

5. WATERWAY MANAGEMENT (EGERIA Densa ERADICATION)

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The purpose of this report is to inform the Committee about the actions taken to date and future implications for eradication of the invasive, aquatic weed species (*Egeria densa*) in the Avon River. Proposals for waterway management and sharing of costs for the eradication are discussed.

BACKGROUND

Early in April 1999 the vigilant operator of the Christchurch City Council weed harvester reported a new species of weed in Kerrs Reach. This was subsequently identified as *Egeria densa* by the Parks Unit Botanist and National Institute of Water and Atmosphere (NIWA) scientists. A subsequent underwater survey located 135 discrete areas of *E.densa* weed infestation in the Avon River between Kerrs Reach and the Avondale bridge. No other infestations have been located **to date** in adjoining waterways or elsewhere in the Canterbury Region.

This particular species is originally from South America and widespread in the North Island, around Blenheim and was recently reported as present on the West Coast of the South Island. *Egeria* was a popular aquarium plant but is now classified as a National Surveillance Plant Pest species that cannot be propagated, sold or otherwise distributed. Until this infestation was identified the Canterbury Regional Council staff considered Canterbury to be free of this species. Potentially the vigorous growth habit of this species will cause higher maintenance costs through increased harvesting required to provide a satisfactory level of service for river users and to reduce flood risk from choking of the waterways.

ACTION TAKEN TO DATE

There has been close consultation between Christchurch City Council staff, Canterbury Regional Council staff and NIWA scientists following the discovery of the *Egeria* infestation.

Canterbury Regional Council staff were responsible for inspecting other sites throughout the region to check if further *Egeria* colonies have become established.

Christchurch City Council staff as managers of the waterways within the City implemented urgent eradication measures.

The options for management of the *E.densa* infestation are limited to either total eradication, the preferred option, or the use of modified waterway management techniques to control and prevent the spread of the *Egeria* species.

It was decided that eradication was feasible and that the suction dredging technique used in Lake Wanaka would be the best method. Subsequently Down Under Services Ltd from Wanaka were employed to undertake this work.

SUCTION DREDGE SITE WORK

A two-year resource consent was granted by the Canterbury Regional Council for suction dredging from August 1999.

Site work commenced on 13 September and was completed on 7 December 1999. Work was continuous except for a two week break in mid-November.

The density of the *E.densa* infestation areas varied along the river and ranged from colonies covering 100 % of a site to individual plants. It was decided to use a total clearance approach in four separate blocks and selective clearance on the remaining areas. Overall about 1.5 kilometres (75 %) of the infected river reach was dealt with.

Progress on the suction work was slower than experience at Lake Wanaka suggested. This was due to a number of factors including: the range of plant species and their characteristics; the high silt loading on the river bed creating weight and visibility problems; tidal impact for depth and flow direction and; the single location for river access (the rowing club's boat ramp at Porritt Park). The suction dredge contractor worked diligently and most of the *Egeria* weed was removed from the targeted sites. A total of 800 cubic metres of weed were removed in the operation.

A NIWA scientist carried out underwater inspections to monitor progress of the suction work and confirm that the approach was achieving the expected outcomes.

It is important to acknowledge the cooperation received from the rowing clubs throughout the duration of the suction dredge site work. Without this assistance the work would have been more difficult and incurred a greater cost.

Summary of Costs

Total Cost (to date)	\$ 120 000
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This includes:

Suction Dredge work	\$ 82 000
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Site Support (Works Operations)	\$ 18 000
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Survey support	\$ 20 000
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FOLLOW-UP SITE WORK

It was recognised that the suction dredge could not locate and remove all the individual plants and a follow up hand weeding would be required. This was verified by the NIWA surveys monitoring the suction work.

Subsequently a local diving club has been employed to carry out two separate river sweeps (in December and January) to locate and remove isolated *Egeria* plants and regrowth. Some initial problems were encountered with correct species identification and river visibility. However the use of the local club has generally proved successful and will be continued to provide a quick response for controlling small areas.

