

Blackstone River Watershed Association



Mill River Stream Team Shoreline Survey Report & Action Plan June 30, 2007



Thanks to:



Commonwealth of Massachusetts Riverways Adopt-A-Stream Program and UNIBANK for their assistance in funding this project.

Special thanks go out to our valued Stream Team members without whom this project would not be possible; Mill River area residents, businesses, and landowners for their cooperation; the Blackstone River and Canal Heritage State Park at River Bend Farm; the Hopedale Conservation Commission; the Hopedale Country Club; the Mendon Conservation Commission; and Blackstone-Millville Regional High School.



Preface

The Mill River Stream Team Members

Mark Andolina
Jennifer Carlino
Dona Neely
Shirley Smith

Blackstone-Millville Regional High School

Teacher – Tim Johnson

Students - Jake St Amant, Frank Racicot Alves, Brittany Tancrell, Brittany Lomas, Kate Salome, Andrew Gabrielson, Ed Archetto, Jaime Harkins, Lauren Curry, Katelyn Landry, Melissa Mercier, Eric Gallo, Tanya Belrose, Meghan Crawford, Bethany Arsenault

Commonwealth of Massachusetts Riverways Adopt-a-Stream Advisor

Gabrielle Stebbins, *Adopt-A-Stream Program Coordinator*

Blackstone River Watershed Association Project Coordinator

Michelle Walsh, *Environmental Outreach Coordinator*

Project Coordination

Michelle Walsh, Environmental Outreach Coordinator for the Blackstone River Watershed Association (BRWA) advertised for volunteers in various media throughout the Blackstone Valley area including but not limited to press releases in local newspapers, announcements on local cable channels, letters to environmental organizations, high schools, Boy Scout troops and town officials, flyers and e-mails to various environmental organizations.

A shoreline survey training session was scheduled at River Bend Farm in Uxbridge, MA on May 14, 2007. Approximately forty volunteers attended the meeting. At this meeting, volunteers were instructed on how to conduct a shoreline survey and were given survey sheets.

After the meeting, the Mill River was sectioned into ten reaches; volunteers were organized in teams and selected a section of the River to survey. Each team had until June 11, 2007 to complete its survey and return it to the BRWA. The findings are summarized by section on the following pages. During this time, Gabrielle Stebbins of Mass Riverways acted as technical advisor to the BRWA.

Once the surveys were completed, the stream team members, along with Mass Riverways, met to discuss their findings and formulate an action plan that is found at the conclusion of this report. Volunteers spent approximately thirty hours on the project. Additionally, Ms. Walsh spent forty hours on this project.

Coordination of this project went very well. It would be helpful for the coordinator to go out, run the length of the River, and make notes on potential problem areas such as new construction, businesses, golf courses, farms, dams or any structure that looks like it's impeding the health of the River. In turn, the coordinator can instruct the teams to inspect and photograph those areas.

Introduction

The Mill River stream team is comprised of local citizens who are concerned with protecting and restoring the health of our rivers. The Blackstone River Watershed Association's (BRWA) goal is to educate the area residents and businesses about the impact they have on our rivers and what they can do to help protect and restore them. Our advocacy can also help convey ideas about improving land use; water quality, and enhancing wildlife and recreational opportunities.

The Mill River is a tributary of the Blackstone River. It rises from North Pond in Hopkinton, MA and flows in a southeasterly direction through Upton, Hopedale, Mendon, Millville, and Blackstone where it converges with the Blackstone River in Woonsocket, RI. Along the River, the land is mixed use, ranging from undeveloped riparian zones, new housing developments, sand and gravel pits, horse farms, light industry, and parks and recreation.

The northern most point of the survey begins at the Hopedale Pond that is used for recreational purposes such as fishing, picnicking, and canoeing. The Town beach is available for use but no swimming is currently allowed.

The Pond is then channeled under the Draper Mill building through an industrial-type area. Trash is a problem here due to local businesses along this stretch. Lacking in vegetation, there is no wildlife to be found in this area. Water levels are always low and phosphorous suds are present all the time. Large objects such as old booms and other debris are found around and in the River in this area.

The River crosses Route 16 and flows to an area where there is a prevalence of riverbank erosion and sparse vegetation. The absence of wildlife has been noted here. Located upstream from this point is the

Hopedale Wastewater Treatment Plant. Some light trash can be found around the area.

