

# The Upper Quinebaug River: Headwaters to the Thames

Thames River Basin Partnership  
Floating Workshop XV  
June 19, 2015

Image courtesy of [www.glsweetnam.com](http://www.glsweetnam.com)



This workshop was sponsored in part by Millennium Power through The Last Green Valley and in partnership with the Eastern Connecticut Conservation District.





The TRBP Floating Workshop was hosted by  
Old Sturbridge Village  
<https://www.osv.org>



# Thames River Basin Partnership

The Thames River Basin Partnership is a voluntary, cooperative effort to share organizational resources and to develop a regional approach to natural resource protection. The partnership grew out of locally led workshops held by the region's Soil and Water Conservation Districts.

## Our Mission

- Protect the region's agricultural and natural areas being threatened by land use changes.
- Protect ground and surface water quantity and quality being threatened and degraded by contamination.
- Protect the region's biodiversity.
- Improve the coastal zone resource conditions.

# Who are the Thames River Basin Partners?



Quinebaug is derived from a Native American term that translates to mean “long, slow-moving river”.



# Our workshop began with an optional morning paddle on the a section of the Quinebaug River National Canoe Trail from Lake Siog to the Brimfield Dam, sponsored by The Last Green Valley.

**Welcome to the Quinebaug River Water Trail**

**A National Recreation Trail**

The Quinebaug River runs for almost 50 miles from Middlefield, MA to Norwich, CT. You are standing at the historic Pond Lake (Long Cove) and Kayak Launch in Middlefield, MA.

This is the first segment of the Quinebaug River Water Trail and the first segment to be designated by the Department of the Interior as a National Recreation Trail and the Quinebaug Water Trail. It is the first segment of the Quinebaug Water Trail to be designated by the U.S. Army Corps of Engineers. It is also the first segment of the Quinebaug Water Trail to be designated by the U.S. Army Corps of Engineers. It is also the first segment of the Quinebaug Water Trail to be designated by the U.S. Army Corps of Engineers.

**CAUTION**

Paddle at your own risk. The river is a natural and unpredictable environment. Conditions can change rapidly. It is your responsibility to be aware of changing conditions and the ability of your group to your physical fitness is a priority.

**Paddle Safe, Paddle Smart**

- Carry well-ventilated gear.
- Let the windswept water above you and use the wind to your advantage.
- Check water levels for low water conditions.
- Let the windswept water above you and use the wind to your advantage.
- Check water levels for low water conditions.

**Do Your Part**

- Stay on the trail.
- Stay on the trail.
- Stay on the trail.

This water trail is brought to you by the following partners:



This 4 mile paddle has little current, extensive wildlife habitat, three picnic landings and no portages. It is the perfect three-hour outing for beginning paddlers and families



**Momma Kingbird  
guards her nest  
from the floating  
intruders**





# Water-view of the 2011 tornado damaged area



Some people enjoyed more than just floating.



