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CDVN Newsletter No 10, December 2002

Greetings to all members and friends, and a special welcome to new Collaborative Members.

I have been enjoying my involvement with the CDVN over the last few months while Diana Gainsford has been on leave, and have learnt a lot in a short time. There have been a couple of visits to trials, when I experienced the force of the coastal winds, especially in the Manawatu, and a couple of Coordinating Committee Meetings where I met very practical, friendly people. There is a great team atmosphere, and with that willingness to cooperate it is no wonder the CDVN has made such good progress.

Diana and her new baby daughter, Charlotte, are fine, and Diana has managed to keep a thread of contact with us during her leave. She expects to be back in the team in the earlier part of 2003.

At the Coordinating Committee Meeting in October refinements were made to the CDVN Constitution and Rules, mostly clarifying roles and relationships between the CDVN and Forest Research. The amended contract will be presented to the Annual General Meeting in February. A form has been developed for collaborative membership application. This will improve our record of contact details and help us to understand your particular requirements.

The programme for the Conference in Dunedin in February looks very tempting, and the team who have put it together are to be congratulated. Do support them if you possibly can.

Over the last few months while travelling for work and for family occasions, I have taken special interest in coastal dune protection work in several parts of the North Island. I have seen robust clumps of dune plants and sand accumulating around fence posts, and I have seen storm erosion eating into plantings and recently planted spinifex lying on the sand surface, exposed by the wind. What a winter it has been (and continues to be!) for strong winds in some areas such as the southern North Island. If your area has taken a beating from the weather, you are not alone. We have some reports from around the country which include storm effects. We just need to get together and learn how to minimise and then to repair the damage.

We all hope that the wind will ease over the summer, so that the winter plantings come away well, and so that we can relax and enjoy our wonderful coastline.

Elizabeth Miller, Acting CDVN Coordinator



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Greetings everyone

Congratulations to those who have put the Dunedin AGM and Seminar together. The programme looks great and I encourage anyone who can make the journey south to do so. It will be well worth the effort!

The options to increase the research funds available for CDVN projects have been the subject of much discussion over the last few months. We will be in a position to present these to everyone at the February AGM and make some long term funding decisions from there.

In the meantime have a happy Christmas and safe, fun New Year break!!

Harley Spence, CDVN Chair

*Best wishes for Christmas and the summer holiday season
from the all the CDVN team at Forest Research*



What's the weather over the horizon?

Following the Meteorological Society's recent annual conference, some readers will have seen articles in the "NZ Herald" on weather predictions for New Zealand. There were some interesting pointers for those involved with sand dune management.

For New Zealand, the major atmospheric patterns overlying each other include very long-term global warming, 20-30 year Pacific Ocean current cycles, and the short-term El Nino / La Nina patterns, making predictions complex.

Over the next 20 years weather expert Jim Salinger, NIWA, expects a long-term warm period, after a cool period for the previous 20 years. The "warm" and "cool" refer to 20-year averages, so there is room for plenty of variation within that. In association with the warm, moist northeasterlies bringing more rain to the north and east of New Zealand, bigger waves, more coastal erosion and more floods are predicted along the east coast from Northland to East Cape.

NIWA scientist Dr. Rob Bell expects less favourable beach-building conditions and possibly more coastal erosion on eastern coasts.

[Source: "New Zealand Herald", 22 November 2002]



"It's the volume of sand in a well vegetated dune that provides best protection for the coastal environment."

Professor Terry Healy, University of Waikato

CDVN 6th Annual Conference, 12-14 February 2003

You should all have received an information pack on the Conference, and we hope that lots of you will be able to get together there to share information about coastal dunes. There will be plenty of opportunities to learn about the particular features and challenges of the Otago Coast.

Our hosts, the Pikao Recovery Working Group, have produced a great programme and we thank them for all the work they have already put in to making this southern conference a success. Now it needs participants. Over 300 registration packs were sent out so we ask that you get your registration forms in as soon as you can.

