Catchment Management Group

Departmental Managers' update for period ending 27 August 2010

Biosecurity (Davor Bejakovich, Manager)

1. National issues:

1.1 Biosecurity Institute National Education and Training Seminar, Marlborough 2010

Biosecurity and Parks staff attended the annual Biosecurity National Education and Training Seminar in Blenheim in late July. The seminar and field trips gave a useful insight into the particular pests of the Marlborough region, including a number of invasive species GW could encounter in the future.

GW staff gave three well accepted presentations at the conference.

1.2 Loss of funding for the Freshwater Biosecurity research programmes

In July 2010 the Foundation for Science Research and Technology (FRST) announced that it will no longer fund NIWA's Freshwater Biosecurity research programme and, as a consequence, not to allocate any funding into the research portfolio on Freshwater Biosecurity. It is understood the money was held back to address potential matters arising from the Land and Water Forum which is to report to Government by the end of August. The decision by FRST not to fund strategic and applied research in freshwater biosecurity will have a significant impact on our future ability to source the science needed to address the very real issues of aquatic weed management (e.g. hornwort and tree weed control in Lake Wairarapa).

1.3 MOH guidelines submission

GW Biosecurity submitted on the recently released document *Issuing Permissions for Vertebrate Toxic Agents (VTA's): Guidelines for Public Health Units*. The guidelines are intended to assist Medical Officers of Health when reviewing approval applications for the use of VTAs. Biosecurity and BioWorks staff regularly apply for these approvals and this approval process is vital to ensure operations can continue effectively. GW commented on a number of aspects of the document to ensure its relevance in actual field conditions.

2. Pest Animals: (Ray Clarey)

2.1 Goat control at Trentham Military Base

Staff were contracted to undertake goat control for the NZ Defence Force on the Trentham rifle range and surrounding forested areas. The Defence Force was concerned about the presence of the goats on the firing ranges and their browsing damage in the reserve area. The job presented some difficulty with the close proximity of the Trentham golf course

and Rimutaka prison, but was undertaken discreetly with suppressed rifles. All 13 goats sighted were shot and the carcasses removed.

2.2 Rabbit and hare complaints

There have been a number of rabbit and hare damage complaints through the winter, with reports coming from across the Western Zone. Rabbit numbers have historically been high on the Kapiti Coast, but there have also been a number of complaints from Wellington and the Hutt Valley. The damage may be more noticeable because the early winter was very wet and cold, meaning the animals are now pressed for food in late winter. Seasonal winter plantings have been particularly affected, with many of the more palatable native species being damaged. GW has undertaken three rounds of pindone poisoning and targeted night shooting in the problem areas.

2.3 Pest Animal service provision contracts

All contracts for predator control in the Western Zone for the 2010/11 year have now been agreed and the associated works have commenced. Staff are hoping to release more work to contract later in the year. The work programme has become very tight and staff are struggling to make time to carry out the advice and assistance programme for new or additional pest control.

2.4 Karori Stream (WCC)

Staff have been asked by the Friends and Residents of Karori Stream (FROKS), a GW care group under the GW's Take Care Programme, to provide advice and a budget for pest animal control in the area adjacent to the Karori Stream. They are keen to tackle rats, possums and mustelids to add to the re-vegetation and pest plant control work that has been undertaken. The group needs to seek funding for pest control equipment and will try to source funding from Wellington City Council initially.

2.5 Rat monitoring

Native birds in the Western Zone should have a safe breeding season in the KNE management areas as the monitoring of the reserves is recording very few rats. The first round of rodent monitoring data from August has shown zero rat tracking in Wrights Hill, Porirua Scenic Reserve and Johnsonville Park. Staff have worked hard to reduce rats to this level, and it is even harder to maintain this status as they will breed quickly if left alone. The team has also grappled with the improved fruiting and flowering of native trees which is the result of possum browse being severely restricted. This new abundant food supply attracts rats more than the toxic baits for certain periods of the year. This preference means control work has to be more targeted and strategic during the fruiting and flowering period.

2.6 The HALO project

Pest control around the Karori Wildlife Sanctuary (Zealandia) has long been the goal of GW Biosecurity. Working together with WCC, the eastern and western flanks of the predator proof fence have been closed up, allowing the rare birds breeding in Zealandia to disperse into these predator free areas and to hopefully move on from there. There is still a section to the south and to the north of Zealandia where no control work is occurring in close proximity to the fence.

This has long been recognised as a priority, with GW, Zealandia and WCC staff and the Natural Heritage Trust debating this issue for the past 18 months. Funding remains the major barrier. The Pest Animals team is developing a brief on all available options for implementing predator control in these two areas. The northern section is the densely populated housing area of Karori, where pet cats are the greatest predation threat to these birds. The southern area is semi-improved farmland and regenerating bush, with the more traditional suite of feral pests. Once a management plan is established, funding and community involvement will be sought to get the programme off the ground.

2.7 Rook control

The aerial rook nest baiting 'Standard Operating Procedure' and 'Service Provision Contract' for the 2010/11 year have been amended and approved by management. Planning is now finalised for the aerial survey scheduled for mid-September. There are 104 sites to check where rooks have been recorded in the past or are currently known to frequent. The baiting of nests will be based on the survey results and takes place in early October. A media release has been prepared requesting constituents to report any recent rook observations. This has been effective in past years for disclosing new breeding rookeries. The GW operations are programmed to coincide as much as possible with operations conducted by Horizons Regional Council within the Tararua District.

2.8 Bittern and crake monitoring

Staff have been working with a Masterton based DOC biodiversity officer with a view to undertaking a presence/absence survey for the wetland wader species bitterns and crakes. This survey is to be conducted within the area defined as Wairarapa Moana Wetland Park with DOC as the lead agency. A recently released draft protocol will be followed and the most likely habitat areas have been identified.

2.9 Mt Bruce – Pukaha buffer control

The recent deaths of 12 kiwi by predation within and adjacent to the Mt Bruce Reserve has received a lot of publicity. Criticism of the predator control programme has been made by people previously involved with the establishment of the wildlife recovery programme. Thus far, no criticism has been levelled at GW and the work it undertakes within the 1,766 hectares of the southern buffer. The GW buffer has 152 sites each capable of targeting possums, cats, rats, hedgehogs, ferrets, stoats and weasels. The sites have been serviced every five weeks over the past 12 months. It is planned to increase the servicing maintenance to every 4 weeks over the next year. More frequent servicing could be introduced if the need arises but would be subject to budget constraints. Over the past two years traps have caught 122 cats, 44 ferrets, 454 hedgehogs and 652 rats. Many more rats and possums have been destroyed but numbers are not known because they have been killed with an anti-coagulant poison. GW will endeavour to maintain a high standard and is prepared to improve its regime as new best practice is disclosed. A new service contract is currently being negotiated.

