An Integrated Approach to Invasive Species Control: Drury Wetland

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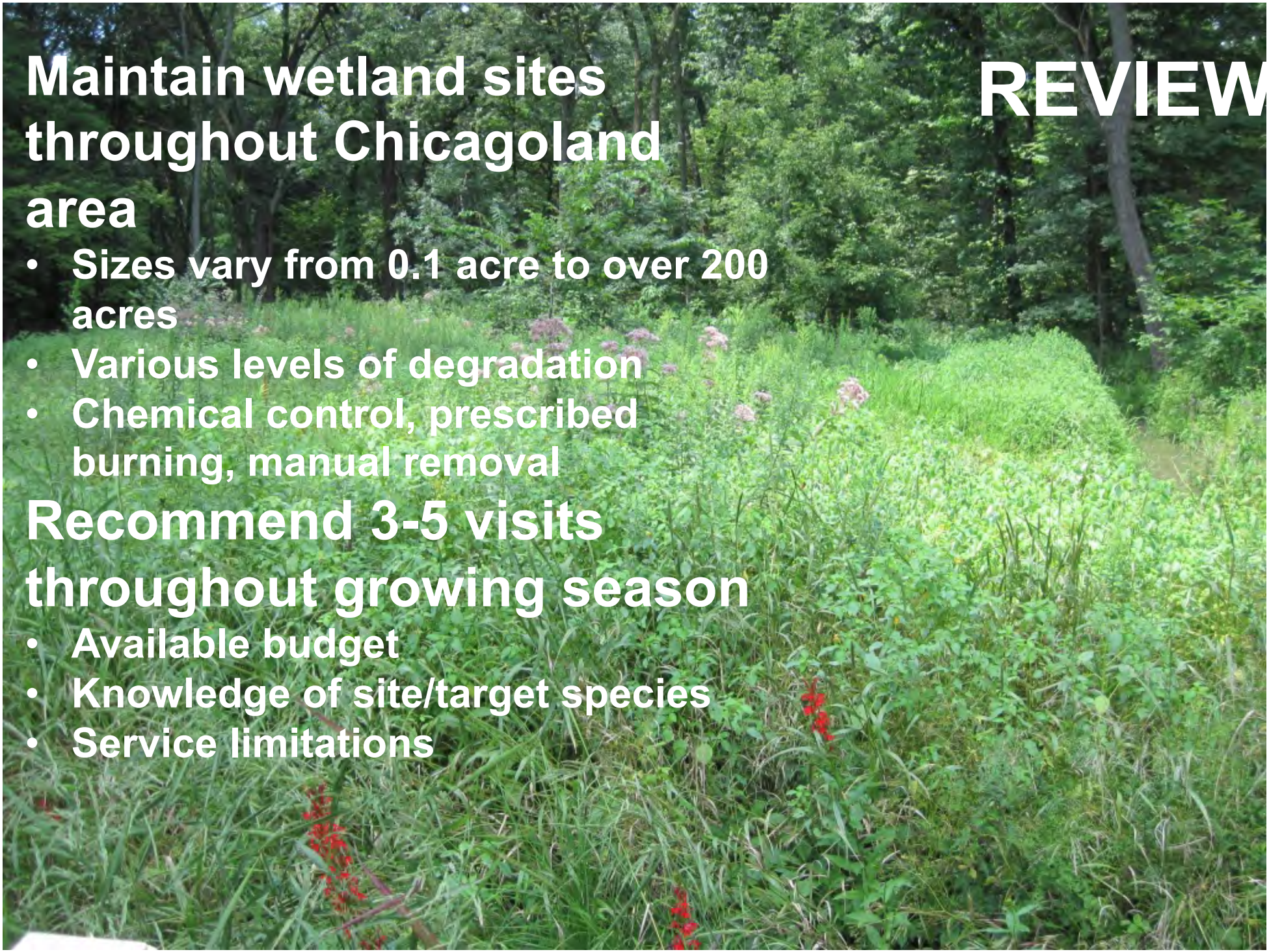
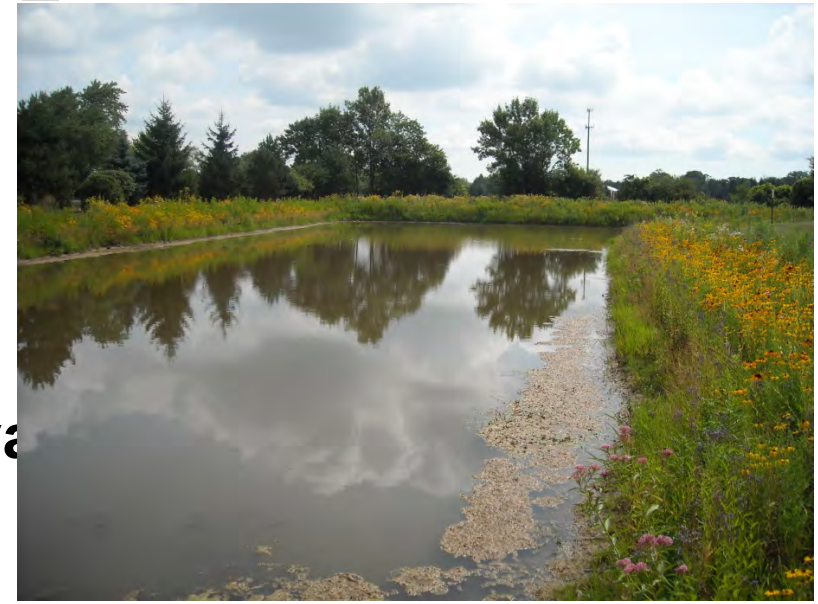
Table of Contents

- **REVIEW of private sector ecological restoration**
- **CASE STUDY: Drury Wetland Restoration**
- **TARGET SPECIES: Basic biology, site distribution & approach to control**
- **CONDITIONS post treatment**
- **FUTURE PLANS for Drury Wetland**

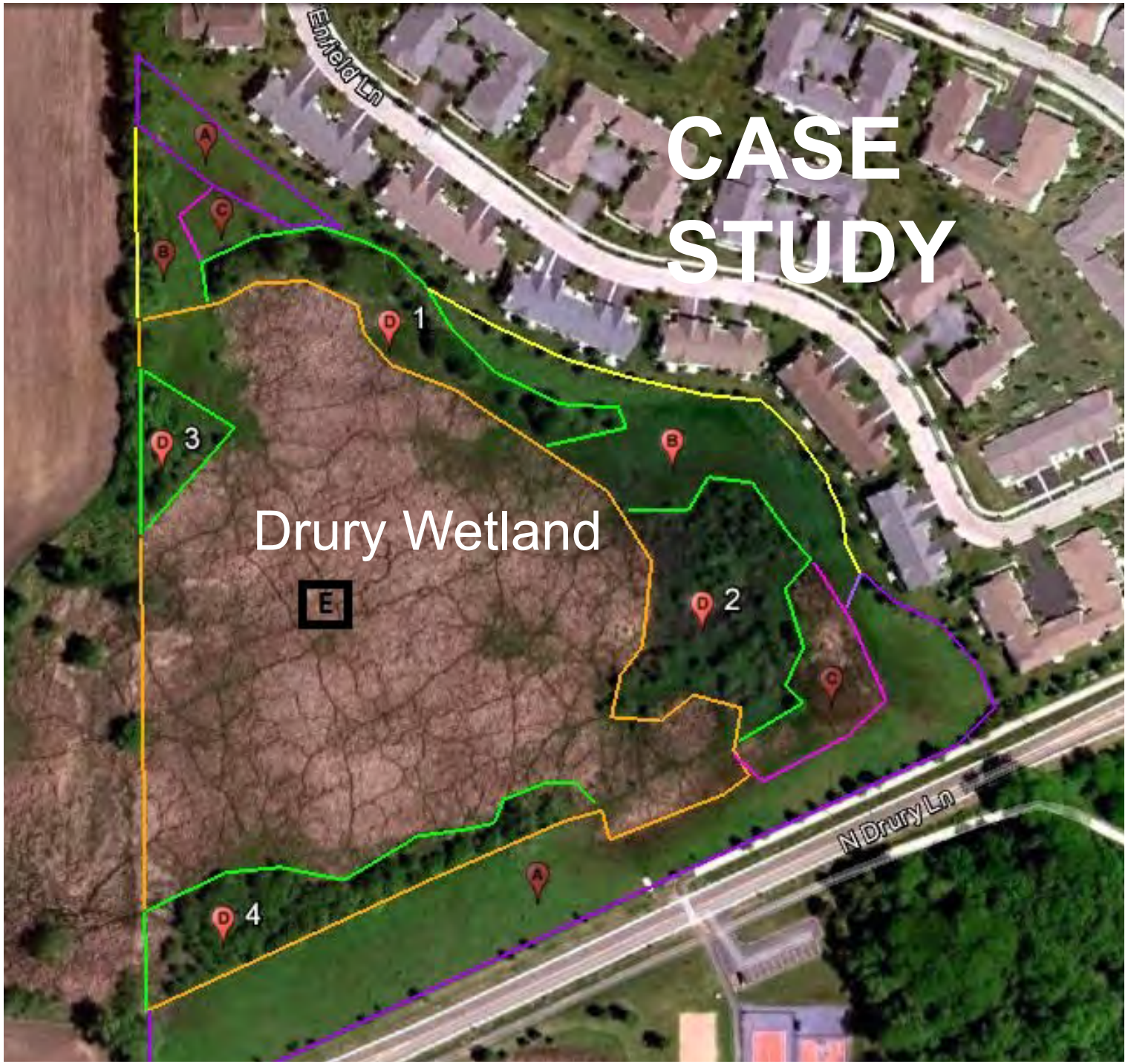

Maintain wetland sites throughout Chicagoland area
REVIEW
• Sizes vary from 0.1 acre to over 200 acres
• Various levels of degradation
• Chemical control, prescribed burning, manual removal
Recommend 3-5 visits throughout growing season
• Available budget
• Knowledge of site/target species
• Service limitations

