

# TWO HEARTED RIVER NATURAL RIVER PLAN

LUCE COUNTY

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FISHERIES DIVISION

MICHIGAN DEPARTMENT OF  
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## PREFACE

The Two Hearted River in northern Luce County flows through a “wilderness-like” watershed on its way from its headwaters at Whorl Lake to the mouth at Lake Superior. Approximately 44 percent of the river frontage is state owned with the bulk of the remaining private holdings belonging to Cleveland Cliffs Iron Company. CCI manages its lands for timber products and has kept its lands open to public use. The remaining private lands in individual ownership are mainly used for hunting and fishing camps and are in parcels of 40 acres and larger. There are no year-round residences along the river.

The Two Hearted River has excellent brook trout and steelhead trout fishing and provides countless hours of recreation for seasonal homeowners and tourists. Canoeing, hunting and fishing, and just relaxing in a wilderness atmosphere attract many people to the area. As the demand for quality recreation increases the natural beauty and wilderness characteristics of the area could be destroyed by unregulated land use. The Michigan Department of Natural Resources has studied the Two Hearted River and is recommending it be included in the Natural Rivers Program as a Wilderness River, under the authority of Part 305, P.A. 451 of 1994.

This report (1) provides a physical description of the river and surrounding lands; (2) reviews values of the river and factors affecting its future nature and use; and (3) provides a plan for the protection of the river’s natural qualities and to guide its future use. The plan is the result of joint efforts of the Department of Natural Resources and the Luce County Planning Commission and the Luce County Zoning Board.



## THE STUDY AREA

### A. Location and General Characteristics of River, Watershed and Region

The Two Hearted River is located in northern Luce County in the eastern third of the Upper Peninsula of Michigan. The 35-mile long mainstream flows from the northwest portion of the county in a northeasterly direction to Lake Superior. It has five major tributaries: the East, South, West and North branches, and Dawson Creek. The mainstream itself starts at the confluence of the South Branch and West Branch.

The history of the area is closely associated with logging. Logging companies came into the area in the late nineteenth century to cut the virgin white pine. After the pine was removed, fires and hard times caused many owners to allow their land to revert to the state for nonpayment of taxes. Presently the state forests and much of the private lands are being managed for forest products, fish and wildlife, water conservation, and recreation.

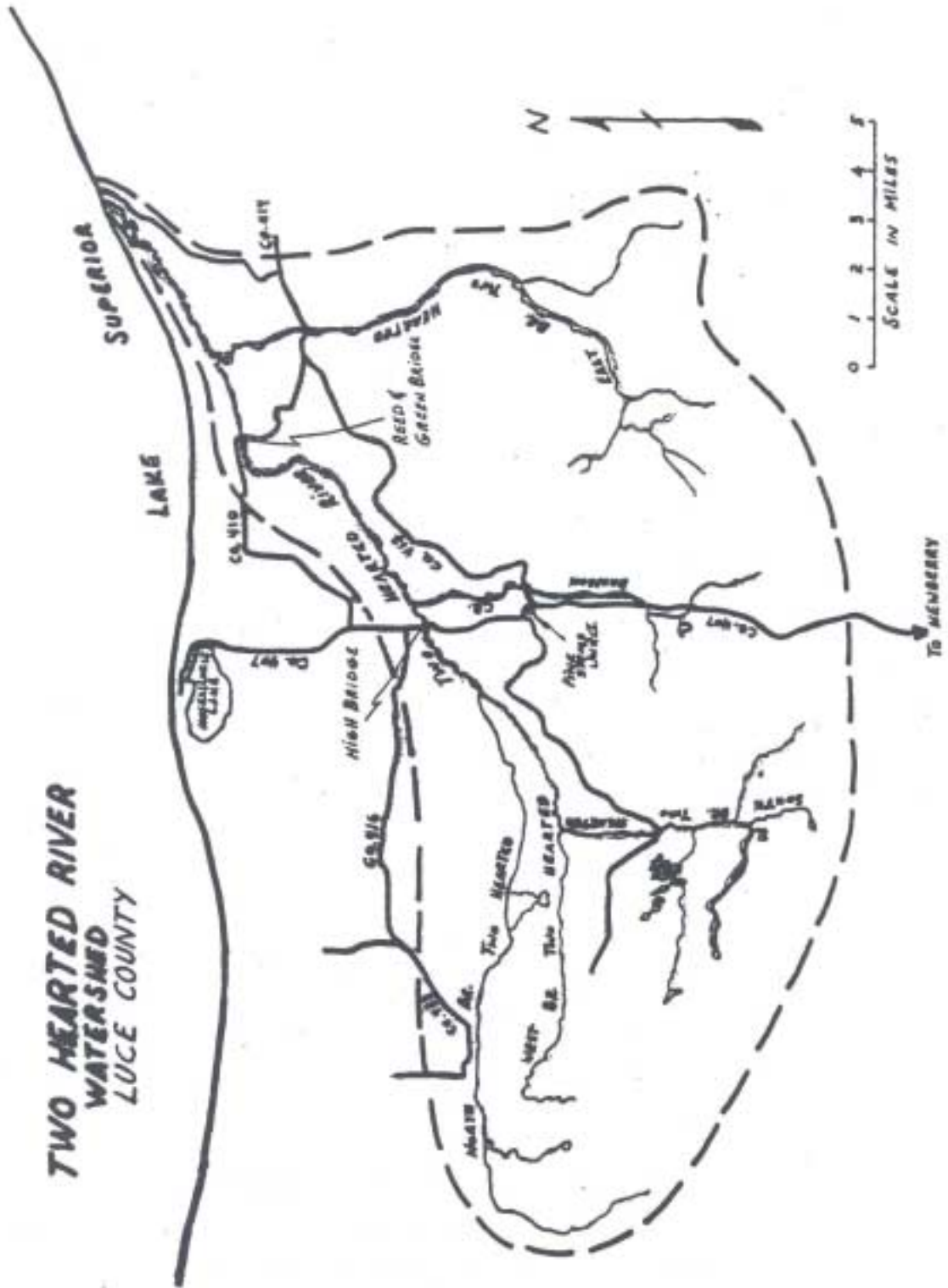
The Two Hearted drainage basin is located almost entirely within the boundaries of Lake Superior State Forest (176,000 acres of state-owned land). However, there are substantial holdings of private land within the state forest. A large section of the East Branch is outside the state forest and is in private holdings. The drainage area of the river system is approximately 115,000 acres.

The region is thinly populated as evidenced by the 1970 Luce County population of 6,693 persons. Little growth is expected in the immediate future. Newberry, with a population of near 2,600, is about 20 miles south of the center of the Two Hearted River system. The only other cluster of population near the Two Hearted is the Manistique Lakes-Engadine-Naubinway string of settlements, which has a population of about 2,500. Thus, population pressure on the river area from local residents is small.

Residents are primarily dependent upon tourism, forestry, trade and services, and government for their livelihood. Agriculture has declined rapidly since 1930. Given the remoteness of the area, the existing low base for service-related activities, the thin nature of forestry for economic development, and the exodus of industries from the region in the last decade, economic expansion is not expected to result in land development pressure in the Two Hearted River system. However, the desire on the part of urban dwellers to own a northern retreat will cause increasing speculation in land and subsequent development pressure. This can rapidly result in "suburbanization" of wild lands.









## B. Physiography

The Two Hearted River Valley lies in the eastern or lowland-plains division of the Upper Peninsula. The present surface relief has resulted from glacial deposition on an old eroded lowland. The features which are peculiarly of glacial origin include a number of plains and terraces lying at successive levels representing stages in the level of glacial lakes. A few small isolated hilly areas of morainic deposition stood above the highest lake stage, the Algonquin.

Lakes are widely distributed throughout the Two Hearted River Watershed and constitute features of scenic interest and recreational value.

Swamp land occurs in large continuous bodies such as found in the valley of the North Branch and is also widely distributed throughout the area in small valleys and old lakebeds. Wet or poorly drained land is for the most part forested but also consists of open marsh and bog. Relief of any magnitude in the watershed is lacking with highest elevations only about 200 feet above Lake Superior.

