A test of Repeat–flaming as a control for poison hemlock (*Conium maculatum*), Cape ivy *(Delairia odorata*) and periwinkle, (*Vinca major*).

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A test of flaming

*Effective in agriculture as an alternative to pesticides

*Effective in removing broom seedlings

Can repeat flaming be used to eradicate mature invasive plant species?

Poison Hemlock

Periwinkle

Cape Ivy

All 3 store starch.

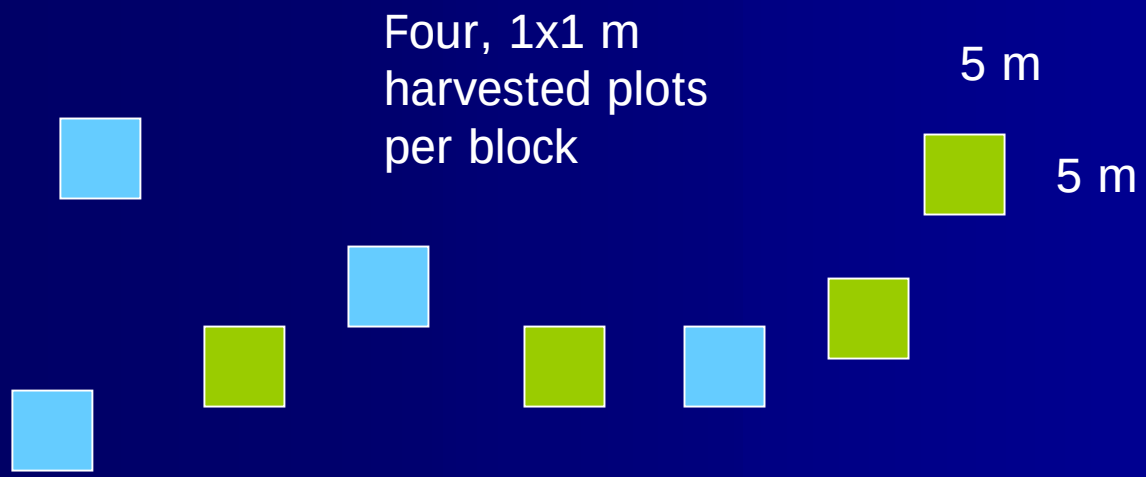
- Flaming done only in the rainy season
- Also the low sunlight season

- Can repeat flaming deplete the starch reserves and starve the plant out of existence locally within one season?

