

# Assessing benthic barriers vs. aggressive cutting as effective yellow flag iris (*Iris pseudacorus*) control mechanisms

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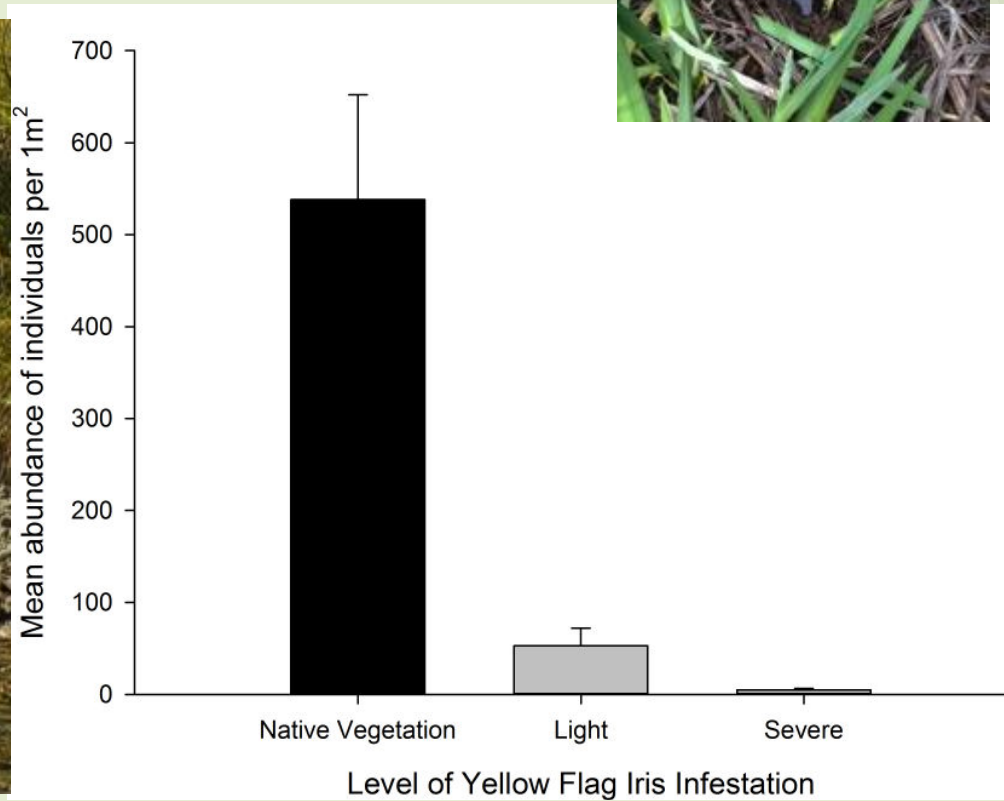
# Yellow flag iris



