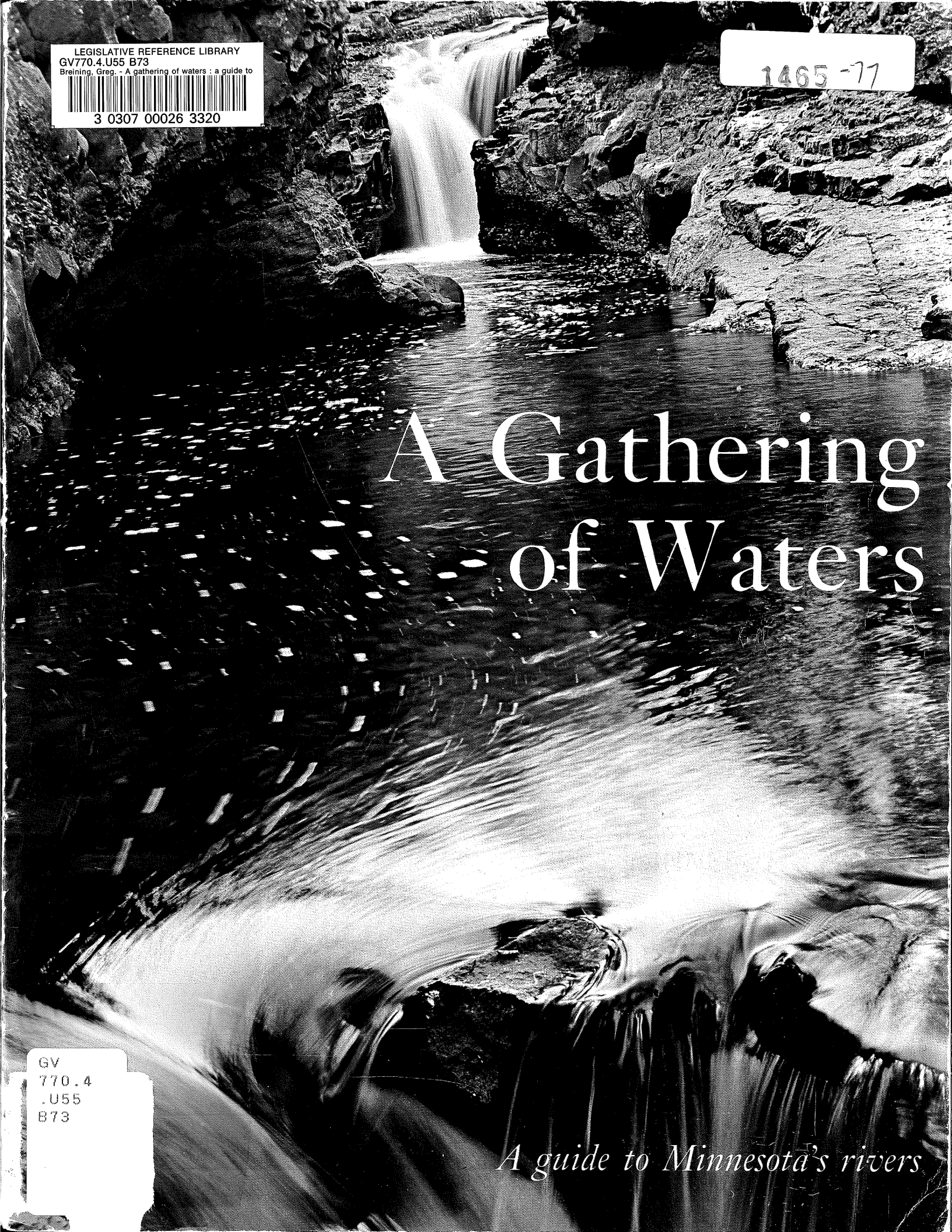

A Gathering of Waters

A guide to Minnesota's rivers

Cover: Water tumbles into a quiet pool of a northern Minnesota river. Photo by James Sogaard.

A Gathering of Waters

A guide to Minnesota's rivers

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A gathering of rivers

River running is what you make it.

Some people take up a paddle for a day-long float trip down a nearby river. Others may seek the solitude and grueling challenge of a wilderness trip covering several hundred miles. Many people travel rivers to find good fishing or hunting. Others prefer to hike along rivers in the summer or ski them in the winter to take pictures or just enjoy the sights and sounds.

But for every river rat, there's a river.

Some are wilderness streams, carrying self-reliant canoeists many miles from towns and roads. Many rivers, flowing past farmland and thick hardwood forests, are close at hand for a weekend trip. Some streams are noted for fish and wildlife; some have carved unique geological formations or wind past historic settlements. Still others challenge kayakists and white-water canoeists with waters that tumble over ledges and surge through rapids. Of course, the variety of waters requires a variety of equipment and skills. Fortunately, the styles of canoes, paddles and other gear are nearly boundless. And even the most basic knowledge of canoeing will allow the beginner to enjoy endless miles of streams.

"Gathering of waters," an English translation of the Ojibway word *Mississippi*, is an appropriate title for this guide, for gathered inside these pages are descriptions, maps and photographs of Minnesota's 18 designated canoe and boating route rivers, some of the most popular and beautiful streams in the state. Also included are brief descriptions of several other rivers, and information from experts on canoeing skills and stream fishing. Rapids have been rated for difficulty (see "A lesson from the river" for a description of the rating system) and sources of additional information have been listed to help you plan your trip.

Only public recreation sites are shown on the river maps to discourage trespassing on private land. In addition, many sites along the rivers — accesses along bridges, for instance — are not shown if they are undeveloped and considered inconvenient or unsafe. Despite work spent on this guide, errors are possible, and in fact, likely. Watch for hazards that may have been omitted. Call or write with comments and corrections. Revisions will be made when new information is available. The most up-to-date information on the canoe and boating routes is in free pocket-sized maps published and distributed by the Minnesota Department of Natural Resources, Rivers Section.

A Gathering of Waters is intended primarily for canoeists. But anglers, hunters, hikers, skiers, photographers and others who enjoy the outdoors and know the lure of moving water will also find the publication helpful. Historical anecdotes and facts about the areas near the rivers should satisfy curiosities that extend beyond the joys of outdoor recreation.

Acknowledgements

Acknowledgements are due the many people who helped prepare this guide, among them: James Benda, who took most of the photographs; members of the Minnesota Canoe Association, particularly Karl Ketter and Al Button, who lent their expertise to help write about paddling techniques, and Tom Aluni, who contributed information about several rivers; the American Whitewater Affiliation, which granted permission to borrow heavily from its excellent materials on boating safety and white-water difficulty ratings; Brian Conway, Richard Brandon, Tim LaTourelle and John Sternquist, who drafted the illustrations and maps used in the publication; Rivers Section employees, particularly Kathy Brandl, and regional personnel of the Minnesota Department of Natural Resources, who provided much of the information for the river articles and maps; and Charles A. Wechsler of the department's Bureau of Information and Education, who assisted in the editing of this publication.

Contents

Boats and paddles

Canoes

The canoe is undoubtedly the most popular river craft. Styles and characteristics are limitless. Maneuverability, the ability to "track" or hold course, lightness, strength and low cost are all desirable in a canoe. But a boat that turns easily won't track well in heavy current or crosswinds. And strength comes only with greater weight or higher cost. Choosing a canoe requires compromises and a good idea of its intended use.

Although most canoes range from 14 to 19 feet, 17 feet is considered standard length. Short canoes are generally lighter and more maneuverable than long canoes and are preferred for solo paddling. Long canoes go faster, track better and hold more gear.

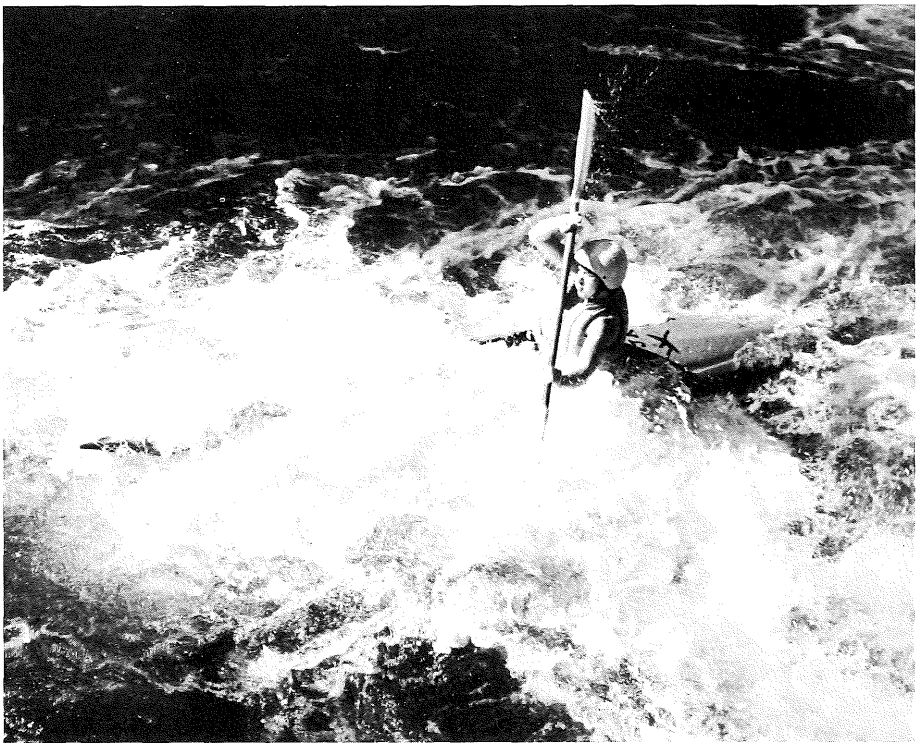
Although canvas-covered wood and wood-strip canoes are among the most attractive craft, aluminum and fiberglass canoes offer the best compromises of lightness and strength at a low cost. Fiberglass canoes are quieter and are easier to repair than aluminum.

Fiberglass canoes in particular come in a variety of designs, constructions and prices. The more expensive models are made mostly by hand and are reinforced with synthetic cloth (such as Kevlar) to add strength and save weight. Other models, which are styled after racing canoes, are narrower than standard designs to cut water more easily.

If you intend to run rapids and need a highly maneuverable canoe, look for a fiberglass design without a keel or an aluminum canoe with additional ribs for strength and a shallow, rounded "shoe keel." Keels, which keep a canoe from turning easily, often catch on rocks. Recently, manufacturers have molded extremely durable white-water canoes from lightweight, flexible plastic.

If your trips require long portages, you'll want a lightweight canoe that has or can be fitted with a carrying yoke.

Minnesota offers a variety of rivers for a variety of people. A man and boy, left, paddle a gentle stream in an open canoe (photo by Canoe magazine). A kayakist, right, crashes through a big wave in a rapids (photo by Ray Anderson).



Paddles

Paddles, like canoes, are subjected to a wide range of uses and are available in a wide range of prices. Inexpensive paddles will serve for most cruising, although high-grade laminated paddles of pine, spruce, and ash or a similar hardwood better resist splitting and are much stronger for their weight. Paddles with fiberglass blades and aluminum shafts are the most durable paddles, although they are expensive and relatively heavy.

Paddle length is a matter of personal preference. Tradition dictates that the paddle should stand chin-high, but the trend is toward shorter paddles (five feet or less) for a faster, shorter and easier stroke. Many experienced canoeists use paddles with an eight-inch-wide blade.

Carry a spare paddle, but don't lash it tightly to the thwarts or stash it under two 60-pound packs where it will be useless if you break your other paddle midway through a rapids. Instead, tape or tie it to the thwarts so a quick tug will release it.

Safety gear

Although all boaters are required by law to carry U.S. Coast Guard-approved life preservers or buoyant seat pads, canoeists no longer have to tolerate the bulky, uncomfortable "horse collar" jackets. Several models, though comparatively expensive, are lightweight and allow free arm movement.

White-water canoeists should consider using a helmet, a necessity for kayakists and decked canoeists in all but the easiest rapids. Specially designed white-water helmets are lightweight and do little to interfere with hearing.

Paddlers who run the high, cold rivers of spring often wear wetsuits or neoprene vests. Even a thin layer of neoprene holds body heat and is invaluable during dunkings in icy rivers. It's nearly impossible to swim even 100 yards in freezing water. A person may remain conscious less than five minutes.

Decked boats

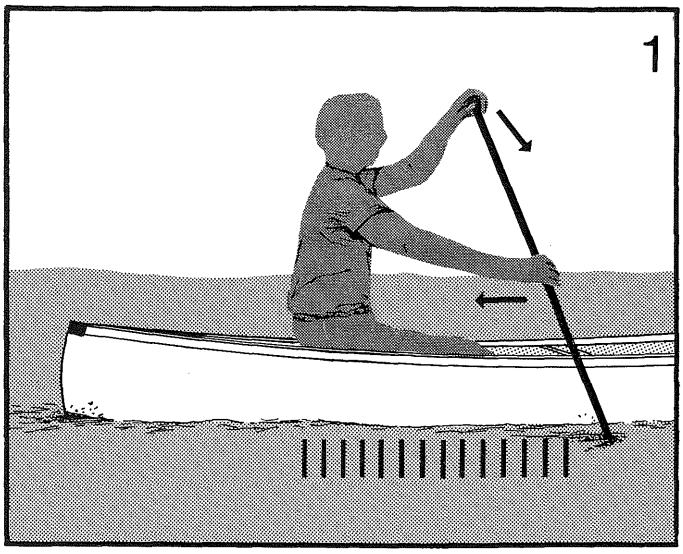
The demands of turbulent rapids often exceed the capabilities of open canoes. If you enjoy the challenge of white water, but are tired of swimming through rapids and wrapping canoes around submerged rocks, you may want to try a kayak or decked canoe.

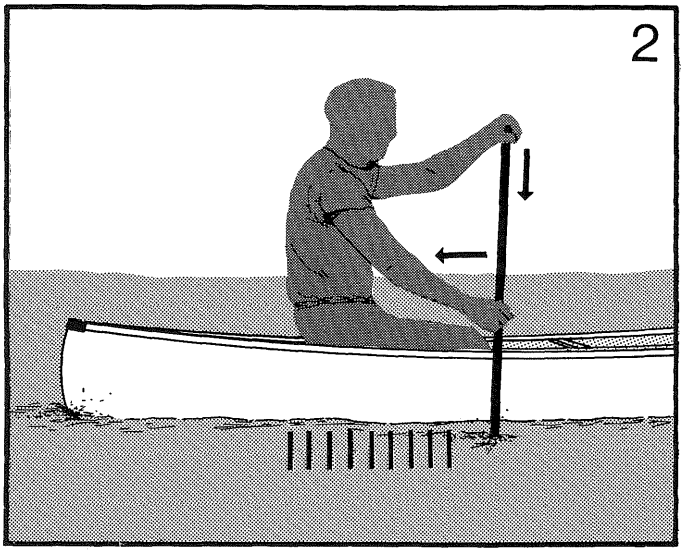
Usually constructed of fiberglass reinforced with synthetic cloths, decked boats are almost completely enclosed. A nylon or neoprene "spray skirt" is worn around the paddler's waist and is slipped over the rim of the boat's cockpit. In these nearly watertight boats, skilled paddlers can plunge through standing waves several feet high. And boaters can right overturned decked boats with an "Eskimo roll," saving themselves a swim through rapids.

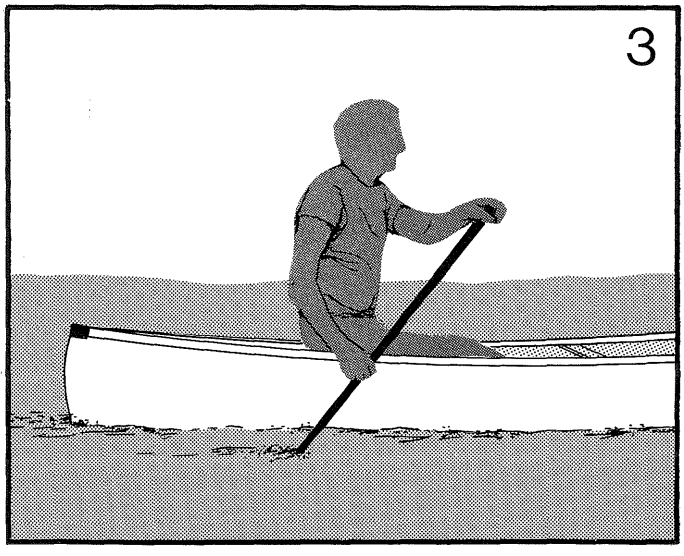
Decked canoes, which can be made for one or two people, look like kayaks but are paddled with a single-bladed paddle from a kneeling position. Kayakists sit in their boats and use twin-bladed paddles.

Most decked boats have considerable "rocker" (curvature of the bottom of the hull from bow to stern), making them extremely maneuverable. Their light weight (usually less than 40 pounds for a kayak) also accounts for their agility.

Beginning paddlers will find white-water craft disturbingly tippy and may wonder how the boats can be coaxed through the slightest wave without tipping. The experienced boater, however, has learned to use the paddle as a highly versatile outrigger. Because these techniques require training and practice, and because decked boats are often used in hazardous waters, beginners should learn from experienced paddlers. Joining a white-water club is also recommended.







Using a paddle

Editor's note: Here, **Al Button** *and* **Karl Ketter** *collaborate to explain efficient paddling and maneuvering on a river. Button, a white-water canoeist with nine year's experience, is a three-time national champion in wild-water C-1 (one-man decked canoe) and a bronze medal winner in the 1975 World Championships in Mavrovo, Yugoslavia. Ketter, a professional marathon canoe racer, first entered the Shawinigan Classic race in Quebec when he was 15. In the ensuing 18 years he has successfully toured the major racing circuits in the United States and Canada.*

Racers and good cruisers paddle the same way. Just as a racer will use a certain stroke because it moves the canoe quickly, a good cruiser will use the same stroke because it wastes little effort and moves the canoe easily. The only difference is that the racer paddles quickly, while the cruiser adopts a more comfortable pace.

If two people are in the canoe, one sits or kneels in the bow, the other in the stern as they paddle on opposite sides of the canoe. Most important, they paddle rhythmically and in unison. Just as a runner strives for an even pace, good canoeists use even strokes to move the canoe most easily. Usually, the bowman sets the pace and the sternman matches the bowman's strokes to maintain momentum. The sternman usually is responsible for keeping the canoe on course.

If you're paddling alone, sit or kneel in the center of the canoe. Although you won't have to match strokes with anyone, evenly paced strokes will move the canoe most efficiently. You will use many of the same strokes whether you're paddling solo or with a partner. In either case, be sure that the canoe is trimmed, that is, sitting level in the water. If either the bow or stern is higher than the other end, the canoe will be harder to push through the water. If the canoe is not level, move the cargo or stash a few rocks in the high end. The seats of some canoes can be adjusted to achieve trim.

Here are the strokes you will need to begin. As you become more experienced, you'll blend and adjust your strokes to match the river. You may also want to learn

other strokes. Watch good paddlers and experiment. Canoeing is like dancing: the step matches the music. But while everyone may be doing the same step, each has his own style.

The forward stroke

The forward or bow stroke is the foundation for nearly all other strokes. Learn it well and you will have little trouble grasping the more advanced techniques.

To begin the forward stroke, grip the paddle slightly above the blade and put the other hand firmly on top of the grip. Your hands should be shoulder-width apart.

Reach ahead with the tip of the paddle blade and dip it into the water (1, left). Your top hand should be near your chin, your bottom arm extended forward. The shoulder of your top hand should be back and the shoulder of your bottom hand forward.

Push your top hand forward, down and slightly across your body while pulling your bottom arm back, bending it only slightly (2). Rotate your torso with the stroke to use your powerful shoulder and back muscles. During the stroke, your top hand should be no higher than your head.

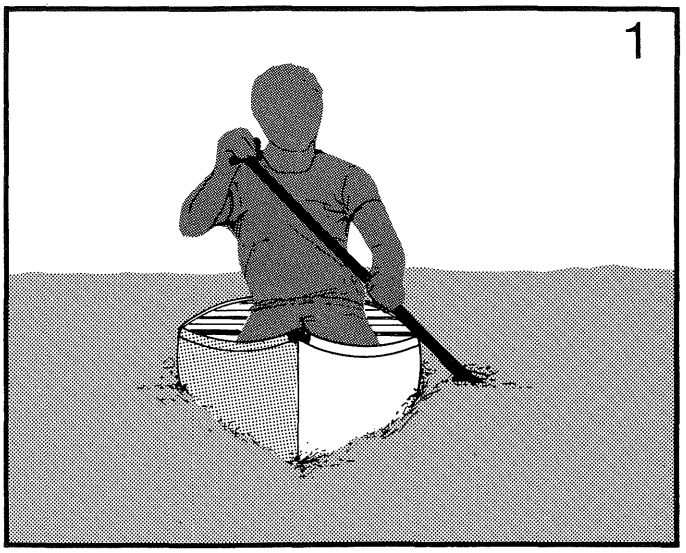
Relax as you draw; don't force the stroke. Stop pulling when the paddle blade passes your hip (3). A longer stroke only wastes energy. Slide the paddle out of the water and swing it forward for the next stroke. In a stiff wind you may want to "feather" the blade by swinging the paddle forward with the blade parallel to the water's surface to cut wind resistance.

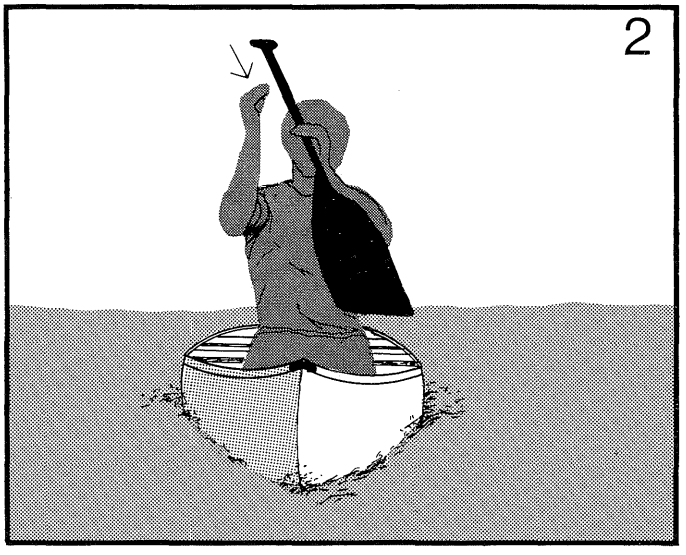
Backpaddling is the reverse of the forward stroke and is handy for backing away from shore, stopping in calm water or slowing your descent through fast water.

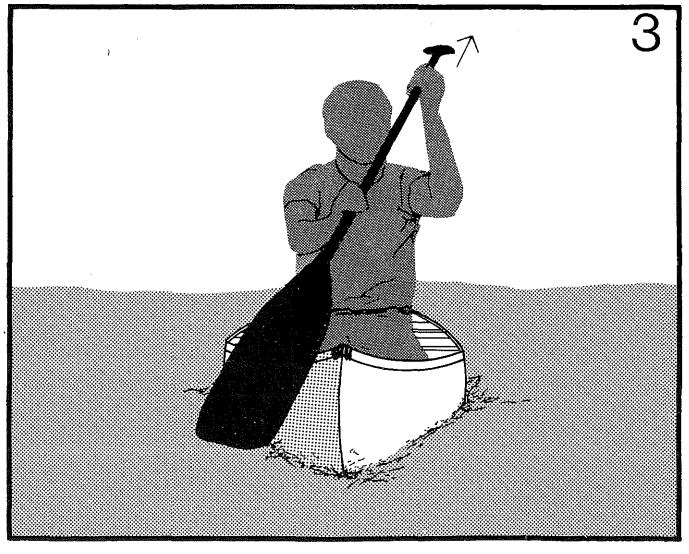
Hut!

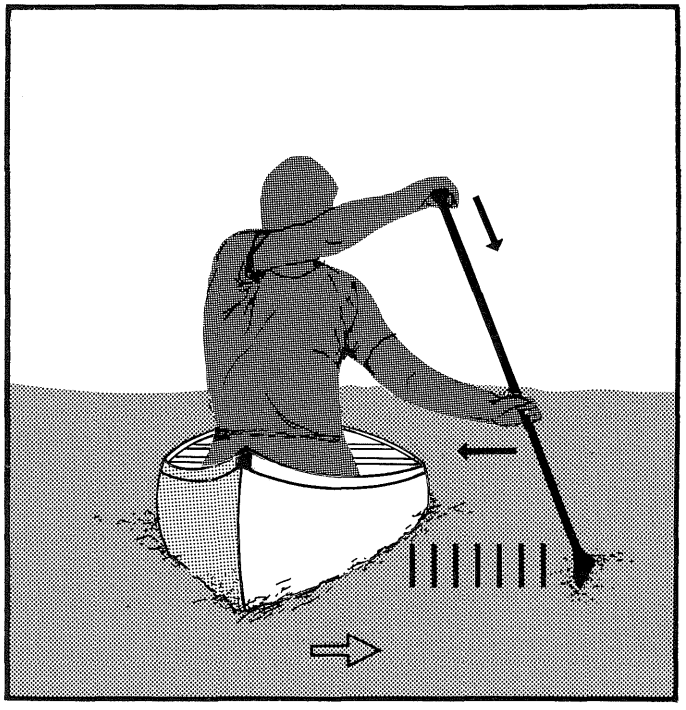
After a few strokes you will discover a problem that vexes most beginning canoeists: with each stroke the canoe turns away from the side on which the sternman is paddling.

The simplest and most efficient way to correct the canoe's wayward tendencies is to switch sides, a technique developed by marathon racers and quickly mastered by novices. After several strokes, as the canoe begins to stray from its course, the sternman calls "hut" or any other chosen signal. The paddlers finish the stroke (1, right) and simultaneously switch sides. They each release their top hand and swing the paddle across the canoe (2). The free hand (the hand that was on top) then grips the paddle shaft while the other hand slides to the top of the paddle (3). Continue paddling as before. The switch takes no more time than a stroke and the canoe wanders no more than a couple of feet in 50 feet of travel. The trick is to switch before the canoe has strayed very far.



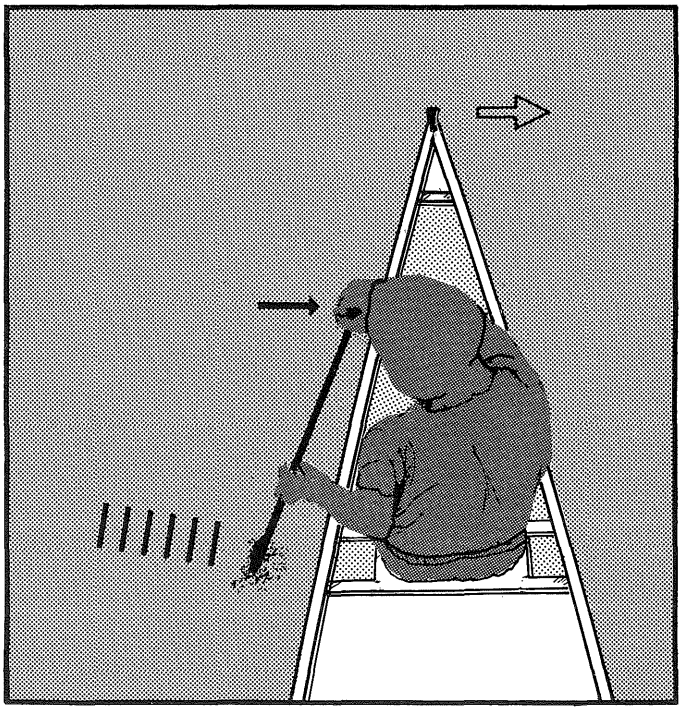






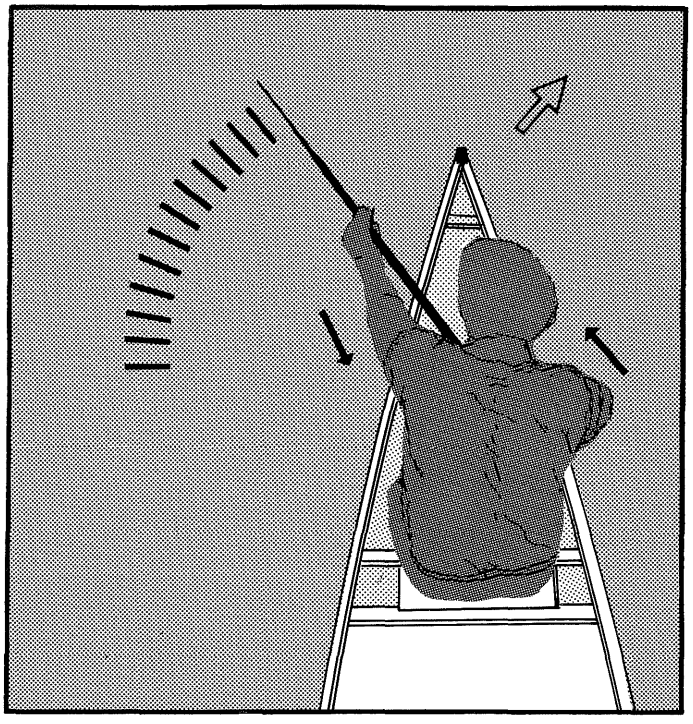
The draw stroke

The draw, a powerful turning stroke, is a variation of the forward stroke. But instead of reaching forward, reach far to the side with both arms and draw the canoe toward the paddle. Several draw strokes by both paddlers (paddling on opposite sides of the canoe) will quickly turn the canoe in a half-circle. Like the forward stroke, the draw is best executed in unison.



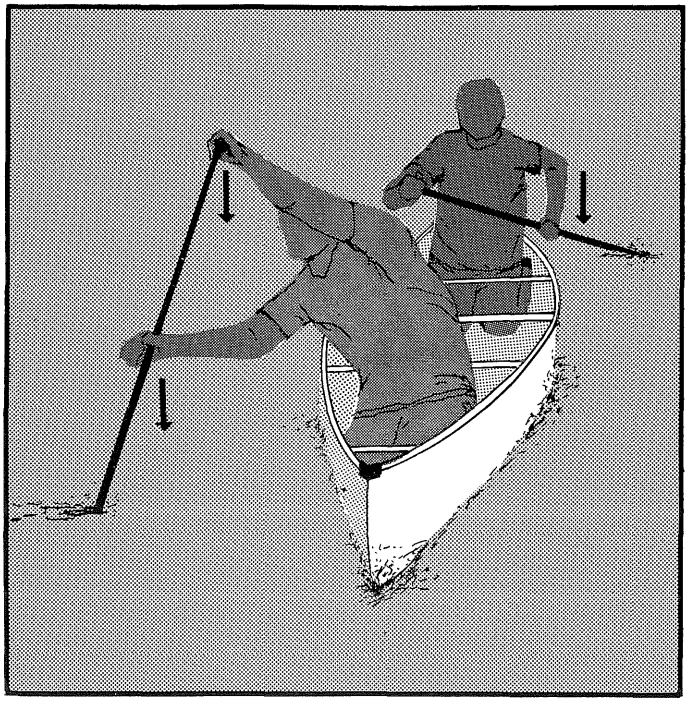
The pry stroke

The pry stroke is usually used by the sternman, though it may be done by both paddlers to quickly turn the canoe without changing sides. Unlike the draw, the pry forces the canoe away from the paddle. Draw the paddle beside or slightly behind you and twist it so the blade is parallel to the canoe. Brace your bottom hand against the gunwale and pull your top hand across your chest, using the paddle as a pry bar. The pry is best used for turning short distances quickly. If you must turn the canoe very far, switch sides and draw.



The sweep stroke

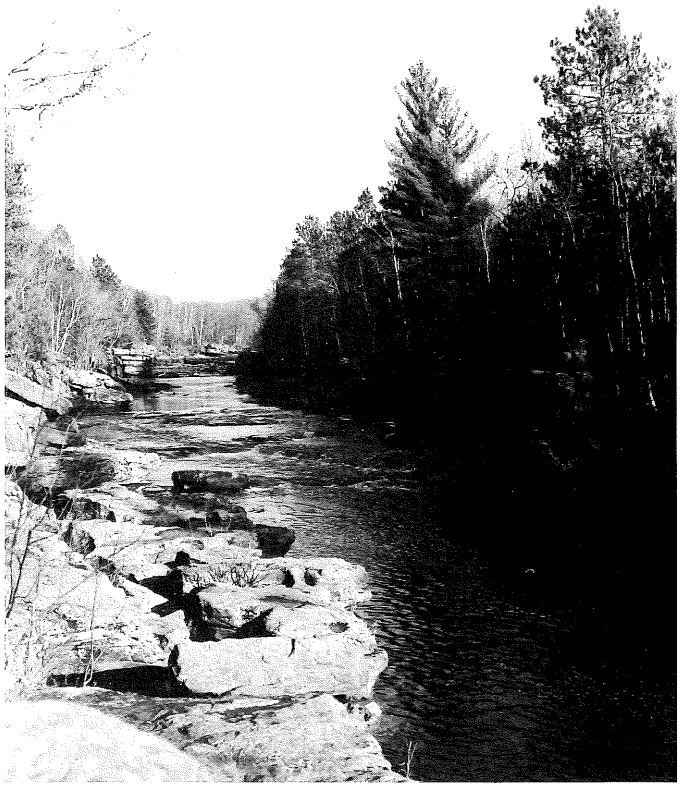
The sweep, done by paddlers in either the bow or stern, is another turning stroke. Unlike the draw or pry strokes, which turn the canoe quickly, the sweep turns the canoe gradually while maintaining forward speed. Do the sweep like the forward stroke, but instead of drawing the paddle straight back, swing it in a wide arc far from the side of the canoe. A sweep done by either the bowman or sternman will turn the canoe away from the paddle. A bowman paddling on the left side, as shown in the illustration, sweeps from an 11 o'clock to a 9 o'clock position. A sternman paddling on the left sweeps from a 9 o'clock to a 7 o'clock position. The sweep is used by only one paddler at a time, for sweep strokes in the bow and stern counteract each other. But a draw by the bowman and a sweep by the sternman will quickly turn the canoe while driving it forward.



Bracing

Watch two novices run a difficult rapids and you'll notice that they either fearfully clutch the gunwales or wave their paddles in the air. They will probably tip, demonstrating that neither technique is effective. Good canoeists, on the other hand, use the high brace and low brace to stabilize the canoe as though it had an outrigger.

The bowman in the illustration is using a high brace, a stroke similar to a draw stroke except that the paddler is using the paddle as a crutch by leaning as well as drawing. The sternman in the illustration is using a low brace by leaning on the paddle as he sweeps it slowly forward with the blade nearly flat on the water. Bracing strokes are done differently in different currents and are blended with other strokes. Remember, your paddle does no good if it's not in the water. If you do nothing else in a rapids, keep paddling.



A river may be mild at one water level and deadly at another. Shown is Dragon's Tooth, one of the Banning Rapids on the Kettle River. The rapids rates class IV at the level shown on the right.

A lesson from the river

Most of the time, Minnesota rivers glide over a nearly level streambed, meeting few obstructions. Paddling these stretches is like cruising on a lake; just remember that the current is adding to your speed, allowing less time to maneuver around rocks and other obstacles.

Most rivers, however, occasionally drop through a steep pitch in the riverbed, creating a rapids. The backwaters, crosscurrents and waves that shape a rapids' character can help or hinder you. To take advantage of a river's temperament, you must be able to read water.

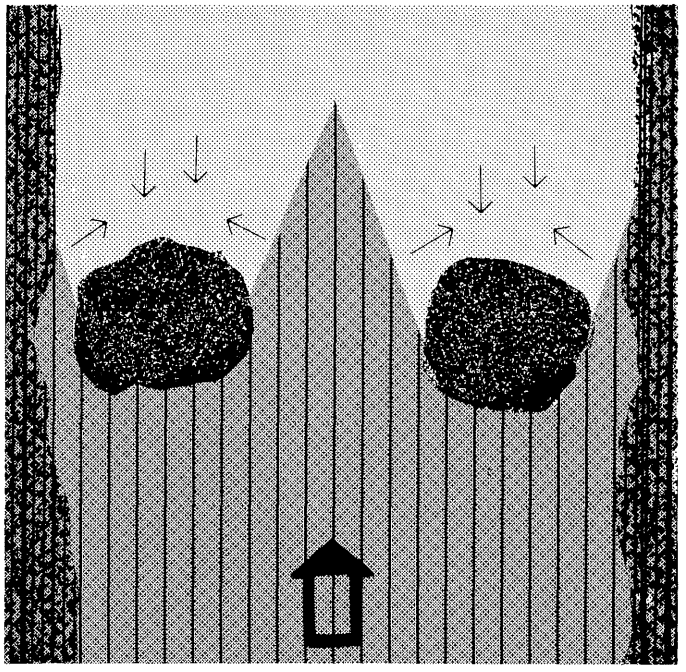
The character and intensity of a rapids depends on three features: the gradient or slope of the riverbed, the amount of water, and the obstructions in the river.

The gradient is expressed in feet per mile. A drop of less than 10 feet per mile usually indicates that rapids are small or absent. Difficult white-water streams often fall more than 30 or 40 feet per mile. A river's gradient can be misleading, however; a stretch with a 10-foot-per-mile gradient may loaf along over a nearly level bed for a mile and then suddenly plunge over a 10-foot waterfall.

The water level, usually measured on a gauge fastened to a bridge abutment, can make the difference between an impassable rock garden and a boiling, dangerous rapids. Stream gauges provide only a relative measure of water level; three feet of water may mean low water when read on one gauge, but very high water according to another, even on the same river.

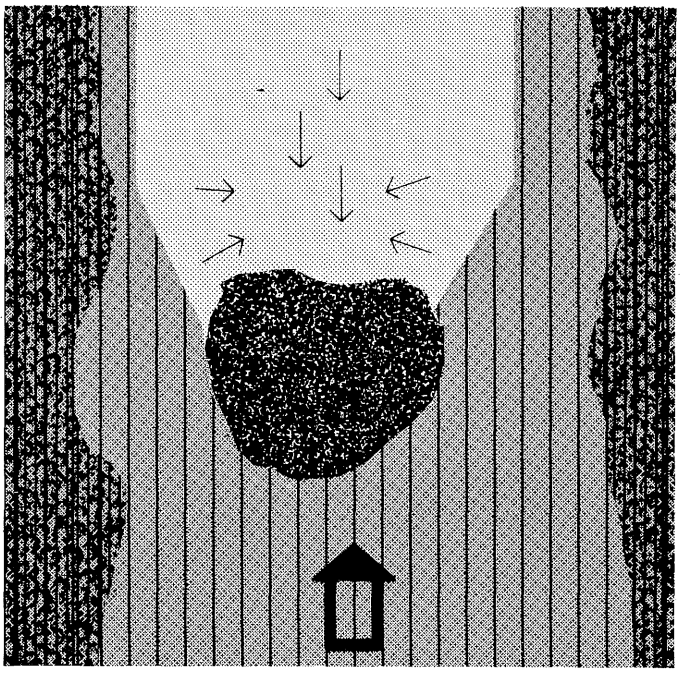
Boulders, ledges and canyon walls are some of the obstacles in a river's path that will create a rapids. One river may drop many feet in a mile, yet be relatively easy to canoe. Another stream may drop the same amount and be deadly because of steep ledges and large boulders.

Although a large rapids may appear to a novice as a maze of white and blue, most rapids can be dissected by a trained eye into a few basic features.



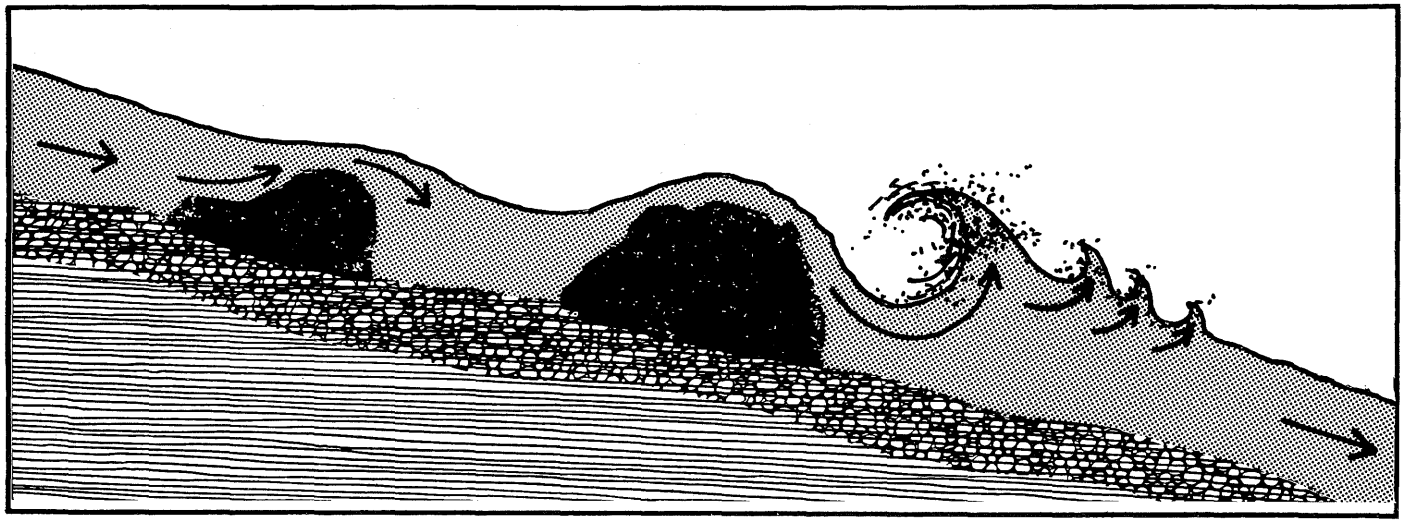
Chutes

Canoeists must recognize chutes — a clear channel between rocks — to run even the simplest rapids. A rock slightly under the surface of a slow-moving stream will create small ripples that appear as a V pointing upstream. A chute between rocks will appear as a downstream V. In heavy rapids, chutes appear as dark tongues of water amidst frothy white.



Eddies

Eddies are the pockets of calm water that form just downstream of exposed rocks, logs and irregularities of the riverbank. The relatively gentle eddy current is actually moving upstream as the uninterrupted downstream current surges by only a few inches away. Eddies offer canoeists resting and bailing spots during runs through long rapids.



Backrollers, souse holes and standing waves

Water plunging over a dam or steep natural ledge often forms a backroller, a wave that curls over on itself and recirculates with the falling water. When the water falls over a rock and also rushes in from the sides, the current forms a souse hole, a combination backroller and eddy. The mound of water along the downstream edge of large holes and backrollers may be too high to paddle over. Powerful, evenly formed holes and backrollers, such as those found below many dams, can trap canoes and paddlers, continually pushing them under the falling water. Unless you know exactly what you're getting into, stay clear.

When a river suddenly slows after dropping over a ledge or rushing through a narrow channel, the water piles up in a series of standing waves or "haystacks." Standing waves often form downstream from backrollers (as in the illustration) or where deep water flows over large boulders. Although they may be large enough to swamp a canoe, standing waves usually mark a clear channel of deep water.

A kayakist charges into a backroller at the bottom of a steep pitch in a river. Backrollers this size can easily swamp open canoes. Photo by Ray Anderson.

Traps

Fallen trees, brush piles and other debris are common in woodland rivers, where they may appear quite harmless. They're not. The current flows through the debris and can pin canoes and paddlers in a maze of branches, possibly underwater. These traps are often found along the outside of river bends where the water flows fastest and erodes banks, dropping trees into the current. Narrow passages also collect brush and logs during high water. Fences strung across the river can also strike paddlers and tip canoes.

Swift water often undercuts rocks and cliffs. In severe cases, the current can sweep boats and paddlers beneath an underwater ledge.

Rating white water

Canoeists are notorious liars. The practice of exaggerating the difficulty of rapids was raised to the level of an art by the French-Canadian voyageurs and shows no sign of losing popularity.

What's worse is that for a long time there was no way of accurately describing rapids. A rapids that is easy for an experienced canoeist may be terrifying to a beginner. What is exciting in a kayak may be disastrous in a canoe.

The International Scale of River Difficulty, an objective white-water rating system, is used in *A Gathering of Waters* to indicate the difficulty of rapids. The rating system is only a guide; judge each difficult rapids for yourself. (If the water temperature is below 50 degrees F or if you are on a wilderness cruise far from help, consider rapids one class more difficult.)

Class I. Moving water with a few riffles and small waves. Few or no obstructions.

Class II. Easy rapids with waves up to three feet, and wide, clear channels that are obvious without scouting. Some maneuvering is required.

Class III. Rapids with high, irregular waves often capable of swamping an open canoe. Narrow passages that often require complex maneuvering. May require scouting from shore.

Class IV. Long, difficult rapids with constricted passages that often require precise maneuvering in very turbulent waters. Scouting from shore is often necessary, and conditions make rescue difficult. Generally not possible for open canoes. Boaters in covered canoes and kayaks should be able to Eskimo roll.

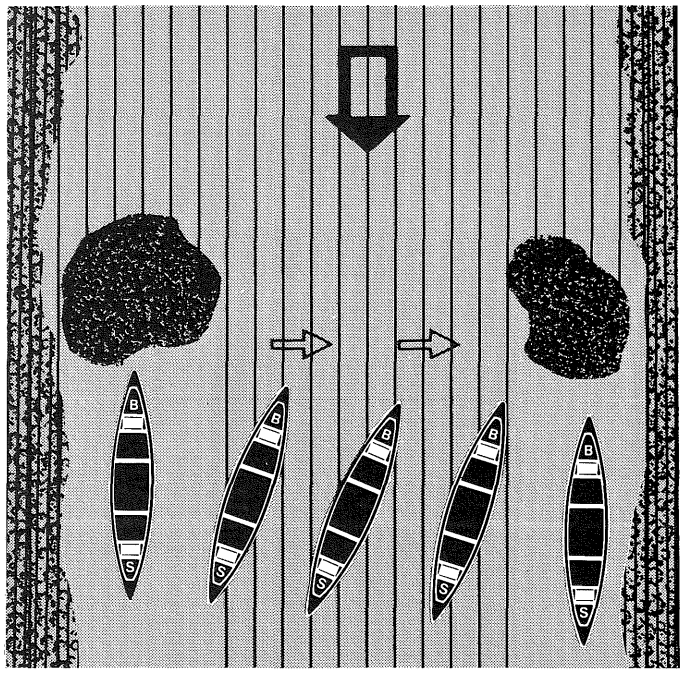
Class V. Extremely difficult, long and very violent rapids with highly congested routes which nearly always must be scouted from shore. Rescue conditions are difficult and there is significant hazard to life in the event of a mishap. Ability to Eskimo roll is essential for kayaks and decked canoes.

Class VI. Difficulties of class V carried to the extreme of navigability. Nearly impossible and very dangerous. For teams of experts only, after close study and with all precautions taken.

Using the river

Once you know how to read water and use a paddle, put the two skills together. Some tricks, dodging rocks for instance, are quickly learned through practice. More advanced skills take longer to learn, but are invaluable on swift streams. If you can, learn by paddling with experienced canoeists.

A general rule for river running: Although the sternman usually guides the canoe on flat water, the bowman calls the moves in rapids since it's easier to read water from the bow. The sternman, in turn, must be able to read the other paddler. If, for example, the bowman starts turning the canoe with a draw stroke, the sternman should finish the turn with a couple of draw or sweep strokes. Ask questions or assign blame when the rapids are behind you.

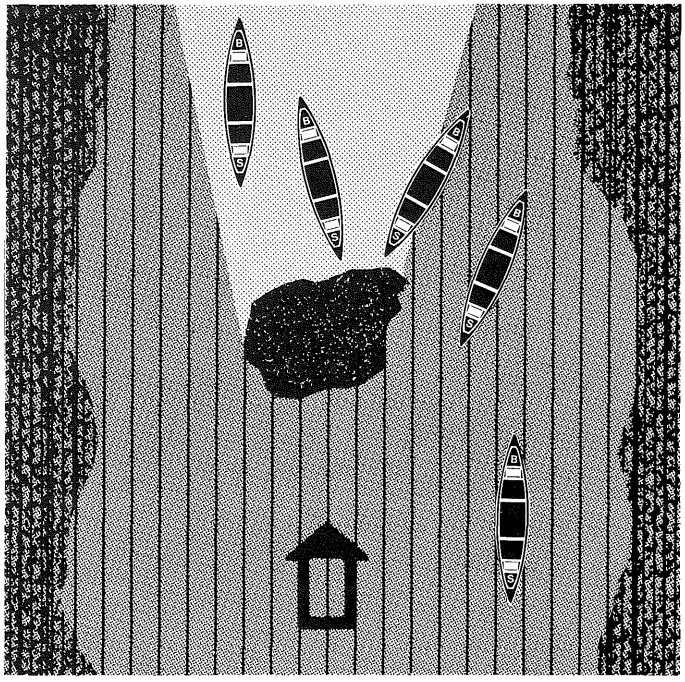


Ferrying

Perhaps you want to cross a swift river. But if you paddle straight across, the current will sweep you far downstream. You should forward ferry.

Start paddling about 45 degrees into the current to keep from washing downstream as you cross the river (paddle even more directly upstream if the current is very fast). As you pass from the slow water near shore or in an eddy into the swift current in the middle of the stream, lean downstream (think of keeping the bottom of the canoe to the current). Remember always to lean downstream, whether you're crossing a river or stuck on a rock. Otherwise, the river will knock the canoe from under you.

You can also ferry with your stern upstream (back ferry). Draw or pry the stern in the direction you want to go and start backpaddling. Don't backpaddle at too great an angle to the current or the river will turn the canoe broadside.



