VOYAGEURS NATIONAL PARK WETLAND RESTORATION PROJECT – PHASE III PROGRESS

Presented to the Lessard-Sams Outdoor Heritage Council Meeting

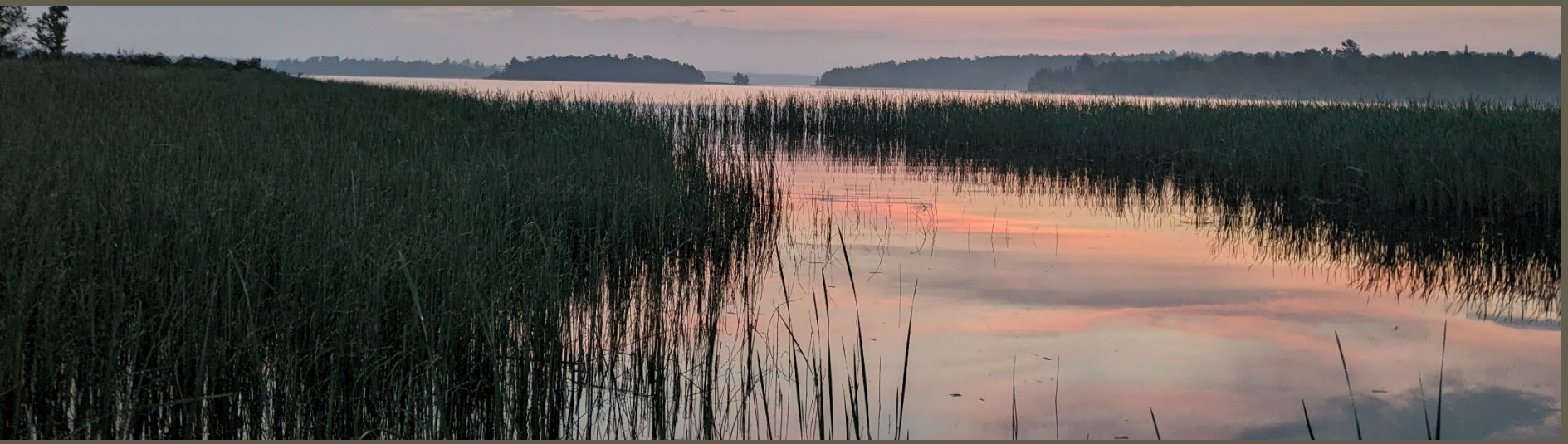
VOYAGEURS

WETLAND RESTORATION PROJECT

WETLANDS ARE A RARE ECOSYSTEM, AND MINNESOTA'S ARE EXCEPTIONAL

Wetlands make up 40% of annual renewable services, but only cover 6-9% of the world's land base[1] but 20% of Minnesota's land base.[2]

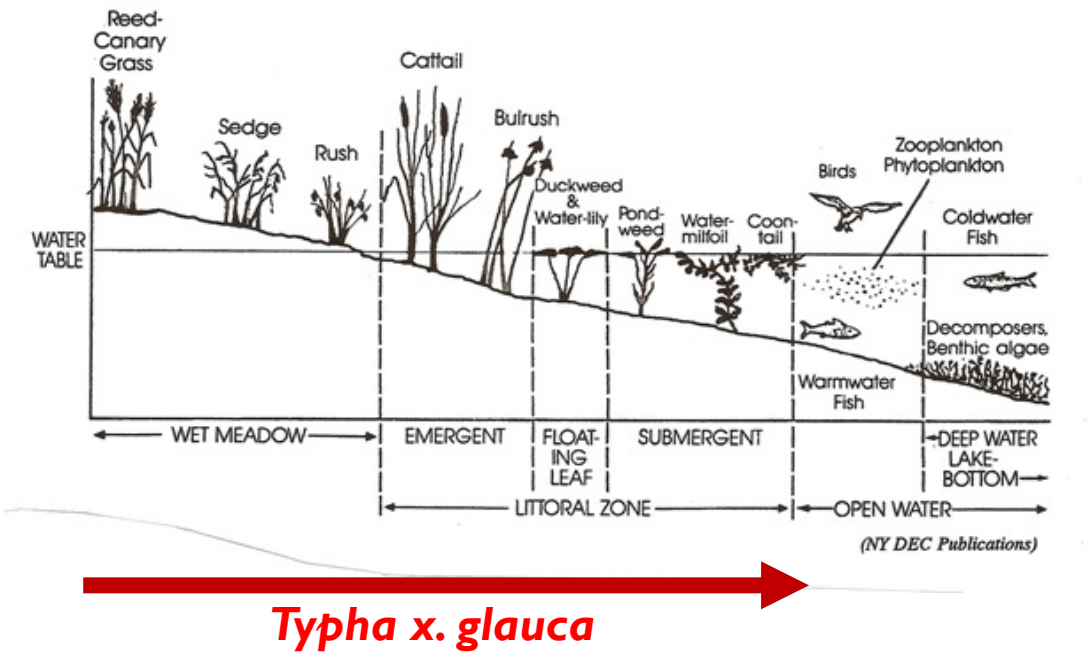
Minnesota has lost approximately half of its original wetlands since 1850.[3]



1. Ronis, E. 2024. Swamped: In a Good Way!.U.S. Fish and WildLife Service. Accessed June 2025.2.
2. Wetland Quality.Accessed November 2025. Minnesota Polution Control Agency.
3. Kloiber, S.M., Norris, D.J., and Bergman, A.L. 2019. Minnesota Wetland Inventory: User Guide and Summary Statistics [June, 2019]. Minnesota Department of Natural Resources

