

Large Scale Control of *Phragmites australis*



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Large Scale Treatments

- Algonac SP (1,400 acres)
 - treating 400 acres (99% of known phragmites)
- Bay City RA (2,500 acres)
 - treating 220 acres
 - potential to treat 870 acres more
- Wm. C. Sterling SP (1,200 acres)
 - treating 665 acres (100% of known phragmites)



Helicopter Herbicide Application



Helicopter Applications

- Bay City RA (2005)
- Algonac SP (1998, 2000, 2002)
- Sterling SP (2003, 2009 and 2010)



Aerial Treatment - Herbicide

- Glyphosate:
 - 3 to 4 pints/ac
- Mix:
 - 3pts/ac Imazapyr, 3pts/ac Glyphosate
- All treatments include the DEQ/wetland approved surfactant -
Cygnet Plus, at 1 pint/ac



William C. Sterling State Park



A map of a wetland area with color-coded regions. The background is a mix of light blue, dark blue, and green. A winding yellow line represents a river or stream. Several yellow callout boxes with black borders point to specific areas. The labels are: 'Lakeplain Prairie' (pointing to a light blue area), 'River Raisin' (pointing to the yellow line), 'Lowland Hardwoods' (pointing to a green area), and 'Great Lakes Marsh' (pointing to a dark blue area).

**Lakeplain
Prairie**

River Raisin

**Lowland
Hardwoods**

**Great Lakes
Marsh**



1860



W. L. Garrison / Arthur (Church)
J. F. Smith / Arthur (Church)
J. F. Smith / Arthur (Church)

A. H. Rice / Arthur (Church)
J. H. P. P. / Arthur (Church)
J. H. P. P. / Arthur (Church)

DETROIT, MICH.
WEEKLY TO MICHIGAN
1860

J. F. Smith / Arthur (Church)
J. F. Smith / Arthur (Church)
J. F. Smith / Arthur (Church)

J. F. Smith / Arthur (Church)
J. F. Smith / Arthur (Church)
J. F. Smith / Arthur (Church)



Wm. C. Sterling State Park













Permits – Safety – Signage



Ground Applications

Broadcast Spray



Ground Applications

Broadcast Spray



Ground Based Treatments

- Herbicides -

- Glyphosate (low volume applications)
 - 2% to 5%
- Mix (low volume applications)
 - 1%-2% Imazapyr plus 2%-5% Glyphosate
- Glyphosate (high volume applications)
 - 2%
- Mix (high volume applications)
 - 1% Imazapyr plus 2% Glyphosate
- All treatments include DEQ/wetland approved surfactant Cygnet Plus 0.25% of spray volume









