



Holyoake Awards 2006

CONGRATULATIONS to the 2006 Holyoake award winners, Moturoa School and Otahuhu College.

The judges were very impressed with the calibre of entries for this years award and enjoyed reading the variety of ways that TFS is incorporated into the curriculum, school life and the wider community.

The two winning schools, while being very different in their roll size, pupil age and locality, both have a total commitment to the environment and their involvement with TFS and their local community, are outstanding.

Moturoa School in Taranaki are the first prize winners and will receive \$600.

Moturoa School was the first TFS school in the Taranaki (established 1996) and has continued to 'trail blaze' by having appointed Mr Bill Clarkson who is a specialist Enviro Education-alist. Bill Clarkson is upskilling both the teachers and the pupils at Moturoa School on native plants and has produced a variety of teaching resources and follow-up activities to support this.

Moturoa School has strong relationships with New Plymouth District Council and the Department of Conservation who support them by sourcing seed, working within their propagation unit and with plantings within conservation and community projects.

The second placegetter in the Holyoake Award was Otahuhu College in Auckland, winning \$400.

Otahuhu College is a relatively new TFS school, having only completed 2 seasons of plantings. But last year they managed to grow over 2000 trees, coming to the rescue of several schools who had not had a strong seedling survival rate. The current count in the shade house is over 3500 – this includes some seeds collected and germinated from within the Otahuhu College grounds. Congratulations to Beryl McKinnell and her team.

It is great to see a secondary school entry in the Holyoake Awards and we are looking forward to the introduction of the TFS Secondary School Teaching Resource in 2007 that will give lots of additional teaching ideas and support material for this age group.

The awards will be presented by Mr Noel Holyoake at Otahuhu College and his brother Don Holyoake at Moturoa School.

SPECIAL MENTION

Special mention goes to Pukerua Bay (Wellington) and Douglas Park School (Masterton). We received fantastic entries from these two schools including a great powerpoint 'Attracting Birds' presentation from Pukerua Bay.

Douglas Park noted the advice and on-going support they receive from Greater Wellington Regional Council staff.

Our partnerships with Regional Councils are vital to TFS success and we really appreciate the support that is put in at the school level.



Paula Loader from Greater Wellington Regional Council teaches pupils at Douglas Park School how to prick out seedlings

To acknowledge Douglas Park School and Pukerua Bay Schools' great efforts they will each receive a copy of Andrew Crowe's 'The Life-Size Guide to Native Trees' for their school library.

Congratulations and keep up that great growing and learning.



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I'LL BE DEAD IF I CAN'T GET SOME P

Gotcha! The P that I'm writing about is the element phosphorus, and yes indeed, I'd be dead without it. And so would you and every other living thing, because phosphorus (as the phosphate molecule) is part of the DNA chain, the blueprint for all life. In fact, there is so much there that a gram of DNA has as much P as a gram of superphosphate fertilizer. But this is not about lots of phosphate, but about tiny, tiny bits. It is about the way phosphate is so scarce in the environment, the importance of its scarcity, and how plants get around that scarcity.

Of all the mineral nutrients that plants need, phosphate is the one that is most often in short supply, and which limits plant growth most often. Most of New Zealand's soils are phosphate deficient, which is why the most common fertilizer used in New Zealand is superphosphate. When a New Zealand pastoral farmer speaks of "topdressing" or "fertilising" he is always referring to superphosphate. This scarcity of phosphate, in the past, meant that very little phosphate was getting into our lake systems, giving us the sparkling clear waters remembered by older New Zealanders. Such waters are said to be "oligotrophic". And as the water draining from farmland into the lakes has become richer in phosphate over the last 50 years, the lakes have become more and more able to support growth of algae and water plants. The lakes are said to be becoming "eutrophic". There is a subtle difference between "eutrophication", the increased ability of the water to support plant growth, and "pollution". In pollution, there is a double whammy with the additional inflow of organic matter, which greatly increases problems by creating high oxygen demand in the water, often leading to anaerobic conditions in the subsurface water. Eutrophic lakes can be clean, if green; polluted lakes invariably pong.

