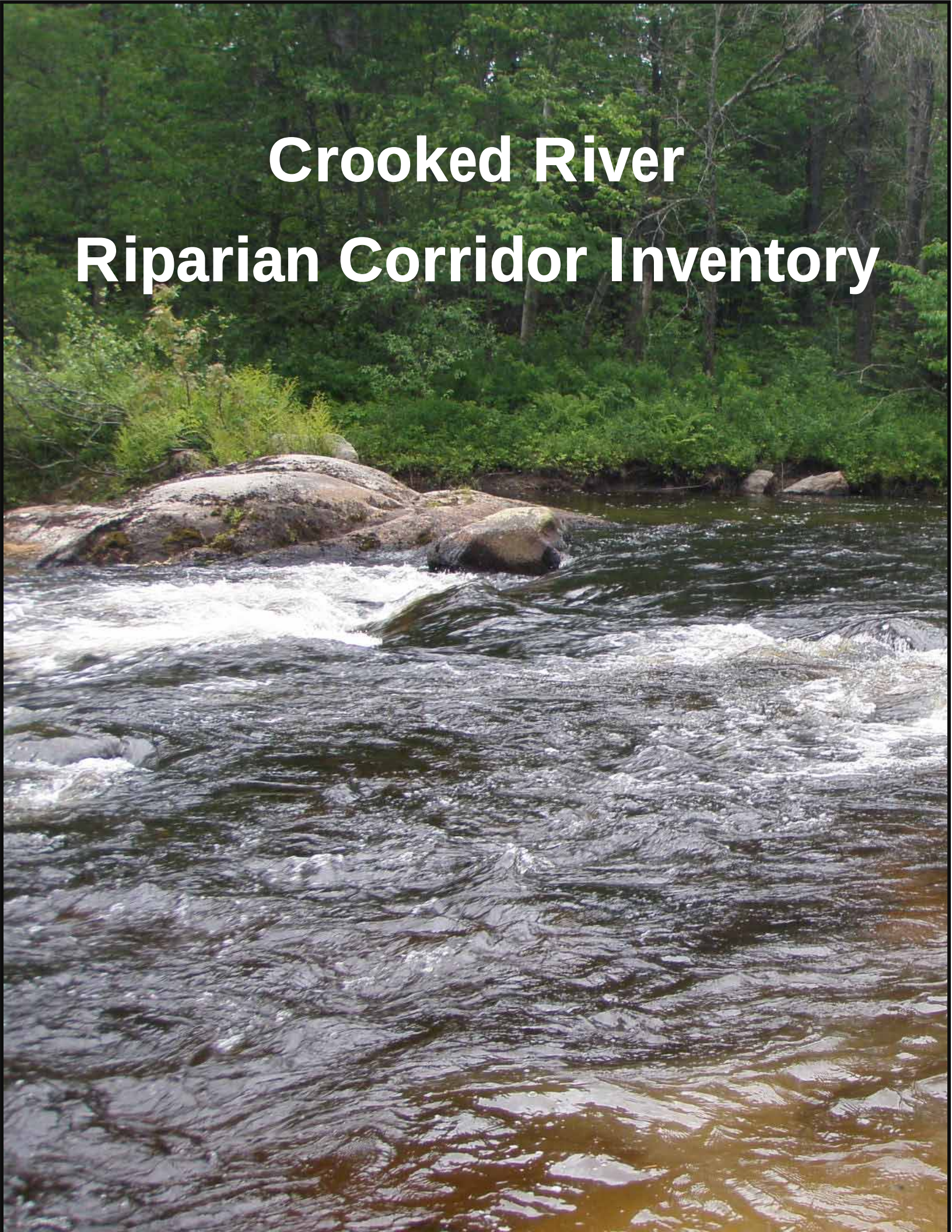
Crooked River
Riparian Corridor Inventory



Introduction

The Crooked River Watershed report is intended to provide community members with specific strategies for helping to improve this important local resource. The report is based on a traditional "land-based" watershed survey and a Riparian Corridor inventory that throughout the watershed documenting polluted runoff from roads, parking areas, fields, stream banks and footpaths using hand-held global positioning systems (GPS), cameras and the standardized field data sheets. The Riparian Corridor inventory was completed via canoe and or kayak by staff and experienced volunteers who documented existing riparian conditions and problem sites.

Local volunteers and technical staff from various governmental agencies and nonprofit organizations identified 164 sites from the land-based survey and 20 problem sites from the Riparian Corridor Inventory. All sites fall within the Crooked River watershed and are potential contributors of polluted runoff. Given the increase of residential development in the watershed, it is likely that the Crooked River and its tributaries have been degraded by polluted runoff. The lower portion of the watershed is more densely developed and is in a high growth area.

This runoff can contain:

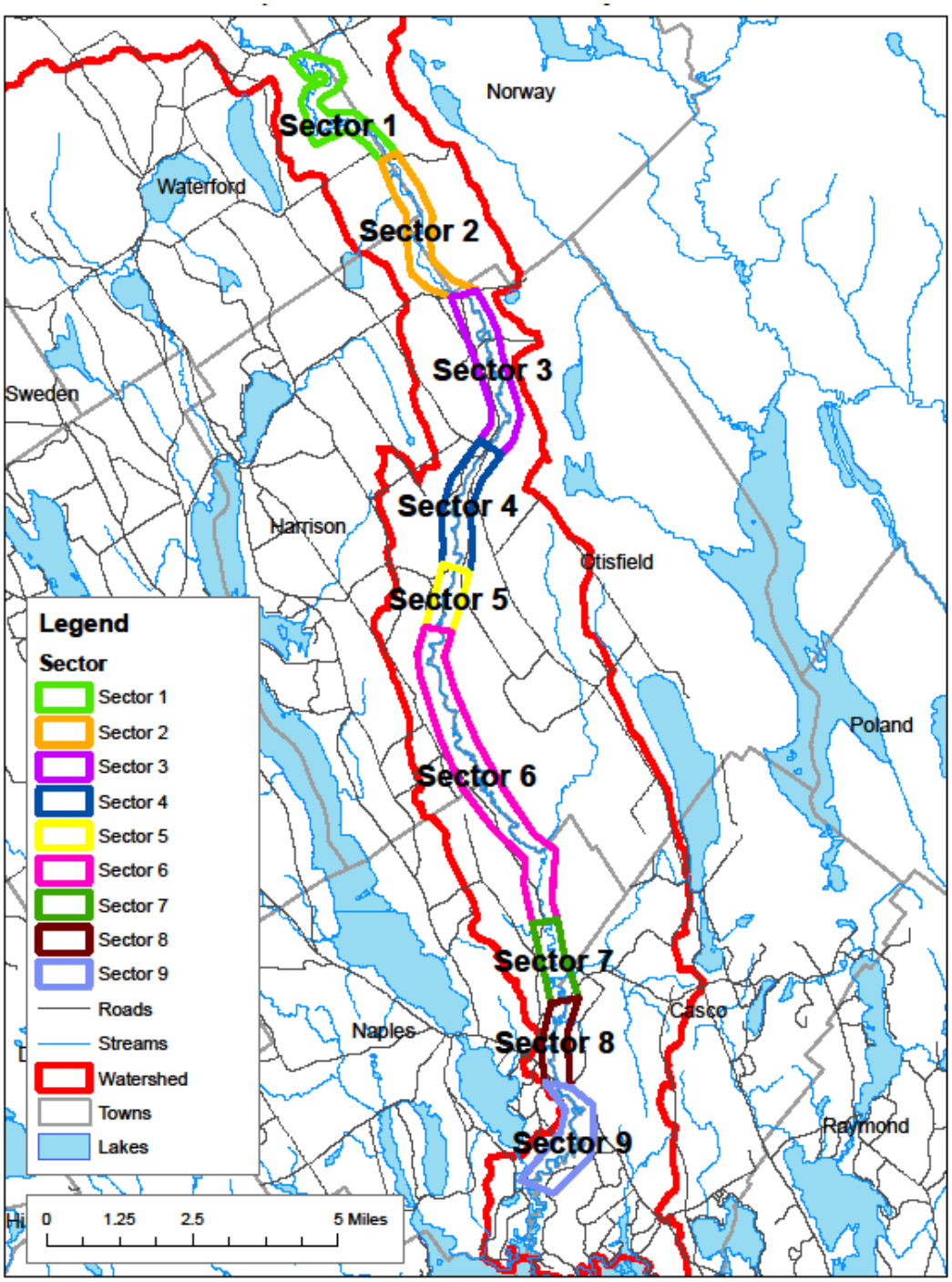
- Excess fertilizers, herbicides, and insecticides from agricultural lands and residential areas;
- Oil, grease, and toxic chemicals from runoff;
- Soil erosion from improperly managed construction sites, crop and forest lands, roads and eroding stream banks; and
- Bacteria and nutrients from livestock, pet wastes, and faulty septic systems

