Catskill Streams *and You*

Living streamside in the Catskill Region

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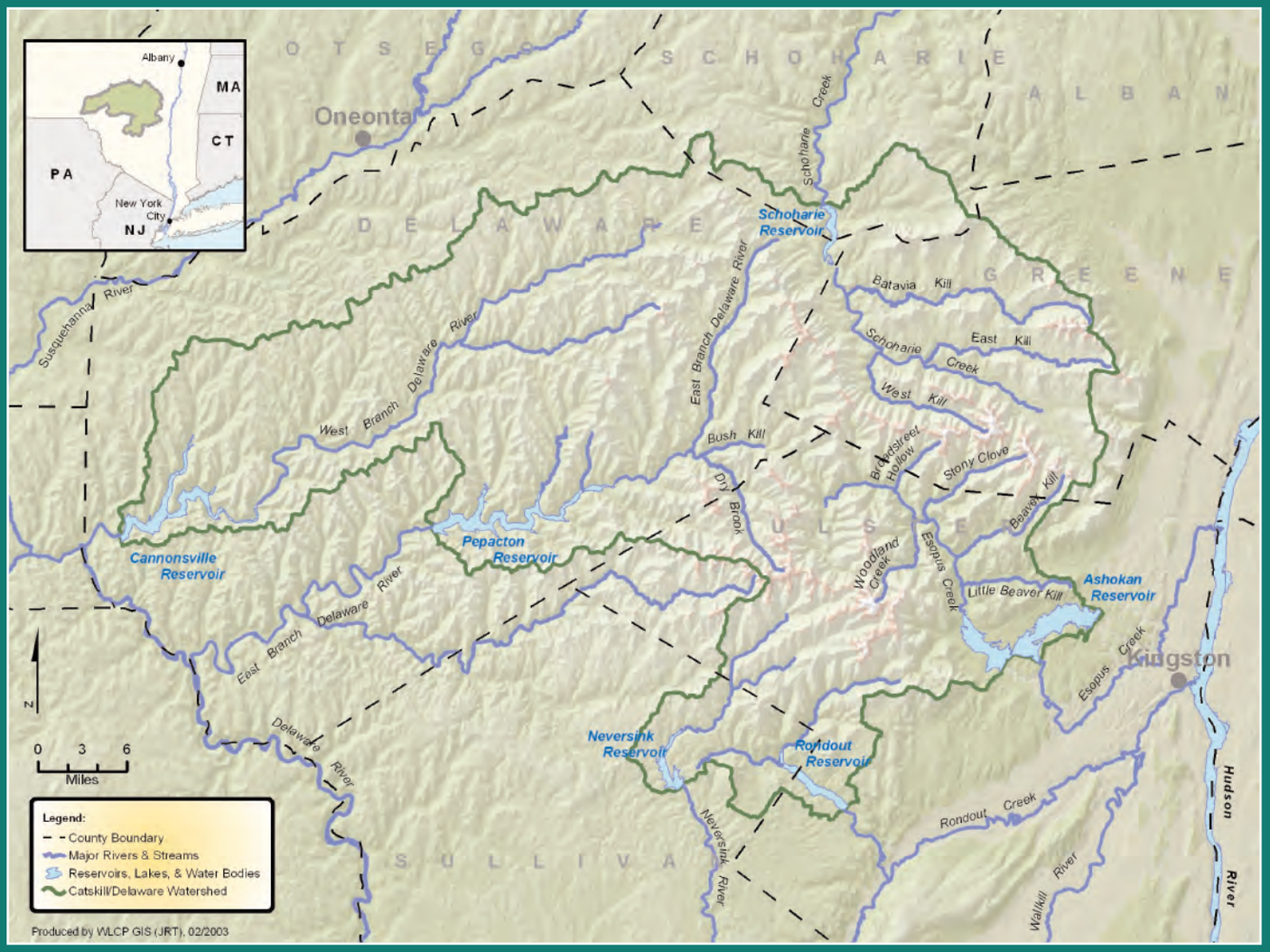

It is nearly impossible to think about the Catskill Mountains without also thinking about our rivers and streams. The natural and cultural heritage of the region is linked to the extraordinary quality of streams that course through the mountains and valleys and play a defining role in the character of the Catskill landscape.