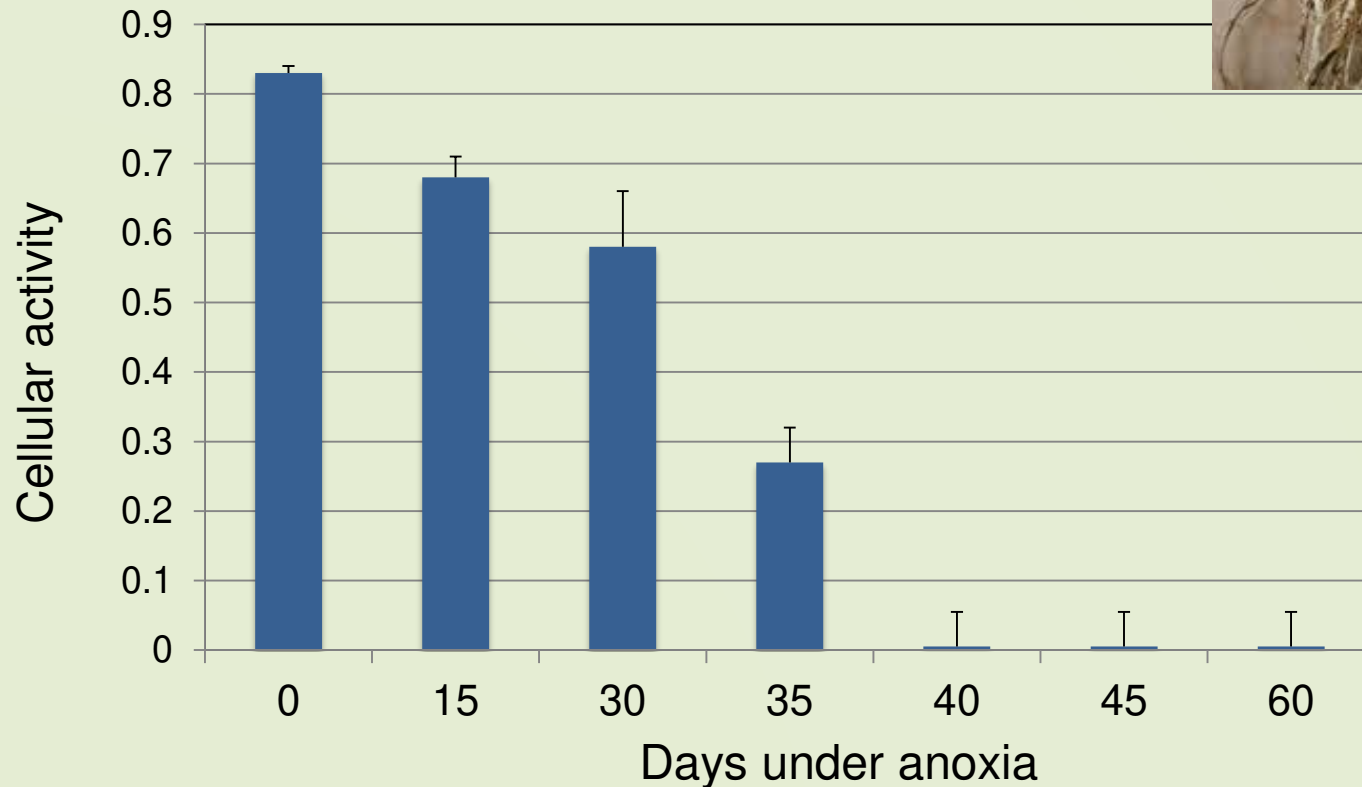
Photos: Judy Millar



# Ecosystem engineer



Streichert and Tarasoff, unpublished



Cell activity of yellow flag iris rhizome tissue incubated under anoxic conditions at 20C in the dark. Cell activity was calculated as  $(ATP+0.5ADP)/(ATP+ADP+AMP)$ . The results are means  $\pm$  SE

