

Griffy Lake Nature Preserve Park Bloomington's Natural Treasure



Griffy harbors excellent diversity

- Around 570 species of vascular plants were documented during 2019 surveys including 50 native species new to the park.
- Provides habitat for an abundance of birds, reptiles and amphibians, and small mammals



Threats to Griffy Lake Nature Preserve

- Overpopulation of deer which threatens plant communities and is a public health threat due to tick-borne diseases
- Invasive plants displacing native plant communities
- Fire suppression causing a shift to less diverse plant communities
- Climate change altering plant communities

Plant Communities found in the Park

Griffy Park Plant Communities



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

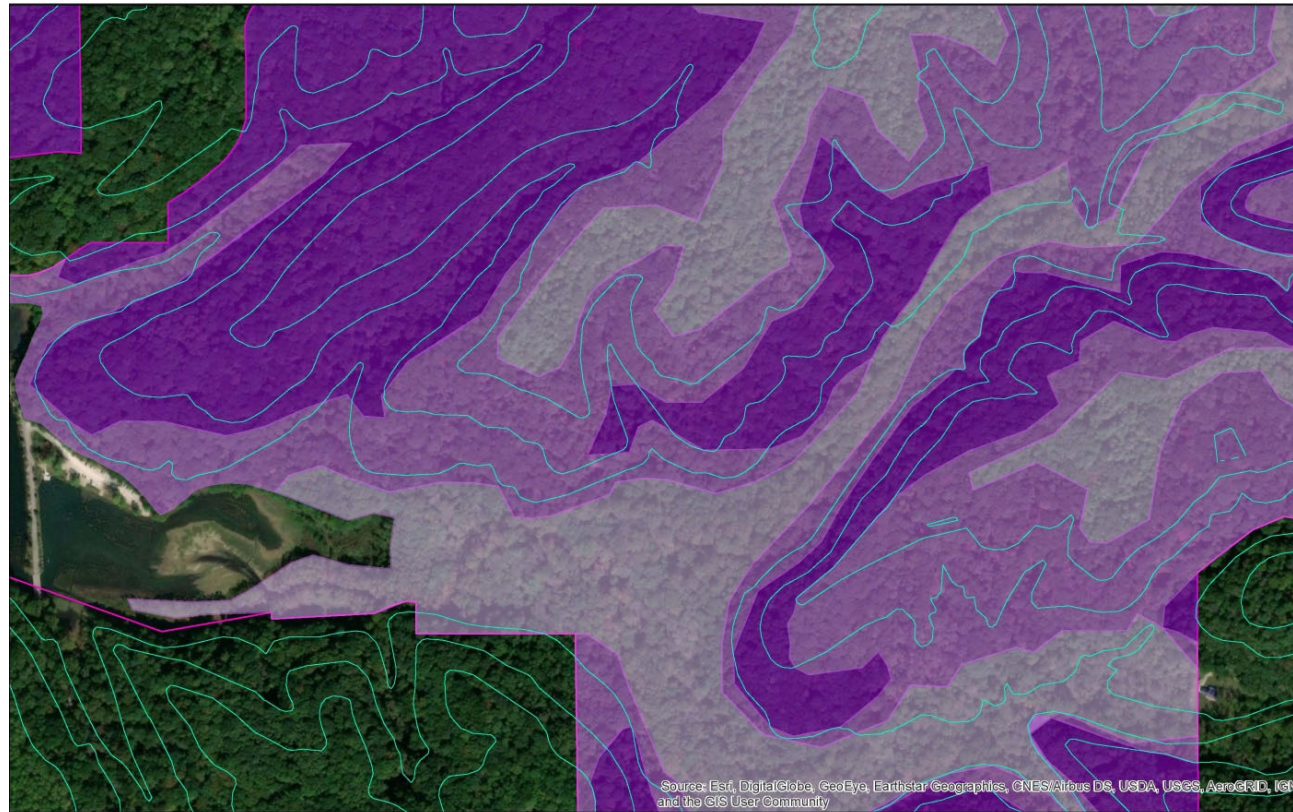
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|--|--------------------------------|------------------|-------------------|
| Mature Mesic Woodland on Limestone Ridges | Mesic Floodplains | Dry Mesic Slopes | Dry Ridges |
| Young Mesic Woodlands on Ridges and Upper Slopes | Wet-Mesic Floodplain Woodlands | Dry Slopes | Emergent Marsh |
| Mesic Sloping Woodlands | Wet Floodplain Woodlands | Dry Mesic Ridges | Seasonal Mudflats |