The Crooked River watershed is part of the larger Sebago Lake watershed and has been named a Nonpoint Source Priority Watershed by the Maine Department of Environmental Protection (MDEP). MDEP designated certain watersheds as high priority in order to enable the focusing of resources to help restore water bodies not meeting standards or protect water bodies considered threatened with not meeting water quality standards in the future.

Riparian Corridor Inventory Methodology

The Riparian Inventory methods followed those outlined in the publication, *Sheepscot River West Branch Riparian Inventory, August 2000*, produced by the Sheepscot River Watershed Council. The inventory assessed problem sites that included buffer issues, problem sites, and shoreline erosion. Also documented were existing riparian conditions including vegetation type, percent of shade over the river, land use and site characterization in order to establish baseline data for future management efforts.

Figure 1. Crooked River Watershed Riparian Inventory Sectors



A two hour Riparian Survey training session was conducted on May 19th where the volunteers were oriented to the task of collecting data on Riparian Survey Data Sheets (Appendix A), the use of handheld GPS units used to record location coordinates, and taking photos to document the riparian condition and problem sites identified. The river was divided into nine Sectors or reaches (Figure 1). The teams were provided with Field Note Sheets (Appendix B) and Maps of their respective sectors and on June 2nd & 3rd , 2011, volunteers began the inventory at the river crossing on Route 118 in Waterford and continued southerly to Sebago Lake in Naples and Casco.

Most of the riparian survey was completed via canoe and/or kayak by staff and experienced volunteer members from the Sebago Chapter of Trout Unlimited, Hidell's Guide Service, Sebago Lake Anglers Association and Mollyockett Chapter of Trout Unlimited. One sector was walked with the assistance of local volunteer led by LEA staff. The data collected on the Riparian Survey Data Sheets was entered into a excel database, and documented problem sites were plotted on maps (Appendix C). A total of 20 problem sites were documented. The problem sites identified were divided into land use categories that may be impacting the river (multiple-use trails, roads, logging, residential, etc.) (Figure 2) and rated based on their impact on the river (low, medium, high) (Figure 3). The following section of this report gives a characterization of each river sector and identified issues. A spreadsheet summarizing the field data collected is located in Appendix D.

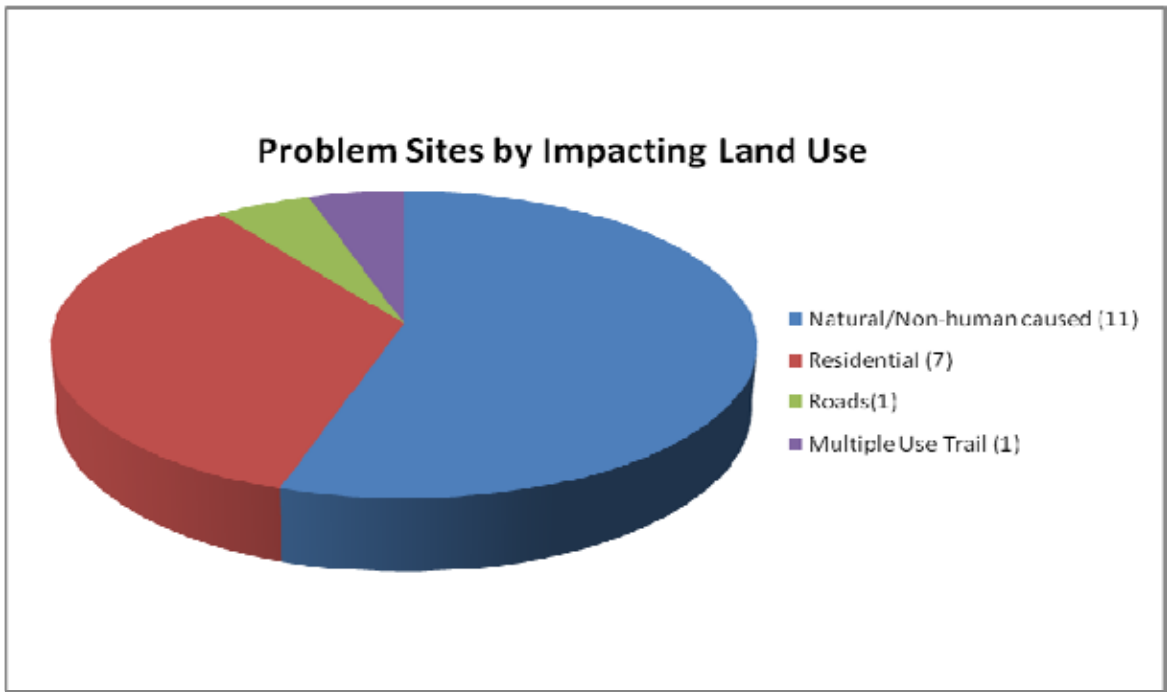


Figure 2. Impacting Land Use of Problem Sites

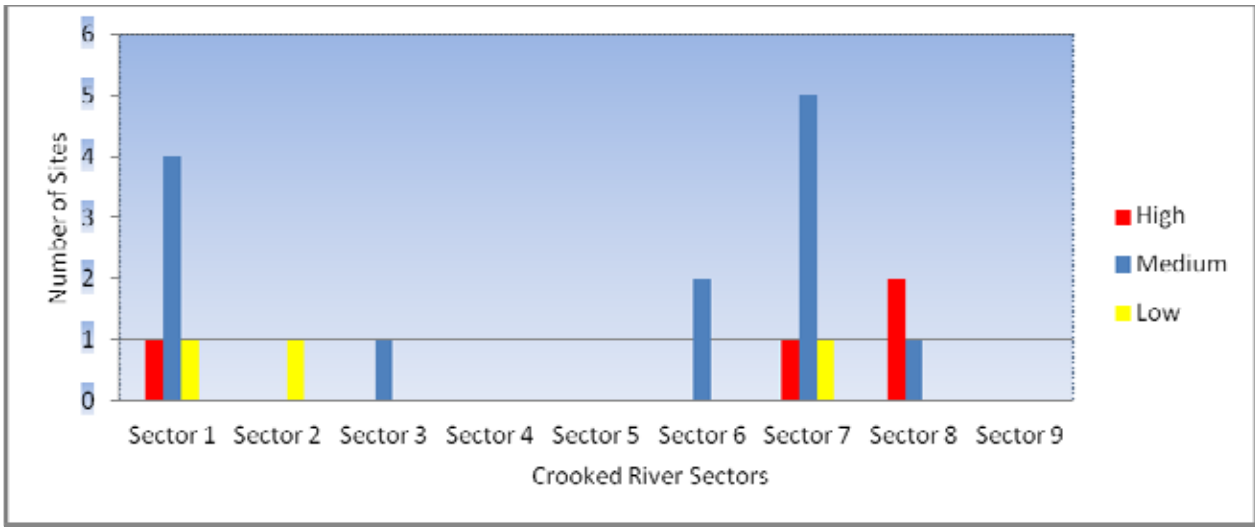


Figure 3. Number of Problem Sites by Sector and Degree of Concern

Crooked River Sector Characterizations and Issues

The character of the Crooked River varies along its length. Each Sector was photographed and the volunteers made notes of their observations. Some were very detailed, others were brief, allowing the photographs to tell their story. The following section describes the character and issues noted in each Sector. Photographs of the river sector and issues that were observed are included. Maps of the Crooked River showing the locations of the problem sites recorded in the inventory are included in Appendix C.

