



Ecosystem Health



VISION:

Bloomington will preserve and restore healthy and vibrant ecosystems

Maintaining ecosystem health requires careful management of natural habitats and living organisms to preserve their social, environmental, and economic benefits to the community. Urbanization can lead to habitat fragmentation, increased stress in human/wildlife interactions, a decline in ecosystem services, and the spread of invasive species. Invasive species cause significant environmental, social, and economic harm by competing with native species for resources and overtaking areas they inhabit, potentially leading to the extinction of native species. The strategic preservation and enhancement of greenspace¹ can

provide habitat for wildlife, ease tensions between humans and animals, and create community amenities. The Bloomington community is committed to managing its natural environment in ways that enhance opportunities for community recreation, environmental benefits, and wildlife habitat.

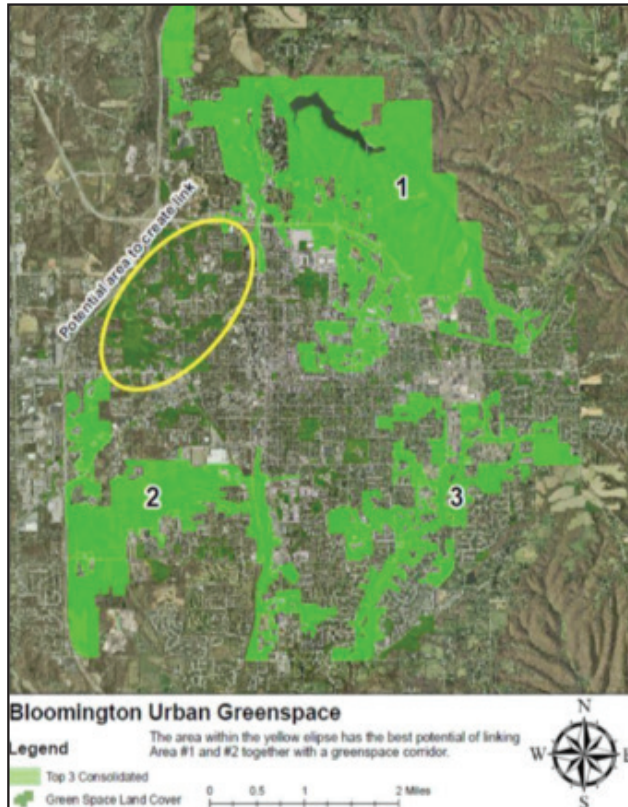
GREEN SPACE CONSERVATION AND HABITAT RESTORATION

The Bloomington Environmental Commission (BEC) identified Griffy Lake, Clear Creek, and



Ecosystem Health

Figure 1: Priority Areas for Green Space Conservation and Habitat Restoration. Area 1 = Griffy Lake; Area 2 = Clear Creek; Area 3 = Jackson Creek



Jackson Creek as three high-priority areas for habitat conservation and restoration in its 2018 Habitat Connectivity Plan (Figure 1). That plan recommended efforts to connect these isolated habitats to provide safe passage for animals, lower stress of human and animal interactions, and increase genetic diversity of plant and animal species currently in isolated habitats. Habitat restoration in these areas would have the added benefit of filtering out pollutants destined for nearby water bodies.

The plan concluded that enhancing habitat and creating a habitat corridor in critical areas, particularly in and between Clear Creek and Griffy Lake, could be accomplished through restoration near Twin Lakes Sports Park, Butler Park, and Crestmont Park.² In the next five years, the Bloomington community will work to protect and rehabilitate these priority habitats, stressing restoration along existing trails, streams/riparian areas and other sensitive environmental features whenever possible. The Bloomington community will also emphasize the importance of green space and habitat connectivity in its development decisions.

GOAL 7.1: Conserve greenspace and enhance 100 acres of habitat in priority areas surrounding Clear Creek, Griffy Lake, and Jackson Creek by 2023

	ACTION	LEAD PARTNERS	TIMEFRAME	COST
7.1.a	Ensure consideration of smart growth principles in future land use decisions to preserve important green spaces ³	Planning & Transportation, Plan Commission	2019	\$
7.1.b	Establish a volunteer program to assist with habitat restoration plans on public and private properties	Parks & Recreation, Monroe County Soil & Water, MC-IRIS, Sycamore Land Trust, IU	2020	\$*

continued next page



Ecosystem Health

GOAL 7.1 (continued): Conserve greenspace and enhance 100 acres of habitat in priority areas surrounding Clear Creek, Griffy Lake, and Jackson Creek by 2023