## C. Stream Characteristics

### 1. Water Quality

The Michigan Water Resources Commission has established Intrastate Water Quality Standards and Use Designation\* for the Two Hearted River. It is to be protected for recreational total body contact (i.e., swimming), coldwater fish species, and other uses. Where water is to be protected for more than one use, the most restrictive individual standards of designated water use will apply. Also, if existing water quality is superior to the designated standards, the water must be maintained at the higher level until it has been affirmatively demonstrated to the Michigan Water Resources Commission that the change in quality will not become injurious to the public health, safety or welfare, or become injurious to any uses being made of the waters. Presently there are no known wastewater discharges into the Two Hearted River system. The high quality of the water reflects relatively undisturbed natural conditions.

### 2. Stream Flow Characteristics:

The Two Hearted River Basin encompasses a drainage area of 180 square miles. Overall flow data is not available for this river system, however, the U.S. Geological Survey has made several miscellaneous flow readings. They show the base flow of the mainstream at Reed and Green Bridge to be 75 cubic feet per second in August 1963. A reading taken in late October of 1967 showed the flow to be 150 cubic feet per second at the High Bridge. These measurements indicate that the stream has sufficient flow during low stage to permit canoe use. Base flow on the East Branch at Shamrock Bridge was measured at 31 cubic feet per second and at the lower end of the stream at 58 cubic feet per second.

\*Use Designation Areas for Michigan's Intrastate Water Quality Standards, Michigan Water Resources Commission, Department of Natural Resources, March, 1969.

Although not a large river, reports indicate that the Two Hearted has risen over five feet during spring flood periods and occasionally nearly overflows Reed and Green Bridge. The sandy soils and forest cover prevent rapid runoff and thus, more serious flooding. Generally, the Two Hearted River would be considered as having a very stable base flow during the summer months which is important to trout populations and canoeists using the river.

### 3. Stream Bed Characteristics

The South Branch of the Two Hearted River is a clear spring fed stream flowing from an area of mixed northern hardwoods through open beaver meadows with tag alder fringes to Hemlock Dam. From Hemlock Dam to its confluence with the West Branch the stream flows through marginal cedar and spruce swamp and northern hardwoods.

Hemlock Dam was a water control structure used prior to 1915 for log drives but is no longer usable and only some of the original timbers remain. The stream bottom is stable sand and the river has much natural debris providing excellent fish cover.

The West Branch heads in terrain of rolling Strongs Sandy Loam hills covered with northern hardwood and hemlock, and meanders north and then eastward through a spruce and tag alder valley of Kersten Muck. Much of this portion of the river has been intermittently flooded with beaver dams. The Spile Dam, about ½ mile upstream from its confluence with the South Branch, was once a logging water control structure. This stream of clear water has a moderate flow over sandy bottom and much natural debris for cover. There is considerable eelgrass in the bed which would lead one to believe that the water is warmer than the South Branch.

The mainstream from the confluence of the South Branch meanders through an area of sandy loam and loamy sand and is bordered by tag alder, spruce, balsam, white pine, and hardwood. The bottom is mostly sand. There are considerable number of pools four to six feet deep. At Hunter's Dam (an old water control structure) the stream gradient becomes steeper and flows over a series of sandstone ledges to the confluence of the North Branch.

The North Branch also heads in a terrain of rolling hills of Strongs Sandy Loam covered with northern hardwoods and hemlock. The stream is clear at the headwaters, but it passes through fields of Carbondale and Kersten Muck vegetated with black spruce, balsam, and tamarack and becomes light brown in color. The stream has a tendency to "spread" in the swamps between Stillwagen and LaDuc Lake. This stream becomes a mere trickle in dry years by the time it reaches the mainstream. Because of inaccessibility, thick cover, and much natural debris in the river, this stream is very difficult to fish.

The mainstream from the North Branch to Dawson Creek, starts in a series of moderately deep pools and builds up momentum over a series of shallow sandstone ledges with intermittent deep pockets. The river is very rapid for a half-mile west and a quarter mile east of the High Bridge area. The riverbanks are high and steep and the valley narrow along this series of rapids.

From Dawson Creek to the mouth of the East Branch it flows through a narrow valley between rolling hills of Rubicon Sand covered with stands of northern hardwood interspersed with hemlock balsam, and spruce. The immediate banks are fringed with alder, spruce, balsam, and cedar. There are numerous deep pools and the bottom is sandy. Cover consists of overhanging trees, undercut banks and logjams. This portion of the river can be fished from the bank, waded, or is easily canoeable. A canoe trail was cut through the logs and around immovable jams, however, this "trail" has since deteriorated.

From the East Branch to its mouth at Lake Superior the mainstream is about 4-60 feet wide and varies in depth from 1-7 feet. It flows with moderate current in a narrow valley. There are 16 short rapids below the mouth of the East Branch and another about two miles downstream. Otherwise the bottom is sandy with long deep holes, undercut banks, and large sandbars on the inside of bends. There is a considerable amount of natural debris in the channel, but the entire stretch of river is canoeable.

Dawson Creek flows from a vast flat area of Tahquamenon Peat and Carbondale Muck. The vegetative cover of the headwater is spruce bog interlaced with low ridges of balsam spruce, jack red and white pine. Little Dawson, a brown stained slow-moving creek, flows in from the southwest; Whiskey Creek, which is clear, flows in from the west. From the Little Dawson on down the terrain is rolling Rubicon Sand. From Whiskey Creek downstream the river valley narrows and the rate of flow increases over a gravel and sandstone bottom.

The main tributary to the Two Hearted River is the East Branch which flows out of the Sleeper Lake Marshes and drains the Chesbrough Lake Highlands. The marshes are underlain by Tahquamenon and Spalding Peat and Newton Sand. As the stream emerges from the Sleeper Lake marshland, the bed is laden with natural debris and overhanging alder. As the stream leaves the marshland it becomes continued in a steep narrow valley. The upland from Potter's Camp downstream is Rubicon Sand covered with tag alder, spruce, and balsam. The stream bottom is sand with deep holes on the bends. There is an outcropping of gravel and hard pan for a mile upstream and a half-mile downstream of the old Shamrock Bridge. From the Shamrock rapids to the mainstream the banks are steep and sandy and the bottom varies from sandy bottom shallows to deep holes on the bends. Because of the windfalls and logjams, this river is not considered canoeable, but, for the most part is wadeable. It is only moderately productive for fish.

<u>Stream</u>	<u>Total Linear Miles of Stream</u>
Mainstream	34.5
North Branch	28.5
West Branch	9.0
South Branch	7.0
Dawson Creek	7.0
East Branch	21.7
Jack Creek	<u>6.0</u>
	113.7

#### D. Structures for Natural Resources Management

There are few man-made structures for natural resources management in the study area. However, some stream improvement has been carried out on the East Branch and mainstream. During the days of the CCC program, portions of the East Branch and the mainstream below Reed and Green Bridge were improved with log deflectors and stream bank cover. Most of this work is not visible today. The exposed sand banks on the East Branch from County Road 412 downstream were rip-rapped with brush and planted with jack pine to prevent erosion during high-water periods. Another 206 stream improvement structures to improve trout habitat were installed in 1946 on the East Branch by the Michigan Department of Conservation's Lake and Stream Improvement Section.

An electric lamprey weir has been constructed on the mainstream near the mouth. The U.S. Fish and Wildlife Service has maintained this weir since 1955. The weir operates from early April to early July of each year to help monitor abundance of lamprey in eastern Lake Superior.

#### E. Soils

Soils of the study area vary widely in texture, structure, thickness, chemical composition, and moisture and consequently in fertility and productivity. The variable character and the number of distinct soils are attributed to the great variety of rock material in the glacial deposits which underlie or comprise the soils.

##### 1. Mineral Soils

The more common mineral soils in the study area include Rubicund, Grayling, Newton, Strongs, AuTrain, Saugatuck and Brimley. The mineral soils for the most part are naturally fairly well drained as the movement of the water through the soil is free, and the slope is sufficient to provide free runoff. In more than 50 percent of the area the soils become excessively dry at times during the summer, but it is estimated that 40 percent of the land is characterized either by a high water table or by a permanently swampy condition.

##### 2. Organic Soils

Organic soils are composed predominately of plant matter and in this respect constitute a distinct class, as compared with the more common mineral soils. In this area organic soils occur in forested swamps, open bogs, and marshes. The more common organic soils found in the study area include Greenwood, Spalding, Tahquamenon peats, and Carbondale and Houghton muck.

#### F. Vegetation

The Two Hearted River and its tributaries flow through a variety of forest cover types. No extensive settlements or farms have ever been established within the boundaries of the watershed. Major forest cover types in the study area include swamp conifers, northern hardwood, aspen, birch, jack pine, and red and white pine. A great deal of species variability occurs within the confines of each forest type as a result of admixtures of associate species.

