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BROADSHEET



**NEW ZEALAND
ASSOCIATION OF
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The Editor welcomes correspondence, reviews of recent publications, interim reports of current research or resource management issues, news items, other articles, and lighter items about members activities and career movements. Unless specifically indicated otherwise, opinions expressed in the Broadsheet are not to be regarded as the official view of the Association. Copy sent on floppy disk or E-mail is preferred, although typed copy is also acceptable. Items can be sent to:

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The Association's financial year begins on January 1st. Web site www.nzarm.org.nz

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Editorial

Dear All,

Happy New Year to you all. Already 2003 - my how time flies!

Thinking about how fast time has flown, it reminds me that this year is our 50th Jubilee year. I was scratching around in one of my colleagues old files, and I chanced upon some old soil con. publications. One was advertising the virtues and rewards of a career in soil conservation (1971), and the other the Presidents report to the membership in the 25th Jubilee year.

In the latter publication Bob Priest makes the following observation.

"It will be interesting to note the reaction of members in 2002 when they appraise this generation's capacity to both accommodate and be resilient to the forces of technical and sociological change. I believe the Association has the capacity and vision to consolidate and build upon its first quarter century record".

Well we are now 25 years on. What's our reaction to that observation?

I'd say that there has been a significant amount of accommodation and adaptation by those in the field of soil conservation to the forces of change in those 25 years. I'd even go so far to say that soil conservation, like the land, has been resilient to many of those changes. Indeed, the words soil conservation have, to many, disappeared from the common-day vocabulary and been relegated to the back seat of the change vehicle. However, I'm not sure that I'd agree with a proposition that they will remain there for the next 25 years. I believe that there is a growing awareness and a need to re-visit and go back to some of those techniques, practices and guiding philosophies that were the essential cornerstones of land management in New Zealand. I don't mean turning the clock back; rather, I see it as an integration of some of the traditional ways with some new and emerging paradigms based on ecological principles and a need by society to have a closer link to nature.

In terms of the Association now and then - in 1978 we had 176 full members and 16 associate members - a total of 188. Today we have 213 members (see article by Muzz Harris on a breakdown of membership on page 28). We may not have "built" the membership to the same degree that Bob and his Executive anticipated in 1978 but then we haven't exactly disappeared either. Then, as now, we still have Broadsheet, Regional Meetings, a professional certificate (CPRM), an annual conference, and the Lance McCaskill award. Have we done enough? Do we need more? Have we accommodated and been resilient? What will we leave for those who follow in 25 years time?

Make sure you get your chance to reflect, reminisce, debate, chew the fat, and meet new-old-young members at this year's annual conference in Rotorua.

Put it in your diaries now and get those cheap airfares before someone else does.

Cheers

Chris Phillips

PS. If anyone wishes to jump on a soap box and have a rave, feel free to send in a letter to the Editor or a Guest Editorial.

Regional Roundup

Bay of Plenty

Greetings all - from the sunny (this time!) Bay of Plenty.

As usual, many of our members are flat out fishing, mountain - biking etc and generally enjoying the great summer in the BOP. Regrettably, this has resulted in only a few contributions from the local chapter, as the team are far too busy enjoying themselves! Still, we have a few of our dedicated diehards:

Andrew Wilson resigned from MAF in November to take up a short-term contract with the Bureau of Rural Sciences in Canberra, Australia. Andrew is coordinating the preparation of Australia's State of the Forests Report and the Australian Country report to the Montreal Process. Both of these documents attempt to demonstrate the progress made toward the sustainable management of Australia's forests in terms of biological diversity, productive capacity, ecosystem health and vitality, soil and water resources, carbon cycles, socio-economic benefits and the legal, institutional and economic frameworks surrounding forests. With the arrival of a son in early September, Andrew now has the look of a new father short on sleep but **Norm Ngapo** on a recent trip to Canberra ensured him that things get better (when they leave home). *(Finally something from our man across the ditch!)*

Bridget Robson, after initially getting off to (very?) a slow start working for **Glenn Sutton** on the truly fascinating job of collating all the rules of all the district and regional plans affecting Fletcher Challenge Forests is now well underway, onto her 12th plan of 16 *(Keep up the excellent work! - GS)*. In its own way this is an enlightening exercise. What makes a good plan? Some have excellent follow-ability, others make spaghetti junction look like a cakewalk. Rules on adjoining councils can be vastly different (but those of you who know Bridget realise this is a pet hobbyhorse) and these two elements seem to be randomly combined in each plan. Other than that, Bridget has been asking lots of ?pertinent questions on the forest approved operators system that EBOP is developing and looking after her little girl who can now hear, thanks to the amazing technology of a cochlear implant. Being born in the 21st century in a first world country certainly has its advantages.

Norm Ngapo has been busy working on a range of activities for Environment Bay of Plenty over the last couple of months. He ran a course on Land Use Capability mapping for the Land Resource staff in late November, and has been busy on a range of resource consent work since then.

John Whale and Norm managed to catch up with **Alan Campbell** when he was having a holiday at Ohiwa Motor Camp. They arranged to have a half-day "meeting" with Alan, checking out the possibility of having Whale Island as one of the venues for a field inspection for this year's NZARM Annual Conference in September. Alan was unsure about the field visit and suggests we had better have another look at some stage.

Gavin Williamson and Glenn Sutton have been actively involved with the recent annual audit for Fletcher Challenge Forests' (FCF) Forest Stewardship Council's (FSC) certificate. Glenn now appreciates how **Clive Tozer** used to feel after those ordeals. Gavin attended the annual FSC conference in Mexico

(see separate article in this edition) during late November and was the only NZ plantation forest representative. The bulk of the current membership is weighted towards indigenous forest management. One of the more interesting episodes in the trip was when Gavin tried to buy a genuine bottle of Tequila from a back-street dealer using a "lonely planet" Spanish-English phrase book. Apparently his Spanish is not very accurate or the dealer was truly a shady character - the end result was a product that Gavin reckoned you could run your lawn mower on!

And now for those of you, who think that you are being unreasonably bothered by the dreaded council while trying to build a simple wee duck pond on your property, consider the following (courtesy of Ross Bawden):

SUBJECT: DEQ File No. 97-59-0023; T11N; R10W, Sec. 20; Montcalm County

Dear Mr. De Vries:

It has come to the attention of the Department of Environmental Quality that there has been recent unauthorized activity on the above referenced parcel of property. You have been certified as the legal landowner and/or contractor who did the following unauthorized activity:

Construction and maintenance of two wood debris dams across the outlet stream of Spring Pond. A permit must be issued prior to the start of this type of activity. A review of the Department's files shows that no permits have been issued. Therefore, the Department has determined that this activity is in violation of Part 301, Inland Lakes and Streams, of the Natural Resource and Environmental Protection Act, Act 451 of the Public Acts of 1994, being sections 324.30101 to 324.30113 of the Michigan Compiled Laws, annotated.

The Department has been informed that one or both of the dams partially failed during a recent rain event, causing debris and flooding at downstream locations. We find that dams of this nature are inherently hazardous and cannot be permitted.

The Department therefore orders you to cease and desist all activities at this location, and to restore the stream to a free-flow condition by removing all wood and brush forming the dams from the stream channel.

All restoration work shall be completed no later than January 31 2002.

Please notify this office when the restoration has been completed so that a follow-up site inspection may be scheduled by our staff. Failure to comply with this request or any further unauthorized activity on the site may result in this case being referred for elevated enforcement action. We anticipate and would appreciate your full cooperation in this matter.

Please feel free to contact me at this office if you have any questions.

Sincerely, David L. Price
District Representative
Land and Water Management Division

Below is the actual response sent back: -----

Dear Mr. Price,

Re: DEQ File No. 97-59-0023; T11N; R10W, Sec. 20; Montcalm County

Your certified letter dated 12/17/97 has been handed to me to respond to.

First of all, Mr. Ryan De Vries is not the legal landowner and/or Contractor at 2088 Dagget, Pierson, Michigan. I am the legal owner and a couple of beavers are in the (State unauthorized) process of constructing and maintaining two wood "debris" dams across the outlet stream of my Spring Pond.

While I did not pay for, authorize, nor supervise their dam project, I think they would be highly offended that you call their skilful use of nature's building materials "debris." I would like to challenge your department to attempt to emulate their dam project any time and/ or any place you choose. I believe I can safely state there is no way you could ever match their dam skills, their dam resourcefulness, their dam ingenuity, their dam persistence, their dam determination and/or their dam work ethic.

As to your request, I do not think the beavers are aware that they must first fill out a dam permit prior to the start of this type of dam activity. My first dam question to you is: (1) Are you trying to discriminate against my Spring Pond Beavers or (2) do you require all beavers throughout this State to conform to said dam request?

If you are not discriminating against these particular beavers, through the Freedom of Information Act, I request completed copies of all those other applicable beaver dam permits that have been issued. Perhaps we will see if there really is a dam violation of Part 301, Inland Lakes and Streams, of the Natural Resource and Environmental Protection Act, Act 451 of the Public Acts of 1994, being sections 324.30101 to 324.30113 of the Michigan Compiled Laws, annotated.

I have several concerns. My first concern is - aren't the beavers entitled to legal representation? The Spring Pond Beavers are financially destitute and are unable to pay for said representation - so the State will have to provide them with a dam lawyer. The department's dam concern that either one or both of the dams failed during a recent rain event causing flooding is proof that this is a natural occurrence, which the Department is required to protect. In other words, we should leave the Spring Pond Beavers alone rather than harassing them and calling their dam names.

If you want the stream "restored" to a dam free-flow condition please contact the beavers - but if you are going to arrest them, they obviously did not pay any attention to your dam letter they being unable to read English. In my humble opinion, the Spring Pond Beavers have a right to build their unauthorized dams as long as the sky is blue, the grass is green and water flows downstream. They have more dam rights than I do to live and enjoy Spring Pond. If the Department of Natural Resources and environmental Protection lives up to its name, it should protect the natural resources (Beavers) and the environment (Beavers' Dams.).

So, as far as the beavers and I are concerned, this dam case can be referred for more elevated enforcement action right now. Why wait until 1/31/2002? The Spring Pond Beavers may be under the dam ice then and there will be no way for you or your dam staff to contact/harass them then.

In conclusion, I would like to bring to your attention to a real environmental quality (health) problem in the area. It is the bears! Bears are actually defecating in our woods. I definitely believe you should be

persecuting the defecating bears and leave the beavers alone. If you are going to investigate the beaver dam, watch your step! (The bears are not careful where they dump!)

Being unable to comply with your dam request, and being unable to contact you on your dam answering machine, I am sending this response to your dam office.

Sincerely, Stephen L. Tvedten

See - and you thought you were being harassed!

Tight lines from GS, Killer Whale and the BOP team

Glenn Sutton and John Whale

Taranaki

There have been a couple of structural changes to the Land Management Section since the last edition of Broadsheet. We welcome **Lachie Grant** as our new Land Services Manager. Lachie will be managing all Land Management activities with a bit of help on the riparian side of things from **Don Shearman**. Lachie brings with him an extensive knowledge of soils, is a skilled group facilitator - especially with Sustainable Land Management Groups and the "SUB's programme. Some say he was "poached" from Horizons, but we say enlightened. Apparently it was a hard decision for him to make but the long-standing bet with **Kevin Rooke** (horizons, Marton office) that the first to leave would receive two bottles of the finest red wine of his choice from the other. Rookie is obviously not a man of his word and Lachie is still waiting for his two bottles of Ata Rangi Pinot Noir.

Don Shearman, Lynne Hall, Mary Stewart and Darren Scown, have been taking part in our new riparian plan trial over the last 6 weeks. We are now producing plans with a customized version of ArcView 8.3. The plan format has changed dramatically from a detailed, individualised, property report, to a laminated A3 aerial with proposed and existing works on one side and a series of do-it-yourself, cost-calculator tables on the other. This is accompanied by a summary report, which is automatically produced by the software to show the number of plants required for each section. Overall, plan preparation time has been reduced significantly and feedback on the new format has been very positive. Although we may have been one of the last Regional Councils to go the GIS way, the wait has been worthwhile.

In addition to all the GIS development during the trial, **Mary Stewart**, who is a keen landscape gardener, managed to frequent the Ellerslie Flower Show recently and visit family in West Auckland. After working on Riparian Plans, helping with wetland planting projects and running our pole nursery, super-biker **Darren Scown** still manages to get out on his Aprilia RSV Mille. It's now a year old with 15000 clicks up so in keeping with tradition, it must be time for a new one! **Lynne Hall** has now settled into her new house in New Plymouth after finally finding one to buy. The housing market in New Plymouth has been very buoyant. Apart from soldiering away on Riparian Plans, Lynne has also been giving riparian presentations to schools. **Don Shearman** has finished the second video on Riparian Management called "Investing in our Banks" and is three quarters through part 3 of the trilogy, "Riparian Planting - how to do it". The final video will also be sent out as part of the new Riparian Plan package. Speaking of movies,

some of us have managed to sneak views of the “Last Samurai” sets and that certain female LMO’s are planning fieldwork near them when a certain star arrives. Tom somebody? He can’t be very famous because none of the guys have heard of him!

Maggie Bayfield gets all the exciting projects, and with some help from Darren, has been responsible for erecting Taranaki’s first predator-proof fence at Tongaporutu. A half-hectare site on the cliff edge is home to the grey-faced petrel, which is under threat from cats, stoats and rats. The conservation area was setup with the landowners by the Taranaki Tree Trust and sponsored by Shell to the tune of \$60,000. Abseiling was required for the 20m of fence down the cliff edges and took 3 fencers 20 hours. The remaining 500 m took 2 weeks to complete. As well as protecting petrels, Maggie is also protecting kiwis as a member of the Kiwi Trust, protecting mudfish in significant wetlands while also protecting riparian margins. You name it Maggie will protect it!

NZARM secretariat **Cheryl Newport** managed to gain second place at the regional bodybuilding champs (senior figure category) just recently, which entitles her to enter the national competition next year. Well done Cheryl, nobody is game to take you on in an arm wrestle, even if you are only 48kgs.