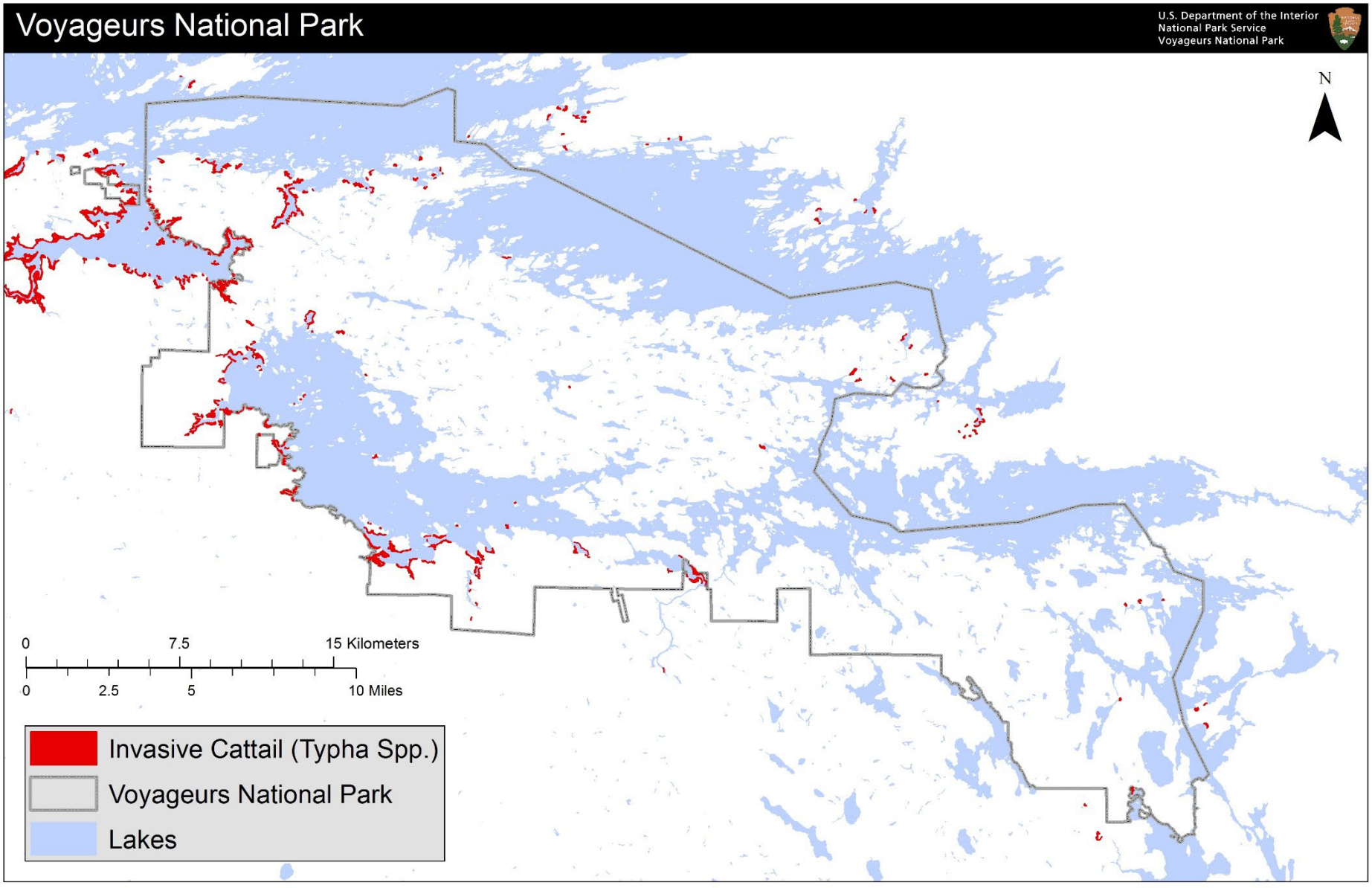
HEMI-MARSH WETLANDS

This is one successional stage of northern wetlands



The niche of selected wetlands plants based on water depths.

EXTENT OF CATTAIL INVASION



VOYAGEURS WETLAND RESTORATION PROJECT

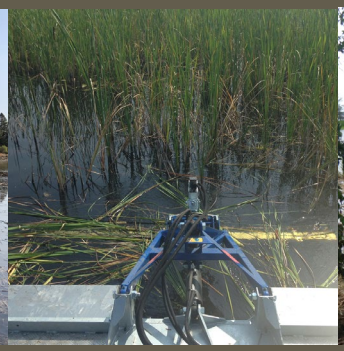
TREATMENTS

Terrestrial
- Piling – Removed material covering live plants
- Surface cut – Cut ground level on terrestrial surfaces
- Tilling
- Piling
- Herbicide *new in 2025

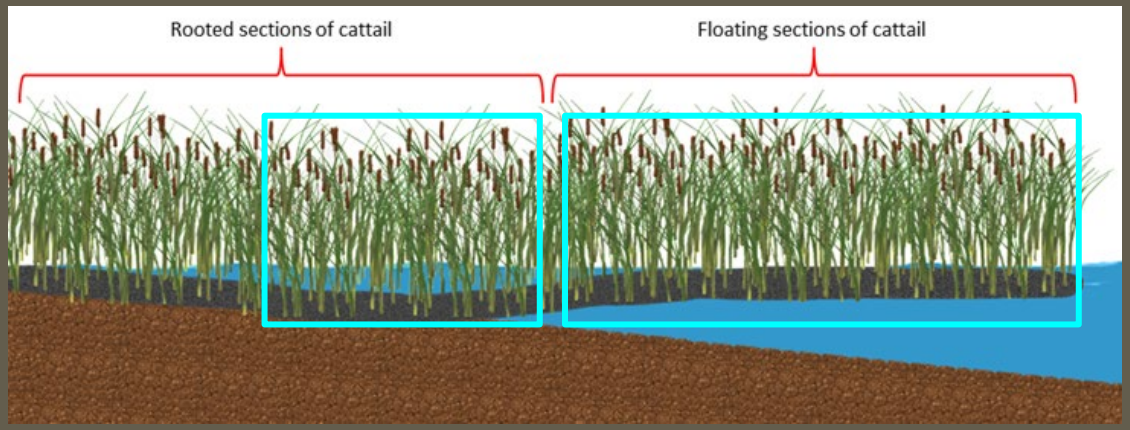
Aquatic
- Underwater cutting (rooted plants)
- Total removal (floating mats)

