

Pupils at Moturoa School in New Plymouth are taking positive action for their environment and learning valuable skills. Every Wednesday morning, groups of children from all classes tend plants, with the help of a keen group of parents.

The school has had the support of the Trees for Survival programme, Rotary West and Westgate Transport, with help from Westown Horticulture and Duncan and Davies. The school's Board of Trustees, enthusiastic parent helpers and teachers all combine to make it happen.

So where do the plants go? The majority are planted along the foreshore adjacent to Ngamotu Beach (within walking distance of the school). Last year the children planted 500 coastal shrubs adjacent to Westgate's new dry stores. Moturoa School children are also involved in planting projects to improve their school environment.

Initially the children tended donated plants, but they are now more involved in planting seeds or taking their own cuttings. Of particular interest is the Paritutu corokia, a plant special to the local area. It is very impressive to watch the Moturoa School children at work and see them develop wonderful skills and attitudes towards the environment, that they will take into later life.



Eli Goble tends a plant with the help of planting supervisor Ruth Wiseman at Moturoa School.



Freshwater scientists demonstrating electric fishing in the Te Henui.



Teachers from schools throughout the region capturing and identifying invertebrates in the Patea River.

The Big River Day Out

The day dawned bright and fine and the river flows were low, ideal conditions for the Big River Day Out. Chris Fowles, Freshwater Scientist, talked about freshwater issues and monitoring and the 23 participants had an opportunity to catch and identify the many creatures that inhabit our waterways. The teachers also tried their hand at trout fishing and saw how fish are captured and identified using electric fishing. Many thanks to Allen Stancliff (Fish and Game Taranaki) and Hone Niwa (Centre for Educational Development) for their contributions to the success of the day and to Tipene O'Brien who provided taonga from the Taranaki Museum. Most importantly thanks to the teachers who sacrificed a day of their holidays to contribute to an enjoyable and educational day.



Civil Defence Resource Kit Launch

Thank you to the many teachers who attended the Civil Defence Resource Kit Launch in August. The response from Taranaki schools was extremely encouraging, and we trust that the kit will be a valuable resource for teaching about keeping safe in natural disasters. John Hymers (Civil Defence Officer) has also been busy attending staff meetings at schools that couldn't attend the launch. Please contact John Hymers at Civil Defence New Plymouth (phone 06 758 1110) or John Gunn at South Taranaki District Council (phone 06 278 8010), if you require any more help, and remember that the turtles can be couriered to and from your school at no charge.

Answers from Page 3: Reading Exercise - Egmont, volcano, Kaitake, tephra, lahars, ringplain, rainfall, rain, releases, vegetation, protected, quality. **Location Exercise** - Patea River (8), Punehu Stream (6), Manganui River (1), Waingongoro River (7), Oakura River (3), Waiwhakaihō River (2), Oaonui Stream (5), Stony River (4) **Volcanic History** - 1. Paritutu & Sugar Loaves, 2. Kaitake Ranges, 3. Ringplain, 4. Pouakai Ranges, 5. Mt Taranaki/Egmont, 6. Fanthams Peak.

Bits'n'Pieces

Science Fair Awards

The Taranaki Regional Council prize for best project demonstrating some aspect of environmental science was shared by Amie Wright and Sallymay Lindsay of Sacred Heart College, for their exhibit 'Liquid Gold', and Stacey Blundell of Inglewood Primary School for her study of 'Plastic and Recycling'. This year there was an increased number of exhibits with an environmental theme.

Resources available

The units of work *Living with the River*, *Te Awa* and *The Coast*, *Te Takutai Moana* are available from the Taranaki Regional Council. These are ideal for teachers planning a river or coastal study over the summer months.

Kids' Fishing

Fish and Game Taranaki and the Stratford Club, with funding from a Taranaki Electricity Trust grant, plan to release trout into the Patea River behind the Scout Den in Stratford for a kids' fishing day on Saturday, 4 December. This will be a fun event and free instruction will be available. Keep an eye on your newspaper for more details.



