

**Final Report**

**OPEN SPACE RESOURCES INVENTORY**

**for the  
Town of Hurley**

**Submitted  
to**

**Hudson River Greenway Communities Council  
by**

**Hurley Conservation Advisory Council**

Town of Hurley  
PO Box 569  
Hurley, New York 12443



Conservation Advisory  
Council

National Historic Landmark

Ms. Carmella R. Montello  
Executive Director  
Greenways Communities Council  
Capitol Building, Room 254  
Capitol Station  
Albany, NY 12224

Dear Ms. Montello:

Attached is the final report of the Town of Hurley for the \$5,000 financial assistance grant from the Hudson River Valley Greenway Communities Council.

We at the Hurley Conservation Advisory Council want to thank you and your excellent staff very much for the grant and the invaluable assistance you have given us over the past couple of years. We feel that our projected Open Space Plan will be a great help in preserving the unique character of Hurley and we wouldn't have been able to get anywhere near as far with this plan as we have without the Greenway. We hope that we will be able to again call on you for further aid should we need it in the future.

If you have questions or need more information, please call me at (845) 331-1422.

Sincerely,

Virginia Starke  
Hurley C.A.C.

Town of Hurley  
PO Box 569  
Hurley, New York 12443



Conservation Advisory  
Council

National Historic Landmark

## Final Report to the Hudson River Valley Greenway Communities Council from the Conservation Advisory Council of the Town of Hurley

January 6, 2003

### I. BACKGROUND

The Hudson River Valley Greenway Communities Council awarded the Town of Hurley a \$5,000 grant through an agreement signed on March 28, 2002 by the Hon. Gary Bellows, Town Supervisor of the Town of Hurley and on April 9, 2002 by Carmella R. Mantello, Executive Director of the Greenway Communities Council. The purpose of the grant was to provide assistance to the town in support of its efforts to gather and analyze data necessary to identify important open space and to create an Open Space Plan. The town was to provide matching funds not less than the funds provided by the Council and in the form of in-kind services, grants received and/or cash contributed.

The final Open Space Plan, as prepared by the Hurley's Conservation Advisory Council (C.A.C.) is intended by the town to be an important part of the Comprehensive Town Plan, now under preparation by a separate Town of Hurley committee.

### II. HOW THE TOWN USED THE COUNCIL'S GRANT

Prior to receiving the grant, the C.A.C. of the Town of Hurley had conducted a survey of the town's 2,200 households to determine if they felt that open space was an important issue and if so, what areas of the town they thought should be preserved as open space. The results were published in the town's newsletter. The residents emphatically agreed that open space was very important. They cited a number of areas that should be preserved with the four areas receiving the most votes being the quality of the water, the farmlands, scenic views and recreational sites. (See Appendix A)

After receiving the Greenway grant, the C.A.C. hired Shuster Associates, Inc., a highly experienced and respected local consulting firm, to help with the preparation of the Open Space Plan. The C.A.C. felt that before a detailed survey could be undertaken they had to know just what the town had already. Therefore, using the GIS data base of the Ulster County Planning Department, five appropriately detailed maps were prepared to depict the location, characteristics and status of open space in the Town.

These maps show:

- ▣ Development Limitations -- New York City watershed, slopes, 100-year flood plain, federal and state wetlands, water bodies
- ▣ Base Map -- tax parcels, roadways, water bodies
- ▣ Land Use Factors -- agriculture, residential, commercial, etc.
- ▣ Composite Open Space -- permanent open space such as public land and cemeteries, regulated open space such as wetlands and floodplains, and time-defined open space including agricultural districts and managed forest lands.
- ▣ Topography

Large copies of the five maps have been hung prominently in the Town Hall. Copies of each of the maps are included as Appendix B. The C.A.C. expects these maps to be an ongoing project with additions and changes made as necessary. A short-term goal is to have these maps available on computer where overlays and changes can be made easily. The C.A.C. also obtained maps of the Hurley watershed as well as considerable assistance from the New York City Department of Environmental Protection.

During the time the maps were in preparation, each of the nine members of the C.A.C. was assigned an area of town to investigate and report on as well as an area of expertise, i.e., water, soils, slopes. Copies of various individual C.A.C. reports are included as Appendix C. These reports will be consolidated and form a part of the final Open Space Plan. In addition, a considerable number of photographs of various parts of Hurley have been taken.

Town residents have been kept apprised of the progress of the Open Space Plan through C.A.C.-written articles in the town newsletter and the town's web site (newsletter articles are in Appendix D while the web site is [www.town.hurley.ny.us](http://www.town.hurley.ny.us); click on CAC)

Once all this material was assembled, the C.A.C. held two community meetings in October, one in Old Hurley at the Town Hall and the other on the other side of town at the Glenford Fire House. Residents were notified about the meetings through an article in the town newsletter, an announcement in the Kingston Daily Freeman, and posters placed all over town. The purpose of these meetings was to show residents the new maps and ask for any corrections, to present what had been done so far to prepare an Open Space Plan, to explain the economic, environmental and social benefits of open space, to detail the four areas of town that were considered the prime areas to be classified as open space, and to ask for comments. Some 40 people attended the meeting in Old Hurley and, despite horrendous weather, approximately 25 came to the Glenford meeting. Both groups offered many relevant and useful comments. Even though the geological characteristics of the two areas of town are very different, both sections agreed that the main concern was the quality of the town's water and that preservation of Hurley's unique farmlands was close to that in importance.

### III. WHERE THE C.A.C. GOES NEXT

The C.A.C. is continuing to set priorities for its Open Space Plan with emphasis on

preserving water quality and agricultural land. At its last meeting the president of the local water company met with C.A.C. members to explain such important subjects as their water sources, local aquifers and wetlands, and how the company protects the purity of its wells. The C.A.C. is planning more such meetings with local experts, especially in the hydrological and agricultural areas. This will help narrow down the search for more exact locations that should be conserved. Also part of the report will be a series of methods that could be used to achieve the goals of the plan. The C.A.C. will concentrate for the moment on the original recommendations, primarily water and agriculture, but expects to add more areas as time and resources allow. Once a draft Open Space Plan is completed, further community meetings will be held for concluding comments. The final report will then be part of the Town of Hurley's Comprehensive Town Plan.

#### IV. COMPLETION OF THE TOWN'S PART OF THE AGREEMENT

The Conservation Advisory Council of the Town of Hurley has completed the work as interpreted under the Greenway grant. The consulting firm has submitted its bills which include the costs of preparation of the maps and the Town has paid them. (Appendix F).

Therefore, this is a request for payment of the \$5,000 Greenway grant.

Appendix A -- Questionnaire results

Appendix B -- Copies of the five maps prepared under this agreement

Appendix C -- Copies of reports by individual C.A.C. members of town characteristics

Appendix D -- Hurley newsletter Open Space articles by the C.A.C.

Appendix E -- A list of hours put in by individual C.A.C. members during the time frame of this grant

Appendix F -- Copies of the bills submitted by Shuster Associates as well as copies of town payment checks to this consultant

## Open Space Survey

So far we have received 186 responses to the open space survey included in the January issue of this newsletter. We would like to thank those Hurley residents who took the time and trouble to send in their responses. For those of you who have not yet sent in your survey, we'd appreciate it if you would as soon as possible. Copies are available at the Town Clerk's office. Remember: It's your town and we need your advice on its future.

Some 125 of you indicated that you might be interested in participating in the open space planning process and we will eventually be contacting you either in person, if you included your name and address, or through this newsletter.