Follow up Treatments



Ground Applications

Backpack Broadcast and Spot Spray



Ground Applications

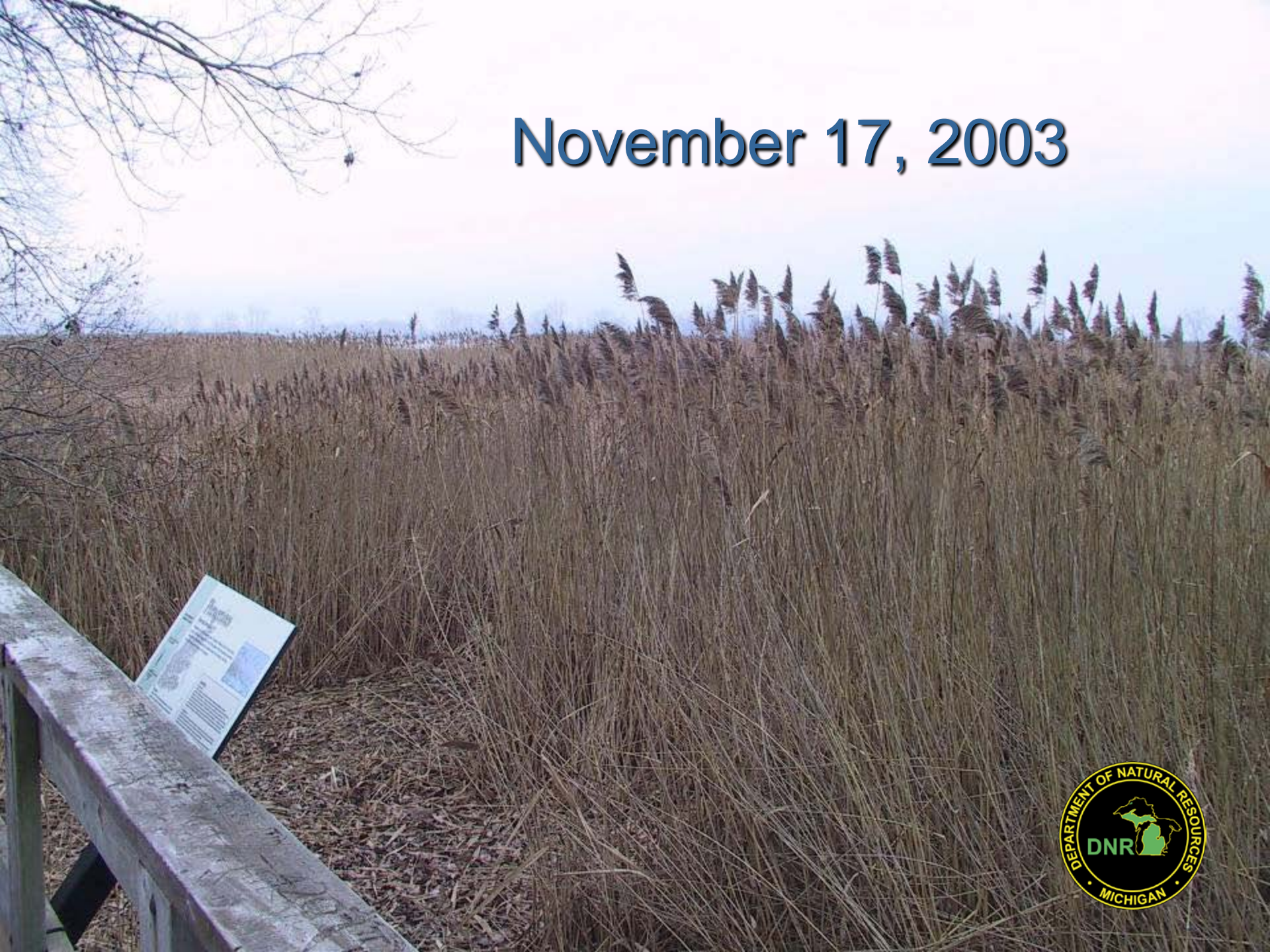
Hand Swipe Techniques



August 8, 2003



November 17, 2003



March 24, 2004



August 19, 2004



August 18, 2005



August 24, 2006



September 11, 2007



August 30, 2008



September 16, 2009



Great Lake Restoration Initiative

Phragmites Partners

- Control phragmites (*Phragmites australis*) in north River Raisin delta wetlands on public and private land for five years
- Wm. C. Sterling SP - **665 acres**
- Partner's Wetlands - **460 acres**





Wm. C. Sterling SP

- Phragmites Partners -

- 25 businesses, agencies, organizations and private residents. Including:
 - Detroit River IWR (USFWS)
 - Michigan Department of Transportation
 - Homrich, Inc.
 - Great Lakes Western Star
 - River Raisin Golf Course
 - ITC
 - Ford Raisin River Warehouse
 - Raisin River Marina
 - US Army Corps of Engineers
 - Norfolk Southern Railroad
 - Sandy Creek Residents



Bay City RA



Bay City RA











Bay City Shoreline Before (July 2005)



Bay City Shoreline After (July 2006)



Bay City Shoreline Before (July 2005)



Bay City Shoreline After (July 2006)



Bay City Shoreline Before (July 2005)



Bay City Shoreline After (July 2006)



Bay City Shoreline Before (July 2005)



Bay City Shoreline After (July 2006)



Bay City Shoreline Before (July 2005)



Bay City Shoreline After (July 2006)



Bay City Shoreline Before (July 2005)