The River then converges into Spindleville Pond. Being upstream from the wastewater plant, not much fresh water flows through here and water levels get lower every year. A lot of milfoil can be found and serious runoff from a pipe off of Green Street discharges phosphorous suds into the water. There is also riverbank erosion present.

The River then runs through the Hopedale golf course. Lack of a buffer zone along the riverbank such as grass or plants is apparent. Water is piped from the River to water the grass based on a permit issued by the Town.

South of the country club is a great wildlife habitat area. Overhanging vegetation presents important shade for breeding of certain species. Invasive plants are present but have not become well established yet. Some trash is found here but the water is clear.

Running through Mendon, the River encounters a few light industrial areas and residences. Some evidence of bank erosion exists in a few locations, but very little trash can be found here. The major issue here seems to be stormwater runoff at most culverts.

In Blackstone, the Mill River winds around several new subdivisions, passes by a sand and gravel pit and flows past several horse farms. Bank erosion and lack of riparian buffer zones exist in a few places.

South of this, the Town has established Valati Park, creating River access for recreational purposes. Following the River south, it's a nice hike to Harris Pond where there is potential for many recreational activities such as biking, hiking, boating, and picnicking. It is also a great habitat for wildlife due to shaded embankments.

There seems to be a general lack of awareness and concern for the health of the Mill River. Much of it has been impacted by channelizing it through the old Draper Mill building; pollution from local businesses along the riverbank; lack of riparian buffer zones in certain areas; and establishment of invasive species. Trash and debris are found in and around the River especially in Hopedale. Water depth is questionable in certain areas and wildlife habitat seems to be threatened or non-existent in parts.

The functionality of the River greatly improves along Valati Park south to Harris Pond where you can find an abundance of wildlife and numerous recreational opportunities available to the public.

**Mill River Shoreline Survey Findings
By
Section**

Section 1



Hopedale Pond,
Hopedale, MA

Conducted by:
Mark Andolina Jr.
and
Mark Andolina Sr.

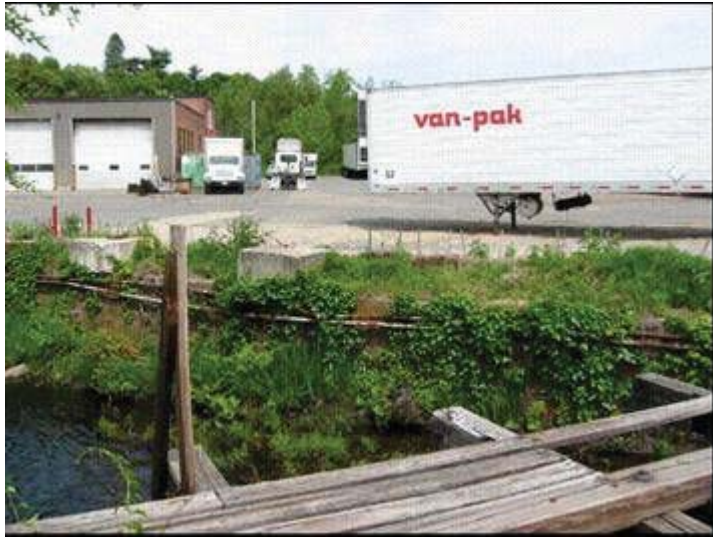
Section 2



Behind Draper Mill on Fitzgerald Street
to
Mendon Street (Route 16) in
Hopedale, MA

Conducted by:
Dona Neely

South of the Hopedale Pond, the River flows under the old Draper Mill building down to Route 16 in Hopedale. The mill building is vacant but the town is trying to lease out the space. South of the mill, the area is mainly industrialized with several parking lots and a couple of roads. The surveyor noted that this section of the Mill River was in bad shape due to trash such as machinery parts, metal handrails, and several abandoned booms. It was also noted that many small business dumpsters overflow near the River Bank. Roadside Trash was noted as well. Historically, the water level has never exceeded 2.5 feet and phosphorous suds were accumulating in this location. No wildlife was evident. The surveyor observed River Bank erosion and limited vegetation. Pipe runoff was found on Fitzgerald Street. The discharge from the pipe looked clear and the structure surrounding it was good, but the road area around the storm drain was not maintained.



