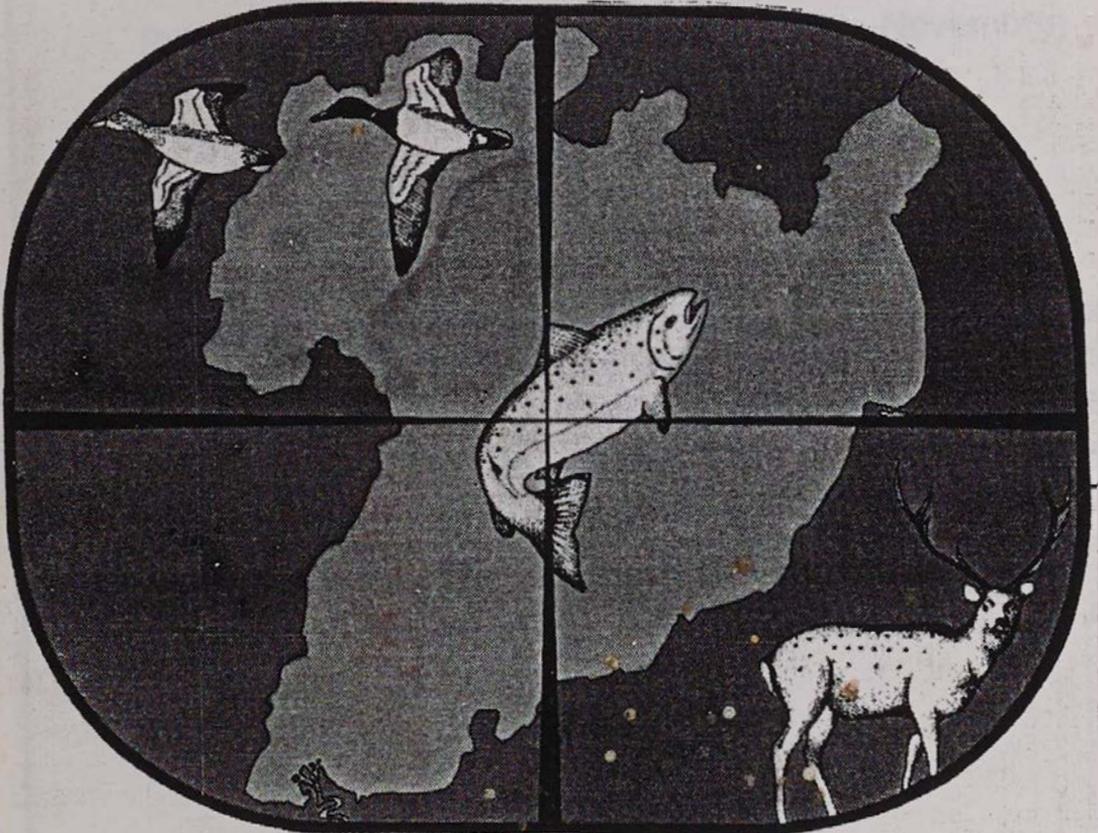


MARCH 1992
Issue 9

TARGET TAUPO

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



CONSERVATION
TE PAPA ATAWHAI

TARGET TAUPO

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

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Conservancy Office
 Field Centre Office
 Conservancy Boundary
 Protected Areas



0 5 10 20 30 40 Kilometres



CONSERVATION
TE PAPA ATAWHAI

Dear Anglers and Hunters,

Well, it's two years since I last wrote the introduction for **Target Taupo** and that was for issue 3. We are now up to issue 9 and judging by the interest and feedback from readers, our little magazine has an exciting future.

Some people complain about the onset of autumn and the colder, unsettled weather. As a warm-blooded 'inlander' - by birth and choice - I look forward to the first frosts that signal the start of the year's best hunting and fishing in the central North Island.

Having spent every year for the past 10 years hunting sika in the Kaimanawas I am having a change. This year I'll be spending a week chasing red stags in the northern Ruahines, not too far from where I started hunting as a boy. However, I still hope to manage a couple of weekend trips after sika before winter really sets in. Then it's off down south for duck season opening. A couple of old friends have inveigled (*the editors balked at this word - but John insisted we keep it in!*) me to deepest Central Otago for that magical first Saturday in May. With a bit of luck we'll have a chance at some Canada geese as well and maybe the odd quail and chukor. (My hunting mates claim it's the very odd one that's under any threat from my shooting).

We'll be back home in time to catch the best of the earlier runs of rainbows in the Tongariro. Indications are that the improvement in trout numbers noticed last year will continue this winter. Boat anglers on the lake have reported good catches of well-conditioned trout over the summer.

Many regulars have the impression that the average size of maiden trout is also up a little this year. Time will tell, but look forward to some great winter fishing. Compared with the situation three years ago, these changes in fortunes should act as a graphic illustration of the dynamic nature of our trout fisheries.

Rarely in nature is anything static or permanent, despite the commonly misunderstood "balance". Response to constant changes in habitat, climate and human pressures dictate the state of a trout population at any one time. Anglers must accept this year to year variability and recognise that as long as sensible management policies are in place and essential habitat is protected, the cycle will continue.

For more information on how you can influence these policies read inside about the draft Taupo fishery management plan.

We welcome your input.

Have a great season.

John Gibbs
Fishery Manager

DEPARTMENT OF CONSERVATION
Tongariro/Taupo Regional Office
Private Bag, Turangi, New Zealand.
Turanga Place, Turangi.
Telephone (07) 386 8607
Fax (07) 386 7086

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Information on illegal activity is only of use if it is passed on immediately. If you have any information regarding compliance and enforcement matters, please contact any one of the following officers:

- Wayne Boness Telephone (07) 377 0112 (home)
(07) 378 5450 (work)
- Bryan Taylor Telephone (07) 386 6549 (home)
(07) 386 8607 (work)
- Sid Puia Telephone (07) 386 6700 (home)
(07) 386 8607 (work)

*** ANYTIME ***

1. KEEPING TABS ON THE TAUPO FISHERY

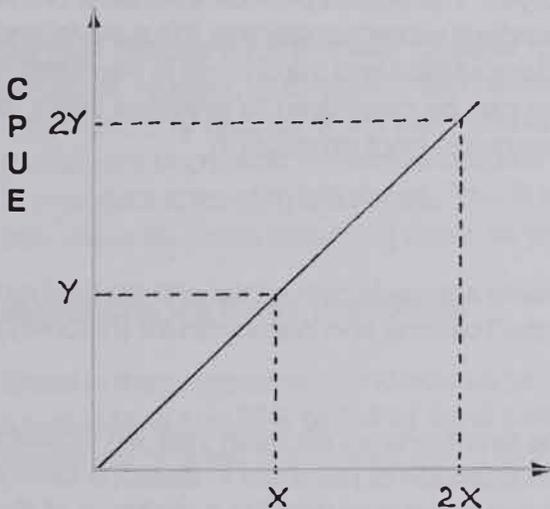
We each have our own perception of what's happening in the Taupo fishery, influenced by our personal experiences, those of our friends, what we have heard in the bar or seen written by the 'experts'.

As managers we welcome opinions on what changes have occurred (so long as they are slightly constructive) and over a season receive numerous such comments and letters. At first glance many opinions apparently conflict, but by considering such things as where each angler fished, over what months, what methods were used and so on we can develop a wide picture into which most experiences fit - for example, the summary of summer fishing as described in 'Something Fishy'.

While these detailed impressions of the fishery are extremely useful, alone they are certainly not sufficient to base many of the decisions required to manage the fishery.

So how do we as managers collect the other information we require to detect and measure changes in the fishery? Until very recently, monitoring of the Taupo trout population focused on angler catch rates or catch per unit effort (CPUE). CPUE is normally expressed as a number of fish caught per hour. Rather than attempting to regularly measure the total number of trout, which was an extremely difficult task, an assumption was made that any change in the size of the trout population would be reflected by a similar change in the average catch rate (figure 1a). For example, if the CPUE fell 20% from 0.25 fish/hour to 0.20 fish/hour we would assume this reflected a 20% decline in the number of trout available.

a) *Catch rate directly proportional to trout numbers*



b) *A more complex relationship between catch rate and trout numbers*

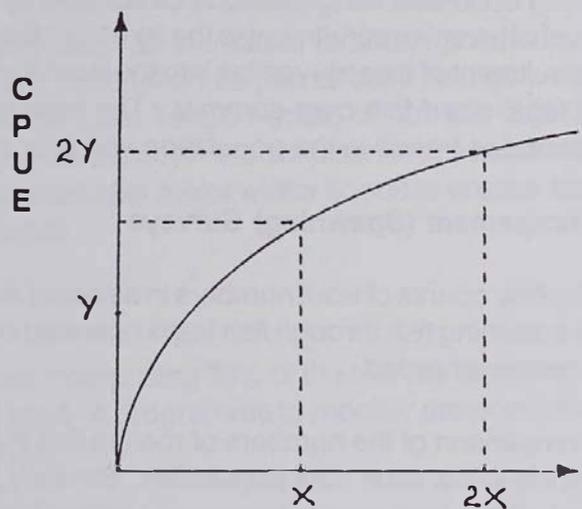


Figure 1

However, the decline in the trout population in the late 1980s was not mirrored by a similar change in catch rates. Work both overseas and by Dr Martin Cryer at Taupo suggested the higher than expected catch rates may have occurred because the vulnerability of salmonids

to capture increases as their density decreases. In other words, the decline in fish numbers is partially hidden by the remaining fish being more likely to be caught.

Using a model developed by Small for migratory salmonid populations in England and Ireland, Cryer estimated that a decrease in the catch rate in the Tongariro River from 0.25 to 0.20 fish per hour (typical catch rates for the Tongariro) could represent a decrease in the size of the run of about 43%.

A relationship still exists between CPUE and fish density (figure 1b) but it is not as straight forward as we originally believed. However, the problem which arises is that to use this relationship as an index of fish numbers requires measurement of relatively small differences in the average catch rate. Individual catch rates in the Taupo fishery are extremely variable and a change as small as 0.05 fish per hour (as given in the example) is unlikely to be detectable using a workable monitoring programme.

At a public talk, an angler questioned whether a large decline in the population size really matters if the catch rate only falls slightly (e.g., from 0.25 to 0.20 fish per hour). However, as the recent decline showed, a small change in the average CPUE represented a very significant change in the degree of angler satisfaction with the resource.

In 1991 we redesigned our monitoring programme to incorporate methods involving direct counts of fish, much as was done historically but in a far more rigorous manner.

The programme is split into three aspects which are summarised below.

INFORMATION ABOUT THE TROUT POPULATION

Acoustic Surveys

Surveys of trout numbers in the lake in March and November each year are undertaken using echo-sounding methods developed by Cryer. The results provide estimates of the level of juvenile recruitment to the lake from the previous winter's spawning, the survival and recruitment of these juveniles into the legal-sized population and the change in the number of legal-sized fish over summer. The estimates can be compared to previous years to determine trends in the population and infer changes in trout production.