CASE STUDY

- **Carillon North, Grayslake, IL**
  - **ILM began work in 2008**
  - **Installed & maintained native plant pond buffers and maintained prairie**
  - **Site awarded EPA/Chicago Wilderness award for Conserva & Native Landscaping in 2010**



- **Active senior HOA**
  - **Very interested in native plant communities**
  - **Extensive volunteer efforts**
  - **Fundraising for restoration projects**


CASE STUDY
Enfield Ln
Drury Wetland
N Drury Ln
A
B
C
D 1
D 2
D 3
D 4
E

CASE STUDY

Drury Wetland

- Undeveloped wetland area (per 1939 aerial)
- ADID Wetland Site #192 – Emergent Marsh
  - Stormwater Storage
  - Habitat: Endangered bird Sandhill Crane (*Grus canadensis)*
- Part of Mill Creek Watershed (31 mi^2- Libertyville north to Wadsworth)
- Work began in 2012

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  - Grant provided by Lake County SMC

CASE STUDY

Dominant Drury Wetland Species:

- Cattails (*Typha spp.*)

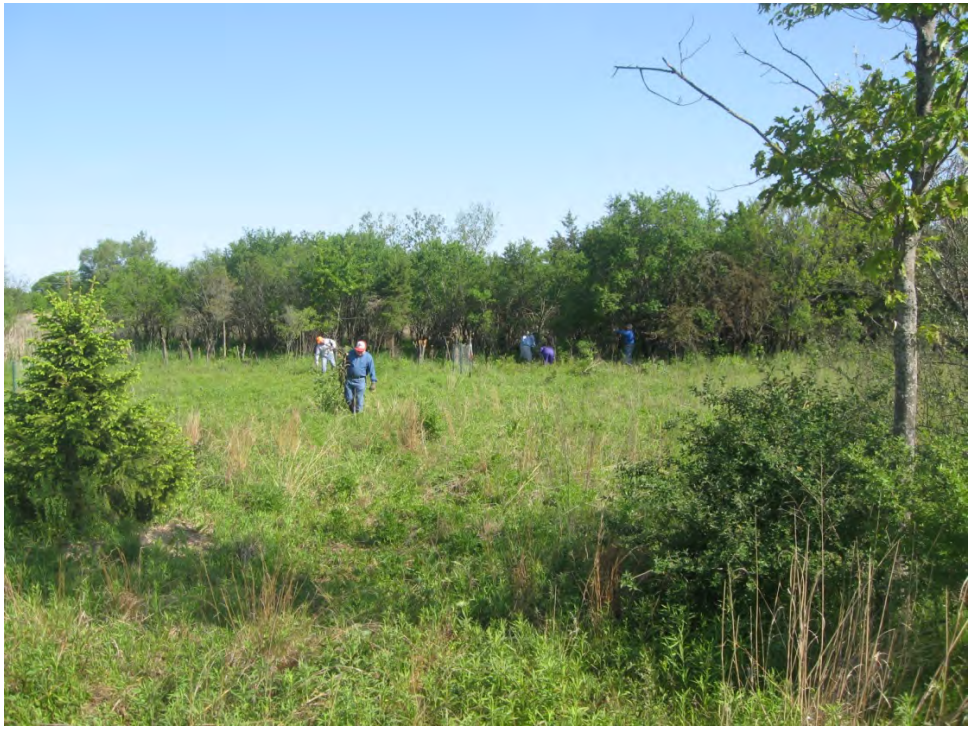
- Reed Canary Grass (*Phalaris arundinacea*)

- Common Reed (*Phragmites australis*)

- Common Buckthorn (*Rhamnus cathartica*)

TARGET SPECIES

- **Reed canary grass**
- **Phragmites**



- **Common buckthorn**
  - **Volunteer clearing**
  - **ILM stump treatment**
- **Cattails**
  - **Considered natural transition by some residents**
  - **Costly; acres of dense cattails would require control**
  - **Future maintenance may discourage further encroachment**

Phalaris arundinacea
Reed Canary Grass

- **Perennial, cool season grass ada to northern latitudes**
- **Produces dense colonies that exc all other species**
- **Reproduces both from rhizomes and from seed**
- **Active growth in early spring & fall; mid to late summer dormancy**
- **Root systems can tolerate low oxygen conditions created by prolonged flooding**
- **Introduced to US in 1850's for erosion control & livestock fodder**

Phalaris arundinacea
Reed Canary Grass

Table 1. Characteristics of perennial cool season grasses.

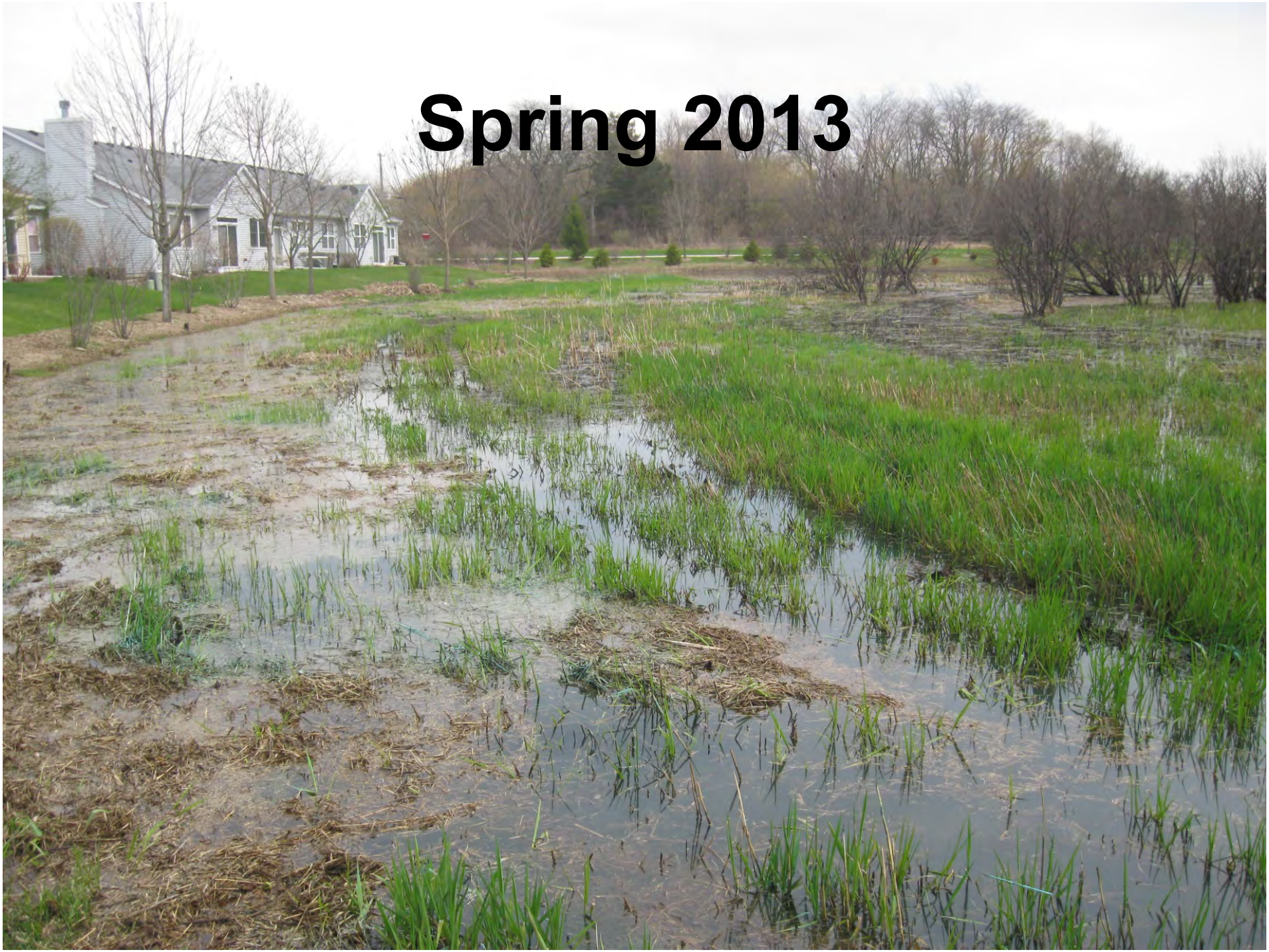
Grass	Heat/ drought Tolerance	Flooding Tolerance	Winter hardiness	Frequent cutting Tolerance	Seedling Vigor	Sod-forming Capacity
Reed canary grass	**E**	**E**	**E**	**E**	**F**	**E**
Smooth bromegrass	E	F	E	P	E	E
Orchardgrass	G	P	F	E	E	P
Tall Fescue	E	P	F	E	E	F
Timothy	P	P	E	P	F	P
Perennial Ryegrass	P	P	P	E	E	P
Kentucky bluegrass	P	F	E	E	F	E