Phosphate is not just in short supply. Even in a fertile soil, its concentration in the soil water is very, very low – about a thousandth that of other nutrients like calcium, magnesium and ammonium. How low? Imagine you have a bottle of ammonium phosphate salt, and an Olympic swimming pool full of pure rainwater. Put 4 heaped tablespoons of the ammonium phosphate in the Olympic swimming pool, and stir. You'll land up with the phosphate concentration of the soil water in a typical fertile soil. But that's not

anywhere near high enough for the plant, of course. To get an idea of the phosphate concentration in a typical plant, go into the bathroom, half fill the bath with water, and put those 4 heaped tablespoons of the ammonium phosphate in that, and stir. That's the concentration in the plant. Somehow, the plant has to be able to increase the phosphate concentration from the outside soil water to its inside tissues by 10,000 times. Yes, the plant sucks up soil water and evaporates it through the leaves, but this only increases the concentration about 30 times (a plant uses about 30 ml of water for each gram of tissue it produces). The way the plant achieves this major feat is to have little molecular pumps called transporters, sitting in the membranes of the root cells, which can grab hold of the individual phosphate molecules and drag them across the membrane for storage in the tissue. The phosphate transporters are very selective; they ignore nitrate and sulphate for example (which can have their own transporters). And of course they need a lot of energy to function. A dead tissue can't pump.

Current discussions on the eutrophication of New Zealand freshwater systems usually put their emphasis on the nitrate and ammonium flowing in, but that's not the main source of the problem. It is with the phosphate going in, much smaller in amount but much more potent in its effects. You see, all plants need phosphate to grow, but not all plants need nitrogenous compounds like nitrate and ammonium. Some plants can synthesis those nitrogenous compounds themselves from the nitrogen gas in the air. Clover in the pasture does it; bluegreen algae and the water fern *Azolla* do it in ponds and lakes. What this means is that if we're trying to reverse the eutrophication pattern, we have to concentrate most on stopping the entry of phosphate. Sure, stopping the entry of nitrogenous material helps, but if we go for the jugular, we go for the phosphate. We do have one thing on our side: trees have an extraordinarily high ability to suck phosphate up through their root systems, and this is where a zone of trees around a lake, being used to trap the phosphate flowing off the pasture, can be so effective. And this is where our TFS plantings can be so effective in protecting the land. Besides stabilising the soil, they trap phosphate that would otherwise flow into our water systems.



Elodea originally escaped from home aquariums, and is now one of the several prominent plants growing under eutrophic lake conditions. We could do without it!

**Article by
Rob Bielecki**

ELLERSLIE SCHOOL & MERCURY ENERGY JOIN TFS

One thousand one hundred and twenty-six.... one thousand one hundred and twenty-seven.... one thousand one hundred and twenty-eight....

On Friday 17th November 1,129 seedlings were pricked out at the Ellerslie School's plant growing unit.

The unit is new to the school, having arrived only a week earlier, so there were two very excited classes of Year 8 and Year 3 children eager to get their hands dirty.

Possibly even more excited was Sue Crawshay the ARC Field Officer who has been storing the seedlings in her garage for the last 2 months ready for the new unit!

The Ellerslie School Plant Growing Unit is a variation on the traditional model of the Trees for Survival partnerships, where a school, the local regional council, a sponsor and a supporting organisation (normally Rotary) work together to get the unit operational and continue to work together right through to planting out.

In Ellerslie School's case the unit sponsor and the supporting organisation are the school's neighbour, Mercury Energy. The school and Mercury already have a great working relationship having set up a worm farm on the back field with children collecting waste from the Mercury kitchen to feed the worms.

Mercury has an active 'g-force' team within their organisation who focus on environmental projects. This enables them to be a very hands-on 'supporting organisation' able to provide help with pricking out, watering during the holidays, planting and ongoing support to maximise the learning opportunities for the children.

The official opening of the Ellerslie Plant Growing Unit will be December 7th.



Ellerslie School pupils pricking out their new seedlings

BILLION TREES CAMPAIGN

A major worldwide tree planting campaign is to be launched next year. Under the auspices of the United Nations Environment Program (UNEP) the *Plant for the Planet: Billion Tree Campaign* will involve people, communities, business and industry, civil organisations and governments pledging to plant trees with the objective of planting at least one billion trees world-wide during 2007.

In 500BC a Chinese poet wrote:
***"If you are thinking a year ahead, sow a seed.
If you are thinking ten years ahead, plant a tree."***

This is as true today as it was then. Trees provide not only environmental protection, but also significant income and livelihood options, providing a wide range of products (timber, fruit, medicine, beverages, fodder) and services (capture and store carbon, shade, beautification, erosion control, soil fertility, water quality). Without trees human life would be unsustainable.

Trees for Survival are ideally placed to be a major New Zealand contributor to the Billion Tree Campaign and plans will be released in our next newsletter early next year. We are encouraging schools, regional authorities, clubs, societies and businesses to become involved with the aim of planting at least 100,000 trees in New Zealand during 2007.

Even if you are not currently involved in the TFS programme in New Zealand you will be most welcome to be part of this worldwide campaign. Write to: TFS PO Box 51684, Pakuranga, Auckland. Or email : info@treesforsurvival.org.nz.