Please return registrations to the CDVN Secretary by 26 January 2003.

The Pikao Recovery Working Group consists of representatives from the Department of Conservation, Yellow Eyed Penguin Trust, local District Councils, Otago Regional Council, University of Otago Geography Department, Mopanui Environmental & Ecological Society and the coastal Otago Runaka, so there is wide support from the District.

Reminder: The difference in dialect between Iwi of the North and South Island is significant. Kai Tahu use the word pikao to describe *Desmoschoenus spiralis*, while North Island Iwi use the word pingao to describe this plant.

Post Conference Coastal Expo

Note that there will be a free, public coastal expo, on Saturday 15 February, offering opportunities for learning and sharing sand dune knowledge. Further information is included in your conference pack.

Post Conference Catlins Trip

An overnight trip to the Catlins leaves Saturday afternoon, back in time for afternoon flights Sunday. Book quickly for this one - by 13 December. See information at the end of the Agenda in your conference pack.



Many of you will remember Patrick Hesp, of Massey University, who was involved in last summer's Conference at Palmerston North. He will shortly be leaving New Zealand to take up a position at Baton Rouge, Louisiana, USA, and his expertise will be sadly missed. However he says that he is more than happy to maintain a direct link with the CDVN and to help out in any way he can, for which we are very grateful. We look forward to the continuing contact.

Patrick has an interest in sand fences, and instead of the planned trial of fencing materials, which he no longer has time to carry out, he has agreed to prepare a bibliography on the topic for the CDVN in the next few months. Thank you Patrick. We wish you well in your new position.

Manawatu - Wanganui Roundup

We are still waiting for the dune vegetation to perk up after the battering it got during the winter. A very cold spring sure hasn't helped with plant growth. The high tides continue to eat away the toe of the foredune at Foxton Beach with the resulting bank being up to 5m tall (see photo). The District Council is going to trial a sea wall for protection of the car park that was constructed too close to the sea. At Himatangi Beach, most of the spinifex planted at the toe of the marram foredune was buried (very quickly) by about a metre of sand. Rabbits and loss of sand from around the plants continue to keep young pingao in check at Waikawa Beach. A new subdivision development at Waikawa is underway with about 20 lots for sale. Each of the lots contains a relatively small building platform and the remainder of each site is protected by a conservation covenant.

Aaron Madden, horizons.mw



Photo: The foredune at Foxton Beach, late 2002

Santoft Trials

At Santoft Beach, Ernslaw One carry out annual dune reshaping and replanting to protect the forests close behind. It has been a very useful research trial site and all those involved are very grateful for the support received from Ernslaw One.

A Difficult Site trial to test interplanting of spinifex and marram was planted in June 2002. Different ratios of marram to spinifex were used (1:2, 1:4, 1:8) as well as different plant spacing. Three weeks after planting, a severe south-westerly storm passed over the area causing damage to some plots. Pat McCarthy of Ernslaw One reported that some plants were missing and many of the remaining spinifex were badly burnt-looking, presumably from salt spray. The small plants had not had time to develop good root systems. Some of the posts used to measure sand height had been blown over when sand was eroded from their bases.

There have been more strong winds over the winter and sand erosion has continued. The small spinifex plants have not coped well. In late October many were dead but some had a green stem below sand level or a small green leaf. Many of the dead plants were lying on top of the sand, retained in place only by a few buried root ends.

The marram had survived much better than the spinifex, with the majority of plants still in place and showing new green growth. They had trapped sand and there were few signs of funnel erosion.

It was interesting that the planting ratios with most marram had fewer sand blowouts. The worst blowout was in a plot with 1:8 marram to spinifex. (Photo below)

Elizabeth Miller, Forest Research



Photo: Assessing the spinifex/marram interplanting at Santoft Beach, October 2002. The sand blowout in the foreground is in the plot with the least marram.



"The natural role of these frontal dunes is acting as a reservoir of sand for rare but severe storms, and their enhancement needs to be adopted as a cornerstone of coastal management."

