

# Vegetation Management

## In Restored Floodplain/Wetland Complexes

Nick Myers, Maintenance Supervisor



## Importance of Maintenance

- No such thing as “no maintenance”
- Types of Maintenance

Benefits

Challenges

Equipment and Techniques

Other Considerations





# Maintenance Misconceptions

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Native plant ecosystems **DO** require maintenance; No such thing as “no maintenance”

However, frequency and cost of maintenance is often **reduced** when completed properly

Management is the plan and vision and maintenance is a critical tool to get there.



# Maintenance Misconceptions





# Inadequate Maintenance



- **Establishment Maintenance**
  - Promote desirable species
  - Prevent/suppress undesirable species
  - Critical stage for new sites
- **Preventative or Routine Maintenance**
  - Promote desirable species
  - Prevent/suppress undesirable species
  - Early detection
  - Lower cost?
- **Corrective or Rehabilitative Maintenance**
  - Difficult
  - Common
  - Variable results
  - Variable cost

## Importance of Maintenance

### **Benefits (of scale)**

- Ecological
- Economic

## Challenges

## Equipment and Techniques

## Other Considerations







# Landis Homes Senior Living Community





## Importance of Maintenance

## Benefits

## Challenges (of scale)

- Budget
- Invasive Species
- Knowledge/Skill Requirements
  - Plant ID
- Tech requirements