The study area also offers many examples of the various stages of primary plant succession resulting principally from forest fires. The climax forest in all successional sequences is the northern hardwood forest.

At the headwaters and as the tributaries course through the conifer swamps, the river valley ecology is very similar to the surrounding terrain. After leaving the swamps and entering northern hardwood and pine forests, the valley deepens and the ecology of the river bottom differs significantly from the surrounding forest. The forest cover within the conifers of the river valley remains principally composed of lowland species such as cedar, spruce, tag alder, and elm.

Most of the open land, - cut over pine plains and burned areas - has been planted or is regenerating naturally. Twenty-three thousand acres have been planted to red, white and jack pines since 1928 in the Two Hearted River watershed. Considerable mechanical site improvement has also been done in recent years to facilitate natural regeneration.

#### G. Climate and Seasons

The study area lies between parallels 46° and 47° north latitude. Climate features include a mean annual temperature of about 40° Fahrenheit, a mean annual precipitation (including melted snow) of approximately 30 inches, an average snowfall of about 90 inches a year, high relative humidity, low percentage of possible sunshine, low wind movement, and low evaporation.

The winters are long and frequently extremely cold. The mean temperature is below freezing from November to March and a low of -38° has been recorded. Cool summers characterized by pleasant daytime temperatures are typical of the region with a seasonal average high from June through August of 74.1°F and an average low of 50.6°F.

Considerable precipitation is stored as snow during the winter. This storage results in heavy spring runoff. The largely forested watershed retards snow melt by shading. At the same time the deep snow prevents deep-freezing of the sandy soils. Generally then, snow melt in the forested areas has time to percolate into the soil and returns as ground water rather than surface run off which would contribute to greater spring floods.

#### H. Ownership and Status

Seventy percent of the watershed is within the Lake Superior State Forest. However, only 48 percent of the watershed (54,320 acres) is in public (state) ownership. The remaining 58,564 acres are in private ownership. The bulk of the private holdings, in all areas except the East Branch, belong to Cleveland Cliffs Iron Company. This corporation and its subsidiary, Superior Realities, own frontage along approximately 16 miles of river. The company has kept its lands open for public use. Three other "company type" landowners, Mead Corporation, Michigan Pole and Tie Company, and Kimberly-Clark own minor acreages on the watershed. Three major hunting clubs own 5,188 acres in the drainage area of the East Branch. The remaining private lands are scattered throughout the area in individual ownerships of relatively small size (40 acres and larger) and are mainly used for hunting and fishing camps.

The following table shows roughly the amount of public-private stream frontage and the numbers of individual owners:

Stream	Miles of Frontage State Ownership		Miles of Frontage Private Ownership		Number of Private Owners	Number of Development
Mainstream	19.50	(57%)	15.00	(43%)	27	18
East Branch	6.75	(32%)	15.00	(68%)	14	7
South Branch	2.25	(32%)	4.75	(68%)	7	7
West Branch	2.25	(25%)	6.75	(75%)	3	1
North Branch	16.50	(58%)	12.00	(42%)	4	4
Dawson Creek	2.50	(36%)	4.50	(64%)	11	9
Jack Creek			<u>6.00</u>	<u>(100%)</u>	<u>1</u>	<u>0</u>
Totals	<u>49.75</u>	<u>(44%)</u>	64.00	(56%)	67	46

#### I. Accessibility:

The Two Hearted River system is relatively inaccessible by improved road. Only two bridges cross the mainstream dividing its 35-mile length roughly into thirds. A blacktopped road (County 407) from Newberry north to Muskallonge Lake State Park crosses the upper section of the mainstream at High Bridge while the lower section is crossed by County Road 410 at Reed and Green Bridge. A footbridge crosses the mainstream at the forest campground near its mouth.

The mainstream, upstream from High Bridge, is paralleled by an unimproved county road for six miles. Downstream from Reed and Green Bridge it is paralleled for several miles along its north bank by an unimproved logging trail. These roads are little traveled and at times impassable.



## EXISTING USES AND RECREATIONAL OPPORTUNITIES

### A. Timber Management

Timber harvesting became an important industry in the Two Hearted River Watershed during the late 1800's when loggers, who had nearly exhausted the enormous stands of white pine in the lower peninsula, moved northward in their quest for pine logs. By the early 1900's most of the large pine had been removed, and wild fires followed on the heels of the loggers. Repeated fires in many areas destroyed the natural cover to such a degree that forest succession has reverted back to the grass stage. Some of these areas still exist as open stump fields. Thousands of acres were replanted by Civilian Conservation Corps crews and reforestation still continues today on a limited scale. With effective fire protection, the forests returned naturally; principally to jack pine, and to a lesser degree to red pine and white pine.

When the virgin pine was exhausted, the loggers turned their efforts to the hardwood and cedar stands remaining. Due, possibly, to a less lucrative market for species other than pine, logging operations were not as thorough for these other types and many stands were left untouched.

Second-growth timber now covers most of the scars of the early activity, and logging, primarily for pulpwood, and to a lesser degree for sawlogs, has again become an important industry.

### B. Private Recreation Areas and Seasonal Dwellings

A small private camp known as Gene's Camp, catering to fishermen, is located on the first land shelf above the state campground at the mouth of the river. Facilities are limited to a few rooms to rent and several camp and trailer sites. Five large hunting clubs (Whorl's Club, East Branch Club, Mikesell Hunt Club, Spile Dam Club and Two Heart Hunt Club) have land along the river. Other hunting-fishing type cabins are scattered along the streams in the study area. Although many of these can be seen from the river, most are generally not obtrusive to the river use. Many are rustic in character and blend with the natural environment.

There are eight cabins in the ten miles of mainstream above High Bridge and eight cabins and two housetrailer in the 25 miles below High Bridge. Seven of the cabins and one trailer are located within a mile of the High Bridge crossing leaving most of the stream frontage downstream in an undeveloped state. The North Branch has four cabins scattered in the headwater area, while the West Branch has one near its confluence with the South Branch. A cluster of three cabins (Whorl's Club) is located near the extreme headwaters of the South Branch and another four are scattered along the seven miles of stream. Except for a cluster of 3 cabins of the East Branch Club, only four others are scattered along the East Branch's 20-mile length. Dawson Creek, including Little Dawson Creek and Whiskey Creek, has nine cabins upstream from Pine Stump Junction.

### C. Public Recreation Areas

The wilderness character of the vast undeveloped area north of Newberry holds a fascination for many people. The Two Hearted River is part of this isolation and offers the trout fisherman,

outdoorsman, and canoeist an opportunity for quiet, peaceful pursuit of his recreation. Many lakes accessible to the public provide fishing, boating, swimming, and camping enjoyment.

There are 15 developed State Forest Campgrounds in Luce County. Four of these are located on the banks of the Two Hearted and provide 56 campsites. Three of the campgrounds – High Bridge, Reed and Green Bridge, and Mouth of the Two Hearted – are accessible by road. The fourth can be reached only by canoe and is located about six miles downstream from High Bridge. It contains three rustic campsites. Ten other state forest campgrounds in the vicinity provide an additional 102 campsites. Muskallonge State Park is within six miles of High Bridge and offers another 150 campsites with modern facilities.

Other nearby areas of interest include the Blind Sucker Wildlife Flooding in the northwest portion of the county, the 15,000 acre Betsy Lake Natural Area Preserve, and the Tahquamenon River with its spectacular falls. Tahquamenon Falls State Park offers 320 modern campsites. Two privately operated businesses provide excursion trips down the Tahquamenon, to the falls. These trips are by narrow gauge railroad and riverboat.

#### D. Fishing

The Two Hearted River is one of Michigan's finest trout streams. The upper portion of the mainstream and four of its major tributaries of the South Branch, however, fingerling brook trout have been stocked at "Antlers" and "Hemlock Dam" to supplement the area of heavy fishing pressure. Catchable trout run seven to 12 inches with occasional larger fish in beaver ponds.

The West Branch produces an abundance of small brook trout. Martindary Lake at its headwaters is spring fed and when flooded by beaver has produced some very nice brookies in the 12-16 inch class. The West Branch sustains itself by natural reproduction and has not been stocked with trout in the past 25 years.

Small brook trout are the principal species in Dawson Creek and its tributaries. Fishing pressure is light to moderate and it is felt this watershed has ample reproduction to keep the stream well stocked. Beaver ponds in the smaller portion of the creek also produce nice catches of brook trout.