Terrestrial and Aquatic
- Burning





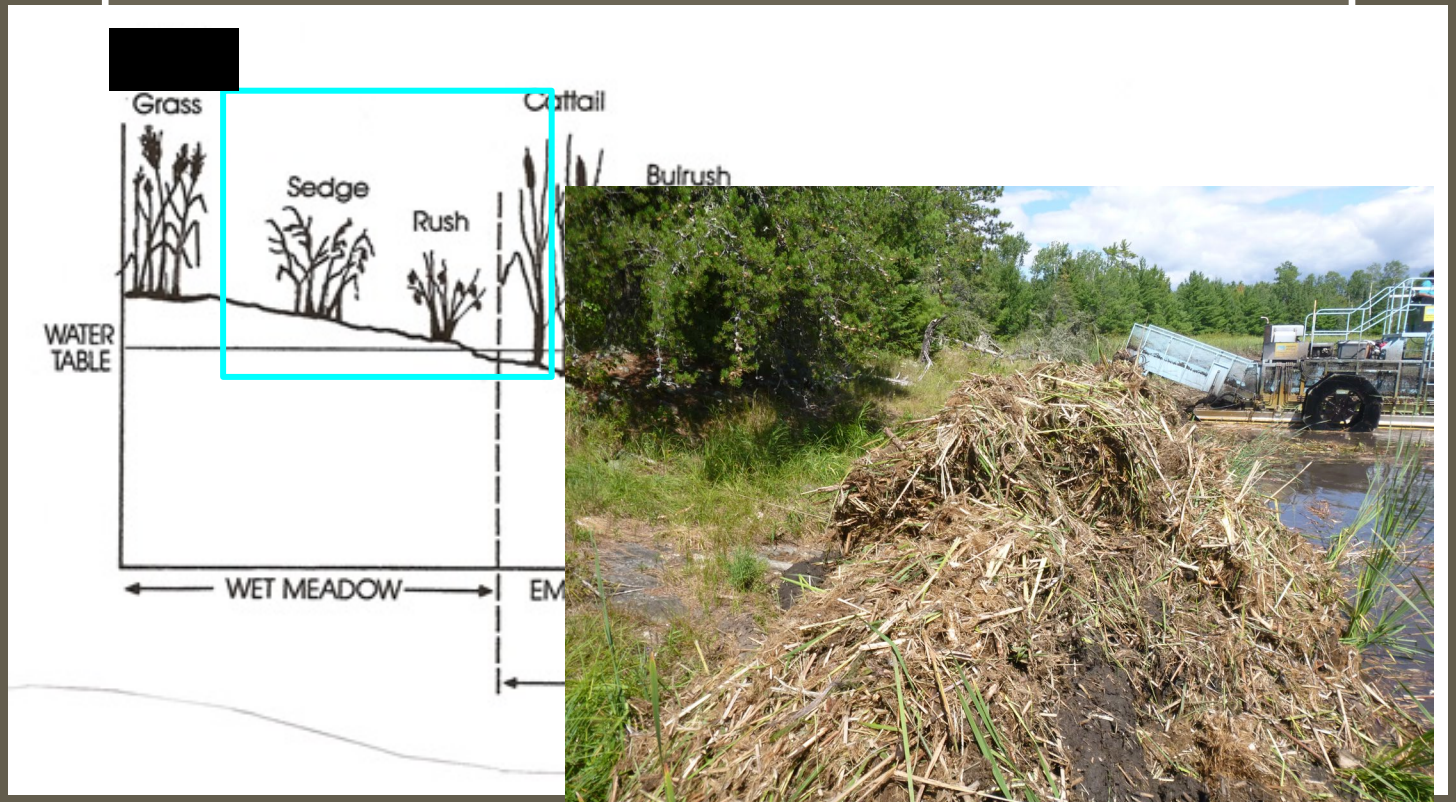

TREATMENTS - LETHAL



TREATMENTS – TOTAL REMOVAL

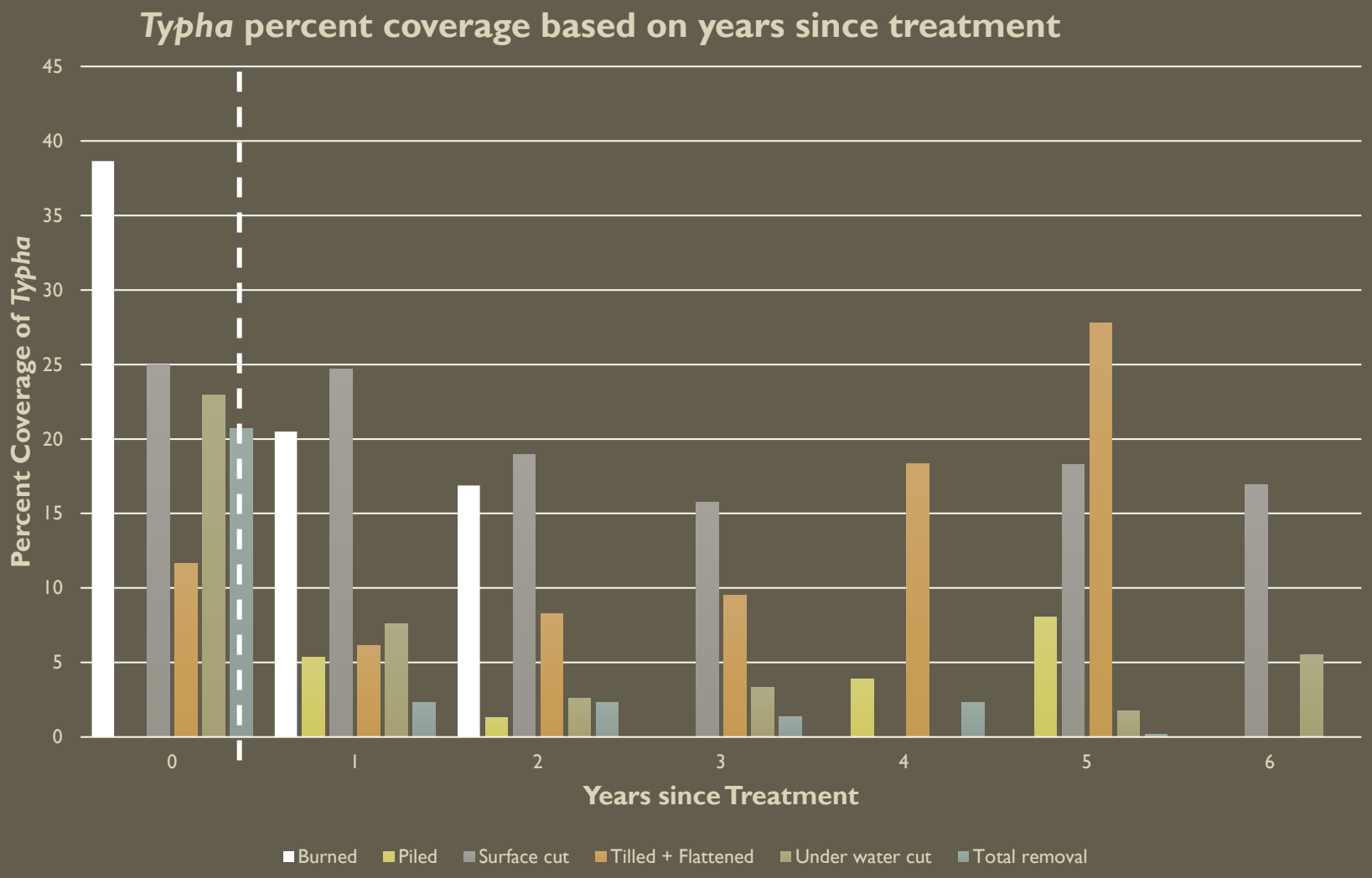
UNDERWATER CUTTING

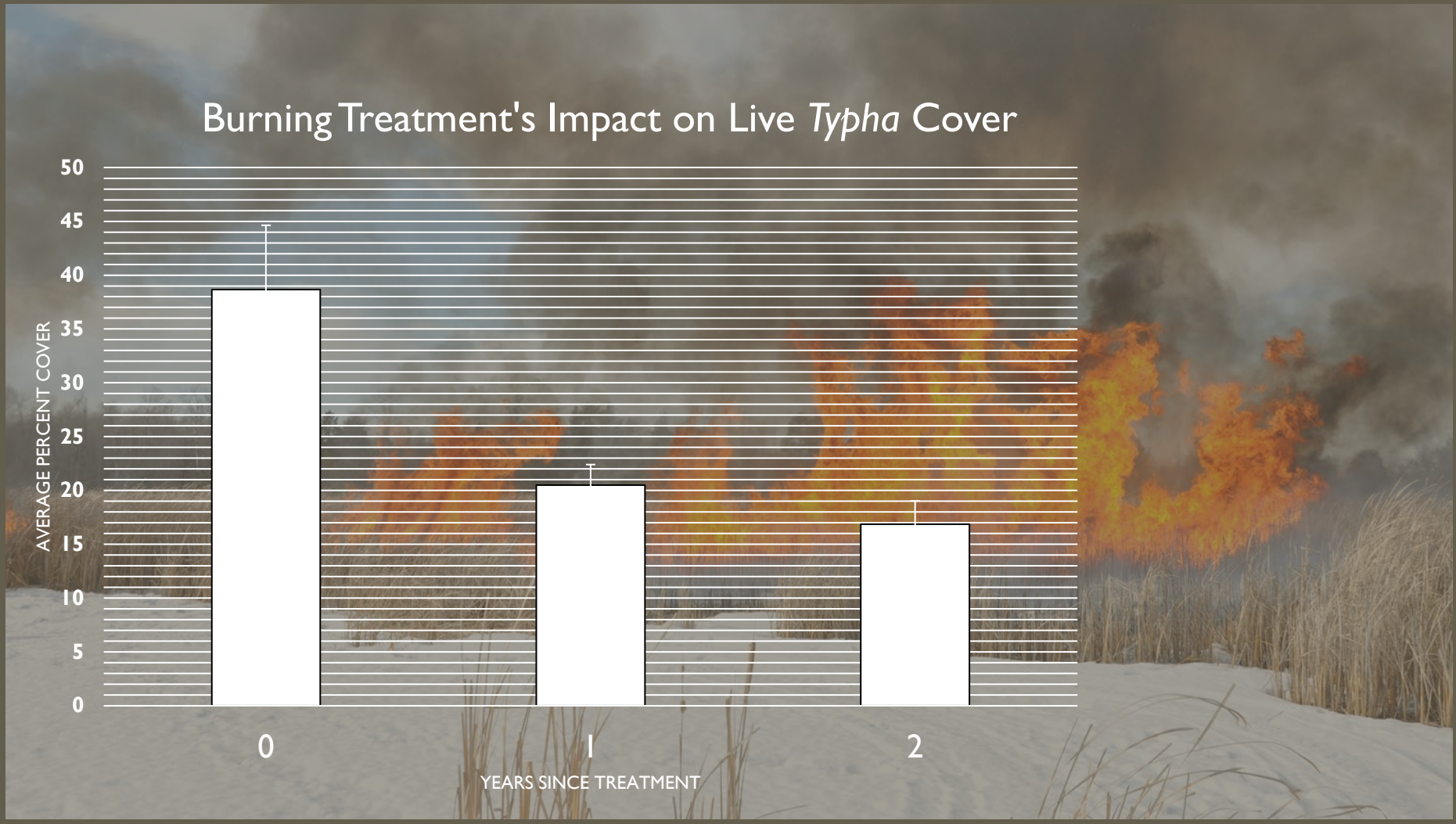
TREATMENTS - PILED



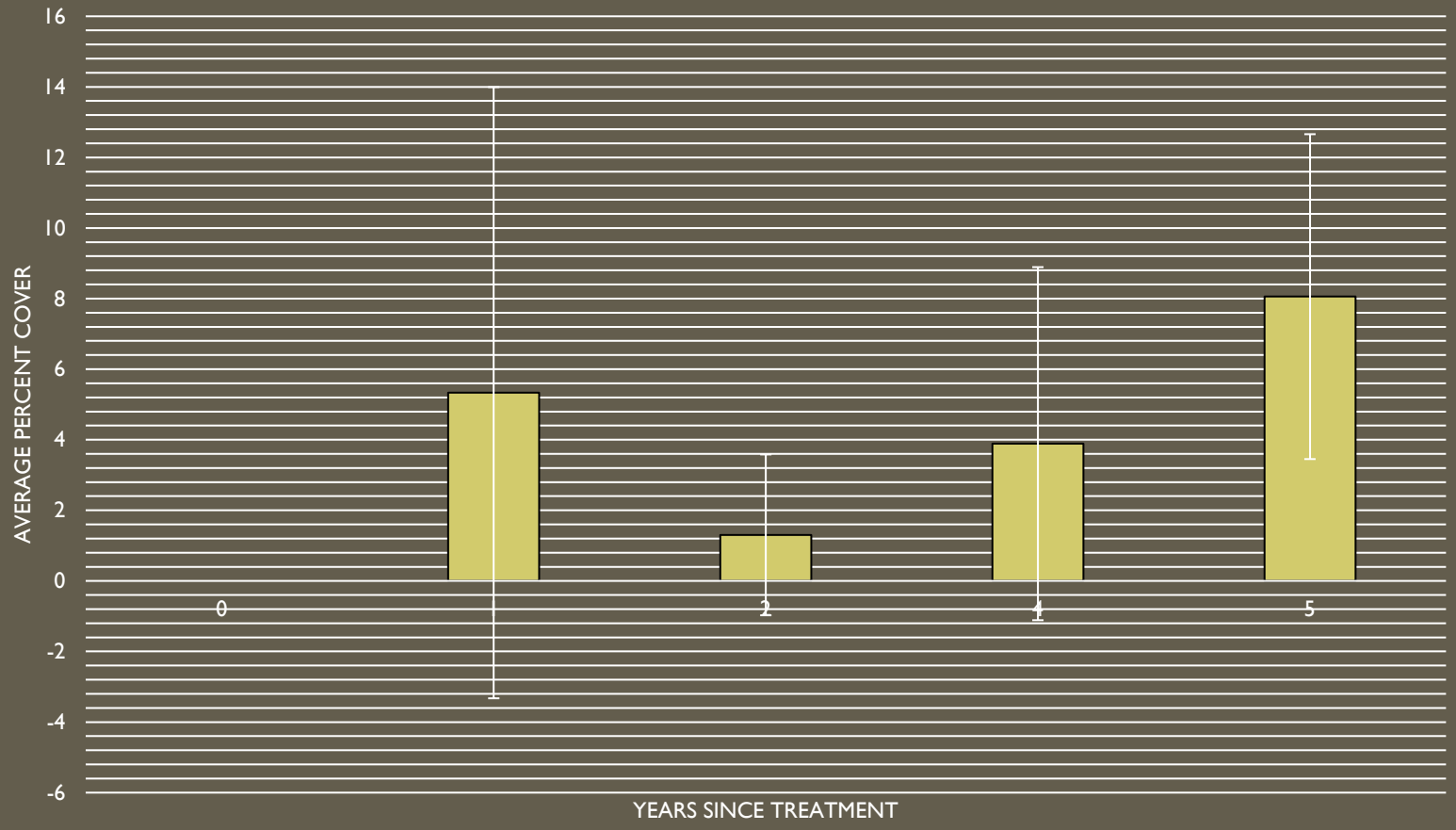