Results to date show the following (with 5 the most important and 1 least important):

1) How important is it to you to protect or enhance:	5	4	3	2	1
a) Open spaces for water conservation needs	147	24	10	2	0
b) Watersheds	140	31	8	2	0
c) Aquifers	142	22	12	0	0
d) Stream corridors	133	29	10	4	1
e) Wetlands	125	25	19	6	2
f) Wildlife/biological resources	129	29	16	8	2
g) Buildings of historic or architectural interest	98	51	25	7	1
h) Places of historical value	96	51	23	6	1
i) Scenic vistas/viewsheds	97	49	31	3	2
j) Community entranceway	72	47	42	12	3
k) Open spaces for recreation	85	53	54	4	2
l) Farmlands	108	47	22	7	1
m) Forests and woodlands	134	39	9	2	0

	5	4	3	2	1
2) How important is it for Hurley to have bicycle and pedestrian trails?	78	44	39	17	5
3) How important is it to focus towards core areas and to retain the outlying areas in rural open space?	95	48	27	5	3
4) How satisfied are you with the places in Hurley:					
a) For children to play and recreate	34	49	53	26	8
b) For adults to recreate	30	38	65	31	11
c) To observe/study nature/wildlife	39	47	55	27	6
d) To enjoy scenery	44	60	47	18	5
e) To relax outdoors	44	47	50	22	6
5) How important is it for Hurley to plan for the use and protection of its open spaces?	124	31	8	0	4

Many of you also included thoughtful and excellent suggestions on the specific areas and resources here in Hurley which you felt should be protected. These suggestions are being carefully considered and will play an important role in upcoming open space deliberations.

# OPEN SPACE IN THE TOWN OF HURLEY

## BACKGROUND

The Town of Hurley includes a

unique mixture of open space resources. Its north-western limits include the upper slopes of Ohayo and Tonsi Mountains, with a maximum elevation of 1,920 feet above sea level, which slope steeply down to New York City's Ashokan Reservoir, about 40% of which is within the Town. The large central portion of Town is characterized by steep, wooded hills which drop abruptly to the flatlands lying on either side of the Esopus Creek at an elevation of about 160 feet. These flats contain some of the most productive agricultural lands in Ulster County. The southeast portion of Town consists of lower rolling lands. This area also includes the hamlet of Old Hurley, a national historic landmark.

The Town of Hurley adopted its first zoning ordinance in September 1967, following establishment of the IBM facilities in the town of Ulster in 1957, and a nationwide trend towards suburbanization of both residential and commercial uses spurred by growth in the ownership and use of private automobiles. The Town's initial master plan was adopted in 1969 and many of its recommendations and policies on land use have been carried out.

Growth pressures in the Town, after a lull in the mid to late 1970's, increased significantly by the mid-1980's. The Town Board appointed a Zoning

Study Commission in 1987 to examine both the Master Plan and Zoning Ordinance and to recommend a thorough revision that would guide the course of future development in the Town. In 1991, the Town Board enacted a number of major amendments of the Zoning Law to allocate the density of residential development and intensity of commercial development in a manner that recognizes the physical characteristics and limitations of the land and built facilities and reinforces the traditional development pattern in the Town.

The Town established the Conservation Advisory Council (CAC) to advise in the development, management and protection of the Town's natural resources. In the winter of 2000-2001 the CAC undertook an Open Space Survey. Of 186 responses regarding issues of importance, the three highest rated were open spaces for water conservation needs (147), watersheds (140) and aquifers (142). Two-thirds of the respondents indicated that it was most important for the Town to plan for the use and protection of its open spaces. Last year the CAC applied for and received approval of two grants to initiate open space planning.

## PROGRESS TO DATE

1. A series of maps have been prepared depicting various types and categories of open space in the Town,



including the following:

**Natural Features which limit development.**

- Slopes (15-25%, 25%+)
- Wetlands: state and federal
- Floodplain
- NYC watershed

**Land Use Factors.**

- Public lands: NYS, DEC, Town, DEP
- Private open space: hunting/fishing clubs, recreation clubs, cemeteries
- Agricultural Districts and 480 -a parcels (timber harvest)
- Development lands: Residential (less than 10 acres) Commercial/industrial/ quasi-public/institutional

**Topo or Relief Map**

**Composite Open Space Map.**

- Permanent Open Space (Public, cemeteries, conservation easements)
- Regulated Open Space (wetlands, floodplain)
- Temporary Open Space (agricultural district, 480-a)

the Town and specific resource categories to provide basis for developing an open space plan.

**ESTABLISHING PRIORITIES.**

Based on the Open Space Survey, individual research and study of the open space mapping, the CAC is in the process of establishing priorities to guide the preparation of an Open Space Plan. Prior to agreeing on priorities, the CAC has initiated two public meetings to consider the opinions of Town residents regarding this important issue.

a:[17/3]OpenSpaceCACprogress.902

2. The CAC Committee members have undertaken study of each section of

Fred Steuding -- June 2002

"The Hurley Woods" Dug Hill and Englishman's Creek north to Preymaker Valley

--Granted in 1709 to Hurley people for firewood. By mid-1800's bluestone was quarried here. Indians and blacks as well as a number of outsider types lived in the Eagle's Nest.

The valley support a variety of birds from whip-poor-wills to veerys. Also box turtles inhabit the forest along with deer, skunks, opossums, squirrels, tree frogs.

Sugar maples and ash trees grow well in the stream valleys while the tops of the hills support only pitch pines and scrub oaks. These are known as acidic crests.

Wildlife is especially abundant in the Preymaker Valley that flows north and south from Onteora Lake, then east and west when interrupted by shale banks about its halfway mark to the Esopus. Almost 100 acres are State land.

Old wagon roads are visible throughout the hills. They lend a dimension of human history to the landscape.

On our hike, we were surprised to see three huses in unexpected places in each of the three areas we explored. They were accessible only from long driveways.

#### SECTION 4 OBSERVED

THIS AREA CONTAINS BOTH THE HISTORIC AND WHAT MIGHT BE CALLED THE COMMERCIAL AREA OF THE TOWN OF HURLEY. BEGINNING THERE, OLD HIGHWAY 209 RUNS DOWN MAIN STREET BETWEEN OLD STONE HOUSES. IT TURNS AT THE CHURCH, RUNS PAST THE POST OFFICE, STEWARTS, THE CORNER STORE AND THE HURLEY MOUNTAIN INN AND THEN FOLLOWS THE WINDING OF THE ESOPUS CREEK WITH PRIVATE HOMES ON EITHER SIDE. PRIVATE LAND BORDERS THE CREEK WITH BRUSH GENERALLY ALONG THE BANKS. OCCASIONALLY THE CREEK IS WIDE AND DEEP ENOUGH FOR SWIMMING. THERE IS ONE LARGE OPEN FIELD ON THIS ROAD. IT IS FARM LAND BUT RECENTLY HAS JUST BEEN MOWED.

FOLLOWING OLD 209 TOWARD KINGSTON FROM THE MAIN STREET THERE IS ONLY ONE OPEN SPACE BUT IT WILL PROBABLY NEVER BE DEVELOPED BECAUSE IT IS SAID TO HAVE BEEN AN INDIAN BURIAL GROUND. ACROSS FROM THIS AREA ARE 'THE HEIGHTS', STEEP ROADS LEADING TO PRIVATE HOMES WITH VIEWS OF THE CATSKILL MOUNTAINS.

NEW HIGHWAY 209 RUNS STRAIGHT THROUGH HURLEY ON LAND THAT WAS ORIGINALLY A RAILROAD BED AND BESIDE WHICH AN EXTENSION OF THE 'RAIL TRAIL' IS BEING PREPARED. IT CONTINUES TOWARD KINGSTON BETWEEN AGRICULTURAL FIELDS EXCEPT FOR THE STATE POLICE BARRACKS.