Three random block design experiments at two sites

Poison hemlock site

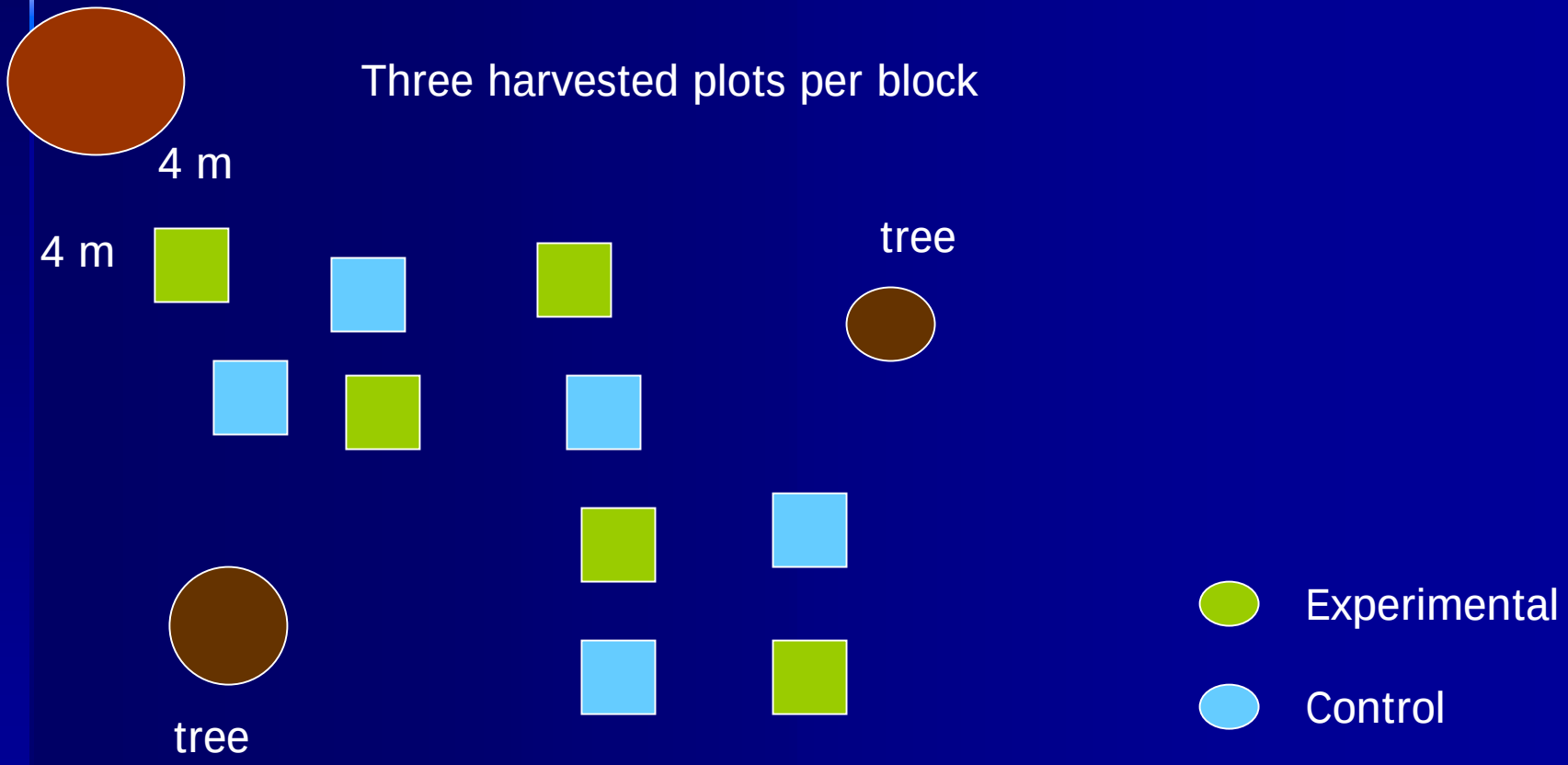
Elkhorn Slough NSRR



Periwinkle site had the same design.

Cape ivy site

Sunset Beach State Park



Initial treatments applied Nov. 21, 2004

Repeat flaming treatment details: blocks were re-treated when regrowing plants had leaves at least 80% of full size

Poison hemlock:

* Initial treatment took 30 minutes per block; retreatments 5 minutes per 5 m x 5 m block

  Treated seven times

  between 11/ 21/2004 and harvest 6/12/ 2005

* Periwinkle was treated 5 times; harvested 6/12/05
* Cape ivy treated 6 times; harvested 7/19/2005