These headwater streams continue to attract the appreciation – and tourism dollars – of artists, anglers and nature lovers from around the world. Flyfishing naturalists have been lured to Catskill streams since Milo Barber opened the first boarding house for anglers on the Esopus Creek in 1830. In the broader valleys, agriculture and forestry remain important livelihoods; farmers and forest landowners work hard to cultivate fertile floodplains to produce vegetable, dairy and wood products for New York's residents.

The following pages strive to evoke a community feeling and stream stewardship ethic among Catskill Mountain residents. This booklet for streamside landowners provides helpful information about ways to live in harmony with Catskill streams and the beautiful landscape they support.

Read on and you will see the following:

- A success story about the Broadstreet Hollow Landowner's Association
- Why Catskill streams and stewardship are important
- An illustration of streamside living
- Seven Stewardship Suggestions

By reading this booklet, you and your neighbors will better understand how your actions on the stream affect each other, how you may get involved in stream stewardship activities and what programs can help you become an active volunteer.

Landowners and Their Watershed

In 2002, residents of the Broadstreet Hollow stream valley united to form a landowner's association to assist with developing a stream management plan and installing a stream restoration project in their neighborhood. The landowners elected their own leaders and held meetings in collaboration with local agencies such as County Soil and Water Conservation Districts (SWCDs) and New York City Department of Environmental Protection (DEP).

"One activity that brought all interested landowners together was our first stream clean-up sponsored by Catskill Watershed Corporation (CWC). The weather was terrible, but we got to know our neighbors, had a great time, and ended up with a clean stream."

– Chris Baltz, BSH Landowner & Association Chair

This association has:

- Organized four annual stream clean-ups, clearing more than two tons of garbage and debris from the stream and roadside
- Hosted talks about planting native trees and shrubs
- Documented a nearby restoration project with photos
- Authored sections of the Broadstreet Hollow Stream Management Plan and supported its adoption by the Town
- Removed Japanese knotweed, an invasive plant
- Served on Project Advisory Committees for stream management activities
- Attended stream walks and workshops
- Coordinated clean-up of an abandoned house and dump site
- Joined stream surveys to assess the condition of the Broadstreet Hollow
- Provided historical photos of the stream
- Established sense of community united around a common issue: protecting Broadstreet Hollow

The Broadstreet Hollow Landowner's Association provides a great example for landowners in other watersheds about how to get involved in stream stewardship activities. While some activities required professional assistance from local agencies, many of their activities required no money, just a little time and effort. Stewardship has just become engrained into the community as everyday activities.

Why are Catskill Mountain Streams Important?

Our Catskill streams are more than aesthetic wonders and resources for recreation. They perform important environmental functions and services, from providing the lifeblood of countless organisms — including humans and biota – to draining floodwaters and moving rock and soil eroded from the mountains to build fertile valleys. These functions are complex and interrelated. The stream is a dynamic feature of the landscape, ready to swell in a heavy rainstorm or shrink to a trickle during a drought. Understanding these relationships is vital to well-informed living on our streams.

Water in Motion

Streams drain the landscape. When rain falls or snow melts, water that doesn't seep into the ground becomes runoff. This runoff drains into a network of streams, brooks, creeks and rivers. Along this network, stream channels shape themselves to carry the high water of spring snow melt. Flows that exceed the stream channel's capacity become floods, which can range from minor events to raging torrents that carve new channels. The floodwater is routed down the valley across the floodplains, which play an important role in a watershed's drainage system. By dissipating the water's erosive energy, floodplains help keep stream channels stable and able to carry regular daily flows.

