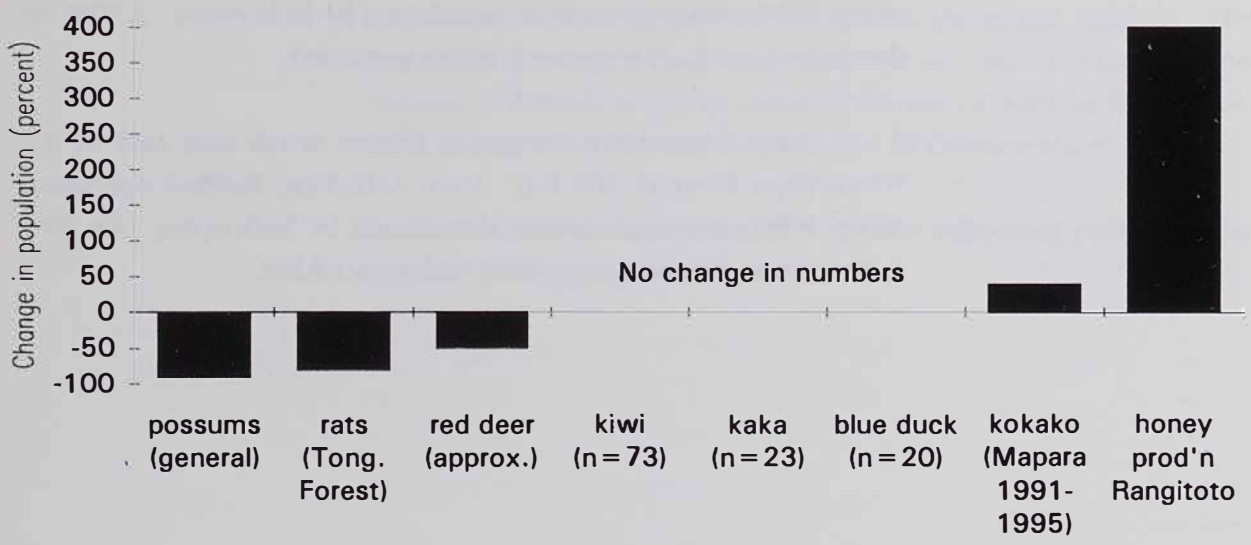
In late August both males were found on nests indicating that not only had they survived the poison operation but that their mates (without radio-tags) had also survived.

Last winter (1994), all of 16 radio-tagged great spotted kiwi survived aerial 1080 pellet operations on the West Coast of the South Island, and in 1993, all of 9 radio-tagged little spotted kiwi survived an aerial application of Talon baits on Red Mercury Island off the Coromandel Peninsula.

A total of 73 radio-tagged kiwi from three separate species have now survived aerial application of 1080 pellets, 1080 carrots or Talon baits, or ground laid 1080 jam. These results provide strong evidence that modern aerial toxic baiting techniques are not a threat to kiwi populations.

The attached graph shows some of the population effects of aerial 1080 poison operations on various types of animals including possums, red deer, rats, kiwi, kaka, and kokako, based on research work carried out around the country in the past few years. The increase in honey production recorded on Rangitoto Island following a large reduction in possum numbers is also included for interest. The Pohutukawa buds and flowers eaten by possums prior to the possum control operation had a major impact on the nectar available, not only to bees but also nectar feeding birds such as tui.

Percentage change in numbers of various animal species following aerial 1080 operations (n refers to number of birds with radio transmitters monitored)



The graph clearly shows that browsing mammals are by far the most at risk group. It is these animals that have a negative impact on native ecosystems.

While the Department of Conservation must continue to monitor the impacts of any new animal control techniques on native fauna including kiwi, hunters and other users of the public conservation estate can be assured that current baiting techniques are not putting kiwi populations at risk. We ask therefore that the new signs erected in the various kiwi forests around the conservancy be left alone to continue their role in helping our kiwi survive on the mainland.

