Options for restoration of Cape ivy (*Senecio angulatus*) – dominated sites using native coastal species, Glinks Gully, Northland

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A FRST Envirolink funded project in collaboration with the Northland Regional Council

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ABSTRACT

Cape ivy (*Senecio angulatus*) is a vigorous weed invading steep potentially unstable Pliestocene sand sites, and backdune sites at Glinks Gully, western Northland. Options for the control of this weed and restoration using native plants were discussed during field visits and a presentation on restoration of sand dunes was given to the Glinks Gully Protection Society, in collaboration with the Northland Regional Council.

KEYWORDS: sand dunes, erosion, weeds, restoration, natives

INTRODUCTION

As part of an FRST Envirolink funded project, options for restoration of weedy dune sites using coastal native species were discussed with the local community group, the Glinks Gully Protection Society, at Glinks Gully, southwest of Dargaville, Northland, in collaboration with the Northland Regional Council. Of particular concern at Glinks Gully is the spread of Cape ivy (*Senecio angulatus*) which is dominating parts of the main gully comprising steep Pliestocene sand within the settlement and appears to be spreading. Cape ivy is also present in at least two other sites on the west coast of Northland, Chases Gorge and Bayleys Beach (Nyberg 2006).

A small number of seedlings were planted in spots that had been sprayed with herbicide within one area of dense Cape ivy located on a north-facing bank. A powerpoint presentation was given to the local community group highlighting similar dune restoration issues throughout the country including latest information from collaborative dune restoration trials by the Dune Restoration Trust (formerly the Coastal Dune Vegetation Network). In collaboration with the Northland Regional Council, planting of natives and weed control issues including spreading Cape ivy were inspected along foredunes at Glinks Gully and options for restoration and management discussed.

This report briefly focuses on options for planting natives in the gully slopes dominated by dense Cape ivy and along backdunes where Cape ivy appears to be spreading rapidly. Brief information on the control of Cape ivy is presented from other sources but more detailed input from local biosecurity officers would be worthwhile.

PLANT DESCRIPTION AND ECOLOGY

Cape ivy (*Senecio angulatus*) is an exotic vigorous, scrambling perennial that often forms a dense tangle of vegetation that can grow up to 2-3 m high (Department of Conservation 2005). It is more a scrambling shrub than a true climber where it can grow up to 2 m over shrubs and trees. It usually grows in dry, open sites, often by the sea coast. It spreads rapidly by runners, scrambling over shrubs and the ground, often forming dense tall thickets that prevent native species from establishing. Cape ivy can spread rapidly by runners and the production of numerous suckers. Small fragments can sprout roots and grow.

The leaves are very fleshy and leathery with 1-3 serrations on each side and as the name suggests, shaped like ivy. It flowers March to August but commonly late winter. The small flowers are conspicuously yellow and produce many, far-dispersing, long-lived seeds. Some information sources indicate the seed is non-viable.

It inhabits waste places and scrubland, especially near the sea including sand dunes (Environment BOP 1998). It was probably introduced as an ornamental garden plant and was first recorded as adventive in 1940. It is now found in many regions including Northland, Auckland, Bay of Plenty, Wellington and Otago (refer to information sources appended).

CONTROL METHODS

There are several sources of information on the control of Cape Ivy (refer to information sources appended). Department of Conservation (2005) suggests Cape ivy stems and branches should be cut and herbicide (as recommended by local regional councils) applied to cut surfaces. They suggest the plants can be disposed of in a landfill or aerial parts of the plant may be composted, following removal of seeds and fruit.

Manual control methods include slashing, weed-eating, mowing, rotary slashing and grubbing. Use of these methods, however, will usually result in some regrowth occurring. Small infestations can be dug out and roots and stems disposed of by putting them in a black plastic bag and leaving to rot in the sun or by taking the sealed bag to a landfill.

Spraying of herbicide by skilful use of a knapsack in calm conditions is likely to be the most practical option on most sites and especially if the area of infestation of Cape ivy is significant. Tordon Brushkiller applied during the plants period of active growth usually from spring to autumn is recommended by most information sources. The recommended strength is 60 ml Brushkiller plus 10 mls Pulse penetrant to 10 litres of water but spray instructions should be carefully read. Herbicide spray will kill native plants so protection and careful spraying will be required. One way to help

prevent spray drift is to attach a hood-shaped device to the spray nozzle. This can be improvised from a large, light plastic flower pot or plastic kitchen storage container. This way you can pass the spray over unwanted plants with the plastic shield almost touching the plants and you can spot spray areas of regrowth.

Another source suggest that Versatill or Tordon herbicide applied to cut stems during active growth periods will give good results.

Control of Cape ivy will not be a one-off task. Follow up action must be regularly undertaken. The site should be checked for regrowth and seedling establishment and further spraying carried out.

PLANTING ON CAPE IVY-INFESTED STEEP SLOPES

A small number of nursery-raised seedlings of two native species – karo (*Pittosporum crassifolium*) and harakeke or flax (*Phormium tenax*) where planted during the visit to Glinks Gully. The site comprised a steep north facing bank where planting spots had been sprayed and a bamboo stake erected to allow easy relocation of sprayed plots.