OCCASIONALLY THE ESOPUS CREEK RISES WITH SPRING RAINS AND HOMES BUILT CLOSE SUFFER FROM BEING BUILT ON 'WETLANDS'. 3

CROSSING THE CREEK YOU FIND AGRICULTURAL LAND OWNED BY THREE FARMING FAMILIES. IT IS SAID THAT THERE IS 30 FEET OF GOOD TOP SOIL THERE. A 'CORN MAZE' HAS BEEN CONSTRUCTED IN THIS AREA. BEYOND THE FIELDS ARE HOMES BELOW AN ESCARPMENT, A STEEP ROAD LEADS UP THE 'MOUNTAIN' WHERE THE LAND IS DIVIDED IN LONG NARROW STRIPS, ORIGINALLY WOOD LOTS FOR THE TOWNSPEOPLE. THERE ARE HOMES ON THIS ROAD BUT MUCH IS OWNED BY DEC OR DESIGNATED FOREST LAND WITH RESTRICTIONS. THE ONLY OPEN SPACE FOUND THAT IS NOT SOMEONE'S PRIVATE PROPERTY OR AGRICULTURAL IS A TRIANGLE, THE CORNER OF NEW 209 AND RUSSELL ROAD ONCE CONSIDERED FOR A SALT SHED. 2

ELIZABETH ASKUE

8/4/02

### Observations of Section "2A"

West of Stone Rd., South of the Ashokan Reservoir to the Marbletown line

By: Kristen Schara

Date of Observation: May 2002

The observations contained in this survey were obtained by driving the roads that pass through this area and observing what I could from the road. There are still areas I would like to investigate further. I also consulted the town zoning maps, street maps, soil survey maps and the USGS maps "Kingston West" and "Ashokan" quadrangles.

### Land Use

The land immediately surrounding the reservoir is owned by the NYC DEP. There is also a section of land owned by the NYS DEC which is not accessible from Hurley by public roads. The rest of the land is privately owned. Most of the land is used for residences with some home-based businesses such as small quarries and building contractors interspersed throughout the area. According to the zoning code, this area is zoned residential with a minimum lot size of either 2.5 or 4 acres. There are many private roads in this area that I did not traverse.

### Terrain

North of Stone Rd., in the area roughly between Spillway Rd. and 28A, the elevation generally ranges between 600 and 800 feet with a high point of 942 ft. The terrain is very hilly and the roads are windy. Stone Road parallels the path of Stony Creek and slopes downward starting at 660 feet and ending at about 539 feet at Lapla Rd. in Marbletown.

### Natural Landscape

Most of the area is heavily wooded with small clearings for yards and around buildings. We did not see any sweeping vistas or scenic overlooks from the roads we drove. The area is too wooded for that. There are many rock outcroppings and large rocks interspersed in woods and along the roads. The soil in this area is described in the Ulster County Soil Survey as "glacial till deposits of variable thickness over bedrock". This kind of soil (labeled Lordstown-Arnot-Mardin) is generally not recommended for intensive development or farming.

### Surface Water

According to the USGS maps of this area, Stony Creek flows down the "Hurley Ridge" slope southward into Marbletown until it comes to the Esopus flats where it takes a sharp turn north back into Hurley and joins the Esopus. The USGS map also shows an unnamed pond which looks to be in the DEC owned lot near the Marbletown line. In addition, there are also several swampy areas and small ponds (or large puddles as the case may be), especially along Stone Road.

Visit by VLS to the area of Hurley off Dewitt Mills Road east of Lucas Avenue

Date: June 20, 2002

Weather: Hot -- mid '80s

---

I went in search of the mysterious Pink Hill which is included on the map of Hurley. Near the Rosendale line on Dewitt Mills Road there is only one short road leading to the right where Pink Hill is shown. This is Kovacs Road but it only goes to a rather scruffy trailer park. At the end of the road there is a line of trailers to the left and on the right there is a steep slope much like the one off Hurley Mountain Road only not as high, or at least what I could figure out from the road. The slope is covered with underbrush, and there is no place to park except in someone's yard or any apparent path up the slope. Supposedly there is a cell phone tower on top of Pink Hill but I have no idea of how to get to it.

Then I stopped at the Hurley Recreation Center. This facility has a great deal of property containing a pool with an unbelievably loud sound system, tennis courts, baseball field. Also, I found that at the back of the parking lot there is a system of trails. I followed the main one which after a ten minute walk ends at a promontory leveled off to allow for a camp fire pit and stacks of wood. It overlooks a stream and the woods. The walk there is mostly beside this stream through hemlocks and what looks like an acre of really beautiful ferns. It also has deer, one of which was tame enough to stand about 20 yards away from me just looking at me. I waved. It didn't move. I'd guess that one of the side trails connects to the trail from Twin Lakes. Maybe some day a couple of us with bullhorns or whatever could start from either end and bellow our way to a connection. It couldn't be any louder than Hurley Rec's sound system.

---

Visit to DEC wetlands unit on June 26, 2002

I spoke to Roy Jacobson, Conservation Biologist, Bureau of Habitat. That means he deals with wetlands. It turns out he lives in Hurley but his territory is in Dutchess and Putnam counties. The Ulster County person is Mike Clancy.

I asked about Joys Lane where various people have built driveways right across the State wetland. He said that if the owner of a house has no other access than across the wetland he or she gets a permit. If they've built something without a permit they get a fine. Very rarely do they have to undo something. The DEC is in business to protect the habitat, not to take property.

Various DEC brochures claim that the NYS Freshwater Wetlands Act passed in 1975 "requires DEC to rank wetlands in one of four classes" according to their importance. Mr. Jacobson said they've never really done that.

He reiterated that the main difference between a State and a Federal wetland is that the federal one regulates wetlands of any size that are tied to interstate commerce. That means that the wetland along the Esopus is a federal one, but the "isolated" one along Joys Lane is not.

I asked if he or Mr. Clancy or someone else at DEC would be willing to come and speak to the Hurley CAC and he said yes.

# Section 5 of Hurley

Virginia Starke

June 26, 2002

From north to south:

1) From the Ulster line to Dewitt Mills Road/Zandhoek Road/Joys Lane is mostly housing including Rolling Meadows. The two main areas that aren't housing are the Hurley Cemetery which contains some very old graves and the property owned by St. Joseph's mission from which there is a marvelous view of the Catskills. A good part of this section of town is very hilly. It contains the remains of two old stone houses, one at the end of Rosa Lane and the other at the far end of the extensive Loughlin property. Some rather expensive new houses are being built on the east side of Lucas Avenue.

2) Lucas Avenue south and east to the town line: At the end of Hurley on Dewitt Mills Road is Pink Hill which apparently holds a cell phone tower. The hill seems to be covered with extensive undergrowth and I haven't figured out how to get up it. It rises from a not-too-nice trailer park.

There are mostly houses along Dewitt Mills Road but behind them is a great deal of undeveloped, very attractive land. The Hurley Recreational Center buildings and playing fields take up a very small part of their 60.7 acres. Same with Twin Lakes Lodge which owns 40 acres in Hurley. A large part of Twin Lakes itself and a small part of First Lake are in Hurley. The New Jersey Bible Society owns 28 acres in there which is an extension of its much larger property in Rosendale. All this land is hilly with streams, hemlock, pine and deciduous trees. Some trails. On the road leading from Lucas Avenue to the Twin Lakes Lodge a number of expensive houses are being built.