Forest Community Maturity

Griffy Park Plant Community Maturity




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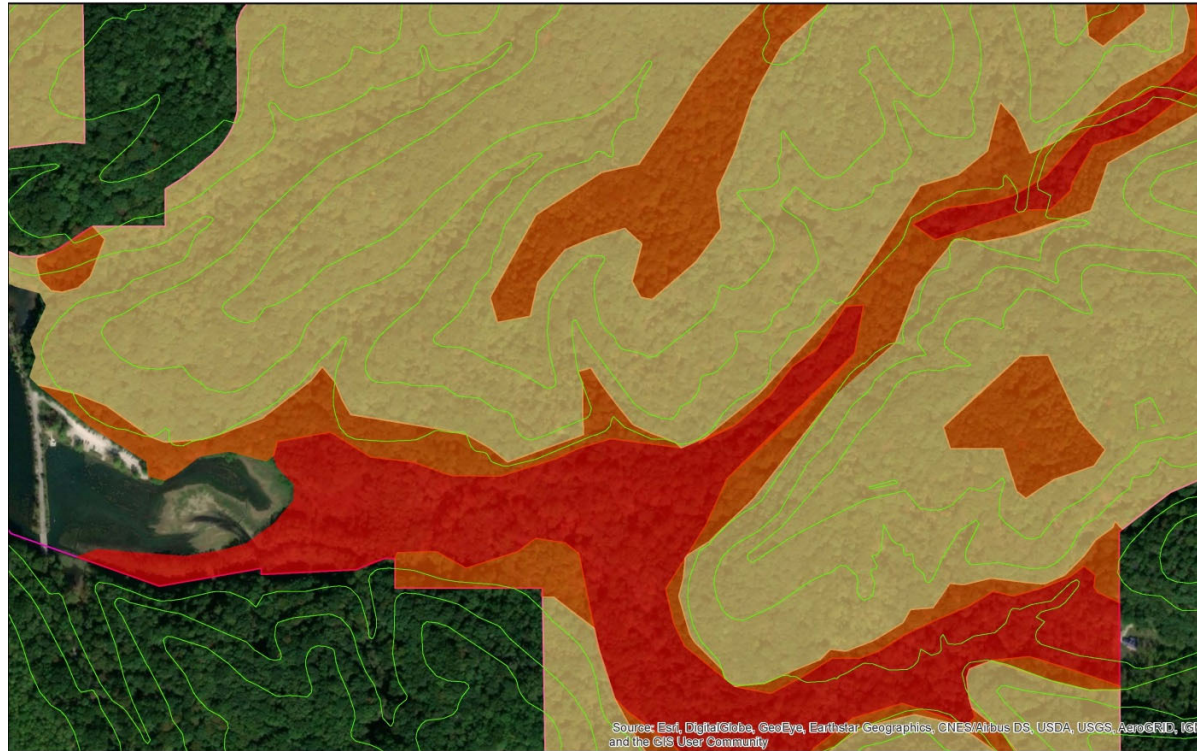