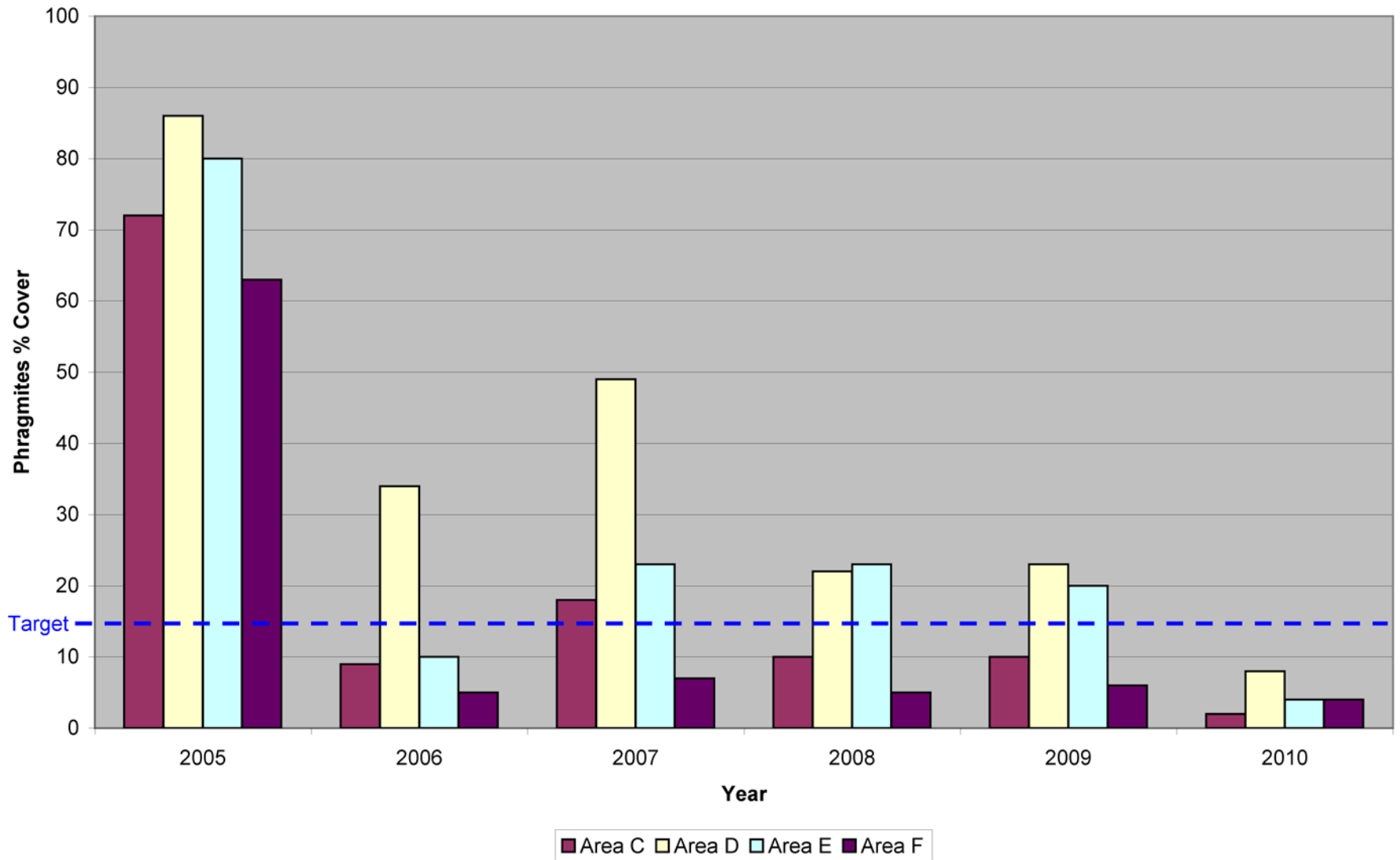


Bay City Shoreline After (July 2006)