Recreated from: Hanhijärvi and Fagerstedt, 1994

# The benthic barrier

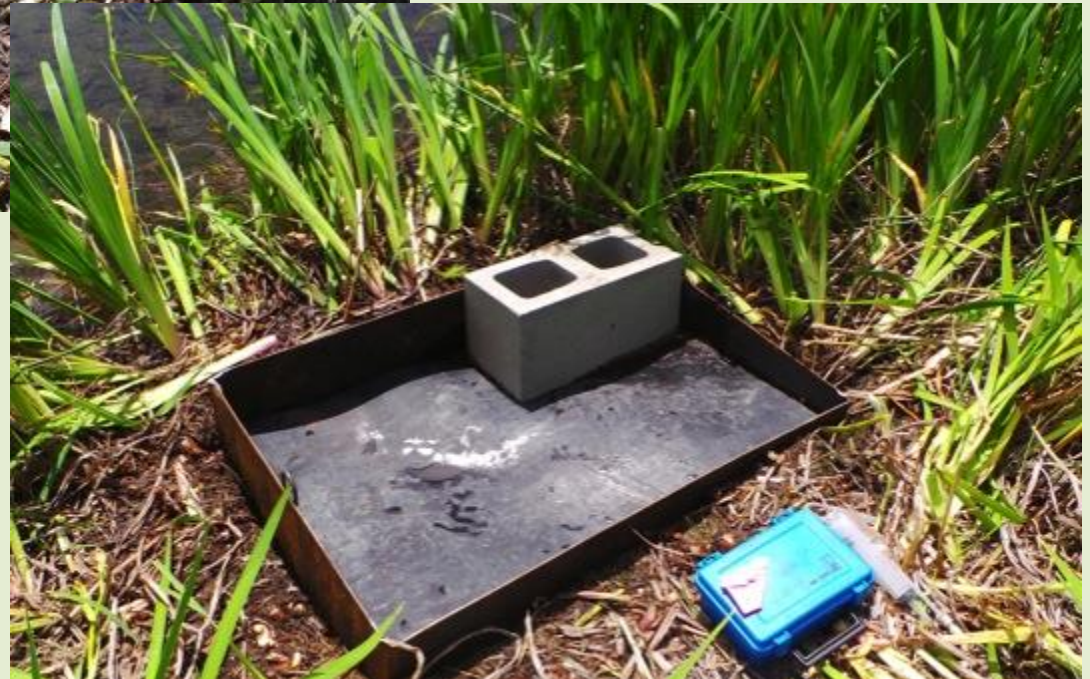


# Foundation of Research

Taking the laboratory concept into the field

1. Is there a difference between using benthic barriers, removing the vegetation, or leaving the plants (control)?
2. How long does it take to work?

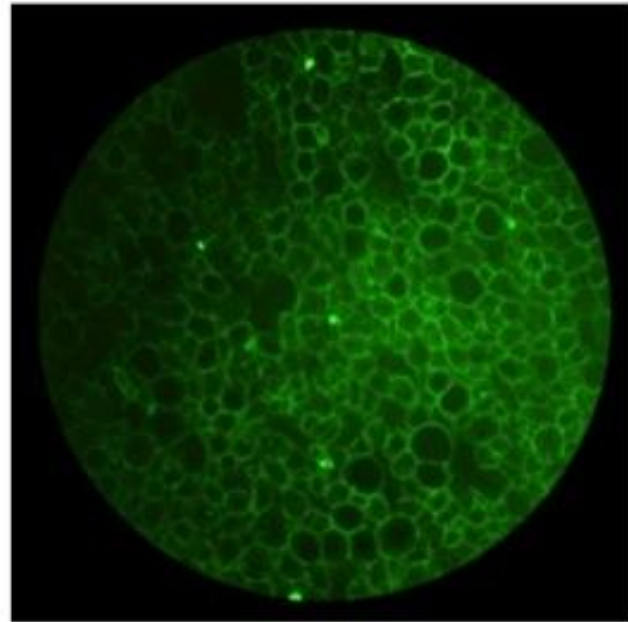
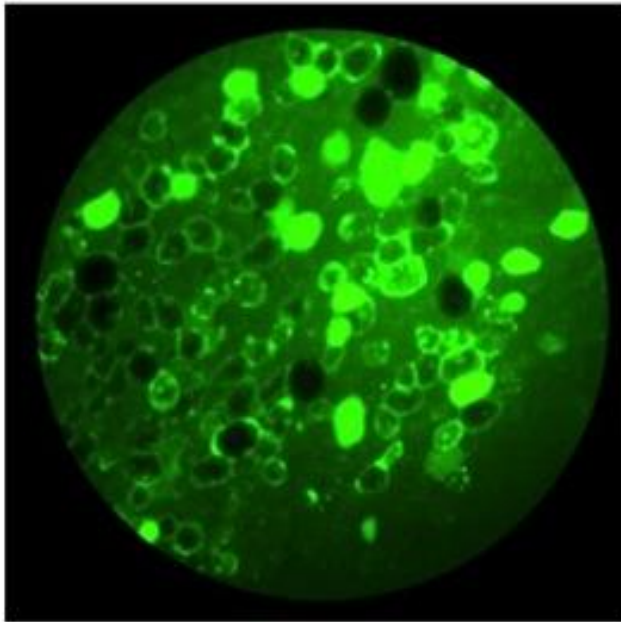
# Installation - 2014