The best brook trout fishing in the mainstream is now concentrated in the water above High Bridge and for a few miles below. The mainstream was once fine brook trout water right down to its mouth at Lake Superior but brook trout in the lower river have gradually given way to the steelhead trout (rainbow).

The lower river is now famous for its excellent fall and spring steelhead fishing. It also provides probably the best Menominee fishing the state has to offer.

#### E. Wildlife Observation and Hunting

Deer, bear, coyote, fox, grouse, woodcock, snowshoe hare, porcupine, red squirrel, and many species of smaller birds and mammals are common in the study area. The river and its shoreline or banks are also home to a limited number of waterfowl and shorebirds. Occasionally even moose and signs of moose are reported from the Two Hearted River area.

Of special interest are sandhill cranes which are the largest and most spectacular birds in Michigan. They congregate in early fall in the open fields and plains south of the East Branch. Their spring courting dance is quite unusual.

Whitetailed deer and black bear are the principal big game species hunted in the area. The hunting clubs and camps are evidence of the hunters quest for the big bucks once frequenting the area. Deep snows, severe winter cold and maturing forests have resulted in a lower carrying capacity of the area. The deer herd has decreased in numbers over the years; however, the area still holds some trophy-size bucks. Ruffed grouse, woodcock and snowshoe hare provide sport for the upland game hunter. Grouse and hare populations are cyclic; therefore, hunting for these species is better some years than others.

#### F. Canoeing and Boating

The hardy brook trout fisherman who is willing to pull his canoe over logs and log jams and make an occasional portage will find the South Branch, East Branch, and the mainstream above Reed and Green Bridge to his liking. These streams are not recommended to the casual canoeist who wants to avoid getting wet. There is a fine canoeing campground between High Bridge and Reed and Green Bridge.

For pleasant canoeing, the river below Reed and Green Bridge is hard to beat. Between Reed and Green Bridge and the mouth, there are approximately 17 minor rapids which are safe but interesting and offer excellent fishing.

#### G. Historical Areas

The Hinsdale Archaeological Map of Michigan shows that there is a Woodlands Indian village site and a campsite located on the west bank of the Two Hearted River near the mouth. Further research must be conducted to confirm that these Indians actually camped along the river. However, there is sufficient evidence to indicate that an archaeological survey of the Two Hearted River would reveal numerous prehistoric Indian archaeological sites. Dr. Charles Cleland, Curator of Anthropology, Michigan State University, hopes that such a survey can be made in the not too distant future.

Evidence of the logging era from the late 1800's to early 1900's still exists in the Two Hearted River system. Remains of the loggers' water control dams can be found at Hunter Dam on the upper mainstream, Old Dam and Spile Dam on the West Branch, and Hemlock Dam on the South Branch. Remains of a logging road bridge, Shamrock Bridge, can be seen on the East Branch. The river still contains hundreds of logs lost during the log drives. Many logs still retain the original registered log marks stamped by the early loggers.

Remains of an old U.S. Coast Guard Life Boat Station dating back to the late 1800's are still evidenced by log cribs, cement sidewalks and a few wind beaten Lombardy poplars near the mouth of the mainstream between the north bank and Lake Superior.



## FUTURE USES AND POTENTIAL PROBLEMS

### A. Future Uses

Outdoor recreation in a wilderness-like setting is the main attraction of the Two Hearted River. As more and more people head north to indulge in leisure time activities, it can be expected the Two Hearted will eventually feel the effects of increased use. More hunters, fishermen, canoeists, campers, hikers and private dwellings will eventually detract from the wilderness atmosphere.

Although most of the private land in the Natural River Zone is in large holdings which are apparently not intended for land development now, a potential for degradation of the wilderness environment does exist. Ways to alleviate the potential problems are discussed in subsequent parts of this plan. Except for a boat launching ramp near the mouth of the river, no known water development projects are presently being planned by the Department of Natural Resources' Bureau of Water Management, or Waterways Division.

### B. Natural Problems

The only natural problems occurring in the watershed would be stream bank erosion on the lower mainstream and East Branch, and elm trees dying of Dutch-Elm disease in the low areas along the river.

Stream bank erosion is not a serious problem, although it occurs in scattered areas along the dry sandy banks of the lower portions of the river. Severe bank erosion can cause serious problems with trout habitat. If left unchecked or aggravated by man, bare sand banks contribute enough sand to silt in pools, fish cover, and gravel areas essential to trout populations. Considerations should be given to the stabilization of eroding sandbanks only where erosion will seriously endanger the quality fishing, and then only if well camouflaged. Erosion is a natural process, so if it does not endanger fish populations it should be left unchecked.

The spread of Dutch elm disease to the Upper Peninsula has caused many elms to die along the river. Eventually some of these trees will fall across or into the river and may pose minor problems for fishermen and canoeists. This too is part of the natural process and the deadfalls should not be removed.



## TWO HEARTED RIVER MANAGEMENT PLAN

## A. Proposed Designation

The Two Hearted River flows uninterrupted by dams for 35 miles through a “wilderness-like” watershed in northern Luce County. In addition, five major tributaries add 80 miles of streams to the system. These streams contain high quality water and an excellent trout fishery. Its shorelands contain a variety of interesting wildlife, ecological systems and scenic attractions. The mainstream and South Branch are particularly well known for their fishing quality. Roughly 44 percent of the stream system mileage is in state ownership within the boundaries of the Lake Superior State Forest. It is recommended the mainstream of the Two Hearted and its five major tributaries, North, South, East and West branches and Dawson Creek from their headwaters to the mouth of the river at Lake Superior be included in Michigan’s Natural River System as “Wilderness River”.

## B. Natural River District

The Two Hearted Natural River District is a strip of land 400 feet wide on each side of and parallel to the portions of the river system recommended for inclusion in the Natural Rivers Program. Establishment of this district in no way implies a taking of private lands by the state or opening them up to public use. Private land remains private and subject to the rights of private ownership with respect to public use. Existing structures are not affected. This merely establishes a zoning district in which certain types of future development and land use will be regulated so as not to be injurious to the river resource, property values and scenic and recreation values. This in no way limits or prohibits the Luce County Zoning Board from extending their river zoning to other portions of the river system not specified in this plan. Private ownership within the Natural River District is estimated at 3,130 acres.

## C. Water Quality

The existing high water quality shall be maintained. The river shall be monitored periodically by the Department of Environmental Quality staff to ensure continued maintenance of high water quality (Part 323, P.A. 451 of 1994).

## D. Land Development and Land Use

Within the natural river district the following uses will be regulated or permitted; all other uses are prohibited unless authorized by the zoning board in accordance with the provisions for special exception permits or variances.

1. Hunting, fishing and trapping are permitted in accordance with current laws and regulations.
2. A natural vegetation strip 100’ in width will be maintained on each side of the river (Section F.). Commercial timber harvest is permitted beyond one hundred (100 feet of the water’s edge.
3. Mining and extractive industries are permitted beyond three hundred (300) feet of the water’s edge.

4. Operation of licensed motor vehicles is permitted only on public roads and access roads to private dwellings.
5. Reforestation and landscaping is permitted with native species.
6. Public boat launching is permitted only at designated boat launch sites.
7. Public utility transmission and distribution lines are permitted on land or other interests in real property owned by the utility on January 1, 1971. Electrical service lines will be placed underground.\*
8. Camping is permitted only at designated campsites.
9. Operation of non-motorized watercraft is permitted upstream from the weir at the mouth of the river. Operation of non-motorized and motorized watercraft is permitted downstream from the weir at the mouth of the river.
10. Seasonal cottages or cabins are permitted subject to the following requirements:
  - a. One single family seasonal cottage or cabin will be permitted on each lot.
  - b. The zoning administrator shall insure that the placement and design of structures on a building site are compatible with the wilderness characteristics of the area and shall attach conditions to the granting of a building permit as he deems necessary to further the purposes of wilderness river zoning as stated in Appendix C. Site plans will be submitted and reviewed according to the provisions of Section G and I of this plan.
  - c. In no case shall the following minimum requirements be violated:
    - 1) No building or structure shall be erected on lands which are subject to flooding or where a minimum of six feet between finished grade level and high ground water cannot be met.
    - 2) No building or structure shall be erected closer than one hundred (100) feet from the edge of an eroding river bank\*.
    - 3) No building or structure shall be erected closer than seventy-five (75) feet from the break of a non-eroding riverbank exceeding twenty (20) feet in elevation above the normal river stage.
    - 4) No building or structure shall be erected closer than one hundred (100) feet from the break of a non-eroding riverbank less than twenty (20) feet in elevation above the normal river stages.
11. Drain fields, septic systems or sanitary facilities are permitted provided they are not located closer to a side or back line than that allowed for a principal building and will maintain a setback from the water's edge greater than that of the main building.
12. Detached accessory buildings are permitted located to the landward side of the main building.