Escapement (Spawning) Surveys

Monthly counts of trout numbers in selected streams are made over winter and the total run of spawning fish through fish traps operated on the Tokaanu and Waihukahuka (hatchery) streams recorded.

Comparison of the numbers of mature fish in the rivers over winter each year will indicate trends in the adult trout population. Similarly, comparison of numbers in seasons before and after a particular management action has been taken may provide a measure of the effect of that action. Managers can also check that enough fish reach the spawning redds to produce sufficient offspring to fully utilise the juvenile rearing habitat. A lot more research is required to more accurately determine the numbers of fish required but it is hard to imagine that the rivers could support any higher fry densities than we have observed in the last couple of years, despite the poor runs.

All fish passing through the fish traps are weighed, measured and finclipped. From this we can detect changes in size at maturity, condition and detect shifts in the population structure between years. For example, the population in 1991 was dominated more than usual by younger fish.

Harvest Surveys

In 1991 an intensive year-long survey of the annual trout harvest was completed which identified that the harvest in the 1990/91 season was at a critical level given the levels of trout production measured in 1988 and 1989. The spring (high catch rates) and Christmas (high use) periods were identified as times of very high harvest which contributed approximately 28% of the final harvest. By repeating the harvest survey over these periods each year, we get an indication of whether the total harvest is likely to have changed.

Juvenile Tagging

Juvenile trout leaving Waihukahuka Stream are trapped and finclipped or tagged to be recovered as adults when they return to the stream to spawn. A large number of juvenile trout are also tagged in the Whitikau (the main spawning tributary of the Tongariro) and hopefully will be recovered during a research project planned to study the spawning runs in the Tongariro, and from anglers' bags. Much of our current understanding of trout growth dynamics and age at maturity comes from the return of hatchery-raised fingerlings which as adults returned through the traps. However, we now believe that the first year spent in the hatchery, during which time the young trout grow much faster than their wild brothers, influences when they mature. Juvenile tagging will increase our understanding of the population dynamics of Taupo trout and provide monitoring of fish growth and survival.

THE PHYSICAL INFLUENCES

Protection of Water Quality and Fish Habitat

Regular checks for any threat to water quality such as increased turbidity, pollutants or bankside erosion, or threats to fish habitat are undertaken as part of daily field activities. Three-monthly checks of the catchments within Lake Taupo Forest, of culverts and fish ladders are also made. An annual check is also carried out in late summer for any blockages in important spawning tributaries. This is repeated after major winter floods to ensure trout can utilise as much spawning water as possible.

Monitoring the Smelt Population

Smelt is the predominant food source for trout, comprising 98% of the diet (by biomass) of juvenile trout and 80% of that of legal-sized trout. A programme to monitor the population dynamics of smelt is currently being designed.

ANGLER PERCEPTIONS

Anglers are interviewed at random on the Tongariro and Tauranga-Taupo rivers in September and on Lake Taupo in February. Questions are designed to measure the level of angler satisfaction with aspects of the resource in a way which allows comparison with previous years and to determine if there are any common concerns which we can remedy.

One very useful source of information are records kept by experienced anglers over a number of years. By using the records of several anglers who each put in a hundred or two hours of effort on the same water every season, many of the extraneous variables which affect catch rates, such as differences in skill, familiarity with the water or timing of the trip, are removed. Changes in the overall success are likely to indicate real changes in the fishery.

A problem is that many anglers change the focus of their activity after several seasons. For example, they may fish the Tongariro regularly for several seasons before finding the Tauranga-Taupo more appealing. This makes it difficult to get comparative records from a single angler to cover a number of years. However, we have recently asked a number of local fishing guides to keep records on an especially designed form and the responses have been most encouraging. The form is currently being modified and hopefully from the new season we will be able to make good use of the huge amount of data available from guides.

SUMMARY

We are also influenced by our own perceptions based on years of experience. For example, our best measure of spawning success is our observations of fry densities made on numerous visits into the headwater streams throughout the spring and summer, whether while working or hunting and fishing.

Each of the monitoring measures provides managers with information about a component of the fishery which, when combined with our perceptions and those of the anglers, gives a comprehensive overview of what is happening.

Hopefully this allows for more informed and effective management decisions. However, as managers gain greater knowledge about the fishery it will become evident that some monitoring procedures should be modified or abandoned and others implemented to better provide the information required. Evolution and refinement of this monitoring programme is therefore an ongoing commitment.

Reference

Cryer, M. 1991 *Lake Taupo Trout Production. A four-year study of the rainbow trout fishery of Lake Taupo, New Zealand. Department of Conservation Science and Research Series No. 26. Department of Conservation, Wellington. 191 pp.*

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2.

KAIMANAWA SIKA - Wishful Thinking Or Common Sense?

Guest Article: D.J. COMBER

Dave Comber is a local Taupo hunter who, over many years, has gained a wide appreciation of New Zealand's introduced game animals. He has been an active member of the NZDA during this period at both a local level and more recently at a national level as North Island member on the National Executive.

Dave offers the following article for our consideration.

NOTE: Articles which appear in Target Taupo do not necessarily reflect the views or policies of the Department of Conservation. The publication's objectives are to inform and to act as a vehicle for discussion and debate on local hunting and fishing issues.

I may be a bit of a dreamer but I believe that we have reached a point in the evolution of the introduced species in this country where we should be sitting back and taking a good hard look at what we have achieved and where we should be going in the future. We have some very entrenched attitudes about the evil of some animals that perhaps we should be reconsidering in light of our changed circumstances over the past twenty or thirty years.

The history of the deer introduction to this country and subsequent explosion in numbers is well known, as is the story of government-employed deer cullers trying valiantly to control their numbers by ground shooting. It was not until the price of feral venison on the world market soared that we had the opportunity to reduce the numbers of animals in a cost effective manner. So effective were the helicopter supported operations, though, that many feared the day of the wild deer was well and truly over for the weekend hunter after a bit of venison for the freezer. But then, as we know, the bottom dropped out of the meat market, the value of the farmed animals retreated to a realistic level and it became uneconomical to operate so many helicopters on wild animal recovery. With the severe cuts to government spending recently and the need to control the greater pest of opossums, it has been left to the recreational hunter over the past few years to control deer populations.

There has been a lot of research into the effectiveness of the amateur hunter by the Forest Research Institute and by the Department of Conservation assessing the numbers of animals in recreational hunting areas. I would strongly suggest that what a number of us have been saying for some time has now been proved - that is, that recreational hunters can control the numbers of animals in a given area if they are only given the opportunity to do so. The modern vehicle and the widespread use of aircraft to position hunters has made them far more effective than they were twenty years ago.

I suggest that it is now high time that we recognise the game herds for what they were introduced into this country for and start managing them in the same manner as the

introduced fish and game birds. The sika herd in the Kaimanawas is a classic example of what I am saying. A study of the statistics will show that the herd in the RHA is as healthy as it has ever been with a sustained crop of young animals every year proving a good reproductive rate and high winter survival. The bush remains in good condition indicating to me that the animal numbers are well in control from an ecological aspect.

Given all of the above, I believe that the time is right to bury for good the old hangover of "noxious animals", start talking "game herds" and manage them for the highest sustainable yield consistent with the maintenance of the environment in which they live. I appreciate that there would have to be major changes in legislation to achieve this but anything is possible given the will of enough people. Hunters should be taking the opportunity to lobby through the various hunting organisations to have these changes made and to ensure the future of the sport as it was meant to be when we first brought these animals to New Zealand a hundred years ago.

3. SPRING-SUMMER HUNTING SUMMARY

A cold wet spring led to unusual hunting conditions in the Tongariro/Taupo Conservancy over summer. October and November, usually two of the most productive months, were very quiet but this meant more animals were available in December, which produced some very good hunting, and January, usually a less productive month due to dry hunting conditions, proved as good if not better. While hunting effort overall was well down, harvests remained relatively constant.

A total of 2,063 hunters obtained permits for the October to January period and from the diaries returned to date, 38% of these hunters obtained one or more kills. Kill rates for the period for the conservancy as a whole were the highest since this type of data collection began in 1989, at 3.6 days per kill. This reflects the effects of both concentrating the spring harvest into one month instead of spreading it over the whole October/November/December period, and a small increase in animal numbers in localised areas.

A summary of data received from hunting diaries on a block by block basis is presented for your information in table I. The table shows some excellent harvests from areas such as the Rangitikei River, Waipakihi Valley, Whakapapa and the Desert Road. The significant number of red deer harvested from the Waipakihi and Rangitikei blocks reflects the trend observed over the past few years of red deer numbers increasing in parts of the Kaimanawa Range. Management options have been exercised this year to help recreational hunters reverse this trend to ensure numbers do not get to levels that start comprising habitat quality (see 'Bitz 'n' Pieces' section of this issue).

