

# Assessing chemical management options for the control of stinknet (*Oncosiphon piluliferum*)

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# What and where is stinknet?

Native to South Africa

First record in CA:  
Riverside - 1981

Plant characteristics:

Flowering height variable

Small seed size (0.6-0.8mm)

Seed heads remain on skeleton

Creates dense stands

Multiple germination cohorts





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**Distribution expanding with a need  
for management options**



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Lake Perris State Recreation Area



# Chemical Control Approaches

## 1) Reduce initial establishment of the invader

### *Pre-emergent herbicides*

→ Sprayed in the Fall, aimed at stopping the seedlings from germinating successfully

## 2) Reduce seed production of the invader

### *Post-emergent herbicides*

→ Sprayed in the Spring, aimed at killing actively growing plants prior to flowering



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# Research Question's

Question 1. Which herbicide strategy is most effective in reducing stinknet cover?

Question 2. Within a given herbicide strategy, which herbicide treatment is the most effective in reducing stinknet cover?

Question 3. How do herbicide treatments impact community composition?



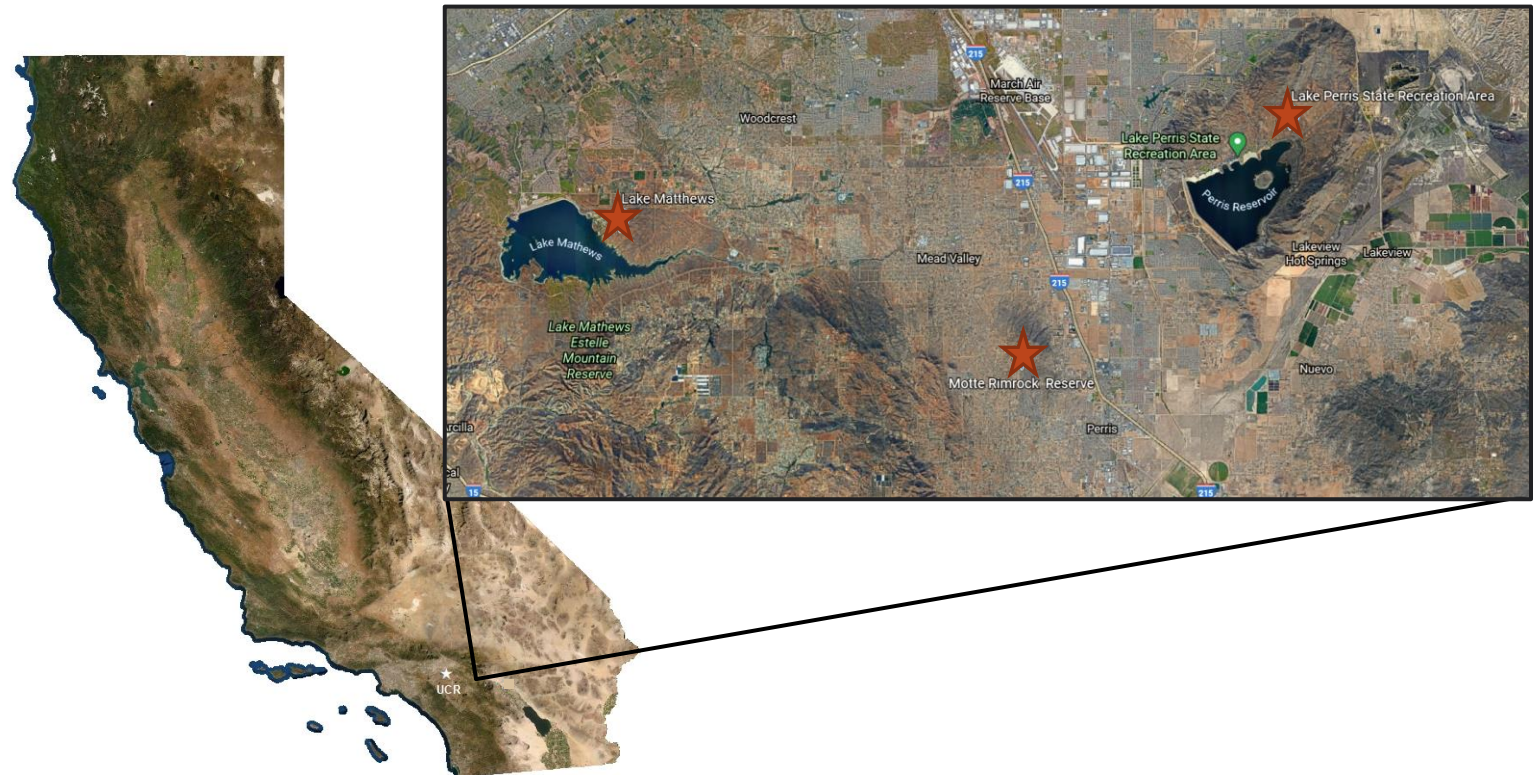
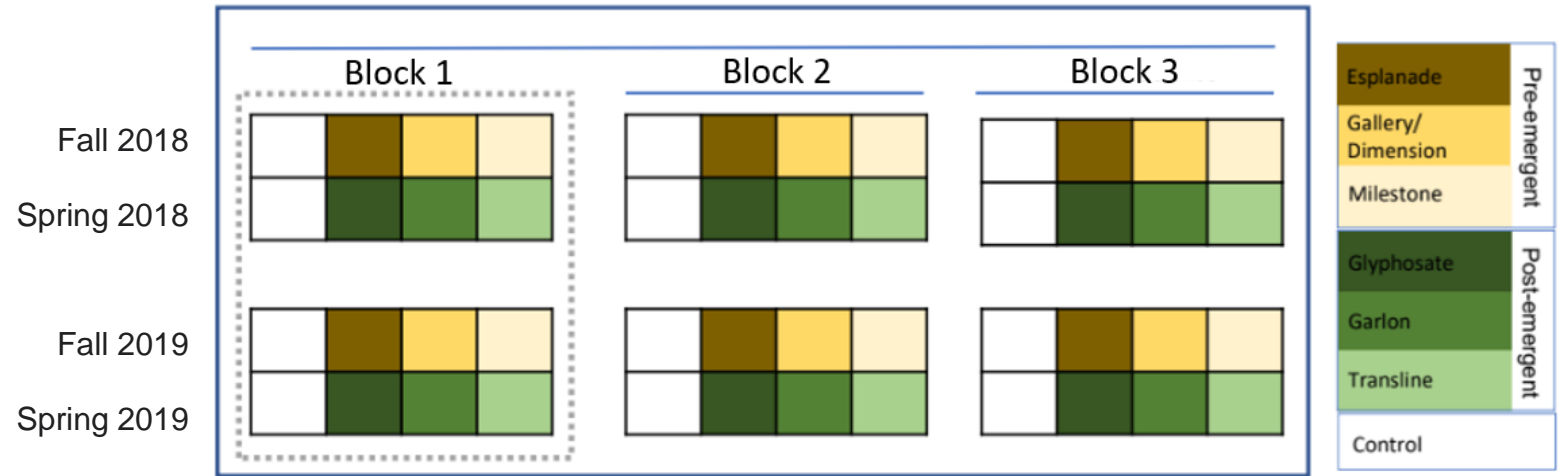
# Design

Conducted herbicide trials in  
2018 & 2019

Trials replicated at three sites  
within Riverside county:

Lake Mathews Preserve  
Lake Perris State Recreation Area  
Motte Rimrock Reserve

Sampling:  
recorded stinknet cover & overall  
species composition within a 1 x 1  
m quadrat one year after treatment



