A misty river scene with a rocky shoreline and dense forest. The water is calm, reflecting the surrounding greenery. The sky is overcast, and the overall atmosphere is serene and quiet.

Stewardship
Guide

CACAPON RIVER

WWW.CACAPONRIVER.ORG

INTRODUCTION

The Cacapon River—Unique Among Rivers

Winding through the Appalachian Mountains of West Virginia's Eastern Panhandle, the Cacapon River has long been revered as one of the state's cleanest rivers. For 81 miles, the river's clean, healthy waters flow through a richly biodiverse watershed that's largely covered by intact forests.

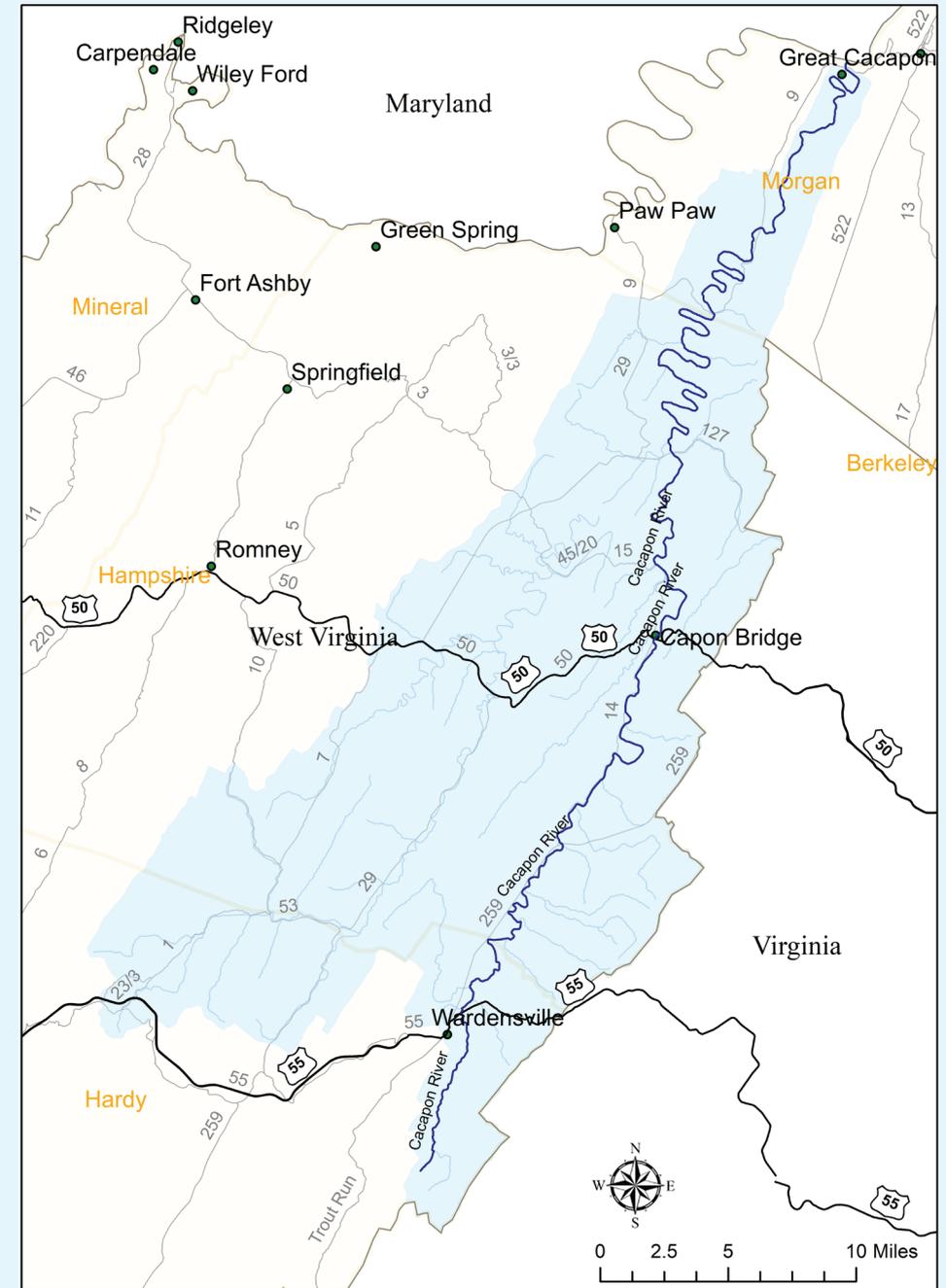
The Cacapon River is best known for its bountiful fishing, outstanding boating, diverse wildlife, and unrivaled scenery. In 2015, the river was officially designated as The Cacapon River Water Trail by the State of West Virginia in recognition of its excellent recreational opportunities and scenic beauty. The river