3. Pest Plants (Richard Grimmett)

3.1 Surveillance species

3.1.1 National Pest Plant Accord

On 28 July advice was received from Northland Regional Council that *Myoporum laetum* (Tasmanian Ngaio) had been supplied to a landscaping company in Wellington mistakenly as the NZ native Ngaio. Staff were able to track down the company from the invoice supplied and have spoken with the manager. There was some discussion with regard to the NPPA and his company's obligations under the Biosecurity Act 1993 and the RPMS. He suggested that to retain the company's integrity it was necessary for him to have discussion with the owner of the property on which the trees had been planted and arrange to remove and destroy them. To the managers credit he was only too happy to agree to this course of action. An inspection at later date confirmed that the work had been done as promised. The company has now been supplied with the NPPA booklets and a list of plants banned from sale for their information.

Five staff members are attending NPPA refresher training in September to remain authorised by MAFBNZ to undertake regulatory work.

3.1.2 Regional survey

A total of 360 residential properties inspected since the beginning of the year resulting in new finds of Total Control (TC) and Surveillance (S) species (Table 1 and 2).

Table 1. Total Control spp. delimiting surveys

	Madeira vine	Blue passion flower	Moth plant	Woolly nightshade	Climbing spindleberry	African feather grass	
TC delimits start period	4	4			2		10
New TC sites		2					2
TC delimits completed		2					2
TC delimits end period	4	4			2		10

Table 2. Surveillance spp. delimiting surveys;

	Bomeria	Chillian flame creeper	Chocolate vine	Purple loose strife	Asiatic knotweed	TOTAL
Surv spp start period	17	3	13	1	6	40
Surv delimits complete	1		1			2
New Surv spp sites		1	3			4
Surv spp end period	16	4	14	1	6	42

3.2 Total Control species

3.2.1 Trials

Staff have been investigating the use of hessian sacking as a viable means of controlling aquatic weed infestations (eg Eel grass and hornwort). At the NZ Biosecurity Institute National Education and Training conference NIWA staff showed how this method had been used in trials on various oxygen weeds. The wider stems of these exotics are unable to push through the hessian cloth and are effectively smothered. Finer leaved native charophytes can get through, however, and the lab trials have shown that exotic weeds are quickly replaced by favourable natives effectively restoring ecosystem.

The benefits of hessian over plastic weed matting are two fold:

- 1. The plastic weed matting is very difficult to pin down in deep water as it creates air pockets that continually billow up.
- 2. Secondly the plastic weed matting does not allow air to escape resulting in anaerobic decay below the matting and preventing natural vegetation bounce back. GW and KCDC may trial the hessian matting on a 50 m stretch of the Ngarara Stream which exits into the Waikanae golf course from Te Harekeke Wetlands.

3.2.2 Manchurian wild rice

Remnant densities of plants are now at a very low level. The site in Kapiti was visited by staff and MAFBNZ. The focus is on eradication by increasing surveillance and tagging/treatment of all remaining live plants using a 'double hit' method of spray control. This method involves spraying all tagged plants and then returning in two weeks to redose the whole infestation again.

3.2.3 Control programme

Control has commenced on Perennial nettle and Eel grass. Other species are still dormant and await assessment of status and re-growth during spring.

3.3 Containment species

The Boneseed control programme has commenced. New sites have been found during annual inspections of coastal settlements. Evergreen buckthorn, pohutukawa, karo, cacti and banana passionfruit have also been controlled as staff and contractor inspect escarpments. The Community Max team helped on the south coast at Ngawi, Cape Palliser.

New areas on the west coast south of Titahi Bay have been assessed for control. Currently steep escarpments are receiving maintenance using helicopter or abseilers every consecutive year. The new areas will be delayed until next year due to budget limitations. Wellington City Council is completing ground operations in the new areas this year and mapping inaccessible areas for the next season.

A report was compiled for the Wairarapa Moana Wetland Group to provide information and control strategy options for the aquatic pest plant, hornwort, at Lake Wairarapa.

3.4 Site led species

Public reports have been investigated for old man's beard, banana passionfruit, gorse, wild ginger without compliance activity having to proceed.

3.5 KNE

Staff distributed communication pamphlets about garden waste dumping to the Porirua reserves neighbours. This area has ongoing problems of neighbours dumping rubbish over back boundaries and spreading unwanted weeds.

Staff have been active assisting Care Groups with planting across the region. They are currently helping care groups develops plans for upcoming work and meeting with Territorial Authorities to assess future MOU work. Site assessments are underway in preparation for restoration work contracts starting in September. Some escarpment pest plant control contracts have started.

Staff have assisted when volunteers or schools have struggled to manage planting projects. This has been undertaken with other departments also working with the Care Groups.

3.6 Biological Control

Gorse pod moth monitoring was conducted in August. A release of Scotch thistle gall fly in infected thistle seed heads was made in Whiteman's Valley. Requests are being received for green thistle beetle for Californian thistle. It will take a few more years for numbers to build up in the two sites of initial release.

Monitoring gorse thrips was completed in the Wairarapa. These have been found at numerous sites in very low numbers. Staff will inspect areas in the western zone when the weather warms up to assess the distribution of this biocontrol agent. Planning for releases to increase distribution is underway.

Smilax rust is ready to be spread. The focus will be on distributing infected foliage over the next period as time allows.

Some ragwort surveying has been conducted west of the Rimutaka's. Good numbers of flea beetle were found at most sites.

3.7 Community Max

This project came to an end on 30th July. The 15 workers employed gained a lot of training and worked to comprehensive schedules on restoration projects. A report will be completed outlining activities and outcomes for the next Committee meeting.

A debrief meeting was held with the Ministry of Social Development (MSD). They were very pleased with the project and the improved employment opportunities for the trainees. This was directly attributed to developing the teams to GW principles and gaining work experience and skills, whilst undertaking meaningful tasks. The project injected a lot of labour resources into current restoration sites. The teams were very productive and achieved high quality outcomes. There is a high level of support for the programme among GW staff, MSD and contributing partners, to continue similar partnerships long term.

