

The Driftless Area

A Landscape of Opportunities

A report on the
challenges and
opportunities
facing the
Midwest's
Driftless Area



An artistic illustration of two rainbow trout swimming in a stream. The fish are depicted with dark green bodies, bright red sides, and yellow and blue spots. They are surrounded by tall green reeds. The background is a light blue and white wash, suggesting water and sky. The entire scene is framed by a dark border.

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The Midwest's Driftless Area is a national treasure. Its distinctive topography, deep caves and springs and vast number of coldwater streams make the region unique. Bypassed by the last glacier, it has been described as, "a fragment of the past; a small piece of what once was."

But the Driftless Area has often struggled with human-created challenges. Land use practices of the 1800s and early 1900s led to wide scale erosion, flooding and the altering of its streams and valleys. Early farming practices resulted in massive erosion, depositing dozens of feet of soil into many valleys—soil that continues its unalterable progress, moving tons of silt each year into the Mississippi River and beyond.

Efforts to improve farming practices and restore the natural character of the Driftless Area by reducing erosion on the hillsides and hilltops began in the 1930s, coming into full force in the second half of the 20th century. Conservation organizations joining with local, state, and federal interests have worked together to slow the movement of soil into streams and re-establish trout fisheries throughout the region, but on a somewhat limited basis.

The large size of the region and the varying abilities and interests of the numerous agencies and organizations working to restore it have resulted in inconsistent and often piecemeal conservation efforts. That, coupled with limited resources, has meant that the number of watersheds and streams that are functioning as they were meant to in the 24,000-square-mile region are few and far between. So too, changing agricultural practices potentially threaten to once again trigger increased erosion throughout the region.

Unlike many areas in the United States...the Driftless Area has a potentially bright future.

Unlike many areas in the United States, where prime coldwater fisheries are threatened by more intractable problems such as rapidly diminishing water availability, urban growth, acid rain or mining runoff, the Driftless Area has a potentially bright future. There is general agreement regarding what needs to be done to restore the diversity, health and productivity of the region. No interest in the Driftless Area is served by erosion or degraded water quality. Agricultural producers, anglers, local communities, and others, stand to benefit from a full-scale restoration of the Driftless Area. Restoration of the Driftless Area can also serve as a model of collaborative stewardship and provide a nationally significant model of how individuals, conservation organizations, state and federal agencies, and others, can restore the health of the lands and waters that sustain us all.

This report is a call to action. Trout Unlimited hopes it will help to bring together the significant expertise and resources of the dedicated stewards of the land with those who are economically and recreationally committed to the region. Our goal is to not only help bring broader attention to the needs of this remarkable resource, but also to outline a course of action that we believe will help lead to the restoration of the watersheds, streams and rivers, and ultimately, the communities we call home within this ancient landscape.

The Driftless Area



Encompassing more than 24,000 square miles in the states of Minnesota, Wisconsin, Iowa and Illinois, the Driftless Area is one of America's unique natural resource treasures. Bypassed by the last continental glacier, which flattened Midwestern landscapes and left behind large deposits of soil and rock—or drift—the area was, as Ted Lesson aptly described it in his book *Jerusalem Creek: Journeys into Driftless Country*, “an island of land rising from a sheet of continental ice.”

Approximately 500 million years old—one tenth of the age of the Earth—the Driftless Area is marked by steep-sided ridges, caves and towering limestone and sandstone bluffs. The region also contains sinkholes and over 600 spring creeks with more than 3,600 stream miles in six major watersheds. These streams, which eventually drain into the Mississippi River, are fed by deep limestone aquifers, and either support populations of trout, or historically did so.

The Driftless Area is rich in natural and human history. In the era of pre-European settlement, the majority of the region was characterized by tall-grass prairies and oak savannahs, which supported a wide range of prairie dwelling animals including elk and bison. Extremely high groundwater recharge kept streams flowing through narrow deep channels with waters that were cold enough to support a thriving, naturally reproducing population of brook trout. The extensive root systems of the tall-grass prairies lined most stream banks and virtually eliminated bank erosion.