Sector 1

Characterization: Sector 1 begins in North Waterford at the Route 118 crossing of the Crooked River and proceeds south to the bridge crossing on Sodom Rd. on the Norway/Waterford Town Line. At the time of the Riparian Inventory the river was fairly high and fast although it had dropped about 1-2 feet since the high water during the previous week. Initially the Crooked River here flows along a residential area known as River Acres, where the homes are well spaced and for the most part well set back from the river. The banks heights vary from very low to 6-10 foot above river level and are steep in most places. In residential area lawns have replaced trees and shrubs in the riparian zone. The vegetation consists of mature stands of pine mixed with hardwood, a well developed understory, shrubs, ferns and herbaceous plants. Once

beyond the residential area, access to the river by land is very limited. The riparian area is relatively undisturbed except for a few places where ATV traffic was very evident and actually impacted the river banks as well as shallow areas of the river where they crossed. The surveyors noted beaver activity along this stretch and deer were seen including a tiny fawn.

Issues: There is a great deal of natural bank erosion evident and some bank erosion at river access points. Common problems: Residential river access on steep sandy banks, residential lawns, some trash noted, ATV traffic crossing through shallow areas of a river tributary at powerlines which run adjacent to the river.

Sector 1: Common Issues

Sector 2

Characterization: Sector 2 begins at the Sodom Road Bridge crossing on the Norway/Waterford Town Line and proceeds south to the Twin Bridges crossing at Route 117 on the Harrison/Norway Town Line. This Sector is almost totally undeveloped and undisturbed with only a handful of rustic camps seen along the entire section. The vegetation cover is mature dense stands of mixed evergreen and hardwoods, a thick understory with shrubs, ferns and herbaceous plants. The river character varies from slow meanders to fast, rocky

sections in a few places, notably, the last ¼ mile of the Sector. Bank height varies from very low to 10 foot high sandy banks to 25' high rock cliffs. There is no easy vehicular access to this Sector. Any roads in close proximity to the river are gravel and not even visible from the river. There is a power line crossing which is well buffered with vegetation. The presence of salmonids up to 15-16 inches was noted by the surveyors in numerous places on the river.

Sector 2: River View

Issues: Natural bank erosion on the outsides of meanders, fallen trees from natural undercutting, small amounts of residential waste, and some light erosion at beginning and end access points caused by anglers and kayakers.

Sector 2: Common Issues

Sector 3

Characterization: Sector 3 begins at Twin Bridges crossing in Harrison and proceeds south to Bolster's Mills on the Otisfield/Harrison Town Line. This Sector is easily accessible by foot for most of its length since it is in close proximity to residential development along Plains Rd. in Harrison. The volunteer surveyors on this section made excellent detailed notes. The following excerpts are taken directly from surveyor David Sokasits' notes.

River conditions: The flows in the Crooked River had come down from the prior week, when they were too high to safely canoe for survey purposes. The water was clear, not off-color, and running at a level suitable for canoeing. The first several hundred yards of the float below Twin Bridges was somewhat difficult in large part because of the presence of rapids and boulders just below the water surface. While canoeing this section, we shipped considerable water which damaged the recording sheets provided for the survey and necessitated reconstructing the reports from notes taken on the remaining usable sheets. Below that point, the river resumed a more placid riffle-run-pool structure, with only short and mild riffles. Below the Ryefield Bridge to the takeout at Bolsters' Mills, the river was almost exclusively smooth runs and pools. The river was between 50 and 80 feet wide throughout. The river exhibited typical freestone stream characteristics with only limited amounts of subsurface vegetation. In some areas between Ryefield Bridge and Bolsters Mills, swampy banks made for an indistinct transition from solid land to slow-moving stream, but this was the exception rather than the rule. In the main, the depth appeared to be on the order of 4 to 6 feet, but this was not measured. In some of the bend pools and runs, the water was deep enough that the bottom could not be seen. Where the bottom was visible, its makeup appeared to reflect the character of the surrounding terrain. In the lower reaches of the section surveyed, this meant that there was a significant portion of the bottom covered with sands and fine gravels. This would be consonant with the presence of sandpits well back of the banks in that area; no sandpits or other quarry or excavation works were visible from the river at any point of the float.

Bank conditions: The banks were nearly uniformly vegetated with typical forest and brush, a mixture of prominently deciduous and some conifer trees and underbrush. The development along the banks was limited. There was a small area of developed land at the put in point, with a state-provided picnic and boat launch area on one bank and a few camps on the other. Below Twin Bridges, there were no camps for some distance. At and before Ryefield Bridge there were a number of camps along the banks, primarily the left (facing downstream) bank. Below Ryefield Bridge, there was next to no development or, indeed, any sign of civilization for a considerable distance, leaving the impression of a pristine or near-pristine river and bank system. A number of the camps on both banks had visible pipes running into the water. While we did not get out to investigate, it appeared these pipes were flexible rubber/plastic over woven core, flexible, and approximately 2 to 3 inches in diameter. They appeared to be securely anchored or placed in the stream bed and were most likely used to supply water to the respective camps where they ran. Whether the owners/occupants of those camps treated the water as potable or not, and whether they treated this water, were questions beyond the scope of the survey. The sites of these pipes were noted in our data sheets. We also noted a few places, at deeper pools, where people had rigged rope swings and the like. As we approached Bolsters' Mills, the nature of development became more intense, with some lawns running down to the bank and houses and outbuildings plainly visible. At some points,

particularly below Ryefield Bridge, the banks were quite high and steep. In most other places there was a plainly perceptible bank side height of several feet to six or so feet above the then-present water level, which I surmise reflects the usual height of spring high water flows. Occasional areas of undercut banks, not large in extent, were visible, but with the exception of severe erosion under some trees in the area of the Twin Bridges put in point, also the subject of photographs and a note, there was no erosion really worth noting.

General impressions and commentary: The Crooked River in this section appears to be a relatively pristine, clean, and unmolested stream. For most of the section, human influence and impact on the terrain was either absent or barely perceptible. The uses noted were either recreational or residential, and the largest numbers of buildings were camps. The water appeared clear and probably clean, though we did not take any samples nor did we perform any tests. I recall no places where landowners had posted their properties, although there was one property where an enterprising realtor had placed a "for sale" sign along the bank in a particularly remote part of the stream. We observed only a limited amount of fauna, most notable a pair of ducks, probably wood ducks, which flushed at a distance from the canoe as we came around a bend in a remote stretch. We also observed some fish, particularly many small fish chasing emerging caddis near the put in point and one large-ish salmonid seen silhouetted swimming across a pale colored, sandy bottom.

Issues: Erosion at river access points, residential lawns potential fertilizers source, degraded buffer, some residential trash.