TREATMENTS – TILLED+FLATTENED

TREATMENT-BURNING

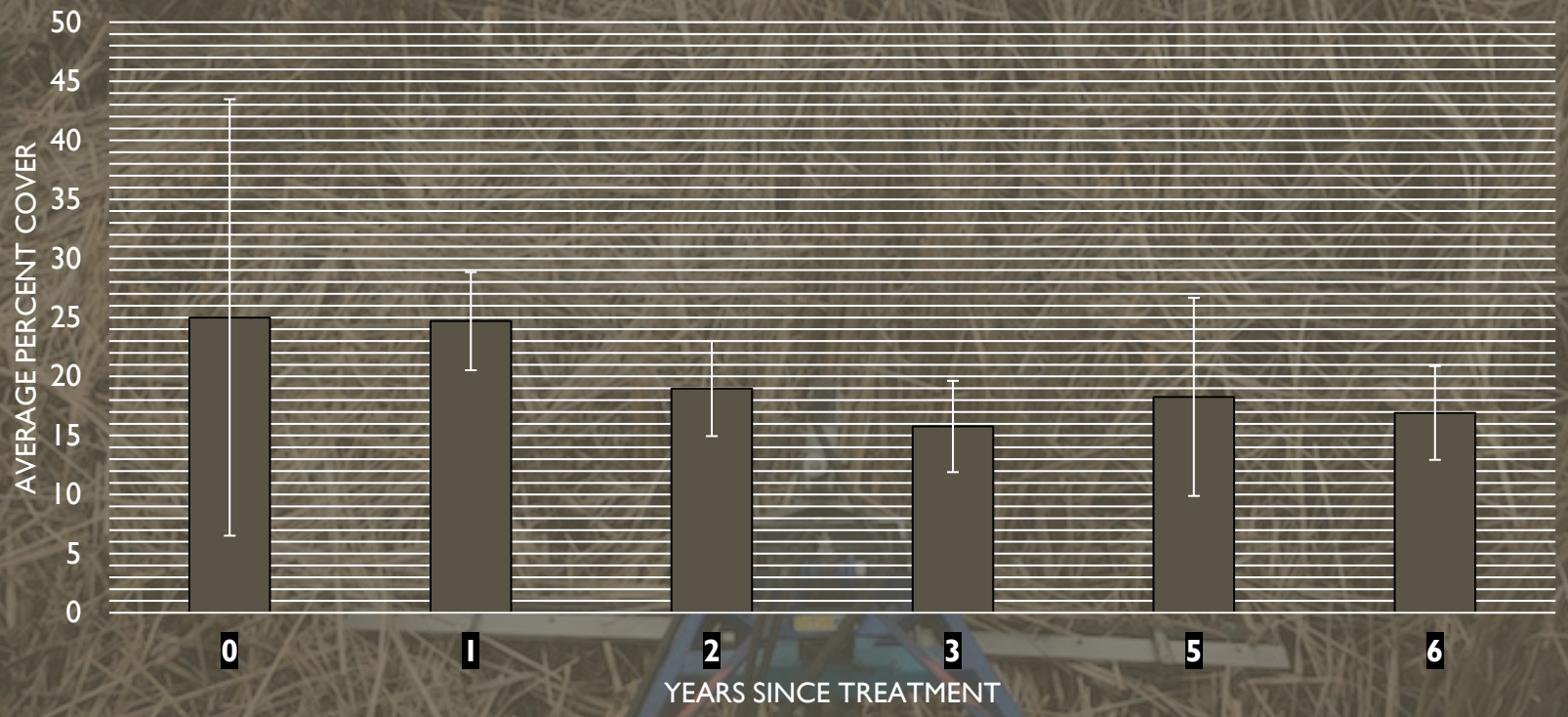

Typha percent coverage based on years since treatment
Percent Coverage of *Typha*
45
40
35
30
25
20
15
10
5
0
0
1
2
3
4
5
6
Years since Treatment
Burned
Piled
Surface cut