# TRBP Floating Workshop XV was held at Old Sturbridge Village



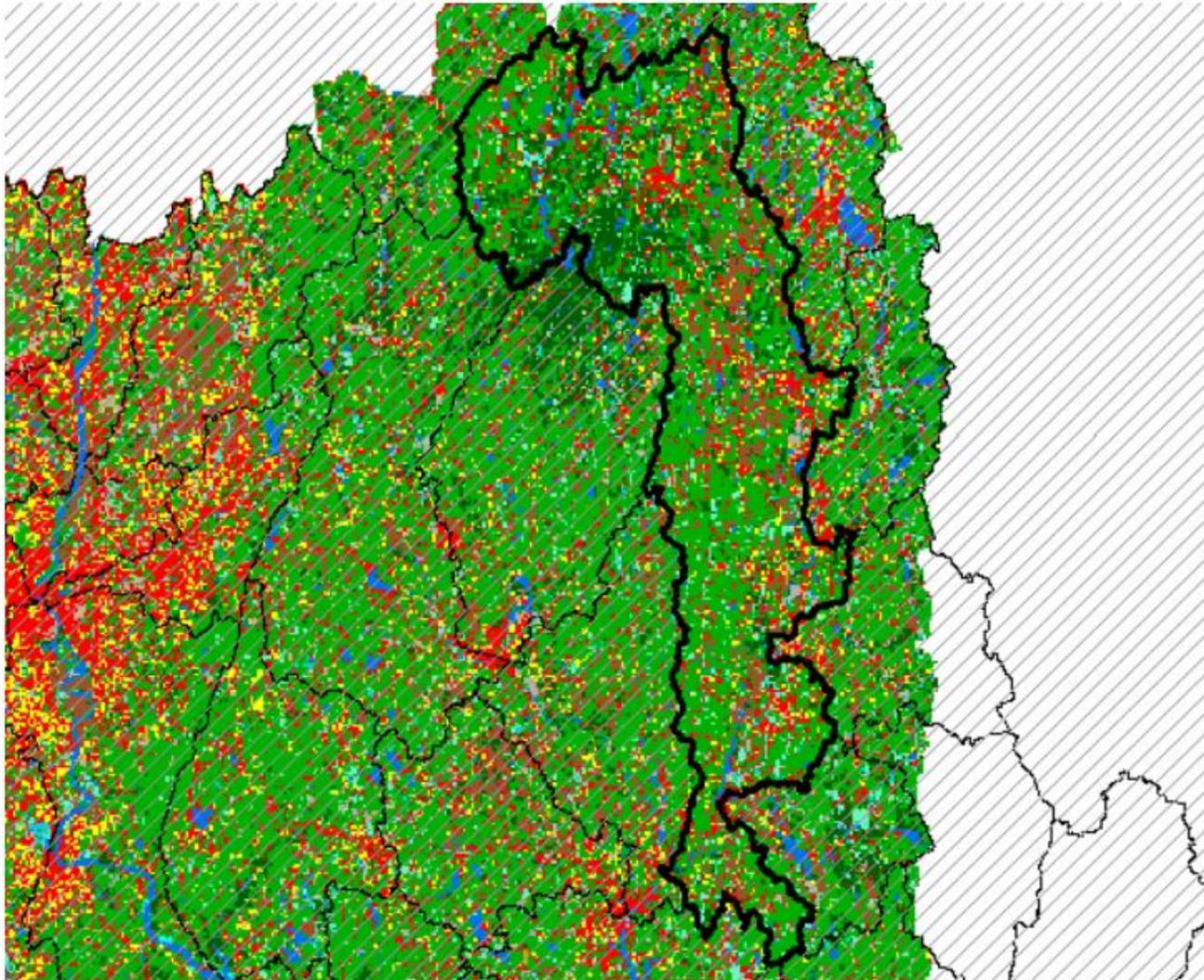
# Quinebaug River Stats:



- About 76 miles long, with 28 miles in MA (source: MA DEP)
- Begins in Brimfield, MA
- Flows into the Shetucket River in Norwich, CT, before the Shetucket River joins with the Yantic above the Thames River. The Thames River drains into Long Island Sound.
- 45 miles have been designated as National Recreation Trails by the National Park Service.
- Land Use in 2006
  - 65% forested
  - 11% agricultural
  - 10% developed