4. Bovine Tb Vector Management (Graeme Butcher)

4.1 2010/11 Vector control programme

Table 1: Summary of the projects let for the 2010/11 year.

	Possum Control (ha)	Ferret & Possum Surveys (ha)	Deer Survey (ha)	Pig Survey (ha)	Total
Contractor B	68192	25797	0	0	93989
Contractor C	22070	0	0	0	22070
Contractor O	0	0	0	327501	327501
Contractor P	65628	20530	0	0	86158
Totals	155,890	46,327	0	327,501	529,718

No areas of the 2010/11 programme have yet been completed. Contractors have commenced control in six projects and estimate that they have completed approximately 6,000 hectares. None of these areas are ready for monitoring.

4.2 2010/11 Monitoring

In the planning for the 2010/11 year, 51 performance monitors and 80 trend monitors were proposed. A total of 22 performance and 30 trend monitors have been let. Of the performance monitors let, eight have been carried forward from the 2009/10 year.

4.3 2010/11 possum and ferret surveys

The following table details possum and ferret surveys for the 2010/11 year. No surveys have commenced.

Project	Strata Area (ha)		Progress (%	Required E Samp		Samples re		Suspicious Tb samples
		(Ha)	completed)	Possums	Ferrets	Possums	Ferrets	To Samples
Bideford	HMR 3	4827	0	300	5			
Bideford	HR 1	2643	0	150	5			
Bideford	MR 1	3496	0	200	5			
Bideford	MR 6	4558	0	200	0			
Bideford	MR 7	3175	0	200	5			
Castlehill	HR 1	2018	0	45	0			
Masterton Flats	HR 1	1482	0	40	3			
Masterton Flats	MR 1	3547	0	60	3			
Mt Bruce Waipoua	HMR 4	418	0	20	0			
Mt Bruce Waipoua	HMR 5	642	0	20	0			
Mt Bruce Waipoua	HR 1	3085	0	100	5			
Mt Bruce Waipoua	HR 3	1799	0	100	3			
Mt Bruce Waipoua	HR 4	1817	0	50	5			
Mt Bruce Waipoua	MR 1	4268	0	100	5			
Mt Bruce Waipoua	MR 2	3302	0	100	5			
Pakowhai	HMR 1	1831	0	100	0			
Whangaehu	HR 3	2376	0	50	3			
Whangaehu	MR 5	1042	0	25	3			
Totals		46326		1860	55			

4.4 2010/11 pig survey

The following table details pig survey progress to date for the 2010/11 year.

Project	Area (ha)	Progress % completed	Estimated Samples	Samples received to date	Positive Tb samples
Akatarawa	20,540	35	30	18	0
Bideford	39,046	11	50	10	0
Castle Hill	4,504	0	30	0	0
East Alfredton	4,903	21	20	3	0
Featherston	6,581	14	30	3	0
Holdsworth Woodside	10,252	17	30	4	0
Kapiti	22,488	0	50	0	0
Mataikona	6,784	32	40	17	0
Moonshine	6,250	0	40	0	0
Otaki Crown	5,139	0	15	0	0
Pakowai	6,915	28	60	16	0
Rimutaka	28,680	0	30	0	0
Stronvar	11,571	0	50	0	0
Tararua	88,512	8	50	9	0
Tinui	35,700	44	80	44	0
Wellington	29,636	9	50	5	0
Totals	327,501		655	129	0

4.5 2010/11 Feral deer survey

A feral deer survey will be undertaken within the Tararua Forest Park over 88,512 hectares. This survey will be completed in conjunction with the normal activities of the contracted helicopter company. The contract has not yet been let.

4.6 2010/11 Feral cattle control

The proposed feral cattle control programme in the South East Wairarapa stage 2 areas is not likely be implemented during the 2010/11 year.

This area will be classified Vector Risk Area, contained core under the new AHB strategy, effectively meaning that bovine Tb will not be eradicated from this area during the term of the new strategy.

4.7 Tararua Range aerial project

Two contractors tendered for this operation and GW BioWorks was the successful contractor. Planning for the operation is completed and BioWorks is waiting for suitable weather conditions to apply the prefeed and 1080 pellet applications.

The treatment area covers approximately 29,500 hectares between Otaki Forks to Mt Holdsworth lodge. The project also includes the Wairarapa foothills between the Waingawa and Tauherenikau Rivers.

4.8 2009/10 programme

From the 2009/10 year only three projects are still uncompleted:

- Akatarawa HR 6 1,452 ha, performance monitoring underway
- South East Wairarapa stg 2 HMR 1 2,300ha, 25% complete
- South East Wairarapa stg 2 HMR 2 2,752ha, 40% complete

4.9 2010/11 infected herds – Wellington region

		l Herds @ June 2010	I Herds @ end of July 10 one clear test in brackets)	Target I Herds @ June 2011
	Cattle	0	0	
VFA	Deer	0	0	
	Cattle	5	5 (4)	8
VRA	Deer	0	0	

4.10 AHB planning

The Animal Health Board has commenced planning for the next rolling three year plan for the period 2011/12 to 2013/14. Greater Wellington staff will be involved in this planning process. The plans for the next three years will be completed in accordance with the proposed AHB strategy.

The Greater Wellington Region will be divided into three control strategies:

- 1. Vector Risk Area eradication. Bovine Tb will be eradicated from this area.
- 2. Vector Risk Area containment buffer. Bovine Tb will not be eradicated from this area. However possum numbers will be maintained to an RTC below 2.0% to prevent infected vectors leaking from the containment core into the eradication area. This area will be approximately 10 km wide.
- 3. Vector Risk Area containment core. Under this strategy Bovine Tb will not be attempted to be eradicated from this area. Possum numbers are expected to be higher in this area compared to the other areas.

Funding priority will be allocated to the eradication and containment buffer areas first. Any remaining funding will then be allocated to the containment core.

Flood Protection (Graeme Campbell)

1. Manager's comments

The main milestone achieved during the period was the completion of the Hearing for the Boulcott Hutt Stopbank NOR and Resource Consents. The preparation and attendance at the Hearing occupied a considerable amount of staff time over the month. Overall, it was felt that the Hearing went well with all parties given ample time to state their case. A decision is expected on the application by 6 September 2010.

Work is progressing on other projects although the progress of the investigations has slowed with the resignation of the Investigation and Asset Team Leader. I am taking the opportunity to consider the best structure for the department before a replacement is sought. In the meantime consultants are being used where possible to keep the investigation projects moving.

