

Identifying Issues, Concerns & Constraints

In order to identify the issues and concerns of watershed residents, several methods of gathering public input were employed. The Brodhead Watershed Association (BWA) collected information by holding a series of public meetings and soliciting written responses to two citizen surveys, including an EXPO¹ Survey and a Riparian Landowner Survey. Issues identified through an extensive review of prior studies were also included. The Recommended Actions and Management Options listed in *Section 3, An Action Plan for the Brodhead Watershed* have been designed around these public issues. For a complete summary of the public involvement process, see *Appendix A, Public Involvement*.

Identifying and Ranking Issues & Concerns

Issues and concerns were identified through citizen surveys, public opinion solicited at a set of public meetings, and examination of prior studies. An extensive review of available data was conducted prior to preparation of this Plan to help identify some of the key issues in the watershed and potential future impacts of concern. Abstracts of prior studies used to identify issues and concerns are included in this Plan as *Appendix F, Prior Studies*.

These issues and concerns were then ranked in order of importance:

The following issues were identified as “*Most Important*”:

- Unplanned growth;
- Dirtier stream water;
- Polluted stormwater runoff;
- Development on wetlands;
- Municipal regulations and actions not protective enough of streams; and
- Preservation of open space.

¹ Monroe County Chamber of Commerce’s annual business Expo held at the East Stroudsburg University field house.

The following issues were identified as “*Very Important*”:

- Lower stream flow levels;
- Eroding stream banks;
- Lack of groundwater recharge;
- Pollution of groundwater;
- Need for environmental education and greater public involvement;
- Preservation of animal habitat;
- Increased flooding;
- Loss of biodiversity; and
- Fewer insects.

The following issues were identified as “*Important*”:

- Enforcement of existing laws;
- Lack of regional conservation planning;
- Sewage treatment plant discharges;
- Forest management;
- Invasive species;
- Trash & littering;
- Fewer fish;
- State agencies not doing enough to regulate sewage treatment plant discharges;
- Hazardous materials shipments;
- Commercial export of water resources;
- Insufficient public access to streams;
- Off-road vehicle use (ATVs and dirt bikes);
- Game management; and
- Fisheries management.

Identifying Special Places

The BWA also wanted to know what is positive about the watershed and what residents are concerned about preserving for the future. In order to protect the resources of the watershed, it is necessary to inventory what is already here that is valuable. Watershed residents were asked to identify “special places” in the watershed.

Not surprisingly, the clean lakes, streams, springs, and drinking water supplies of the watershed were mentioned most frequently:

- Exceptional Value streams (2 mentions)
- Undeveloped headwaters - Barrett Township
- Pocono Creek (above Mountainview) (2)
- High quality streams in Paradise Township, Pocono Township
- Paradise Creek - all
- McMichael Creek
- Mill Creek - Nine Foot Hole
- Wigwam Run

- Cranberry Run
- Devils Hole
- Cranberry Creek (Barrett to Paradise Twp)
- Cranberry Creek - Pocono Twp
- Tank Creek - three springs draining into creek
- Sand Spring
- Lake Swiftwater - above and below
- Lake Crawford
- Deep Lake
- Crescent Lake
- Goose Pond
- East Stroudsburg Reservoir
- Stroudsburg water supply

Also mentioned were scenic waterfalls:

- Sylvan Cascade Falls - Butz Run
- Cranberry Falls - Cranberry Creek (Pocono Twp)
- Paradise Falls
- Indian Ladder Falls - Barrett Twp
- Buck Hill Falls

Preservation of the rural character of the watershed, including scenic vistas:

- Northeast part of Brodhead watershed - unfragmented forest
- Forested lands
- Pocono Manor Lands
- Villages - Cresco, Mountainhome, Canadensis
- Mt. Pocono Knob (2)
- Birchwood area
- Scenic viewsheds
- Big Pocono - maintain panoramic views (3)
- Brodhead Creek - Canadensis to Analomink - vistas
- Sunset Hill - views from

Preservation of recreation and park facilities:

- Big Rock (swimming hole below Stokes Mill Road)
- Pinebrook Park
- Brodhead Greenway
- Big Pocono - trails
- Recreational asset (entire watershed)
- Red Rock - natural waterslide

Historic significance:

- Henryville House
- Delaware Water Gap historic railroad station
- Captain Utt's Grave
- Learn Road cemetery (Native American graves)

- Sullivans Trail
- Pocono Manor Inn
- Glenwood Hall
- Analomink Area

Preservation of unique natural resources:

- Cranberry Bog (4 mentions)
- Unusual wildlife species
- Fishing clubs' protected lands / streams

Stream Walk Assessment

A Stream Walk Assessment of the Pocono and Buck Hill Creeks was conducted to provide a benchmark study to help assess the overall health of the watershed and to identify potential management strategies. A description of the stream walk process can be found in *Appendix B, Stream Walk Assessment*.

The stream walk assessment of the Pocono Creek identified three major problems. There were numerous areas of streambank erosion, poor habitat, and inadequate riparian buffers undoubtedly causing accelerated stormwater runoff. Several streambank areas were eroded severely enough to warrant immediate attention. Areas of poor habitat were primarily excessively wide and shallow with poor diversity of flow, substrate and depth. In one location, the streambed was discolored by a point source discharge. Several culverts and drains were located that apparently transport runoff directly to the stream.