	ACTION	LEAD PARTNERS	TIMEFRAME	COST
7.1.c	Develop and implement a plan for restoration in each priority area and establish a habitat corridor between Griffy Lake and Clear Creek, pursuing funding from Clean Water Indiana for assistance ⁴	MCSW, Parks & Recreation, Sycamore Land Trust, IU, Bloomington Housing Authority	2023	\$\$\$*
7.1.d	Create and implement a public education campaign highlighting benefits of biodiversity and habitat connectivity, the National Wildlife Federation certified habitat program, and reporting on the GreenSpots website	MCSW, Parks & Recreation, Planning & Transportation, IU	2023	\$\$*

INVASIVE SPECIES MANAGEMENT AND NATIVE SPECIES PLANTING

Invasive species are non-native plants and animals known to cause environmental harm, and can also harm the economy and human health. Ten invasive plant species found in Bloomington are priority invasive species, deemed to pose the greatest threat to the local environment: Asian bush honey suckle, autumn olive, garlic mustard, Japanese honeysuckle, Japanese knotweed, Japanese stiltgrass, kudzu, multiflora rose, Tree-of-heaven, and purple wintercreeper.⁵ Numerous invasive plant species are also sold for landscaping in the state of Indiana, including Asian bush honey suckle, Japanese honey suckle, burning bush, Asian bittersweet, and purple wintercreeper.⁶

There are currently seven known species of invasive invertebrates in Bloomington, including the emerald ash borer and the Japanese beetle, both priority species.⁷ Asian carp is an invasive fish species of particular concern and has been

detected in Monroe County.⁸ Griffy Lake has also struggled with invasive species management. Approximately 22.3 acres of the 109-acre Griffy Lake were infested with invasive species Eurasian watermilfoil and curly-leaf pondweed in 2016, with numerous invasive plant species present within the larger Griffy Nature Preserve area.⁹

Efforts to remove invasive plant species are traditionally accompanied by the replanting of native species, particularly in home gardens and landscaping. Such restoration would benefit from enhanced deer management, since deer tend to avoid eating invasive plants in favor of native plants.¹⁰

Parks and Recreation engages in tireless efforts to remove invasive plant species from city properties, including:

- targeted removal efforts at more than a dozen parks and city-owned properties in 2017,¹¹



Ecosystem Health

- the removal of 9.5 acres of invasive species from the B-line trail in 2018,
- the treatment of 93 City-owned trees for the Emerald Ash Borer in 2017,¹²
- plans for the eradication of invasive aquatic plant species in the Griffy Lake area,¹³
- an Adopt-an-Acre program to encourage citizens to volunteer with the removal of invasive species on public properties, and
- a City Ordinance that makes it unlawful to have invasive species taller than eight inches on any lot or tract of ground or to plant new invasive species plants.¹⁴

Well-established populations of invasive species are difficult to cost-effectively manage. Thus, Parks & Recreation vegetation management staff use the Early Detection and Rapid Response approach to prevent the establishment of new/emerging invasive populations. While the department has not tracked the acreage it has removed invasive species from in the past, it is beginning to use of a global positioning system (GPS) to map areas from which invasive species have been removed. This data could allow for improved reporting in the future.

Numerous organizations complement City efforts to remove invasive plants and replant native species. The University of Georgia Center for Invasive Species and Ecosystem Health has an Early Detection and Distribution Mapping System (EDDMap) for reporting invasive species.¹⁵ Monroe County Identify and Reduce Invasive Species (MC-IRIS) and Sycamore Land Trust are leaders in invasive species removal.¹⁶ Monroe County Soil and Water Conservation District, Purdue University Extension, and the Indiana Native Plants and Wildflower Society provide considerable resources to residents and businesses interested in removing invasive plants and replanting natives.

In the next five years, the Bloomington community will continue to promote the benefits of native plants and educational efforts regarding available incentives for invasive species removal. It will also encourage reporting invasive species through EDDMap to ensure rapid detection and response, and work to eradicate priority invasive species from highly visible public areas.

WHAT YOU CAN DO

- ✓ Make your yard a [Certified Wildlife Habitat](#) and create a haven for local wildlife.
- ✓ Volunteer with Parks & Recreation to help remove invasive species.
- ✓ Do not buy invasive species for landscaping.