Professor Terry Healy, University of Waikato



Coastal & Storm Hazards Workshop

At the workshop in March 2002 NIWA scientists presented data on the effects of global warming and the likely changes over the next 100 years. Rising sea levels are predicted, caused by increase in volume of ocean water because of thermal expansion and melting of glaciers and icecaps. Website: www.niwa.co.nz/rc/prog/chaz/news/hazard
[Source: "Coast Care BOP News" Issue 6, winter 2002]

Wellington Region Queen Elizabeth Park Dune Plots



**Foredune trials,
Whareroa Stream
mouth, Queen Elizabeth
Park, October 2002.**

Queen Elizabeth Park, north of Paekakariki on the Kapiti Coast, is a recreational regional park. The coastal vegetation has been greatly modified by fire, grazing and other human impacts. Large areas of dunes are covered by introduced plants, and it will be a challenge and a risk to dune stability to remove the weeds from some sites where they make up the bulk of the plant cover. The strategy is to replant native plants into those areas where weeds make up the bulk of the ground cover.

CDVN Trials

As part of the suite of trials being established by the CDVN in many regions, the Wellington Regional Council, in collaboration with the local community and Forest Research, have recently established three trials at Queen Elizabeth Park. One site is located on the foredune, and there are two backdune trials sites. The Foredune trial focusses on the use of sand-binders, whereas the backdune trials test common plant species that will be used at the weed restoration site.

Foredune trial: Pingao and spinifex have been planted into fenced and unfenced sites (see photo), with half of the plants receiving slow nitrogen release fertiliser at the time of planting. The fencing is to stop damage from rabbits and humans.

Backdune trials: Taupata and flax were planted into a pohuehue/blackberry dominated site on the backdune along the coastal track. Two treatments being tested are plant size at the time of planting (small and large seedlings) and releasing method. Half of the plants were surrounded with weedmat (a commercial, circular felt pad) and the other half of the plants will be weeded in spring and autumn.

A further backdune trial used cabbage trees and manuka planted into blackberry/grassland on the inland track. The same treatments, layout and spacings were used as for the taupata/flax trial.

*Philippa Crisp, Wellington Regional Council
email: Philippa.Crisp@wrc.govt.nz
David Bergin, Forest Research*

CoastCare Vegetation Summary

Coastal Area Park Rangers, Christchurch City Council

- A slow recovery is underway after some destructive storm waves cut into the face of Pegasus Bay dunes during the Easter break. Sand fences and vegetation were removed and debris was washed up into carparks. The fences are being reinstated now that the sand levels have started to build up again.
- Iceplant (*Disphyma australe*) has been used to stabilise significant areas of open sand on the dunes. This labour-intensive job has been carried out successfully with the help of inmates from Paparua prison. Unfortunately considerable areas of pingao were lost in the storms and this year's plantings have barely replaced what was lost.
- Eight sites in the North Beach to New Brighton area will be undergoing a programme of dune contouring. Two of the eight sites will be used to trial plants which are difficult to establish such as *Coprosma acerosa*, *Muehlenbeckia astonii*, *Muehlenbeckia complexa*, and *Euphorbia glauca*. Dr David Bergin will be working on these trials with Coastcare ranger, Jason Roberts.
- Successful Arbor Day plantings were carried out with local schools from North and South Brighton. North Brighton School has adopted a local park near the beach and planted native species as part of the new landscape plan there. South Brighton School added to the coastal plants already established around a car parking area next to the dunes. They first started work on this project four years ago.
- Christchurch City Council nursery manager, Joe Cartman, is sourcing spinifex seed from a DoC reserve in Blenheim for future plantings at Taylors Mistake and in Pegasus Bay. The spinifex plants already established at Taylors Mistake were also sourced from the Blenheim area.