Using eddies

Eddies are nature's gift to the canoeist. They provide excellent places to rest or to bail water from a half-swamped canoe. Eddy turns are the quickest way to stop in swift current. Although eddy turns require skill that comes only with practice, that practice may prevent a crisis if you're running difficult water.

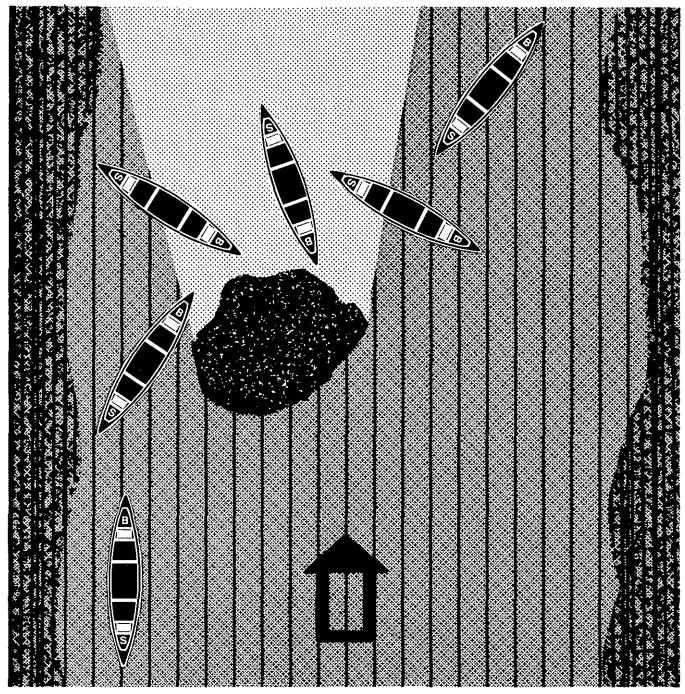
There are two ways to enter an eddy. The easiest is to back ferry into the eddy after passing the obstacle that creates the eddy. Begin backing into the eddy as soon as you've passed the rock, or you'll find yourself hopelessly far downstream. Leave the eddy by paddling out its downstream end.

The second method, the eddy turn, is quicker and flashier. Drive diagonally across the eddy line (the boundary between the eddy and the downstream current), nearly shaving the rock or ledge that causes the eddy. The bowman (paddling on the inside of the turn) pulls the canoe into the eddy with strong draw strokes. The sternman (paddling on the outside of the turn) uses a series of draws or sweeps to bring his end of the canoe

around. The gentle upstream current of the eddy coupled with the strong downstream current will snap the canoe into the eddy facing upstream. Just as a cyclist must lean his bicycle on a sharp bend, both canoeists must lean heavily to the *inside* of the turn to avoid being flipped by the centrifugal force of the turn.

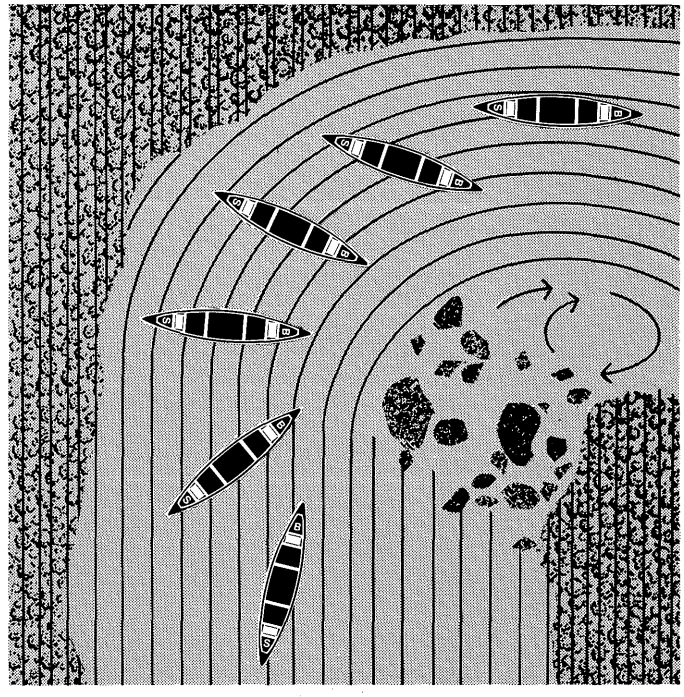
To leave the eddy, the canoeists paddle upstream at an angle until they cross the eddy line. The bowman then pulls the bow downstream with draw strokes while the sternman sweeps or draws on the upstream side. Again, the current will quicken the turn and the paddlers must lean to the inside of the turn. It is also possible to forward ferry out of an eddy and across the river or into another eddy.

Paddlers, of course, should plan eddy turns in advance and paddle on the appropriate sides.



River bends

Beware of sharp bends in swift streams. The fast current along the outside of the bend will force your canoe into the bank, or worse, into an overhanging tree or undercut cliff. Point the bow toward the inside of the bend as you round the turn or pull into the eddy that is often found near the inside bank.



Running standing waves

Large standing waves in heavy rapids can quickly swamp open canoes. But skilled paddlers run standing waves much as they would cross a large lake in a heavy wind. The trick is to ride over the waves rather than to crash through them. The bowman can kneel behind the front seat to let the bow ride higher. Paddling slowly and at an angle to the current (quartering) also lets the canoe rise and fall with the waves. Land the canoe or catch an eddy to bail when necessary.

Paddling upstream

There may be times when you will have to paddle upstream. Or you may want to try it just to test your skills. Upstream paddling increases your dependence on paddling technique and river reading.

Guide your canoe close to shore where the current is weakest. Look ahead for large rocks or irregular shorelines that form eddies. You'll find that you can paddle against even a swift current by hugging the shore, ferrying, and paddling from eddy to eddy.

Launching, landing and portaging

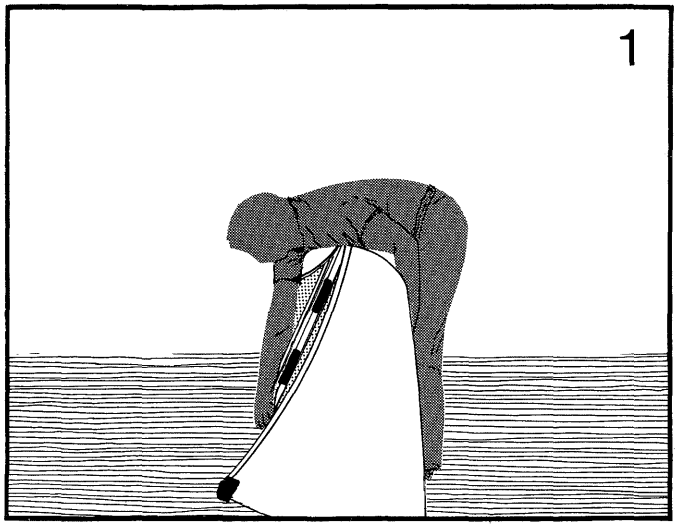
Despite all the hazards that the river may pose for paddlers, canoes are probably most often tipped while they are within 10 feet of shore.

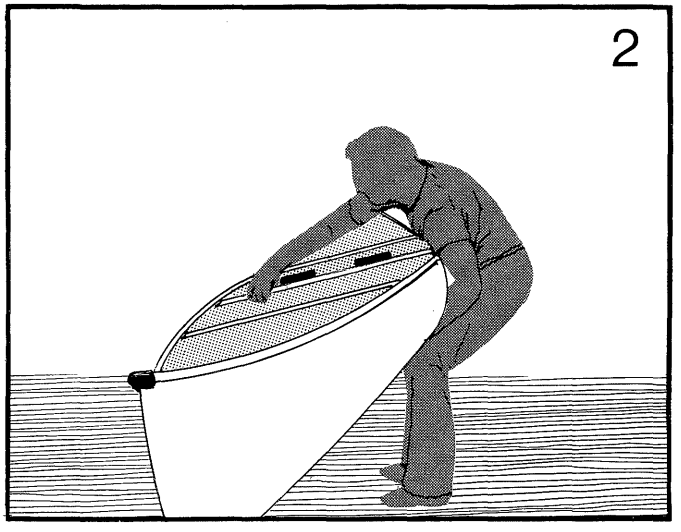
It helps for one paddler to steady the canoe while the other gets in or out or handles the cargo. Don't hesitate to step into the water for a firm foothold along rock-strewn shores or steep banks.

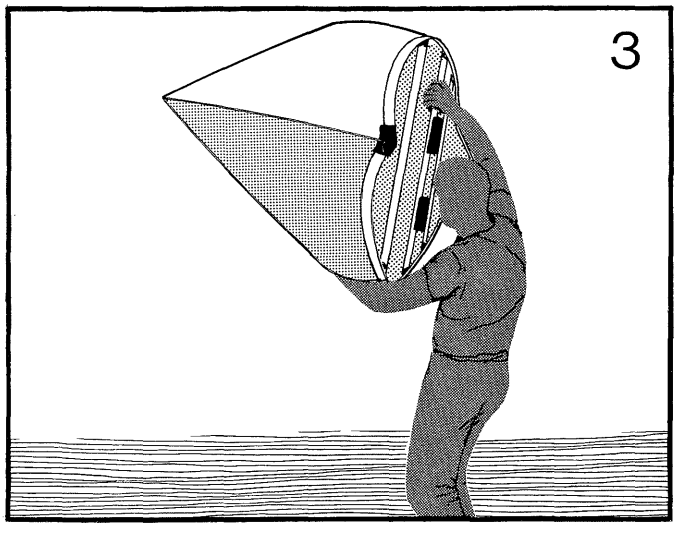
Portages may seem formidable to beginners, particularly those who feel they aren't strong enough to hoist a canoe onto their shoulders. Try the following method of lifting a canoe with a center thwart or carrying yoke.

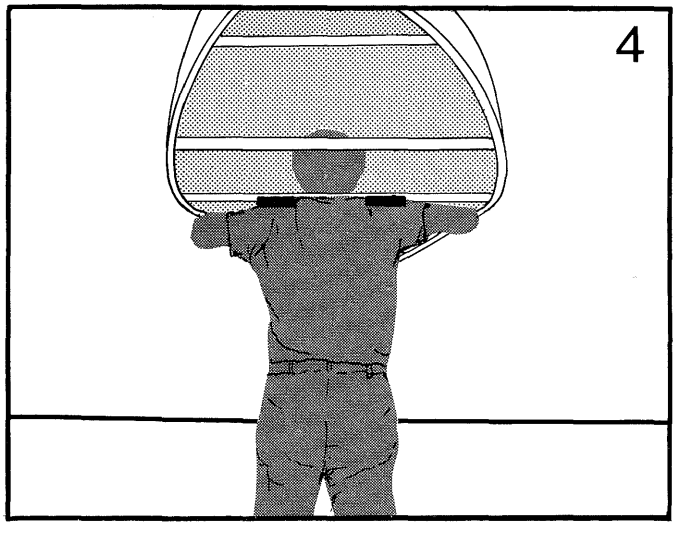
With your legs slightly bent, grab the gunwale near the center thwart or carrying yoke and lift the canoe so it rests on your thighs. The bow should be to your right (switch left for right if you prefer). Reach across the canoe with your right hand and grab the far end of the center thwart with your palm toward the bow (thumb down). Reach underneath and cradle the canoe in your left arm (1). With the canoe resting on your lap, rock the canoe slightly with your powerful thigh muscles (2) and use the rhythm to swing the canoe onto your shoulders (3). Coordination, not strength, makes the lift easy.

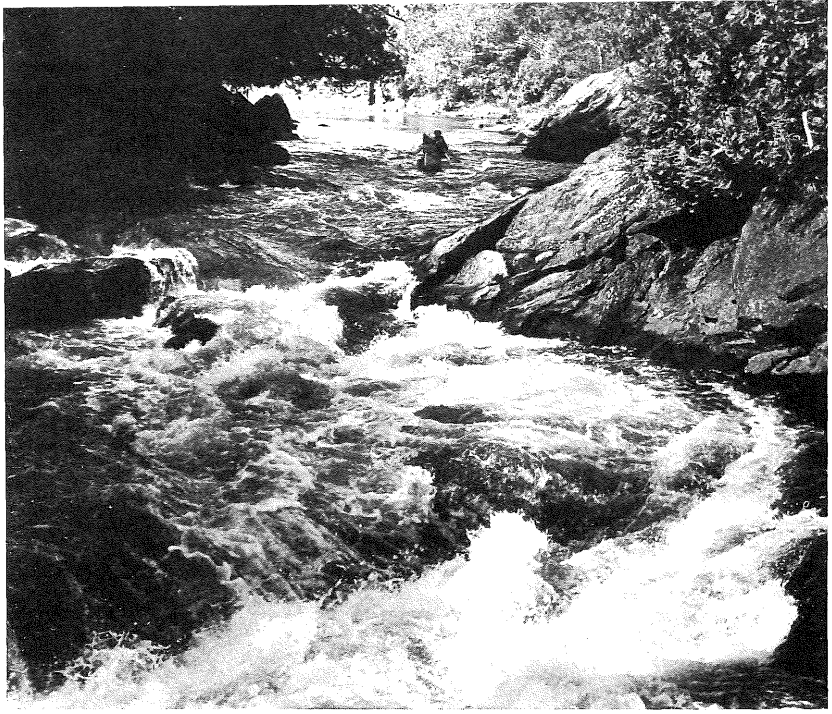
If you don't feel up to portaging, try lining the canoe through a rapids that is too shallow or too difficult to run. Stand on shore or in shallow water with your partner and use long lines attached to the bow and stern to maneuver the canoe through channels in the rapids.

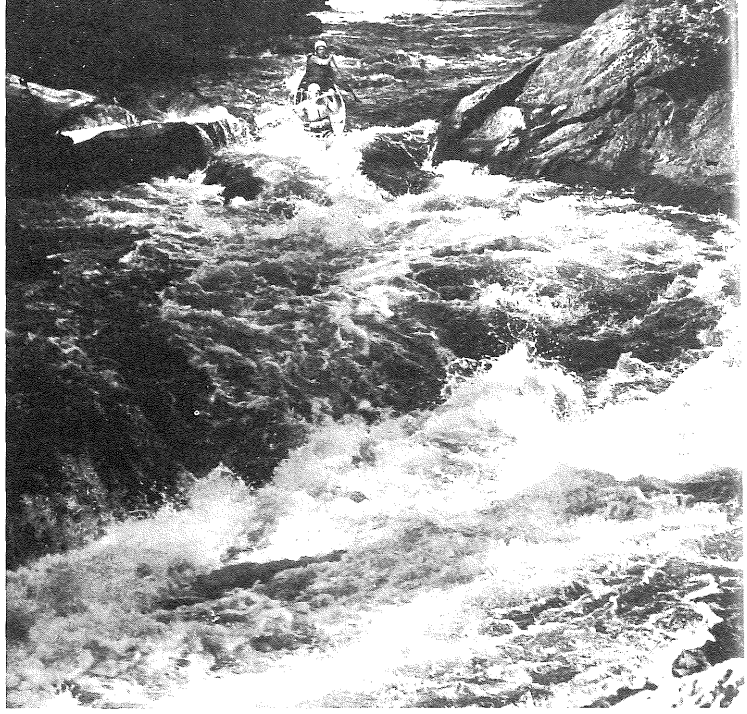












Two canoeists attempt to run the Chute on the Vermilion River, a class III rapids at this water level. Notice that each is wearing a life jacket and helmet. A spare paddle is lashed to the thwarts and other boaters wait nearby. Despite precautions, this rapids is dangerous, especially for paddlers in an open canoe. Photos by Ray Anderson.

River safety

Swollen by heavy rains, the Kettle River roared through the Banning Rapids, the water erupting into four-foot standing waves and creating powerful holes below rocks and ledges. A man and a woman, trying to run the rapids in a small raft, capsized in the explosive river. The woman struggled to shore, but the man had drifted from sight. His body, without a life jacket, was found two weeks later, two miles downstream from where the raft had tipped.

A few months earlier kayakists had rescued two rafters without life vests who had tipped in the Kettle's icy rapids. One rafter nearly drowned after becoming entangled in ropes underneath the overturned raft. The other rafter, suffering the numbing mental and physical shock of a long, cold swim, was found wandering through the woods.

These incidents are only two among many. Most occurred under similar circumstances: paddlers were alone with no other boats for rescue; life jackets were forgotten or left in the bottom of the boat; paddlers were inexperienced and attempting waters beyond their ability; the river was high and often cold.

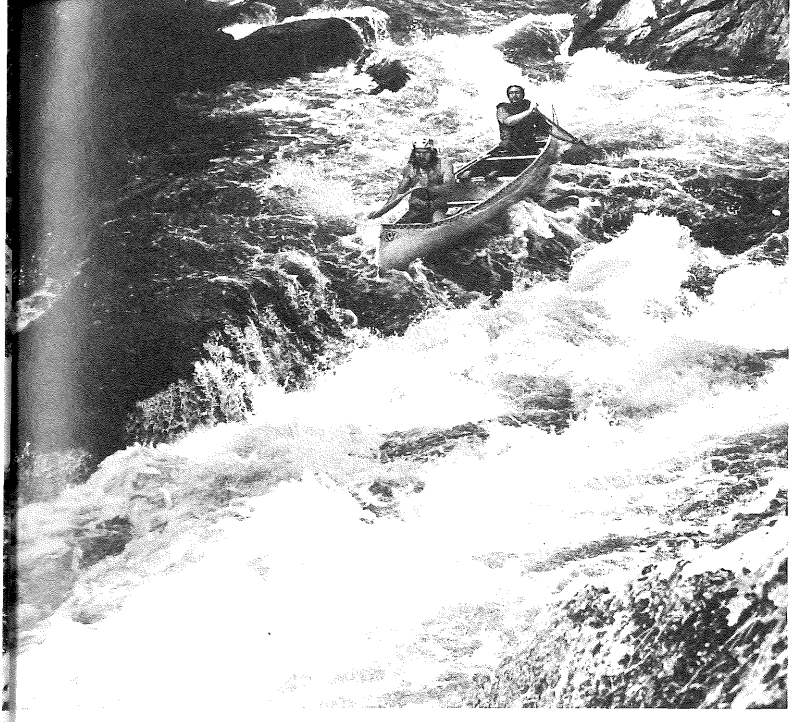
Canoeing is safe. Even the sport of running white water, where danger is always present, is marked by few serious accidents, but only because participants know the dangers, know their abilities and take precautions. The following guidelines, adopted from the *American Whitewater Affiliation Safety Code*, can help you plan a safe trip on a river.

Precautions

Be a competent swimmer with the ability to handle yourself underwater. Wear a life jacket.

Keep your craft under control. Control must be good enough at all times to stop or reach shore before you reach any danger. Do not enter a rapids unless you are sure you can safely navigate it or are willing to swim the entire rapids in the event of capsizing. Land your canoe and scout ahead. Portage difficult rapids.

Avoid hazards such as downed trees, souse holes and large standing waves. Stay clear of dams and spillways; don't paddle to the lip of even a small dam until you've scouted it from shore. Don't take chances in cold water. Hypothermia, the loss of body heat, quickly robs your strength and your will and ability to save yourself. A swimmer can expect to remain conscious in freezing water no more than five minutes. Dress to protect yourself from cold water and weather. When the water temperature is less than 50 degrees F, a diver's wetsuit is essential for safety in an upset. Next best is wool clothing under a nylon shell. If, after prolonged exposure, a person shakes uncontrollably or has



difficulty talking and moving, he or she must be warmed immediately.

Boating alone is not recommended. The preferred minimum is three craft if the river is difficult.

Have a frank knowledge of your boating ability. Don't attempt waters beyond your ability. Learn paddling skills and teamwork (if in a multiple-manned craft) to match the river you plan to boat. Be in good physical condition.

Be practiced in escape from an overturned craft, in self-rescue and in artificial respiration. Know first aid.

Kayakists and decked canoeists should master the Eskimo roll.

Be suitably equipped. Wear a crash helmet where an upset is likely. Helmets are essential in a kayak or decked canoe. Wear shoes that will protect your feet during a bad swim or a walk for help, yet will not interfere with swimming (tennis shoes are recommended). Carry a knife and waterproof matches. If you need eyeglasses, tie them on and carry a spare pair.

Equipment

Test new and unfamiliar equipment before relying on it for a difficult run. Be sure your craft is in good repair before starting a trip. Eliminate sharp projections that could cause injury if the boat capsizes.

Inflatable craft should have multiple air chambers and should be inflated before starting a trip to check for leaks.

If heavy rapids are to be run, install air bags, foam blocks or inner tubes in decked and open boats to help prevent the boat from wrapping around a rock or underwater ledge, or worse, pinning the paddler against such obstacles.

Be certain there is absolutely nothing to entangle you beneath an upset craft: a spray skirt that won't release or that tangles around legs; life jacket buckles or clothing that might snag; canoe seats that lock on shoe heels; foot braces that fail or allow feet to jam under them; flexible decks that collapse on a boater's legs when a kayak is trapped by water pressure; baggage that dangles in an upset; loose rope or badly secured bow and stern lines.

Respect rules for craft capacity and know how these capacities should be reduced for white-water use. Two people are the limit for a canoe in heavy rapids. Life raft ratings must generally be halved.

Trip leader

Know the difficult parts of the run or, if attempting an exploratory trip, examine maps to judge the feasibility of the run. Be aware of possible changes in river level, and how these changes can affect the difficulty of the run.

Inform participants of expected river conditions and determine whether the boaters are qualified.

Make sure all necessary group equipment is present: 50- to 100-foot throwing rope, first-aid kit, extra paddles, repair materials, and survival equipment if appropriate. Check group and individual equipment at the put-in.

Remind members of their individual responsibility in keeping the group together.

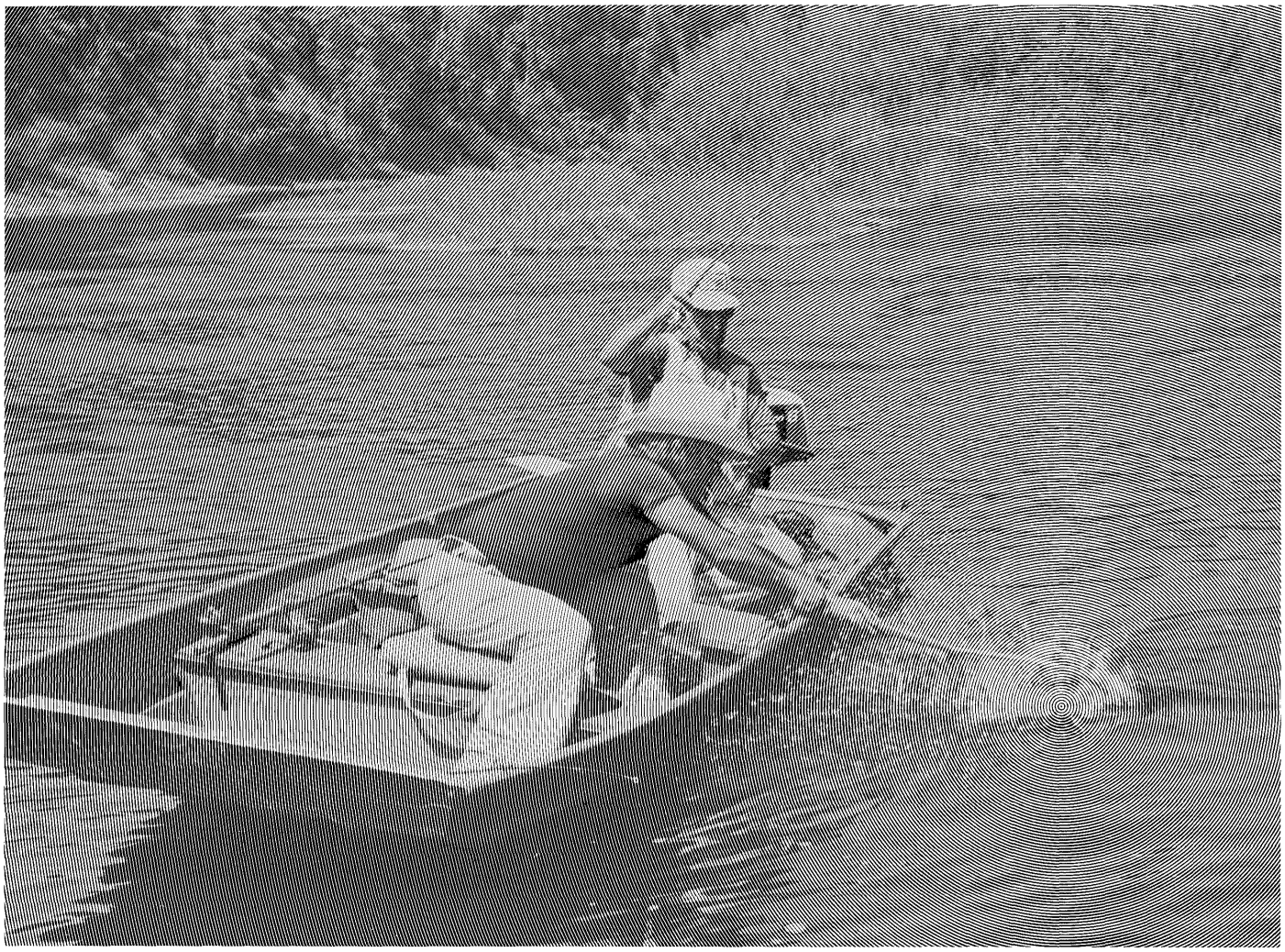
If your trip is in wilderness, notify the appropriate authorities or instruct someone to inform them after a specified time.

Upsets

If you capsize, hold onto your craft. It will float and be easy for rescuers to spot. Get to the upstream end so the craft cannot crush you against obstacles. Leave your boat immediately, however, if you are in danger of being trapped against logs, brush or any other hazard. If rescue is not imminent and the water is numbing cold, or if worse rapids follow, then swim for the nearest shore.

Extend your feet downstream when floating through rapids to fend off rocks. Don't try to stand in turbulent water; you risk wedging your feet in a crevice. Instead, swim on your back for eddies and slack water. Use every opportunity to work your way toward shore.

If other canoeists capsize, go after the boaters. Recover boats and other equipment only when swimmers are safely on shore.



Two anglers in a johnboat fish for smallmouth bass on the Mississippi River. Photo by Charles A. Wechsler.

River fishing

Editor's note: **Charles A. Wechsler**, *an avowed river rat, drew upon his long experience floating and fishing Minnesota rivers for walleyes and smallmouth bass to write this article on stream angling. Wechsler edits* The Minnesota Volunteer, *the Minnesota Department of Natural Resources' magazine.*

Each year an army of anglers invades Minnesota's lake country, missing an intriguing and rewarding outdoor adventure. It's called river fishing.

Why fish rivers? Because no matter what conditions prevail, a good river angler will catch some fish. That can't be said of lake fishermen, who too often hear the time-worn phrase, "You should have been here yesterday."

River fish are easier to locate and catch for several reasons. They seem more active and less fickle than lake fish, perhaps because life is more strenuous in the incessant current. And, except for trout, river species seem less disturbed by noise and movement above water, probably because their turbulent domain is often more roiled than Minnesota's cold, clear lakes.

What's more, it's easier to find fish in a river. Lake fish frequent many depths, but river fish are confined. Moreover, their haunts are well-marked by half-submerged logs, boulders, overhanging trees and strong currents.

If you've fished lakes and want to try rivers, you'll have to change your techniques slightly. Here is a primer for the beginning river fisherman. Equipment, fishing tackle and techniques, of course, vary from angler to angler, river to river and species to species.

Boats

Although the canoe is one of the best boats for traveling secluded streams, the flat-bottomed, square-ended johnboat is best for a large stream or river. The johnboat is roomier and more stable than a canoe, yet it has a shallow draft and is light enough for one person to load onto a cartop carrier. Another advantage is that a johnboat is not whisked along by the current as easily as a canoe. (You can slow a canoe, however, by dragging an anchor of heavy chain attached to a 30-foot rope.)

An outboard motor will save time as you cruise to prime fishing waters and is often essential for working your way upstream to free a snagged fishing lure. Two- to three-horsepower motors are suitable for square-stern canoes or canoes outfitted with motor brackets. Five- to ten-horsepower motors are good for johnboats. Since most rivers are shallow, buy a motor with a short propeller shaft or one that can be locked in a tilted position to keep the prop near the surface. Adjustable motor brackets can also be installed to keep the motor riding high in the water. Nevertheless, bring a pliers, extra shear pins and perhaps even an extra prop.

An anchor will come in handy when you drift into a pool packed with crappies or walleyes. An excellent river anchor is the lightweight Danforth-type with a sliding ring. This anchor digs into the river bottom when pulled. If the anchor snags, it can be freed simply by pulling from upstream. Also bring a couple of ropes to tie your boat or canoe to overhanging trees and bridge pilings.

Shallow rivers will mangle a stringer of fish unless you constantly lift the stringer into the boat when passing over riffles and rapids. One solution to this problem is to use a boat with a live well. Or, you can toss the fish into a cooler packed with ice.

Fishing gear

Although fly rods, bait-casting equipment or cane poles can be used on rivers, spinning and spin-casting rods and reels are most popular. Most fishermen prefer a lightweight five-and-one-half- to six-foot rod with an open- or closed-face reel. A rule of thumb: the smaller the river, the lighter the tackle. Ultra-light outfits, for example, are perfect for narrow, brush-choked streams.

Use six- or eight-pound-test monofilament line. Tie the line directly to your hook or lure. If northern pike rob your lures, use a stout monofilament leader.

Lures used by river anglers range from tiny flies to giant muskie plugs as large as the fish most people catch. Baits vary from leeches to night crawlers to frogs to crayfish. Many river anglers rely on artificial lures because they must make hundreds of casts with pinpoint accuracy and don't have time to constantly bait their hooks.

A soft-bodied jig with a silver spinner is a favorite artificial. Hair jigs, spinners and spoons are also effective. Many river fishermen use floating plugs that dive when retrieved. As the plug is brought toward a stump, rock or other potential snag, the angler quits reeling to let the plug rise over the obstacle. Remember, the best river lures are about half the size of those used to catch lake fish. Lures weighing from one-sixteenth to one-eighth ounce generally work best.

Of course, there are times when live bait works best. In late summer, smallmouth bass often ignore artificials. August is the time to fish deep pools with crayfish or frogs on a single hook.

Combination rigs are also effective during warm summer months. Add a night crawler or a leech to a jig or spinner. Try a bright hair jig with a small minnow for crappies.

Angling basics

Your lure should run deep. Often anglers retrieve too fast and the lure passes high above bottom-hugging fish. Bounce it on the bottom where the fish are. If you catch snags, you will also catch fish.

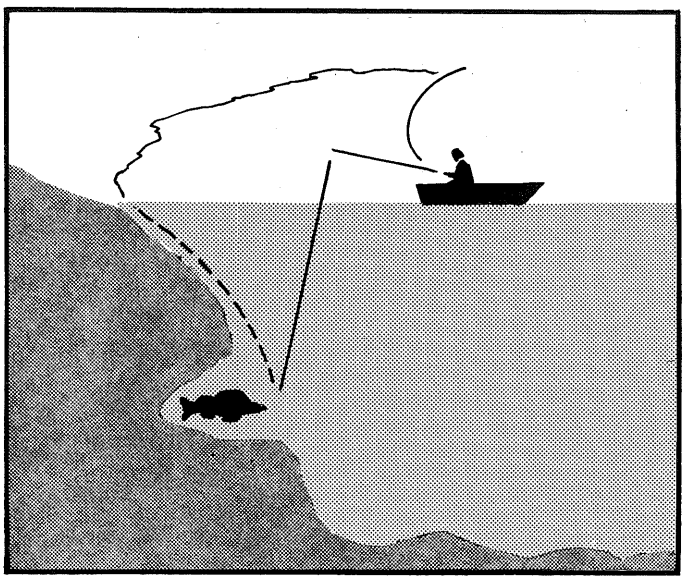
As you float, cast across the current and retrieve the lure as your line is swept downstream. A good technique when using spinners with live bait is to cast straight downstream and retrieve the lure very slowly. Take in several feet of line, then quit reeling for several seconds. It may seem like still-fishing, but the current will rapidly rotate the spinner and bounce the bait in a manner enticing to fish.

"River slipping" is an excellent technique for working pools thoroughly. Turn your boat upstream and rev the motor until it holds you stationary in the current. With a little practice, you will be able to steer the boat with one hand and cast with the other.

Reading the river

To a great extent, your success will depend on how well you read the river for fish habitat. Game fish gather in deep pools because they provide cooler water, shade and abundant food.

Pools are easily recognized as dark water just downstream from swift rapids or on the outside edges of river bends. Pools in a narrow, shallow river may be only a few feet deep. But on large rivers, pools may be 10 to 20 feet deep or more.



Fish often lurk beneath undercut cliffs. Bounce your lure over the shelf of the cliff and let it swing down in front of the fish.

Pools also form in the eddies below large rocks. When you drift by a large boulder, cast slightly upstream and bring the lure into the quiet water below the rock. Stop reeling for a moment. If nothing happens, complete the retrieve. Next, hold the boat downstream of the rock and cast above it, allowing the current to brush the lure past the rock and into the eddy. Do the same on the other side of the rock. If a fish doesn't strike, cast into the quiet water immediately below the rock. Retrieve the lure slowly through the eddy. The "tail" of the eddy, where the current comes together again, is a favorite resting spot for walleyes.

Natural or artificial wing dams, long rock piles that jut into the river, are excellent spots for smallmouth bass and walleyes. Bass often rest near the eddy line and dart into the current to snatch morsels that drift by. Pools sometimes form just upstream from the rocks.

Wing dams should be worked thoroughly. First, anchor above the rocks and cast several times toward the dam, working the lure slowly upstream. Next, move alongside the wing dam and cast the lure above the rocks, allowing the current to carry the lure past the entire eddy. Then toss the lure into the quiet water next to shore and retrieve it through the eddy and into the current. Quit your retrieve and release the line to allow the lure to tumble through the fast water next to the eddy. If you're still without a fish, move downstream of the wing dam and cast alongside and below it.

Undercut streambanks are difficult to fish, but harbor many species. Look for sheer limestone or sandstone cliffs or for tree-lined riverbanks where roots hold overhanging sod.

It's often best to fish overhanging banks from shore, about 10 to 15 feet upstream from the undercut. Point the rod tip straight down or even into the water and slowly let out line until the lure drifts through the undercut. Use one or two split shot if the current is strong.

If you're fishing from a boat, cast the lure as close to shore as possible and retrieve it slowly. Stop reeling as soon as the line begins to dip, indicating that the lure has fallen off the ledge and is arcing past fish tucked under the overhang.

An eroded streambank, though an eyesore to boaters, is a veritable cafeteria for fish, which gather to feed on worms and other morsels that wash down the slippery bank. Cast onto shore if possible, then twitch the rod tip so the lure plunks into the water. This technique is good for big smallmouth bass and northern pike, which often lie within inches of shore, waiting for a frog or crayfish to tumble down the bank.

Another productive spot is where a small spring or stream flows into the river. Springs bring cool water into the river and attract fish, especially northern pike, during the summer.

Dams and waterfalls are barriers to fish swimming upstream to spawn, and thus harbor great concentrations of fish during certain times of the year. Tailwaters below dams are particularly good for walleyes, white bass and catfish. (Be careful when fishing near dams. Strong currents above a structure can suck boats over or through a dam. Turbulent waters below a large dam can capsize boats. Stay at least 100 yards from dams on large rivers.)

Yet another hangout is the tree that has toppled into the water. Countless minute river organisms gather within the protective confines of the submerged canopy. These creatures attract small minnows and crayfish, which in turn attract larger fish. Fishing a fallen tree is difficult, but rewarding. Be patient and thorough. Instead of casting a lure, it often pays to dangle live bait in pockets between the branches. Try a small minnow, crayfish, cricket, grasshopper or piece of meat cut from a fish caught earlier.

If you learn to read a river and fish the good waters thoroughly, you're bound to catch fish. But even if the fishing is poor, there will be dividends. The stream fisherman is in a theater of constantly changing scenes. Each river bend brings new sights and sounds — an eagle or osprey soaring high above, or the strident scolding of a hen mallard flushed from its nest on a brushy shore. Fishing a secluded river, the angler experiences a feeling of timelessness as he is carried along in the current's gentle grasp. The river has meandered between its wooded shores for thousands of years, and hopefully, it will still be there many years hence, softly beckoning other fishermen to see, to enjoy and to escape.

Canoeists paddle by the remains of the Archibald Mill at Dundas on the Cannon River. Photo by Charles A. Wechsler.

River rambling

Planning

The beauty of the most isolated river cannot be appreciated by campers if their sleeping bags are wet, if they run out of food or if they are without rain gear during a three-day storm.

After equipment has been purchased and paddling skills learned, the most important aspect of taking a canoe trip, be it an afternoon cruise or a month-long wilderness foray, is planning and preparation.

Day-trips require few plans other than making sure you can complete your trip in reasonable time and arranging for a ride back to your car if necessary. Camping trips, especially long trips in wilderness, require more preparation and equipment.

Perhaps the best advice for a beginning canoeist is: Know the water you intend to cruise. Know the difficulties of the run and the portages required. Know about how long the trip will take and whether campsites are available. Bring your own water unless water can be purified by boiling or by the addition of iodine or halazone tablets. Wilderness rivers will take canoeists far from towns, roads and help where they cannot afford to run short of supplies in an emergency.

If you're new to Minnesota forests, be forewarned of two pests: bugs and bears. Insects are almost intolerable during some times of the year unless you use insect repellent. Bears are common in northern Minnesota. If you're camping, keep food out of your tent. During the night, hang your food pack from a stout branch.

Packing

Canoe camping requires little specialized gear other than a boat and paddles. Most items will be familiar to backpackers and others who enjoy lightweight camping. Several good books on canoe camping are available to the beginner.

Duluth packs and pack baskets are the traditional marks of canoe campers. Duluth packs, which are nothing more than huge canvas envelopes with tough leather carrying straps, are especially popular in this part of the country. These rugged packs hold a lot of gear, stow easily in a canoe and are comfortable to portage. Pack frames, though they can be used, ride high on your shoulders and get in the way when you carry a canoe. And frames, which bend easily when handled roughly, are difficult to stow.

It is generally good policy to pack items in a few large bundles rather than many small ones, especially if you plan to portage. Portages will also dictate that you keep weight to a minimum. The same is true for trips in kayaks or decked canoes.

A safe assumption about canoeing is that sooner or later your packs will get wet from sudden rains, careless handling at portages or upsets in rough water. Goods can be kept dry by lining packs with plastic

garbage bags. Items that must be kept absolutely dry can be stored in wide-mouthed plastic jugs (available at restaurants where they are used for salad dressing) or in heavy, waterproof plastic bags sold by some sporting goods and surplus stores. Fragile equipment such as cameras can be carried in watertight U.S. Army ammunition boxes.

Pack straps can be looped and fastened around canoe thwarts to keep the boat and gear together during an upset, although a pack-laden canoe will be difficult to retrieve if it is lodged against a rock or windfall in heavy current.

A handy item for canoeists is a roll of gray duct tape, sold in hardware and some sporting goods stores. Gray tape sticks to nearly anything, including fiberglass, aluminum and most other materials canoes are made of. If you punch a hole in your boat, dry the area around the break and cover it with several layers of tape. Tape can be stored by wrapping several yards of it around a thwart.

Conduct

Respect the right of the public to clean, natural rivers, and the rights of private landowners along those rivers. Littering and trespassing can ruin the relationship between canoeists and property owners. Carry your trash with you; if you can bring it in, you can pack it out. Don't use private land without the property owner's permission.

Overnight camping and camp fires are allowed only at established campsites unless a landowner gives permission to use private land. Remember to watch your camp fire and to douse it well before striking camp.

Some special rules apply to state and national wild and scenic rivers. Trail bikes and other all-terrain vehicles are banned except on public roads and streets. Snowmobiles may be restricted to designated trails. Guns may be fired on state wild and scenic rivers only during hunting season.

Getting what you need

Here are sources of the information you may need to plan a canoe trip:

Canoe route maps. These pocket-sized maps of Minnesota's designated canoe and boating route rivers describe the streams and show public campsites, accesses, rest areas, portages, rapids and river miles. The maps are available free from the Minnesota Department of Natural Resources, Division of Parks and Recreation, Rivers Section, Centennial Building, St. Paul, MN 55155; or from the regional department offices in Bemidji, Grand Rapids, Brainerd, New Ulm and Rochester.

Topographic maps. These highly detailed maps show land elevation and are available from: the Minnesota Geological Survey, 1633 Eustis St., St. Paul, MN 55108; and the U.S. Department of the Interior, U.S. Geological Survey, Branch of Distribution, 1200 S. Eads St., Arlington, VA 22202.

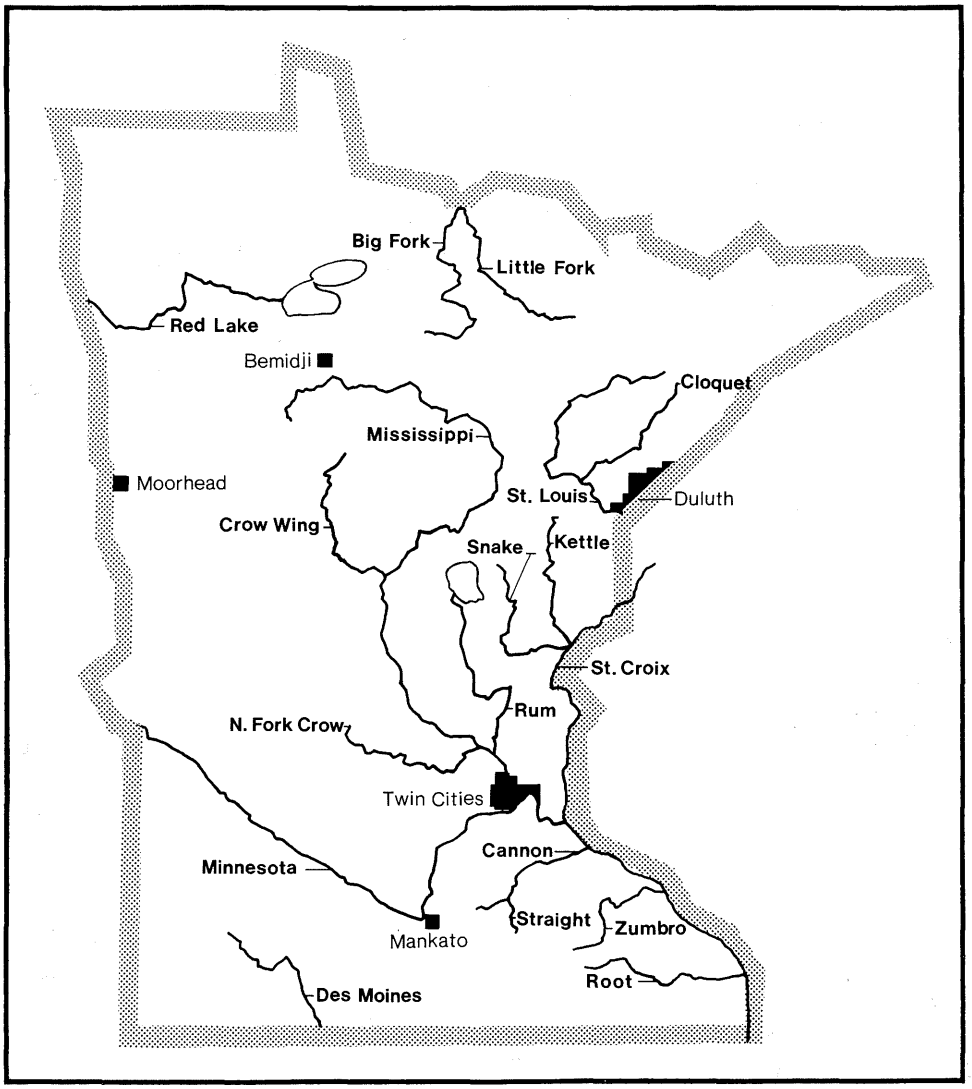
River level reports. Readings for many Minnesota rivers are available from the Minnesota Department of Natural Resources, Rivers Section. The U.S. Geological Survey, Water Resources Division, monitors many river gauges and provides river level information, although gauges are read infrequently.

Outfitters. Canoe outfitters can be hard to find. To date, no one has compiled a complete list of outfitters in the state. Try calling or writing the chambers of commerce in the towns near the river you'll be paddling.

Instruction. The Minnesota Canoe Association (YMCA Building, 475 Cedar St., St. Paul, MN 55101), the largest canoeing organization in the state, sponsors cruises and provides instruction in cruising, marathon (long-distance) canoe racing, and white-water canoeing and kayaking. The American Red Cross (check your phone book for addresses in Minneapolis, St. Paul and Duluth) offers courses in first aid, swimming and water safety, necessary skills for serious canoeists.

State parks. State park information is available from the Minnesota Department of Natural Resources, Division of Parks and Recreation, Centennial Building, St. Paul, MN 55155. Call or write the park managers in individual parks for more information.

Other questions. If you have other questions about Minnesota rivers or need more information to plan your trip, call or write the Minnesota Department of Natural Resources, Rivers Section, or the regional department offices.

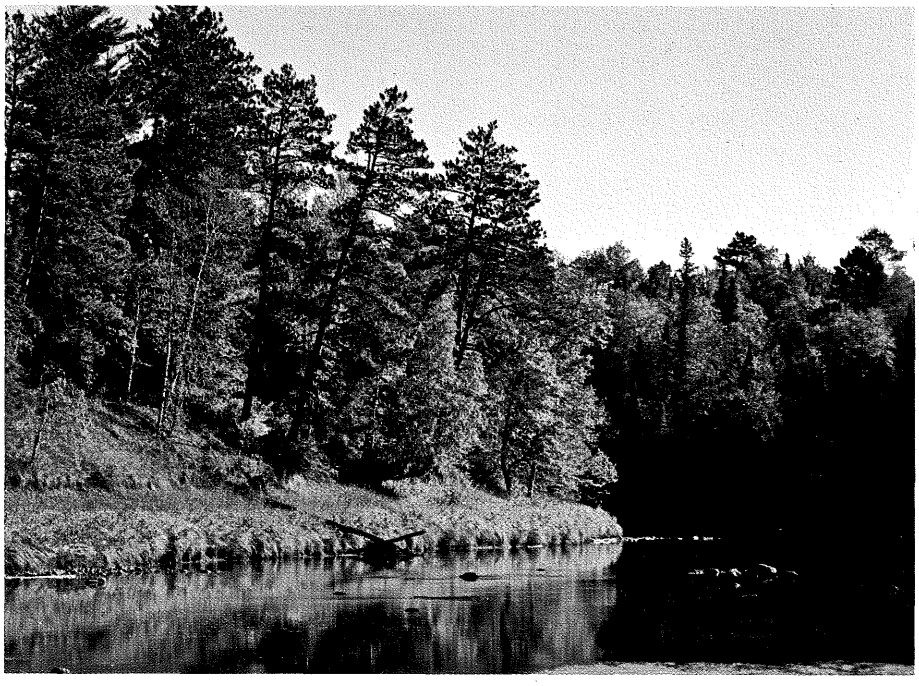


Minnesota now has 18 designated canoe and boating route rivers, selected by the legislature for their natural attributes and popularity as canoe routes. The Minnesota Department of Natural Resources is developing primitive campsites, accesses, rest areas and portages along these streams.

The rivers

Big Fork River

The Big Fork River, left, plunges over a waterfall at Big Falls. The river, right and below, flows quietly about 15 miles above Big Falls.



Thick stands of stately pines, massive hardwoods, somber spruces and fragrant balsam shade the banks of the Big Fork River as it winds through northern Minnesota to join the Rainy River on the Canadian border.

Retracing the route followed by Indians, fur traders, loggers and early settlers, canoeists glide through wild rice marshes along the upper river and shoot through intermittent stretches of forest-flanked rapids in its middle and lower reaches.

The wilds of the Big Fork are rich in fish and wildlife. Walleyes are caught near riffles and rapids throughout the river. Muskies can be caught in deep pools. Northern pike and smallmouth bass also inhabit the river. Sturgeon live in the river, but can be caught legally only at the Big Fork's mouth on the Rainy. Black bears, moose, deer, beavers and muskrats are among the many animals common to the Big Fork valley.

From Dora Lake, commonly regarded as the Big Fork's source, the river flows in a wide shallow channel fringed with wild rice. Where the Popple River joins the south end of Dora Lake is the site of what is said to have been the first wild rice processing mill in Minnesota. Frank L. Vance reportedly built the mill in the 1890s and invented a reaper to harvest the grain.

Below the town of Bigfork, dense forest closes in on the river. The banks steepen, the water becomes deeper and the current faster. Rapids of varying difficulty punctuate the Big Fork to its mouth.

Fallen leaves float on a quiet stretch of the Big Fork River near Big Falls.

On the right side of the river about nine miles below the town of Bigfork is Klondike Landing, the site of a logging campsite that was used in the late 19th and early 20th centuries when millions of board feet of pine logs were floated to lumber mills in Ontario.

Downstream a few miles (river mile 119) are Busticogan Campground (a private site) and Busties Landing, sites named for Chief Busticogan, an Ojibway. Legend has it that Busticogan, the head of the Nett Lake Tribe, and his wife cared for surveyors suffering from smallpox. To repay the favor, the U.S. government reserved a township for Busticogan's tribe while opening the surrounding land for lumbering and settlement. Busticogan is said to have lived near the site of Busties Landing and to have buried the payment he received from the government for Ojibway lands near Busties Lake, a half mile northeast of the landing.

The confluence of the Big Fork and Sturgeon rivers is the site of an early Hudson Bay post and fort where many Indian relics have been found. The Laurell Indian mounds lie near the mouth of the Big Fork.