The first human inhabitants were nomadic Paleo hunters who pursued mammoth and caribou in the region 12,000 years ago. Later, it became the home of Eastern Woodland Indians who built mounds—many in the shape of animals. The remnants of their culture can be seen at Effigy Mounds National Monument in northeastern Iowa, where 195 mounds are located. Still later, tribes such as the Sac, Fox, Kickapoo, Dakota, and Ojibwa occupied the hills and valleys of the Driftless Area.

*Early contour plowing in Iowa's Driftless Area.
Credit: U.S. Department of Agriculture/NRCS.*

“By 1930 it had become clear to all except the ecologically blind that southwestern Wisconsin's topsoil was slipping seaward.”

*Aldo Leopold,
The Sand County
Almanac*





Credit: Duke Welter

Brook Trout

Prior to European settlement, brook trout inhabited the majority of the spring-fed coldwater streams in the Driftless Area, the western-most extent of its historic range. Its Latin name—*Salvelinus fontinalis*—literally means little salmon living in springs.

The only trout that is native to the streams of Wisconsin, Minnesota, Iowa, and Illinois, the fish is considered one of the most beautiful of its species. Wild brook trout have light worm-like markings on their back and light-colored spots that range in

color from white to yellow to blue mark its sides. When the males spawn in the late fall, they develop a deep red-yellow-crimson color along their belly and lower fins.

Brook trout occupying small streams such as those in the Driftless Area generally live for three or four years and, if conditions are right, will reach lengths of 12 inches or more. However, they are commonly found in the six- to ten-inch range. The fish are opportunistic and often aggressive feeders that live on a wide range of aquatic insects that occupy the stream, as well as crayfish, minnows and beetles and ants that fall into the water.

Brook trout need clean, clear, cold water that is rich in aquatic life in order to survive. They are often viewed as an “indicator species”—a species whose presence indicates a clean, wholesome environment. The Minnesota Pollution Control Agency uses the brook trout and their need for cold, clear waters with silt-free bottoms, as a sign of good water quality.