2. Western Floodplain Management Plans [Daya Atapattu]

2.1 Boulcott/Hutt stopbank project (20 August 2010)

The public hearing on the Notice of Requirement (NOR) and Resource Consent (RC) applications commenced on 9 August and concluded on 13 August 2010. Of the 39 submitters indicated to be heard at the hearing only 17 submitters made presentations.

The issue raised by the majority of submitters related to the proposed construction access from the residential streets to Stage 2 works located at the eastern end of the Hutt course. The residents prefer access to Stage 2 works from Fairway Drive or Harcourt Werry Drive across the golf course. The Golf Clubs initially advised GW that they did not support the option of access to Stage 2 across the course. The club has agreed to provide access across the course to build the Stage 1 stopbank, which involves more than 60% of the total project works.

A Traffic Management Plan (TMP) developed in consultation with HCC proposed to distribute construction traffic to five streets, Taita Drive, Stellin, Kingston and Allen Streets and Military Road, to reduce the impacts. However, residents still prefer access across the golf course.

The merged golf club, now known as the Boulcott Farm Heritage Golf Club (BFHGC), has now agreed to look into options for providing access across the golf course to construct Stage 2 works. In a meeting with the BFHGC representatives on 17 August 2010, they indicated that once the routes are determined and play sequences are prepared, the club has to consult with its full membership before making a recommendation. GW and BFHGC aim to complete this process by mid October 2010.

Because of the delayed NOR/RC process, the earliest that construction can commence is in November 2010. It is very unlikely now that the project can be implemented as originally planned with Stage 1 completed by June 2011. Staff are currently

investigating options for commencing the project with Stage 2 or 3 works in the first year instead of Stage 1.

2.2 Ebdentown and Bridge Road works

The design of Ebdentown rock lining is progressing slowly. The construction timing for this project is dependant on NZTA funding and forms part of the renewal of the River Works Agreement discussions with NZTA. The agreement may not be finalised this year and construction may therefore be deferred another year.

Bridge Road edge protections involve providing improved edge protections along approximately 350 metres on the left bank of the Hutt River below the Akatarawa Bridge in Upper Hutt. Staff expect to complete the design and construction of this work by June 2011.

2.3 River Works Agreement

The existing River Works Agreement between GW and NZTA for the reach of the Hutt River from Silverstream Bridge to Maoribank expires in December 2011. Staff are currently working with NZTA to renew the RWA. Following a meeting with NZTA on 8 July 2010, staff have now prepared a new outline agreement containing key principles for further discussion with NZTA.

2.4 Kapiti floodplain management

2.4.1 Waikanae Floodplain Management Plan

Consultation on the WFMP 10 year review is presently being undertaken with KCDC. Following this, further consultation will be undertaken with Friends of the Waikanae River, community groups, organisations, interested and affected residents, and the wider public.

A preliminary design of the proposed Jim Cooke Park stopbank reconstruction has been completed to determine the area required for the stopbank on the adjacent soccer fields. Staff will pass on our finding to KCDC and FWR. The stopbank is due for reconstruction in 2014.

An asset inspection was carried out of the Waikanae River on 5 August 2010. Generally the flood protection assets are in very good condition, mainly because of the capital works improvements completed, routine maintenance undertaken and small number of major floods experienced in recent years.

2.4.2 Otaki Floodplain Management Plan

A project plan for the Lower Waitohu Stream project has been completed and a preliminary meeting held with KCDC staff to coordinated respective responsibilities. This project originates from the recommendations of Report 09.214 as agreed by the CM Committee on 28 April 2009. The key elements to be considered are:

- South Waitohu Stopbank
- Convent and Bennett's Road flooding, and the solutions proposed in the Otaki Floodplain Management Plan

- Waitohu Stream Study recommendations
- Stormwater aspect of KCDC's Greater Otaki project

It is proposed that this project will need to be undertaken over a 2 year period, with the identification of preferred options, consultation and CM committee approval of recommendations being undertaken in 2010/11, and the detailed design, resource consent and implementation of agreed measures being completed in 2011/12.

An asset inspection was carried out on the Otaki River on 20 July 2010. Apart from some damage to debris fences the flood protection assets are in good condition.

2.4.3 Friends of the Waikanae River (FWR)

The Friends held their final Honda Treefund public planting day for the 2009/2010 financial year on 19th July. In total, 750 native plants were planted, with appropriate tree protectors attached to protect the young plants from rabbits. This took place at the partially restored Dricon site below State Highway 1 and included allowing room for the newly created heritage trails. The heritage trails and holes for plants had been established by community workers, through the partnership between GW and the Department of Corrections. The group are continuing major restoration work at the Oxbow opposite Otaihanga Domain on the Waikanae River. FWR held their Annual General Meeting on 29th July 2010.

2.4.4 Friends of the Otaki River (FOTOR)

The Friends have had confirmation from the Ministry for the Environment for Year 2 of the Sustainable Management Fund contract. The first milestone for this funding is due on 30th August. Work is continuing down at the Otaki Estuary for restoration planting over winter. The Friends completed their Honda Treefund planting on 26th June, with 1000 trees being planted. The Friends next executive meeting is on 1st September 2010 and the Otaki Walkover is programmed for 17th September 2010.

3. Western Operations [Jeff Evans]

3.1 Hutt River

Willow planting is still underway on the river and native infill planting is being undertaken in a number of areas along the river bank. The new style river trail furniture has been installed at Melling, County Lane and in Ewen Park. Native plant plots are being mulched in the lower river.

3.2 Hutt River ranging services

Throughout the last period the usual undesirable activities have continued. There were a number of illegal piles of rubbish dumped and trail bikes and vehicle misuse was evident in a number of areas. Even with the bad weather people were still out and about enjoying the river and its surrounds. Areas like County Lane and below Belmont School had a steady stream of dog walkers even on the stormiest days.

3.3 Otaki River

The annual willow planting run was carried out over the entire length of the river, a number of areas required clearing out and replanting, mainly due to the old Booth willow stock dying off.

3.4 Waikanae River

The willow planting run is underway. In a number of areas the access tracks have had metal put on to improve the surface and sites have been cleared for native planting.

3.5 Watercourses

Wind blown trees have been removed from many of the watercourses in the region due to the recent stormy weather. A number of large trees have been removed from the Porirua Stream and the Waitohu Stream.

4. Wairarapa Operations [Mike Longworth]

4.1 Wairarapa River Schemes

General

The new work programmes for 2010/11 have been developed and planting work is now under way. Staff have completed documentation associated with last year's work.

