

MONITORING PHRAGMITES MANAGEMENT PROJECTS

Alison Rogerson, Environmental Scientist
DNREC Wetland Monitoring & Assessment Program

Phragmites Management Workshop

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DNREC DIVISION OF
**WATERSHED
STEWARDSHIP**

AGENDA

- ❖ Why monitor your project?
- ❖ Importance of baseline condition
- ❖ Monitoring options that fit
- ❖ Additional considerations
- ❖ Using Millsboro project as a case study

MONITORING FOR PROJECT SUCCESS

HOW DO YOU DEFINE A SUCCESSFUL PROJECT?

Demonstrate to landowners, regulators or funders that you met your goals.

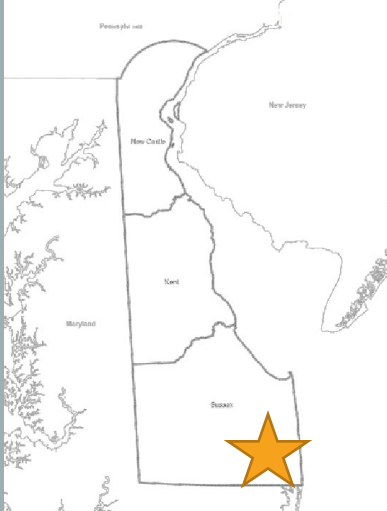
Monitor a set of parameters **for at least 1 year before and 3 years after** management action.

Goal is to create a marsh that....	Metrics
Comprised of native high marsh vegetation	Vegetation percent cover Vegetation species composition
Maintains <10% invasive plant composition	Vegetation percent cover Vegetation species composition
Is used by wildlife	Bird surveys Wildlife Cameras
Can be adaptively managed in a timely manner	Photo points Before and after Project and reference site



CASE STUDY PROJECT AREA

Sussex County



Town of Millsboro



2019 STARTING CONDITIONS



PHRAGMITES TREATMENT

Background:

- ❖ Prevent Phragmites colonization into newly re-created low marsh platform

Goal:

- ❖ Eradicate Phragmites from 8 acres
- ❖ Restore high marsh to native plants

Management Actions:

- ❖ Aerial spray via helicopter with herbicide; applied fall 2019, 2020, 2021, 2023
- ❖ Supplemental hand-spraying annually, esp 2022



