

# Weed Control in the Lake Waihola Waipori Wetlands

A presentation for the Lake Waihola Waipori Wetlands Society Annual  
General Meeting

June 2011

Paul Pope – Spiralis Ltd

# What Are Weeds?



*“Invasive plants and non native species that have successfully spread outside of their natural range.” Richardson 2000*

*“... invading species that are particularly successful in disturbed habitats and those altered By human activities.” Sax 2000*

*“A weed is a plant growing where it is not wanted and having a harmful impact.” DoC*

*“Gap gobblers.” Newsome & Noble 1986*

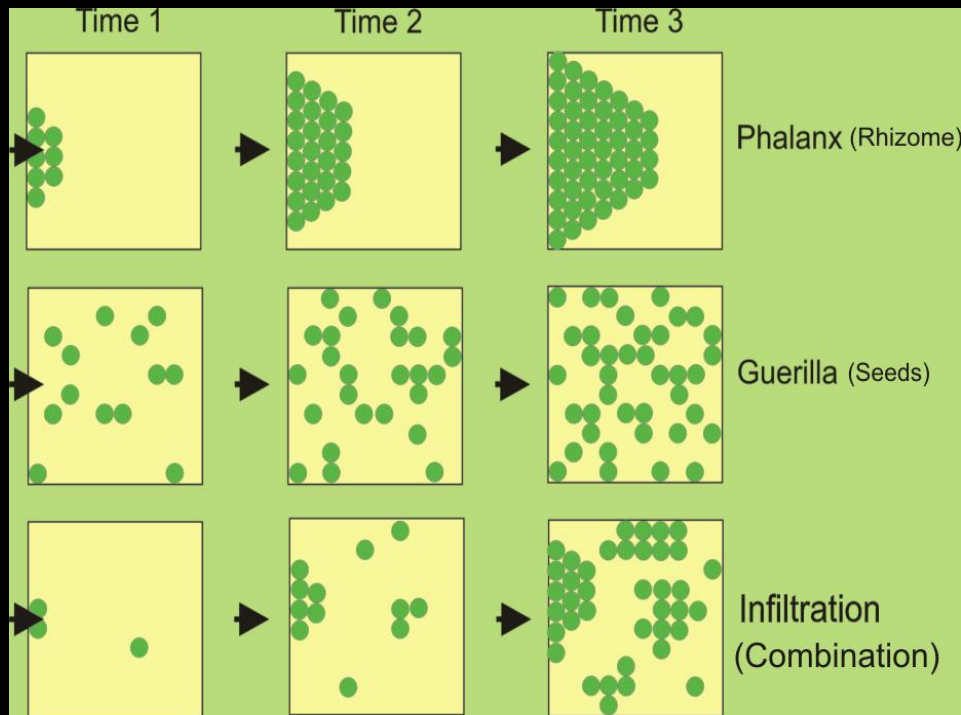
*“...alien plant taxa that adversely effect native biodiversity and ecosystem function.” Richardson 2001*

# Weed Characteristics

Reproductive Strategy	<ul style="list-style-type: none"><li>• Vegetative reproduction</li><li>• Production of large amounts of viable seed</li><li>• Non-specialist pollination &amp; dispersal mechanisms</li><li>• Sexual &amp; asexual reproduction</li></ul>
Phenology	<ul style="list-style-type: none"><li>• Early maturity</li><li>• Perennial vs. annual</li><li>• Fast growth to compete life cycle</li><li>• Phenotypic plasticity (adaptation to environmental stress)</li></ul>
Resource Use	<ul style="list-style-type: none"><li>• Allocates resources toward reproduction and seed production</li><li>• Allocates resources towards growth</li><li>• Broad niche user</li><li>• Rapid response to resource utilisation as they become available</li><li>• Competes interspecifically by special means (allelochemicals or choking growth)</li></ul>

Willows and other woody species in wetlands could best be described as “transformers” or “ecosystem pioneers” as they have the ability to alter ecosystem functionality.

# Weed Invasion Ecology



Plants have clear invasive strategies that vary in their technique from species to species.