Abi Wightman, Christchurch City Council



Sand fence experience

Christchurch City Council have been using sand fences effectively in Christchurch for over seven years now. They have developed considerable experience in using and managing these simple but effective sand management tools. Rodney Chambers, Coastal Area Head Ranger, would be happy to assist and advise in anyway possible if organisations or individuals are considering using sand fencing. He also offers to comment on whether sand fences are suitable for specific sites.

Contact:

Rodney Chambers

Regional Parks Team

Parks and Waterways Unit

Christchurch City Council

email: Rodney.Chambers@ccc.govt.nz

COAST CARE IN THE BAY OF PLENTY

Sand dunes on the Mount Maunganui Main Beach started to disappear after the Oceanside Hotel was opened in the 1930's. Why? Well, it seems that all the extra feet walking to the beach from one central point simply destroyed the native dune plants, and subsequent wind erosion started removing the sand. Bulldozers finished off the dunes in the 1950's in response to demand from residents for better views. Kikuyu and introduced ice plant were used as a road-side surface layer on the sand, but as you can see from Photo 1, sand simply blows over the top during storms, and blocks Marine Parade.



Photo 1: Marine Parade, at Mt Maunganui Main Beach, before current beach plantings.

In June this year, in the true spirit of partnership, 44 community volunteers working in association with the Coast Care BOP programme, planted 2,000 high quality native sand binding species in the area most at risk from wind erosion (Photo 2). In 12 months time, these plants should be tall enough to effectively trap and retain sand on the beach in the front-dune. The "Weather Bomb" that arrived eight days after planting provided a strong test for these plants, but we are happy to report that all the plants that look distressed in Photo 3 are now about 100cm high, and flourishing.

Simon Smale, Landscape Architect for DOC, had this to say about planting on the Main Beach at "the Mount":

"All of us have childhood memories of largely natural environments that we took for granted then, but have now just about disappeared. And we are usually resigned to not seeing their like again. Who would have dared to hope, even 10 years ago, that we might again see our Bay of Plenty beaches backed by the rich colours of pingao and the great diversity of native vegetation that characterised them when I was growing up? Certainly not me. But not only has the CoastCare programme seen the effective restoration of ever-increasing stretches of coastal duneland here, it has now moved into that toughest of restoration environments - the urban beach. CoastCare's successful duneland revegetation work at the Mount Beach shows that with careful planning and design, our distinctively New

Zealand dune vegetation can again flourish even in some of our most intensively-used coastal environments. Science tells us that our indigenous dune plants have distinct advantages over most of the introduced substitutes when used for buffering and protecting our shorelines from the ravages of winter storms. But I think that for most of us as Kiwis there is a deep satisfaction, whatever the science and the facts, in simply seeing the return to our shores of the sort of vegetation that for us is a signature of home."

Greg Jenks, Environment Bay of Plenty



Photo 2: Mt Maunganui Main Beach, planting day.



Photo 3: Mt Maunganui Main Beach, during the "Weather Bomb", 8 days after planting.

SPINIFEX – SOME DOS AND DON'TS WITH SEED COLLECTION

Spinifex has separate male and female plants

Spinifex is dioecious, i.e. male and female flowers are borne on separate plants usually forming colonies of equal size. The male plant produces pale brown, wheat-like flowers about 5 cm long on short branches. These produce pollen but never any seed. The female plant produces flowers that develop into large, softly-spiny, round seedheads about 20-30 cm in diameter. The seedhead is commonly a single terminal head but second or third heads may develop on one stem. The head contains many spikelets, each with a spine 10-15 cm long. Not all spikelets contain formed seed. The seedhead becomes detached from the plant and the spines are an aid to its wind dispersal along the beach.

