

## **Introduction**

The purpose of this habitat plan is to describe protected biomes at James Madison University (JMU) that serve as habitats beneficial to pollinators. This plan will also describe native and non-native plant species in these areas that promote pollination as well as identify conservation measures that JMU uses to minimize and mitigate degradation of these areas. The habitat plan along with JMU IPM (Integrated Pest Management Plan) is in accordance with Bee Campus USA guidelines as part of a stipulation for this program.

## **Site Description**

JMU owns 770 acres of land in Harrisonburg City and Rockingham County in Virginia in the Shenandoah Valley. Current habitat areas account for 17 acres of the total acres. The university is located in the center of the city, sitting at 1312 feet in elevation. JMU is part of the Black Run drainage basin with multiple streams and creeks running through main campus. Newman Lake a .035-sqkm waterbody located on the west side of campus serves as a drainage basin for these streams and creeks. Newman Lake is part of the Chesapeake Bay watershed. The eastern periphery of JMU contains the arboretum a 72 acres open deciduous forest. The map link in the “Resource” section shows natural areas on JMU property that promotes pollinator activity. Habitat types include bio-retention filters, riparian buffers, and natural hillside meadows. Around 85% of JMU plant species are native and close to 50% are pollinators. The table in Appendix A shows native pollinator plant species at JMU.

## **Land Use**

JMU has a daily population of over 20,000 people on its campus. Most of the university’s urban facilities include academic buildings, student housing, roads, sidewalks, bicycle paths, and recreational facilities. Forested areas such as the arboretum and water bodies such as Newman Lake are used for research purposes as an outdoor laboratory for disciplines such as engineering, biology, and geosciences. JMU University Farms in the Cross keys area in Rockingham County is used for small agricultural academic purposes.

## **Institution Goals**

JMU’s goal for developing the habitat plan are as follows:

- Protect pollinator plants species in their designated habitat
- Protect habitat from harmful activities
- Educate the wider community on the importance of pollinators
- Use for academic and research purposes

## **Plan Implementation**

The habitat plan implementation is a partnership between faculty, students, and staff. A committee consisting of the landscape director, other staff, administrators, faculty and students will assess the plan accordingly each year to develop actions and implement new ideas.

## **Conservation Measures**

The following are some measures JMU employ to protect and mitigate harmful activities on habitat areas:

- Promptly identify invasive species
- Pruning
- Mulching
- Mowing grass once a year in the Fall
- Mowing riparian buffers once a year

## **Resources**

To view an interactive map of JMU pollinator habitat, visit:

<https://jmuad.maps.arcgis.com/apps/View/index.html?appid=5210267d3779478ea307248e6f6a04b7>

For more information on native pollinator plant species in the Shenandoah Valley, visit:

<https://svswcd.org/wp-content/uploads/2016/08/Native-Plants.pdf>

To search nationally by region for pollinator information, visit: <http://pollinator.org/guides>

Below are locations in the Shenandoah Valley where plants listed in the Appendix can be purchased.

- Waynesboro Nurseries, (540) 946-3800, <https://waynesboronurseries.business.site>
- Saunders Brothers Nursery, (434) 277-5455, <http://www.saundersbrothersfarmmarket.com>
- Guthrie Nursery, (434) 993-0797, <https://www.guthrienurseryinc.com/>
- Shreckhise Nurseries, (540) 249-5761
- Shreckhise Shrubbery Sales & Landscaping, (540) 234-8500, <https://shreckhiseshrubbery.com>

- Waynesboro Garden Center, (540) 942-4646, <https://waynesborogardens.com>
- Knotts Creek Nursery, (757) 483-6383, <http://knottscreeknursery.com/>
- Riverbend Nursery, (800) 638-3362, <http://www.riverbendnursery.com/>

## Appendix

### Appendix A

Native Pollinator Plant species at JMU			
Type	Plants	Locations	Flowering Season
Trees	White Fringetree	Grace Street Housing Bioretention, Gibbons Hall, UREC Addition Bioretention	Summer
	Tulip Poplar	Gibbons Hall	Spring
	White Ash	Arboretum Parking Bioretention	N/A
	Eastern Redbud	Rockingham Hall Lot Bioretention, Chandler Hall Bioretention	Spring
Shrub	Inkberry Holly	Shenandoah Hall Bioretention, Wayland Hall Bioretention, Duke Hall Bioretention, Gibbons Hall, East Campus Housing, Massanutten Hall Detention, Sonner Hall, Turf Softball Field Bioretention	Spring
	Virginia Sweetspire	Wayland Hall Bioretention, Gibbons	Spring/Summer

		Hall, Duke Hall Bioretention, Student Success Center Bioretention, Grace Street Housing Bioretention, Gibbons Hall, UREC Addition Bioretention, East Campus Housing, Sonner Hall, Chandler Hall Bioretention,	
	Winterbelly Holly	Wayland Hall Bioretention, Student Success Center Bioretention, Bioscience Bioretention, UREC Addition Bioretention, East Campus Housing, Sonner Hall, Willow Street Parking Bioretention, Duke Hall Annex Bioretention, Turf Softball Field Bioretention	Summer/Fall
	Summersweet	Duke Hall Bioretention, Student Success Center Bioretention, Gibbons Hall, Bioscience Bioretention, Shenandoah Hall Bioretention, East Campus Housing, Sonner Hall,	Spring
	Winterberry Holly(Red)	Student Success Center Bioretention	Summer/Fall
Perennials	New England Aster	Wayland Hall Bioretention, Student Success Center	Summer/Fall

		Bioretention, Sonner Hall Bioretention,	
	coreopsis	Wayland Hall Bioretention	Summer
	Purple Coneflower	Wayland Hall Bioretention	Summer
	Bee Balm	Wayland Hall Bioretention, Bioscience Bioretention	Summer
	Black-eyed Susan	Wayland Hall Bioretention, Duke Hall Bioretention, Success Center Bioretention, Gibbons Hall Bioretention, Sonner Hall Bioretention, Chandler Hall Bioretention	Summer
	Showy Goldenrod	Wayland Hall Bioretention	Summer/Fall
	Goldenrod	Bioscience Bioretention	Summer/Fall
	Culver's Root	Bioscience Bioretention	Summer
	Goldenrod Citronella	Bioscience Bioretention	Summer/Fall

Appendix B

<b>Other Native Pollinator Plants found Campus Wide</b>		
Type	Plants	Flowering Season
Shrubs	American Beautyberry	Summer
	Smooth Hydrangea	Summer

	Sparkleberry	Summer
	Eastern Ninebark	Summer
	Fragrant Sumac	Spring
	Rosemallow	Summer
Perennials	Bluebells	Spring

Appendix C

<b>Non-Native Pollinator Plants found Campus Wide</b>		
Type	Plants	Flowering Season
Trees	American Yellow-wood	Summer
	Winter King Hawthorne	Spring
Shrubs	P.W. Oakleaf Hydrangea	Summer
Perennial	St. John's Wort	Summer