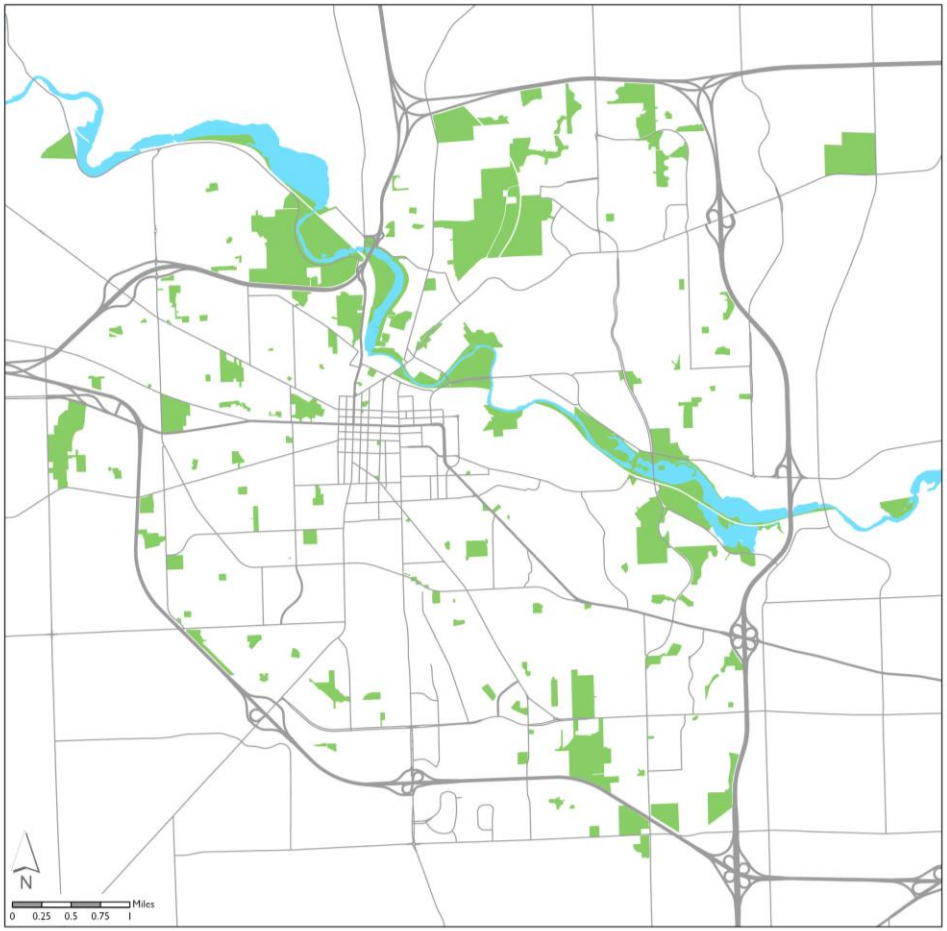
Parks&Recreation
CITY OF ANN ARBOR

Integrated Pest Management (IPM) In Our City Parks

MICHAEL HAHN, PARK MAINTENANCE SUPERVISOR

Ann Arbor Parks

- **163 Parks**
- **2,188 acres**



Parks&Recreation
CITY OF ANN ARBOR

Ann Arbor Parks and Nature Areas

Parks&Recreation
CITY OF ANN ARBOR

Pests in our Parks

Any noxious/invasive plant, problem insect, plant disease, rodent, nematode or microorganism that is detrimental to the environment or the management plan for the selected park or facility.

Parks&Recreation
CITY OF ANN ARBOR

What is IPM?

Integrated Pest Management – *A long-term pest management system that uses all suitable techniques for the prevention or suppression of pests that are harmful to the health, function or aesthetic value of City-owned landscapes, buildings and facilities in a safe, efficient, effective, and environmentally responsible manner.* We can often accomplish this through accurate pest identification, frequent monitoring for pest presence and impact, applying appropriate action thresholds, and by making the habitat less conducive to pests using mechanical, cultural, physical and biological controls. If none of these is effective, only then might we consider using an appropriate pesticide.