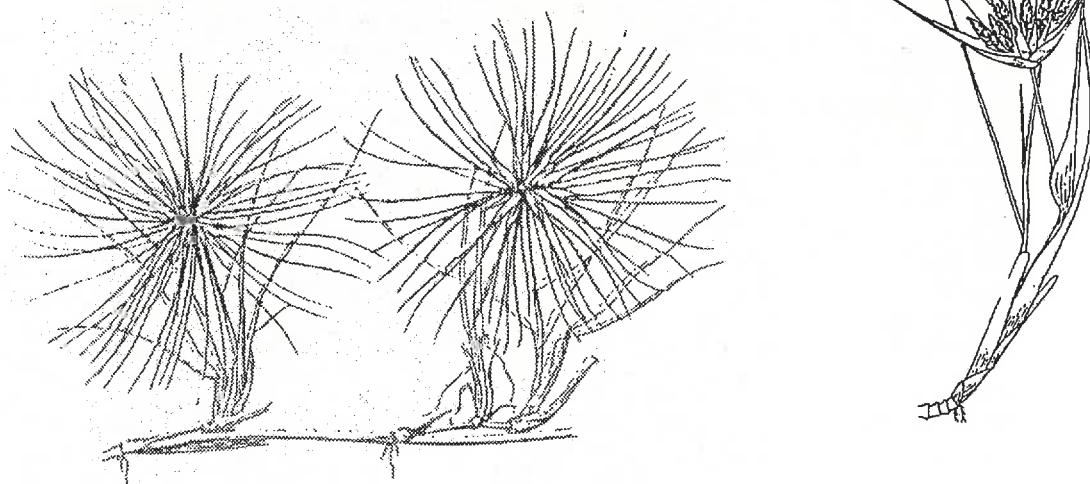
Some seedheads are not worth collecting

Both male and female flowers can become infected by a floral smut fungus, *Ustilago spinificis*. High infection rates (up to 20% of plants in a community) have been found in both Australia and New Zealand. The appearance of the diseased female flower is strikingly different from normal as infected spikelets have a swelling 1.5-4 cm above the base of each spine. Most seeds in the infected seedheads are destroyed, and these should not be collected.

Collect the big seedheads from female plants close to male plants

Initial results from a survey of spinifex along the Bay of Plenty coast indicate that seedheads collected from female plants with a male plant close by may produce more seed. Research also indicates that bigger seedheads have a greater proportion of sound seed, so try to avoid small seedheads when collecting.

Diagram 1: *Spinifex* female flowers (left) and male flowers (right) are borne on separate plants. The seedhead develops from female flowers. (from McDonald 1983¹).



¹ McDonald, T J. 1983. Life cycle studies on sand spinifex grass (*Spinifex hirsutus*). Pp 75-95 in Beach Protection Authority of Queensland. Dune Stabilisation and Management Research Programme. Report Number D 02.12.

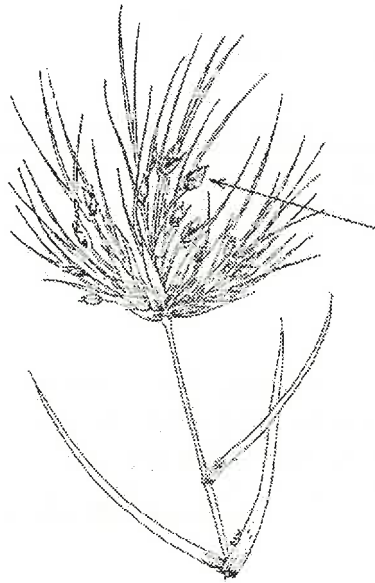


Diagram 2: A female flower head of spinifex infected with the floral smut *Ustiago spinificis*. The presence of the smut is easily recognised by the presence of swellings with black spore masses (arrowed) part way along each spine. Infected seedheads do not contain viable seed and should not be collected.

(Illustration: Dale Williams, specimen NZFRI 17200, Forest Research Herbarium.)

How to test for viable seed

The proportion of formed seed in a seedhead can be assessed at the collection site by splitting the seedhead and feeling the base of the spines for swollen seed. An alternative but destructive method involves cutting the base of the spines with scissors to reveal the white-cream coloured endosperm present in a formed seed. If several formed seeds are found in several seedheads, it is likely that other seedheads collected in the vicinity will also contain viable seed and that collection will be worthwhile. Repeated testing may be advisable if large quantities of seedheads are being collected over a large area.

