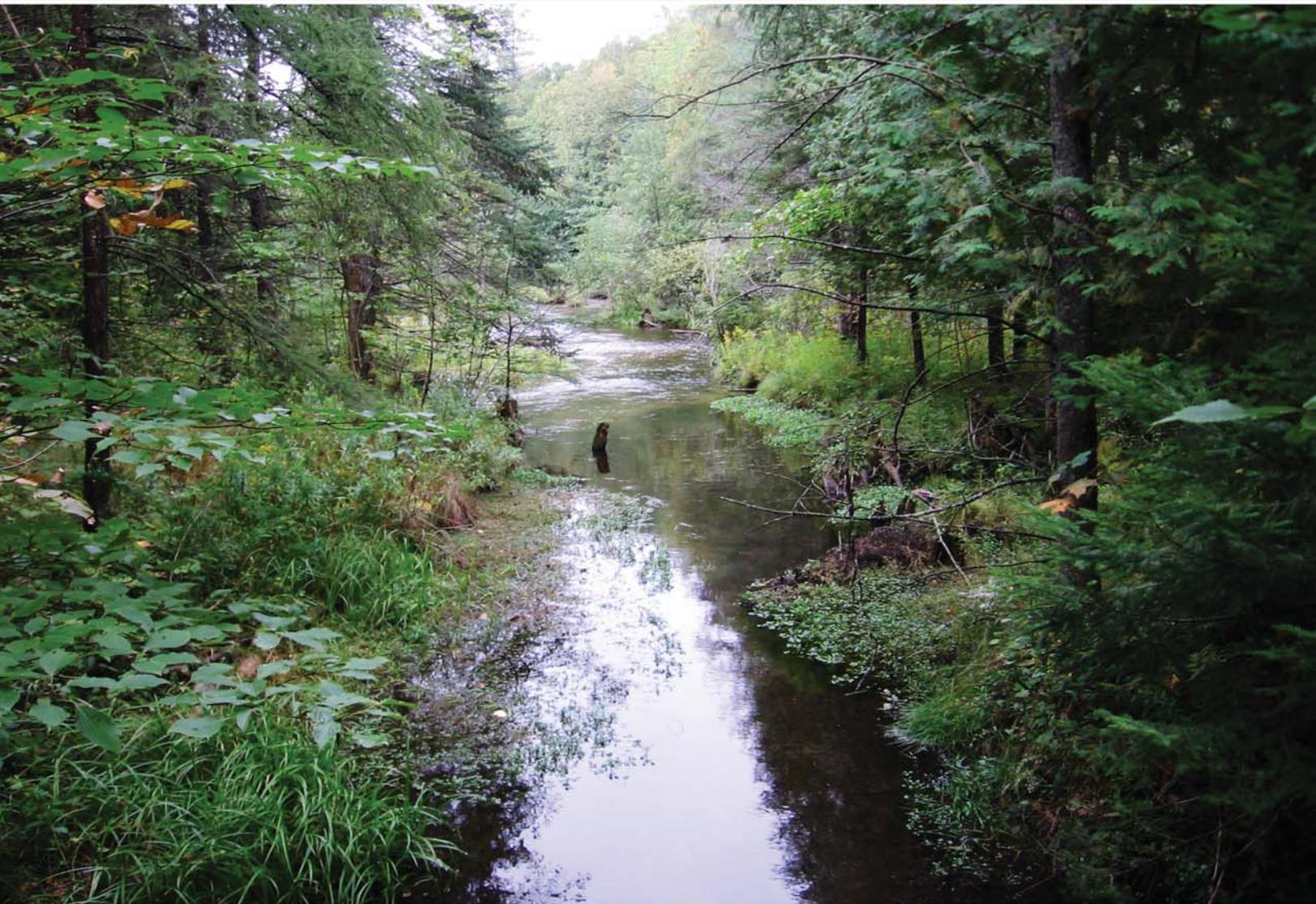


SEVEN BRIDGES NATURAL AREA MANAGEMENT PLAN

PREPARED FOR:
GRAND TRAVERSE REGIONAL LAND CONSERVANCY



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Table of Contents

Seven Bridges Management Plan

Prepared by URS Corporation

Table of Contents

Purpose	1
Summary	3
Applicability	4
Resource Inventory	9
Analysis	23
Appendix A: Legal Documents.....	
Appendix B: Bird Survey.....	
Appendix C: Herbaceous Plant List	
Appendix D: Woody Plants Inventory.....	
Appendix E: 2003 Rapid River Survey Analysis Report.....	
Appendix F: Photo Log	

Table of Figures

Figure 1. Kalkaska County plat map for area near Seven Bridges.....	6
Figure 2. Topographic map of Seven Bridges.....	17
Figure 3. Existing trails and two-tracks at Seven Bridges.....	19

1.0 Purpose

The Seven Bridges is considered by many to be the “jewel” of Kalkaska County. Visitors have for years enjoyed the pristine beauty of the property. A number of wedding ceremonies have been held at the site, and it is a popular subject for artists and photographers. Today the property, owned by the State of Michigan and managed by the Grand Traverse Regional Land Conservancy (GTRLC), is protected in perpetuity while supporting a number of recreational uses.

Seven Bridges is a 314 acre parcel in the Northwest quadrant of Kalkaska County. The Seven Bridges is approximately 7 miles northwest of the Village of Kalkaska located in Clearwater Township. Rapid River, a cold water trout stream, and several small unnamed tributaries run through the property. Approximately 6,300 feet of Rapid River frontage is contained within the Seven Bridges along with rich conifer swamp, northern hardwood forest, and grass/shrub openings.

This management plan for the Seven Bridges is intended to provide guidance towards managing the area consistent with the following goals of the GTRLC and State of Michigan:

- Provide recreational opportunities such as hiking, birding, hunting, fishing, and trapping
- Promote and steward ecological integrity of the land
- Promote and steward the health of Rapid River, its tributaries, and resident fish and wildlife populations
- Promote and steward the health of the forest and resident wildlife populations
- Maintain the rustic character of the area
- Maintain sensitivity to local considerations

In addition to providing guidance and listing recommended actions that the GTRLC and DNR may pursue, either jointly or separately, to meet their goals and objectives this management plan also describes the current management organization of the property, history of the property, natural resource inventory and analysis, cultural resource inventory, and proposed management actions. The proposed management framework is for the GTRLC and DNR to jointly manage the property. The DNR and GTRLC have specific areas of responsibility, but will work cooperatively to implement desired management actions. The DNR will take the lead on activities associated with forestry, fisheries, and wildlife management. The GTRLC will participate with DNR in the above activities and take the lead on public use activities, such as, developing and maintaining existing and new trails and bridges.

1.0 Purpose

Ultimate responsibility for management of Seven Bridges lies with the DNR. This property is included in the compartmental review process with the Skegemog Wildlife Area. Compartmental reviews occur on 10-year cycles and will include an inventory of the property. It is recommended that this management plan be reviewed in conjunction with the compartmental review. The information generated as part of this process will be useful for updating the management plan. The DNR will work closely with the GTRLC during this review process.

It is the GTRLC's intention to enter into a Volunteer Project Agreement (VPA) with the Michigan Department of Natural Resources (DNR). This management plan describes the property and recommends goals and actions related to managing, enhancing, and protecting the natural resources present on the property. In addition to establishing a basic outline for the management of the property this plan is intended to provide DNR with an overview of the roles and responsibilities of each organization and a proposed joint management structure. Specific plans for implementing the recommendations within this management report will be developed jointly by the DNR and GTRLC.

2.0 Summary

The Seven Bridges area is an exceptional property. Included within the preserve are forested wetlands, meadow, northern hardwood forests, a red pine forest, and over a mile of Rapid River frontage. It is home to great blue herons (*Ardea herodias*), brook trout (*Salvelinus fontinalis*), black-eyed Susan (*Rudbeckia hirta*), northern white cedar (*Thuja occidentalis*), and other species; used by hikers, skiers, birders, anglers, and other outdoor enthusiasts. This property also has a rich history. These characteristics make Seven Bridges important to the local community, as well as, an ecological treasure worthy of the protection it has been given.

This management plan provides a brief history of the property that includes ownership issues, past and current use, as well as descriptions of the surrounding properties; form and function of natural features on the property; and the condition of infrastructure existing on the property. The plan recommends management actions to preserve, maintain and protect the property from degradation while encouraging its use.

Recommended actions for the Seven Bridges include:

- Inventory areas of erosion
- Erosion control on two-tracks and social trails
- Riverbank restoration
- Monitoring of biological resources
- Selective and sustainable forestry activities
- Removal of old structures
- Discussion of mineral ownership and development goals
- Cooperation with educational organizations
- New Construction of trails and/ or bridges to enhance the recreational experience and link the GTRLC's property to Seven Bridges.

3.0 Applicability

Property Report

The following sections of the management plan describe land ownership issues, current land use, and status of surrounding lands. This information was compiled primarily from records kept by the GTRLC about the property transfer, and personal interviews of GTRLC staff. In addition to the narrative provided below a certificate of survey, legal property description, and property transfer documents are contained in appendix A.

Ownership History

The Seven Bridges property was homesteaded by Jacob Rickers in 1868. Jacob and his four sons - Jacob, William, Carl, and Julius - built a prosperous lumbering business on the site. Remains of the dam for their spill pond can still be seen when crossing the first bridge.

Charles Peschke inherited the land from his uncle Jacob in 1944. Over the years, Peschke's sons and grandsons built, maintained and replaced several rustic bridges crossing over the Rapid River and its tributaries. Oral history suggests that up to seven bridges were maintained on the property, while others recall fewer bridges. It is possible, perhaps likely, that seven bridges existed on the property; however, this number was dictated more by maintenance requirements and happenstance than any need for seven crossings of the Rapid River. The Peschke family generously allowed visitors to enjoy the property. Originally, the seven bridges were used to facilitate travel around the spill pond for the lumber operations; however, when the Peschke family inherited the land, the primary reason for adding and maintaining bridges was to make the area accessible for visitors. Today the remains of several bridges can be seen along the Rapid River and its tributaries, and four modern bridges exist on the property.

In 1994 a rising tax bill forced the Peschke family to sell the property. A partnership purchased the land and slated it for development into 10-acre private estates. The developers never got a chance to finalize their plans. GTRLC board members, Lou Ann Taylor and Virginia Sorenson and their friend Hellen Milliken went to Seven Bridges for a picnic lunch. To their surprise, proposed lots had already been marked. Shortly thereafter the GTRLC was able to secure a purchase option from the development partnership. In December 1995 the property was nominated for a grant through the Michigan Natural Resource Trust Fund, and later approved by the legislature. On June 15, 1998, Seven Bridges became property of the State of Michigan. It is owned by the State and jointly managed with the GTRLC.

Land ownership and ownership issues

In addition to managing the Seven Bridges for the State of Michigan, the GTRLC has ownership of a parcel that is an inholding within the Seven Bridges. The parcel, known as the "Root Property", is approximately 5 acres

3.0 Applicability

and contains a 3-stall garage and a log cabin. The Root property is owned and managed by the GTRLC. Management of the Root property should be coordinated with management of Seven Bridges. Trails linking the two properties are recommended so that visitors to Seven Bridges are able to take advantage of the additional land and any infrastructure that the GTRLC may add to the Root property.

Current Land Use

The Seven Bridges property is 314 acres of unusual natural diversity. Bisecting the parcel is over one mile of Rapid River frontage. Diverse, second and third-growth forests cover most of the area, with northern hardwoods on the ridges and cedar-hemlock-hardwoods along the river and in the adjacent valley. Approximately 30 acres of old fields contribute to the diversity of wildlife habitat. Topographically, the property exhibits high, steep hills on the east and west, separated by the relatively narrow stream valley. The combination of high hills, rich forests, beautiful stream, and historical mill remains imparts a special quality to Seven Bridges.