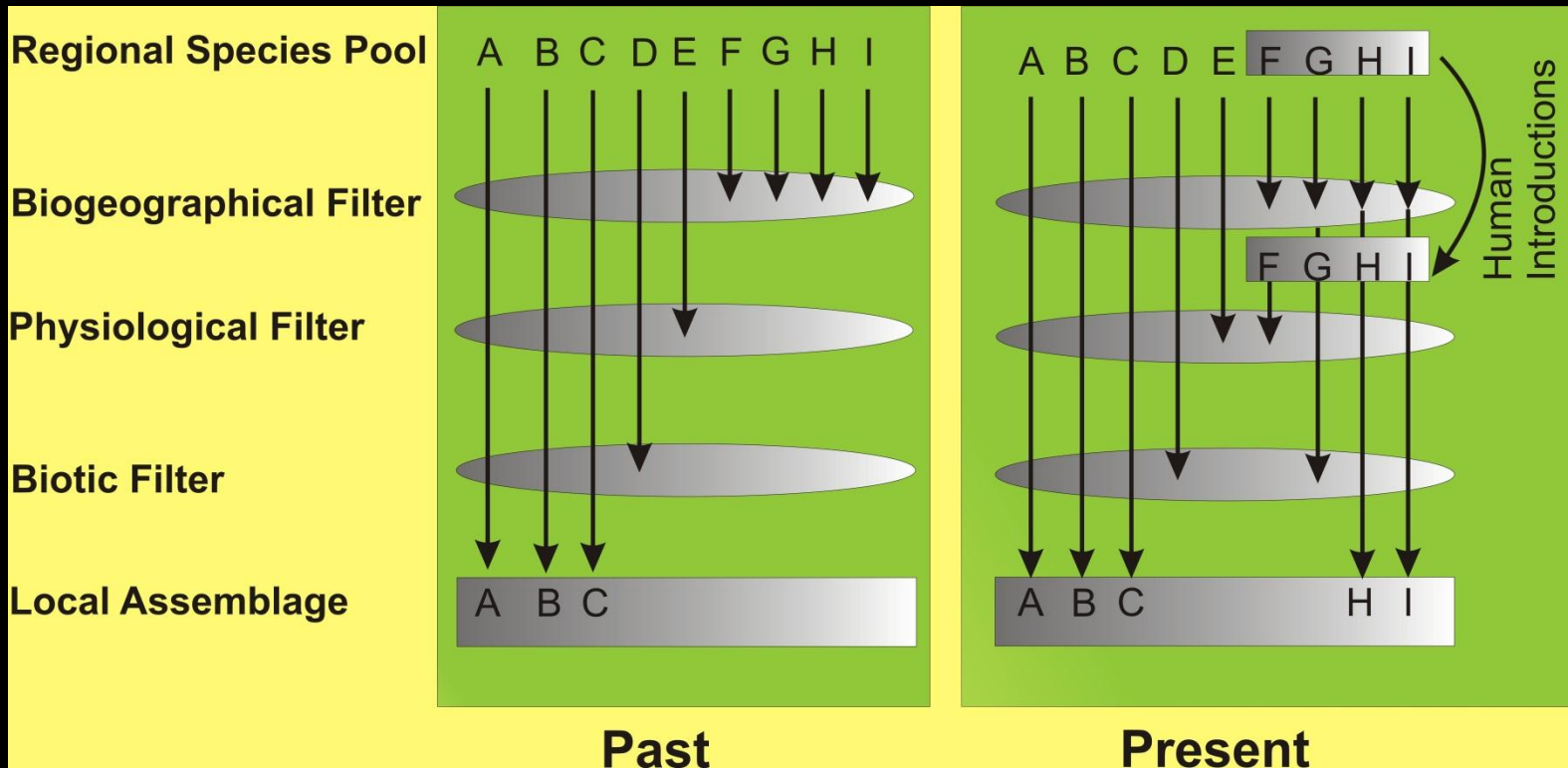
Strategies are also dependent on the reproductive natures of the weed species

Invasive behaviour is also dependent on the method of dispersal

The phalanx and guerilla models could be applied to the development of *Glyceria maxima* in the Waihola Waipori Catchment



# Human Alterations



The local species present are due to several filters. When humans introduce plant species they bypass the filters into areas where they would not normally colonise and introduced species become part of the local plant assemblage (Rahel, 2002).