AREA	BLOCK	DAYS HUNTED	ENCOUNTERS				KILLS				DAYS/COUNTER	DAYS/SKILL
			SIKA	RED	PIG	GOAT	SIKA	RED	PIG	GOAT		
KAIMANAWA RECREATIONAL HUNTING AREA	Clements	256.0	161	7	2	-	38	1	2	-	1.5	6.2
	Hinemaia	25.0	15	1	-	6	-	-	-	-	1.6	4.2
	Cascade	60.5	23	7	-	7	3	-	-	-	2.0	6.0
	Keipo	8.0	10	-	-	2	-	-	-	-	0.8	4.0
	Oamaru	97.5	78	2	1	-	19	1	1	-	1.2	4.6
	Tikitiki	20.0	31	2	-	4	-	-	-	-	0.6	5.0
	Te Iinga	21.0	19	-	-	4	-	-	-	-	1.1	5.3
	Jap Creek	9.0	28	7	-	7	-	-	-	-	0.3	1.3
	Upper Oamaru	2.0	4	1	-	1	1	1	3	-	0.3	1.0
	ALL	526.0	383	20	3	-	91	6	3	-	1.3	5.3
	1990/91 FIGURES	819.5	-	-	-	-	139	9	1	-	-	5.5
	KAIMANAWA FOREST PARK (excluding RHA)	Waipakahi	291.5	144	108	-	-	42	47	-	1.2	3.3
		Desert Road	32.0	36	-	-	17	-	-	-	0.9	1.9
		Access 10	9.0	2	7	4	2	1	-	-	0.7	2.3
Umukarikeri		15.0	1	11	-	1	4	1	-	1.3	2.0	
Mount Urchin		4.0	-	5	-	-	1	-	-	0.8	4.0	
Waiotake/Whitkau		13.0	1	4	19	-	2	2	9	-	0.5	1.0
Waimano		10.0	4	4	-	-	-	-	-	1.3	2.5	
Kiko Road/Tauranga-Taupo		102.5	54	7	-	-	21	4	-	1.7	4.1	
Tiraki		19.0	17	-	-	5	-	-	-	1.1	3.8	
Rangitikei Ecology		49.0	22	48	-	-	4	17	-	0.7	2.3	
Ngaruroro		48.0	51	-	-	14	-	-	-	1.0	3.5	
ALL		639.5	356	209	24	-	119	83	11	-	1.1	3.0
1990/91 FIGURES		774.5	-	-	-	-	105	101	-	-	3.8	
TONGARIRO NATIONAL PARK		Rangataua	59.5	1	37	1	-	1	12	-	1.5	5.0
	Ohakune	20.0	-	17	-	-	-	10	-	1.2	2.0	
	Southwest	44.0	-	29	6	-	-	11	-	1.5	4.0	
	Hauhangatahi	34.5	1	21	-	-	-	13	-	1.6	2.6	
	Whakapapa	43.5	-	45	-	-	-	20	-	1.0	2.1	
	Pihanga/Tiia	6.5	1	-	-	-	-	6	-	0.7	1.0	
	Desert Road	29.5	10	17	-	-	4	8	-	1.0	2.5	
	ALL	287.0	14	219	3	-	5	92	2	1.2	3.0	
	1990/91 FIGURES	439.5	-	-	-	-	4	127	5	-	3.4	
	TONGARIRO FOREST	ALL	153	1	101	1	122	42	9	33	1.5	3.6
1990/91 FIGURES	397	-	-	-	-	-	120	59	-	3.1		
ERUA FOREST	ALL	44.0	-	20	1	66	8	1	15	2.0	4.8	
1990/91 FIGURES	56.5	-	-	-	-	-	15	2	38	-	3.3	
RANGITAIKI FOREST	ALL	54.5	30	15	1	-	12	4	1	1.2	3.2	
1990/91 FIGURES	60.5	-	-	-	-	-	9	2	-	5.5		
LAKESHORE RESERVES	ALL	-	-	-	-	-	-	-	-	-	-	
UNSPECIFIED RETURNS	WHOLE CONSERVANCY	111.5	-	-	-	-	15	10	1	-	4.3	
TOTALS	WHOLE CONSERVANCY	1817.5	-	-	-	-	242	246	17	49	3.6	
	1990/91 FIGURES	2934.5	-	-	-	-	287	424	20	108	4.0	

NO HUNTING REPORTED

* Deer and Pig Only

Table 1

The low level of hunting reported from Tongariro Forest this summer is a little disappointing and perhaps reflects a lack of interest from the many local hunters who utilise this area in providing the Department of Conservation with data. However, the data that was received does point to significantly lower goat numbers in the forest and that's good news.

Winners of the hunter diary prize draw, drawn from nearly 600 diaries on 6 March 1992, were as follows:

- | | |
|---|---------------------------|
| Air Transport with Heli-sika: | M Vette, Whangarei |
| Air Transport with Lakeland Helicopters: | Kevin Grant, Waitakere |
| Air Transport with Air Charter, Taupo: | G Leonard, Tauranga |
| Ammunition from the NZ Ammunition Co.: | Gavin Dempsey, Taumarunui |
| Sports goods from the Fly and Gun Shop: | Alan Lynch, Raetihi |
| Accommodation at Sika Lodge: | John Hart, Epsom. |

Ten hunters also received free copies of this issue of **Target Taupo**. Congratulations to all winners and once again thanks for the data. We now have over 20,000 days of hunting on our data base which is becoming an extremely valuable management tool. This data is presented in a summarised form in table 2.

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RECREATIONAL HUNTING PERMIT STATISTICS TONGARIRO/TAUPO CONSERVANCY 1990-1991

Area Hunted	Year	Days Hunted	Percentage of Specified Effort reported	KILLS				CPUE Kills/Day
				Sika deer	Red deer	Pig	Goat	
Kaimanawa RHA	1990	2376.5	34.3%	388	23	3		0.174
	1991	2431.0	37.8%	404	27	4		0.179
Kaimanawa Forest Park (excluding RHA)	1990	2212.0	31.9%	304	250	21	-	0.260
	1991	1999.5	31.1%	306	211	15	-	0.266
Tongariro National Park	1990	1251.0	18.0%	16	313	6	16	0.281
	1991	980.0	15.2%	18	275	6	-	0.305
Tongariro Forest (including Pukepoto)	1990	764.0	11.0%	3	190	31	245	0.614
	1991	702.0	10.9%	-	145	11	153	0.440
Erua Forest	1990	166.5	2.4%	-	48	4	172	1.345
	1991	167.5	2.2%	-	38	2	76	0.705
Rangitaiki Forest	1990	165.5		25	9	-	-	0.205
	1991	141.0		31	9	3	-	0.305
Unspecified Returns	1990	1107.0		85	135	11	85	0.285
	1991	747.0		53	102	7	95	0.344
TOTALS	1990	8,042.5		821	968	76	518	0.261
	1991	7,180.0		812	811	48	325	0.248

	1990	1991
Number of four-month hunting permits issued to recreational hunters	6,865	7,033
Average return rate (% of issues)	31.6%	30.75%
Proportion of successful hunters (those who obtain at least one kill, deer pig or goat)	38.4%	33.9%

Table 2

To all those hunters who supplied jaws and gut samples this spring, many thanks also. A big December effort has given us a sample of 177 sika jaws from the Kaimanawa RHA for 1991, allowing good comparisons of age structure changes as a result of the intense pressure you all place on the area. More about that in the next issue.

For those of you now contemplating the roar, we wish you productive and safe hunting and look forward to seeing many successful hunting diaries at the end of May. We are confident the Tongariro/Taupo Conservancy will provide you with exciting hunting and plenty of venison for the freezer this year. The extra helicopter landing sites authorised this year will open new country to explore for many of you, and we hope that harvests in these areas are maximised to ensure the highest possible level of habitat protection.

For those of you who will be walking in, try a trip over into the upper Waipakihi Valley and the high mountain beech forest along the western flanks of the Te Hiwiokaituri Ridge. There are good numbers of red deer in this catchment. The catchment ridge between the upper Waiotaka and upper Waimarino also has good numbers of red deer. Access is difficult but Waipakihi Hut gives you a comfortable base within two hours travel of this area.

Good luck and remember:

- POSITIVELY IDENTIFY YOUR TARGET! -

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4.

BITZ 'N' PIECES

Helicopter Access to Kaimanawa Forest Park

If you are using helicopter access to one of the designated helicopter landing sites available in Kaimanawa Forest Park this year, there are a few things we ask you to think about:

1 Because you are able to take a bit of extra gear when you fly in, your potential impact on the natural environment can be considerably increased. Don't spoil the bush by leaving rubbish, cutting down trees and shrubs or excavating large campsites. Please, leave your camps as clean and natural as you can.

2 If you are taking a fishing rod, remember that most wilderness fisheries cannot sustain heavy harvests. By all means keep the odd fish for camp meat, but practising a "catch and release" ethic for the majority of your wilderness fishing will ensure you have just as good results next year. Our backcountry rivers **are not** meat holes! They are delicately balanced and fragile ecosystems which can be seriously affected by over-fishing.

3 It is important that you return the hunting diary attached to your hunting permit at the end of May. The success or otherwise of reducing deer numbers in remote areas by allowing helicopter access for recreational hunters can be determined from the data you provide on your hunting diary. Without this information it is difficult to assess the impacts of our management decisions. Your assistance will ensure these management decisions are made wisely with the best possible outcomes for both resource and user.

4 If you are successful in harvesting a deer or two, we would be grateful if you could supply the lower jaw bones. Not only can this be of interest to you in that you will be sent details such as age and relative size of the animals you have shot but, combined with hunting diary data, a large enough jaw sample can provide valuable information on population structure, herd condition and productivity.

Please supply details of species, sex, location, date shot, whether in milk/fawn, number of points and size of antlers and your name and address with all jaws. Jaws from **ALL** deer you shoot should be provided to ensure a broad cross-section of the herd is sampled - not just the big stags!

You can also participate in the present diet research project by taking a gut sample. Sample kits are available from the helicopter companies that have concessions to fly you in.

5 The landing sites available in Kaimanawa Forest Park this year are:

Permanent

Cascade Hut

Oamaru Hut

Boyd Lodge
Mangamaire/Rangitikei Confluence
Waingakia/Rangitikei Confluence

Waipakihi Hut

Available 20 March to 20 May 1992 only (reviewed annually)

Tiraki Stream
Whitikau Stream
Ecology Stream
Trick Creek/Rangitikei Confluence
Makamiko/Otamateanui Confluence.

Waimarino Stream
Waiotaka Stream
Ecology/Rangitikei Confluence

The only helicopter companies that have concessions to fly you in are:

Lakeland Helicopters - Taupo;
Heli-sika - Poronui;
Shoreline Helicopters - Napier;
Trap and Trade - Rotorua;
Wanganui Aerowork - Taihape.

We hope your trip this year is one of your most enjoyable ever!

We have opened up a fair bit of new country to improve the effectiveness of your hunting efforts in controlling deer numbers, but we do ask that you keep the points raised above at the **front** of your mind. Good luck!

Southern Conservancy

Road works have been completed on the Rangataua Forest access road. This will enable hunters to have easy vehicular access into the forest that is known to produce the occasional trophy class head.

The Horopito access road is to have gravel laid over the worst sections before 1 April.

On Saturday 7 and Sunday 8 March 1992, an organised goat shoot using members of the Waimarino branch of the New Zealand Deerstalkers' Association was held in southern Erua Forest. A total of six hunters turned out for the weekend. Despite wet, windy weather and the fact that the cricket

TAUPO, NEW ZEALAND



Situated right on the boundary of Kaimanawa Recreational Hunting Area and Kaimanawa State Forest Park, Sika Lodge provides budget accommodation with hot showers, full toilet facilities and well equipped communal cooking area. Your own sleeping bag will be necessary.

Vehicle security services can be offered.

SIKA LODGE

Phone Brent or Val Keightley
Taupo
for reservations

PLEASE BOOK EARLY

one day series was being played, 19 goats were destroyed. Although this may not sound many it represents approximately a quarter of the goat population in southern Erua Forest.

Four hunters received vouchers and prizes sponsored by the Department of Conservation.

Te Iringa Hut Revamp

I'm sure that hunters, trampers and the like will welcome the upgrade of the fireplace at the Te Iringa Hut. The old and very inefficient open fireplace has been replaced with a remodelled pot belly stove provided by the Taupo branch of the NZDA who installed the stove, built a covered-in entrance to the hut and undertook other maintenance work around the building.

A local Community Youth Trust Group carried up builders' mix in packs to provide the concrete topping for the hearth round the stove. This trust group also resited the toilet and we can assure you we haven't spoilt the view, just made climbing into the toilet less precarious!

DOC provided helicopter transport for the stove and main building materials and supervised the trust group. While there is still some tidy up work to be carried out we wish to thank these groups for their effort and acknowledge the co-operation, particularly with the local Taupo branch of the NZDA - a truly joint venture.