Ownership of surrounding lands

The property adjoins the Pere Marquette State Forest boundary on its southeast corner and is contiguous with state land on its eastern boundary. Access to Seven Bridges is readily available off Valley Road, the main county trunk between Kalkaska and Rapid City. The road generally parallels the course of the river across the parcel. Based on field observation the majority of the surrounding parcels are undeveloped, or are developed for low density residential. There may be some potential to work with these neighbors to work cooperatively for management consistent with Seven Bridges. Ownership information regarding the adjacent parcels may be required if the GTRLC develops infrastructure such as trails, bridges, roads; restores habitat, wetlands, or streams; or develops a visitor center and permits from the State are needed. The Kalkaska County equalization department can provide ownership information on neighboring parcels.

The 2005 Kalkaska County plat book indicated that there are eighteen (18) parcels greater than or equal to 10 acres contiguous with the Seven Bridges. In addition to the parcels shown on the plat map there are a couple of smaller inholdings where boundaries and ownership should be identified. Figure 1 shows these in relationship to the Seven Bridges. The eighteen (18) larger parcels are identified below:

- R. Westerman, 180 acres
- L. Comai, 40 acres
- G. and N. Dunlap Trust, 229 acres
- D. Strong, 10
- D Roose & W Watson, 20
- K and SM, 10
- J. Schuster, 40
- Mira Flor Reyes, 40

3.0 Applicability

- Rose-marie Franco Bell, 40
- J. & M. Stone, 20
- R. Peck, 16
- A. Rattray & A. Jackson et al, 78
- State of Michigan, 116
- H. Stroyhan, 49
- L. Sixbey, 10
- D. Maue, 10
- P. & M. L, 10
- M. & J. KuJawski, 40

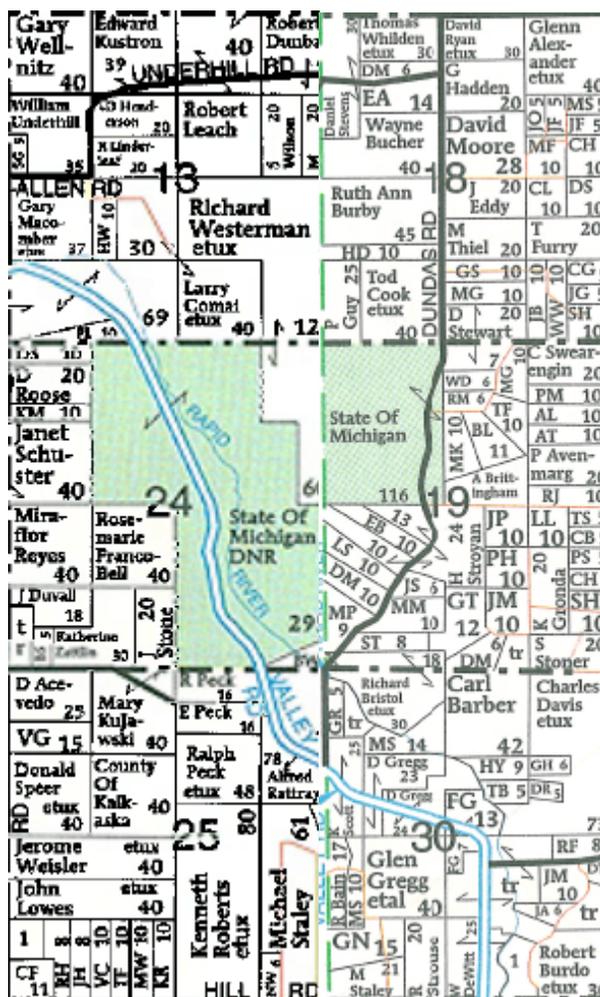


Figure 1. Kalkaska County plat map for area near Seven Bridges.

Several large parcels are adjacent to the existing preserve. The owners of these parcels should be contacted about developing consistent and coordinated management practices. Possibly, some of the adjacent land should be considered for addition to the preserve. The Dunlap parcel includes land on both banks of the Rapid River and would protect from development approximately 0.3 miles of the river. The Westerman parcel is 60 acres and

3.0 Applicability

separates the Seven Bridges from a state owned East of Seven Bridges. Connecting these areas into a single preserve or contiguous undeveloped area with consistent management would provide many ecological and recreational benefits.

Authority and Responsibility

The GTRLC and the Michigan DNR would like to have the Seven Bridges protected via a Natural Resource Director's Order. Such an order would provide additional protection to the area and insure that the goals and recommended actions of the management plan are fully supported by the DNR. A Director's Order would provide added protection to the land and provide clear responsibilities for regional DNR officials and GTRLC stewardship staff. The long-term goal is to have this property receive a special designation.

Since 1998 the GTRLC has entered into a general use permit with the state. This agreement is renewed annually and specifies the relationship between the state of Michigan and the GTRLC. The completion of this management plan will allow the GTRLC to enter into a Volunteer Project Agreement (VPA) with the state. A VPA will be a continuous agreement that references this management plan, and allows the GTRLC to implement recommended activities.

The VPA will detail the working relationship between the GTRLC and DNR, and will include the following:

- Protection of the significant ecological and scenic values of the river corridor consistent with this plan.
- Ownership of the preserve will remain with the State of Michigan.
- Stewardship activities, consistent with this management plan, will be conducted jointly by the DNR and GTRLC.
 - The DNR will be responsible for activities associated with forestry, fisheries, and wildlife management. The GTRLC will participate in these activities.
 - The GTRLC will take the lead on activities related to developing and maintaining existing and new trails and bridges.
 - The GTRLC will take the lead on activities related to restoration and enhancement of the property.
- Funding for stewardship activities will be secured by the GTRLC with cooperation of the DNR.
- All required state and federal permits will be obtained prior to the start of any regulated activity by the GTRLC or DNR.
- A commitment will be given by the DNR and GTRLC to follow the guidelines in this management plan, possibly outlined in a memorandum of understanding or special use agreement.

3.0 Applicability

- Significant divergence from the goals, activities, or management actions recommended in this plan will require a revised plan and consent from the DNR and GTRLC.

4.0 Resource Inventory

Natural Features

Several different habitats containing unique characteristics and qualities exist within Seven Bridges. These habitats differing by vegetation, soil type, hydrology, and topography require different management and conservation practices.

Meadow (approximately 21 acres)

Located in the northeast section of Seven Bridges is an old field meadow. This small area is vastly different from the rest of the mainly forested preserve and provides suitable habitat for plants and animals requiring large open spaces. The open meadow is suitable habitat for a variety of wildlife, including songbirds and game birds. Upland game birds observed using the meadow and its nearby thickets and woodlands include American woodcock (*Scolopax minor*) and ruffed grouse (*Bonasa umbellus*). American goldfinch (*Carduelis tristis*), rose-breasted grosbeak (*Pheucticus ludovicianus*), and indigo bunting (*Passerina cyanea*) are species of songbirds observed occupying the meadow habitat. A more complete list of avian species observed frequenting the various habitats within Seven Bridges can be found in Appendix B.

This meadow was cleared and created by past human activities such as farming and homesteading and shows signs of human settlement. A foundation and an abandoned well exist in the meadow. Meadow habitat is also present around the old homestead and parking area along Valley Road located in the northern section of Seven Bridges. However, these areas are much smaller than the old field meadow and are constantly disturbed by roadside activity.

Originally similar to the northern hardwood forest around it, this meadow now supports life found nowhere else on the preserve. The herbaceous layer is dominated by golden rod (*Solidago* sp.), mullein (*Verbascum* sp.), asters (*Aster* sp.), black-eyed Susan (*Rudbeckia triloba*), and lichen. Additional herbaceous plant species existing within the meadow habitat are listed in a plant survey included as Appendix C. Early successional trees like smooth sumac (*Rhus glabra*) and black cherry (*Prunus serotina*) exist around the perimeter where the meadow merges with the northern hardwood forest communities, as well as, blackberry (*Rubus* sp.) and bracken fern (*Pteridium aquilinum*). Juvenile trees in the meadow community include sugar maple (*Acer saccharum*) and eastern red cedar (*Juniperus virginiana*) and were accompanied by adult eastern white pine (*Pinus strobus*) and white spruce (*Picea glauca*).

Soils in this area are dry, non-hydric sandy soils. The soil is comprised of an eight inch A horizon with a dry, sandy texture. The horizon's matrix color is 7.5YR 3/4, when visually analyzed using the Munsell® Soil Color Charts

4.0 Resource Inventory

(1994). Deeper than eight inches is a B horizon of similar texture and a matrix color of 5YR 4/6 with no mottles present. The United States Department of Agriculture's Soil Survey for Kalkaska County has the soils for the meadow as Islandlake-Blue Lake complex (0 to 6 percent slopes). This type of soil is often found on flats and knolls of moraines and outwash plains. These somewhat excessively drained non-hydric soils have a sandy texture and a black/brown surface and subsurface color with a brownish-red subsoil color, similar to what was seen in the field.

Recommended Management Actions

Recommended management practices include habitat management, two-track improvement and well abandonment. Due to the diversity that this habitat provides, actions consistent with preserving its current character are recommended. Actions that set back shrub and tree encroachment are desirable. These may include manual clearing of progression northern hardwood forest species and other shrubs that grow in the transition zone. Other management activities that will maintain the habitat quality and prevent the spread of spotted knapweed or other invasive species may be conducted. In addition, prescribed burns may be beneficial in maintaining the opening and native vegetation. If this becomes a feasible option, and agreed to by both the DNR and GTRLC coordinated efforts related to prescribed burns would be consistent with this plan. It should be noted that since the meadow habitat was created by human activity, allowing its reversion to northern hardwood forest is also consistent with this management plan.

In addition, the two-track traversing the meadow should have proper substrate laid down to avoid rutting and erosion. In the center of the meadow is a large wooden box covering an old well, presumably once used for drinking water. This well needs to be properly abandoned according to Michigan Department of Environmental Quality (MDEQ) procedures.

Red Pine Plantation (approximately 9 acres)

After following the two-track south out of the meadow and past northern hardwood habitat, there is a plantation of red pine (*Pinus resinosa*) along the eastern and southern edge of the Seven Bridges property. Most likely planted for soil stabilization and future harvest, these trees are very close together and no understory exists except for along the two-track.

The soil within red pine forest is sandy, dry, and very homogenized or uniform suggesting past disturbances. One B horizon is present with a matrix color of 7.5YR 5/2 with no mottles present. The soil survey has Islandlake-Blue Lake complex, (0 to 6 percent slopes) mapped to the area with Southwells-Mancelona-Dighton complex (8 to 50 percent slopes) and Islandlake-Southwells complex (18 to 35 percent slopes) also being present in the area. Southwells-Mancelona-Dighton complex (8 to 50 percent slopes) is

4.0 Resource Inventory

a somewhat excessively drained to excessively drained soil found on ridge tops, side slopes, and escarpments on moraines. Islandlake-Southwells complex (18 to 35 percent slopes) is very similar to Southwells-Mancelona-Dighton complex (8 to 50 percent slopes) as far as drainage and location. However, its texture is much sandier with a color matrix similar to that of Islandlake-Blue Lake complex (0 to 6 percent slopes).