Section 3



Mendon Street (Route 16)
Hopedale, MA
to
Thwing Street, Mendon, MA

Conducted by:
Dona Neely

The surveyor noted that both sides of the River Bank were eroding and didn't have much vegetative protection. The water flow was slow. Trash such as bags and orange cones were found near the Hopedale Wastewater Treatment Facility. An abandoned boom was located here as well.



Section 4



Green Street side of Spindleville Pond, Hopedale, MA

Conducted by:
Dona Neely

The surveyor resides near Spindleville Pond and, over the years, has observed a significant decrease in the water level. Located upstream is the Hopedale Wastewater Treatment Facility.

The surveyor noted several locations with serious runoff and erosion issues. The prevalent invasive plant here is milfoil found in large quantities throughout the Pond.

Sudsy water was observed and seen discharging from a pipe on the Green Street side of the Pond. The surveyor noted that the Town would be installing new wells in this area soon that could further impact the water level.



Section 5



Downstream of Spindleville Pond,
Hopedale, MA
to
end of Hopedale Country Club

Conducted by:
Shirley Smith

From Spindleville Pond, the River flows south through the Hopedale Country Club Golf Course. A significant section of the River Bank here has no vegetative buffer and grass is cut to the River's edge.

Two wooden bridges traverse the River to allow golfers access to the other side. Pipes found near the bridges supply irrigation for the Golf Course.

The surveyor interviewed a couple of long-time golfers who claimed that, at one time, there was an abundance of trout, but today don't see any. One golfer noted a long-time resident snapping turtle that is quite large.

At the end of the Golf Course, the surveyor noted a faster flow. Many species such as White Pine, Willow, Red Maple, Gray Birch, Virginia Creeper, and Honeysuckle predominate this area.

Section 6



Southern portion of Hopedale Golf Course
to
Hartford Avenue East, Mendon, MA

Conducted by:
Jennifer Carlino

This section is split between residential, golf, and industrial areas. It runs .65 miles long. The surveyor noted a conservation restriction area off of Plain Street Industrial Park. Garbage such as bottles, tires, and tennis and golf balls were found caught up in the Red-Osier Dogwood as well as foam accumulation.

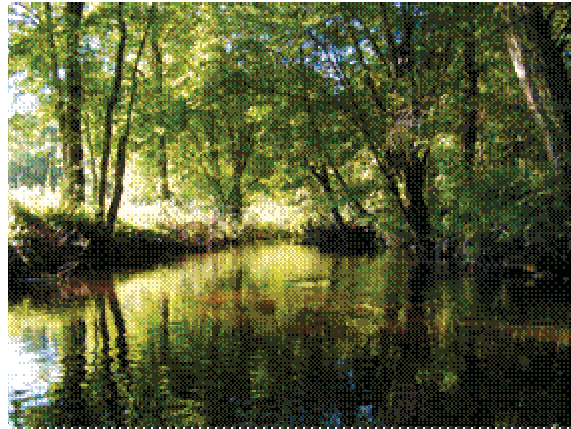
Invasive vegetation such as Oriental Bittersweet and Japanese Barberry were located on the left bank within 500 feet of the golf course. The surveyor noted that these were not fully established and could be managed if something was done by next season.

The water was very clear and provided a great habitat for aquatic life such as fish, odonate and freshwater mussels. Native plant species were observed and provided significant food, cover, shelter and migratory functions.

Mill River shoreline survey, Hopedale, Mill St south to Hartford Ave, 6/7/07, Jennifer Carlino