## Equipment and Techniques at Scale

## Other Considerations

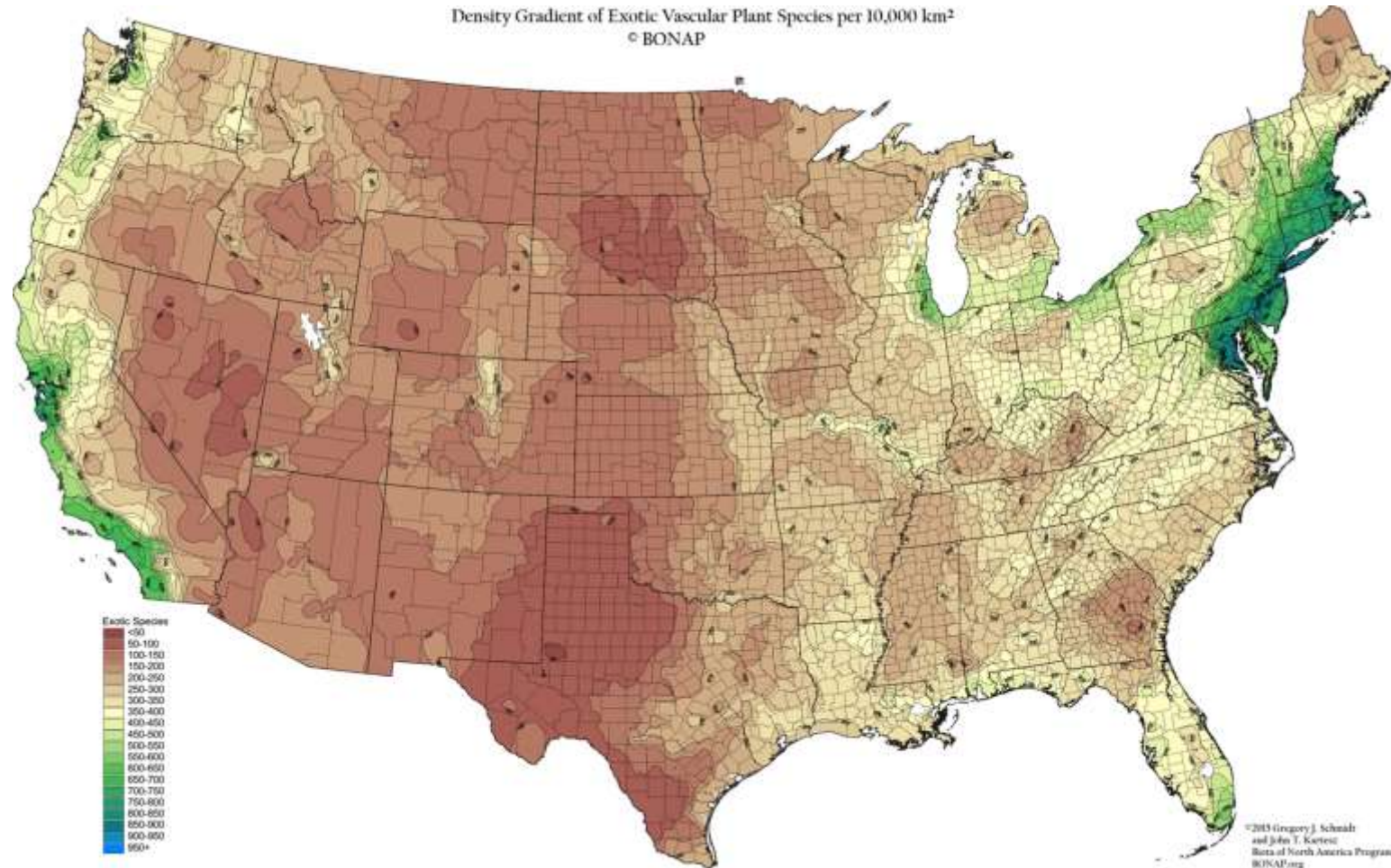


# Brubaker Run at Lime Spring Square





# Invasive Species



# Example: Arthraxon hispidus

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- Small Carpetgrass or Hairy Joint Grass
- Annual
- Wet sunny sites





# Specialized Skills

**Plant biology and identification**

**Ecology**

**Control techniques**

Appropriate  
herbicide use

Timing

Native Blue Vervain



vs.

Invasive Purple Loosestrife



## Importance of Maintenance

## Benefits

## Challenges

## Equipment and Techniques

- Mowing
- ECB
- Herbicide
- Fire
- Biocontrols
- Aggressive natives
- Stacking Techniques (IVM)

## Other Considerations



# Mowing

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# Erosion Control Blanket

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# Herbicide Application

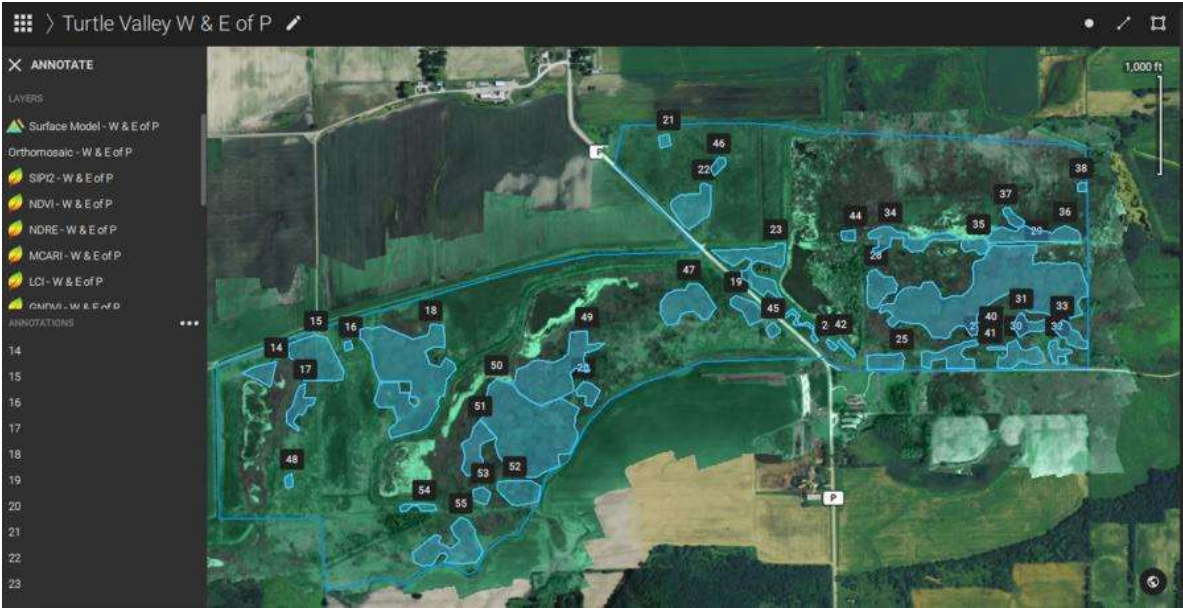
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# Drones?