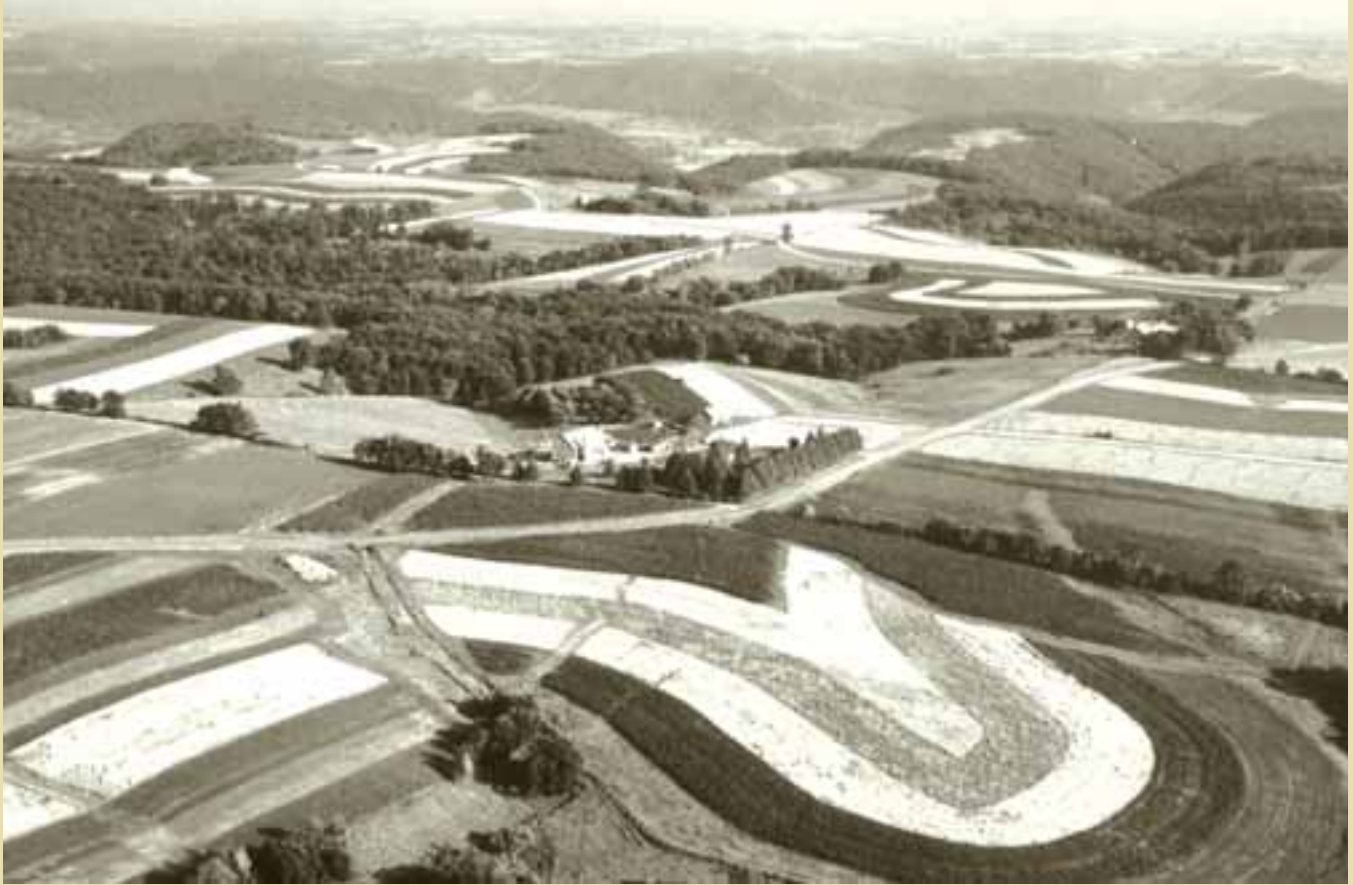
The first European settlers came to mine lead. Because of the importance of that resource to the U.S. military, federal officials prohibited farming in the Driftless Area until the 1840s, when it began to be settled by European immigrants, who displaced the Native cultures. Today, the influence of those early European settlers is evident in the fact that the area is often referred to as the “Coulee Region”—a term that is derived from the French word “couler” meaning “to flow.”

As European settlement progressed, the farming, grazing and land-use practices of the time proved unsuitable to the Driftless Area. The landscape quickly began to unravel. Upland soils from the hillsides accumulated in the valleys, which created shallower, warmer streams with steep, high banks. Groundwater recharge diminished and runoff increased, exacerbating stream conditions and making them more susceptible to flooding.

The altered landscape contributed to disastrous flash floods that took lives and cost millions of dollars. Significant floods took place in southwest Wisconsin in 1907, 1912, 1917, and 1935. By contrast, records from that region of Wisconsin from the early 1850s showed that the streams at that time always ran clear and flash floods were unknown. In southeast Minnesota, a small town was flooded more than 25 times in 1938 alone.



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Contour plowing in the Driftless Area—circa. 1950s. Credit: U.S. Department of Agriculture/NRCS.

With every flood, streams that were no longer held intact by the tall grass prairie jumped their banks, finding new channels, often carving their way from one side of a valley to the other. The native brook trout population that had existed since before the last glacier, nearly became extinct. By the end of the first quarter of the 20th century, decades of ill-suited land use had done more to alter the Driftless Area than nature had in millions. As the famed conservationist Aldo Leopold wrote in *The Sand County Almanac*, “By 1930 it had become clear to all except the ecologically blind that southwestern Wisconsin’s topsoil was slipping seaward.” Recognizing the damage to the region and the impacts of flooding on its inhabitants, the federal government stepped in. In 1933, agricultural producers were told that if they adopted certain land conserving practices for five years, the government would donate the Civilian Conservation Corps (CCC) labor to help install them, plus the necessary machinery and materials. The offer was widely accepted and thousands of hours were spent planting trees on highly erodible hillsides, laying out contour strips, and constructing terraces and grassed waterways. Unfortunately, in many cases, the practices were widely abandoned when the five-year contract period ended.