A flood on 23 and 24 July in the Huangarua River and eastern tributaries of Lake Wairarapa caused some damage. The costs of repairs will be funded within the maintenance budgets.

Gravel

The total gravel extracted last year 2009/10 was 200,000 cum compared to the previous year of 220,000 cum and a maximum in 2006/07 of 300,000 cum.

Development Work Programme for the LWVDS

The 2010/11 work programme consists of:

- Construction of the final stage of the stopbank to contain the gravel at the Tauanui delta.
- Construction of bank protection works with rock and river boulders.
- Planting

4.2 Investigations and Technical Advice

Waingawa River Scheme Review

The current work involves determining the environmental impact of the scheme work on the river and developing detailed estimates of different options. Once this work is completed the river management options will be assessed as to their suitability and affordability for discussion with the community.

River Management Consents

The process of varying the conditions of the existing consents is nearing conclusion which should satisfy all parties with an interest. It is anticipated that one further meeting of the working group will be needed to sign off on both the quantum of work and a MOU that describes how the interested parties are catered for.

Tawaha Catchment Diversion

The issue of the Tawaha drainage into the Whaka drain is being revisited again following a request by John Barton. A consultant was engaged to investigate various options and a report was submitted to this Committee to outline the options. Consultation with the affected landowners has been carried out and the preferred options are being examined in more detail.

Waiohine Floodplain Management Plan

Waiohine River FMP is progressing with the first phase of the process nearing completion. The geotechnical investigation, which will allow the performance and risk of failure of the existing stopbanks to be assessed, is the main work outstanding to complete phase one. All of the existing information will be summarised in a report, which will be used for consultation in the following phase.

4.3 Drainage Schemes

A report outlining future maintenance requirements and the rate income to meet these costs was presented to meetings held with the five pump scheme committees in December 2009. The scheme committees agreed to significant rate increases in 20010/11 to repay deficits and to build adequate reserves to cope with unplanned maintenance items.

5. Investigations and Assets

5.1 Waiwhetu cleanup project

Work is progressing on finalising the contractor claims for extra costs for the project. This work is expected to be completed by early September 2010.

The first of 3 stages of planting is almost complete with tracks and 20,000 plants put in. Stage 2 planting will be undertaken next year.

6. Strategy and Technical Support [Sharyn Westlake]

The following table summarises the number of formal, written requests for advice responded to over the period from 13 July - 18 August 2010. These include information requests from the public, local authorities and also Flood Protection comment on resource consent applications to Greater Wellington.

	13 July - 18 August 2010	YTD
Requests brought forward	4	4
Additional requests received	52	52
Responses provided	56	56
Outstanding requests	0	0

Over this period the Strategy and Technical Support team have been involved with the following:

- Mediation discussions with Hutt City Council regarding Greater Wellington's submission on Hutt City Council District Plan Change 14- Central Commercial Activity Area. The mediation discussion also involved a discussion with representatives from Harvey Norman.
- Discussions with Upper Hutt City Council officers regarding Plan Change 15 Hutt River Floodplain Management Plan. This plan change has now been has been pulled from Upper Hutt City Council's next policy meeting and timeframes have been pushed back until after the Local Body election.
- Attended a stakeholder's workshop run by Opus for the NZ Transport Authority on the Peka Peka to Otaki Expressway. The route runs from Peka Peka Road in the south to Taylors Road just north of Otaki and is made up of a new four-lane expressway running along the existing State Highway 1 alignment through Te Horo and the establishment of an Otaki bypass with connections to local roads and new bridges over the Otaki River and Waitohu Stream.
- Discussions with Porirua City Council and the developer's engineers around the proposed Duck Creek development are continuing.

Land Management (Dave Cameron)

1. Manager's comments

1.1 Proposed nursery expansion

For some time there have been discussions with Masterton District Council over the possible use of land at the Homebush waste water treatment site for a new 15 hectare nursery. The expansion of Greater Wellington's nursery land is required to meet the foreseeable poplar and willow pole needs of the Wellington Regional Erosion Control Initiative. Masterton District Council is due to meet on 1st September to decide between centre pivot and border strip application of the treated waste water. Either way there are still many questions to be answered before any final decision on the nursery land is made.

In a recent development the owners of land adjacent to the Akura nursery have approached Greater Wellington to gauge interest in a possible lease arrangement. The land is owned by the Papawai Kaikokirikiri Trust (PK Trust) and was previously leased for dairying. Following an initial meeting a letter has been sent to the PK Trust expressing our interest in the land. The PK Trust Board is meeting on 10th September and it is hoped that this option can be progressed further in the coming months.

1.2 Issues for the next period

- Completion of the works programme on the first ten WRECI Sustainability Plans
- Completion of the Streams Alive riparian planting programme
- Completion of the establishment of new forests under the Afforestation Grant Scheme
- Discussions with PK Trust over a possible lease arrangement for Akura nursery expansion

2. Farm Plans (Don Bell)

2.1 Delegated approvals - annual programmes

Programme delivery 2009/10	Annual Programmes Undertaken	Annual Plan Target	Expenditure to date	Annual Plan Budget
 Annual Programmes Sustainability plans Conservation plans Shelter plans 	51	140	\$84,900	\$565,000
Isolated works	-	10	-	\$10,000

2.2 Winter works

Helicopter pole deliveries have all been completed. The scheduling of these deliveries is co-ordinated by Land Management staff and a total of 11,180 poles were delivered over five separate flights at an average cost of \$2.22/pole. This is a similar average cost to previous years. The relatively wet conditions experienced this winter made helicopter deliveries of poles a popular option for many farmers.

Flight	Pole numbers	Cost/pole
1	2,350	2.30
2	2,100	1.99
3	2,325	2.50
4	2,550	2.21
5	1,855	2.25
Total/ Average	11,180	2.22

All staff have been very involved in their works programmes, which continue to be hindered by wet weather and difficult access.

The Flood Protection department has added the restoration work at the Tauanui confluence to this year's biodiversity programme for the Lower Ruamahanga Scheme, with a budget of \$37.4K to be managed by Land Management staff.

Scott Andrew has been delegated an administrative role at a national level with the Afforestation Grant Scheme, which evolved from staff identifying some short-comings in the management process.

2.3 Community involvement

Tony Faulkner has been active with the Makoura Stream Restoration Project.