# Results

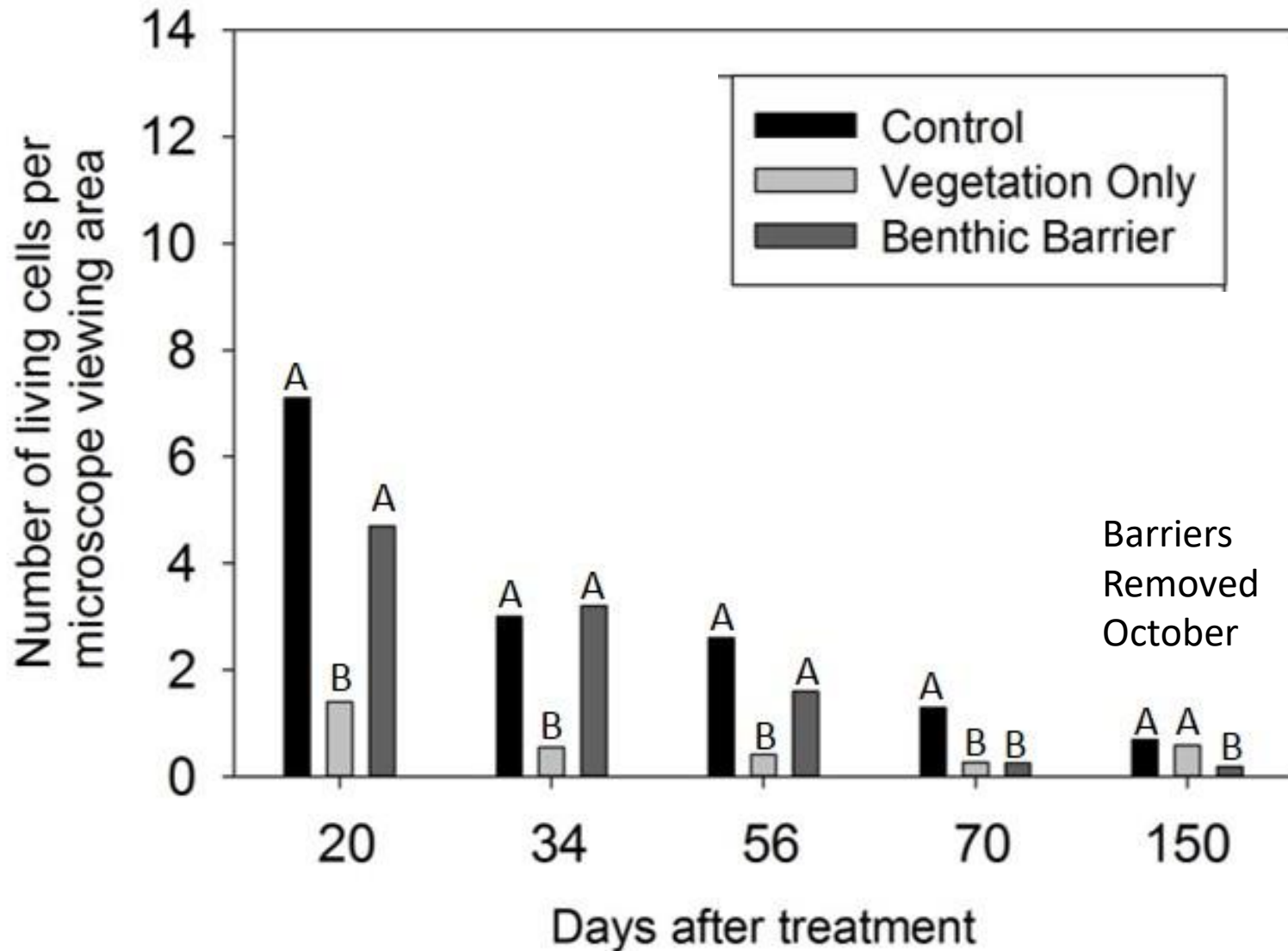


**34 days after treatment**

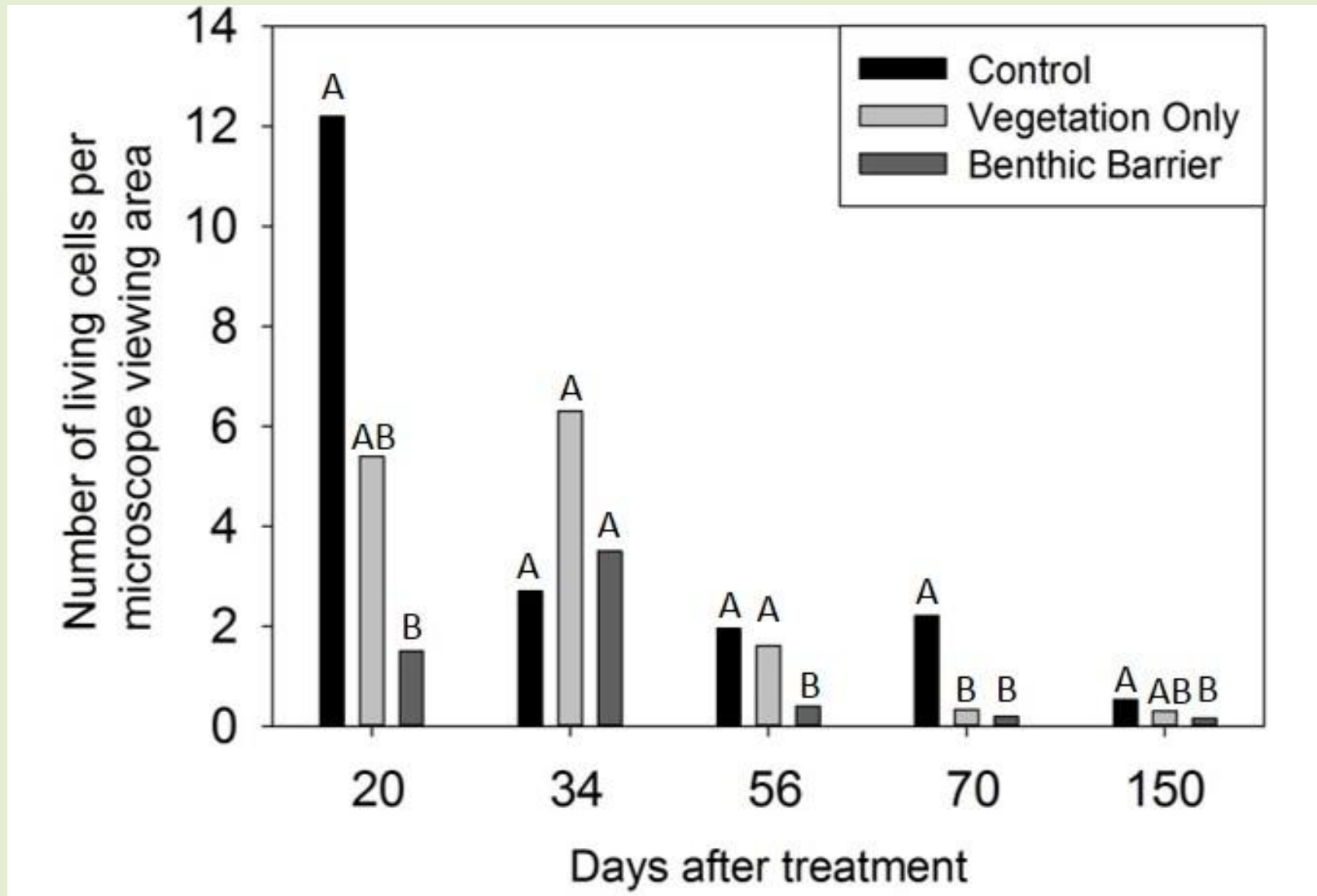




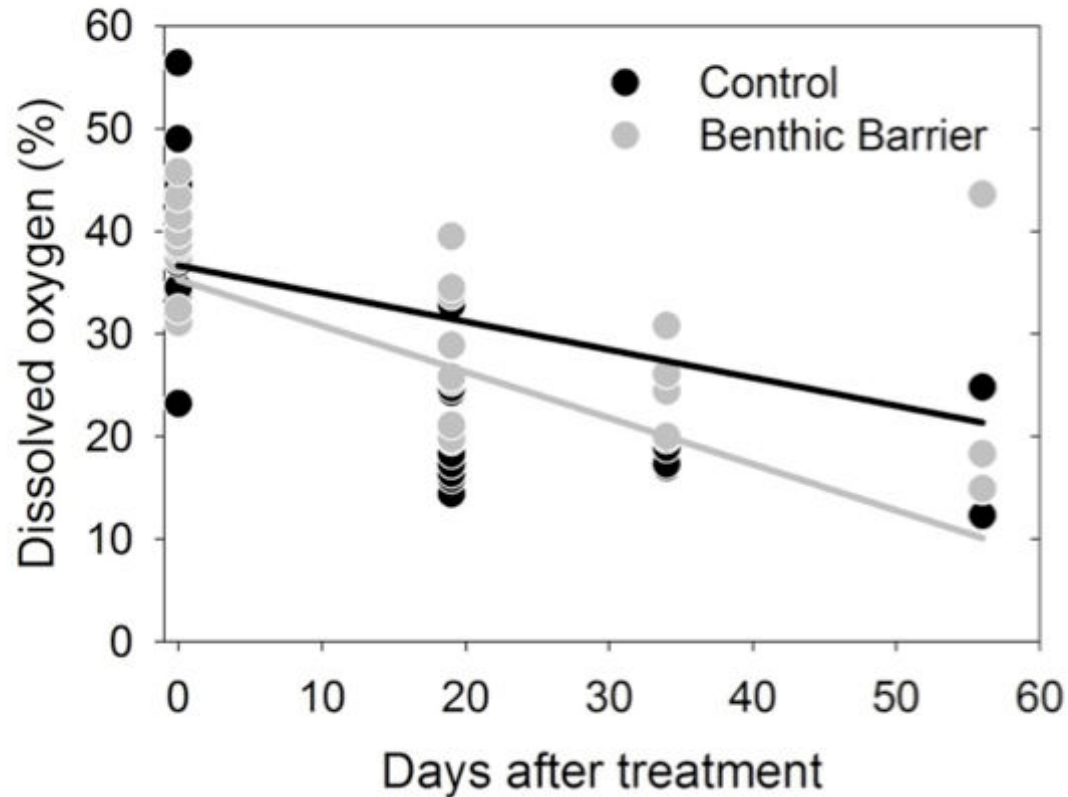
# Vaseux Lake



# Dutch Lake



# Dissolved oxygen



# Assessing regrowth



Benthic barrier  