Although these problems were distributed throughout the length of the Pocono Creek surveyed, they increased in frequency in a downstream direction. The lower several miles of the stream displayed the most unstable streambanks and more numerous areas of poor habitat. Segments of the Pocono Creek channel have been relocated and meanders cut off for highway construction, a few areas have been channelized, and dumped rip-rap and gabions have been used to stabilize stream banks in a few areas.

To provide a contrast to the Pocono Creek, an assessment by volunteers was also conducted for a more pristine area of the watershed, the Buck Hill Creek, designated as Exceptional Value (EV) under DEP water-quality regulations. Results of the Buck Hill Creek stream walk assessment contrasted dramatically with the Pocono Creek results. Natural vegetation (with a few small areas of invasive species) extended for a much greater width along most of the Buck Hill Creek corridor. Stream banks were quite stable, and habitat was excellent to good. The only area of bank erosion needing immediate attention was along a lower portion of the Griscom Run tributary, which flows through an open portion of the golf course.

Citizen Surveys

EXPO Survey

In March 2000, BWA conducted a watershed survey of attendees at the business EXPO event conducted by the Pocono Mountains Chamber of Commerce. One hundred and twenty-six surveys were completed. Over ninety percent of respondents indicated that protecting the streams and lakes of the watershed is “important” or “very important”. Runoff from parking lots, roads, highways, and construction sites was cited most often as polluting the watershed. Other concerns were litter & illegal dumping, sediment from eroding streambanks, discharges from industry, failing septic systems, and discharges from sewage treatment plants.

When asked how important certain watershed protection actions would be in the next ten years, respondents said repairing malfunctioning septic systems is important, protection of environmentally sensitive areas is a priority, and preserving vegetation along streams is needed. Other actions that respondents supported include: requiring new development to minimize runoff, improving degraded streams, and educating landowners to protect water quality. For a complete tabulation of the EXPO Survey, see *Appendix A, Public Involvement*.

Survey of Riparian Landowners

A survey of riparian landowners along the Brodhead, Pocono, Marshalls, McMichael, Paradise, and Pocono Creeks was conducted in May 2000. The top concerns of these watershed residents was that over the years, they have perceived less water flowing in the streams and more trash in the water. Eroding stream banks were also noted as one of the top concerns. Nearly eighty percent of respondents cited runoff from roads and highways as a contributor to water pollution in the watershed. Respondents also cited litter and illegal dumping, runoff from construction sites, failing septic systems, parking lot runoff, and eroding stream banks as contributing to water degradation.

The majority of those who responded to the survey felt that protection of environmentally sensitive areas was a priority. Many also felt that preserving vegetation along streams was important, and greater awareness of streams was needed. Many wanted to encourage municipalities to work together on planning and zoning and to require new development to minimize polluted runoff. Other supported actions included repairing malfunctioning septic systems and improving degraded streams. For a complete tabulation of the Landowner Survey, see *Appendix A, Public Involvement*.

Categorizing Issues & Developing Goals

After collecting information through public meetings, the streamwalk assessments, and citizen surveys, including the EXPO Survey and Riparian Landowner Survey, watershed-related issues were categorized into five major issue categories:

- *Water Quality and Quantity* – Priority issues in this category include dirtier stream water, increased flooding, sewage treatment plant discharges, polluted stormwater runoff, hazardous materials shipments, trash & littering, pollution of groundwater, lower stream levels, eroding stream banks, development on wetlands, and lack of groundwater recharge.
- *Watershed Awareness* – Priority issues in this category include the need for environmental education about watershed issues and protection strategies and greater public involvement.
- *Policy, Planning & Regulation* – Priority issues in this category include unplanned growth, preservation of open space, municipal regulations and actions not protective enough of streams, state agencies not doing enough to regulate sewage treatment

plant discharges, enforcement of existing laws, lack of regional conservation planning, and insufficient public access to streams.

- *Fish and Wildlife Habitat* – Priority issues in this category include loss of biodiversity, preservation of animal habitat, invasive species, fewer fish, fisheries management, forest management, and game management.
- *Historic & Cultural Resources* – Priority issues in this category include the need to preserve historic resources throughout the watershed.

Goal statements were then developed for each issue category:

Water Quality and Quantity – Maintain and improve water quality throughout the watershed and insure that an adequate quantity of surface water and groundwater is maintained.

Watershed Awareness – Achieve greater environmental education for all age groups to address water quality, planning & regulations, and habitat.

Policy, Planning & Regulation – Encourage the development of local, state, and federal planning and regulations to collectively facilitate stated watershed management goals.

Fish and Wildlife Habitat – Manage natural habitat to promote biodiversity and to maintain, protect, and enhance natural systems.

Historic & Cultural Resources – Ensure that the historic resources of the Brodhead watershed are preserved and interpreted as educational examples of the area's heritage.

Action items, or potential management options, were then developed by the steering committee and municipal representatives based on the goals previously identified. These action items are discussed in full in *Section 3, An Action Plan for the Brodhead Watershed*.