Although the vegetation at each sprayed spot was browned off and reduced in height, the ground was still covered in a thick mat of plant material mostly comprising Cape ivy. To allow planting, a gap had to cleared first before a planting pit could be dug and the seedling planted.

While planted native seedings are likely to benefit from the side shelter afforded by the surrounding 30-50 cm depth of vegetation cover, natives seedlings will be highly vulnerable to being lost as regrowth of Cape ivy or other exotic weeds occurs. Bamboo stakes marking each planting spot is essential to ensure seedlings are easily relocated for regular clearing of any overtopping regrowth of Cape ivy or other weed growth.

The existence and continuing spread of cape ivy throughout these steep Pliestocene sand gullies is a major threat to existing native vegetation and will prevent regeneration of natives. A survey of the extent of Cape ivy in the gully and any neighbouring steep gullies is recommended. Depending on the extent of Cape ivy, a management plan that sets out a strategy for containment or preferably control and restoration of such sites is recommended.

CAPE IVY ON BACK DUNES

Cape ivy also occurs on the backdune areas along parts of Glinks Gully where runners up to 5 m long are spreading under and over a dense cover of ground vegetation that include the natives spinifex (*Spinifex sericeus*) along seaward zones and pohuehue (*Muehlenbeckia complexa*) along inland areas. The spread of Cape ivy to these backdune areas are seriously threatening these sites. It is recommended that the extent of infestation is determined as soon as possible and further spread is at least contained. A management plan is required to determine the feasibility of controlling or if possible eradicating Cape ivy from these back dune sites, even if this may take several years to complete.

A small herbicide trial set up by local residents has been reported separately by Nyberg (2006) where several herbicides were applied by rag (swabbing) to Cape ivy stems and leaves that were sprawling amongst native plants. Tordon, as recommended by several sources above, appears to have successfully killed Cape ivy. It is not considered practical to use a swabbing method for application of herbicide where there are significant areas of dune infested with Cape ivy. Careful spraying of herbicide using knapsacks is likely to be more practical option even if there may be some losses of adjacent native plants. Any delay in the control of Cape ivy will see inevitable further large-scale loss of native plant cover.

RESTORATION OPTIONS

The large-scale removal of any vegetation cover from sand dunes at Glinks Gully or similar sites along this coast is not recommended as this may result in destabilisation of these areas, especially by the prevailing strong westerly winds along Northland's west coast.

The most practical option for removal of Cape ivy on the steep gully slopes at Glinks Gully is a gradual removal of dense Cape ivy and other vigorous exotic weeds followed by replacement through planting of appropriate native coastal species. The pilot trial established by the Glinks Gully Protection Society, whereby spots amongst the dense Cape ivy have been sprayed with herbicide, is probably the best approach provided that seedlings do not become smothered by regrowth of Cape ivy or other vigorous weeds that also occur locally.

As Cape ivy has formed dense thickets up to 50 cm high, and sprayed areas are likely to remain covered by dead vegetation for many months, larger sprayed patches could be tested to allow the planting of small groups of native plants. Groups could comprise 3-5 seedlings each with plants spaced at 1-1.5 m apart within groups. It would be prudent to use sites on more sheltered inland slopes for herbicide spraying of larger patches and establishment of small groups of natives where wind is less likely to initiate sand erosion.

Once natives have become established in sprayed spots or in small groups, then weed infested areas between can be sprayed and inter-planted with further natives. It may take up to 5 years for a severely infested site to be gradually converted to native cover. Throughout the project, it is essential that planted natives are inspected several times per year and any competing weed growth is sprayed before it comes too close to the native plants to allow safe application of herbicide. The use of tall stakes of bamboo of similar material erected at each planting spot or centrally within each small planted group is essential to allow easy relocation of plants for regular inspection and weed control. A record of each component of a planting programme, including a map that will assist in location of planted natives, will provide information to others in the future management of the area. The general techniques for the planting and weed control of native plants on an open site are given in Bergin and Gea (2005).

Native plants likely to succeed in the relatively windy and drought-prone conditions of Glinks Gully will include those that are naturally regenerating on nearby sites. Harakeke and karo as established in the pilot trial are likely to be the most successful.

Tauhinu (*Ozothamnus leptophylla*) and toetoe (*Cortaderia toetoe*) which are growing on the backdunes, may also be successful in the gully along with pohutukawa (*Metrosideros excelsa*).

For the backdune site, where Cape ivy is only beginning to invade, it is recommended that all leaves and runners are sprayed using a knapsack sprayer. This will need to be repeated many times to ensure any reprouting is controlled and plants missed initially are eventually sprayed. Where spraying is confined to small areas of scattered plants and runners, follow-up planting of natives should not be required. However, if large infestations of Cape ivy occur where sprayed areas exceed 2-3 m in diameter, then spot spraying followed by planting of appropriate native will be required, especially on exposed sites. It is essential that large areas of dune are not sprayed or cleared of vegetation all at once as this is likely to lead to instability of the sand substrate and initiation of a mobile dune.