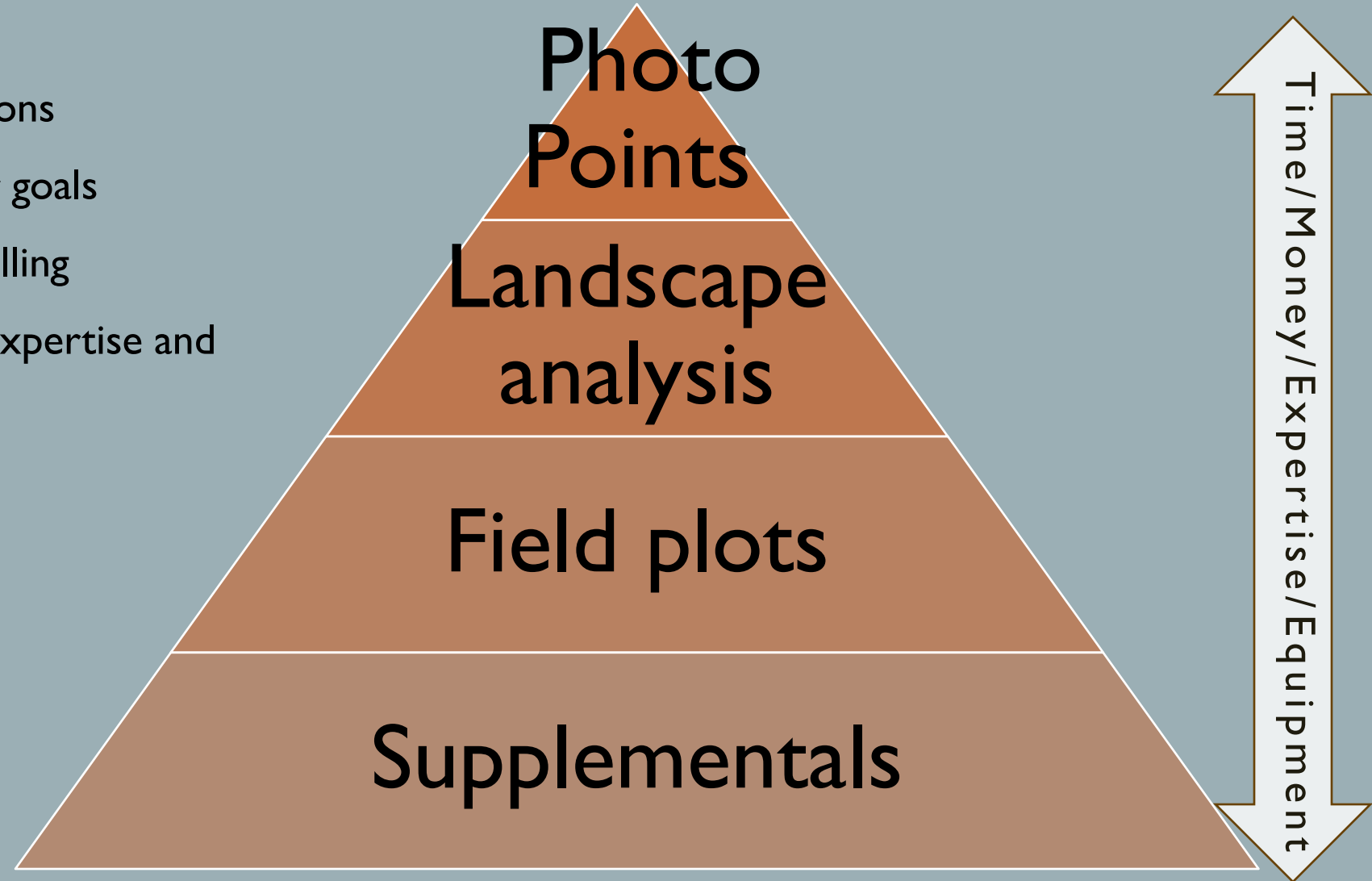
DEVISE A
MONITORING
PLAN THAT
FITS YOU

MONITORING INDICATOR OPTIONS

Effort =	Low/Med/High
Expertise =	Low/Med/High
Equipment =	Low/Med/High

Select metrics that:

- Answer your project questions
- Track progress toward your goals
- Are appropriate for your willing investment of time, money, expertise and equipment



I. STATIONARY PHOTO POINTS

- Equipment: camera or phone
- Establish a handful of sites you can access regularly, mark with a post or pvc pole
- Take photos in consistent directions, based on cardinal direction or landmarks
- Return in same season for consistency
- Capture major management events too (burn, mechanical removal, planting etc)

Effort =	Low
Expertise =	Low
Equipment =	Low



Visual progress after three years of Phragmites treatment, no seeding or planting.