# Fire

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- Pros:

- Burning things is fun
- Non-chemical
- Ecologically beneficial
  - Promote fire-adapted
  - Damage non-adapted
- Economical?
- Socially “acceptable?”

- Cons:

- Extensive training
- Logistics
- Liability
- Conditions need to be perfect
- Non-selective (plants and animals)
- Disturbance
- Smoke





# Biocontrols

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- Pros:
  - Non-chemical
  - Self-sustaining?
  - Socially acceptable
  - Economical?
- Cons:
  - Limited availability
  - Historic failures
  - Few shown to be effective
  - Unlikely to control 100% of target





# Aggressive Natives

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- Pros:
  - Native
  - Self-sustaining
  - Socially acceptable
- Cons:
  - Unproven
  - Not appropriate for all sites
  - Sourcing?



# Stacking Techniques (IVM)

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Importance of Maintenance

Benefits of Scale

Challenges of Scale

Equipment and Techniques at Scale

## Other Considerations

- Training
- Monitoring
- Realistic conditions, imperfect decisions
- Trade-offs (time, techniques)
- *Adaptive Management*



## Internal Training Programs

Government Agencies (DCNR, NRCS, municipalities)

Non-profits (Conservation groups, etc.)

Private Companies (LandStudies)

## Training or Professional Programs

PA Landscape and Nursery Association (PLNA)

**Sustainable Landscape Certification (SLC)**

**[www.PLNA.com/page/Sust\\_Land\\_Cert](http://www.PLNA.com/page/Sust_Land_Cert)**

Chesapeake Conservation Landscape Assoc. (CCLC)

**Chesapeake Bay Landscape Professional (CBLP)**

**[CBLPro.org](http://CBLPro.org)**



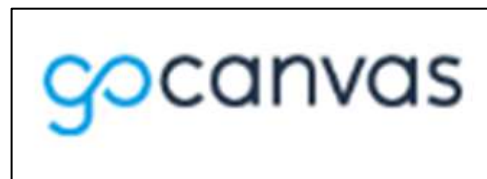
Monitoring Reports (MS4, etc.)

FQAs

Early Detection

Maintenance Reports

Spray Reports





# Maintenance/Monitoring Report Samples

**Land studies**  
f t in

**Site Maintenance Form**  
315 North St. Lititz, PA 17543  
Phone: (717) 627-4440 Fax: (717) 627-4660  
[www.landstudies.com](http://www.landstudies.com)

No. 00562  
Date: 01/05/2021

Project Name: Sample

Foreman's Name: Nick Myers

**Work Completed**  
Invasive Plant Control (Herbicide Application)  
Invasive Plant Control (Hand Removal)  
Debris Removal (Vegetation)  
Debris Removal (Trash Cleanup)

**Maintenance Notes**  
Spot sprayed thistle in meadow, picked up trash at grates, pulled weeds in R 1 & 2.

**Future Maintenance Needed**  
All work completed until next maintenance visit


**Land studies**

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Phone: (717) 627-4440 Fax: (717) 627-4660  
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No. 00562  
Date: 01/05/2021

Image 2 Description: Nutsedge

Image 2



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# Trade-offs

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- Good and bad
- Budget limitations
- Time limitations



# Adaptive Management

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- Living systems change over time
- Maintenance needs change over time
- Specialized skills to manage over time



*Grater Park Wetland  
Ephrata PA*





## Reality Check: Realistic conditions, Imperfect decisions

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- The reality is that most sites are not pristine. In fact, because waterways are wonderful corridors for invasives, finding one where management decisions are simple and maintenance isn't a challenge are a rarity. We are often starting with Corrective/Rehabilitative Maintenance.
- Use the best knowledge you have about the site (goals, budget, species present) to make the best decision you can, knowing that there may be setbacks and unforeseen circumstances.



# Questions?

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