Hot on the heels of 2 “Market Focussed” workshops in Taranaki, Fonterra has also released “The Accord”, along with a proposal for an environmental assessment scheme. Advice from the regional head of “Dairy Farmers of New Zealand” is to voice opposition at shareholder meetings because the Taranaki Regional Council already provides the services. Watch this space.

Jason Loveridge, who is part of our Hill Country team, got married the other day for the second time to the same lady. His first wedding was six months or so ago in Switzerland and they decided to repeat it again in Stratford. Probably just another opportunity for a few beers. **Miranda Littlewood** has only been with us six months or so and has been beavering away on farm plans. **Jason Barclay** has been working with the Oaonui community group to sort out some major coastal erosion near Opunake.

There is a small, close-knit group of NZARM members in Taranaki. One of them is **Helen Johnson** an ex EBOP employee who is now senior policy analyst for the New Plymouth District Council. Below is a status report on her work:

NPDC has received 12 appeals on its Proposed District Plan, including appeals from the Department of Conservation and the Royal Forest and Bird Protection Society. Their appeals relate to Significant Natural Areas, other indigenous vegetation, riparian vegetation, and the keeping of goats relative to the Egmont National Park - the appellants favouring a regulatory approach. Also party to these appeals are rural landowners, Federated Farmers and other interest groups.

Don Shearman

Waikato

Nothing from the Waikato this edition.

Nelson - Tasman

Nothing from Nelson this edition.

Canterbury

The following is largely based on information from ECan's resource care section.

LOWLAND SPRING-FED STREAMS

Introduction

In the Environment Canterbury 2002/2003 Annual Plan the Council agreed to increase the level of resources for protecting and enhancing lowland waterways and to take an integrated environmental management approach to achieve this. The existing degraded waterbodies programme was to be a basis for this programme.

The Resource Care Section of Environment Canterbury is the lead section for this initiative and is responsible for facilitating the project, which requires the inputs of other sections and specialist officers of Council and external parties both in the catchment assessment and extension programme phases.

There has been strong support from ECan stakeholders for the increased emphasis on lowland streams and this is likely to be reflected in the 2003/2004 work programme.

Methodology

Integrated Environmental Management (IEM) has been adopted as the approach. This is a catchment and sub-catchment based approach using the following processes:

- Partnership building. Involves communities (landowners, residents, schools, interest groups, mana whenua); agencies (Fish and Game, DOC, Landcare Research, NIWA); and other interested parties.
- Developing co-ordination and dialogue between all involved in the management of the environment (in this case – the catchment).
- Developing an understanding of the linkages and interconnectedness between the different parts of the catchment, and the effects of activities on these linkages.
- Developing an ecosystem approach, incorporating and recognising that humans are part of this.
- Co-ordinating investigations and responses
- Developing information transfer systems to all involved, and the community at large.
- Focussing on action on the ground.

PART 1- BACKGROUND.

The Resource Care Section has investigated a number of lowland spring-fed streams as pilots including the Cam River, Harts Creek and Lyell Creek catchments, using the broad approach principles of Integrated Environmental Management. This has involved collating existing data on the catchments, undertaking additional monitoring, and catchment stream walks. This has been supplemented with information from other sources, including local knowledge, scientific literature and personal experience. From this the issues have been identified, and the factors contributing to each issue have been isolated. Using this information a practical remedial plan can be prepared and actioned. In the Lyell Creek example farmers are making substantial efforts, and the stream is rapidly improving.

Issues Identified By the Investigation and Monitoring Programmes

Fine Sediment (sand and silt). Excessive fine sediment loading degrades water quality, habitat, and the species present because sediment can:

- Smother and smooth the gravel and cobble beds
- Reduce the variety of habitats (infill pools, smooth riffles)
- Smother beneficial aquatic invertebrates, and plant life
- Allow aggressive aquatic weeds to establish/take root
- Block channels and reduce channel flood capacity
- Prevent spawning, smother fish eggs, or destroy nursery areas
- Lower light levels reducing effective fish feeding and plant growth
- Generate turbid plumes from any riverbed disturbance

Commonly, the major sources of contamination are in the higher, faster flowing reaches of the streams, where the effects are not obvious. Sediment is most apparent where it settles out in the flatter and slower moving reaches and backwaters, particularly in the lower parts of the streams.

Water Clarity. Sedimentation is the major influence on reduced water clarity, but proliferations of planktonic algae can also be significant.

Clarity is important for three reasons:

1. Reduced light penetration which reduces the growth of aquatic algae and plants. Low clarity indicates that light may be a limiting factor on plant growth.
2. People generally equate clear water with clean pure water, although very clear water can be contaminated with nutrients, bacteria, and other contaminants.
3. High clarity is also preferred for aesthetic reasons, and by recreational users such as swimmers and anglers.

Bacterial Contamination. This reflects a health risk to users, both human and livestock. Faecal indicator (faecal coliforms, E. coli) concentrations indicate the degrees of risk for different uses such as potable drinking waters, contact water sports, and for livestock drinking water. Sources are generally either the gut contents of warm-blooded animals, i.e. human, livestock and birds, or effluent discharges. Presence of high concentrations of faecal indicators indicates the possibility of the presence of dangerous pathogens such as Campylobacter, Salmonella, Cryptosporidium, Giardia, or virus's etc. While indicator bacteria die rapidly when exposed to ultra-violet light, they can survive for long periods in fine sediment on the bed of streams.

The monitoring results show that the guideline values for contact water sports are exceeded at most monitoring sites.

Nutrient concentrations. The concentrations of dissolved nitrogen and phosphate nutrients (which stimulate plant growth) frequently exceed those recommended in environmental nuisance growth guidelines. However, they are not at concentrations that present health risks to fish, humans or livestock. Nitrogen nutrients are generally associated with drainage and groundwater, while phosphorus is more frequently associated with sediment and contaminants washed off the land. Strategies to control these nutrients, and particularly which one is most limiting to growth are therefore often very different.

Aquatic and riparian habitat. A healthy stream ecosystem contains a wide range of habitats within which different plants and animals thrive. This includes not only a diversity of in-stream habitats (pools, runs, riffles, undercut banks, snags etc.) but also the riparian habitats that supply food sources or breeding habitat for stream organisms. For example trout require food sources, shelter and shade from riparian vegetation, overhanging banks, pools and riffles. Many native fish have different habitat requirements ranging from swift riffles to deep sluggish pools. The stream insects that form the food sources for fish, in turn have their own habitat requirements, which often include hard rock or woody surfaces in swiftly flowing water. Where these habitats are lost, fish numbers decline.

Diurnal extremes. Small lowland water bodies can become degraded if physical conditions such as water temperatures, dissolved oxygen concentrations or pH conditions become too high or too low. These generally change throughout the day with extremes either during the day or during the night. These are most extreme in low flowing streams with little or no shade and high quantities of aquatic plants. These problems are less often encountered in Canterbury lowland streams because of the stabilising influence of strong groundwater inflows.

Toxic contaminants. There are a range of contaminants that are toxic to aquatic life, livestock or humans that can arise in lowland water bodies. The most common is ammonia from animal or sewage effluents. However, toxic contaminants can also include metals such as arsenic, copper, zinc, lead, etc., pesticides and herbicides from sprays, and organic compounds from effluents.

Factors Found that Contribute to the Issues include:

Treated **sewage** discharges increase the discoloration and reduce clarity, contribute to bacterial contamination and to nutrient enrichment, particularly of phosphate and ammonium nitrogen.

Stormwater is commonly discharged without filtering into streams. This is potentially a significant source of contamination including sediment from roads, carparks, sections and new subdivisions. Urban and industrial activities also pose the risk of accidental and unauthorised discharges of many possible contaminants.

Stream and Drain cleaning. Historically much cleaning has been carried out insensitively and in some cases unnecessarily. This has resulted in the deepening and widening of waterways and many now have steep sides. The result has been habitat damage and increased fine sediment release following the cleaning operation, and from bank collapse due to the steep sides. Hydraulic diggers are commonly used and many operators are not trained to be environmentally aware.

Stock Access. This can cause stream bank damage, alteration of stream profile and loss of habitat, fine sediment contamination and faecal contamination. Cattle, horses and deer can do serious damage if they have access to streams.

Stock water. Many of the paddocks adjoining the waterways do not have a reticulated supply, so stock need to access the streams for water.

Riparian Management. There is little riparian planting apart from willows planted for bank stabilisation. Grassed banks running to the water's edge are most common. This results in lack of shade, reduced aquatic habitat and food supply and reduced filtration of runoff.

Farm Drains. Many of these are accessed by stock, and contain fine sediment poised to flow during rainfall events. Run-off from paddocks and farm tracks enters drains, contributing to nutrient enrichment and bacterial contamination. Preventing stock access to the main tributaries will not be effective unless equal attention is given to these sources of contamination.

Field Drains. Much of the land in these catchments was originally wetlands. To assist with the drainage, box drains, field tiles and "Novaflow" piping discharging directly into the drains and waterways has been used. It is likely that the discharge will contain nitrogen and faecal coliforms. The effective functioning of these drains is essential to the farming activities, but management should aim at minimising the impact.

Flood Protection Works. Lowland stream catchments are often prone to flooding. Stop banking and channel modification has commonly been undertaken to stop this. The channels have been widened and deepened to increase flood carrying capacity and reduce water velocity, a cause of bank scouring. These works have resulted in a modified habitat for aquatic life. The works have also reduced the sinuosity, altered the riffle and pool sequences and affected sediment transport dynamics

Rural subdivision. Over the past two decades there has been an increase in the number of small holdings. This means that there are more riparian owners, and many do not have experience in farm management, or in protection of waterways. Many blocks are let for grazing, and frequently there is no reticulated water supply.

Urban influences. Urban areas place different pressures on the streams. Some residents use them as drains, and receptacles for grass clippings, while others incorporate them as a landscape feature. Stream maintenance also varies widely. Urban runoff from private homes, roads and industrial sections significantly affects stream health.

Stream Flow. Flow has a significant effect on the stream habitat and ecology, on fine sediment transport, and on the dilution of contaminants. Flow in these catchments is affected by groundwater levels, which in turn are affected by the recharge from rainfall and by river flows. Abstraction, particularly for irrigation, is also significant.

Farming Practices. There are a number of farming practices that can contribute to degradation. While there was little evidence of the problems below observed during the stream walks, it is possible that they will impact on occasions.

1. Fertiliser application. Applicators must ensure that the fertiliser does not fall directly into the waterway or drains
2. Irrigation run-off into drains and waterways. Run-off caused by over-watering carries nutrients and faecal bacteria into waterways
3. Dairy shed effluent. Systems must be designed and operated to avoid effluent entering waterways.
4. Cultivation. Cultivation near waterways must be undertaken so that fine sediment run-off into streams does not occur.

PART 2 –A POSSIBLE APPROACH TO REMEDIATION

Proposed Aim of the Programme

To organise a co-ordinated plan to reduce fine sediment input into identified lowland spring-fed streams and achieve measurable and significant improvements in selected indicators within five years.

Why choose sediment?

- The input of excessive fine sediment into the waterways, and its deposition throughout the length of most of them is a significant common issue causing degradation in all catchments.
- The measures that reduce fine sediment input will have a positive effect on most of the other significant issues.
- There are no stream values that will not benefit from improved management of fine sediments
- To run a successful programme it is important to have a simple understandable message.

Spin-off Benefits from focussing on Fine Sediment:

Faecal coliforms. These enter waterways from direct animal defecation, run-off from adjoining land, seepage of contaminated groundwater and from effluent discharges. The main reservoir of faecal coliforms is in the stream sediments. The measures necessary to reduce sediment input will not only reduce faecal input but will reduce the reservoir in the stream.

Nutrient Enrichment. Fencing will allow increased grass growth. Tall grass is a very good filter and reduces levels of sediment and nutrients entering the system. The installation of artificial wetlands, stormwater treatment, and minimising run-off containing sediment will lower nutrient contamination.

Habitat Improvement. Fencing creates riparian margins that will permit enhancement planting which will increase biodiversity, provide food sources for fish, provide habitat for bird life, improve amenity values and result in improved stream habitat. Increased overhanging riparian vegetation will provide habitat and food supply for aquatic life. Increased shading will also improve stream health by reducing macrophyte growth, and maintaining lower temperatures in summer low flow periods.

Drain Cleaning. The techniques and approach necessary to minimise sediment input will improve habitat in the streams, minimise damage caused during the cleaning, and result in a lower cost and more efficient process to the ratepayers.

Practical Steps to Reduce Sediment Inputs:

- Keep horses, cattle and deer off stream banks and out of streams. In general, this will require fencing and work on stock water provision.
- Install bridges/culverts at intensively used stock crossings
- Make sure sediment cannot wash into waterways from cultivated paddocks.
- Ensure feeder drains and run-off do not contribute sediment. This may require either fencing or constructing artificial wetlands.
- Ensure run-off from tracks and yards does not carry sediment into waterways. This may require a combination of channels and bunding.
- Ensure new subdivisions do not release sediment into waterways.
- Treat stormwater
- Improve drain cleaning methods and techniques

Programme Outline.

Step 1. Regional Meeting

Regional meeting with senior management of agencies and interest groups, regional community leaders and mana whenua to ensure that the programme reflects the needs of all.

The main outcome sought is to form partnerships, and gain support to assist the process.

Step 2. Proposed Catchment Remedial Programme

Part A:

- Involvement of the leaders of the community is an important part of the process.
- Continue catchment investigation and monitoring programmes based on the existing IEM approach in further selected catchments to identify the issues and the contributing factors.
- Organise catchment meetings focussed at community and local stakeholder level to establish the values that the stream needs to be managed for, and the key ingredients of a remedial programme. The aim is to get community understanding and backing, and to involve field officers from the relevant organisations and agencies.

Part B: Programme Delivery.