3) Zandhoek Road/Joys Lane/Lucas Avenue to the Marbletown-Rosendale border: Aside from housing at the fringes of this area (Mountainview Avenue, Hook and Walnut Streets, Brier Forest Road, Bessal Road,) all the rest of this land consisting of 364 acres belongs to the Gills. Part of it is a NYState-protected wetland. There is also such a wetland near Joys Lane, most if not all of which is owned by Peter Glass, and one along the O&W Rail Trail. Mill Creek originates here in a lake created a couple of hundred years ago by a dam. There are some valuable; unprotected wetlands here and a number of streams, some of which are seasonal. Trails go through this area down to the Rail Trail. It is heavily forested with extensive hemlock areas. It is somewhat hilly with one quite steep ridge and some enormous boulders deposited by the glacier.

## Walk With Dave Baker on Friday, April 26, 2002 on NY State Land to the left of Dug Hill Road just past Englishman's Creek

Weather--partly cloudy, low 50's, beautiful day

---

We parked in the tiny lot on the right just past the creek, walked across the road, through the slightly swampy area, up a rise and turned left onto a barely noticeable ancient wagon trail. This led somewhat uphill for about a quarter of a mile when the ruins of Solomon Crispell's stone house were in view just to the left of the trail. Mostly it's just the outlines of a stone foundation, but you can tell where the fireplace was as well as the entrance to the house and to the root cellar. The area around there has pretty well been picked over but there are still a lot of shards around. I brought back two pieces of pottery and two of glass. The surrounding area contained a lot of bright yellow violets.

The house was situated beside a stream with no apparent name which leads into Englishman's Creek. As you cross the stream, if you look upstream you can see a beautiful waterfall maybe ten feet high. A closer look shows that it obviously was once a much larger stream and waterfall because the cliffs around it have been carved out by the water.

After crossing the stream, ruins of the Crispell stone barn are on the left.

Onwards and upwards. A short distance further on along the trail which is surrounded by pine and hemlock trees you come to hundreds of oyster shells. Dave had them analyzed and found they come from further down the Hudson, near Croton. He guesses that this was a Crispell picnic spot and that the shells are about the same age as the Crispell ownership of the house, about 1875. The house itself is rather older, probably dating from the early 1800's.

A bit further past that are further ruins of several very small stone houses. Dave says this was on the land of George P. Newkirk, whose biography is attached, the first black resident of Hurley. The tiny houses probably were for blacks, some of whom may well have been ex-slaves come north on the Underground Railway and who opted to stay in Hurley.

According to Dave, the wagon trail we were on continues into Marbletown. There is also a fork in the road near the little houses which goes over the stream and up the mountain, at the top of which is the ruin of a stone and wood house. We didn't go there.

From there we turned left towards the cliff edge which, like the edge on the other side of Dug Hill, has spectacular views of the corn fields. Most of this edge, though, is overgrown with purple lilac bushes. Apparently, no one today knows who planted them. Further back towards Dug Hill are the ruins of an enormous stone barn, most likely the Crispell dairy barn. You can see the path the cows took to the barn and where the milk cooling room is. Much of the area around the barn still is grassy although the young oak trees growing there will probably eventually kill it.

There may well be other ruins in the area, but these will require digging to find them.

## **BLACK HISTORY MONTH**

### **George P. Newkirk**

George Newkirk was born the free son of Dianna Johnson, a slave, about 1820. His father's name is not known. Around 1843 he moved into the Town of Hurley and by 1850 had established a family, a wife Margaret and three children, Aaron H., Richard and Dianna.

In 1851 George purchased a lot and built a home for his family on Hurley Mountain Road, and within a few years had purchased three more parcels of land in the foothills behind his house. During this period, two more children, Sarah and Catherine, were born. In all, twelve children were born into the family, only five survived.

Although George worked as a farm laborer for others, he established his own business, selling fresh clams. He constructed fresh water ponds on his property and stored the live clams in them until he had a market for them. He may have also leased some of his land to others to work or to live on. By 1870 he had an estate, both real and personal, valued at over eleven hundred dollars, at a time when one dollar a day was good pay.

George gained local recognition when he became the first Black in New York State to have the right to vote.

His eldest son, Aaron, joined the Northern Army during the Civil War and served in the 125<sup>th</sup> Artillery. He died in service in 1866 at the age of 25.

George was very well known in the Hurley/Kingston area and was known to have attended at least one Barnum and Bailey Circus, where he was allegedly struck by lightning and survived.

He died in his early eighties at his home, February, 1901. Burial was in a Black cemetery near the grave of his son, Aaron, on a hill overlooking the Esopus valley.



Notes by VLS on the woodland in the southern portion of Hurley between the O&W Rail Trail and the Lucas Avenue Extension (Site "g" under Area 1 in the Bob Schultz/Roger Blatter Natural Resource Inventory)

Data Collected: April 6, 2002

Weather Conditions: Cloudy, temperature in the low 40's F

---

This land is privately owned, but there seems to be no objection to it being used by anyone. Thus it has become a favorite riding area for off-the-road four wheelers which do keep open the many trails throughout the area, but also dig up the trails and the surrounding land. As a result, some of the land is in bad shape.

I have seen quite a number of deer and turkeys in there and neighbors report sightings of coyotes.

This area is apparently the origin of Mill Creek. It has been dammed near its origin thus forming what people in the area call Hidden Lake. According to Dave Baker, this pond was created around 1700 to form a reserve water site for a mill downstream near the present Rte. 209. The stone and concrete dam is crumbling but still holding. Should it collapse, the pond would undoubtedly disappear.

The area is quite hilly with a very steep slope running the length of the pond and Mill Creek up to the wetlands in back of Russell Road. The pond and Mill Creek are fed by numerous small streams running off this slope. The presence of these streams depends on the amount of recent rainfall. This day I saw a lovely small waterfall on a stream which was not there last fall. There is a small but significant wetland near the top of the slope above where the dam is. This was quite dry late last fall but is there now. There are also small wetlands now between the small streams near the southern town line. Or at least where I think the town boundary is--obviously there are no signs.

The State DEC wetland in back of Russell Road is not particularly wet right now. You can walk across it now, but I have seen it with only grassy hummocks above the water. Neighbors say that at one time not so long ago it was wet enough to be a neighborhood ice-skating rink.

This area is bounded by wetlands and a pond along the Rail Trail and DEC wetlands along Joys Lane.

Major electric lines run through the site about halfway between Lucas Avenue and Mountainview Ave. Central Hudson comes through the area at least once a year and levels any vegetation across about a 50 foot swath.

The area has some beautiful hemlock groves with no undergrowth. There are also a lot of white pine trees. Also deciduous trees but I can't tell one from the other -- yet. Lots of different types of ferns.

A great feature there is the number of gigantic moss-covered boulders (limestone?) apparently left there by the last ice age. There is also an open area about halfway between the Rail Trail and Mill Creek which Fred Steuding says used to be an apple orchard.