Sector 4

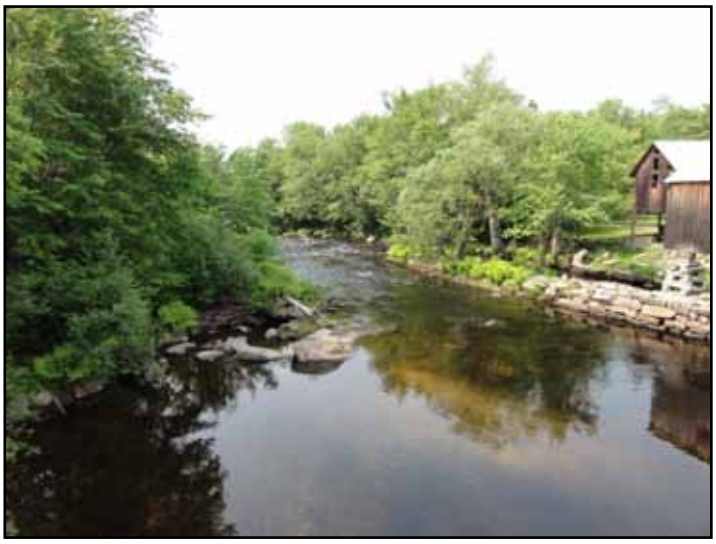
Characterization: Beginning at the dam at Bolster's Mills and proceeding south to Scribner's Mills in Harrison, this Sector was walked rather than floated due to its shallow rocky character. Access is very limited and vegetation is mature and multi-layered. This is entirely undisturbed forest and natural. The only development was at the southern-most point at the Scribner's Mill. Buffers along the river have been left vegetated.

Sector 4: River Views

Issues: No riparian issues observed

Sector 5

Characterization: This Sector from Scribner's Mill Bridge to Merrow's Landing, was not walked or floated due to difficult access. It is a short section only about 1 mile. It is undeveloped and due to its inaccessibility presumed to be undisturbed. It was kept as a Sector for continuity purposes.



Sector 5: River View at Scribner's Mill Bridge

Issues: Unknown, none presumed.

Sector 6

Characterization: Sector 6 was the longest (over 7 miles)of the Sectors surveyed due to limited access points. Starting at Merrow's Landing the Crooked River meanders through an area often referred to by the locals as the "Blueberry Barrens", once known to support dozens of acres of rich blueberry growth. The soils are sandy and acidic, and there are mature stands of pine with a mix of hardwoods. Silver maple is very common along the shady banks. The river here is fairly wide (100+ feet). The flow in most of this sector is steady and, in places, fast although there are no rapids except towards the end of the sector approaching the Edes Falls dam. Sandbars and undercut banks are frequently seen which is natural for a river as it changes course through the sandy landscape over time. Bank failures, where river currents undercut vegetation, and downed trees were noted in many places. A lot of good fish habitat was noted where there were deep pools and woody debris. There is no development directly along this stretch of the Crooked River and the river can only be accessed by a few very rough unmaintained gravel roads and ATV trails. A large amount of the land on the eastern side of the Crooked River is owned and managed by Hancock Lumber for timber production, primarily pine.

Section 6: River views

Issues: Most issues were due to naturally occurring erosion due to natural geomorphology of the river such as bank failures, undercutting, and fallen trees. River banks are very unstable due to sandy composition. One seasonal camp was observed where vegetation had been cleared from the banks.

Section 6: Common Problems

Sector 7

Characterization: Sector 7 begins at the Edes Falls Bridge and continues to the road crossing at Rte 11. The Sector starts as a shallow, rocky, fast running river then calms as it meanders for the rest of its length. There is more noticeable brown staining in the water. Undercutting and slumping on the outsides of the meanders and sandbars formed on the insides are common throughout this sector. There are lots of deep pools and downed trees in the bends of the meanders creating great fish habitat. The banks are steep in most places and the river is narrower (50-75 feet) overhung with mature silver maples which provide shade on the river. Volunteers had to portage around a number of log jams and downed trees.

Section 7: River Views

From the Notes of Volunteers Joe Loughran and Gail Miller: This is a beautiful stretch of river with very little human impact. It is surrounded by forest. The river is generally about 75 feet wide with steep banks 10-15 feet high. There is significant natural erosion along the bankings. We did not see any public access to the river. There were two areas of private campgrounds, but they did not seem to impact the river at all. We did note a few camps as we approached the Rte 302 bridge.

There were four major blockages of the river by blow downs. Portaging around these was a challenge. Going up the steep banks and trekking through the woods and re-entering the stream on the other side was hard work. The water was very clean with a beautiful sand bottom. We saw very little debris in the water, natural or human. This is a perfect fishing and canoeing river if the blockages can be opened up and public access provided.

Issues: Most impacting issues were of natural cause, primarily trees and woody debris in the river which had either blown down or fallen in due to natural undercutting of the embankment. At numerous places the river was blocked for floating and had to be portaged. Some trash was noted (a barrel) though not a great amount.

Sector 8

Characterization: This Sector starts at the Rte 11 crossing and continues to Route 302. It is very similar to Section 7 in its meandering character and bank conditions. The silver maples are dominant here also and create shade over most of the river. The flow is gentle to moderate. The river substrate tends to be sandy to muddy. There is little evidence of development along this stretch.

Section 8: River Views

Issues: Natural bank slumping and erosion. Trash and old tires in the river caught in downed trees.

Section 8: Common Problems

Sector 9

Characterization: This Sector begins at the Bridge on Rte 302 and ends at Sebago Lake. Although it is a relatively short section it consists of a chain of strong meanders which make it much longer than it seems. The current is fairly slow, strong and steady. The water is stained with tannins from decaying organic matter making it difficult to see the bottom. The depth is estimated to be over 10 feet in most of the sector. The river flows through the most densely populated area of the watershed here, although most homes and camps are set back enough from the river that they aren't visible. Some of the homes have lawns that come all the way down to the river edge and very little buffer vegetation. The river is greatly shaded by silver maple and other deciduous trees, and is fairly narrow (75 feet or less) for most of this section. There's quite a bit of woody debris caught in the bends of the meanders some making it difficult to pass via canoe.

Sector 9: River Views

Issues: Residential lawns, river access erosion, yard waste dumped on river banks, some demolition debris on banks. (Note: Some of the volunteer's data sheets were lost when their canoe tipped over therefore no "Problem Site Data Sheets" were recorded but their photographic log shows these issues were observed.)

Sector 9: Issues

Conclusion and Recommended Actions

The condition of the Riparian habitat on the Crooked River is, for the most part, excellent due to the fact that much of it is totally undeveloped and most of the riparian vegetation is intact. There are signs that the Crooked River is being impacted in small degree by the present land use through the removal of buffering vegetation and erosion at river access areas in residential areas. There is also concern that excessive amounts of stormwater runoff into the river might be contributing to or accelerating the natural geomorphology, or changes in the river's course, causing erosion at a greater than normal rate. This may be due more to "climate change" than to development as rainfall events have become more intense and frequent over the past decade. However, actions can and should be taken to make improvements to roads, trails and access points so as to mitigate some of the impacts of storm water runoff, such as installing measures that would slow, divert, or promote the absorption of runoff before it can enter the river flow. Education regarding the protection and enhancement of riparian buffer zones for residents living along the Crooked River may also be helpful to increasing their understanding of the river's natural resource values such as water quality and fisheries and how they can help by retaining natural riparian vegetation whenever possible. Towns along the Crooked River should be provided with technical support in making decisions regarding improvements to their infrastructure and planning for future development including: vegetation removal, culvert replacement, road drainage and runoff control. County Soil & Water Conservation Districts are well positioned to do this and municipalities should be made aware of their services.

The Crooked River is rated AA throughout most of its length which will provide it some protections from development in the future. Shoreland zoning also helps protect the Crooked River by limiting certain activities within the 75' buffer zone; however more attention needs to be focused on the area beyond the immediate river buffer zones where the loss of vegetation and increased pervious surfaces can have severe impacts on river flows. It would be ideal if towns in the Crooked River watershed would adopt stricter standards for development, and ordinances limiting vegetation removal and impervious surfaces within a reasonable distance to the Crooked River.

The Crooked River's status as a major spawning tributary for Atlantic salmon prompts concerns about retaining the integrity of the riparian habitat for the purposes of protecting the rivers fisheries. While anglers are acutely aware of the importance of river bank vegetation to healthy fish habitat other recreationists are largely unaware of the connection. Some recreational activities directly conflict with the goal of protecting fish habitat, such as ATV use within the riparian areas of the river. ATV traffic was noted crossing small tributaries that drained to the Crooked River at several points by surveyors. It is recommended that ATV education by state agencies should include more information to make clear the negative impacts ATV use can have to fish habitat, such as spawning bed destruction, erosion and siltation and make clear that driving ATVs through streams and rivers is prohibited.