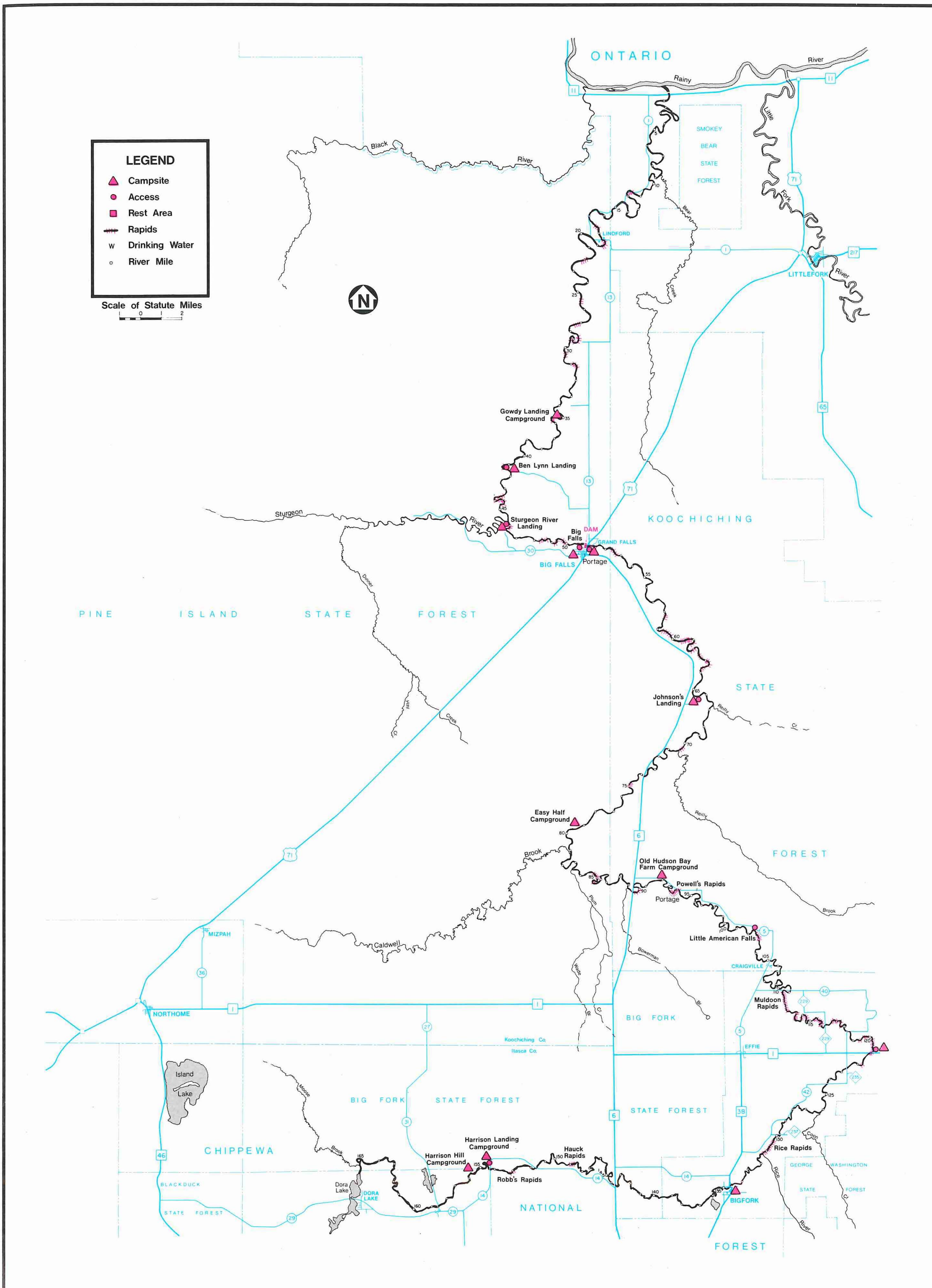
Although the Big Fork tumbles through some difficult rapids and over a dam and two waterfalls that must be portaged, the river can provide a pleasant wilderness trip for even inexperienced canoeists if they are cautious and well prepared. The following descriptions of rapids are for high water. The information available on the difficulty of Big Fork white water is sketchy at best. View each rating skeptically and portage when necessary.

Robb's Rapids (river mile 153) is a class I swift. Hauck Rapids (river mile 149) is a class I boulder field. Rice Rapids (river mile 131) rates class II. The rapids at river mile 121 is a difficult class II run in high water.

Muldoon Rapids (river mile 112), another difficult class II stretch, forms large standing waves in the center of the channel in high water, although the heaviest water can be skirted.

Little American Falls (river mile 103), a 10-foot, nearly vertical drop over exposures of mica-schist and granite, should be portaged. Powell's Rapids (river mile 94) is a class I chute.

The rapids at river mile 90 is another class I run. The only other mandatory portages are Big Falls (river mile 51), a series of rapids and waterfalls dropping about 35 feet in a quarter mile, and the nearby spillway in the town of Big Falls.



LEGEND
Campsite
Access
Rest Area
Rapids
W Drinking Water
River Mile
Scale of Statute Miles
ONTARIO
Rainy River
Black River
SMOKEY BEAR STATE FOREST
Little Fork River
LINDFORD
LITTLEFORK
Bear Creek
Gowdy Landing Campground
Ben Lynn Landing
Sturgeon River
Sturgeon River Landing
Big Falls
DAM
GRAND FALLS
BIG FALLS
Portage
KOOCHICHING
PINE ISLAND STATE FOREST
Dinner Creek
Hay Creek
Johnson's Landing
STATE
Reilly Cr
Easy Half Campground
Brook
FOREST
Old Hudson Bay Farm Campground
Powell's Rapids
Plum Cr
Little American Falls
Bowerman Br
CRAIGVILLE
MIZPAH
Caldwell
NORTHOME
Muldoon Rapids
BIG FORK
Koochiching Co.
Itasca Co.
EFFIE
Island Lake
Moose
BIG FORK STATE FOREST
STATE FOREST
CHIPPEWA
Harrison Landing Campground
Harrison Hill Campground
Hauck Rapids
Robb's Rapids
Rice Rapids
Coon Cr
GEORGE WASHINGTON STATE FOREST
Rice River
BLACKDUCK STATE FOREST
Dora Lake
DORA LAKE
NATIONAL
BIGFORK
FOREST

The Cannon River rounds a bend a couple of miles below Welch. Photo by James Sogaard.

Cannon River

French fur traders called this winding stream with wooded bluffs *La Rivière aux Canots*, "the river of canoes." Although the name was later mispronounced by English-speaking settlers, the French description of this river remains appropriate, for the Cannon draws many canoeists from nearby cities during the summer.

The Cannon's rapids are easy — none are harder than class I — though several dams must be portaged. Runnable in the spring and early summer, the stream may not be canoeable late in a dry summer. The stretch between the Lake Byllesby Dam and the Little Cannon River can be run only with a healthy discharge of water from the dam, which can best be portaged on the right side.

Sakatah Lake State Park, on the southern shore of Sakatah Lake, is an area of hardwood forest with campsites and picnic grounds. A footpath, at times fragrant with the scent of flowering basswood, skirts the edge of the lake.

West of Faribault the Cannon winds quietly through rolling farmland dotted with marshes. Bank erosion is common.

Faribault was named for its founder, fur trader Alexander Faribault, who established a trading post near the site of the city in the late 1820s. At that time Minnesota had many fur trading posts, most controlled by the American Fur Company.

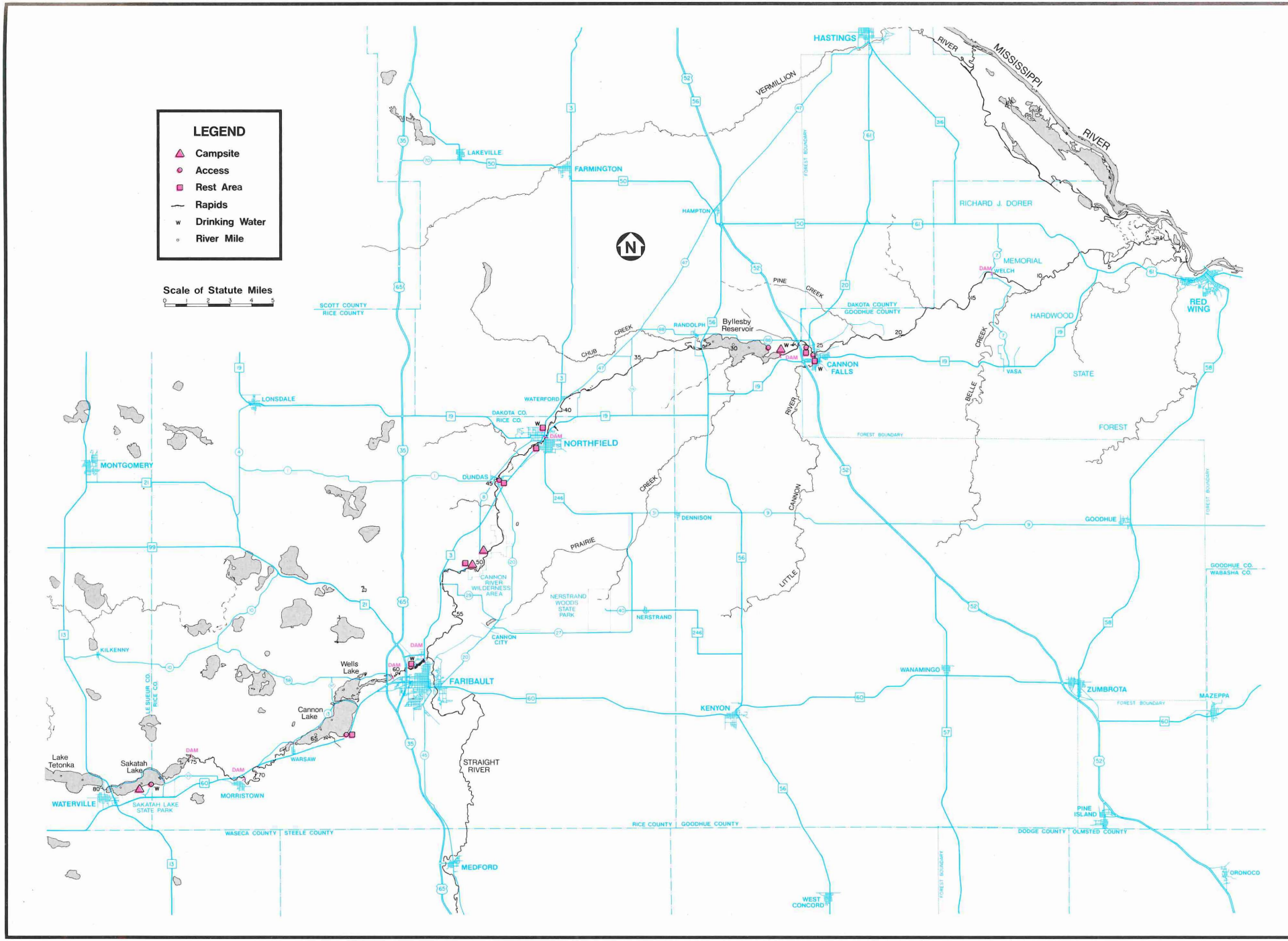
Below Faribault the river twists and turns, at times wide and quiet, at times narrow and fast. In many places trees overhang the river, forming a lacy green canopy. Bank swallows dart into cliffs of sandstone and limestone; oxbow ponds and sloughs harbor wood ducks, teal and mallards.

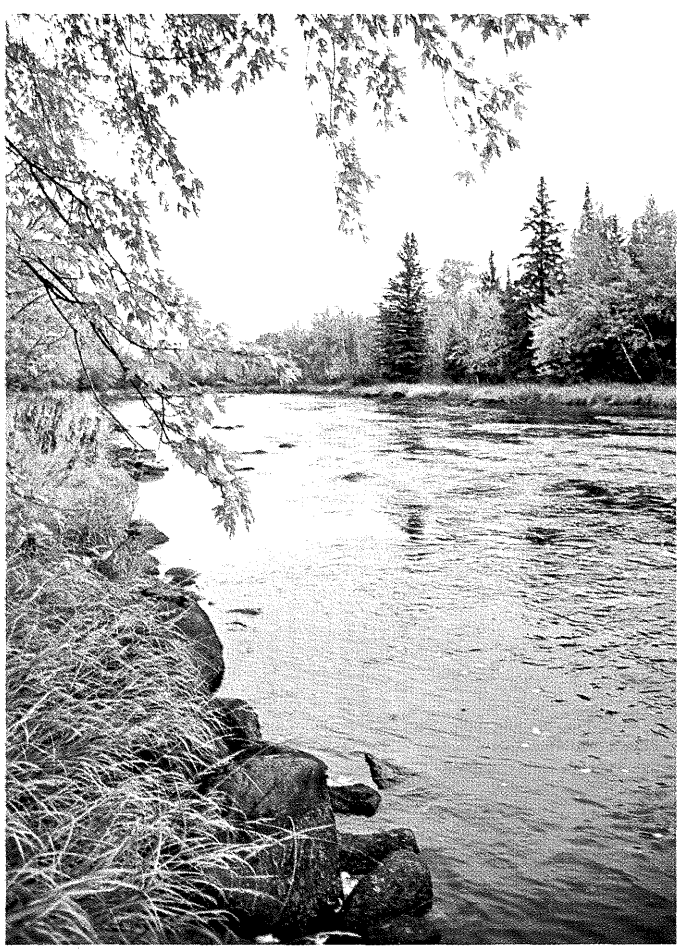
Between Faribault and Northfield is Rice County's Cannon River Wilderness Area, a maple and basswood forest with a profuse ground cover of wild berry bushes, trillium, wild ginger and yellow lady's slipper. Deer, pheasants, muskrats, beavers, raccoons and herons abound.

The Cannon's murky waters harbor walleyes, rock bass, pumpkinseeds and smallmouth bass. Smallmouth bass fishing can be good below the Welch Dam. Carp and other rough fish are common throughout the river.

The aging limestone walls of the Archibald Mill still stand at Dundas, the milling center of Minnesota in the 1850s. Farmers sometimes hauled wheat as far as 80 miles to use the mill.

Between Northfield and Cannon Falls the Cannon flows gently through a heavily wooded valley with low banks. The valley becomes a deep picturesque gorge as the river runs past Cannon Falls toward its confluence with the Mississippi. Limestone and sandstone bluffs rise more than 250 feet above the river.


LEGEND
Campsite
Access
Rest Area
Rapids
Drinking Water
River Mile
Scale of Statute Miles
0 1 2 3 4 5
HASTINGS
MISSISSIPPI RIVER
VERMILLION
LAKEVILLE
FARMINGTON
HAMPTON
RICHARD J. DORER
MEMORIAL
WELCH
DAM
PINE CREEK
DAKOTA COUNTY
GOODHUE COUNTY
HARDWOOD
RED WING
SCOTT COUNTY
RICE COUNTY
RANDOLPH
Byllesby Reservoir
CHUB CREEK
CANNON FALLS
VASA
STATE
FOREST
BELLE RIVER
LONSDALE
WATERFORD
DAKOTA CO.
RICE CO.
NORTHFIELD
MONTGOMERY
DUNDAS
DENNISON
GOODHUE
CANNON RIVER WILDERNESS AREA
NERSTRAND WOODS STATE PARK
NERSTRAND
PRAIRIE CREEK
CANNON
LITTLE
GOODHUE CO.
WABASHA CO.
KILKENNY
CANNON CITY
Wells Lake
FARIBAULT
WANAMINGO
ZUMBROTA
MAZEPPA
KENYON
Cannon Lake
LE SUEUR CO.
RICE CO.
WARSAW
Lake Tetonka
Sakatah Lake
STRAIGHT RIVER
MORRISTOWN
WATERVILLE
SAKATAH LAKE STATE PARK
WASECA COUNTY
STEELE COUNTY
RICE COUNTY
GOODHUE COUNTY
DODGE COUNTY
OLMSTED COUNTY
PINE ISLAND
MEDFORD
WEST CONCORD
ORONOCO



Cloquet River

Crossed by few roads and bounded by much public land, the Cloquet River in northeastern Minnesota is one of the state's most pristine waterways.

Starting at spring-fed Katherine Lake in southern Lake County, the Cloquet flows nearly 100 miles to join the St. Louis River, alternating between long placid stretches and boulder-field rapids that roar with spring runoff.

The Cloquet's rapids change character with the greatly fluctuating water level. The river may be too low to canoe during dry years or late in the season. But in spring or after heavy rains the rapids challenge experienced canoeists and may prove to be more than novices can handle.

The rapids of the upper Cloquet (above Island Lake), separated by long stretches of quiet water, are short, distinctive pitches over large boulders. Fortunately, all difficult rapids may be portaged.

The lower Cloquet River, left below and right, flows slowly before rushing through the quick succession of rapids that leads into the St. Louis River. The forest, left, is softly reflected in a quiet stretch of the lower Cloquet. Aspen, birch and fir replaced white and red pine after extensive logging in the early 1900s.

Camp G, the first major rapids, is a short, heavy class II run over large boulders.

The next rapids, Buzz Ryan, is a class I chute over a one- to two-foot ledge that is best run in the center.

Upper Britton Rapids parallels Dry Foot Brown's Portage. A 100-yard class II boulder bed, Upper Britton starts heavy but eases toward the end.

Lower Britton flows next to Dana's Portage. Normally an easy class II, Lower Britton develops a couple of large holes in high water that can easily swamp an open canoe. Scout the rapids from the right bank.

Dr. Barny's Rapids, a mild class II, is a series of three small pitches that nearly wash out in high water.

Cedar Rapids, another low class II, is a single two-foot ledge that is entered on the extreme right. The rapids throws up large standing waves in high water.

One class II and several class I rapids lie between Alden Lake and river mile 40.

McCabe's Rapids is a short, heavy class II stretch with three one- to two-foot ledges. The rapids should be scouted because the chutes over the drops are offset.

White Sides Rapids, a stout class II, is probably the most difficult rapids on the Cloquet and should be portaged by most canoeists. If you decide not to portage, enter this long, heavy boulder-bed stretch on the right. Then paddle quickly to the left to avoid large boulders.

An 8- to 12-foot waterfall that develops a short distance below White Sides Rapids when water is drawn out of Island Lake should be portaged.

Because access to the Cloquet is difficult, consider the major rapids of the upper river one class more difficult during high, cold spring flows. Island Lake, like all large lakes, has big waves in heavy winds. Head for shore if a storm develops.

The long lower rapids from Island Lake to the Cloquet's confluence with the St. Louis River are a quick succession of pools and drops through a garden of rocks. Dropping with a gradient of about 10 feet per mile, the lower rapids rate class I in low water and class II in extremely high, cold water. The level of the lower Cloquet depends on the volume of water released from the dam at Island Lake.

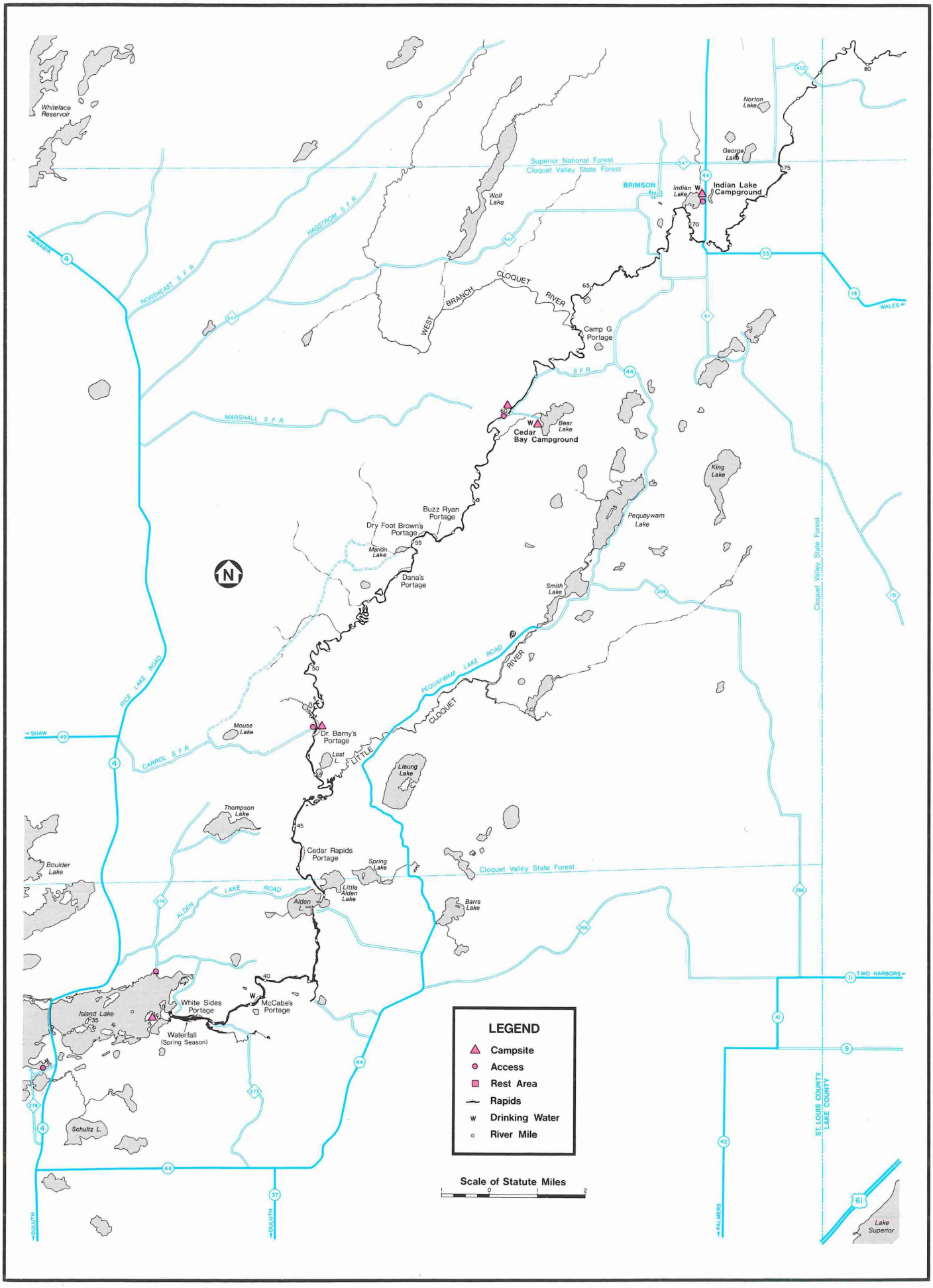
Because the Cloquet is so remote, float trips require much planning. Cars may have to be driven more than 100 miles to pick up canoes. Roads are often poor. Although there are some cottages downstream from Island Lake, the river quickly leaves them behind and plunges back into deep forest. The Cloquet's inaccessibility may increase the severity of mishaps.

The Cloquet River valley supports an abundance and variety of wildlife. Canoeists may see a bald eagle riding air currents high above the river or a moose foraging a backwater bog.

Anglers may find the river best in midsummer or at other times when the water is low. The river harbors more than 30 fish species, all natives except for brown trout, bullheads and carp. Other than brown trout, which grow to 18 inches in the river's lower reaches, the notable game species are channel catfish, northern pike, walleye and smallmouth bass. Brook trout are found near the headwaters. The best trout spots are near the mouths of cold-water tributaries. Northern pike are most abundant between Indian Lake and Dr. Barny's Rapids, while walleye fishing is best in deep stretches below steep rapids.

Logging dams were first built on the Cloquet in the early 1910s. Nearly all of the original pine stands had been logged by the time of the last log drive in 1925, though scattered mature white and red pine stands remain. Because natural pine reproduction was hampered by forest fires, original pine lands are now covered with birch, aspen and fir. Rapids and portages such as Dry Foot Brown's, McCabe's, and Camp G still carry names from the logging era.

Preservation of the Cloquet watershed began in the 1930s when the Cloquet Valley State Forest was established. The Civilian Conservation Corps completed many stabilization projects before the corps was disbanded in 1939. Among the people who helped preserve the river was J. C. "Buzz" Ryan, the district ranger of the Cloquet Valley State Forest for more than 40 years, for whom the Buzz Ryan Rapids and Portage were named.


Whiteface Reservoir
Superior National Forest
Cloquet Valley State Forest
BRIMSON
Norton Lake
George Lake
Indian W. Lake
Indian Lake Campground
Wolf Lake
HAGSTROM S F R
NORTHEAST S F R
WEST BRANCH CLOQUET RIVER
Camp G Portage
S F R
MARSHALL S F R
Cedar Bay Campground
Bear Lake
King Lake
Pequaywam Lake
Buzz Ryan Portage
Dry Foot Brown's Portage
Marion Lake
Dana's Portage
Smith Lake
PEQUAYWAM LAKE ROAD
CLOQUET RIVER
RICE LAKE ROAD
CARROL S F R
Mouse Lake
Dr. Barny's Portage
Lost L.
LITTLE
Lleung Lake
Thompson Lake
Cedar Rapids Portage
Spring Lake
Boulder Lake
ALDEN LAKE ROAD
Little Alden Lake
Alden L.
Barrs Lake
Island Lake
White Sides Portage
McCabe's Portage
Waterfall (Spring Season)
Schultz L.
Cloquet Valley State Forest
ST. LOUIS COUNTY
LAKE COUNTY
SHAW
DULUTH
TWO HARBORS
PALMERS
Lake Superior
LEGEND
Campsite
Access
Rest Area
Rapids
W Drinking Water
River Mile
Scale of Statute Miles
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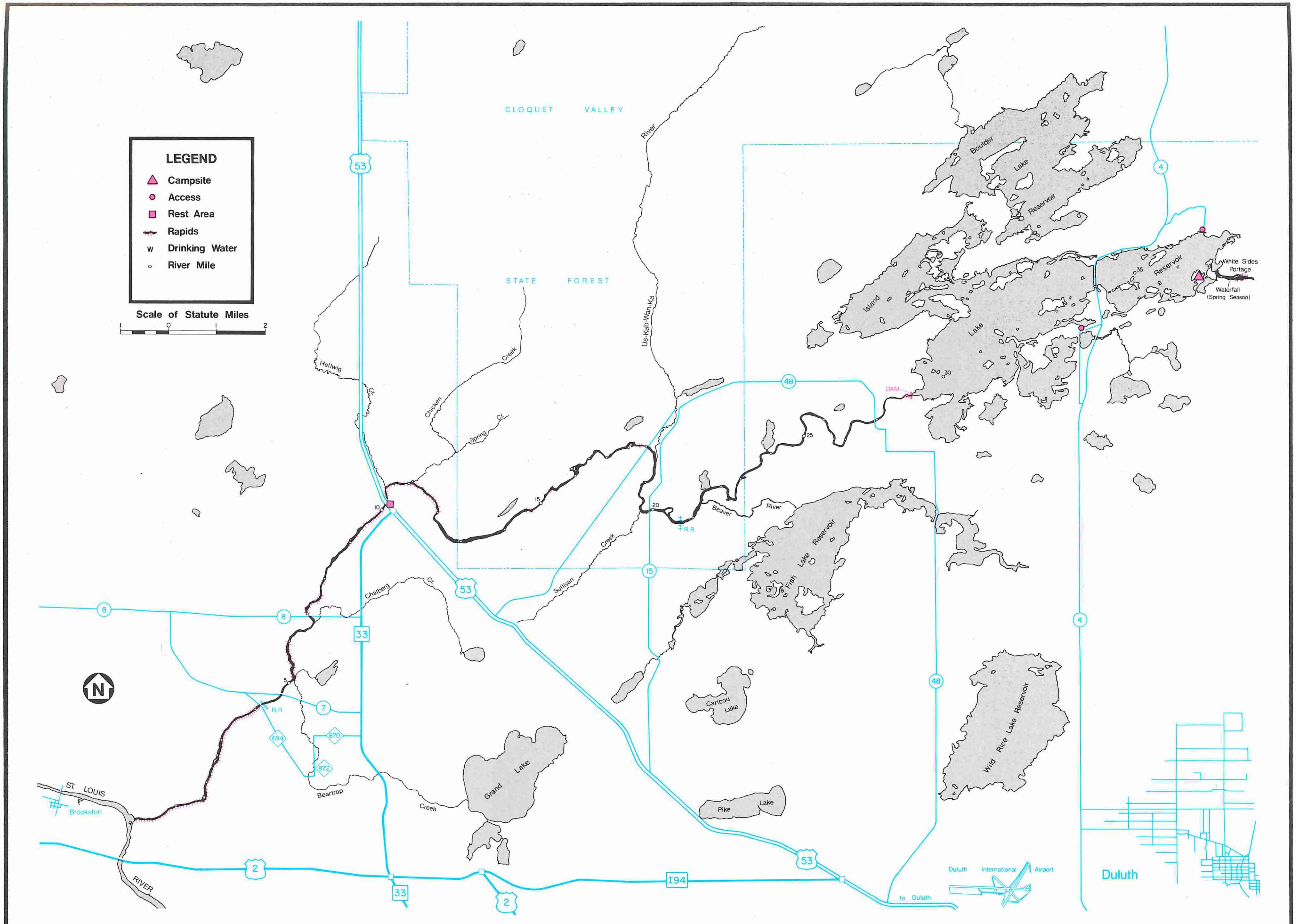
2


LEGEND
Campsite
Access
Rest Area
Rapids
Drinking Water
River Mile
Scale of Statute Miles
CLOQUET VALLEY
STATE FOREST
Boulder Lake Reservoir
Island Lake Reservoir
Fish Lake Reservoir
Wild Rice Lake Reservoir
Caribou Lake
Grand Lake
Pike Lake
White Sides Portage
Waterfall (Spring Season)
DAM
Us-Kab-Wan-Ka River
Beaver River
Hellwig Cr.
Chicken Creek
Spring Cr.
Sullivan Creek
Chalberg Cr.
Beartrap Creek
ST. LOUIS RIVER
Brookston
R.R.
Duluth International Airport
Duluth
to Duluth

Crow Wing River

Its crystal waters cutting a gentle path past low banks covered by a lush forest of evergreens and hardwoods, the Crow Wing River deserves its popularity and reputation as a "wilderness" route for family canoeists.

Rising in a chain of lakes in southern Hubbard County, the Crow Wing flows southeast about 90 miles before joining the Mississippi River at Crow Wing State Park. The lakes at the river's headwaters act as reservoirs, maintaining the stream's water level and causing it to react slowly to heavy rains. The river is nearly always canoeable and rates no more than class I, even in high water. The river falls only about two feet per mile. The stream's steepest pitch, a class I stretch called Westra Rapids (river mile 65.9), has a gradient of 10 feet per mile.

For its first 20 miles, the river flows through low, marshy lands. The river broadens and the banks rise as the stream moves southward. Jack pine forest has all but replaced the virgin white and red pine forests on the sandy plains of northern Wadena County. Hazel, blueberries, sweet fern, bearberry, wintergreen, bracken and reindeer moss provide lush ground cover. The river's lower reaches are flanked by a river-bottom forest of elm, ash, cottonwood, box elder, oak, basswood, maple, willow and aspen. Grasslands, bogs and swamps are scattered throughout nearby river lands.

The diverse forest along the river supports a variety of wildlife including turtles, otters, muskrats, beavers, mink, raccoons, chipmunks, squirrels and rabbits. Bobcats and a few black bears also roam the woodlands. Game species such as white-tailed deer, ruffed grouse and woodcock live near the river. Ducks and geese are not abundant because of sparse aquatic plants and few backwaters.

Because of its sandy bottom, limited cover and lack of deep pools, the Crow Wing holds relatively few game fish. Although walleye, largemouth bass and northern pike are caught, northern redhorse and white sucker are the most common species.

Many primitive riverside campsites with tent pads, fire rings, rustic tables and pit latrines have been developed by the Crow Wing Trails Association, Wadena County and the Minnesota Department of Natural Resources. Some sites have pumps for drinking water. A small overnight camping fee is charged at all sites.

Wadena County and the Crow Wing Trails Association have developed trails near the river for snowmobiles and horses. The Minnesota Department of Natural Resources also has developed a snowmobile trail in the area.

The Crow Wing River was named for a wing-shaped island at its mouth. Called *Kagiwegwon* ("raven feather" or "raven's wing") by the Ojibway Indians, the Crow Wing was known as *Rivière à l'Aile de Corbeau* ("river of the wing of the raven") or simply *de Corbeau* by the French. English-speaking travelers coming from the eastern states were probably unfamiliar with the raven of northern Minnesota and Canada and incorrectly translated the river's name as Crow Wing.

A monarch butterfly, far left, rests on a thistle flower (photo by Charles A. Wechsler). The Crow Wing River, above, rounds a forested bend in Huntersville State Forest. Below, the river passes Oylen (photo by James Weseloh).

The Crow Wing River flows through a marsh near the mouth of the Shell River.

According to one legend the river was named much more dramatically. The Indian princess, Crow Wing, was to be married on the river's banks. But on meeting her fiancé she was so revolted that she chose instead to jump into the river and drown.

The Dakota Indians held the Crow Wing region until the Ojibway began moving westward into the area in the early 1700s. A century later, the Ojibway controlled most of the land west of the Mississippi and north of the Crow Wing.

Signs of the Indians still mark the region. Indian burial mounds remain in several places along the river, including a marked site at river mile 60.9.

French fur traders entered the Crow Wing River region during the early 1700s and controlled the fur business until British and Canadian traders came to dominate the trade in the 1760s. In 1792 the Northwest Company of Montreal established the Wadena Trading Post on the west bluff of the Crow Wing River at its junction with the Partridge River.

Another post, operated by Jean Baptiste Cadotte, was established in the winter of 1792 at the mouth of the Leaf River. Several other trading posts of less importance were located in this area in the late 1700s and early 1800s.

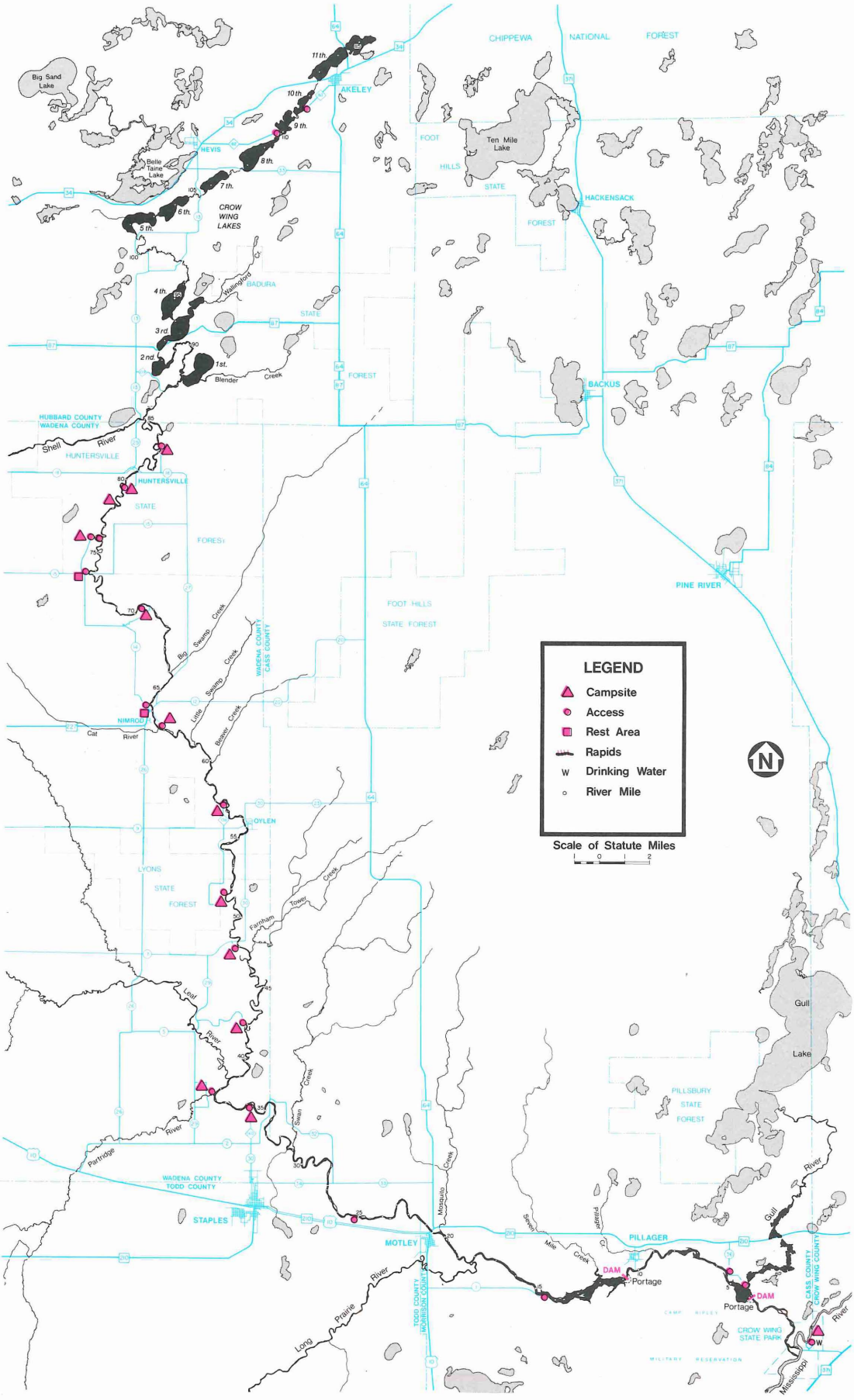
The Crow Wing River region came into the possession of the United States with the Louisiana Purchase in 1803. By 1820 the volume of overland trade in the area was considerable. The Old Otter Tail Trail, also known as the Old Crow Wing Trail or the Woods Branch of the Red River Trail, crossed the Crow Wing River near the Wadena Trading Post and was used by traders, government transporters, Indians and Canadian explorers to travel between St. Paul and Canada. After the construction of the Northern Pacific Railroad in 1871, the trail was used little by the white settlers. By 1899 the trail was abandoned and today is nearly obliterated.

Lumbering was the chief industry of Wadena County between the 1870s and the early 1900s. Each spring, dams were built on the Crow Wing, Redeye and Shell rivers to store water for log drives to mills on the Mississippi River at Little Falls and St. Cloud.

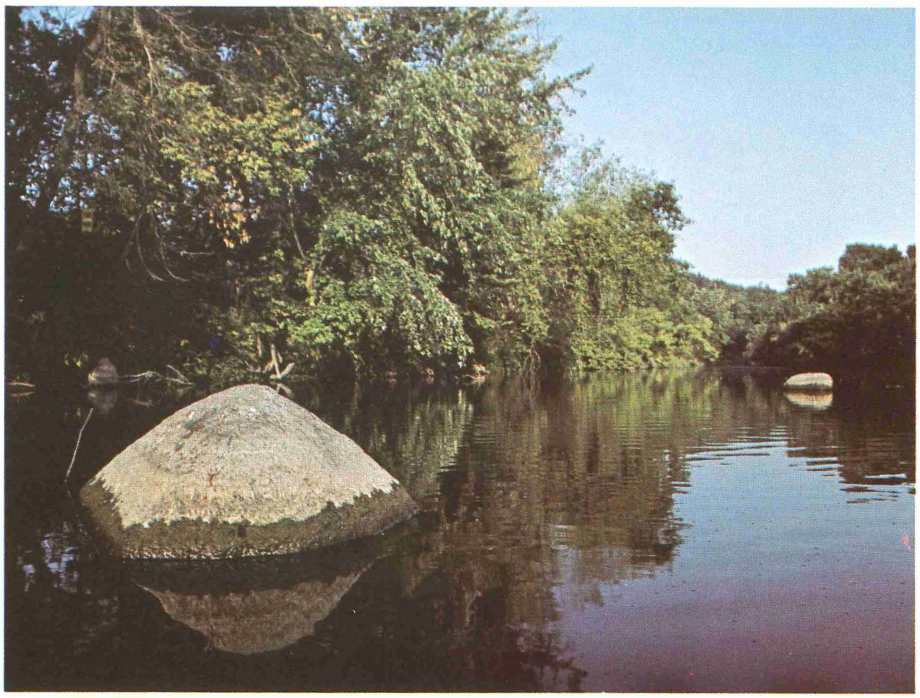
Shell City was established in 1879 as a lumbering camp, although the town and the Shell River were named for another important resource, clams, which were used in button factories in the city. This city was also the headquarters of the Shell City Navigation Company, which was formed to operate steamboats and barges on the Shell and Crow Wing rivers from Shell City to the Mississippi River.

On July 28, 1884 a celebration was held for the launching of the steamer *Lotta Lee* at Shell City. This steamer made many successful trips on the Shell River, which was deep and easily navigable. But on the shallower Crow Wing River it ran aground and was abandoned. It was hoped that government money could be used for dredging the river channel to make it navigable. But funds were never obtained and the shipping venture on these rivers died.

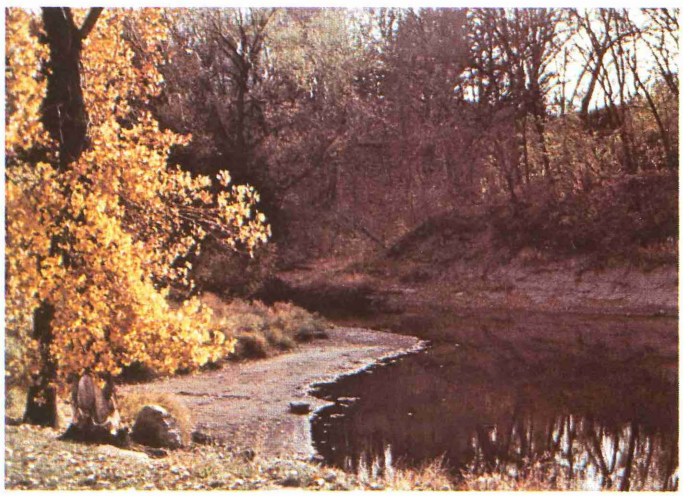
Nimrod, established in 1879 as a railroad tie camp, was an important logging center for many years when timber was being cut along the Crow Wing and its tributaries. Lumbering operations expanded as railroads spread throughout the Crow Wing area. By the turn of the century, however, most virgin timber had been cleared and the lumber industry declined sharply. Shell City, which relied heavily on timber, was eventually abandoned. The region's economy soon came to depend on agriculture. Today dairying is the most important industry.


CHIPPEWA NATIONAL FOREST
Big Sand Lake
11th.
10th.
9th.
AKELEY
HEVIS
Belle Taine Lake
8th.
7th.
6th.
5th.
CROW WING LAKES
Ten Mile Lake
FOOT HILLS STATE FOREST
HACKENSACK
4th.
3rd.
2nd.
1st.
Wallingford
BADURA
Blender Creek
BACKUS
HUBBARD COUNTY
WADENA COUNTY
Shell River
HUNTERSVILLE
STATE FOREST
PINE RIVER
Big Swamp Creek
WADENA COUNTY
CASS COUNTY
Little Swamp Creek
NIMROD
Cat River
LOYLEN
LYONS STATE FOREST
Tower Creek
Farnham Creek
Leaf River
Swan River
Partridge River
WADENA COUNTY
TODD COUNTY
STAPLES
MOTLEY
Mosquito Creek
Seven Mile Creek
Nimrod Cr.
PILLAGER
DAM
Portage
Gull River
Gull Lake
PILLSBURY STATE FOREST
CASS COUNTY
CROW WING COUNTY
Long Prairie River
TODD COUNTY
MORRISON COUNTY
CROW WING STATE PARK
CAMP RIPLEY MILITARY RESERVATION
Mississippi River
LEGEND
Campsite
Access
Rest Area
Rapids
Drinking Water
River Mile
Scale of Statute Miles
0
2
N

The Des Moines River, right, moves imperceptibly between banks covered by bottomland forest in Kilen Woods State Park. Below, sunlit autumn leaves brighten the river.



Des Moines River



In the midst of southwestern Minnesota's farming country, the Des Moines River offers a leisurely canoe trip through a valley abundant with wildlife. One of the few canoeable rivers in this area, the Des Moines attracts canoeists from Iowa and South Dakota as well as Minnesota.

Flowing nearly 100 miles through Minnesota, the Des Moines starts at Lake Yankton and travels southeast to the Cottonwood-Jackson county line, where it turns abruptly northeast to form the Big Bend. The river then flows southeast, crossing the Iowa state line south of Petersburg.

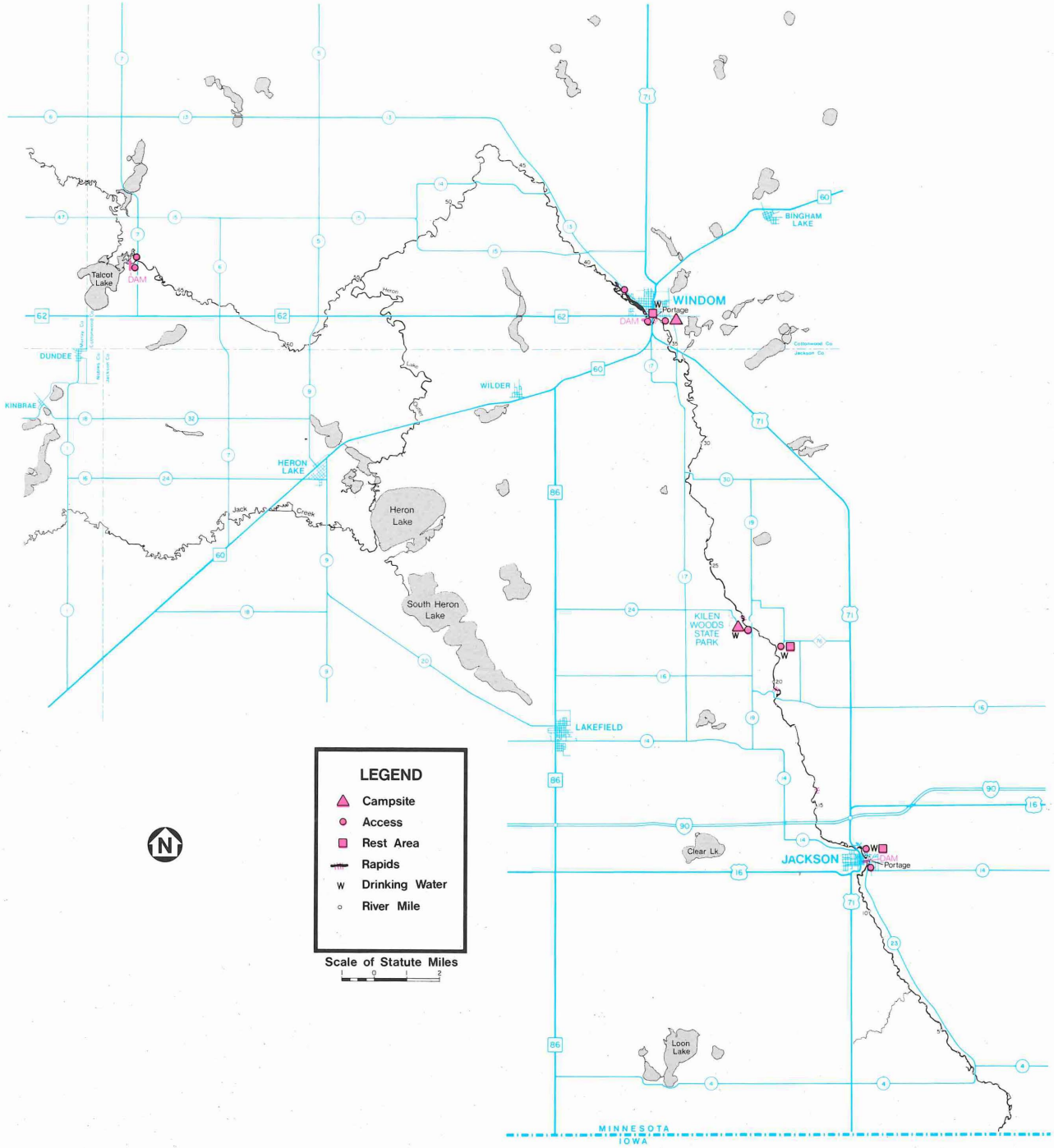
From the Talcot Lake Dam access to Windom, the Des Moines travels through flat farmland with few trees. The Windom-Jackson segment is prettier than the upper or lower reaches of the river and is the most popular for canoeing. Light boulder-field rapids interrupt the otherwise calm waters. The Des Moines is a class I run in high or low water.

From Windom to Kilen Woods State Park the river valley is bounded by low hills. Willow, green ash, slippery elm and grasses line the banks. Nearing the park, the river flows between 100- to 200-foot bluffs covered with an oak and basswood forest.

Kilen Woods abounds with deer and other wildlife. Beaver are present but are trapped to eliminate damage to the banks and trees. Travelers can also see squirrels, mink, muskrats and turtles. There is a wide variety of bird life along the river, including owls, hawks, bank swallows, Baltimore orioles, blue herons, kingfishers, and waterfowl, especially wood ducks and mallards.

From Kilen Woods to Jackson are increasingly taller hills and bluffs; woodlands crowd the river and screen from view farm buildings and cultivated land. From Jackson to the state line, the Des Moines once again flows through a shallow, almost treeless valley and an area of intensive farming. Wire fences strung across the river to confine cattle may be hazardous.

The Des Moines River valley was the frontier of settlement in Minnesota during the 1850s and was the site of many raids by an outcast band of Dakota Indians led by the warrior Inkpaduta ("Scarlet Point"). Settlers were attacked at Fort Belmont (once near river mile 18) and Springfield (now Jackson).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Water trickles over Wolf Creek Falls just before the creek enters the Kettle River below the Banning Rapids (photo by Charles A. Wechsler). Below, a swift-flowing pool in the Lower Kettle River Rapids mirrors the hues of the nearby forest.