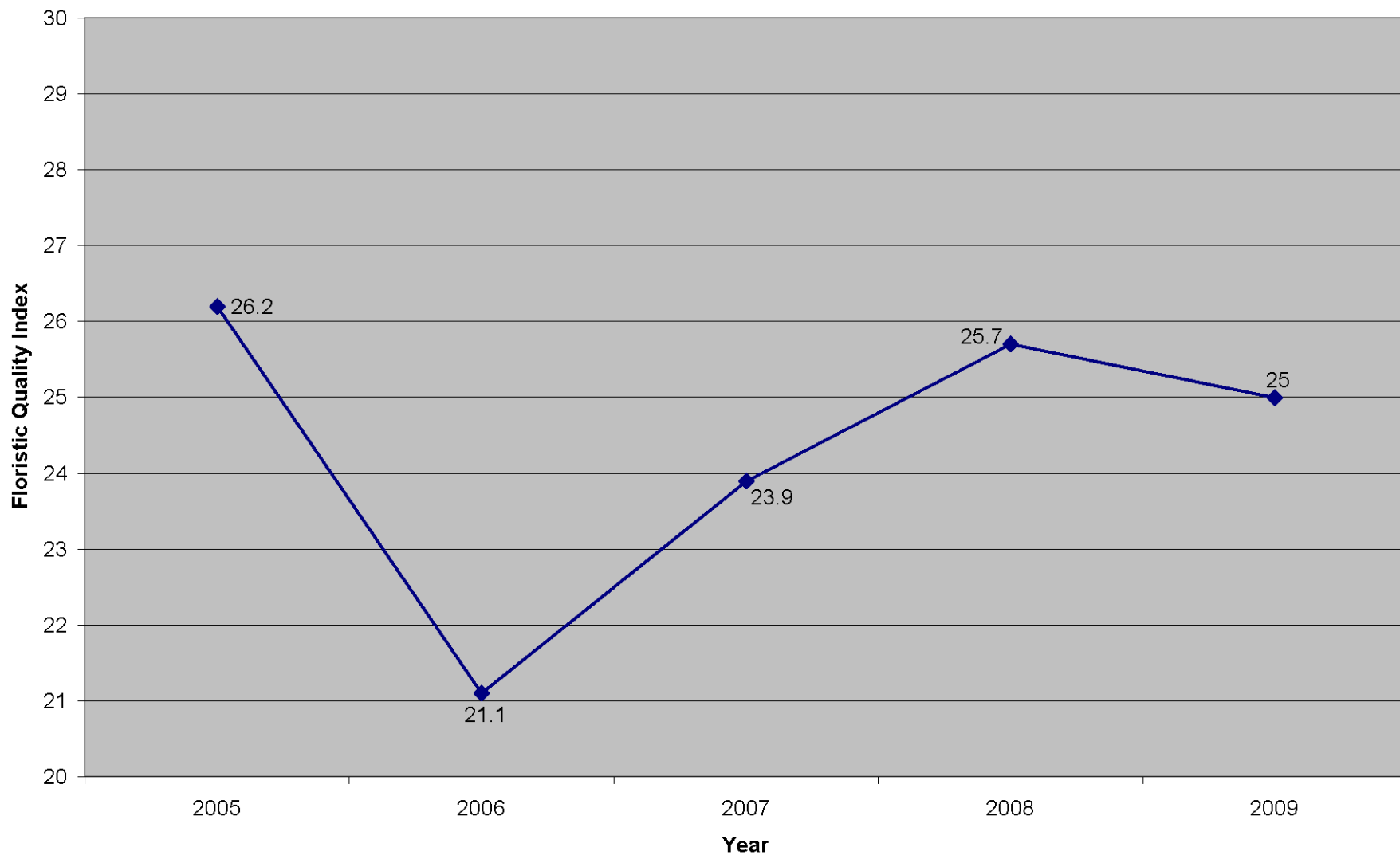




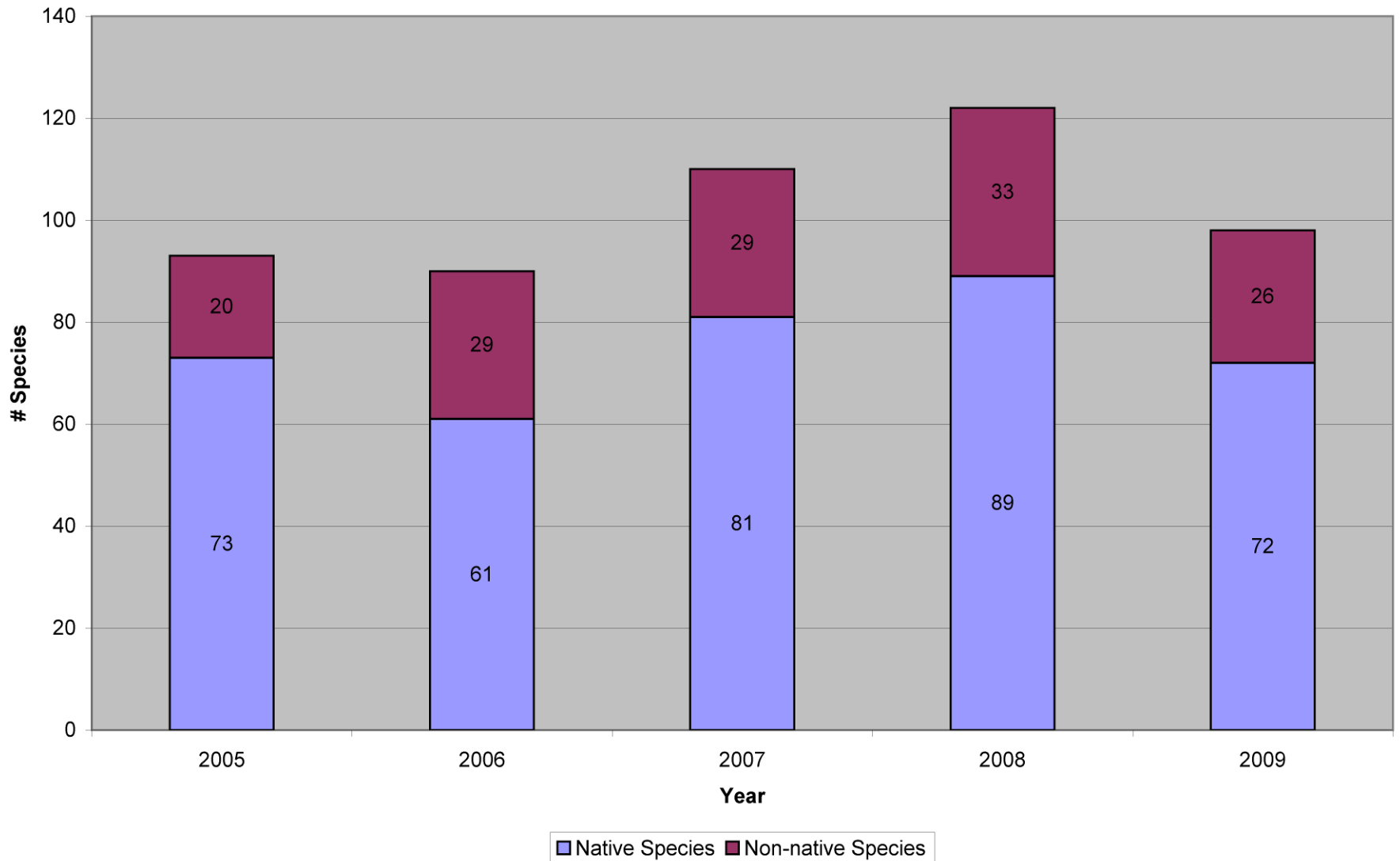
Bay City Shoreline



Bay City Shoreline FQI



Bay City Shoreline Species Richness



Cost of Aerial Treatment

- Bay City 2005
 - 26 acres, \$5,630 (\$217/acre)
 - (helicopter and herbicide – glyphosate)
- Sterling 2009
 - 100 acres, \$25,711.50 (\$257/acre)
 - helicopter and chemical – glyphosate & imazapyr



Phragmites treatment in 31 State Parks and Recreation Areas

- Marsh, Swamp, Prairie fen, Wet prairie, Bog
- Prioritize by:
 - Ecological Significance
 - Opportunity – Funding, Partnerships
 - Operational Need
 - Likelihood of Success - Sustainability



APPLICATION

Farmers use WeedSeeker systems to control weeds for chem-fallow spraying, no-till field spraying, lay-by spraying, pre-plant weed spraying and post-harvest weed control by automatically spot spraying the weeds and not bare soil.



WEEDSEEKER USE

The WeedSeeker system uses advanced optics and computer circuitry to sense the presence of a weed. When a weed enters the sensor's field of view, it signals a spray nozzle to deliver a precise amount of herbicide only to that weed. Herbicide use is reduced 60% to 80% on most spray applications.

CURRENT PRACTICES

Self-propelled, utility vehicles, ATVs or pull-behind sprayers all constantly apply herbicide regardless of high or low the weed coverage. Herbicide costs are the same in either situation.



Trimble Agriculture. The line everyone follows.



Thank you



Learn more about the Recreation Passport at:

www.michigan.gov/recreationpassport