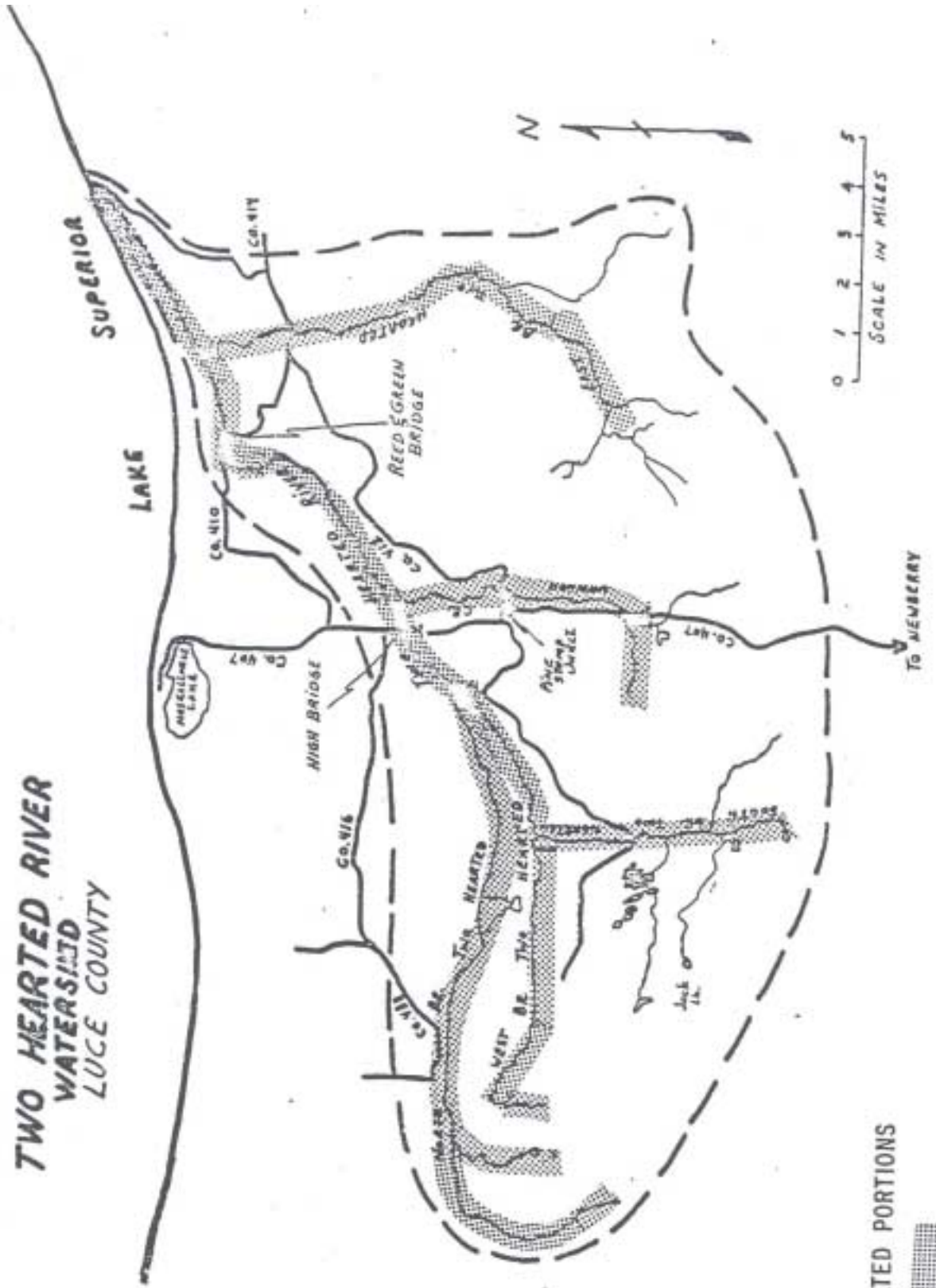
\*Part 305, P.A. 451 Of 1994, The Commission shall approve preliminary and final plans for site or route location, construction or enlargement of utility transmission lines...within a designated natural river area..."

\*River bank – The rising ground along the river that normally contains the water during flood stages.





# TWO HEARTED RIVER WATERSHED LUCE COUNTY



DESIGNATED PORTIONS



E. Area Regulations

No building or structure shall be erected unless the following requirements are met.

1. The minimum lot size shall be ten (10) acres.
2. The minimum riverside lot with shall be three hundred and thirty (330) feet.

F. Natural Vegetation Strip

For the purpose of stabilizing river banks to prevent erosion and subsequent siltation of the river bed; providing shade and cover for intolerant fish species; absorbing nutrients from surface water runoff; and providing screening for seasonal dwellings, a natural vegetation strip one hundred (100) feet wide bordering each side of the river shall be maintained in trees, shrubs and other vegetation indigenous to the area subject to the following provisions:

1. Dead, diseased, unsafe or fallen trees and noxious weeds and shrubs may be removed.
2. Selected removal of trees for landscaping purposes is permitted if plans for cutting are approved by the zoning administrator and reviewed by the DNR Area Forester. **CLEAR CUTTING SHALL NOT BE PERMITTED.**
3. Fallen trees shall not be removed from the river without obtaining written permission from the DNR Area Forester.

G. Other Development Regulations

Upon receiving application for a building permit in the “Wilderness River District”, the zoning administrator shall require the applicant to furnish the following information deemed necessary for determining the suitability of the particular site for the proposed building.

1. A site plan sketch (surface view) showing elevations or contours of the ground; location of any eroding bank; size and location and spatial arrangement of all proposed and existing structures on the site; location and elevation of access roads, water supply and sanitary facilities; and location and size of any cutting or filling.
2. A valley cross-section sketch showing in scale the stream channel, flood plain, elevation of adjoining land areas with indication of locations of proposed developments.
3. Photographs showing existing land uses and vegetation and upstream and downstream photographs of the stream frontage showing vegetation and bank characteristics.
4. Any other information deemed relevant by the zoning administrator.
5. The zoning administrator shall attach such conditions to the granting of a building permit as he deems necessary to further the purposes of the natural river zoning.

## H. Regulations Pertaining to Publicly Owned Land

Part 305, P.A 451 of 1994, states in part “State land within the designated area shall be administrated and managed in accordance with the plan, and state management of fisheries, streams, waters, wildlife and boating shall take cognizance of the plan.

1. Structures – The Department of Natural Resources agrees that new structures on state land will adhere at least to minimum setback requirements and where possible be placed further back and out of view from the river.
2. Natural Vegetation Strip – On state land a “no-cutting” strip one hundred (100) feet wide bordering each side of the river will be maintained in trees, shrubs and other vegetation indigenous to the area. Various controlled cutting practices (see Appendix B) will be used in the area between one hundred (100) feet and one quarter mile from the water’s edge to help maintain the wilderness character of the area. Cutting plans for this area must receive approval from the Lansing office of Forest, Mineral and Fire Management Division.
3. Campgrounds – No new state campgrounds will be permitted in the Natural River District. Present campgrounds will not be enlarged or expanded.
4. Public Access and Roads – Additional vehicular access will not be provided to the river. New public roads, highways and river crossings will not be permitted in the Natural River District. Plans for relocations or improvements to public roads must be approved by the Natural Resources Commission (Part 305, P.A. 451 of 1994).
5. Signs – The Department of Natural Resources will limit the type and placement of signs in the Natural River District. Signs may be placed only at bridges or at established campgrounds. Signs shall be limited to resource information and regulation of use.
6. Camping – Camping in the Natural River District shall be limited to established campgrounds.
7. Trails – The Department of Natural Resources agrees that hiking trails or other trail systems will not be constructed on publicly-owned land in the Natural River District, except that where necessary, trails may cross the Natural River District on the shortest possible route.