Appendix A: Data Sheets

River Section #:______________

2011 CROOKED RIVER
RIPARIAN BUFFER SURVEY
PHOTOGRAPHIC DOCUMENTATION

Field Team Members:____Date:________________

Starting Point:_______________________________________Photograph(s)#:__________________________
GPS Coordinates: ☐☐.☐☐☐☐☐° ☐☐.☐☐☐☐☐°

Ending Point:_______________________________________Photograph(s)#:__________________________
GPS Coordinates: ☐☐.☐☐☐☐☐° ☐☐.☐☐☐☐☐°

Photo Documentation: Be sure to photograph some "Good" riparian habitat, trout habitat, as well as any fish or wildlife. Complete separate "Problem Site Documentation Form" for each Problem Site.

Photo #:	**GPS Coordinates:** (in decimal degrees)	**Brief Description** (Banks, riparian cover, upstream view, downstream view, Problem Site #, good habitat, wildlife sign etc):
	Lat. N☐☐.☐☐☐☐☐° **Long. W**☐☐.☐☐☐☐☐°	
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Photo Documentation (Continued): Be sure to photograph some "Good" riparian habitat, trout habitat, as well as any fish or wildlife. Complete separate "Problem Site Documentation Form" for each Problem Site.

Photo #:	**GPS Coordinates:** (in decimal degrees)	**Brief Description** (Banks, riparian cover, upstream view, downstream view, Problem Site #, good habitat, wildlife sign etc):
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River Section #:_____

Problem Site #:_____

2011 CROOKED RIVER
RIPARIAN BUFFER SURVEY
PROBLEM SITE DOCUMENTATION

Field Team Members:_____Date:_____

GPS Coordinates N ☐☐.☐☐☐☐☐°

W ☐☐.☐☐☐☐☐°

SITE DESCRIPTION:

Approx. Width of River (Wet):_____Ft. Approx. Length of Problem Area: _____Ft.

Approx. Width of Riparian Buffer: _____0-10 ft. _____ 11-25 ft. _____26-50 ft. _____greater than 50 ft.

Vegetation Type(s): ____None ____Wild grasses ____Lawn ____Herbaceous ____Shrubs ____Trees

Approx. Percentage of Shade (over river): ____0-10% _____10-25% ____25-50% ____50-75% _____75-100%

Type of Land Use potentially causing degradation:

____ Natural ____Logging ____Gravel Road ____ Paved Road
____ Crops (agriculture) ____Livestock ____ Multiple Use Trail ____Residential/Lawn

____Other: Please describe_____

SITE CHARACTERIZATION:

Site best characterized as:

	Year-round Residential		Commercial		Forest land
	Cropland		Field/ Pasture		Seasonal Camp
	Boat launch		Swimming Beach		Dam

Is there a dock at this site? _____Yes _____No Evidence of wildlife access/activity? _____Yes _____No

Check all that apply:

	Immediate shore cleared of vegetation/ no regrowth or replanting evident/exposed soils		Immediate shore cleared of vegetation /recovering naturally or replanted
	Active erosion/sedimentation occurring on banks (rills or gullies evident, ATV tracks)		No active erosion/sedimentation but potential present (close proximity of roads/ATV trails to river)
	Livestock impacting the bank, accessing the river (evidence of hoof prints, manure)		Human activity impacting bank (including lawn, yard waste, trash dumping, construction debris)
	Pollutants clearly entering river via pipe or ditch (grey water, oily discharge, septic discharge)		Bank failure or slumping (large areas, more than 20' in length)
	Physical disruption of river bed by vehicle traffic (tracks entering the river)		Others: _____

I would rank the degree of concern for this site as: _____High _____Medium _____Low

Use the back of this sheet to add additional comments (concerns, suggestions), and/or provide a sketch (optional).

Appendix B: Field "Float" Notes by Section

Each Section's notes contain access point information and coordinates, references to markers on the river for advised portages, and other relevant information. Float notes were compiled by Brooke Hidell of Hidell Guide Services. Feedback on the sections was provided "post-survey" by the volunteers on each section.

SECTION 1

Degree of difficulty - high

General location - Route 118 Bridge Crossing (DeLorme Map 10 D-4) to Mill Hill Road (Sodom Road) Bridge Crossing (DeLorme Map 10 D-5)

Car parking location at launch - Park southeast of bridge on shoulder (river left downstream)

Car parking location at takeout - Park southeast of bridge on shoulder (river left downstream)

Launch point and instructions w/GPS - river left downstream of bridge marked with pink tape (please remove) GPS North 44.21193, West 070.66360

En route features - Watch for Class 3 rapids about 3 miles from launch. Pink tape on river right (please remove). Rapids extend about ¼ mile. Portage river right.

Take out point and instructions w/GPS - river left downstream of bridge marked with pink tape (leave tape) GPS North 44.18701, West 070.63055

Comments - kayaks recommended

Feedback: Those familiar with the area may elect to walk out from the rapids on river right trail. Float was done with kayaks and took four hours plus. FMI: Jeff Kalinich 400-9356

SECTION 2

Degree of difficulty - medium

General location - Mill Hill Road (Sodom Road) Bridge Crossing (DeLorme Map 10 D-5) to Route 117 Bridge Crossing (named Twin Bridges) (DeLorme Map 10 E-5)

Car parking location at launch - Park southeast of bridge on shoulder (river left downstream)

Car parking location at takeout - Park southeast of bridge in Twin Bridges rest area parking lot (river left downstream)

Launch point and instructions w/GPS - river left downstream of bridge marked with pink tape (leave tape) GPS North 44.18701, West 070.63055

En route features - Watch for Class 2 rapids about half way through the float and just above take out point. River will have minor cliffs on each side coming into the take out point. [Need to

do - pink tape river right marks stopping point here.] Stop and scout river below; portage trail back to Route 117 just west of bridge or run the rapids.

Take out point and instructions w/GPS - river left downstream of bridge marked with pink tape (leave tape) GPS North 44.15356, West 070.60346

Comments - canoe experience in rivers required

Feedback: Check flow from Twin Bridges before floating for condition of riffle upstream. Consider portaging river right from the start of that riffle upon return. FMI: Michele Windsor 743-5789 ext 101

SECTION 3

Degree of difficulty - low to moderate

General location - Route 117 Bridge Crossing (named Twin Bridges) (DeLorme Map 10 E-5) to Bolsters Mills (DeLorme Map 10 E-5)

Car parking location at launch - Park southeast of bridge in Twin Bridges rest area parking lot (river left downstream)

Car parking location at takeout - Park near Bolster's Mills General Store (river left above bridge)

Launch point and instructions w/GPS - river left downstream of bridge marked with pink tape (please leave) GPS North 44.15345, West 070.60340. If you don't like that water, you may portage downstream to where it gets calmer.

En route features - River passes under the Plains Road Bridge after an S-turn about one mile downstream from the launch point. Watch for rocky areas en route. CAUTION: Bolster's Mill Dam is just below the bridge at the takeout point. You will begin to see camps and homes as you approach the second bridge. Stay river left and look for the bridge and the pink ribbon. Do not go past the bridge.

Take out point and instructions w/GPS - river left upstream of bridge marked with pink tape (Please remove) GPS North 44.11536, West 070.59438

Comments - We have permission to park and launch from the owner of the general store. There are landowner issues with the owner property owner upstream of the general store. Exit the river with your canoe between the bridge and the front of the general store.

