



Wetland Threatened Flora Management

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NZ Threatened Flora Stats

- National data (de Lange et. al 2009)
 Approx 10-17% of threatened flora occur in wetland and aquatic habitats
- BOP Region data (de Lange et. al 2009)
 Approx 27% of threatened flora occur in wetland and aquatic habitats
- Larger % of BOP threatened flora occur in wetlands relative to national %

Why are there so many wetland threatened flora species?

- Loss of habitat –wetlands are rare
- Weeds – big issue at most sites
- Hydrology –altered water regimes
- Trampling/browsing – stock, deer, rabbits/hares, humans!
- Fragmented habitats – more difficult for plants to disperse around landscape

How to manage wetland threatened flora 101

1. Know the species present and their ecology
2. Survey the site to determine population size/distribution
3. Monitor known populations over time
4. Analyse results and draw conclusions. Understand the reasons for population trends.
5. Evaluate management options for recovery

1. Know the species present and their ecology

- Learn how to ID species
- Understand species ecology
- Understand why the species is threatened in first place
- Research (observe populations at other sites, read published information and talk to other people working with the species)

2. Survey

- Don't assume the known population is the total population at a site
- Before restoration starts you should know where ALL the threatened plant populations are
- Set some objectives for survey. What do you want to find out?
- Conduct a thorough survey of all suitable habitat at a site
- Don't forget about seasonal fluctuations in population –pick the right time to survey

3. Monitoring

- Should be long term.
- Seasonal – many species disappear in winter
- Set some objectives before you start
- Do you need to monitor other environmental factors as well?
- Range of methods – census vs sampling
- Trial the method
- Consider impacts of monitoring method and frequency.

4. Analyse results and draw conclusions

- Long term monitoring should show trends.
- Short term monitoring should give insights
- Analyse data
- Reach conclusions to explain the population trends observed.
- Relate to species threats and other wetland processes occurring at site.
- Discuss results/conclusions
- Write it up!!

5. Evaluate management options for recovery

- Is the population secure at the site?
- If so maybe just leave alone and monitor.
- If not what can be done to mitigate threats?
- Do you need to mitigate threats over whole site or just to protect threatened flora?
- Have clear objectives – are you restoring threatened flora or the whole wetland ?

Wetland restoration vs threatened flora management

- Wetland restoration – can have positive or negative impacts for threatened flora
- Difficult to manage a wetland habitat for threatened flora and restore the ecosystem at same time.
- Consider benefits of wetland restoration vs non-target impacts to individual species.
- Impacts on threatened flora can be direct or indirect.
- Plan for both!!
- Timing and sequence of management actions is critical.

Case Study 1: Bregmans grazing

- 8.6ha wetland on Rangitaiki plains
- Grazed until mid 1990's



Significant populations of two nationally threatened ferns – *Cyclosorus interruptus* and *Thelypteris confluens*





Bregmans summary

- Management is focused on threatened flora rather than ecosystem as whole.
- Improving wetland condition by excluding browsers can negatively impact on some native flora if the potential indirect impacts of increased weed competition are not planned for and managed immediately

Case Study 2: Awaiti willow control

- Joint DOC/Fish and Game managed wetland on Rangitaiki plains
- Ongoing wetland restoration programme



Awaiti summary

- Large scale wetland restoration project with threatened flora present
- Successfully planned and mitigated direct impact of aerial spraying on *Cyclosorus*
- Unforeseen indirect impact = large ↓ in *Cyclosorus* population.
- Restoring summer water levels should = ↑ *Cyclosorus* population.

Reintroducing threatened flora to a site

- Threatened flora are generally difficult to reintroduce to wetland habitats and most projects fail in long term.
- Do a thorough survey to confirm species is definitely locally extinct.
- Understand why the species disappeared in first place.
- If habitat conditions are not right species will not persist
- Reintroduction of threatened flora species should be a last resort
- Restoring wetland processes and protected existing populations is the most important and DOC's main focus.
- Species may reappear if conditions become right.
- Have an off site insurance population in cultivation in case the source population disappears.
- Ecosourcing is important
- Monitor the reintroduction to determine success

Conclusions and lessons learnt

- If threatened flora are present do steps 1-5 first
- Don't 'play around' with wetlands without understanding the wetland processes and threatened species needs
- Set clear objectives and take a long term approach
- Difficult to manage a wetland habitat for threatened flora and restore the ecosystem at same time
- Consider direct and indirect effects to threatened flora from potential management actions
- Consider risk of losing a threatened flora species
- Reintroduction should be a last resort – focus on protecting and enhancing existing populations if still present.
- If habitat functions properly = good chance species will re-establish