#### **Section 4—Old Route 209 and Hurley Mountain Road**

Francesca Sweeney

Open space field observation—August 2002

Old Route 209 mainly consists of residential homes, each situated on approximately a ½-acre to 5-acre parcel lots. The north end of the road consists of a few commercial dwellings, which include the Hurley Mountain Inn, Hurley Country Store, a vacant maintenance garage, and the Hurley Firehouse that's located on Firehouse Road, off Old Route 209. Next to the Inn, there is a small wooded lot with a carriage road, which leads to the Esopus Creek. The creek borders many of the residential properties, dividing them from the cornfields that are located in the Hurley flats. Across the street from the creek, and adjacent to main Route 209, many of the dwellings are situated on small rolling hills. Upon entering the north-end border of Riverside Park (a ½-acre subsection of Hurley located in the center of Old Route 209), there is a 12-acre parcel of farmland used for harvesting hay. This space has been subdivided into six 2-acre residential lots for future development. A privately owned horse farm, known as Sunset Farm, borders the hayfield. Just outside the south end of Riverside Park, lies an abandoned piece of land, which includes a dilapidated barn and freestanding garage. Directly across the street from this lot is a wooded section containing a public utility shed.

This street was once part of the old, Dutch village that dates back to the late 1600s. It is characterized with historical landmarks, most notably residential stone houses. The Patentee manor, an old English country manor dating back to the 1700s, is a residential home and museum overlooking the Esopus Creek, and offers scenic views of the cornfields and Hurley Ridge Mountain from the roadside. Clearwater Acres, another residential stone house, dating back to the 1600s is situated on a 1½-acre lot, alongside the creek. Directly across the road, and once owned by the Clearwater resident but recently purchased by the Gills, is a 33-acre dense, wooded parcel of property that borders, and continues on the other side of main Route 209. A 3½-acre horse farm is situated at the south end of Old Route 209.

Hurley Mountain Road contains many acres of cornfields that are situated in the Hurley flats. According to the town tax map, many of the open spaces are privately owned lots (with minimal residential dwellings), including the steep, wooded embankment of the Hurley Ridge located across the street from the cornfields. In addition, New York State owns large parcels of land, including 77.8-, 45.5-, and 162.8-acre lots alongside the road that extends into the forest up on the Ridge.

Plants, including jewel weed, golden rod, purple loosestrife, wild grape vines, staghorn sumac, honeysuckle, maples, oaks, ashes, and basswood are common under- and overgrowth that make up the open spaces.

## Observations of Section "1B" and "1"

The areas known as West Hurley and Glenford

By: Joan Paccione

June 2002

The observations of the area are only visual and observed from the roads traveled in the area.

West Hurley and Glenford are bordered on the south by RT.28 and the Ashokan Reservoir, on the north and east by the Town of Woodstock, and on the west by the Town of Olive.

### Land Use

The land that is south of RT.28 and immediately surrounding the reservoir is owned by the NYC DEP. West Hurley consists of some densely populated areas with zoning on small lots near the West Hurley School and Firehouse all along RT. 375 to Maverick Road. These lots contain mainly one family dwellings. There is one small commercial parcel on RT.375 which houses a small shopping center. RT.28 contains a small area where there is a now vacated restaurant, a current post office and some small offices. There are some houses of worship. On Maverick Road there is a famous Maverick Concert Hall an open air concert center. Glenford also consists of one family dwellings, there are a few small businesses within the community with a small commercial section on both sides of Maverick Road at the intersection of RT.28. The area is on the Tonche Ridge and Ohayo Mountain. Zoning in this area is more restrictive due to the availability of water and the steep slope of the mountains. Many of the areas have reservoir views. At the western most part of the town, abutting Rt. 28 and at the foot of Tonshi Mt. is KenoZIA Lake.

### Terrain

Most of West Hurley between RT.28 and Maverick Road is a series of ridges which have been developed into housing tracts. The zoning in this area is R-1. West of Maverick Road on Ohayo Mt. The zoning is A-4, R-1, and A-2.5. The A-4 and A-2.5 zoning designation is delineated to include the most sensitive environmental areas of the town. This area includes scenic vistas, steep topography and poor water supply.

### Natural Landscape

Most of the area is wooded with small clearings for fields. The views in the Glenford along Ohayo Mt. Road and Yankeetown Road (also known as Glenford Wittenberg Road) and Old Rt.28 offer sweeping vistas of the Ashokan. There are many small streams and ponds interspersed throughout the community. The largest pond is KenoZIA Lake.

### Water Supply

Homes and businesses are supplied by individual wells, however, there is an area of West Hurley known as the Hurley Ridge which has a community well system.

The Dirt on Hurley or What I have learned by reading the Ulster County Soil Survey.  
By Kristen Schara

The current soil survey for Ulster County was published in 1974 by what is now called the Natural Resources Conservation Service. It consists of a general survey map and a set of detailed maps and charts which list the characteristics for each soil type identified. The general soil map shows a broad perspective of the soils along with a description of the characteristics of each major soil type. The general soil map is to be used for identifying large areas for particular types of land use such as development, farming or recreation. The detailed maps and charts would be used when evaluating a specific site for planning or development purposes.

According to the NRI handbook (Natural Resource Inventory: a Guide to the Process) soil properties that should be considered include: drainage characteristics, depth to high water table, percolation rate, texture, rockiness and stoniness, erosion potential, frost action potential, shrink swell potential and agricultural potential. These factors along with slope and floodplain potential can provide a valid basis for land use restrictions.

The town of Hurley encompassed 5 out of 7 of the major soil types found in Ulster County: A brief description of each taken from the soil survey follows:

Bath-Nassau (Between the Esopus Flats and the top of "Hurley Ridge")

"This map unit is commonly used for orchards, meadow crops and pasture. The rolling or hilly topography and rock outcrops are limitations for cultivated crops. Because of the tilted underlying bedrock, available water capacity is quite variable within short distances. Steeper areas of this unit are mostly wooded. Many homes have been constructed in the lesser sloping areas."

Stockbridge-Farmington-Bath (Old Hurley and Rolling Meadows east/south to Rosendale/Marbletown)

"Many areas of this map unit are in woodland. A few areas are used for hay or pasture. Depth to bedrock, rock outcrops, slope slow water movement through the ... substratum in the deep soils, and the pollution hazard to underground water supplies in the shallow soils are concerns for community developments."

Arnot-Oquaga-Lackawanna (High peaks near Woodstock border)

"Most areas of this map unit are in woodland and provide habitat for wildlife. Shallowness to bedrock, steep slopes, rock outcrops, surface boulders, and slow water movement through the (substratum) layer in the deep soils are the main limitations for farm and community developments. This unit has good potential for recreational uses such as hiking and camping. Many areas afford scenic overlooks."

Lordstown-Arnot-Mardin (North & West of the Hurley Ridge around the reservoir)

"Most of the areas of this unit are in woodland and provide cover for certain species of wildlife. A few areas are in pasture or hay crops. Depth to bedrock in most areas, rock

outcrops, surface boulders, and the restrictive (substratum) in the deep Mardin soils are the main limitations for farm and community developments. Some areas have good potential for recreational uses."

Hoosic-Schoharie-Chenango (Esopus Flats)

"Most areas of this unit are openland that is used for orchards, cultivated crops, and pasture. Droughtiness and hazard of pollution of underground water supplies are the main limitations in the use of the gravelly Hoosic and Chanango soils. Slow or very slow internal stability are the chief concerns for most uses of the clayey Schoharie soils. Some areas, particularly areas of Hoosic and Chanango soils, have good potential for community development but careful site selection is important. Alluvial soils, such as Tioga, on flood plains adjacent to streams that traverse this unit should be avoided for residential development."