# The Quinebaug River Watershed abides by gravity, not politics



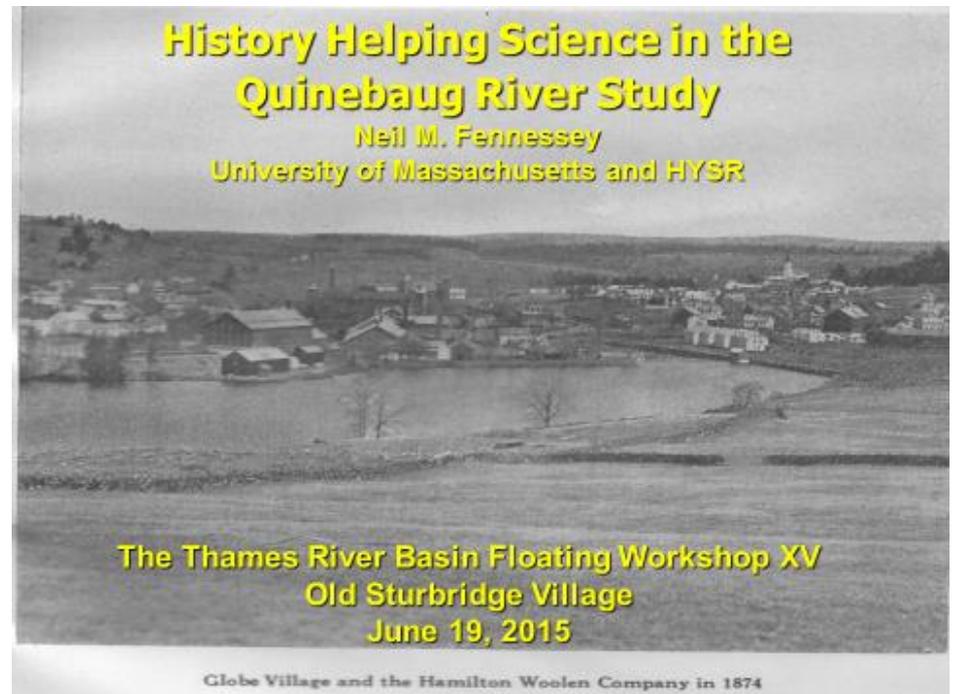
## 2006 Land Cover

[Printable PDF](#)

- Developed
- Turf & Grass
- Other Grass
- Agricultural Field
- Deciduous Forest
- Coniferous Forest
- Water
- Non-forested Wetland
- Forested Wetland
- Tidal Wetland
- Barren
- Utility(forest)

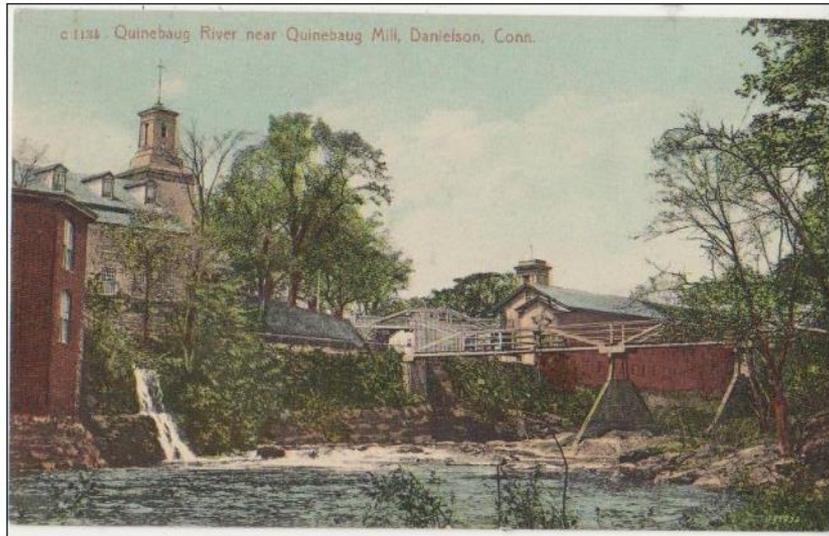
Source: Center For Landuse Education and Research (CLEAR)

Our keynote speaker was Neil Fennessey of UMASS Dartmouth, who led a 4 year study of the upper Quinebaug River prior to the permitting of the Millennium Power Plant in Charlton, MA.



The study was to evaluate methods to augment stream flow at critical times downstream to compensate for water lost to power plant cooling system.

# Industrial Uses of the River, Past and Present



Charnagnat225

[www.delcampe.net](http://www.delcampe.net)



CardCow.com



# There is a convoluted history of water rights to support mills in the upper watershed

- Floods and dam breeches put mills out of business over time.
- The major flood in 1955 breeched a majority of dams and flooded the mills along the river. Most mills never recovered afterward.
- American Optical (AO) obtained significant water rights
- AO water rights were obtained by Millennium Power to be used in combination with the Town of Sturbridge wastewater discharge for cooling water at the power plant

# Flood of 1955



Following the flood of 1955, the US Army Corp of Engineers constructed flood control projects along the Quinebaug River at East Brimfield, Westville Lake and West Thompson Lake.