Much of the Driftless Area continued to deteriorate until the 1950s, when a region-wide effort was undertaken to improve the health of its watersheds. The U.S. Soil Conservation Service—today known as the Natural Resources Conservation Service (NRCS)—teamed with agricultural producers to transform square, eroding fields into a

system of lands marked by contouring, strip cropping, and terracing. These improved farming practices not only benefited the soil and water, but also the plant, animal, and human inhabitants of the entire region. The Departments of Natural Resources in the states of Iowa, Minnesota, Wisconsin, and Illinois also partnered with local rod and gun clubs, county land conservation departments, Trout Unlimited chapters, and private individuals to improve trout habitat conditions on many area streams.



Wisconsin's Kickapoo River. Credit: Wolfgang Hoffmann, University of Wisconsin-Madison, College of Agriculture and Life Sciences.

The Challenge



Although land-use practices, erosion control, and stream health have improved tremendously since the 1930s, the legacy of the past continues to haunt the Driftless Area.

Domestic and international economic forces are shifting the area's predominant agricultural economy away from dairy farms to corn and soybean production. Many producers, in an effort to maximize crop production are returning to hillside farming, abandoning such practices as contour strips, terracing and pasture production. In addition, thousands of acres formerly signed up in the federal Conservation Reserve Program (CRP), which was created to enhance wildlife and fish habitat and reduce erosion, are shifting back into agricultural production. The CRP contracts, which provided payments to landowners to set aside highly erodible lands, are expiring and many participants are not enrolling their land again.

Yet, stemming erosion from hilltops and hillsides alone is not enough to make the Driftless Area healthy once again. Decades of erosion off of the hills filled the Driftless Area's valleys with sediment. The historic flood plains and stream channels that served to absorb and minimize flooding and peak flows have disappeared. In Wisconsin's Kickapoo watershed alone, 36,000-acre feet of sediment filled the valley floor, leaving the historic floodplain buried under 12-15 feet of sediment in certain places. If this soil were stacked in an area the size of a soccer field, it would create a dirt pile almost 12 miles high.

*The Driftless Area
"probably represent[s]
the subregion of the Upper
Midwest in greatest need
of extensive trout stream
habitat improvement."*

*~ Biologist
Robert L. Hunt*

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*Stream bank erosion in Iowa.
Credit: U.S. Department of
Agriculture/NRCS.*



*The watersheds of the Driftless Area flow into the upper Mississippi River.
Credit: U.S. Department of Agriculture/NRCS*

Eagle and Joos Valley Creeks

The problems facing Eagle Creek and its tributary Joos Valley Creek are typical of what has occurred, and continue to occur on streams and rivers throughout the Driftless Area. According to a report prepared by the Wisconsin Department of Natural Resources (DNR) in 2002, the two southwestern Wisconsin streams in the Waumandee Creek watershed in Buffalo County have the potential of supporting healthy coldwater fisheries but are currently unable to do so because of erosion and siltation.

Like much of the Driftless Area, steep topography and narrow valleys characterize the Waumandee Creek watershed—the ridge tops are approximately 400 feet above the valley floors. Hilltop erosion, streamside farming and grazing, and the lack of bank stabilizing grass have caused heavy sedimentation and higher water temperatures in both streams. As a result, the DNR noted in its report that the streams are “wide and shallow; not the narrow and deep cross-section characteristic of a healthy coldwater stream in the driftless area...”

During the DNR’s inventory of the Waumandee Creek Watershed, stream bank erosion for Eagle Creek was estimated at about 55 tons of sediment per stream mile per year. Stream bank erosion in Joos Valley Creek was estimated at 90 tons per stream mile per year. The resulting coverage of the stream bottoms with silt and sediment has degraded water quality and limited the natural gravel areas necessary for trout reproduction. It has also reduced the overhead cover and deep wintering holes essential for the survival of larger fish and greatly diminished the invertebrate populations and small forage fish trout depend on as food sources.