## I. Administration

1. Zoning by the local governmental unit shall be the chief means of protecting the Two Hearted River as a wilderness river. Site plans for proposed developments must be approved by the local zoning administrator. The setback requirements furnished in Section D., 11, are minimum requirements. The zoning administrator shall decide upon the optimum location for a structure and insure that its placement and design are compatible with the wilderness character of the area. Appendix C is the purpose statement from the Wilderness River Model Zoning Regulations which guides the zoning administrator is being furnished guidelines that will assist in site plan analysis. If these zoning regulations create unreasonable hardship for the riparian owner, appeals will be handled according to the provisions of the County Rural Zoning Enabling Act (Act 182, P.A. 1943). A copy of each site plan will be forwarded to the Department of Natural

Resources Area Forester for review and comment. The Department of Natural Resources Area Forester, District Fish Executive or other experts shall be consulted to recommend to the zoning administrator or the appropriate board a course of action which will have the least degrading impact on the character of the natural river.

2. Land Acquisition

- a. Part 305, P.A. 451 of 1994 – the Natural Rivers Act – authorizes the Commission to acquire lands or interests in lands adjacent to a designated natural river.

It is recommended the Department of Natural Resources actively pursue the opportunity to purchase or trade for lands along the Two Hearted as they become available. Large segments of publicly owned river frontage with a minimum of well-regulated development could afford protection of the wilderness environment without seriously affecting the local tax base. Recommended for first priority acquisition are the following parcels:

40 acres, Section 11 T49N, R10W

80 acres, Section 12 T49N, R10W

40 acres, Section 1 T49N, R10W

40 acres, Section 6 T49N, R9W

Acquisition of these parcels would give continuous public ownership of Two Hearted River frontage from Reed and Green Bridge to within one mile of the mouth of Lake Superior. Acquisition of any other lands that become available for purchase should be pursued by the appropriate divisions of the Department of Natural Resources.

- b. Some landowners in the Natural River District may be interested in offering scenic or other easements which coincide with their property interests. The opportunity to obtain such easements by gift or purchase should be pursued.
3. Cooperative agreements shall be developed with federal and state agencies to support the Natural River Program by implementing policies which will not provide financial assistance, loan funds or ensure mortgages for any person or contractors who develop project plans which are not in harmony with the Natural Rivers concept and plan.
4. Overall responsibility for implementing and coordinating programs for state-owned land is assigned to the Fisheries Division of the Department of Natural Resources. Enforcement of water quality standards and water use regulations will be the responsibility of the Water Resources Commission and other divisions of the Department of Natural Resources.

5. Other laws and programs reinforcing the Natural Rivers management objectives should be utilized in implementing the natural rivers plan (See Appendix A)

**APPENDIX A****PART 305  
NATURAL RIVERS****324.30501 Definitions.**

Sec. 30501. As used in this part:

- (a) "Free flowing" means existing or flowing in natural condition without impoundment, diversion, straightening, riprapping, or other modification.
- (b) "Natural river" means a river that has been designated by the department for inclusion in the wild, scenic, and recreational rivers system.
- (c) "River" means a flowing body of water or a portion or tributary of a flowing body of water, including streams, creeks, or impoundments and small lakes thereon.
- (d) "System" means all of those rivers or portions of rivers designated under this part.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

**324.30502 Natural river; designation; purpose; long-range plans; publicity; cooperation.**

Sec. 30502. The department, in the interest of the people of the state and future generations, may designate a river or portion of a river as a natural river area for the purpose of preserving and enhancing its values for water conservation, its free flowing condition, and its fish, wildlife, boating, scenic, aesthetic, floodplain, ecologic, historic, and recreational values and uses. The area shall include adjoining or related lands as appropriate to the purposes of the designation. The department shall prepare and adopt a long-range comprehensive plan for a designated natural river area that sets forth the purposes of the designation, proposed uses of lands and waters, and management measures designed to accomplish the purposes. State land within the designated area shall be administered and managed in accordance with the plan, and state management of fisheries, streams, waters, wildlife, and boating shall take cognizance of the plan. The department shall publicize and inform private and public landowners or agencies as to the plan and its purposes, so as to encourage their cooperation in the management and use of their land in a manner consistent with the plan and the purposes of the designation. The department shall cooperate with federal agencies administering any federal program concerning natural river areas, and with any watershed council established under part 311, when such cooperation furthers the interest of the state.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

**324.30503 Qualifications for designation; categories of rivers.**

Sec. 30503. A river qualifying for designation as a natural river area shall possess 1 or more of the natural or outstanding existing values cited in section 30502 and shall be permanently managed for the preservation or enhancement of such values. Categories of natural rivers shall be defined and established by the department, based on the characteristics of the waters and the adjoining lands and their uses, both as existing and as proposed, including such categories as wild, scenic, and recreational. The categories shall be specified in the designation and the long-range comprehensive plan.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

**324.30504 Land acquisition; purpose; interest acquired; consent.**

Sec. 30504. The department may acquire lands or interests in lands adjacent to a designated natural river for the purpose of maintaining or improving the river and its environment in

conformance with the purposes of the designation and the plan. Interests that may be acquired include, but are not limited to, easements designed to provide for preservation and to limit

development, without providing public access and use. Lands or interests in lands shall be acquired under this part only with the consent of the owner.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

**324.30505 Federal financial assistance programs; leases; expenditures; purposes.**

Sec. 30505. (1) The department may administer federal financial assistance programs for natural river areas.

(2) The department may enter into a lease or agreement with any person or political subdivision to administer all or part of their lands in a natural river area.

(3) The department may expend funds for works designed to preserve and enhance the values and uses of a natural river area and for construction, management, maintenance, and administration of facilities in a natural river area conforming to the purposes of the designation, if the funds are appropriated by the legislature.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

**324.30506 Public hearings; notice.**

Sec. 30506. Before designating a river as a natural river area, the department shall conduct public hearings in the county seat of any county in which a portion of the designated natural river area is located. Notices of the hearings shall be advertised at least twice, not less than 30 days before the hearing, in a newspaper having general circulation in each such county and in at least 1 newspaper having general circulation in the state and 1 newspaper published in the Upper Peninsula.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

**324.30507 Land uses; zoning; local ordinances; state rule.**

Sec. 30507. After designation of a river or portion of a river as a natural river area and following the preparation of the long-range comprehensive plan, the department may determine that the uses of land along the river, except within the limits of an incorporated municipality, shall be controlled by zoning contributing to accomplishment of the purposes of this part and the natural river plan. County and township governments are encouraged to establish these zoning controls and additional controls as may be appropriate, including, but not limited to, building and subdivision controls. The department may provide advisory, planning, and cooperative assistance in the drafting of ordinances to establish these controls. If the local unit does not, within 1 year after notice from the department, have in full force and effect a zoning ordinance or interim zoning ordinance established under authority of the acts cited in section 30510, the department, on its own motion, may promulgate a zoning rule in accordance with section 30512. A zoning rule may also be promulgated if the department finds that an adopted or existing zoning ordinance fails to meet adequately guidelines consistent with this part as provided by the department and transmitted to the local units concerned, does not take full cognizance of the purposes and objectives of this part, or is not in accord with the purposes of designation of the river as established by the department.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

**324.30508 Zoning ordinance or rule; purpose.**



Sec. 30508. A zoning ordinance adopted by a local unit of government or a zoning rule promulgated by the department shall provide for the protection of the river and its related land resources consistent with the preservation and enhancement of their values and the objectives set forth in section 30502. The ordinance or rule shall protect the interest of the people of the state as a whole. It shall take cognizance of the characteristics of the land and water concerned, surrounding development, and existing uses and provide for conservation of soil, water, streambed and banks, floodplains, and adjoining uplands.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

**324.30509 Zoning ordinance or rule; establishment of districts; powers; distance.**

Sec. 30509. The ordinance or rule shall establish zoning districts within which such uses of land as for agriculture, forestry, recreation, residence, industry, commerce, and additional uses may be encouraged, regulated, or prohibited. It may limit or prohibit the placement of structures of any class or designate their location with relation to the water's edge, to property or subdivision lines, and to flood flows and may limit the subdivision of lands for platting purposes. It may control the location and design of highways and roads and of public utility transmission and distribution lines, except on lands or other interests in real property owned by the utility on January 1, 1971. It may prohibit or limit the cutting of trees or other vegetation, but such limits shall not apply for a distance of more than 100 feet from the river's edge. It may specifically prohibit or limit mining and drilling for oil and gas, but such limits shall not apply for a distance of more than 300 feet from the river's edge. It may contain other provisions necessary to accomplish the objectives of this part. A zoning rule promulgated by the department shall not control lands more than 400 feet from the river's edge.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

**324.30510 Local zoning ordinance; conformance with applicable law; construction.**

Sec. 30510. A local unit of government, in establishing a zoning ordinance, in addition to the authority and requirements of this part, shall conform to the township zoning act, 1943 PA 184, MCL 125.271 to 125.310, or the county zoning act, 1943 PA 183, MCL 125.201 to 125.240, including, but not limited to, the variance provisions of those acts. Any conflict shall be resolved in favor of the provisions of this part. The powers granted under this part shall be liberally construed in favor of the local unit or the department exercising them, in such manner as to promote the orderly preservation or enhancement of the values of the rivers and related land resources and their use in accordance with a long-range comprehensive general plan to ensure the greatest benefit to the state as a whole.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995;--Am. 2000, Act 17, Imd. Eff. Mar. 8, 2000.