Cargill Falls area, Putnam, CT in the aftermath of the Flood of 1955.

# Quinebaug River Study Conclusions

- The Quinebaug River is presently flowing closer to a natural flow regime than it did before August 1955. This is most likely related to the impact of the flood on industries along the river.
- There is insufficient water storage available in East Brimfield Reservoir to augment flows to achieve continuous target instream flow levels in Connecticut to meet the Cornell minimum streamflow rates at downstream sites.
- There is sufficient storage available in East Brimfield Reservoir to achieve target instream flow levels in CT using a pulse release strategy, however, this is not being done.

Instead of employing the pulse release strategy, as a condition of approval, Millennium Power is financially supporting streamflow restoration projects in other areas of the watershed.

# Millennium Power Sponsored Stream Flow Restoration Projects

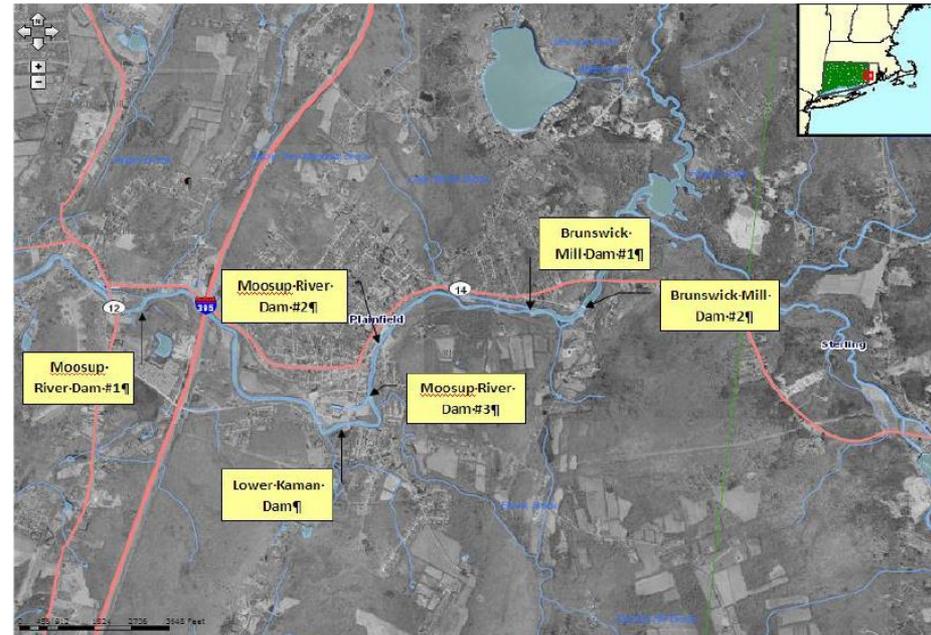
## Hamant Brook, Sturbridge, MA

### Hamant Brook Project Area

- Replacement of a culvert
- Removal of 3 Dams



## Moosup River, Plainfield, CT



# Todd Richards, Fishery Biologist MA Fish and Wildlife Division



## Hamant Brook Restoration

### Expected Project Outcomes

- Water Quality Improvements
  - Reduced Water Temperature
  - Minimize Nutrient Storage
  - Minimize Algae
  - Reduce Fecal Coliform Counts
- Stream Flow Restored
- Fish Passage Barriers Removed
- Coldwater Fishery Restoration
  - Require cold water (typically less than 70 degrees)
  - Require high oxygen levels (above 6 ppm)
  - Flowing waters
  - Other benefits to native riverine species



