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## CDVN Newsletter No 8, November 2001

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I have recently returned from a month in New South Wales and was lucky enough to spend a lot of that time enjoying a variety of beaches. On many it was great to see the active efforts of Dune Care groups who aim to establish self-sustaining plant associations that safeguard dune structure while ensuring adequate public access to the beach. Dune Care exists in NSW and Queensland and is funded by Coastcare. The Commonwealth, State and Territory Governments of Australia provide matching funding for Coastcare community grants while Local Government provides financial and in-kind support for Coastcare projects. The 11<sup>th</sup> NSW Coastal Management Conference is being held this November in Newcastle and I'm pleased to hear some CDVN members will be attending and expanding worthwhile networking opportunities.

### Happenings back in New Zealand

The CDVN Coordinating Committee met in Taupo this month. Some of the important issues discussed were:

- CDVN Conference in Palmerston North, February 2002. The conference is looking great with an excellent programme proposed by horizons.mw and Patrick Hesp from Massey University. This was presented and approved at the meeting.
- Results of voting conducted for new projects in August. The CDVN will fund the following research projects in 2001/2002:
  - § Ongoing project
    - Restoration of Difficult Sites (completion date - 2004)
  - § New projects
    - Restoration of Indigenous Plant Communities on Backdunes
    - Propagation and establishment of *Euphorbia glauca*
    - Control of Rabbits/Hares on Sand Dunes
- Discussion on the research prioritisation voting system used by the CDVN.
- Update and discussion of the Difficult Sites trials.
- Format for future CDVN project reports.
- Discussion about CDVN membership levels.

CDVN membership and recognition throughout the community continues to grow with new Collaborative Members being added each week. Since the last newsletter in May, I would like to welcome Whangarei District Council as a Full Financial Member and Lyle Mason from Southland as an Ordinary Financial Member.

This newsletter provides the opportunity for the exchange of information and ideas among all Network members. Thank you to those who have contributed - we always welcome any material that you would like to have included. We would be grateful if you could keep the CDVN Secretary (Greg Steward) up to date with any mailing list changes.

I hope the busy planting season went well for all involved. You can now spend some relaxing time on our beautiful beaches over this summer. Have a great, happy and safe Christmas and we'll see you in Palmerston North next February.

*Diana Gainsford, CDVN Coordinator*



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**Greetings, everyone:**

I hope you all had a successful planting season over the last few months. Many, many...many thousands of dune plants went in at working bees I attended! In many of the areas I'm involved with the focus is now on education programmes aimed at the masses as they descend onto our beaches over Christmas. No rest for the....?!

The CDVN has reached a stage where we have solved many of the problems that were identified when the network began. For example - how can we grow and plant native sand binding plants? At times it has been an arduous journey - but we now have three bulletins on the main sand binders and the plants are readily available from commercial and other sources.

The financial members have now identified that it is time to "look over the crest of the dune". Over the next few years we will be initiating research projects which will investigate the restoration and protection of backdune vegetation. This will be a slow process. One that we all need to contribute to. If we do, in five more years we may be able to start showing off our first "Back dune vegetation bulletin". I'm looking forward to the challenge!

Hope to see you at the February AGM in Palmerston North (details elsewhere in the newsletter) if not at a beach somewhere before then!

Regards

**Harley Spence, CDVN Chair**

## Coastal Management Conferences

- ◆ 11<sup>th</sup> NSW Coastal Management Conference  
Newcastle, 13-16 Nov 2001  
'Making Waves' - Exposing Gaps & Exploring Solutions

Conference website:  
[www.pco.com.au/coastal](http://www.pco.com.au/coastal)

- ◆ The 7<sup>th</sup> International Coastal Symposium  
Northern Ireland, 25-29 Mar 2002

For more information:  
[www.science.ulst.ac.uk/ics2002/](http://www.science.ulst.ac.uk/ics2002/)

Thanks to the two nurseries that provide us with such excellent support, we now have the: -

## CDVN ANNUAL AWARDS

At the last Committee meeting Mark Dean (**Naturally Native New Zealand Plants Ltd**) put forward the great suggestion of an annual CDVN Award for the best coastal project initiated during the year, sponsored by his company.