0 800 1,600 3,200 Feet
1 in = 500 feet

Early Successional Woodlands Mid-successional Woodlands Mature Woodlands

Invasive Plant Pressure

Griffy Park Invasive Plant Pressure




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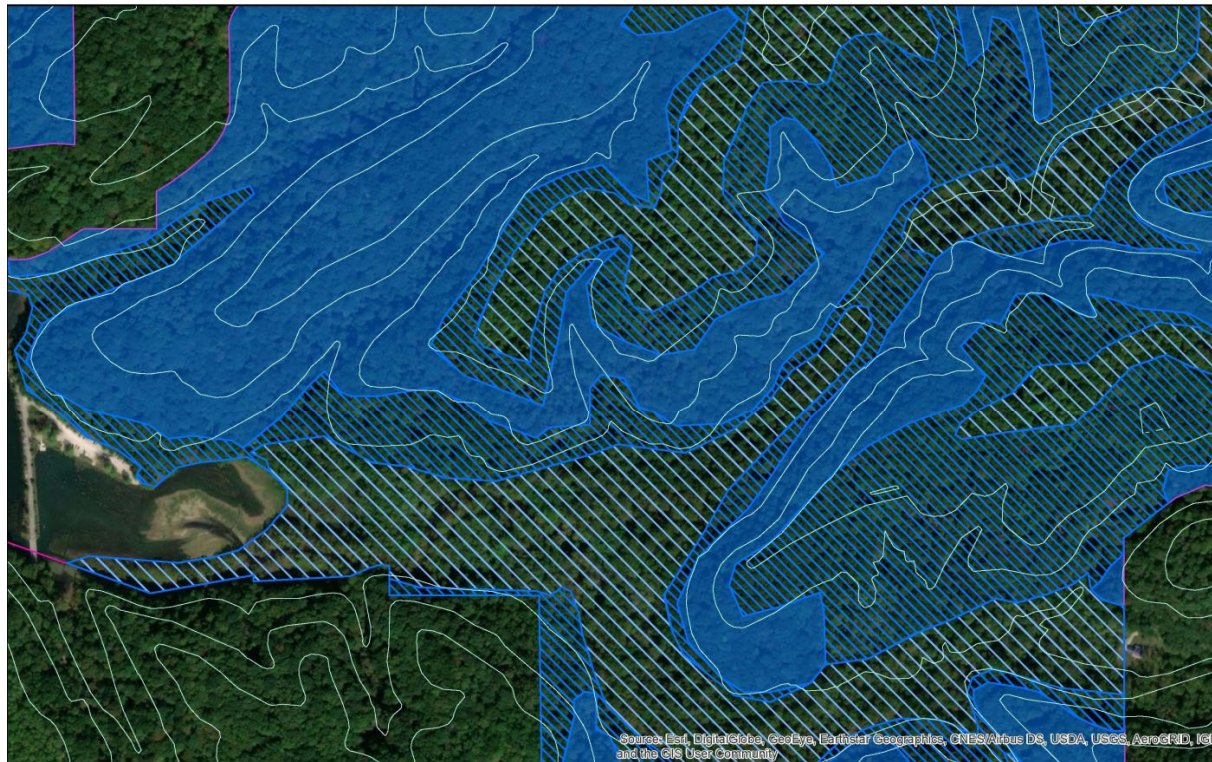


0 800 1,600 3,200 Feet
1 in = 500 feet

 Invasive Pressure Low to None  Invasive Pressure Medium  Invasive Pressure High

Resemblance to Presettlement Communities

Griffy Park Natural Area Value



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


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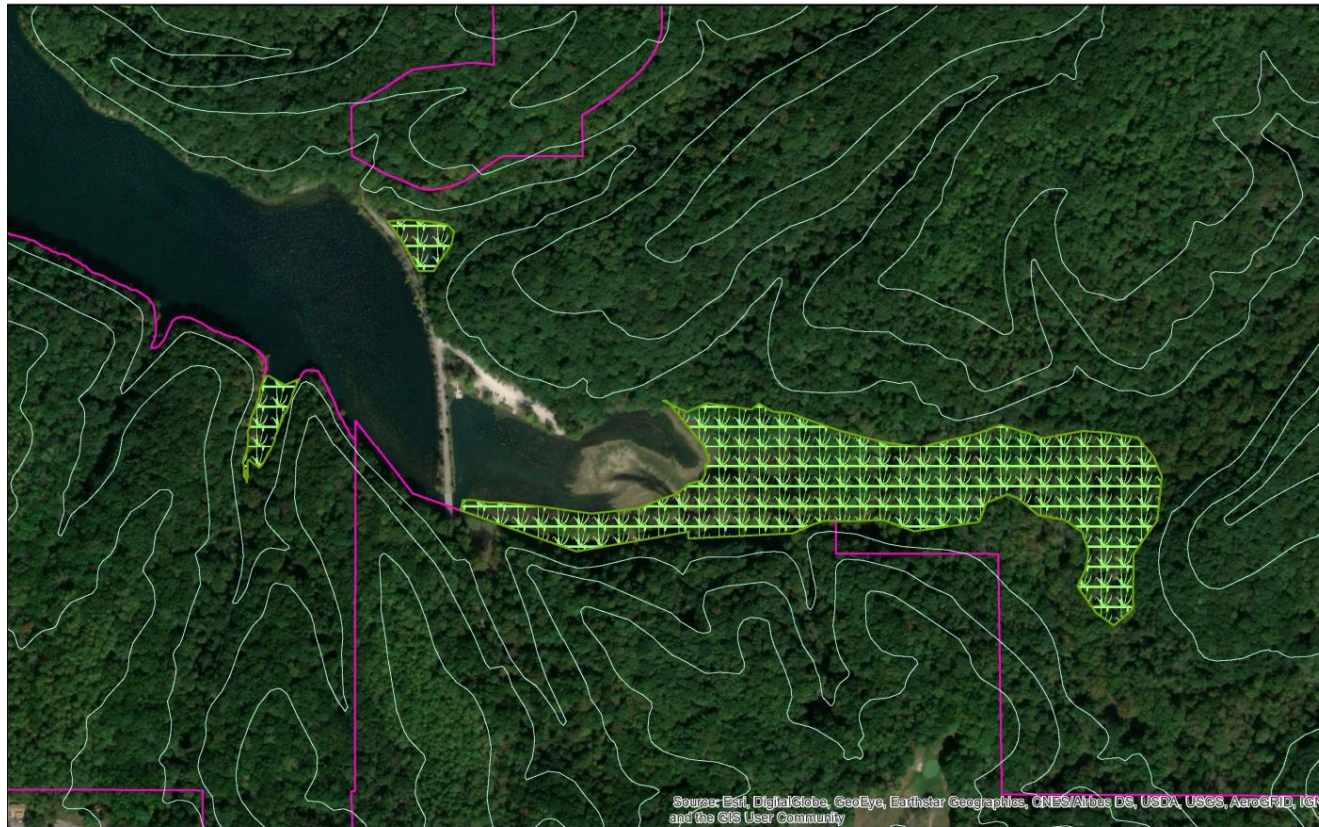