Recommended Management Actions

The red pine plantation is in need of thinning. This is particularly problematic because the rows were originally planted too close together. Red pine plantations like this one need to be thinned as they grow in order to promote the health and growth of the remaining trees. Because of the row spacing it will be difficult for even the narrowest logging equipment to remove every third row of trees (parallel to the two-track). One possibility is to remove every third or every other row of trees perpendicular to the two-track road. Other options that would allow the use of mechanized equipment are also possible. If this can be done consistent with this plan and recommended best forestry methods these would be consistent with this plan. Another possibility is to mark the individual trees that should be removed and to remove them by hand. While this would take longer than using commercial equipment, it may be more desirable because the plantation is quite small. This option would also prevent damage to other trees that may occur as a result of active mechanized logging. This may make hand implementation of timber stand improvement a feasible option. However, due to the small size of the red pine forest, the steep sloping topography, and the difficulty of accessing the stand with logging equipment it is unlikely to generate revenue. Since the red pine plantation provides little wildlife habitat, it is recommended that the DNR consider including this stand for harvest with other nearby stands or implement non-commercial TSI. Thinning will allow the land to revert back to northern hardwood forest. This progression, if documented with appropriate signage, could be a valuable educational exhibit. The two-track within the red pine plantation may also need appropriate substrate laid down to avoid rutting and erosion.

Northern Hardwood Forest (approximately 162 acres)

The areas around the meadow, red pine forest, and floodplain forest are dominated by northern hardwood forest habitat. Comprising the largest portion of Seven Bridges, this forest has a diverse flora with several species of trees. Although primarily dominated by sugar maple, this community also contains American beech (*Fagus grandifolia*), quaking aspen (*Populus tremuloides*), smooth sumac, black cherry, and in some small wetter depressions green ash (*Fraxinus pennsylvanica*) and American elm (*Ulmus americana*). Woody shrubs present include mapleleaf viburnum (*Viburnum*

4.0 Resource Inventory

acerifolium), alternate-leaf dogwood (*Cornus alternifolia*), and roundleaf juneberry (*Amelanchier sanguinea*). A woody plants inventory performed in 1998 gives a more detailed account of the trees and shrubs present at Seven Bridges is included as Appendix D. The herbaceous layer in the more open areas of the forest is comprised of bracken fern, goldenrod, asters, blackberry. Wildflower species including white trillium (*Trillium grandiflorum*) and miterwort (*Mitella diphylla*) are found throughout the forest. A herbaceous plant survey of the meadow, northern hardwood forest, and floodplain forest habitats is included as Appendix C. The northern hardwood forest habitat is found in several locations of the preserve including both elevated property sections west of Valley Road, areas east and south of the meadow, and a large strip east of the Root property that contains some wetland pockets.

The soil is dry and sandy with a 2-3 inch A horizon with a 7.5YR 2.5/1 matrix coloring with no mottles. Greater than three inches in depth, a B horizon is present with a 10YR 5/6 color pattern and no mottling. According to the soil survey, a majority of the northern hardwood forest has Islandlake-Blue Lake complex (0 to 6 percent slopes) as a substrate however, there are areas of Southwells-Mancelona-Dighton complex (8 to 50 percent slopes), Islandlake-Southwells complex (18 to 35 percent slopes), Islandlake-Blue Lake complex (6 to 12 percent slopes), and Croswell sand (0 to 3 percent slopes). Croswell sand (0 to 3 percent slopes) is found on flats and knolls of outwash plains, lake plains, moraines, and stream terraces. It is a moderately well-drained soil with a sandy texture. This forested habitat is most likely used by a multitude of wildlife as evidenced by turkey (*Meleagris gallopavo*) sightings and white-tailed deer (*Odocoileus virginianus*) tracks and droppings.

Recommended Management Actions

It is recommended that the northern hardwood forest be managed in accordance with current best management practices and DNR guidelines related to sustainable forests. This includes sustainable forestry activities, trail development, wildlife enhancements, and other actions consistent with a northern hardwood forest that will be used mainly for recreational purposes. All actions within this habitat should give special consideration to the aesthetic, interpretive, and cultural uses of the area. Also, management activities should be considered within the landscape context and potential impact on other natural features, such as wetlands, river, and meadow within the property.

Floodplain Forest (approximately 122 acres)

The topography (Figure 2) of the Seven Bridges property slopes towards the Rapid River creating large areas of floodplain forest habitat along its banks. When there was an operating mill on Seven Bridges property, much of the floodplain forest area was incorporated into the mill pond. Because of the mill dam and resulting pond, this forested area is not entirely natural and has

4.0 Resource Inventory

been greatly influenced by human activities. This influence is evident by the dam remnants and altered riverbanks still visible today. This floodplain forest is dominated by northern white cedar (*Thuja occidentalis*), but also contains sugar maple, quaking aspen, American beech, tamarack (*Larix laricina*), green ash, eastern white pine, and yellow birch (*Betula alleghaniensis*). The herbaceous layer of this habitat is frequented by bracken fern, club moss (Lycopodiaceae family), sedge (*Carex* sp.), herb-robert (*Geranium robertianum*), common buttercup (*Ranunculus acris*), and tall meadow-rue (*Thalictrum polygamum*). Upland plants like goldenrod, Queen Anne's lace (*Daucus carota*) and mullein (*Verbascus* sp.) also exist in disturbed areas. Within the floodplain forest, there are areas of emergent wetland habitat predominately in small depressions or along river banks. Wetland indicator species such as common cattail (*Typha latifolia*) marsh-marigold (*Caltha palustris*), cardinal flower (*Lobelia cardinalis*), turtlehead (*Chelone glabra*), and a diversity of sedges are found in this habitat type. Other trees, woody shrubs, and herbaceous plants existing within the floodplain forest are listed in Appendix C and Appendix D.

Hydric soils within the floodplain forest consist of an O horizon comprised on 12 inches of organic matter. Greater than 12 inches from the surface is a B horizon with a 10YR 6/3 matrix color and a sandy texture. Many, coarse, prominent mottles are present with a 2.5YR 3/6 color. According to the soil survey, the floodplain habitat contains Ausable-Bowstring mucks, frequently flooded. These soils are found on low flats and depressions along perennial rivers and creeks on floodplains. This type of hydric soil is very poorly drained with a seasonal high water table of 1.0 foot above to 0.5 foot below the surface. The surface layer and substratum can consist of up to 11 inches of black muck followed by substratum light brownish gray sand. This description mirrors the field observations and suggests that the floodplain habitat present at Seven Bridges does contain the hydric soil Ausable-Bowstring muck.

Other hydrologic indicators include inundation, saturated soils, drainage patterns, water-stained leaves, and buttressing of tree trunks. Natural springs are present within the forest leaving a rust color on rocks. Moss also covers rocks and the numerous fallen trees. These fallen trees provide excellent shelter and habitat for many woodland creatures, especially small mammals whose many burrows and tunnels were visible.

Recommended Management Actions

The main management concerns in the floodplain forest are the areas of bare soil susceptible to erosion. There are several unauthorized trails, created by visitors or anglers, branching off from the main trail or boardwalks. These trails are often on steep slopes in close proximity to the river. Exposing soil in this environment leads to erosion and sedimentation especially around the bridges and boardwalks. It is important that the creation of social trails be

4.0 Resource Inventory

discouraged to protect the river and its banks. Simply restricting access to these trails with temporary fencing and warning signs would most likely result in more unauthorized trails. The recommended solution is to create new marked walking trails providing access to visitors and anglers to these same locations. This way the new trails could be designed to be small, easily maintained, and avoid areas susceptible to erosion. With the public using the new trails, the unauthorized trails could then be fenced off and seeded to lessen erosion. Viewing platforms could also be constructed to focus access to the river to a few specific locations, effectively reducing bank erosion.

Timber harvest should be considered judiciously in riparian areas to be consistent with concurrent wildlife, fish, and recreational values. In addition, timber harvest in adjacent forest types should consider landscape implications, scenic impacts, and follow recommended best practices for sustainable logging.

Rapid River

The Rapid River is a Designated Trout Stream most recently surveyed in 2003. This cold water trout stream transverses the length of the Seven Bridges property and is the natural feature that brings many to the property. The Rapid River's channel is braided, that is the channel consists of a network of several small channels separated by temporary islands. The braided channels are confined by stable banks and range from less than 100 feet apart to approximately 500 feet apart. The Rapid River, as it flows through the Seven Bridges, contains several different aquatic environments which provide suitable habitat for fish and macroinvertebrates. Three species of trout can be found in the Rapid River. Brown trout (*Salmo trutta*), brook trout (*Salvelinus fontinalis*), and rainbow trout (*Oncorhynchus mykiss*) all having reproducing populations present. Other fish that may be found include slimy sculpin (*Cottus cognatus*), mottled sculpin (*Cottus bairdi*), chubs, suckers, dace, minnows, and darters. The 2003 Survey Analysis Report is included as Appendix E.

The four bridges are all located near the area of the historical mill. Bridges were likely constructed in this area because the hardened banks and dam remnants make this section of the river more stable, and therefore, more suitable for bridges than other areas within Seven Bridges.

Bridge 1- Near the parking area, the western-most bridge crosses a small channel of the Rapid River. This stream channel is characterized by a slow current, primarily sandy bottom, and low turbidity. Stream channel width is approximately 6 feet upstream of the bridge. At the bridge crossing there are several drops in elevation with the presence of boulders and cobbles speeding up the flow of the water. There is some sedimentation downstream of this rapid area. The stream channel widens downstream to a width of 10-15 feet. Suitable habitat for fish is present with the availability of cover in the form of

4.0 Resource Inventory

undercut banks and woody debris with the stream. A natural spring is present along the banks of the stream downstream of the bridge.

The bridge crossing itself is very altered and disturbed. A stone wall is present with large concrete slabs in and along the banks of the stream. These are remnants of the historic mill that was present on site for many years. Further research and investigation on the disposition of the dam remnants should be performed. Restoration of the stream channel in this area would allow for a more natural stream environment and better movement of aquatic organisms. The potential habitat improvements from stream restoration should be considered within the context of the historical value and preservation opportunities associated with the historical milling operation, and safety of the potentially deteriorating dam remnants.

Bridge 2- The bridge over the old dam again crosses a stream channel of the Rapid River. This section of stream has a very slow current with a thin layer of silt covering a substrate composed of sand, gravel, and cobbles. Being a wider and shallow stream channel, the upstream area is approximately 18 feet across while the downstream area is 20-25 feet across. The water has very little turbidity and flows through the remnants of the dam comprised of large boulders. Other stream characteristics include very little sedimentation, presence of natural springs, and woody debris for fish cover. Upon inspection of the cobble substrate downstream on the bridge, macroinvertebrates were identified including caddisflies (*Glossosoma* sp.), black flies (*Simulium* sp.), and midges (Chironomidae family). With the remnants of the old dam, the bridge crossing is very altered and disturbed. This area could be naturalized and the stream banks restored if structurally and economically possible. Erosion control measures should also be implemented at this site.

Bridge 3- This bridge spans the main channel of the Rapid River east of the previous bridges. A tributary flows into the river directly upstream of the bridge adding to the swift current. A mixed substrate is present composed of pebbles, cobbles, and boulders with very little sand. Riffle and pool habitat is present which is favored by trout and other salmonoid species as is woody debris and undercut banks. The river is 15-20 feet across at the bridge crossing. Despite the undercut banks and artificial riprap present, it is still less altered than the other crossings due to the lack of retaining walls, concrete, and dam remnants. Since most of the fishing takes place along the main channel of the river, bare soils and erosion susceptible areas are abundant in this area and need to be appropriately dealt with through the use of seeding, new trail construction and limiting access to sensitive areas. This will prevent erosion and sedimentation preserving this pristine trout habitat.

Bridge 4- Directly south of the previous bridge, the river in this section has a moderate flow with a sandy bottom containing some gravel. It is 10-20 feet across. There is a great deal of plant life and woody debris in and around the

4.0 Resource Inventory

waterway. The river is not turbid and the bridge crossing is more natural and less disturbed than any of the previous bridge areas.

Recommended Management Actions

Maintain existing bridges and trails in accordance with the American's with Disability Act (ADA), as applicable. Evaluate the structural stability and safety of the dam remnants periodically to insure that the bridges are safe. If stability of the bridges becomes an issue restoration of the stream channel, potentially including removal of the dam remnants, should be investigated to reduce erosion and restore the stream to a more natural condition. Since the dam remnants may qualify as historical structures any invasive actions should consider local input.