Many members are familiar with the successful work done by the New Plymouth District Council in restoring the dune systems at Oakura and East Beach. The Committee was pleased to recognise this and announce that **New Plymouth District Council** will be the inaugural recipient of the **CDVN Best Coastal Project for 2001/2002** (see photos of Oakura elsewhere in this newsletter).

An award is also to be presented to the best coastal community group, to be nominated by their hosting regional or local authority. Philip Smith (**Taupo Native Plant Nursery**) has offered to sponsor this award. The 2001/2002 awards will be presented at the annual conference dinner.

We are now calling for nominations from local and regional authorities for the Best Coastal Community Group Award.

Please post, fax or email your nominations to Greg Steward. Include a short statement about the successful or enthusiastic dune restoration achieved by a community group in your area.

## CDVN ANNUAL MEETING AND FIELD TRIP PALMERSTON NORTH, 2002

The next CDVN Conference is to be hosted by horizons.mw (Manawatu-Wanganui Regional Council) with organisational assistance from Patrick Hesp, Massey University; Grant Douglas, AgResearch Ltd; Pat McCarthy, Ernslaw One Ltd and the team at Forest Research.

We have an excellent venue organised for the technical sessions. There is a wide range of accommodation and restaurants within walking distance. Over the two and a half days there will be ample opportunity for discussion and networking. The field trip will involve a whole day of demonstration of interesting and worthwhile activities along the Manawatu coast.

A post-conference optional weekend trip to Castlepoint is being organised.

### **Conference Theme: *The Wild West Coast***

**Dates:** Wednesday 13<sup>th</sup> - Friday 15<sup>th</sup> February, 2002

**Venue:** Science Centre, Palmerston North

**Accommodation:** There is a range of motels within walking distance of the venue. A list of these with approximate prices will be included in the registration pack.

### **Tentative Programme:**

#### ***Day 1: Science Centre***

9am - 5pm (lunch, morning and afternoon tea provided, as well as cocktails after 5pm)

Talks will include;

- an overview of the Manawatu coast (evolution, dynamics, management issues, sand forestry, trials – present and future)
- an update and discussion on other west coast trials in New Zealand
- a regional round-up by managing agencies on activities in their coastal area.

#### ***Day 2: Field Trip - Manawatu Coast***

All day (lunch provided), visit to;

- remnant coastal dune forests
- sand forestry areas

- areas of rare coastal vegetation
- areas of dune progradation
- active blowouts and parabolic dunes
- areas with management problems and solutions, i.e., vehicle impact, weed invasion, dune reshaping

The Conference Dinner (own cost, band included), will be at the Loaded Hog Restaurant, which is within walking distance of many motels.

#### ***Day 3: Science Centre***

Half day from 9am (morning tea provided)

AGM followed by discussion about CDVN trials, direction of CDVN and any other major issues.

Optional field trip to Castlepoint (Wairarapa east coast) Friday afternoon to Sunday evening.

- rare and endangered coastal plants
- spectacular scenery
- great surf
- lodge-style accommodation and mini-van transport available

Finalised details about the meeting, field trip and optional weekend will be sent out with the registration pack in November.

Note: Cost has not been finalised but will be less than \$80 per person for the 2-½ day meeting or any part thereof. It will include the field trip, but not the optional trip to Castlepoint or the Conference Dinner.

If you wish to contribute ideas, or would like further information about the meeting, venue or accommodation, please contact:

Lachie Grant, horizons.mw

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Ph. (06) 350 5799 ext. 2499

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## UPDATE ON ONGOING RESEARCH TRIALS

### **Santoft Beach, Rangitikei (FR 360/1)**

This trial is due to be assessed for vegetation growth and sand movement at the beginning of November. Experimental fertiliser treatments are being applied this month.

It is now over two years since trial establishment and marram and spinifex are both continuing to grow well. In May the average height of plants of both species had increased by 15-20 cm since November 1999. Extension of spinifex runners was 22 cm over the same period. Nitrogen fertilisers are producing marram growth patterns similar to those obtained under current operational practice undertaken by Ernslaw One Ltd.

Marram is starting to dominate, and results suggest that two rows of spinifex seedlings to one row of marram may be a more appropriate pattern than alternate rows of each species.