Parks&Recreation
CITY OF ANN ARBOR

What is IPM?

Integrated Pest Management

1. **Prevention** – Healthy areas can better resist weeds and other pests

Parks&Recreation
CITY OF ANN ARBOR

What is IPM?

Integrated Pest Management

1. Prevention
2. **Mechanical Controls**
   - Mowing, cutting, hand-pulling, aerating turf, and controlled burning

Parks&Recreation
CITY OF ANN ARBOR

What is IPM?

Integrated Pest Management

1. Prevention
2. Mechanical Controls
3. **Cultural Controls** – selecting native species, attracting beneficial insects, using proper irrigation techniques for turf, and monitoring weather to avoid over-watering, etc…

Parks&Recreation
CITY OF ANN ARBOR

What is IPM?

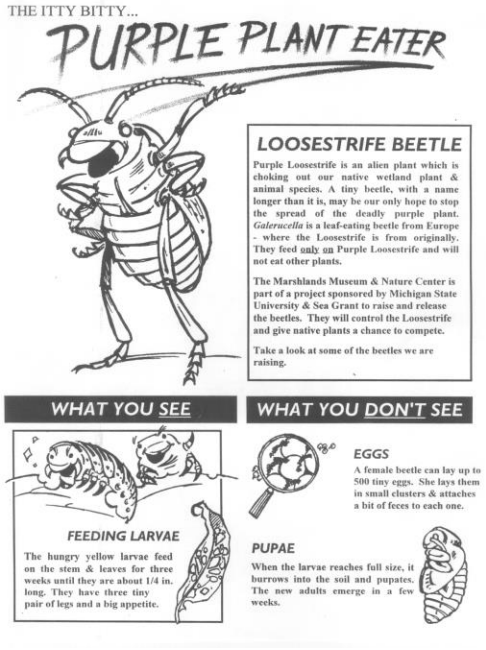
Integrated Pest Management

1. Prevention
2. Mechanical Controls
3. Cultural Controls
4. **Physical Controls** – fencing, screening, dense cover of desirable vegetation, etc…

What is IPM?

Integrated Pest Management

1. Prevention
2. Mechanical Controls
3. Cultural Controls
4. Physical Controls
5. **Biological Controls**
   - *Galerucella* beetles
   - BT – Spongy Moths



Parks&Recreation
CITY OF ANN ARBOR

What is IPM?

Integrated Pest Management

1. Prevention
2. Mechanical Controls
3. Cultural Controls
4. Physical Controls
5. Biological Controls
6. **Innovative Solutions**

- **Goats at Work**
  Goats have worked in several parks since 2019
- **Vinegar-Salt-Soap Spray**
  1 gal. household vinegar **:** 1 cup of table salt **:** 1 tsp dish detergent
- **Buckthorn Baggies**
  Non-chemical solution to killing invasive shrubs. NAP has used in several parks with ~75% success rate

What is IPM?

Integrated Pest Management

1. Prevention
2. Mechanical Controls
3. Cultural Controls
4. Physical Controls
5. Biological Controls
6. Innovative Solutions
7. **Chemical Controls**

Parks&Recreation
CITY OF ANN ARBOR

What is IPM?