With the forthcoming 'roar' and those more than chilly nights, relish the warmth given off by the little pot belly, which only uses a fraction of the wood gobbled up by the old open fireplace, and spare a thought for those who volunteered their own time to install it. Keep the hut tidy and the woodbox full - thanks.

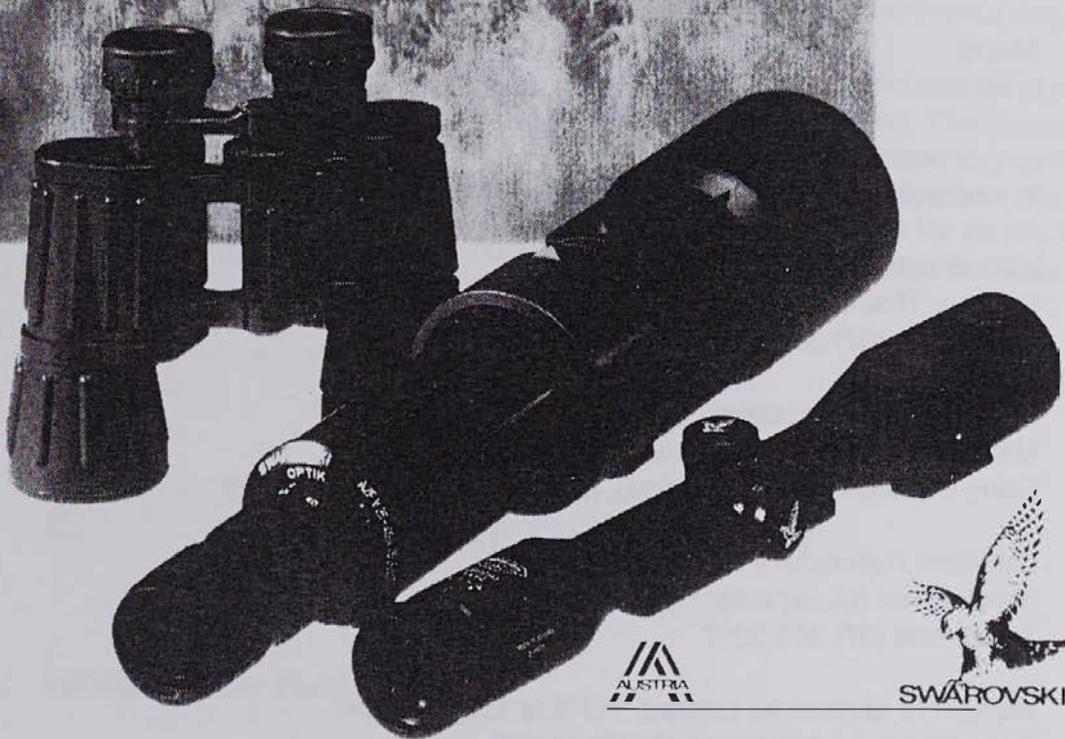
Clements Road

In late March a metalling and grading programme will be carried out on this road which, along with the roadside slashing undertaken some time ago, should see this access in pretty good shape for the winter. A good time to also thank, in particular, our friend Paddy, and those people who assisted in clearing some of the windfall beech trees which periodically flop across the road, usually when people are up at the end of the road! A point to remember also is keep your speed down on this road, it's not a highway and we don't want accidents - nor do you. Bullbars on vehicles are not a lot of protection because the other guy may have more solid ones. Take care, and we hope you enjoy your time in the Taupo Field Centre Area this season.

Report from Hawkes Bay Conservancy: New helicopter landing sites in the Kaweka Forest Park

There are indications that deer numbers are on the increase in the Kaweka Forest Park and in some areas animal numbers are damaging the habitat they are living in. This winter/spring/summer hunters sending in their diaries have reported deer in poor condition, and deer that have died during the harsh winter. One hunter found 14 dead deer in a week.

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Thanks for the information! We had some of the animals tested by MAF vets and no TB or other disease was found - the animals were just in poor condition. To improve the effectiveness of recreational hunters in these areas we are opening up more landing sites, especially in the remote experience zone of the Mangatainoka Catchment. Four out of six new landing sites will be sited in the Mangatainoka headwaters. These sites will be open for a six month trial period.

Some special conditions will apply. They are:

- gas cookers must be used;
- no chainsaws (this applies to the whole Kaweka Forest Park);
- only one hunting party accessed by helicopter per site at any time. Note that other hunters (on foot) may also be in the area;
- data hunting sheets are to be filled out by each party, deer jaws and gut samples (kits with instructions supplied) are to be collected. Information, deer jaws and gut samples to be given to your helicopter operator.

If you want to hunt from one of these landing sites you will have to:

- 1 Get a hunting permit (and maps). Write to Department of Conservation, PO Box 644, Napier.

Maps:	NZMS 260U20 Kaweka	\$12.00 each
	NZMS 260U19 Kaimanawa	\$12.00 each
	Kaweka Forest Park Map	\$ 9.00 each

- 2 Make a booking through one of the helicopter concessionaires. They are:

Heli-sika, Poronui, RD 3, Taupo
Shamus Howard
Telephone (07) 384 2816, fax (07) 384 2826

Strawbridge Helicopters Limited, Utuwai, Ashurst
Michael Sloan (Hastings), telephone (06) 876 7020
Garry Strawbridge (Pohangina), telephone/fax (06) 329 4893

Lakeland Helicopters
Derek Lowe (Murapara)
Telephone (07) 366 5267

Wanganui Aeroworks Limited, PO Box 103, Taihape
Brian Goodwin, telephone (0658) 81 696

Te Onepu, PO Box 1260, Hastings
Richard Popplewell, telephone (025) 973 426

If the helicopter operators have already arranged to land a hunting party in your preferred location they will recommend other good hunting areas that have landing sites.

Good hunting!

1080 poison operation, Tongariro River - 1992

- The Waikato Regional Council, at the request of the Animal Health Board, is planning a major assault on possums in the Turangi area to reduce the incidence of bovine tuberculosis (TB) in local deer and cattle herds this winter.

The operation boundaries are basically the Waimarino River in the east; the lakeshore to the north; the Tokaanu tailrace and lower slopes of Mount Pihanga in the west; and Access Road 10 and Kaimanawa Forest Park in the south, although poisoning will also occur within a one-kilometre buffer inside the park boundary.

Visiting hunters and anglers should be aware that they may have to leave their dogs at home this winter. While the chances of humans being poisoned by the operation are very remote, dogs will be extremely vulnerable to both baits and dead possum carcasses. Anglers on the lower Tongariro need not be concerned as 1080 poison will not be used below the Whitikau junction, but traps may be present in this area so watch your dogs!

Warning signs will be placed throughout the operational area and a series of media releases and public meetings are planned to keep the public well-informed. The operation is planned for June/July this year. While this coincides with the annual spawning runs of the Taupo trout, it is unlikely to have any impact on the trout or the anglers' enjoyment of what is shaping up to be a very good season. Please watch your newspapers for details or contact the Department of Conservation's Turangi office, or the Waikato Regional Council.

5. SOMETHING FISHY

Spring/Summer Fishing

Incessant south-westerly winds through spring and early summer appear to have contributed to an unusual pattern of lake fishing for the time of year. In October, spring was well on its way and the few anglers who tried harling were rewarded with some excellent fishing. However, going into the more traditional harling months of November and December the wind arrived and spring went on hold. The fishing slowed along the exposed north-eastern

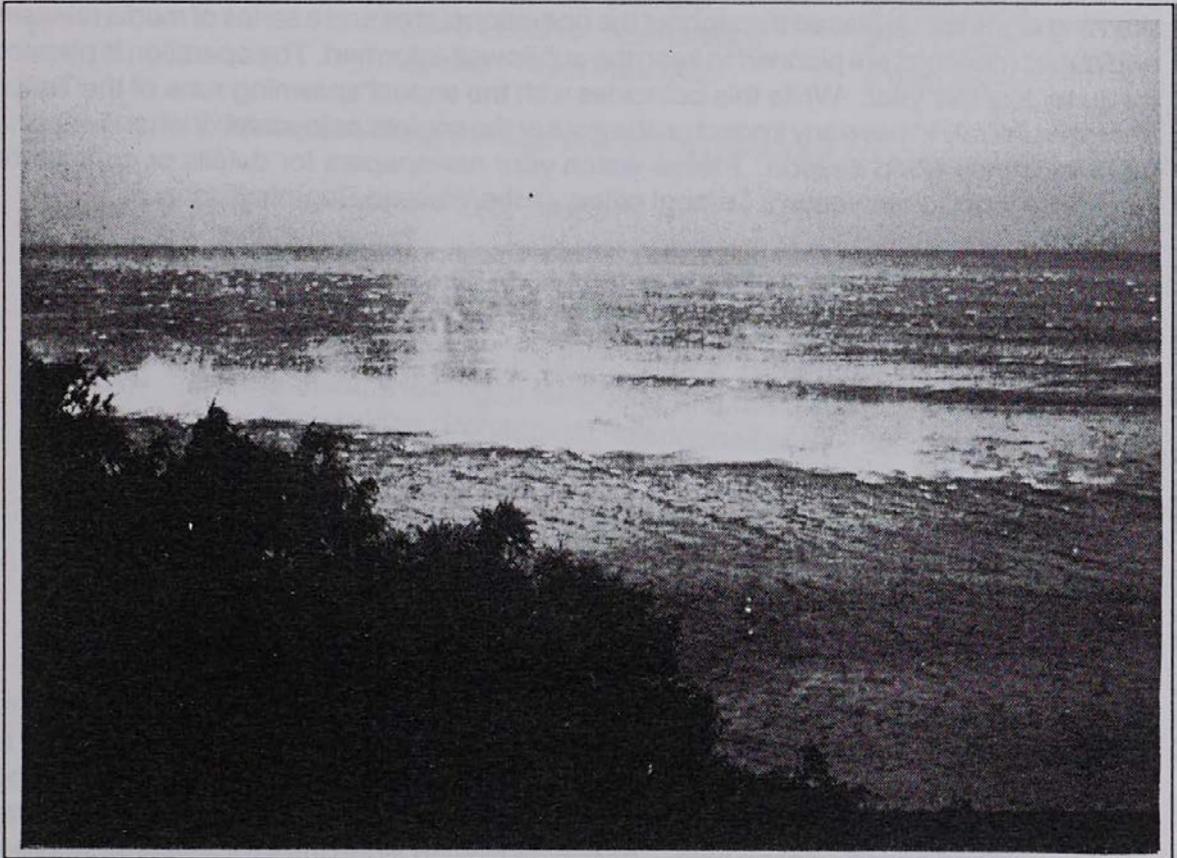
shore (when you could get out) but the sheltered Western Bays and the Tokaanu/Kuratau area fished very well. Into January the weather became more settled and the northern areas of the lake came into their own. Most unusual, though, was that in mid-January harling was proving very successful right through the day and many guides were not using lead or wire lines at all.