**324.30511 Districts; valuation for tax purposes.**

Sec. 30511. Upon adoption of a zoning ordinance or rule, certified copies of the maps showing districts shall be filed with the local tax assessing officer and the state tax commission. In establishing true cash value of property within the districts zoned, the assessing officer shall take cognizance of the effect of limits on use established by the ordinance or rule.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

**324.30512 Rules; enforcement; promulgation; variance; existing use.**

Sec. 30512. (1) The department shall prescribe administrative procedures and rules and provide personnel as it considers necessary for the enforcement of a zoning ordinance or rule enacted in accordance with this part. A circuit court, upon petition and a showing by the department that

there exists a violation of a rule properly promulgated under this part, shall issue any necessary order to the defendant to correct the violation or to restrain the defendant from further violation of the rule.

(2) The department shall promulgate a zoning rule to implement this part. The rule shall include procedures for receiving and acting upon applications from local units of government or landowners for change of boundaries or change in permitted uses in accordance with chapter 4 of the administrative procedures act of 1969, 1969 PA 306, MCL 24.271 to 24.287. An aggrieved party may seek judicial review under chapter 6 of the administrative procedures act of 1969, 1969 PA 306, MCL 24.301 to 24.306.

(3) A variance from a zoning rule promulgated by the department to implement this part may be applied for and granted pursuant to section 4 of the uniform condemnation procedures act, 1980 PA 87, MCL 213.54, and the variance provisions of the zoning rule.

(4) The lawful use of any building or structure and of any land or premise as existing and lawful at the time of enactment of a zoning ordinance or rule or of an amendment of a zoning ordinance or rule may be continued although the use does not conform with the ordinance, rule, or amendment. The ordinance or rule shall provide for the completion, restoration, reconstruction, extension, or substitution of nonconforming uses upon reasonable terms as set forth in the zoning ordinance or rule.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995;--Am. 2000, Act 17, Imd. Eff. Mar. 8, 2000.

**324.30513 National wild and scenic river system; administration.**

Sec. 30513. This part does not preclude a component of the system from becoming a part of the national wild and scenic river system under the wild and scenic rivers act, Public Law 90-542, 16 U.S.C. 1271 to 1287. The department may enter into written cooperative agreements for joint federal-state administration of rivers that may be designated under the wild and scenic rivers act.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

**324.30514 Area plans; approval; rules.**

Sec. 30514. The department shall approve preliminary and final plans for site or route location, construction, or enlargement of utility transmission lines, publicly provided recreation facilities, access sites, highways, roads, bridges, or other structures and for publicly developed water management projects, within a designated natural river area, except within the limits of a city or incorporated village. The department may require any measure necessary to control damaging erosion or flow alteration during or in consequence of construction. The department shall promulgate rules concerning the approvals and requirements provided for in this section.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

**324.30515 Construction of part.**

Sec. 30515. This part does not prohibit a reasonable and lawful use of any other natural resource that benefits the general welfare of the people of this state and that is not inconsistent with the purpose of this part.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

## APPENDIX B

### “ALTERATION OF RIVERS” LAWS

Construction on Streams (Act 156, 1951): Authorizes county commissioners to permit or prohibit the construction of dams or bridges on navigable streams. They can also provide for the removal of obstructions.

Construction of Dams in Streams (Act 184, 1963): Prohibits dam building on a stream or river impounding more than five acres without a permit from the Department of Natural Resources.

Inland Lakes and Streams Act of 1972 (Act 346, 1972): Authorizes the Department of Natural Resources to regulate structures, fills, dredgings and other such actions on waterfronts.

Soil Erosion and Sedimentation Control Act of 1972 (Act 347, 1972): Control of soil erosion for the identified land uses of an area to prevent sedimentation of the waters of this state.

Regulate Alteration of Floodplain and Floodways (Act 167, 1968): Authorizes the Water Resources Commission to control alteration of the water courses and the floodplains of all rivers and streams, and to prohibit the obstruction of the floodways of rivers and streams of the state.

Goemaere-Andreson Wetland Protection Act (Act 203, 1979): Authorizes the Department of Natural Resources to regulate dredging, filling, draining and other such actions to wetlands, including those contiguous to Michigan rivers (effective October 1, 1980).

### RIVER USE LAWS

Marine Safety Act (Act 303, 1967): Sets forth general regulations for the use of vessels on waters of the state. Department of Natural Resources may, via hearings and adoption of rules by local governments, further regulate the use of such waters by special regulation.

Pending Canoe Registration Act: Would require registering of canoes that are intended for use in public waters of the state.

### POLLUTION LAWS AND PROGRAMS

Water Resources Commission (Act 245, 1929): Commission must establish “pollution standards for waters of the state in relation to the use to which they are or may be put.” Has the authority to make regulations and issue orders and permits restricting the polluting content of discharges into state surface and ground waters. Act prohibits discharges of any substance into water which are or may become injurious to public health, safety, welfare; domestic, commercial, industrial, agricultural, recreational or other uses of water; value or utility of riparian lands; to livestock, wild animals, birds, fish, aquatic life or plants, etc. Prohibits structures that will unduly restrict the capacity of the floodway.

Environmental Protection Act (Act 127, 1970): Allows the Attorney General, any public body, and private body or person to sue to enjoin the pollution or likely pollution of any natural resource or obtain relief with respect to such actions.

Clean Water Boding Act (Act 76, 1968 implemented by Act 329, 1966, as amended): For sewage treatment facilities eligible for federal aid, the Water Resources Commission may grant up to 25 percent of the project cost providing that the sum of state and federal aid shall not exceed 80 percent of the project cost.

#### RELATED & GENERAL LAWS APPLICABLE TO NATURAL RIVERS PROGRAM

Shorelands Protection and Management Act (Act 245, 1970): The Great Lakes counterpart of the Natural River Act.

Farmland and Open Space Preservation Act (Act 116, 1974): Provides tax relief for certain property owners signing nondevelopment agreements with the state.

Subdivision Control Act (Act 288, 1967): Regulates the subdivision of land; requires that the land be suitable for building sites and public improvements, and that there be adequate drainage thereof; to control residential building development within floodplain areas, etc.

State Constitution (Act IV, s.52): Legislature must provide for the protection of natural resources.

Department of Conservation (Act 17, 1921): Department must protect and conserve the natural resources of the State of Michigan.

Natural Beauty Roads (Act 150, 1970): Such roads may be established by county road commission upon local petition. After establishment, commission may enact regulations to preserve native vegetation in the road right-of-way.

Safety Zones (Act 61, 1968): Prohibits discharge of firearms within 150 yards of an occupied dwelling.

Reckless Use of Firearms Act (Act 45, 1952):

Recreational Trespass Act (Act 323, 1976): Must have written permission to be on an individual's property, and prohibits possession or discharge of a firearm within the limits of a right-of-way on certain public roads.

#### RIVER PLANNING & DEVELOPMENT ORGANIZATIONS

Local River Management Act (Act 253, 1964): Authority to establish both a watershed council (like a planning or advisory board) and a river management district and board (planning a development agency).

Intermunicipality Study Committee (Act 200, 1957): Two or more municipalities may establish an intermunicipality study committee to study area problems and formulate recommendations to their governing bodies.

## APPENDIX C

MODIFIED TIMBER MANAGEMENT PLAN  
FOR STATE OWNED LAND

Logging is a necessary tool in forest management order to insure a healthy, thriving forest; and when properly handled, logging operations can be compatible with the objectives of the Natural River Act of 1970, although certain guidelines are necessary. Several major timber types exist within the watershed, and each type varies in its basic requirements and silvicultural characteristics. Consequently, a blanket recommendation for timber harvest control should not be made. Instead recommendations based upon the individual timber types and their various silvicultural characteristics should be implemented.