- The group has been successful in obtaining \$35K funding from the DoC community conservation fund which will be channelled into planting public areas along the stream this year.
- Along with the Take Care group funding of \$5K, this provides for a very busy end to the winter season and the upcoming Conservation Week.
- A kuta planting ceremony was jointly organised. Kuta, an indigenous wetland species now scarce in the Wairarapa was sourced from a privately owned wetland in Te Horo. The kuta was relocated to the Mangakuta Stream near the confluence with the Makoura Stream on the outskirts of Masterton where it will be used as a managed resource for weaving by local iwi.

Staff also spent a weekend with the Whangaehu Care group, supervising twenty Wellington High School pupils planting various native species along the stream margin as part of their environmental studies class.

Staff met with DoC to help plan a project on the Ruamahanga cut-off on behalf of Ed Handyside (landowner). The three partners will contribute towards a \$15K annual programme to remove weed trees (willow, poplar) from the berms and replace them with native species.

The Papawai Community Trust has successfully applied for a \$10K grant from the World Wide Fund for Nature (Tindall Foundation), which will be used for further willow clearing and native planting. Discussions about the Wairarapa Moana project have been held with Marc Slade (WWF NZ Manager) to which he indicated great interest. It was suggested he talk directly with Cr Fran Wilde.

2.4 Training

A training day was organised for contractors and staff at a property near Bideford to look specifically at the art of gully pole-planting

Similarly staff undertook training of a small group of Taratahi Agricultural Training College students on pole planting at a local property, and also supervised a group of dairy students at Taratahi undertaking planting native and exotic plants for shelter and amenity.

2.5 Eucalypt Trials

A demonstration trial area has been laid on Clive Payton's Waihora block near Martinborough, involving four species of naturally durable eucalypts under the NZ Drylands Forest Initiative. As well as a "contribution-in-kind" through this type of assistance, the Land Management Department has also committed to a financial contribution towards the national set of trials which is testing eucalypts, primarily as a replacement species for Pinus radiata in vineyards. The high incidence of post breakage brings considerable costs to vineyards on an annual basis.

3. Akura Conservation Centre (Stan Braaksma)

3.1 Nursery operations

The weather through the last six weeks has been extremely wet causing problems with pole extraction and the need to minimise soil damage and mud in the yard. Mangapakeha Nursery with heavier soils poses extraction difficulties, both to the nursery itself and the main access road.

Pole cutting is 90% completed with about 1,000 3m poles yet to be cut. There are additional poles to supply to the Flood Protection Department. The last orders of contract and farmer poles are being distributed. Pole quality has been maintained throughout the season with any malformed poles screened to a B grade pile. These grades have been selling well at discounted prices.

Preparation of new cutting blocks is about to commence. The planting of new blocks is relatively small this year as both nurseries are near to capacity. The two main areas set aside for new stocks at Mangapakeha are those that have been damaged by spray drift from an adjoining forestry block. The helicopter operators have agreed to contribute towards this re-establishment. Small areas will also be prepared to host gene pool material on behalf of Plant and Food Research as their Aokautere land holdings near Palmerston North are being prepared for sale.

Horizons Regional Council has purchased 2,000 three metre poles that are surplus to local requirements. Hawkes Bay Regional Council has requested 1,200 Fraser cuttings.

With increased pole harvesting and processing, it is becoming evident that yard alterations and layout will need to be addressed to reduce the impact processing poles has on the area where public sales take place. A review of the yard logistics will be carried out to identify areas of congestion, poor traffic flow and options to improve both the public service areas and the nursery operational areas.

3.2 Trading

Trading overall has been very steady with sales of native plants exceeding 30,000. The cold and wet weather appears to have affected retail activity. There are definite increases in poplar and willow poles with 3 metre sales approaching 25,000 (22,000 in 2009) and a slight increase in sales of exotic tree species. The Pinus radiata sales have exceeded the original order of 250,000 and additional stocks have been arranged.

An order has been placed for 250,000 GF 19 Pinus radiata seedlings for 2011. The order is primarily based on plantings associated with the Afforestation Grant Scheme.

3.3 Budget

The Akura Business Unit has an operating deficit at the end of July 2010 of \$120,800 against a budgeted deficit of \$78,600. Stock takes are only carried out quarterly so a true operating surplus is not possible for the end of July. Considerable revenue has been received through August and this will reflect in the first quarter result. The overall impression is that sales have been very steady and no major contingencies have emerged.

Activity	Operating Surplus – Annual Budget 2010/11	Operating Surplus -Year to date budget	Operating Surplus - Actual to 31 July 2011
Nurseries	(16,500)	9,600	(10,100)
Trading	36,400	(88,200)	(110,700)
Total	19,900	(78,600)	(120,800)

4. Biodiversity (Anna Burrows)

4.1 Ongoing works

The busy planting season is coming to an end with only a few sites left to complete. This year in excess of 12,000 eco-sourced native plants have been planted along the stream edges of over 72 different properties. The planting should be completed by the end of August and then a weed control programme will be started and run over the summer months. Some sites will need more than one spray because of the prolific weed growth.

4.2 Karori Stream walkover

A walkover of the Karori stream was held on 20th August. The aim of the walkover was to put together a 5 year weed management plan targeting weeds on both private and public

land. Funding for the weed control programme will be provided from multiple sources including the Streams Alive budget, Take Care budget and Wellington City Council.

4.3 Eco-sourcing Audit

An eco-sourcing audit is being conducted on the processes used by Rimutaka prison to supply native plants. The purpose of the audit is to determine if the nursery tendering to supply plants to Greater Wellington's eco-sourcing policy, is following eco-sourcing best practice and their own eco-sourcing plan. The audit will identify possible remedial actions and conditions that need to be met to pass the audit if the nursery fails the audit, including a remedial action time frame. The remaining suppliers will also be audited at a later date.

4.4 Expenditure to 30 June 2011

	Budget 2010/11	Expenditure to July 2010	% of Budget
Riparian Management	\$182,200	\$15,200	8.3%
Streams Alive	\$100,000	\$1,014	1.0%

5. Operations (Kevin Burdan)

5.1 Contract Pole and Seedling Planting

Activity	Planted this Period	Annual Plan Target	Expenditure this Period	Annual Plan Target
Pole Planting	8,104	15,000	\$33,532	\$60,000
Seedling planting	37,300	100,000	\$18,145	\$60,000
Release/Pre Spraying	4,724	200,000	\$1,095	\$50,000

- A total of 74 properties have been involved with the pole planting programme since planting started in June. 55% of the poles planted have been completed by contract labour organised by Land Management staff.
- A total of 127 hectares have been planted under the Afforestation Grant Scheme. Two more properties are still to complete their programmes. The total area planted is expected to reach 180 hectares.