POSSUM CONTROL OPERATIONS WINTER 1995

A number of large scale possum control operations were conducted in the Tongariro/Taupo Conservancy during the winter of 1995. The details of these operations are as follows:

1 March - Raurimu farm block south of the Whakapapa River east of State Highway 4 near the township of National Park (3,054 ha). Animal Health Board (AHB) funded operation using 1080 poisoned carrots distributed by helicopter. A 98% reduction in possum trap catch index recorded.

2 April - Taupo lakeshore vegetation from Whanganui Bay south to the Kuratau River (5,000 ha). An AHB funded operation using 1080 poisoned carrots distributed by helicopter. A 92% reduction in possum trap catch index recorded.

3 June - Southern Tongariro Forest north and east of the Whakapapa River (9,400 ha). Joint AHB/DoC funded operation using 1080 poisoned carrots distributed by helicopter. An 89% reduction in possum trap catch index recorded.

4 September - Mangamingi Ecological Area (Erua Forest - 1175 ha). A DOC funded operation using 1080 poisoned pellets distributed by helicopter and ground trapping. A 90% reduction in possum trap catch index recorded.

5 September - Northern Tongariro/Lake Rotoaira (10,000 ha). An AHB funded operation using 1080 poisoned pellets distributed by helicopter and ground trapping. Results of this operation are not currently available.

All baits will have been rendered nontoxic by rain following these operations but some possum carcasses may still remain toxic to dogs in the Southern Tongariro Forest, and in particular in the vicinity of the Mangamingi Ecological Area and Northern Tongariro/ Lake Rotoaira operations. Watch your dogs if you are hunting in these areas. All operational areas are clearly signposted as required by the Pesticides (Vertebrate Pest Control) Regulations, however, there have been significant problems with sign damage/theft again this winter. Contact the Turangi Office if you require any further information.

THE USE OF HUNTING DOGS IN THE TONGARIRO/TAUPO CONSERVANCY

Many hunters are aware of and indeed very concerned about, the Local Government Law Reform Bill presently before a Select Committee which attempts to address the issue of dog control, especially where they can have an impact on protected wildlife. The legislative process in still not complete so there is currently no change to the status quo in terms of the use of dogs by hunters on land administered by the Department of Conservation.

In the Tongariro/Taupo Conservancy, the following policy on the use of hunting dogs still applies:

1 No dogs are permitted within Tongariro National Park in accordance with the Park Management Plan;

2 One dog per hunter may be taken into most other areas for hunting purposes provided the following criteria are met by the dogs owner:

-That the dog is registered and dosed;

-That permit issuing staff sight a current dosing certificate;

-That the dog's description, registration number and tattoo or brand are recorded on the hunting permit;

-That the dog is under strict control at all times;

3 If a hunter wishes to take more than one dog into a specified area for more specialist activity such as pig hunting (pigs only occur on a small proportion of DOC administered land in the Tongariro/Taupo Conservancy), special dispensation must be obtained through the Conservancy Office in Turangi.

We also ask that hunters carefully consider the following points when they have dogs on conservation lands:

-Train your dogs to be as target specific as possible;

-Make sure your dogs are trained to return when called;

-Do not leave lost dogs in the bush. Try to find them before returning home;

Dogs are a potential threat to native wildlife. Please respect the policy on their use for hunting in the Tongariro/Taupo Conservancy.

-If you do lose a dog on Conservation land, please report it to the local DOC Office;

-Please hand in any dead wildlife to the nearest DOC Office, regardless of cause of death. If you do not wish to discuss the cause of death, staff will respect this;

NEW ZEALAND FALCON SIGHTINGS

The Raptor Association, Ornithological Society of New Zealand (OSNZ) and DoC are currently assessing the status of New Zealand falcon (sometimes called sparrow hawks or bush falcons). Your help could be extremely valuable in this programme.

Many visiting anglers and hunters to the Turangi area will have observed New Zealand falcon around Turangi through the winter months. As far as staff can work out, there is at least one pair frequently seen in the river area and even in town. We have received many reports about the Turangi birds which suggests the public have a keen interest in their presence.

The hard times of winter often push falcon out of the high country into built up areas around Taupo but from our increasing data base, they now also appear to be living permanently in many quite exotic habitats, including pine forest, farmland and semi urban areas.