Kettle River

Starting as scarcely more than a drainage ditch, the Kettle River alternately tumbles over small rapids and flows lazily through long pools. For more than 50 miles the Kettle cuts a trail through a forest of hardwoods and occasional stands of balsam fir and black spruce, growing as it draws with it the waters of several rivulets. Passing beneath the State Highway 23 bridge north of Sandstone, the river eases into a broad pool, its current barely perceptible. It seems to have stopped to marshal the forces of its tributaries, for around the next bend the Kettle makes its assault: half of the river slides over a sheet of rock jutting far out from the right bank, while the balance of the water plummets down a chute to the left, making an S-bend and spilling into a narrow, rapids-filled gorge bounded by high bluffs and jagged sandstone escarpments.

These are the Banning Rapids, which, with the wild character of the Kettle River valley, have earned the stream its notoriety and its status as the first river in Minnesota's wild and scenic rivers system.

Less than 100 miles from the Twin Cities, the Kettle River is perhaps more like a wilderness river than any other stream within an easy drive of the metropolitan area. And the river's future is nearly assured with its wild and scenic designation and with much of its valley protected within the boundaries of Banning and St. Croix state parks.

Rather ironically, however, the Kettle was the focus of considerable industry during the last century.

The forests, which once included much pine, were lumbered. Land near the river was mined for sandstone and copper. The river itself was dammed to generate electricity and to float sawlogs to nearby mills.

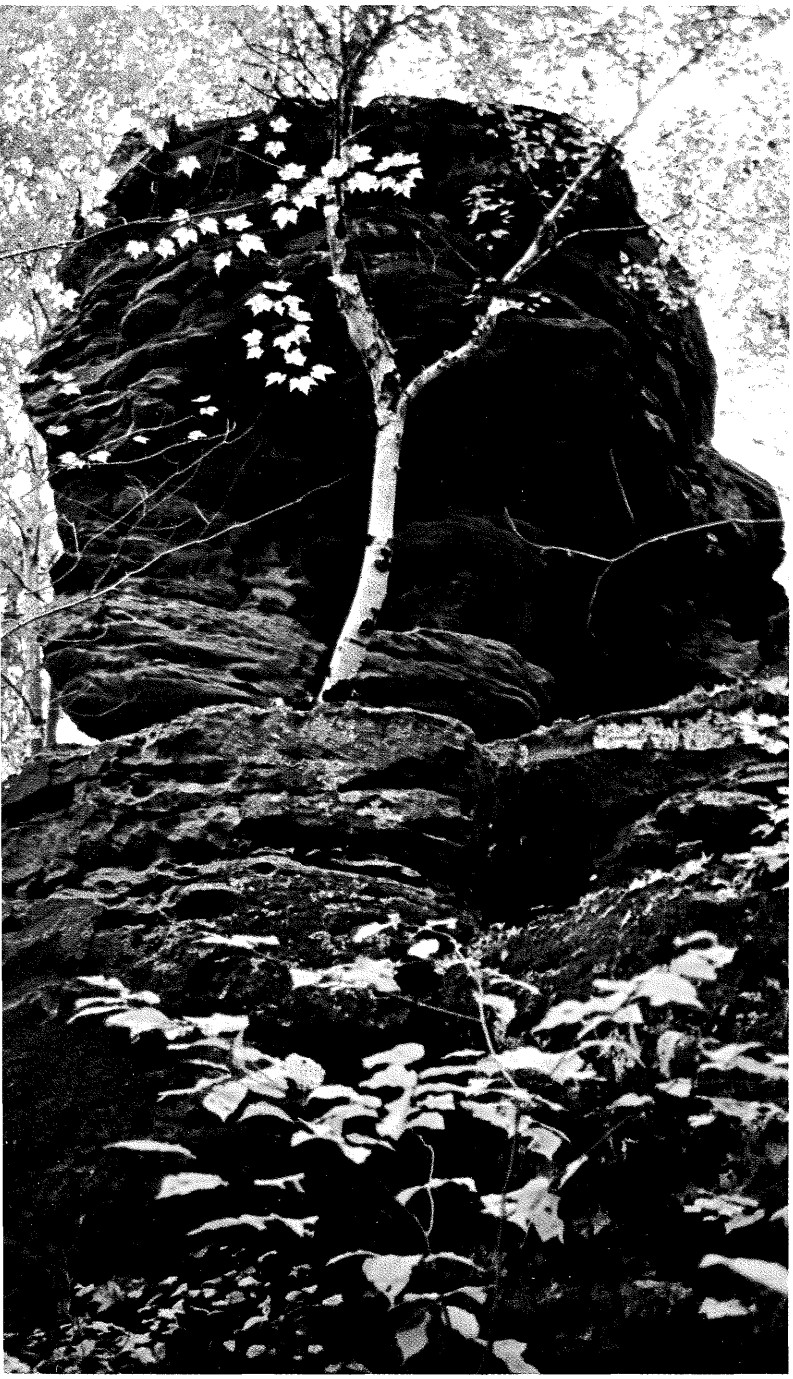
White pine provided the most valuable timber. During the 1880s much lumber was produced in mills near the Kettle. Most timber, however, was floated down the Kettle and St. Croix rivers to mills in Stillwater and other towns. Many logging dams were built on the Kettle, including one believed to have been constructed on or near the site of Banning State Park.

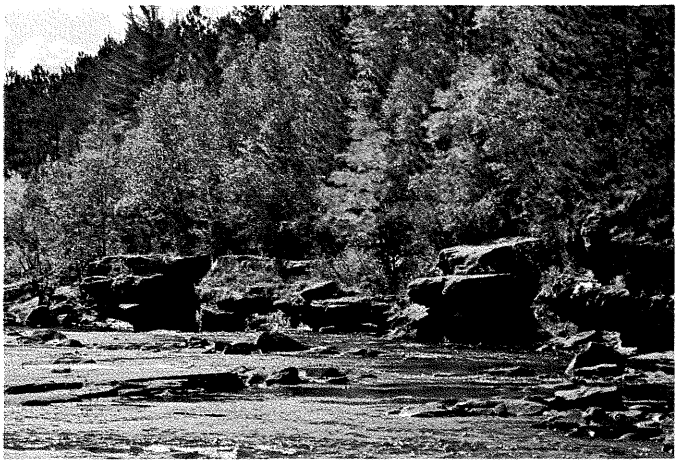
Copper lodes were also discovered near the Kettle and the nearby Snake River during the early 1880s. The outcrops containing ore were similar to veins in Wisconsin and northern Michigan. Copper mining, however, was a short-lived industry. An abandoned copper mine can be seen on the west bank of the Kettle River just north of the State Highway 48 bridge.

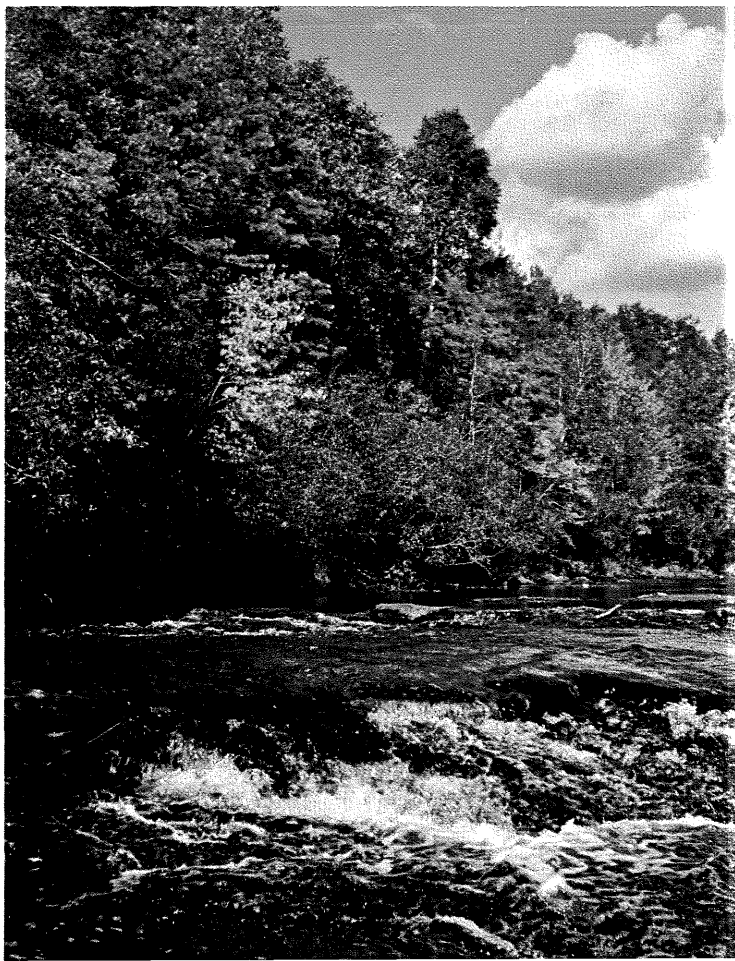
Banning, now a ghost town, grew around one of the major sandstone quarries two miles north of Sandstone (on the west bank of the Banning Rapids, river mile 26.5). Platted in 1896, Banning once had a population of 300. More than 20 million tons of rock were shipped out of Banning during the turn-of-the-century boom years. By 1905, however, the sandstone quarries were abandoned. Attempts to establish new industries such as power generation and milling failed. Banning, deserted by about 1918, is marked only by a few roofless stone walls. Remains of some sandstone quarries can be seen in Sandstone's Robinson Park.

Although most attempts to harness the Kettle's tumbling waters eventually failed, several dams were built on the river. A temporary dam was built in 1885 near the sandstone quarries to run a stone sawmill (river mile 24.2). It was replaced with another dam, which operated for about 20 years. The Sandstone Dam (river mile 22.5), built in 1908, was last used to generate electricity in 1963.

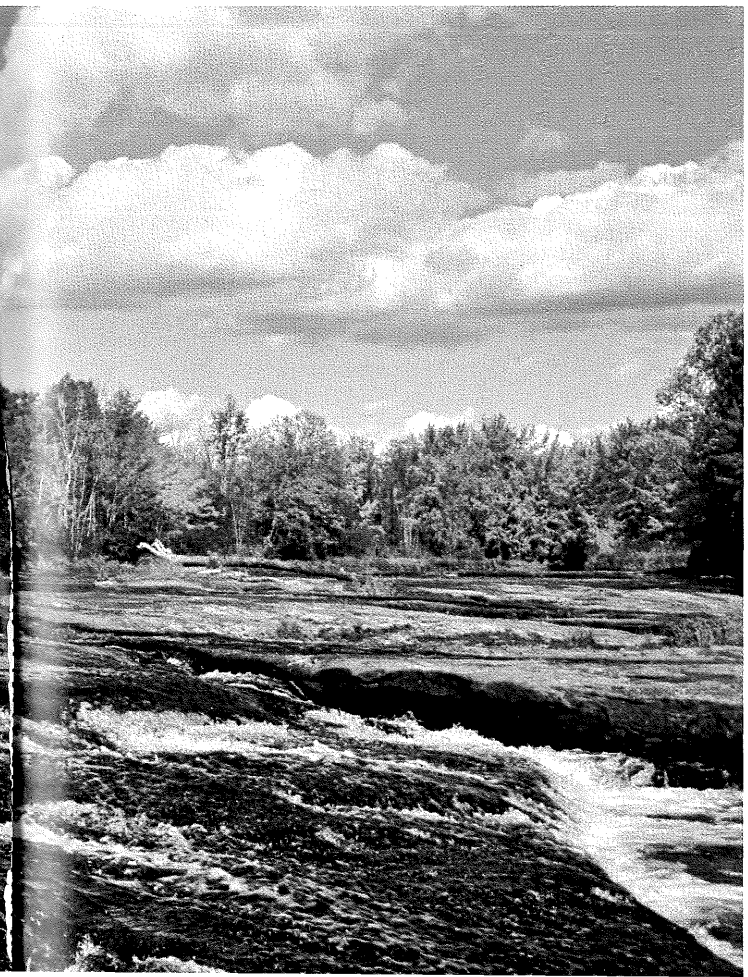
An old military road which ran from the mouth of the







The Lower Kettle River Rapids, upper left, bend sharply before spilling into Big Eddy. A sandstone outcrop, far left, juts above the river in Banning State Park, where sandstone was once mined (photo by Charles A. Wechsler). The sandstone cliffs along the Kettle in Banning State Park, left, are exposed during low water; below, the ledges of Blueberry Slide, visible in low water, create a dangerous rapids in high water (photos by Lawrence Duke).



St. Croix River to Duluth paralleled the Kettle for several miles. Completed under the supervision of Gen. W. W. Wheeler in 1857, this road served stagecoaches, buggies and pedestrians. The road remains visible in Banning State Park.

Today the Kettle flows past some towns and farmland, particularly in the northern stretches, but most of the riverside is densely wooded. Bluffs occasionally rise to more than 100 feet. The sandstone cliffs in Banning State Park are pocked by "kettles," potholes cut by swirling gravel and water. Many small brooks flow into the Kettle. The hardwood forest and conifer stands near the river provide cover for white-tailed deer, black bears, bobcats, coyotes, gray and red fox, mink, raccoons and many smaller mammals. Beavers, otters and muskrats live in the river or in burrows along the banks.

Upland game birds common along the river include ruffed grouse and woodcock. Mallards, teal, wood ducks, hooded mergansers and some Canada geese nest near the river.

The Lower Kettle River Rapids and the stretch upstream from Rutledge are prime smallmouth bass waters. Walleyes, northern pike and crappies are caught throughout the river. Sturgeon and channel catfish are occasionally caught from the Sandstone Dam to the river's mouth.

The Kettle is renowned for its white water, especially the Banning (Hell's Gate) Rapids. Although the Banning Rapids challenge the abilities of white-water boaters when the water is high, the rest of the river can provide a pleasant trip to most canoeists if they carefully scout rapids and occasionally portage. A word of caution: The Kettle's watershed drains quickly; consequently, the water level fluctuates greatly. What is runnable one day may be impassable, or dangerous, a few days later.

The modest 22-foot-per-mile gradient of the Banning Rapids is deceiving, for much of the stretch consists of pools joined by sudden drops. The water level for this white-water stretch is read from the State Highway 23 bridge. When the Banning Rapids tempt you, consider that the largest waves are as high as the reading on the gauge. These rapids are powerful and hazardous. A portage trail runs along the left bank. The rapids are too low to run if the one-foot mark shows on the gauge.

The first rapids in Banning is Blueberry Slide, a

The Kettle River glides through gentle rapids below the Kettle River High Banks, 40-foot cliffs at river mile 3.5. Although the Lower Kettle River Rapids are easily canoed at moderate water levels, the stretch is fast, turbulent and dangerous in high, cold water.

brawler that is generally run within a paddle's length of the left cliff, though high water forms a big souse hole that forces boaters toward the center. After the first drop, the river curves right before dropping again. Run the second pitch on the right. A big eddy on the inside (right) of the bend is a convenient spot to rest, to bail or to rescue swimming paddlers and mangled boats. Blueberry Slide rates class II when the gauge reads less than three feet, class III between three and four feet, class IV above four feet, and class V when near-freezing waters surge above eight feet.

Mother's Delight, the second rapids, throws large standing waves at moderate water levels. Boaters can skirt the rapids on the left. This rapids is a class II drop in low water and a class III in moderate water. It washes out in high water.

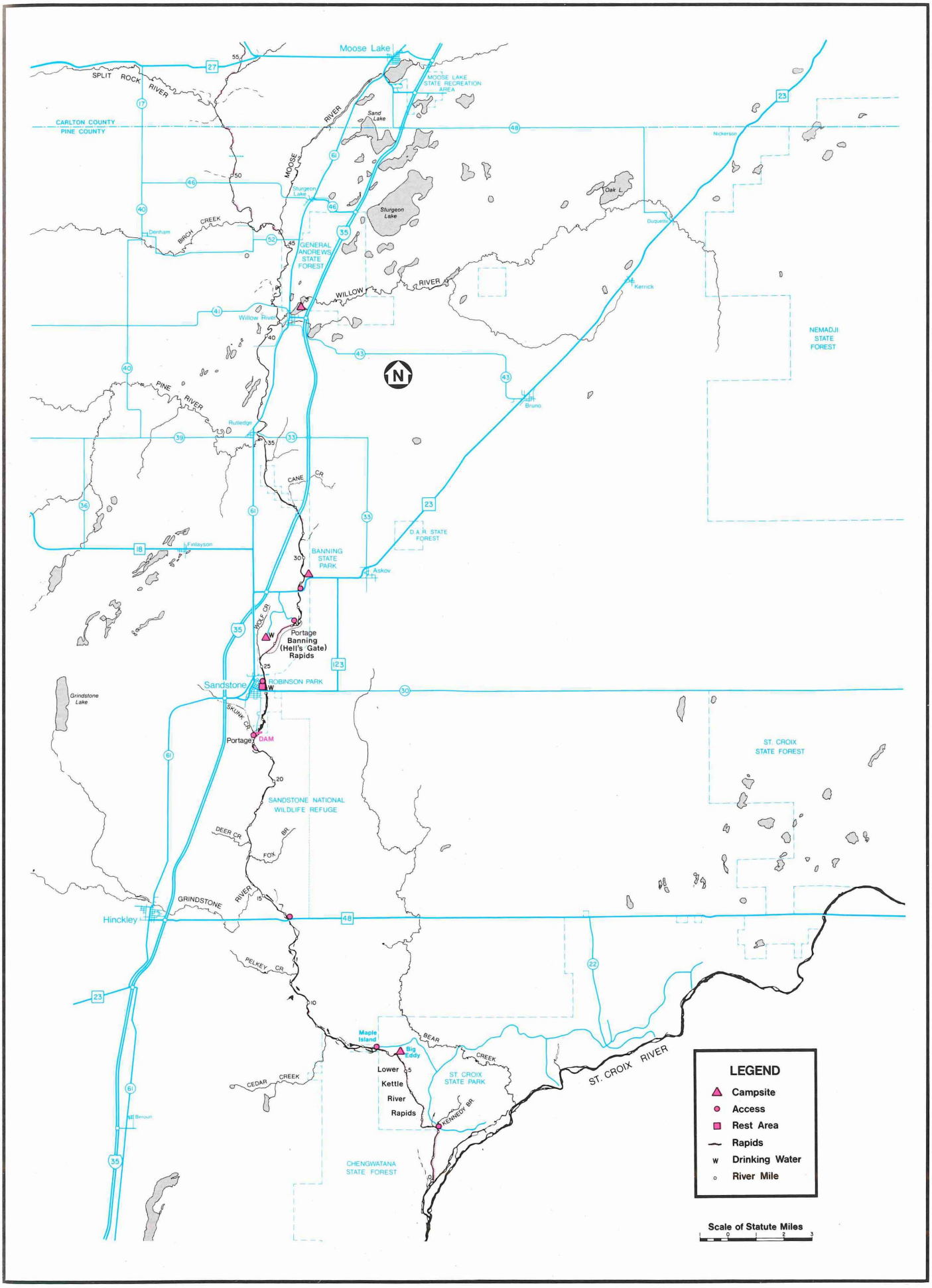
The third rapids, Dragon's Tooth, starts about one-third of a mile from the beginning of the Banning Rapids. It is named for a large rock that creates a powerful souse hole slightly to the right of center. The river flushes through a restricted channel only 30 feet wide. Deep undercuts in the cliff that lie hidden in high water make this rapids especially dangerous. Run the rapids on the left to avoid the souse hole. Dragon's Tooth is comparable to Blueberry Slide in difficulty.

The Little Banning Rapids, a quick succession of small pools and ledges, begins a short distance downstream from Dragon's Tooth and continues for about a half mile. Filled with standing waves that grow as the water level increases, the Little Banning Rapids ranges from a class I run in low water to a class III in high water.

A quarter-mile pool provides a relaxing break before Hell's Gate, the final drop in this white-water run. Run Hell's Gate, a quarter mile of big standing waves, on the right for the easiest ride, to the left for the most exciting. Hell's Gate commands a class II rating in low water and a class III at moderate levels. It begins to wash out at a gauge reading of about five feet.

The other rapids on the Kettle are not nearly as formidable as the Banning stretch. Most are impassable in low water and rate class I or II in high water. The Lower Kettle River Rapids are unrunnable if the State Highway 48 bridge gauge reads under 4.5 feet. When the water is slightly higher, these rapids, which fall about 17 feet per mile, are an intricate class I boulder-bed obstacle course. They actually become easier as the water rises. But when the State Highway 48 gauge reads about 10 feet, the three-foot backrollers that form near Big Eddy and the mouth of the river can swamp an open boat. Consider this stretch class III in high, near-freezing water.

A state forest, federal wildlife refuge, state scientific and natural area (east of the river and north of State Highway 48), city park and two state parks border the Kettle, providing many accesses, campsites and other land for public use. Many accesses are on the St. Croix River below the mouth of the Kettle for canoeists who want to paddle both rivers for the best of white-water and quiet-water canoeing.


Moose Lake
SPLIT ROCK RIVER
CARLTON COUNTY
PINE COUNTY
MOOSE LAKE STATE RECREATION AREA
Sand Lake
MOOSE RIVER
Sturgeon Lake
Sturgeon Lake
Oak L.
Nickerson
Duquette
Kerrick
BIRCH CREEK
Denham
GENERAL ANDREWS STATE FOREST
WILLOW RIVER
Willow River
NEMADJI STATE FOREST
PINE RIVER
Rutledge
Bruno
CANE CR
D A R STATE FOREST
Finlayson
BANNING STATE PARK
Askov
MOLE CR
Portage Banning (Hell's Gate) Rapids
Sandstone
ROBINSON PARK
Grindstone Lake
SKUNK CR
Portage
DAM
ST. CROIX STATE FOREST
SANDSTONE NATIONAL WILDLIFE REFUGE
DEER CR
FOX BR
GRINDSTONE RIVER
Hinckley
PELKEY CR
Maple Island
Big Eddy
BEAR CREEK
Lower Kettle River Rapids
ST CROIX STATE PARK
CEDAR CREEK
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Little Fork River

The Little Fork River is wilderness. Wildlife is plentiful; stands of birch, aspen and elm grace the highlands, while spruce, tamarack and cedar grow in the muskeg and scattered peat bogs. The largest known aspen and cedar in the state are found along the Little Fork, while a white spruce holds the national record for size.

Rising in St. Louis County, the Little Fork follows a meandering course northwest through Koochiching County to its junction with the Rainy River at the Canadian border. Farmland flanks the river's upper and lower reaches, but the middle stretch, the 50 miles below the State Highway 65 (Silverdale) bridge, is wild.

A dense forest extends to the high clay banks near the Valley River confluence. Towering cedars more than three feet in diameter spill a thick cushion of needles onto a carpet of ferns. The river undercuts the banks in this area, the clay shearing in such a way that the trees fall vertically into the water rather than across the river. Below the Nett Lake Indian Reservation the pine forest yields to hardwoods.

Homes reappear about 15 miles above the town of Littlefork. The wilderness recedes and finally disappears. From Littlefork to the Rainy River, the Little Fork flows through well-developed country where farms almost continuously flank the river.

Deer, fox, beaver, muskrat and a few bear and moose roam the river valley. Bird life, both on the land and in the water, is abundant and varied. Fishing for muskies and walleyes is reportedly excellent. Trout inhabit some stretches of the river and its tributaries.

The Little Fork can be a fickle stream, its level rising sharply after heavy rains, but it nevertheless remains canoeable most of the summer. Although most of the rapids on the Little Fork are runnable, some are difficult. None of the major drops have been rated accurately. Scout them thoroughly.

Hananen's Falls, a 30-foot cascade at river mile 121, demands a portage.

A small falls at river mile 114, Fishers Rapids (river mile 109) and another small falls at river mile 101 should be studied carefully and may require portages.

Nett Rapids (river mile 91) is the longest rapids on the river, but is only moderately difficult. This rapids, which crosses the border of the Nett Lake Indian Reservation, is impassable in low water.

Permits are needed to fish, hunt or camp on reservation property and are available from the Bois Forte (Nett Lake) Reservation Conservation Office.

Rapids begin again just outside of the reservation. The river widens and becomes shallow, the clay giving way to a sandy, boulder-strewn

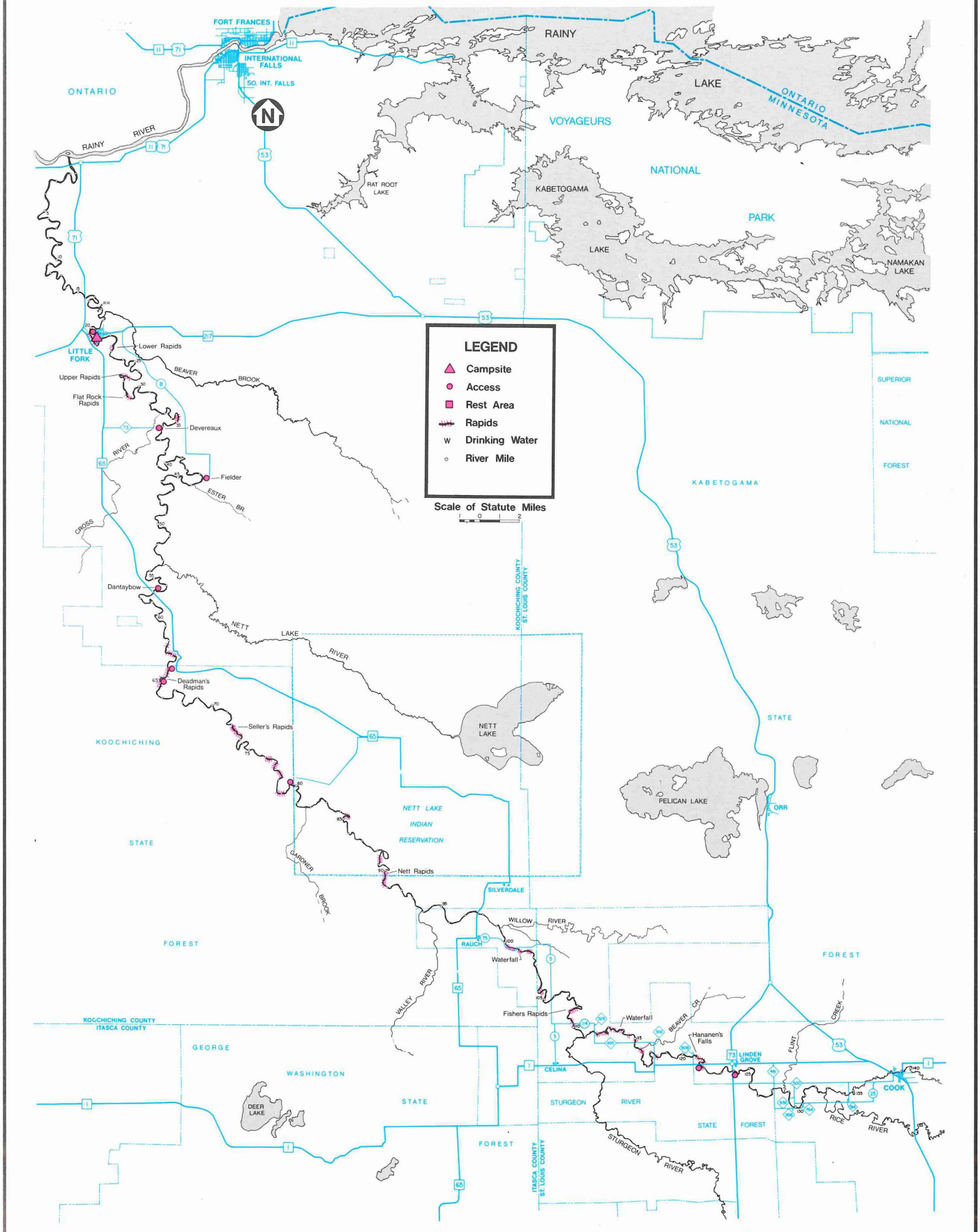
The Little Fork River races through a garden of boulders above Cook. THE AMERICAN WILDERNESS, The North Woods, *photo by Paul Jensen. TIME-LIFE BOOKS, New York,*

The Little Fork glides quietly near the Silverdale bridge. The river valley, though once heavily logged, is home to bear, moose and many smaller animals.

bed. Seller's Rapids (river mile 73) is reportedly the roughest of the rapids that are usually tackled. Deadman's Rapids (river mile 65) is moderately difficult. Upper Rapids (river mile 27.5) and Lower Rapids (river mile 23) form standing waves in moderate and high water.

Although several Indian tribes have inhabited the Little Fork region, the Dakota and Ojibway are the most recent. The Ojibway called the Little Fork *Ningtawonani zibi*, "the river separating canoe routes," because travelers ascending the river had the choice of going to the source or going up the Nett Lake River. The name Nett Lake, in fact, comes from the Ojibway name meaning "taken or entangled in the net." According to Ojibway myth, the Indians found many strange beasts, half sea lion and half fish, on the little island of Nett Lake. The Ojibway pursued the creatures westward until they found where the earth had swallowed them, as though they had been caught in a net. The myth is thought to refer to the flight and escape of a party of Dakota Indians, whom the Ojibway drove from northern Minnesota.

Magnificent stands of white and red pine near the Little Fork's headwaters were logged in the late 19th and early 20th centuries. Logs choked the river and its tributaries as loggers or "river pigs" drove the timber to nearby mills. Settlement of the Little Fork valley increased considerably in the 1890s and towns appeared shortly after the turn of the century. Steamboats plied the river downstream from the town of Littlefork. But when the railroad reached the town in 1907 the steamboats vanished and the pioneering era ended. A log drive down the Nett Lake and Little Fork rivers to the Rainy in 1937 was the last major drive in the region.


FORT FRANCES
INTERNATIONAL FALLS
SO. INT. FALLS
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RAINY RIVER
RAINY LAKE
ONTARIO
MINNESOTA
VOYAGEURS NATIONAL PARK
RAT ROOT LAKE
KABETOGAMA LAKE
NAMAKAN LAKE
LITTLE FORK
Lower Rapids
Upper Rapids
Flat Rock Rapids
BEAVER BROOK
Devereaux
Fielder
ESTER BR.
CROSS RIVER
Dantaybow
NETT LAKE
RIVER
Deadman's Rapids
Seller's Rapids
KOOCHICHING
NETT LAKE INDIAN RESERVATION
Nett Rapids
GARDNER BROOK
SILVERDALE
WILLOW RIVER
RAUCH
Waterfall
VALLEY RIVER
Fishers Rapids
Waterfall
BEAVER CR.
Hananen's Falls
LINDEN GROVE
FLINT CREEK
CELINA
COOK
KOOCHICHING COUNTY
ITASCA COUNTY
GEORGE WASHINGTON
DEER LAKE
STURGEON RIVER
RICE RIVER
ITASCA COUNTY
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KOOCHICHING COUNTY
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The Minnesota River, unruffled except for the swirl of a jumping fish, reflects the sunset.

Minnesota River

Its wide, impressive valley carved by the powerful glacial River Warren, the Minnesota River is now a gentle river interrupted by few rapids. Flowing by granite outcrops and bluffs topped with hardwoods, the Minnesota, which once served as a vital highway for Indians, explorers, traders and settlers, is now a popular canoe route.

Canoeists traveling from Ortonville see changing landscapes, ranging from rock cliffs to marshy lowlands. A wide variety of plants, including prickly pear cactus, are found along the river. From Ortonville to Marsh Lake, trees and vines overhang the stream, giving it a jungle-like appearance. Woods of soft maple, cottonwood and elm fringe the banks. Snags and dilapidated bridges create obstacles. The upper reaches may be impassable in low water.

Willows surround the river near Marsh Lake where the water spreads into vast swamps and marshes. Marsh Lake and Lac qui Parle, two miles downstream, are shallow and weedy. Many birds use this stretch of the river for nesting, breeding and resting during migrations. Mallards, blue-winged teal and wood ducks live along the river. The most impressive waterfowl is the Canada goose, which abounds in a refuge at Lac qui Parle. Wetland bird species, notably herons and bitterns, make their summer homes along the river. Owls, hawks, deer, beavers and muskrats thrive. Part of the Lac qui Parle Wildlife Management Area, including Lac qui Parle from the State Highway 40 bridge to the dam (river mile 285), is closed to the public from September 20 to December 20. No canoeing is then allowed on that stretch of the river.

Lac qui Parle State Park is at the southeast end of the lake of the same name. The name is a French translation of the Dakota name meaning "talking water." The miles of back channels within the park harbor much wildlife. Below the Lac qui Parle Dam the river flows in a 100- to 150-foot channel through a wide floodplain shaded by large cottonwoods. Granite outcrops, prevalent below Montevideo, are some of the oldest rocks discovered in North America, dating back more than three billion years.

The river falls through light rapids below Granite Falls. Patterson's Rapids (river mile 225.9), the most difficult rapids on the river, is a field of big boulders where the stream narrows and drops about five feet in one-third of a mile. Patterson's Rapids is a class I or easy class II drop at low and moderate water levels, though it may be harder in high water. Dams near Granite Falls must be portaged.

Although carp and other rough fish predominate, many walleyes, northern pike and smallmouth bass swim the deep pools below rapids, riffles and dams on the upper Minnesota.

Outcrops and lofty granite domes covered with cedar and oak flank the river as far south as North Redwood and are periodically interrupted by expanses of fertile farmland.

The river meanders endlessly below State Highway 4 between low banks covered with willow, cottonwood, elm, ash, maple and basswood. Oak, hard maple and cedar cloak high hills in the valley. Below Le Sueur the riverbanks are sandy and eroded. Vines and roots cling to the banks with little success as the current undercuts trees. Gravel and sandbars deposited by tributary streams pinch the river at low water. The Minnesota Department of Natural Resources has developed several waysides along the river from Le Sueur to Fort Snelling. Some waysides have primitive campgrounds and join developed trails.

The Minnesota and Mississippi rivers meet in a tangle of channels at Pike Island in Fort Snelling State Park. The island and surrounding land were purchased from Dakota Indians in 1805 by Zebulon Pike, a young army lieutenant and explorer. In 1819 Fort Snelling was built on a high bluff overlooking the confluence of the two rivers.

Known as *Watapa Minnesota*, "river of cloud-tinted water," by the Dakota Indians, the Minnesota was christened *Rivière St. Pierre* by French fur traders who reached it in the late 1600s.

One trader, Pierre Charles Le Sueur, found what he believed to be a vein of copper ore near the mouth of the Blue Earth River (river mile 116). The Dakota used the bluish-green earth along the river as a pigment. Taking a sample of the mineral to Paris, Le Sueur secured a royal commission to mine the ore. He returned in 1700, diligently worked the mine, and left for France with two choice tons of ore. Nothing more is recorded of Le Sueur's find, though he must have been demoralized to learn that the blue earth was only blue earth.

Another trader, Charles Patterson, was responsible for the names of a few sites along the Minnesota. Patterson established a trading post in 1783 near the rapids later named for him. Because he wore a bearskin hat, Patterson was called "Sacred Hat Man" by the Dakota, who regarded the bear as a sacred animal. The name of a creek and a nearby town later took on the variation Sacred Heart.

Glowing descriptions of the fertile valley by explorers and traders and the enthusiastic public relations

work performed by James Goodhue, St. Paul's first newspaper editor, whetted the appetite for land along the Minnesota. Under the terms of the 1851 Traverse des Sioux treaty, the Dakota signed away almost 24 million acres of land and the immigration rush began.

The river became the highway to settlement, bringing passengers and goods to the growing towns and cities. Mankato, taking its name from the Dakota name for the Blue Earth River, *Makato Osa Watapa*, was established near that tributary to the Minnesota in 1858.

Goodhue wrote that along "the whole length of the fertile Minnesota, and upon the waters of the Blue Earth, settlers have not only gone over, but have built houses and stables, and cleared land, not dozens of settlers, or scores, or hundreds, but thousands of them. . . ."

By the mid-19th century the Minnesota River valley had been all but trapped out. Both game and fur animals were scarce; the buffalo had been driven to the plains of the upper Missouri and the Red River valley.

Dakota discontent with the white man erupted into the Sioux Uprising of 1862. The Upper Sioux Agency had been one of the dispersal points where the U.S. government distributed food, supplies and annual payments to the Dakota, who were confined by treaties to reservations along the river. The agency was also an educational center where Indians learned farming, carpentry and other skills valued by the whites. In the summer of 1862 the Dakota faced starvation when their government annuities were delayed by bureaucratic red tape. During the resultant uprising, settlers abandoned the agency and the Dakota burned it to the ground. The area is now preserved in Upper Sioux Agency State Park.

The Indians attacked settlements in the river valley and prepared to overrun the small garrison at Fort Ridgely. Chief Big Eagle later said, "We thought the fort was the door to the valley as far as to St. Paul, and that if we got through the door, nothing could stop us this side of the Mississippi."

Valley settlers, some escaping the Dakota on the Redwood Ferry (river mile 198.4), flocked to the fort for protection. There they withstood Indian attacks until they were relieved by state troops. The Minnesota Historical Society now runs an Indian history interpretive center at the Lower Sioux Agency Historic Site, across the river from the ferry site. Fort Ridgely is now preserved in Fort Ridgely State Park.

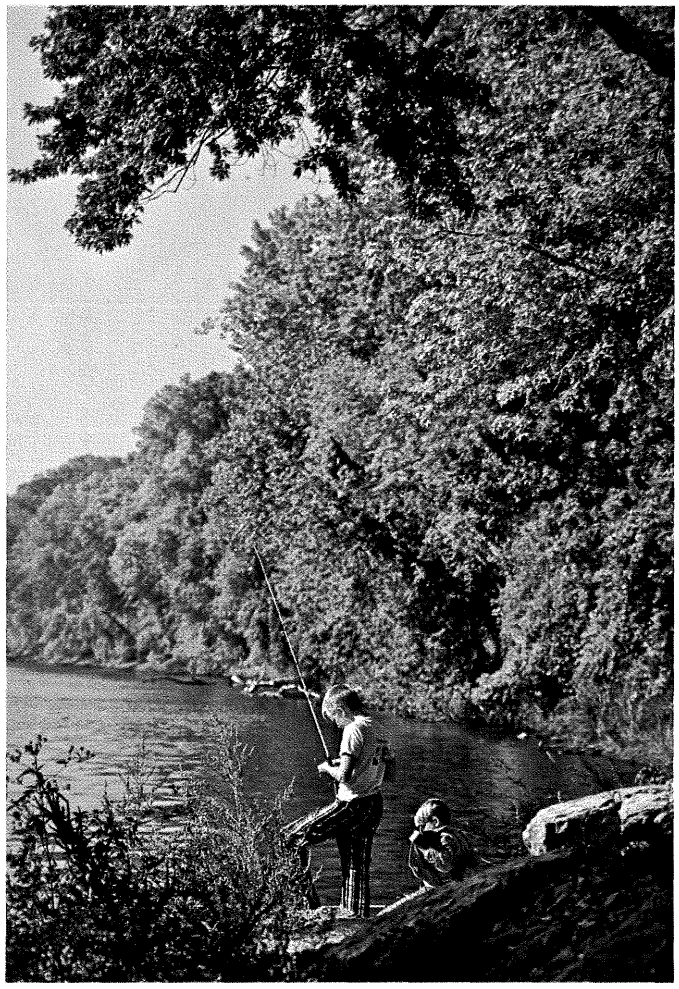
The Battle of Wood Lake, the last major skirmish of the Sioux Uprising, led to the release of 269 prisoners in September 1862. The site of the Dakota camp near Montevideo where Col. Henry H. Sibley took custody of the captives was later called Camp Release and is now a state monument.

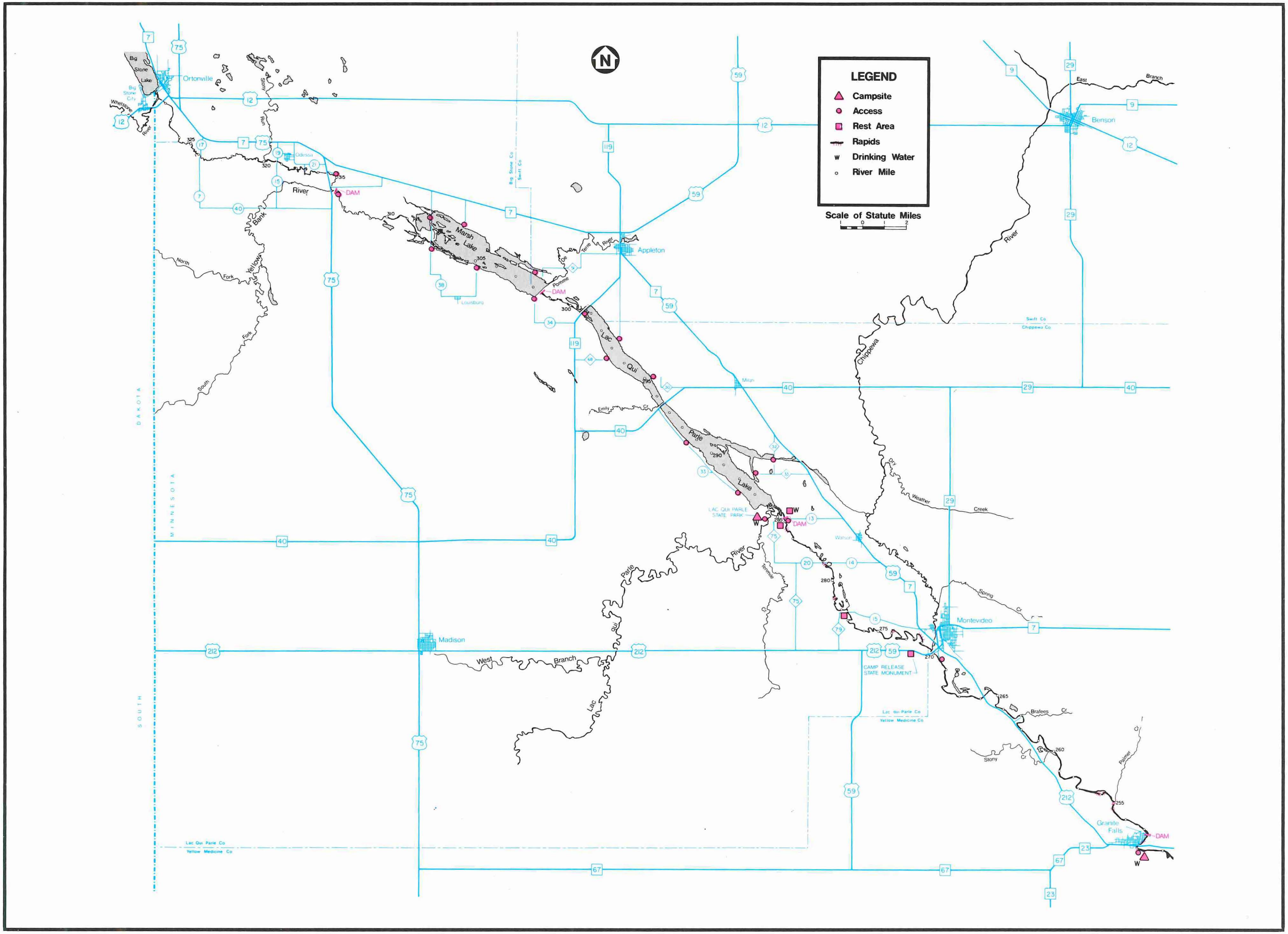
President Abraham Lincoln ordered the execution of 39 Indians, even though a military tribunal had originally sentenced more than 300 to die for participating in the uprising. Thirty-eight Indians were publicly hanged in Mankato on December 26, 1862.

Settlement of the river valley continued as the Minnesota was used to float logs and to power sawmills during the late 1800s. Near Patterson's Rapids was the site of a short-lived gold rush. Discovered in 1894, the gold vein was soon depleted and the boom town of Springville became a ghost town.

Although some river land is now mined for sand, gravel, crushed rock and building stone, much of the land in the Minnesota River valley — some of the state's richest farmland — is cultivated.

The Minnesota River, clockwise from left: trees flank the river near Savage; fishermen bait their hooks; granite outcrops, some more than three billion years old, lie near Patterson's Rapids.