BioWorks (Richard Grimmett)

All carry over work from 2009/10 has been completed successfully and invoiced for payment.

BioWorks was awarded the Tararua Range Aerial Project (Kaka & AHB) contract. Planning and set up activity is well advanced. The project will be ready to fly from 30th August depending on weather. BioWorks has currently secured 43 contract areas to fill 85% of current staff capacity. The unit is currently negotiating one ground operation (1114 Ha) for AHB and DoC Aerial contract (3500 Ha) east of Taihape. This equates to another 2% capacity.

BioWorks want to diversify and reduce the risk of relying mainly on AHB work. Contract opportunities include providing services for the Regional Possum Predator Control Programme and to DoC Pukaha Mt Bruce predator control better. Staff have also expressed interest in providing services to Horizons Regional Council for their predator control programme in the southern areas of their region. BioWorks is developing relationships with DoC Area Offices in the Wellington Conservancy to seek service contracts. This has already resulted in being invited to tender for an aerial operation.

The final tender parcel from AHB will be offered on 10th September. The anticipated programme has been significantly reduced. This is due to other contractors carrying work into this year. The result is a reduction of contract value retained in the current year to compete for. Productive contractors loose work opportunities when other contractors fail to deliver on time. Contractors from Wanganui, Bay of Plenty and Hawkes Bay are moving south in response to reduced work in those areas. The AHB has communicated that contractor capacity is now at 145% of available contracts within New Zealand.

Contract Operations Progress										
AHB	In Progress Completed Ha	Await Monitor	Completed for Payment	Overall %						
2009/10	_		-	100%						
Reworks			2 Strata							
2 Strata			2199Ha							
2199На										
2010/11				7.4%						
AHB	6 strata									
33 Strata	8650Ha									
117,431										
2010/11				7%						
Biosecurity	4 man days									
55 man days										
2010/11										
External	0%									

Integrated Catchment (Ian Gunn)

Training

The majority of staff have now completed the second DoC module on Biodiversity. This module concentrates on the reasons for NZ's unique flora and fauna and the ongoing threats to its survival. Points picked up from the presentations are:

- As a council we need to focus on site led works rather than a species such as willows or possums.
- Invasive species will challenge many of our programmes integrity.
- That there is a deep pool of knowledge within the CM Group even though our understanding of our different functions can be improved markedly.
- NZ's flora and fauna is unique with our waterways having a high degree of endemism. The coastal marine area is vast and varied.
- Before staff commence their activities they need to understand the full impact of their operational works.
- Maori faced the same challenges when they settled NZ as we do today and used tapu and rahui to manage their resources.
- The destructive force of cats. One slide stated "cats are implicated in 6 global and 70 local extinctions: 26 times as many as all the mustelid species combined." So cats will come under scrutiny over time.

BioWorks and Land Management staff will undertake this training on completion of their winter programmes.

Te Upuko Taio Engagement

Over 500 people have participated in the engagement process so far with over 60% of the meetings being completed. Significant numbers are participating on our website.

The numbers attending the urban workshops are down compared to the rural areas. Despite this there has been high energy displayed at all of the workshops.

Wairarapa Moana

Following the presentation by Brett Painter from Lincoln Ventures (LV) to a recent Te Upuko Taio meeting on the Te Waihora project (Lake Ellesmere), staff have pursued the possibility of LV participating in a project on Wairarapa Moana.

With the assistance of funding from Ngai Tahu and local councils, LV has bidded and obtained significant sums of money for research on Te Waihora over a number of years from the Foundation of Research Science and Technology(FORST). Their bid this year was unsuccessful as all the monies available from FORST were not allocated. John Bright, head of LV, does expect that there will be a second round of bids at a latter date. He has indicated an interest in including the Wairarapa Moana in any subsequent bid. Discussions are still very preliminary.

Collision of Land Use Seminar

Ian Gunn attended this one day seminar along with a number of staff from Environment Policy and Land Management. The flyer for the seminar included the points below:

- 1. About 730,000 hectares (3%) of New Zealand's total land area is taken up by urban areas (with a further 160,000 hectares taken up by transportation networks). Over the past 25 years, the rate of urban expansion has been of the order of 4%-5% per year (i.e., 40,000 ha pa).
- 2. Approximately 70,000 ha of New Zealand are occupied by the Horticultural industry, currently contributing \$3 billion to the economy. By 2020, the industry intends to be contributing \$10 billion to the economy. Clearly this will require more land.
- 3. The desire for increased dairy production is resulting in increased conversion of land to dairy grazing. Cow and heifer number are predicted to increase from 4.35 million in 2009 to 4.49 million by 2013 (MAF SONZAF 2009).
- 4. Expansion of these three industries comes at the expense of the sheep and beef industry, pushing more of that industry on to marginal landscapes, where the competition from forestry buoyed by the added incentive of carbon credits, will result in a reduction in the size, stability, and future vitality of the sector.
- 5. There are landscapes in this country, typified by the debate on the Mackenzie Basin centre pivots, barns and dairy cows, which have values beyond their provisioning and regulating services that the tourism industry will demand greater protection off.

This one day Forum is being proposed to bring together practitioners, industry, tourism policy makers at regional and national level, scientists and academics to consider establishing a policy for land use in New Zealand. Class one land (land that is versatile in terms of use) is desired by all sectors as it has few limitations. (Note that more than 65% of soils have some physical limitations for their use in pastoral agriculture.)

The basis for the discussion is valuing our 'Natural Capital' assets, a concept incorporating nutrient supply, mineral resources, filter and reservoir functions, structure, climate regulation and biodiversity conservation. Marginal land, or land with little natural capital, requires additional inputs (e.g., fertiliser, irrigation, drainage, animal feed pads and herd homes) to compensate for the lack of soils services. The cultural and spiritual services they provide might see the tourism industry value them quite differentially. The intent is to create a green paper as the foundation for a land-use policy for New Zealand, which will be supported and promulgated by the Royal Society.

The presentations were in the main from the sectors impacting on land use. There was no attempt to consider this subject in an integrated manner. Most of the sectors were defensive about their position.

Forestry (Barry Leonard)

Review of operations for the period ended 31 July 2010

1. Plantation forests (Wellington)

1.1 Log Harvest Contract

July prices at destination fell a further US\$5 to US\$8 dollars per tonne but shipping dropped by \$US2.50 and the exchange rate increased by \$US0.006 to the New Zealand dollar. The net result was about NZ\$4.00 decrease at the wharf gate.