Tilled + Flattened
Under water cut
Total removal


Burning Treatment's Impact on Live *Typha* Cover
AVERAGE PERCENT COVER
50
45
40
35
30
25
20
15
10
5
0
0
1
2
YEARS SINCE TREATMENT

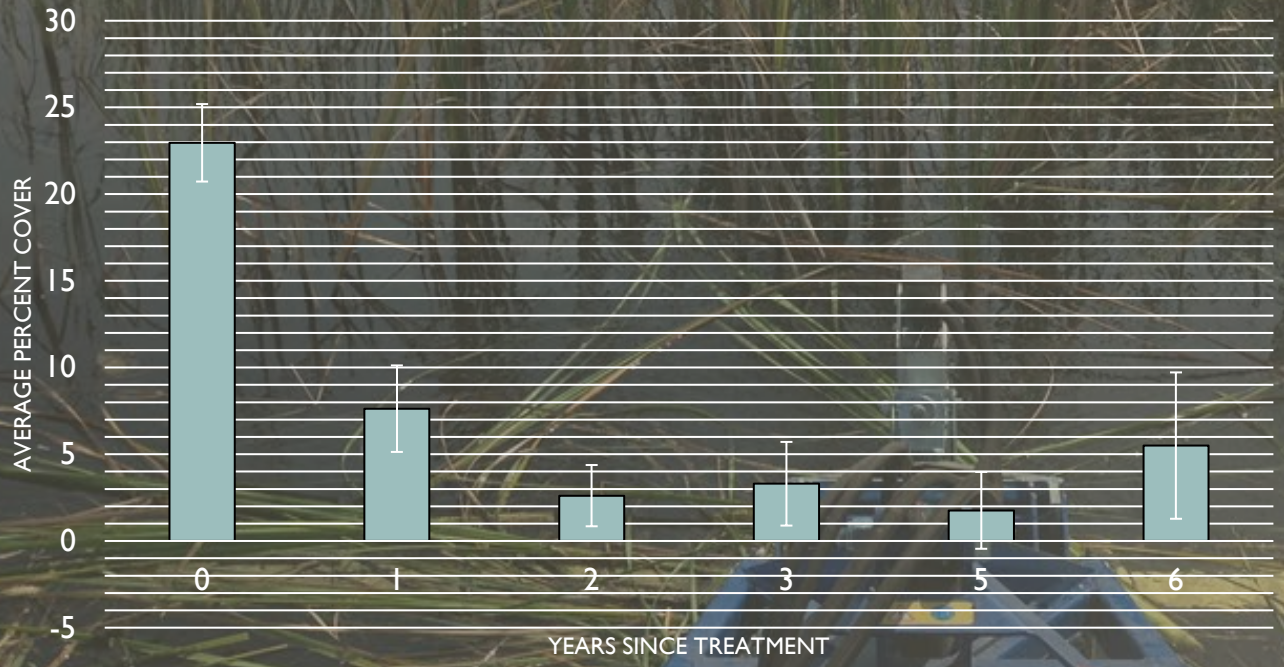
Piling Treatment's Impact on Live *Typha* Cover