Mineral Rights and Hydrocarbon Development

The State of Michigan provides mineral ownership information at the quarter-quarter section. The state has the following ownership in the section with Seven Bridges Area (T28N, R8W section 24):

- 100% mineral rights on the following quarter-quarter sections NENE; SENE; NWNW; SWNW; part of the W1/2SE; SESW & part of the SWSW.
- 50% mineral rights on the following quarter-quarter sections NWNE; part of the SWNE; NENW; SENW; NESE; part of the NWSE & part of the SWSE quadrants.
- 58% mineral rights on part of the SESE quarter-quarter section.

The mineral and hydrocarbon rights to the Seven Bridges area are classified as "lease, non-development. Thus, oil, gas, and minerals could be extracted, but no surface disturbances are allowed. Access to minerals and hydrocarbons under these properties could utilize directional drilling. Legal extraction of any surface minerals on adjacent parcels will require a Kalkaska County Soil Erosion Control Permit, as well as applicable permits from the Michigan Departments of Natural Resources and Environmental Quality.

Recommended Management Actions

The State should issue only non-development leases for subsurface minerals within Seven Bridges and prohibit any exploitation of surface minerals such as peat, sand, or gravel where possible. Surface mineral extraction does not fit with the naturalistic designation sought for Seven Bridges by the DNR and GTRLC due to the destruction of wildlife habitat, and the ruination of the aesthetic values. It is therefore recommended that the State not grant any access easements to any parcel for the purposes of mineral extraction. All reasonable efforts should be made for fee simple ownership, including all mineral rights, of any new additions to the Seven Bridges.

4.0 Resource Inventory

SEVEN BRIDGES PRESERVE

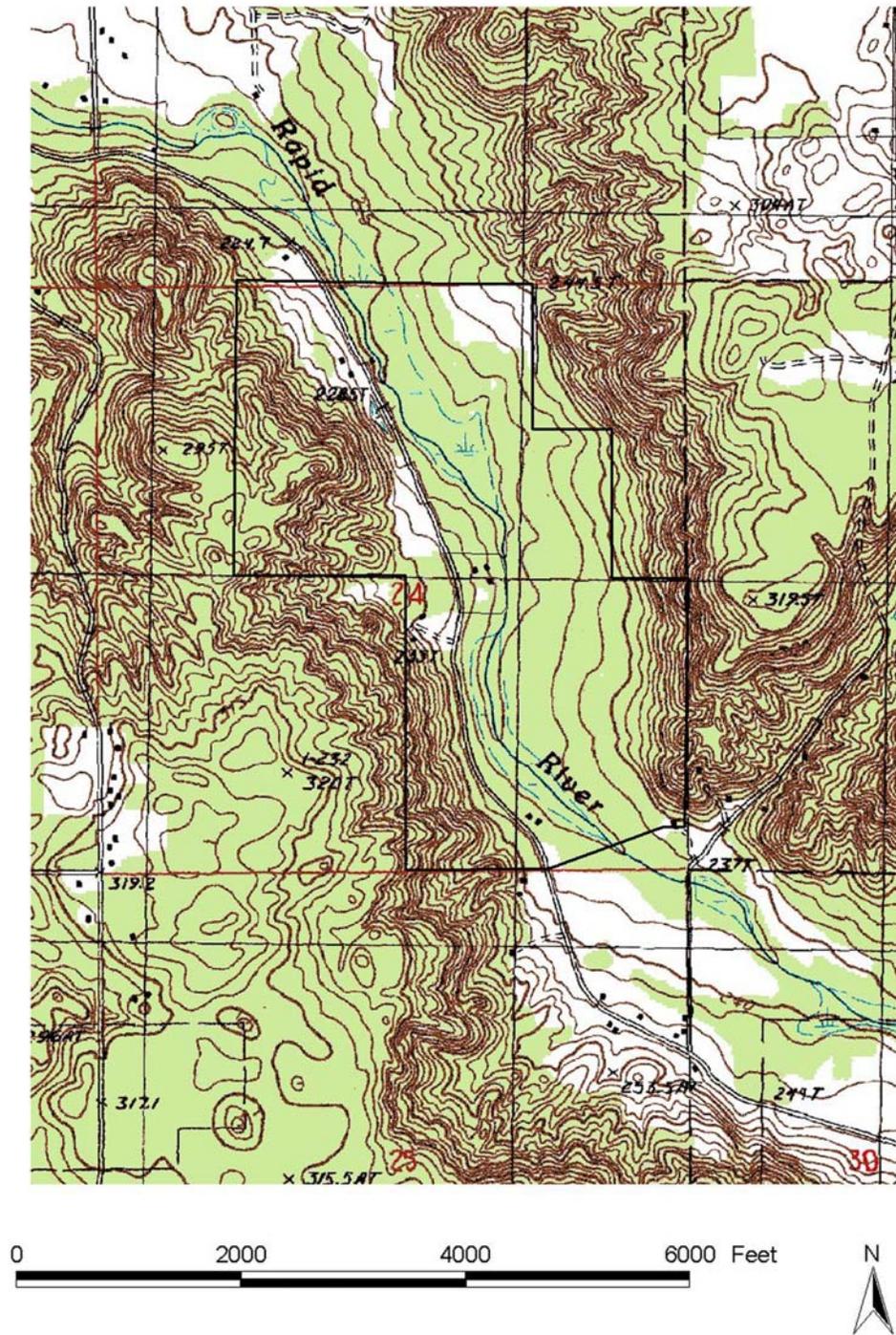


Figure 2. Topographic map of Seven Bridges.

4.0 Resource Inventory

Infrastructure Features

Within the Seven Bridges, several different built or manmade structures exist. This infrastructure includes trails, two-tracks, bridges, buildings, and storage sheds. The infrastructure present existed prior to state ownership. The bridges, trails, and two tracks have been maintained and improved to support recreational opportunities. The buildings, serving no useful purpose, have fallen into significant disrepair. These infrastructure components differ by use (or lack thereof), type, and historical significance; therefore each requires different management and conservation practices.

Trails

The marked trail system (Figure 3) within the Seven Bridges boundary is limited to the bridge area. The trail, bridges, and boardwalk system connects the parking area with the east side of Rapid River, the grassed meadow, and unimproved two-track. The bridge area trail system connects to a short loop around the meadow, and the east bank of Rapid River. Numerous undesignated, “social trails” access the rivers edge. The trail system primarily provides easy access to views of the river, fishing sites, and off-trail exploration on the east side of the river. Existing trails in the bridge area are ADA compliant and are maintained as such. Past GTRLC literature on the Seven Bridges indicate the presence of a trail from the parking area west to a valley overlook on the high ridge. This “trail” is a two track, and is not well marked.

Both trail systems offer excellent recreational opportunities that would appeal to a variety of users. The trail system on the east side of Valley Road that links the bridge area with the east side of rapid river and the meadow provides easy access to riparian views, fishing sites, the meadow and two track. The trail to the valley overlook provides a steep climb and panoramic views of the river valley. Both sets of trails offer opportunities valued by the recreational community.

4.0 Resource Inventory

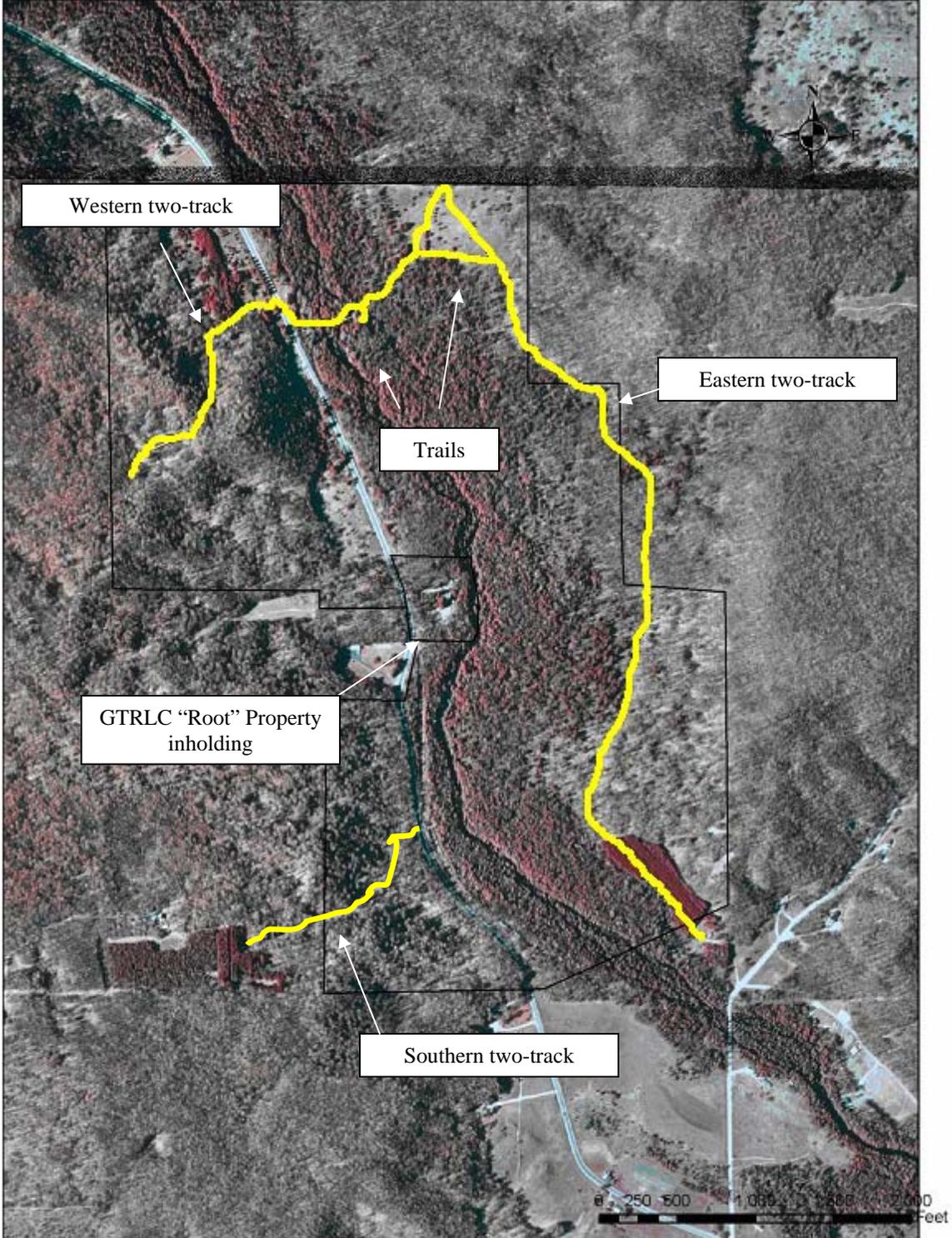


Figure 3. Existing trails and two-tracks at Seven Bridges

4.0 Resource Inventory

Recommended Actions

Exceptional opportunities exist to link the existing trail system to the GTRLC in-holding, the Root property. Future trails linking the bridge area, to the Root property could include a river crossing and trails on the east and west bank of the Rapid River. For example, an abandoned railroad grade exists between Valley Road and the Rapid River. This feature could be converted into a trail that connects the GTRLC property to Seven Bridges. Such a trail system would complete a loop that covers significant portions of the Seven Bridges. A trail system on this property would provide hiking, birding, fishing, and snowshoeing, and Nordic skiing opportunities. The feasibility of a trail system that includes a loop, river crossing, access to the Root property, and access to other areas of Seven Bridges should be evaluated.