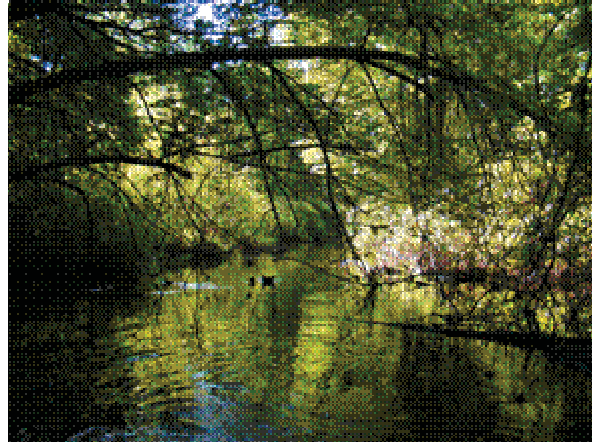
Left bank near Hopedale Country Club



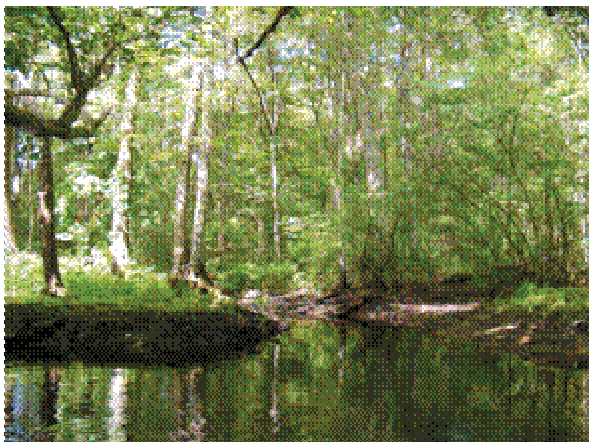
Left bank near Hopedale Country Club



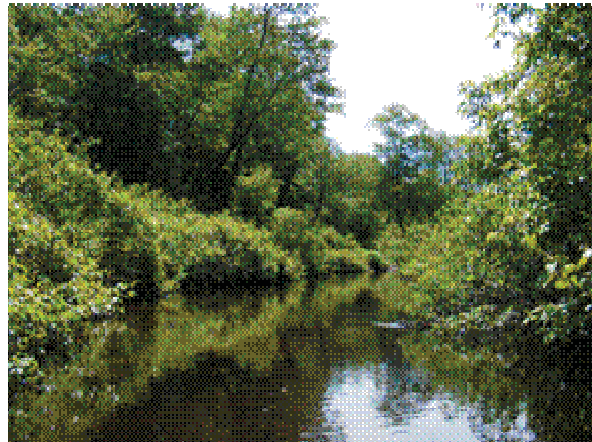
Historic stonework of right bank near Country Club



Shaded portions of Mill River

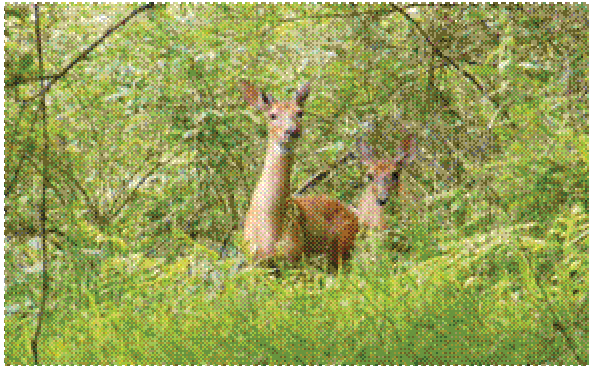


Tributary to Mill River on right bank



Shrub-scrub portion of Mill River

Mill River shoreline survey, Hopedale, Mill St south to Hartford Ave, 6/7/07, Jennifer Carlino



Deer at edge of river



Fish spawning habitat on right bank



White suckers (confirmed by Todd Richards, Div. Of Fisheries and Wildlife)



Muskrat den and scat on a log



Mill River shoreline survey, Hopedale, Mill St south to Hartford Ave, 6/7/07, Jennifer Carlino



Ashy Clubtail



Harlequin Darter



Emerging Dragonhunter



Emerging jewelwing

Section 7



Part One: Mill River at Hartford Avenue East, Hopedale, MA

Conducted by:
Shirley Smith

This section of the River is upstream from Hartford Avenue East that is the boundary between the Towns of Hopedale and Mendon. This is a new test site for the BRWA Water Quality Monitoring Program.

This section runs parallel to Plain Street and is downstream from the Rosenfeld Cement Plant. Wetlands and undisturbed forest lay beyond the left bank of the River. Beyond the right bank, a residential home was located about 150 feet from the River. Several mature trees with exposed roots were noted, but smaller trees, shrubs, and undergrowth was cleared away leaving grasses and wildflowers at the edge of extensive lawn area. At this location, a manmade waterfall was made out of rocks that created pools in some areas.