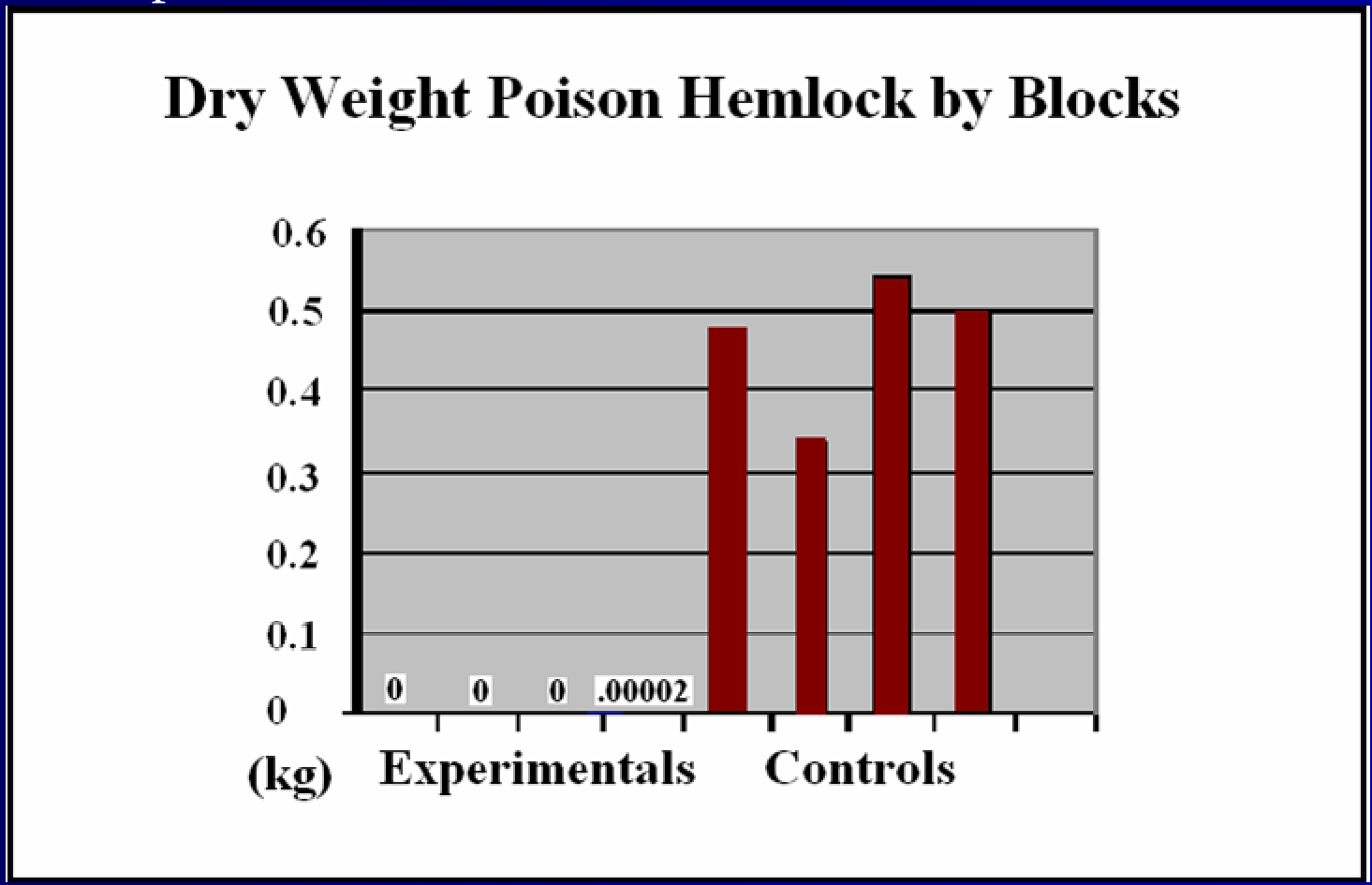
RESULTS: Poison hemlock

Experimental

Control

Poison Hemlock statistics:

F = 149.7 p<.0001



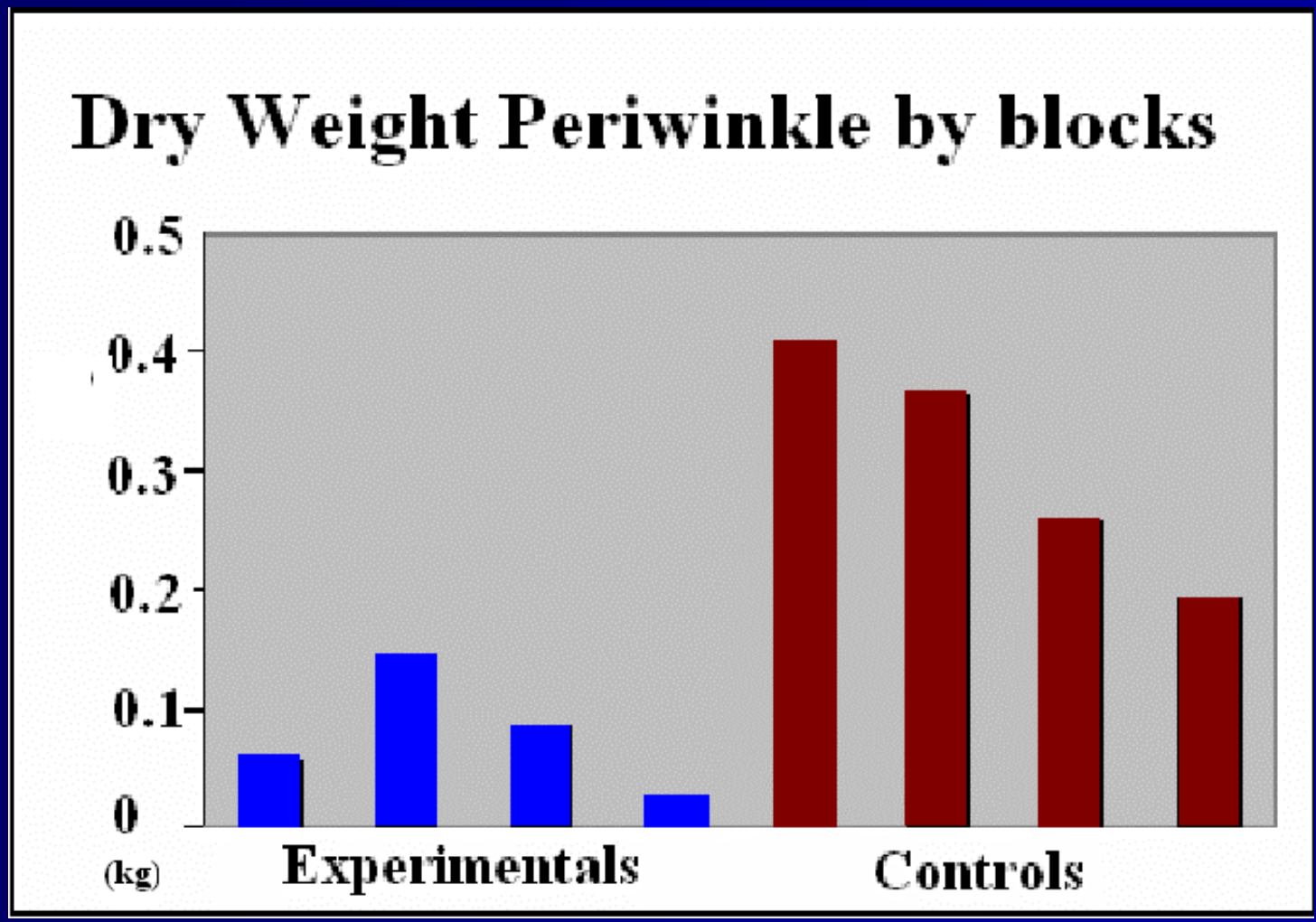
The roots and shoots decrease with treatment

Periwinkle results:

While the periwinkle density was decreased, it was not eradicated.

Periwinkle statistics:

F=31.28 p<.0001



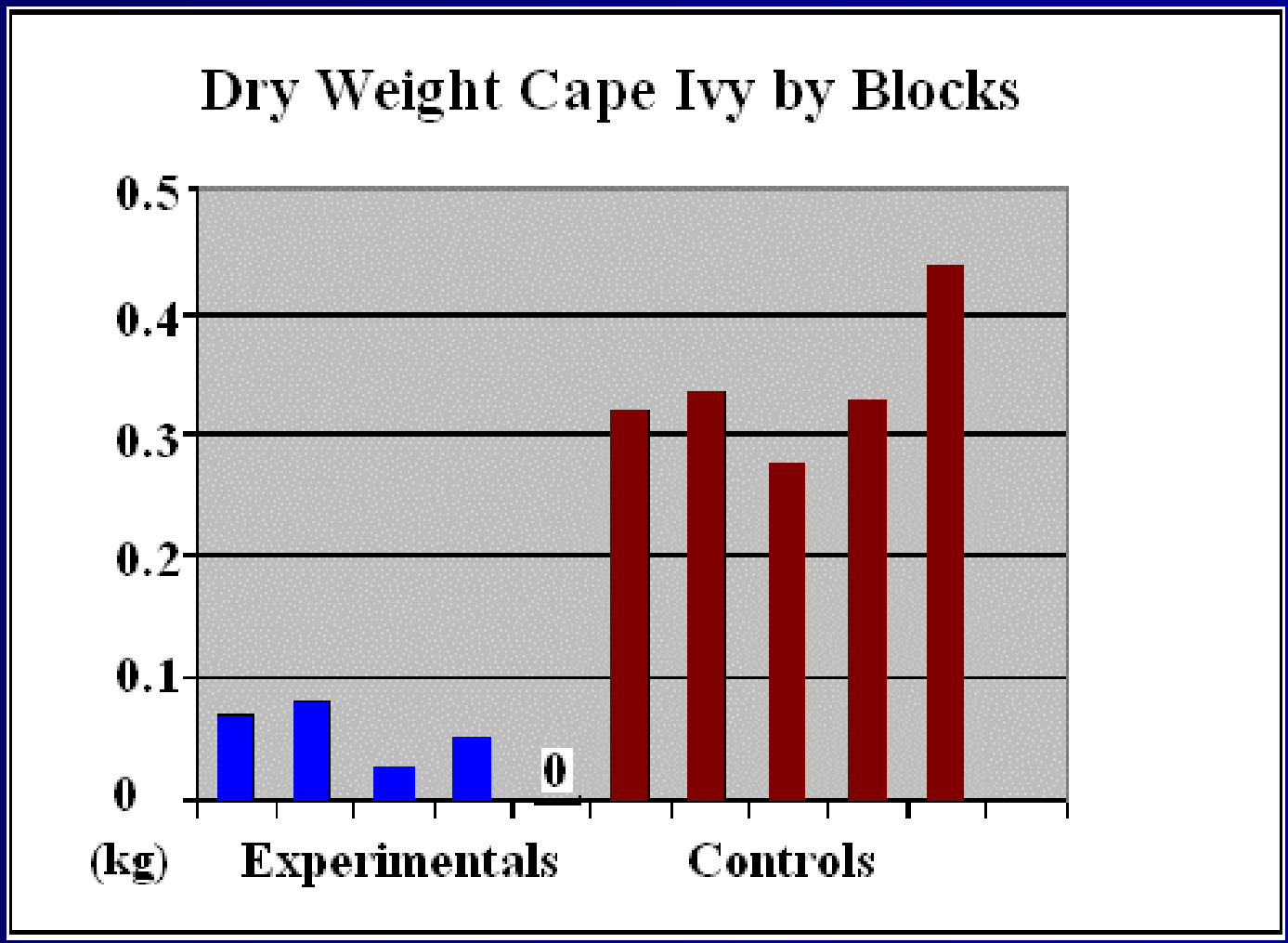
Cape ivy results:

Treated blocks in shade

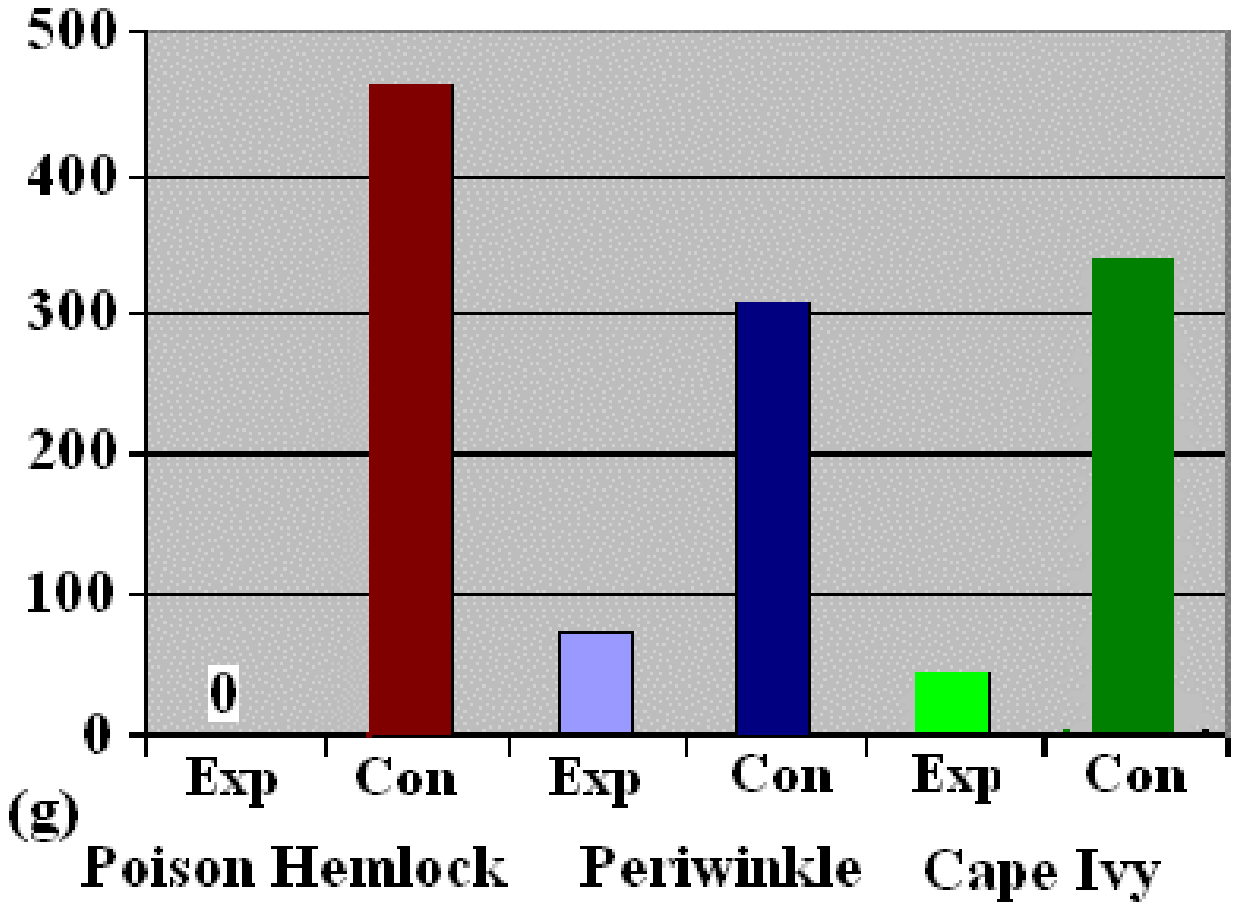
Treated blocks in sun

Cape ivy statistics:

F = 113.86 p <.0001



A Comparison of Flaming on Three Species
All significantly different -Only one eradicated



Conclusions I:

- Flaming on poison hemlock is effective and can locally eradicate this species.
- Start treating it when the plants are about 7 inches high, the treatment takes far less time and is most effective when the plants are that size.
- Seedlings stop germinating by mid May

Conclusions II.

- While periwinkle density can be significantly decreased, we do not recommend this technique for periwinkle since it can not be eradicated over one flaming season.

Conclusions III.

- In areas with cape ivy that have little or no direct sunlight, flaming can be used for eradicating these plants.
- Most areas with cape ivy have more sunlight than that and while the density is decreased significantly, the species is not eradicated in one season.

Final thoughts

- Remember to plan for revegetation needs. The poison hemlock cleared site will need to be revegetated or other invasives will rapidly take over.
- Other trials are under way testing repeat flaming as a removal technique.
- There will be more to report on this next year.