# HURLEY HYDROLOGY

— VIRGINIA STARKE

"Safeguarding the freshwater ecosystems that sustain life is essential to protecting the world's economic and environmental health. But humanity is already pushing the limits of its freshwater resources. The result is degradation of the ecosystems those resources support, widespread pollution and the spread of waterborne diseases worldwide." -- National Wildlife Federation, August 2002

In the questionnaire sent by the CAC to all Hurley households in the winter of 2000/2001 the respondents voted that the most important areas to protect or enhance were 1) water conservation, 2) aquifers and 3) watersheds, with stream corridors coming in fifth and wetlands, seventh

Taken from Red Hook's Open Space Plan--Potable water sources, aquifers, water bodies, rivers and streams, wetlands, flood plains and fisheries are important components of every open space plan - particularly for a community that relies on wells as a source of water. The only way to expect drinkable and fishable water from the Hurley community waters is to respect the contribution water resources make and to protect them from pollution.

The criteria used for inclusion in this category included the following questions: Is this currently used or possible future source of drinking water? Is this a state or federal regulated wetland? Is this resource under protection? Is this a significant habitat for wildlife? Does it add significantly to the aesthetic and cultural life of the community? The group then identified the following priority water resource open space areas based on proximity to each other, drinking water value, and aesthetic and cultural values.

1999 Blatter/Schultz CAC survey--The northern half of the Town of Hurley extends from the Hurley Plateau up to where the Esopus watershed divides: northward into the New York City watershed and southward into the Lower Esopus watershed.

Ashokan Reservoir--finished in 1915 with a drainage area of 257 square miles, 11.4 miles long with 8,500 surface water acres, a capacity of 127.9 billion gallons and a dependable yield of 290 mgd (million gallons per day) (S&W). An available capacity of 390,000 acre-feet (B&A) According to the NYC Dept. of Environmental Protection Ashokan water is

not drinkable directly from the reservoir. DEP adds chlorine and other treatments further on after the water has crossed under the Hudson.

Esopus Creek flows from the Ashokan Reservoir through Old Hurley from south to north. Several streams flow into it from the west. One stream and several intermittent streams flow into it from the east. The 1880 History of Ulster County states, "Hurley virtually lies within the folds of this winding and historic stream." The Esopus is considered "clean" by the Ulster County Environmental Management Council until it reaches Mill Creek where overflow from poorly situated septic systems pollutes it. The town and the water company have been working to correct this. EMC has a number of water sampling sites on the Esopus including one in Hurley off Route 209. EMC was to do a survey this summer among Hurley residents living near the creek addressing questions about the safety of their water and potential impacts to their water supply from non-point pollution.

Stony Creek and Lower Esopus Creek Stream Study 1998 (probably by EMC) --The land surrounding most of the Esopus as it goes through Hurley is used for agriculture. Esopus probably means "brook" or "small river." In the 1700's it was heavily industrialized with tanning mills, lead mills, saw mills, grist mills, paper mills and acid factories along its bank. Later, railroads were also erected along its bank and dams were built. Because of the tanning industry, hemlocks were clear cut, leaving the banks of the creek barren which permanently raised the creek's water temperature. The brook trout were driven upstream to colder headwaters. The newly introduced European brown trout withstood the warmer temperatures better. Hardwoods grew back but their canopies provided less shade than did the hemlocks and they were soon cut down anyway. A tremendous amount of waste was dumped into the stream. Before 1976 NYC DEP would turn the water flowing through the Esopus on or off as they felt necessary, thus killing thousands of fish and bringing about a lawsuit. Consequently a bill was passed to prevent such occurrences from happening again except, apparently, for flood control. This also got rid of the large trout (??) Because of the 1972 Clean Water Act [safeguards for drinking water supplies] the stream can only be used for recreational purposes. DEC now classifies the Lower Esopus Creek as a Class B protected fresh surface water, meaning that its waters are used best for primary and secondary contact recreation and fishing. The water shall also be suitable for fish propagation and survival.

The 1969 Town of Hurley Development Plan on page DP-22 "proposes a Town park and recreation area along the Esopus Creek south of Wyncoop Road. This area is subject to periodic flooding and therefore park and recreation use is suitable. The park and recreation area utilizes the natural asset of the Esopus Creek. Swimming, picnicking, walking areas could be developed. Active recreation facilities including a ballfield, tennis courts could also be developed.

"As the Town becomes more developed, greater areas of land are covered with impervious materials, (streets, buildings, driveways, concrete areas) thus increasing the amount of waste runoff to the streams. Therefore, these streams take on more importance as drainage ways. Public access either through public ownership of land along these streams or easements is necessary to clean and maintain the stream bed. This park strip along the stream in the hamlet of Hurley is proposed to protect this stream as a drainage way and also to provide a park strip which can be utilized for horseback riding and hiking and enjoyment of the natural area." "In addition park strips along the stream beds in West Hurley are proposed but land acreage has not been estimated because easements could be used in many areas."

Kenosia (Kenozia) Lake -- also called Temple Pond, "a fine body of water, " in the 1880 Ulster County History. The furthest west point of Hurley, this lake is surrounded by private land and Route 28.

Twin Lakes and First Lake--Most of the larger of the Twin Lakes is in Hurley as well as a small portion of First Lake; the rest is in Rosendale. A large part, if not most of this area is owned by Mark Hakim as part of the Twin Lakes Lodge. There's a steep ridge between the lakes. Twin Lake looks like a mountain lake with fir trees around a quiet lake which becomes a large swamp at the eastern end. The lodge has walks through the area which supposedly are illegally and dangerously utilized by go-carts.

Stony Creek- (Stream Study 1998) -- trout stream "The NYS Dept. of Environmental Conservation classifies the Stony Creek as a Class C protected fresh surface water, meaning, that the best usage of its water is fishing. These waters should be suitable for fish propagation and survival. The water quality should be suitable for primary and secondary contact recreation, although other factors may limit its use in these ways." This stream flows south along Stone Road, through wetlands and beaver ponds, into Marbletown.



Englishmans Creek--trout stream--see walk with Dave Baker, 4/26/02 (attached). This creek flows east from the Hurley Ridge largely through an NYS DEC Forest Preserve until it crosses Hurley Mountain Road, at which point it turns north and flows along the corn fields where it is apparently used for irrigation. Also, in March I helped Viola Opdahl clean out the section of the creek that runs through their property. This was after the Gills took out all the vegetation lining the creek where it runs along the corn fields. This, they said, was because the creek was becoming sluggish and no longer suitable for watering the fields. The vegetation is now regrowing, largely with invasive purple loosestrife.

Praymaker Brook (also spelled Preymaker)--This rises from a State-regulated wetland near the interection of Routes 28 and 28A. It flows east through a DEC Forest Preserve, in the process forming a terrific waterfall. Just before it crosses Hurley Mountain Road it forms another waterfall which is visible from the road. After crossing the road it meets Englishman's Creek and shortly thereafter joins the Esopus.

Mill Creek--flows to the Esopus out of Hidden Lake which was created, according to Dave Baker, around 1700 by damming the creek as reserve water for a mill downstream near the present Rt. 209. The 1880 History of Ulster County states, "Near Hurley village, often spoken of as 'Old Hurley,' were formerly a gristmill, a distillery, and a carding machine. They were supplied by the water-power of Mill Creek, now a small stream, but in the earlier days, before the forests were so fully cleared away, having a current of considerable volume during a portion of the year. They were on the present place, and near the present residence of Augustus Sutton. They were operated perhaps thirty years, and were abandoned about fifty years ago." "An old store is spoken of by the older people, located in connection with the mills." Also see VLS 4/6/02 notes (attached) on walk in this area. The creek is fed by ne or more intermittent streams coming down from the ridge. Before reaching the Russell Road area it goes throug a DEC wetland.