The surveyor suggested that the property owner should be commended on keeping roadside trash and litter from the River, but the BRWA should distribute educational information on the importance of buffer zones and water flow.

Evidence suggested that stormwater runoff is a problem at this culvert. The surveyor observed the culvert and felt it was good enough to allow fish passage.

Part Two: Mill River at Hartford Avenue East, Mendon, MA

Downstream from Hartford Avenue East the River goes through a culvert and past a commercial building that houses a cabinetmaker, a landscape service and several other small businesses. The River bottom was visible below the culvert where boulders and sand were visible. Evidence suggested stormwater runoff is a problem at this culvert. The surveyor noted that additional stormwater might be coming straight from the road as well.

The River Banks were buttressed with large rocks approximately 25 feet above the River. Just beyond the culvert lay a pool and, from this point, the water flowed swiftly over large boulders. Both banks were heavily wooded with trees, shrubs and plants such as: Red Maple, Hickory, Red Oak, White Pine, Gray Birch, Honeysuckle, Poison Ivy, Wild Rose, Virginia Creeper, Concord Grape, and Solomon's Seal.

The parking lot was paved in front but gravel in the back of the building with half a dozen trucks, piles of mulch, and assorted bricks. It looked like a plastic barrier and some well-decayed hay bales served as a barrier for stormwater runoff, however, the plastic was flattened and there was obvious erosion at a point where the water runs into the River.

Around the back of the building, the sound of rushing water was quite loud. One side of the building lay close to the Riverbank, where several holes were made by stormwater and roof runoff.

Section 8



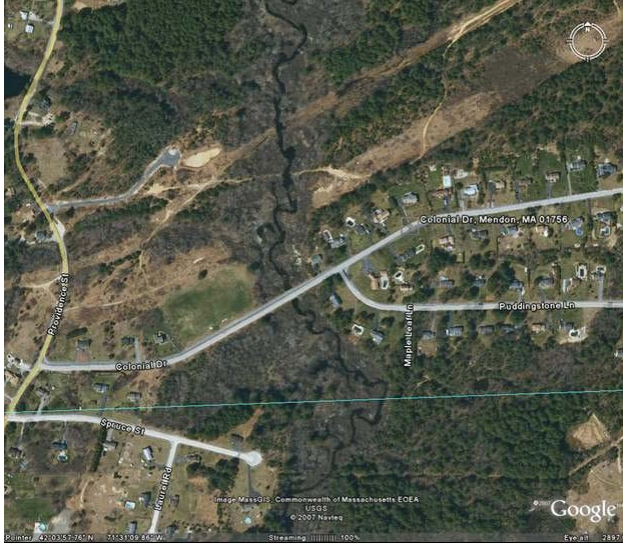
Bellingham Street, Mendon, MA

Conducted by:
Shirley Smith

The surveyor observed major stormwater runoff at this location. An incline found in the road above the bridge pools with water during heavy rainstorms. The surveyor has noted that in the past torrents of water pour from the road straight into the River. The surveyor tests this area for the BRWA Water Quality Monitoring Program and noted that during heavy rainstorms, oxygen levels decrease enough to kill some fish.

This area is abundant with wildlife. During the survey, a female mallard flew out from under the bridge quacking angrily at the surveyor and several turkeys pecked their way along the roadside. Mourning doves and catbirds were observed. Birds could be heard but not seen. A residential property owner in the area reported deer, coyote and other wild animals commonly seen in Mendon. The land surrounding this residence is the site of the old Town Landfill. It was closed in the late 1970's.