Fivebroad timber types can found within the watershed. A variety of tree species can often be found within each type, and the species structure can vary considerably from stand to stand. However, the recommendations made for the broad types are generally applicable regardless of the degree of stocking of any one of the major type species.

Listed below are the major timber types found within the Two Hearted River Watershed along with a listing of the major and principle associated tree species:

1. Swamp Conifers
  - A. Major Tree Species
    - 1) Northern white cedar
    - 2) Black spruce
    - 3) Balsam fir
    - 4) Tamarack
  - B. Principle Associated Tree Species
    - 1) White spruce
    - 2) White birch
    - 3) Yellow birch
    - 4) Red maple
    - 5) Black ash
    - 6) Elm
    - 7) Balsam poplar
    - 8) Aspen
    - 9) White pine
    - 10) Hemlock
2. Hardwoods
  - A. Major Tree Species
    - 1) Sugar maple
    - 2) Red maple
    - 3) Beech
    - 4) Yellow birch
    - 5) Elm

6) Hemlock

- B. Principle Associated Tree Species
  - 1) White pine
  - 2) White spruce
  - 3) White birch
  - 4) Aspen
  - 5) Balsam fir
  
- 3. Aspen – White Birch
  - A. Major Tree Species
    - 1) Aspen
    - 2) White birch
    - 3) Balsam poplar
  
  - B. Principle Associated Tree Species
    - 1) Balsam fir
    - 2) White pine
    - 3) Red maple
    - 4) Black spruce
    - 5) White spruce
  
- 4. Jack Pine
  - A. Major Tree Species
    - 1) Jack Pine
  
  - B. Principle Associated Tree Species
    - 1) Red pine
    - 2) White pine
    - 3) White birch
    - 4) Aspen
    - 5) Black oak
  
- 5. Red and White Pine
  - A. Major Tree Species
    - 1) Red pine
    - 2) White pine
  
  - B. Principle Associated Tree Species
    - 1) Jack pine
    - 2) White birch
    - 3) Aspen
    - 4) Black spruce
    - 5) White spruce
    - 6) Red maple

Management of the timber stands within the Natural River Zone should be based upon the major timber types, which will be determined by the percent of stocking of major tree species. A stocking of 50 percent or more of the major tree species of any timber type will classify the stand

as being that timber type. Species found in association with the major types are incidental and are not representative of the stand. Forest management decision should not be influenced by the presence of the associated species, but instead, the stand should be managed according to the guidelines set forth for the major type.

The following timber management guidelines and recommendations are set forth for use within a corridor ¼ miles in any direction from the nearest point of the designated portions of the Two Hearted River or the designated portions of its tributaries:

General Specifications: Applying to state forest lands within Natural River Zone.

1. No timber cutting within 100 feet of the water's edge on each side of the stream.
2. All distances from the nearest bank of the stream shall be considered as horizontal distances.
3. Regardless of the horizontal distance, no cutting shall occur on any slope facing the river that exceeds 30 degrees of slope.
4. No haul roads shall be constructed or terminated nearer than 300' from the nearest bank of the stream.
5. No haul roads constructed closer than 660" from the nearest bank of the stream shall be constructed with more than 10 degrees of slope.
6. All timber cut within 300" of the nearest bank of the stream shall be felled at right angles to the stream, and in a direction directly away from the stream. Under no circumstances should tops be left nearer than 150' from the nearest bank of the stream, or within sight of the river.
7. All access planned for logging purposes on state land within the ¼ mile Natural River Zone must meet with the approval of the Area Forester, Lake Superior State Forest, prior to construction.
8. All access within the ¼ mile Natural River Zone as a result of timber harvest or other silvicultural work shall be closed upon completion of their needs for this purpose.

Management Recommendations by Major Timber Types:

1. Swamp Conifers
  - A. Between 100 feet and 400 feet from the nearest bank of the stream: upon initial entry into the stand, timber harvesting should consist of removing alternate and one chain strips of timber and leaving alternate one chain strips of timber uncut. Harvesting of the uncut strips should not proceed until the reproduction in the cut strips averages at least 5" in height, and stocking exceeds 600 seedlings per acre. The strips should be laid out roughly parallel to the main direction of the river through the description involved.
  - B. Between 400 feet and ¼ mile from the nearest bank of the stream: upon initial entry into the stand, harvesting should follow the guidelines prepared for paragraph B, except that alternate strips may be up to two chains wide and progress in any cardinal direction.



## 2. Hardwoods

- A. From 100' to 400' of the nearest bank of the stream: no cutting of any hardwood species smaller than 12" D.B.H. No cutting of white pine or white spruce in association. Cutting of hardwood species should be by a selection system, leaving a minimum of 95 square feet basal area per acre of hardwood, white spruce, white pine and hemlock.
- B. From 400' to ¼ mile of the nearest bank of the stream: stands managed for sawlog production should be harvested by a selection system, leaving a minimum stocking of 70 square feet of basal area per acre standing after harvest of all species. Stands managed for pulpwood production should be harvested either by a block or alternate strip clearcut system. Blocks should not exceed five chains by five chains square and strips should not exceed two chains in width. The initial cut should not exceed 1/3 of the management unit. The second cut should not be entered sooner than 10 years after the first. This cutting again should not exceed 1/3 of the management area. Additional cuts should be spaced at a minimum of 10-year intervals, but at no time should any cut exceed 1/3 of the management area.

## 3. Aspen – White Birch

- A. From 100' to 400' of nearest bank of the stream: no cutting of white birch, white pine or white spruce. All other species may be clearcut.
- B. From 400' to ¼ mile from the nearest bank of the stream: stands should be clearcut thoroughly enough to insure rapid and complete regeneration of the stand by aspen shoots.

## 4. Jack Pine

- A. Within 100' of nearest bank of the stream: no cutting, except as conditions warrant in situations of severe mortality resulting from excessive insect infestations. In these situations, only jack pine is to be cut. All trees are to be felled away from the stream.
- B. From 100' to 400' of the nearest bank of the stream: clearcut jack pine, but no cutting of any tree species in association.
- C. From 400' to ¼ mile from the nearest bank of the stream: clearcut jack pine. Associated species may also be removed, but any red or white pine scattered throughout the stand which will hold for a second rotation (about 60 years) should be left. Immediately following the harvest an effort must be made to regenerate the stand and continued until adequate stocking (minimum of 600 trees/acre) is established.

## 5. Red and White Pine

- A. From 100' to 400' of the nearest bank of the stream: intermediate cuts should be by selection system, leaving a minimum of 100 square feet of basal area per acre of red and white pine trees. Final cut should not occur earlier in the age of the stand than 170 years and should leave a minimum of 10 seed trees per acre. Seed trees should

not be removed until adequate (minimum of 600 trees per acre) regeneration occurs and averages at least 10 feet in height.

- B. From 400' to ¼ mile from the nearest bank: intermediate cuts should be on a selection system, leaving a minimum of 100 square feet of basal area per acre of red and white pine trees. Species in association may be harvested. The final cut should not occur earlier in the age of the stand than 150 years. If adequate regeneration has not occurred by the time of the final cut, an effort must be made to artificially regenerate the stand and continued until adequate stocking results (600 trees per acre).

APPENDIX D

Article \_\_\_\_\_ (Zoning District Regulations)  
 Section \_\_\_\_\_ Two Hearted River Wilderness River District

- A. Purpose; The primary purpose of this zoning district is to preserve and enhance the wilderness characteristics of the Two Hearted River system for the benefit of present and future generations, to protect the fish, wildlife and forest resources, water quality, scenic and aesthetic qualities and historical and recreational values. The secondary purpose of this district is to provide low density seasonal cottage or cabin use on lots of sufficient area to accommodate the safe and healthful use of on-site water and waste disposal facilities and special "Wilderness River" recreational uses requiring large tracts of land and developments compatible with the wilderness characteristics of the area. In the event of the foregoing uses . being permitted in this district the administrator shall, upon receiving any application for the same, instruct the applicant of the primary use of the area. If development is to occur the administrator should insure that said development is compatible with the wilderness characteristics of the area and should consult the Department of Natural Resources District Fisheries Executive and Area Forester to insure that said development does not damage the natural river resources. This district will be located within four hundred (400) feet of the waters edge on both sides of those portions of the Two Hearted River and its tributaries designated as "Wilderness River" by the Natural Resources Commission under the authority of Act 231, P.A. 1970.