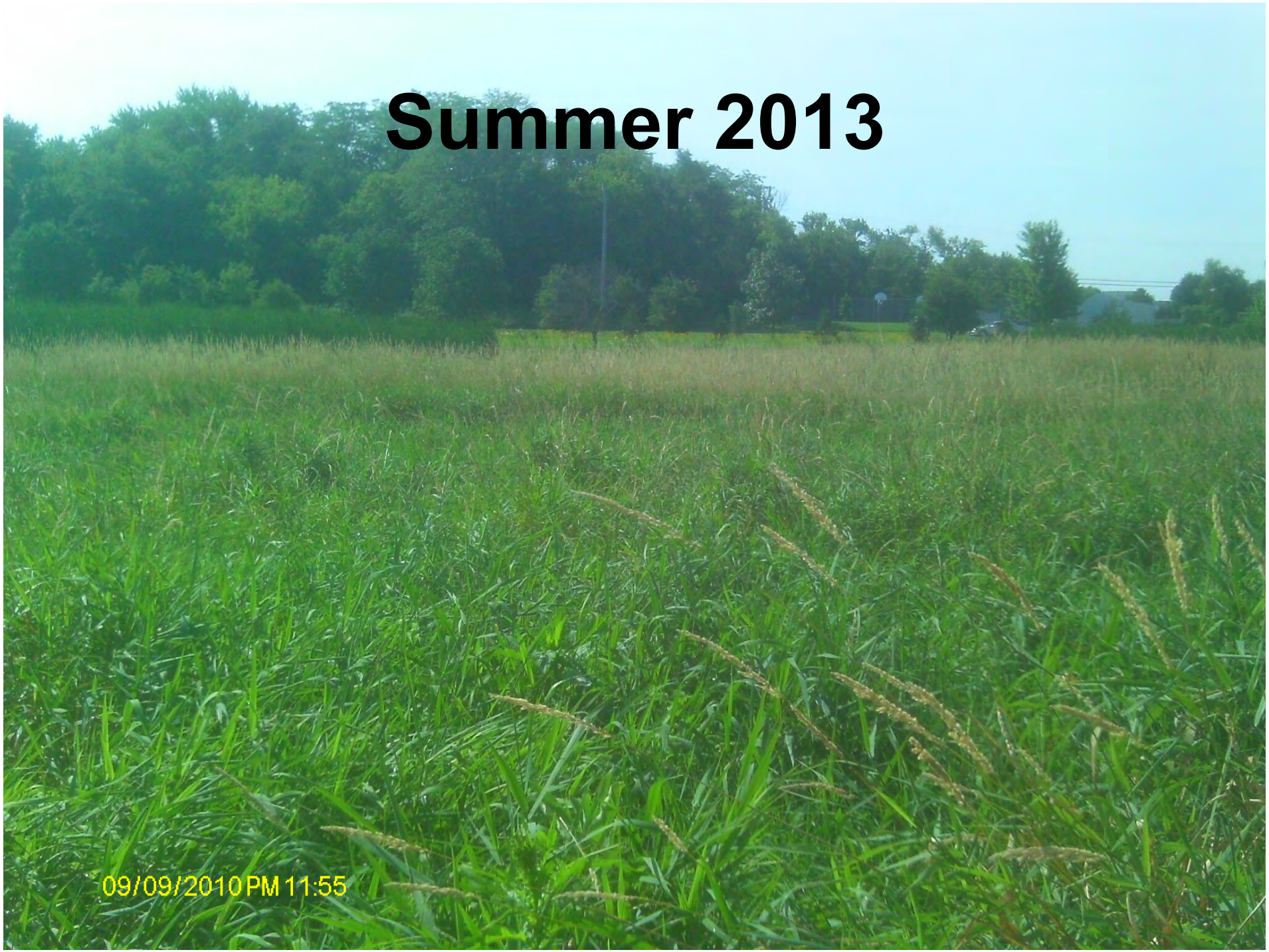
E = excellent, G = good, F = fair, P = poor

Source: Craig C. Sheaffer, Marten, Gordon C, Rabas, David L., Martin, Neal P. and Miller, Doug W.. Reed Canarygrass. University of Minnesota Extension. 1990. Web. 4 Sept 2013

ILM Management
Reed Canary Grass

- **Execute prescribed burn in late fall 2012 to remove excess plant debris**
- **Planned for early spring 2013 herbicide application**
  - **RCG is small and low growing**


Spring 2013


Summer 2013
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What now…???

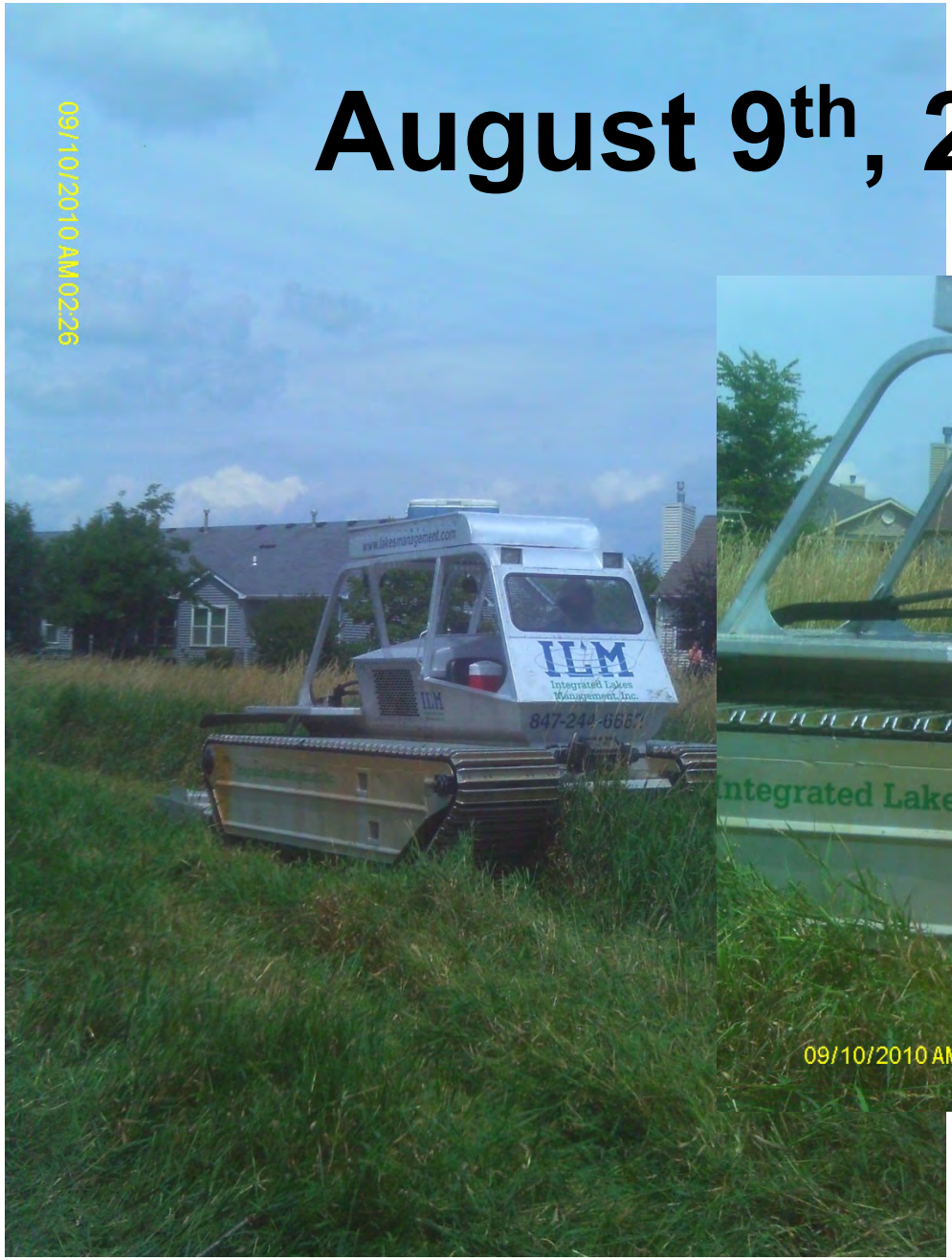
- **Height of species would require excessive herbicide amounts to cover entire leaf surface**
- **RCG is in summer dormancy stage and does not respond fully to herbicide application**