A pleasing feature of the lake fishing this summer has been the increased number of large well-conditioned rainbows reported by the anglers. Hopefully this indicates a greater number of fish surviving through to maturity than in recent years, whether as a result of better conditions or a reduced harvest or both.

Similarly the kelts which entered the lake in December, earlier than last year, have also regained condition rapidly. This all bodes well for the winter fishing when these fish will run the rivers to spawn.

The wind also restricted dry fly opportunities on the Taupo rivers but, when conditions allowed, some exciting fishing for immature resident fish and mending kelts occurred, particularly on the Tongariro.

Once again several good runs of spawning trout entered the Tongariro with the rain over the Christmas period. A total of 112 trout were recorded through the hatchery trap during January and the very few anglers who fished the Tongariro this summer were rewarded with consistent fishing, amidst a peace and solitude not usually associated with this area.



A graphic example of a wind shear on Lake Taupo

The Taupo fishery is often spoken of disparagingly by anglers who prefer quiet secluded streams but over summer a number of streams around Taupo offer such opportunity. Not all water holds fish but be prepared to explore and sooner or later you will be pleasantly surprised.

Our tip for the winter - Traditionally we look to the winter river fishing to begin around Easter and continue through to the end of September. During this period anglers flock to the Taupo area in their thousands. However, in reality the main runs don't get underway until well into May or early June and there are still good numbers of fresh run fish in the larger rivers into December. Yet by October most anglers have had enough of the Taupo rivers and are looking forward to the opening of the back country rivers, the evening rise, the harling in the lake or the spring hunting.

Those few who remain suddenly find they have large stretches of the river to themselves. It is often possible to catch several fish from each pool, none of which have been fished that day, and daily catches of 20 to 25 fish are not uncommon.

Spend April chasing roaring stags and May sitting over decoys before you start thinking about winter fishing. If possible delay at least one trip until October or November.

Speed Limit on Lake Otamangakau

For some reason many anglers seem to believe that normal boating regulations don't apply on Lake Otamangakau. WELL, THEY DO. The irregular shape of the shoreline means that only a very small area of the lake is not within 200m of the shore, i.e., only a very small area is not subject to a 5 knot maximum speed restriction.

Independent of any speed restriction, anglers should think about their impact. Lake Otamangakau is relatively small, very shallow (maximum depth of 12 metres) and often there are a number of people wading or in float tubes or small boats. Excessive speed disturbs the tranquillity of the place, the wildfowl and the trout, and the wake makes life uncomfortable for other users and erodes away at the shore - **It's all so unnecessary!**

Christmas Harvest

As described in 'Keeping Tabs on the Taupo Fishery', we measured the trout harvest over the Christmas period. In the year-long harvest survey undertaken over the 1990/91 season, the Christmas break and long weekends in January and early February contributed 16.2% of the total harvest or 11,245 fish. This summer, using the same methodology which involves counting anglers from a light plane and interviewing them as they return to shore, the harvest was estimated at 14,330 fish, an increase of 27%.

If we look at the average daily effort, this increased 12% from 1875 hours to 2100 hours. While it was noticeable that boating activity in the Western Bays was much quieter than last year, this was more than offset by increased numbers of anglers along the eastern shore. However, the main reason for the increased harvest was an increase in angling success, particularly at the southern end of the lake. Interestingly less than 7% of all legal-sized fish were released, reflecting the high quality of Taupo trout this season and perhaps indicating

that few of us can resist putting a well-conditioned rainbow into the fish box.

An increased harvest of 27% over the whole season might have us very concerned given the implications of the already very high 1990/91 harvest (see **Target Taupo Special Edition 1**). However two factors alleviate our worry.

1 Trout production is almost certainly much higher than when measured in 1988 and 1989. This increase is reflected by the higher trout numbers measured in the November lake acoustic survey (see later item in this section).

2 Spring, the other period of very high harvest, was dominated by strong south-westerly winds which severely restricted angling opportunity. The harvest over this period would be smaller than measured in 1990.

As this article goes to press we will be measuring adult trout numbers in the lake. Hopefully the trend of increased numbers will again be highlighted and will be reflected in the winter runs.

Kids' Fishing Days, 1991

Attendance at the five fishing days held at the Tongariro National Trout Centre during 1991 was 1573, down 12 percent on 1990 which had the highest attendance on record.

Fewest children (187) came in June and most (489) in August. A feature of the past two years has been a doubling of the numbers in July since the fishing day was re-scheduled to coincide with schools' mid-term break.

Fishing days for 1992 will be held on:

- 17 May
- 14 June
- 12 July
- 30 August
- 20 September.

Tongariro Power Scheme Resource Consents

The Tongariro scheme is one of the largest hydro-electric developments in the country. It diverts water from four major catchments (Wanganui, Rangitikei, Whangaehu and Tongariro) into Lake Rotoaira and then to the Tokaanu power station.

Built in the 1960s and '70s, the scheme was authorised by special legislation. With the passage of the Resource Management Act last year, the scheme operators (Electricorp) must now apply for formal resource consents and discharge permits. With encouragement from interested groups, Electricorp have agreed to conduct detailed public consultation prior to their formal consent application. This will allow identification of important issues, collection of resource information and perhaps even agreement on many aspects outside the formal process.

Because of the major impact of the Tongariro scheme on the Taupo fishery, especially on the Tongariro River flows, fishery interests are likely to play a significant part in the consultation process. So far Electricorp have held two public meetings, from which a management group has been set up with representatives from fishing organisations, DOC, landowners, private and commercial rafters and canoeists, conservation groups and regional government.

Electricorp have also just advised that they wish to incorporate the resource consents covering their manipulation of Lake Taupo levels in this process, so it is likely that boating representatives will also be involved.

The next step is to identify issues and establish technical working parties to identify and commission research and information needs.

Increase in Trout Numbers

Anglers' perceptions of increased numbers of trout in Lake Taupo have been supported by the results of the acoustic survey carried out by the Department of Conservation in November last year. The survey indicates there were approximately 110,000 legal-sized trout in the lake, compared to previous November estimates of 90,000 in 1988 and 68,000 in 1989. 230,000 young undersize trout were also recorded, up 60% on 1988 and 90% on 1989.

The November results are a further indication that the Taupo trout population is bouncing back. More favourable environmental conditions in the last couple of years have improved juvenile trout survival, and a reduced angling harvest brought about by fewer anglers visiting Taupo and the lowered bag limit has allowed more of these fish to survive through to maturity.

The acoustic survey will also be done in March as part of an annual monitoring programme for the Taupo fishery.

Juvenile Fish Tagging

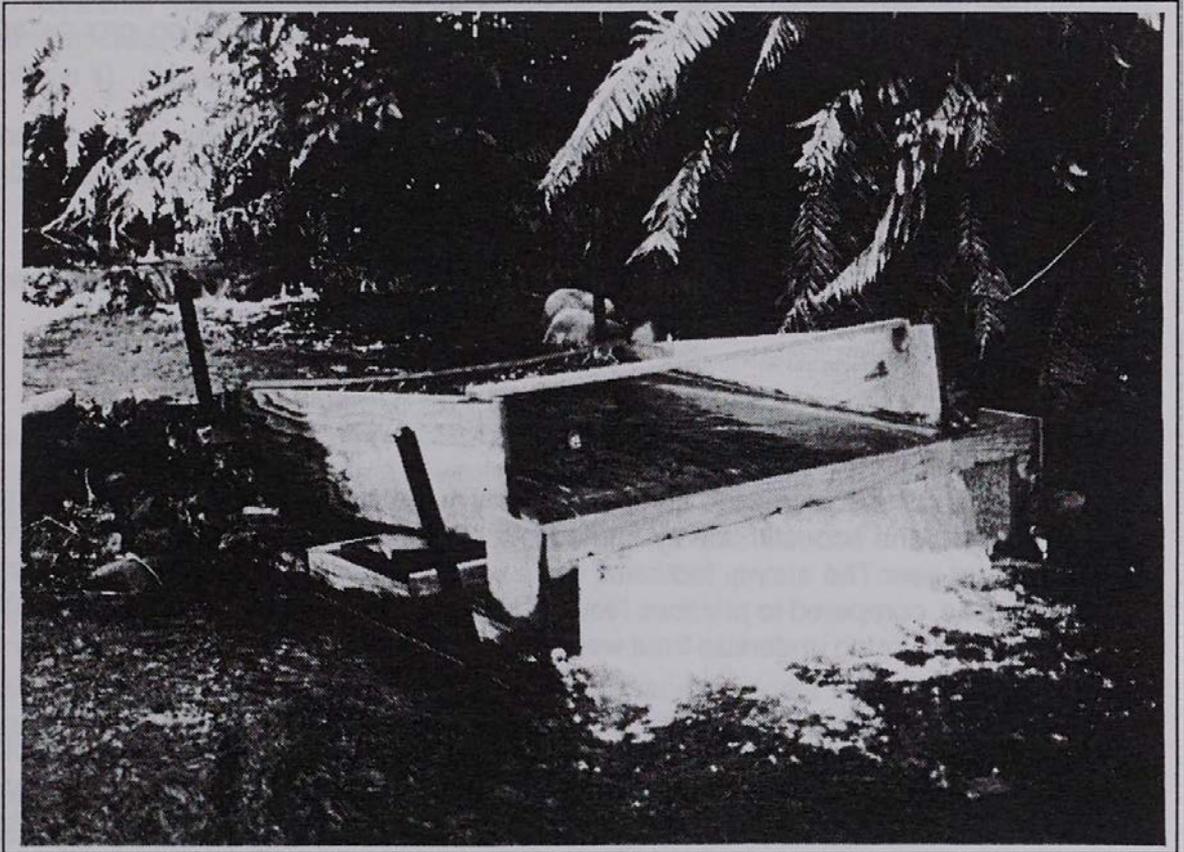
As discussed in the last issue of **Target Taupo** we have begun finclipping and tagging juvenile trout from several streams, both to monitor growth rates and trout condition and to learn more about their life history patterns.

Two fish traps which collect fry and fingerlings drifting downstream have been operated from December through February just below the viewing chamber on the Waihukahuka (hatchery) Stream.

To date 389 fingerlings from 50 to 95mm long have been finclipped and a further 10 of greater than 95mm marked with a yellow oval tag behind the dorsal fin. Interestingly, we have captured thousands of fry, progeny of summer spawners which passed through the upstream trap.

In early March the fisheries team also electrofished several stretches of the Whiti kau Stream

(the main spawning tributary of the Tongariro) and finclipped 1605 rainbow fingerlings, 70 brown fingerlings and tagged a further 30 larger rainbow fingerlings.