Environmental Awards

A reminder that nominations for environmental awards close on 31 December. Consider nominating your school for any environmental activity in which it has been involved. The intention of the awards is to recognise individuals and organisations that contribute toward, protecting and enhancing the Taranaki environment, or increasing environmental awareness. Application forms are available from the Senior Information Officer at the Taranaki Regional Council.

NEXT S.I.T.E.

The next issue of site will focus on the Taranaki environment and issues important to us as we face the next millennium. We will also look at the many ways that the environment can be used as a teaching resource.

Paul Radich - Information Officer
Taranaki Regional Council
Private Bag 713, Stratford

Ph: 06 765 7127 Fax: 06 765 5097
E-mail Paul.Radich@trc.govt.nz



TARANAKI REGIONAL COUNCIL
NEWSLETTER TO SCHOOLS

Kia ora tātou

I am often told that Taranaki teachers are 'up with the play' when it comes to keeping up with modern practices in education and in providing their students with new opportunities to learn. As education officer with the Taranaki Regional Council I have had an opportunity to see this first-hand and this has been confirmed by recent experiences.

I have visited or hosted over 80 of the region's 100 schools, invited by teachers who are willing to be involved with environmental education. This has been very rewarding, but the willingness of teachers to give up their after-school and holiday time to attend training has been quite astounding. For example, the two holiday courses that the Taranaki Regional Council has organised in the last 12 months, have been oversubscribed and their success has been mainly due to the enthusiasm of the participants. The recent civil defence training provides further proof, with over 50 schools sending representatives to the after-school sessions and a further 20 requesting resource kits and training.

The *Guidelines for Environmental Education in Schools* recently produced by the Ministry of Education and the increased interest in environmental education, means that training initiatives will continue to be offered. This will give teachers the opportunity to learn and teach environmental education themselves, with the support of the Taranaki Regional Council in the form of resources, personnel and training.

This is the last newsletter of the year (not to mention the millennium). Thank you for your enthusiasm and support, and best wishes for the rest of the school year, the holiday season and the year 2000.

Paul Radich



Schools in the Environment - Spring 1999 - No.11

TE MAUNGA THE MOUNTAIN

The focus of this term's newsletter is our mountain. The mountain dominates our landscape as well as our environment, and makes life interesting for us in Taranaki. The inside pages will deal with how the mountain provides us with valuable rainfall and acts as a reservoir to hold water during dry times. We will also look at how the mountain has contributed to the make-up of our land and coastal environment. This will provide some interesting background reading and activities for the many classes camping on the mountain over the spring and summer.



Kelly McKercher, Lenna McSweeney and Sarah Garside of Egmont Village School studying freshwater life while on camp at North Egmont.

Trees for the environment

Kauri, kōwhai, kōhūhū and many other native trees were planted at schools around our region as children learned about the benefits that trees provide to the environment. The unit of work *Trees for the environment* was used by teachers to show how trees provide us with oxygen, keep our waterways clean and fresh, prevent erosion and provide habitat for many creatures. Children also learned about the life-cycle of trees, how trees adapt to particular environments and were very interested to know how Māori have traditionally used trees to make fire, waka, medicines and even perfume.

All the trees that were available to schools have been planted, but if teachers want a tree unit of work or help with a lesson, contact Paul Radich. Remember, if your school has an area that would benefit from planting, for example a wetland or riparian (streamside) area, you can apply to the Taranaki Regional Council for trees for next spring's planting.



Lauren Darrah of Midhirst School plants an Akiraho in the school's newly developed riparian area.



Mahoe students Lawrence Barr, Danielle Bevins and Kyla Thomas plant a Mahoe tree in their school grounds as part of their tree study.

TE MANIAPA THE MOUNTAIN

Mt Taranaki/Egmont rises to 2518 metres in Egmont National Park. The volcano incorporates Fanthams Peak and the remnants of the older volcanoes make up the Pouakai and Kaitake Ranges alongside.

Egmont National Park is a native bush reserve which covers 33 000 hectares. It was first protected in 1881 and became New Zealand's second National Park in 1900. We all know that our mountain is a beautiful scenic area and gives us many opportunities for recreation, but the presence of the mountain and national park contributes so much more to our region.