Develop programmes for each sub-catchment to achieve aims, using the following components:

- Use a stream by stream approach.
- Organise meetings and field days outlining the problems and demonstrating the solutions.
- Circulate newsletters to all property owners on each stream.
- Support Community Groups and encourage new ones to ‘adopt their stream’.
- Make individual visits as requested.
- Ensure news media are kept informed, and maintain a profile for the programme.
- Monitor results, and celebrate ‘success’ stories.
- Hold follow-up field days.
- Maintain contact with all stakeholders as the programme progresses.

Rob Phillips

Otago

Life has been fairly hectic in this neck of the woods. Summer finally arrived for 1 week over Christmas with scorching hot days and time spent on our white sandy uncrowded beaches! However we are back to normal summer weather now with a few rain clouds on the horizon!

In the real spirit of native bush and amazing coastlines, Tom’s family spent time at Papatowai over the break. A small seaside holiday spot nestled in the hub of the Catlins. Interesting enough he will be back down there on February 22nd for the Papatowai Challenge. A gruelling 15.5 km run along beaches, and through bush and 4-wheel drive tracks. For those who are interested I note that an article on the

Papatowai Challenge is in the latest issue of North and South (a real coo for the organiser – a mate of Tom’s).

Open Drains Workshop

One event held recently was the Otago Regional Council and TAIERI Trust “Drains Workshop” held in November 2002. The workshop focused on options for improving water quality in the open drains on the predominately dairying area of the West Taieri, near Dunedin.

Water in the drains on the West Taieri has tested very high for nutrients and ammonia. The workshop was held because of concerns about the effect this water might be having on the receiving waters of Lakes Waipori and Waihola, a significant wetland complex.

The workshop brought together scientists, local farmers, agencies and iwi in a two-day workshop to investigate the problems and identify possible solutions. The scientists included: Long Nguyen and Chris Tanner from NIWA, Roger Young from the Cawthron Institute and Marc Schallenberg from Otago University.



Photo 1: Tom Heller on the drains workshop fieldtrip: out of his study box and back into the groundwater



Photo 2: A view of the Main Drain before it discharges by pump into Lake Wainori Drains Workshon

The workshop included detailed discussion about the current water quality problems, a fieldtrip of the area and facilitated sessions debating options for managing the drainage network.

Possible solutions identified for improving the management of the drains included: focusing on management of the smaller on-farm drains where there was a greater possibility of improving water quality than in the larger drains, making some minor changes to the management practices of the larger

Otago Regional Council drains, introducing wetlands at the end of farm drains, a series of wetlands throughout the West Taieri drainage area, or a large wetland at the bottom of the drainage system. The final option presented was to install an aeration system in the drainage network before the water was pumped into Lake Waipori. These options were discussed and debated in detail during Day 2 of the workshop.

One of the best elements of the workshop was bringing together farmers, iwi, scientists and agencies for 2 days to debate the issues. By the end of the workshop there was a better understanding of each other's views and consensus was reached on which options would be pursued in more detail.

For detailed information about the workshop and its outcomes, please contact Nicola McGrouther at the Otago Regional Council on 03 474 0827 or email on nicola.mcgrouter@orc.govt.nz

The Otago Regional Council hopes to hold a workshop on the management of Tile Drains during the autumn.

As a result of the West Taieri Drains Workshop, a model of the Waipori – Waihola wetland complex has been attempted to test the potential impact of Main Drain discharges. The model is a 3D single layer finite difference flow and water quality model using an hourly time-step for tidal regime simulation.

Work is continuing on improving calibration of the model to water level and concentration observations.

Consents

There seems to be many more discharge consents (household – septic tank), being processed by ORC than ever before. In spite of Regional Plans providing for permitted activities, many of the discharge applications are in areas where either surface water is close or the discharge is virtually direct to groundwater !

Save the Fish

A workshop is to be held during February to address the issue of native Longjawed galaxiid (*Galaxias cobitinis*), in the Kauru River in North Otago. The site is unique in New Zealand, where this is believed to be the only occurrence of this rare species of fish. Irrigation and natural stream losses to groundwater produce low summer flows in the Kauru, which seems to prevent predation of the galaxiid by other species. However, if dry spells are too long the species may die out. The workshop will address a management plan or way forward for irrigators and DOC to manage the species.

That's all from Otago this time.....

Nicola McGrouther & Tom Heller

Southland

Exploring Southland's Wetlands:

Southland's geography and culture was very much reflective of the early influence of wetlands in the area, and the region's environmental and economic future was still dependent on the ecological

functioning of these ‘cradles of biodiversity’. This was the conclusion reached by Environment Southland staff and councillors, DoC, Iwi and other community agencies, who were joined by Waikato University and Landcare Research wetland experts, during mid January 2003, to complete a fact finding mission into the current state and future management of Southland’s many wetlands.

We are very well endowed in terms of wetland habitats in Southland. Some of our wetlands are internationally important and all of them contribute to the unique biological and geographic character of the region. We have an extensive, largely unmodified network that encompasses a tremendous range, from the high country right through to lowland and coastal wetland areas. These are the comments from our Chairman Ted Loose. The problem is that whilst they are pockets of truly amazing biological resources, essential to the functioning of our world, wetlands are extremely vulnerable to the impacts of human activities. This tour was a starting point to foster a greater understanding of, and appreciation for our wetland areas so that they will continue to be part of the landscape for future generations.

Waikato wetland scientist Bruce Clarkson believes Southland is in an enviable position, able to protect and enhance an existing resource, rather than being faced, as are many regions in New Zealand, with having to rebuild drained wetlands from scratch.

While the visiting experts all agreed that the level of degradation and decline of wetlands in Southland is nowhere near as dire as in other parts of the country, there was still a danger of complacency in their continued upkeep and enhancement. Discussion at an ES-hosted workshop centred around the need to educate and inform people about the importance and wide-ranging benefits of wetlands, as well as addressing some of the threats to these habitats, from development, the spread of pest plants and the perceived prohibitive economics associated with their ongoing care.

The week-long series of wetland tours and workshops will culminate in an executive summary to be produced by the visiting scientists, which will then form the basis of future wetland management and action plans at a local government level.

Community Partnerships:

The Southland community groups have discussed about what the sustainable land management meant for them at a field day at ‘the Key’ recently.

Environment Southland organised a ‘Field day’ of all landcare groups and other community groups in Southland at ‘the Key’ community hall in conjunction with the Te Anau Landcare group, on the 30 November 2002 (Saturday). The objective of this field day was to enable representatives from each landcare group and other community groups to get together and discuss current issues affecting their areas, to promote networking and to develop strategies for information exchange.

Chairman Loose was one of the opening speakers for the day and highlighted the Council’s role in increasing community partnerships and public awareness of environmental management.

The morning session started at ‘the Key’ bridge followed by a visit to Mararoa river and Bellarby’s property, and discussions were held on a range of topics concerning sustainable land management including bio-diversity.

Afternoon programme started at the Key Community Centre followed by a group networking session. There were some interesting discussions on the impacts of tourism on the environment. Mr Don Ross,

Chief Executive Officer, Landcare Trust addressed the gathering on “Landcare- Sustainable Resource Management”, which was well received by the participants.

The issues discussed during the field day were different and there are no easy answers to some of the questions. However, community groups in Southland are finding that when people work together co-operatively, and are directly involved in thinking about the future of their community and the land that supports them, they can make real progress. This message has come out strongly during the field day.

Update on proposed Regional Freshwater Plan for Southland:

Staff at Environment Southland are still wading their way through submissions to the proposed Plan. In 2002 two hearings were held. The first dealt with general matters, the most significant concerned sorting out terminology for consistency and clarity. The second hearing was the first in a series dealing with matters relating to structures and bed disturbance. Another hearing on these matters is scheduled for February 2003, with the final hearing on these matters scheduled for June 2003. That final hearing will deal with the major issues such as stock access, gravel extraction and weed clearance. The only other hearing scheduled for this financial year is one in March on Financial Contributions and Monitoring.

One of the most controversial issues has been the approach the Council has taken to wetlands. The proposed Plan advocates a section 80 Plan approach i.e. a Plan to cover the whole region prepared collaboratively with the territorial authorities. The current proposed Plan does have some Policies and Rules that relate to wetlands, particularly in relation to water quality, and while there is some support for this approach, a number of submitters want to see wetlands specifically addressed.

The Council is also investigating the implications of the River Environment Classification System for the proposed Plan. A series of meetings were held around the region to make members of the public aware of this classification and to discuss whether it should be used to add value to the Water Plan. People generally wanted to see more specific examples of how the Plan might change, and staff are now busy working on this with the assistance of MfE and NIWA. Once the results of that are known the Council will make a decision about whether a variation to the Plan is needed.

Bala Tikkisetty & Deidre Francis

Manawatu - Wanganui

Ian Moore has had another quick trip to Aussie..on holiday..this time to Tassie to look at the magnificent Swamp Gums (Euc regnans) and Blackwoods but he also sneaked in a trip to the Future Forests Conference in Melbourne. His trip was funded by the Wanganui District Council who's forests he manages. Many Soil Conservators ex Rangitikei Wanganui Catchment Board days spent some training hours in these forests and would be interested to know that harvesting has just commenced at Te Aro To Waka.. the start of a continuous harvest of about 50,000 cubic metres per year. Ian says it is rewarding to have been involved since day one but just proves how fast life goes..

Wanganui staff are also spending some time running a Summer Nature Programme in conjunction with DOC. They visit areas of local and national interest like Kapiti Island and Bushy Park, outlining the work Horizons does in the environment. It is a very successful programme but does cater a little too much for "The Grey haired brigade" rather than the younger generation. This year a gentleman came from Japan for it and has attended every trip after seeing it advertised on the Web. Horizons are now thinking of going into international eco tourism...

Clair Ridler, formerly with DoC is the new Land Management Officer –Soils in Wanganui, and **Craig Davy** is the new Land Management Officer –Plants.

Also in Wanganui, while attending a 4-wheel drive course, **Alan Kirk** had the misfortune of getting his vehicle stuck in the middle of the Oroua River. I hear there are photos and plenty of eyewitnesses. All horizons.mw land management staff have now had training in off road 4wd and motorbike use.

Grant Cooper has been involved with the Summer Nature Programme, taking a busload of people to Akatio beach and looking at various landforms along the way. No doubt with some interesting and informative discussion about their formation and appropriate land use.

The Tararua Dairy SUB's group is progressing well. The current focus is effluent disposal to land from cowsheds and feedpads. Major topics currently under discussion include ideal application rates, how to avoid runoff and how to ensure that water quality is maintained.

Grant McLaren reports an increase in logging activities. This has come about due to a lot of mid 70's soil conservation and land development encouragement loan forest establishment work maturing. There appears to be a growing demand from landowners that some of these areas be redeveloped for farming activities. I suppose this is a growing problem throughout the country as farmer's profitability continues to improve. One question we are a bit unclear on is will newly developed farmland be subject to accelerated erosion to make up for the 25 years in forest or will erosion take up where it left off 25 years ago.

Kevin Rooke has just returned from a few weeks holiday. While away he visited Cape Reinga and ninety-mile beach. After 30 odd years of soil conservation work he has now contributed to the accelerated erosion of the far north sand dune system by taking up sand surfing. Lots of fun I'm told.

George Powell spent his Christmas break walking around Mt Ruapehu, after 15 years of thinking about it. If you are interested in rocks, lava flows and massive erosion events this is the place to go. There are also fascinating areas of high altitude vegetation. All together it was 7 days of outstanding scenery. I would recommend this to anyone with reasonable fitness and plenty of time. George has also been involved with the Summer Nature Programme, taking a group of people to a pristine alpine stream and introducing them to the Waiora concept. Ages of the group ranged from pre schoolers to 80 +. Everyone enjoyed the experience especially catching and sorting the macroinvertebrates.

Last weekend While George was teaching old dogs new tricks about stream bugs on the mountain, **Sharn Hainsworth** broke ranks and sauntered to the dizzy heights of Tama Lakes on Mt Ruapehu with few Aucklanders. The walk was interesting enough and it was cool to watch the trucks on the desert road from the upper lake. We saw lots of interesting rocks and alpine flowers and enjoyed a refreshing dip under a waterfall.

New Years resolutions abound at Taumarunui, best represented by our new "Farmers Learning by Osmosis while we are on the Sunshine Coast" Programme or FLOS for short.

Sharn has been trailing a cheap GIS programme off the net called MapGratis from www.mapmaker.com. It's quite useful for making maps that can then be converted into ARCView files later.

Due to a retirement, **Barry Goodwin** has taken on a joint role assessing all subdivision work. Barry will continue in this role until June/ July when this function will be reassessed. An interesting sideline to looking at quarries and things. Barry is also involved with a large-scale contract by Fulton Hogan and Higgins to resurface the runway at Ohakea. This involves crushing the original concrete surface to provide fill, and the provision of more than 140,000 cubic metres of gravel for fill and surfacing. The project involves horizons.mw river engineers and compliance staff.

Malcolm Todd has employed a Massey NRM graduate (Grant Irving) to improve horizons.mw's understanding of the incidence of soil structure loss on vulnerable dairy and cropping soils. The summer holidays project has 3 parts: soil monitoring through using the Visual Soil Assessment tool; a questionnaire on land user's actions to improve the situation; and landowner education through looking at VSA on a pugged versus a good paddock.

Farmers are most interested in just how soil quality varies within the farm and how they compare with other farm's VSA scores on the same soil type. They are also enthusiastic to see us involved in increasing our understanding of soil compaction and helping them to fix their compaction problems. Few results have come in yet, but already it is clear that good management can prevent soil degradation, even on the most vulnerable soil types. The questionnaire is already revealing some insightful management techniques used by farmers. The results from the research will be invaluable for farmers to benchmark from and provide precious data on the state of the environment.

Mike Tuohy has been doing a bit of the OE. Not sure how much work though. Remote sensing conference in Denver, Fred Eaglesmith concert and Vikings v. Packers in Minneapolis, delivered seminar to Geographical Society at University College Cork, golf at The Island Golf Club, Portmarnock, sight-seeing in Toulouse, visit to Agro-Montpellier, TGV ride to Paris, Memphis, college football (U. of Mississippi vs Mississippi State), geology department SUNY, Buffalo, then JPL Pasadena. Oh it's a tough life but someone has gotta do it!

