

A COMPARATIVE STUDY OF ³ *PHRAGMITES* CONTROL MEASURES



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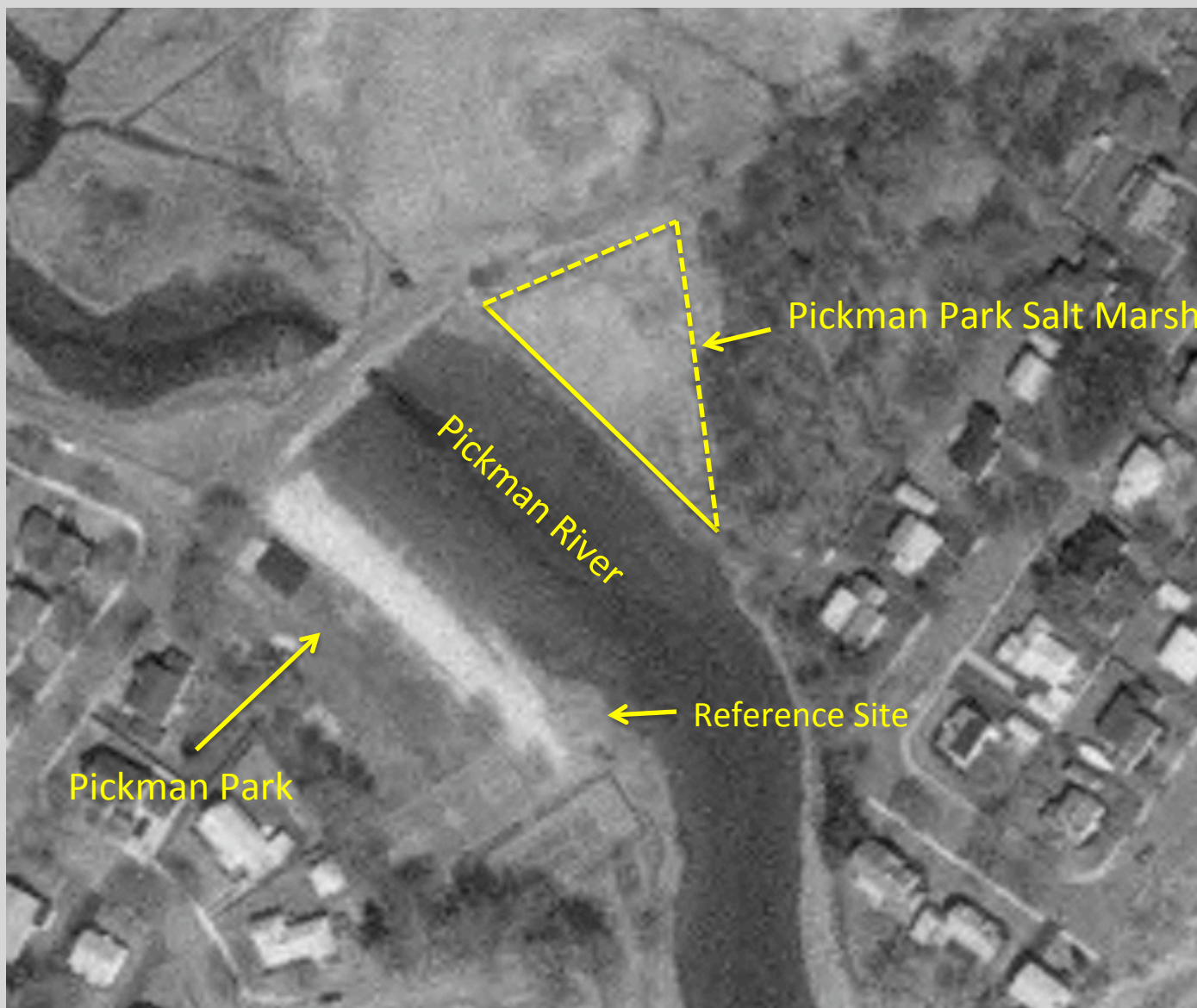
Phragmites australis the Common Reed