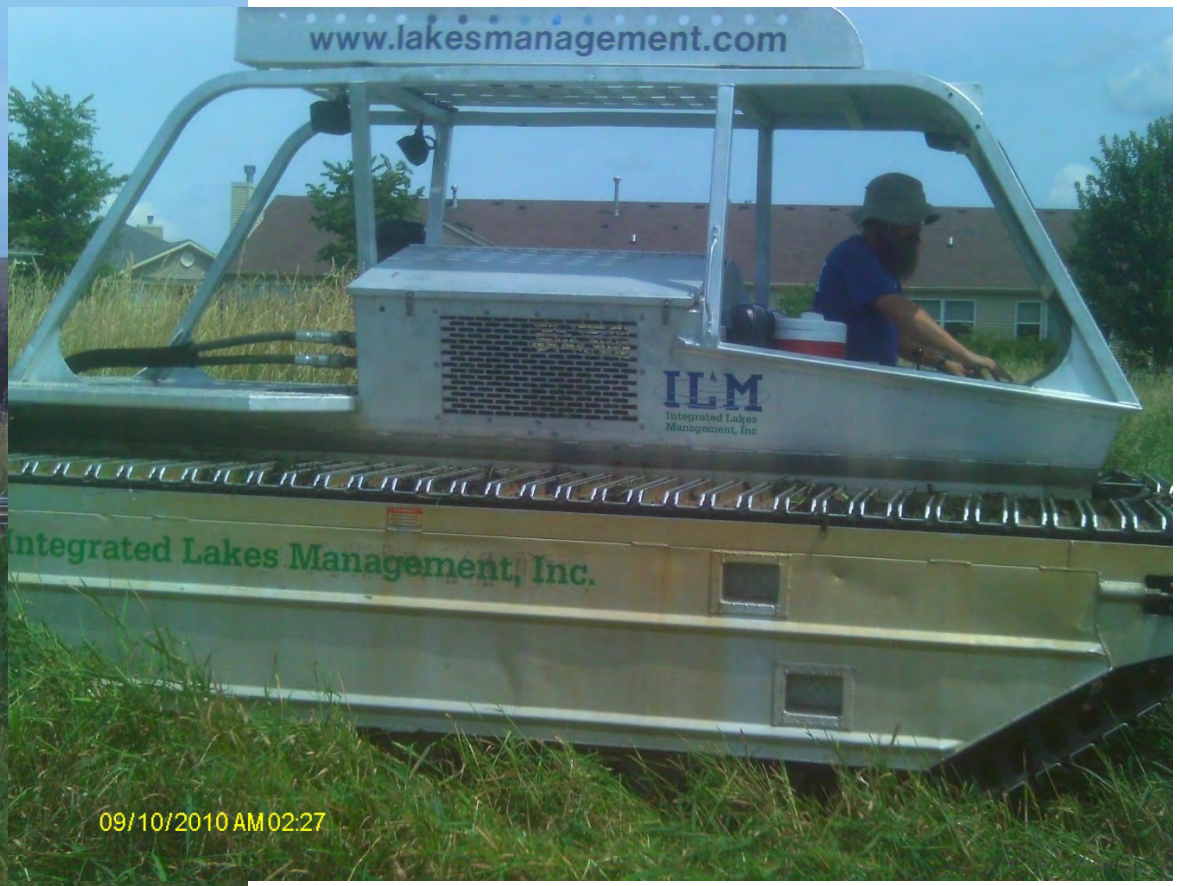
Mow field of RCG weeks to re-sprout herbicide in fall 2013

Allow several Follow up

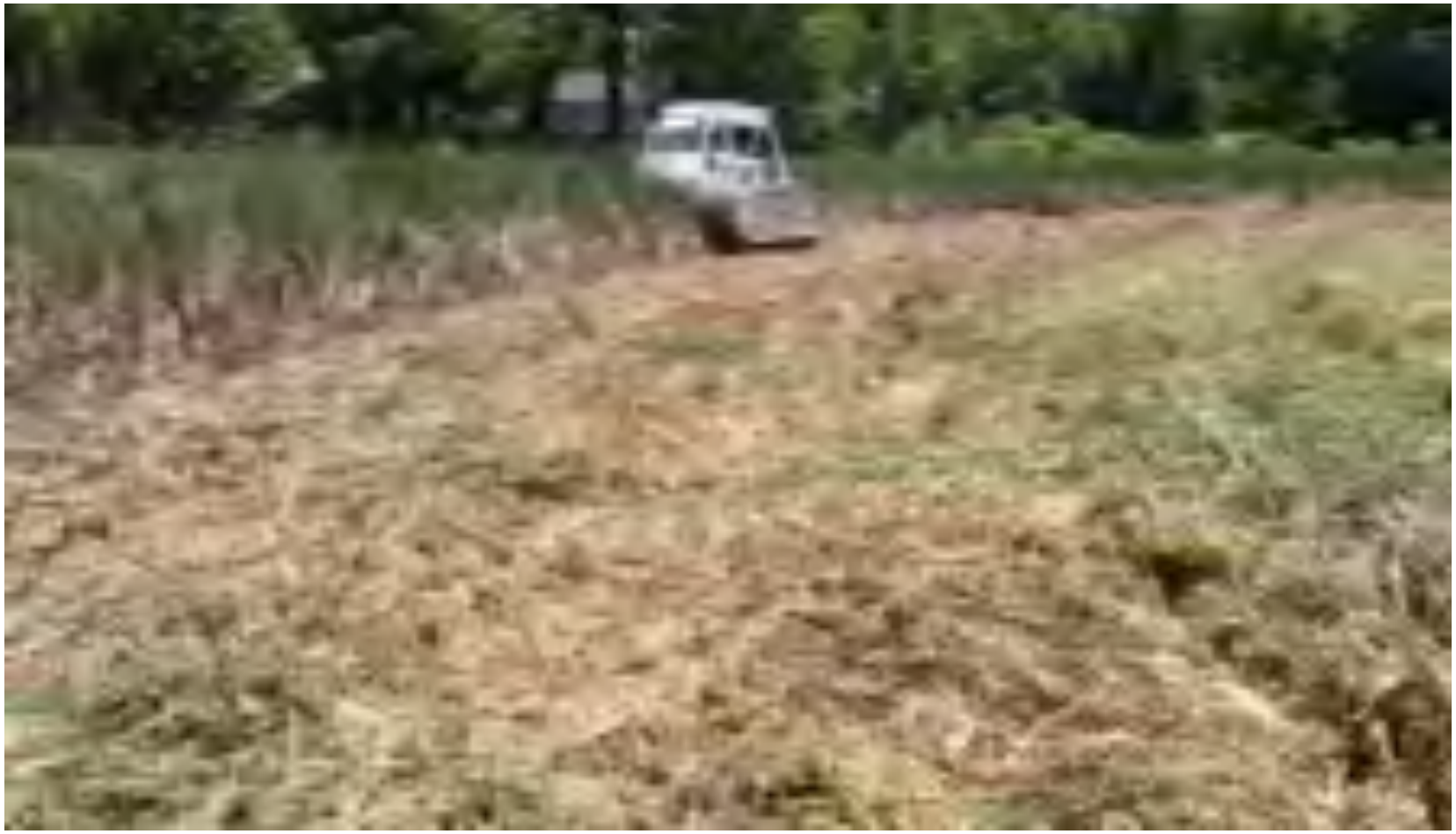
….wait a second, mow??? But it's in a wetland!