Downstream juvenile fish trap in the Waihukahuka Stream

Hopefully these fish will begin to show in anglers' bags in the next season or two, or will return through the hatchery trap or be picked up by trapping planned as part of a major research project into the Tongariro spawning runs. It would be appreciated if anglers could make a habit of checking any fish they catch for a missing or shortened pelvic fin (the paired fins just forward of the vent), or adipose fin (the small fin just in front of the tail), or a small plastic tag behind the dorsal fin. Even undersized fish should be checked, e.g., those taken on a dry fly in the lower Tongariro. Information from the capture of these small fish is as valuable as from larger fish. There is no need to kill the fish if you would rather release it, just record the clip and/or tag colour, the approximate length and weight, sex, species and where it was caught and the date, and forward it to us.

The tagging of juveniles will be repeated each year so sooner or later you can expect to come across a marked fish.

River Watch

Anglers on the Waitahanui may notice that the track on the true left from the road bridge to the Cliff Pool car-park has been upgraded. Mud holes along the track which have been causing problems have been filled with pumice. A lot of the deterioration has been caused by motorbikes and mountain bikes being ridden along these tracks.

ISSUES AND PRIORITIES IN THE TAUPO TROUT FISHERY:

Anglers - have your say!!

The department has released a discussion paper which provides an up-to-date summary of the status of sport fisheries within the Taupo Fishing District. The paper also highlights current and future issues facing fishery management and angling.

Anglers are encouraged to read the document and provide comment on fishery issues to the department. These comments will then be evaluated and incorporated into the drafting of a fishery management plan for the district. Once in place, the plan will provide a prescription for management actions to be taken and the department will be bound by its requirements. This, then, is an important opportunity for Taupo anglers to have an effective input into the future direction of the management of their resource.

Copies of the discussion paper can be obtained from the Department of Conservation, Private Bag, Turangi. For further information, contact Rob McLay, Fishery Planner, at the Turangi office, telephone (07) 386 8607. Anglers have until 30 April 1992 to provide comment on matters raised in the discussion paper.

Compliance Update

The first of December heralded the beginning of the holiday mood as well as the opening day of some of our popular fishing streams.

We covered the holiday period from 1 December 1991 through to 31 January 1992 with a good measure of enforcement both on the lake and the main rivers and streams.

We can sum up our activity as follows:

- Interviews, i.e., licence checks, alleged poaching, etc. - 1289
- Apprehensions - 30.

For our part we have noticed a considerable decrease in apprehensions when compared to the same period last year (42), down by 12 (about 25%). There was very little difference in interviews - 1283 for 1990/91.

A total of 1392 man-hours were worked by the three compliance officers with an addition of approximately 16 hours contributed by honoraries and other staff members.

Taupo Fishery Advisory Committee

The TFAC met recently - for the first time since the Minister of Conservation formally confirmed the members' appointments.

The focus of this meeting was a discussion of the features and fisheries impacts of the Tongariro power scheme and ways these might be improved when new resource consents are issued.

Other key topics discussed included the draft management plan issues paper, fishing techniques and post-release mortality, concessions and licensing of fishing guides, and trout poaching.

Recommendations on various actions will follow from this meeting.

Downriggers

For several years now some lake anglers have looked at alternatives to trolling with lead and especially wire lines. Frequently mentioned is relaxing the regulations to allow the use of downriggers with light rods and lines.

DOC fisheries staff made a preliminary assessment of the effects of using downriggers on Lake Taupo, but this work was put on hold following the results of the trout production research.

This showed that while at any one time the bulk of the trout population lies at depths greater than the general 30 metres maximum reached by wire lines, anglers still took 30-50% of annual trout production. This is an extremely high exploitation rate and is not sustainable in periods of low production.

While downriggers have a number of advantages over wire lines from an angler's perspective, they do increase the ability to catch more trout from greater depths and so increase total harvest.

The debate on whether fish caught at depth survive if released is far from resolved. With one or two possible exceptions there has been no similar work done overseas. We have planned to begin some studies on this aspect later this year. From this work it will be possible to decide whether further consideration should be given to the introduction of this technique.

Changes and improvements to landmarks

'Landmarks' are frequently used in the Taupo fishery to mark the point where a particular regulation applies. For example, the new upstream winter fishing limit on the Tongariro will be marked by a landmark, as are river mouths off which a 300-metre restriction of trolling exists. At present landmarks are defined as 'a black and yellow ringed post or buoy'.

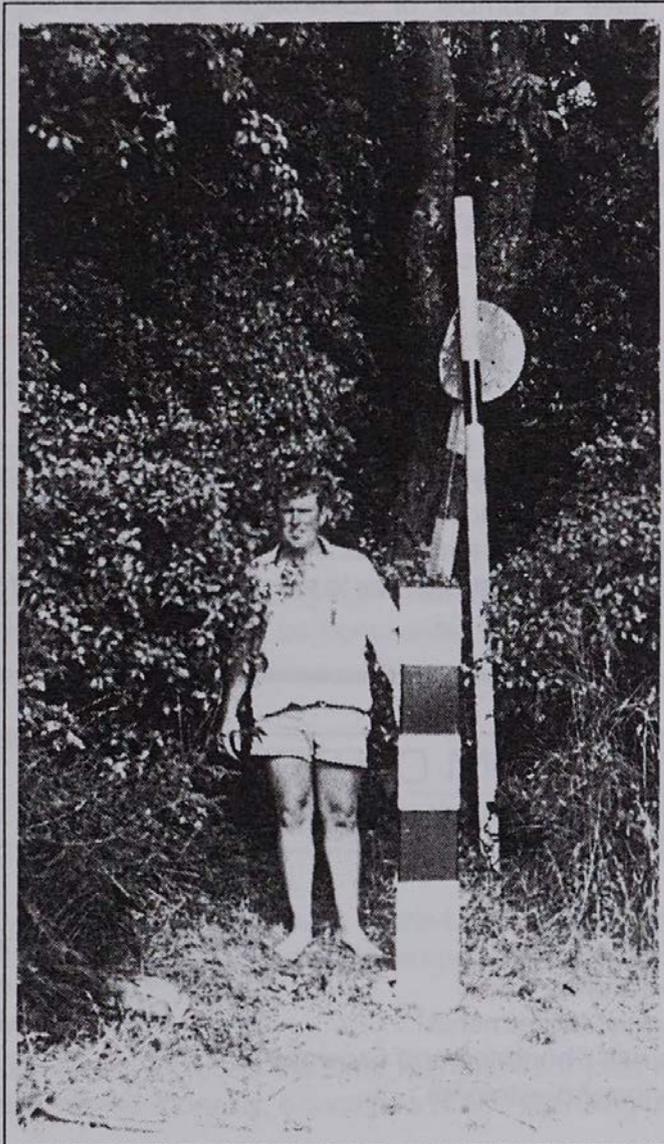


- ** Stock Repairs
- ** Checkering Recut
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Compliance Officer Wayne Boness standing beside the new marker.

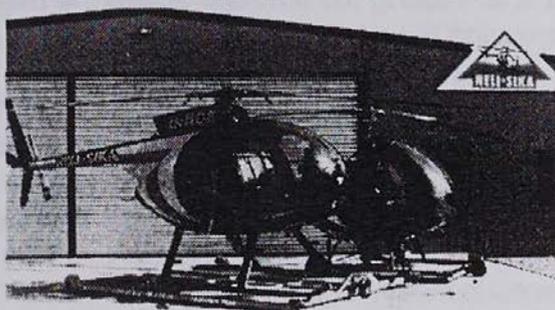
Recently, however, as part of a programme to upgrade signs and markers used in the fishery, we have trialled various combinations of colours to try and make these markers stand out more. We found the best combination was a white band which attracts attention to the marker and the existing yellow and black bands which indicate it is a landmark. The new landmarks will be made of a moulded plastic similar to that used to make road markers and will replace existing markers over the next few months.



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HELI-SIKA offer a specialised service providing clients with excellent hunting for both red and sika deer and mountain river fishing for brown and rainbow trout. We operate from Paronui Station in the heart of the Kaweka and Kaimanawa ranges servicing the forest parks and our exclusive private land.

HELI-SIKA also provide scenic flights, general aerial work, photography and private charter, Lake Taupo fishing, white water rafting and wilderness horse trekking.



HUNTING	PUBLIC LAND	PRIVATE LAND
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	Kawekas	Tarawera
	Urūweras	Owhaoko

RIVER FISHING

MOHAKA	- Brown trout 3-4 lb, plentiful.
NGARURORO	- Rainbow trout, 5-6lb average, double figure potential, good numbers.
RANGITIKEI	- rainbow trout, 7-8 lb average, plus excellent double figure potential. Average numbers.
RIPIA	- Brown trout, smaller fish, low numbers.
TAHARUA	- Brown trout, smaller fish, good numbers.
TARUARUA	- Rainbow, average size, average numbers.

COMMERCIAL WORK Hughes 500 — lifting.
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AUCKLAND: Greg Gribble	Ph 09 537 1231	Fax 09 537 3618
OR WRITE: HELI-SIKA Paronui RD3 Taupo, New Zealand		

FOR ALL MARKETING AND ADVERTISING CONTACT:

Garth Spain	Ph 09 624 3103	Fax 09 662 036
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6.

FINDING YOUR WAY

The upper Tongariro River is a part of the Tongariro/Taupo Conservancy which is often overlooked by hunters and anglers as they head for areas further afield.

Both sika and red deer are found along the upper Tongariro. The true right (east) bank lies within Kaimanawa Forest Park and provides challenging but productive public hunting between late October and June. (NB: Most of the true left (west) bank lies within the Maori owned Rangipo North Blocks administered by the Rotoaira Forest Trust. Permission to hunt this land must be obtained from the trust).

The most productive months are late November through December and into early January when the grasses and herbs on the fertile flood levees of the Tongariro are at their sweetest. River clearings, islands and old channels left dry by artificially lowered water levels are heavily targeted at this time of year. The deer tend to be most active at night but a late evening or early morning visit is likely to pay dividends. As the sun gets higher in the sky a sneak along the terraces above the river channel will often reveal deer with full bellies enjoying the warmth of the morning sun.