Results from this trial will be highlighted at the CDVN 2002 Conference in Palmerston North.

### **Oakura Beach, New Plymouth (FR 360/2)**

Paul Jamieson and Ken Schischka, New Plymouth District Council, presented an excellent overview at the recent CDVN committee meeting in Taupo of the progress of the very successful revegetation of the reshaped dune undertaken at Oakura Beach in July 2000. Spinifex with some pingao planted at 50 and 70 cm spacing formed a dense sward of vegetation within 6 months of planting. Seedlings were planted with slow release fertiliser and there have been spring and autumn broadcast applications of urea at 50 kg/ha. A late winter storm has taken up to 3 m from the toe of the dune particularly from one end of the trial but spinifex plants are trailing over the small scarp and dune repair is occurring naturally. In comparison, the unshaped kikuyu-dominated dune immediately adjacent to the trial has sustained significant damage from the same storm. A crucial part of the maintenance of the trial site undertaken by the New Plymouth District Council has been keeping the reshaped dune free of kikuyu and other vigorous exotic species to ensure it stays as a zone dominated by indigenous sand binders. This is most effectively achieved by careful knapsack spraying weeds before they dominate the site avoiding spray drift onto spinifex and pingao.

Although at an early stage, the Oakura trial has demonstrated that reclamation of dunes, even on a relatively exposed coastline is possible. It has prompted the reshaping of a section of East Beach within New Plymouth, followed by dense planting of spinifex and pingao. This is in contrast to the armouring of this beach to the south that has been undertaken along much of the New Plymouth waterfront.



An essential requirement of newly planted dunes is the maintenance of the sand-binding zone dominated by spinifex and other native sand binders. For the reshaped dune at Oakura, this has involved spraying of kikuyu by the New Plymouth District Council along the back fence to prevent reinvasion from the rear dune areas (*photograph, above*). Careful spot spraying of any kikuyu and other invasive weeds amongst the planted spinifex on the dune was also undertaken during the early establishment phase before a dense cover of spinifex was established.



Above is a view of the reshaped dune at Oakura that had been planted with spinifex and some pingao at 50 and 70cm spacings 15 months ago. The densely vegetated reshaped and planted dune has successfully buffered the coast from a recent westerly storm where up to 3 m of the dune toe had been damaged. Spinifex runners draped over the scarp are now actively trapping sand at the toe providing an excellent example of natural dune repair in progress. In contrast, the adjacent coastline that remained as a kikuyu-dominated scarp has suffered considerable damage during the storm and loss of the vegetated dune.

### **Bethells Beach (Te Henga), Auckland (FR 360/3)**

As part of the difficult sites trials on exposed beaches, a spinifex planting and seed sowing trial established in September 2000 on mostly bare sand areas on dunes at Te Henga, west of Auckland was fully assessed one month ago. This is a collaborative CDVN trial with the local Te Henga Beach Care group, Auckland Regional Council and Waitakere City Council building on their previous work in establishing sand-binding plants at Te Henga.

One year after establishment, Site 2 located just inland of the frontal dune has had excellent survival and growth of planted spinifex where slow release fertiliser has been incorporated into the planting hole. Although we have proved the benefits of using slow release fertiliser at planting on the less exposed east coast sites, this is the first time we have been able to prove the beneficial effects of fertiliser application at planting on exposed west coast dunes sites of the North Island. In comparison, non-fertilised groups had poor growth and high mortality especially where there has been large accumulations of sand. Seed sowing spots invariably have failed with only a handful of small seedlings recorded from the hundreds of seeds sown. The most seaward trial site has suffered from at least 75 cm of sand accumulation with no survival of plants from seed and less than 50% survival of planted seedlings one year after the trial was established. Plant vigour has been compromised to some extent by breaches of the rabbit fence due to the large degree of sand

movement. Within Site 4, nursery raised plants with fertiliser have established successfully on the lee slope of sand fences.

Rabbits are still a major problem throughout the dune system at Te Henga, severely browsing both pingao and spinifex that are not adequately fenced. Planning is under way for extending trials and in particular evaluating a range of sand fencing and planting pattern options with the help of other CDVN members. Please contact David Bergin, Ngaire Sullivan (Auckland Regional Council) or Chris Ferkins (Waitakere City Council) with your ideas or suggestions for these ongoing trials on difficult sites.