# Eric Thomas, CT DEEP Watershed Manager



## Moosup River Fish Passage and Restoration Project

1. Remove 5 dams
  - a. Moosup River Dam #1 – removed June 2014
  - b. Lower Kaman Corporation Dam,
  - c. Upper Kaman Corporation dam
  - d. Griswold Rubber Dam
  - e. Brunswick Mill Dam #1
2. Install fishway at Brunswick Dam #2

## Benefits

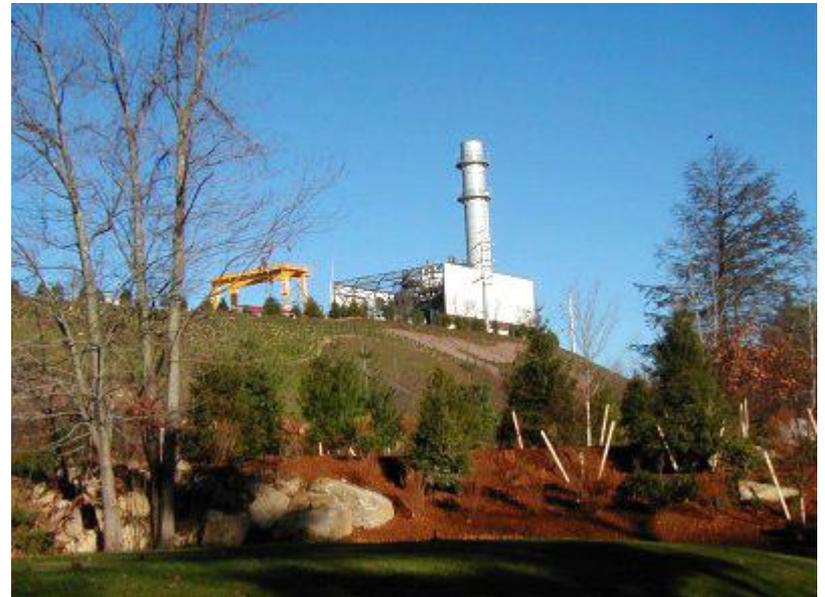
This restoration project will reconnect fish habitats and fish passage within:

- 6.9 miles of the Moosup River
- 3.2 miles of Snake Meadow Brook
- 7.1 miles of Quanduck Brook.

For a total of over 17 miles of riverine habitats.

# Millennium Power 2005 Engineering Excellence Award

- The plant uses secondary treated wastewater from the Town of Southbridge's municipal wastewater treatment plant (WWTP).
- Treated effluent, supplemented seasonally with water from the Quinebaug River, provides cooling water on a continuous basis.
- Cooling water waste is returned to the WWTP to be treated and reused.



<http://www.power-technology.com/projects/charlton/>

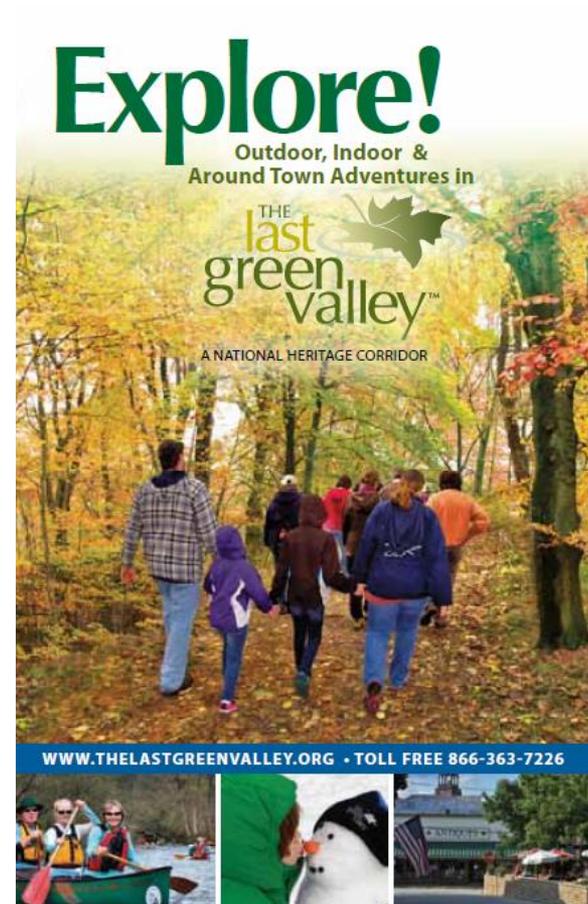
And then we went out into Old Sturbridge Village to complete our program