George Powell

Gisborne

Nothing from Gisborne this issue.

Wellington - Wairarapa

I should put Wairarapa first as that is where most of our land management activities are based. However it's hard to escape the influence of Wellington and now we're branded **Greater Wellington – The Regional Council**. I'm not sure the title gives the general public a better idea of what we're about but

with a snazzy logo that looks like sperm engaged in battle we could be mistaken for a sperm bank. Actually the individual sperm (four in total) – water, air, earth and energy – are elements in Greater Wellington's logo that combine to create and sustain life.

The once familiar title – Soil Conservator – has now been replaced by Land Management Officer. It's good most of my contacts recognise my voice because it sure is a mouthful to introduce oneself and who we now work for. Thankfully the hierarchy are allowing a shortened version of - Greater Wellington – but could almost be the title of the tourism promotion centre. On to what our passionate LMO's have been up to:

Dave Cameron (Regional LMO) having successfully championed the organising of the BFE Awards (not to be confused with BSE) in 2002 is now fully immersed in planning for the 2003 Ballance Farm Environment Awards. Entries are up, 20 as compared to 15 last year, with a new category to cover horticulture and viticulture. Judging is underway at present with the awards evening to be held in early April. Dave notes with interest the appointment of two recent NZARM executives to top jobs at MfE – congratulations to Bill Bayfield and Sue Powell as General Managers. Perhaps we may see other NZARM members making the shift to central government?

Rob Harrison has been totally immersed in sorting out a drainage reclassification for an aggrieved ratepayer. To provide some relief Rob took to rebuilding the shonky boundary fence at home – a more colourful description of the task may be reported elsewhere in the broadsheet.

Stan Braaksma is off once again to prove that approaching 50 is no barrier to physical prowess. Right now he may be sea kayaking across to Rangitoto Island with a bunch of Massey Uni mates from his era.

As for myself I've managed to catch up with the local round of Stag Sales, do a spot of all terrain driving in my Jap import 4WD Mitsi Van and keep work ahead of a bunch of contractors keen to work over the early part of the New Year. It looks like another busy year land management wise – already I have a number of land development proposals for forestry coming across my desk and a number of logging jobs making the most of our dry summer.

That's all from GW (Greater Wellington). I'm pleased we've been allowed to use an abbreviation!

News from MfE

Update on MfE restructuring (aka NZARM takeover of the Ministry)

We are making progress on the restructuring and refocusing at MfE, with quite a few more changes and appointments to occur over the next 4 weeks.

Key decisions are appointments of "General Managers" - a rather overstated term for our 2nd tier managers!

Those lucky (or not so lucky - but perhaps we shouldn't go there) persons are:

General Manager working with Central Government and Iwi: **Dave Brash**

General Manager working with Local Government: **Yours truly – Sue Powell**

General Manager, Sustainable Industries: **Bill Bayfield**

General Manager, Corporate and Community: **Fiona Morgan**

Dave Brash should be well known to quite a number: he has been with MfE from the beginning, although in the early years he headed up the Dunedin office of MfE. More recently he has managed the indicators programme, and spent some time as the Minister's adviser.

Fiona Morgan has been with the Ministry for some time, as Finance Manager. Accountant by background, and has been part of the Ministry's former senior management team. Manages to get seriously good reports for MfE's financial reporting and management.

Bill and I of course you know.

The Ministry has, as you can see, refocused around client or stakeholder groups, rather than an issues or functions basis.

Key objectives of the new groups are:

Working with Local Government: To focus on working collaboratively with local government to deliver on the expectations of NZers as to the quality of the environment. This recognises much more sharply the nature of the relationship central government has in legislation with local government, and my job is to make it work.

Working with Central Government and Iwi: To focus on making the relationships across Central Government work, such that there is consistent advice and action. This group also picks up a lot of the strategic focus on legislation, including making the RMA and HSNO work. (Good luck Dave)

Sustainable Industries: This group is focused around finding the right incentives for enhancing environmental performance. This group is deliberately focused away from legislation and regulation.

Corporate and Community: This group has the normal suite of corporate stuff, plus the responsibility for managing the interface with the community at large (ie when it is not organised into local government units or business). The communications group sits in here, and is likely to be built on. Activities such as the national waste campaign (targeting households) are housed here.

Yet to come: Appointment of quite a few of the new 3rd tier manager's jobs. It is expected that this will occur by early March.

Some time soon I will attempt to put pen to paper more comprehensively and give you an overview of where the Ministry is heading, and what programmes we are running. Watch for developments in water and standards.

Cheers, Sue

Roger Wood

Hawkes Bay

The rain has come to Hawkes Bay and all those involved in conservation work of any type are revelling in the improved outlook for the summer. Even more so, those of us who have a piece of land to look after.

The latest building project undertaken by **Ian Cairns** has been completed and Ian now has time to enjoy the prospect of a bumper crop of squash with some good moisture in the ground. His involvement in the waterways project continues.

Neil Faulkner has reported a high level of interest in QEII retirements in the Waipukurau area. He has become well known locally as man of many parts (some seen and some unseen) as his latest acting part(s)

is in the '*Best Little Whorehouse in Texas*' where there is not only a shortage of males, but as many will be aware, there is some vivid scenery.

Great rainfall has made trees and crops look good in **Ewan MacGregors** farming area. Ewan recently took away the Highly Commended Award in the Rural section of the Hawkes Bay Environmental Awards, for his farm and forestry activities.

The Hawkes Bay Regional Council is presently reviewing its Environmental Code of Practice for river control and drainage activities, which has involved DOC input, especially that of **Neil Grant**. Neil has also had some interesting concession applications, relating to conservation areas, ranging from collection of liverworts for research to sporting events. He reports that the environmental activities carried around the new Hawkes Bay expressway are impressive. (Better come and have a look when its finished)! The Kopuawhara flood (August), has involved a number of staff, especially **Peter Manson** and **Joe Devonport**. Joint inspections of young, mature forests as well as recently logged areas with local forestry companies showed that, while there are possible improvements to be made, much of the logging debris washed down stream was taken away from areas normally considered safe from this type of event. **Simon Stokes** is relieved that the pole season (albeit very successful) is over and is fully focussed on

Environmental farm plans throughout Hawkes Bay. **Garth Eyles** reports that a consent hearing has paved the way for aerial spraying of willows on the margins of Lake Hatuma. Willow Sawfly has not caused any damage so far this year (there has to be one advantage of a cool spring).

From **Simon Stokes** ... Having fully relaxed in the Waikato over 3 weeks and managing to actually stand on a surfboard and climb Mt Karioi after 8 years of looking at it I feel like I have come back to work a new person. I don't know who got the biggest fright on Mt Karioi, Alan Campbell and his family or me as I wandered out of the swelting bush half naked and sweating like a pig - not a pretty untanned sight. I think I convinced them not to go to much further!

The end of last year was hectic as always with plenty of time in the field mapping properties at Waikare, Te Haroto (Tarawera Station), and a Landcorp block - Te Apiti Station (again!) south of Waimarama. Interesting to note in talking with fertiliser reps that they are more often than not being asked where their spade is or what is this soil, which is a good sign. The only problem now is getting them informed with the most accurate soil knowledge.

We have had intermittent rain over the summer months so it has kept our tree planting work ticking over. No sign of sawfly yet on the wilows either which is strange. Looks like another busy year in the wind, particularly with quality assurance issues and programmes and NZARM.

Peter Manson

Auckland

Trees for Survival

lanting over 43,000 native trees for erosion control on 44 different sites. This has been a huge increase from 35,000 tress planted last season. Once these trees become more established they will make a huge contribution to reducing soil erosion and improving water quality in our waterways in the Auckland region. The programme has also recently celebrated opening the 100th Plant Growing Unit in New Zealand, and there are now 50 units in and around Auckland. These are all excellent achievements in

their own right, but also significant nationwide where efforts of the TFS trust now focus on providing better support in regionalising the programme.

Erosion and Sediment Control Guidelines for outdoor cropping

In conjunction with the Franklin Sustainability Project and Environment Waikato, we are currently drafting guidelines for erosion and sediment control specifically for outdoor vegetable cropping.

Although it is an erosion and sediment control guideline, it is very different to the Auckland Regional Councils' Technical Publication 90 "Erosion and sediment control guidelines for land disturbing activities in the Auckland Region" (TP90). The soil medium, and also the type of soil, is different to that worked by earth-working activities and different erosion and sediment control issues result. This guideline addresses these particular issues and erosion and sediment control measures are detailed that relate specifically to cropping. They are not necessarily relevant to earthworks for which TP 90 must be referred to.

Some background.....

The erosion of soil from cropping land has a number of adverse effects, costs and consequences. Adverse effects on aquatic receiving environments include the smothering of aquatic organisms, the silting-up and blockage of water channels, increased risk of flooding and flood damage, nuisance weed and algal growths from the input of nutrients, and decreased water clarity which has both a visual/aesthetic adverse effect and can have adverse effects on aquatic life. All of the above can therefore incur costs, e.g. channel and weed clearance, damage to infrastructure from flood-water, damage to pumps and irrigation equipment. There is also the opportunity cost of the loss of soil from production systems. The nutrient value alone of topsoil in the Franklin District has been estimated at between \$8,000 and \$26,000 per hectare ("The content and Value of Nutrients in the Topsoils of Franklin District", Edmeades, July 2002). Not only are there costs associated with lost nutrients, but the declining soil health and condition of the remaining soil means that more inorganic nutrients are required to be applied to crops, incurring higher input costs. Apart from direct environmental and economic costs of lost soil, there is also the potential social and market costs if overseas markets decide to impose trade barriers on the basis of poor environmental practice.

The research undertaken so far indicates that an extremely wide range of soil movement around and between paddocks occurs as a result of storms. Measured soil loss range from 57 tonnes/hectare/year (Basher et al 1997) to 100 t/ha/year (Basher and Ross, in prep 2002). Soil loss during individual storm events has reached 600 t/ha/year (Basher/Thompson 1999). There can be massive re-distribution of soil within paddocks with soil generally being lost from the upper parts of fields and deposited in the lower parts. The topsoil has been removed from the upper parts of many paddocks and the subsoil is being worked.

High soil loss is predicted from convex slopes where there is little opportunity for soil deposition (Stroud et al 1998). Most of the soil movement is due to water erosion and only a small proportion is attributable to tillage. Runoff along compacted wheel tracks is considered to be a prime erosion contributor. Soil loss reduced to 0.4 tonnes/ha/year when small plots were grassed.

In contrast to the high rates of soil movement around and within paddocks, the measured loss of soil from a small catchment averaged 0.5 tonnes/ha/year over a 3-year time frame (Basher et al 1997). Bedload was negligible compared to suspended sediment levels. Therefore, although there can be large quantities of sediment mobilised from paddocks during storms, little of this sediment may be transported into

streams (although the location of streams in relation to paddocks is obviously critical here). Away from streams, a major mechanism of soil loss is its removal in trucks from roads and drains.

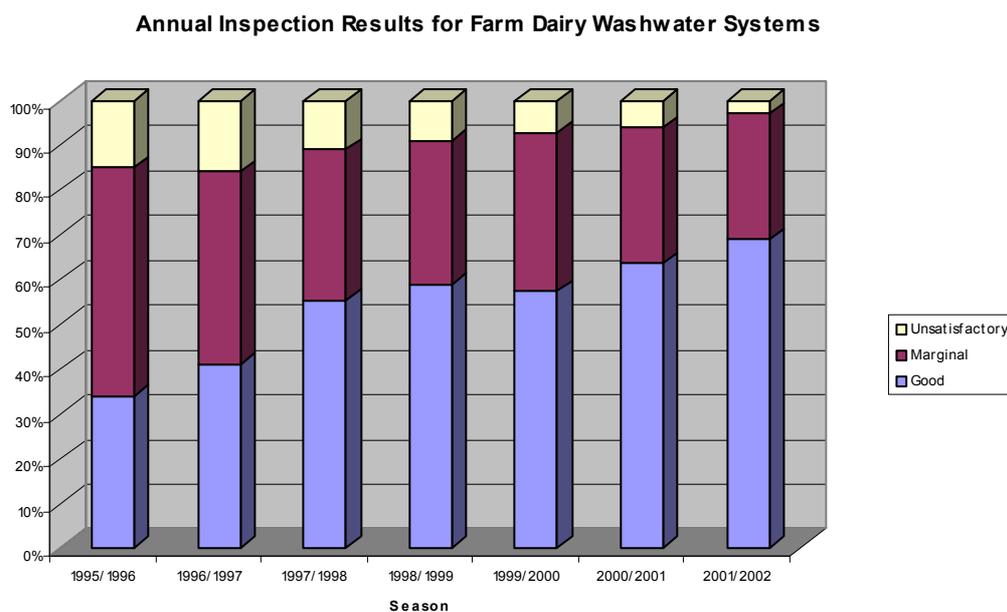
Widespread erosion can result from high intensity storms. An evaluation of erosion from one major storm found that drain overflows were far more important than anything else (Basher et al 1999). Soil erosion was also found to be closely related to fine soil tilth and the degree of ground cover.

Erosion rates can vary from 30 to 600 tonnes/ha with most of this soil retained in the fields. Cover crops and stubble retention significantly reduced soil movement. Sediment yield during winter and spring storms is higher than during storms with the same peak runoff in other seasons.

We will advise when the guidelines are finalised.

Other rural developments

The Rural Pollution Control team has attended both regular site compliance monitoring visits and reactive pollution complaints, particularly with dairy effluent land-application systems in the southern area. The reactive visits included discharges from land application systems that were being mismanaged, and by one contracting company. Otherwise, the degree of non-compliance has been steadily declining over the last few years as can be seen in the graph:



Upcoming events

Our Rural team is about to face the huge tasks of sorting out submissions on our Proposed Regional Plan: Air land and Water. This plan will see many more rural activities needing consents and other activities will become permitted activities. We are engaged in speaking with rural groups and individuals regarding the needs of notification or consenting of many activities. A huge job to say the least!