# The only good willow?

*“They are hostile to willows because they are not indigenous species.”*

*“Crack willows are not invasive in healthy streams and stable watersheds where they are prevented by establishing by natural processes.”*

*“Invasive is the warmongering jargon of dogmatic nativists discriminating on the basis of race , genera and species. Nativism is the keystone of fascism.”*



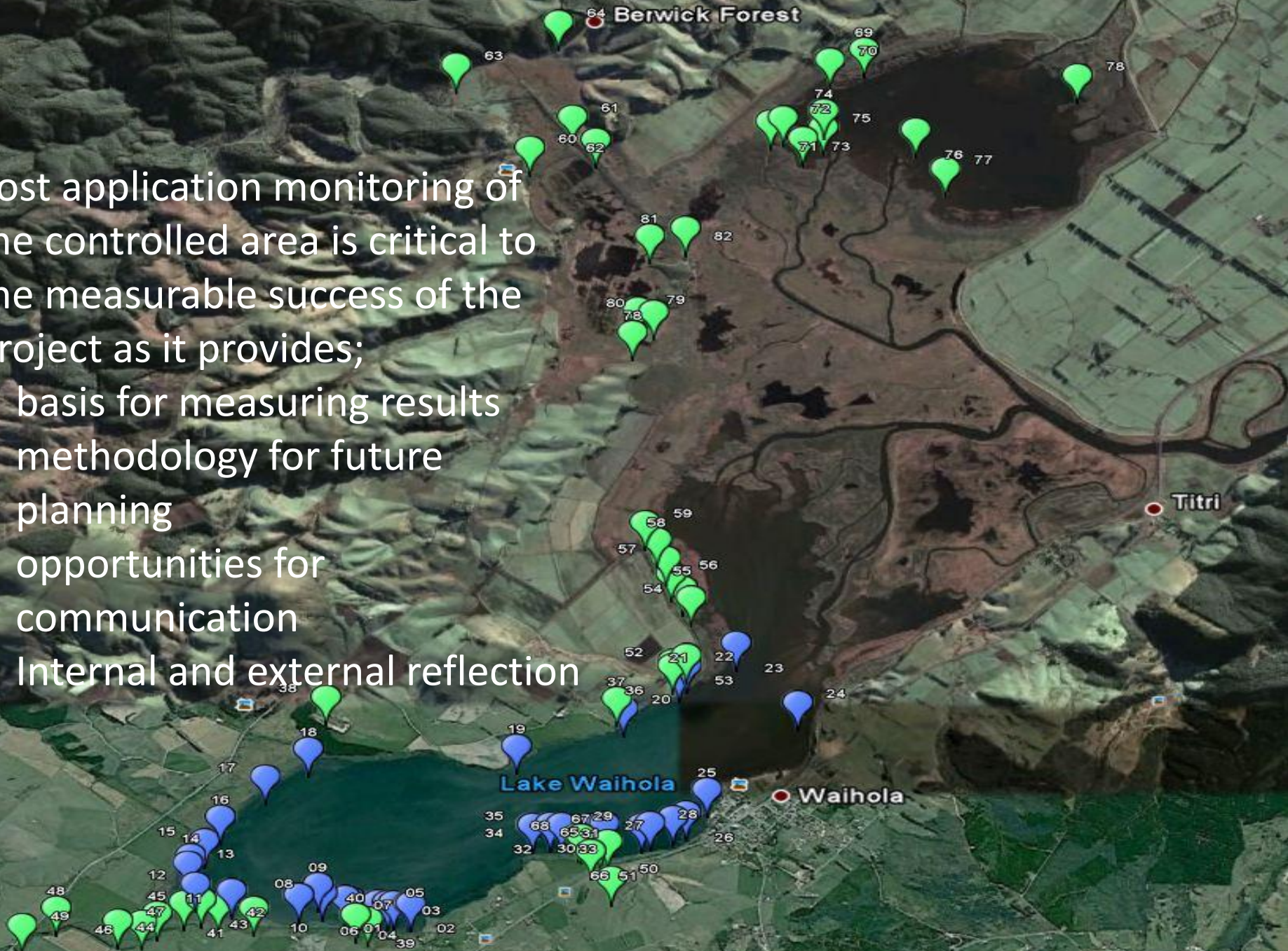


Communication leads to community, that is, to understanding, intimacy and mutual valuing.  
- *Rollo May*



Post application monitoring of the controlled area is critical to the measurable success of the project as it provides;

- basis for measuring results
- methodology for future planning
- opportunities for communication
- Internal and external reflection





# OPERATIONAL PLAN FOR WEED CONTROL Waipori-Waihola Wetland Complex

- Alder
- Dead willow
- Gorse and/or Scotch broom
- Kanuka
- Live willow
- Macrocarpa
- Scattered dead willow
- Scattered gorse and/or Scotch broom
- Scattered grey willow
- Scattered live willow
- Scattered narrow-leave lacebark
- Scattered silver birch, Wilding conifers, Red Alder
- Weeping willow

## PHASE 1

- 1a Titiri Wetland restoration Projects
- 1b Control of scattered outliers of priority weeds in ecologically important native fauna flora wetland areas
- 1c Spray re-growth of weeds where willows and other weed species have previously been controlled

## PHASE 2

- 2a Eradicate alders
- 2b Control small dense infestations of crack willow and Glyceria within areas of high ecological importance

## PHASE 3

- 3a Control dense patches of willows in the central part of the wetland complex
- 3b Control dense patches of willows in the northern part of the wetland complex
- 3c Control dense patches of willows in the southern part of the wetland complex



Glyceria is present throughout the wetland complex, with widespread and large infestations in the north and more scattered infestations in the south.