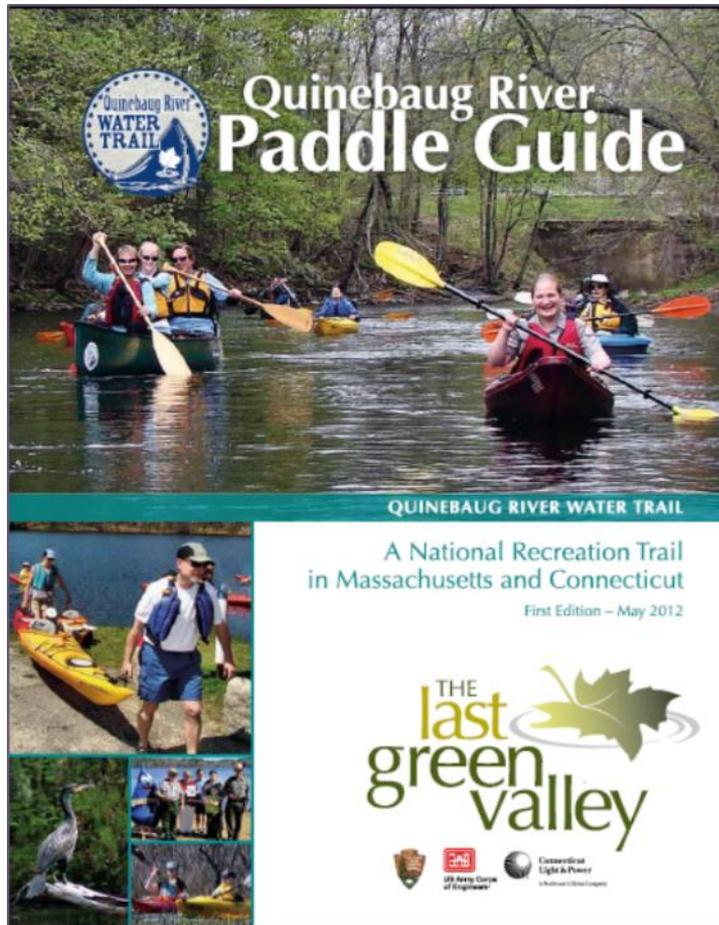
# Workshop attendees walked along the Quinebaug River Walk, funded in part by The Last Green Valley



TLGV Chief Ranger Bill overviewed The Last Green Valley and their efforts to connect people with their environment in a multitude of ways.



# Recreational Opportunities in the Quinebaug



- Nearly 45 miles of the river are designated as National Recreation Trails by the National Park Service
- First 10+ miles coordinated by the US Army Corp of Engineers
- Additional 35 miles dedicated in 2012 coordinated by The Last Green Valley Water Trails Committee

<http://thelastgreenvalley.org/explore-the-last-green-valley/recreation-guides/paddling/>



Keith W. Beecher, Project  
Manager

US Army Corp of Engineers

- East Brimfield Lake
- Westville Lake
- Conant Brook Dam

US Army Corp of Engineers Flood Control Projects substantially reduce flood damage in Southbridge and Dudley, Mass., and Putnam, Danielson, Jewett City, and Norwich, Conn. These communities are predominantly industrial with business centers on the Quinebaug River.