FUTURE MANAGEMENT STRATEGY

A monitoring and review approach is planned for managing *Egeria* in Kerrs Reach in the interim.

Little is known of the long term growth pattern for *Egeria* and other aquatic plants in the Christchurch area. NIWA, in association with the City Council, are currently in the middle of a four year research project to establish growth mechanisms and appropriate management techniques for aquatic vegetation. This will provide a good basis for long term management of the *Egeria* if eradication is not successful.

IMPLICATIONS FOR LEVEL OF SERVICE

Mechanical harvesting within Kerrs Reach is necessary to maintain the agreed level of service for recreational users. Aquatic growth is prolific and depending on the weather pattern up to three full cuts are required to meet public expectations for this area.

The presence of the *Egeria* species requires harvesting to be more selective and monitored to reduce cutting at identified sites of infestation. In spite of careful operation, the elevating harvester used by the City Council does not recover all cut weed. Any weed that escapes could potentially establish further colonies. Where possible all future harvesting runs will be preceded by an underwater hand sweep of known infestation sites. This will incur additional cost and may delay cutting until clearance work is completed. In addition the harvesting boat will require steam cleaning when being transferred to another river reach to ensure all weed remnants are removed.

In addition the presence of *Egeria* means that the frequency of the regular bank clean up activity to remove accumulated floating weed needs to be increased.

COST IMPLICATIONS

Additional maintenance funding will be required for:

Follow up underwater survey work and support (at least twice annually)	\$15,000
Hand Sweep work (four times annually)	\$10,000
Extra costs on harvester operation and bank work	\$10,000
Targeted follow suction dredging if required	\$25,000

Anticipated Additional Annual cost from *Egeria* \$60,000

It is anticipated that this will need to be repeated annually for the next few years until eradication is achieved.

CRC/CCC RESPONSIBILITIES

The recent discovery of the *Egeria densa* has significant regional implications.

Under the Biosecurity Act 1993 and later amendments, responsibility for pest management within the region lies with the Regional Council.

Recreational users of the Avon River, particularly rowing clubs, frequently hold regattas at different lakes throughout the country (Lake Ruataniwha for example) and there is a strong possibility that segments of the *E.densa* plant could be accidentally transported to other locations.

The current classification of the *E.densa* as a Surveillance Plant in the Canterbury Regional Council Regional Pest Management Plan now appears inappropriate. Under this classification control costs and containment responsibilities are generally met by the land owner concerned and the strategy is aimed at preventing the propagation and further distribution of the plant. The Canterbury Regional Council involvement with the *E.densa* eradication to date has been constrained by the Surveillance classification and limited to inspections, publicity and advice.

A more appropriate classification for *E.densa* would be that of Total Control Plant. In this classification (limited to only a few species, currently about eight in number) the emphasis is on total eradication with funding and control work carried out by the Canterbury Regional Council.

All significant costs for the eradication programme to date have been met by the Christchurch City Council. Although as waterway managers it is acknowledged that the normal maintenance costs of the Kerrs Reach should be met by the city ratepayer, the regional implications of the recent *E.densa* discovery warrants a more equitable share of costs between the Christchurch City Council and Canterbury Regional Council.

The issue of how costs should be shared between the two organisations needs to be considered by this joint committee. A 50/50 cost share is suggested.

Recommendations:

1. *That the Canterbury Regional Council reclassify the E.densa species as a Total Control Plant to acknowledge its serious threat to the Canterbury region.*
2. *That the City Council reports to the Regional Council by 31 October each year its proposed E.densa eradication programme for the following financial year.*
3. *That the Canterbury Regional Council considers and approves the annual E.densa eradication programme and provides funding for 50% of the costs.*
4. *That the joint committee gives consideration to how the costs incurred to date of \$120,000 be shared by the two councils.*