As evidence of the potential of these two streams to once again be healthy and productive, the headwater area of Eagle Creek, where little erosion exists, has good water quality, cool water temperatures, and a small population of wild brook trout. A limited brook trout fishery also currently exists in the relatively undisturbed headwaters of Joos Valley Creek where there are springs and a natural gravel bottom to the creek.

Eroding stream banks are the most pervasive outcome of this phenomenon, contributing as much as 85 percent of all sediment entering the stream in some drainages. Stream banks are highly unstable due to a lack of prairie plant root structure and the deposits of hillside sediment and soil. Overgrazing by livestock, streamside crop production, and the presence of riparian woodlands that prevent the growth of grass, further contribute to erosion. Unless the banks are stabilized, the streams will continue to erode the valley floors, resulting in prolonged moderate to extensive sediment displacement.

The same practices that have caused the massive erosion have also decreased or stopped the flow of springs that naturally recharged rivers, floodplains, and wetlands. Streams that were historically perennial—flowing year round—have become intermittent. Rising temperatures have turned a large number of what were once trout-bearing coldwater streams, to warm water fisheries.

Not only do these challenges jeopardize the region’s traditional coldwater trout streams by reducing aquatic insect production, raising water temperatures, and increasing trout mortality, the impacts are felt more broadly. Eroding hillsides and stream banks in the Driftless Area contribute significantly to sediment deposits—as well as increases in nitrogen and other chemical levels—in the pools of the Mississippi River and the hypoxia zone in the Gulf of Mexico.

The Anatomy of a Driftless Area Stream

*A restored trout stream in southeast Minnesota.
Credit: S.R. Kinsella.*

Most people equate trees and forests as features that go hand-in-hand with a high-quality coldwater trout stream.

On many such streams, trees create water-shading canopy, root balls that help to hold the banks in place, and provide habitat for insects. But the streams of the Driftless Area are different.

Most of the stream valleys of the Driftless Area were originally comprised primarily of tall grass prairie and oak savannah mixed with prairie. The deep root systems of the prairie grass lined stream banks, aided groundwater recharge, and virtually eliminated bank erosion. The grass also provided shading, overhead cover, and habitat for insect and wildlife populations.

Hillside erosion occurring in the late 1800s and early 1900s added tons of soil to the valleys of the Driftless Area, while changing land use practices virtually eliminated the prairies. That soil, coupled with a lack of stabilizing prairie grass, has resulted in streambanks constantly being eaten away by stream flows and runoff. Continuous erosion makes streams wide and silt filled rather than narrow and deep. Trees often add to this problem by casting shade, which inhibits the growth of grass.



Taking On the Challenge



Extraordinary results have occurred when hillsides, streams and rivers have been restored and nurtured in the Driftless Area. By the late 1980s, as land use improved, run-off decreased and natural water infiltration on the hillsides caused flows to increase on many streams and rivers in the region. Temperatures on a number of streams have fallen to levels closer to that which existed during the pre-European settlement era. In many cases, previously intermittent streams now have water flowing in them year-round.

Where these increased flows have been coupled with the work of conservation organizations and local, state, and federal agencies to restore individual streams, the outcomes have been even more positive. Populations of native brook trout and wild brown trout have flourished, as have macroinvertebrates, small forage fish, and wildlife. While 20 years ago, watercress—a good indicator of cold-water seepage—had been restricted to spring heads in many of these streams, it is now showing up miles downstream.

An example of the benefits of stream and hillside restoration can be seen in Gribben Creek located in Fillmore County in Southeast Minnesota. The stream is 3.86 miles long and prior to the 1960s much of the watershed and riparian lands were under intensive agricultural production. Bank erosion was severe; there was a shortage of pools in the creek; and there were numerous species of fish including brown trout, which in the early 1970s was estimated at 47 fish per mile. Beginning in the late 1960s, parcels of the creek's watershed were purchased by the State of Minnesota and designated as state forest lands. A habitat improvement project was completed in the late 1970s.