Storage of seed

Place seedheads in large hessian sacks or paper bags and keep them in a cool place until just before sowing. They should not be left in plastic bags as they will sweat and eventually rot.

David Bergin, Forest Research



CDVN Annual Awards 2002/2003

As mentioned in November 2001 Newsletter, **New Plymouth District Council** was the inaugural recipient of the **CDVN Best Coastal Project Award**. The Council received the award for their work restoring dunes at Oakura and East Beach. This was sponsored by **Naturally Native New Zealand Plants Ltd** and was presented on the last day of the CDVN Conference in Palmerston North.

The **CDVN Best Coastal Community Group Award**, sponsored by **Taupo Native Plant Nursery** was presented to **Te Kaha Coast Care Group**, who were recognised for their work in revegetating coastal dunes over a 50 km stretch of the eastern Bay of Plenty coastline. Greg Jenks (Environment BOP) accepted this award on their behalf at the Palmerston North conference.

It is wonderful to acknowledge the enthusiasm, dedication and hard work of the recipients, and they are great examples to the rest of us. We hope the annual awards will help our members to keep up their energy and enthusiasm for coastal restoration projects.



Call for Nominations

The same two nurseries have offered to sponsor these awards again this year, and we are calling for nominations for:

CDVN Best Coastal Project 2002/2003 and **CDVN Best Coastal Community Group 2002/2003**

For each award the selected group receives plant vouchers and there is a trophy for the Best Coastal Project.

**Please post, fax or email your nominations to
Greg Steward, CDVN Secretary, by 21 January 2003.**

There are nomination forms at the back of this newsletter. Include a short statement about successful or enthusiastic dune restoration achieved by a community group in your area, or the project that you consider is making a difference to your coastal dunes.

Coasts and Ports

Australasian Conference

9-12 September 2003, Hyatt Hotel, Auckland

**16th Australasian Coastal and Ocean Engineering Conference
and 9th Australasian Port and Harbour Conference**

Theme: "Coastal Development - A Quest for Excellence"

A unique forum that brings together all groups and professionals to discuss key issues in coastal and port management and the interface between human activity and coastal processes. Web Site: www.coastsandports.co.nz

Call for abstracts:

Issues include:

- **Models for 'good' coastal development**
- **Change in port infrastructure and efficiency**
- **The cost of regulation and compliance**
- **Managing conservation and development**
- **Assessing the impacts of coastal structures on the natural system**
- **Changes in science and technology in modelling and monitoring coastal change**

Papers on these or any other coasts and ports issues are welcomed.

Abstract deadline: 28 February 2003

Contact: Conference Managers, coastsandports@tcc.co.nz for information on form of abstracts and further Conference details.

Coast to Coast 2002 - 'Source to Sea'

Australia's National Coastal Conference was held 4-8 November 2002, covering seven themes ranging from institutional arrangements, public versus private good, effluents, contaminants and coastal water management, to climate change and coastal stability.

Their clear, well-organised website summarises Themes, Issues and Actions, and has most papers of the Proceedings now available.

Web site: www.coastal.crc.org.au/coast2coast2002/

Technical Bulletin Sales

All four CDVN Technical Bulletins are available from Forest Research at a cost of \$16.65 each (GST, p & p inclusive).

Orders to: Publications
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CDVN Website

Our website is at **www.forestresearch.com** (formerly at www.forestresearch.co.nz/cdvn)
The CDVN pages can be found under **Research → Cooperatives → CDVN** or
Research → Sustainable Forestry → CDVN

We are delighted to report that since the recent Forest Research website upgrade earlier this year, the CDVN section has been by far the most popular. We hope that this means that our members and others around the world are finding it a valuable source of information. The site will be updated shortly.

Hard copies of all minutes, project workplans, update sheets and final reports are sent to all financial members. Collaborative members can access the information on our website.

"Dune enhancement - the smart method of coastal environmental protection."