August 9th, 2013 - Mow



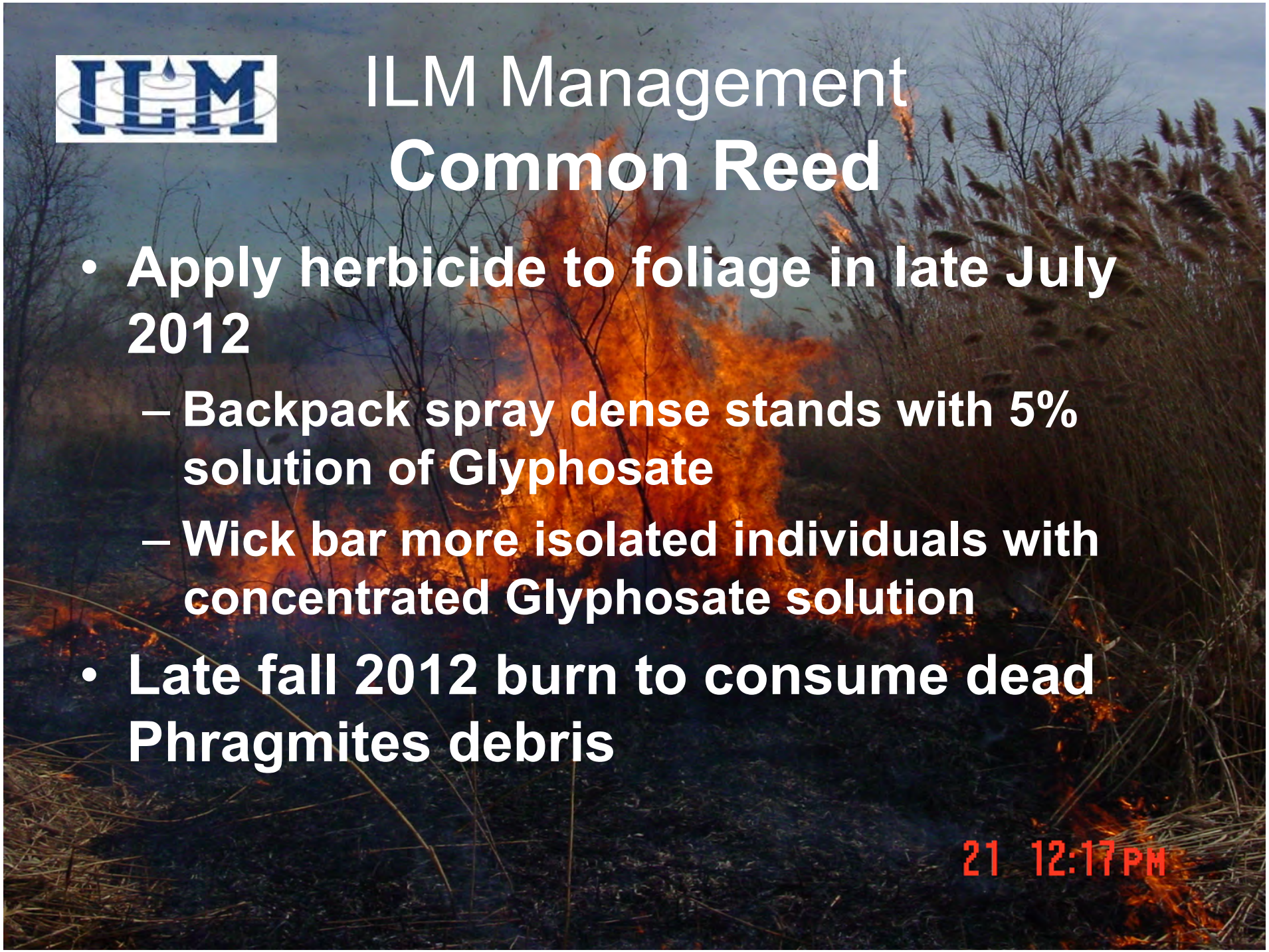


Marsh Master Mowing in Action



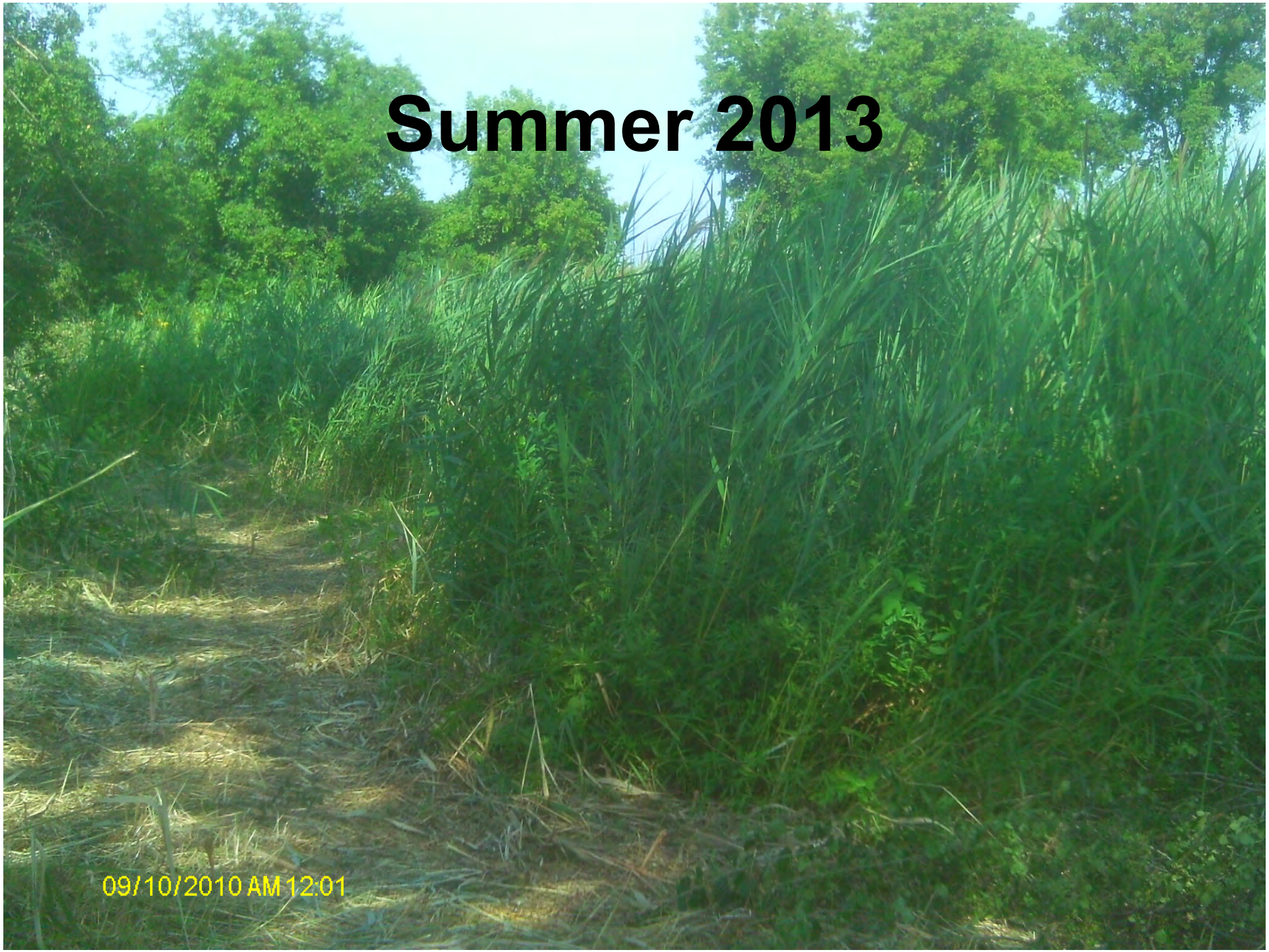
Phragmites australis
Common Reed

- **Perennial, warm season gra**
  grows up to 13 feet tall
- **Produces dense colonies th**
  exclude all other species (up to 200 stems per m^2)
- **Reproduces both from rhizomes (stems can grow up to 16 feet/year!) and from seed**
- **Growth begins in spring, flowers in mid summer, actively grows until first frost**
- **Introduced in late 1800's by ballast waters from European ships**
- **Phragmites negatively impacts Sandhill Crane habitat**



ILM Management
Common Reed

- Apply herbicide to foliage in late July 2012
  - Backpack spray dense stands with 5% solution of Glyphosate
  - Wick bar more isolated individuals with concentrated Glyphosate solution
- Late fall 2012 burn to consume dead Phragmites debris