travels through portions of Hardy, Hampshire, and Morgan Counties, before merging with the Potomac River and finally joining the Chesapeake Bay.

Like many rivers, the Cacapon River is made up of several larger segments and smaller streams that flow together. The uppermost river segment, referred to as the headwaters, is the Lost River. In fact, the Lost River and the Cacapon River are the same river. The two names arose because, after traveling for 31 miles, the Lost River flows underground for a mile and reemerges as the Cacapon River.

ABOUT THIS STEWARDSHIP GUIDE

Stewardship is the ethical acceptance of the responsibility to safeguard something valuable. In this case, it's the Cacapon River. Because much of the riverfront land along the river is privately owned, it is even more important that you—the landowner—fully embrace your role as a caretaker of our river. This stewardship guide is meant to help you do just that! It serves as a general introduction to specific actions you can take that will keep our river healthy and long-lived. To dig deeper into each one, visit www.cacaponriver.org.



FOR YOUR RIVERBANK

Buff banks

MAINTAIN YOUR RIVER BUFFER.

One of the most important places on your land is the river “buffer”: the stretch of plants leading to the river’s edge. When your river buffer is full of native plants, it greatly reduces the amount of pollution that enters the river after rainfall, provides food and habitat for wildlife, and defends your land against the damaging effects of flooding. A buffer as wide as 20 feet can make a big difference—but the wider it is, the better!