# Stinknet Cover

Stinknet cover impacted by herbicide strategy and year treated

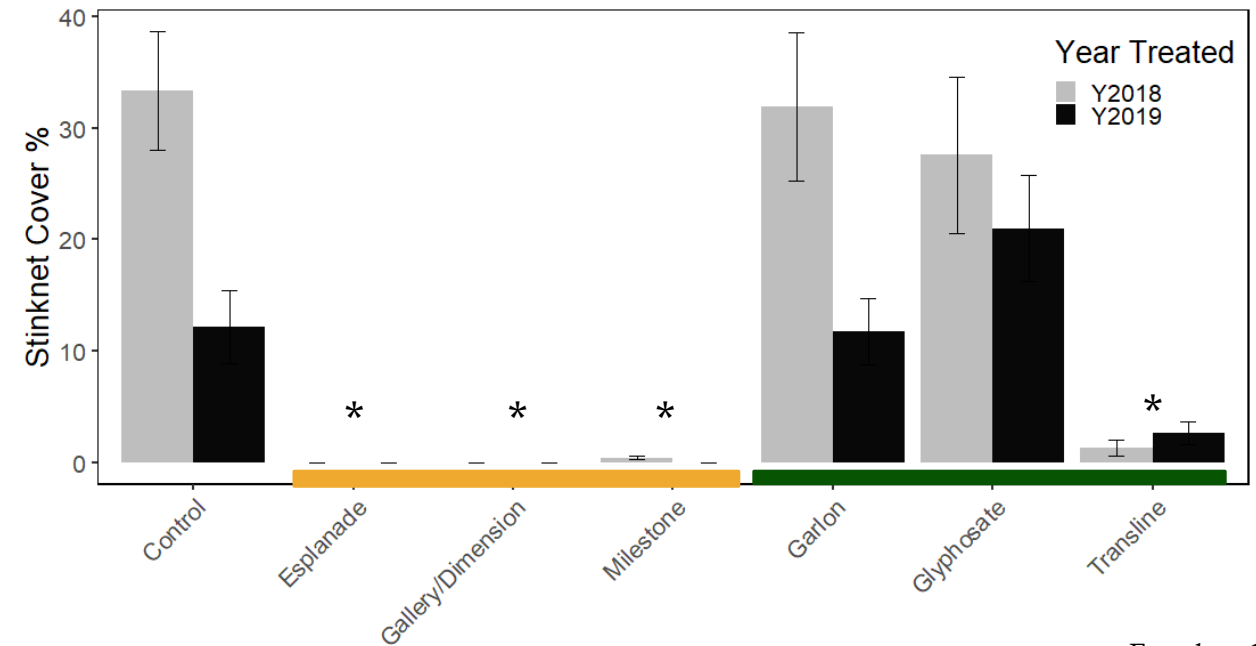
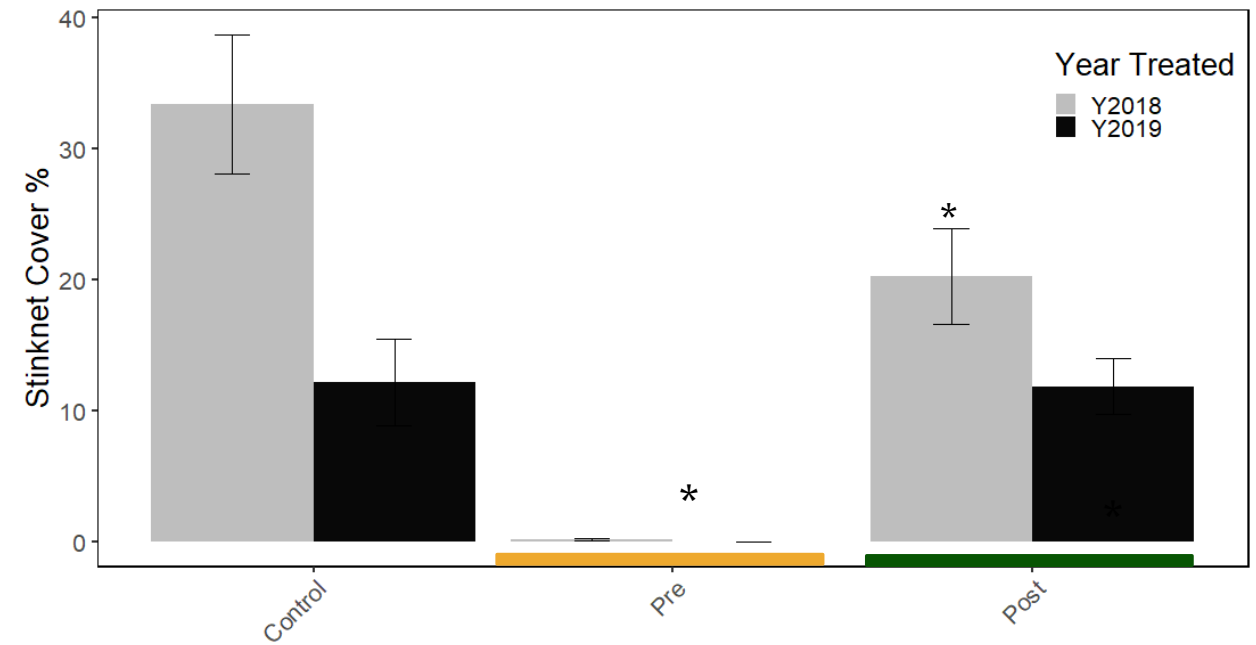
## Herbicide strategy