Two-tracks

Three unimproved two-tracks exist within the Seven Bridges Area (Figure 3). A two track roughly follows the eastern property line, and another accesses the ridge on the west side of Valley Road. A third two-track traverses the property near the southern boundary of the Seven Bridges Area. The eastern two-track begins at Valley Road and terminates at Dundas Road, and traverses the Seven Bridges Area. An easement provides neighboring land owners access to the eastern two-track and requires it be left unobstructed. The two-track on the west side of valley road is entirely within Seven Bridges boundary. The southern two-track runs from Valley Road through the Seven Bridges Area and continues onto private property. All two-tracks are unimproved and showed signs of erosion. The two-track traversing the meadow may need proper substrate laid down to avoid rutting and erosion. The two-track on the west side of Valley Road is built on a steep grade. It showed signs of limited use, but did exhibit signs of erosion. The southern two-track showed signs of use. There are no deed restrictions related to access for the western or southern two-tracks.

Recommended Actions

Monitor and observe erosion related to two-track use. If erosion worsens or begins to have significant impact to the property, repairs and improvements should be undertaken. Improvements, if desired, should include proper substrate. This addition will reduce rutting and erosion. The two-track on the west side of Valley Road is built on a steep grade and is accessible to vehicular traffic. Currently, no signage indicates that a two-track exists on the west side and this likely diminishes its use. It is recommended that the western and southern two-track have a gate installed to limit vehicle access.

Bridges

Four bridges exist at Seven Bridges and are described in detail in the “Rapid River” section. All bridges are ADA compliant and must be maintained as such. Additional bridges should be considered as a method to link existing hiking trails to other GTRLC managed property and as part of a

4.0 Resource Inventory

comprehensive trail plan that would open more of the natural area to visitors. It is not recommended that additional bridges be constructed so that the natural area has seven bridges as its name implies.

Buildings

Several buildings and structures exist on the property. All of them are in disrepair and should be properly removed or demolished. The buildings include a shed located at the parking area, an old homestead across Valley Road from the parking area, and a hunter's cabin near the southern boundary of the property. The structures are potential hazards and may constitute attractive nuisances. Each structure and recommended management practices are described below.

Garage/Shed near Parking area

A dilapidated shed and garage structure exists at the bridge area parking lot. The garage is a stick-built, two room structure, with asphalt shingles and wood siding. The room on the west side has a cement floor while the east room has a dirt floor. Large holes exist in the roof and door that allow precipitation and animals into the structure. The building is run-down and in need of removal.

Old Homestead

The old homestead, located on the west side of Valley Road across from the parking area, was built, or re-built in the 1930's. The home is approximately 1,100 square feet, is stick built, has some cedar siding, and a field stone fireplace and chimney. The home is in disrepair and is uninhabitable. Significant repairs would be needed to bring the home into compliance with modern health and safety codes. The long-term recommendation is that the house is removed and its water supply well be properly abandoned. In the near-term "no-trespassing" and "keep-out" signs should be posted and the buildings monitored for illegal activity.

Hunters Cabin

The hunter's cabin is a structure located near the southern boundary of Seven Bridges. It can be accessed from the eastern two-track and is near Dundas Road. The cabin is a modest structure of approximately 800 square feet. Neither the design, construction material, or apparent age indicates that this structure has any historical significance. The cabin is stick-built, has an asphalt shingled roof, and manufactured siding. The cabin is in disrepair. A tree has fallen on the structure and partially demolished the building. It is uninhabitable and the damage sustained by lack of maintenance and the fallen tree make repair or salvage uneconomical. It is recommended that the hunter's cabin be removed and its water supply well (if one exists) be properly abandoned. In the near-term "no-trespassing" and "keep-out" signs should be posted and the buildings monitored for illegal activity.

4.0 Resource Inventory

Other Management Practices Recommended

Several recommended management practices cover multiple habitat areas. These recommendations are presented in this section.

Biological Inventories- A series of biological inventories are integral to understanding and preserving the flora and fauna of the Seven Bridges. An extensive plant inventory would increase the knowledge of the native plant communities present on the property and how the habitats are changing. Inventories of which animals are present, especially birds, fish, and aquatic invertebrates, could gauge the quality and the overall health of the natural resources present at Seven Bridges. These inventories could also be used for educational purposes, as well as, a tool to attract visitors (bird-watchers and fishermen) to the property.

Illegal Activities- The Seven Bridges area can be used for general recreational purposes, such as but not limited to hunting, fishing, trapping, bird watching, berry and mushroom picking, hiking, skiing, snowshoeing, horseback riding, ecological research and/or nature study. Although the Seven Bridges property is regularly monitored by GTRLC staff and volunteers, illegal activities such as dumping, poaching, and un-permitted logging are still a threat. For example, un-permitted logging took place in 1996 with a total of 632 trees cut illegally. These trees were valued at approximately \$29,500. According to the professional forester hired by this GTRLC, it was the most inappropriate logging activity he had ever seen. No known logging has taken place since that time. The monitoring and security of the Seven Bridges should be increased to combat illegal activities. Signs stating acceptable and prohibited activities should be posted at points of entry along with an emergency contact so illegal activities can be reported.

Educational Endeavors- The GTRLC should encourage other organizations whose primary mission is environmental and natural resource education to utilize the Seven Bridges. Tours, speakers, and bird-watching events could increase the amount of visitor and community involvement with the preserve and GTRLC. Local grade schools, high schools, and colleges and other programs could bring students out to Seven Bridges. A visit to Seven Bridges could be part of a field trip, laboratory exercise, or a chance to perform a wildlife/plant inventory. Getting more community members involved with help with funding, volunteering, increasing the number of visitors, reporting illegal activities and raising community awareness.

Survey – A boundary survey should be conducted and boundaries marked so that GTRLC staff and other visitors can identify the limits of Seven Bridges. This will help GTRLC staff monitor activities within and adjacent to Seven Bridges insuring that action can take place when unauthorized activities take place on GTRLC property. In addition, a topographical survey will be needed for potential sites if additional bridges are to be constructed on the property.

5.0 Analysis

Natural Resource Quality and Condition

The resources present at Seven Bridges seem to be very natural despite past human activity. The most unique aspect of the property is the Rapid River and the fish, wildlife, and floodplains it supports. This cold water trout stream supports reproducing populations of three trout species. Although, a high quality natural area, no formal quantified ranking or mapping of the natural resources at Seven Bridges has occurred. It is recommended that all streams, plant communities, and natural features are delineated and mapped. Also biological inventories of plant and animal species should be performed to aid in assessing the overall natural resource value as compared to other local, regional, or state areas. They will also help with future refinement of management goals for the Seven Bridges. This will provide a context to determine how rare the natural features present at Seven Bridges are.

The current size of Seven Bridges seems to be sufficient to ensure the viability of this area by natural processes. This determination is undoubtedly influenced by the fact that most of the neighboring properties are undeveloped and rather natural. As development and urbanization edges closer to Seven Bridges, the viability of the natural area will decrease. Exotic species are present and naturalized in the Seven Bridges, including brown and rainbow trout planted after extinction of the grayling. Many of the plants in the meadow habitat are also exotic species. Most of the exotics are species have already been established throughout Michigan for years.

There are four invasive species that are currently spreading in this region that could pose a threat to Seven Bridges.

- Zebra mussels (*Dreissena polymorpha*) are small shellfish named for the striped pattern on their shell. They attach to any stable structure in the water column and can filter up to a liter of water per day. Algae and other suspended particles are removed by zebra mussels resulting in increased clarity potentially leading to increased macrophyte biomass and stream temperatures. Zebra mussels are found in the Great Lakes, inland lakes, and inland streams. They are currently (as of 2007) present upstream of Seven Bridges in Antrim Pond.
- The common reed (*Phragmites australis*) is a tall grass that inhabits wet areas like brackish and freshwater marshes, riverbanks, lakeshores, ditches and dredge spoil areas. Native and introduced forms of *Phragmites* occur in the United States. Researchers believe that introduced European forms are the aggressive invasives that have replaced much of our native reed.
- The rusty crayfish (*Orconectes rusticus*) require bodies of water with plenty of cover including rocks, logs, or tree branches. They are voracious feeders and eat aquatic plants, invertebrates, and fish eggs, and small fish. The Rusty Crayfish is considered a threat to Michigan's native crayfish population, and their activities reduce of aquatic plant beds and the species

5.0 Analysis

that live in these communities resulting in fish lose nesting areas and shelter.

- Purple loosestrife (*Lythrum salicaria*) may also pose a threat to wetland habitat at Seven Bridges. This plant can dominate wetlands creating monotypic stands that inhibit native plants destroying waterfowl nesting sites and making the wetland useless to many wildlife species.
- Garlic mustard (*Alliaria petiolata*) is an exotic plant from Europe that invades woodland habitat and impacts forest biodiversity. This plant forms dense stands that displace native spring ephemerals and tree saplings causing negative impacts to native wildlife. For example garlic mustard changes the forest leaf litter composition and depth affecting salamanders and mollusks. It also replaces local plant species that native butterflies require for successful development of their eggs.

None of these invasive species were observed in Seven Bridges; however, special effort should be made to identify these species as soon as they are introduced to the area. This will increase the chances to eradicate the invaders before a large population is established.

Landscape Context

Most of the surrounding area around Seven Bridges is undeveloped northern hardwood forest. There are some residential structures bordering the property; however, these seem to be single homes with no neighborhood communities existing. Because the adjacent lands are usually single owner residential property, it provides the GTRLC a unique opportunity to work with the land owners.

Coordinating management activities or adding to the Seven Bridges would create one large contiguous natural site, increasing its natural resource value. Coordinated management with the large neighboring parcels east of Valley Road near the Rapid River is especially important due to their size and river frontage. The ability to expand by adding relatively undeveloped land is an opportunity most parks and preserves do not have and should be taken advantage of, if possible.

Since most of the neighboring properties seem to be residential or undeveloped, the natural resources of Seven Bridges are not in danger from local landowners. Despite this, locating and contacting adjacent property owners to discuss future land use intentions would assist in developing future coordinated land management plans. The Rapid River, however, could be adversely affected within the natural area by activities, such as construction, in far upstream locations. An in-depth look at land use along the Rapid River would be helpful for stream management purposes. Cooperation with local watershed and stream groups is recommended.

Appendix A: Legal Documents

- Certificate of survey;
- Legal property description, and;
- Property transfer documents.



Grand Traverse Regional Land Conservancy

624 Third Street, Traverse City, MI 49684
Telephone: (616) 929-7911 Fax: (616) 929-0433

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March 30, 1995

Jeanne L. Powers, Grants Coordinator
Recreation Grants Section
Administrative Services Division
P.O. Box 30028
Lansing, MI 48909

Dear Jeanne:

I am writing to nominate the Seven Bridges property for a Michigan Natural Resources Trust Fund grant to fund acquisition by the Michigan Department of Natural Resources. Located in Kalkaska County's Clearwater Township, the 291-acre parcel has a mile of frontage on both sides of the Rapid River and is adjacent to state land contained within the Pere Marquette Forest.

Although in private ownership, Seven Bridges is a well-known attraction for recreational activity in Kalkaska County and a significant land conservation opportunity for the state of Michigan. It offers some of the best fly-fishing opportunities in the region for anglers in pursuit of inland steelhead, brook, rainbow, and brown trout. Moreover, the bottomland conifer swamps and spring seeps located adjacent to the river help to maintain the high water quality of the rivers and lakes downstream.

Recently, concerns were raised when plans were announced to split up the property into ten-acre lots to be sold for residential development. In response, the Grand Traverse Regional Land Conservancy approached the owners about the possibility of selling the land to the state and entered into a ten month option with the owners on 30 DEC 94, with an optional one year extension. Local support for state acquisition of this parcel is extremely strong as evidenced by the support letters included with our nomination and resolutions from Clearwater Township and Kalkaska County.

Thanks for your attention to this important matter. Please do not hesitate to call if you have any questions.