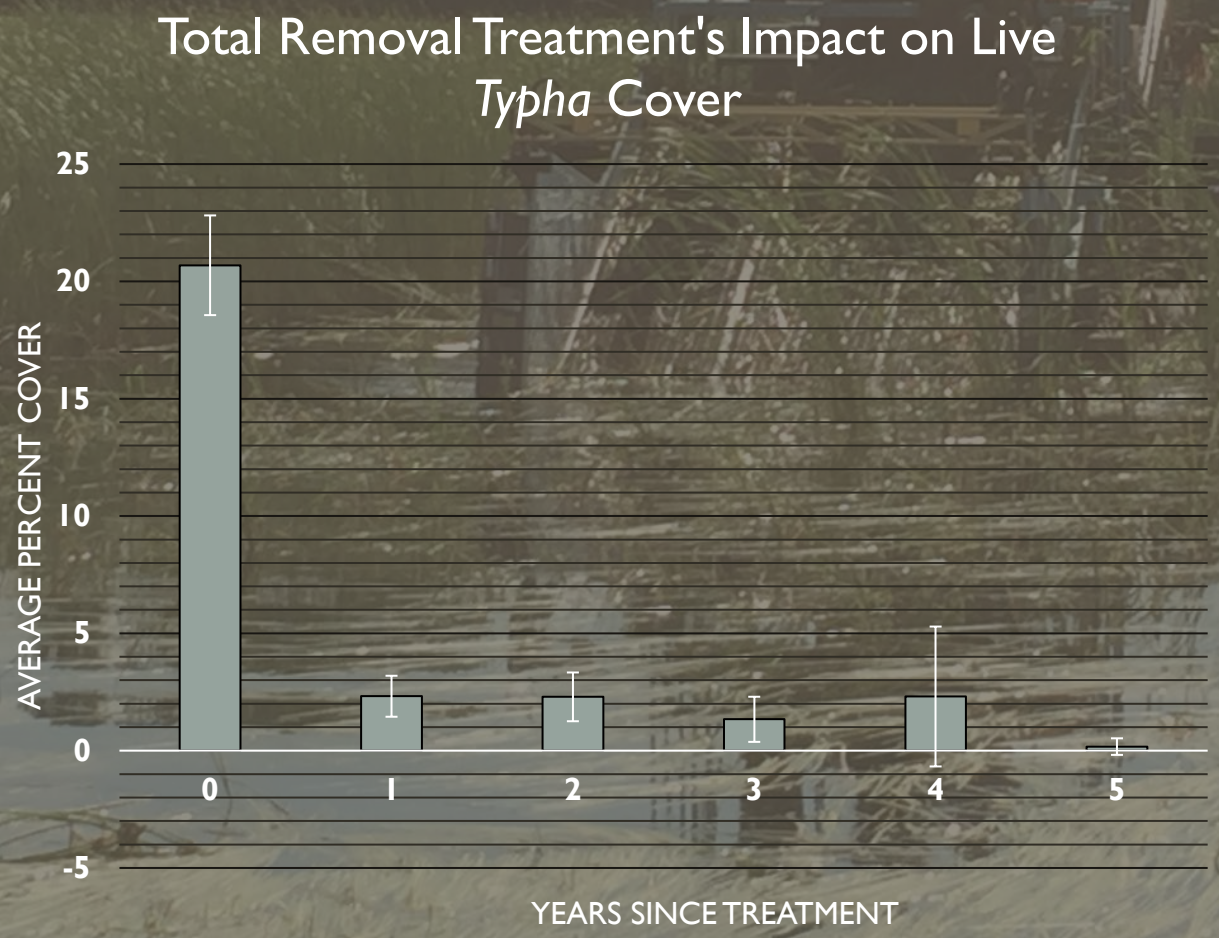


Surface Cut Treatment's Impact on Live *Typha* Cover



Underwater Cutting Treatment's Impact on Live *Typha* Cover




Total Removal Treatment's Impact on Live *Typha* Cover
AVERAGE PERCENT COVER
25
20
15
10
5
0
-5
0
1
2
3
4
5
YEARS SINCE TREATMENT

Treatment	% Reduction in Typha cover at 5-6 years
Burning*	56.35
Surface cut	35.24
Till and Flatten	Increased 138.25
UWC	76.05
Total Removal	99.18

* 3 year analysis

What are we seeing?

Total removal is costly, but high impact

Fire creates decreased workload following season and increases plant diversity.

Underwater cutting is lower cost than total removal, and very effective.

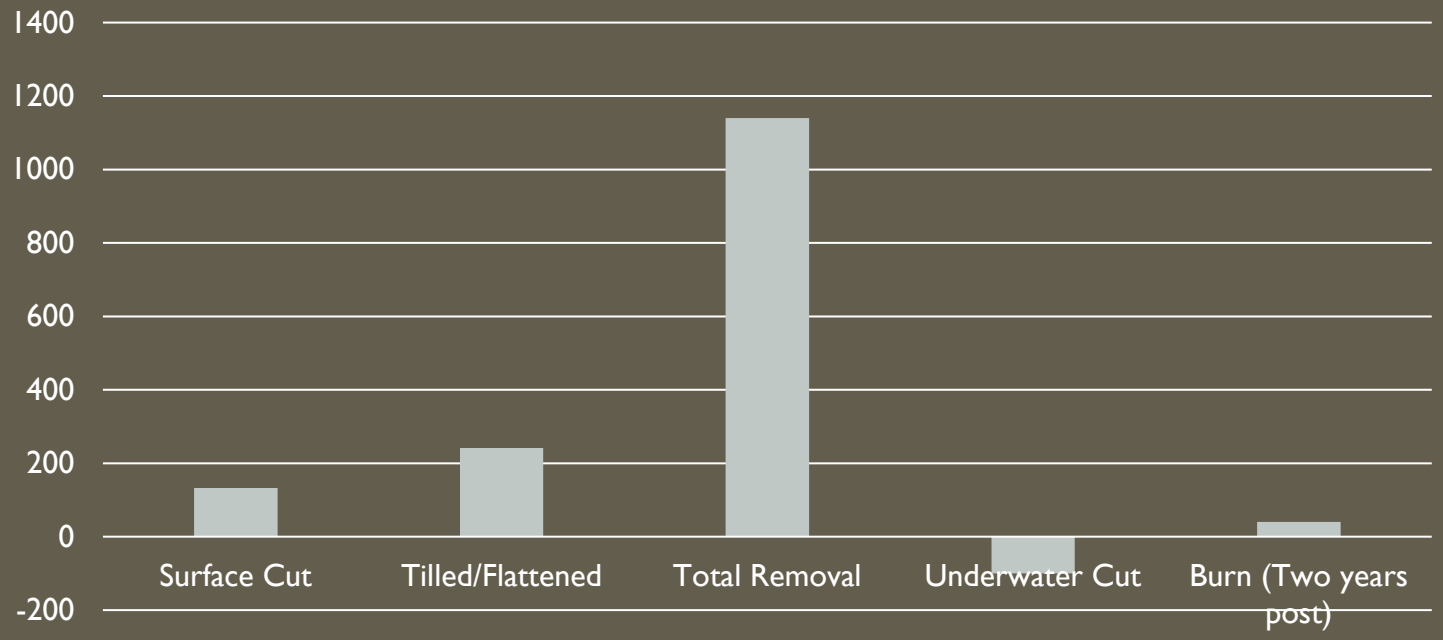
Seeding seems to be necessary in many sites.