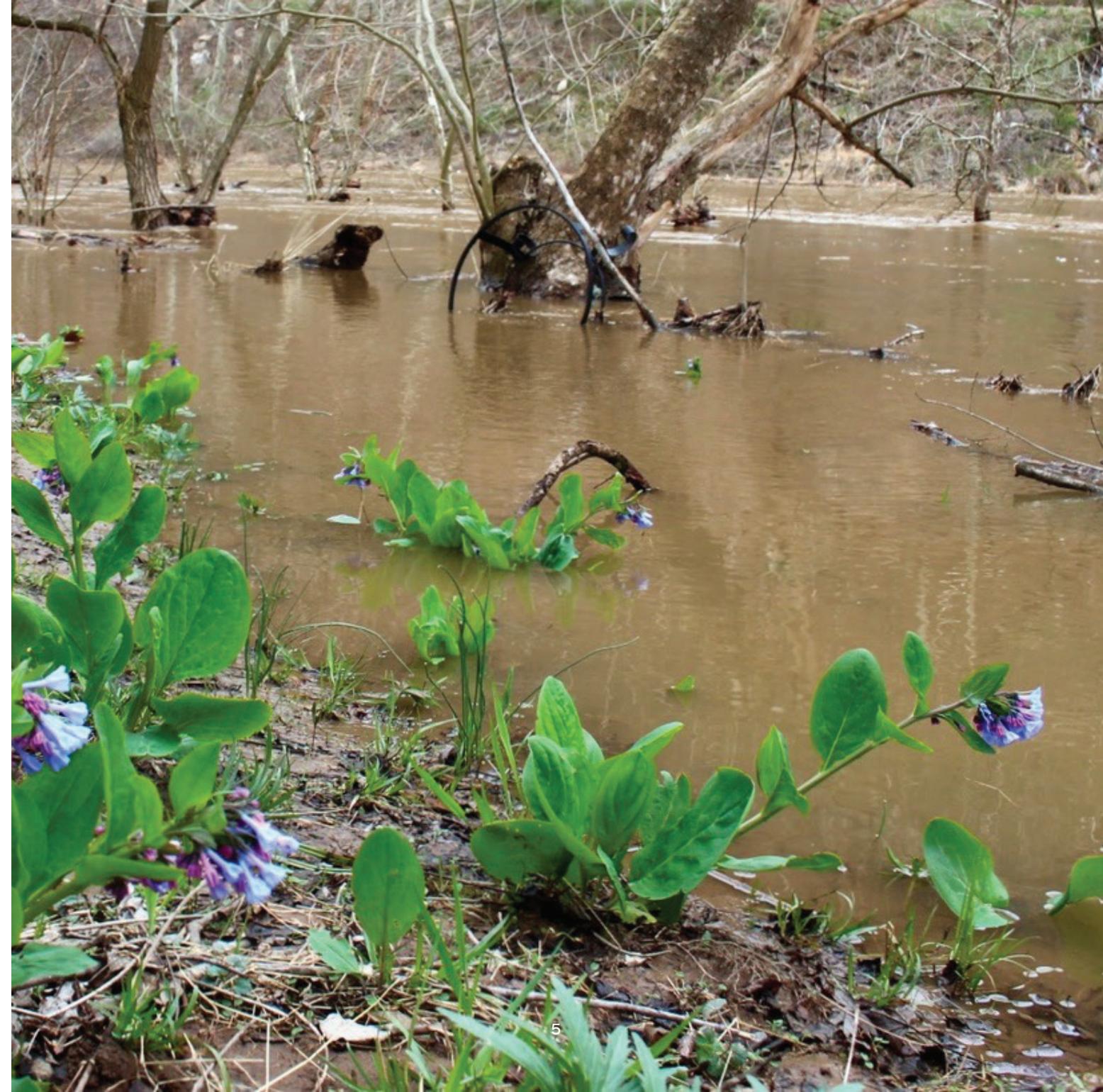
The easiest way to maintain your river buffer is to let it grow naturally. The next best option is planting native trees, shrubs, grasses, and wildflowers. Plants that are native, or local to our area, simply grow better. They’re also healthier and easier to maintain.

Oh, muddy waters

PROTECT YOUR RIVERBANK AND PREVENT EROSION.

The banks along the Cacapon River are vital to keeping our beloved river clean. Healthy, intact riverbanks that are lined with trees, shrubs, and grasses create an underground network of deep root systems that hold soil in place and prevent riverbank erosion after heavy rains and flooding.

When the Cacapon River’s clear waters turn brown and muddy after rains it’s because loose soil has washed away from riverbanks and buffers. The official name for these muddy waters is sedimentation, and it’s one of the worst problems for the Cacapon River. When the loose dirt settles on the bottom of the river, it smothers and kills the aquatic plants and bugs that support life within and along the river. It also buries the eggs of spawning fish, which reduces our healthy fish populations.



Let it grow

PRACTICE “MINDFUL” MOWING.

Oftentimes it can be hard to resist the urge to mow a clear view of our beautiful river. But once lost, these critical forested riverbanks are difficult to reclaim. With time, your cleared riverfront land will wash away, leaving your banks more vulnerable to flooding.

If you must mow your riverfront land, keep the grass a little longer than you normally would—a grass height of at least 3 inches is best.

A lawn with longer grass better absorbs heavy rains than a tightly mowed field; this helps filter out pollutants and reduces the amount of contaminated rainfall that reaches the river. Better yet, consider only mowing a path to the riverbank instead of completely clearing your land. And if the only time you visit a corner of your lawn is to mow, think about planting a tree or flowering plants there instead.



What Pollutants Enter the River?

Fecal Coliform: Fecal coliform levels are significantly higher in the river after heavy rains. While this bacteria, which comes from human and animal feces, is technically not harmful, it's closely linked with bacteria and viruses that are. So the higher the fecal coliform levels, the higher the number of dangerous pathogens. That's why it's best to avoid swimming in the river for a day or two after a hard rainfall.