The Woodland Valley Creek in Ulster County (above) after a large tropical storm drenched the Catskills. Below, the flood of January 1996 naturally deposited excess gravel in Bagley Brook in Delaware County. This photo illustrates how a stream, over time, naturally moves and carries gravel downstream.

Streams at Work

Streams shape the land. From small creeks to meandering rivers, streams are the great sculptors of the Catskill Mountain landscape. Streams move sediment of all sizes and deposit this load downstream and across floodplains. Fine sediment like clay can be carried along for miles in moderate flows, while boulders make their way downstream only during rare flood events. Streams also process sediment during transport — boulders break into cobbles, cobbles are crushed into gravel, and gravel is ground into sand. By eroding, transporting, and depositing sediment, Catskill streams perform the geologic wonder of transforming mountains into fertile valleys.

"Managing streams is very important in my town. Landowners, town officials and government agencies all can become involved in stream management. Getting together on a collective plan has been a very important way to get more done and the support of the DEP Stream Management Program and the local Soil and Water District has made a big difference for us here in Greene County."

— Pat Meehan, Windham Town Supervisor

Source of Life

Water sustains all life. The water flowing in Catskill streams not only supports wildlife and plants, but it also quenches the thirst of millions of people who drink it daily. Brook trout rest in the pools of creeks; stoneflies emerge from their nymph casings on boulders above the swirling water; a great blue heron wades the shallow riffle looking for dinner; a deer drinks from a pool; a child drinks from a New York City fountain. Monitoring and protecting the quality of this essential substance ensures that cool, clean water is the precious resource passed on to future generations.

Above are two bald eagles nesting by the Rondout Reservoir. Since eagles often scavenge for food — baitfish or alewives — they are attracted to the free food source washed into the reservoir through aqueducts from the Cannonsville, Neversink and Pepacton Reservoirs.

Why is Stewardship Important?

Given the many roles that streams play in our lives, it's not surprising that views on what's best for streams depends on who's looking. Whether streamside landowners, recreational users, agency resource managers or water suppliers, we are all stewards of this extraordinary natural resource and it is essential that competing objectives be reconciled with resource management decisions. Preserving the beauty and pleasure provided by these mountain streams is as important as protecting the multiple environmental functions that streams perform. Coordinated stream management ensures a comprehensive approach that identifies and integrates various goals — from property conservation to the protection of water quality, wildlife habitat and scenic views.

The Brandywine Restoration project on the Batavia Kill (below, left) attracts anglers, who enjoy fishing the plunge pools created by installed rock weirs. The Esopus Creek Restoration Project (below, right) protects private property, distances septic leach fields from the stream, allows for recreation and improves water quality.

Your Streamside Buffer …

UNHEALTHY?

1. Runoff that flows over solid surfaces, like roofs and paved driveways, will accelerate erosion. Pollutants and excess silt degrade habitat for aquatic life. Cleared manicured lot lacks shade and privacy. Loss of native plants leads to more erosion, runoff and work for you.

2. Dumps, above and below the ground, pose a risk of leaching pollutants into streams.

3. Malfunctioning septic system allows phosphorus, bacteria and anything else you pour down your drain to leach into adjacent waterways.

4. Anything built or stored in the floodplain is at risk of being washed downstream. Not only can this cause personal loss, but large debris can further damage downstream property and infrastructure.

5. Hardened shoreline can deflect erosion downstream, eliminate natural filtering and degrade habitat.

6. Lawn to the water's edge lacks deep roots required to stabilize the stream bank. Lawns have no habitat value. They put your property at risk for erosion, and deliver lawn chemicals directly to the stream, to say nothing of ruining the fishing.

HEALTHY?

7. Overhanging branches provide a nesting place for birds and shade to keep streams from getting too warm for fish during the hot days of summer. Leaves provide the base of the food chain in aquatic ecosystems, feeding insects on both the streambed and floodplain that will in turn become the prey of fish and small mammals.