Section 9



Colonial Drive, Mendon –
Blackstone, MA

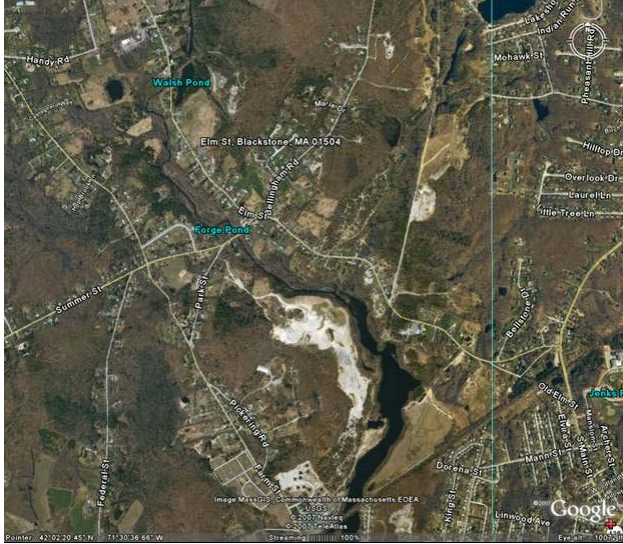
Conducted by:
Shirley Smith

The River flowed slowly through this section but there was a strong current. The purple loosestrife island partially blocking the river flow had grown in the last 3 years. Wetlands were found on either side of the River with Swamp Willow being the predominate shrub. Cattails and Arrowhead were the emergent vegetation in the River. Other vegetation included Red and White Oak, Alder, Red Maple and some Gray and White Birch.

As with most of Mendon's River crossings, gullies were formed by stormwater running off the road and into the River at the bridge.

Looking upstream from Colonial Drive, a soccer field uses river water to irrigate their field.

Section 10



Elm Street Bridge to Harris Pond,
Blackstone, MA

Conducted by:

Jake St Amant, Frank Racicot
Alves, Brittany Tancrell, Brittany
Lomas, Kate Salome, Andrew
Gabrielson, Ed Archetto, Jaime
Harkins, Lauren Curry, Katelyn
Landry, Melissa Mercier, Eric Gallo,
Tanya Belrose, Meghan Crawford,
Bethany Arsenault

Students from the Blackstone-Millville Regional High School under the supervision of their teacher, Timothy Johnson, went out to survey this section of the Mill River.

Several horse farms were found along the River in Blackstone. Evidence of erosion existed and a lot of the buffer zone in this area had been mowed. Past the farms, the River returned to an undeveloped area with much vegetation where both riverbanks were shaded.

Canoe access from the Elm Street Bridge was limited due to a metal fence pole spanning the width of the River. A dead duck was caught up in the obstacle. A fishy, sewage odor was noted at this point in addition to some light trash.

A few students surveyed Hop Brook, a sub-basin of the Mill River. One group accessed the brook via the power lines on Mendon Street in Blackstone heading upstream. It was shallow enough to see the rocky bottom. There was some oil from bikes in puddles entering near the stream and a tire was found. Upstream, white foam accumulated and the water was murky. Trees and shrubs provided a lot of shade here. Much of this

area is surrounded by wetlands. There was evidence of turtles and an abundance of fish.

Another team gained access from the power lines on Mendon Street in Blackstone heading downstream toward Milk Street. Vegetation like Cattails, Maples, and Skunk Cabbage were found here. The River smelled like rotten eggs and some tires were found here. Some inhabitants included toads, tadpoles, mosquitoes, and lots of macroinvertebrae. A pipe with runoff was located at Milk Street. The pipe flow was brown and smelled like rotten eggs.

Another team walked upstream from Valati Park. The water was clear apart from a few trash bags and wooden boards. Houses were being built on the left bank where construction runoff could be found.

Other students set out downstream from Valati Park to Harris Pond. There were walking trails available for the general public, good fishing areas and some bike trails also. An abundance of wildlife could be found ranging from turtles and frogs to Canadian geese. The River flowed quite quickly here. From the River, you could see a ball field, residential houses, parking lots and roads. The River was surrounded by a lot of big boulders. There was quite a bit of trash surrounding the River. This area was surrounded by many trees and was very shaded.

Mill River Action Plan Items – to be prioritized

Section 1

Short Term

- Confirm permits issued to residences using pond water to water their lawns

Section 2

Short Term

- Collect and remove abandoned booms
- Engage area businesses and residents in trash cleanup and control
- Ask businesses to put up fencing to prevent their trash from going into the River
- Arrange for bulky waste to be removed

Section 3

Short Term

- Remove boom
- Clean up trash

Section 4

Long Term

- Track source of water discharging from the pipe on Green Street to address sudsy discharge
- Involve town in maintaining and building up banking along Green Street.

- Avoid clear-cutting every year to stop erosion and dense re-growth.