Summer 2013
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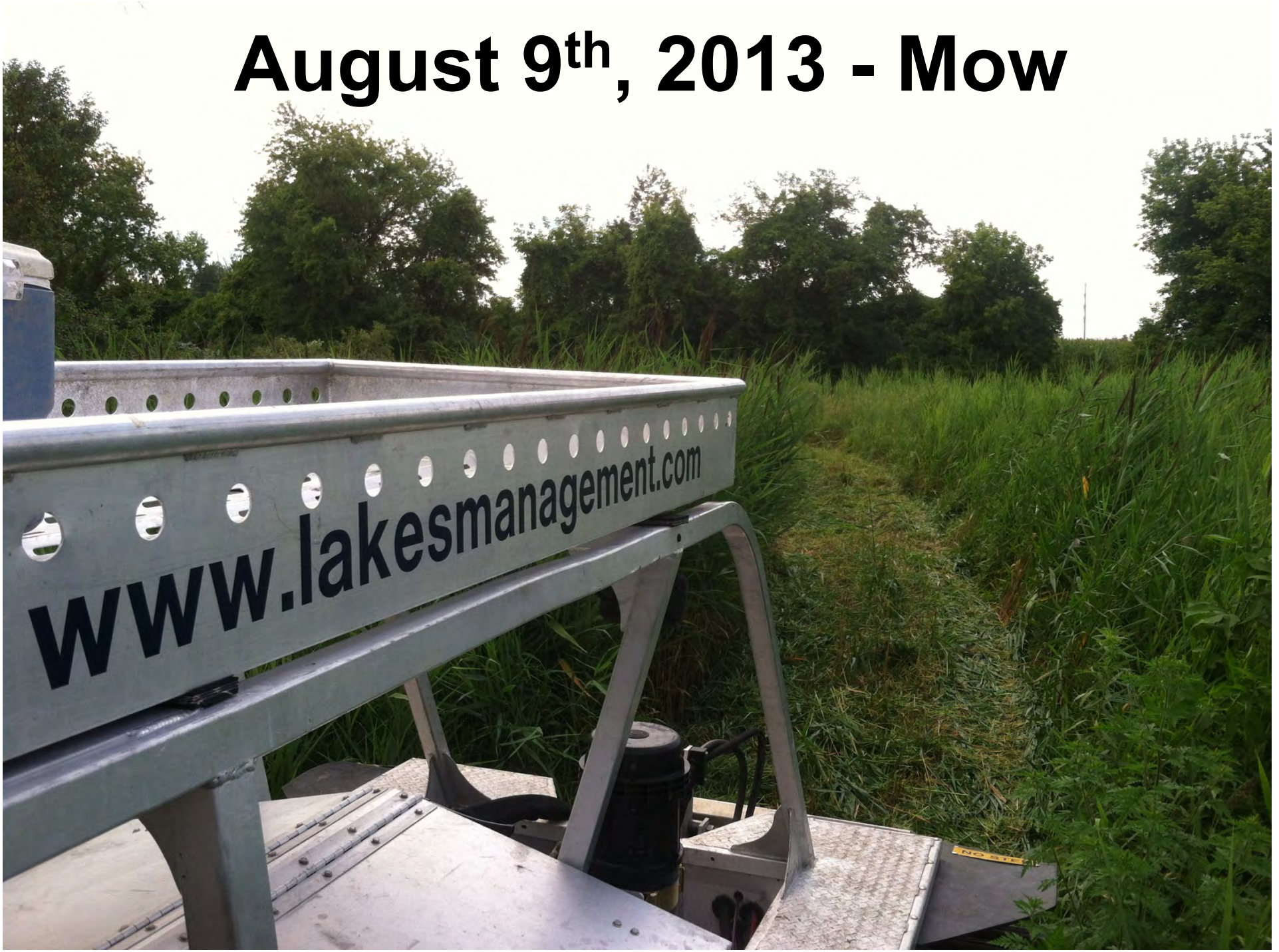
What now???

- **Results aren't exactly shocking; Phragmites can take years to fully control dense stands**
- **Apply herbicide again during late summer 2013 to 10ft tall plants a top Marsh Master?**

Probably not a bad idea, but let's try this instead:

Mow in early August 2013 → Allow ~ 6 weeks to re-sprout → Apply herbicide in late September 2013

August 9th, 2013 - Mow




August 9th, 2013 - Mow

Why mow *before* herbicide?

- **Reduces height of vegetation**
- **Reduces amount of chemical needed for effective application & likelihood of spray drift**
- **Vastly improves site accessibility**
- **Phragmites needs to pull from underground energy stores in root system to generate new growth**
- **Plant in stressed-state during herbicide application in fall**

Summer Mow followed by Fall Herbicide Application

Phragmites.org Newsletter #150 – July 11, 2012

If you have a stand of phragmites which you have not treated yet, but, plan on treating for the first time this fall, you may want to cut or mow it now. My experience is that pre-cutting the phragmites between July 15 and July 30 has some benefits. It gets the years of dead biomass out of the way to allow for easier access for vehicles and people. It allows the chemicals to get where they belong, on the green stalks and leaves rather than on the old dead material. The stand of phragmites will be shorter which should be easier to spray. And lastly, cutting now will cause the plant to use much of its resources to try to recover and will leave it in an already stressed condition when you treat it with herbicide.

www.phragmites.org

www.greatlakesphragmites.net

Summer Mow followed by Fall Herbicide Application

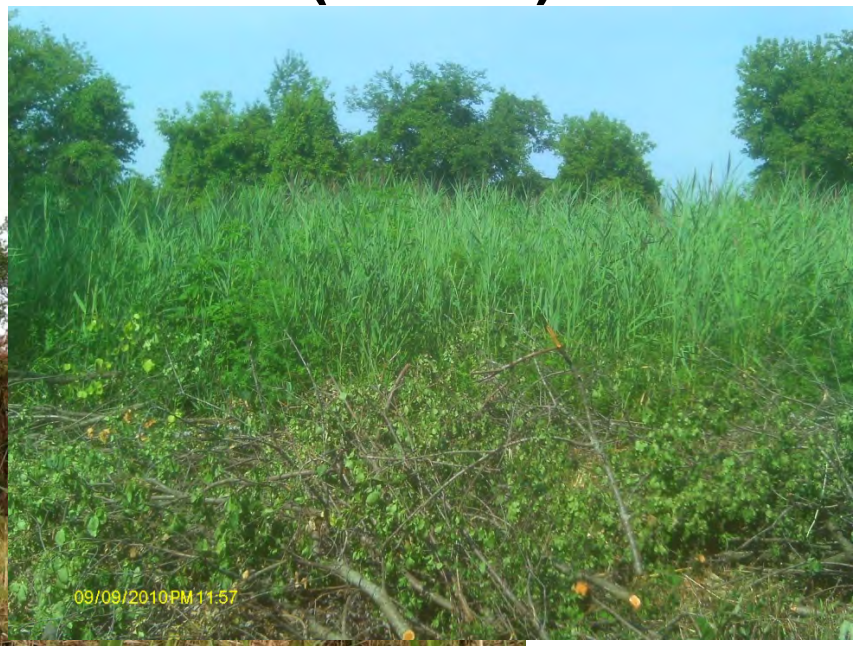
Ongoing research at Utah State University by Karin Kettenring & graduate students

- **Evaluating different control methods for Phragmites over a 5 year study (Imazapyr vs. Glyphosate; Summer vs. Fall Treatment; Mow timing) in both 0.25 acre patches & 3 acre stands**
- **Qualitative results after year 1 show summer mow with follow up Glyphosate application to be most effective experimental plot for small patches**

Source: Kettenring, K.M., A.L. Long, C. Gramney, G.B. Rohal, and E.L.G. Hazelton. 2013. Assessing approaches to manage *Phragmites* in the Great Salt Lake watershed. Final report to the Utah Department of Natural Resources, Division of Forestry, Fire & State Lands. 77 pp.

CONDITIONS

(8/9/13)



(9/6/13)

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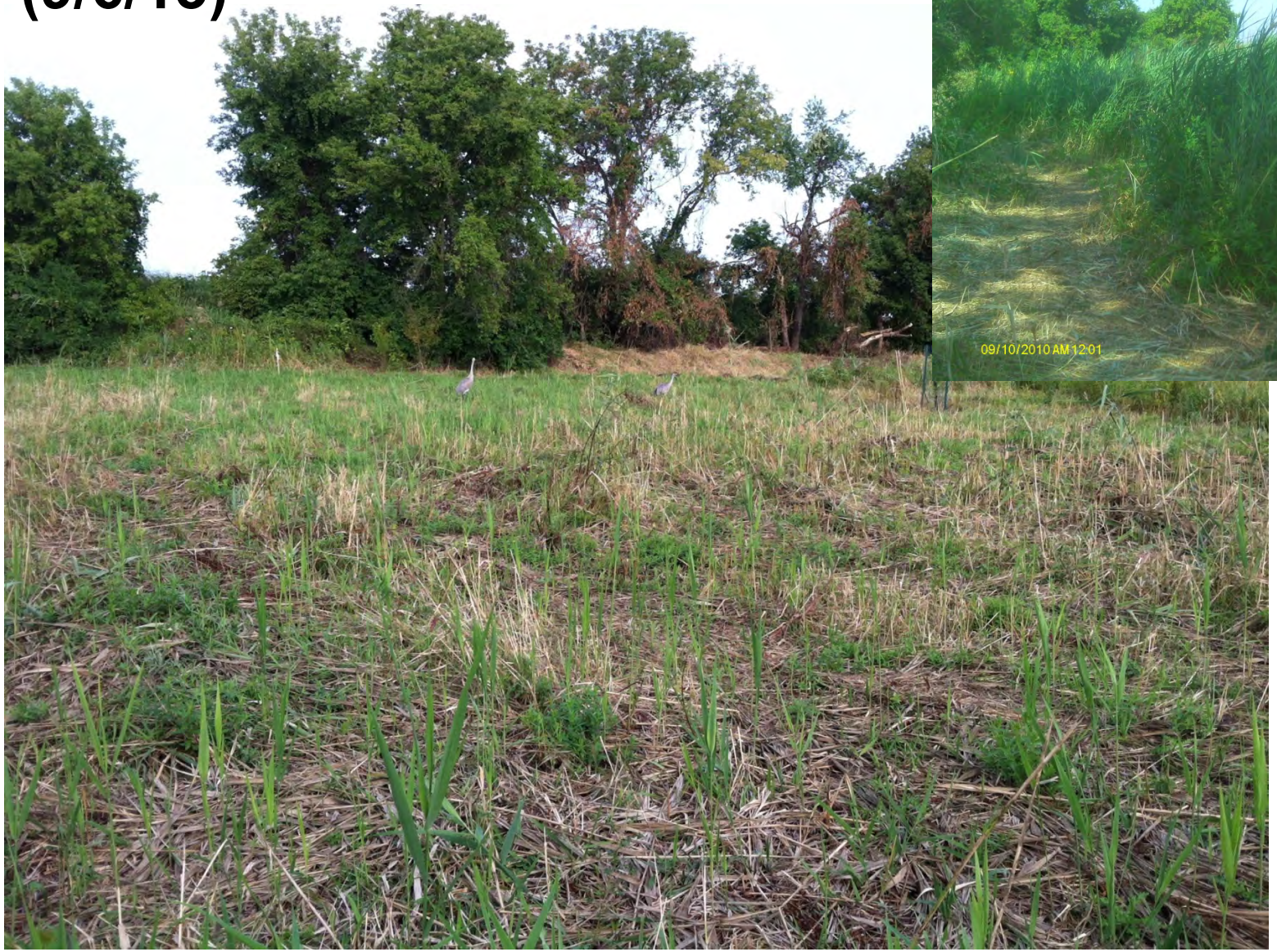

