

Searching for the Rarest Plants at Antietam National Battlefield

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Antietam National Battlefield (NB) is known for its past, but its future depends on decisions shaping the land today. New restoration projects aim to strengthen habitat and improve visitor experience. But these efforts could affect sensitive plants if park managers don't know where they grow. Park staff wanted a clearer picture of which rare, threatened, and endangered (RTE) plant species live in the park—and where—before moving forward.



*Three rare plants that help tell the story of Antietam NB's diverse forest understory. From left to right: eastern shooting star (*Primula meadia*), dwarf larkspur (*Delphinium tricorne*), and bulbet fern (*Cystopteris bulbifera*).*

Photos courtesy of Vanessa Beauchamp

Why the Park Needed an Updated Inventory

The last thorough rare plant inventory at Antietam NB was completed in 1997. Since then, the landscape has changed substantially. The park has expanded its boundaries, seen less agricultural use, and experienced more erosion and shifts in forest conditions. [Invasive plants](#) are spreading to new areas, [white-tailed deer](#) continue to browse heavily on understory plants, and the loss of ash trees from [emerald ash borer](#) is opening new canopy gaps.



Older forests (left) support more rare plant species than land cleared for agriculture (right).

Photos courtesy of Vanessa Beauchamp

Several management projects are planned in the coming years, including restoring forests and grasslands and rerouting a trail to address erosion. Without knowing where rare plants grow, these efforts could unintentionally harm sensitive species.

“All of our management actions have a reaction on the landscape, so we need to be aware of the sensitive species that might be positively or negatively impacted. It’s hard to take action when you don’t know what the impact might be.” Sarah Brown, Biologist at Antietam

NB

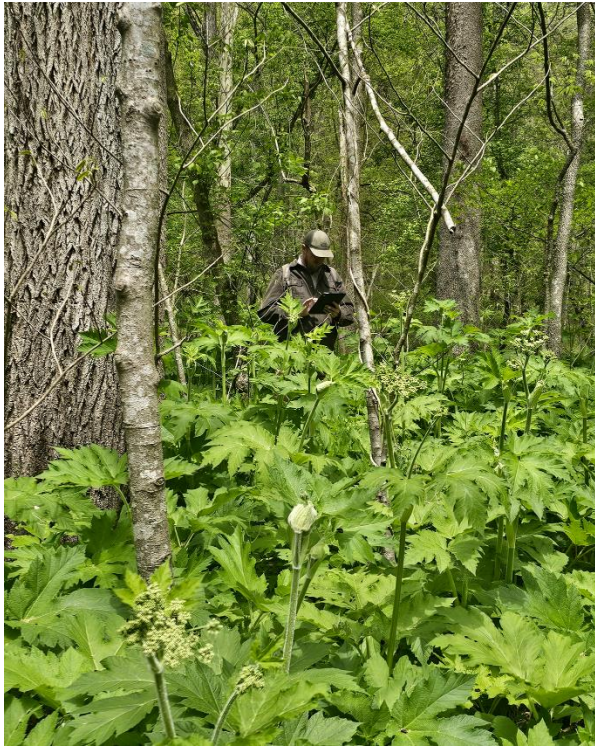
To guide management decisions, staff needed modern, detailed information on where RTE plants occur. To meet that need, Antietam NB partnered with the National Park Service [Inventory and Monitoring Program](#) and researchers from Towson University to complete a new RTE plant inventory.

A Thorough Search

The project began with extensive preparation. The park provided a target list of 24 RTE plants based on older records, expert knowledge, and nearby sightings. The research team created a detailed field guide with key features, bloom times, lookalike species, and habitat notes. They also studied local herbarium specimens and toured the park with staff to learn the terrain and locations of past sightings.

Fieldwork between June 2024 and June 2025 took the team through five major forest tracts. They walked tight, repeated passes through each area to avoid missing any

plants and stepped carefully so they wouldn't disturb any RTE species. In total, the survey documented 326 sightings of 19 RTE species.



Towson University researchers, Jonathan Obermaier (left) and Dr. Vanessa Beauchamp (right), worked together to document rare species in the park.

Left photo courtesy of Vanessa Beauchamp. Right photo courtesy of Jonathan Obermaier

Species Highlights:

- Two species were documented at Antietam NB for the first time.
- Two orchids, Loesel's twayblade (*Liparis loeselii*) and Lily-leaved twayblade (*Liparis liliifolia*), both with very specific habitat needs, are still persisting in the park.
- Some species had robust populations, including Short's aster (*Symphyotrichum shortii*), eastern green violet (*Cubelium concolor*), and limestone wild petunia (*Ruellia strepens*).



Two rare orchids, Loesel's twayblade (*Liparis loeselii*; left) and Lily-leaved twayblade (*Liparis liliifolia*; right), documented during surveys at Antietam NB.

Photos courtesy of Vanessa Beauchamp

Seven target species were not found, likely due to declines caused by habitat loss, competition from invasive plants, and disease. Among them were American chestnut (*Castanea dentata*) and butternut (*Juglans cinerea*), both of which have been heavily impacted by fungal pathogens.

Tracing the Roots of Rarity

Results showed that 78 percent of all RTE plants occurred in forests that have stayed wooded since at least 1936—clear evidence that older forests support more RTE species than areas once cleared for agriculture. This shows that past land use still shapes where rare plants survive today. Even when former farm fields grow back into forest, the soil often remains disturbed and holds fewer nutrients, fewer beneficial microbes, and fewer native seeds. These areas also tend to have more invasive plants that can outcompete vulnerable species. As a result, many of the park's RTE plants persist in older forests that were never cleared for agriculture.

All of this points to one clear takeaway: long-standing forests are essential for the future of RTE species at Antietam NB.

Turning Results into Action

With updated maps of RTE species, the park can now direct protection where it is needed most. Staff know which forest patches hold the highest concentrations of rare plants and can focus deer management and invasive plant treatments in those areas. The results also guide planning for upcoming projects. Managers can design trail reroutes, mowing plans, and restoration work with minimal disturbance to sensitive plants.

The inventory also provides a blueprint for long-term monitoring of RTE plants. Staff can return to key sites to track abundance over time, watch for new occurrences, and respond as conditions shift.

Some species may also benefit from small, carefully planned reintroductions. Because many RTE plants have limited seed dispersal, they may not reach restored forests on their own. Using seeds from strong local populations could help establish new patches in suitable areas to support long-term recovery.



*Shown from left to right are Short's aster (*Symphyotrichum shortii*), limestone wild petunia (*Ruellia strepens*), dwarf larkspur (*Delphinium tricorne*), and eastern green violet (*Cubelium concolor*)—species which may someday be candidates for carefully planned reintroductions.*

Photos courtesy of Vanessa Beauchamp

Together, these findings give Antietam NB the tools it needs to protect its rare plants and guide restoration efforts. The work doesn't end here. Continued monitoring and careful management will help these rare species survive and thrive.

Want to learn more?

Visit the [final report](#) from this project.

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