June, 2015  
9 months after removal



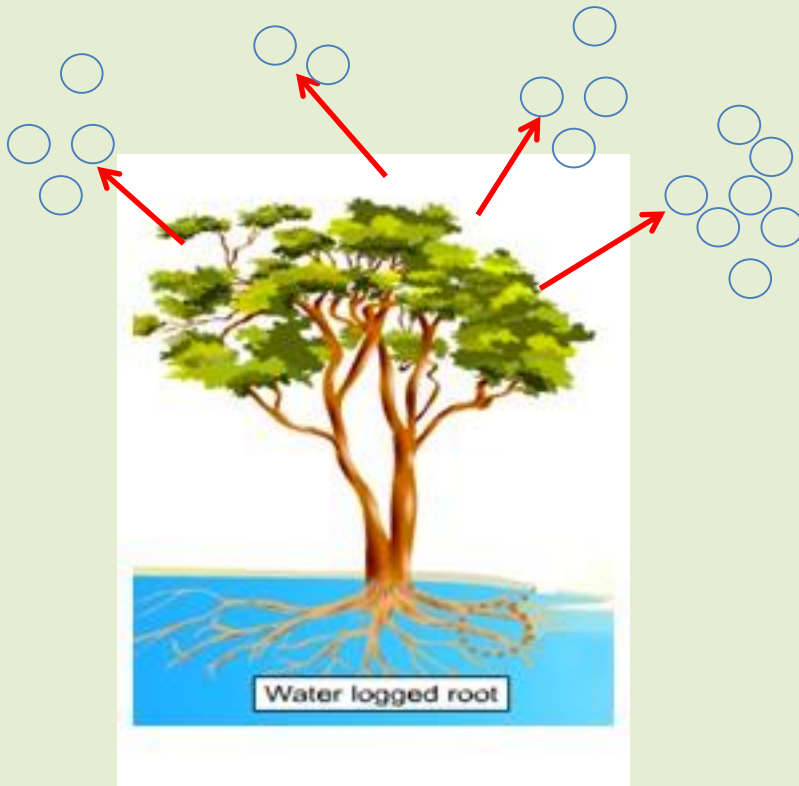
Benthic barrier  
September, 2015  
~1 year after removal



Vegetation Only  
September, 2015  
~1 year after removal

# How I think it works..

