

Riverscour Prairies Love Whitewater Too...

The Eastern Rivers & Mountains Network (ERMN) monitors a variety of natural resource indicators, called vital signs, for nine national parks in the Appalachian Mountains. One vital sign focuses on rare prairies that persist along the rocky river shorelines.

Walking along the banks of a river, you never know what you will find - old tires, sneaker soles, a tomato plant escaped from someone's garden, and occasionally, an endangered species! The floodplains of the New and Gauley Rivers house an amazing diversity of nearly 40 different vegetation communities, ranging from mature silver maple forest to small beds of plants growing in the shallow slow-moving water. More than a dozen of these vegetation communities are globally rare, which means that they occur in very few places in the world and are at risk of being lost. These rare vegetation communities also provide unique habitats for many rare plant species. Nearly 50 state-rare plant species and one species listed as federally threatened occur in the floodplain of the New and Gauley rivers.

As part of its vital sign monitoring, the ERMN focuses on the Riverscour Prairies, two of the rare plant communities that inhabit the rocky shorelines along the New and Gauley Rivers. The word "prairie" usually conjures images of herds of bison, rolling hills of grass waving in the wind, maybe a covered wagon and a little house... The prairies along the New and Gauley Rivers are (of course) much smaller in size but they contain the same tall prairie grasses as found in the Midwest, such as big bluestem, Indian grass, switchgrass, and little bluestem.

Riverscour Prairies are found only in certain places along the rivers - on shorelines covered with cobbles or small boulders next to white water rapids. New River Gorge National River (NERI) and Gauley River National Recreation Area (GARI) are famous for their world-class white water. But the river rapids that are known for eating kayaks and ejecting rafters

have another important job -- **maintain the Riverscour Prairies.** At high water, the rushing rapids remove weeds and knock down small trees and shrubs from the cobble bars, clearing space for the prairie grasses to resprout from their deep strong roots. Without regular flood scour, trees and shrubs establish in the open prairies, eventually shading the grasses and changing the site into a forest. These unique sunny prairie provide habitat for rare plants like Virginia meadowset (*Spiraea virginiana*) and Monongahela Barbara's buttons (*Marshallia grandiflora*).



Monongahela Barbara's buttons (*Marshallia grandiflora*), one of the rare plants living in the Riverscour Prairies. Thomas Ken photo.

Riverscour Prairie in New River Gorge NR.
Stephanie Perles photo.



Protecting the Riverscour Prairies

The ERMN collects information on the condition of Riverscour Prairies in NERI and GARI and how the prairies are changing over time. This long-term monitoring helps park managers protect the prairies and the rare plants that rely on them. Three things that could be harming the prairies are: invasive exotic plants, river flow regulation, and human recreation.

Invasive exotic plants are species that are not native to the parks and that rapidly grow or spread, out-competing the parks' native plants. The ERMN monitoring data show that invasive species, such as sericea lespedeza (*Lespedeza cuneata*), purple loosestrife (*Lythrum salicaria*), Japanese knotweed (*Polygonum cuspidatum*), autumn-olive (*Elaeagnus umbellata*), and multiflora rose (*Rosa multiflora*) occur at low levels throughout many prairie sites. Monitoring changes in abundance or distribution of these species is critical to maintaining the health of the prairies.

In 2012, the ERMN field crew working in a NERI prairie found sweet autumn virgin's bower (*Clematis terniflora*), an invasive exotic plant that had not previously been found in the park. Park managers quickly responded by removing the plant, treating it so that it wouldn't resprout, and searching the surrounding area for any additional plants. Removing invasive plants when they first establish in an area (before they spread!) is a cost-effective strategy for protecting natural areas.

The Bluestone Dam on the New River and the Summersville Dam on the Gauley River regulate the amount of water in the rivers, holding back water during floods, and making floods

less frequent. This regulation reduces the flood scour that is important for removing weeds and young trees from the prairies. Through the prairie monitoring, the ERMN tracks the growth of the young trees and shrubs in the prairies to ensure that the prairies do not become forests.



Collecting vegetation monitoring data at a Riverscour Prairie site in NERI. Stephanie Perles photo.

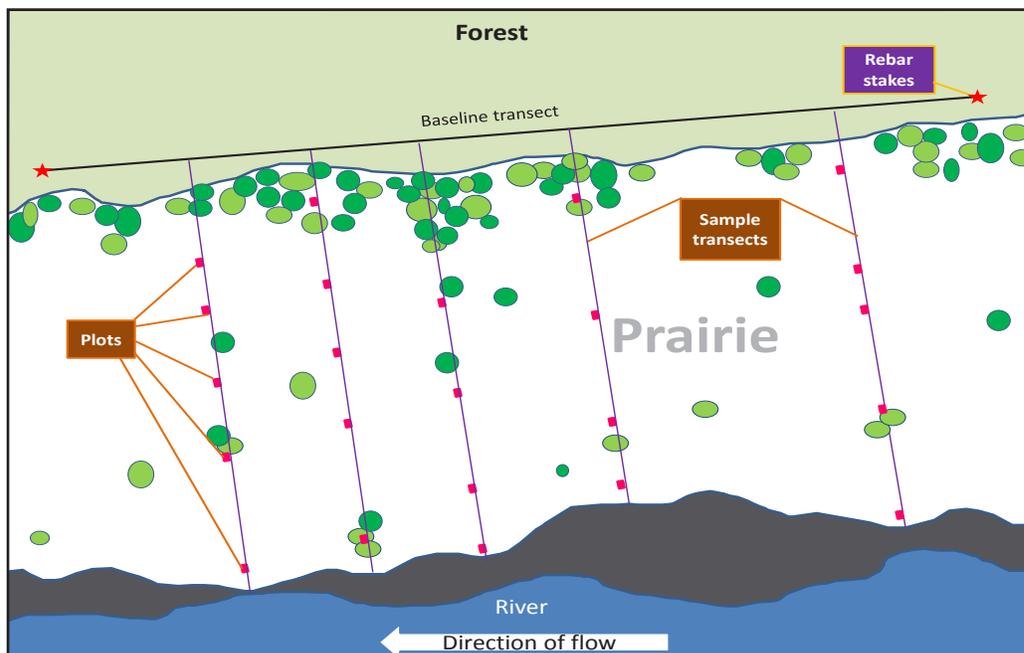
The New and Gauley Rivers are very popular for many forms of recreation, rafting, kayaking, fishing, and riverside camping. These activities often cause impacts on the plant communities along the rivers' shorelines. At the sites with the heaviest impacts, the shoreline plants are completely trampled, leaving bare rock, sand, or soil. Although many Riverscour Prairie sites are unlikely to be heavily impacted from recreation since the cobbles are difficult to walk across,

it is important that heavy recreational uses, such as guided rafting tour lunch stops and hang-out spots near rapids, be located in areas that have fewer impacts on rare riverside plant communities or species.

Monitoring Matters

The ERMN will continue to collect long-term monitoring data at nine prairies in NERI and 15 prairies in GARI, returning to each site every seven years to gather more information. Permanent plots are used to record all plant species present and their abundance. Growth of trees and shrubs in the prairies is monitored along transects that run from the forest to the river (see diagram below). This information will help park managers

protect the Riverscour Prairies and the rare plants that depend on them.



Example diagram of the long-term monitoring on Riverscour Prairies in NERI and GARI.

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<http://science.nature.nps.gov/im/units/ermn/monitor/riparianplants.cfm>



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