Integrated Pest Management

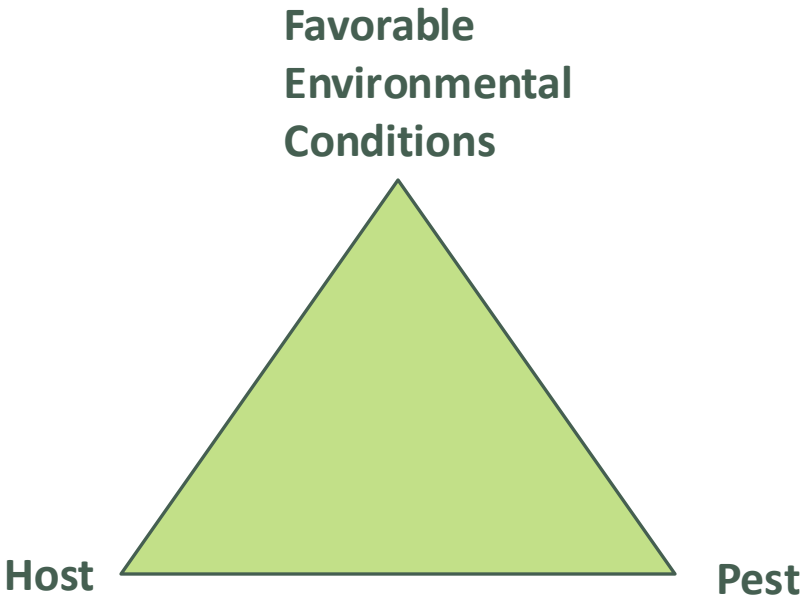
1. Prevention
2. Mechanical Controls
3. Cultural Controls
4. Physical Controls
5. Biological Controls
6. Innovative Solution
7. Chemical Controls
8. **Evaluation**

Parks&Recreation
CITY OF ANN ARBOR

IPM – Golf Courses

Guidelines

- Employ sound cultural practices
- Select thresholds
- Scout and monitor
- Accurately identify problem & management strategy
- Proper timing
- Evaluate results
- Keep records



IPM – Golf Courses

Compared to other 100% weed/disease-free golf courses, LPGC and HHGC have a much higher tolerance for weeds and turf diseases

★ **Cultural Practices**

- Constant mowing
- Rolling
- Sand-top dressing
- Vertical mowing
- Dew removal
- Plugging

AUDUBON INTERNATIONAL

Certified Audubon Cooperative Sanctuary

MONARCHS IN THE ROUGH

Michigan Turfgrass Environmental Stewardship Program

Parks&Recreation
CITY OF ANN ARBOR

NAP Case Study: Stiltgrass

Stiltgrass is a **highly aggressive** invasive species that has ravaged many forests in parts of the southeastern US

- First documented in MI just west of Ann Arbor, 2016
- Displaces native vegetation
- Takes away resources for wildlife
- By 2018, it had reached the west edge of the city, at the Botsford Preserve

Parks&Recreation
CITY OF ANN ARBOR

Stiltgrass – Impacts

Stiltgrass is an aggressive invader that has just arrived in the region, failing to quickly and effectively control it would pose a serious threat to our natural areas.

Photo: Chris Evans, University of Illinois

Photo: Leslie J. Mehrhoff, University of Connecticut

Stiltgrass – IPM Approaches

First thing: Form a Stiltgrass Working Group

Plus private landowners!

Stiltgrass – IPM Approaches

Control efforts tried:

1. Burning with propane torches to kill young plants in July
    - Slow and inefficient

Parks&Recreation
CITY OF ANN ARBOR

Stiltgrass – IPM Approaches

Control efforts tried:

1. Burning with propane torches to kill young plants in July
2. **Prescribed fires**

   Spring is too early; fall is too late

Parks&Recreation
CITY OF ANN ARBOR

Stiltgrass – IPM Approaches

Control efforts tried:

1. Burning with propane torches to kill young plants in July
2. Prescribed fires
3. **Hand-pulling**

   Slow and inefficient

Stiltgrass – IPM Approaches

Control efforts tried:

1. Burning with propane torches to kill young plants in July
2. Prescribed fires
3. Hand-pulling
4. **Mowing**

   Not effective; spreads the plant

Parks&Recreation
CITY OF ANN ARBOR

Stiltgrass – IPM Approaches

Control efforts tried:

1. Burning with propane torches to kill young plants in July
2. Prescribed fires
3. Hand-pulling
4. Mowing
5. **Goats**
   no assurance that they would target this species; concern that they would spread seeds, as deer now do

Parks&Recreation
CITY OF ANN ARBOR

Stiltgrass – IPM Approaches

Control efforts tried:

1. Burning with propane torches to kill young plants in July
2. Prescribed fires
3. Hand-pulling
4. Mowing
5. Goats
6. **Grass-specific herbicides**
   Too slow-acting