As spring approaches falcon will begin courtship and breeding behaviour. If you see falcons in aerial "courtship", are dive bombed by a falcon or suspect you have seen any other behaviour that might indicate breeding, please contact your local DOC Office with details. Use the falcon reporting card included in the back of this issue of *Target Taupo*. Locating falcon nests to monitor breeding success is an important aspect of the programme.

1995 SIKA TROPHY COMPETITION

A total of 136 sika heads were registered in this years competition. This compares to 89 in 1993, the first year the competition was held, and 146 in 1994. Of the heads registered, 109 were presented together with jaw bones for scoring on measure-up day at the Spa Hotel in Taupo on June 5. This year's entries included 36 heads carrying 8 points.

The top three heads were mounted free courtesy of the sponsors. Paul Montaperto of Hawkes Bay won the Remington .243 rifle with Leupold scope provided by the "Fly & Gun Shop" Taupo and the Department of Conservation.

Phil Brightwell of Oruatua took away the BSA Hunter .308 rifle provided by "Custom Cartridges" of Taupo. In total, 21 hunters shared prizes valued at over $8,500.00.

Processing the jaws has been a little slow this year but most hunters should have their results back by now. Our apologies for the delay and thanks for your support. Plans are underway to continue the competition next year, though with some changes. Watch your autumn hunting permit package and/or favourite hunting magazine for details over late summer.

The top 12 scoring heads

HUNTER'S NAME	HUNTER'S HOME	POINTS	D.S.	LOCATION TAKEN
Mike Spray	Papakura	8	184	Ecology Stream
Dion Patterson	Taupo	7	177	Rocky Point
Mike Lourie	Rotorua	8	176 1/8	Tauranga-Taupo
R Bowsher	Taihape	8	171 5/8	Tin Kettle Spur
A Livesey	Taupo	8	169 3/8	Hinemaiaia
Shane Sheppard	Foxton	8	168 7/8	Golden Hills
M Spence	Te Awamutu	7	168 2/8	Ohinewairua
Mike Fagen	Haumoana	8	164 1/8	Kaimanawa
Ross Pyper	Reporoa	8	156 1/8	Clements Road
Robert Grant	Napier	8	155 4/8	Tutikuri
Bruce Edwards	Taupo	8	155 4/8	Clements Road
Bill Hawkeswood	Thames	8	153 3/8	Kaimanawa RHA
G R Bolt	Putaruru	8	152 7/8	Owhoako

BOVINE TB SURVEILLANCE SURVEYS

Ministry of Agriculture will be undertaking further Tb surveillance work in the northern Kaimanawa Range in late November this year. Traditional methods of monitoring feral infection spread via domestic stock surveillance are hampered in the Kaimanawa range by a lack of farmed animals. Feral animal surveillance is therefore the only reliable way to monitor the disease in the range.

The work follows the recovery of 55 deer last year from an area of some 15,000 ha north and east of the Waimarino River which showed a low, scattered incidence of the disease in the headwaters of the Tauranga-Taupo River catchment.

This year's survey will sample an area of approximately 20,000 ha of beech forest and scrub country from Clements Mill Road south down the Mohaka to the Mangatainoka River and includes both private and public land. Approximately 100 deer will be recovered by aerial shooting. All animals recovered will be subject to full autopsy by MAg vets. The sample area overlaps with last year's survey area in the vicinity of Clements Mill Road and the upper Hinemaiaia River.

The work is designed to help determine where the disease front is in the Kaimanawa Range, how prevalent it is and how fast it is spreading. This information will aid MAg disease management decisions aimed at minimising the risk of exposing domestic stock to infection.

The Manawatu/Wanganui Regional Council will also be undertaking disease monitoring surveys to identify the distribution and level of infection in the red deer within Tongariro Forest and adjoining lands during November this year. Approximately 50 animals will be recovered for autopsy by MAg vets from an area of some 15,000 ha in the upper Wanganui River catchment above Hohotaka.

A full report on the results of these surveys will be included in the March issue of Target Taupo.