8. Exposed roots shelter fish and other aquatic species.

9. Tree trunks, stems, branches and leaves all help to slow the flow of water across the ground, capturing soil, pollutants and excess nutrients along the way. By the time water reaches the stream, it is moving cleaner and slower.

10. Tree roots can also filter pollutants transported in groundwater prior to entering streams.

11. Having a nice lawn does not have to be at odds with living next to a stream. You can still have access to the stream by leaving openings in your landscape design. When raking leaves or gathering grass clippings designate a compost area in the corner of your yard as far from the stream bank and flood prone areas as possible.

12. Building away from the edge of the stream allows floodplains to function effectively and will reduce the probability and magnitude of property damage. In addition to providing storage for high flows, floodplains minimize sedimentation, filter pollutants, process organic wastes, moderate temperature fluctuations, and provide habitats for a variety of plants and animals.

Seven Stewardship Suggestions

> Get involved in your community.

> Check into existing watershed stewardship programs.

> Maintain healthy, native streamside buffers.

> Beware of rogue plants!

> Properly dispose of yard and household waste.

> Be careful what you do to the stream and its banks.

> Stay out of the floodplain.

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Your Role in Streamside Living

Below are general descriptions of each stewardship suggestion. For more detail, please visit: www.catskillstreams.org.

Get involved in your community.

Public events like meetings, hearings and workshops provide a great opportunity for streamside landowners to ask questions, express concerns and generally learn about stream stewardship activities. Local agencies host many public events every year and welcome input from residents and community members. As a watershed resident, you are encouraged to get involved with protecting the beautiful natural environment that we all share. Detailed information about your property and the stream adjacent to it may be available in a Stream Management Plan. **Contact your local SWCD to see if a Plan has been developed in your watershed.**

Check into existing watershed stewardship programs.

Many programs already exist for assisting streamside landowners monetarily and in-kind with stewardship activities. One place to learn about these opportunities is through the CWC, which has programs in septic rehabilitation, stormwater retrofits, local technical assistance, education, and economic development. **Forest landowners** may be eligible for assistance through Watershed Agricultural Council's (WAC's) Forestry Program or through the Catskill Forest Association. **Agricultural landowners** may be eligible to participate in WAC's Whole Farm Planning Program. And **landowners with smaller parcels** may receive detailed stream information, including a site visit from DEP's Stream Management Program or SWCDs. **Please visit the website listed left to learn how you may enroll in these programs.**

Maintain healthy, native streamside buffers.

Instead of mowing to the very edge of your streambank, allow a buffer strip to grow freely with native trees and shrubs. You can still have access to the stream by planting native species and leaving openings in your landscape design. When raking leaves or gathering grass clippings designate a compost area in the corner of your yard as far from the stream bank as possible. Do not throw debris over the streambank or pile it up like a berm, killing vegetation underneath. Also, if you have fallen trees in the stream near you, see if the logs are diverting the water's energy toward the bank and causing erosion. If so, remove the logs piece by piece. Leave any woody debris that's not causing erosion, because fish love to hide underneath fallen logs.

Beware of rogue plants!

Some plants introduced into personal gardens or farms have escaped those borders and sprouted downstream, even though they are not native to New York or even the U.S. Some non-native species can colonize our streambanks with only one small piece that has broken off, washed downstream, and rooted itself. Japanese knotweed (Fallopia japaonica), often referred to as bamboo, is one example of a non-native, invasive species that spreads rapidly and overtakes native vegetation. Invasive plants like knotweed are both costly and labor intensive to remove. *Prevention, by replanting barren slopes or disturbed soils, is the most cost effective way to battle invasive plants. If invasives are detected, remove the plants before they can become established.* **Contact your local SWCD or visit www.catskillstreams.org for advice on how to address invasive plants.**

Properly dispose of yard and household waste.