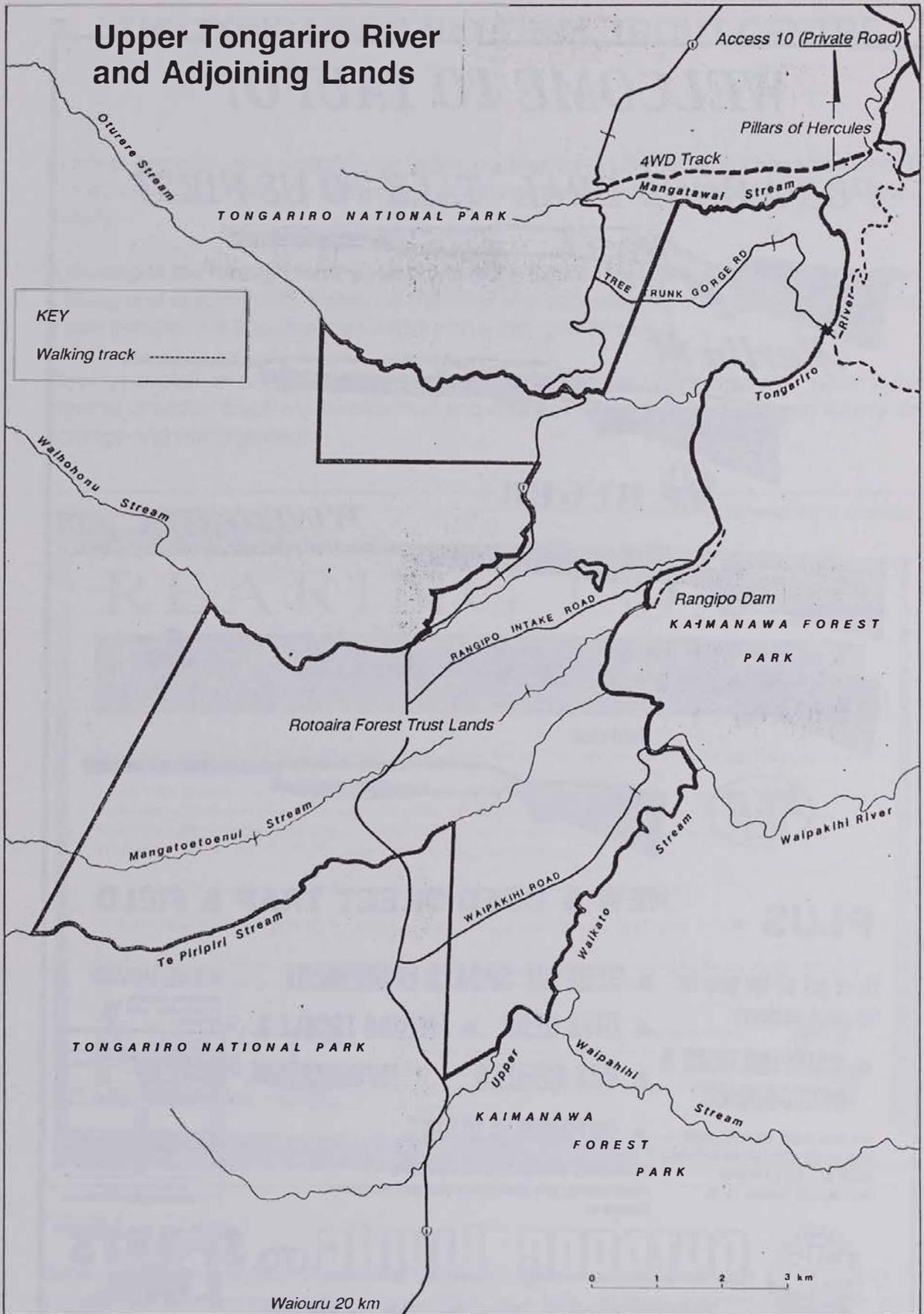
Hinds and young animals are the most common during spring and summer, but the stroped up toatoa and pepperwood trees that can be found in the surrounding forested areas are evidence that the big stags move back in March. An April visit will provide exciting stag hunting, particularly for sika. The lower hunting pressure this area receives allows many stags the opportunity to survive long enough to produce fine eight point heads. The forest is mostly beech with heavy crownfern faces, thick pepperwood gullies and nice open beech/kamahi terraces. There are also extensive areas of manuka/kanuka scrub as the whole area recovers from the development of the power scheme. This scheme was responsible for opening up access to the upper Tongariro and many of the investigation tracks are still negotiable on foot today, providing excellent hunting access.

For anglers, 1 December heralds the beginning of the fishing season for the resident rainbow population. These fish are isolated from the main Taupo population by the Poutu Intake and Waikato Falls but a sharp eye and a careful cast will produce fish for experienced anglers throughout this section of river. For the less experienced angler, spin fishing in the Rangipo Dam impoundment can provide lively sport. The fish are not large but they can be plentiful. Changing water levels below the dam influences fish numbers and their accessibility to anglers, but taking a rod can add a whole new dimension to a weekend's hunting on the upper Tongariro.

Access off the Desert Road (State Highway 1) south of Turangi is via Access 10 (NB: Permits required from the Rotoaira Forest Trust to use this road); Pillars of Hercules 4WD track; Tree Trunk Gorge Road; Rangipo Intake Road; Waipakihi Road.

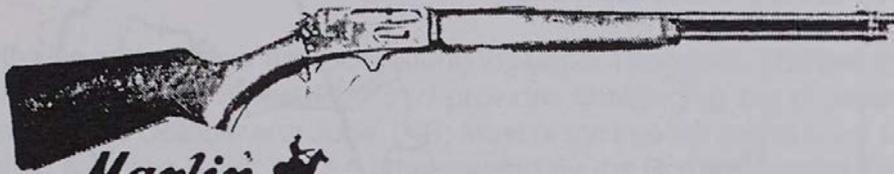
The map opposite shows some of the tracks which provide foot access from these road ends. If you seek somewhere a little different for your next hunting trip, somewhere that is easily accessible and that provides variety, take a trip to the upper Tongariro. It may be just what you are looking for.

Upper Tongariro River and Adjoining Lands



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GENERAL SPORTS EQUIPMENT

DIVE GEAR • FISHING TACKLE &

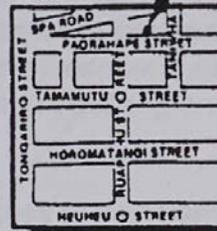
GAS REFILLS INFORMATION

OUTDOOR CLOTHING

Sawndri jackets and bushshirts, corduroy trousers, jeans, thermal underwear, boots, jackets, survival sheets, gloves, kaitiakiyas, heavywear etc.

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TAUPO'S SPORTS & OUTDOOR CENTRE

7. THE TONGARIRO NATIONAL TROUT CENTRE

From an egg collecting station in the 1930s to a hatchery in the '70s, the Tongariro National Trout Centre now enters the '90s as an educational centre and showpiece of the Lake Taupo fishery.

A revamp of the Turangi Lions' viewing chamber, extensions to the walkway, new displays and signs at outdoor sites, inside the hatchery and in the viewing chamber, give the centre a new perspective and provide visitors with a self-guided tour.

Displays explain what hatchery operations happen at different sites (figure 1). While in the viewing chamber these are summarised and an overview is given of the Taupo fishery, its ecology and management.

REARING PONDS

These rearing ponds were built in 1974 by the then Ministry of Works. A need for increased stocking of trout was predicted as a result of damage and changes to trout habitat caused by the power development's diversions.

The rearing ponds are called 'Burrows Raceways' named after their American inventor Roger Burrows.

Young trout learn to swim in a continuous current and the raceways are designed to simulate a moving-stream environment. This also makes them self-cleaning. The water flow is kept even by the aluminum barriers at each corner. These prevent the water current from hitting the end wall directly and creating unacceptable levels of turbulence and dead spots where debris might accumulate.

The water in the raceways is piped from the headwaters of the Waikubuka Stream.

Each race way can hold up to 20,000 yearlings, this giving a total capacity of 120,000.

While here the fish are fed twice daily on pellets containing grain, fish, meat and bone meals, oil, vitamins and minerals. The trout grow at about 10g per month in summer but slow down to 5-7g during winter.



When the fish are ready to be transported they are crowded into a small space. They are then netted and placed into a specially designed tanker which can transport the fish to any part of New Zealand.



Figure 1

Beginning at the carpark adjacent to State Highway 1, a new 'welcome' sign (figure 2) introduces the centre and the circuit which is a little under a kilometre in length and accessible to prams and wheelchairs (although the bottom end of the entrance path will require an extra pusher!).

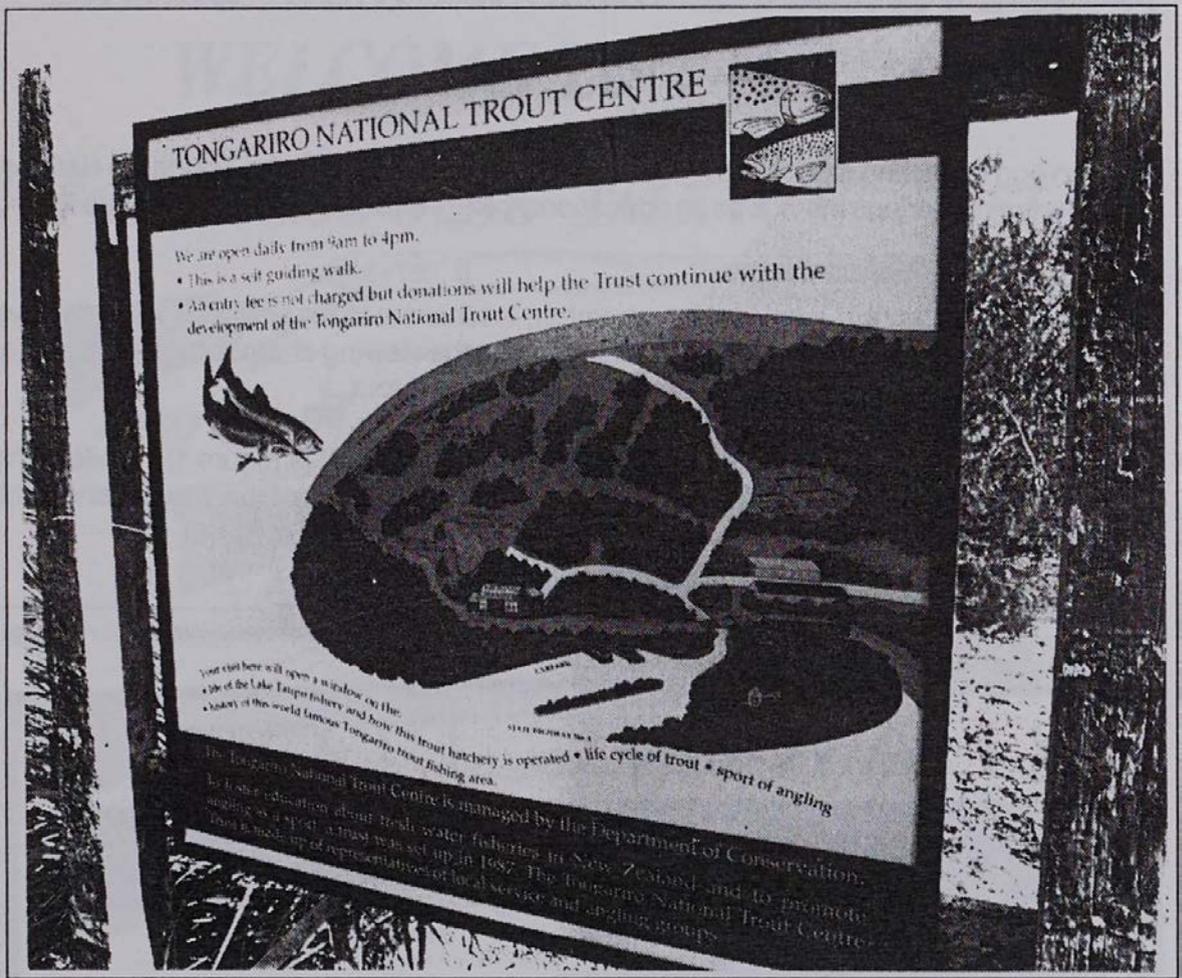


Figure 2

People who have visited before will find the circulation pattern reversed. The path follows the Rotary wall down into the grounds across the Waihukahuka Stream and turns right to the hatchery where graphics and static displays explain how it works. Outside again the route passes the rearing ponds and explanatory display and a new walkway takes visitors through bush and along the bank of the Tongariro River past the Upper and Lower Birch Pools. Tables and seats are positioned at two places along the river walkway to picnic or watch the anglers from, and the walkway offers a restful stroll in pleasant surroundings.

