Cuyahoga Valley

National Park Service
U.S. Department of the Interior

Cuyahoga Valley National Park

Watershed Stewardship

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"The need for better care of our watersheds is becoming increasingly apparent to both citizens and public officials," notes Cuyahoga Valley National Park (CVNP) Superintendent John Debo. "Control of flooding and improving water quality will improve everyone's lives." Forty-four communities impact streams flowing into CVNP; more impact the river. Park scientists have documented how upstream development puts park resources at risk. The July 2003 flood caused over $3 million in damages to CVNP's railway, Towpath Trail, and other historic structures. Others also experienced dramatic losses. This and subsequent floods have focused attention on the need for better cooperation among communities and government agencies to better steward local watersheds. The following are strategies to achieve this.

Form Watershed Planning Partnerships

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A watershed is the area drained by a stream, river, or lake. Its boundaries cross political boundaries. Actions upstream greatly affect those downstream.

Effective storm water management takes regional cooperation in the form of watershed planning partnerships. Communities taking part in watershed partnerships benefit from greater access to technical assistance, research data, and state incentives. They also develop solutions unique to their distinct circumstances. Watershed partnerships should be locally led, have a wide range of public participation and support, and involve local policy makers. Examples include the partnerships formed in Chippewa Creek, Brandywine Creek, and Yellow Creek watersheds.

Protect Streams and Wetlands

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Although the population of Northeast Ohio has changed little in decades, fewer people live in cities and more live in what was once the countryside. People have expanded human infrastructure, such as roads, housing developments, and shopping plazas, at the expense of nature's *green infrastructure*, such as streams, wetlands, and rivers. Protecting green infrastructure is less expensive than replacing it with costly storm drains, culverts, and retention basins that have long-term maintenance costs and are less effective in slowing and filtering storm water especially during peak flows.

First, communities can **preserve headwater streams**, the little waterways high up in the watershed that represent about 80% of Ohio's streams. These are the capillaries of nature's circulatory system. Because they are small (typically draining less than one square mile), may dry out in summer, and are usually not protected by regulation, headwater streams are often ditched, channelized, moved, or buried in pipes. When headwater streams are damaged, water flows quicker and with more force downstream.

The second is to protect riparian corridors, the strips of forest and wetland along streams and rivers that ideally stretch from headwaters to mouth. Riparian plants perform a variety of jobs: reducing bank erosion, filtering pollutants, providing wildlife habitat, cooling water so it holds more oxygen, and reducing flood damage by slowing storm water. Communities can **pass riparian setback ordinances** that place zoning restrictions on the types of development permitted in riparian corridors. Necessary setback distances vary according to the drainage area of the stream. Property owners can help by limiting mowing within setbacks.

Third, communities can **pass wetland setback ordinances** to ensure that areas adjacent to all wetlands are not developed in harmful ways. Ideal setback distances vary according to wetland quality. Wetlands occur where excess water naturally pools. Their special plants and soils absorb, slow, and filter storm water while acting as a nursery for wildlife.

More Open Space, Less Pavement

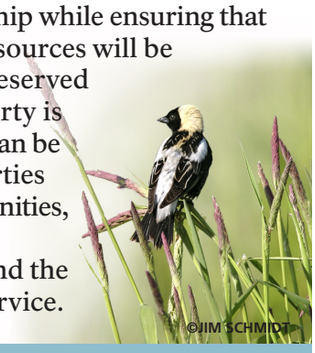
Natural, open spaces are attractive, provide wildlife habitat, and act as sponges to absorb rainwater and limit flooding. Development usually leads to more impervious surfaces—areas that water cannot infiltrate such as buildings, parking lots, roads, and sidewalks. CVNP research shows that areas with higher imperviousness have decreased watershed quality. Other scientific data show increases in storm water runoff, erosion, sedimentation, stream channelization, and degradation of stream habitat and biodiversity accompany greater imperviousness.

One solution for community planners is **compact development**: development concentrated in certain areas to relieve pressure on open space elsewhere. Compact developments can create attractive living spaces for community growth but with less environmental harm. These are best suited for places targeted for redevelopment or near existing development.

Conservation development is another option. It tries to maximize open space and protect resources within a given development without decreasing the number of housing units. Smaller lot sizes and more natural area reduces the impervious "footprint." Conservation developments tend to have high property values, as residents are willing to pay more to enjoy both the scenic and recreational value of open space. Many communities have experimented with open space design through regulations that lack specific requirements for the open space configuration. To be more effective, the zoning should include specific standards, including at least a 40% open space requirement emphasizing large blocks of quality habitat, and defined permitted uses.

Low-Impact Development (LID) is a toolbox of techniques to better manage water onsite by mimicking the water retention of natural areas. LID tools can be used by any land owner, at any scale. They include pervious paving, bioretention cells, rain gardens, and landscaping with native plants. Communities can encourage or require through ordinance that developers incorporate LID principles into their required storm water management plans.

Lastly, individual property owners can establish **conservation easements**, legal agreements that allow them to maintain ownership while ensuring that the property's resources will be protected and preserved even if the property is sold. Easements can be held by many parties including communities, non-profit land conservancies, and the National Park Service.



Local Wetland Mitigation

When construction damages a wetland, the contractor has to build or improve wetlands somewhere else. Mitigation projects are best done locally but often are not. Encourage or require developers to coordinate with local entities to identify nearby mitigation projects.

CVNP has a variety of wetland and stream mitigation project opportunities.

To learn more about all these topics, visit www.nps.gov/cuva/naturescience and click on Watershed Stewardship. Here you will find links to other resources.

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www.nps.gov/cuva
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