Photo: Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Stiltgrass – IPM Approaches

Control efforts tried:

1. Burning with propane torches to kill young plants in July
2. Prescribed fires
3. Hand-pulling
4. Mowing
5. Goats
6. Grass-specific herbicides
7. **Weak solution of glyphosate**
   killing non-target species
   AND resistance issues

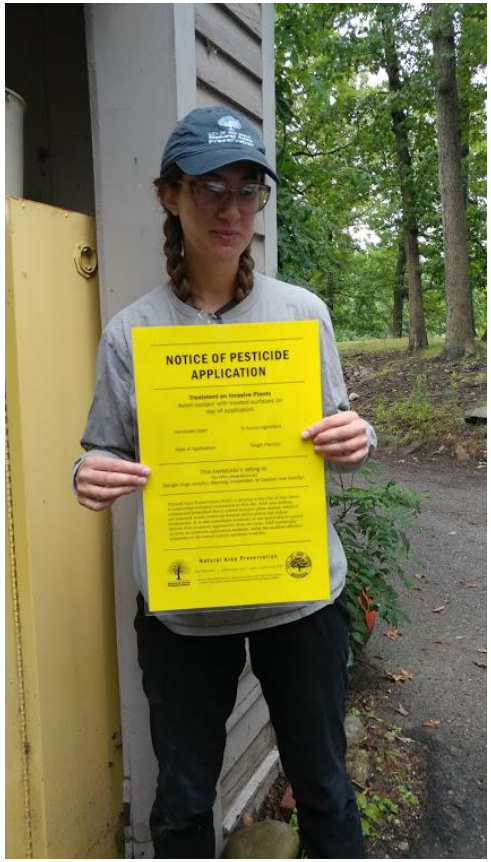
Parks&Recreation
CITY OF ANN ARBOR

Stiltgrass – IPM Approaches

Chemical solution: Scythe

"contact herbicide"

- Non-systemic. Only "burns" the green foliage, doesn't kill perennials
- Long-term impacts on **annuals** only
- More effective and efficient control method than any of the non-herbicide methods



Parks&Recreation
CITY OF ANN ARBOR

Case Study: Poison Ivy

Many complaints from park users, especially if it is along footpaths, picnic shelters, or other places where the public can't avoid it.

Parks&Recreation
CITY OF ANN ARBOR

Poison Ivy – IPM Approaches

Control efforts tried:

1. Hand-pulling (summer)
   Causes rash

Poison Ivy – IPM Approaches

Control efforts tried:

1. Hand-pulling (summer)
2. **Hand-pulling (winter)**
   Slow and inefficient.
   (can still cause rash)

Poison Ivy – Chemical Solution

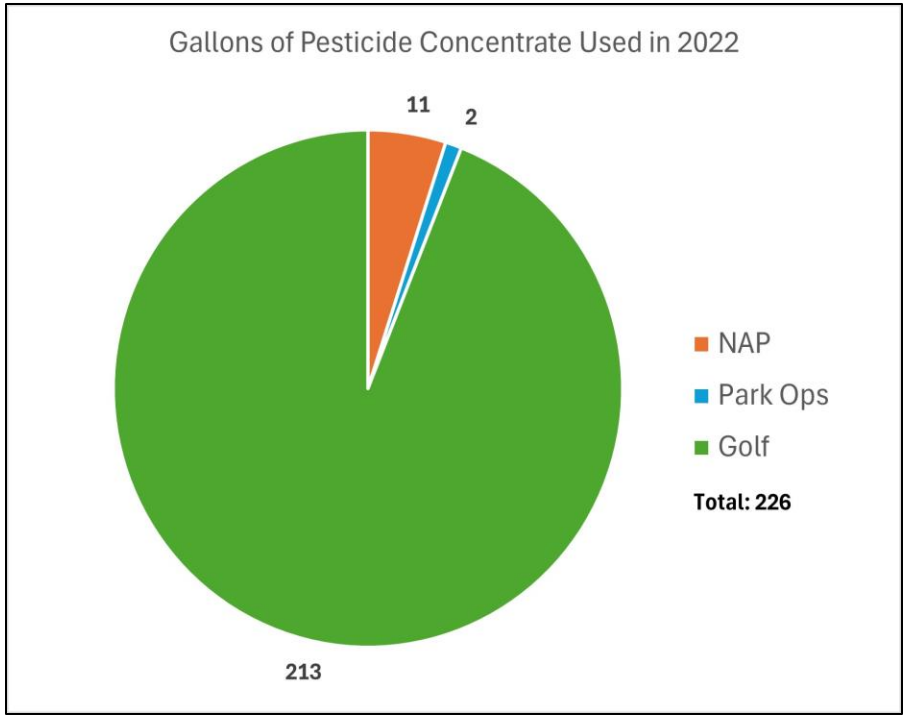
Chemical solution: 2-5% Solution of Glyphosate, applied to green vegetation by spray bottle to individual plants. Translocated to roots, kills the whole plant