REFERENCES

Bergin, D.; Gea, L. 2005: Native trees – planting and early management for wood production. *New Zealand Indigenous Tree Bulletin No. 3*. Forest Research. 44p.

Environment BOP 1998.: *Cape Ivy*. Pp 50-51. In: Plant Pest Management Strategy for the Bay of Plenty Region, Environment B-O-P.Operations Report 98/8. 103p.

Department of Conservation 2005: *Plant me instead. Plants to use in place of common and invasive environmental weeds in the lower North Island*. Department of Conservation. Wellington Conservancy. 162p.

Nyberg, C. 2006: Glinks gully control of cape ivy. Northland Regional Council, report. Ref: MNC802062 (unpubl.). 5p.

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Cape ivy along with other exotic weeds are dominating steep gully slopes at Glinks Gully, Northland (above). Cape ivy has also become a major problem weed in other areas of the country particularly on dry sites such as sand dunes. At Glinks Gully, Cape ivy in particular, is smothering other vegetation including well established natives such as harakeke, toetoe and even shrubs and small trees (below). Recommended control is the spraying of herbicide using knapsacks. Tordon Brush killer is recommended from several sources.

Local Glinks Gully residents and council staff are concerned at the spread of Cape ivy and have undertaken a pilot spraying and planting project. Up to 20 spots of dense Cape ivy were sprayed by herbicide and a bamboo stake erected to mark the spot (above). Planting within dense cover of browned-off vegetation up to 30 cm thick is time consuming; this requires clearing a gap before digging of the pit and planting of the seedling (below). However, spot spraying is likely to be a preferred option for gradual conversion of these coastal sites to natives compared with large-scale blanket spraying that may result in destabilising of the sandy substrate.

Cape ivy is also growing along the backdune zone at Glinks Gully immediately landward of the foredune (above). Runners up to 5 m long are scrambling through and over a dense cover of dune vegetation including the natives spinifex and pohuehue (below). The extent of Cape ivy should be surveyed and if possible further spread at least controlled. Control methods that do not allow large-scale removal of the present vegetation cover is essential. Rather, sporadic herbicide spraying of scattered Cape ivy plants, or spot spraying within large infestations followed by gradual establishment of natives, is recommended on these dune sites that are highly vulnerable to wind erosion.

Information sources from the Bay of Plenty, Wellington and Otago regions regarding status and management of Cape Ivy (*Senecio angulatus)* in these regions (from Landcare Research http://www.landcare.org.nz/biodiversity/pest; fact sheet on Cape ivy from the Otago Regional Council www.orc.govt.nz).

Region: Bay Of Plenty

Pest Plan Obligation: Rule 8.2.1 The intentional sale, propagation or distribution of Cape Ive (Senecio angulatus) is prohibited.

Pest Status: High Risk Plant Pest

Pest Status Definition: High Risk Plant Pests have been identified as being potential or actual high risk plant pests that currently cannont be effectively controlled, because the cost to Environment B-O-P and the land occupier may be unreasonably high, current understanding of the problem may be limited and/or there may be limited effective control options. Environment B-O-P will gather information on these plants to use in future control actions. Management programmes will include observing, measuring and recording the occurrence and effects of these plant pests and keeping up to date on cortol options as they become available. Land occupiers are not required to control these plant pests but are encouraged to do so at their discretion. High Risk Plant Pests are banned from sale, propagation and distribution.

Reference: Anon. 1998. Cape Ivy. Pp 50-51. In: Plant Pest Management Strategy for the Bay of Plenty Region, Environment B-O-P.Operations Report 98/8. 103p.

All References for Cape Ivy in Bay Of Plenty

- (390) Anon. 1998. Cape Ivy. Pp 50-51. In: Plant Pest Management Strategy for the Bay of Plenty Region, Environment B-O-P.Operations Report 98/8. 103p.
- (848) Anon. Cape Ivy. Plant Pests of the Bay of Plenty. Environment B-O-P, 2p (Pamphlet)

Region: Wellington

Pest Plan Obligation:

Pest Status: Regional Surveillance Plant Pest

Pest Status Definition: Plants that may pose significant problems for this region in the future. The Council will monitor the distribution and spread of these plants to determine if more stringent requirements are necessary. There is no legal requirement to control these species but they are banned from sale, propagation and distribution.

Reference: Anon. Cape Ivy. Pest Plants, Everyones Responsibility. Identification and Information. Wellington Regional Council, 8p (Booklet)

All References for Cape Ivy in Wellington

- (912) Anon. Cape Ivy. Invasive Creepers and Climbers. An Identification Guide. Wellington Regional Council, 2p (Pamphlet)
- (890) Anon. Cape Ivy. Pest Plants, Everyones Responsibility. Identification and Information. Wellington Regional Council, 8p (Booklet)
- (927) Anon. Cape Ivy. Pest Plants, Everyones Responsibility. Wellington Regional Council, 2p (Pamphlet)
- (551) Anon. Pest Plants, Identification and Information. Cape Ivy. Wellington Regional Council. 8p. (Booklet)

Pest Info Fact Sheet on Cape Ivy from the Otago Regional Council available from their website: www.orc.govt.nz