Unfortunately, some people think of streams as garbage dumps. Debris can become a hazard during floods, and it can pose a threat to our groundwater. Remove old tires, garbage, and litter from your property and store these materials as far from the stream as possible. Waste from pets and livestock is a significant source of water pollution, creating excessive nutrients and bacteria. Dispose of your pet's waste in the trash and store livestock manure properly. Finally, hazardous substance such as paints, thinners, solvents, grease, oil, carpet cleaning water, pool and spa water and detergents should not be dumped into streams, septics or stormwater collection systems. Your town or county may sponsor a day (i.e. Clean Sweep in Delaware County) to collect household hazard waste. Using alternatives, or reusing and recycling hazardous fluids and other products, can reduce the amount of waste produced in the first place.

Stewardship Suggestions Continued

Plants appr opriate for str eamside ar eas

(please note this is only a partial list)

SHRUBS

> Buttonbush (Cephalanthus occidentalis L.)
> Red Osier Dogwood (Cornus sericea L.)
> Gray Dogwood (Cornus racemosa Lam.)
> Silky Willow (Salix sericea)
> Black willow (Salix nigra)
> Small pussy willow (Salix humilis)
> Arrowwood Vibernum (Viburnum dentatum)
> Silky Dogwood (Cornus amomum)
> Spicebush (Lindera benzoin)
> Shadbush (Amelanchier arborea)

TREES

> Green Ash (Fraxinus pennsylvanicus)
> Red Oak (Quercus rubra L)
> Sycamore (Plantanus occidentalis L.)
> Red maple (Acer Rubrum L.)
> Serviceberry (Amelanchier canadensis)
> River Birch (betula nigra)
> Mountain Ash (Sorbus americana)

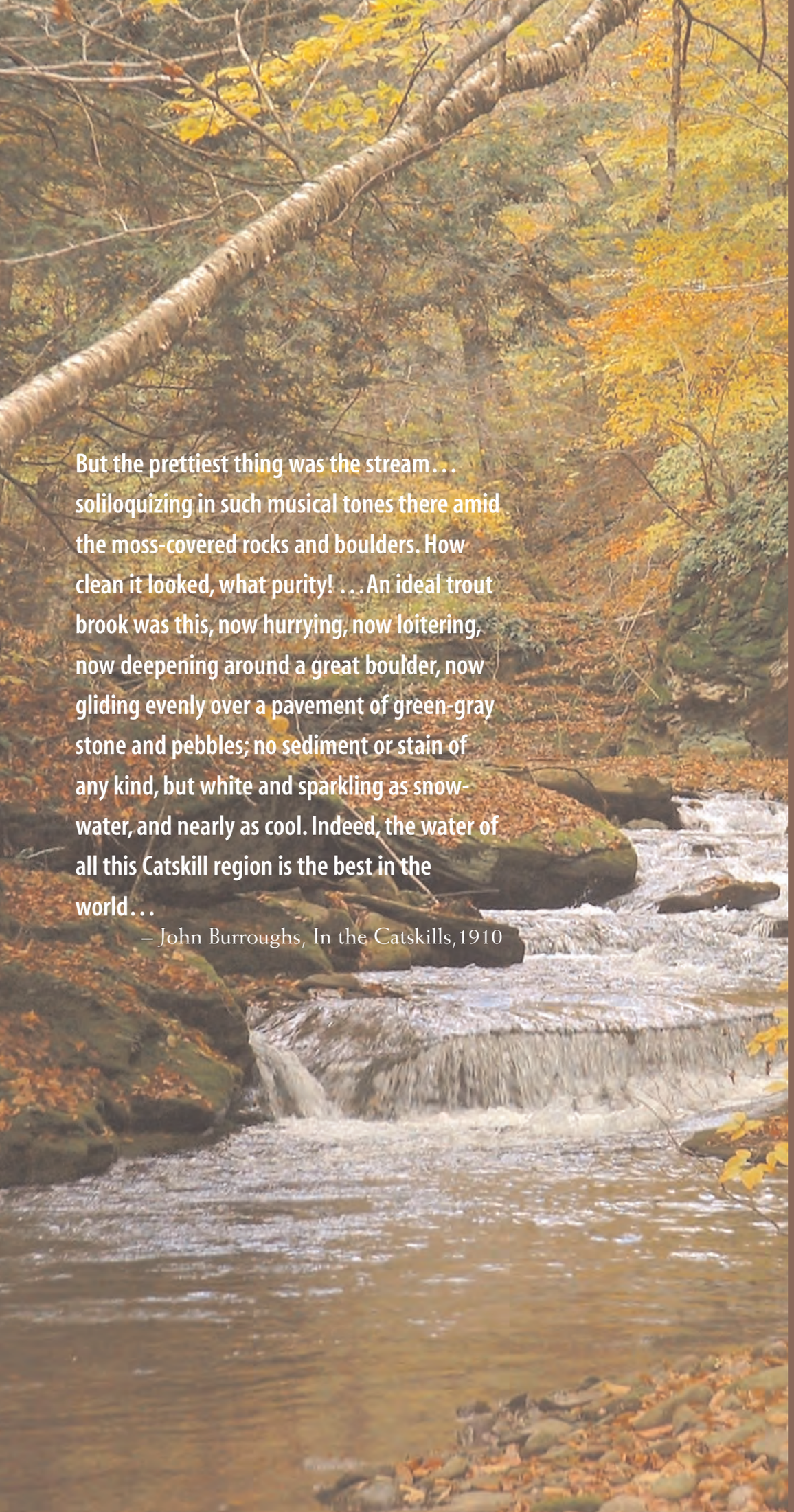
For more information visit:
www.catskillstreams.org