Sincerely,

Glen A. Chown
Executive Director

cc: Dr. David Mahan, Au Sable Institute
Dennis Vitton, MDNR, Kalkaska Field Office
Michael Gaylord, Clearwater Township Supervisor
James Green, Kalkaska Co. Board Chairman
Virginia Lee, Kalkaska Co. Board District One



recycled paper

Protecting Land in Antrim, Benzie, Grand Traverse and Kalkaska Counties.



MICHIGAN NATURAL RESOURCES TRUST FUND NOMINATION FOR PUBLIC LAND ACQUISITION

This information is required by the Michigan Natural Resources Trust Fund Act 101 of 1985 to nominate land for purchase under the program.

For State Use Only	
Nomination #	State Senate Dist.
Region #	State House Dist.

INSTRUCTIONS: Under the Michigan Natural Resources Trust Fund Program, any individual, group, or organization may nominate parcels of land for acquisition by a public agency. Acquisition may be for recreation or resources protection purposes. If you are a private citizen, or represent a group or organization and wish to nominate land for public acquisition, provide the information below and attach a map illustrating the parcel(s) to be acquired, and its legal description(s).

If you represent a unit of government (state agency, county, city, village, township or school district) and wish to apply for a grant to acquire land or construct recreation facilities, you must obtain and complete the COMBINED RECREATION GRANT APPLICATION FORM (PR 5750). These forms are available from the Administrative Services Division, Department of Natural Resources, at the address shown on the reverse side.

1. Project Title <u>Seven Bridges, Rapid River, Kalkaska County</u>			
Name of Sponsor <u>Grand Traverse Regional Land Conservancy</u>			
Address <u>624 Third Street</u>		Phone # <u>(616) 929-7911</u>	
City <u>Traverse City</u>	State <u>Michigan</u>	Zip <u>49684</u>	
2. Location of site (attach an 8 1/2" X 11" plat map, indicating site).			Town & Range #s: <u>28N, 8W</u>
County: <u>Kalkaska</u>		City, Village, or Twp.: <u>Clearwater</u>	Section #: <u>24</u>
3. Brief physical description of parcel proposed for acquisition. The Seven Bridges parcel is 291 acres of unusual natural diversity. Bisecting this tract is over one-mile of frontage on the Rapid River, a blue ribbon trout stream. The name, Seven Bridges, comes from the small wooden bridges (now only four) that cross the braided channels of the river. Diverse, second-growth forests cover most of the area, with northern hardwoods on the ridges and cedar-hemlock-hardwoods along the river and in the adjacent valley. Thirty acres of old fields contribute to the diversity of wildlife habitat. Topographically, the property exhibits high, steep hills on the north and south, separated by the relatively narrow stream valley. This combination of high hills, rich forests and a pristine stream imparts a special quality to Seven Bridges. The property adjoins the Pere Marquette State Forest boundary on its southeast corner and is contiguous with state land. Access to Seven Bridges is readily available off Valley Road, the main county trunkline between Kalkaska and Rapid City. The road generally parallels the course of the river across the parcel. Besides the bridges, the only improvements are an old frame house and shed, both of which could be easily salvaged or demolished.			
4. Enter all requested information for each proposed parcel.			
Name and Address of Landowner		Acreage	State Equalized Value ('94)
Rapid River Estates c/o Bernard Schueren 32804 Jefferson Avenue St. Clair Shores, MI 48082 (810) 296-6440		290.57	\$111,200
Total		290.57	\$111,200
5. Legal Description of Parcel(s). Use separate sheet if needed. See Attached (surveyor's legal description)			
6. Whom do you propose to own, operate, and maintain this land for public recreation? (Name of Unit of Government) <u>State of Michigan, DNR Forest Management/Fisheries</u>			

7. Will the proposed acquisition preserve any rare, fragile, or scenic natural feature, or protect any rare or endangered plant or animal? yes (explain) no
 The diverse natural communities at this site, particularly the fragile Rapid River bottomlands, are exemplary. Inland steelhead, rainbow, brown, and brook trout are all reproducing in the river and tributary streams fed by spring seeps.

8. Will the site provide access to any of the following? A complete botanical inventory may uncover rare species.
 Great Lakes or connecting waters Inland Lake River or Stream
 Identify the body of water and amount of frontage in feet.
Over one mile on Rapid River, including both sides (>10,000' of frontage)

9. Does the site provide opportunities for any of the following?
 Hunting Fishing other wildlife related activities

10. What major city is nearest the site? Traverse City
 How many miles from the city is the site? @30 miles

11. Acquisition would be by (check one)
 negotiated purchase gift other (specify) _____

12. Are there any buildings or improvements on the site? yes (see #3) no

13a. Have the landowners been contacted regarding the availability of the parcel(s)?
 yes no I am the landowner

13b. Is the parcel immediately available for purchase? yes no

14. In the space below, describe why you believe the area is valuable for recreation or resource protection.

- The Seven Bridges property is truly outstanding in its fishery, wildlife, forestry, natural history and scenic values. It is unusual to be able to purchase such a large chunk of river in this rapidly developing part of the state (state Demographer has projected 18.1% growth rate in Kalkaska Co. between years 1990-2000).
- The Rapid River is a blue-ribbon trout stream and this mile-long stretch offers everything from brook to trophy-sized rainbow and brown trout fishing, as well as spawning fish from Elk-Skegemog Lakes. Protecting this property would help maintain the high water quality of this interconnected system of rivers and lakes.
- Due to its downstream location, Seven Bridges will complement the considerable state ownership in the headwaters of the Rapid River Watershed and protect a valuable wildlife corridor. Currently, the only legal access to most of the lower river is at road crossings.
- Although the land is in private ownership, there is a long history of public recreational use of this property (fishing, hunting, hiking, skiing, college-level stream ecology classes, trout festival trolley tours, picnics, etc.). Public access would be cut-off if the proposed development plan goes forward (more than two dozen ten-acre lots that are laid out in long strips perpendicular to both sides of the river).
- Local support for state acquisition of the property is incredibly strong. Clearwater Township and Kalkaska County have unanimously passed resolutions of support along with the Trout Festival Board, Kalkaska Village Council, Au Sable Institute and others.

CERTIFICATION: I certify that all statements on this nomination form are true, complete, and accurate to the best of my knowledge.
Glen A. Chow (Glen A. Chow) Executive Director 3/23/95
 Signature of Nominator Date

Mail completed form to:
 RECREATION GRANTS SECTION
 ADMINISTRATIVE SERVICES DIVISION
 MICHIGAN DEPARTMENT OF NATURAL RESOURCES
 PO BOX 30425
 LANSING MI 48909-7925

EXHIBIT A
Order Confirming Sale
of Real Property

Description:

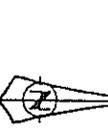
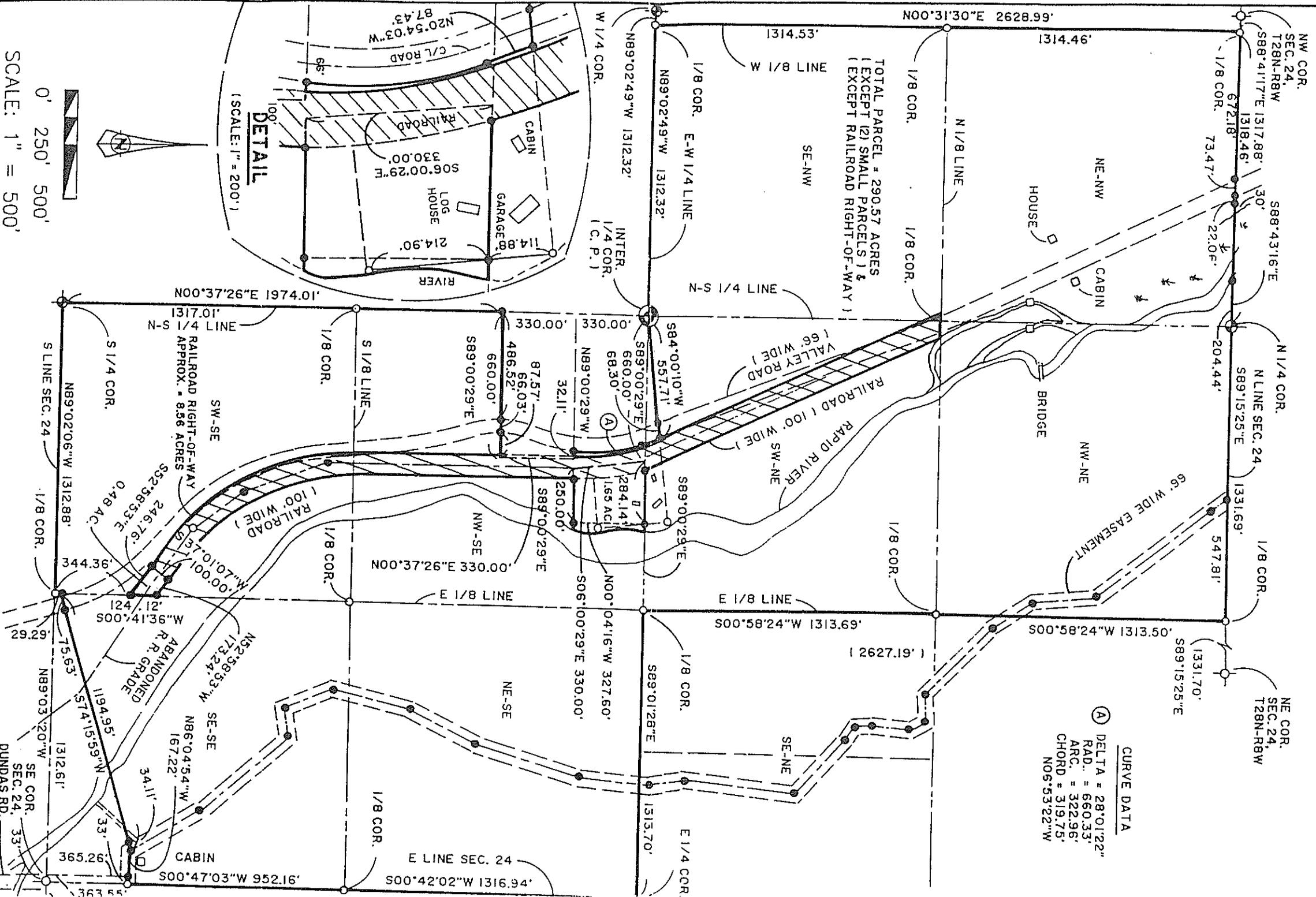
A parcel of land situated in the Township of Clearwater, County of Kalkaska, State of Michigan, and described as follows, to-wit:

The East 1/2 of the Northwest 1/4 and that part of the West 1/2 of the Northeast 1/4 and that part of the southeast 1/4 of Section 24, T28N-R8W, described as beginning at the North 1/4 corner of said Section 24; thence S89°15'25"E along the North line of said Section 24, 1311.69 feet to the East 1/8 line of said Section 24; thence S00°58'24"W along said East 1/8 line, 2627.19 feet to the East-West 1/4 line of said Section 24; thence S89°01'28"E along said 1/4 line, 1313.70 feet to the East line of said Section 24; thence S00°42'02"W along said East line, 1316.94 feet to the South 1/8 line of said Section; thence S00°47'03"W along the East line of said Section, 952.16 feet; thence N86°04'54"W, 167.22 feet; thence S74°15'59"W, 1194.95 feet to the East 1/8 line of said Section 24; thence S00°41'36"W along said East 1/8 line, 29.29 feet to the South line of said Section 24; thence N89°02'06"W along said South line, 1312.88 feet to the North-South 1/4 line of said Section 24; thence N00°37'26"E along said North-South 1/4 line, 1974.01 feet; said point being S00°37'26"W, 660.00 feet from the Interior 1/4 corner of said Section 24; thence S89°00'29"E, 660.00 feet; thence N00°37'26"E, 330.00 feet; thence S89°00'29"E, 360.83 feet being 330.00 feet South of and parallel with the East-West 1/4 line of said Section 24 to the center thread of Rapid River said point being S89°00'29"E, 73.16 feet from an iron; thence N35°40'03"W, 70.02 feet along said center thread; thence N00°23'52"E, 206.66 feet along said center thread; thence N10°36'59"W, 282.38 feet along said center thread to a point which is S89°00'29"E, 136.70 feet from an iron; thence leaving said center thread N89°00'29"W parallel with said East-West 1/4 line, 507.71 feet to the East right-of-way line of Valley Road; thence S20°54'03"E along said right-of-way line, 154.10 feet; thence S84°00'10"W, 557.71 feet to the interior 1/4 corner of said Section 24; thence N89°02'49"W along the East-West 1/4 line of said Section 24; thence N00°31'30"E along said West 1/8 line, 2628.99 feet to the North line of said Section 24; thence S88°43'16"E along said North line, 1318.46 feet to the said Point of Beginning. Except that part of the Southwest 1/4 of the Southeast 1/4 of Section 24, T28N-R8W described as commencing at the South 1/4 corner of said Section 24; thence S89°02'06"E along the South line of said Section, 1312.88 feet to the East 1/8 line of said Section 24; thence N00°41'36"E along said East 1/8 line, 159.64 feet to the centerline of Valley Road for the Point of Beginning; thence continuing N00°41'36"E, 308.84 feet to the North right-of-way line of the Old Pere Marquette railroad; thence N52°58'53"W along said right-of-way line, 173.24 feet; thence S37°01'07"W, 141.41 feet to the centerline of Valley Road; thence S46°58'08"E, along said centerline, 41.07 feet; thence Southeasterly 334.25 feet along said centerline and the arc of a 791.74 foot radius curve to the right chord of S34°52'28"E, 331.78 feet to the said Point of Beginning. Containing 294.52 acres of land more or less.

SUBJECT TO AND TOGETHER WITH a 33 foot and a 66 foot wide easement for ingress, egress and the installation and maintenance of public and private utilities, described as: that part of the East 1/2 of Section 24, described as being a strip of land 33 feet in width, lying 33 feet West of and adjacent to a line described as; Beginning at the Southeast corner of said Section 24; thence N00°47'03"E, 363.55 feet along the East line of said Section 24 to the Northeast corner of a 6.69 acre parcel of land; thence continuing with a 66 foot wide easement lying 33 feet on each side of an adjacent to the following courses; thence N86°04'54"W, 167.22 feet; thence N30°22'36"W, 346.05 feet; thence N41°42'29"W, 515.37 feet; thence S83°55'04"W, 131.29 feet; thence N20°16'32"W, 234.24 feet; thence N15°32'51"E, 365.20 feet; thence N27°55'47"E, 307.89 feet; thence N16°22'14"E, 499.64 feet; thence N05°05'20"E, 331.93 feet; thence N08°26'58"W, 174.81 feet; thence N07°34'43"E, 496.65 feet; thence N46°49'55"W, 338.41 feet; thence N55°10'17"W, 63.09 feet; thence N09°23'53"W, 88.38 feet; thence N06°41'49"E, 177.56 feet; thence N34°01'16"W, 65.41 feet; thence N88°23'14"W, 110.63 feet; thence N52°32'02"W, 426.32 feet; thence N23°54'08"W, 244.72 feet; thence N05°36'39"W, 269.46 feet; thence N37°40'00"W, 631.08 feet; thence N32°06'17"W, 101.96 feet to the North line of said Section 24 for the Point of Ending, said point being 783.88 feet East of the North 1/4 corner of said Section 24. Also SUBJECT TO right-of-way for Valley Road. Also SUBJECT TO easements and restrictions of record.

ALSO: The West 1/2 of the Southeast 1/4 of the Northeast 1/4 of Section 24, T28N, R8W. Clearwater Township, Kalkaska County, Michigan.

CERTIFICATE OF SURVEY



0' 250' 500'

SCALE: 1" = 500'

DETAIL
(SCALE: 1" = 200')

FARRIER SURVEYING
 P.O. BOX 998
 244 CEDAR STREET
 KALKASKA, MI 49646
 PHONE (616) 258-8162
 FAX (616) 258-3249

CLIENT: **BERNARD J. SCHUREN**
 DESCRIPTION: **PART OF SECTION 24, T28N-R8W, CLEARWATER TOWNSHIP, KALKASKA COUNTY, MICHIGAN**

DRAWN BY: **JM** JOB No. **8889**
 CHECKED: **EDF** Fd. Bk. Pg.
 REVISED: DATE: **3-4-96**
 SHEET: **1** of **4**

Appendix B: Bird Survey

Bird Survey of Seven Bridges Natural Area

Date: May 28, 1998
Time: 9:30-11:30 a.m.
Weather: Mostly light rain
Observers: Au Sable Field Ornithology class

Species recorded:

1. Canada Goose
2. Ruffed Grouse
3. American Woodcock
4. Mourning Dove
5. Yellow-bellied Sapsucker
6. Hairy Woodpecker
7. Eastern Wood-Pewee
8. Eastern Phoebe
9. Great Crested Flycatcher
10. Red-eyed Vireo
11. Blue Jay
12. American Crow
13. Black-capped Chickadee
14. Tufted Titmouse
15. Red-breasted Nuthatch
16. Brown Creeper
17. Winter Wren
18. Veery
19. Hermit Thrush
20. Wood Thrush
21. American Robin
22. Cedar Waxwing
23. Nashville Warbler
24. Chestnut-sided Warbler
25. Magnolia Warbler
26. Yellow-rumped Warbler
27. Black-throated Green Warbler
28. Blackburnian Warbler
29. Black-and-White Warbler
30. American Redstart
31. Ovenbird
32. Mourning Warbler
33. Scarlet Tanager
34. Chipping Sparrow
35. Song Sparrow
36. White-throated Sparrow
37. Rose-breasted Grosbeak
38. Indigo Bunting
39. Red-winged Blackbird
40. American Goldfinch

Appendix C: Herbaceous Plant List

Table 1. Frequency of occurrence (%) and density (individuals/m²) of herbaceous, non-graminoid plants found in riparian, forest, and meadow habitats at the Seven Bridges Preserve near Rapid City, Michigan, 28 May 1998. N,N = number of intervals/total area (m²) sampled in each habitat, respectively. NC designates that density of species was not calculated.

Riparian habitat (N,N = 75,50)

<u>Species</u>	<u>Frequency</u>	<u>Density</u>
<i>Arisaema atrorubens</i>	8	NC
<i>A. triphyllum</i>	3	NC
<i>Aralia nudicaulis</i>	3	0.04
<i>Berberis vulgaris</i>	3	0.12
<i>Caltha palustris</i>	93	2.54
<i>Cystopteris bulbifera</i>	5	NC
<i>Cirsium vulgare</i>	15	0.08
<i>Cypripedium calceolus</i>	5	0.16
<i>Equisetum spp.</i>	69	1.68
<i>Fragaria virginiana</i>	1	NC
<i>Geranium robertianum</i>	5	NC
<i>Mentha sp.</i>	13	NC
<i>Phytolacca americana</i>	9	NC
<i>Ranunculis acris</i>	52	2.20
<i>Rumex spp.</i>	9	0.02
<i>Senecio aureus</i>	19	0.41
<i>Smilacina racemosa</i>	4	0.06
<i>Solidago spp.</i>	48	3.56
<i>Taraxacum officinale</i>	19	0.36
<i>Thalictrum polygamum</i>	41	0.56
<i>Urtica sp.</i>	32	1.10
<i>Viola spp.*</i>	16	NC

*Flowering plants were *V. cucullata*, but many individuals identifiable as violets had no flowers.

Forest habitat (N,N = 45,64)

<u>Species</u>	<u>Frequency</u>	<u>Density</u>
<i>Actaea alba</i>	22	0.05
<i>Aralia nudicaulis</i>	42	0.41
<i>Fragaria virginiana</i>	7	0.05
<i>Hepatica acutiloba</i>	40	1.19
<i>Mainthemum canadense</i>	51	2.53
<i>Mitella diphylla</i>	2	NC
<i>Polygonatum biflorum</i>	56	1.75
<i>Solidago spp.</i>	47	0.28
<i>Trillium grandiflorum</i>	42	0.45
<i>Uvularia sp.</i>	40	0.19
<i>Viola spp.</i>	24	0.38

Meadow habitat (N/N = 35/26)

<u>Species</u>	<u>Frequency</u>	<u>Density</u>
<i>Antennaria sp.</i>	14	1.12
<i>Epilobium angustifolium</i>	23	0.04
<i>Fragaria virginiana</i>	23	0.58
<i>Hieracium aurantiacum</i>	51	1.15
<i>H. pratense</i>	20	NC
<i>Potentilla sp.</i>	3	0.04
<i>Pteridium aquilinum</i>	77	4.54
<i>Rubus spp.</i>	91	1.35
<i>Taraxacum officinale</i>	14	0.08
<i>Tragopogon pratensis</i>	3	NC
<i>Vernonia sp.</i>	37	1.38

Background and methodology: The enclosed data represent an initial survey of herbaceous flowering plants at the Seven Bridges Preserve along Michigan's Rapid River near Rapid City, Michigan. Plants were identified by Fred Van Dyke, Associate Professor of Natural History of the Au Sable Institute of Environmental Studies, Mancelona, Michigan, and the students of the 1998 course in Natural History in Spring, Curtis Dykstra, Daniel Herron, Sonia Klauder, Ryan O'Connor, Kate Oppliger, Megan Rich, and Marlene Schouwenaar.

Sampling was conducted in three habitats: riparian, forest, and meadow. Plants were identified along transects placed through each habitat. Forest and meadow transects were selected randomly within the habitat and at least 10 m from its border with any other habitat. Transects of riparian habitat were run approximately one meter from and parallel to the main channel of the Rapid River through the Seven Bridges Preserve. All herbaceous plants within one meter of either side of the transect line that could be identified were recorded at one meter intervals, creating sampling intervals of two square meters. At selected intervals, individual plants of each species were counted to produce an estimate of the density of each species. All flowering plants were identified and most non-flowering plants were also identified, but 5 species of non-flowering herbaceous plants were not identified and are not included in the enclosed results. We did not attempt to identify graminoids (grasses, sedges, and rushes). Lengths of transects and numbers of intervals in which densities were estimated differed by habitat and are noted in the tables.

Discussion: This initial survey identified 44 species, including 22 in the riparian zone. This survey is only a first approximation, and does not represent an inventory of plant resources at Seven Bridges, nor should the data be construed as such. The sampled areas in all three habitats showed relatively low diversity and high dominance by five or six species. Although not calculated here, the data presented are sufficient for further calculations of various indices of diversity, dominance, and similarity between habitats. Weedy species including *Rumex spp.*, *Berberis vulgaris*, and *Phytolacca americana* show a tendency to invade the sampled riparian zone, which is adjacent to a road. As the riparian plant community is considered one of the key features of the Seven Bridges Preserve, some monitoring and possible future control of roadside invaders in this habitat may be appropriate.