Domestic prices remained unchanged, although unless export prices start to pick up by 30 September, we can expect an easing of domestic prices at the next price review.

Although there are stockpiles of logs in China, we are still advised by Rayonier that these reductions are seasonal and the fourth quarter outlook is still positive.

Exports this year are 29 percent above last year by volume, so swamping the market is a real risk that the exporters must be aware of.

At Wharf Gate prices per JAS were:

	P	PP	AO	A	К	KI	КХ	Shipping \$US	Exchange
2009	<u>'</u>		AO		K	Ki	IXX	403	Exchange
July			73.84	67.65	61.46	55.26	42.88	38.00	0.6459
August			82.32	76.27	71.73	65.67	52.05	38.00	0.6607
September			82.96	77.12	72.75	66.91	56.70	43.00	0.6856
October			82.98	77.41	73.22	67.65	57.89	40.70	0.7173
November			83.40	77.90	73.78	68.29	58.67	43.30	0.7279
December			91.78	86.16	81.94	76.32	66.49	46.00	0.7119
2010									
January			91.66	86.09	81.91	76.34	66.58	45.50	0.7177
February	144.86	123.48	114.92	109.22	104.95	92.12	89.26	47.00	0.7015
March	151.99	130.52	121.93	116.20	111.91	99.02	96.16	46.50	0.6986
April	146.85	125.75	117.31	111.69	107.47	96.22	90.60	48.00	0.7111
May	124.95	111.10	102.79	98.63	93.09	82.01	77.85	49.00	0.7219
June	129.00	114.28	103.97	99.56	89.26	81.90	76.01	51.50	0.6794
July	125.19	110.48	95.78	91.36	85.48	81.07	73.72	49.00	0.6800
August indicative	113.67	99.85	86.03	81.88	76.35	70.82	59.77	45.00	0.7235

Log 6, the ground based crew, has continued harvesting the south side of Airstrip block. Although this block was not included in the recent Contract, the wet winter has caused excessive wear on the road through the block and the extent of wind-throw was ever increasing. It is hoped that by opening up the road we will achieve far better drying and consequently reduce the maintenance costs. As Log 6 moves east through the block, the quality of the logs is improving to the extent where log 6 is now able to fill its own

domestic orders. On completion of this part of Airstrip, Log 6 will move on to the skid vacated by Log 36 in Boiler Gully to road-line and harvest a ground based setting.

Log 36, the Tuckey hauler, completed the setting in Boiler Gully and has now moved to complete Maori Redoubt so we can get it replanted this season. Provided the upturn in prices predicted arises, this crew will next move to Centre South in Puketiro.

In July Log 6 produced 2,856 tonnes for \$77,828 and Log 36 in Boiler Gully produced 3,302 tonnes for \$122,852.

In summary, July was 6,158 tonnes for \$211,717 at an average of \$34.35.

1.2 Silviculture Contract

July silviculture was 30.08 hectares at a cost of \$27,210.

To date 83 percent of the 2009/10 contract silviculture has been completed.

To date 79,400 trees have been planted. Planting will continue while the weather is suitable and seedlings are available. (late September).

1.3 Plantation Forestry operations

A wet May, June and July, so far in August has made conditions difficult. Consequently, the upgraded road into Boiler Gully caused problems whenever there was a break in the weather. The trucks could negotiate the road when it was raining and when it was fine but had to be towed in between. The average depth of mud on the skids was about 400 mm!

Valley View road beyond the 6 km mark would not dry out and, although it was able to be used without assistance, its condition deteriorated very quickly.

There is a motor event programmed for the weekend of 22 August and I am trying to delay any metalling until after that date.

Staff members have continued to supervise the Silvicultural Contractors and monitor the quality control plots.

1.4 Forest access

The lack of access into Maungakotukutuku remains.

All main roads are in reasonable order. Cleary's Road has been closed through a weeping slip.

A contractor with a bobcat has been used to open and widen 4WD tracks into Clarkes Creek, Mangaroa and parts of Hukinga.

1.5 Market trends

The demand from the domestic mills appears to be continuing, with signs of it increasing. This month 41 percent of production was despatched to domestic mills. Export demand continues but at a lesser return. There are reports of large inventory in China but we are still being told all is well and prices will improve up to Christmas. The most recent is a

prediction that August prices will be the bottom of the curve and we can expect improvements from next month.

1.6 Emissions Trading Scheme

Officers are attending Ministry of Agriculture and Forestry training sessions this week in preparation to register the pre 1990 forests later in the month.

2. Reserve forests (Wairarapa)

2.1 Tauanui logging

Logging under the new harvesting and marketing agent (John Turkington Ltd) finally commenced early in July.

A ground based crew commenced harvesting a mixed stand of Douglas fir and *Pinus nigra* on the faces leading up from the Tauanui ford.

A total of 1046 tonnes were produced for the month. Some of this was supplied to a local domestic mill, while the balance was delivered to Wellington for export. While prices have eased slightly, the net return of \$27 per tonne is a good result for this stand.

The crew then harvested an isolated stand of very large *Pinus radiata* nearby and tidied up some poor form *Pinus radiata* left by the previous crew when markets for this quality of log were not economically viable.

2.2 Tauanui roading

The Tauanui Road has been extended approximately 1 km through very difficult terrain to access the northern ridge within Tauanui. This will enable logging trucks to reach this ridge and the timber on the northern slopes, (out of the main river valley), to be logged to the ridge.

The logging tracks on this face provided preliminary access and provided the basis for the establishment of a road capable of carrying loaded logging trucks which has been formed on a suitable grade.

Native metal on site has provided base course metal which has been laid over the length of the formation. Old slip debris will be used to provide a running surface.

Culverts were installed to carry water from one small surface flow and a second that was exposed from within a rock filled side gully during construction (no surface flow had been visible).

It is anticipated that the lower section, cut through clay, may require further reinforcement with rocky material once the logging trucks start to use it.

2.3 Rainfall

Following rainfall of 248 mm during June, a further 284 mm fell during July. This resulted in minor slips through the roading network that have been tidied up by the contractor working on the new formation work.

Emergency repair works were also carried out within Stoney Creek where a washout occurred on the critical access road.

As a result, there has been minimal impact on the logging operations. There have been occasions when the ford has been very deep and contractors have been unable to cross in their road vehicles.

2.4 Silviculture

No pruning or thinning has been carried out during this period.