



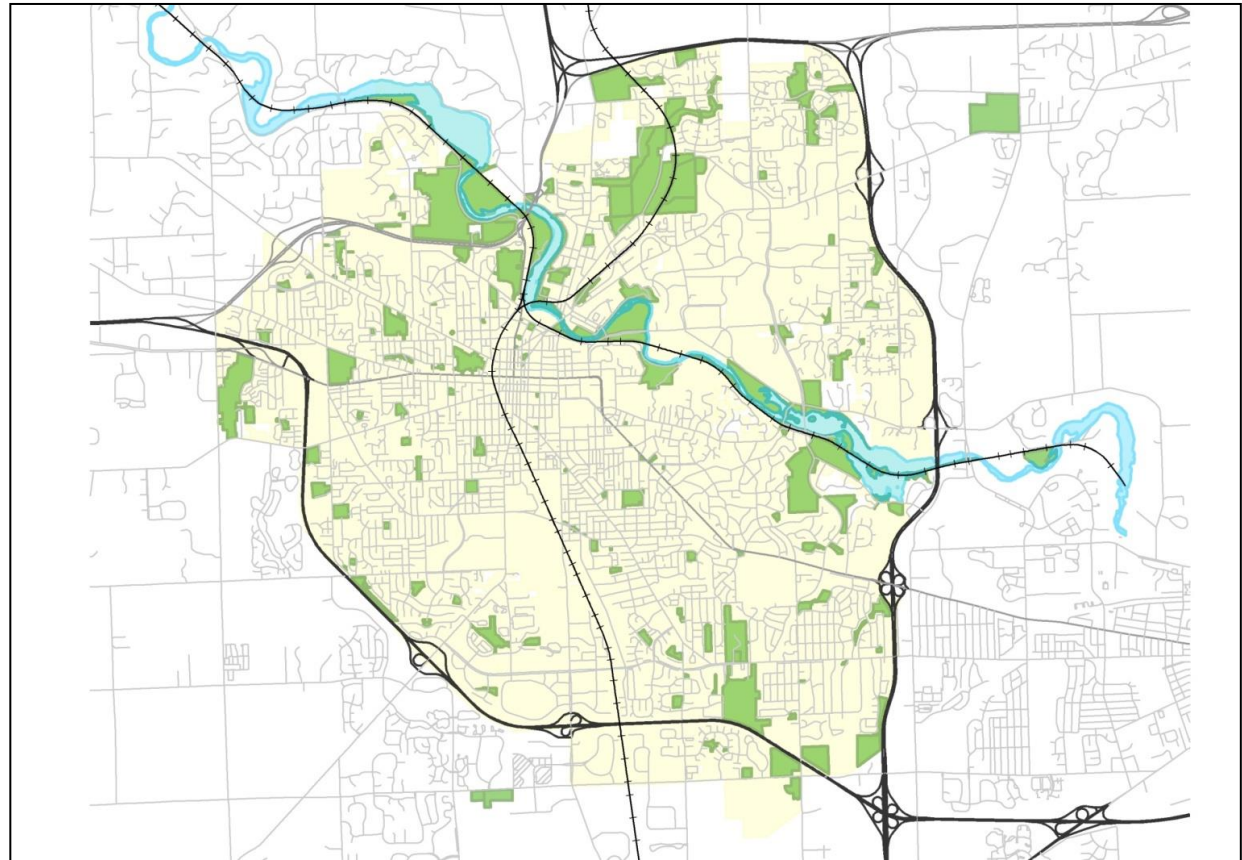
Parks & Recreation
CITY OF ANN ARBOR

Integrated Pest Management (IPM) In Our City Parks

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Ann Arbor Parks

- **162 Parks**
- **2,188 acres**



Ann Arbor Parks and Nature Areas



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.



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.*



What is IPM?

Integrated Pest Management

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



What is IPM?

Integrated Pest Management

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



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...



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 – Gypsy Moths

THE ITTY BITTY...
PURPLE PLANT EATER




LOOSESTRIFE BEETLE
Purple Loosestrife is an alien plant which is choking out our native wetland plant & animal species. A tiny beetle, with a name longer than it is, may be our only hope to stop the spread of the deadly purple plant. *Galerucella* is a leaf-eating beetle from Europe - where the Loosestrife is from originally. They feed only on Purple Loosestrife and will not eat other plants.
The Marshlands Museum & Nature Center is part of a project sponsored by Michigan State University & Sea Grant to raise and release the beetles. They will control the Loosestrife and give native plants a chance to compete.
Take a look at some of the beetles we are raising.

WHAT YOU SEE




FEEDING LARVAE
The hungry yellow larvae feed on the stem & leaves for three weeks until they are about 1/4 in. long. They have three tiny pair of legs and a big appetite.

WHAT YOU DON'T SEE



EGGS
A female beetle can lay up to 500 tiny eggs. She lays them in small clusters & attaches a bit of feces to each one.

PUPAE
When the larvae reaches full size, it burrows into the soil and pupates. The new adults emerge in a few weeks.



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 piloted by NAP in two 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**



What is IPM?

Integrated Pest Management

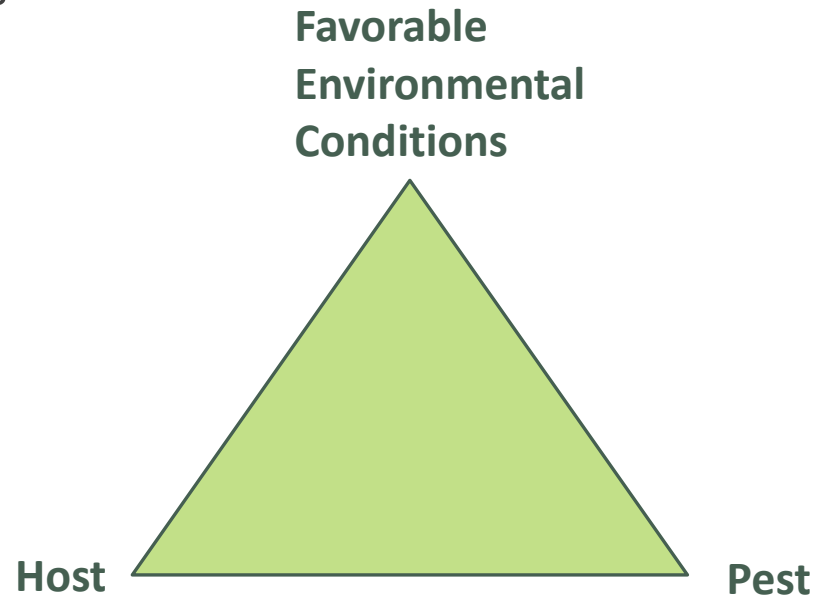
1. Prevention
2. Mechanical Controls
3. Cultural Controls
4. Physical Controls
5. Biological Controls
6. Innovative Solution
7. Chemical Controls
8. **Evaluation**



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



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



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



Jackson Lenawee Washtenaw Cooperative Invasive Species Management Area



Plus private landowners!

Stiltgrass – IPM Approaches

Control efforts tried:

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



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



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



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



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



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



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.



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

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



Thank you!



Parks & Recreation
CITY OF ANN ARBOR



CITY OF ANN ARBOR
**Natural Area
Preservation**



HURON HILLS
GOLF COURSE