### **Christchurch trials (FR 360/4)**

Jason Roberts of the Christchurch City Council Coast Care Unit reports that planting of several reshaped dune areas has been completed this season with ice plant on fronts of dunes and a range of native species planted on back slopes. Native species planted on exposed dunes include *Austrofestuca littoralis*, *Euphorbia glauca*, *Muehlenbeckia* species. Assessment of earlier planting trials is planned for next month. An update of most successful species and methods for establishing on recently reshaped dunes (bare sand) and for establishing natives amongst dense marram grass that are used by the Coast Care Unit over the last few years will be documented and presented at the next CDVN conference in February.

## **REMEMBER**

- **CDVN Technical Bulletins**

No. 1-3 Pingao, Spinifex, Sand Tussock (Guidelines for seed collection, propagation, establishment on coastal sand dunes)

No. 4 Coastal Sand Dunes (Form and Function)

Can be obtained at NZ \$16.65 per copy (GST, p&p inclusive) from:

Publications

Forest Research

Private Bag 3020, Rotorua

Email: [publications@forestresearch.co.nz](mailto:publications@forestresearch.co.nz)

Telephone: +64 7 343 5899

- **CDVN Web Site**

At [www.forestresearch.co.nz/cdvn](http://www.forestresearch.co.nz/cdvn)

An overview of the CDVN, our mission, what we do and how we operate.

Includes information on membership, events (past and present), back issues of the CDVN newsletter (From No.1 Dec 1997), the latest progress reports on our research projects, many references to other work on sand dune management and links to information about other coastal organisations.

Comments, ideas and suggestions are always welcome. If you would like to have your web site linked in, please let us know your details.

## New CDVN Research Projects

The following three research projects received the greatest number of votes from CDVN Financial Members:

### **Restoration of Indigenous Plant Communities (Back Dunes)**

For this project, "back dunes" are defined as the partially stabilised dunes lying immediately landward of the sand-binding zone, ie. the seaward face of the current foredune.

Some *Forest Research* trials and management at Whitianga and Christchurch are now 5 years old. These trials have already shown which species grow best in back dune areas. Many groundcover, shrub and tree species are successful in this habitat, including pohuehue, tauhinu and coastal five-finger. The trials will be re-assessed and new trials will be established in North and South Island sites. Set-up treatments will include planting patterns, species mixtures, fertiliser treatments, shelter and weed control. A major objective of the study is the promotion of growth and regeneration of locally native species. This will minimise the cost of planting and maintenance.

### **Euphorbia glauca (sand spurge)**

This sand binding species was once widespread throughout the country but is now limited to scattered

isolated pockets. It is a rhizomatous herb with erect stems that grow up to 1 m high.

The first step will be collation of all known information on historic and present distribution, propagation and plantings already undertaken. Trial sites will then be planted with a view to the development of guidelines on appropriate methods for establishment and long term management of the species.

### **Control of Rabbits and Hares**

Browsing by rabbits and hares is one of the greatest threats to establishment and restoration of vegetation on most of the sand dunes in New Zealand.

As a considerable amount of information on rabbit/hare control already exists, the initial aim of this project will be to collate details about successful control methods and operations and disseminate these throughout the Network.

If areas of concern or gaps in our knowledge are identified, research or demonstration trials may be set up in representative foredune and backdune areas.

## MEMBERSHIP

The following alterations to the levels of CDVN membership will come into effect on 1 July, 2002.

- The Ordinary Financial Member level (small corporate bodies, consultants, etc.) will be removed.
- All councils, large corporate bodies and government departments must become either Full Financial Members (\$3000 annual membership fee) or Collaborative Members.
- All small corporate bodies, consultants etc will be asked to make a voluntary annual donation of \$200.
- All other Collaborative Members will be asked to make a voluntary annual donation of \$20.

Only Financial Members will have voting rights allowing them to direct the function of the Network and to prioritise research topics.

# REPORT FORMAT

The reporting of research trial results to Network members must be efficient and consistent. In future, 'update sheets' will be produced instead of lengthy repetitive interim reports and final results will be summarised in 'information/fact sheets' and posters.