From Lee WhaLee -

Ran into **Joe Davenport** Soil Conservator down at the "Round Lake Taupo" cycle race on the weekend. Joe has done the 160km cycle every year for the last 6 and wants to go till he does 10, when you

apparently qualify for a special commemorative gold medal. At that point he reckons that he will "find a very large bulldozer and run it over his bike and that will be the end of that!"

As for me I had the humiliation of having my butt kicked by my 14 year old daughter! I did the first half and Emma took over from me as the official team member at the half way stage. I was supposed to carry on pulling her through the second half. I couldn't keep up so she went on ahead. Our 40km ride training caught up with me and was flat and sore by the three quarter mark. After a feed and a lie down I finally made Taupo, where Emma had been waiting half an hour! Oh boy , the times are a changin'.
Ah so, Lee Wha Lee.

Tony Thompson

Northland

Nothing from the far North.

A note from the President

In 1953, our predecessor organisation the New Zealand Association of Soil Conservators was formally established in Masterton. This year we will celebrate the achievements of a small army of natural resource managers who have specialised in the management of land and its relationship to water. Our celebrations will centre on our 50th conference, to be held in Rotorua in September.

It's a good time to reflect on where we've come from and what we are trying to achieve. Many of the Association's members have been instrumental in drafting and implementing our most significant environmental legislation, and if you take a look around the upper echelons of Regional Councils, Government Departments and CRIs you will find a good smattering of NZARM members. But what is most significant is that most of those members who are currently in influential senior positions have "done their time" as on-the-ground, dirty-boots field staff, and this is where NZARM's strength lies.

Our members have always appreciated the exchange of down-to-earth information about how things really work on the ground. How to build a better gully control structure for less, what to plant in a tricky situation, how to develop a simple nutrient balance that a farmer will understand and use, and how people react to different approaches. This has led to a happy marriage of science, policy and practice, each learning from the other, and this is the strength of our association.

With the CPRM we are trying to recognise that mix and its practical application. There have been a few glitches in its implementation so far and this year we will do our best to iron out those administrative difficulties. We want the CPRM to be widely recognised as *the* standard to meet for resource management professionals. If you haven't applied yet, see your regional co-ordinator for the forms.

To support the CPRM programme, our regional co-ordinators will also be arranging a series of regional events that will count as continuing training. If there is a topic you would like some training in and can't find a ready provider, contact your regional co-ordinator to see if a course can be manufactured by members.

And finally of course, there's the main event, the Annual Conference. This will be a great opportunity to rub shoulders with fellow professionals who have been there, done that, talked the talk, walked the walk, and got the Tee shirt. Make sure you get your programme and budget sorted out early so you can be there, because this one is special.

So overall we are looking forward to a great year of consolidation of the Association's direction. The emphasis will be on networking and information exchange. You can play your part too, by providing items for Broadsheet, and coming up with ideas for regional events. Remember it's your association, so it is what you make it.

Best wishes to all members for the year, and I hope to see you at Rotorua.

Alan Campbell
President

Guidelines for NZARM Regional meetings

Last last year the Guidelines for NZARM Regional meetings was finally developed and accepted by the Executive - many thanks to Dave Cameron who did all the graft and draft work. The Guidelines are posted on our website (www.nzarm.org.nz).

Regional meetings are the key element of NZARM's mission and service to its members and the Guidelines are now in place to assist members in applying for financial support to organise regional seminars, workshops, field days or training courses. It is particularly relevant now that we support and encourage members into these sorts of activities as it will compliment the requirements of CPRM. NZARM is providing financial support because it wants to return some benefit to members and to promote the presence of NZARM as a resource management body in New Zealand - for professionals to belong to.

These meetings are usually designed around a particular regional issue and tend to involve members and interested people from both within and from adjacent regions. The criteria are not difficult and allow for a pretty straight forward application process for you. The last edition of Broadsheet contained you local NZARM Regional Coordinators with whom you have to gain approval from as part of the process. Have a chat to them.

The (Regional) Land Managers Group is putting together a training programme for the next few years of which NZARM may support some of the activities. Members should keep a roving eye on those opportunities which will also be advertised on our website.

So there it is, plenty of potential for those issues that have been burring away on the top shelf to be brought down and organised to benefit all involved. It is available to any members, anywhere, and as we're currently getting some quotes on a NZARM banner to be shared around, it would be useful to have somewhere to hang it other than at the conference this year.

It would be great to see some new members applying, in fact anyone!!

Regional Cordinators.

The Regional Corrdinators listed in the last edition of Broadsheet will have (hopefully by the time of this being printed!) a resource kit at their disposal. This will contain membership forms, NZARM brochures, and CPRM information for members who are within the local regional area. The Regional Corrdinators will have a list of current members in thier areas which ideally will be updated as new members come and resignations go. So if you want to utilise any NZARM information for any reason, in particular promotional work at meetings then feel free to contact your local rep or myself.

Regards

Simon Stokes
Regional Coordinator

Review of Membership of NZARM

Murray Harris

Introduction

Following our Regional coordinators meeting at Wellington on the 27th September it became apparent to me that NZARM needs to review its membership and market itself more in the future if we are to attract new members from more diverse environmental sectors.

Summary of membership Trends since 1986

Based on membership lists over the past twelve years using the member's address at that point in time. Note the difficulty in splitting some members into the categories eg some Regional Council members use their home address and not the RC contact address and not sure on retired members.

1986 MEMBERSHIP	255 total members	ie 224 Full, 25 Assoc, 6 retired
1991/92	248 “ “ “	
1992/93	260 “ “ “	With 179 (68.8%) North Island with 79 (30.4%) South Island & 2 (0.8%) unknown
1999/2000	246 “ “	
2002	213 “ “	With 158 ie (74%) North Island With 55 ie (26%) South Island

DETAILED ANALYSIS ACCORDING TO VOCATIONAL SECTOR

YEAR	Regional Council	District Council	Govt Dept Mfe/Doc	CRI	Univ Polyt	Private Cons/Co's	Retired	Other	Library
1991/92	46.8%	6.4%	4.4%	10.48%>>>	5.24%	?	26.6%	NA	
1992/93	40.7%	7.3%	5.0%	8.1%	3.5%	7.7%	?	27.7%	NA
2002	33%	6%	5.1%	7.9%	5.6%	15.5%	5.6%	18.3%	2.8%

Key Trends

- Decline in total members since 1993—what is the main reason for this????
- Total numbers of Regional Council staff members appears to be dropping. This came out in the discussion at the meeting by Regional coordinators on 27th September 2002
- The “Other” category is those members with private addresses so not sure what vocation they are in (could inc retired members)
- Increase in private sector consultants and private companies eg Forestry Companies
- Peak number about 1992/93 possibly due to strong PR by NZARM and Regional Councils after a period of consolidation following the amalgamations in 1989/90

General Comments

The following comments are my personal views, but I hope they will create some discussion and enable Executive to focus on how and where to improve our PR and increase membership

- CPRM
The great work that Sue Powell has undertaken along with Jacqueline Rowarth (NZIAS Imm Past Pres) in setting up this professional development programme should form the basis of encouraging new members to join up. The framework and process is there so members need to get involved.
- I believe that NZARM needs to promote its name more widely now eg to Environmental Companies, other CRI (eg very few AgResearch staff are members), Universities and Polytechnics to name some. Furthermore, there is great scope for new members from District and Regional Councils
- Very few water related personnel are members
- NZARM needs to spend more money on Public relations and promotion eg in upgrading the membership brochure, poster displays and the like
- The national President of NZARM should be more prominent in the news media (note I am not talking about Political lobbying).
- Development and use of our Website in the future

Advance notice

NZARM ANNUAL CONFERENCE 2003 BAY OF PLENTY

14-16 September 2003

The 50th anniversary of NZARM and its predecessor organisations will have its annual conference in Rotorua, 14-16 September 2003-01-27

Environment B·O·P have kindly offered to run the event.

The theme chosen is **NZARM Gold – our past, present and future**, emphasising the integrated catchment management approach (or lack of it) over the years. We will be looking back at what NZARM and its predecessor organisations have been involved with through the decades from the 1950's to the present, discussing current topical issues and looking at what may be before us over the next 50 years! We have chosen Lake Okareka as the focus for the Tuesday field trip as it is a good example of a site that encompasses many of the (historical) management issues faced by soil conservation, planning and science, and the need for robust integrated catchment management approaches into the future.

The dinner on the Monday evening needs to be special, it will have a theme relating to the 50th anniversary of the association and any thoughts on the programme would be welcomed. Suggestions so far include:

- Past presidents giving a tag team presentation on the history of the organisation, one for each decade,
- Golden Oldies Club 25+ years membership presented with a lapel pin for the guys and a brooch for the ladies,
- Norm thinks that a golden jubilee model Triumph motorbike would be appropriate,
- All life (honorary) members to be there,
- Fun entertainment and music items.

We want to make it a practitioner's conference, the tone oriented to the practicable hands-on side of our profession rather than the theoretical. We want it to be a stimulating but fun event with a good balance of crunchy issues and entertainment, something to remember.

We have a coordinator, Jessica Smith, who has experience in running such events. We decided to promote accommodation at the venue but not to include it in the package as NZARM members are notoriously frugal and may want to stay with friends or relatives.

The draft programme is:

- Sunday evening; NZARM Executive and Regional Coordinators Meetings etc.,
- Monday; registration, presentations during the day, AGM and conference dinner,
- Tuesday; field trip (Lake Okareka) with a fun evening to finish,
- Wednesday; possibly a charter fishing trip (weather permitting) if there is interest.

Any suggestions welcomed, photos and stories much appreciated.

WATCH THIS SPACE!

Editors note: *The following pages are from the Presidents Report for the 25th Jubilee of the NZ Association of Soil Conservators (our predecessor organisation). Of interest is the last paragraph in the conclusion! Something to reflect on as we head towards our 50th Jubilee conference.*

Ministry for the Environment riparian training project

Overview

CDs of riparian resources should now be winging their way around New Zealand to Regional Councils, Fish and Game and the NZ Landcare Trust for use in riparian management and training. Developed in response to the demand for training after the Ministry for the Environment published its 'Managing Waterways on Farms' manual, the CD package was part of a Ministry project carried out by Norm Ngapo and Clare Feeney earlier this year.

The three project outputs were:

- a riparian training package concentrating on riparian management of pastoral land uses, especially dairying (with considerable help from a range of people in a large number of organisations, but most notably from NIWA's John Quinn)
- six workshops throughout the country (help from our hardworking host council staff is warmly acknowledged)
- a final project report (any errors are our own!)

Workshops

The workshops were initially proposed as 'train the trainer' workshops, targeting staff from regional and district councils as well as other influential people in the community who would then interact directly with pastoral landowners on riparian management. However, as the issues associated with riparian management are so diverse and with so much recent change in the dairying sector, this approach changed somewhat. The workshops therefore concentrated on four main areas:

- understanding natural processes in and values of riparian areas and streams
- planning and implementing riparian management
- getting the message out
- where to from here?

Because regional issues vary so much, and because there is so much expertise in councils and other organisations around the country, we didn't even try to "tell people how to do" riparian management, education and training! The workshops were really a 'once over lightly', with the package likely to act as a catalyst for more focused training or programme development around the country. People will be able to use the materials to further develop aspects of their programmes such as catchment classification or development of 'marketing' plans in a workshop style.

Many councils have developed their own approach to riparian management to meet their particular needs. There is also a wealth of resource material (fact sheets, pamphlets, booklets, videos and so on) available throughout the whole of New Zealand, mainly through regional councils, but also from other organisations. The final training package has a full list of these resources available by region throughout the country.

Because we think the many of best possible resources for riparian zone management are already 'out there' among councils and other organisations, our view is that what is now needed is a way to facilitate an exchange of best practice as the field continues its rapid development. This would also meet the need very clearly identified by the workshop participants for ongoing networking and information exchange.

66% of those workshop participants who completed an evaluation form rated the whole workshop at 4 or 5 out of 5, with 91% rating it 3, 4 or 5. Only 10% rated it at 1 or 2. The more specific the topic, the more popular it was. This indicates that a more modular and topic-based approach for ongoing training is

likely to be more effective than trying to cover all aspects of riparian management in one workshop. 67% of respondents said their expectations had been met, with several saying it had exceeded expectations. The expectations of 26% were not met, while 7% had no or partly met expectation. Most of the reasons for not meeting expectations related to the range of expertise of those present, with many people feeling that the first few background modules were pitched too low, some finding them too advanced, and many finding the pace of a one-day overview workshop too fast.

There was a lot of appreciation of MfE's making the Manuals freely available for the councils to use: a lot of people told us that they will be used effectively and will become a valued resource. Another benefit of the project was the building better relationships within and between organisations. Part of the building of better relationships related to a better appreciation of different problems, viewpoints and responsibilities

Final report

The final report sets out some recommendations for where we go from here. They include the need for high level co-ordination among senior management of government departments, regional and district councils, industry groups and other stakeholder organisations such as Massey and Lincoln universities and the Agriculture ITO. There also needs to be regional co-operation, particularly in terms of fostering and maintaining networks for local communication and sharing resources and information. There are a huge number of different players who have an active interest in riparian management.

One of our most important findings is that the training needs to be delivered by way of a modular and staged approach that enables people to focus modules that address the key learning needs of widely different audiences.

There is a wealth of information out there, and more innovative approaches are being developed all the time. Therefore, another key recommendation is to set up an electronic network (internet or extranet) to quickly disseminate information to a wide range of parties, along the lines proposed by the New Zealand Landcare Trust for its Integrated Catchment Management Programme. This will help to ensure that the information is consistent, practical and useful, as well as readily updated. Information such as successful methods of on-site implementation, monitoring and measuring success could be made easily available for others to learn from, and an electronic forum established to act as a catalyst for ongoing learning and information exchange throughout the riparian community.

