

Riverscour Woodlands and Prairies

By Jim Vanderhorst

The shores of West Virginia's fast rivers support unique natural plant communities called riverscour prairies and riverscour woodlands. These vegetation types thrive under conditions of repeated flooding which prevents the establishment of forests. High-energy floods can break tree tops and branches and may uproot entire trees. Depending on the frequency and energy of flooding, the structure of vegetation is maintained as prairie (herbaceous vegetation dominated by grasses and forbs) or woodland (scattered trees forming an open canopy).

Prairies occur in positions subject to frequent high-energy floods, often adjacent to rapids, where trees cannot become established or are quickly knocked down. Woodlands occur in positions subject to somewhat less frequent or less high-energy floods. Prairies and woodlands are both relatively sunny habitats which support plants, including many rare species, which cannot tolerate the shade of closed-canopy forests.

Some of West Virginia's riverscour prairies resemble the tallgrass prairies of the Midwest. It has even been suggested that warm-season tall grasses first evolved along Appalachian rivers and later colonized the Midwest following the retreat of the glaciers. Common warm season grasses in these habitats include big bluestem, switchgrass and Indian grass, the same species which dominated the once extensive tallgrass prairies from Indiana west to Nebraska. A different kind of riverscour prairie in West Virginia occurs at high elevations along the Shavers Fork River where they are maintained by ice scour. Warm-



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Riverscour woodland along New River with flood-battered sycamores.

season grasses are uncommon here due to short growing seasons.

Flood-battered trees are often short, gnarled and lean downstream. In riverscour woodlands it is common for the oldest trees to be the shortest because they have been subjected to more floods than younger trees. Common trees in these habitats include sycamore, river birch, green ash and persimmon. These species are adapted to germination in soil newly exposed by flooding, and are tolerant of fluctuating soil moisture and frequent physical damage caused by flooding.

The grouping of plant species living in riverscour communities is related to environmental conditions and the history of migration and evolution of each species. For example, plant communities along whitewater sections of the Gauley and Tygart Valley rivers are remarkably similar despite their separation by more than

80 air miles (over 500 river miles!). Riverscour vegetation along both rivers is shrubby prairie characterized by an abundance of winterberry holly, royal fern, Barbara's buttons, riverbank goldenrod and balsam groundsel. The similarity of these communities may be attributed to similar climate on the west slope



Virginia spiraea

Craig Stihler



Brian P. Streets

Riverscour prairie along the Tygart Valley River.

Inset: Big Bluestem is often the dominant grass in riverscour prairies. Photo by Jim Vanderhorst

of the mountains (moist), similar river gradient and energy (fast and powerful), and similar substrate (bedrock, boulders, cobble and sand derived from acidic sandstone).

An example of a plant that is not found in both river systems is Virginia spiraea, a shrub on the federal threatened species list. It grows along the Gauley River but is missing along the Tygart Valley River farther north in the state, possibly reflecting the migration history of this more southern plant species. Virginia spiraea is also missing from the New River although it is known nearby upstream along the Bluestone River. Its absence from the New is probably

not due to migration history but is more likely related to flooding energy; the New is a bigger river than the rivers where Virginia spiraea grows today. It is thought that the plant can't withstand the energy of floods along larger rivers. In similar fashion, false blue indigo is abundant in prairies along the New and Greenbrier rivers but is missing from the Gauley and Bluestone rivers. Its presence possibly reflects the higher pH and nutrient levels of the soil due to an abundance of limestone in the New and Greenbrier river basins.

Jim Vanderhorst is a Wildlife Resources Section ecologist stationed in Elkins.



Craig Stihler

Barbara's buttons