Feedback: Floated in a little under 5 hours. Consider portaging river left to past riffle at launch point. Beware rocks en route - this team got wet. FMI: Ron Dyer 939-0987

SECTION 4 – (This section was waded or walked, not floated)

Degree of difficulty - low

General location - Bolsters Mills (DeLorme Map 10 E-5) to Scribner's Mill Bridge (DeLorme Map 10 E-5)
This section is not floatable at this time for a variety of reasons.
Spot observations should be taken and recorded at:
Bolsters Mills Bridge (DeLorme Map 10 E-5) park near Bolster's Mills General Store.
The Cemetery Pool (DeLorme Map 10 E-5) Take Jesse's Mill Road west from Bolster's Mill Road until you see the Otisfield & Oakfield Cemetery on your right. Park on the shoulder. Walk through the cemetery straight into the woods until you encounter a tote road. Take careful note of (or leave a large branch to mark) where you came onto the tote road. Turn left onto the tote road and follow it down to the water where power lines cross. Retrace your steps to exit.
Scribner's Mill Bridge (DeLorme Map 10 E-5) at Jesse's Mill Road. A parking area is provided about 50 yards east of the bridge on the north side of the road (right side coming from Bolster's Mills Road).
Feedback: None provided
Note: Recommend additional observations river left via Blackberry Lane upstream to Scribner's Mill and from the snowmobile bridge down to Ede's Falls on river right via Ede's Falls Road. Recommend 'knock on door' landowner permission.

SECTION 5- This section was not surveyed due to river conditions and limited access

Degree of difficulty: Unknown due to limited access.
General location: This section would begin at Scribner's Mills and follow the river south about a mile and a half to Merrow's Landing.
It will not be surveyed by boat due to access issues. Since there is no development and limited access we will assume there are no major issues to be concerned about on this small section. It will be documented using satellite imagery only.
For the purposes of survey continuity we will keep this a numbered section.

SECTION 6

Degree of difficulty - low to moderate
General location - Merrow's Landing (DeLorme Map 4 A-5) to Jeff Plummer and David Hancock Memorial Bridge (snow mobiles) (DeLorme Map 5 A-1) about ¾ mile upstream from Ede's Falls
Car parking location at launch - Not a factor. Access is difficult - you will be driven in by Brooke Hidell
Car parking location at takeout - Park in the area by the bridge (river right upstream).
Launch point and instructions w/GPS - river marked with pink tape (remove tape) GPS North 44.06698, West 070.61251

En route features - Stopping point / emergency take out at Big Woods Camp marked with tape river right (remove tape). CAUTION: Riffle area above Ede's falls begins just after the bridge. Stay river right and look for the green snow mobile bridge and the pink ribbon.
Take out point and instructions w/GPS - river right upstream of bridge marked with pink tape (please remove) GPS North 44.06611, West 070.61180
Comments - Ede's Falls is after the riffles, so get off the river if you overshoot the snow mobile bridge. This section is the longest float at about 5 miles. Down trees may be a factor in this section.
Feedback: Floated in a little over 5 hours. Four small logjams portaged. Note difficulty finding launch point. FMI: Steve Heinz 781-4762

SECTION 7

Degree of difficulty - medium - high
General location - 351 Ede's Falls Road near Ede's Falls Bridge (DeLorme Map 5 B-1) to Route 11 Bridge (DeLorme Map 5 B-1)
Car parking location at launch - You have 351 Ede's Falls Road owner's permission (Doug Bogdan) to unload from his driveway and launch your canoe from his yard (river right down stream of the bridge). Look for the pink ribbon. Park northwest of bridge on shoulder (river right upstream)
Car parking location at takeout - Park on shoulder northeast of bridge (river left above bridge)
Fire Lane E20 sign - do not block fire lane
Launch point and instructions w/GPS - river right downstream ~100 yards of bridge marked with pink tape (remove tape) GPS North 43.99743, West 070.57280
En route features - Log across river past bend shortly after launch may require brief portage.
Take out point and instructions w/GPS - river left upstream of bridge marked with pink tape (please leave tape) GPS North 43.97956, West 070.56310
Comments - Please check the side channel by where you park after launching for erosion from the tar road. Document it if you see it. Expect trees in the water this section.
Feedback: Floated in a little over 7 hours with section 8 (not recommended). Four steep banked portages required. Bring limb saw. FMI: Gail Miller 650-0033

SECTION 8

Degree of difficulty - medium - high
General location - Route 11 Bridge (DeLorme Map 5 B-1) to Route 302 Bridge (DeLorme Map 5 B-1)

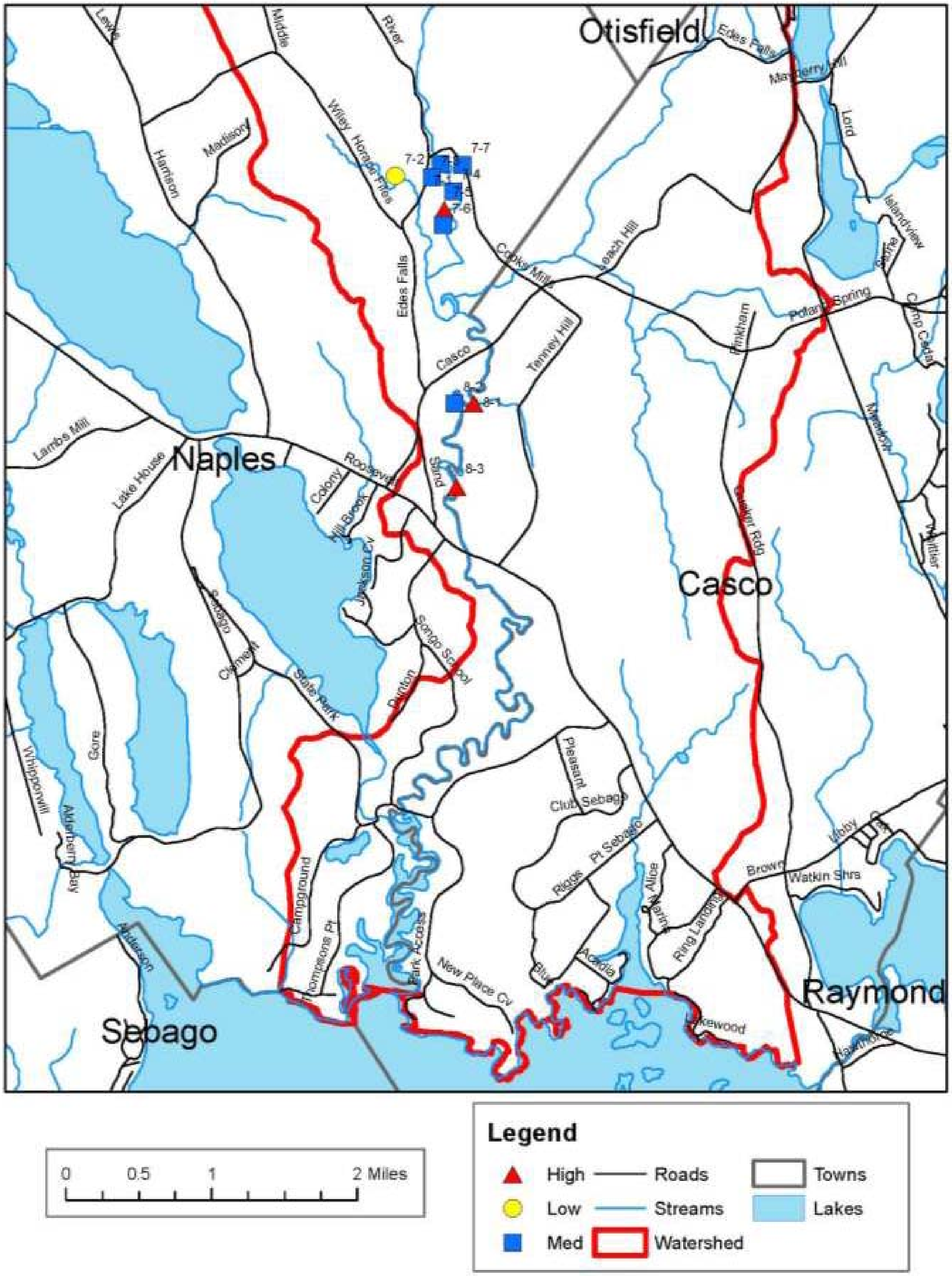
Car parking location at launch - Park on shoulder northeast of bridge (river left above bridge) Fire Lane E20 sign - do not block fire lane
Car parking location at takeout - Park on the east bank at the end of old Route 302 where roads ends at the closed old bridge (river left)
Launch point and instructions w/GPS - river left downstream of bridge by pink tape (please leave tape) GPS North 43.97956, West 070.56310
En route features - None significant noted.
Take out point and instructions w/GPS - river left between old and new bridges marked by pink tape (please leave tape) GPS North 43.95893, West 070.56621
Comments - Expect trees in the water this section.
Feedback: Floated in a little over 7 hours with section 7 (not recommended). Four steep banked portages required. Bring limb saw. FMI: Gail Miller 650-0033