## Operational Plan for 2011

- Proposal for 2011 was to aerially control 320 hectares of the catchment
- Target species were Grey Willow, Crack Willow, Alders & Glyceria
- Herbicide of choice was Glyphosate













- The aerial operations covered 353 hectares
- Some small variations based on assessment from the air
- Variations also in discussion with neighbours



A Garlon trial of four 1 hectare blocks was undertaken in the main Alder area on the south-west side of Lake Waipori.

This involved a 20 litre and 30 litre rate of application for comparison between Alder and Willow

Monitoring is set aside in September 2011













# Notes on Bi-Kill



There was bi kill of grass and sedge species but this was highly variable in controlled areas where willow canopy was dense



*Coprosma propinqua*

*Cortaderia toetoe*

*Phormium tenax*

*Carex secta*

There was bi kill of grass and sedge species but this was highly variable in controlled areas where willow canopy was dense



# Control Operation Conclusions



Control operations have been highly successful and well managed from a public perspective.

- Covered a larger area than estimated
- Tackled heavy infestations within catchment
- Probably could have done more

## Further thoughts

- Follow up work in outlier areas for willow
- Concentration on monitoring *Glyceria maxima*
- Bi-kill is inevitable but manageable
- Monitoring of native species recovery
- Better ground control opportunities

# Future Planning



Copyright 2006 by Randy Glasbergen. www.glasbergen.com



## Future Options for Planting

In traditional habitat restoration efforts weed control is associated with extensive replanting

The scale and nature of the catchment limits such types of restorative efforts and the abundance of native plant flora allows a sufficient seed source for new growth post weed control.

There is a case for the re-establishment of kahikatea and other indigenous forest species in suitable places around the catchment like the original forest cover that ran to the lake shores.