Acid Rain--The NYTimes in an article dated 5/31/02 said that the Catskill Park, west of Kingston, was a hot spot for acid rain. I sent it to the Freeman asking them to run an article on this. The Times on 4/30/02 said "streams were most acidic during spring snowmelt, when brook trout are hatching. Streams also receive acid when excess

nitrogen deposited in soil by acid rain is converted to nitric acid by microorganisms, then washed into streams." This from the U.S. Geological Survey by researcher Greg Lawrence.

Impacts on Perennial Streams--(Hudsonia) "The timing and duration of water temperature fluctuations are important to the growth and development of fishes and invertebrates. Siltation and nutrient loading (fertilization) affect most perennial streams and tend to degrade habitat for rarer plants and animals, thereby reducing biological diversity. De-icing salts, petroleum compounds, and other contamination from road runoff can adversely affect sensitive aquatic organisms." "Water quality and habitat quality of perennial streams may be protected or restored by protecting buffer zones of natural or semi-natural vegetation and soil adjoining streams; by reducing or eliminating pollution and siltation; by removal of artificial streambank structures..."

Groundwater--(LWV Education Fund--"Protect your Groundwater") "Groundwater is water held in the pore spaces of soil and in cracks and crevices of rock within the 'saturation zone,' an area beneath the land surface in which all pore spaces are filled with water. The top of the saturated zone is called the 'water table'. Surface waters such as lakes and streams mark the intersection of groundwater with the land surface."

Springs and Seeps--(Hudsonia) "Seeps and springs are places where groundwater discharges to the ground surface. Springs are concentrated discharges and seeps are diffuse discharges. Springs and seeps may discharge inconspicuously at the bottom of a pond or they may discharge visibly from upland soil or bedrock. Springs and seeps often emerge at the base of a ledge or slope or at the edge of a wetland, stream, or pond.... Groundwater is often rich in minerals, especially where it issues from carbonate bedrock or carbonate-rich glacial deposits. Such groundwater is 'hard' because of dissolved calcium, magnesium, and iron salts....Springs and seeps provide important water sources for organisms during dry seasons and droughts, and during winter when seeps and springs may remain free of ice."

Intermittent Streams--(Hudsonia) "Intermittent streams are streams that flow only during part of the year--seasonally (fall, winter and spring) or after rains....The only way to tell for certain is to check the stream for flow during a normal dry season (late summer and early fall)."

The hills around Hurley contain many intermittent streams.

Beaver Ponds--(Hudsonia) "Beaver ponds are created by beavers building dams across small to medium-sized perennial streams...The pond accumulates silt, organic matter, and nutrients. Eventually the beavers die or leave the pond, the dam deteriorates, and the water level of the pond draws down, leaving a beaver meadow--a silty marsh or wet meadow."

Beaver ponds are especially prevalent in the DEC wetlands at the far reach of Stone Road along Stony Creek.

Aquifers--(LWV Education Fund) "Aquifers are beds of sediments, such as sand or gravel, or formations of rock, such as fractured shale, that hold significant amounts of underground water and are permeable enough to allow it to flow. They are replenished, or 'recharged,' in the hydrologic cycle by rainfall or surface waters traveling through the ground to the aquifer. The 'recharge area' includes any land through which water is transmitted to the aquifer. 'Discharge areas,' where groundwater leaves an aquifer may include springs, streams, lakes, seeps and water wells."

Aquifers can be contaminated by a number of sources such as agricultural pesticides, fertilizers and livestock wastes; leaking septic systems; leaking underground and above-ground storage tanks, improperly stored salt piles. "Paving over the aquifer recharge area, a common occurrence in areas undergoing development, threatens water supplies by interrupting the means of replenishing the aquifer."

"States are required to develop a state wellhead (the area surrounding wells that supply public drinking water) protection program under the 1986 Amendments to the federal Safe Drinking Water Act."

Hurley Aquifer--(S&W) The best groundwater supply sources are the sand and gravel (overburden) aquifers in (among others) the Esopus Valley from Marbletown to Ulster. The rest of the county has bedrock aquifers with lower yields and also some bedrock wells. The Hurley Aquifer has a flow of 100 gallons per minute and over, one of the best in the county. Its yield is 1.5 mgd or million gallons per day (modeled aquifer yield and I don't know what that means)

Hurley aquifer recharge is by infiltration from nearby surface water bodies. The permeability of stream beds and pond bottoms overlying the aquifers is the limiting

factor in recharge and yield. "The Esopus gravels provide a good source of water, but are highly susceptible to source contamination".

Aquifers come under Part V of the NYS Sanitary Code. The owner of the land over the aquifer or by a stream does not have absolute right to the water. Riparian law says you can't deprive people upstream or downstream to their rights to the water.

Wells--According to the Rolling Meadows Water Corp. 6/2002, their 776 customers in the Towns of Hurley and Ulster are served by Kent Springs located off Hurley Avenue, a spring and a well at Orchard Street, a well at Conifer Lane, a well at Griffen Drive, and 3 wells in an aquifer known as the Esopus Gravels on the Elmendorf Flats.

Wetlands -- Wetlands are protected by the New York State Department of Environmental Conservation and by the Army Corps of Engineers. They control flooding and storm water run-off by storing and regulating flow of heavy rainfall, in some cases allowing recharge of aquifers. They protect water quality by functioning as chemical and biological oxidation basins and nutrient traps for nitrogen and phosphorus, as well as acting as filters for surface pollutants. They control erosion and water turbidity by absorbing silt and organic matter. They provide a critical breeding and feeding area for wildlife, including rare and endangered species.(Red Hook)

The NYState Department of Environmental Conservation regulates wetlands of over 12.5 acres. Smaller wetlands may be judged valuable by towns and come under municipal jurisdiction. Federal regulations govern wetlands of any size that are tied to interstate commerce; in other words, any wetlands that connect, however tenuously, to a commercial river; i.e., the Hudson. Therefore, the wetland through which Mill Creek runs would fall under federal jurisdiction while the independently standing wetland off Joys Lane would not.

(DEP newsletter Winter 2000) According to the National Wetlands Inventory, forested wetlands such as red maple or hemlock swamps (named for the dominant tree species) are the most prevalent type in the Catskill watershed.

As for Hurley wetlands, there is a DEC one off Joy's Lane. According to Peter Glass who owns a lot of it, when a house built a driveway across it, all the DEC did was give them a fine. As I recall, something similar happened when Glass drained part of it.

According to a June 2002 interview with DEC's Roy Jacobson, unless it's really a major infringement they don't make the violator undo what he did, they just impose a fine.

Nontidal Hardwood Swamp--(Hudsonia) "In prevalent North American usage, 'swamp' is wetland dominated by trees or shrubs. Nontidal hardwood swamps are fairly common in the study area; conifer swamps are very rare, very different ecologically, and very important for biodiversity." "Buffer zones should be large enough to include the upland non-breeding habitats of amphibians, the upland nesting areas of turtles, or other combinations of habitats used by animals. Buffer zones will also help to reduce noise, visual disturbance, pollution, siltation, invasive plants, and microclimatic alteration that may degrade habitat for rare and common biota."

Nontidal Marsh--(Hudsonia) "Marshes are wetlands dominated by herbaceous (non-woody) plants, and with standing water through all or much of the growing season."

100-year Flood Plain--(B&A) The flood plain is used for agricultural purposes. Few buildings. Flooding has been scattered along the entire 60-mile reach of the Esopus as well as along its tributaries. The greatest floods were in March 1951, October 1955 and August 1933 (U.S. Army Corps of Engineers, 1962 Survey of Flood Control, Esopus Creek and Tributaries, NY). The flood of March 1951 caused the worst flooding and has a 65-year frequency (2016). The high water was 155.6 feet and since the town's low point along the creek is 150 feet that's a lot of flooding. In estimating the flood plain the Corps of Engineers added 4.4 feet for safety so any area at or below 160 feet near the Esopus in Hurley has been established as the area subject to periodic flooding.