The most requested topics for learning before, during and after the workshops were:

- site visit and preparing a riparian management plan for a real site
- spreading the word: partners and processes (preparing marketing/communications plans)
- planning and prioritising: catchment scale (strategic catchment planning)
- the benefits of riparian zones for farmers
- more science on technical aspects and refreshers as environmental knowledge expands

Other learning needs we identified include more specific topics, including:

- monitoring, including links to the Statistics NZ and Ministry for the Environment sustainable development project
- the reasons for the adverse effects of stock in streams, from both the environmental and farm management point of view
- plant and animal pests control
- natural indigenous succession (using gorse or broom as a nurse crop)
- sustainable drain management
- flood management and riparian management
- stream crossings
- fish passage
- managing the effects of major interventions for example physical and chemical disruption to waterways by mining

In line with our findings overall, we are convinced that if you think you could use some training in any of these areas, your own or another Regional Council or NGO could well have the expertise to offer it!

Katie James, Wayne Bettjeman and Simon Park, Ministry for the Environment
Norm Ngapo, Waiora Soil Conservation Limited
Clare Feeney, Environment and Business Group Limited

FSC General Assembly 2002

Gavin Williamson

The Forest Stewardship Council hold a General Assembly every 3 years or so to discuss important issues and debate new policy decisions.

The most recent assembly was held in Oaxaca, Mexico in November. Fletcher Challenge Forests has been FSC certified for just over two years and in order to have a say in the future direction and policies of FSC it was important to be represented at the General Assembly.

The format of the 2002 Assembly consisted of 3-4 days of side meetings followed by 3 days of formal proceedings. There were just short of 50 motions debated and voted on, these included a number of suggested policy amendments that had significant implications for New Zealand plantation forestry. Including one particular motion, which if passed in its original form would have made it virtually impossible to hold FSC certification over New Zealand Plantation forest. Thankfully this was significantly amended.



Photo 1 The FSC offices

The membership of FSC falls into three “chambers”, Environmental, Social and Economic. As you might imagine when you get strong minded international representatives with potentially very differing views in one room the result was some very passionately fought debates over key issues. Throw in the obvious language difficulties, individual agendas, egos, some great orators and the end result was a very interesting and challenging few days.

The FSC Secretariat is in the process of relocating to Germany. Currently the small but dedicated team of staff work out of very moderate offices in Oaxaca. I took the opportunity to visit the existing office and was very impressed with the atmosphere and hope they are able to re-create this in Bonn.

If anyone is interested in knowing more about the General Assembly then give me a call or alternatively visit the FSC website (www.fscoax.org).

Photo 2 Voting at the General Assembly



ADVANCED TRAINING – MANAGING COMMUNITY DISPUTES

WELLINGTON TRAINING ON 26 MARCH 2003

Venue: Museum Hotel, 90 Cable Street, Wellington

If you have already attended negotiation and facilitation courses or the Preventing and Managing Community Disputes and want to further develop the techniques for building agreements this course will add to your skills.

On this intensive training day you will receive coaching and practise skills to use in really challenging situations. Participants will have the chance to work in a team to really develop and test their skills. Difficulties we have experienced in New Zealand situations will be used in the day's exercise.

Maximum of 10 participants.

The trainer, Gay Pavelka, has worked with councils, government departments, businesses and community organisations involved in resource management since 1990 and with community organisations in dispute since 1986. She is experienced in mediation and in facilitating community discussions aimed at gaining agreement on public issues. The course uses approaches that have proven to be effective in New Zealand.

ADVANCED TRAINING – MANAGING DISPUTES 9 – 4.30 pm

Topics:

What we can do when the going gets rough

A practise of a range of interventions and skills to use when tension and impasse develops. There will be time for reflection on a past difficult case and to identify helpful interventions.

Teamwork to manage a challenging case – choosing from the range of skills

Sometimes we face situations of high tension, impasse or difficult behaviour that if unresolved are likely to badly damage relationships and lead to a breakdown in talks. Two sessions will be held to explore a range of ways to intervene in such difficulties.

Working in three teams, two groups of disputants and a team of facilitators/mediators, the disputants will present difficulties for the facilitators to deal with. Coaching will be given during the session and after the simulation feedback will be given on the effects of the facilitators' interventions.

Open session to seek ways of dealing with local issues participants face on the job.

Developing strategies to apply these skills on the job.

The New Zealand Planning Institute recognises this training as contributing to its members' annual CPD requirements.

Other open courses currently advertised

PREVENTING AND MANAGING COMMUNITY DISPUTES - IMPROVING TALKS WITH COMMUNITIES, TANGATA WHENUA AND INDIVIDUALS

A two day course on 25 & 26 March at the Museum Hotel, Wellington

Course Costs

Advanced training day: \$ 290.00 & GST \$ 36.25 = \$ 326.25 per person per day

There is a 10% discount for members of NZARM & NZPI \$ 261.00 & GST \$ 32.62 = \$ 293.62 per person per day

Enquiries are welcome. Contact Gay Pavelka at: Phone (03) 3297847 Fax (03) 3297 947
Pavelka@xtra.co.nz

Registration form Wellington

ADVANCED TRAINING - MANAGING DISPUTES 26 March 2003

Name..... Address

Organisation..... Contact details

Field of work..... Special diet requirements.....

Do you want to be put in touch with other participants to arrange joint travel?

Cheque to G. R. Pavelka enclosed for

Please mail cheque to: Gay Pavelka, Millers Road, Gebbies Valley, RD2, Christchurch

Or
Send an order number if you wish to be invoiced.

This registration form is also a tax invoice GST 40-006-605

You will receive a course programme after payment is made.

Please register by 10 March 2003

**PREVENTING AND MANAGING COMMUNITY DISPUTES
IMPROVING TALKS WITH COMMUNITIES, TANGATA WHENUA AND INDIVIDUALS**

WELLINGTON TRAINING ON 24 & 25 MARCH 2003

Venue: Museum Hotel, 90 Cable Street, Wellington

A hands-on two-day course followed by an optional advanced day.

This course has been designed for people who are involved in community and resource management discussions and who have responsibility for promoting constructive results. The course aims to add to participants' abilities to understand community conflicts and to apply strategies promoting resolution. Techniques are provided that help people negotiate effectively and include skills mediators use. The processes and techniques can be applied to a wide range of situations.

The course concentrates on working with typical New Zealand situations involving discussions with developers and councils, tangata whenua, urban and rural communities. Intensive practise and feedback within a small training group are features of this training.

This course is for you if you:

- are involved in consulting with communities and achieving public participation
- aim to reduce the time spent at hearings
- sometimes feel like the 'meat in the sandwich'
- are involved in project management
- give process and technical advice to clients
- need to combine expert knowledge and community knowledge in your work
- seek to expand ways of talking with individuals and groups.
-

Maximum of 18 participants

The trainer, Gay Pavelka, has worked with councils, government departments, businesses and community organisations involved in resource management since 1990 and with community organisations in dispute since 1986. She is experienced in mediation and in facilitating community discussions aimed at gaining agreement on public issues. The course uses approaches that have proven to be effective in New Zealand.

Topics include:

- How to identify presenting problems and underlying conflicts.
- How to gather information through skilled questioning.
- Selecting public participation processes.
- Skills for summarising information when contradictory views are raised.
- Creating constructive goals and visions out of conflicts.
- Choosing strategies for community discussions using existing cases.
- Identifying goals and techniques for each stage in conflict resolution.
- Facilitating community meetings – a simulation working through milestones in public participation.
- A range of techniques to solve problems using small and large group processes.
- How we can prevent problems in the first place.
- Ethical issues when working with communities.

Course Costs:

Two days : \$580.00 & GST \$72.50 = \$ 652.50 per person

There is a 10% discount for NZARM & NZPI members Two days: \$522.00 & GST \$65.24 = \$587.24

The New Zealand Planning Institute recognises this training as contributing to its members' annual CPD requirements.

Other open courses currently advertised

ADVANCED TRAINING – MANAGING COMMUNITY DISPUTES – Wellington 26 March 2003

If you have already attended negotiation and facilitation courses or the Preventing and Managing Community Disputes and want to further develop the techniques for building agreements this course will add to your skills.

On this intensive training day you will receive coaching and practise skills to use in really challenging situations. Participants will have the chance to work in a team to really develop and test their skills. Difficulties we have experienced in New Zealand situations will be used in the day's exercise.

Maximum of 10 participants. Venue: Museum Hotel, Cable Street, Wellington

Advanced training day: \$ 290.00 & GST \$ 36.25 = \$ 326.25 per person per day

NZPI members \$ 261.00 & GST\$ 32.62 = \$ 293.62

Enquiries are welcome. Contact Gay Pavelka at:

pavelka@xtra.co.nz

or Phone (03) 3297 847

or Fax (03) 3297 947

Registration form Wellington

PREVENTING AND MANAGING COMMUNITY DISPUTES 24 & 25 March

ADVANCED TRAINING – MANAGING DISPUTES 26 March

Name..... Address

Organisation..... Contact details

Field of work..... Special diet requirements.....

Do you want to be put in touch with other participants to arrange joint travel?

Cheque to G. R. Pavelka enclosed for

Please mail cheque to: Gay Pavelka, Millers Road, Gebbies Valley, RD2, Christchurch

Or

Send an order number if you wish to be invoiced.

This registration form is also a tax invoice GST 40-006-605

After payment is made you will receive a course programme. Training material will be sent in advance of the course. Please register by 10 March 2003

The Deer Farmers' Landcare Manual

An invitation to contribute.

The New Zealand Deer Farmers Association in partnership with the Sustainable Farming Fund is now in its final year of a 3-year project to produce the Deer Farmers' Landcare manual. This project also initiated the Deer Farmers' Environment Awards to help promote sustainable deer farming.

150 volunteer Deer Farmers were asked via a series of surveys to record their successful best practice methods of sustainable deer farming with respect to the soil and water environment.

This information is now being written up in a format that is attractive and easy to follow so that all deer farmers will have the opportunity to adopt techniques that have proven to be perpetually productive.

Uptake in this area runs the risk of being clouded by uninformed bias related to the negative views that many farmers may instinctively harbour towards the implementation of the Resource Management Act. In this proposed landcare manual this prejudice to uptake will be averted due to the emphasis on farmer experience sources (ie. farmer 'ownership' of the document). It is expected that the manual will be well received by producers in contrast to other statutory based environment material.

Although essentially to be a Manual written by deer farmers for deer farmers, it will also incorporate a significant amount of content (approximately 25%) from environmental management expertise and existing and new research areas.

Invitation to NZARM members:

Members of the New Zealand Association of Resource Management are invited to contribute their own knowledge and experience to the content of this Manual. This can be achieved either by direct submission of material or by constructive criticism of the first stage draft material when it is produced (May 2003).

The Manual is intended to be a 'live document' with a further objective of the project being to identify new research topics and incorporate new findings into updated versions of the manual over time that incorporate new experience and a changing culture.

If you are interested in participating in this project please contact the convenor and register your interest.

Enquires to:

John Paterson

Convenor

Deer Farmers Landcare Manual

P O Box 1038

Rotorua.

Phone: 07 3322093

e-mail: john-p@wave.co.nz

The Waiapu project: Maori community goals for enhancing ecosystem health

Garth Harmsworth
 Landcare Research NZ Ltd.
 Private Bag 11052
 Palmerston North
HarmsworthG@LandcareResearch.co.nz

Tui Aroha Warmenhoven
 Te Whare Wananga o Ngati Porou
 P O Box 121
 RUATOREA
twwonp.ruatoria@xtra.co.nz

Introduction

The FRST-funded “Waiapu” project ~~starte~~began in 1998. It has involved collaborative research between Ngati Porou and Manaaki Whenua-Landcare Research. The project is unique because it is one of the first projects funded through public good science funding (PGSF) that has resulted in a true partnership between scientists, iwi researchers, Maori elders, and the Maori community within and outside the Waiapu catchment and has contributed to an iwi/hapu research capability (Clark & Quinn 2001). The project is also unique in that it was specifically aimed at recording and utilising Maori knowledge alongside scientific information to improve understanding of cultural values, catchment processes, and environmental change, for integrated catchment planning. Maori knowledge was documented in three main forms: values, knowledge (including contemporary and traditional) and aspirations. Te Whare Wananga o Ngati Porou (the learning institute in Ruatorea) has led the project through the capable guidance of Tui Warmenhoven, lawyer and kaitiaki, and resident of Ruatorea. We believe the project provides a model that should be replicated throughout New Zealand.

The following whakatauki or pepeha (proverb) symbolises the mana and the indigenous status of a number of hapu collectively known as Ngati Porou:

*Ko Hikurangi te maunga, Ko Waiapu te awa, Ko Ngati Porou te iwi
 Hikurangi the mountain, Waiapu the river, Ngati Porou the people*

A fundamental principle of being Ngati Porou is the collective assertion of mana motuhake, a term synonymous with sovereignty, autonomy, and legitimacy, and which confirms the identity and mana of the Ngati Porou people. Appendix 1 provides a number of Maori terms and concepts.

Location

The Waiapu catchment (Figure 1) covers an area of 1734 square kilometres in the north of the Gisborne – East Coast region of New Zealand and has a dominant Maori population (~90%). It is centred on the township of Ruatorea, and has a population of about 2000. The catchment includes the Waiapu River (total length ~130 km) and Mt Hikurangi (1752 m), both spiritually and culturally significant to Ngati Porou, the largest iwi on the East Coast. The Waiapu River is formed by the joining of the Mata and Tapuaeroa Rivers, which originate in the headwaters of the steep Raukumara range. The rivers flow east and northeast to the Pacific Ocean. The Waiapu catchment (Page *et al.* 2001a) shares the southwest catchment divide with the large Waipaoa River (Page *et al.* 2001b) that runs southwards towards Gisborne. For this study the catchment was subdivided into 14 sub-catchments (Harmsworth *et al.* in press).