2019



2022





Spartina alterniflora



Pluchea odorata



Amaranthus cannabinus

NATURALLY RECOVERED PLANTS
PLANTS 2022

2. LANDSCAPE GIS ANALYSIS

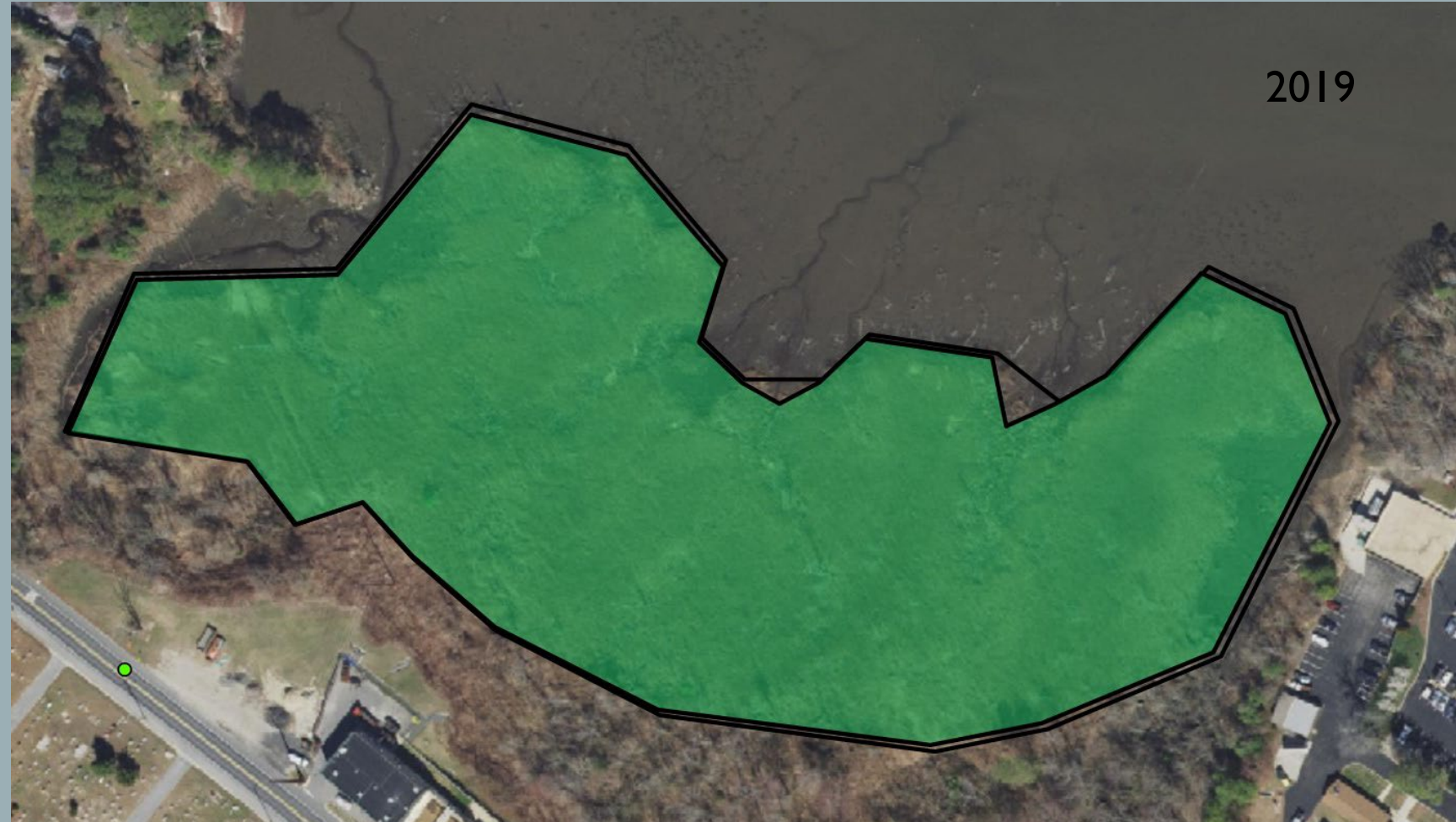
Use publicly available aerial images

Digitize using GIS software

Create polygons that capture
Phragmites coverage using photo
signatures

Track coverage change over time

Effort =	Medium
Expertise =	Medium
Equipment =	Medium



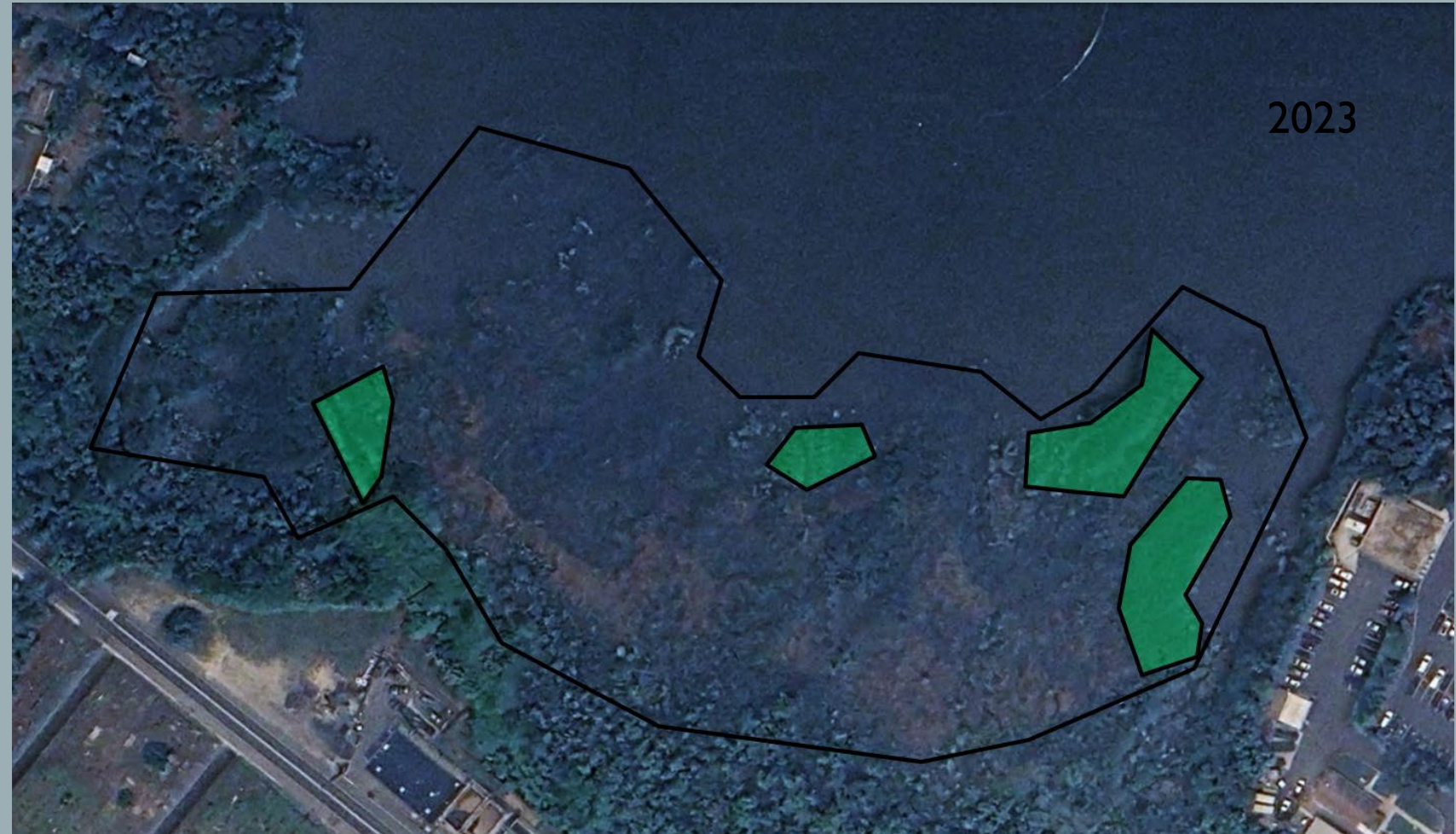