Appendix D: Woody Plants Inventory

Woody Plants Inventory of Seven Bridges Natural Area

May 28, 1998

Au Sable Woody Plants Class

Species Observed:

1. Alternate-leaf Dogwood
2. American Beech
3. American Larch
4. Balsam Fir
5. Balsam Poplar
6. Big-toothed Aspen
7. Black Alder
8. Black Ash
9. Black Cherry
10. Eastern Hemlock
11. Hop Hornbeam
12. Maple Leaf Viburnum
13. Mountain Maple
14. Pin Cherry
15. Red Maple
16. Red Osier Dogwood
17. Red Pine
18. Shadbush (*Amelanchier sanguinea*)
19. Shrubby Cinquefoil
20. Speckled Alder
21. Smooth Serviceberry (*Amelanchier laevis*)
22. Sugar Maple
23. Sweet Gale
24. Trembling Aspen
25. White Ash
26. White Birch
27. White Pine
28. White Spruce (planted?)
29. Witch-hazel
30. Yellow Birch

Appendix E: 2003 Rapid River Survey Analysis Report



RAPID RIVER – 2003 SURVEY ANALYSIS REPORT

Introduction

The Rapid River is located in the northwest portion of the lower peninsula of Michigan, roughly twenty miles east of Traverse City, in Antrim County. The watershed includes approximately 22 river miles and drains a surface area of 42,200 acres. The headwaters are located just north of Kalkaska within the Pere Marquette State Forest. The Rapid River flows southwest from its headwaters to Antrim (Rugg) Pond through primarily Pere Marquette State Forest land. The main tributary to the Rapid River, the Little Rapid River, flows into Antrim Pond from the south. The Rapid River flows northwest out of Antrim Pond to the Torch Lake River through primarily private land.

The Rapid River has numerous public access sites. The river is accessible to the public through State owned land south of Antrim pond, and through the Seven Bridges Natural Area. The Natural Area is a 314-acre parcel along the Rapid River that was purchased by the State of Michigan with cooperation from the Grand Traverse Regional Land Conservancy. It is located about three miles west of Rapid City. There is also public access within Rapid City at the County Road 597 crossing.

The Rapid River is a Designated Trout Stream, and is classified as a Type 4 stream downstream of the Antrim Pond, and as a Type 1 stream upstream of the pond. All tributaries to the Rapid River, including the Little Rapid River, are also Type 1. The Type 4 section of the Rapid River is open to fishing all year. However, the possession season for Atlantic salmon, brown trout, and brook trout is the last Saturday in April through Sept. 30. All other trout and salmon may be kept all year. The daily possession limit is 5/3 (five fish, with no more than three fish 15 in. or larger, and no more than one Atlantic salmon). There are no tackle restrictions and the minimum size limits for salmon and trout are: brook trout 8 in., brown, and rainbow trout 10 in., and Atlantic salmon 15 in. The Type 1 section of the Rapid River is open to fishing from the last Saturday in April-Sept. 30, with a possession limit of 5/3 (5 fish, with no more than 3 fish 15 in. or larger, and no more than 1 Atlantic salmon). The possession limit is the same as the open season. There are no tackle restrictions and the minimum size limits for salmon and trout are: brook and brown trout 8 in., rainbow trout 10 in., and Atlantic salmon 15 in.

The Great Lakes and Environmental Assessment Section (GLEAS), under the authority of the MI Department of Environmental Quality, conducted a qualitative biological survey of the Rapid River in 1998. The GLEAS concluded that the Rapid River consists of high quality water and that a coldwater designation was supported. These conclusions were based on surveys of the biological community, habitat conditions, and concentrations of selected water chemistry parameters present at the time of survey.

Stocking History

The Rapid River has self-sustaining populations of brook trout, brown trout, and steelhead (migratory rainbow trout from Torch and/or Elk Lakes). The river has not been stocked since 1992. However, it was stocked annually from 1981-1992 with Little Manistee-strain steelhead. The steelhead plant was cut when it was determined that natural reproduction was sufficient to support the fishery. The Rapid River was also stocked with brook trout from 1947-1954, rainbow trout from 1954-1961, and brown trout in 1948.

Survey History

A Survey and Plans Report was completed in 1964 by DNR-Fisheries Division. This purpose of the report was to gather and compile present conditions and problems with the Rapid River, and to formulate management recommendations to improve fishing in the river. They identified the lower reach (from Rapid City downstream to the mouth) as the most degraded reach of the entire river system. There were few trout in this reach, it was wide, shallow, sandy, and lacked suitable fish habitat. Fisheries Division installed 125 habitat enhancement structures and planted 1000 trees and shrubs in this reach to create pools, stabilize banks, and provide fish habitat.

Fisheries Division conducted surveys in 1963 and 1968 downstream of Antrim Pond, and upstream of the pond in 1966. The purpose of the 1963 survey was to determine optimal placement of habitat enhancement structures. Fisheries Division identified areas of the Rapid River that lacked suitable cover, had excessive sediment build-up, and unstable banks. The sections of river within T28N, R8W, S8, 9, 14, and 15 were identified as good candidates



for habitat enhancement structures. They collected 125 brown trout (1.6-17.9 in.), 426 brook trout (1.1-9.5 in.), and 170 rainbow trout (3.1-8.6 in.) in 1963. The purpose of the 1966 survey was to assess the effectiveness of habitat enhancement structures placed in the river by the DNR in 1964. Salmonid population estimates before and after habitat enhancement projects were not calculated. However, Fisheries Division collected 50 brown trout (2.8-12.4 in.), 123 brook trout (2.1-8.3 in.), and 45 rainbow trout (1.9-7.5 in.). The purpose of the 1968 survey was to estimate the number of lake-run brown trout below Antim pond. Fisheries Division collected 10 lake-run brown trout with a tow barge electroshocker in August 1968.

Fisheries Division surveyed the Rapid River in 1996 (8/12 and 8/29). A backpack electroshocker was used on 8/12 (site 1) and a tow barge electroshocker was used on 8/29 (site 2). Fisheries Division surveyed 650 ft. of the Rapid River on 8/12 in T28N, R07W, S13, 6 miles north of Kalkaska and surveyed 650 ft. of the river on 8/28 in T28N, R08W, S9, ¼ mile north of Rapid City. Fish cover at these two sites consisted of fallen tree branches, submerged wood, and old wooden stream improvement structures. The average width and depth at site 1 was 6.6 ft. and 0.56 ft. Water temperature recorded at 10:15 am was 53° F, and substrate consisted of coarse sand and fine gravel. The average width and depth of site 2 was 35.8 ft. and 1.5 ft. Water temperature recorded at 1:15 pm was 50° F, and substrate consisted of small, medium, and large gravel. Fisheries Division collected central mudminnows, sculpin, and brook trout (2-10 in.) at site 1, and brook trout (1-7 in.), brown trout (2-12 in.), and rainbow trout (steelhead parr) (1-9 in.) at site 2. Four age classes of brook trout were collected, and three rainbow trout age classes were collected at both survey sites. Brook trout (230) represented 43%, brown trout (41) 38%, and rainbow trout (96) represented 17% of the total pounds of fish collected at both survey sites.

Conclusions

The Rapid River supports naturally reproducing populations of brook, brown, and rainbow trout (steelhead). There are numerous habitat enhancement structures throughout the river which may contribute to the sustainability of these trout. Angler reports indicate good fishing in the Rapid River for resident brook and brown trout, as well as for migratory steelhead and brown trout. Although a few anglers have reported seeing Atlantic salmon actively spawning in the Rapid River, no young of the year have been collected by Fisheries Division.

Management Recommendations

1. Because of the cold water temperatures, optimal habitat conditions, and excellent water quality found in the Rapid River, the river should continue to be managed as a naturally reproducing trout stream.
2. Since the Rapid River is a naturally reproducing trout stream, it and its tributaries should be protected from uncontrolled development and poor riparian land-use practices by working with DEQ and evaluating Land and Water permit applications.
3. The habitat enhancement structures should be evaluated during subsequent stream surveys to determine their effectiveness, and whether or not renovation is necessary.

Appendix F: Photo Log



PHOTOGRAPHIC LOG

Client Name: Seven Bridges Natural Area	Site Location: Kalkaska County, Michigan	URS Project No. 02151706
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Photo No. 1	Date: 9/12/06
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Direction Photo Taken:

East

Description:

Meadow habitat at northeast portion of Seven Bridges.



Photo No. 2	Date: 9/12/06
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Direction Photo Taken:

Northeast

Description:

Wooden box over well that needs to be properly abandoned in meadow.





PHOTOGRAPHIC LOG

Client Name: Seven Bridges Natural Area		Site Location: Kalkaska County, Michigan	URS Project No. 02151706
Photo No. 3	Date: 9/13/06		
Direction Photo Taken: South			
Description: Red pine stand, notice how closely together the trees were planted.			

Photo No. 4	Date: 9/13/06		
Direction Photo Taken: South			
Description: Upland forest dominated by sugar maple, beech, and other upland trees.			



PHOTOGRAPHIC LOG

Client Name: Seven Bridges Natural Area		Site Location: Kalkaska County, Michigan	URS Project No. 02151706
Photo No. 5	Date: 9/12/06		
Direction Photo Taken: North			
Description: Floodplain forest habitat, notice boardwalk and northern white cedar.			

Photo No. 6	Date: 9/12/06		
Direction Photo Taken: North			
Description: Area of bare soil and an unauthorized trail contributing to erosion and sedimentation.			



PHOTOGRAPHIC LOG

Client Name: Seven Bridges Natural Area		Site Location: Kalkaska County, Michigan	URS Project No. 02151706
Photo No. 7	Date: 9/12/06		
Direction Photo Taken: East			
Description: Bridge 1 near current parking area.			

Photo No. 8	Date: 9/12/06	
Direction Photo Taken: Northwest		
Description: Bridge 1 area, notice unnatural retaining wall and altered riverbanks.		



PHOTOGRAPHIC LOG

Client Name:
Seven Bridges Natural Area

Site Location:
Kalkaska County, Michigan

URS Project No.
02151706

Photo No.
9

Date:
9/12/06

Direction Photo Taken:

Northeast

Description:

Bridge 2 over old dam.



Photo No.
10

Date:
9/12/06

Direction Photo Taken:

East

Description:

Old dam remnants under Bridge 2, notice how the dam restricts natural water flow and aquatic animal movement.





PHOTOGRAPHIC LOG

Client Name: Seven Bridges Natural Area		Site Location: Kalkaska County, Michigan	URS Project No. 02151706
Photo No. 11	Date: 9/12/06		
Direction Photo Taken: South			
Description: The main channel of the Rapid River near the Bridge 3 area.			

Photo No. 12	Date: 9/12/06		
Direction Photo Taken: West			
Description: Example of unauthorized trail leading to bare soil spots and bank erosion near Bridge 3, notice attempt to remedy by placing riprap along banks.			



PHOTOGRAPHIC LOG

Client Name:
Seven Bridges Natural Area

Site Location:
Kalkaska County, Michigan

URS Project No.
02151706

Photo No.
13

Date:
9/13/06

Direction Photo Taken:

West

Description:

The Bridge 3 area, notice Bridge 3 in the background.



Photo No.
14

Date:
9/13/06

Direction Photo Taken:

West

Description:

Bridge 4





PHOTOGRAPHIC LOG

Client Name: Seven Bridges Natural Area		Site Location: Kalkaska County, Michigan	URS Project No. 02151706
Photo No. 15	Date: 9/13/06		
Direction Photo Taken: South			
Description: Cabin near Dundas Road, it is an example of a structure on Seven Bridges property that should be torn down.			

Photo No. 16	Date: 9/13/06	
Direction Photo Taken: East		
Description: Shed near current parking area, it is an example of a structure that could be rehabilitated.		

Client Name: Seven Bridges Natural Area		Site Location: Kalkaska County, Michigan	URS Project No. 02151706
Photo No. 17	Date: 9/13/06		
Direction Photo Taken: East			
Description: One of several trailers on a small section of property neighboring Seven Bridges near Dundas Road. It is an example of why the Seven Bridges property boundaries should be surveyed and marked. The trailers may actually be on Seven Bridges property.			

Photo No. 18	Date: 9/13/06	
Direction Photo Taken: South		
Description: The Rapid River near the Root property, notice how wide the river is in this location. This may not be a suitable location to build a bridge.		