**East Brimfield Dam  
Fiskdale, MA**

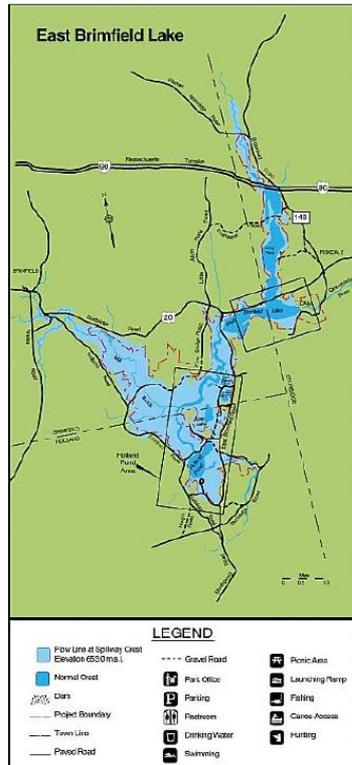


**Westville Dam,  
Southbridge/Sturbridge, MA**



# Army Corp of Engineer Projects are more than just flood control

<http://www.nae.usace.army.mil/Missions/Recreation/EastBrimfieldLake.aspx>



<http://www.nae.usace.army.mil/Missions/Recreation/WestvilleLake.aspx>



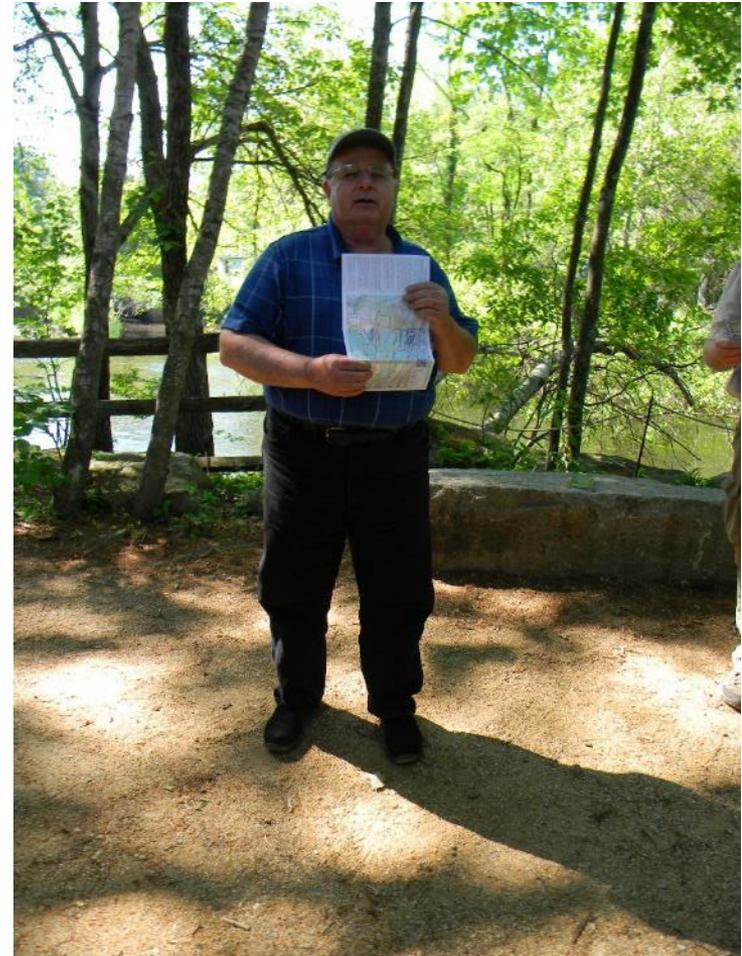
# Sturbridge Trails



Tom Chamberland represented the Sturbridge Trails committee and talked about the trail networks in Sturbridge, MA.