2018: pre- and post-emergent strategy  
reduced stinknet cover

2019: pre-emergent strategy only

## Herbicide treatment

2018 & 2019: All pre-emergent + Transline



Error bars 1 SE  
\* Indicates statistical difference  
from control  $p < 0.001$

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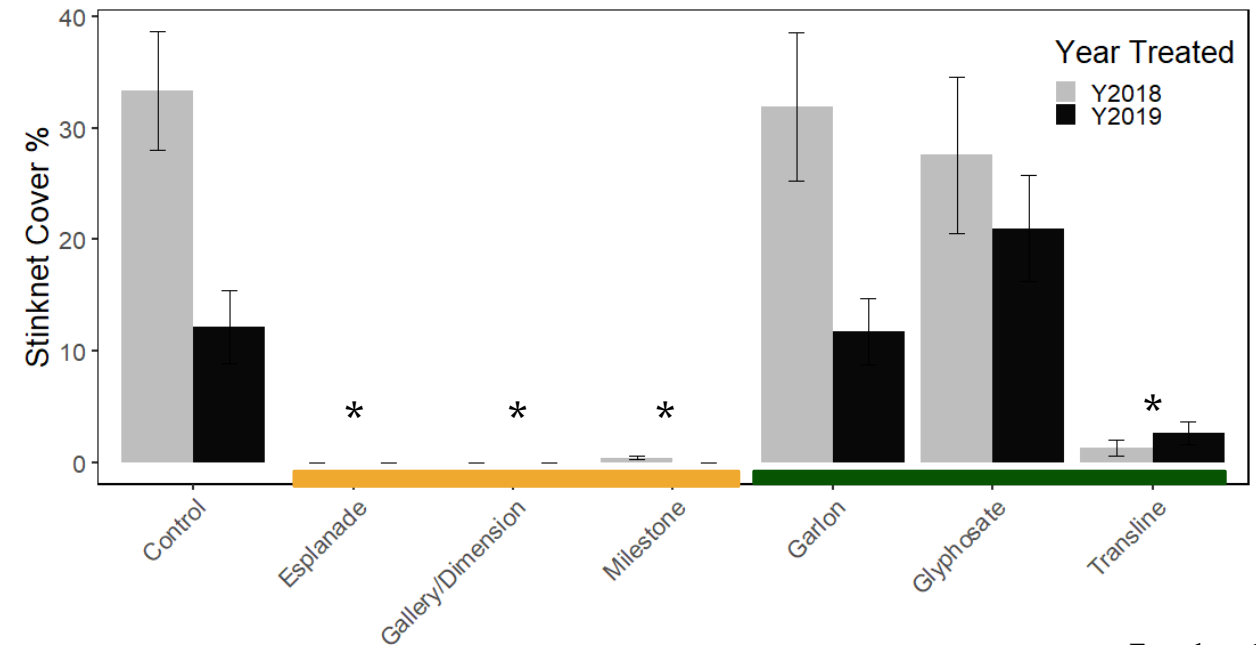
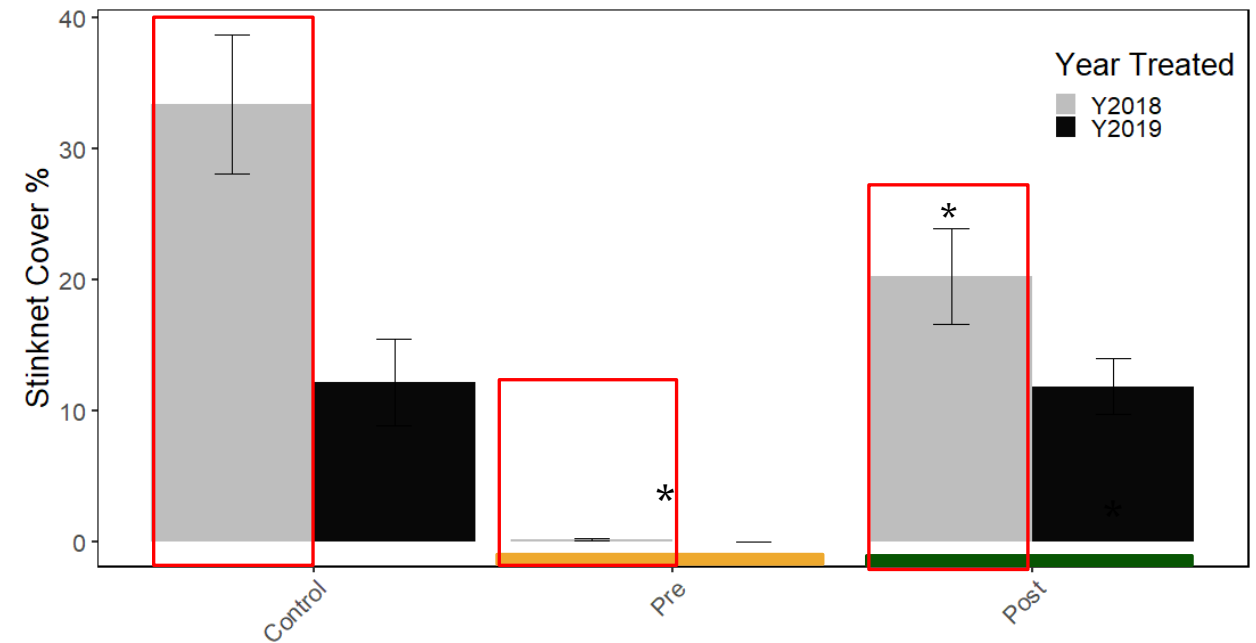
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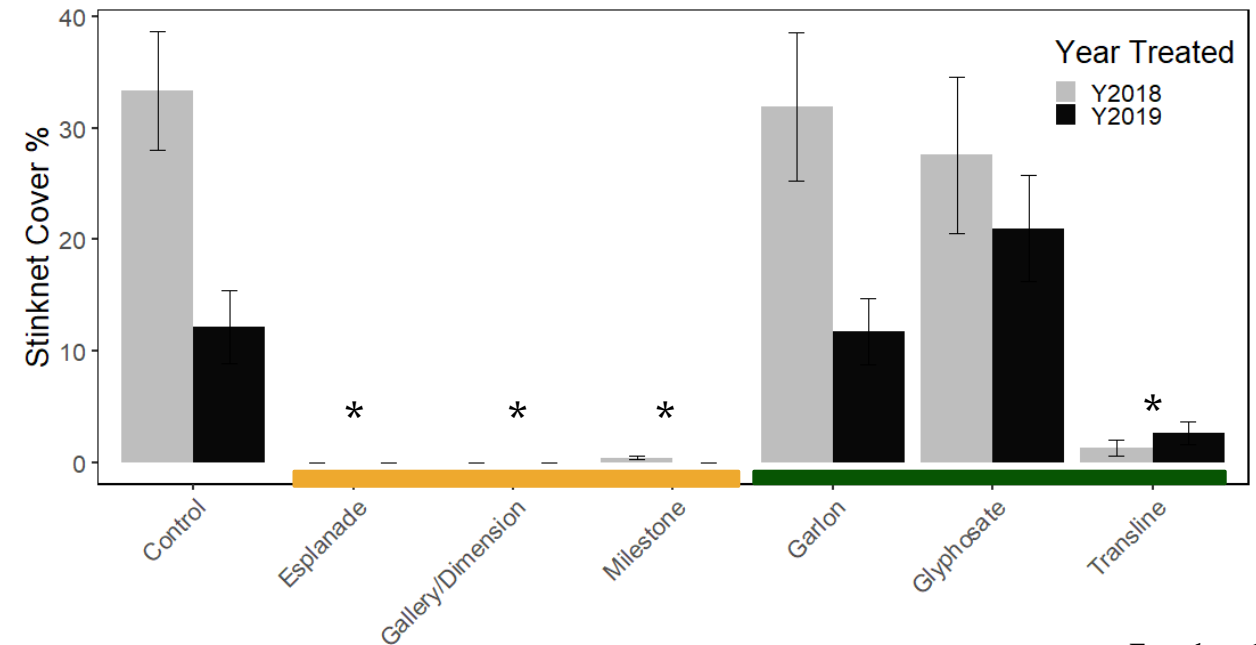
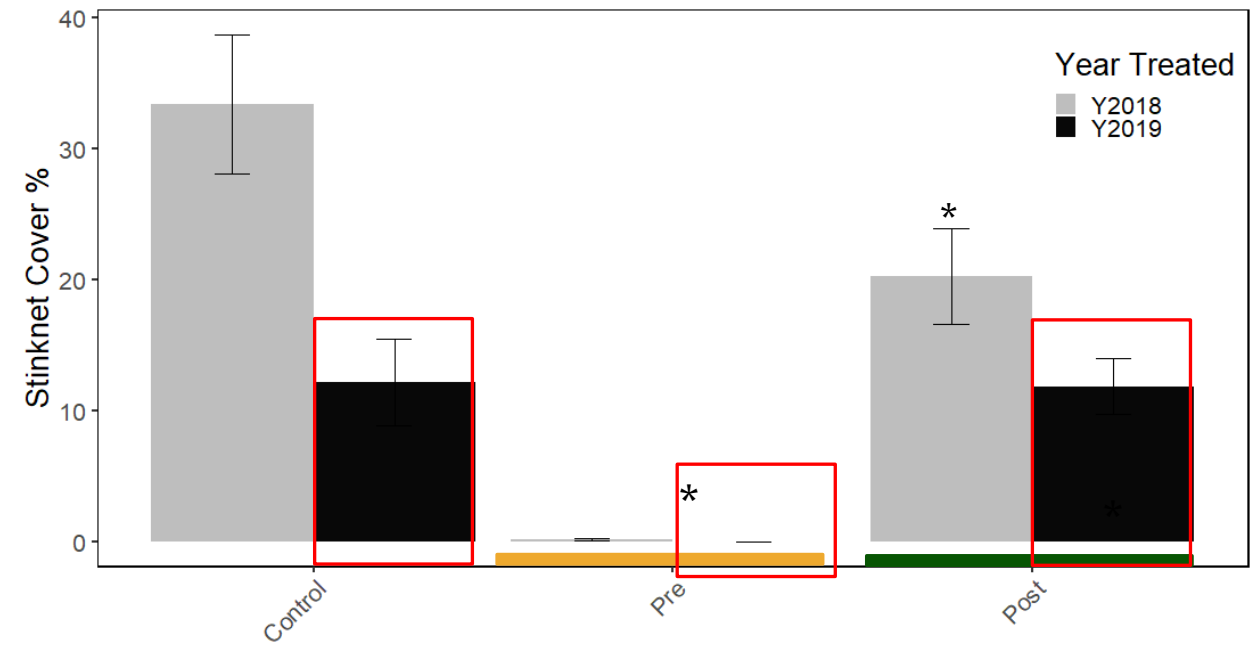
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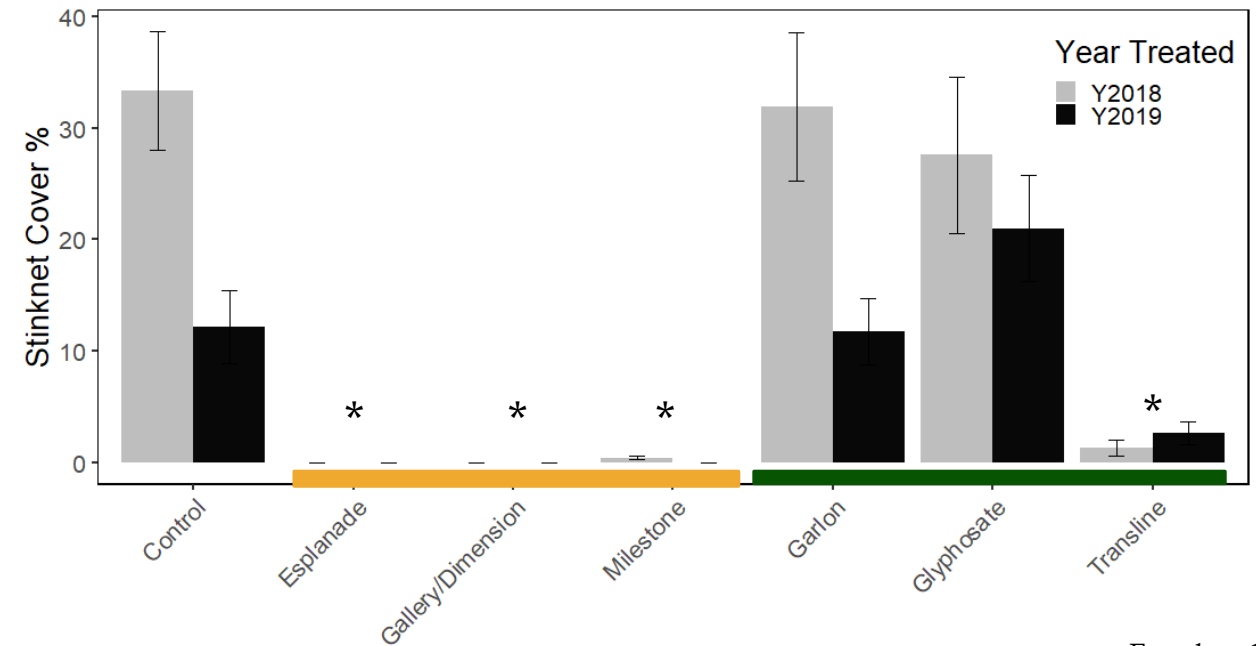