Egmont National Park a huge reservoir

Not only does the mountain produce valuable water for the region, it also retains it, to provide a steady flow of water when the region needs it most.

This is because of the geology of the mountain which absorbs and slowly releases water through ground springs, and the vegetation cover in the National Park.

This slow and constant release of water is very important, especially during a dry period. A stream or river coming off the mountain typically drops to half its usual flow during the low flow periods. But once at this level, it can take over 100 days to halve in flow again, whereas in a Taranaki hill country stream this can happen in only 20 days.



Native Fish

Populations of rare native fish are sometimes found in the high quality water in Egmont National Park. An example is the population of short-jawed kokopu that was discovered recently on the lower slopes of the mountain.



Short-jawed kokopu.

Water

The mountain brings vital water to our region. Because the mountain is high and cold, it turns moist air into rain. Much of this is orographic rain, which occurs as moist air travels along and is forced upwards as it meets the mountain. When the moist air goes upwards, it meets colder air which condenses the moist air into rain. This is clearly shown by the increase in rainfall at higher altitudes.

Location	Altitude (m)	Average rainfall (mm)	Location	Altitude (m)	Average rainfall (mm)
North Egmont	955	7000	Inglewood	195	2317
Dawson Falls	945	5877	Eltham	183	1550
Stfd Mt. House	846	6370	Hawera	105	1173
Stratford	311	2019	Huatoki N.P.	70	1548
Egmont Village	198	1963	Opunake	27	1239

Another important feature is that the land surrounding the mountain protrudes into the Tasman Sea. This is often the first piece of land that weather systems encounter when they come off the ocean. If the mountain was not here, much of the weather would pass over.

This rainfall is very important for our agricultural industry, which provides hundreds of millions of dollars to our region. It also provides vital water for other industries, and for our homes.

Eighty-five percent of the water used on the Taranaki ring plain (the land surrounding the mountain) is taken from the streams and rivers which flow from Mt Taranaki/Egmont. In total, over 200 million litres of water each day is taken from rivers and streams coming off the mountain.

Water Quality

The quality of the water in the National Park is the best in the region. The heavily vegetated National Park is a protected area with little opportunity for pollution. As the water flows to the sea, it has less protection from streamside vegetation and is subject to impacts from many sources such as farms, factories, towns and people. The change in aquatic animals living in the water reflect these changes. Creatures which live in high quality water are more common higher on the mountain than lower down closer to the sea. The challenge for us all is to try and improve water quality so a wide range of creatures can live in all of our freshwater.

How the volcano shaped our landscape

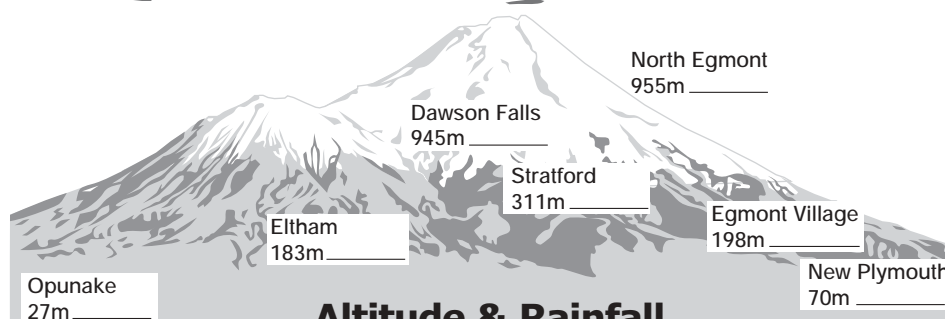
The volcano Mt Taranaki/Egmont began forming around 120 000 years ago and erupted as recently as 250 years ago. The cone of the mountain has been built-up by eruptions. Erosion of the volcano, together with debris from eruptions, has formed an apron around the base known as the Taranaki ring plain.

Over the last 50 000 years the cone of the mountain has collapsed and lahars (debris flows) have swept down the mountain. Tephra (airborne material such as ash) has settled on the land also. The Taranaki ring plain is a mixture of tephra, covered by lahars, covered by more tephra. The thickness of the tephra depends on the distance from the source (the volcano) and the direction of the wind at the time of eruption. Therefore the depth of tephra varies throughout the region.