- invasive species
- introduced from Europe
- out-competes native salt marsh vegetation

Pickman Park Salt Marsh Study Site





Aerial Photo c 1990's



**Pickman Park Marsh
two wall openings
1st trench
November 2002**



June 2003



Pickman Park Marsh c 2005
three *Phragmites* stands
Reference Stand (R)

Treatments

- **Cutting only**
 - Weekly / biweekly during 3 growing seasons
(2007, 2008, 2009)
- **Cutting plus herbicide**
 - Weekly / biweekly during 3 growing seasons
(2007, 2008, 2009)
- **Excavation to increase seawater inundation**
 - Extend trench & reduce marsh elevation
(2007)

Effectiveness of Treatment

- **Comparison of mean height of 20 of the tallest stalks within a stand**
 - **2006 -- baseline prior to study**
 - **2011 -- 2 years after cutting / herbicide treatments ended in 2009**
 - **4 years after excavation in 2007**

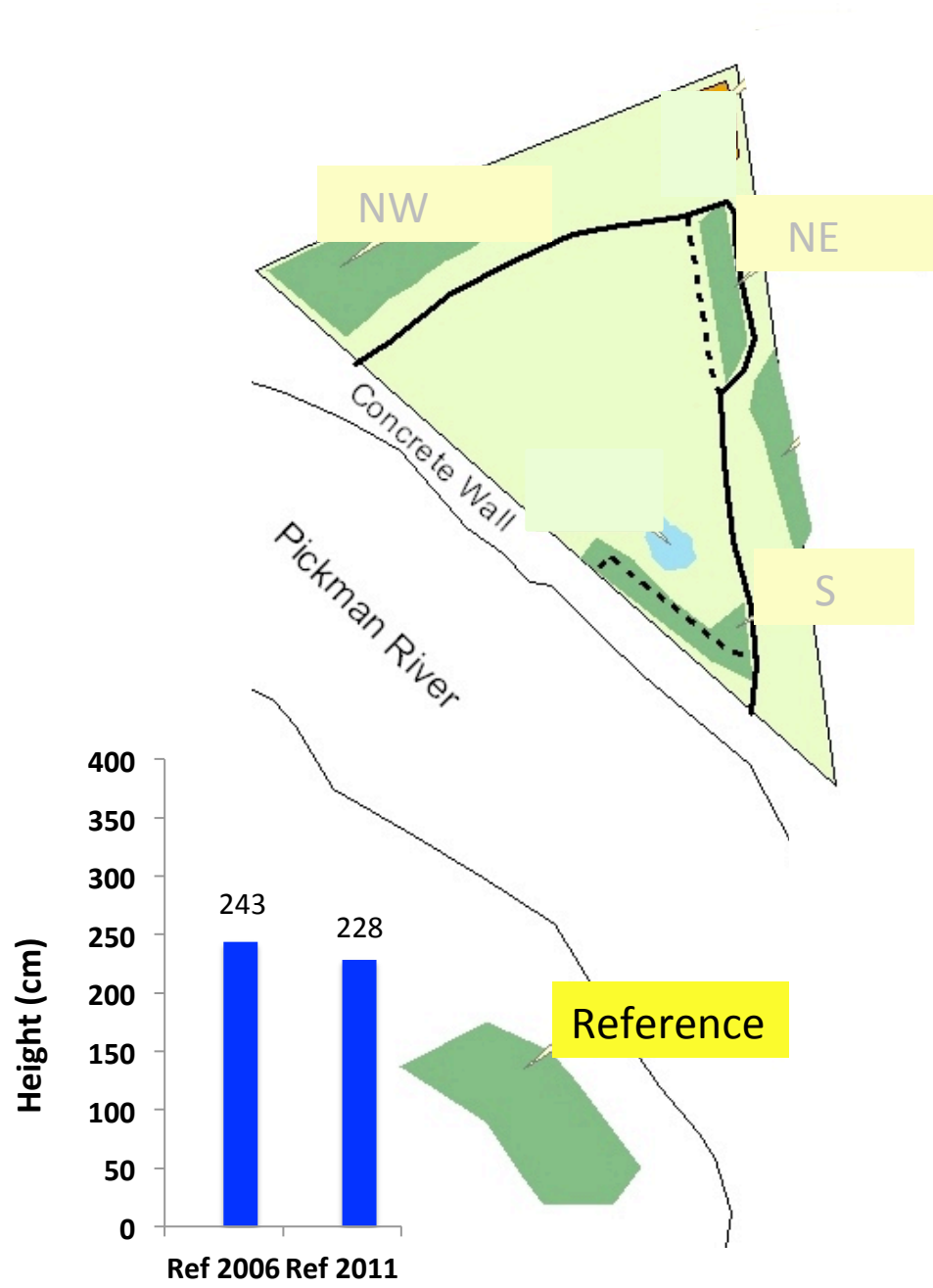
Phragmites Reference stand



2006



2010



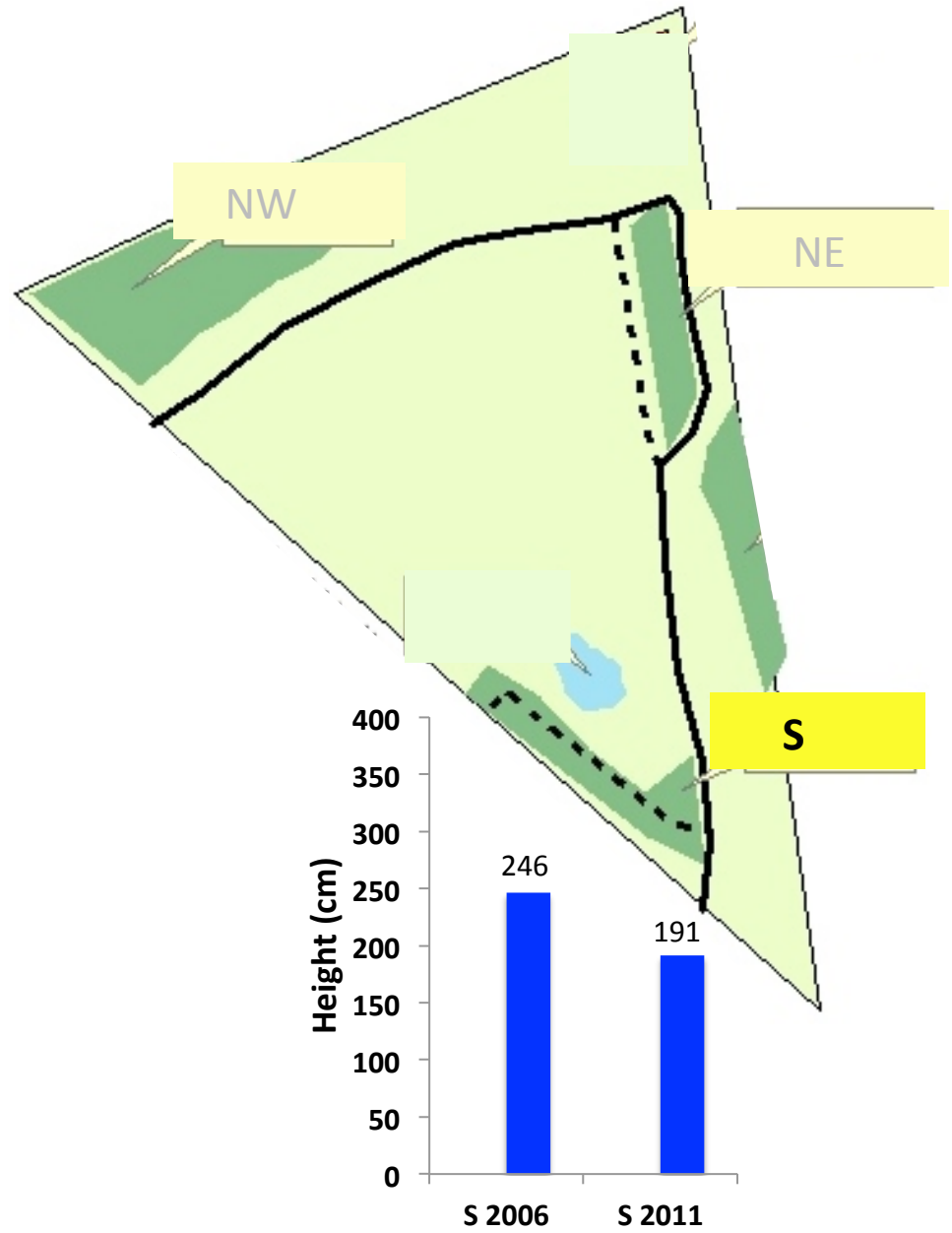
Phragmites stand at S corner of Pickman Park Salt Marsh June 2006
Treatment = weekly / biweekly cutting to ground level