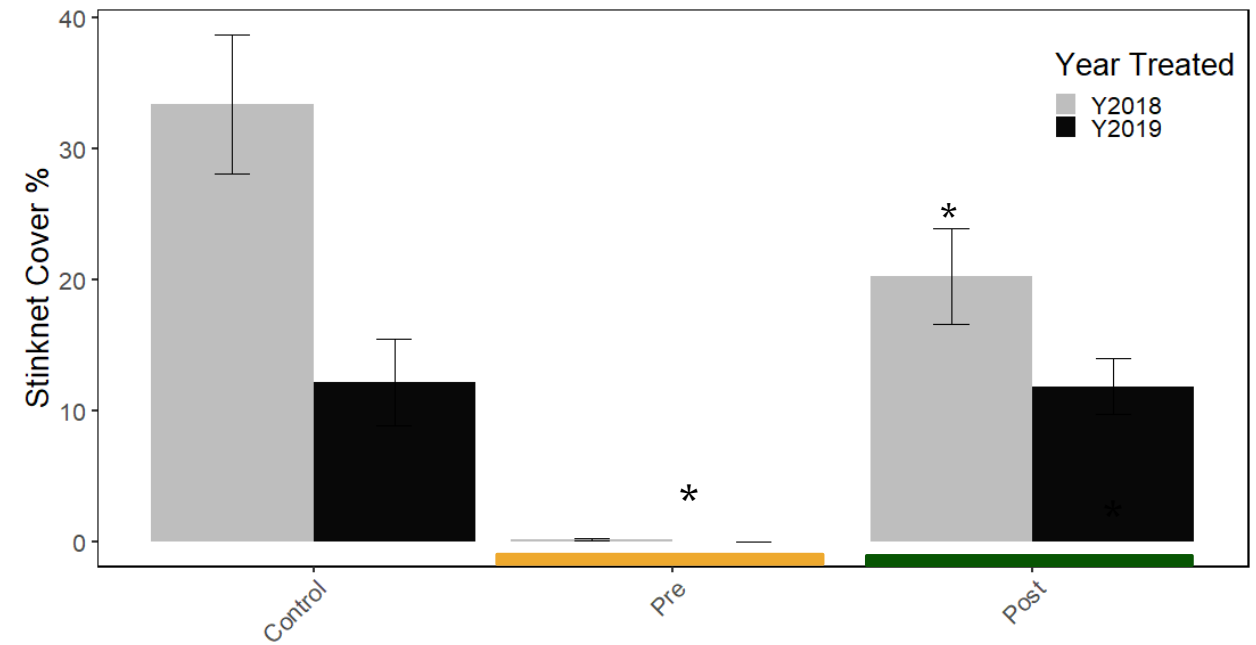
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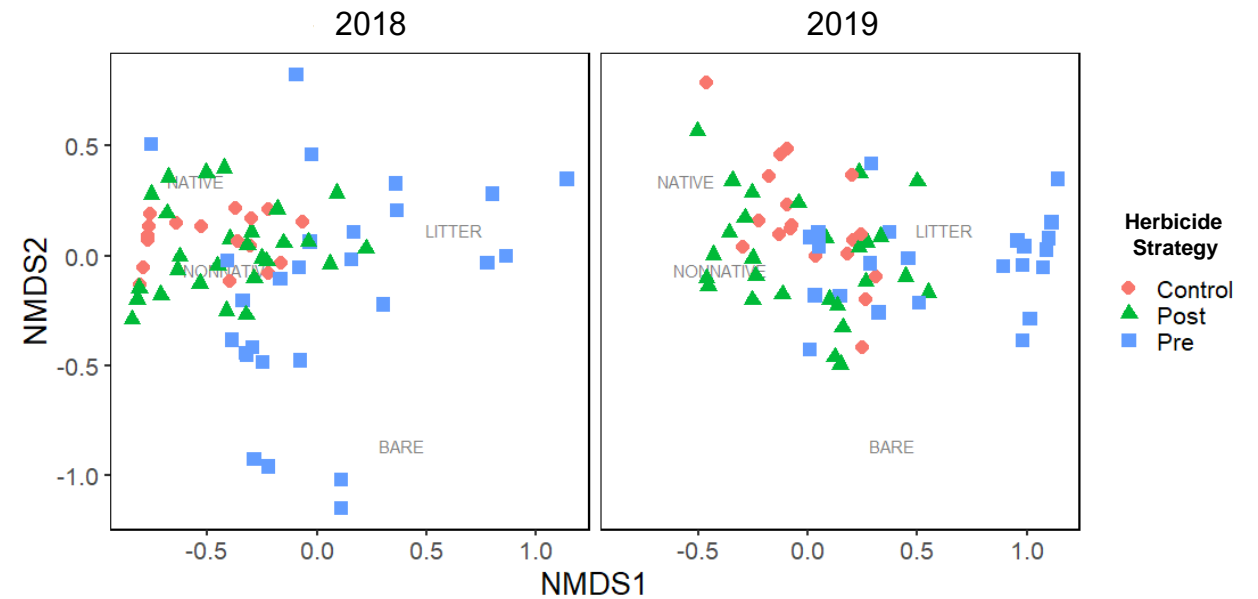


# Community Composition

Herbicide & Year significantly impacted plant community composition

Post-emergent herbicides did not differ from control

Pre-emergent herbicides resulted in more bare & litter cover type



Herbicide: PERMANOVA,  $R^2=0.19$   $p=0.0001$   
Year Treated: PERMANOVA,  $R^2=0.15$ ,  $P=0.001$



# Conclusion

Q1) Reducing initial establishment was the most effective at reducing stinknet cover

Q2) Pre-emergent treatment: Esplanade  
Post-emergent herbicides: Transline

Q3) Pre-emergent herbicides resulted in more bare and litter compared to post-emergent and control plots





# Thank You

## Larios Lab

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