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Appleton
Benson
East Branch
Chippewa River
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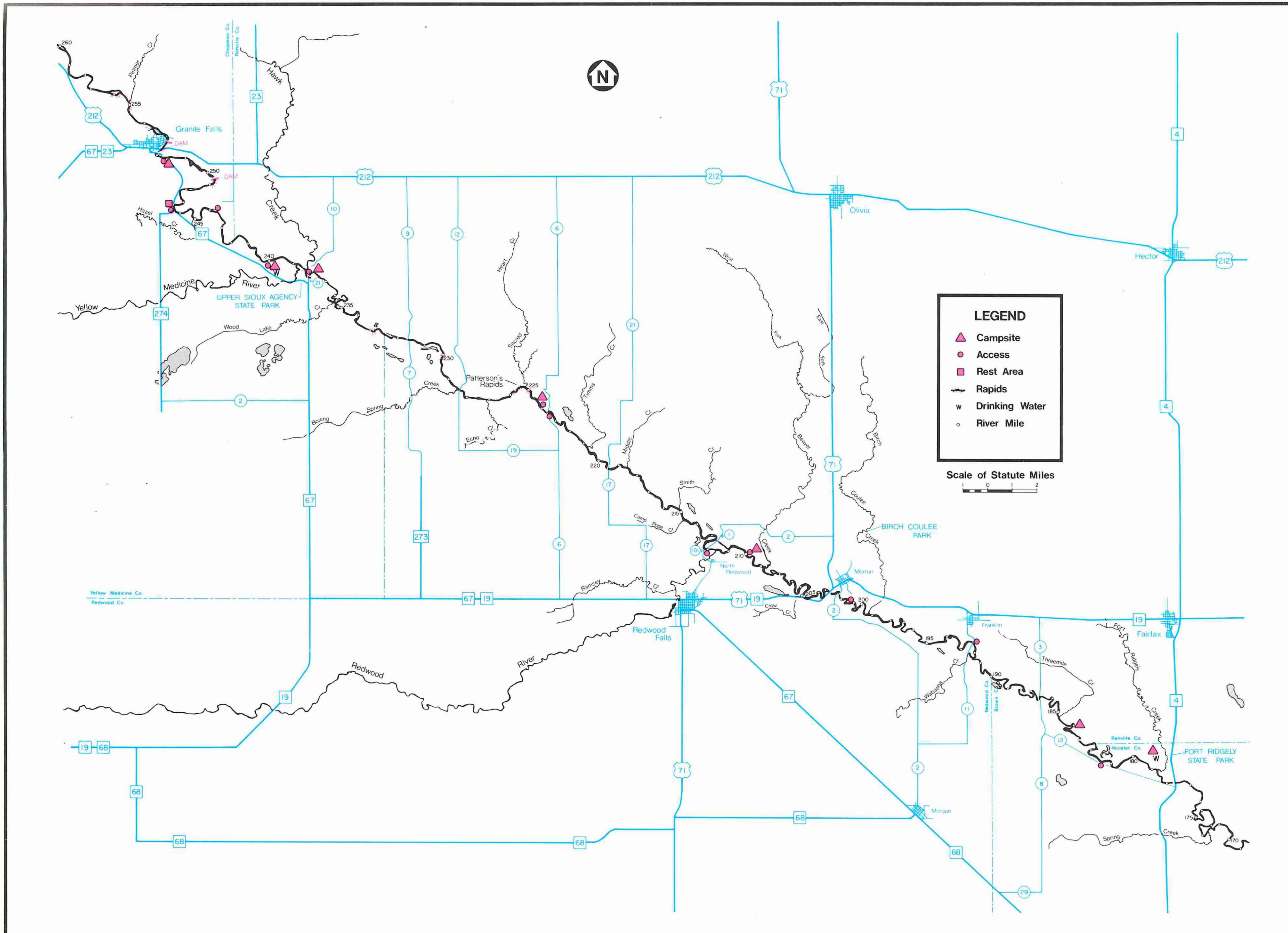
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Hector
Medicine River
Yellow
UPPER SIOUX AGENCY STATE PARK
Wood Lake
Hawk Creek
Hazel Cr.
Palmer Cr.
Boiling Spring Creek
Echo Cr.
Patterson's Rapids
Heart Cr.
Sacred
Timms
Middle Cr.
Smith Cr.
Camp Pope Cr.
West Fork
East Fork
Beaver Creek
Birch Coulee
BIRCH COULEE PARK
Morton
North Redwood
Redwood Falls
Ramsey Cr.
Crow Cr.
Redwood River
Franklin
Fairfax
Wabasha Cr.
Threemile Cr.
Fort Ridgely Creek
FORT RIDGELY STATE PARK
Spring Creek
Morgan
Yellow Medicine Co.
Redwood Co.
Chippewa Co.
Renville Co.
Nicollet Co.
Brown Co.
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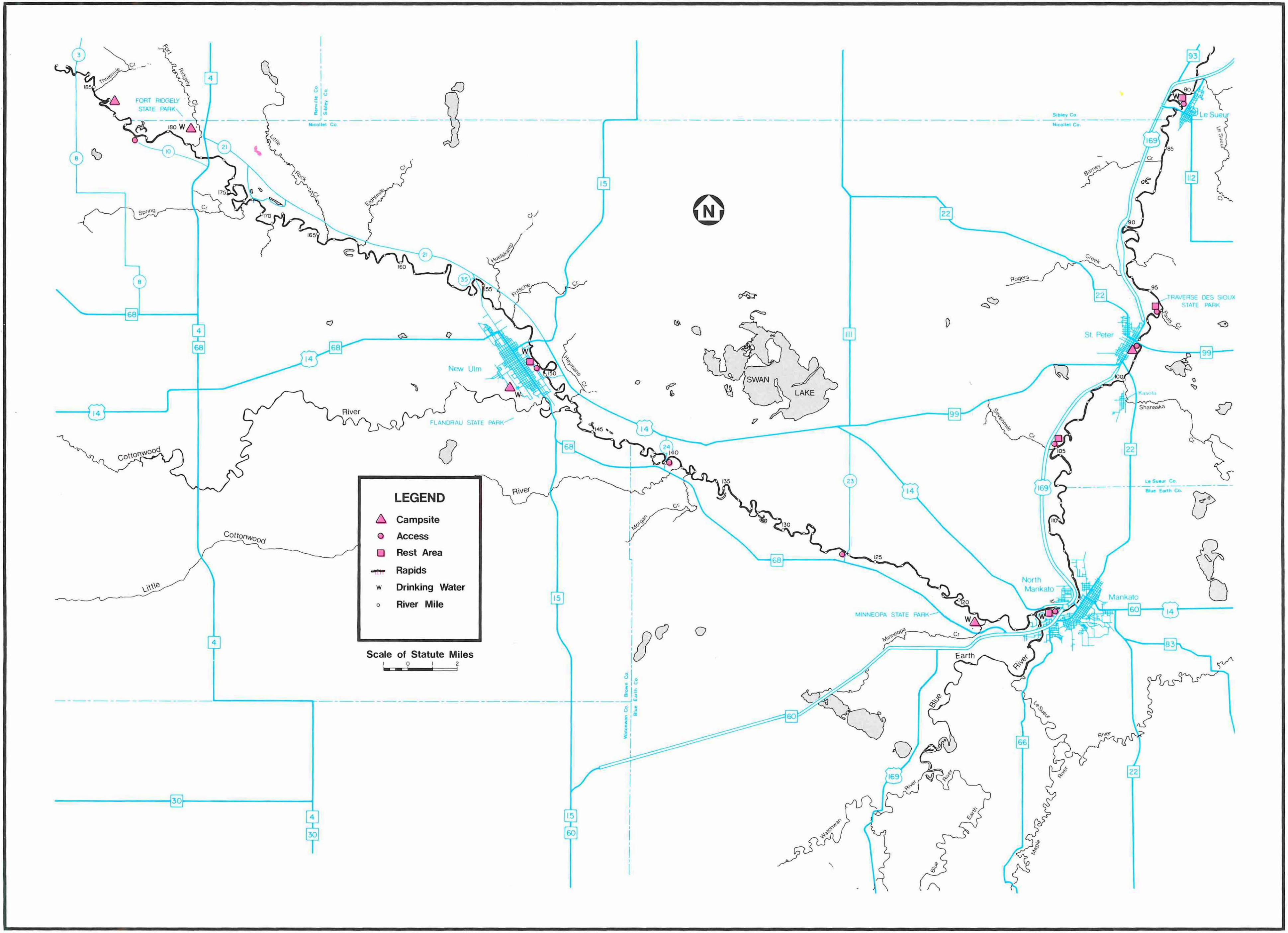
LEGEND
Campsite
Access
Rest Area
Rapids
Drinking Water
River Mile
Scale of Statute Miles
FORT RIDGELY STATE PARK
New Ulm
FLANDRAU STATE PARK
SWAN LAKE
St. Peter
TRAVERSE DES SIOUX STATE PARK
Le Sueur
Kasota
Shanaska
North Mankato
Mankato
MINNEOPA STATE PARK
Cottonwood River
Little Cottonwood
Blue Earth River
Le Sueur River
Maple River
Watonwan River
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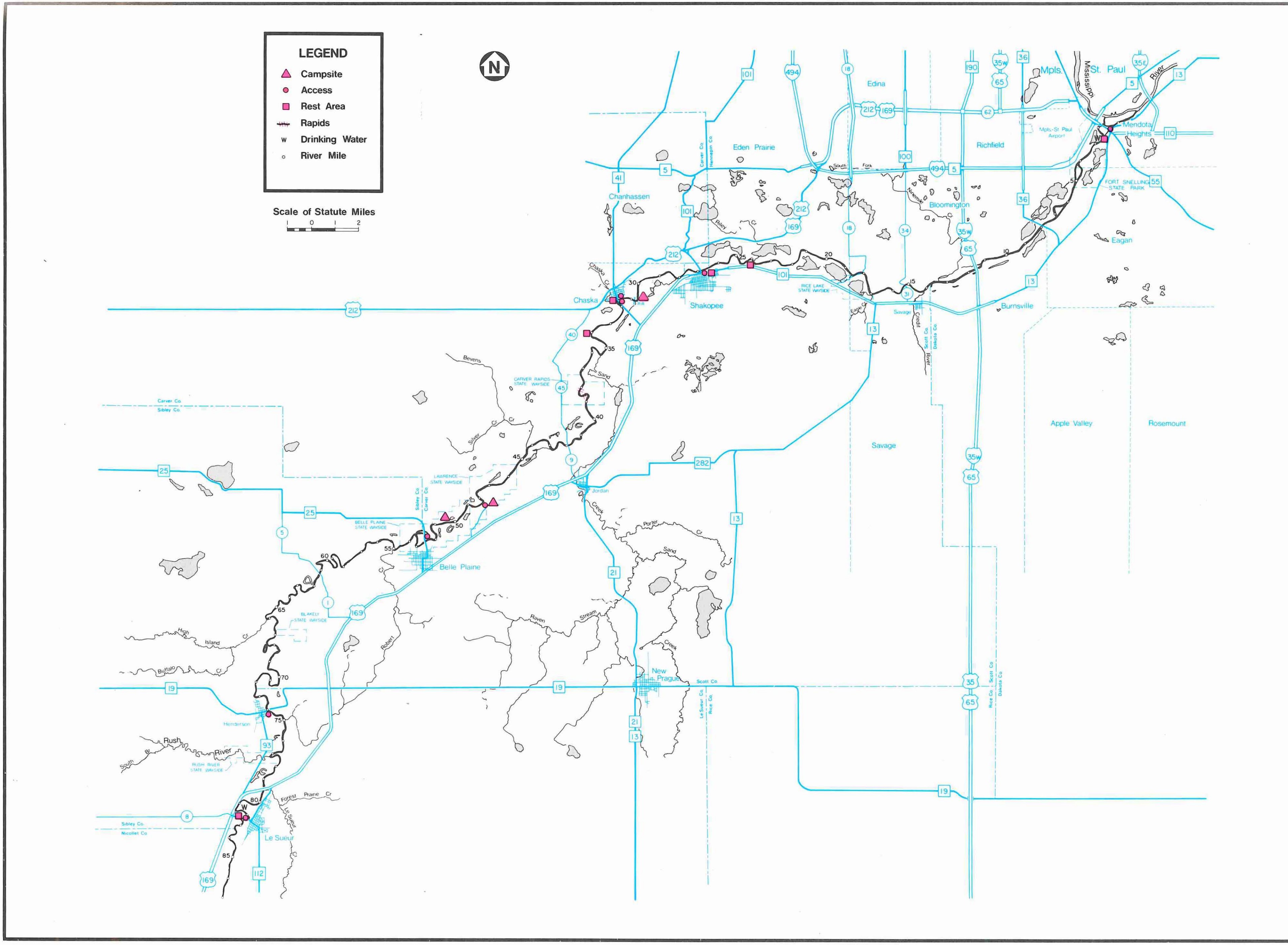

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Mississippi
River
Edina
Eden Prairie
Richfield
Mendota Heights
Mpls.-St. Paul Airport
Chanhassen
Bloomington
FORT SNELLING STATE PARK
Eagan
Chaska
Shakopee
RICE LAKE STATE WAYSIDE
Savage
Burnsville
CARVER RAPIDS STATE WAYSIDE
Apple Valley
Rosemount
Savage
Carver Co.
Sibley Co.
LAWRENCE STATE WAYSIDE
Jordan
BELLE PLAINE STATE WAYSIDE
Belle Plaine
BLAKELY STATE WAYSIDE
New Prague
Scott Co.
Henderson
RUSH RIVER STATE WAYSIDE
Le Sueur
Sibley Co.
Nicollet Co.
Carver Co.
Hennepin Co.
Scott Co.
Dakota Co.
Le Sueur Co.
Rice Co.
Rice Co.
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Carver Co.
Bevens
Silver Cr
Sand
High Island Cr
Buffalo Cr
Rush River
South Br.
Forest Prairie Cr
Raven Stream
Porter Cr
Sand
Creek
Robert
Riley
Nine Mile
Credit River
Eagle
South Fork

Mississippi River

Mississippi River. The words evoke images from Mark Twain's writings: stern-wheelers, keelboats and bustling ports. Recently, however, other images have prevailed: dreary barge traffic, coal yards, dingy industrial buildings and smoke plumes rising from stacks towering above riverside generating plants.

Both portrayals of the 2,500-mile Mississippi hold some truth. But the river above the Twin Cities is different, varying from a tiny rivulet surrounded by dense forest, to a meandering stream flanked by marsh, to a big, swift river bounded by rolling, wooded hills. Though not always wild, the upper Mississippi is nearly always beautiful. Fish and wildlife are abundant. Below the Twin Cities, the Mississippi has been civilized with dams, bridges and barges. But even these have not muted the majesty of the lofty bluffs bounding the wide river.

Beginning at Lake Itasca, the Mississippi is a shallow wilderness stream, unrunnable in low water. Covered by a conifer forest, the river valley is a haven for wildlife, including beaver, mink, porcupine, raccoon, coyote, red fox, deer, black bear, bobcat, badger and otter. During late spring the woods are alive with woodland noises: the warbler's trill, the whistle of the white-throated sparrow and the cry of the loon. Ospreys and bald eagles soar above the trees. Marshlands are prime habitat for waterfowl, shorebirds and wading birds such as herons and bitterns.

The river deepens below Wanagan Landing. Red alder and mixed hardwoods lie beyond the marshy shore. Steep banks topped by jack and red pine occasionally rise to 60 feet. Beaver dams may block the river. Intermittent class I rapids quicken the river's pace.

The sound of falling water around a tree-canopied bend warns of a portage around Vekin's Dam, a relic of upper Mississippi logging days. The sluiceway, dropping 5 to 10 feet, stored water to move logs downstream and is the first impoundment along the river's long course.

Canoeists paddle the intimate headwaters of the Mississippi River.

The narrow, winding river flows to Coffee Pot Landing, where the banks are densely lined with alder, dogwood and rushes. Bluffs several hundred yards from the river are topped by white pine, spruce and birch. Tamarack and black spruce swamps between Coffee Pot and Pine Point Landing support a variety of orchids, including the showy lady's slipper, Minnesota's state flower. The river tumbles through small (class I) rapids above Stumphges Rapids Forest Road (river mile 451).

Below Pine Point Landing the river's floodplain spreads into a swampy lowland that continues to Rice Lake. As the name of the lake implies, there are wild rice beds which Indians have harvested for hundreds of years.

A mile below Rice Lake the Mississippi relaxes into a series of large curves. Huge cattail marshes and occasional tamarack and spruce stands continue to Iron Bridge Landing.

Passing Iron Bridge, the river flows under a canopy of trees, often doubling back to within a few yards of an upstream bend.

As the river nears Bemidji, it passes more homes than beaver dams, more tracts of farmland than wilderness. The river flows through two lakes before turning south. A hydroelectric dam several miles below Lake Bemidji must be portaged.

Marshes between Wolf Lake and Lake Andrusia and those west of Lake Winnibigoshish are important breeding and migratory areas for mallards, blue-winged teal, goldeneyes, wood ducks, ring-necked ducks and widgeons. Large flocks are usually found where backwaters and oxbows are filled with stands of wild rice, reed cane and cattails. The lakes provide not only waterfowl hunting, but also excellent opportunities for observing other wildlife such as bald eagles.

Muskies and northern pike spawn in the marshes between lakes. Walleye and largemouth bass fishing is also good throughout the Mississippi's lake region.

Dams at river miles 386.5 and 362 must be portaged.

Once past Lake Winnibigoshish, a huge lake that is dangerous to cross in a canoe, the Mississippi again follows a tortuous path through wide stretches of marsh. It's easy to become lost in the maze.

Between Deer River and Libby the marshlands give way to banks forested with pine and hardwoods. The Mississippi is fairly shallow and wide below Grand Rapids, where two dams must be portaged. Riverbanks are sandy and often unstable. The riverbed is predominantly sand and gravel. The narrow floodplain is covered with lowland hardwoods, primarily ash and elm, while the uplands support jack pine, aspen and balsam fir.

The duck population is insignificant compared to the great numbers found in the marshlands above Grand Rapids. However, ruffed grouse hunting is usually good. Some woodcock are also present.

Northern pike are the most abundant game fish, although walleyes are taken at the mouths of small tributaries. Some largemouth and smallmouth bass and a few muskies are also caught.

Flowing south toward Aitkin, the Mississippi enters a flat, forested plain, the bed of glacial Lake Aitkin. The river, deep, slow and sinuous, has cut many oxbows, forming islands surrounded by slack water. Most of the oxbows are secluded from the main channel, providing little-traveled exploratory routes. Farming has considerably diminished the upland forests of jack pine, aspen and balsam fir.

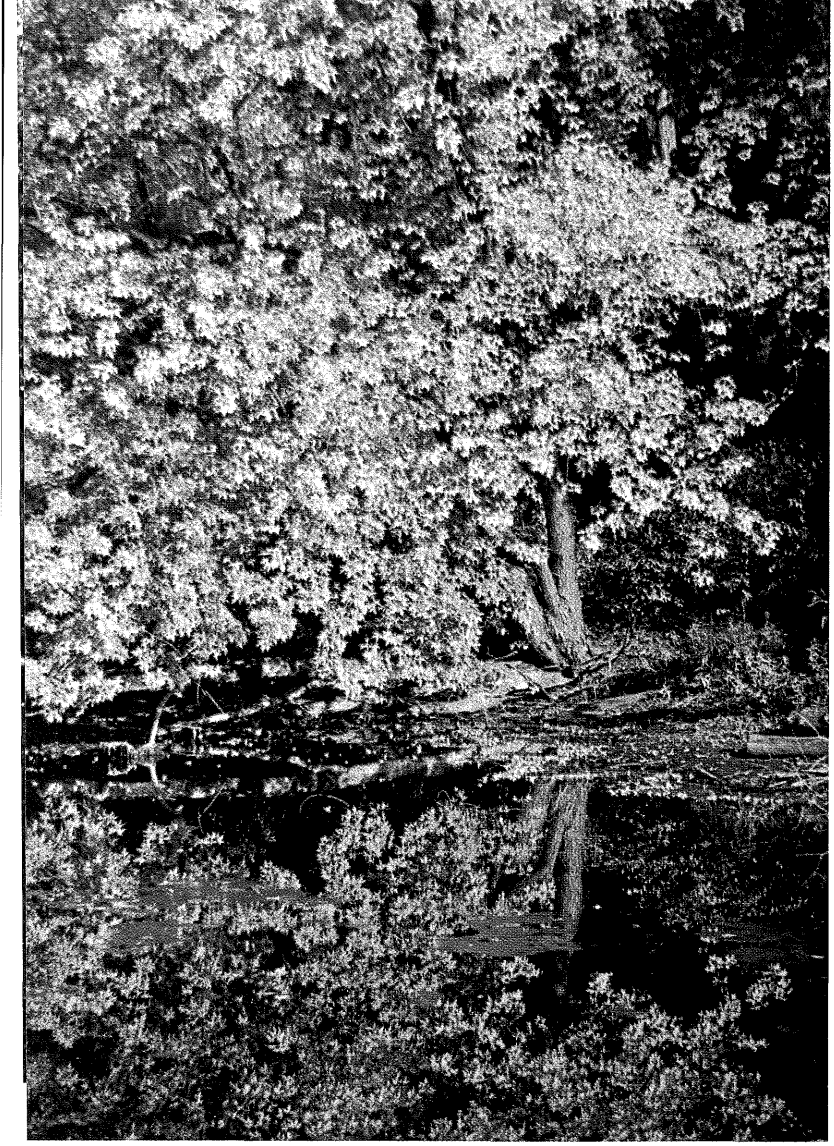
Wending past Aitkin, the Mississippi broadens and straightens, flowing by white pines that tower over a hardwood forest. Bluffs occasionally rise 50 feet above the river. Currents mingle past five islands as the Pine and Mississippi rivers converge.

South of Brainerd, where a dam must be portaged, the river cuts past a forest of American elm, willow, green ash, silver maple, cottonwood, box elder and basswood that covers low but steep bluffs. The hilly river land, although grazed, remains largely undeveloped. White-tailed deer are found in many areas. Ruffed grouse and woodcock are common. Few ducks and geese use the river because their favorite haunts — marshes, backwaters and oxbows — are absent. Smallmouth bass and walleye fishing is excellent. The river provides a migration route for bald eagles, which may be seen during spring thaw.

Several miles below the mouth of the Crow Wing River, the Mississippi winds through the Mississippi River Clough, a two-mile stretch choked by seven islands larger than 10 acres and 38 smaller islands. In all, 94 islands dot the river between Brainerd and Camp Ripley Junction.

Below Camp Ripley Junction the Mississippi begins to lose the wilderness character of its upper reaches. Large stretches of scenic riverscape are marked by houses and farms. The dam at Little Falls and the Blanchard Dam (river mile 86) must be portaged.

Woodlands and shrub thickets support ruffed grouse



The Mississippi forms a calm backwater amidst the Beaver Islands below St. Cloud.

and woodcock. Smallmouth bass and walleye fishing is excellent in shallow riffles and pools.

The river passes a heronry in a five-acre white pine stand on a 60-foot bluff near McDougall Island (river mile 84.5).

The Mississippi assumes a distinctly urban flavor from Sartell to St. Cloud, where houses and other buildings line the banks. The Sartell Dam (river mile 61.3) and the St. Cloud Dam (river mile 55.1) must be portaged.

The Sauk Rapids (river mile 58.5), formed as the Mississippi tumbles over a broad ledge just below the mouth of the Sauk River, throws large standing waves in high water, which can swamp an open canoe. Consider this rapids a class III run in high, cold water.

Rolling, forested bluffs and many accesses and rest areas mark the Mississippi from St. Cloud to Anoka. By now the Mississippi is a big river, averaging more than 100 yards wide as its waters glide swiftly over many sandbars and through riffles and mild (class I) rapids.

The river from St. Cloud to Monticello is relatively undeveloped. The Beaver Islands, a group of more than 30 islands packed into a two-mile stretch just downstream from the St. Cloud Dam, break the river into a maze of channels. Though not quite the "archipelago" described by Italian explorer Giacomo Beltrami, the Beaver Islands are among the most interesting features of the river. The islands are a haven for birds, including many species of songbirds, waterfowl, hawks and owls. A few beaver remain. Osprey, searching for fish, patrol the river.

Downstream from the islands the Mississippi is a shallow river, flowing swiftly past farmland and high sandy hills covered with hardwoods, red cedar and occasional pine stands.

Three power plants mark the stretch between Clearwater and Elk River. More and more homes dot the banks as the Mississippi passes Elk River and nears Anoka. Riverside campsites are few, but frequent accesses and nearby highways make day-trips convenient. Municipal, county and state parks, as well as the many islands, provide rest areas and interesting side trips.

Anglers will find the stretch of the Mississippi from St. Cloud to Anoka of special interest. Surveys have turned up record-sized smallmouth bass near Monticello. Anglers occasionally catch five- and six-pound fish. Walleyes, northern pike and crappies also thrive. Muskies larger than 30 pounds have been caught near Clearwater.

The river slows as it passes Anoka, settling into the big reservoir created by the Coon Rapids Dam, which can be portaged on either side of the river. On the right bank is a picnic area owned by the Hennepin County Park Reserve District. The district also maintains a rest area, trails and an information center on the left bank. A catwalk crosses the river along the top of the dam. Fishing below the dam is good, especially downstream from the old powerhouse.

Beyond the dam, the river flows briskly past homes and wooded hills on its way to downtown Minneapolis and St. Paul. Many canoeists enjoy traveling through the locks that bypass dams in the Twin Cities and further downstream. If you use the locks, follow the lock attendant's instructions and stay clear of tugboats and barges.

The Mississippi regains its natural flavor below the Twin Cities, where it flows past wooded bluffs and cliffs higher and more impressive than any that flank the upper river. Although the easy current and expansive backwaters are traveled by canoes, the big river is more the domain of barges, tugs, sailboats and motorboats. The Mississippi, by now several hundred yards wide, is the familiar Father of Waters that flows to the historic port cities of St. Louis and New Orleans where ornate steamboats once cruised.

Mississippi lore

The importance of the Mississippi River to the exploration, settlement and development of Minnesota was foretold by the river's name, an Ojibway Indian word that means "great river" or "gathering of all waters."

Hernando de Soto, a Spanish explorer who reached the river in 1541, was probably the first European to see the river. Further white exploration seemed to be an upstream race to find the river's elusive source.

One of the best-known early explorers of the upper river valley was Father Louis Hennepin, a French priest who traveled the region during the late 17th century. The "discoverer" of St. Anthony Falls, Hennepin was captured by the Dakota Indians in 1680 and was taken to Mille Lacs Lake where he met Daniel Greysolon, sieur du Luth, another Frenchman exploring the region.

During the next century British and French explorers traveled the area, many searching for prime trapping grounds. After the purchase of the Louisiana Territory in 1803, President Thomas Jefferson commissioned the U.S. Army to explore the region. A young soldier, Lt. Zebulon Pike, was sent to the upper Mississippi River.

Pike and his small detachment of men left St. Louis August 9, 1805, reaching St. Anthony Falls in late September. His travels hampered by many shoals and rapids and by weather he described as "extremely raw and cold," Pike ascended the Mississippi during early October, reaching Leech Lake in February. Satisfied that he had reached the source of the river, Pike returned downstream to St. Louis.

White explorers finally reached the river's source when Henry Schoolcraft and Ojibway guide Ozawindib reached Lake Itasca in 1832. Schoolcraft observed plentiful wildlife during the trip, though he noted that buffalo, which had lived north of the site of Anoka as late as 1820, had vanished. Describing the Mississippi as "delightful in the extreme," Schoolcraft mused, "it is difficult in passing it to resist the idea that it will, at some future day, sustain a dense population."

Schoolcraft's speculation, of course, was accurate. The role the Mississippi played in the development of the state, let alone the nation, is great enough to fill many volumes. A few historical anecdotes about the river and descriptions of sites along its banks give the flavor of what the upper Mississippi was once like.

Lake Bemidji. The area surrounding Lake Bemidji, which was named for an Ojibway chief, was homesteaded in 1894 and invaded soon after by the lumber industry. Within 20 years the timber in the region had all but disappeared. At one time there were 14 sawmills near Bemidji producing a million board feet of lumber a day.

Cass Lake. Cass Lake, near the northernmost stretch of the Mississippi, was named by explorer Schoolcraft for Lewis Cass, who led an expedition through the area in 1820. The lake had been known to the Ojibway Indians and French fur traders as Red Cedar Lake because of the many cedar trees on an island in the lake.

Cut Foot Sioux Lake. Northeast of Lake Winnibigoshish, on the shore of Cut Foot Sioux Lake, is an earthen mound 25 feet wide by 30 feet long in the shape of a turtle, surrounded by another mound in the form of a snake. The turtle and snake Indian mounds commemorate two major battles between the Dakota and Ojibway.

The Dakota claimed the region, although the Ojibway coveted the area. The two tribes clashed in 1748, the battle ending with the complete rout of the Ojibway. Jubilant, the Dakota built the turtle mound with the head pointing north, the direction their enemy had fled.

Later that year, the Ojibway surrounded and overran the Dakota. The Ojibway built the snake around the turtle to indicate that their enemies had been defeated. The head and tail pointed south to warn other Dakota tribes that the Ojibway intended to continue to push south.

The morning after the battle, several Ojibway women discovered an unconscious Dakota warrior with a badly wounded foot and killed him. The nearby lake was named Lake of the Cut Foot Sioux.

Grand Rapids. By the 1870s loggers were active in the forests north of Grand Rapids. With the laying of the Great Northern Railroad tracks in 1872, the city became a major center of the lumber industry. But by 1910 the vast northern forests had been cleared and the lumber industry faded, to be replaced decades later by the taconite industry.

Oxcarts. The famous Red River Oxcart Trail paralleled the Mississippi between St. Paul and Sauk Rapids and crossed near the Crow Wing River and again between Lake Andrusia and Wolf Lake before proceeding to settlements on the Red River of the North. Hudson Bay

The Mississippi near Monticello, above, reflects sunlight bursting through a cloudy sky (photo by Charles A. Wechsler). Below, the riverside forest displays its autumn color.

Company wagons carried furs along this route, which was actually a network of trails. During the 1850s, 500 to 600 carts traveled this trail annually. The Red River Trail can still be seen at the wayside park near U.S. Highway 10, about five miles north of Anoka.

Big Sandy Lake. Big Sandy Lake, the site of an Ojibway village, was the scene of a battle in the 1760s between that tribe and the Dakota. Coming immediately before a decisive battle downstream at the Crow Wing River, the Big Sandy Lake clash was part of a campaign that resulted in the final expulsion of the Dakota from their lands east of the Mississippi.

Big Sandy Lake was also the site of trading posts established by the Northwest Company and the American Fur Company.

The Cuyuna Range. Near Aitkin the Mississippi flows through the Cuyuna Iron Range. The Cuyuna differs from the Vermilion and Mesabi ranges in its high manganese content. During World War I, 90 percent of the nation's manganese came from the Cuyuna. The ore was first discovered in the 1890s by surveyor Cuyler Adams, who named the region with the combination of his first name and the name of his dog, Una. Many of the open pit mines are now abandoned, gone to small, deep lakes surrounded by coarse rock rubble and dwindling or deserted towns.

Aitkin's steamboats. Aitkin became an important lumbering and transportation center in the late 19th century. Logs were floated downriver past Aitkin. Paddle-wheel vessels steamed regularly between Grand Rapids and the busy port of Aitkin, hauling goods and settlers to the dozens of landings that existed along the river at that time. The upper Mississippi boats were as picturesque, if not so ornate and large, as the vessels that ran the lower river. However, one stern-wheeler, the 140-foot *Andy Gibson*, was so long that she often clipped the riverbank while rounding sharp bends.

Brainerd. The history of the Brainerd area dates back to the 1750s, when it was the site of Fort Duquesne, part of an extensive chain of French posts stretching west from Lake Superior. In 1871 the Northern Pacific Railroad line from Duluth to Moorhead was built through Brainerd, contributing to the development of the town. The railroad also ran a bureau of immigration, arranging for through tickets from Europe to Minnesota, building immigrant receiving houses and selling land cheaply to newcomers.

Crow Wing River. The confluence of the Mississippi and Crow Wing rivers, the site of Crow Wing State Park, is an important landmark in Minnesota Indian history. The Dakota, who once held virtually all of Minnesota, were defeated by the Ojibway in a decisive battle at the mouth of the Crow Wing in the 1760s. By the end of the American Revolution the Ojibway occupied lands east of the Mississippi and north of the Crow Wing.

Fort Ripley was built in 1848 a few miles below the confluence of the two rivers to watch over the recently arrived Winnebago Indians and to keep peace between the Dakota and Ojibway. The post was abandoned in 1877. A National Guard reservation was established near the site of the old fort in 1930.

The abandoned town of Crow Wing, one of the state's oldest ghost towns, is just south of the mouth of the Crow Wing River. The community was deserted in the early 1870s after surveyors for the Northern Pacific Railroad elected to cross the Mississippi north of the Crow Wing River.

The Spirit of St. Louis. On the outskirts of Little Falls, the boyhood home of an American aviation hero is preserved in Charles A. Lindbergh State Park. A new interpretive center contains exhibits related to the family's history and to the many accomplishments of pilot Charles Lindbergh and his father, a Republican congressman for whom the park was named.

In his book, *Boyhood on the Upper Mississippi*, a reminiscence of his early years, Lindbergh offers some interesting descriptions of the river.

The Blanchard Dam, now located eight miles downstream from the park, had not yet been built and rapids churned in that stretch of the Mississippi. "The river," wrote Lindbergh, "was so swift and usually so full of shallow rapids that my use of the boat was confined to two or three hundred yards up and downstream."

Logjams were a problem on the river and about twice each year river crews had to clear them. Children watched the log drives and often got free meals from the crews.

Young Lindbergh spent many days each summer swimming in the river. The water became so shallow in late summer that he could wade across. He and his

Vekin's Dam, a relic of the logging era, once stored water to float logs.

father once rowed the Mississippi from Lake Itasca to Aitkin. They completed the stretch from the headwaters to Cass Lake in six days, quite a feat in a rowboat.

Although Lindbergh's close association with the river ended while he was still a teenager, he never lost the love of water and wildlife that was undoubtedly developed on the Mississippi.

Industry, commerce and white water. The stretch of the Mississippi below St. Cloud was the focus of considerable commerce and industry during the late 19th and early 20th centuries.

Prime white pine and hardwoods, cut in areas near St. Cloud and further north, were floated to sawmills at St. Cloud, Clearwater, Elk River, Champlin and Anoka. During peak years in the late 1800s, these mills annually sawed nearly 30 million board feet of timber.

Several flour mills also operated on the upper Mississippi River, including ones near the mouths of St. Augusta and Otter creeks, the Clearwater, Elk, Crow and Rum rivers, and at the Sauk Rapids near St. Cloud.

As these industries developed, towns grew along the river, which served as a transportation route for passengers and freight. Steamboats made regular runs between St. Cloud and St. Anthony Falls in the 1850s, carrying passengers and freight upstream and wheat downstream. By the 1860s, however, drought, the construction of a dam at Sauk Rapids and the completion of a railroad line between St. Paul and St. Cloud diminished the steamboat trade. Even though the U.S. Army Corps of Engineers attempted to dredge channels in the river, efforts to maintain navigation upstream from Minneapolis ended in 1879.

Had history not taken the course it did, the Mississippi might have become the playground of whitewater boaters.

The town of Grand Rapids, as its name implies, was built at the site of the Kabikons Rapids, where the river dropped nine feet in 80 yards. A dam and reservoir now cover the rapids.

Pokegama Falls, once located just upstream from Grand Rapids, plunged over a 15- to 20-foot drop. Except for St. Anthony Falls, Pokegama was probably the largest falls on the river. The falls was destroyed by the Pokegama Dam.

The headwaters near Vekin's Dam once flowed over Kakabikans Rapids.

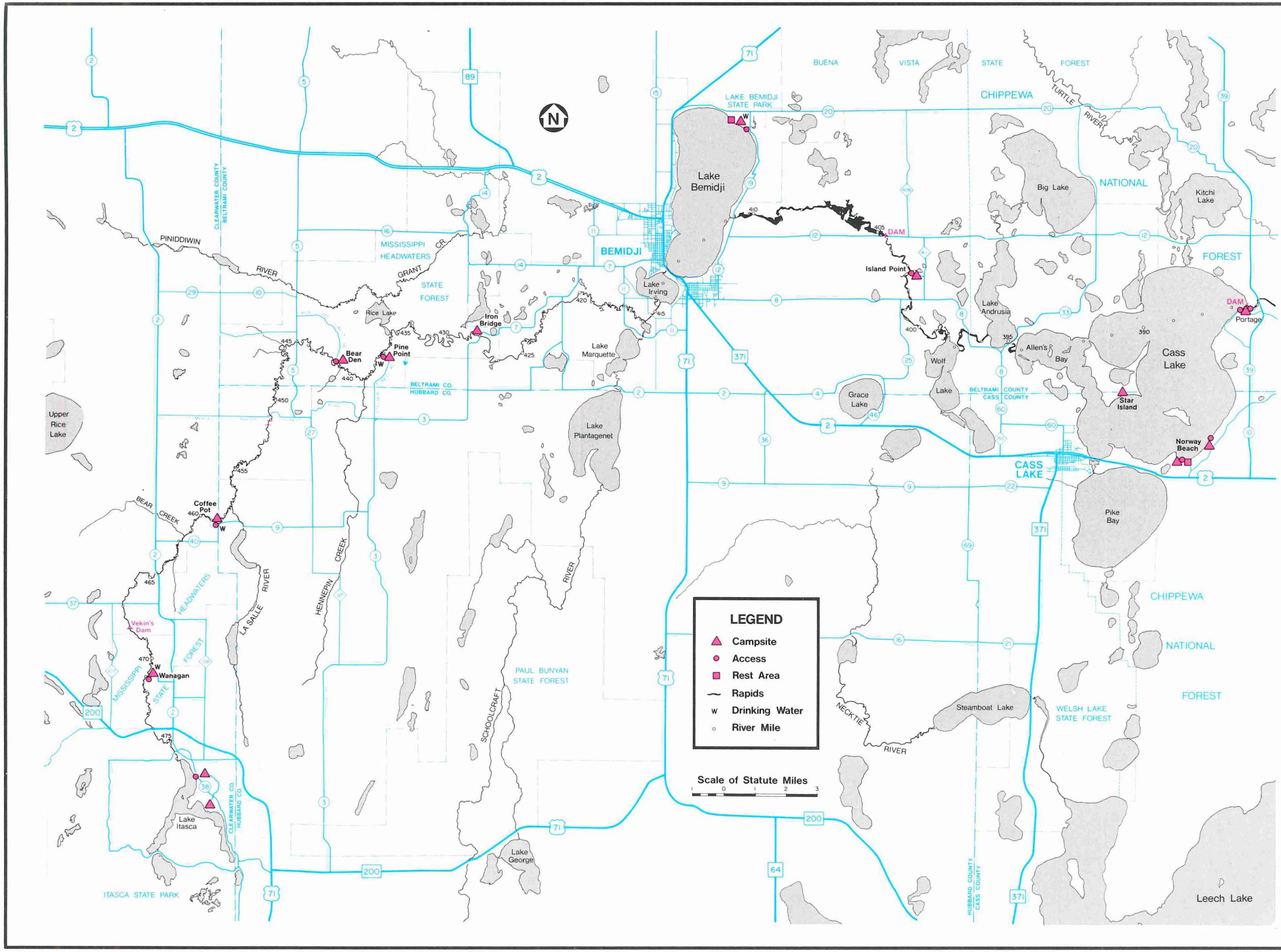
Little Falls, located near the town of the same name, was a formidable stretch of rapids that dropped 20 feet in a quarter mile.

Ten miles downstream from Little Falls is one of the largest dams on the upper Mississippi — Blanchard Dam. Here, Knife Rapids (also called Pike Rapids) once extended three-quarters of a mile along the river. Capt. Willard Glazier and some companions "received a most thorough drenching" in these rapids during a journey down the Mississippi in 1881.

At Sauk Rapids the river flows past large boulders and rapids. The total descent of these rapids was about 20 feet in a fifth of a mile, although it is less now because of the St. Cloud Dam reservoir.

From St. Cloud to the edge of the metropolitan area, canoeists still find mild rapids, excellent haunts for smallmouth bass. But man has tampered even with these rapids. During the 1870s, the U.S. Army Corps of Engineers removed large boulders from the stream to clear a channel for steamboats. The journals of early explorers reveal that the stretch of river below St. Cloud was once more challenging to travel than it is today.

St. Anthony Falls, the largest cataract on the river, fell vertically for about 30 feet and then rushed through rapids at its base. The falls retreated upstream several feet each year as the falling water eroded the soft sandstone at the base of the falls and undermined great slabs of the hard limestone layer that formed the riverbed. Government sawmills were erected by the waterfall in the early 1820s and commercial sawing began in 1848. Milling began in the 1850s and became a major industry within 20 years. Efforts to install a permanent apron at St. Anthony Falls began in 1869 when water began flowing under the limestone bed instead of over the crest of the falls, threatening to create a raging pitch of rapids. The dam was finally completed at a cost of nearly $1 million in 1876.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CHIPPEWA NATIONAL FOREST
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Lake Bemidji
BEMIDJI
Lake Irving
Lake Marquette
Lake Plantagenet
Lake Andrusia
Big Lake
Kitchi Lake
Island Point
DAM
Portage
Cass Lake
Allen's Bay
Wolf Lake
Grace Lake
Star Island
Norway Beach
CASS LAKE
Pike Bay
Steamboat Lake
WELSH LAKE STATE FOREST
Leech Lake
Upper Rice Lake
Rice Lake
Iron Bridge
Bear Den
Pine Point
Coffee Pot
Vekin's Dam
Wanagan
Lake Itasca
Lake George
ITASCA STATE PARK
PAUL BUNYAN STATE FOREST
MISSISSIPPI HEADWATERS STATE FOREST
PINIDDIWIN RIVER
GRANT CR.
HENNEPIN CREEK
LA SALLE RIVER
BEAR CREEK
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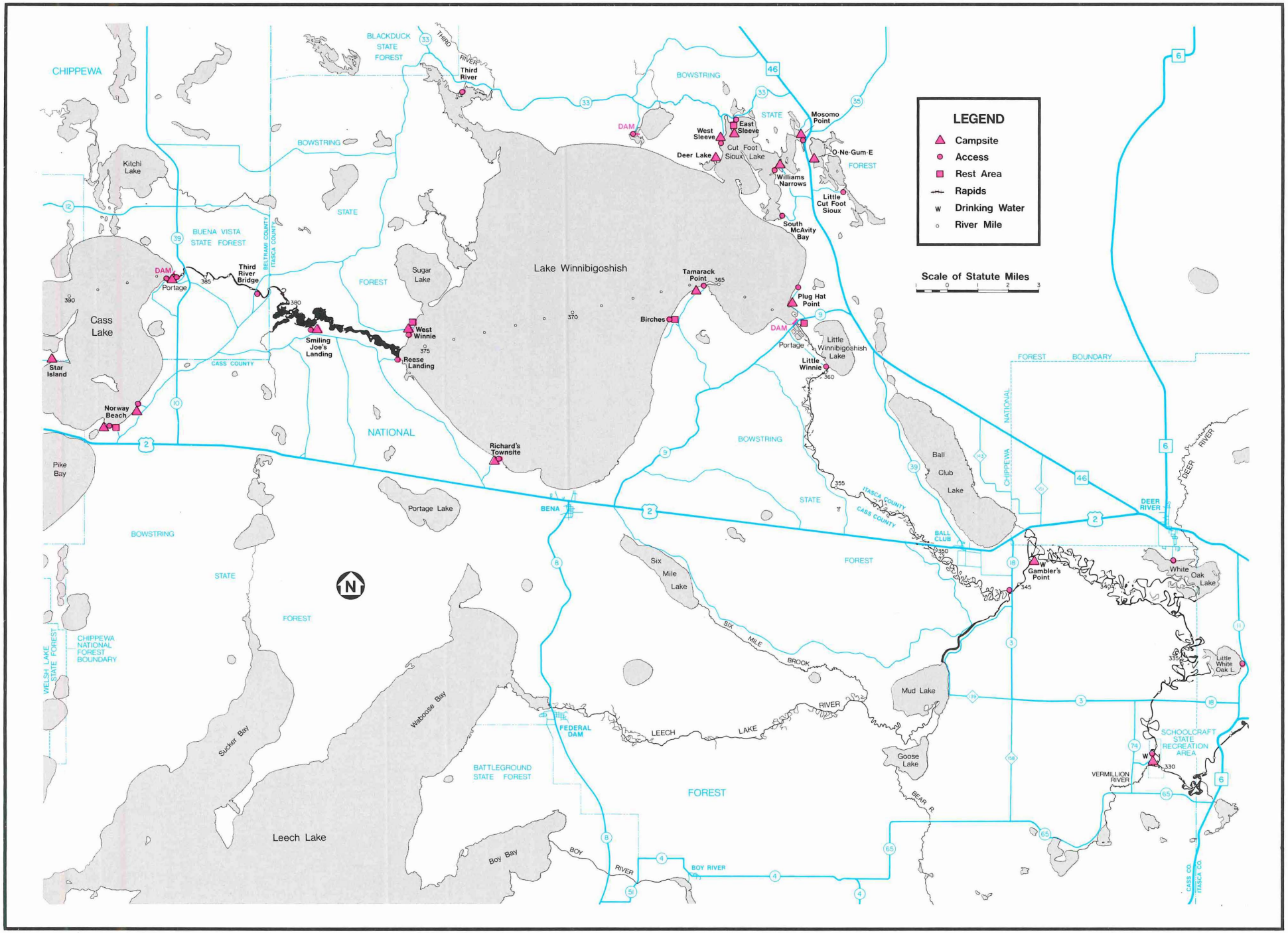
BELTRAMI COUNTY
HUBBARD CO.
CASS COUNTY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East Sleeve
West Sleeve
Deer Lake
Cut Foot Sioux Lake
Williams Narrows
O-Ne-Gum-E
Little Cut Foot Sioux
South McAvity Bay
DAM
Kitchi Lake
BUENA VISTA STATE FOREST
BELTRAMI COUNTY
ITASCA COUNTY
Third River Bridge
Portage
Sugar Lake
Lake Winnibigoshish
Tamarack Point
Plug Hat Point
Birches
Little Winnibigoshish Lake
Little Winnie
Cass Lake
Star Island
CASS COUNTY
Smiling Joe's Landing
West Winnie
Reese Landing
Norway Beach
NATIONAL
Richard's Townsite
Pike Bay
Portage Lake
BENA
BOWSTRING
STATE
FOREST
Ball Club Lake
BALL CLUB
Gambler's Point
White Oak Lake
Little White Oak L.
Six Mile Lake
SIX MILE BROOK
Mud Lake
RIVER
LEECH LAKE
FEDERAL DAM
Waboose Bay
Sucker Bay
Leech Lake
Boy Bay
BOY RIVER
BATTLEGROUND STATE FOREST
Goose Lake
BEAR R.
SCHOOLCRAFT STATE RECREATION AREA
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WELSH LAKE STATE FOREST
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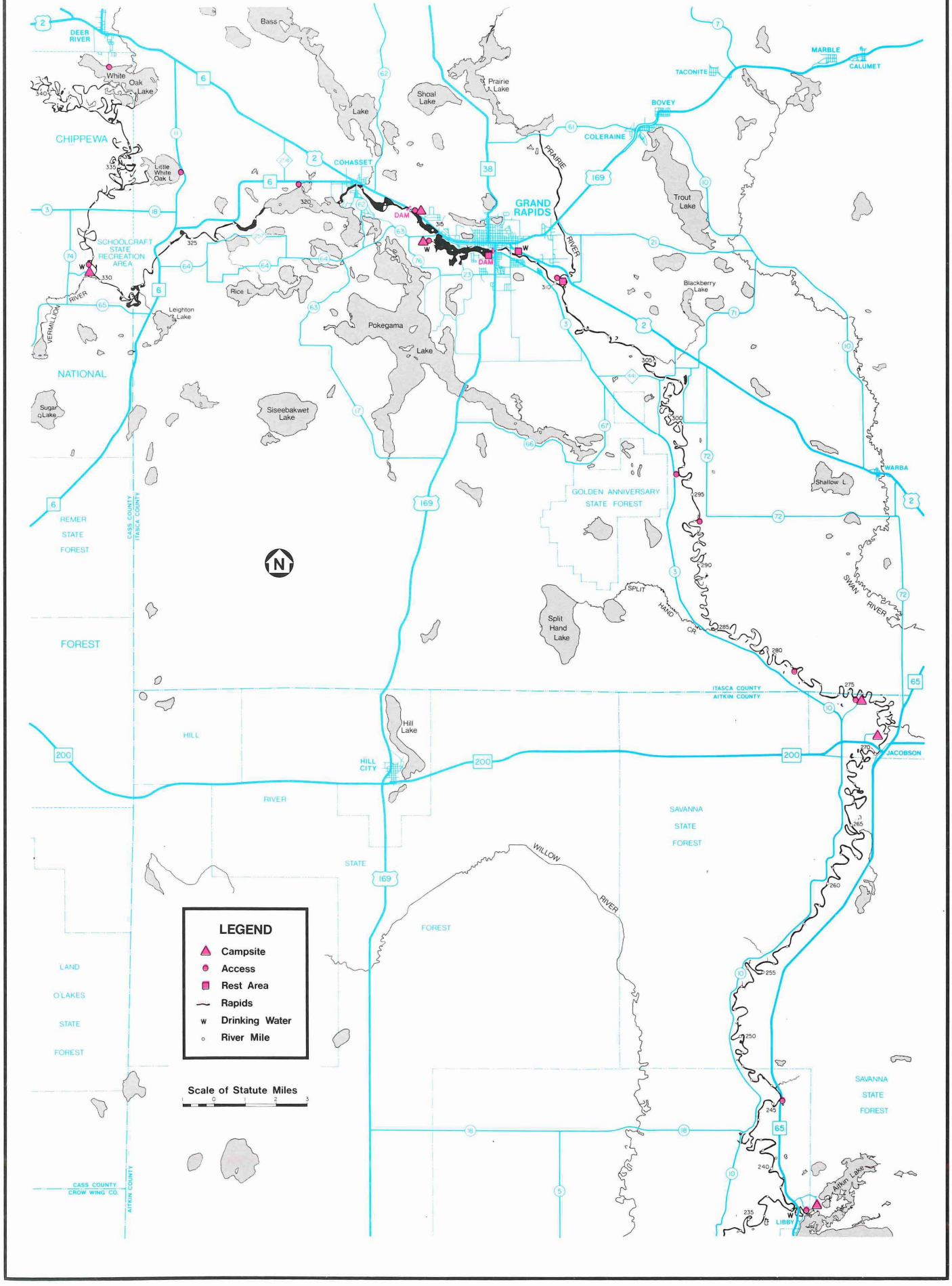
ITASCA CO.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NATIONAL
Sugar Lake
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Rice L.
Bass Lake
Shoal Lake
Prairie Lake
COHASSET
DAM
GRAND RAPIDS
PRAIRIE RIVER
Pokegama Lake
Siseebakwet Lake
TACONITE
MARBLE
CALUMET
BOVEY
COLERAINE
Trout Lake
Blackberry Lake
WARBA
Shallow L.
GOLDEN ANNIVERSARY STATE FOREST
REMER STATE FOREST
CASS COUNTY
ITASCA COUNTY
FOREST
Split Hand Lake
SPLIT HAND CR.
SWAN RIVER
ITASCA COUNTY
AITKIN COUNTY
JACOBSON
HILL
Hill Lake
HILL CITY
RIVER
SAVANNA STATE FOREST
WILLOW RIVER
STATE
FOREST
LAND O'LAKES STATE FOREST
Aitkin Lake
LIBBY
CASS COUNTY
CROW WING CO.
AITKIN COUNTY
LEGEND
Campsite
Access
Rest Area
Rapids
Drinking Water
River Mile
Scale of Statute Miles
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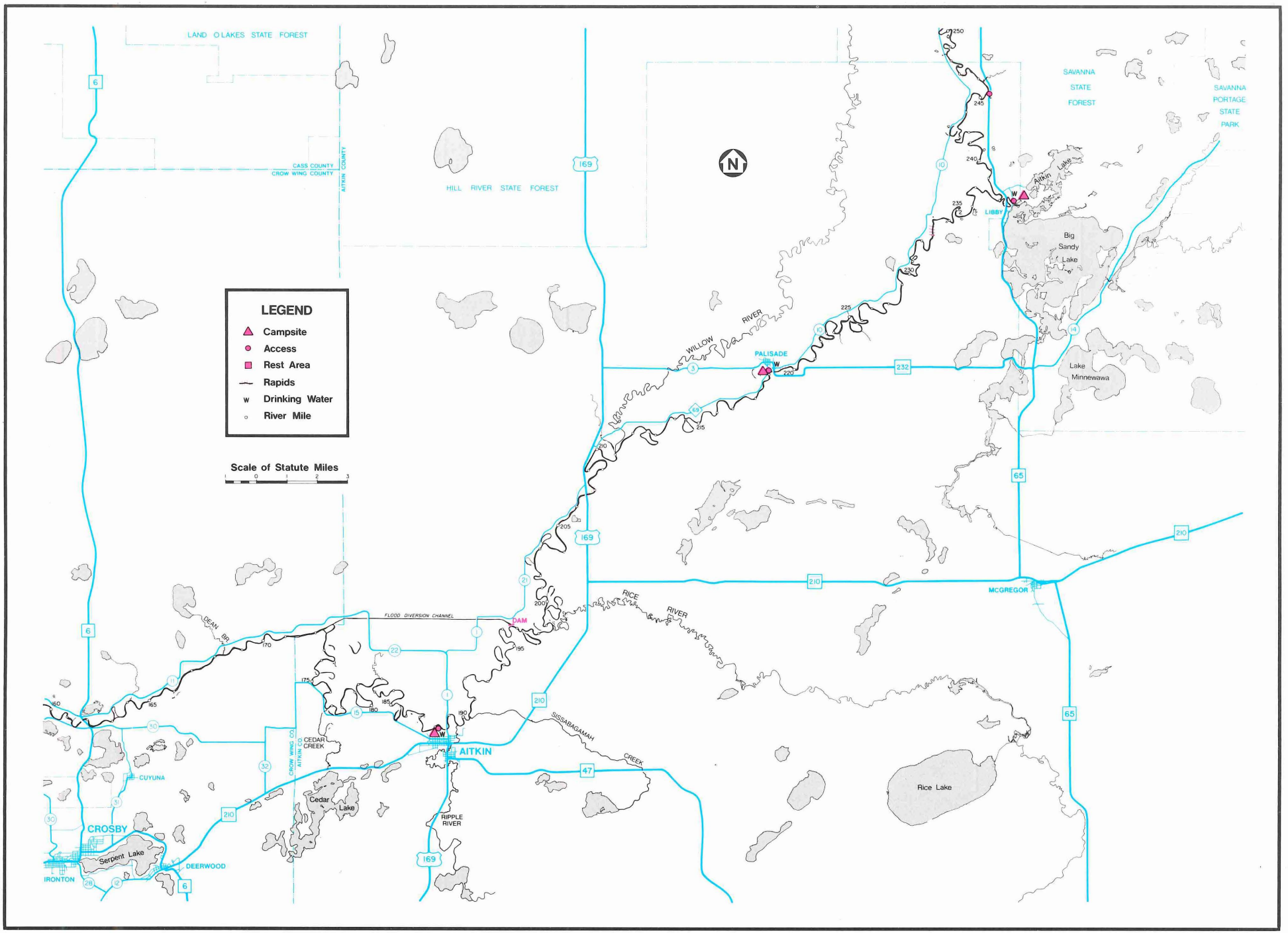
LAND O LAKES STATE FOREST
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PALISADE
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Aitkin Lake
Big Sandy Lake
Lake Minnewawa
MCGREGOR
RICE RIVER
Rice Lake
FLOOD DIVERSION CHANNEL
DAM
AITKIN
CEDAR CREEK
SISSABAGAMAH CREEK
RIPPLE RIVER
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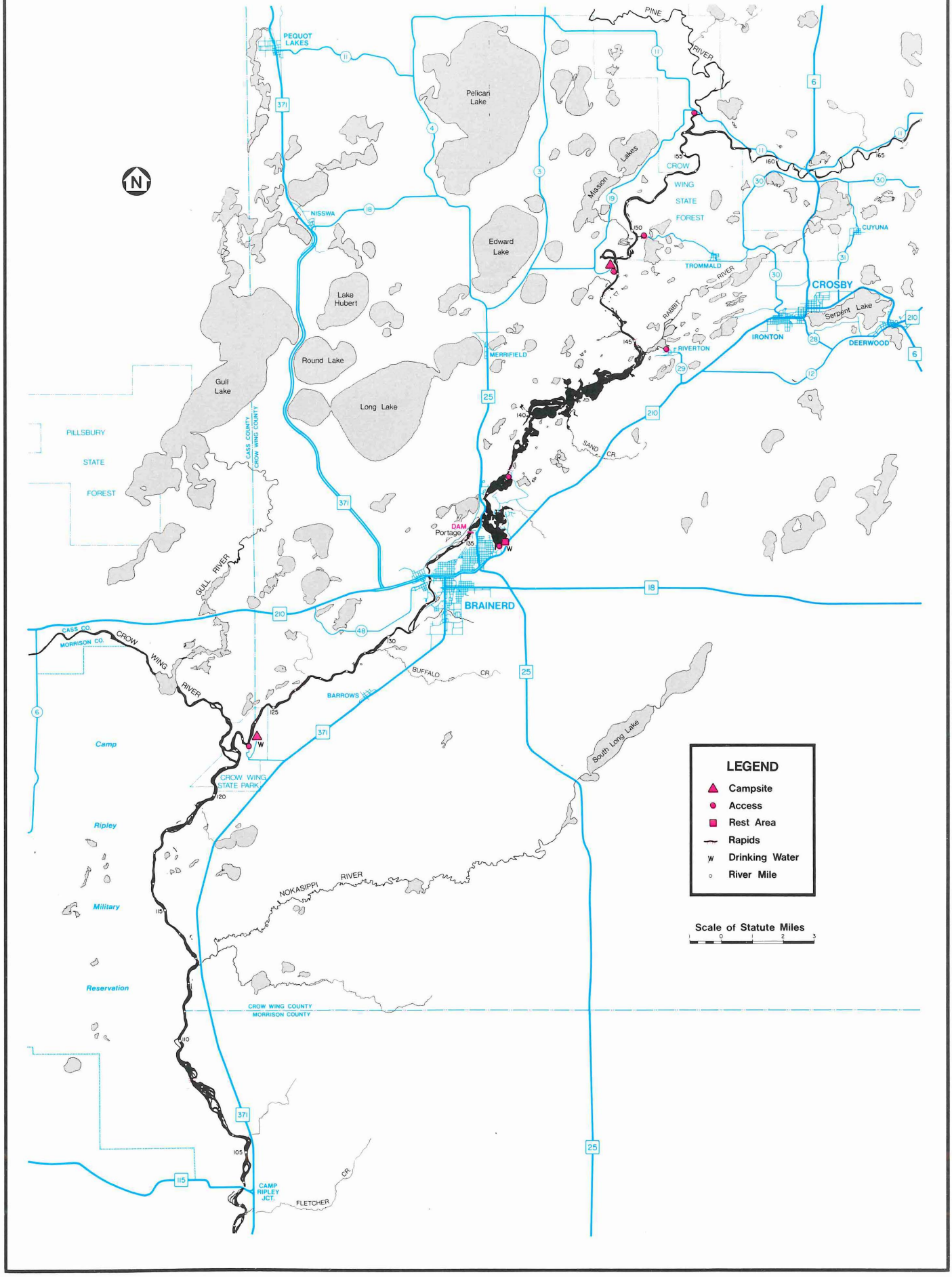
PEQUOT LAKES
Pelican Lake
PINE
RIVER
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Mission
CROW WING STATE FOREST
CUYUNA
NISSWA
Edward Lake
TROMMALD
RIVER
CROSBY
Serpent Lake
Lake Hubert
RABBIT
IRONTON
DEERWOOD
MERRIFIELD
RIVERTON
Round Lake
Gull Lake
Long Lake
PILLSBURY STATE FOREST
CASS COUNTY
CROW WING COUNTY
SAND CR
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Portage
GULL RIVER
BRAINERD
CASS CO
MORRISON CO
CROW WING RIVER
BUFFALO CR
BARROWS
Camp
CROW WING STATE PARK
South Long Lake
Ripley
NOKASIPPI RIVER
Military
Reservation
CROW WING COUNTY
MORRISON COUNTY
CAMP RIPLEY JCT.
FLETCHER CR
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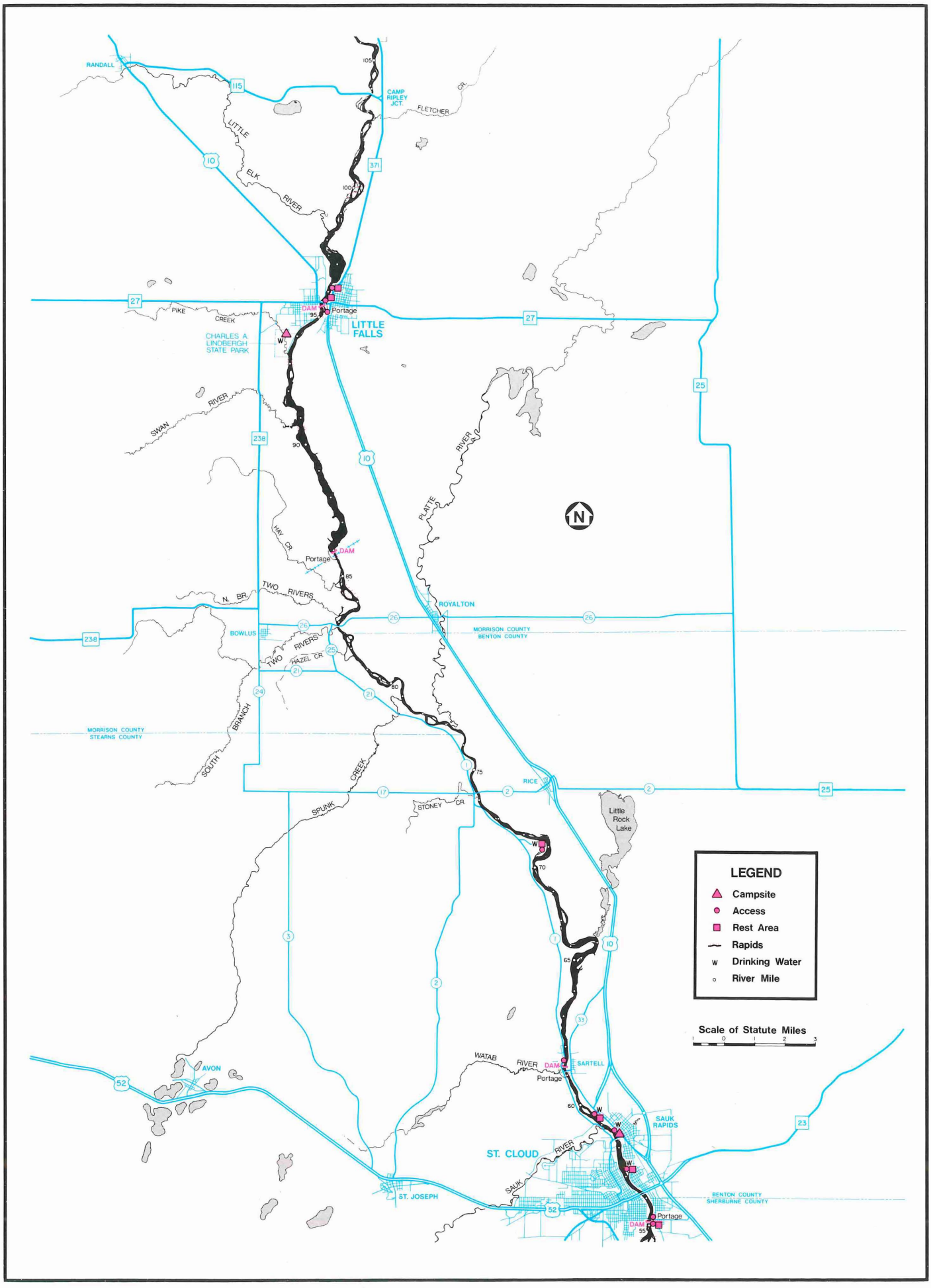
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Portage
95
LITTLE FALLS
CHARLES A. LINDBERGH STATE PARK
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85
N. BR. TWO RIVERS
ROYALTON
BOWLUS
26
MORRISON COUNTY
BENTON COUNTY
TWO RIVERS
HAZEL CR.
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MORRISON COUNTY
STEARNS COUNTY
SOUTH BRANCH
CREEK
SPUNK
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75
RICE
STONEY CR.
Little Rock Lake
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WATAB RIVER
DAM
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SARTELL
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SAUK RAPIDS
23
ST. CLOUD
RIVER
W
SAUK
ST. JOSEPH
52
BENTON COUNTY
SHERBURNE COUNTY
Portage
DAM
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AVON
LEGEND
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Scale of Statute Miles
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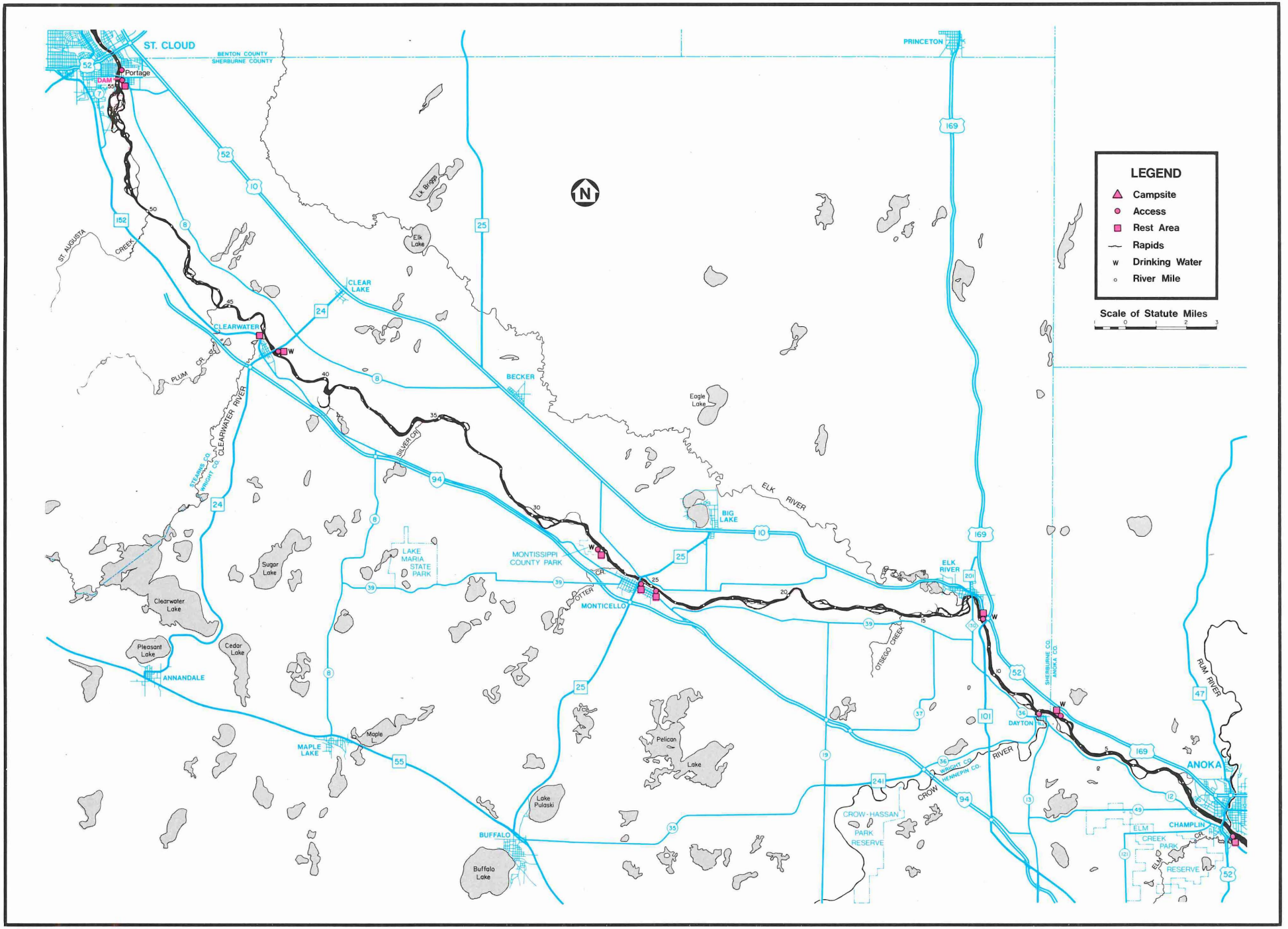
ST. CLOUD
BENTON COUNTY
SHERBURNE COUNTY
PRINCETON
Portage
DAM
ST. AUGUSTA CREEK
CLEAR LAKE
Lk. Briggs
Elk Lake
CLEARWATER
PLUM CR.
CLEARWATER RIVER
STEARNS CO.
WRIGHT CO.
BECKER
Eagle Lake
SILVER CR.
ELK RIVER
BIG LAKE
LAKE MARIA STATE PARK
MONTISSIPPI COUNTY PARK
MONTICELLO
OTTER CR.
OTSEGO CREEK
Sugar Lake
Clearwater Lake
Pleasant Lake
Cedar Lake
ANNANDALE
MAPLE LAKE
Maple L.
Pelican Lake
Lake Pulaski
BUFFALO
Buffalo Lake
CROW-HASSAN PARK RESERVE
CROW RIVER
SHERBURNE CO.
ANOKA CO.
DAYTON
RUM RIVER
ANOKA
CHAMPLIN
ELM CREEK PARK RESERVE
HENNEPIN CO.
WRIGHT CO.
LEGEND
Campsite
Access
Rest Area
Rapids
Drinking Water
River Mile
Scale of Statute Miles
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3