June 2007

Phragmites regrowth in S corner stand -- 2010





***Phragmites* stand at NW corner of Pickman Park Salt Marsh
Treatment = cutting plus application of BurnOut II™**



June 2006

August 2007





Burnout II Concentrate

Active Ingredients:

Citric Acid 11%

Clove Oil 6.5%

Sodium Laurel Sulfate 3%

Other Ingredients:

Mineral oil, Water,
Lecithin

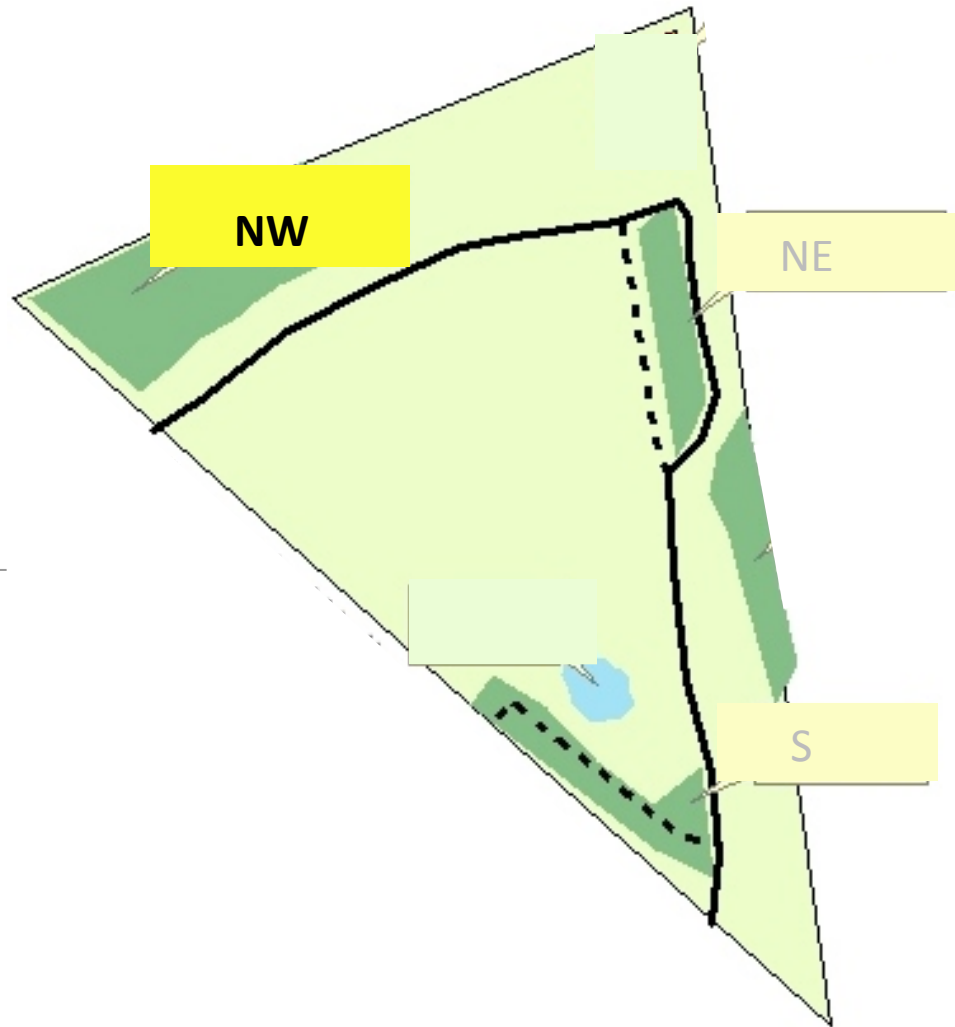
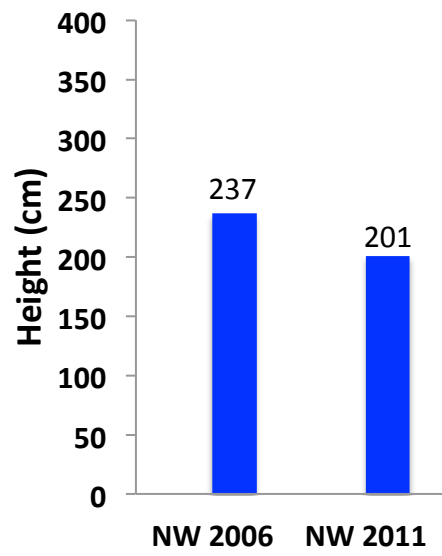
Total Other 79.5%