Issues

The Waiapu catchment can be described as highly degraded and modified and exhibits an extensive and serious erosion problem. Many of the rivers are filled with sediment and classed as highly degraded. Few natural habitats remain. The catchment is of great spiritual, cultural, physical and economic significance to Ngati Porou, and the poor health and depletion of resources in the catchment is of great concern. Anecdotal evidence also points to a large sediment supply affecting the coastal and marine environment. In contrast with the general NZ population (Te Puni Kokiri 2000), a large number of socio-economic issues and disparities identify the area as disadvantaged and deprived (e.g., health, housing, high unemployment, low household income; Ministry of Maori Development 2002). Other issues of concern include the low participation of iwi and hapu in research and resource management planning and policy.

The Waiapu river has one of the highest sediment yields in the world (Walling & Webb 1996), with an average suspended sediment yield of $\sim 36 \cdot 10^6$ t, 2.5 times higher than that of the larger adjacent Waipaoa catchment (Page *et al.* 2001b). This equates to a yield of 20,520 t/km²/yr (Hicks *et al.* 2000). The high sediment yields can be attributed to unstable rocktype (lithology) and relatively high rainfalls. The upper parts of the catchment comprise a high percentage of crushed and sheared rocks.

Aggradation of sediment in rivers and streams continue to be a major problem in many parts of the Waiapu catchment, but with forestry planting a new cycle of channel incision and channel degradation is beginning.

Maori History

Maori settlement was widespread in the Waiapu valley until the 1880s. Just before 1840 there were 3000 inhabitants at Whakawhitira Pa, in the lower reaches of the Waiapu. A number of significant cultural sites and placenames indicate the dominant traditional Maori culture that existed in the region for hundreds of years. Through practice and knowledge, traditional culture still resonates strongly within contemporary Maori society (Harmsworth *et al.* in press) but has, along with the natural environment, undergone great change in the past 140 years.

Land-use history

In 1840 the Waiapu catchment was largely covered in native forest ($\sim 80\%$), with a small area east of the main river covered in scrub and coastal forest as a result of partial clearance and burning. There was extensive cultivation by Maori around the river, and the mature indigenous forest inland was rich in natural flora and fauna. Between 1890 and 1930 the catchment was extensively developed for pastoralism, starting with large-scale forest clearance, felling and burning (Rau 1993). This was an adverse turning point for a catchment prone to high intensity rainstorms and flooding. Since then a succession of storms and floods have caused widespread erosion and sedimentation throughout the catchment, transforming the landscape.

The land-use pattern has progressed from native forest and marae cultivation, to reduced native forest, extensive pastoralism with sheep and beef, to dairying on lowland areas, to a return to sheep and beef, extensive planting of exotic forests and limited cultivation on the flats. These land-use changes have resulted in a highly eroded catchment under pasture, increased flooding risk, and sediment-filled streams and rivers. Land-use planning and resource management have been largely driven by non-Maori groups, and the community has complained of government interference with many of these land-use schemes.

Planting of exotic forest for erosion control began in the late 1960s. In the headwaters of the most highly eroded sub-catchment, the Tapuaeroa, conversion of eroded pasture to exotic forest began in 1969.

Physical characteristics

The western side of the catchment is bound by the Raukumara ranges; with relief ranging from 1500 to 500 m, while the middle to lower part of the catchment is typically hilly, from 500 to 100 m, and then decreases in the east to lower flights of terraces and the floodplains near sea level. Average annual rainfall is 1600 mm/yr at the coast to >4000 mm/yr in the headwaters.

The present highly degraded nature of the catchment can be attributed to a combination of factors: extensive forest clearance between 1890 and 1930; repeated high intensity storm and flood events; and a catchment with a high proportion of unstable rock types, such as crushed and sheared mudstones and argillites. Rocktypes are geologically complex and reflect a turbulent tectonic history with a number of associated earthquakes. High rates of natural erosion are evident on these unstable rocktypes, even under native forest.

Present vegetative cover is: Exotic forest (*Pinus radiata*) 26%, pasture 37%, native forest 21%, and about 12% in kanuka and manuka (scrub). About half the present pasture area could be considered erosion prone and unsustainable. Some cropping is carried out on the lower terraces and plains.

Storms

Average annual rainfall for the Waiapu catchment is 2400 mm/yr. Erosion-generating storms in the Waiapu catchment have a recurrence interval of between 2.6 years in the headwaters and 3.6 years near the coast (Hicks 1995). A large number of storm events have greatly impacted on the catchment, including erosion and flood producing storms in 1916, 1918, 1938, and Cyclone Bola in 1988 – all of which caused widespread devastation.

Cyclone Bola had rainfall between 300 and 900 mm over 4 days (Page *et al.* 1999) and these were the highest rainfall figures since records began in 1876 (Rau 1993). With the main damaging erosion types being landslide and gully, the cyclone had a devastating effect on the lives of people living in the Waiapu catchment (Harmsworth & Raynor, submitted).

Aims of the project

The main aim of the Waiapu project was to improve understanding of the catchment through an integration of scientific and cultural knowledge to determine Maori values and aspirations, define ecosystem health, improve understanding of environmental change and catchment processes, and develop community based strategies (Harmsworth *et al.* 2001) to enhance environmental health.

The research

Research was carried out between 1998 and 2002 as one objective in three parts:

Part 1: Determining the best mix of communication strategies to facilitate dialogue and participation with the Waiapu community, and between the community and stakeholders;

Part 2: Recording and collecting local and traditional Maori knowledge about the catchment to understand natural resources, Maori values, and spatial and temporal changes in the catchment, particularly since deforestation and during changes in land development;

Part 3: Carrying out mainstream scientific research to record, catchment characteristics, determine the catchment condition, and identify causal factors for degradation such as erosion and sedimentation. GIS coverages and a catchment model were built during *Part 3*.

Central foci of the research were to enhance participation and collaborative research, help build a research capability with the iwi and the community, address the loss of Maori knowledge, and develop models for increased iwi and hapu participation in research and resource management planning and policy.

Over 30 semi-structured formal interviews were carried out from 1998, mainly with Maori elders, as well as many (~20) informal interviews with community members. A large number of community and research hui were held. This work, much in te reo Maori, was carried out by trained iwi researchers based in Ruatorea. All interviews were recorded, documented, abstracted and organised by theme (e.g., storms/floods, traditional knowledge, water, land use; Warmenhoven 2002). Some interviews were video taped. Intellectual property rights were of prime concern and fully discussed when the methods were developed.

Community

The word community in the title refers to a wider community than simply those living in the catchment. “Community” is defined as all those living in, having a cultural relationship with, or significant interest, in the Waiapu catchment.

Community participation in the project was encouraged through a number of methods: less formal interviews and discussion with individuals and community groups; hui; an art competition for school children (Warmenhoven 2001b, c); articles and newsletters (Pohatu 1999; Warmenhoven 2000 a,d, 2002); and presentations by iwi researchers at various venues including schools and other marae.

Methods—Maori knowledge and historical information

Methods included building a knowledge base based on interviews, wananga (traditional learning), hui, a literature review, oral histories, use of historic photographs, abstracts, manuscripts, papers, texts, books, minute books, visits to museums and libraries, information from museum and the Maori Land Court records, archives, and interview videotapes.

Links to New Zealand and International research

An early working relationship was established with other PGSF research projects, including the ‘Ecology of Turbid Streams’ led by Rob Davies Colley (NIWA), and ‘Landscape Evolution: Controls on Sediment and Nutrient Fluxes’ and the more recent ‘Land to Ocean Sediment: Carbon Fluxes’ both led by Noel Trustrum (Landcare Research). International links were developed with Professor Tomomi Marutani (Shinshu University, Japan), Mio Kasai (MacQuarie University, Sydney, Australia), other Japanese river scientists and students, and Professor Gary Brierley (MacQuarie University, Sydney, Australia); all of which have led to international research work on sediment storage and river characteristics in the catchment. Iwi researchers accompanied many of these researchers in the field, and one female Japanese researcher was taken for a lesson in rongoa (Maori plant medicines). The work has been aligned to that of the Waiapu project, with the sharing of knowledge, and increased understanding of the environment, people, and culture. All projects have made a significant contribution to understanding catchment processes, sediment storage and delivery, and land use in the Waiapu catchment. Information from localised studies will be extrapolated to the wider catchment for improved sustainable land management planning. All projects that contribute knowledge and greater understanding are essential for building relationships, friendships, and collaborative research.

Results

Part 1: a Maori participatory model was developed, and effective ways for communicating information with the local and wider community, hapu, Ngati Porou organisations, local government, science agencies, and central government was trialled, evaluated and documented (Harmsworth *et al.* in press). A collaborative research model was developed:

<http://www.landcareresearch.co.nz/research/social/iwimodel.asp>

Part 2: A large amount of Maori knowledge on the catchment, including Ngati Porou hapu values, aspirations, and traditional knowledge, was recorded and has formed a knowledge archive for Ngati Porou. This archive is described below (Ngati Porou 2002; Warmenhoven 2002).

Part 3: A large amount of mainstream science information was also recorded and collated, including: a literature summary and review of previous research and relevant data; information on spatial and temporal change, catchment and ecological processes, catchment condition, cumulative effects, sediment characteristics; and an estimated sediment budget. The work included developing a large number of GIS coverages of the catchment: sub-catchments, maunga (mountains), rivers and streams, placenames, cultural sites, land systems, Land Use Capability (LUC; Jessen *et al.* 1999, Jessen 2001), rock type, soil class, soils of the floodplains and terraces, flooding risk, erosion type, erosion severity, sediment source areas, land use, historic and present vegetation, climate and rainfall stations, DEMs, and high points and trigs. GIS maps and tables were documented providing information on physical characteristics, natural resources, history of land-use activity and storm events. Much of this information is being shared with Maori researchers, the community and stakeholders (Harmsworth *et al.* in press).

All Maori knowledge information, such as placenames and sub-catchments, trigs, maunga (culturally significant mountains, hills), rivers and streams, is linked to GIS coverages so that the stories and concepts can be spatially referenced. Maori knowledge and mainstream science information have provided records both of spatial and temporal change in the catchment since deforestation, and of changes in land development and its effects on the community. This information has been used to characterise catchment condition, environmental change, and catchment health and provides significant information on Maori values and aspirations. The three parts of the programme involved considerable overlap and interaction amongst participants.

Maori knowledge

Maori knowledge was documented and organised into five main types of knowledge (Ngati Porou 2002; Warmenhoven 2002) all with a strong cultural base, requiring in-depth cultural understanding, and providing a Ngati Porou cultural perspective on the environment, and a holistic Maori world view. This knowledge is unique to the Gisborne – East Cape and Waiapu area. The main knowledge forms defined were:

Contemporary knowledge (e.g., modern view of the world)

Historical knowledge (e.g., historical accounts of floods, changing landuse, etc.)

Local knowledge (e.g., local farmer knowledge, fishing knowledge)

Aspirations (e.g., aspirations drawn from traditional and a modern world view and experience)

Matauranga or traditional Maori knowledge including values (e.g., traditional values, te reo, customs, practices, puuraakau (narratives, stories, myths), traditional environmental knowledge).

Matauranga, separated from the other knowledge forms and given special status, was defined as traditional and special knowledge handed down through ancestors, tohunga, tipuna, kaumatua, and other elders, usually people with specialist skills requiring in-depth cultural understanding and practice. While some forms of matauranga are sacred or specialised and practised by very few Maori in contemporary Maori society, other examples have become general knowledge in books, papers, and manuscripts. Matauranga includes knowledge of the world and is equated with wisdom, several specialist forms include: ancestry (whakapapa), values (tikanga), language (te reo), medicine, health and wellbeing (rongoa, hauora, oranga, whaiora) weaving (raranga), carving (whakairo), matariki (seasonal planning), maara (cultivation, food production) environmental management and biodiversity (kaitiakitanga), agriculture and fishing (ahuwhehua, mahinga kai, hi ika, maangoingoi, rapu tuna, kaimoana), tattoo (moko), songs (waiata), moteatea (chants depicting significant historical statements), prayer (karakia),

proverbs and quotations (whakataauaki, pepeha). The Waiapu project has recorded only matauranga special to those hapu collectively known as Ngati Porou, with relevance to traditional practices, Ngati Porou values, and the history of the Waiapu catchment.

Ngati Porou values (part of matauranga) were drawn primarily from the thoughts, knowledge, experiences and feelings of the pakeke (adults) and kaumatua (elders). Examples of Maori knowledge (Harmsworth *et al.* in press) and how it has been used in the study are shown in Table 1.

Table 1. The contribution of matauranga to mainstream science

Maori knowledge	Provides information and helps to understand and plan
Placenames and explanations and stories associated with each	Catchment history, change, land features and associated Maori history, mythology. Names are often linked to a historical record of events, habitat condition, activities, and people Baseline record of condition of rivers, streams, land, habitats, rocks, river course
Maori values particularly relating to the environment, spiritual beliefs, Maori wellbeing, social and political ideals	Issues, values which underpin environmental management, environmental standards, future goals, aspirations and policy
A land-use history from a Maori perspective	Environmental change and impacts on people's lives. Experience that affects present behaviour, perceptions, views, aspirations
A record of floods and storms and related stories	Environmental change and impacts on people's lives. Experience that affects present behaviour, perceptions, views, aspirations
Concepts of health and ecosystems	Definitions of health and ecosystem, environmental standards, indicators, perceptions of environmental condition and quality
Traditional sites, cultural heritage, culturally significant places, wahi tapu (sacred sites), papa kainga	Geographic location, cultural value and significance of certain sites, places, uses, purposes, activities, for future planning and policy, appropriate land use, priorities, management, restoration
Values, kawa	Community organisation, responsibilities, relationships, co-learning, collaboration
Cultural practice, customary use of resources, kai (food, harvest, fishing, hunting, weaving), location and type of customary use	Spatial and temporal record of catchment, change in condition, quality, and area of habitats, degradation, environmental change, rate of change
Rongoa (Maori medicines and practice)	Spatial and temporal record of native forest habitats, wetlands, plant communities, ecological change, restoration strategies
Fishing and Hunting (record of the past)	Resource depletion, quality, change in environmental condition, degradation, habitat restoration strategies
Native bird populations and habitats (record of the past)	Resource depletion, quality, change in environmental condition, degradation, habitat restoration strategies, aspirations

Taonga, flora and fauna resources, plants, animals, fish, native birds	Loss of flora and fauna, temporal and spatial record of habitats, change, restoration strategies, aspirations
Water classifications	Water quality and quantity, condition of river and streams, groundwater, change in condition, quantity and quality of springs
Cultivation, mahinga kai	Resource condition, value, environmental change, resource use, activity, indicators, future sustainable resource planning

Other types of knowledge recorded for the archive included:

Astronomy, seasons, meteorology, lunar calendar, games, human anatomy, landmarks, characteristics of the gods, incantations, musical instruments, historical stories (puuraakau), legends, terms of kinship, rakau (trees), otaota, (plants), nga ngarara (insects and other small land creatures), kawa o te marae (marae protocol), maara, hi ika (fishing), rapu tuna (eeling), raranga (weaving), whakairo, Paa, ngahere (forests), wahi tapu (sacred sites), pakanga (battles), whakapapa (genealogy), moteatea, haka, whakatauki and karakia (terms in Appendix 1).