Each project will have the following documentation:

## **Year 1**                      Workplan

The workplan contains the following information and will be open to comment by financial members before the work begins.

- literature review
- introduction
- objectives
- timetable
- treatments
- trial design

## Establishment Report

- produced once the trials are in place
- objectives with any necessary modifications
- materials and methods used
- results from any initial assessment
- discussion

## **Year 2 +**                      Update Sheets

- produced annually until the project is completed. The format will allow collation of successive reports into a project manual.
- results presented clearly in the form of tables and diagrams with a minimum of technical jargon.

## Completed Project

- a comprehensive final report based on results
- where appropriate, a technical paper published in a scientific journal
- one or more information 'fact' sheets (1-2 page leaflet summarising information that can be easily disseminated to all members and as a handout at conferences).
- poster
- technical bulletin (for one or a combination of projects)

# Global Perspectives on Coastal Zone Management

During 2001 I spent 3 months travelling to America, the United Kingdom and Australia on a Winston Churchill Memorial scholarship, visiting with coastal management agencies, scientists, consultants and community groups to look at different techniques and strategies used to look after the coastal zone. On my return I completed a full report on recommendations for New Zealand for my sponsors, and have given a number of presentations.

## East Coast of United States of America

There are a wide range of coastal management issues to contend with over a vast geographical area. Prior to 1988, hard structural coastal defence measures were used to control erosion (such as seawalls); this had generally led to a loss of the natural beach environment but protection of the infrastructure behind. There is a definite move now towards the use of soft structural coastal defence measures and bioengineering, including beach renourishment and revegetation.

Due to the huge investment in both public infrastructure and private development along the east coast which is subject to severe erosion as a result of hurricanes and wave action, The United States Government has invested millions of US dollars into coastal defence projects.

The biggest concerns for people involved in managing the coastal zone are population pressures, sea level rise and sustainability of sand supply for renourishment projects. Techniques to improve the beaches for tourism, such as mechanical beach cleaning, were being used methodically along the coast and having a long term negative effect on beach and dune development.

## United Kingdom

The UK has a long history of coastal management where coastal defence work was carried out in response to local erosion issues with little consideration to the effects of this work on the natural coastal processes taking place in each location and further along the coast. Today with major financial investment along the coast the Governments have recognised the need for better planning and have been instrumental in implementing measures to support this. UK coastal zone management is guided by the European Union legislation which is currently focused on protection of habitats and species.

The UK has been divided into management 'cells' based on natural coastal processes which

cross over administrative boundaries and a Coastal Forum has been set up for each 'cell' to assist with management of that area. This appears to be extremely effective, and allows communication and co-operation between interested parties to encourage good management practices. These Forums provide a voluntary partnership approach to the long term protection and preservation of the coast and are made up of business and industry representatives, voluntary organisations, community members and government agencies.

Concerns in the UK include coastal squeeze, where structures are introduced to an environment and the coastal processes are unable to adjust naturally, as well as sea level rise and the impact of humans on habitats. Techniques being used in the UK include managed realignment of seawalls to allow the natural environment to become restored, beach renourishment, and development of research partnerships.

## Gold Coast, Australia

Australia has been proactive in recent years towards recognizing the need for effective coastal zone management. In Queensland, 85% of residents live in the coastal zone, and this creates intense pressures on the natural coastal environment.

In Australia the Coastcare programme encompasses the entire coastal zone, including marine projects, coral reefs, salt marsh areas, wetlands and, of course, sand dunes. Coastcare groups apply for funding on a yearly basis and they use this money to undertake projects around the coast. There are co-ordinators who assist the groups with writing application forms and managing



Example of Coastcare revegetation project in Australia



the funds. The Coastcare programme is now looking at devolved funding, similar to the Bay of Plenty model, as a way of streamlining the process and ensuring that the community groups spend their time undertaking work they want to be involved with rather than filling out forms!

A number of recommendations have been made as to strategies and techniques which can be implemented or supported in New Zealand, particularly in the Bay of Plenty. There needs to be a commitment of time and resources for long term implementation of these to ensure they are effective.

We are extremely privileged to inherit what has been generally effective coastal planning in the Bay of Plenty. It is now up to us to ensure we protect and preserve

what we have by undertaking sustainable management of the coastal zone.