Sites depicted here have;

- accessibility
- scale
- linkage to landscape and traditional areas
- weed control undertaken

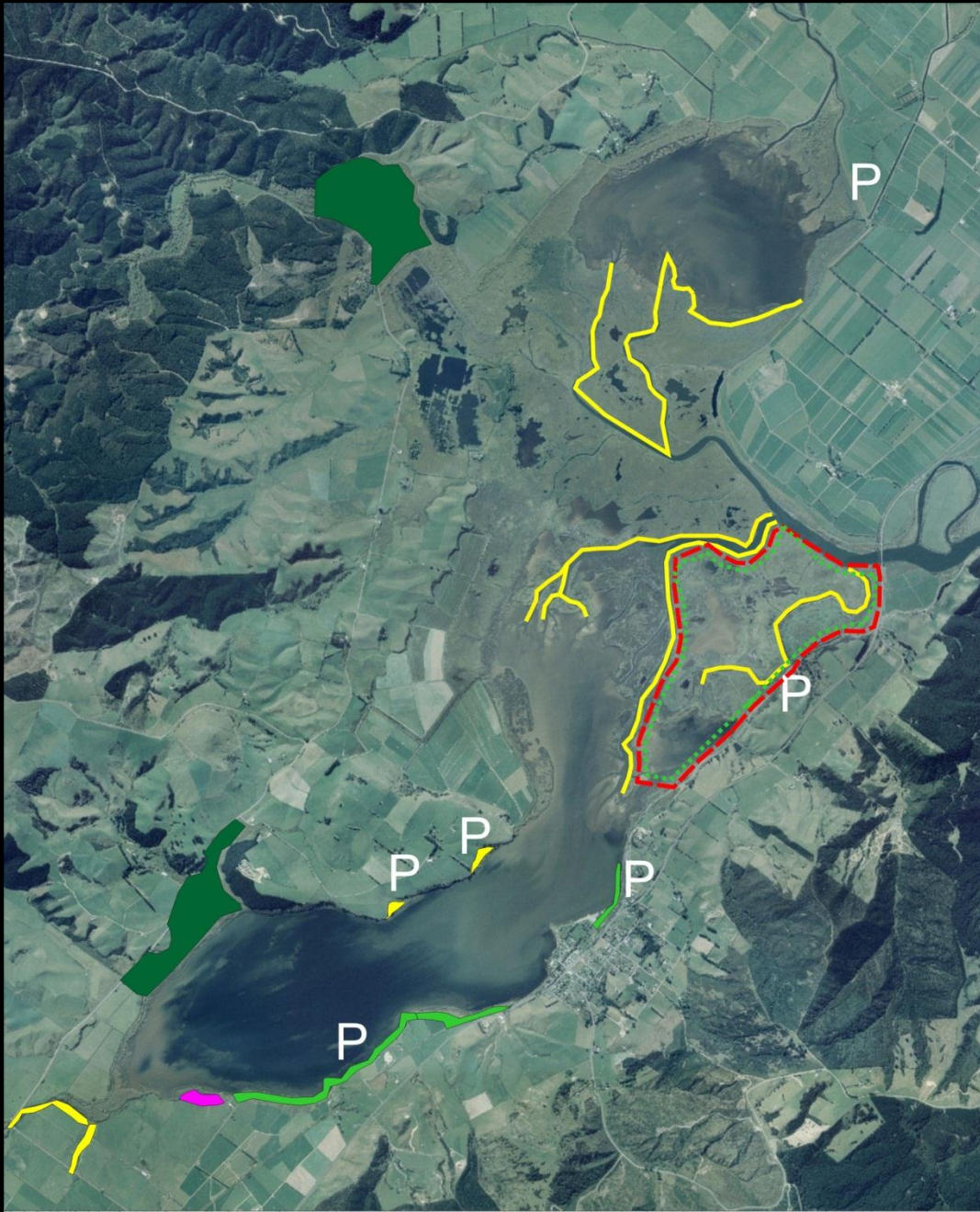
There is strong public sentiment in the area for replanting and developing such a plan















## Future Society Operations

-  Glyceria Maxima control
-  Feral Geese control
-  Basal bark & drilling
-  Pine & Exotic tree control
-  Broom & Gorse Control
-  Proposed Plant Planning



















Patience is a virtue