(B&A p. DP9)-Under the New York State enabling laws dealing with land subdivision the planning board is not permitted to approve plats of subdivisions unless the lots can be used safely for building purposes without danger of flooding. The Hurley Zoning Code provides ample details about what this means for construction.

Riparian Corridor--(Hudsonia) "The riparian corridor includes the streambanks, the floodplain and higher areas directly adjoining the stream. Not only do riparian corridors contain important habitats, but they are also closely tied to the ecological integrity of the stream itself. ...loss of riparian habitat has been associated with dramatic declines of fish and wildlife populations...The floodplain is the low-lying land that is flooded by a stream at statistical intervals. ...Because hydrological records span only a

century, the extent of the 100-year flood is poorly understood. Furthermore, removal of vegetation, soil compaction, and increased area of impervious surfaces (pavement, roofs) in the watersheds of streams decrease the flood recurrence intervals. Thus '100-year floods' may be expected to occur more often than once per century in streams with watersheds that have been subject to intensive land development in recent decades...Human structural development in floodplains is not only harmful to stream quality and biodiversity in general, but is economically risky due to flooding and unstable soils...Activities in the watershed of the stream, including removal of vegetation, and construction of impervious surfaces will affect stream water quality, stream flows, and water interchange with the riparian corridor. All environmental reviews of development activities in the watershed should carefully consider those impacts and the cumulative impacts of all such developments. We recommend that the 100-year floodplain be protected from development or alteration, and that the broad buffer zones of natural or seminatural soil and vegetation upgradient of the floodplain also be preserved. If a goal is also to protect the habitats of animals of the riparian corridor, then those habitats need to be delineated for each species of concern, and the buffer zone configured accordingly...Conservation easements could help to achieve these protections."

#### Drainage Basins---(B&A) SA 7&8 and map

Water Demands---(S&W) They estimated that Hurley's population in the year 2000 would be 8,300; in the year 2010 it would be 8,650 and in 2040 it would be 10,200. In 1980 Hurley had between 200 and 250 people per square mile. (By the time the town reaches 10,000 people it will need another water supply) The estimated demand on the town's water systems (with their estimated population) in 1990 for an average day would be 192,000 gallons with a maximum demand of 416,000. In the year 2010 it would be 285,000 on average with a 597,000 maximum. In 2010 the average would be 337,000 and a maximum of 701,000. There would not be a deficit until 2040. The study recommended that by 2040 when the demand exceeds the supply that Hurley purchase water from the City of Kingston system.

Municipal Water - (S&W) At the time of the study Hurley had five wells with an average depth of 36 feet and a 70 gallons per minute average yield and an average depth to water of nine feet. The Hurley aquifer yields 1.5 mpg a day, demand at the

time of the study was 1.0 mpg, or a 64% usage. In 1985 Hurley had 7,300 people with (in 1987) 4,150 or 57% served by community water systems. They estimate that by 2010 70% would be so served.

Rolling Meadows Water Corporation is a privately owned water system serving 776 customers in Hurley and Ulster. It issues a Water Quality Report each year. Its water sources are the Kent Springs located off Hurley Avenue, a spring and a well at Orchard Street, a Well at Conifer Lane, a well at Griffin Drive, and three wells in an aquifer known as the Esopus Gravels on the Elmendorf Flats. The water is chlorinated as a safeguard. The water is tested for total coliform (bacterial), nitrite, nitrate, lead and copper, 20 other organic compounds, 53 volatile organic compounds, and 43 synthetic organic compounds (commonly called pesticides and herbicides) as well as radiological. The last report for the Year 2000 says the tap water met all State drinking water health standards.

Also see the attached 1996 consulting company's report on recommendations for the Hurley Water Company. Some of these recommendations have been implemented; for instance, there is now one water company in Hurley instead of three, but many worthwhile and, indeed, vital, recommendations have not yet been acted upon.

#### Ashokan Water vis-a-vis Hurley (S&W)

The use of the New York City aqueduct system is governed by the Act of 1905 which allows for withdrawal of water from the city reservoirs, aqueducts, pipelines or streams based on per capita population up to the average annual per capita usage of NYC which was 200 gallons per day in 1989. The cost (not including construction, maintenance, etc.) would be whatever it costs to deliver water to that point. The study recommends the towns that use it should have a backup supply because the City can turn off the supply for cleaning or whatever. It also states that any town considering connecting to this system allow for five to ten years for review and approval by NYC. (It did not say when this act expires.)

(B&A) The DEP is unwilling to use Ashokan to permit flood control storage. However, it does level off the peak discharges of major floods below the dam by delaying the flows in surcharge storage and at times by storage of large volumes of flood waters. In 1951 it reduced the peak discharge at Kingston by nearly 40% from an estimated 56,000 cubic feet per second to 34,000. (This may have changed with the 1997 laws)

B&A 1969 Recommendations--p. SA23 The Esopus Creek and its tributaries are assets to the Town in terms of esthetics and also in terms of storm drainage. Portions of the Esopus Creek should be preserved in public ownership for park and recreation use. Public ownership, right-of-way or easements should be obtained along streams, particularly in the higher density areas to preserve their drainage function.  
MAP before SA43

B&A p. DP10--The Development Plan proposes park and recreation facilities and permanent open space along the Esopus Creek and several streams in the Town to preserve these natural assets as well as to provide these needed facilities.

#### Sources:

"Protect Your Groundwater," League of Women Voters Education Fund, 1994  
"Stream Corridor Restoration-Principles, Processes, Practices" National Technical Information Service, U.S. Dept. of Commerce, 1998  
"Hydrogeology of the Northern Shawangunk Mountains", Mohonk Preserve, Inc., 1994  
"Town of Red Hook Open Space Plan", July 2000  
"Open Space Preservation in the Town of Marbletown," Shuster Associates, Sept. 2000  
"Town of Hurley Development Plan," 1969  
Newsletter, NYC Dept. of Environmental Protection, winter 2000  
"Biodiversity Assessment Manual for the Hudson River Estuary Corridor," Hudsonia, 2001  
Stearns & Wheler Water Supply Study for Ulster County 1989  
"Development Plan, Town of Hurley," Brown & Anthony City Planners, January 1969  
Rolling Meadows Water Company Annual Report, May 2001  
"Stony Creek and Lower Esopus Creek Stream Study," EMC (?) Spring 1998  
Town of Hurley Natural Resource Inventory--Part V: Inventory Elements and Analysis, January 1999, Roger Blatter & Bob Schultz  
"The Forum," the newsletter of the New York State Wetlands Forum  
Leggette, Brashears & Graham, Inc. 1996 water company survey

#### Contacts

Robert Hagopian, Senior Public Health Engineer, Ulster Co. Health Dept. 340-3033  
Dennis Doyle, Principal Planner, Ulster Co. Planning Board 340-3339



Judith Breselor, Greenway Planner (518) 473-3835

Andrew Labrusso, Div. of Environmental Permits, NYS Dept of Environmental  
Conservation (518) 457-0603

Roy Jacobson, Jr. Conservation Biologist, Bureau of Habitat, DEC, 256-3086

Jeffrey Graf, NYC Dept. of Environmental Protection

Beth Gelber, Stream Management Program, NYC DEP 340-7515

Rick Fritschler, Chair, Ulster County EMC 687-0267

Jeff Vogt, Rolling Meadows Water Company, 331-2201