Fertilizers and Pesticides: Rain can wash away up to 25 percent of fertilizers and pesticides applied on your land. Once in the water, fertilizers promote growth of algae that use up oxygen, which fish need to survive. Pesticides in stormwater runoff are harmful to river life and human health if ingested.

Nitrates: A compound found in fertilizer, nitrates can contaminate both our river water and our groundwater. Their levels are particularly high—and harmful—in shallow drinking wells near agricultural areas.

Nitrogen and Phosphorus: Nitrogen and phosphorus are nutrients that are natural parts of aquatic ecosystems. But when their concentrations get too high in our waters, they can have harmful effects, such as toxic algae blooms and contaminated drinking water.

Sediments: Often contaminated with other pollutants when washed into our river after heavy rainfall, sediments may include clay, silt, sand, gravel, decaying organic matter, and shells. Too much sediment in the river can harm animals and plants.



ON YOUR LAND

Trees please!

PLANT NATIVE TREES.

From the root to the fruit, trees are both beautiful and hard-working. Among their endless benefits are cleaning the air, reducing the harmful effects of heavy rains, and providing cozy homes for wildlife. Trees also protect your land and riverbank from erosion by intercepting and absorbing rainfall and anchoring the soil with their deep-reaching network of roots. But did you know that trees improve our well-being too? Their calming effect can significantly reduce fatigue and stress levels simply by being around them.

Planting trees that are native, or local to our area, is the best way to ensure they thrive. Here long before humans, native trees are used to the environmental conditions along the Cacapon River. They also better support more native birds and bugs than trees from other regions.

NATIVE TREE SUPERLATIVES

Best Riverbank Stabilizer: **Black Willow**



Most Likely to Succeed in Poor Soil: **Hackberry**



Best Tree to Plant in Wet Conditions: **Sycamore**



Stop invaders

REMOVE INVASIVE PLANTS.

Uninvited animals and plants that grow quickly and spread fast—with potential to harm the environment—are called “invasive.” They thrive so well that they change the habitat and kill our local, beneficial plants and wildlife. Invasive species prey on native ones, out-compete them for food and resources, cause and spread disease, prevent native species from reproducing, and kill their young. It’s no wonder they’re unwelcome guests!

While you can’t help much with invasive animals, you can make a big difference with invasive plants. With a little practice, you’ll be easily identifying and removing these harmful plants. And before you know it, your land and riverbank will be mostly free of these pests and thriving for years to come.

INVASIVE PLANTS SPOTLIGHT

To remove these invasive plants organically, simply pull them out of the ground by the base of the plant to get as much of the root system as possible. You can also use clipping shears for the tougher, woodier species. We recommend always wearing gloves when doing so.



Garlic Mustard: Garlic Mustard grows well in many different conditions and has the ability to make chemicals that inhibit the growth of other plants.



Japanese Honeysuckle: Although it smells sweet, Japanese Honeysuckle damages forests by out-competing native plants for light and below-ground resources. As it becomes established, it forms a dense blanket that endangers most plants, shrubs, and trees.



Japanese Stiltgrass: This invasive plant grows particularly well in shady areas. Japanese Stiltgrass spreads quickly to form large patches, displacing native species that aren’t able to compete with it. It can also impact other plants by changing soil chemistry.



Purple Loosestrife: Purple Loosestrife is an incredibly invasive plant that can blanket emergent wetlands along rivers. In some cases, it can replace native vegetation, threaten rare plant species, and destroy small wetlands.



Life and death

LIMIT USE OF FERTILIZERS AND PESTICIDES.

As landowners, we're constantly negotiating the line between plant life and pest death. When our gardens are lacking and our lawns aren't the perfect shade of green, we're tempted to apply chemical fertilizers to promote growth. When pests like ants and wasps arrive or when weeds take over, we look to pesticides for help. But both fertilizers and pesticides can harm the life within the Cacapon River when they wash into the water after rain. Pesticides can also hurt bees and butterflies—the beneficial pollinators that keep our plants growing well.