Ecosystem Health

GOAL 7.2: Remove 100 acres of invasive plants on public lands and 100 acres on private lands by 2023¹⁷

ACTION		LEAD PARTNERS	TIMEFRAME	COST
7.2.a	Begin mapping acreage of invasive species removal with Garmin system and report on Green Spots Website to track progress over time	MCSW, Parks & Recreation	2019	\$*
7.2.b	Develop a public education program to enhance public participation in invasive removal efforts through reporting species via the EDDMap application and the Adopt-an-Acre program ¹⁸	MCSW, Parks & Recreation	2020	\$*
7.2.c	Include requirements for native plants in all future landscaping plans	Planning & Transportation	2020	\$\$*
7.2.d	Create native plants demonstration and education sites with plant details at Switchyard Park and/or other City parks	Parks & Recreation	2020	\$\$
7.2.e	Develop coordinated community campaign encouraging removal of invasive plants, communicating benefits of native plants, and encouraging reporting on the Green Spots website	Parks & Recreation, MCSW, MC-IRIS, INPAWS, Purdue Extension, Bloomington Environmental Commission	2020	\$*
7.2.f	Create an educational campaign on the most effective methods of deer management and deer-resistant plants	MCSW, Parks & Recreation	2020	\$
7.2.g	Develop and implement prioritized plans for removal/management of invasive species on public properties, emphasizing Griffy Lake, Leonard Springs, Upper Cascades, Lower Cascades, and Olcott Park ¹⁹	Parks & Recreation	2023	\$\$\$\$*





Ecosystem Health

SUCCESS **Stories**



SWITCHYARD PARK

The McDoel Railroad Switchyard was a regional hub for railroad activity and commerce from 1892 until 2000, when CSX Railroad phased out its services. The City purchased this 28-acre property in 2009, and now Parks & Recreation is transforming it into a state-of-the-art regional attraction for residents and visitors. This \$34 million, 65-acre park (which includes other private property acquisitions) will bring new commercial and residential development along the existing multi-use B-Line trail and provide space for outdoor recreation and public events and programs.

Sustainable plans for Switchyard Park include 11,000 square feet of rental banquet and festival indoor/outdoor space, designed to LEED Silver standards. Garage doors along the length of the main building will raise and lower for open-air events, and a roof water recovery system will supply recovered water for on-site community gardens (39 raised beds, available for community members to rent). The City will plant 600 trees, along with 2,000 reforestation seedlings. The park will also include electric vehicle charging stations. Construction will be substantially completed, and facilities open and operational, by November 2019. Final completion, including seasonal plantings, is scheduled for May 2020.



Ecosystem Health

Notes

1. The Bloomington Environmental Commission defines *green space* as an area that includes some type of permeable surface such as forest, grass, farmland, golf courses, parks, or cemeteries, with an area of more than one acre, more than 10 feet away from any man-made elements (roads, parking lots, buildings). See Green Space Trends Report 2007–2011, 3.
2. Habitat Connectivity Plan, 5 and 7; City of Bloomington Comprehensive Plan, 46.
3. As done by Boulder, Colorado, Habitat Connectivity Plan, 5.
4. A similar recommendation was made in the Joint City of Bloomington-Monroe County Deer Task Force Report (2012), iv.
5. Monroe County Identify and Reduce Invasive Species, Top 10 Invasive Plants in Monroe County, Indiana, <http://mc-iris.org/top-10-invasives-summary.html>
6. Source: Report from the Invasive Plant Advisory Committee to the Indiana Invasive Species Council (September 19, 2013).
7. Indiana Department of Natural Resources, Invasive Species, <https://www.in.gov/dnr/3123.htm>
8. Indiana Public Media, Could Asian Carp Make Their Way into Indiana Reservoirs, <https://indianapublicmedia.org/news/asian-carp-indiana-reservoirs-87956/>
9. Griffy Lake Aquatic Vegetation Management Plan 2017-2021.
10. Penn State, Taste Test? Deer Preferences Seem to Help Non-Native Invasive Plants Spread, <https://news.psu.edu/story/406166/2016/04/25/research/taste-test-deer-preferences-seem-help-non-native-invasive-plants>
11. Parks and Recreation, 2017 Annual Report, 5.
12. Parks and Recreation, 2017 Annual Report, 5.
13. Griffy Lake Aquatic Vegetation Management Plan 2017-2021.
14. Bloomington Environmental Action Plan, 28.
15. <https://www.eddmaps.org/indiana/>
16. Dunn's Woods Invasive Species Maps, <http://sustain.iu.edu/programs/buwp/invasive-species-maps.php>
17. A similar goal is recommended in the City of Bloomington Comprehensive Plan, 46 and 48.
18. A similar action was discussed in the Environmental Quality and Natural Systems Working Group and in the Bloomington Environmental Action Plan, 28.
19. Similar actions recommended in the SAP Environmental Quality and Natural Systems Working Group; Bloomington Environmental Action Plan, 30; Bloomington Peak Oil Task Force Report, 197; Similar actions have also been implemented in Iowa City, Iowa.