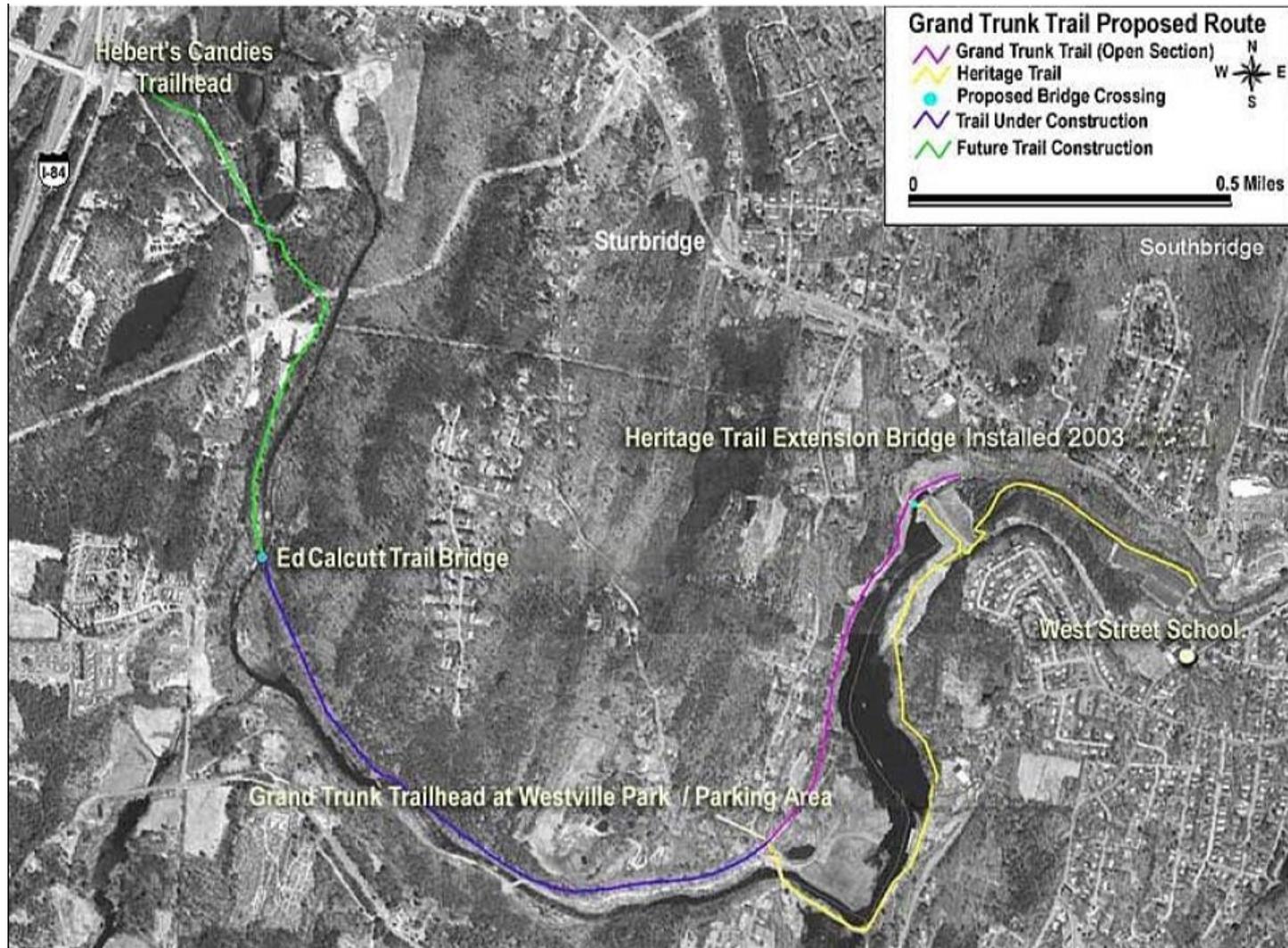
- Leadmine Mountain
- Heins Farm
- Grandtrunk Trail

Trail maps are available for download at [www.sturbridgetrails.org](http://www.sturbridgetrails.org).



# Grand Trunk Trail

<http://www.nae.usace.army.mil/Portals/74/docs/Recreation/WVL/WVLGrandTrunk.pdf>



Workshop participants also visited the mill village to learn about early water powered industries along the river



Interpreter Justin Kennick



Sawmill



Gristmill

And finally, our “float” involved a tour of an impoundment of the Quinebaug River, not unlike the ponds of Hamant Brook.