So, if you must use pesticides or fertilizers, use them wisely and in the smallest quantities. Be sure to always keep them on the lawn and in the garden—not on sidewalks, roads, and driveways, where they can easily wash away. Even better, look for natural and organic options that are just as effective and much gentler on your land, the local wildlife, and the river.

IN YOUR HOME

The good, the bad, and the smelly

MAINTAIN YOUR SEPTIC SYSTEM.

Mainly used in rural areas, a septic system holds and purifies every drop of water you use in your home. Yes, it's best known for handling the waste from our toilets. Through an intricate balance among biology, ecology, and gravity, the system's two main components—the septic tank and drainage field—almost magically process enormous amounts of wastewater each year.

Faulty septic systems are one of the biggest contributors of polluted water to our groundwater and river. To keep this process running smoothly and smelling sweetly, there are several simple things you can do.

SIMPLE STEPS FOR A SWEET SEPTIC

Find your septic tank and field: It's not surprising that many homeowners don't know where their septic system is exactly. This information is not always passed down from the previous homeowner when you purchase a new home. Your local county health department can often provide you information to help locate your system if you can't find it.

Pump your septic tank: Having your septic tank pumped on the recommended schedule of every 3 to 5 years, depending on your use, is one of the easiest ways to keep your system healthy and prevent problems in the long run.

Conserve water: Be conscious of how many water-heavy appliances are running. Don't water multi-task—don't wash your laundry, run the dishwasher, and take a shower at the same time. Too much water into the system drowns the “good” bacteria that processes your waste.

Watch what goes down your drains: What kills the germs on your kitchen counters and in your toilets also kills the “good” bacteria in your septic tank. So choose wisely. Chlorine bleach does the most damage. Other culprits are grease and oil; avoid pouring too much of either down your kitchen sink.

Care for your drainage field: Grow grass or shallow-rooted plants over your drainage field to help with absorption. Keep it free of large trees with deep roots that could clog the drainage pipes. Avoid parking any heavy vehicles on the field, which can compact the soil.



Photo: Flickr, Oregon State University

MICROPLASTICS: AN EMERGING THREAT TO OUR WATERS

Microplastics are created when larger plastic debris breaks down into rice-sized or smaller pieces. They are also commonly included in beauty products, such as facial cleaners and toothpastes. The impact of these tiny bits of plastic on river and ocean ecosystems is not fully understood yet. But once ingested by aquatic life, microplastics have been shown to inhibit their nutrient absorption, growth, and reproduction. The effects on humans who eat fish and shellfish contaminated with these tiny plastics is just beginning to be studied.

Clean your pipes

KEEP PILLS, HARSH CHEMICALS, AND MICROPLASTICS OUT OF YOUR DRAIN.

Everything that's put down your home drains can eventually enter your drinking water and the river. So it's essential to keep your pipes free of toxic substances that can contaminate the water and harm wildlife within and around the Cacapon River. Expired medications, harsh chemicals like bleach, and so-called "microplastics" from beauty products are at the top of the toxic list.

Often, your local pharmacy or sheriff's department will take your old pills and dispose of them properly. If they don't, you can place expired medications in an air-tight container filled with coffee grounds and put it in the trash. For cleaning, natural ingredients can be just as effective as bleach and harsh chemicals. Vinegar, especially when combined with baking soda, is a wonderful natural cleaning product that is also biodegradable and safe to breathe.



Out of sight, out of mind

DISPOSE OF WASTE PROPERLY.

The amount of trash a family of four produces in a year is staggering: an estimated 6,350 pounds! This amount is difficult to imagine because after our trash is collected each week, we rarely think of it again. But we should still remember to reduce our trashy contribution to our river, our landfills, and our world. By recycling more, using less, and composting, you can make a remarkable impact.

Recycling—we know it can be a pain to do sometimes. If you do find it burdensome, try recycling at least one material, like plastic or paper. Better yet, take your stewardship to the next level and reduce your consumption of single-use disposable products, especially plastics. And for those who want to go the extra mile, composting food waste is no longer just for hippies and gardeners; it's a powerful tool that will decrease your trashiness as well as the shocking 40 percent of food that gets wasted between the farm and the fork every year.