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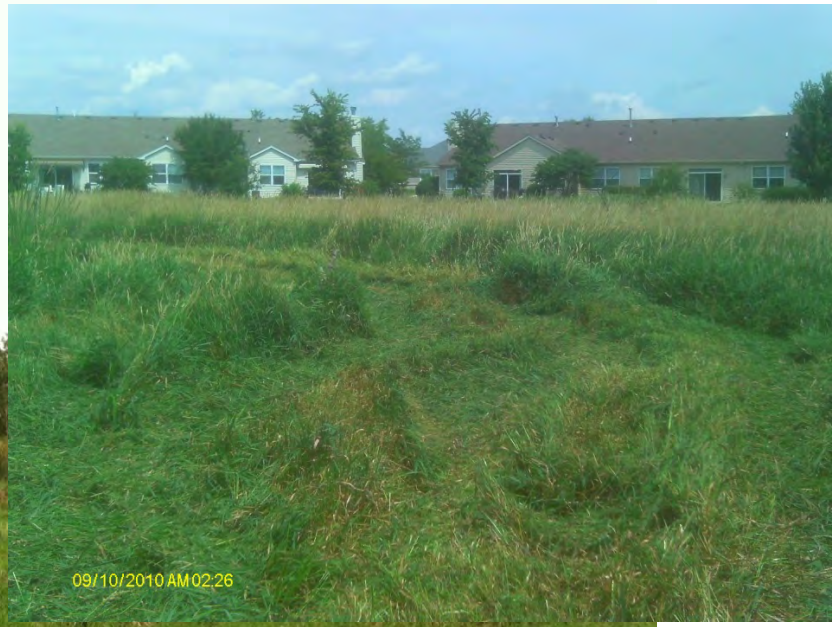

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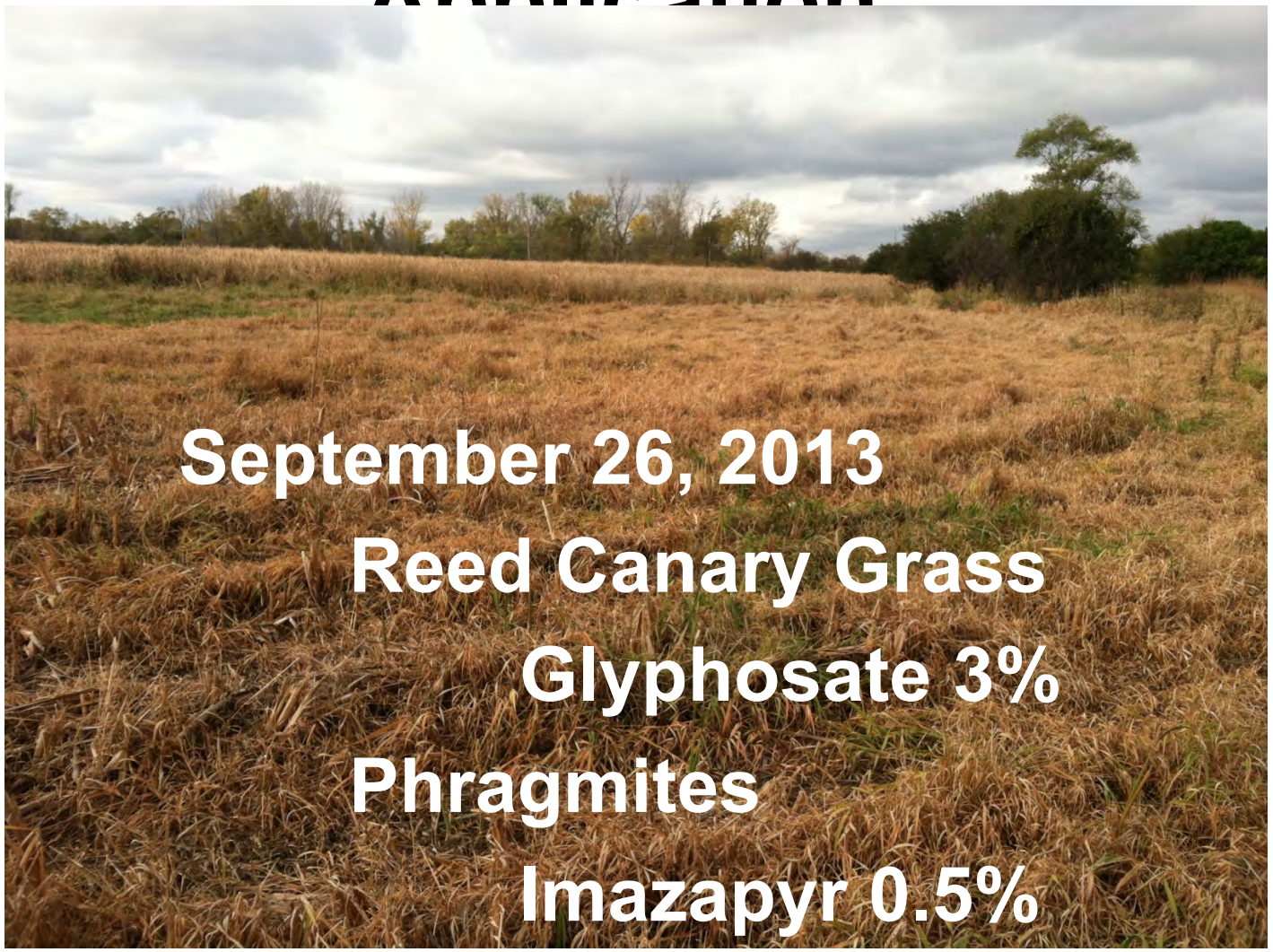
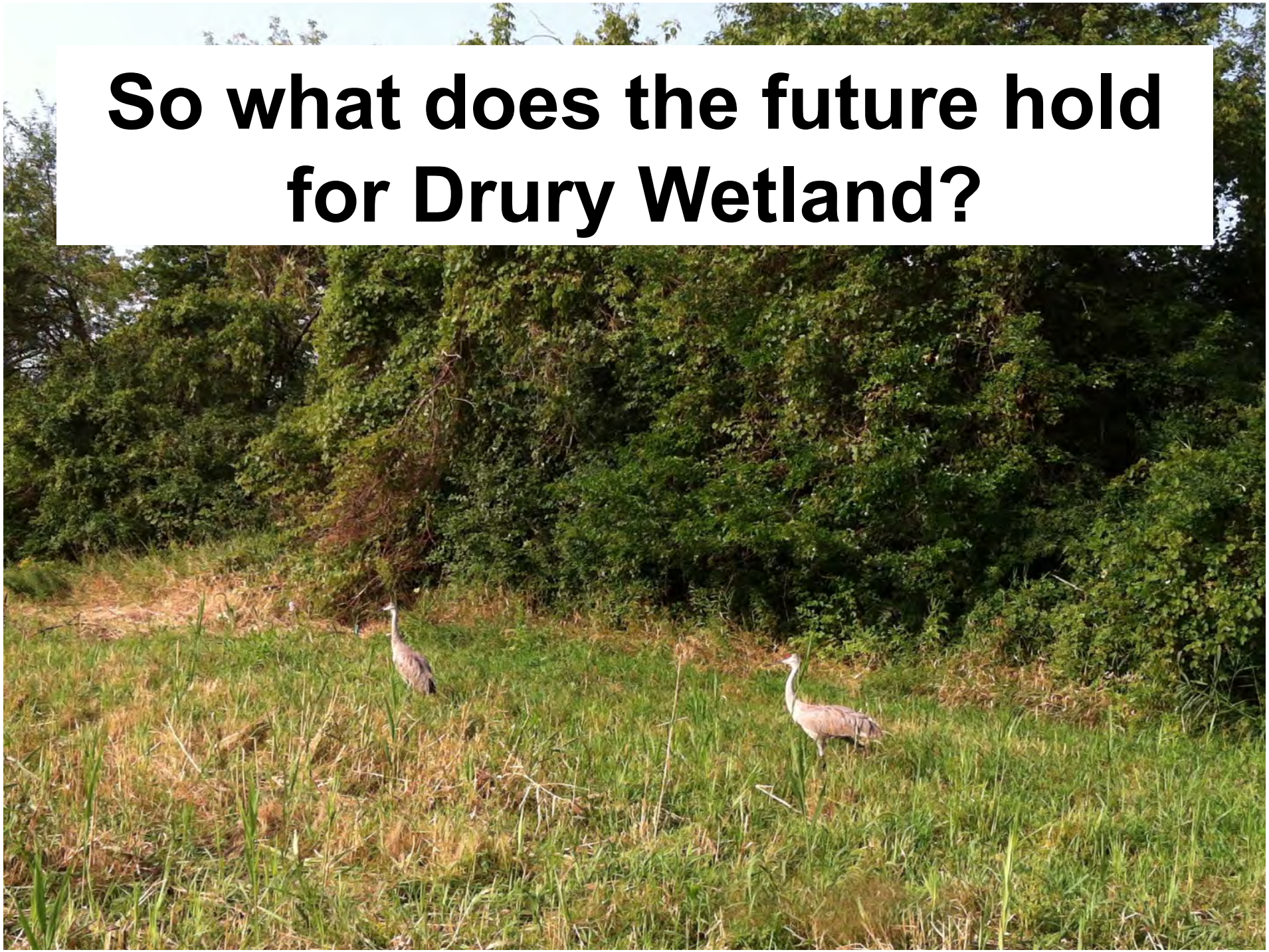
ILM Management
Post Mowing Herbicide Application