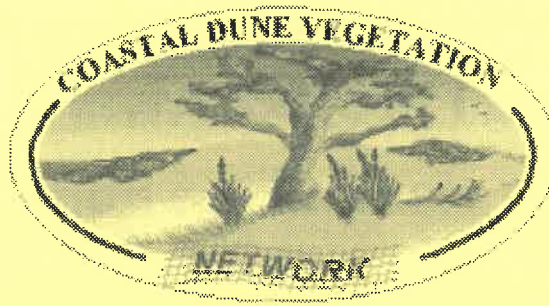
Professor Terry Healy, University of Waikato



Newsletter editing and production: Elizabeth Miller

Forest Research CDVN Team: David Bergin, Diana Gainsford (on leave), Greg Steward (Secretary), Elizabeth Miller (Acting Network Coordinator).

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david.bergin@forestresearch.co.nz
greg.steward@forestresearch.co.nz



CDVN Best Coastal Project Award 2002-2003 Nomination Form

- **Why** - to recognise and encourage the hard work and enthusiasm of those involved in projects that contribute to the restoration of coastal dune vegetation.
- **Who can nominate** - typically managing agencies of coastal areas and consultants who know of or are involved with projects in their area.
- **Who can be nominated** - any organisation responsible for planning and carrying out a coastal dune vegetation project.
- **When** - please return this nomination form by 21 January 2003. This Award will be presented at the CDVN Annual Meeting in February 2003.
- **Selection** - will be made in early February 2003 by the CDVN Coordinating Committee.

Sponsor

**Mark Dean from
Naturally Native
New Zealand
Plants Ltd.**
has kindly offered to
again sponsor this
Award.

Please return this form by 21 January 2003
to
**Greg Steward, Forest Research, Private
Bag 3020, Rotorua**
greg.steward@forestresearch.co.nz

CDVN
Best Coastal Project Award 2002-2003

Nomination Form

Your name

Your organisation

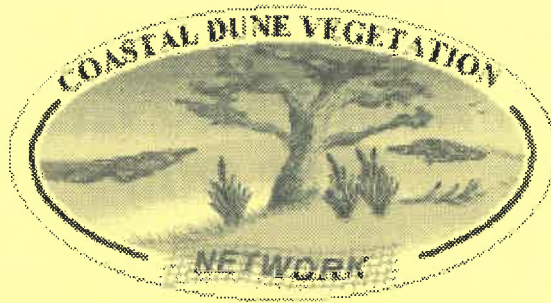
Your nomination

Their location

Assessment Criteria

Explain how the project has restored, protected, enhanced or raised public awareness about coastal dune vegetation. What practical contribution has the project made?

Please provide a short description of the project and its benefits for coastal vegetation in the project area. You may attach extra supporting information (such as diagrams or photos).



Coastal Community Group Award 2002-2003

- **Why** - to recognise and encourage voluntary coastal community groups that contribute to the restoration of coastal dune vegetation.
- **Who can nominate** - typically managing agencies of coastal areas and consultants who can see the high input a community group has made in their area.
- **Who can be nominated** - any voluntary, non-profit community group that provides a valuable in-kind contribution.
- **When** - please return this nomination form by 21 January 2003. This Award will be presented at the CDVN Annual Meeting in February 2003.
- **Selection** - will be made in early February 2003 by the CDVN Coordinating Committee.

Sponsor

Phillip Smith from Taupo Native Plant Nursery
has kindly offered to again sponsor this Award.

Please return this form by 21 January 2003
to
Greg Steward, Forest Research, Private Bag 3020, Rotorua
greg.steward@forestresearch.co.nz

CDVN
Coastal Community Group Award
2002-2003

Nomination Form

Your name

Your organisation

Your nomination

Their location

Assessment Criteria

Explain how the group has restored, protected, enhanced or raised public awareness about coastal dune vegetation. What practical contribution have they made? Please provide a short description about the in-kind contribution and/or any contribution the group has been involved with. You may attach extra supporting information (such as diagrams or photos).