IN YOUR COMMUNITY

Get your hands dirty

VOLUNTEER FOR A RIVER CLEANUP.

Hands-on, dirty, and gratifying! Rolling up your sleeves and helping remove tons of trash and old tires from our river makes you feel good. It's one of the easiest ways you can make a meaningful impact on the Cacapon River.

When you volunteer for a river cleanup, not only do you help the Cacapon River, you also help yourself. Research shows that people who volunteer live longer and are in better health. Volunteering also improves your social connections within your community and prevents depression. So volunteer with us! The Friends of the Cacapon River hosts community river cleanups along the Cacapon River every year. We're always looking for happy, helping hands to join us.

Keep it classy, not trashy

DON'T LITTER.

When we see our roadsides filled with plastic bottles or the riverbank strewn with trash, we're quick to blame others. But the reality is that much of what litters our roads and rivers washes away from household trash bins, blows out of our cars, and is accidentally left behind. Simply being mindful of making sure your trash stays where it should makes a difference. Pick up the bottle or can that blew away and it won't end up in our river. Make the extra effort to ensure what you brought to the river goes home with you, too.

Stump a dump

REPORT ILLEGAL TRASH DUMP LOCATIONS.

Sadly, some people dump their bags of trash, old tires, and broken furniture in places where they shouldn't be—which is against the law. If you come across one of these illegal dump sites, you should report it to the West Virginia Department of Environmental Protection's (WVDEP's) Pollution Prevention and Open Dump Program at www.dep.wv.gov. You can submit an anonymous complaint online through WVDEP's Open Dump Report.





Native Species Spotlight

HARPERELLA

This rare, tiny flower has been on the federal list of endangered species since 1988. Harperella's growth preferences are particular: the water conditions must neither be too shallow, because the plant can't tolerate dry conditions; nor too deep for the plant to complete its life cycle. As a result, it is especially susceptible to the effects of flash floods. These lovely plants flower in July and August on the rocky banks of the Cacapon River.

FRESHWATER MUSSELS

Freshwater mussels are "filter feeders" that purify our river's waters as they feed. It has been estimated that 100 mussels can filter 500 gallons of water per day! They're also particularly sensitive to river pollution and consequently are one of the most endangered animals in North America. The Cacapon River is home to healthy populations of several kinds of mussels.



Photo: River Otter / Kent Mason.

RIVER OTTER

Four decades ago, our favorite animal—the river otter—almost reached extinction as a consequence of severe river pollution and excess trapping for the fur trade. So much so that, in 1925, the West Virginia State Legislature gave the river otter the strongest legal protection available. In an effort to revive the river otter's population, the West Virginia Department of Natural Resources reintroduced more than 200 river otters in 12 of the healthiest streams in West Virginia. The Cacapon River was one of these streams. The playful river otter is now thriving again.

WOOD TURTLE

Native to the Cacapon River, the wood turtle's characteristic bright orange coloring is strikingly beautiful. These native turtles spend much of their time near or in rivers. During warmer summer months, they begin to wander farther from the water as they look for food and as females search for suitable nesting areas. Over the past century, this threatened species has experienced substantial decreases in population, largely due to habitat loss.





FRIENDS OF THE CACAPON RIVER

ABOUT THE FRIENDS OF THE CACAPON RIVER

The Friends of the Cacapon River began in the 1970s as one of the earliest watershed protection associations in West Virginia. Since incorporating as a 501(c)3 nonprofit organization in 1992, our efforts have expanded from the lower stretches of the Cacapon River that run through Morgan County to include the entire river through Hampshire and Hardy Counties. Over the past 40 years, we've implemented and sponsored diverse activities to protect the river we all love.

Our mission is to preserve, protect, and promote the environmental health and scenic character of the Cacapon River and its watershed.

If you have questions about this stewardship guide, email us at info@cacaponriver.org.



Funding for this guide was provided by the West Virginia Stream Partners Program.