SECTION 9

Degree of difficulty - low
General location - Route 302 Bridge (DeLorme Map 5 B-1) to State Park Road Bridge (DeLorme Map 5 B-1)
Car parking location at launch - Park on the east bank at the end of old Route 302 where roads end at the closed old bridge (river left)
Car parking location at takeout - Park on shoulder northeast of the State Park Road bridge (river left upstream)
Launch point and instructions w/GPS - river left between old and new bridges marked by pink tape (please leave tape) GPS North 43.95893, West 070.56620
En route features - Many twists and turns in this section of water.
Take out point and instructions w/GPS - river left just past the bridge - pink tape on bridge (remove tape) GPS North 43.93283, West 070.57396
Comments - Expect trees in the water this section.
Feedback: Floated in a little over 4 hours by kayaks, a few minor logjams - limb saw recommended. FMI: Bob Chapin 571-217-1700

Appendix C:

Problem Site Maps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Raymond
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Madison
Harrison
Wiley Horace Fles
Edes Falls
Cooks Mill
Leach Hill
Polar Spring
Lord
Islandview
Tenney Hill
Casco
Pinkham
Lambs Mill
Lake House
Roosevelt
Colony
Hill Brook
Jackson Cv
Songo School
State Park
Pleasant
Club Sebago
Riggs
Pt Sebago
Campground
Thompsons Pt
New Place Cv
Acadia
Ring Lanonne
Brown
Watkin Shrs
Libby
Gore
Whippoorwill
Anderson
Lakewood
7-2
7-7
7-4
7-5
7-6
8-3
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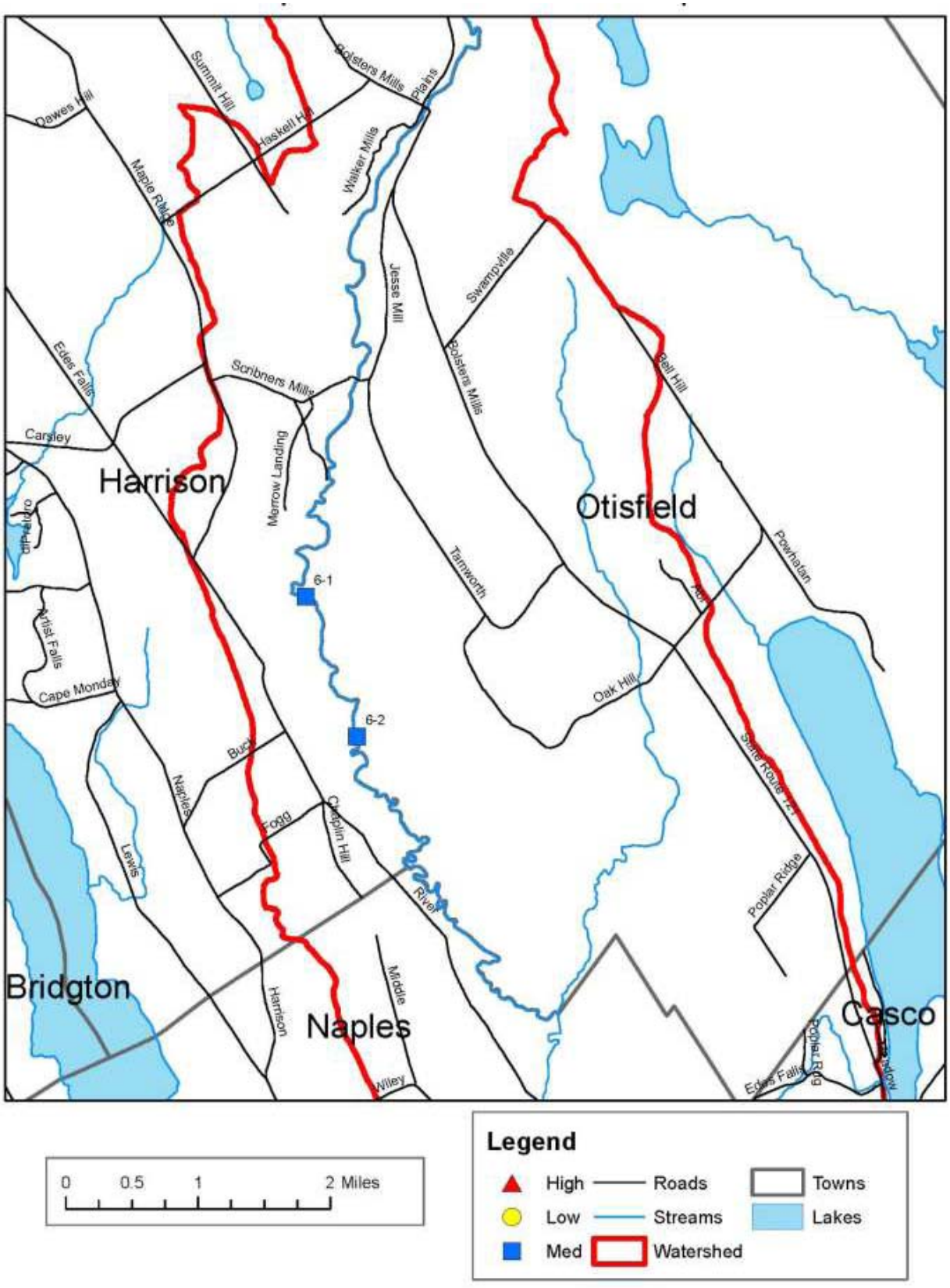
0.5
1
2 Miles
Legend
High
Low
Med
Roads
Streams
Watershed
Towns
Lakes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Haskell Hill
Walker Mills
Maple Ridge
Jesse Mill
Swampville
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Scribners Mills
Bolsters Mills
Edes Falls
Carsley
Merrow Landing
Tamworth
Powhatan
6-1
6-2
Artist Falls
Cape Monday
Oak Hill
Buck
Naples
Fogg
Chaplin Hill
Lewis
River
Poplar Ridge
Middle
Harrison
Wiley
Edes Falls
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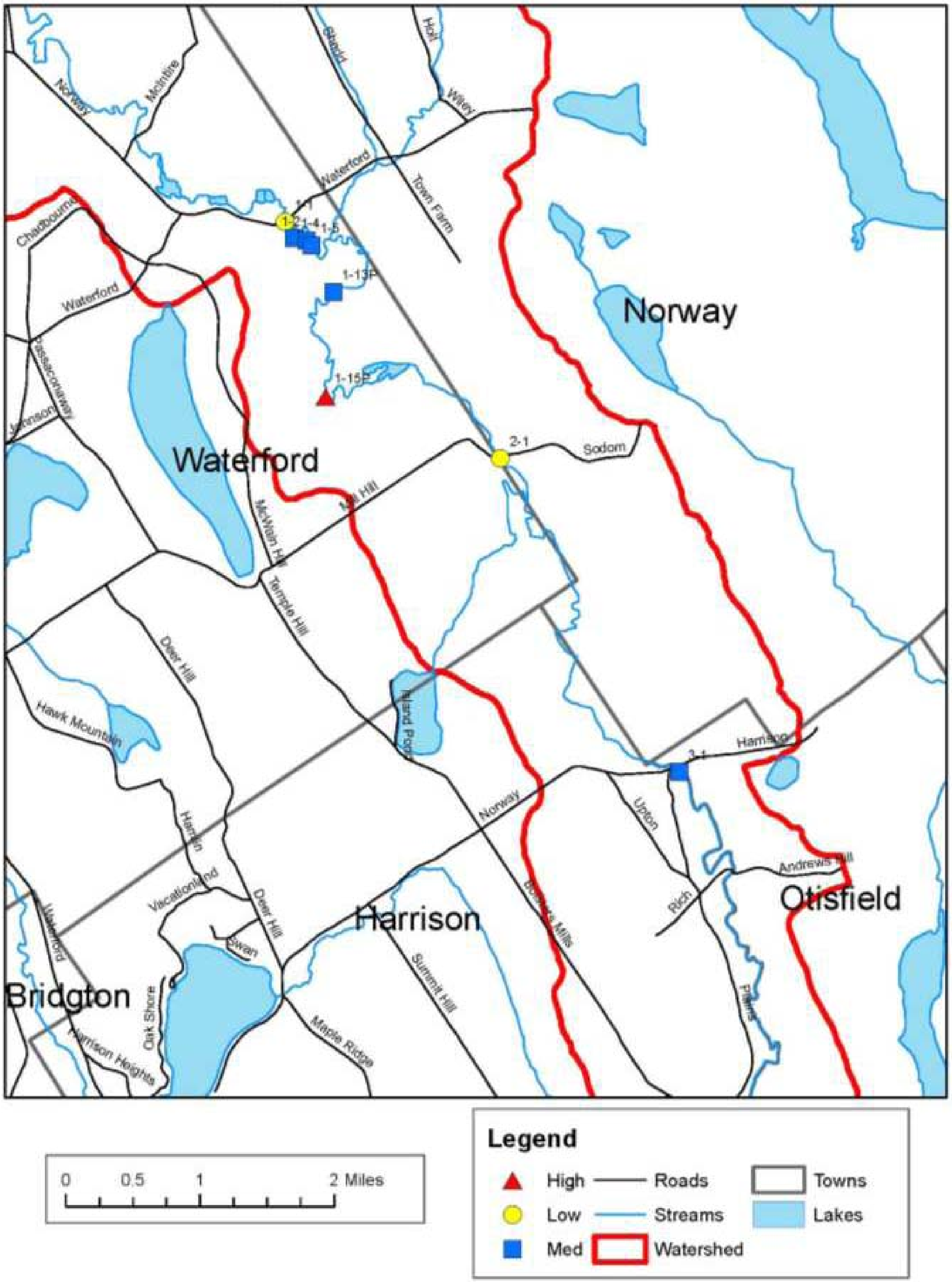
1
2 Miles
Legend
High
Low
Med
Roads
Streams
Watershed
Towns
Lakes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Waterford
Harrison
Otisfield
Bridgton
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1-2
1-4
1-5
1-13P
1-15P
2-1
Sodom
Town Farm
Mill Hill
McWain Hill
Temple Hill
Deer Hill
Hawk Mountain
Island Pond
Upton
Rich
Andrews Hill
Vacationland
Swan
Summit Hill
Maple Ridge
Oak Shore
Harrison Heights
Chadbourne
Mcintire
Wiley
Legend
High
Low
Med
Roads
Streams
Watershed
Towns
Lakes
0
0.5
1
2 Miles