0 800 1,600 3,200 Feet
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 Low Natural Area Value  Medium Natural Area Value  High Natural Area Value

Amphibian Breeding Habitat

Griffy Park Amphibian Breeding Habitat



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Amphibian Breeding Habitat

Deer Effects on Plant Communities

- Deer selectively browse certain favored plants, threatening their existence in the park
- A browse line is evident on favored plants throughout the park
- Deer spread invasive herbaceous plants such as garlic mustard and Japanese stilt grass by carrying seed on their hooves and creating a seed bed with the soil disturbance along their paths

Deer and Ticks

- Deer are an important host for the life cycle of all Indiana tick species
- Deer are the preferred host for the adult black-legged or deer tick that transmits Lyme disease

Ticks transmit a variety of diseases in Indiana

TICKS 101 A quick guide to Indiana tick vectors

Black legged/Deer/Lyme disease tick (*Ixodes scapularis*)

Transmits Lyme disease, anaplasmosis, babesiosis and Powassan encephalitis

Widely distributed in the Northeast and upper Midwest

Bite risk: Nymphs active late spring-early summer, adult females active late summer and again in early fall, but note that adults may bite whenever temperatures are above freezing

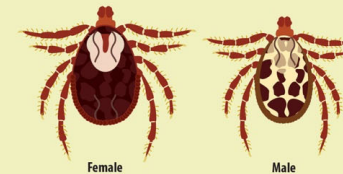


American dog tick (*Dermacentor variabilis*)

Transmits Rocky Mountain spotted fever and tularemia

Widely distributed east of the Rocky Mountains and in limited areas of the Pacific Northwest

Bite risk: Adult females most likely to bite humans and are active spring-summer

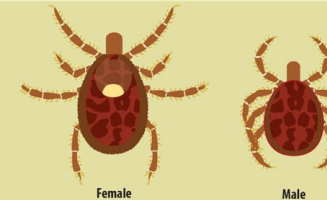


Lone star tick (*Amblyomma americanum*)

Transmits ehrlichiosis, tularemia and Southern tick-associated rash illness (STARI)

Widely distributed in the southeastern and south central U.S.

Bite risk: Nymphs and adults are active spring-summer



Images are not actual size. This information is intended as a general guide only. Please consult the CDC, your state or local Department of Health or Extension Specialist for further information regarding tick identification and risks associated with exposure to ticks and tick-borne diseases. Sources: Catherine Hill, Professor of Entomology/Vector Biology, Purdue University; Centers for Disease Control and Prevention, http://www.cdc.gov/ticks/geographic_distribution.html
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Alpha-gal syndrome

- Lone star ticks transmit a sugar molecule call alpha-gal into the body
- Alpha-gal triggers an immune system reaction that later produce mild to severe allergic reactions following the consumption of red meat
- Three Eco Logic employees suffer from this syndrome in spite of considerable preventative measures



Successive years of deer harvest are necessary to bring the herd down to sustainable levels.



Vegetation monitoring will tell when the deer population is down to sustainable levels

Percentage of Woody Understory Browsed by Year

- 2016- 33.8%
- 2018 - 30.6%
- 2019 – 32.18%



Browse on Herbaceous Indicator Plants shown by the Average Maximum Height per quadrat

Year	Jack in the Pulpit	Solomon's Seal	Trillium
2016	11.98	7.75	7.65
2018	13.6	11.33	7.5
2019	14.13	10	9.67

Prescribed Fire Sustains Oak Woodlands



Developing the Potential of Griffy Park

- Well-designed and professionally constructed trail around the lake
- Commitment to sustained deer harvest and vegetation monitoring
- Map and develop a plan with a budget to tackle invasive plant species
- Develop a prescribed fire plan and burn units for communities whose diversity depends on the disturbance provide by fire
- Develop a protocol to monitor plant communities for long term changes resulting from climate change

Questions?
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