Be careful what you do to the stream and its banks.

Cleaning gravel out of the stream, armoring its banks with rock, or creating berms are actions many landowners want to take following a flood. However, these activities provide only temporary stability to one point in the stream, and they can often lead to increased erosion and flooding downstream. Installing these practices often leads to the concentration of damaging flood flows, over-widening, loss of sediment transport and fish habitat and increased bank erosion. Resource professionals at DEP and local SWCDs have developed management plans for many of the streams in the Catskills. Following the careful analysis of the stream's natural characteristics, the partners devised new longer-lasting solutions that are both cost-effective and ecologically sound. Some activities in a stream require a permit. **Be sure to seek professional advice before taking action. Contact one or more of the agencies listed on the back page for assistance.**

Stay out of the floodplain.

As their name implies, floodplains are subject to periodic flooding. When there is a flood, healthy floodplains provide storage areas for flood waters, reduce flood velocities and reduce flood peaks. A properly functioning floodplain can also provide other benefits like filtering pollutants and wastes. It can help to moderate temperature, and provides vital habitat. A stream can be disconnected from its floodplain by filling and developing the floodplain or digging in the stream channel. Once disconnected, instability and erosion throughout the stream system can result. It is typically recommended to avoid building structures in the 100-year floodplain-the area which has a 1% chance of being inundated in any given year. Remember, anything in the floodplain (including buildings) is at risk of being washed down-stream. **Visit your town clerk's office to learn whether or not your house or any structures on your property are built within the 100-year floodplain.**



But the prettiest thing was the stream… soliloquizing in such musical tones there amid the moss-covered rocks and boulders. How clean it looked, what purity! …An ideal trout brook was this, now hurrying, now loitering, now deepening around a great boulder, now gliding evenly over a pavement of green-gray stone and pebbles; no sediment or stain of any kind, but white and sparkling as snow-water, and nearly as cool. Indeed, the water of all this Catskill region is the best in the world…

– John Burroughs, In the Catskills, 1910

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Artwork c. Michelle Spark, Esopus Creek landowner

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DEP
www.nyc.gov/dep

Watershed Agricultural Council

Cornell University
Cooperative Extension

Soil and Water Conservation Districts of
Greene, Delaware, Ulster and Sullivan Counties

Investing in the Catskills' Future
CATSKILL WATERSHED CWC CORPORATION

THE CATSKILL CENTER
for Conservation and Development

For more contact and resource information, please visit www.catskillstreams.org

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