LANDSCAPE GIS ANALYSIS

Use publicly available aerial images

Digitize using GIS software

Create polygons that capture
Phragmites coverage using photo
signatures

Track coverage change over time



3. FIELD PLOTS

1m² pvc square plot

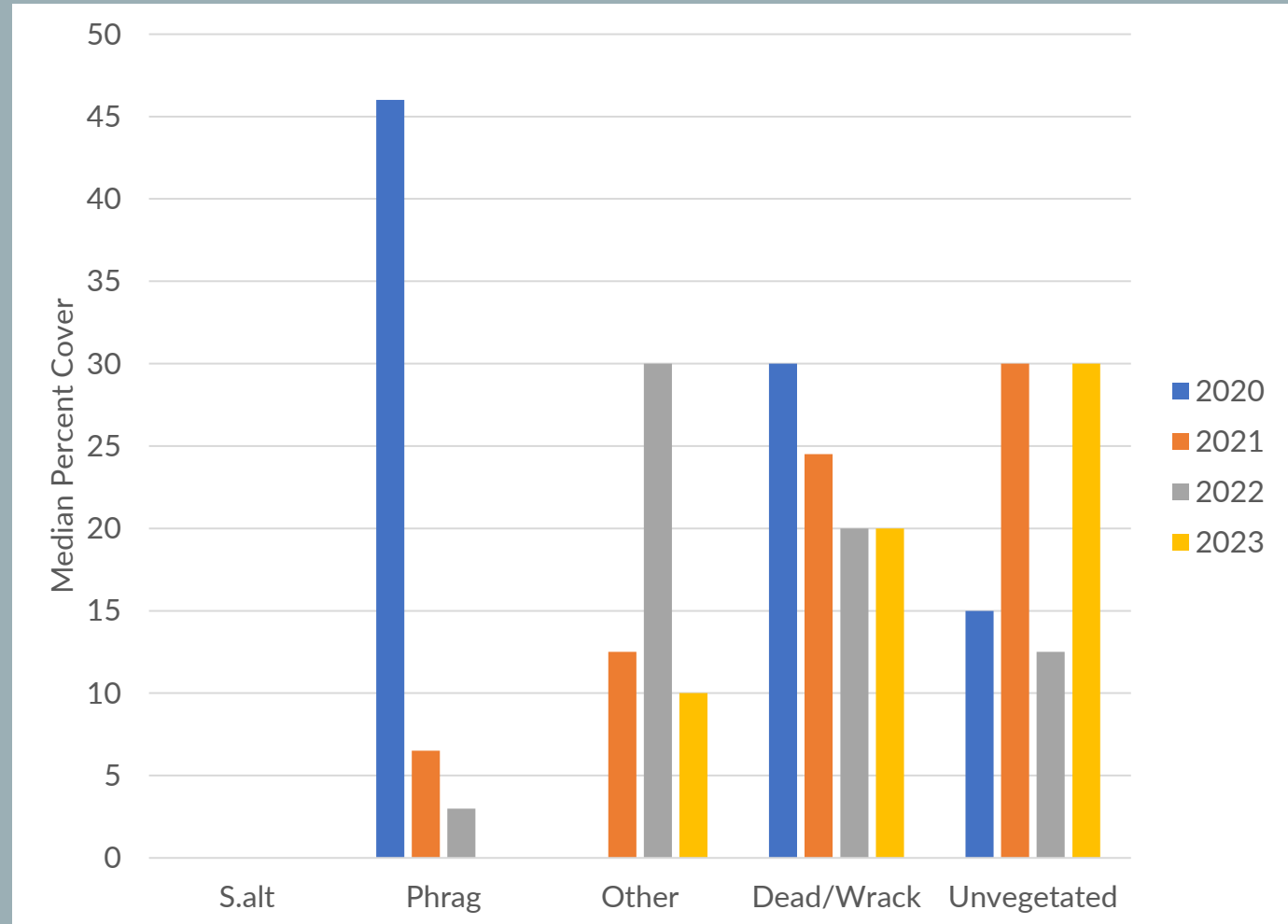
20 random plots across 8 acres

Repeated annually, late summer

Captures overall plant community



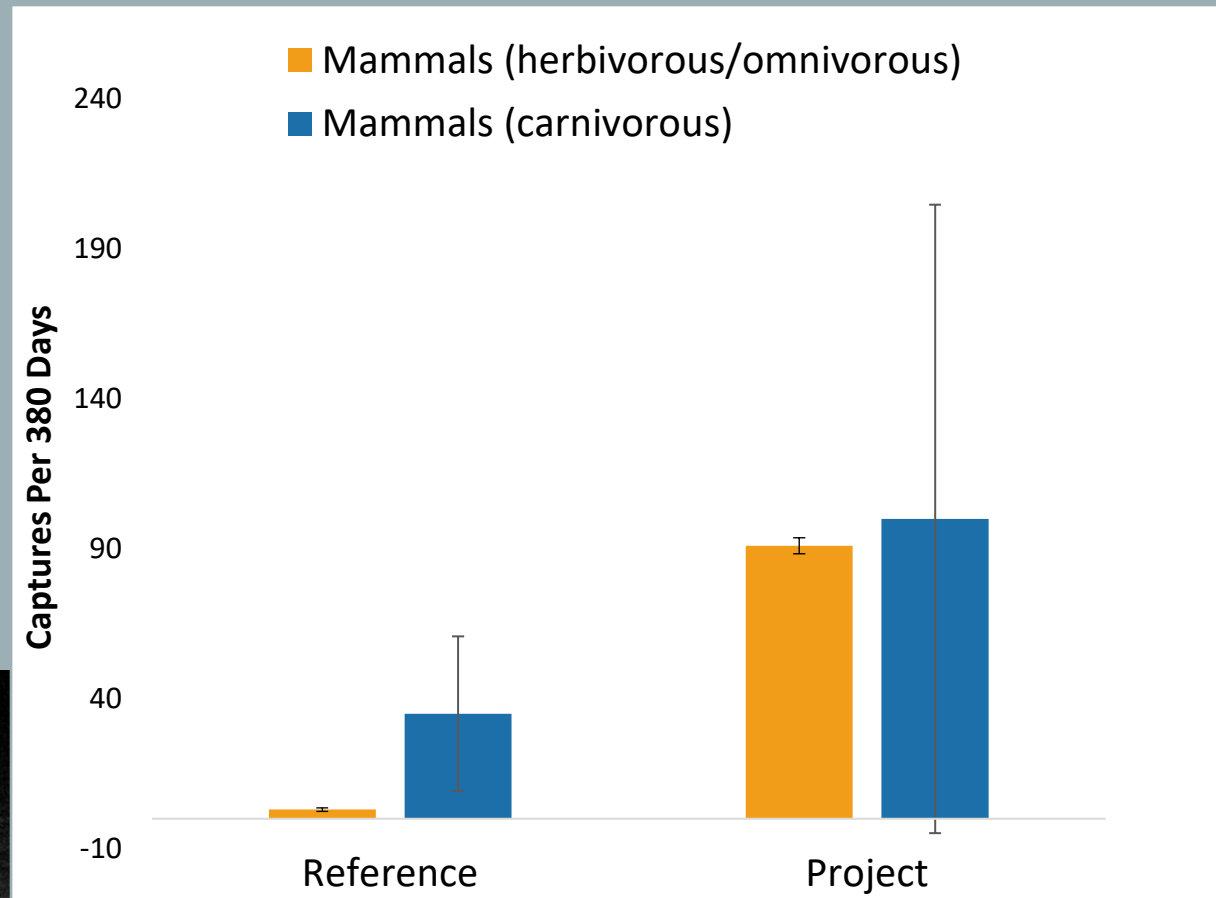
Effort =	High
Expertise =	Medium
Equipment =	Low



4. EXTRA- REMOTE WILDLIFE CAMERAS

- 5 cameras each @ project and reference site
- \$100-300 each
- Run day and night
- Takes photos and videos
- Some malfunction & storm damage
- Year round or summer breeding season

Effort =	High
Expertise =	Medium
Equipment =	Medium



CREATE YOUR MONITORING PLAN

Metric	Method	Frequency
Vegetation percent cover	1x1m quadrats along transects	1x per year (summer)
Vegetation species composition	1x1m quadrats along transects	1x per year (summer)
Estimated Phrag cover	Drone/Aerial photo digitization	1x per year (as able)
Bird surveys	Area search or point count surveys	3x per breeding season (May, June, July)
Photo points	Cardinal directions from fixed markers	4x per year

ADDITIONAL CONSIDERATIONS

MONITORING DESIGN- USING A REFERENCE SITE

How does your management site compare to a naturally functioning site with similar traits?