Section 5

Long Term

- Work with golf course on creating buffer zone between course and River

Short Term

- Clean up the area by the mill

Section 6

Immediate

- Look into feasibility of invasive plant cleanup
- Collect golf balls from River

Short Term

- Remove existing trash blockages to allow water to flow
- Maintain vegetative buffer of shrubs and trees between lawn and wetland at River in residential subdivisions
- Encourage vegetated buffer at golf course to prevent golf balls from entering River

Long Term

- Possible plan to eradicate Oriental bittersweet and Japanese barberry before they become established
- Remove random purple loosestrife within River near Richard Road

Section 7

Short Term

- Commend property owners on trash pickup and distribute educational information on keeping buffer zone; and dangers to the River from lawn chemicals

Long Term

- Address stormwater runoff issue from road with the Town

Section 8

Long Term

- Address stormwater runoff issue from road with the Town

Section 9

Short Term

- Remove large object in River

Long Term

- Address stormwater runoff issue from road with the Town
- Address Purple Loosestrife issue

Section 10

Immediate

- Notify Town to remove metal fence pole spanning width of River
- Check on source of odor near metal fence pole

Short Term

- Address construction and lawn runoff issue with new resident upstream from Valati Park
- Educate Farm on Best Management Practices

Stream Team Priorities Meeting September 13, 2007

Purpose: To prioritize and implement action plans for the Mumford, West, and Mill Rivers

1. Outreach to the Community:

- Household/residential owners
- Campground residents
- Horse farm/farm owners
- Sand and gravel pits
- Golf courses
- Business owners impacting the rivers

1a. Contact specific person/entity involved per our survey findings (follow up required)

1b. Create a tri-fold brochure targeting aforementioned groups on the Mumford, Mill and West Rivers regarding river friendly practices.

1c. Combination of above solutions

1d. Involve school districts (work with teachers/students from Middle to High School)

2. Outreach to Town Municipalities:

- Blackstone/Millville
- Douglas
- Mendon
- Northbridge/Whitinsville
- Sutton
- Upton
- Uxbridge

2a. Immediate phone calls to municipalities regarding specific concerns per our survey findings

2b. Meet with involved towns to present findings. Would include a PowerPoint Presentation, a report, the surveys, and best management practices

3. Hands-on-projects – volunteer based:

- 3a. Hopedale Beach rain garden (possible kiosk set up)
- 3b. Riparian edging project on golf courses
- 3c. Formalize trail/path from Valarti Park to Harris Pond (possible kiosk set up)
- 3d. Formalize Mendon Road to Mendon Road route (canoe access/kiosk)
- 3e. Cleanups – potential hotspots per survey findings

4. Potential Water Quality Monitoring Sites:

- 4a. Green Street pipe discharge into Spindleville Pond in Hopedale
- 4b. Upstream from Hecla/Elmdale bridge in Uxbridge
- 4c. Other potential sites from Mumford findings

5. Deed research and long-term land protection

6. Press release/newspaper article per the results of the survey

Supplement to Report

In Business for the Blackstone

Activities that support Stream Team objectives

Approximately fifty stewards, most of whom are water quality monitors, were educated on “Stormwater 101,” which was the featured presentation at the Blackstone River Watershed Association’s Water Quality Summit. This presentation explained the causes of stormwater runoff and how it becomes a primary source of water pollution for our rivers and streams. The presentation also introduced attendees to the ***In Business for the Blackstone*** program, a tool used to educate business owners on practices that will minimize the risk of contaminated stormwater on their property. Outreach materials were handed out and audience members were encouraged to distribute them to companies that are located near a river and could benefit from the awareness.

The ***In Business for the Blackstone*** also established a partnership with the Department of Public Works in Uxbridge, where the West River flows. This DPW has been very proactive in their efforts to protect the river from polluted runoff from their property as well as from the Town’s streets. This partnership and the DPW’s participation in the ***In Business*** program got a lot of publicity in various local newspapers. This exposure helped to educate all the Town’s residents on the detriments of stormwater and what actions can be taken to protect local waterways.

Lastly, the ***In Business for the Blackstone*** program and stormwater concerns were reviewed with the stream team surveyors. After surveying the River, participants were asked to identify businesses that are located in their section of the River. The program manager could then reach out to these businesses and introduce the initiative. This outreach will include a review of what the survey team found and the actions it is promoting to protect the conditions and water quality of the River and describe what the business can do to help in this effort.