I would like to thank my sponsors for all their assistance, without which this research would have been impossible: Environment B.O.P, Tauranga District Council, Department of Conservation (Bay of Plenty Conservancy), NZ Coastal Society, Professor Terry Healy (University of Waikato), School of Environmental and Marine Science (University of Auckland), Papamoa Beach Holiday Resort, Design Mobel, Zonta Club Tauranga, Papamoa Lions Club, Altrusa Mount Maunganui.

**Lucy Brake**

**Congratulations Lucy on having been awarded a Winston Churchill Memorial Scholarship, a very prestigious award, for travel to study models, practices and strategies used in sustainable coastal management. Many thanks for providing this article. The experience I'm sure has benefited yourself and through your recommendations, coastal management agencies both in New Zealand and overseas.**

**Diana**

After our post conference field trip weekend to Great Barrier Island last March, I'm sure many of you will be interested in this new publication:

## **Great Barrier Island**

Edited by Don Armitage, Foreword by Sir Peter Blake

Great Barrier Island, the largest island off the coast of New Zealand has a superb natural landscape and a high number of native plants and animals as well as numerous well-preserved historic sites.

This new guidebook describes Great Barrier Island - its history and natural features, including flora, fauna, habitats and endangered species, both terrestrial and marine.

**Publication: February 2001, 192pp, 150 colour photos and maps, 20 b/w illus.**

**RRP is \$39.95**

**Available in bookstores throughout New Zealand and Australia and at the Canterbury University Press website - [http://www.cup.canterbury.ac.nz/newtitles/cup\\_2000\\_armitage.htm](http://www.cup.canterbury.ac.nz/newtitles/cup_2000_armitage.htm)**

## Pikao\* (Pingao) *Demoschoenus spiralis*, at Tavora Reserve, East Otago.

By David Blair, Yellow-eyed Penguin Trust and Pikao Recovery Group.

\* Local Kai Tahu dialect for pingao.

Recently a group of students from the Otago Polytechnic Horticulture Course, as part of their outdoor experience, helped to plant 200 pikao plants at Tavora Reserve.

Tavora Reserve, owned and managed by the Yellow-eyed Penguin Trust, is situated on the coast about 7km east of Palmerston. The focus of this reserve is the yellow-eyed penguin, which is breeding here, in low numbers. However the Trust is very enthusiastic about enhancing the whole biodiversity of the reserve and is restoring the coastal and riparian vegetation to its previous (pre-farming) state with locally sourced plants grown in its nursery. This work has been assisted by a grant from the Otago Regional Council for fencing materials and interpretation panels as part of the Council's recognition of the importance of wetlands. The reserve is open to the public and access to the beach along the creek and wetland is indicated by a well-marked track which also extends along the cliff tops in a breathtaking circuit taking about one hour.

At the south end of the reserve, a small beach (one of the few on this coastline) will be gradually, in sections, returned to pikao. The low marram *Ammophila arenaria* dunes extending inland for 50m and about 200m along the coast are bounded by steep cliffs in the north and broken

by a creek mouth, often dammed by southerly pushed sand, in the south.

The only endemic plants to be found in the dune area, which is arid and infested by rabbits, are the cushion plant *Scelranthus biflorus*, and the sand convolvulus *Calystegia soldanella*. The herbicide Roundup with crop oil is being used to rid the dunes of marram grass. This treatment hasn't been outstandingly successful, but there is enough die-off to allow pikao to succeed. Successive herbicide treatments will be carried out after planting, with Gallant, which is selective for grasses and will leave the pikao, a sedge, untouched. It is hoped also to reintroduce sand coprosma *C. acerosa*, and sea spurge *Euphorbia glauca*, and perhaps on the headlands Cooks scurvy grass *Lepidium oleracium*. A severe storm incident recently flattened the herbicide-affected marram and deposited tonnes of seaweed that will help with fertility.

Coinciding with the dune development, the saltmarsh areas are being planted with appropriate plants such as manuka and flax, and the riparian edges are being planted with saltmarsh ribbonwoods in the lower reaches and a variety of locally sourced natives on the drier banks. Already cabbage trees, lowland ribbonwoods and kowhai are standing out and have beaten the English grasses.



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