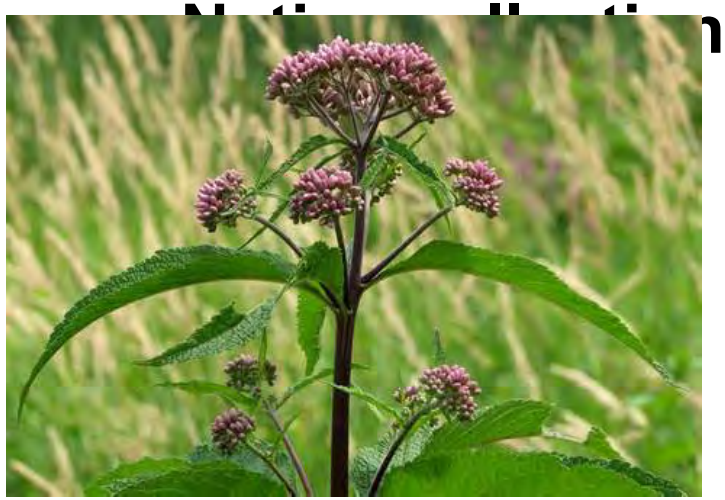


So what does the future hold for Drury Wetland?



FUTURE PLANS

- **Carillon North has secured funding for 4 wetland maintenance in 2014**
  - **Early Spring treatment for RCG**
  - **Summer follow up treatment for Phragmites**
  - **Possible Cattail control outside of monotypic basin**
  - **Buckthorn re-sprouts**
  - **N[illegible]n/dispersal**



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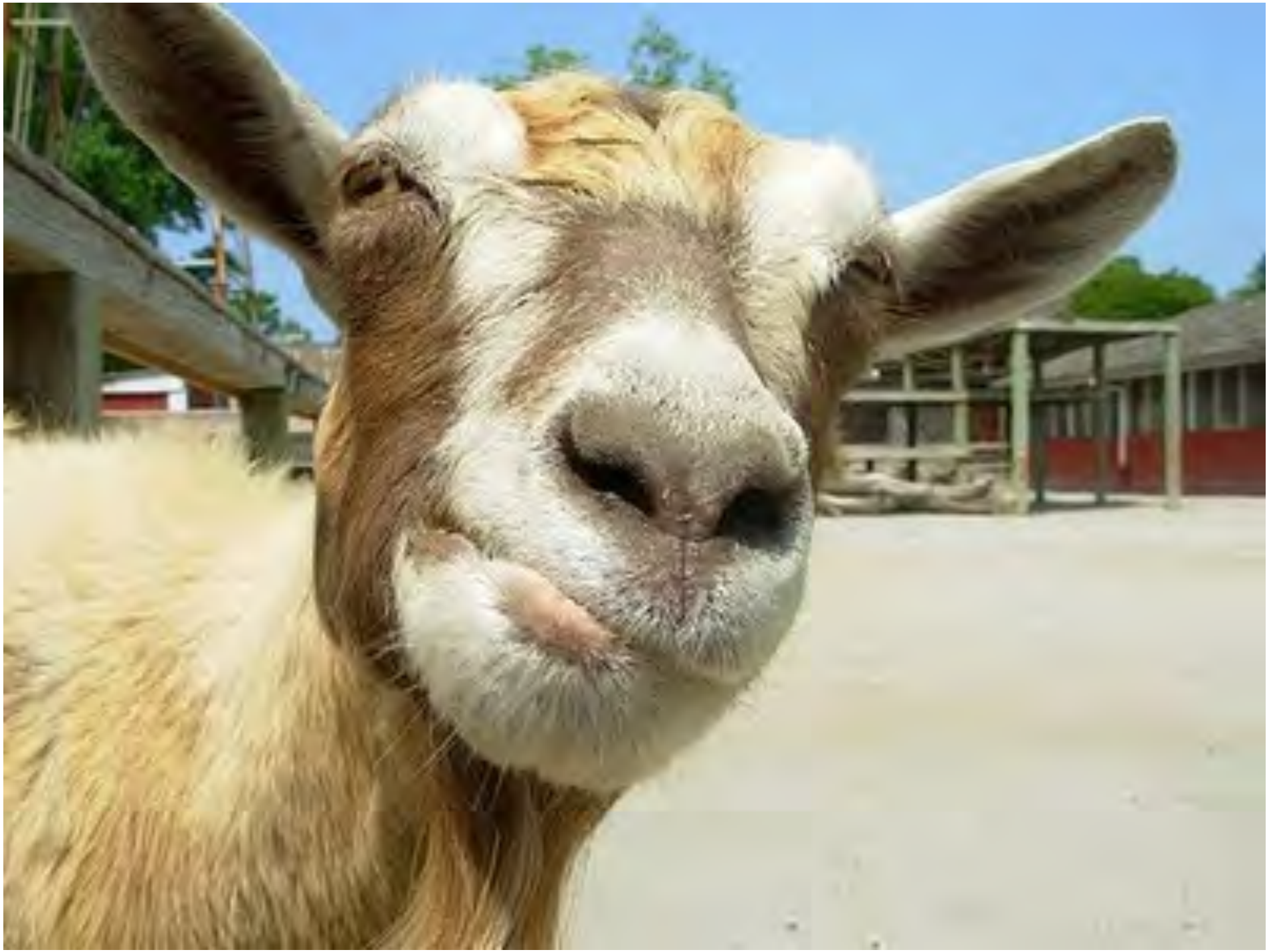
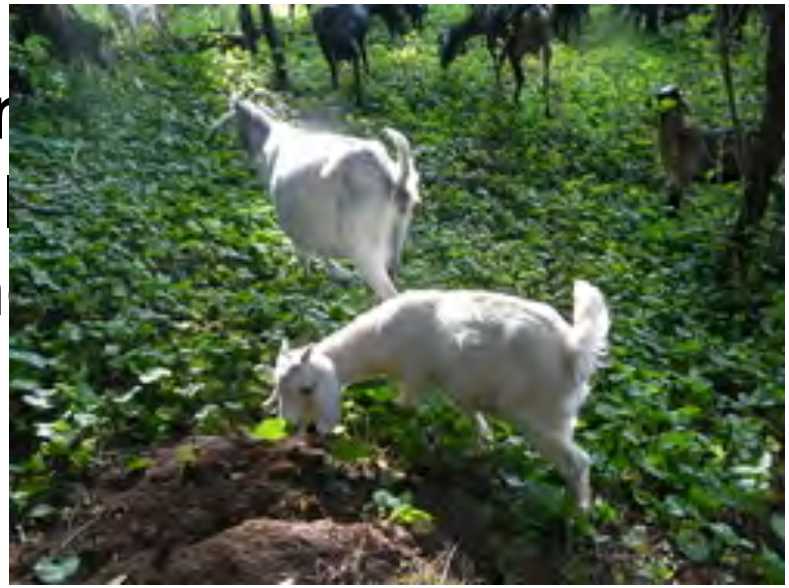


Goats!

- Carillon North HOA looking into goat leasing companies
- Eat Reed Canary Grass & Buckthorn
- Occupancy aerates & fertilizes soil
- Cheap labor!
- Potential research opportur
  - Observe grazing impacts a
  - Treat RCG following grazin
  - Treat RCG with no grazing



Key Factors:

- Community involvement & participation
- SMC funding
- Long-term investment
- Restore ecosystem balance
- Use innovative approaches (Marsh Master)

Sources

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