By 1988, stream water temperatures in Gribben Creek had become colder and flow volume had increased. Good pools were present throughout the stream—a major change from the 1956 survey. During the last decade, adult brown trout abundance has averaged 2,352 fish per mile. While 15 species of fish were present in Gribben Creek in 1956, now brown trout and sculpin are the main species with an occasional white sucker and dace showing up in the surveys. Only a few fish species are typically found in high-quality coldwater streams, so the decline in the number of fish species is a clear indication that temperatures have dropped significantly.

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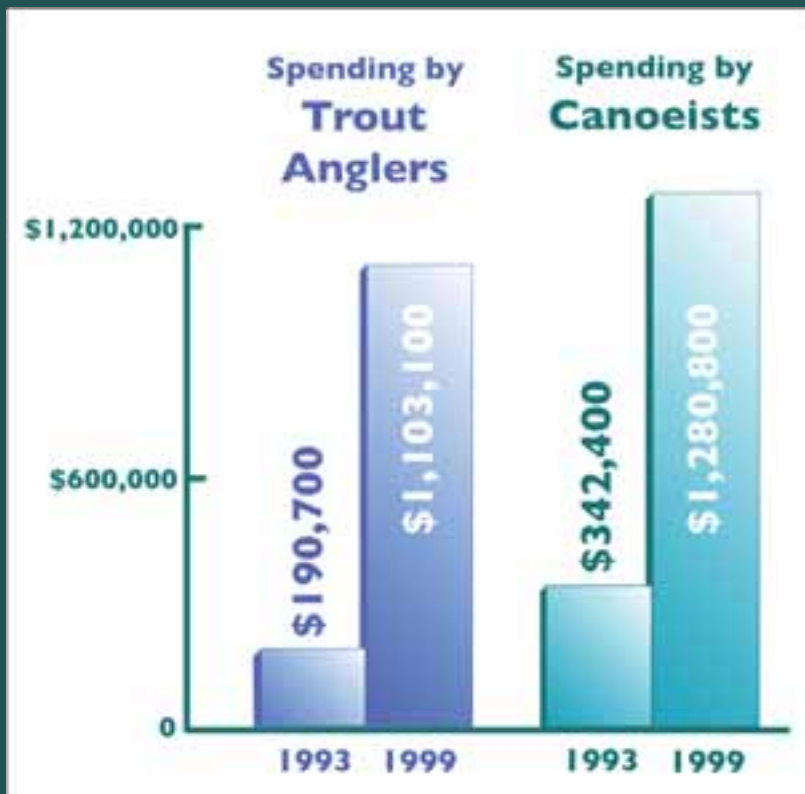
*Bike trails in the Driftless Area.
Credit: Wolfgang Hoffmann,
University of Wisconsin-Madison,
College of Agriculture and Life
Sciences.*

The Kickapoo and Root Rivers: The Economic Benefits of Stream and Watershed Revitalization

The bedrock of Vernon County's economy lies within agriculture. But, like much of the Driftless Area, decades of intensive farming resulted in eroded banks, silt-strewn streambeds, and nutrient leeching to the rivers and streams of this southwest Wisconsin county. Seeing the damage that had been done to their largest river—the Kickapoo—in the late 1980s area leaders began the process necessary to repair and enhance the natural beauty of the river and its watershed.

Farmers, businesses, government agencies, and non-profit entities worked collaboratively to identify measures that would both ensure the health of the river and bring economic growth to the region. Capitalizing on the historic allure of canoeing and trout fishing, stakeholders put forth tremendous efforts to rehabilitate its tributaries such as the West Fork and Camp Creek. As word spread, the river began to fill with outdoor enthusiasts; but more importantly, the region began to realize the economic potential of the effort.