North Fork of the Crow River

"Some of the best streams of all are small farmland rivers," wrote conservationist John Madson in *Audubon* magazine. "Modest places, rarely spectacular, but lending a measure of freedom and wildness to landscapes that are thoroughly plowed, cowed and put to cash grain. . . . Such streams are some of the best escape routes from the soul-bruising press of modern living. . . . The farms just beyond the trees are forgotten and the highway bridges are quickly left behind."

Madson might well have been writing about the North Fork of the Crow, a river that is more rural than wild, running through rich farmland and wooded lowlands.

Rising in southeastern Pope County, the North Fork of the Crow flows southeast for about 175 miles until it joins the Mississippi River at Dayton. Although the North, Middle and South forks of the Crow are all part of a state-designated canoe and boating route, the North Fork is generally considered to be the main stem and the best for canoeing.

The North Fork is small, shallow and fairly clean from the Lake Koronis Spillway to Kingston. Prairie plants and hardwoods border the river. Falling an average of less than three feet per mile, the river tumbles over many small rapids (the spillway, however, should be avoided).

A two-mile stretch of the river below Lake Koronis has been channelized. Many snags in this reach make canoeing difficult, particularly in high water when the river flows quickly. Although rapids are rated only class I, hidden snags can tip canoes and overhanging branches may strike canoeists. Fences across the river demand a cautious eye. Sharp bends may also make this part of the river difficult for beginners. Because of many drainage ditches in the area, the Crow rises quite quickly and falls slowly. The upper reaches of the North Fork may be impassable in low water.

The river deepens and widens downstream from Kingston, meandering in a floodplain that is sometimes more than a mile wide. Rapids are few and easy. This stretch is generally suitable for family canoeing, although snags may cause problems.

The Crow River grows straighter and even broader and deeper as the North and South forks join near Rockford. Ideal for family canoeing, the lower river is used extensively for day-trips. The Hanover Dam (river mile 18) must be portaged, even though the undeveloped trails on either side cross private property. Portage the Berning Mill Dam (river mile 11) on the right. Mills still stand next to both dams. Berning Mill in particular retains much of its rustic curiosity.

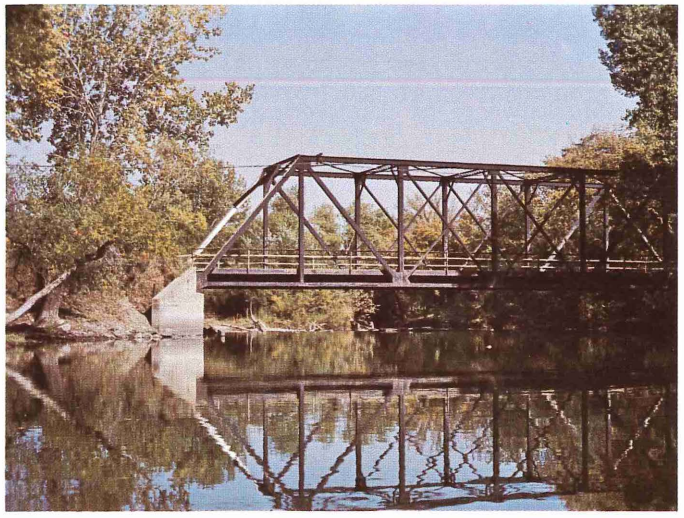
Named by the Ojibway Indians for the bird they called the "marauder of newly planted corn," the Crow River passes several archaeological sites, although none have been thoroughly studied.

The Crow River was once flanked by the "big woods," a thick forest of maple, basswood, elm and other hardwoods supporting abundant wildlife. Considered a sacred hunting ground by the Indians, the forest later attracted white trappers. The Ojibway and Dakota, and later the Dakota and the settlers, fought many battles near the Crow River.

The whites first settled the Crow River in 1851, building their homes near the site of Dayton. Several lumber

The gentle waters of the North Fork of the Crow River, above, tumble over a dam of small boulders in Forest City Park (photo by Norm Holmberg). Right, sunlight interrupts an otherwise cloudy day near Kingston (photo by Dave Johnson).

The North Fork of the Crow winds past wooded bends in Forest City Park, above and right. The river, more rural than wild, runs through small towns, pastures and wooded lowlands. Photos by Norm Holmberg.



mills operated along the river as the forest was cleared for agriculture.

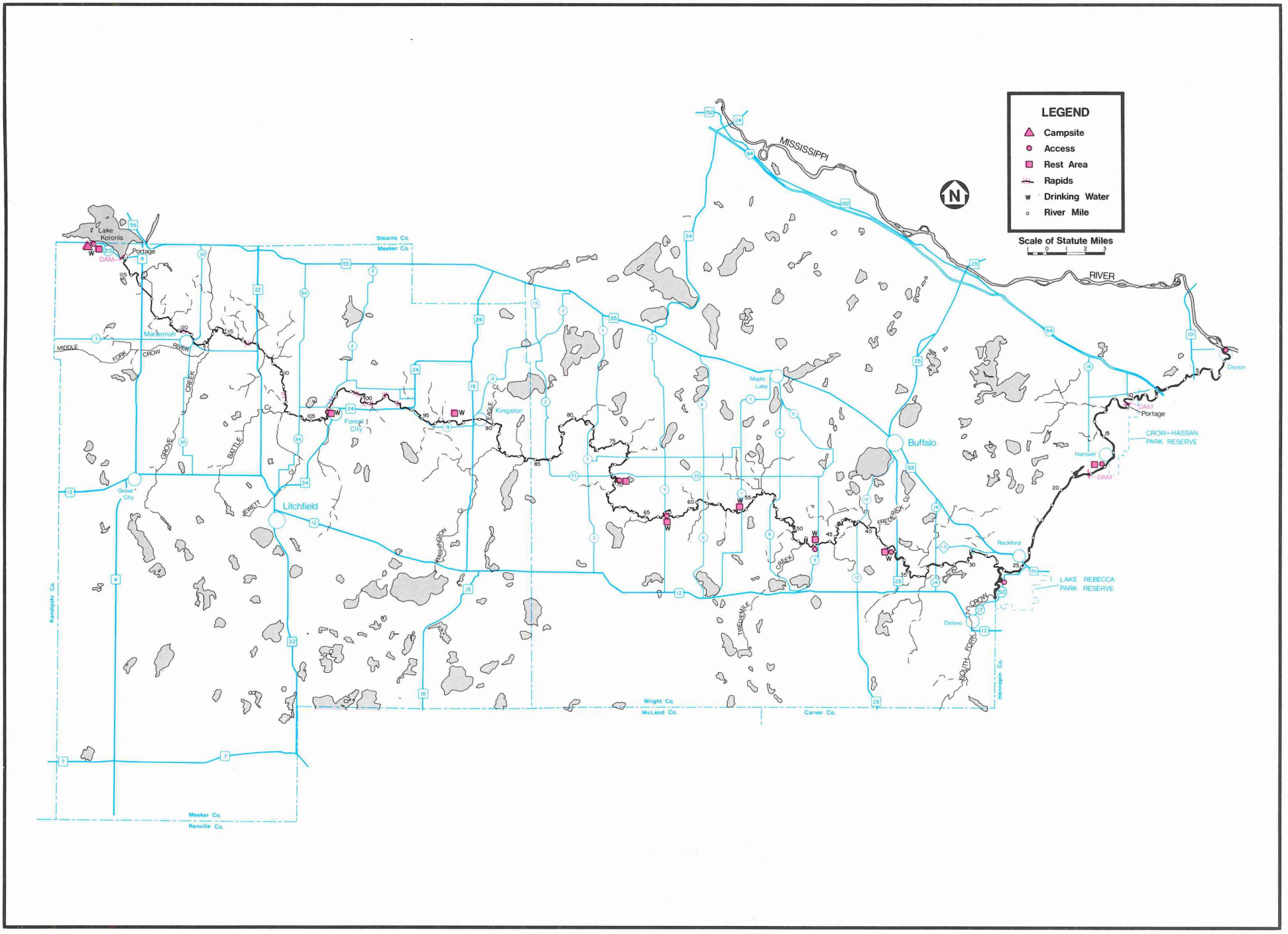
Steamboats were the only means of hauling passengers and freight during the early 1850s. Paddle-wheel boats brought provisions from St. Anthony Falls to Dayton, where the goods were transferred to rowboats and carried up the Crow. Rowboats regularly ran supplies from Dayton to Rockford for about two years. In May 1851, when the river was high, the steamboat *Governor Ramsey* paddled to Rockford, further upstream than any other steamboat has traveled.

Forest City, settled in the 1850s, was located near the boundary of the big woods and the prairies to the southwest. Within a year, a wagon trail was cut through the forest from Monticello to the new settlement, virtually ending commercial river transportation. The wagon route is marked today by signs along county roads that follow the original trail.

Traveling the wagon trail, settlers quickly moved to the fertile land along the North Fork. Most river towns were settled by 1860. As villages grew and settlers demanded more game, fish and land, tensions grew with the Dakota Indians living nearby.

The Sioux Uprising of 1862 reportedly started August 17, 1862 in Acton Township in Meeker County when four young Dakota shot and killed five settlers. Chief Little Crow declared war on the whites the next day. Several days later, a Dakota band attacked Manannah, killing four townspeople. The site of the battle is now marked by a stone monument.

On September 2, 1862, settlers near Forest City, hearing that Dakota warriors had defeated a company of soldiers about 20 miles north of the village, frantically erected a stockade within 24 hours. Twenty Dakota horsemen attacked Forest City the next day. Thwarted by the stockade and 40 armed settlers, they soon abandoned their attack. The stockade, now being restored and developed as an historic site, is one-half mile south of the Forest City park (river mile 103).


LEGEND
Campsite
Access
Rest Area
Rapids
Drinking Water
River Mile
Scale of Statute Miles
0 1 2 3
MISSISSIPPI
RIVER
Lake Koronis
Portage
DAM
Stearns Co.
Meeker Co.
MIDDLE FORK CROW RIVER
Maninnan
GROVE CREEK
BATTLE CREEK
Forest City
Kingston
EAGLE CREEK
Maple Lake
Buffalo
Dayton
Hanover
CROW-HASSAN PARK RESERVE
Grove City
JEWETT CREEK
Litchfield
WASHINGTON CREEK
FREDERICK CREEK
Rockford
LAKE REBECCA PARK RESERVE
Delano
TIMELINE CREEK
SOUTH FORK CROW
Hennepin Co.
Kandiyohi Co.
Wright Co.
McLeod Co.
Carver Co.
Meeker Co.
Renville Co.

Red Lake River

Eroded cliffs rise above the Red Lake River near St. Hilaire.

A stream of contrasts, the Red Lake River passes marshy wilderness, towering, eroded cliffs and steep, wooded banks. But at other times, the river, flat and featureless, flows by wide expanses of farmland and trash-laden banks.

One of the few canoeing rivers in northwest Minnesota, the Red Lake River flows westward nearly 200 miles from its source, Lower Red Lake, to join the Red River of the North in East Grand Forks. Although rapids are frequent in several stretches, the Red Lake is a class I run except where two washed-out dams (river miles 95 and 62) litter the streambed with rubble that may damage canoes. Several intact dams must also be portaged.

Above the dam at river mile 181 the Red Lake flows through marshland in the Red Lake Indian Reservation. White and yellow water lilies, wild rice and cattails thrive; blackbirds, snipes, marsh wrens, gulls, great blue herons and many ducks inhabit the marshes.

Below the dam the river is flanked by a meadow that is at times bright with wild flowers. Trees are sparse and small on the low, grassy banks. Near High Landing the trees become larger and the river meanders through farmland; stands of willow, elm and cottonwood are interspersed with open fields. Homes line the banks at Thief River Falls.

Below St. Hilaire the banks steepen and are heavily wooded to Red Lake Falls. A chain of easily navigable boulder-field rapids and pools interrupts the Red Lake in this 20-mile stretch where the river drops more than 100 feet.

Upstream from Red Lake Falls are high, nearly vertical, eroded cliffs and the first of many huge slump areas where entire hillsides have been torn away by spring floods and deposited in the river.

Just downstream from Huot is the Old Crossing Treaty State Historical Wayside Park, where in 1863 the Ojibway Indians ceded several million acres of land for white settlement of the Red River valley. This also was an important crossing of the Red River Oxcart Trail, which ran from Fort Garry (Winnipeg) to St. Paul.

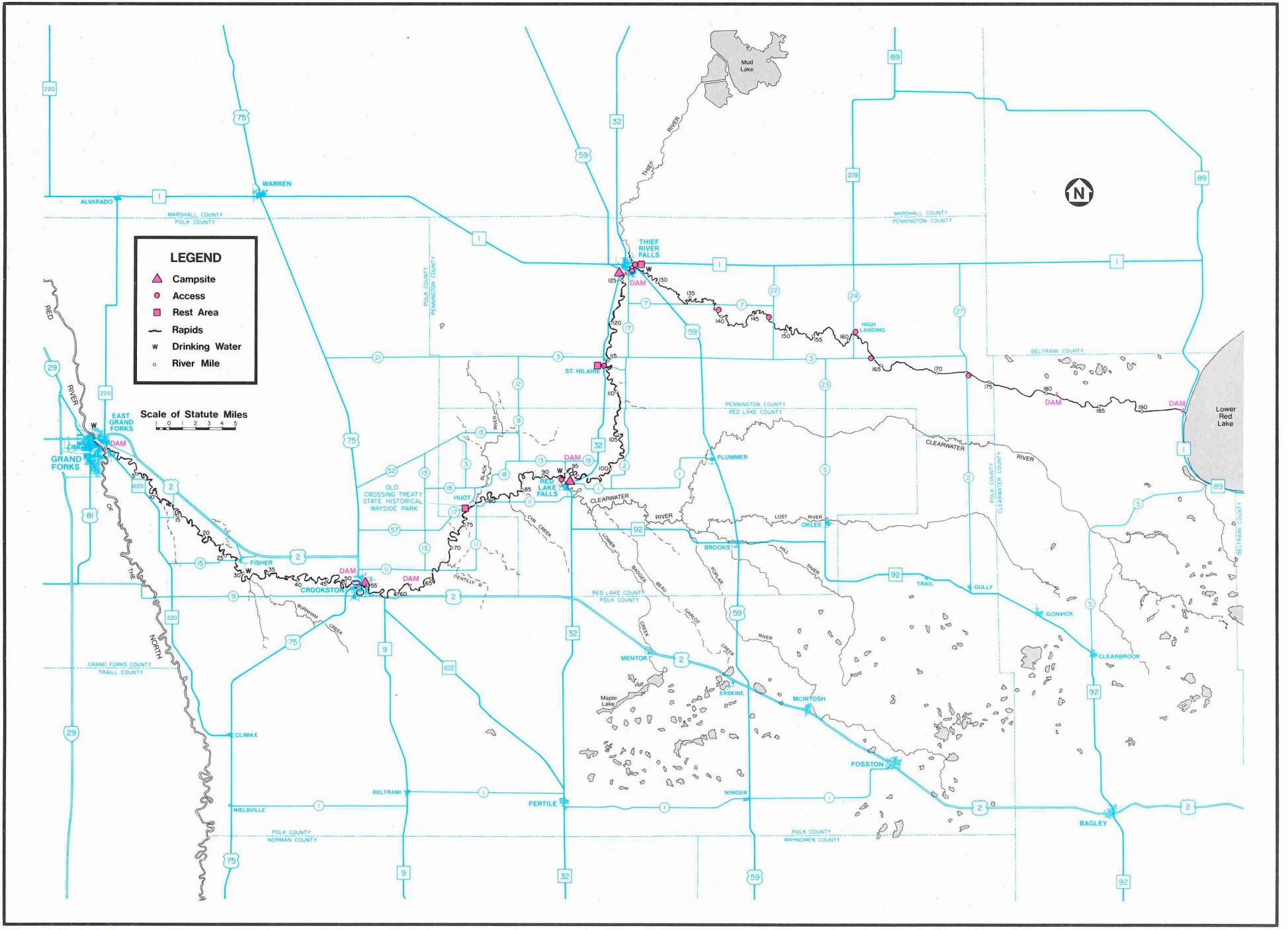
In its lower reaches the river meanders through farmland, often screened from the river by stands of elm, willow and cottonwood. A by-product of modern civilization appears toward East Grand Forks in the form of rusting junked cars on the riverbanks.

Wildlife along the Red Lake River is varied and abundant. Wooded bottomlands provide excellent habitat for wood duck and deer. Fox, grouse, beavers, mink, muskrats, weasels, coyotes, squirrels, rabbits and raccoons thrive throughout the region. Bottomlands and scattered oxbows attract mallards, blue-winged teal, great blue herons, shorebirds, owls and many songbirds.

Although the river supports several species of game fish, including northern pike and walleye, the Red Lake River is particularly noted for its channel catfish. Some of the most popular fishing areas are located below the dams in Crookston and Red Lake Falls, and near the junctions of the Red Lake with the Thief, Clearwater and Black rivers.

Italian explorer Giacomo Beltrami, who visited northwestern Minnesota in 1823, mistakenly wrote that the Indian name for the Red Lake River and its source referred to the "blood of the slain" in a war between the Dakota and Ojibway. But in 1889, the Rev. Joseph A. Gilfillan, a missionary to the Ojibway in northwestern Minnesota, wrote that "Red Lake is so called from the color of the lake (reflecting the redness of sunset) on a calm summer evening, when unruffled by wind and in a glassy state, at which times it is of a distinctly wine color. . . . It is not called Red Lake from any battle fought on its shores."

Scotch, English and French-Canadian fur traders traveled the Red Lake River and other tributaries of the Red River on their way north to Hudson Bay. Many traders began settling the area. The construction of railroads linking northwestern Minnesota with Duluth and the opening of land by the government greatly increased the influx of settlers.


LEGEND
Campsite
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Rapids
Drinking Water
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0 1 2 3 4 5
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Mud Lake
Lower Red Lake
Maple Lake
WARREN
ALVARADO
MARSHALL COUNTY
POLK COUNTY
MARSHALL COUNTY
PENNINGTON COUNTY
THIEF RIVER FALLS
DAM
HIGH LANDING
ST. HILAIRE
BELTRAMI COUNTY
PENNINGTON COUNTY
RED LAKE COUNTY
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DAM
PLUMMER
CLEARWATER RIVER
POLK COUNTY
CLEARWATER COUNTY
BELTRAMI COUNTY
EAST GRAND FORKS
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GRAND FORKS
OLD CROSSING TREATY STATE HISTORICAL WAYSIDE PARK
HUOT
RED LAKE FALLS
CLEARWATER RIVER
LOST RIVER
OKLEE
BROOKS
HILL RIVER
TRAIL
GULLY
GONVICK
CLEARBROOK
FISHER
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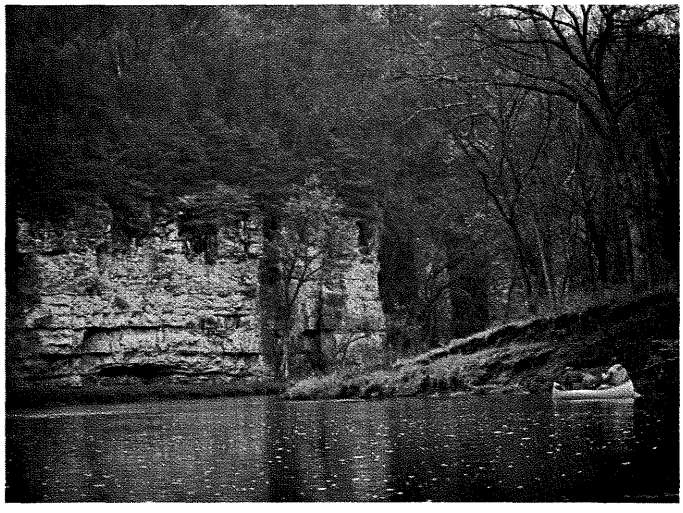
DAM
CROOKSTON
RED LAKE COUNTY
POLK COUNTY
GRAND FORKS COUNTY
TRAILL COUNTY
MENTOR
ERSKINE
MCINTOSH
FOSSTON
BAGLEY
CLIMAX
BELTRAMI
NIELSVILLE
FERTILE
WINGER
POLK COUNTY
NORMAN COUNTY
POLK COUNTY
MAHNOMEN COUNTY
RED RIVER OF THE NORTH
THIEF RIVER
BLACK RIVER
OTTER CREEK
LOWER BADGER BEAU POPLAR CREEK
GARLOT CREEK
BURNHAM CREEK
GENTILLY R

The Root River, above, passes a sheep farm below Chatfield. Lofty crags, right, border the river at the County Road 21 bridge above Lanesboro. Canoeists, far right, drift by one of the Root's distinctive outcrops several miles below the confluence of the Middle and North branches of the river (photo by Dale Homuth).

Root River



The Root is a river with two distinct personalities, neither of which seems native to Minnesota.

There are no dense pine forests, no bogs or rice beds. Instead, the river carves its channel through hardwood forests and lofty bluffs towering more than 300 feet. Turkey vultures soar in strong updrafts and a few rattlesnakes lie on crags in the river bottom, as though the Root were in the western United States.

The Chatfield-Lanesboro stretch, an easy-paced two-day canoe trip, is the most striking reach of the river. Leaving Chatfield as a small agrarian stream, the Root soon twists behind dense growths of river birch, silver maple, cottonwood, swamp white oak, willow and box elder, where ospreys, cardinals and various species of ducks, herons and woodpeckers are frequently sighted. The river often wends past tall cliffs of limestone, dolomite, sandstone and shale. An abandoned power station sits beside a picturesque bend at river mile 58.5.

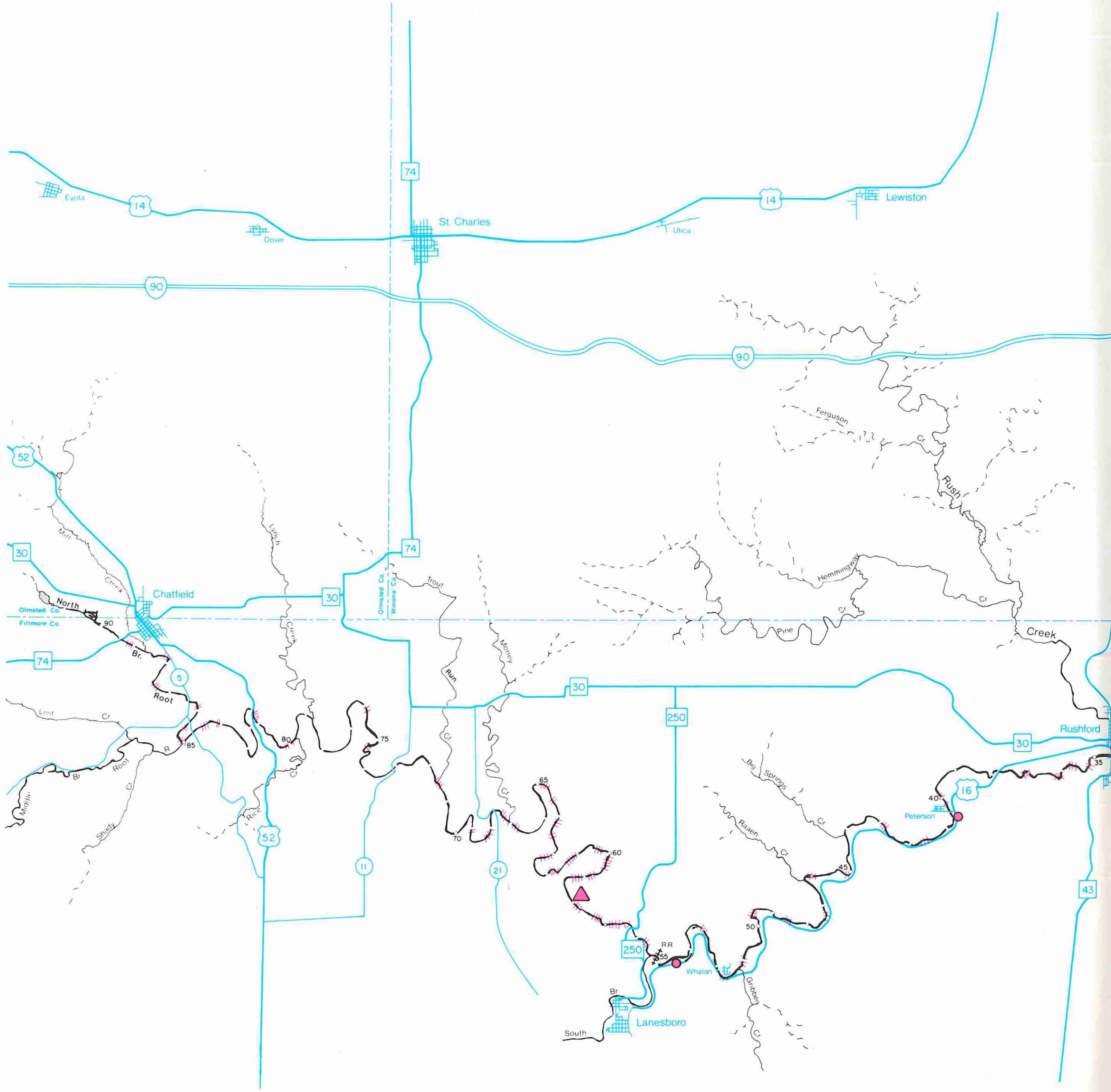
The upper Root's swift flow is frequently interrupted by small boulder-bed rapids and gravel riffles, which aerate water that is often murky because of agricultural runoff and erosion. Smallmouth bass, channel catfish, rock bass, sunfish and crappies swim in the stream's pools. Many tributaries along the entire river harbor trout.

Although the impressive bluffs rise even higher as the river nears the Mississippi, the Root's landscape quickly deteriorates below Lanesboro. Riverside farming and attempts to alleviate flooding have changed a lively stream with frequent rapids and sharp bends into a featureless river flowing past eroded banks and farmland.

Rapids are easily negotiated by most canoeists during summer and fall. The Root is a class I run at moderate water levels (one foot on the U.S. Highway 52 bridge near Chatfield), though some rapids are surprisingly swift. Windfalls lying across the narrow upper reaches and trees that have slid from eroded banks along the lower river may form unexpected hazards.

Set camp well above the water level, for the Root's watershed drains quickly and the river floods violently. Some rapids become class II in high water and paddlers are further endangered by floating debris. A crumbling spillway at river mile 62 may be hazardous.

Several campsites and accesses dot the Root's banks. Additional primitive sites are being developed by the Minnesota Department of Natural Resources and local organizations.



Eyota
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Dover
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Utica
Lewiston
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Ferguson
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Rush
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Mill
Creek
Lynch
Chatfield
North
Olmsted Co.
Fillmore Co.
Olmsted Co.
Winona Co.
30
Trout
Hemmingway
Cr
Pine
Cr
Creek
Br.
Root
Lost
Cr
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Money
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Rushford
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Springs
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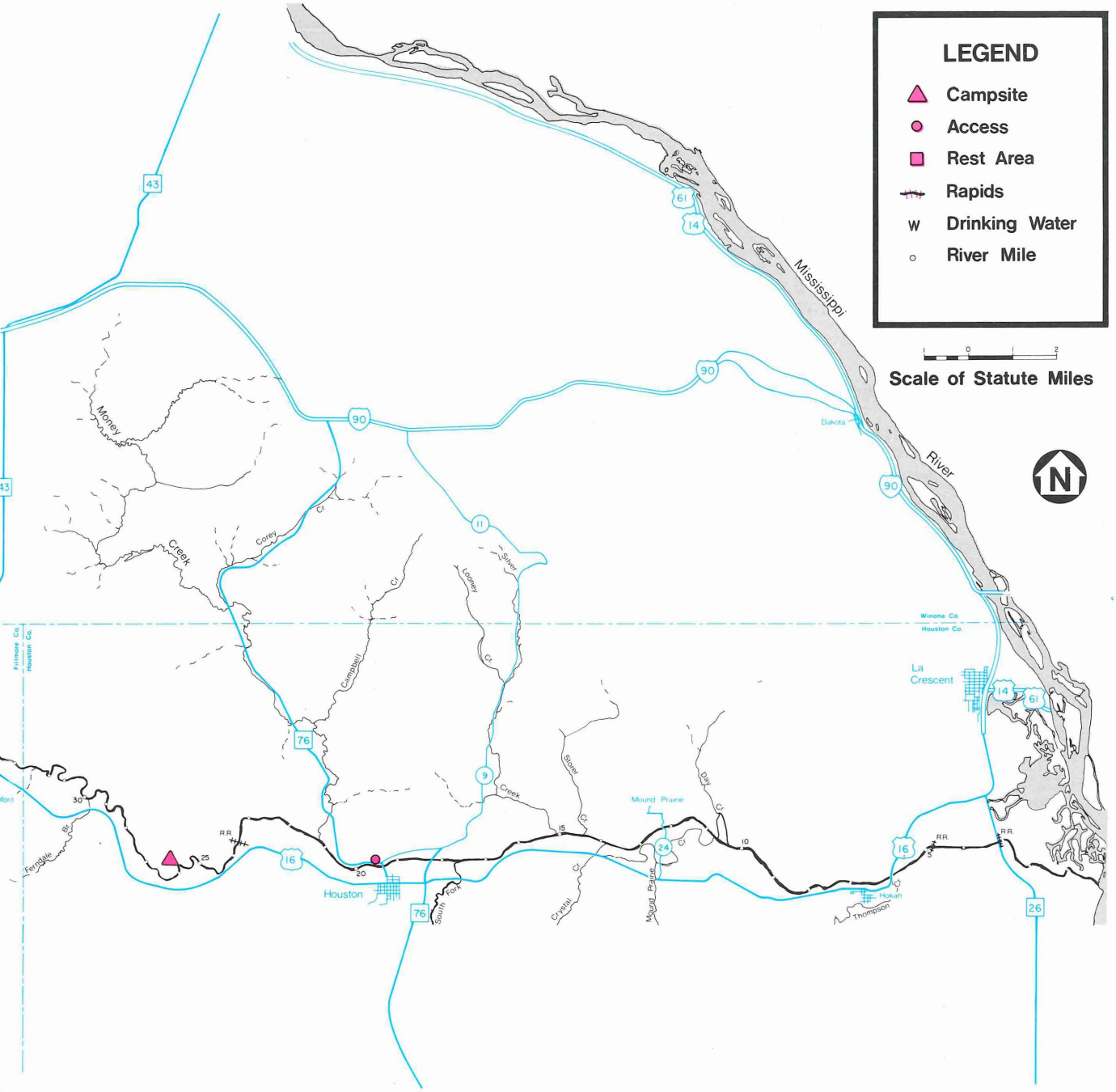
LEGEND
Campsite
Access
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Rapids
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Mississippi
River
Dakota
La Crescent
Houston
Mound Prairie
Thompson
Hokah
Winona Co.
Houston Co.
Fillmore Co.
Houston Co.
Money Creek
Corey Cr.
Campbell Cr.
Looney Cr.
Silver Creek
Sterer Creek
Dry Cr.
Crystal Cr.
South Fork
Ferndale
R.R.
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Rum River

Good fishing holes, many easy rapids, densely wooded banks and its proximity to a large metropolitan area make the Rum River a popular canoe route.

Starting at Mille Lacs Lake, the Rum links several lakes near Onamia as it begins its 145-mile course to Anoka and the Mississippi River.

The river passes extensive backwaters and marshes, sandy upland plains, farmland, and bottomlands covered with maple, elm and other hardwoods. Small stands of red and white pine near the river's lower reaches are what remain of vast pine forests that were cut during the state's logging heyday near the turn of the century.

Between Onamia and Princeton the Rum falls more than five feet per mile, tumbling through many rapids. Much of the river is rocky, a challenging obstacle course for beginning canoeists. The upper river rates class I in medium and high water, though a steep, rocky pitch at river mile 131 approaches class II difficulty at moderate water levels. Portage the dams and spillways. Unfortunately, the upper Rum is canoeable only when the river is fairly high, usually during the spring and early summer.

Below Princeton, the river's many tributaries and gentle one-foot-per-mile gradient maintain a canoeable water level during most of the summer. The few rapids present are class I, though the rapids at St. Francis is filled with hazardous rubble from an old dam. Portage the Anoka Dam on the right.

The Rum River is highly regarded by the few anglers who fish it. Smallmouth bass account for nearly half of the upper river's fish. The upper stretch also holds walleyes and northern pike. Fishing can be good below Princeton, though rough fish are common.

The forests and backwaters in the Rum River valley support much wildlife. Lakes near the headwaters provide good waterfowl nesting for blue-winged teal, mallards, ring-necked ducks and wood ducks. Ruffed grouse and woodcock are also common. Game animals include white-tailed deer, gray and fox squirrels, cottontail rabbits and snowshoe hares. Beavers, mink, muskrats, raccoons, loons, great blue herons, American bitterns and many songbirds also live on or near the river.

Called *Mde Wakan* or "spirit lake" by the Dakota Indians for its source (a name that early whites translated liberally), the Rum River was home for the Dakota before they were pushed west and south by the Ojibway. The upper river valley has "probably the greatest concentration of prehistoric sites in Minnesota," according to Elden Johnson, the state archaeologist and University of Minnesota professor of anthropology who has supervised the excavation of sites in and near Mille Lacs Kathio State Park.

The sites — villages, ricing pits and burial mounds — span a range of time from about 1500 B.C. to the mid-1700s. Research has yielded information about the subsistence and settlement patterns of prehistoric and historic Indians in central Minnesota.

Hammered copper tools found at one site in Mille Lacs Kathio have been traced to Indians who lived more than 3,000 years ago. Indians in the area probably began building burial mounds about 2,500 years ago. Often they set their dead on scaffolds for several years before burying the bones in mounds of earth. Artifacts were sometimes buried with the corpses and perhaps reflected the higher status accorded some individuals, such as skilled warriors and hunters.

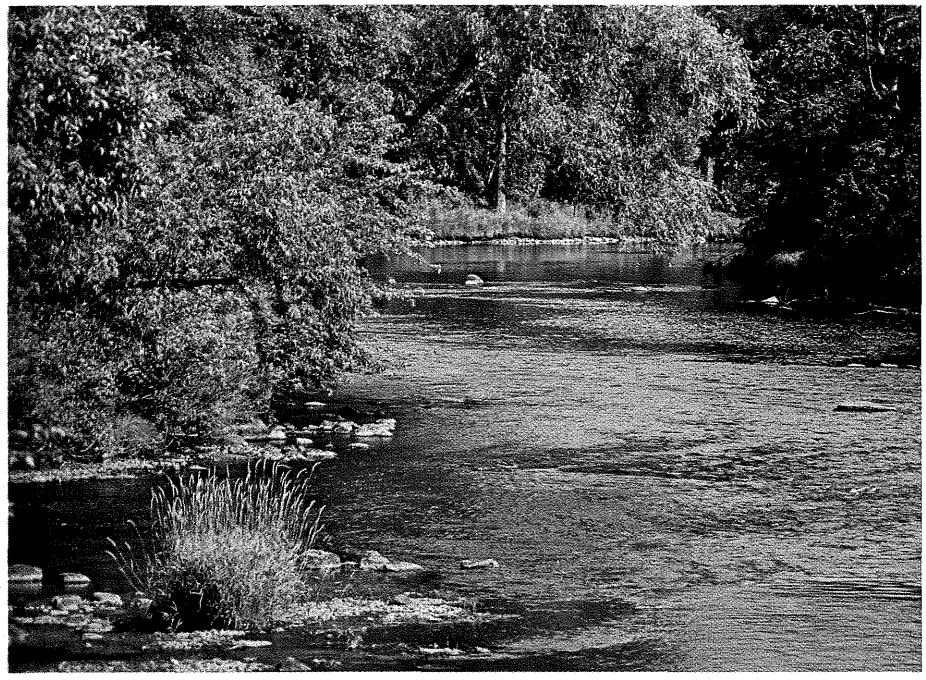
While the Ojibway and Dakota lived peacefully for a short time, often trading and occasionally intermarrying, settlement of the east eventually pushed the Ojibway onto Dakota lands. And the French traders apparently instigated feuds between the two tribes to establish the Ojibway as their allies.