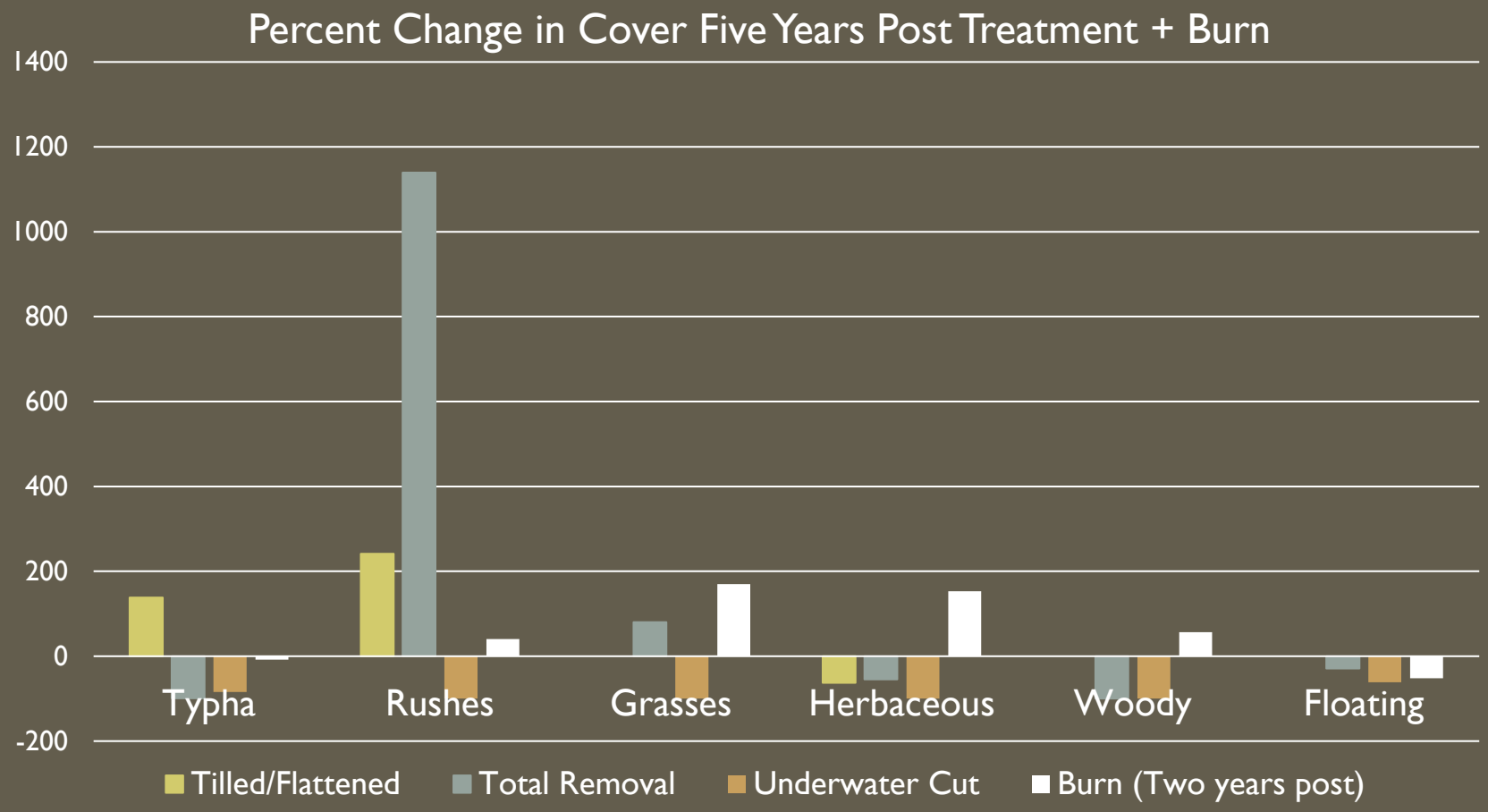
Some plant trophic groups still need recovery assistance (e.g., floating leaf plants)

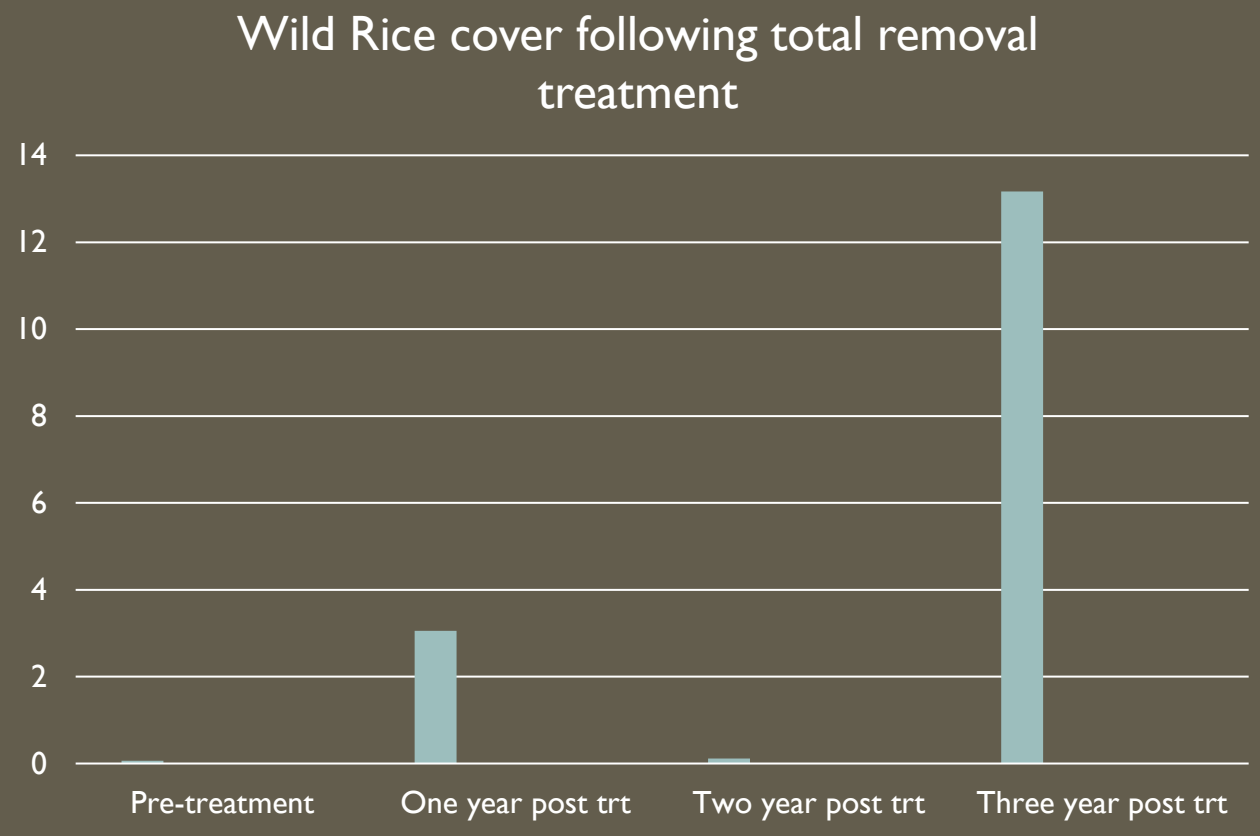
Herbicide may help prevent re-introduction, but not end-all solution. Northern Minnesota functions differently than many ecosystems.