Ngati Porou values and aspirations

An important part of this research was to document Ngati Porou values and aspirations, derived from traditional concepts, such as tikanga, and providing the basis for the Maori worldview, cultural practice, and shaping of behaviour. Maori values are instruments through which Maori make sense of, experience and interpret their environment (Marsden 1988). A number of interviewees commented that traditional values and concepts (e.g., kaitiakitanga, mana, rahui, tapu, mauri) should be used to manage and protect resources sustainably: “The river is our taonga and our life essence. Land erosion reflects how we are becoming as a people. We are losing our mana. The river is eating away at the land. Without this land we are nothing.” [HH]. Aspirations included future roles, vision, goals, relationships, issues, and direction. One example repeated by many was “whanau/hapu have a right to manage and a responsibility to sustain ecosystems within their geographical boundaries”.

Today, tangata whenua are becoming increasingly aware of past errors regarding misuse and mismanagement of land. Many agree that repetition must be avoided in future planning.

Our people died protecting our land. This place would have been beautiful. Today we are trying to save what we ruined. We have to be very conscious and aware of how we live in our environment....Some people see [sic] the land to make dollars, money. That is not necessarily applicable to all ecosystems. Some areas are for that purpose. Not all areas are for exploitation. [HH]

It’s just been take, take, take and there’s been no give. And when there’s no give, that’s what happened with mother earth (papatuanuku). That’s the only way she can say ‘Hey, enough’s enough’, you know. The erosion, the floods, the kai is disappearing. [MR]

A Concept of Health

The link was made in all Ngati Porou definitions between Maori wellbeing, spirituality, values, and ecological health. Definitions were based on ascertaining “what was healthy” and “what was not healthy”. For tangata whenua, the notion of health reaches beyond the physical environment into the mind/psyche, the soul, and the spirit. As the name suggests, whenua and tangata are inextricably intertwined, and when one of these becomes unbalanced, the other equally suffers. The following illustrates that connection between people and the river. “The river is our taonga and our life essence.” [HH], “The health of our

river depends on the hapu that inhabit those valleys that fed into the Waiapu. And if their health is not good, neither is the health of our river” [AR].

The health of the Waiapu catchment involves a great deal more than the physical elements of the landscape. The whenua, including all waterways, is Papatuanuku, the nourishing provider, and the protector of all living things. Together with Ranginui, the air we breathe, she allows us to use and exploit elements of her that are necessary for our survival. Through life we remain her dependent offspring and in death we return to her. A local remarked:

She is a living entity, as everything is life, whether it be plant life, or human life, or mother earth. When you look back in our stories and histories, the earth has always been our mother and nourishes us. That’s because we are part of one and the same in our creator. [PR]

We must heed closely the spiritual connections between land, water and people. Physical problems can be repaired; however, the spiritual component is vital to the restoration of the ecosystem. Fundamentally, improving the health of the Waiapu catchment necessitates urgent commitment by the local community to engage and participate in the restoration of river, streams, riparian areas, ngahere Maori, wetlands, coastal areas and natural flora and fauna to a state of balance acceptable to all ecosystems.

Ecosystems

There are unspoken rules or tikanga. Tikanga goes with the ‘so called ecosystem’. They (the tikanga) do not necessarily apply everywhere or elsewhere. They are particular to that place. It is about guardianship or protection, kaitiakitanga. [HH].

Sustainable land management

Given the above understanding of Ngati Porou mana motuhake/manawhenua, it follows that sustainable management of the environment is a fundamental right and responsibility of the hapu/whanau. Any future management strategy needs to embrace components or elements of sustainability as understood by Ngati Porou hapu. These key elements include, amongst other things, mana (atua, tipuna, whenua), whakapapa, mauri, tikanga, kawa, kaitieki, whanaungatanga, manaaki, kapata kai, papa kainga, as well as ira tangata, an important concept meaning “enhancing the life principle, or uplifting the life principle of nga tangata”.

The pepeha, “Toitu te marae a Tane, Toitu te marae a Tangaroa, Toitu te iwi”, emphasises the three most important factors in sustainable development, and the inter-dependence people have with natural resources to ensure wellbeing. The domain of Tane is generally understood to include the whenua and all natural things it provides for, while Tangaroa’s domain includes the realm of the seas and oceans.

The spiritual, physical and economic importance of rivers for people is unequivocal. Ngati Porou hapu and whanau are urging the Waiapu community, the Crown, its agencies, and other stakeholder groups to acknowledge their mana with integrity and to act in good faith. We really need a concerted effort to look after something that is precious to future generations – the rivers, the streams, the lakes, the springs, the land, and everything that falls around, above, beneath or within her.

The majority of tangata whenua attributed severe erosion problems to clear felling early last century and to subsequent pastoral farming:

When the trees were cut the land began to move, there those are the ones that had the most slips, Waingakia, Mata, Ihungia and Tapuwaeroa. That place is filled with rocks from the slips, it is the same

with the Waiapu; it has been filled in. The stations there have all gone, there are blocks of land that are there in the Waiapu. [JM]

Around the Tapuaeroa and Mataa subcatchments much of the bush felling was carried out by outsiders experienced in clearing bush and lacking spiritual connection to the whenua (land).

Conclusions

The results of this study indicate that deforestation and land development over the last 100 years have had an enormous impact on cultural values and Maori well-being through spiritual loss, degradation and reduction in the area of natural resources, decreased access to traditional resources, increased flooding risk, loss and deterioration of culturally significant flora and fauna habitats, loss and modification of cultural sites, and the continuing decline in the mauri (life force or health) of the river and the quality of its resources through the deposition of enormous quantities of sediment.

In a catchment like the Waiapu, the enormity of the problem often precludes a community from knowing where to start and what the role of different individuals and agencies should be. Communities also often lack sound information on which to base decisions. This project points to the need for greater collaboration and coordination between various agencies, iwi and hapu in planning sustainable catchment strategies. Environmental restoration and rehabilitation projects, such as biodiversity, always require belief, leadership and coordination, and it is imperative to develop greater trust and respect between iwi, hapu and local and central government for projects to be successfully implemented. The community has become very wary through years of Government intervention and failure to consult and listen.

Adequate resourcing is another obvious area that will determine whether strategies can be implemented.

This research has provided an example and model for the better use and integration of mainstream science with Maori knowledge. It also provides a model for collaboration with iwi to undertake research, which may include co-learning, sharing knowledge, an understanding of Maori values and aspirations. It is this information, which can be used to underpin future biodiversity projects, projects for restoration (e.g., wetlands, riparian planting), protection and management of native forest and scrub (e.g., scrub maintenance, native forest protection), protection and management of cultural places and sites, community environmental projects (e.g., recycling, hapu environmental planning and policy), planning sustainable land use and sustainable development, and used to build human and social capital (increasing research capability, enhancing Maori knowledge). A cultural perspective allows catchment planning to become more holistic, coordinated, targeted and prioritised based on values and aspirations, and helps set priorities, goals and actions for longer term sustainable catchment planning. A combination of knowledge forms (i.e. Maori and mainstream science) helps us understand the possible success or failure of any action, such as a restoration project. Overall, many small projects in a catchment will lead to some degree of rehabilitation of that catchment through many positive actions taking place in different parts of the catchment (e.g., forestry on erosion-prone land, protection of native forest fragments, riparian planting).

Consideration of sustainable catchment planning requires more than just a biophysical understanding. It is cultural and social understanding, along with economics, that allows us to appreciate fully what is meant by ecosystem health and sustainable development.

Additional information

Additional information on integrated catchment management can be found at:

<http://icm.landcareresearch.co.nz/>

Appendix 1. Glossary of Maori and Ngati Porou terms and explanations (He Kupu Maori)

Ahuwhenua	Agriculture
Atua	God, supernatural being
Awa	River or stream
Awaawa	Streams
Hapu	Sub-tribe, organised kin group, extended families, pregnant, impregnated
Hi ika	Fishing
Ira Tangata	Life principle for people, of mortals
Iwi	Tribe, people, large socio-political grouping, bone
Kaitiaki, Kaitieki	Agents to provide guardianship of the environment
Kaitiekitanga	Concept of guardianship or stewardship of the environment
Kapata Kai	Food cupboard, used for reference to food sources, bush, sea, rivers, etc.
Karakia	Prayer
Kaumatua	Elder, respected elder
Maara	Cultivations
Maangoingoi	Fishing
Mahinga kai	Areas for cultivation or resource collection
Mana	Prestige, authority, status
Manaaki	Care for, host, hospitality, look after
Manaakitanga	Generosity, kindness
Manga	Tributary or stream
Mana Motuhake	Sovereignty, authority, autonomy
ManaWhenua	Authority over land, region, or district
Maunga	Mountain, sacred peak, high point, tipuna
Marae	Area at front of meeting house, social gathering place, social centre
Matauranga	Traditional knowledge
Mauri	A life force, permeates in all living things, sustains life
Moteatea	Chants depicting significant historical statements
Ngahere	Forest
Nga ngarara	Insects, small land creatures
Noa	Free from tapu, unrestricted
Oranga	Wellbeing, Health
Otaota	Plants
Paa	Fortified settlement
Papa kainga	Ancestral land, community areas for housing, cultivation etc.
Papatuanuku	The earth mother
Pepeha	Proverb, saying
Puuraakau	Historical stories
Rahui	Restrictions, regulations, usually to protect or sustain resources
Rakau	Tree
Ranginui	The sky father
Rapu tuna	Eeling
Raranga	Traditional weaving
Reo	Voice, language
Rongoa	Traditional medicinal practice, medicines from plants
Tane	Male, man
Tangaroa	God of the sea, the sea and all sea creatures
Tangata	Man, person; plural tangata: people
Tangata whenua	People of the land, or people from the land

Tapu	Sacred, under divine protection
Tiaki	Guard, protect
Tipuna	Ancestor
Tikanga	Protocol, values, etiquette, custom, unspoken rules, truth, plan, correct way
Tohunga	Expert, person with specialist knowledge, skills
Toitu	Permanence, sustainability
Tuna	Eels
Wahi tapu	Sacred place
Wai	Water
Wairua	Spiritual dimension
Waiata	Song
Wananga	Traditional learning, schools of learning
Whanau	Family, birth, extended family
Whanaungatanga	Family, collectively, kinship
Whakapapa	Genealogy, decendency, links to all living things
Whakataauaki	Proverb, saying
Whenua	Land, placenta, afterbirth

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The Fence

We'd determined this year not to travel. Christmas could come to us. Which was fine, but time spent at home tends to focus attention on those undone things around the section which should be attended to.

This time, it was the fence between us and our neighbours to the north which irritated. We'd been living at the same address for 10 years, and I was bound to eventually succumb to the necessity of its replacement. It was a green paling fence, more latterly held up on the neighbouring side rather hopefully by baling twine to a nearby bush. As fences go, it was a poor relation of the generally adequate standard of fencing resident in the area.

Christmas and its attendant family duties came and went remarkably quickly. Out of town children and their partners arrived, enjoyed Christmas and left. They did not offer to dig any holes.

My good wife was all sympathy and patience. It was New Years Day, so we enjoyed a good walk to Mountain House from Mt Holdsworth. I think it was her way of advance training to check my readiness for the task ahead.

I dismantled the existing fence the following day. I felt better about life immediately. Hole digging was different—Lansdowne clays resemble concrete under summer conditions, but the crowbar was useful. Days passed. The posts and railings were assembled. Concrete ensured there would be no repeat of fence stability problems.

The job expanded in the meantime, through the generosity of the neighbour, whose approval allowed construction of a lean-to shelter between fence and my garage. Generosity did not extend to help in building.

I felt a certain pleasure in construction. My Dad was an excellent fencer, the best I've known, and the rhythmical hammering during initial construction reminded me of his efforts. I'd seen the last fence he built on the farm six years earlier when I'd been going north to Hamilton. We'd left the farm in 1966, so it had stood for 30 years, and looked as good as new. He was of the old school, my father, and believed the job should be done once and done well. I think he'd approve.

Rob Harrison

COMING EVENTS - CALENDAR

(from Royal Society NZ Alert)

14-16 May 2003	The 3rd South Pacific Conference On Stormwater And Aquatic Resource Protection combined with the Annual Conference Of The Australasian Chapter Of The International Erosion Control Association "Communication And Linkages For Aquatic Resource Protection" Contact: water@nzwwa.org.nz
22-24 May 2003	New Zealand Planning Institute Conference Hamilton.
24-26 June 2003	"50 years on" Agscience convention at the Albany campus of Massey University. www.agscience.org.nz/convention2003.html
6-11 July 2003	"Windows on a Changing World" 22nd conference of the New Zealand Geographical Society, Auckland University. Contact J. Logie: nzgs2003@sges.auckland.ac.nz or go to: www.geog.auckland.ac.nz/nzgs2003/
1-5 December 2003	3rd International Wildlife Management Congress, Christchurch. www.conference.canterbury.nz/wildlife2003
14-16 September 2003	50 th Jubilee NZARM Conference, Rotorua