applied as 50:50 solution of BurnOut : vinegar (acetic acid)

***Phragmites* regrowth in NW corner stand -- 2010**





***Phragmites* stand at NE corner of Pickman Park Salt Marsh June 2006**
Treatment = excavation to increase salt water inundation





Pickman Park Marsh c2005

Excavation Equipment and Timber Mats Summer 2007



Excavation Work August 2007



September 2007



old 2002 trench

new trench

excavated area

Pickman River

Pickman Park Salt Marsh 2008

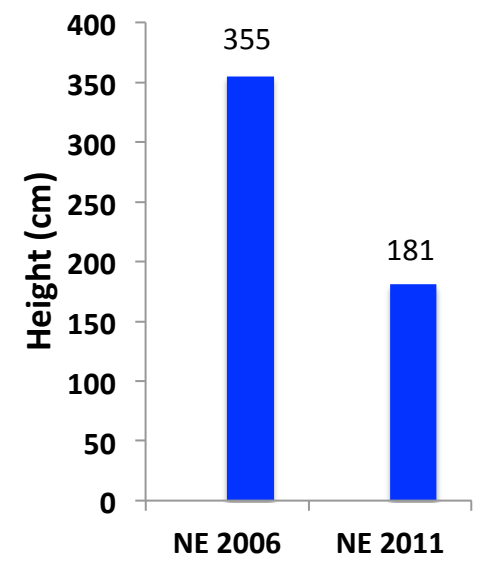
Phragmites stand at NE corner of Pickman Park Salt Marsh



2006



2010



Conclusions

- **Cutting only (during 3 growing seasons)**
 - **Ineffective**

Conclusions

- **Cutting only**
 - Ineffective
- **Cutting plus herbicide BurnOut II™**
(during 3 growing seasons)
 - Ineffective

Conclusions

- **Cutting only**
 - Ineffective
- **Cutting plus herbicide BurnOut II™**
 - Ineffective
- **Excavation to increase seawater inundation**
 - Effective?
 - (significant reduction in stalk height 4 years later)

Acknowledgements

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