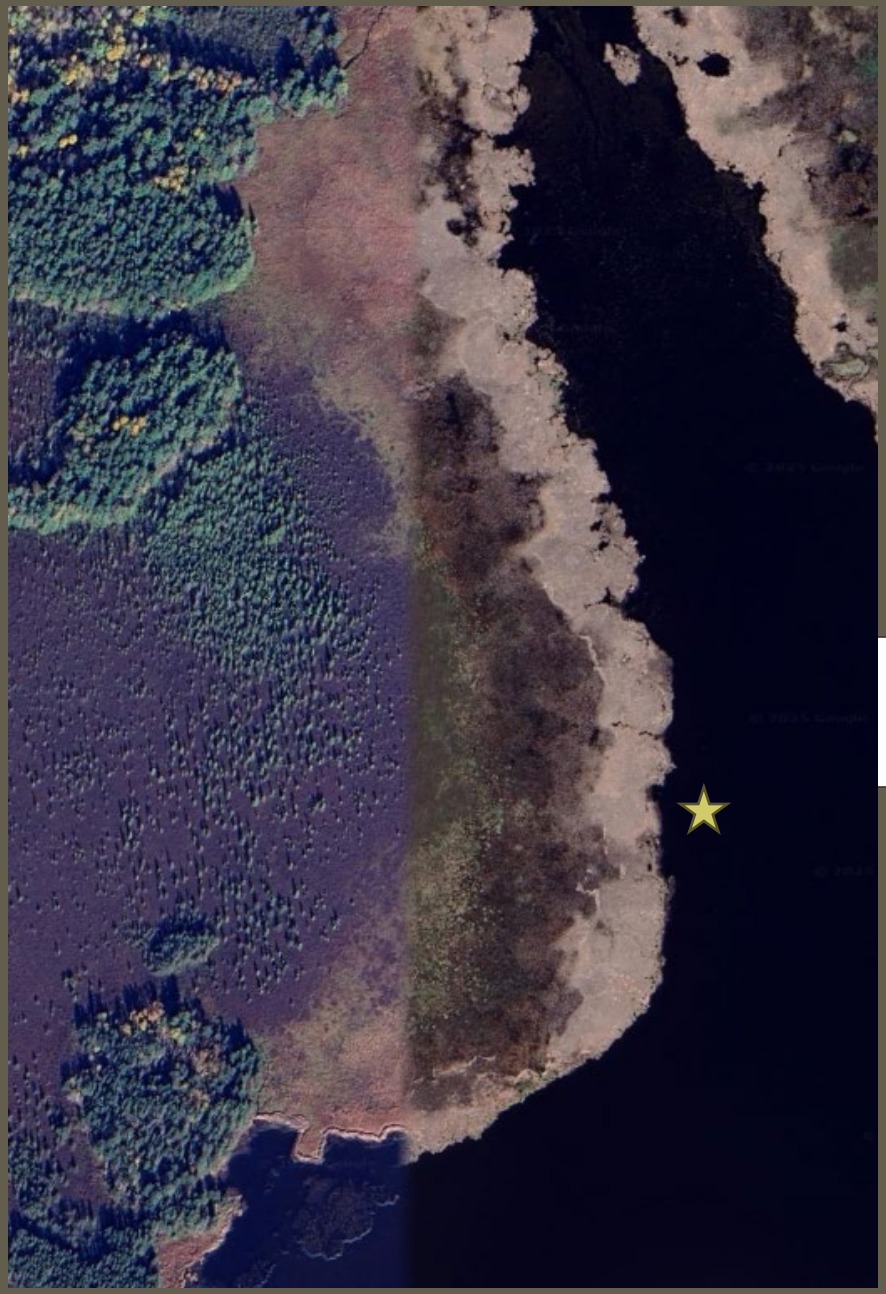

Fire induces plant diversity
Diversity creates resilient landscapes.

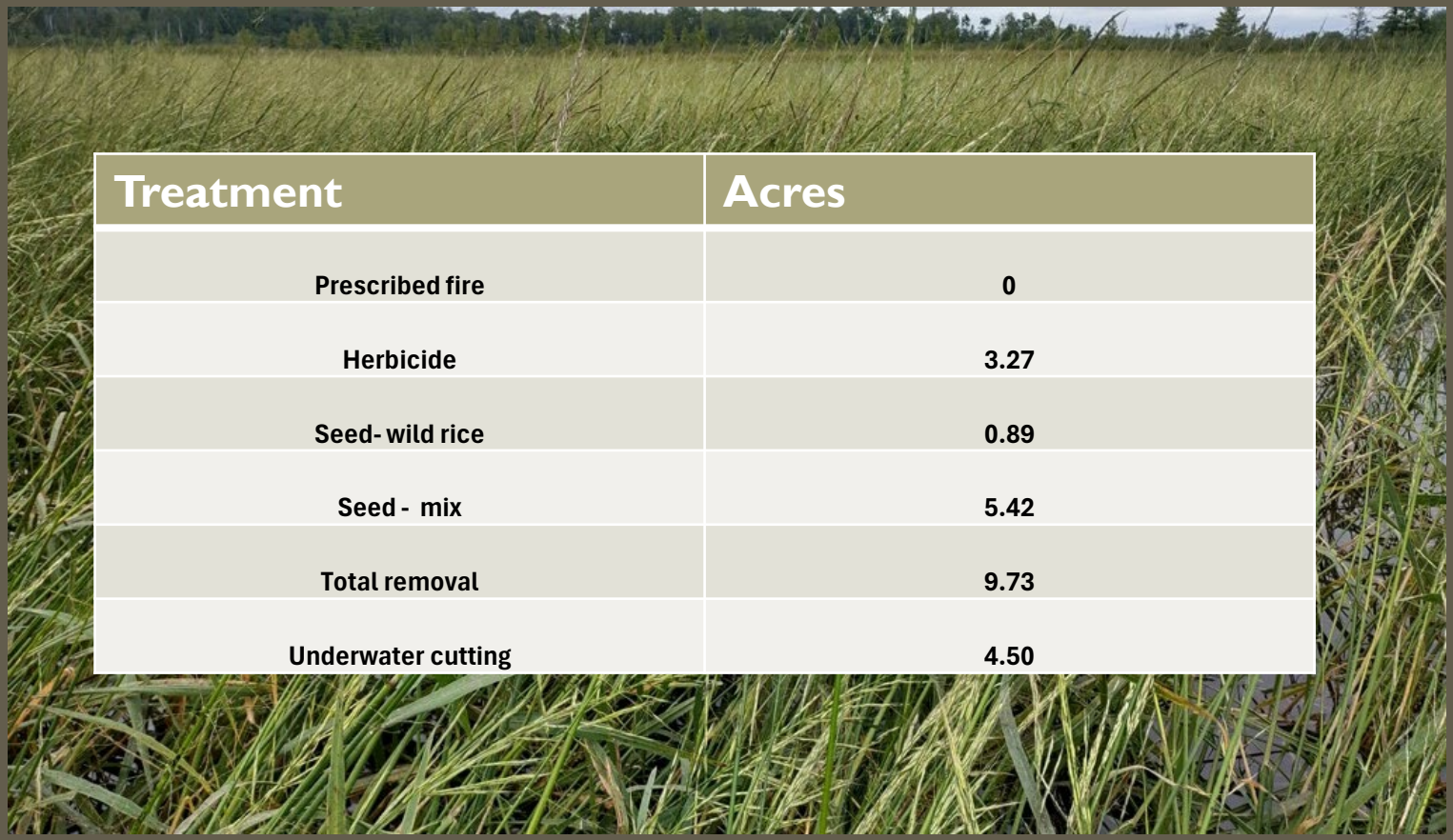
% Change in Rush cover five years after treatment




Percent Change in Cover Five Years Post Treatment + Burn
1400
1200
1000
800
600
400
200
0
-200
Typha
Rushes
Grasses
Herbaceous
Woody
Floating
Tilled/Flattened
Total Removal
Underwater Cut
Burn (Two years post)


Wild Rice cover following total removal treatment
14
12
10
8
6
4
2
0
Pre-treatment
One year post trt
Two year post trt
Three year post trt





Treatment	Acres
Prescribed fire	0
Herbicide	3.27
Seed- wild rice	0.89
Seed - mix	5.42
Total removal	9.73
Underwater cutting	4.50

2025 total acreage: 23.8

ARE WE DONE?

Developing resilient landscapes requires diverse populations. We need to ensure stable plant communities…

Fire return intervals

Local and climate smart seed collections- especially floating and aquatic sp.

Seeding the right species for the right place

Aggressive plants in high risk places

Root wad placement for site stabilization

Working with state and private on solutions

Next steps

Bringing in the community

Assessing fish, macroinvertebrate, and bird species, & other species of concern

Seed sourcing, outplanting, & diversity.

NASA early detection project


A sincere Thank You for
supporting our work
Lessard-Sams Outdoor Heritage Council
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WATER
LAND &
LEGACY
AMENDMENT


ENVIRONMENT
AND NATURAL RESOURCES
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VOYAGEURS NATIONAL PARK
if Initiative FOUNDATION
Voyageurs Conservancy
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