WILD ANIMAL RECOVERY IN TONGARIRO NATIONAL PARK

A permit allowing a single helicopter operator to recover deer from 14,000 ha of Tongariro National Park will be issued by the Department of Conservation for the months of May and June 1996.

The permit will supplement the recreational deer harvest from the headwaters of the Whakapapa, Makatote, Manganuiateao and Mangaturuturu River catchments on the western slopes of Mount Ruapehu.

Here red deer continue to have a major impact on forest understories in the mountain beech and kaikawaka forests. The timing of the operation should ensure minimal disturbance to recreational hunters and other park users.

Apart from the disease surveillance work outlined above, this is the only area where aerial deer recovery activity is authorised on land administered by the Department of Conservation within the Tongariro/Taupo Conservancy.

ASH EFFECTS HUNTING IN CENTRAL NORTH ISLAND

Hunters visiting the Kaimanawa Ranges over the next few months can expect to find some negative affects as a result of the recent volcanic activity on Mount Ruapehu.

A layer of volcanic ash covers the forests of the western Kaimanawa Forest Park, particularly in the upper Tongariro and Waipakihi Valley areas. Kiko Road and the Tauranga-Taupo catchment also have significant coverings of ash in forest understories and hunters can expect to find hunting conditions quite unpleasant in these areas.

Mike Spray of Papakura with the winning stag in the 1995 Sika Trophy Competition taken in Ecology Stream, Kaimanawa Forest Park.

At the time of writing, seven dead deer have been found by DOC staff and other hunters. From investigations made to date, it appears that some deer have ingested enough ash, presumably through eating ash covered plant material, for the ash to have physically disrupted their ruminant digestive system. It is unlikely that the ash would have had a toxic effect and the deaths appear to be more related to the physical presence of the ash in the gut. Numerous live deer are also being seen in all areas and hunters who take deer from the ranges through the spring can be reasonably confident that the meat is still suitable for consumption.

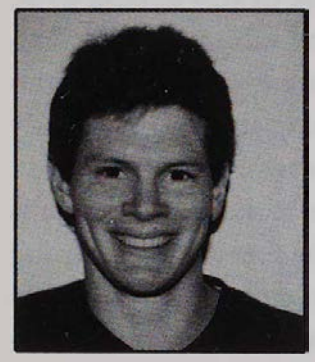
Further east in the Clements Road, upper Mohaka and Kaweka areas, the ash has had far less effect. While the forests have a strong volcanic smell, hunting conditions will be more like normal in these areas, although some strange deer behaviour has been reported with deer seeming lethargic and less wary.

Hunters are advised to carry plenty of rifle cleaning equipment as the ash has a corrosive effect on metal, even where the ash covering is light. Water supplies are still disconnected from all huts as at 30 October, however all streams in the Kaimanawa area are now clean enough for drinking.

A selection of good heads on display at the measure-up day

Manager Profile

ROB PITKETHLEY



Rob Pitkethley

Some readers may remember Rob from when he was art of the fishery team during 1990 and 1991. Prior to that Rob had worked in the area undertaking his M.Sc. thesis on juvenile trout in the Tongariro tributaries and after completing this was employed to assist in the development of the 1990-91 harvest survey. Rob then took on the management of the survey staff and the collection and analysis of the huge amounts of data involved.

After report on the harvest survey findings (and paying of his university debts) Rob took off overseas for the bit 'O.E.'. Six months teaching English in Japan and he was off to Europe, ending up in Greece as a charter yacht skipper. Rob obviously found it enjoyable enough to stay there for three summers (he still assures us it was hard work). He then skippered a 21m yacht throught the Mediterranean and across the Atlantic to the Caribbean, then flew to Canada to try his hand at fishing for steelhead in the Fraser and Vedder rivers around Vancouver. We gave him a telephone call and here he is back again, managing the 1995-96 harvest survey and helping with large amounts of "it'll just take you a minute (?)" jobs around.

Rob is often out fishing on the Tongariro using his insider information to find the hot spots, and occasionally takes his rifle for a walk in the bush. He is also a keen windsurfer, and can be found training his new up to find deer and catch ducks (the blind leading the blind !).