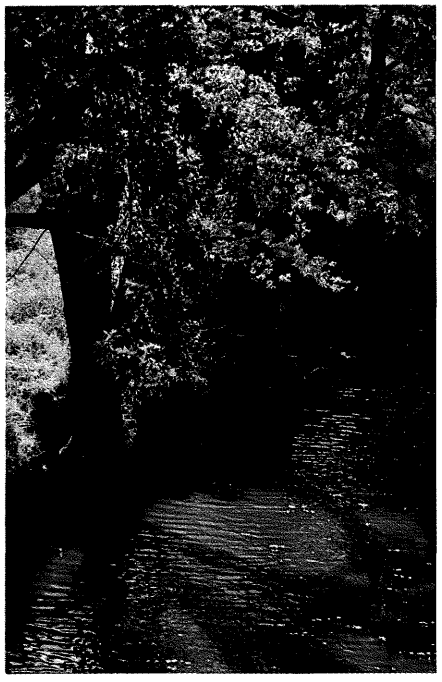
The Battle of Kathio, fought between the Dakota and Ojibway in 1750, demonstrated the early advantage the Ojibway gained by bartering with white traders for muskets. The Dakota, armed with bows and arrows, were defeated. Many moved to the Minnesota and lower Mississippi river valleys.

The Battle of Rum River, perhaps one of the bloodiest skirmishes between the two tribes, began July 4, 1839 near Round Lake, a few miles north of present-day Anoka. The Dakota, seeking revenge for the murder of a hunter, waited near an Ojibway camp until the men left to hunt. The Dakota then opened fire, killing 70 Ojibway, mostly women and children. The Dakota lost 17 warriors.

The Rum River was discovered and charted by white explorers during their many quests for the source of the Mississippi River. Although Lake Itasca was not identified by Henry Schoolcraft as the source of the mighty river until 1832, the Rum River valley was well known to white men many years before that.

Daniel Greysolon, sieur du Luth, was sent to the region of the "thousand lakes" by the governor of New





The Rum River, above, winds past a thick forest of hardwoods below St. Francis. Trees line the wind-ruffled river, upper right. A boy, right, runs in front of the dam at Anoka, near the river's mouth.

France (Canada), who hoped to establish new trapping grounds. Du Luth reached the southern shore of Mille Lacs Lake in 1679. He eventually mapped three large Dakota village sites.

During his explorations, Du Luth heard rumors of "white spirits" traveling with the Dakota. Paddling south with a small party, Du Luth met Jesuit priest Father Louis Hennepin on July 25, 1680.

Hennepin had come to the New World in 1675 and within a few years had found his way to the Mississippi River valley. Hennepin and his party were captured by the Dakota in early 1680 south of Lake Pepin. The Indians brought him up the Mississippi and then overland to a Dakota village on the shore of Mille Lacs Lake. Hennepin traveled extensively with the Indians and gradually became accepted by the tribe.

First furs, then lumber brought settlers to the land. The French and the British competed to discover new trapping grounds. After the War of 1812, the United States banned foreign fur companies in the country. The American Fur Company was chartered in 1816 and, once treaties were established with the Indians, trappers again came in great numbers to the Rum River.

During the 1840s, the fur trade attracted settlers from

The Rum River, low for lack of rain, passes a brilliant hardwood forest near its mouth. The dense stands of red and white pine that once covered the river valley were cut during the turn-of-the-century logging boom. Photo by Lyle Bradley.

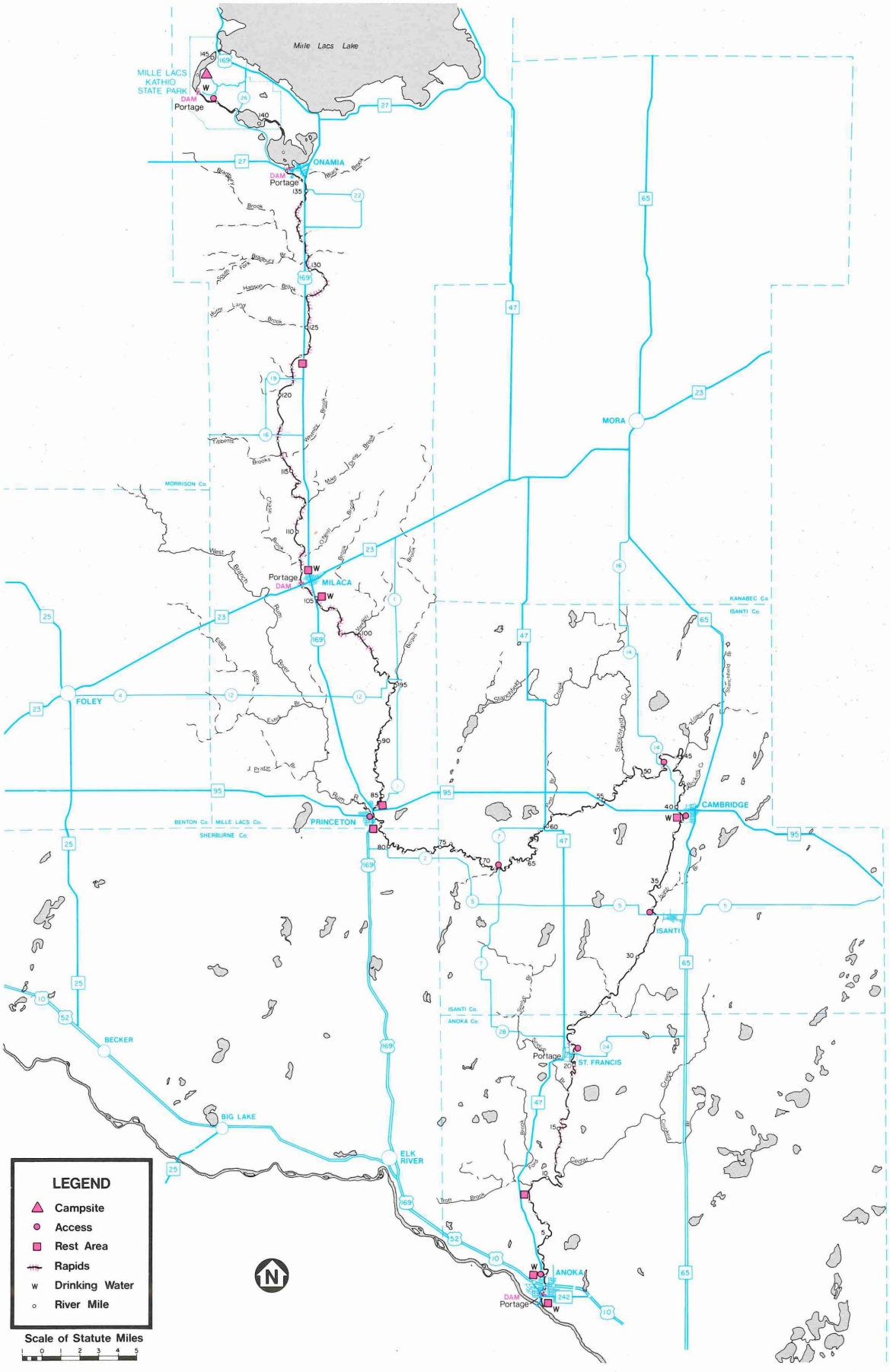
the eastern United States to the confluence of the Rum and Mississippi rivers. The first house and a trading post were built in 1844 in what was to become Anoka County. With the arrival of new settlers, logging and agriculture soon became the chief industries of the Rum River valley.

Daniel Stanchfield was the first lumberman to extensively explore the pine forests of the Rum River valley. Stanchfield and his crew built two large lumbering camps on the river in 1848. That winter, the men at these camps cut 2.5 million board feet of lumber. By 1852, 22 logging camps operated on the Rum River and its tributaries.

Throughout the late 1800s, logging flourished in the Rum River valley. One firm reported that it "sawed day and night, in season, for 15 years on one project."

The supposedly limitless quantity of white and red pine north of Princeton and Cambridge led the St. Paul *Pioneer Press* to speculate in 1880 that "not one-hundredth part of it has been, or will be, required by lumbermen who annually infest the region to carry on the process of denuding the pine forests."

Contrary to the assessment of the newspaper, however, lumbermen did denude the dense pine forests in the Rum River valley. Today only a few scattered white pine can be seen in the area, many of them along the banks of the Rum. But as the timber industry dwindled, settlements continued to grow. Stanchfield, without apology for the plight of the Indian or the stripped land, boasts in his memoirs that logging in the Rum River valley was "heralded throughout all the states and Canada. (It) brought immigration from every state and changed this part of the territory from barbarism to civilization."


Mille Lacs Lake
MILLE LACS KATHIO STATE PARK
DAM
Portage
ONAMIA
MORA
MILACA
FOLEY
PRINCETON
CAMBRIDGE
ISANTI
ST. FRANCIS
BECKER
BIG LAKE
ELK RIVER
ANOKA
MORRISON Co.
BENTON Co.
MILLE LACS Co.
SHERBURNE Co.
KANABEC Co.
ISANTI Co.
ANOKA Co.
LEGEND
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Rest Area
Rapids
Drinking Water
River Mile
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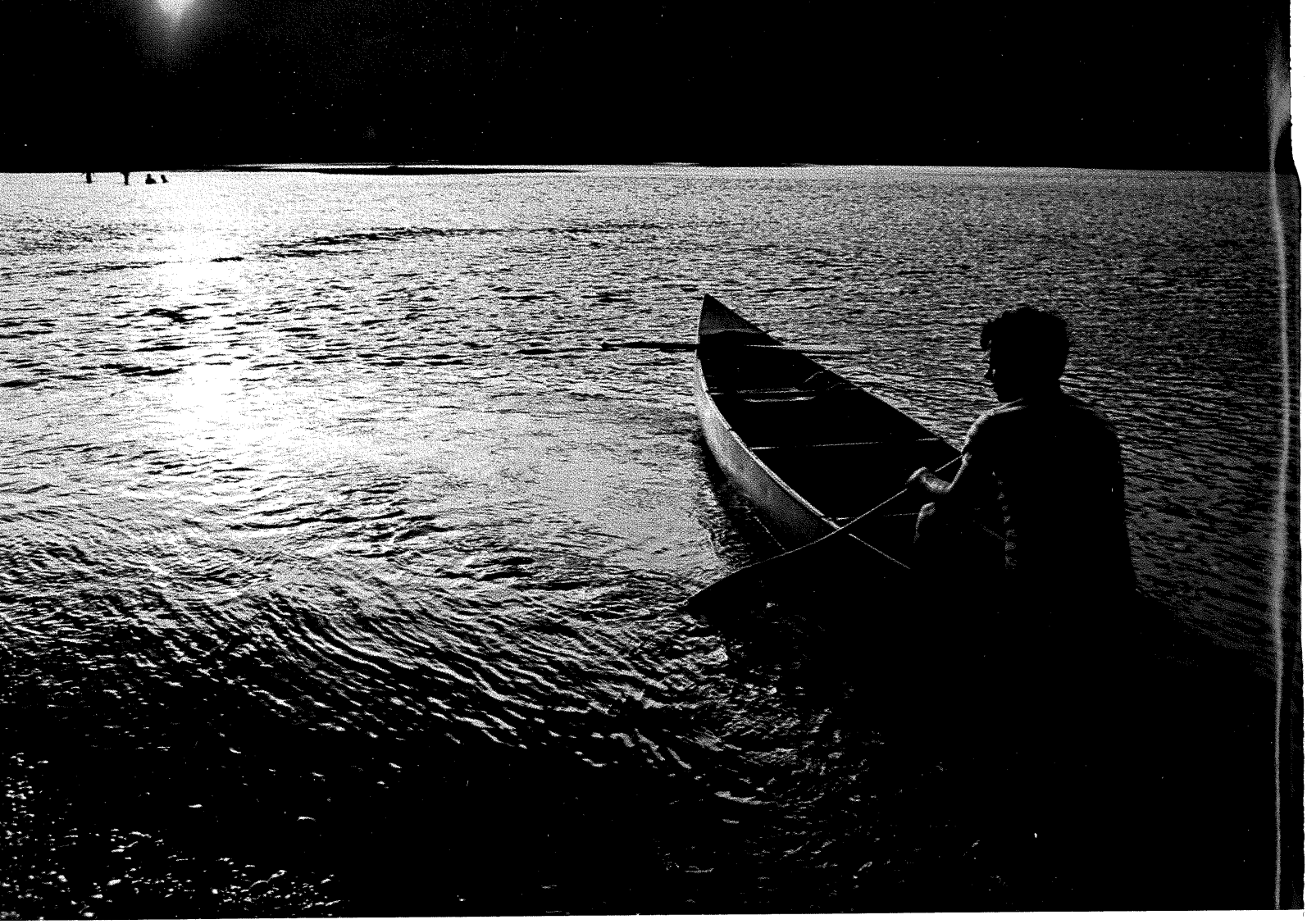


St. Croix River

The sometimes wild and always beautiful character of the St. Croix has earned the river its status as Minnesota's first national wild and scenic river. Heavily logged during the late 19th and early 20th centuries, the St. Croix is now a popular spot to canoe, hike or ski. Several state parks border the river.

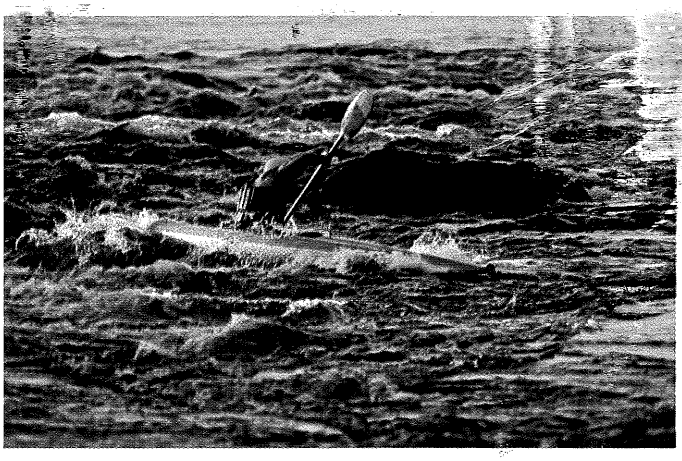
The river rises at Solon Springs, Wisconsin, and near Danbury becomes the Minnesota-Wisconsin border, joining the Mississippi 140 miles downstream.

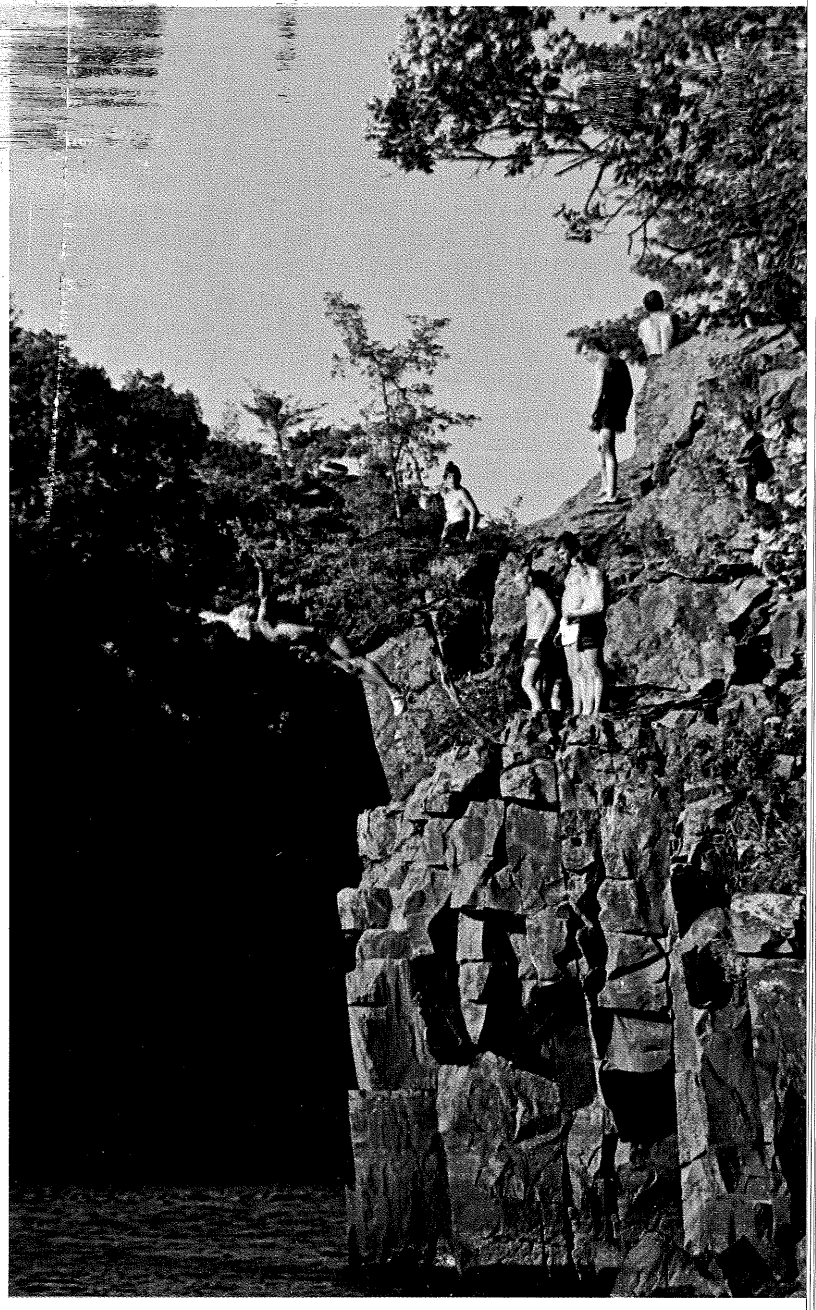
Racing past forests, the river rushes through class I and class II rapids before touching Minnesota's border. The St. Croix then runs quietly for many miles, passing St. Croix State Park, which extends for more than 20 miles along the river's west bank and includes miles of tributaries, some of them trout streams.

Logging camp operator Ed St. John established his base camp at St. John's Landing (river mile 122) near the turn of the century. Six miles below the landing are the Yellow Banks, once the terminus of a logging railroad that hauled timber to the river and dumped it over a sandy bluff. The logs then floated to sawmills downstream.

Near the south end of the state park, the St. Croix joins the Kettle River at the Kettle River Rapids (river miles 110 to 105), a series of class I and easy class II pitches divided by tree-capped islands. The rapids is a difficult class II stretch in high, cold water even though the heaviest water can usually be avoided by passing

The setting sun, far left, silhouettes a canoeist resting in the still water below the St. Croix Dalles. Water from the St. Croix and Kettle rivers, left, settles in a pool between the rapids at the confluence of the two streams. A kayakist, lower left, uses a high brace to turn into an eddy in the class II rapids at the entrance of the St. Croix Dalles. Below, boys dive from a cliff in the dalles.



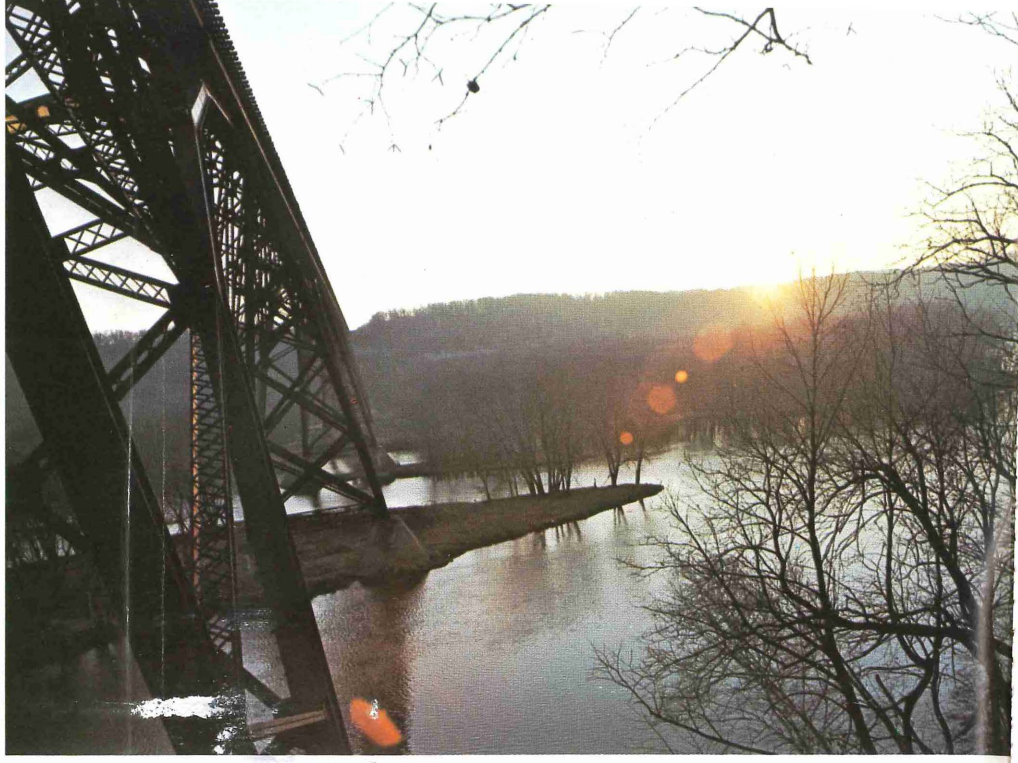


close to shore. Large standing waves and backrollers can swamp an open canoe. The river, falling more than eight feet per mile in this stretch, is wide and fast, making rescue difficult. Below the rapids are the Thousand Islands, often rocky and crowned with pine. Many spring-fed creeks join the St. Croix in this area.

Canoeists will see few signs of man's presence along the St. Croix from its source to the mouth of the Snake River (river mile 101.5). Several homes have been built on Wisconsin's shore between the mouth of the Snake and the State Highway 70 bridge, though Minnesota's wooded banks are preserved within the confines of Chengwatana State Forest.

Canoeists must portage a dam near St. Croix Falls (river mile 57). The river then charges through a short, powerful rapids beneath the U.S. Highway 8 bridge at Taylors Falls, a class II pitch in low water and a stout class IV in high water. Standing waves and backrollers vary with the water level from three to more than five feet, though there are few rocks or other obstacles. In low water, canoeists can skirt the rapids by keeping to the right.

The rapids leads into the St. Croix Dalles, the long-ago meeting place of the two rivers that joined to form the St. Croix. Water draining from glacial Lake Duluth drilled a deep, narrow path through hard igneous rock, joining the previously formed lower river. Rocks and gravel swirling in eddies carved the dalles' potholes,



Sunset glistens through the arch of the Soo Line Railroad bridge over the lower St. Croix River. Photo by Ron Van Zee.

stone wells up to 60 feet deep. Pines cling precariously to steep rock walls that tower as high as 200 feet above the river. The St. Croix's depth here averages 70 feet, with holes as deep as 100 feet. During the area's lumbering boom, the millions of logs sent down the river every spring often piled up in spectacular jams between the narrow cliffs of the dalles. Jam crews and steamboats often worked weeks to free the tangle. Today the dalles is preserved in the Interstate state parks of Minnesota and Wisconsin. Established in 1895, the two parks were the first cooperative park venture in the United States.

Below the dalles the St. Croix flows through a steep, heavily wooded valley with occasional sandstone and limestone bluffs. Winding side channels and shaded backwaters offer opportunities for quiet exploration and channel catfish angling. Springs and small streams entering the river create miniature deltas and valleys.

As the river approaches Stillwater, the bluffline homes and the many recreationists that come to the area contrast sharply with the wilder, less settled upper St. Croix. There are no hazards such as rapids or dams, only a flotilla of sailboats, speedboats and water-skiers.

The Soo Line Railroad bridge (river mile 31) is an imposing steel arch more than 150 feet above the river. Towering stone piers a mile downstream are all that remain of another old railroad bridge.

South of the Soo Line bridge is St. Croix Boomsite Park, several long narrow islands where logs were sorted before they were sent to mills downstream. Near the park, on the precipitous sandstone cliffs bordering the west bank of the river, the Dakota Indians carved and painted vermilion figures and images, long since erased by time and man. Indian burial mounds were once numerous in the lower St. Croix valley, but have been lost to agriculture and construction.

Near Stillwater the St. Croix widens and deepens, forming Lake St. Croix. The lake, which varies in depth from 10 to 70 feet, is bounded by steep wooded bluffs topped with many permanent and seasonal homes. From slightly south of Bayport to as far downstream as Afton, however, the bluffs on the Minnesota side recede, replaced by large, nearly level terraces.

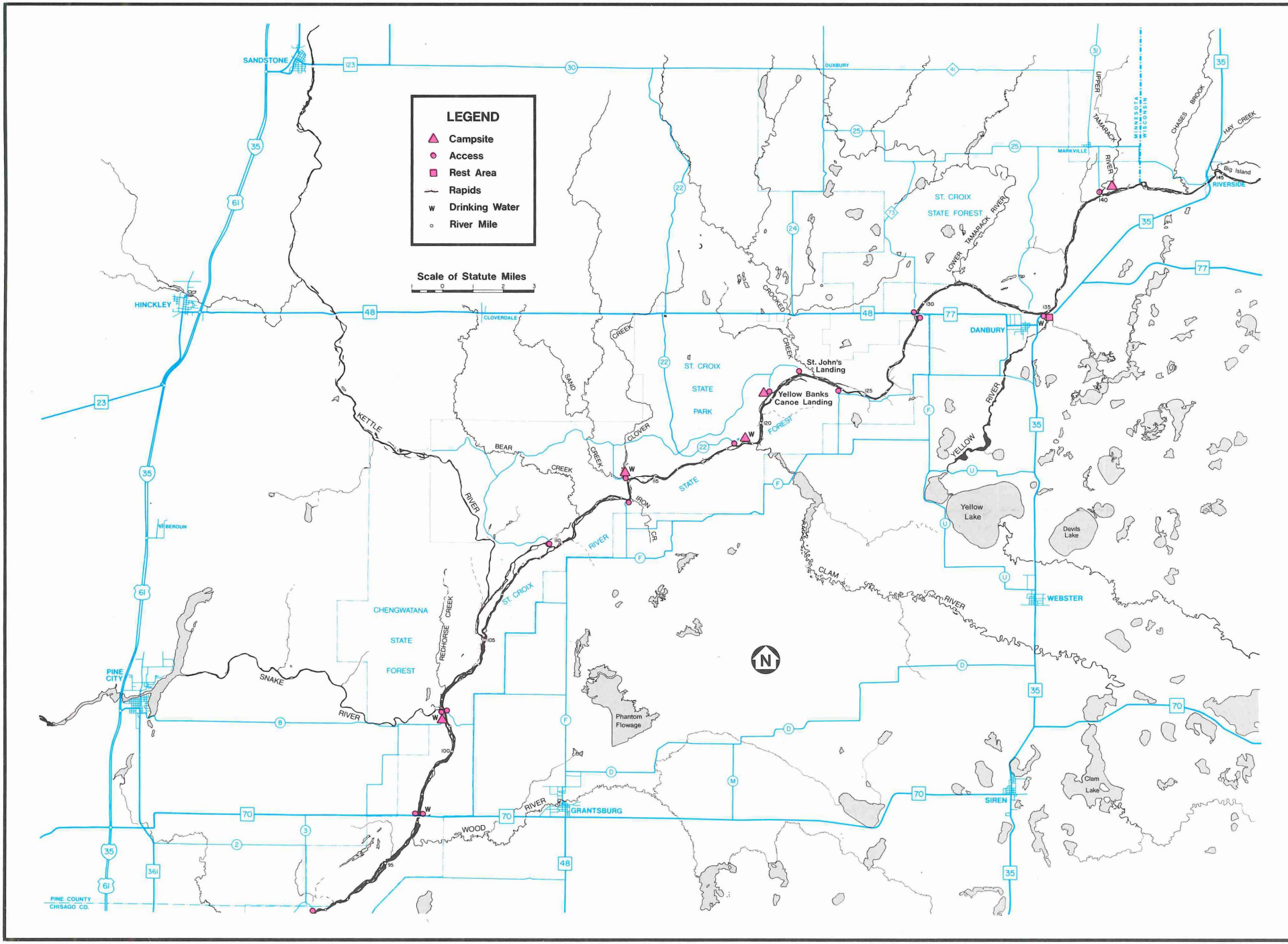
The St. Croix harbors a variety of fish, including smallmouth bass, northern pike, crappies, walleyes and saugers. The upper reaches hold muskies. Trout are caught in some tributaries. Anglers catch channel catfish, white bass and even gar in deep holes in the St. Croix Dalles.

Hunting pressure is light because the St. Croix has little prime waterfowl habitat. Nevertheless, there are some mallards, wood ducks, ring-necked ducks and blue-winged teal. Upland game birds include ruffed grouse and woodcock. A few pheasants live in the river valley. White-tailed deer, beaver, raccoon, otter, mink, muskrat and fox are common.

The second-growth forests of birch, maple, oak, aspen and basswood that cloak the river valley have replaced the extensive stands of white pine that disappeared during the logging boom. Although sandy soils and rapids discouraged settlement above Taylors Falls, the lower river continues to be jeopardized by shoreland development that may prove to be more damaging and permanent than the desolation wrought by the timber industry.

The St. Croix was designated a national wild and scenic river in the hope that it could be preserved through new zoning ordinances and the acquisition of land and easements by state and federal authorities. In addition, water surface use regulations are in effect on the lower St. Croix to ease some of the conflicts among canoeists, boaters, water-skiers and swimmers. Upstream from the mouth of the Apple River (river mile 33), for example, motorboats must travel slowly, creating as small a wake as possible. Additional regulations govern waterskiing and motorboating below the Apple River.

For more information on the St. Croix National Scenic Riverway, call or write: St. Croix National Scenic Riverway Headquarters, P.O. Box 579, St. Croix Falls, WI 54025; or Minnesota-Wisconsin Boundary Area Commission, 619 Second St., Hudson, WI 54016.


LEGEND
Campsite
Access
Rest Area
Rapids
Drinking Water
River Mile
Scale of Statute Miles
SANDSTONE
HINCKLEY
CLOVERDALE
DUXBURY
MARKVILLE
DANBURY
RIVERSIDE
WEBSTER
SIREN
GRANTSBURG
PINE CITY
BEROUN
PINE COUNTY
CHISAGO CO.
ST. CROIX STATE PARK
ST. CROIX STATE FOREST
CHENGWATANA STATE FOREST
St. John's Landing
Yellow Banks Canoe Landing
KETTLE RIVER
BEAR CREEK
CLOVER CREEK
SAND CREEK
CROOKED CREEK
IRON CR.
ST. CROIX RIVER
REDHORSE CREEK
SNAKE RIVER
WOOD RIVER
UPPER TAMARACK RIVER
LOWER TAMARACK RIVER
CHASES BROOK
HAY CREEK
YELLOW RIVER
CLAM RIVER
MINNESOTA
WISCONSIN
Yellow Lake
Devils Lake
Phantom Flowage
Clam Lake
Big Island
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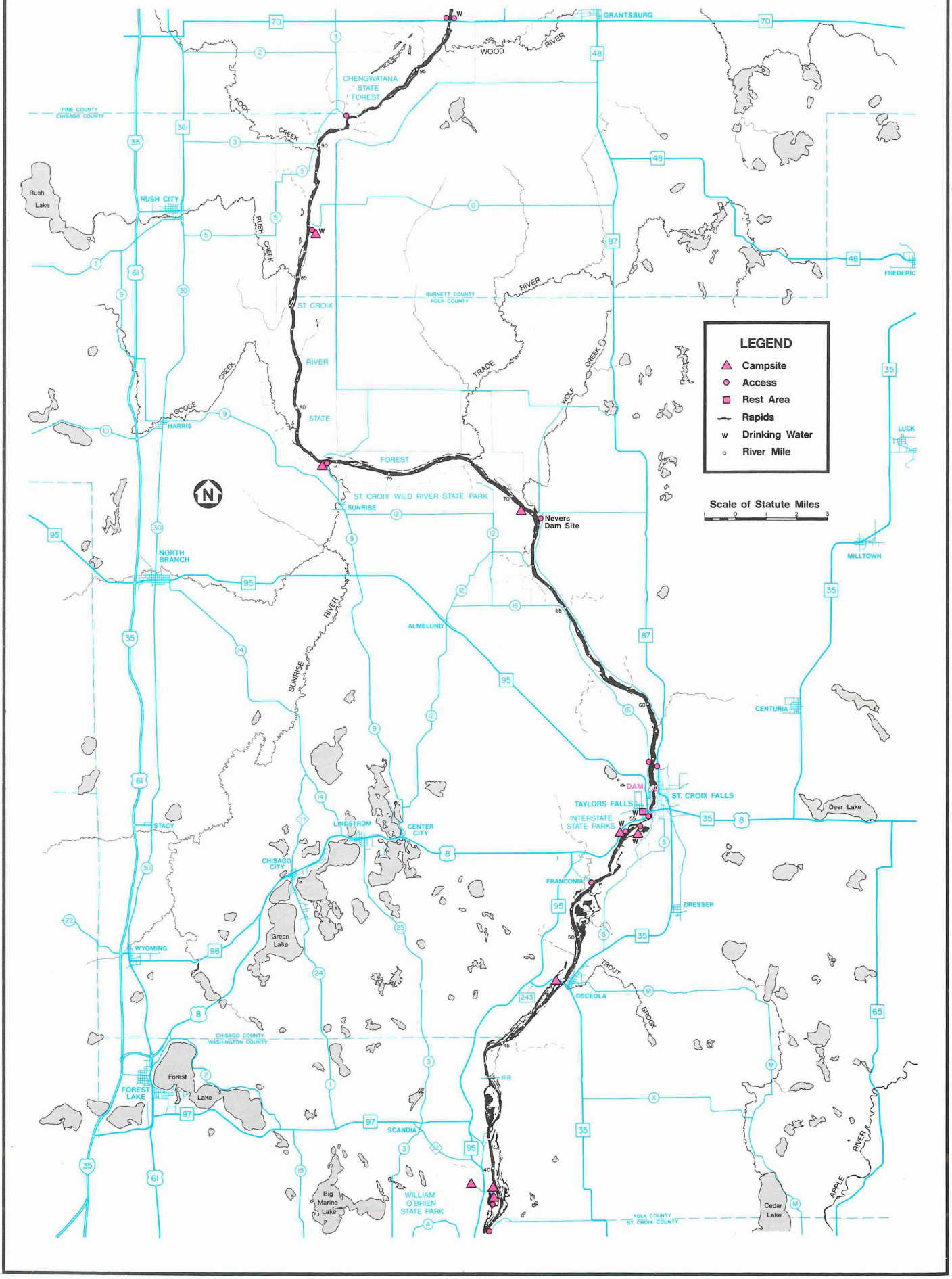
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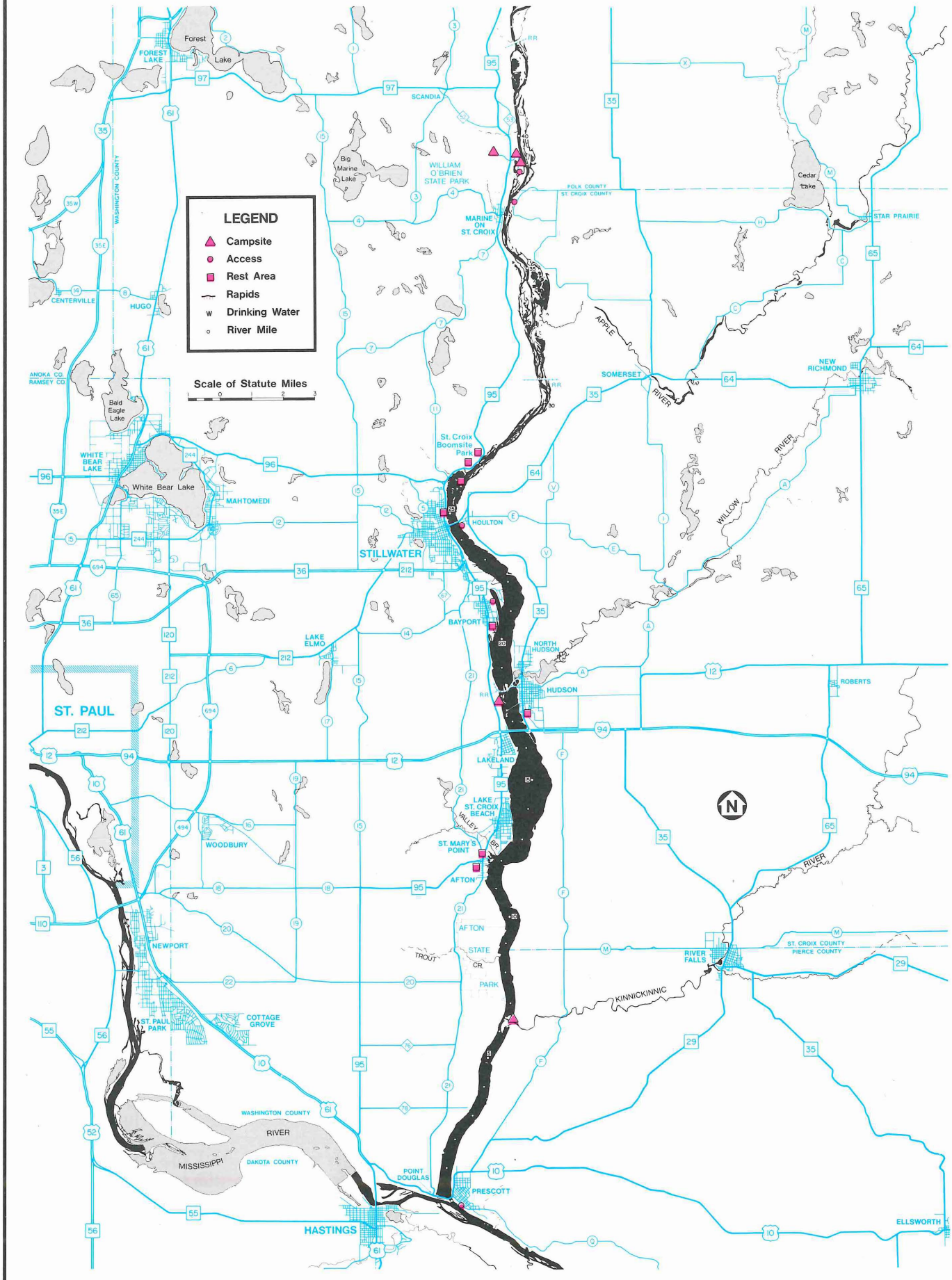
GRANTSBURG
WOOD
RIVER
CHENGWATANA STATE FOREST
ROCK CREEK
PINE COUNTY
CHISAGO COUNTY
RUSH CITY
Rush Lake
RUSH CREEK
BURNETT COUNTY
POLK COUNTY
ST. CROIX RIVER STATE FOREST
TRADE RIVER
WOLF CREEK
GOOSE CREEK
HARRIS
FREDERIC
LUCK
MILLTOWN
ST. CROIX WILD RIVER STATE PARK
SUNRISE
Nevers Dam Site
NORTH BRANCH
SUNRISE RIVER
ALMELUND
CENTURIA
DAM
TAYLORS FALLS
ST. CROIX FALLS
INTERSTATE STATE PARKS
Deer Lake
STACY
LINDSTROM
CENTER CITY
CHISAGO CITY
FRANCONIA
DRESSER
WYOMING
Green Lake
TROUT BROOK
OSCEOLA
CHISAGO COUNTY
WASHINGTON COUNTY
Forest Lake
FOREST LAKE
SCANDIA
WILLIAM O'BRIEN STATE PARK
Big Marine Lake
POLK COUNTY
ST. CROIX COUNTY
Cedar Lake
APPLE RIVER


LEGEND
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River Mile
Scale of Statute Miles
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FOREST LAKE
SCANDIA
Big Marine Lake
WILLIAM O'BRIEN STATE PARK
MARINE ON ST. CROIX
POLK COUNTY
ST. CROIX COUNTY
Cedar Lake
STAR PRAIRIE
WASHINGTON COUNTY
CENTERVILLE
HUGO
ANOKA CO.
RAMSEY CO.
Bald Eagle Lake
WHITE BEAR LAKE
White Bear Lake
MAHTOMEDI
St. Croix Boomsite Park
HOULTON
STILLWATER
SOMERSET
APPLE RIVER
NEW RICHMOND
WILLOW RIVER
BAYPORT
LAKE ELMO
NORTH HUDSON
HUDSON
ROBERTS
ST. PAUL
LAKELAND
LAKE ST. CROIX BEACH
VALLEY BR.
ST. MARY'S POINT
WOODBURY
AFTON
AFTON STATE PARK
TROUT CR.
NEWPORT
ST. PAUL PARK
COTTAGE GROVE
RIVER FALLS
ST. CROIX COUNTY
PIERCE COUNTY
KINNICKINNIC RIVER
WASHINGTON COUNTY
MISSISSIPPI RIVER
DAKOTA COUNTY
POINT DOUGLAS
PRESCOTT
HASTINGS
ELLSWORTH

St. Louis River

The St. Louis River, rising in the iron range country of northeastern Minnesota, flows through a wild river valley, its enchanting path frequently enlivened by boulder-field rapids.

Much of the St. Louis is virtual wilderness. Man's influence is generally limited to the few towns along the river and a railroad running along the right bank between Floodwood and Cloquet.

Although the river is most pristine near its headwaters at Seven Beaver Lake, most canoeists begin their trip below the U.S. Highway 53 bridge, where the St. Louis has already become a sizable stream.

Steep, heavily wooded banks up to 30 feet high line the upper reaches of the river. Quaking aspen, paper birch and maple predominate; pine trees stand out among the smaller clumps of spruce and balsam fir. The river is narrow and generally deep.

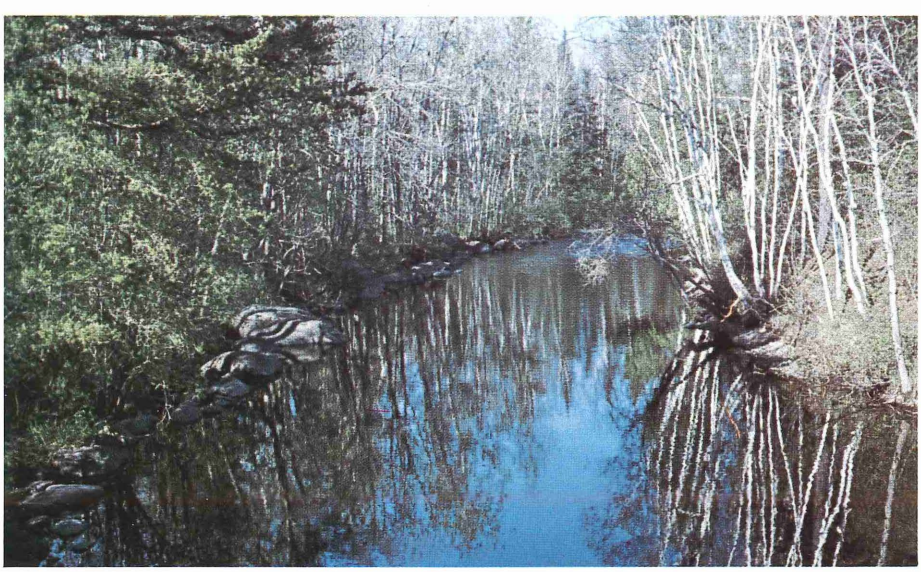
From Toivola to Floodwood the St. Louis is a wider, slower-moving stream flanked by hardwood forests and farmland. Below Floodwood the river widens further; wooded bluffs of aspen and paper birch rise to 75 feet a quarter mile from the river's banks.

Moose are occasionally sighted along the St. Louis. Black bears and eastern timber wolves also may be found along the upper reaches. Hunting white-tailed deer and ruffed grouse is popular; fishing is another attraction. The St. Louis is particularly noted for its catfish, though walleyes, northern pike, and largemouth and smallmouth bass can also be taken. The area also supports a variety of ducks, including wood ducks and mallards.

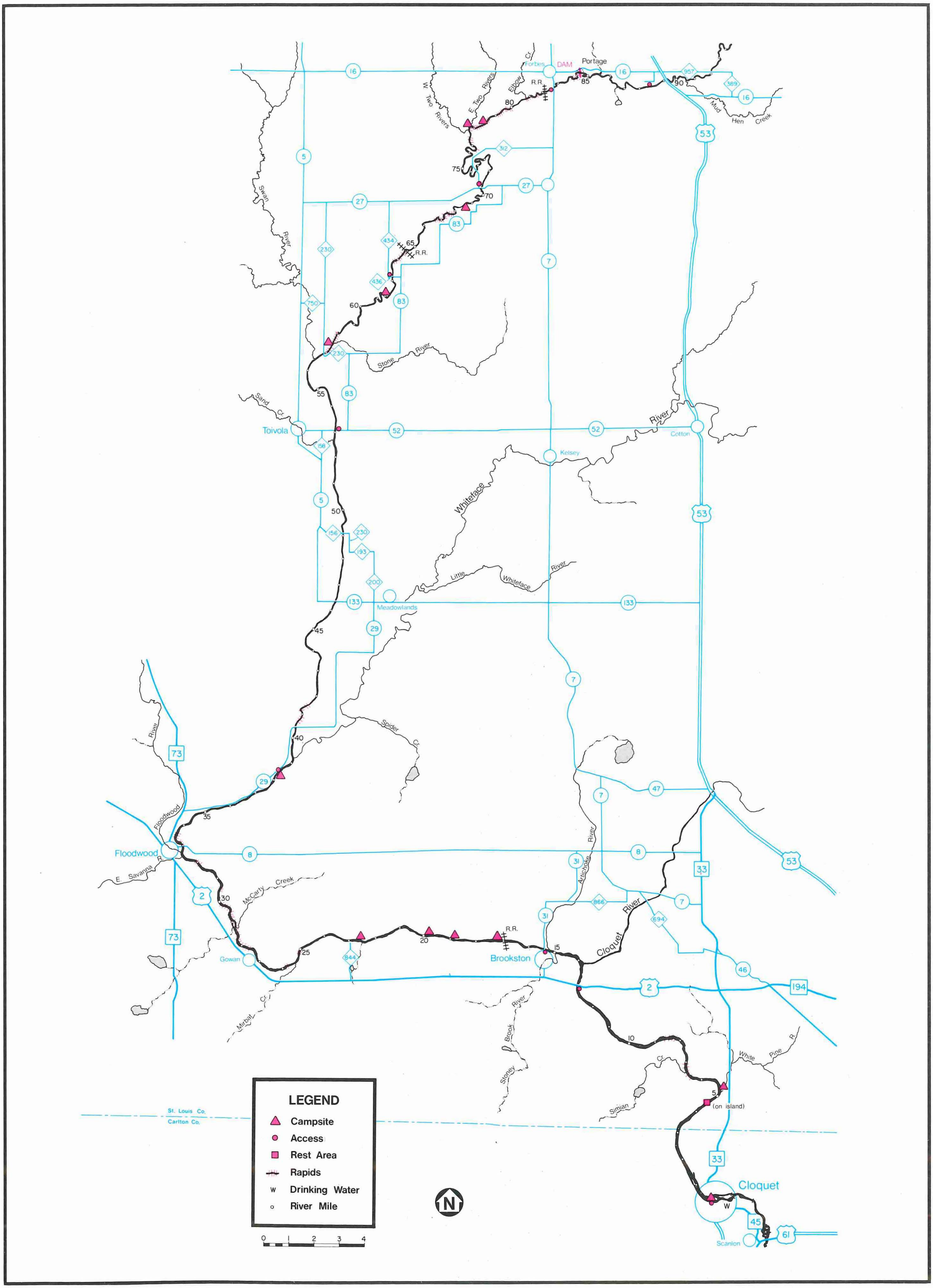
Despite frequent stretches of boulder-field rapids, the St. Louis from U.S. Highway 53 to Cloquet is a class I or easy class II run at normal summer water levels. With the cold, high water of spring, consider the rapids one class higher.