- Yellow flag iris continues to respire when under stress rather than going dormant (Barclay & Crawford 1983)
- Anaerobic respiration = toxic substances accumulate



# Conclusions

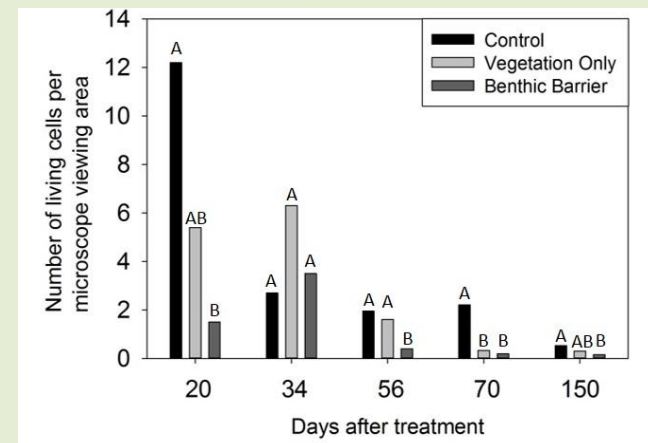
- Benthic barrier kills yellow flag iris rhizomes in approximately 3 months
- Time to kill rhizomes may be related to proportion of anaerobic:aerobic respiration
- Aggressive cutting of plants is no different than no treatment
- Areas treated with the barrier remained mostly void of plants for at least 1 year after the barrier was removed