In general, Taranaki ringplain soils are rich and fertile because of the tephra but hard lahar deposits sometimes cause poor drainage of the land.



Junior Environmentalists' Page



Altitude & Rainfall

Do the maths exercise below to get some numbers (rainfall figures), then match the rainfall figures to these locations in the region. Remember that the higher the altitude the higher the rainfall.

Maths Exercise	1650 - 411 =	3678 - 1659 =
	2145 + 3732 =	967 + 581 =
	1000 x 7 =	625 + 1338 =
	775 x 2 =	

See the table on page 2 to check your answers

Find the meaning

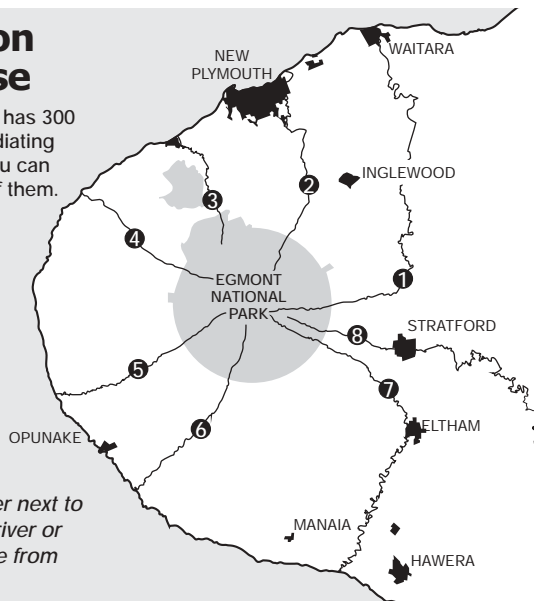
Mt Taranaki/Egmont has over 300 waterways radiating off it. Some waterways have interesting Māori names. See if you can find the meaning of the names of these waterways using the translations below: (Answers are open to interpretation)

manga - stream	wai - water	awa - river	rua - two
nui - large	iti - small	wera - hot/burning	whero - red
rangi - sky	one - sand	mate - dead	puke - hill
tuna - eel	au - force of water	ngongoro - snoring	

Waiweranui Stream	Awatuna Stream	Manganui River
Waingongoro River	Mangarangi Stream	Waiau Stream
Mangatuna Stream	Mangaone Stream	Waimate Stream
Awaiti Stream	Mangawhero Stream	Pukerua Stream

Location Exercise

Our mountain has 300 waterways radiating off it, see if you can locate eight of them.



- ___ Patea River
- ___ Pūnehu Stream
- ___ Manganui River
- ___ Waingongoro River
- ___ Oakura River
- ___ Waiwhakairo River
- ___ Oaonui Stream
- ___ Stony River

Put a number next to the correct river or stream name from the list

Answers page 4

Reading Exercise

Read the information on page 2 to help you fill in the missing words.

Mt Taranaki, also known as Mt _____, is a _____ alongside the remnant volcanoes which make up the _____ and Pouakai Ranges. The material which has come from the volcano, including _____ (air borne material) _____ (mud and rock flows) and landslides, has made up the area around the mountain we know as the _____. The mountain brings _____ to the region when moist air is turned into _____ as it rises up the mountain. The mountain also stores water and _____ it slowly. This is because of the geology of the mountain and _____ cover. Egmont National Park is a _____ area where water _____ is the best in the region.

Answers on page 4

Volcanic History

Match the landforms below to the correct time period shown. The first one is done for you.

Answers on page 4

2 million years ago
Taranaki covered by shallow sea

1.7 million years ago
1. _____

575 000 years ago
2. _____

50 000 years ago
3. _____

240 000 years ago
4. _____

120 000 years ago
5. _____

10 000 years ago
6. _____

Landforms

Mt Taranaki/Egmont	Pouakai Ranges
Ringplain	Kaitake Ranges
Paritutu & Sugar Loaves	Fanthams Peak