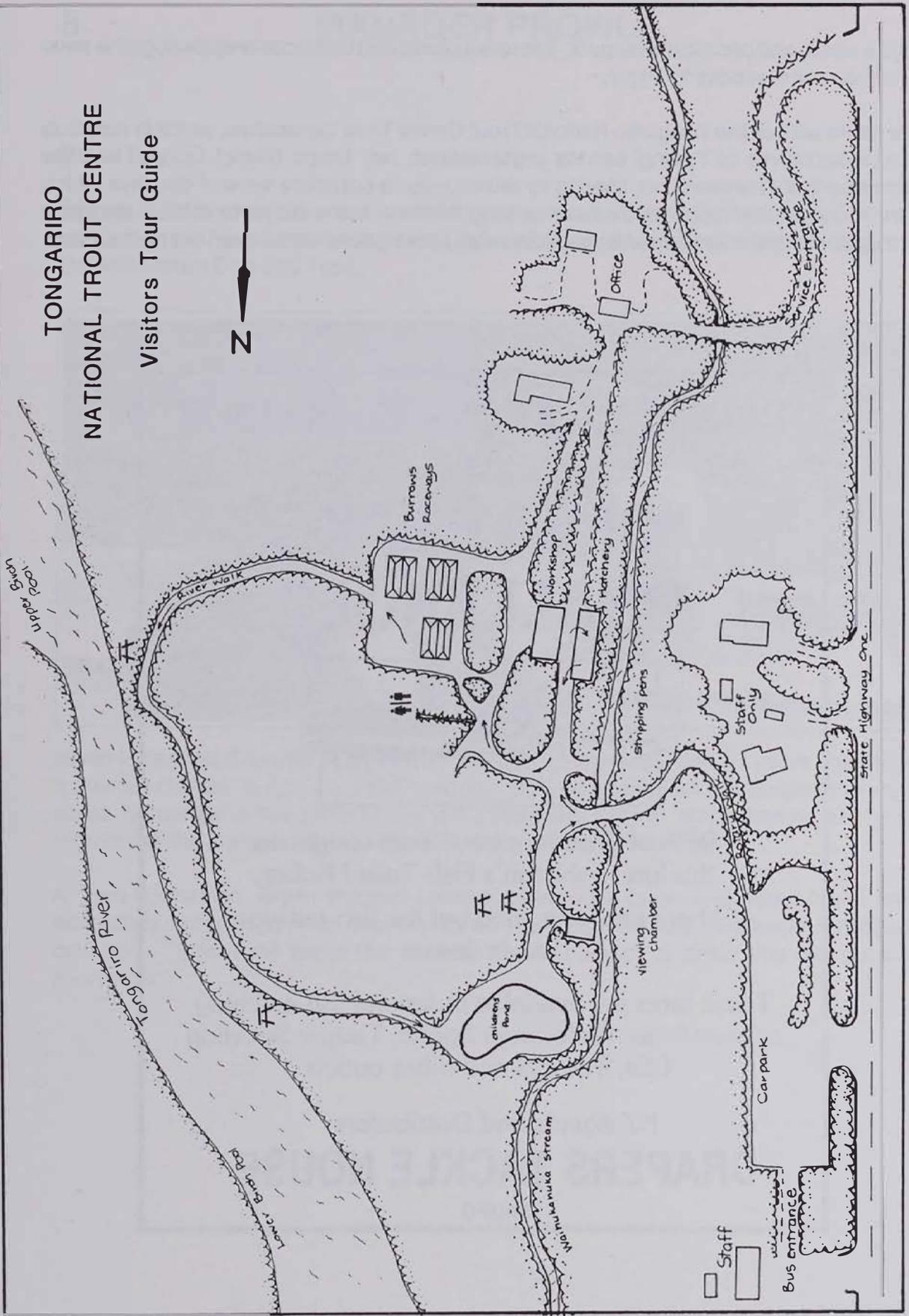
The walkway, built with care and pride by inmates of Tongariro Prison, continues around the children's fishing pond where the rainbow trout may be fed with pellets which can be purchased at the workshop opposite the hatchery.

The children's pond is opened five times a year to introduce six to fourteen year olds to the sport. Angling club volunteers teach each youngster to cast, catch and land a trout which is measured and presented to its captor with a certificate to mark the occasion. Equipment is supplied and budding anglers need only purchase a day licence to join in.

Past the children's pond the track leads to the viewing chamber where the displays explain trout fishing and management and ecological details. Downstairs, trout in the stream may be viewed in their natural surroundings. From the viewing chamber the path leads past a donation box (there is no entry fee and the trout centre is open 9:00 am to 4:00 pm seven

TONGARIRO NATIONAL TROUT CENTRE

Visitors Tour Guide



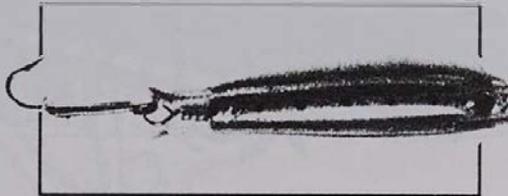
days a week) and back to the carpark. There is a picnic and barbecue area through the trees for anyone who wishes to linger.

The future will see the Tongariro National Trout Centre Trust Committee, which is made up of representatives of Turangi service organisations, iwi, Taupo District Council and the Department of Conservation, striving to raise funds to complete several displays which have had to be shelved, and to extend existing facilities. In the longer term there are plans for a visitor centre with tea rooms, auditorium and trout galore - to be seen but not touched.

CONGRATULATIONS KEITH WOOD

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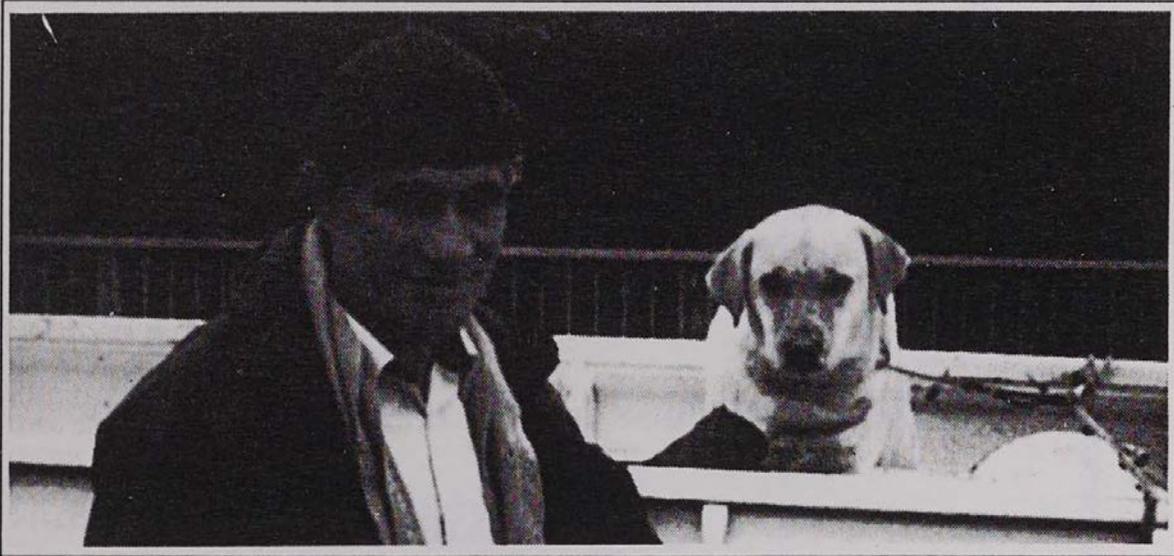
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8.

MANAGER PROFILE

Bryan Taylor

Born in Waitara where he spent his childhood and early teenage years, Bryan is married with two sons. His constant companion is Jasmine, a golden labrador bitch (a daughter of the well-known Den and Tess).



Bryan joined the Royal NZ Navy at 15½ as a boy seaman and after 31 years departed as a Warrant Officer. In January 1988 he joined DOC as a volunteer hut warden, then spent about 12 months in Tongariro Forest with Peter Mark's team. Since then he has been a member of the Compliance and Law Enforcement team in Turangi.

A keen sportsman, Bryan enjoyed some success as a boxer and was a North Island schoolboy rugby league rep. Best time for the marathon - 3 hours, 40 minutes. Philosophy on sport - "It isn't the game that counts, it's the number of beers you can put away afterwards".

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TARGET TAUPO

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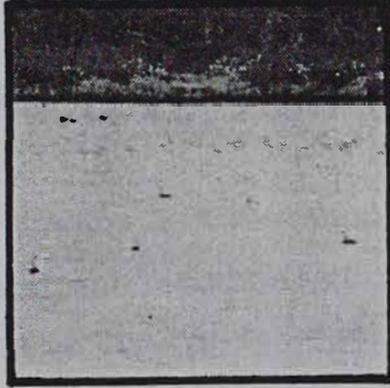
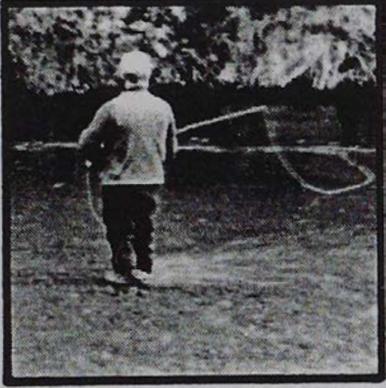
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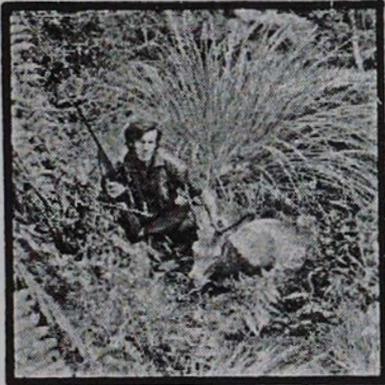
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