Riparian Corridor Survey Data

Sector	Site #	Approx. River Width	Length of Problem Area	Width of Riparian Buffer	Vegetation Type	Approx. %Shade Over River	Land Use potentially causing degradation	Land Use/Site Characterization	Description of Problem	Evidence of Wildlife?	Est. Degree of Concern High, Med, Low
1	1	50'	30'	>50'	Shrubs, Trees	10-25%	Paved Road	Road	Bridge	Yes-White-tailed Deer	Low
1	2	30'	150'	0-10'	Lawn	0-10%	Residential/Lawn	Year-round residential	Immediate shore cleared of vegetaion/recovoring naturally or replanted	Yes-Beaver nearby	Med
1	4	25'	75'	11-25'	Lawn	0-10%	Residential/Lawn	Year-round residential	Human activity impacting bank (including lawn, year, waste, trash dumping, construction debris)	n/a	Med
1	5	n/a	100'	0-10'	Lawn, Trees	50-75%	Residential/Lawn	Year-round residential	Immediate shore cleared of vegetaion/recovoring naturally or replanted	Yes-Beaver	Med
1	13P	40'	100'	0-10'	Lawn, Tress	25-50%	Residential/Lawn	Year-round residential	Immediate shore cleared of vegetaion/recovoring naturally or replanted	n/a	Med
1	15P	30'	200'	26-50'	Herbaceous, Shrubs, Trees, Wild Grasses	25-50%	Multiple Use Trail, CMP/Oil/Gas corridor	n/a	ATV trail, Jeep/Truck trail. Drainage ditch cut to river, potential for sig sedimentation.	n/a	High
2	1	60	25	>50'	Wild grasses, herbacaeous, shrubs, trees	25-50%	Natural	Boat launch (canoe, kayak)	Active erosion/ sedimentation occuring on banks, Human activity impacting bank, some natural due to high water levels	no	Low
3	1	70	50	26-50'	Trees	25-50%	High sandy bank w/ trees adjoining boat launch/picnic area, undercut by erosion	Boat launch	Immediate shore cleared of vegetaion/recovoring naturally or replanted, active erosion, human activity, Bank failure or slumping	Yes	Med
6	1	40	30	26-50'	wild grass, lawn	0-10%	trees absent, signs, benches	seasonal camp	immediate shore cleared of vegetation/naturally recovering or replanted, human activity	Yes	Med

Appendix D

Riparian Corridor Survey Data

Sector	Site #	Approx. River Width	Length of Problem Area	Width of Riparian Buffer	Vegetation Type	Approx. %Shade Over River	Land Use potentially causing degradation	Land Use/Site Characterization	Description of Problem	Evidence of Wildlife?	Est. Degree of Concern High, Med, Low
6	2	40	50	11-25'	wild grass, shrubs, trees	0-10%	natural log jam	forest land	log jam-natural, possible fish passage problem?	n/a	Med
7	1	80	75	25'	shrubs, trees	50-75%	Bank erosion, looks like old road	forest land	immediate shore cleared/ recoving naturally or replanted, bank failure or slumping	No	Med
7	2	75	5	11-25'	Trees	75-100%	Natural, Barrel in river	forest land	Barrel in river	n/a	low
7	3	75	15	26-50'	Trees	75-100%	Natural-Blow down-bank erosion	forest land	Bank failureor slumping	n/a	Med
7	4	75	150	0-10'	trees	50-75%	Natural, General bank erosion typical of this section of river	forest land	active erosion/sedimentation, bank failure or slumping	n/a	Med
7	5	75	200	0-10'	n/a	25-50%	Natural, Sand bank, were told there is a gravel pit above this	forest land	immediate shore cleared of vegetation/no regrowth/exposed soils, Bank failure or slumping	n/a	High
7	6	75	50	11-25'	Wild grasses, trees	50-75%	Natural, Blow down blocking river, Portage	forest land	Blow Down	n/a	Med
7	7	75	200	11-25'	Wild grasses, trees	25-50%	Campsite on left bank, major blow down blocking river	forest land, seasonal camp	Campsite, blowdown	Yes	Med
8	1	75	25	11-25'	Wild grasses, trees	50-75%	Natural, Left bank breakdown	forest land	erosion	n/a	High
8	2	50	75	11-25'	Wild grasses, trees	50-75%	Natural, Lots of rubish in blow downs	forest land	blow downs, trash	n/a	Med
8	3	50	75	26-50'	Trees	50-75%	Multiple blow downs blocking river, difficult portage	forest land	Multiple blow downs blocking river, difficult portage	n/a	High