- Captures natural variations
- Provides realistic results to compare to
- Relatively close by
- Exhibits your end goal conditions



▲ Project site and ● reference site

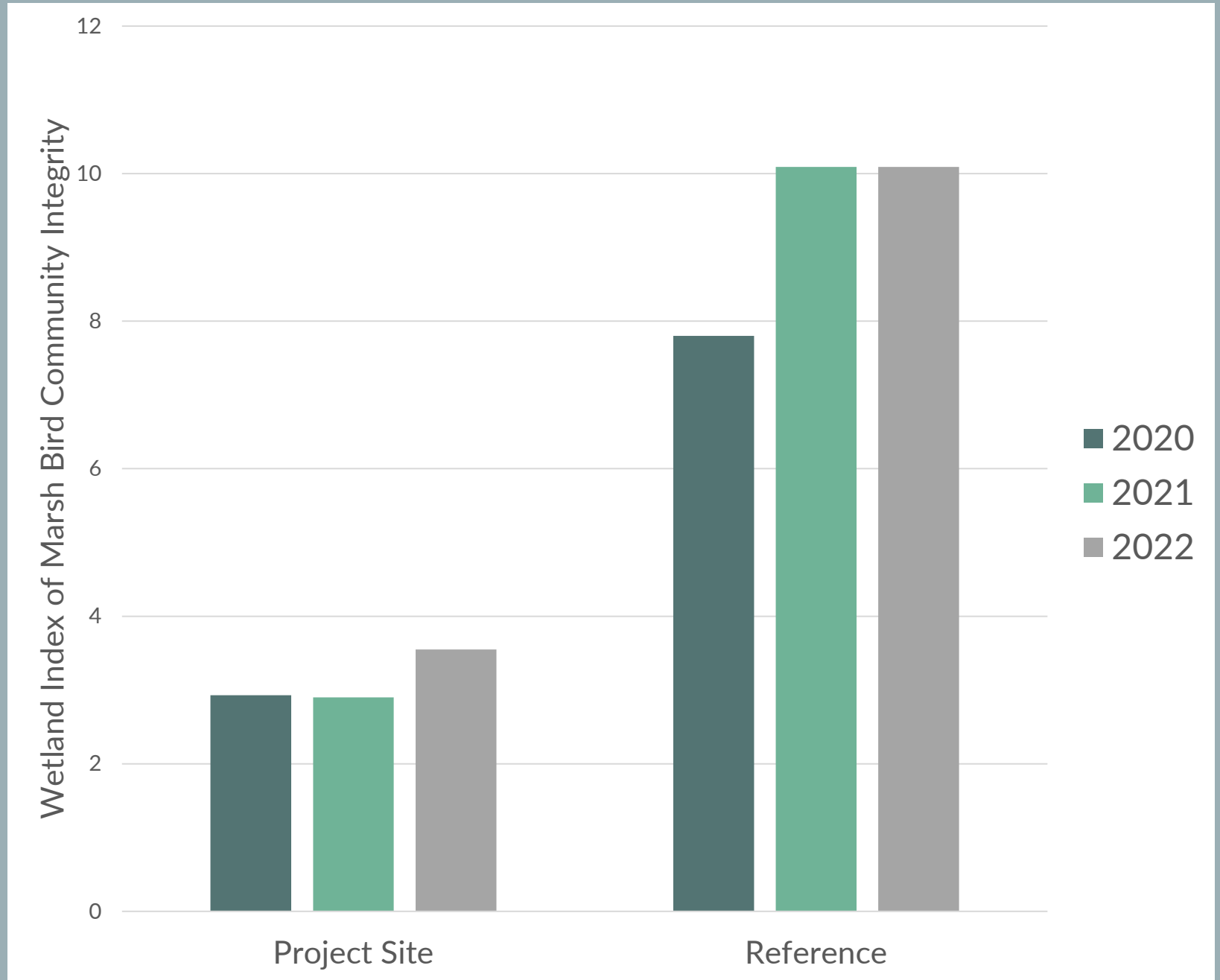
(Reference site on Piney Point State Wildlife Area)

EX: BIRD SURVEYS

2020-2022 pre-restoration

Project Site vs Reference Site

Goal: for project site results to increase or match reference site after restoration



IN SUMMARY

- Set specific goals
- Design a realistic monitoring plan
- Select indicators that match your capacity
- Monitor before and after for comparison
- Consider having a reference site
- Track your results over time and react accordingly
- Compile and share results and lessons learned



Thank you!

Alison.Rogerson@delaware.gov



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