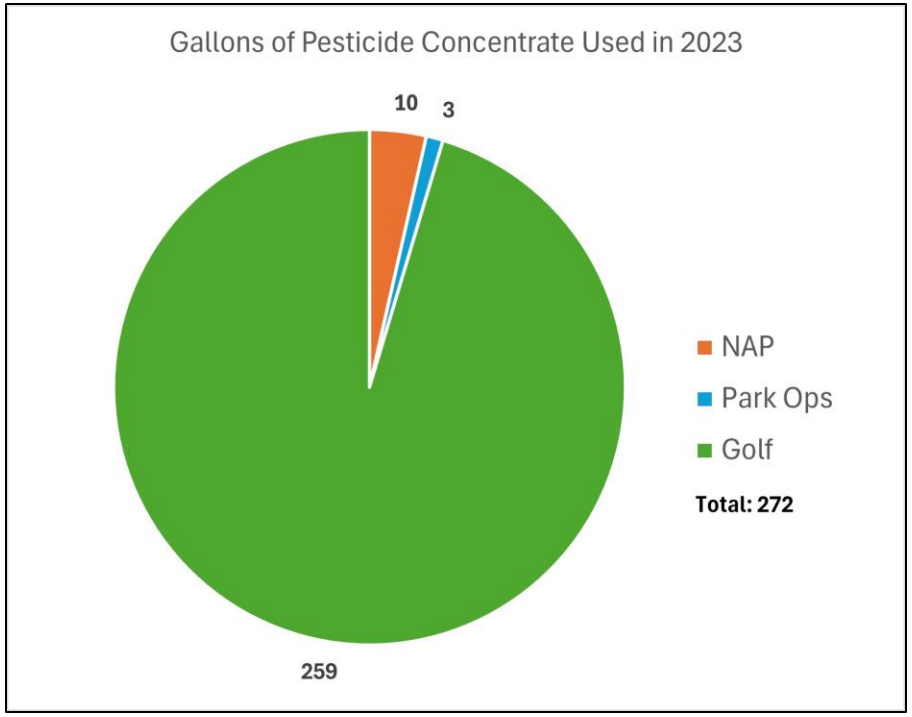
Without Glyphosate:

- Park users and staff would be subject to the rash that comes from contact with this plant
- Some park users can be very vocal about removing this plant

Photos from MSU Extension

Annual Pesticide Usage in Parks





Comparing Usage

When compared to most golf courses across the state, Ann Arbor Parks' golf courses use:

- 60-70% less fungicide
- 70-80% less herbicide
- 80-90% less insecticide

Parks&Recreation
CITY OF ANN ARBOR

IPM keeps our parks safe and beautiful, and our nature areas native, diverse, and healthy

Parks&Recreation
CITY OF ANN ARBOR

Thank you!


Parks&Recreation
CITY OF ANN ARBOR


CITY OF ANN ARBOR
FOUNDED 1824
INCORPORATED 1851
MICHIGAN


HURON HILLS
GOLF COURSE


CITY OF ANN ARBOR
Natural Area
Preservation


leslie park
GOLF COURSE