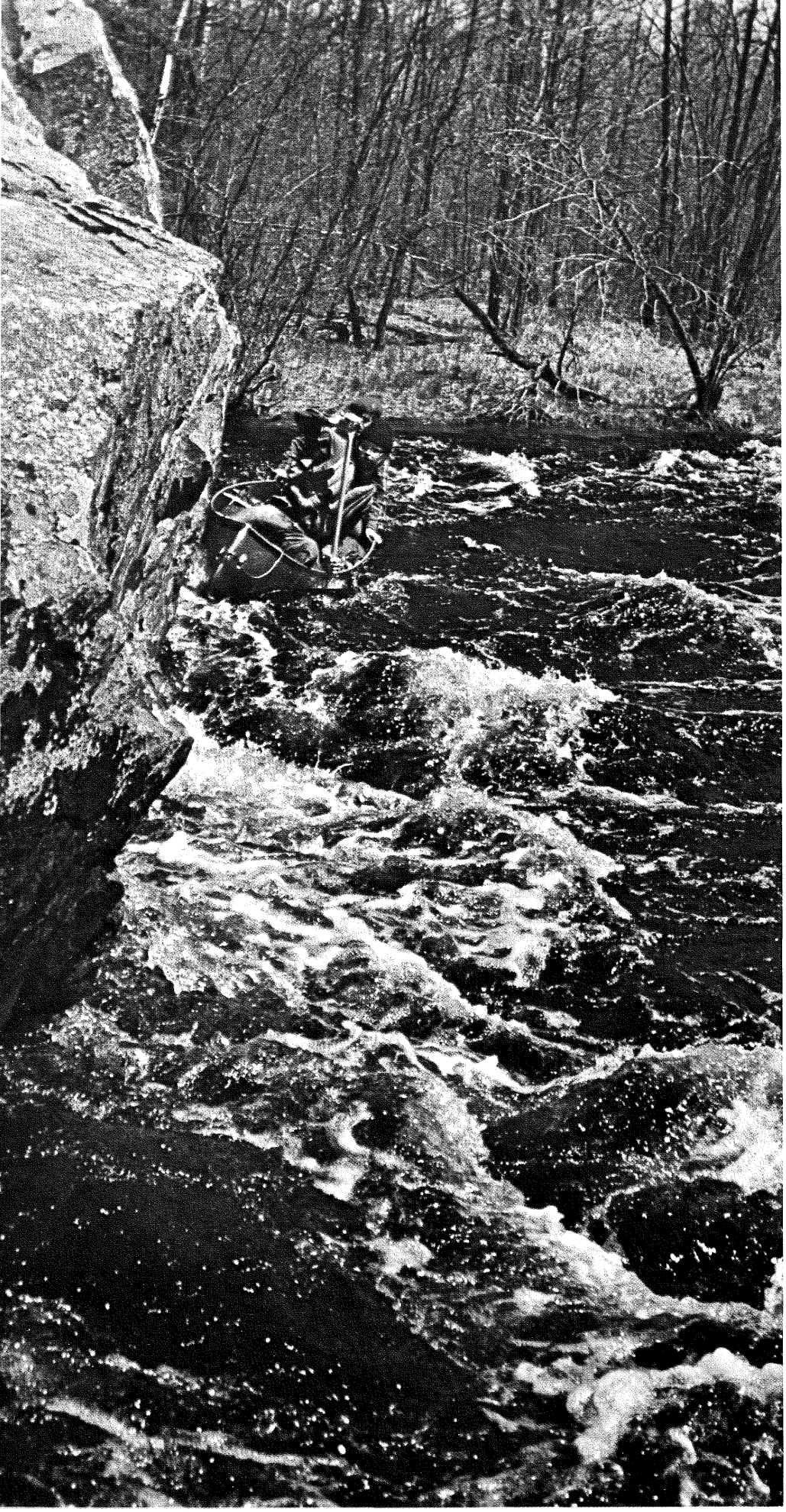
Do not canoe below Cloquet because of the many dams and dangerous water. An attempt to negotiate the class VI rapids in the St. Louis gorge would almost certainly lead to serious injury or death. Canoeists, in fact, have drowned on this stretch. But from the vantage point of the footbridge over the gorge in Jay Cooke State Park, travelers can see a striking panorama of jagged rocks, falls and rapids.

Land along the St. Louis contains many archaeological sites and remains of logging sites, sawmills, logging railroads and pioneer settlements. French explorers and missionaries arrived in the 17th century. Fur trading was well established in the early 18th century, but by the mid-1800s it started to decline and the lumber industry took its place. Large deposits of iron and other minerals were discovered north of the St. Louis and in 1884 iron mining began on the Vermilion range. Today the area depends primarily on the mining, wood pulp and paper industries.



The upper St. Louis River, above, flows between birch- and pine-covered banks. Low water, top, reveals the jagged riverbed in Jay Cooke State Park (photo by William C. Pearson).


LEGEND
Campsite
Access
Rest Area
Rapids
Drinking Water
River Mile
Cloquet
Floodwood
Toivola
Brookston
Meadowlands
Kelsey
Cotton
Forbes
Portage
DAM
Gowan
Scanlon
St. Louis Co.
Carlton Co.
Cloquet River
Whiteface River
Little Whiteface River
Stone River
Swan River
Spider Cr.
Sand Cr.
Floodwood River
E. Savanna R.
McCarty Creek
Artichoke River
Stoney Brook River
Simian Cr.
White Pine R.
Mud Hen Creek
E. Two Rivers
W. Two Rivers
Elbow Cr.
Mirbat Cr.
R.R.
(on island)



Canoeists, left, prepare to capsize as the current slams them into a cliff at the beginning of the Upper Snake River Falls, a class III rapids at this high water level (photo by Glen Robinson). The upper Snake gathers in a quiet pool, right, before charging through more rapids (photo by Dale Homuth).

Snake River

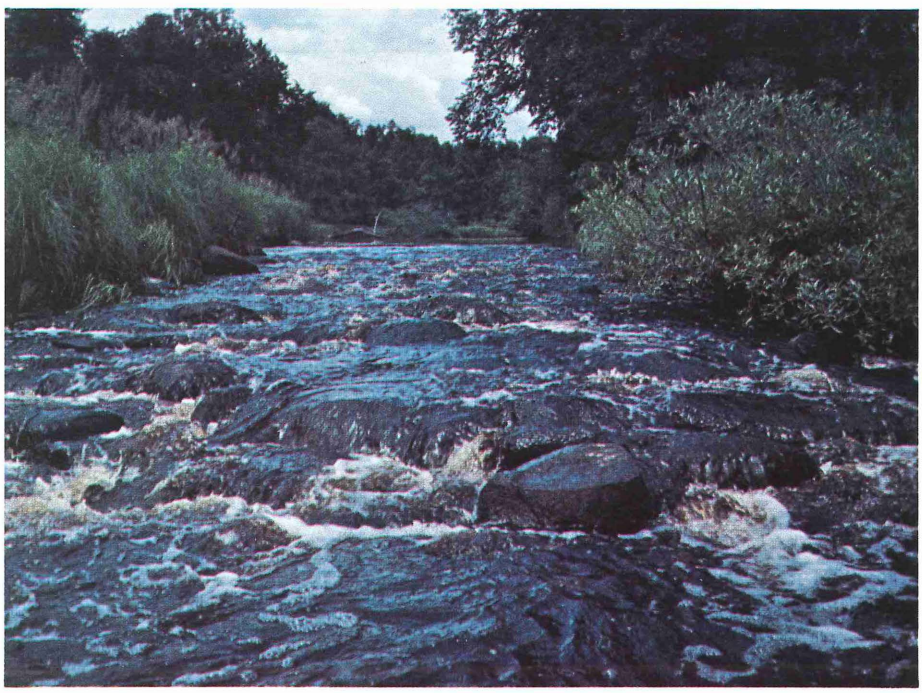
A stream with a conflicting character, the Snake River tumbles through frequent rapids in its upper reaches, loafs for many miles, and then again spills through a quick series of pools and drops before reaching the St. Croix River.

Rising in the wetlands of southern Aitkin County, the upper Snake is wild, its banks a tangle of hardwoods, spruce, pine and dense underbrush. From McGrath to Mora, the river runs through a succession of rapids and short pools, including the Upper and Lower Snake River falls, two difficult rapids that lie in a steep, narrow granite canyon.

Old bridge pilings at the end of the Silver Star Road (river mile 78.2) are commonly used to determine water level. The upper stretch is unrunnable when the pilings stick five feet above the water. The level is moderate when three feet show. The river is high when two or fewer feet show.

Most of the upper Snake's boulder-bed rapids rate class II in moderate and high water and some are capable of throwing large standing waves. A short distance above the mouth of Hay Creek the river takes a wide left bend and begins its rush through the Upper Snake River Falls, a 50-yard class III rapids in moderate or high water that drops about three feet. A couple of three- to four-foot backrollers form near the head of the rapids. The river also tends to push canoeists into the jutting rock cliff on the right of the stream, so keep to the inside of the first turn. The rapids is filled with standing waves up to three feet high, large enough to swamp an open canoe. A sharp left turn at the end of the rapids may also force unwary canoeists into a cliff on the right.

The Snake eases for about a mile before plunging through the Lower Snake River Falls, a long, heavy rapids in a narrow canyon. Dropping 20 feet in



The upper Snake tumbles over a staircase of boulders. When the river is high, this part of the Snake is a class III stretch of standing waves and fast water. Photo by Dale Homuth.

three-quarters of a mile, the lower falls rates class III in moderate water and, because of its length, class IV in high, cold water — a nearly impossible obstacle even for experts in an open canoe. A rock the size of a Volkswagen lies to the right, just after the first drop in the rapids, and creates a powerful but avoidable hole in high water. The river, filled with three-foot standing waves, twists right. Two big souse holes form on the left side of the river near the tail of the rapids.

The river settles down again on its way to Mora, tumbling through a series of class II (class III in high, cold water) rapids and pools, and passing rock remnants of the Old Bean Logging Company Dam (river mile 66).

In contrast to the upper Snake, the river between Mora and Pine City falls less than one foot per mile, cutting a gentle path rarely interrupted by rapids. Wooded banks give way to a wide farming valley below Grasston. This middle section of the river is canoeable all summer.

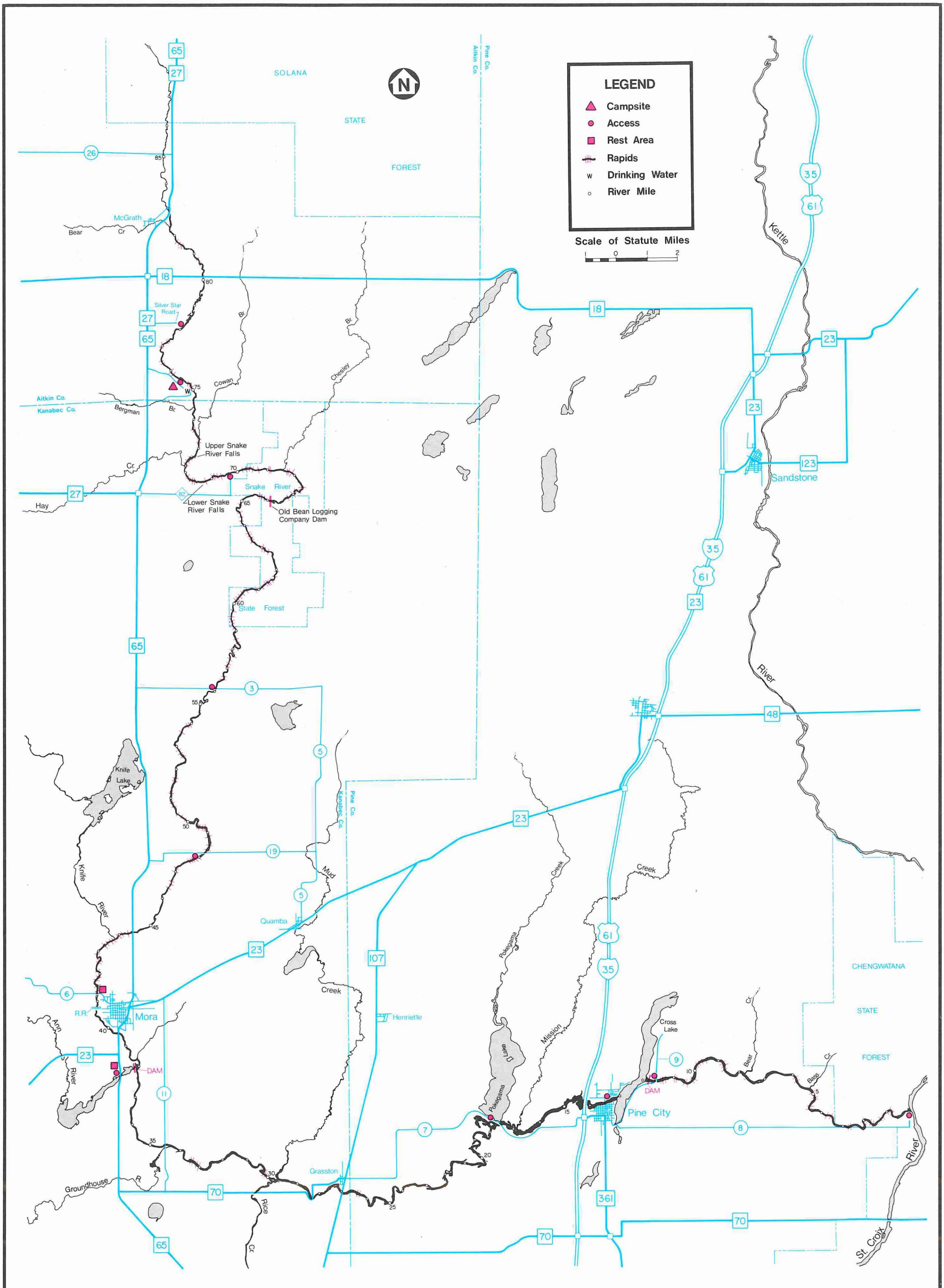
Forest again closes in as the river falls over a dam on the southeast end of Cross Lake and shoots past high bluffs through a series of rapids and pools to its mouth.

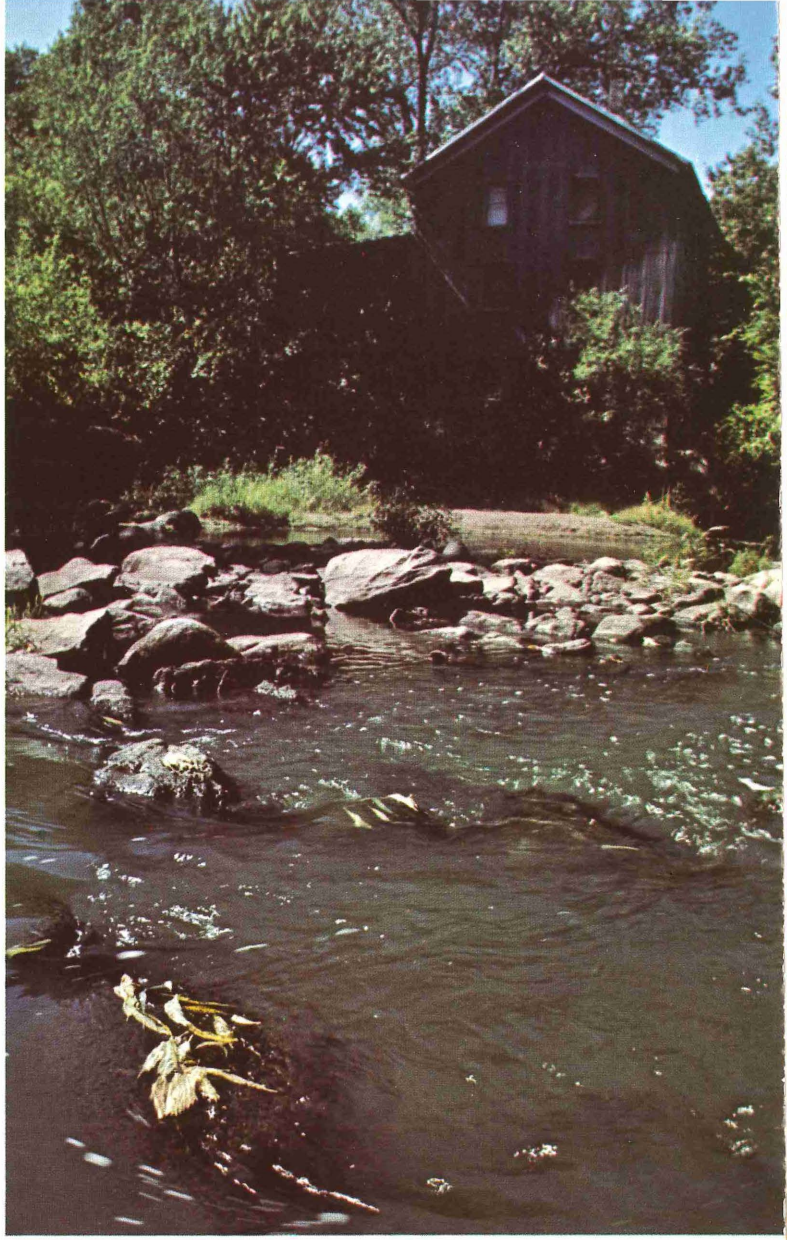
Unrunnable in low water, the rapids of the lower Snake are filled with small boulders and are of class I difficulty at medium water levels. When the water level is high with spring runoff, the lower stream is filled with standing waves, and is a class II run because of the swift current and cold water. The lower stream falls about 11 feet per mile. The lower Snake recently has become the building site of many homes and cottages. The last three miles of the river, however, are protected within the boundaries of Chengwatana State Forest.

Fishing on the Snake can be good. Major game fish include walleye, smallmouth bass, northern pike, channel catfish and sturgeon. The river valley supports a wide variety of wildlife. Duck hunting is excellent in some areas. Mallards, wood ducks and blue-winged teal are common. Woodlands support ruffed grouse and a healthy deer population.

The Snake at one time was called the Portage River. The Ojibway who lived near the river's mouth later called it *Kanabec*, or "snake," perhaps for their Dakota enemies who lived upstream and whom the Ojibway later displaced. The Groundhouse River, a tributary of the Snake, probably was named for the earth-covered lodges of either the Mandan or Hidatsa, two closely related Dakota tribes.

The Snake River valley was once densely covered with stands of white pine. Logging began in 1837, reached its peak in the 1880s, and quickly waned. Although trees are still cut along the upper river for pulpwood and other wood products, agriculture, particularly dairy farming, is now the primary industry.


LEGEND
Campsite
Access
Rest Area
Rapids
Drinking Water
River Mile
Scale of Statute Miles
SOLANA
STATE
FOREST
McGrath
Bear Cr
Silver Star Road
Aitkin Co.
Kanabec Co.
Bergman Br.
Cowan
Chesley
Upper Snake River Falls
Snake River
Lower Snake River Falls
Old Bean Logging Company Dam
State Forest
Hay
Knife Lake
Knife River
Mud
Quamba
Creek
Mora
R.R.
Ann River
DAM
Henriette
Groundhouse R
Rice Cr
Grasston
Pokegama Lake
Pokegama Creek
Mission Creek
Cross Lake
Pine City
Bear Cr
Bass Cr
CHENGWATANA
STATE
FOREST
St. Croix River
Kettle River
Sandstone
Pine Co.
Aitkin Co.
Kanabec Co.



An old mill building stands along the Straight River at Clinton Falls. The town was the site of the Clinton Mills, which was destroyed by fire in 1896.

Straight River

A narrow, twisting stream, the Straight River seems to have been misnamed. The river's name is actually a loose translation of *Owatonna*, a Dakota Indian word meaning "morally strong" or "honest."

Flowing through the farmland of southeastern Minnesota, the Straight meanders north from Owatonna to Faribault, where it joins the Cannon River. Away from these cities and the small rural communities situated on its banks, the Straight is a small, intimate stream. Fields, pastures and farm buildings are screened from the river by a narrow strip of trees on either bank. The trees, predominantly elm, willow, poplar and maple, reach over the stream to form a leafy canopy.

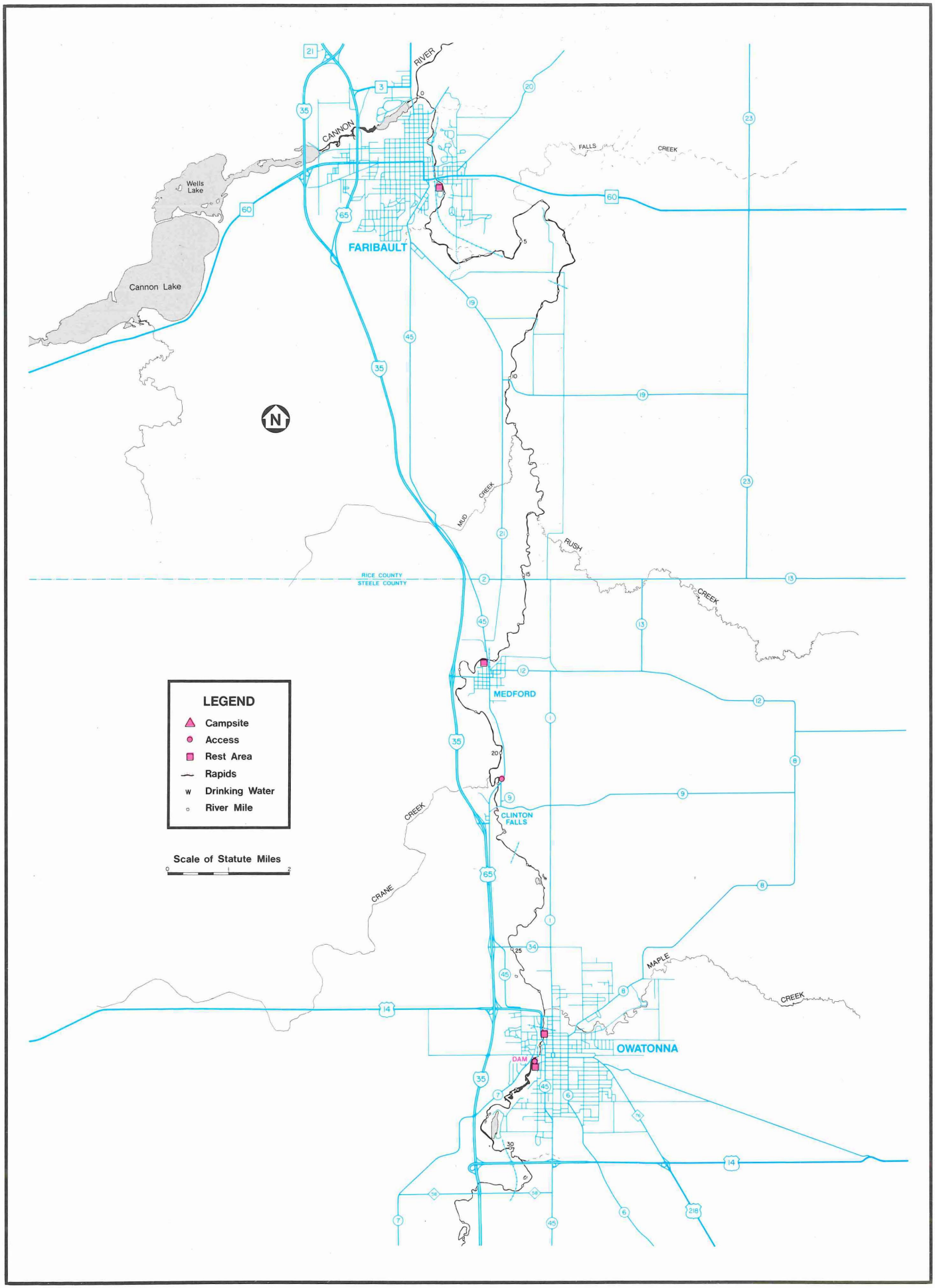
The Straight ranges from 30 to 80 feet wide and from one to four feet deep. Erosion is common along the low, grassy banks. Heavy deposits of sediment that build up in the river are swept away during high spring flow.

The only rapids on the Straight is a class I stretch at Clinton Falls. Occasional riffles mark the rest of the river's course. Canoe the Straight during the high water of spring and early summer. The water level is usually too low during the late summer for an enjoyable run.

Wildlife along the Straight includes deer, rabbits, squirrels and other small mammals. Songbirds and waterfowl are especially plentiful during spring and fall migrations. Fish include northern pike, crappies, smallmouth bass and carp.

The Straight River area was an important milling center during the 19th century. The Clinton Mills in Clinton Falls ground flour and feed for eight counties. The mill was destroyed by fire in 1896. The Walcott Mills (river mile 10), which burned down in 1895, is now marked only by the flume where the wheel turned.

Before the farmers and millers arrived, this area was the trapping ground of Indians and fur traders. Faribault was named for its founder, fur trader Alexander Faribault, who established a trading post near the site of the town in the late 1820s. At that time Minnesota was dotted with trading posts, most controlled by the American Fur Company. Business was good. One year, for example, Faribault's trade included 1,100 minks, 2,050 pounds of deerskins and 39,080 muskrats.


RIVER
CANNON
FALLS
CREEK
Wells Lake
Cannon Lake
FARIBAULT
MUD
CREEK
RUSH
CREEK
RICE COUNTY
STEELE COUNTY
MEDFORD
CLINTON FALLS
CREEK
CRANE
MAPLE
CREEK
OWATONNA
DAM
LEGEND
Campsite
Access
Rest Area
Rapids
Drinking Water
River Mile
Scale of Statute Miles
0
2

High, forested banks flank the Zumbro River near Hammond.

Zumbro River

Limestone and sandstone bluffs watch over the Zumbro River as it winds through southeastern Minnesota to the Mississippi. The Zumbro flows through a deep, narrow gorge hemmed in by rocky cliffs for much of its length below the Rochester Dam (river mile 60). Below Theilman, however, the valley widens considerably and farmland stretches away from the banks.

Woods and marshes along the river offer a gentle contrast to the striking bluffs. Trees in the river valley are predominantly elm, box elder, willow, cottonwood and some walnut.

Although the Zumbro has no difficult rapids — none are more difficult than class I — the river has a lively current and many snags. French traders, in fact, originally called the stream *Rivière des Embarras*, "river of difficulties," because of the many snags caused by widespread bank erosion.

Erosion has also obliterated a small waterfall that was once located just above the town of Zumbro Falls. At the site of the falls the river now flows rapidly over a sandstone rubble bed.

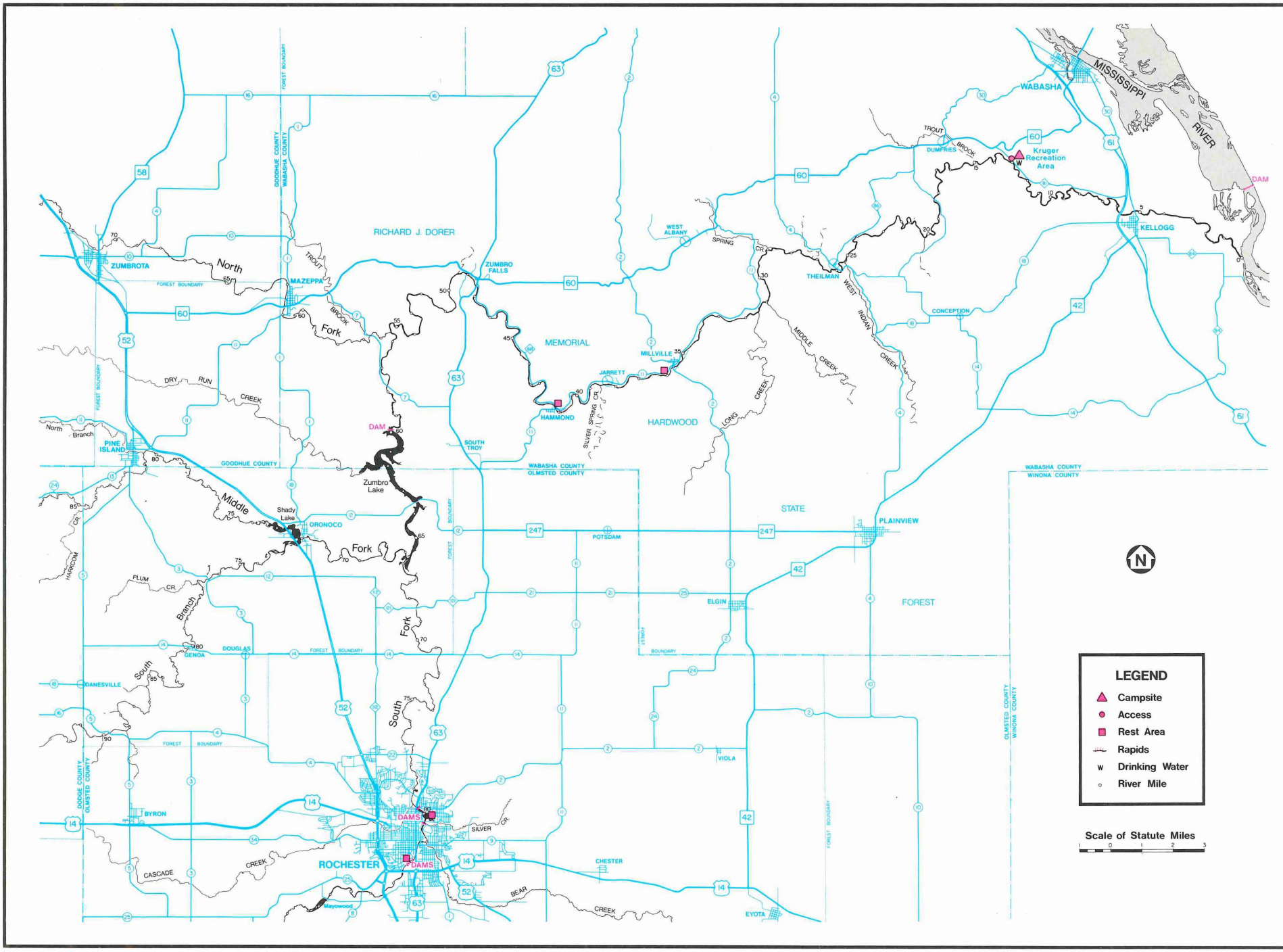
Between Hammond and Jarrett a stretch of mild rapids presents a rocky obstacle course during low water.

The Zumbro is a good fishing river; anglers can take catfish, smallmouth bass, bullheads and suckers. River valley wildlife includes deer, fox and grouse.

Usually a very shallow, muddy river, the Zumbro's water level depends largely on the flow from the Rochester Dam. The dam operators generally release water on weekends, raising the level sufficiently for canoeing.

The river's level may also rise dramatically, and dangerously, after heavy rainstorms, when flash floods are likely to occur. There is only about a four-hour lag between the storm and the flood.

Few convenient public facilities have been developed along the Zumbro. Many canoeists start their trip just north of Rochester, even though there are no developed accesses. Also note that the campsite at river mile 13 is several hundred yards from the river.


MISSISSIPPI RIVER
WABASHA
TROUT BROOK
DUMFRIES
Kruger Recreation Area
DAM
KELLOGG
RICHARD J. DORER
ZUMBRO FALLS
WEST ALBANY
SPRING CR.
THEILMAN
CONCEPTION
ZUMBROTA
MAZEPPA
North Fork
TROUT BROOK
MEMORIAL
MILLVILLE
JARRETT
HAMMOND
SILVER SPRING CR.
WEST INDIAN CREEK
MIDDLE CREEK
LONG CREEK
HARDWOOD
STATE FOREST
DRY RUN CREEK
North Branch
PINE ISLAND
GOODHUE COUNTY
SOUTH TROY
WABASHA COUNTY
OLMSTED COUNTY
WABASHA COUNTY
WINONA COUNTY
Zumbro Lake
DAM
Middle Fork
Shady Lake
ORONOCO
POTSDAM
PLAINVIEW
ELGIN
PLUM CR.
Branch
South Fork
DOUGLAS
GENOA
FOREST BOUNDARY
HAMMOND CR.
DODGE COUNTY
OLMSTED COUNTY
OLMSTED COUNTY
WINONA COUNTY
DANESVILLE
South Fork
VIOLA
BYRON
DAMS
SILVER CR.
ROCHESTER
DAMS
CHESTER
CASCADE CREEK
BEAR CREEK
Marywood
EYOTA
N
LEGEND
Campsite
Access
Rest Area
Rapids
w Drinking Water
River Mile
Scale of Statute Miles
1 0 1 2 3

More rivers

Minnesota is laced with hundreds of streams that are not designated canoe and boating routes. Many are beautiful, many are wild. Many are well-known to canoeists, many remain to be "discovered." Here are brief descriptions of just a few of those rivers. Information on these streams came from canoeists who have paddled them. Although the reports have been checked, there may be some errors, so scout ahead carefully. The state has not developed sites or marked hazards along many of these streams, though some may be served by county or other local facilities. For more information, call or write the Minnesota Department of Natural Resources, Rivers Section, or one of the six regional department headquarters.

Blue Earth River. High bluffs and a hardwood forest screen the Blue Earth River from surrounding farmland as the stream winds north toward the Minnesota River. The Blue Earth is a class I run through frequent rapids and is canoeable most of the summer. Large boulders in the streambed may make canoeing difficult in low water. The river is most commonly paddled from the Rapidan Dam west of the town of Rapidan to the Minnesota River, though portaging and access at the dam is difficult. Canoeists may also begin at the County Road 13 bridge west of Good Thunder, the U.S. Highway 169 bridge at Vernon Center or the State Highway 30 bridge west of Amboy. A short trip is possible from the Cedar Grove Campground downstream from the Rapidan

Dam to the Minnesota. The Blue Earth provides good fishing, especially below the dam. Catfish are the most commonly sought species. Anglers also catch northern pike, walleyes, saugers and smallmouth bass.

Boundary Waters Canoe Area. The BWCA, a nationally renowned million-acre wilderness in northeastern Minnesota, is a labyrinth of canoe trails. Quetico Provincial Park in Canada adds to the wealth of lakes, streams and forest teeming with fish and wildlife. Most rivers in this region resemble chains of lakes joined by rapids and falls ranging from class I to unrunnable. Portages and primitive campsites are established. For BWCA information, write: Superior National Forest, P.O. Box 338, Federal Building, Duluth, MN 55801, Attn: BWCA.

Cottonwood River. The Cottonwood, a narrow tributary of the Minnesota River that is canoeable in the high waters of spring and early summer, is filled with many lively class I rapids. Its quick waters harbor smallmouth bass and a few northern pike. The river valley supports many wood ducks, beaver and deer. The river is canoed from the County Road 11 bridge near New Ulm to the river's mouth on the Minnesota. The remnants of a dam in Flandrau State Park must be portaged.

Elk River. The Elk River, a tributary of the Mississippi, glides through shallow rocky rapids and sandy swifts as it passes marshes, rolling hills, forested bluffs and farmland. Although the rapids are short and easy (class I), windfalls may block the river's upper reaches. Redhorse are the most common fish, though smallmouth bass are found in rocky pools. Northern pike and walleyes are also caught. The river is generally canoeable most of the summer from County Road 11 near Becker to the Mississippi.

Le Sueur River. The Le Sueur River is a class I run through a valley with eroding banks. Songbirds and waterfowl are abundant. The stretch from U.S. Highway 14 to State Highway 83 near Mankato is the section most commonly canoed.

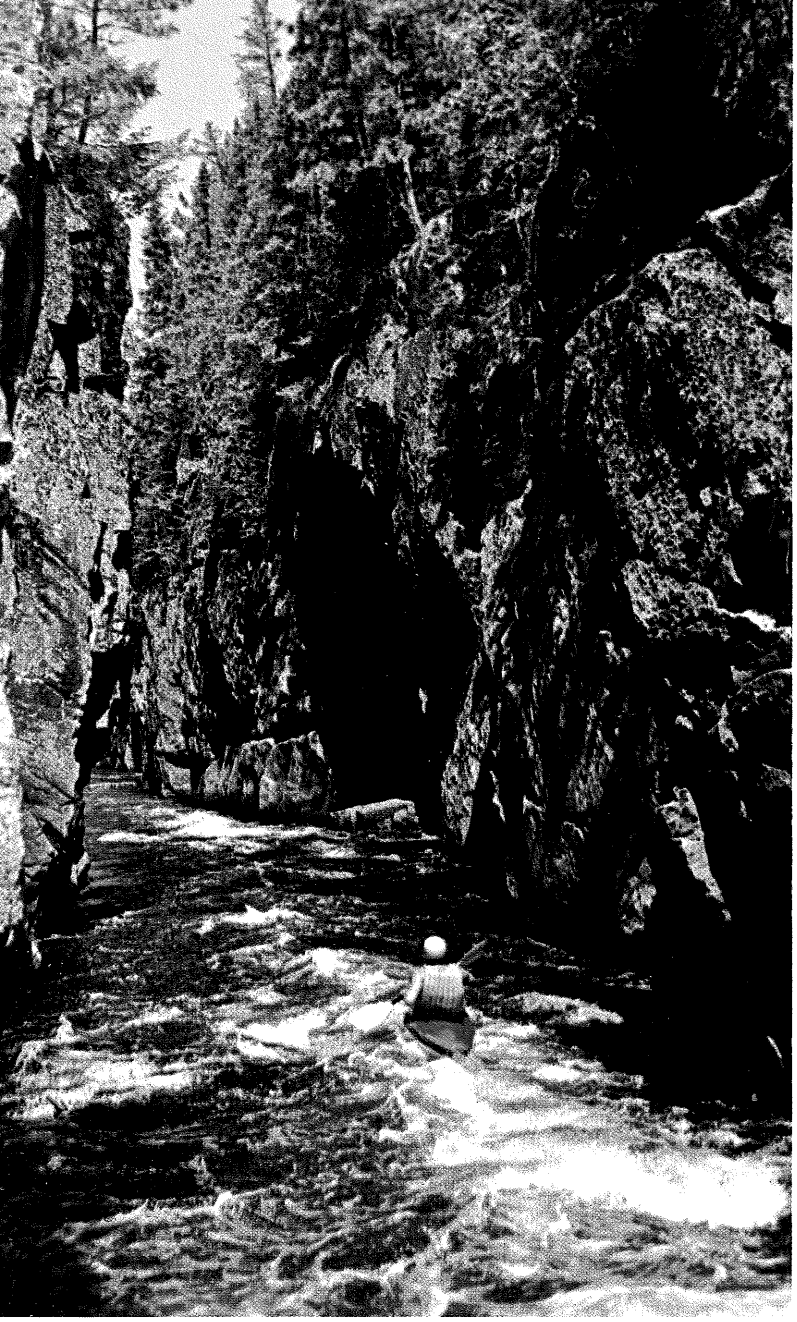
Lower Tamarack River. The Lower Tamarack, tumbling through several class I and easy class II rapids, flows between high bluffs covered with hardwoods, aspen and conifers on its way to the St. Croix River. The final 20 miles of this narrow, twisting stream are usually canoeable through mid-June or after exceptionally heavy late-summer rains. Smallmouth bass, northern pike and crappies inhabit the few deep holes found near the river's mouth. A hiking trail winds from the river's mouth about six miles up the east side of the river. Access is possible at several county road bridges downstream from Duxbury.

Minnehaha Creek. Flowing from Grays Bay on Lake Minnetonka to the Mississippi River in South Minneapolis, Minnehaha Creek is runnable in the spring or after heavy rains. The river tumbles through several class I rapids. Carry your canoe around two dams and several culverts. Also portage Minnehaha Falls, a 50-foot waterfall near the Mississippi. There are picnic areas in the park near the falls.

North Shore streams. The rivers that tumble through rapids and spill over falls along Lake Superior's northern shore are a unique blend of wildness and fury. The names of the rapids — Sauna Bath, Sewer Pipe, Devil's Kettle, Second Island Falls — suggest the swift descents, sharp turns and blind drops that reserve these streams for experienced decked boaters. North Shore rivers that have been run include the Brule, Baptism, Cross, Poplar, Cascade, Temperance and Pigeon. Rapids and falls range from class I to class VI to impossible. Trips on these hazardous waters should be led by a paddler familiar with the river.

Although few people will be able to paddle the North Shore streams, many nevertheless enjoy the rivers. Parks and hiking trails are everywhere along their banks. Steelhead and brook trout fishing is excellent. Thousands of people visit the North Shore when the smelt make their yearly spring run up the rivers. Some people even cross-country ski down the streams when the snow is very deep.

Otter Tail River. Flowing through marshes and between wooded hillsides in a wide, shallow valley of farmland, the Otter Tail River provides a quiet class I run with a rural or near-wilderness flavor, though its course is interrupted by several dams. Scenery and fishing (for northern pike and largemouth bass) are best in the upper reaches. The river becomes increasingly littered and fouled as it approaches its confluence with the Bois de Sioux River, where the two streams form the headwaters of the Red River of the North.



A kayakist rides rapids into the Gorge, a dalles on the Vermilion River in northern Minnesota. Photo by Glen Robinson.

Pike River. An intimate wilderness stream bounded by dense pine forests and some marshland, the Pike River is canoed from the County Road 21 bridge to Vermilion Lake near Tower. It is runnable in the spring, early summer and after heavy rains. The upper river flows over a sandy bed and past sandy banks, while the lower river flows over the igneous rock common in the Canadian Shield country. Information on the Pike's rapids is incomplete. Most rapids are class I or class II boulder fields at canoeable water levels. A large dam at the river's mouth on Vermilion Lake must be portaged.

Pine River. The Pine, bordered by hardwood forest, farmland and marsh, flows from Norway Lake through the Whitefish chain of lakes and joins the Mississippi River near State Highway 6 north of Crosby. Fish and wildlife are plentiful. The Pine's occasional class I rapids and riffles may be impassable in low water. Two dams must be portaged. Pine River canoe route maps are available from the Minnesota Department of Natural Resources.

Rainy River. The Rainy, a wide, slow river, forms much of the boundary between Minnesota and Canada. Tainted by municipal and industrial wastes, the Rainy's main virtue is that it is nearly always canoeable. Walleye, northern pike, smallmouth bass and sturgeon inhabit the river.

Red River of the North. The Red River of the North, the border between northern Minnesota and North Dakota, meanders slowly through a rural setting of woods and farmland. The river is usually canoeable, except during heavy spring floods when the stream should be avoided. The Red River harbors many bullheads, but few game fish.

Rice Creek. Used heavily in the spring and during wet summers, Rice Creek is a fun class I to class II run within easy reach of Twin Citians. The stream winds through a deep, wooded valley in New Brighton and Fridley. Downed trees may prove more hazardous than the rapids. Portage the dam at the west end of Locke Lake in Fridley and continue down the creek to the Mississippi.

Sand Creek. The three-mile run on Sand Creek from County Highway 8 to State Highway 21 near Jordan is one of the first springtime outings for white-water boaters. Rapids are class I and class II. Railroad Rapids, located beneath a railroad trestle a short distance upstream from the take-out, rates class III in high water. The Jordan Dam, a 13-foot dam downstream from the take-out, is a class IV drop in moderate water. The dam has not been run in high water and is never run in open canoes.

Sauk River. Canoeable from Cold Spring to the Mississippi River during most of the spring and summer, the Sauk River tumbles through several class I and class II rapids in its last five miles. The upper river is the most scenic stretch and is the site of a heronry. Farmland and residential areas border the stream near St. Cloud. Because the water quality of the Sauk River is poor, swimming is not advised.

Schoolcraft River. Though usually runnable only in the spring, the Schoolcraft River is recommended by its wild, densely forested valley. Named for Henry Schoolcraft, the explorer who identified the source of the Mississippi River in 1832, the river joins the Mis-

sissippi just south of Lake Bemidji. The Schoolcraft has no large rapids.

Sturgeon River. The Sturgeon, one of the principal tributaries of the Little Fork River in northern Minnesota, can provide good walleye fishing and an exciting run through a wilderness region if canoeists are willing to pay the price of portaging frequent logjams. Much of the river is flanked by mature stands of jack and red pine, spruce, fir and river-bottom hardwoods. Wood ducks, teal, beavers, otters, mink and bears are common. The Sturgeon tumbles through several class II and class III rapids. The three-and-one-half-mile stretch from the Shoe Pac Road bridge to the County Road 65 bridge is a particularly exciting class III run through steep boulder-bed pitches. The U.S. Geological Survey maintains a river gauge on this stretch, which is runnable if the gauge indicates that the streamflow is more than 350 cubic feet per second. Call the Grand Rapids office for a reading. Calmer water is found downstream from the County Road 65 bridge to the river's mouth. A good access is the highway wayside at the State Highway 73 bridge about 16 miles north of Chisholm.

Sunrise River. The Sunrise, a tributary of the St. Croix, is a swift, intimate woodland river. The stream, which usually is less than 50 feet wide, provides a 10-mile run in the spring or after heavy rains. Most of the river's several rapids are class I riffles. One drop, where the river narrows about a mile from the river's mouth, is an easy class II pitch. More hazardous than the rapids are deadfalls on the outside of river bends. Start your trip in the park below the big dam near Kost.

Turtle River. Flowing 16 miles from Lake Julia to Cass Lake, the Turtle River carries canoeists into the deep woods of Chippewa National Forest. Wildlife is plentiful and large wild rice beds line the river's shores. The small rapids in the river are not dangerous and require no portages. The remains of several logging dams and an old sawmill site are still visible. Big Rice Lake holds crappies, walleyes, northern pike and perch. Access is possible at several places. The U.S. Forest Service provides maps for the Turtle River and other canoe routes in Chippewa National Forest.

Vermilion River. The 40-mile Vermilion River in northern Minnesota combines wilderness with good smallmouth bass and northern pike fishing. Flowing north from Vermilion Lake, the river moves imperceptibly by marshy shores and pine forests. Occasionally, however, the Vermilion narrows and rushes through steep rapids which range in difficulty from class II to class VI. High Falls, a steep waterfall in a narrow canyon about four miles upstream from Crane Lake, must be portaged. Table Rock Falls, the Chute and the Gorge are also portaged by open boats. Portages have been developed around all major rapids. Access is possible at several points. The river, except for the rapids, is runnable throughout the summer. Vermilion River canoe route maps are available from the Minnesota Department of Natural Resources.

Vermillion River. Runnable only in early spring or after heavy rains, the Vermillion River near Hastings is one of the first white-water runs to open in the spring. A one-third-mile stretch of rapids that runs through a steep sandstone canyon beneath a railroad trestle just downstream from the Hastings Dam rates class III at moderate levels and class IV in high water. Access is difficult.

Whiteface River. The Whiteface River, a tributary of the St. Louis River, is a small wilderness stream with many class I and class II rapids. Fishing for walleyes, northern pike, smallmouth bass and catfish is good. The river's level is controlled by the dam at the Whiteface Reservoir. The stretch from Cotton to the river's mouth is runnable during most of the season. The steep, rocky upper stretch is canoeable only in high water.

Willow River. The Willow River, a meandering stream flowing slowly past sandy banks thick with hardwoods and conifers, can provide an interesting start to a trip on the upper Mississippi River. Joining the larger river near Palisade, the Willow is a haven for bald eagles, deer, great blue herons, ducks and snapping turtles. The final 10-mile stretch is most commonly used.

Yellow Medicine River. Flowing swiftly past woods and occasional expanses of prairie, the Yellow Medicine River tumbles over many short class I and class II boulder-bed rapids. The river is usually runnable in the spring from the County Road 18 bridge to the Minnesota River. Windfalls and other obstructions occasionally block this narrow stream. Fishing for walleyes, northern pike and smallmouth bass can be good in the spring.

Further reading

Here is a list of publications on canoeing compiled from the suggestions of knowledgeable canoeists:

Paddling techniques

The All-Purpose Guide to Paddling, edited by Dean Norman. Several experts write chapters on paddling techniques, camping, racing, poling, conservation and history.

Basic River Canoeing, by Robert E. McNair. McNair fully explains the skills needed to run white water in open canoes. He writes briefly about decked boats.

Canoe Poling, by Al, Syl and Frank Beletz. This book explains all aspects of recreational and competitive canoe poling.

Canoeing and Kayaking, by Wolf Ruck. Ruck's book is a manual of canoe and kayak techniques.

The Canoer's Bible, by Robert Douglas Mead. This book provides general information on buying equipment, preparing for and taking trips, reading maps, and other useful skills.

The Complete Wilderness Paddler, by John Rugge and James West Davidson. A complete introduction to wilderness canoeing, this book also explains techniques useful to the seasoned paddler.

Fundamentals of Kayaking, by Jay Evans. This book, a comprehensive guide for beginning kayakists written by a former U.S. Olympic coach, also provides information on white-water racing.

Kayaking: The New Whitewater Sport for Everybody, by Jay Evans and Robert R. Anderson. Evans and Anderson's book is one of the most authoritative and comprehensive guides to the fast-growing sport of decked boating.

North American Canoe Country, by Calvin Rutstrum. Rutstrum's book has long been regarded as the standard guide to wilderness paddling.

A White Water Handbook for Canoe and Kayak, by John T. Urban. Written for decked boaters, Urban's book introduces beginners to paddling techniques, river reading, equipment and safety.

Magazines

American Whitewater. Articles aimed at white-water racers and cruisers are in this bimonthly magazine published by the American Whitewater Affiliation.

Canoe. This bimonthly magazine, published by the Webb Company of St. Paul, is the official publication of the American Canoe Association and has articles on wilderness trips, river cruising, kayaking, boat building and conservation.

Down River. This magazine, published monthly during the spring, summer and fall by World Publications in Mountain View, California, includes articles on white water and quiet water, racing and cruising.

Building boats

Boatbuilder's Manual, by Charles Walbridge. Walbridge, a nationally known decked boater, has written what is generally regarded as the most thorough and up-to-date guide to building fiberglass kayaks and canoes.

How to Build a Canoe. This book, published by the Minnesota Canoe Association, tells and shows the basics of building a wood-strip canoe.

More books

Reflections from the North Country, by Sigurd F. Olson. This book is the latest of Olson's several fine collections of philosophy and anecdotes about the wilderness of northern Minnesota and Canada.

The Streams and Rivers of Minnesota, by Thomas F. Waters. Waters, in his book published by the University of Minnesota Press, describes in detail the major watersheds in Minnesota. He includes information about fishing, canoeing and local history.

The Survival of the Bark Canoe, by John McPhee. McPhee, a *New Yorker* magazine staff writer, writes about the bark canoe, a past era and a lost skill.

Ultimate North: Canoeing Mackenzie's Great River, by Robert Douglas Mead. Mead's narrative is an account of a wilderness trip on the Mackenzie River in the Northwest Territories, Canada.

Whitewater; Quietwater, by Bob and Jody Palzer. This book, aimed primarily at white-water boaters, describes many Wisconsin and several northeastern Minnesota and Upper Michigan streams. It also offers thorough chapters on paddling techniques and reading rivers.