# Acknowledgements



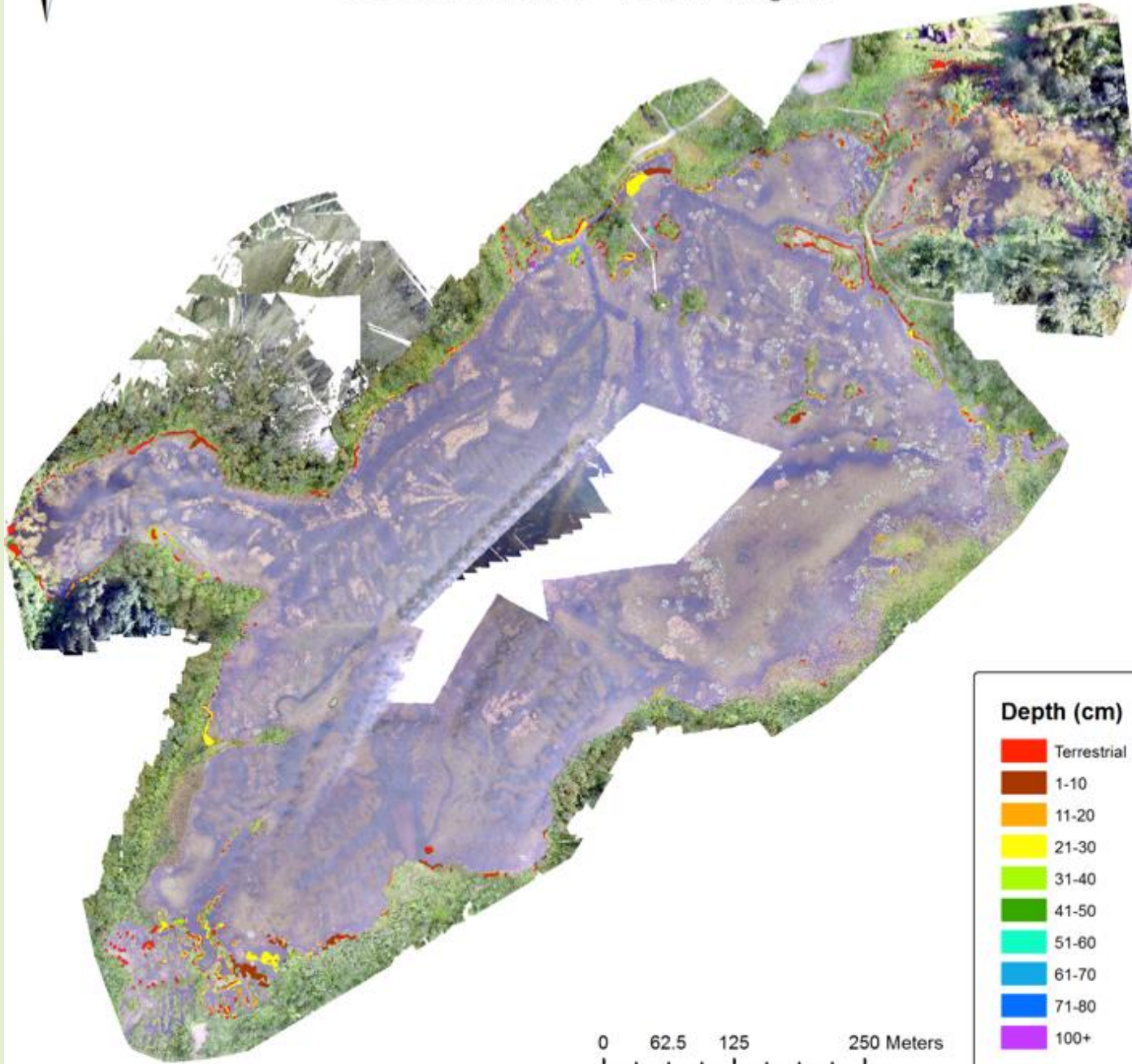
# Current Research

- Recall Dutch Lake results
- Gas diffuses through water 1000X more slowly than atmosphere
- Seemed that aggressive cutting control yellow flag iris as well as the barrier *when* the rhizomes remained under water





# Cheam Wetlands - Yellow Flag Iris



# Future Research