By David English

Question :Who is this great looking troop?

Answer: The Auckland Planting Day Coordinators.

This gang of 8 was responsible for 53 planting days in the Auckland area this season, where an impressive 37,000+ trees were planted. This involved over 1,400 students, 93 teachers and a huge amount of organisation and preparation.

Lots of laughs were had at the October Planting Season debrief together with some vital planning for next seasons' planting.

A big thank-you to you all from TFS, you're amazing – we couldn't do it without you.

Left back row: Kate Smith, Anna McNaughton, Vanessa Vujcich, Sam Hill, Ngaire Tyson, Gail Farrell. Front: Sue Crawshay, Nicky Elmore.



If you are interested in helping out at your local school please contact: info@treesforsurvival.org.nz

THE ROSS MCKAY AWARD

Congratulations to Michael Tunnicliffe from Northcote Intermediate for winning the Ross McKay award for 2006.

The Ross McKay award is an Auckland based award and was established in 2002 in memory of the late Ross McKay, by his wife Joan. This annual award is given to a student who has demonstrated year round excellence in all aspects of the tasks involved in the Trees for Survival programme. Nominations are received from schools, Field Officers, Planting Day coordinators, ARC and land-owners.

Well done Michael – enjoy your prize, you deserve it.

NEW SATELLITE DISTRIBUTION CENTRES

Two additional distribution sites have recently been set up in Auckland to ease the logistics of potting mix deliveries in the region.

Auckland is fortunate to have strong support from volunteers from Pakuranga Rotary (pictured below) who donate their time and petrol delivering potting mix and supplies to the Auckland schools. As the number of schools in the area has grown to 58 so too has the geographical spread from the East Tamaki storage facility, and the hours and kilometres involved.

This month storage sites have been located in both the north and the south. The northern site has been made available in Warkworth by an ex - Pakuranga Rotarian Ian Jones with local distribution being handled by the Warkworth Rotary Club, Orewa College and ARC. The southern storage site is with key sponsors NZ Steel and distribution is being handled by local ARC Field Officer Anna McNaughton.

We would like to take this opportunity to acknowledge our generous potting mix supplier Yates NZ Ltd together with all the parties involved – NZ Steel, ARC, Pakuranga and Warkworth Rotary and Orewa College.



This is a great example of the TFS Partnership in action and we appreciate their help in making these sites a reality
THANK-YOU.

PLANNING AHEAD

DECEMBER:

Time to plan for keeping your plants alive over the holidays.

- * Check water timers - get new batteries (alkaline last longest), and make sure all nozzles are working properly with a good coverage right through the unit.
- * Work with your TFS partners (schools, rotary, regional council) to ensure that the unit is checked regularly over the break.
- * Check with your school caretaker that the water isn't going to be turned off for maintenance work during the holidays.
- * Reduce water evaporation from sun and wind by keeping shade curtains pulled.
- * Feed plants before the holidays with worm tea or a slow release fertiliser.
- * Advise TFS of staff changes that may effect the plant growing unit.

...and have a very Merry Christmas!

JANUARY:

Continue with watering checks and a 'pest and disease' watch.

FEBRUARY:

- * Update parents on the unit at your local school and the learning opportunities for their children - including a 'heads-up' on key periods where you will need extra hands.
- * **Check supplies of potting mix, root trainers etc and order in advance.**
- * Pot on larger plants into milk cartons or plastic bags.
- * Trim any lanky plants by 1/3 so they become wider and sturdier.
- * Open shade curtains to harden off plants.
- * Control plant pests and weed as necessary.

MARCH:

- * **Look out for the new newsletter and launch of the new TFS web page .**
- * Keep up the weeding and watering.
- * Work with your local regional council to identify your planting sites for the year and confirm planting dates.
- * Organise transport and advise all those parents, rotary members and other supporting organisations so they have plenty of time to get the day off and come and join you ... the more the merrier and it certainly makes the job easier.

Get ready for the new lot of seedlings – where did all those milk cartons get to??

For more information or to share your story contact Lynda Wyllie, National Coordinator - write to : Trees for Survival Trust, PO Box 51684 Pakuranga, Auckland. Email: info@treesforsurvival.org.nz



We would like to acknowledge all our sponsors, without those support we could not operate. **Rotary:** helping with funding installation and maintenance of units. **Yates NZ Ltd:** suppliers of potting mix for plant raising.



Parkland Products: suppliers of watering timers. **Regency Duty Free:** funding via purchase discount scheme.

Other valued contributors are Multistrut Ltd., Urgent Couriers, and G. S. Shapland Ltd. Most of all we appreciate the generous contributions of time and resources from the many committed individuals that help 'children to grow trees for our future'.



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