Economic benefits of stream restoration on Wisconsin's Kickapoo River



Between 1993 and 1999, the Kickapoo River and its neighbor the Timber Coulee River saw a remarkable increase of more than twice as many anglers and a third more canoeists per year. In a county with a per capita income at 64 percent of the state average, the revenue generated from these activities markedly increased the income for a number of small communities. Studies reveal that in 1999, anglers produced a total annual economic impact of \$1.5 million, while canoeists created \$1.75 million. This \$3.25 million in revenue has generated an estimated 85 jobs in the county, while supporting numerous small businesses. Trout guiding services have found lucrative client markets in Minneapolis, Milwaukee, Chicago and beyond with more than two-thirds of the anglers coming from outside the region.

While businesses have enjoyed expanded opportunities, the influx of anglers and canoeists has provided an unintended benefit. The natural beauty, which initially drew tourists to the Kickapoo, has captivated many to the point of purchasing

vacation property, or reestablishing their residence near the river. The increased tax base provides Vernon County coffers with much needed funding for local schools and capital improvement projects. With these few examples, it is easy to recognize why local residents and visitors alike are quick to note that the natural and economic benefits far outweigh the rehabilitation costs.

Crossing the Mississippi River, Fillmore and Houston counties in Minnesota have enjoyed comparable success on the Root River—a revitalized trout river. Utilizing an old railway bed, a similar consortium of stakeholders created an extensive paved trail system for bicyclists, roller-bladers, canoeists, anglers, and others. With thousands of tourists converging on the Root River each year, the region has witnessed greatly expanded business opportunities. An economic survey found that visitor spending at businesses adjacent to the trail in Lanesboro, Minnesota totaled \$1.5 million in 2000 alone.

Unfortunately, the large size of the region and the varying abilities and interests of the numerous agencies and organizations have resulted in inconsistent watershed restoration and conservation efforts. That, coupled with limited resources, has meant that the number of watersheds and streams that are functioning in a healthy, natural state in the 24,000-square-mile Driftless Area are few and far between.

As a result, one of the nation's foremost authorities on trout stream restoration and management, retired Wisconsin DNR Fisheries Biologist Robert L. Hunt, has written that the Driftless Area "probably represent[s] the subregion of the Upper Midwest in greatest need of extensive trout stream habitat improvement."

While the benefits to trout of restoring the streams of the Driftless Area are well known, there would be other important benefits as well. Water throughout the region would be cleaner. Agricultural producers would experience less erosion on their land. There would be less sediment and chemical runoff into the Mississippi River and the hypoxia zone in the Gulf of Mexico. Water treatment costs to downstream communities would be reduced. Restored prairies would contribute to improved wildlife habitat.

So too, the aesthetics of the region would be positively affected and there would be expanded economic activities due to improved recreational opportunities. The steep valleys, forested hills, coldwater streams, and rural character are recognized regionally as a treasure. A wide scale restoration of the streams, rivers, and watersheds of the region would make it a nationally significant coldwater resource.

The appeal of the Driftless Area is indisputable. And one only needs to look to Lanesboro, Minnesota, or the Kickapoo Valley of Wisconsin to see the economic and cultural benefits of combining that appeal with enhanced recreational-based opportunities. In these areas, the local economy has experienced the creation of new jobs, the generation of increased tourism and recreation dollars, and the making of new opportunities for local citizens including those currently working in agriculture.

"Taking the steps necessary to restore the Driftless Area and its streams and rivers would not only make the region a world class trout fishing destination, it would ultimately provide its residents with substantial economic and social benefits."

*"Duke" Welter
Trout Unlimited*



*Fishing Trout Run Creek in southeast Minnesota.
Credit: Bill Shogren.*



*Cows and anglers on Wisconsin's Castle Creek.
Credit: Jim Humphrey.*

The Benefits of Stream Restoration to the Agricultural Community

Stream restoration is widely known for improving water quality, trout habitat, and other aspects of the environment. What is less publicized, is the economic benefits that can be created for agricultural producers.

A case in point is Paul Kogut, who owns a farm on the banks of Spring Coulee Creek near La Crosse, Wisconsin. Intensively cultivated and grazed since the late 1800s, and clear-cut in the early 1900s, the creek was a shell of its former self by the 1930s. However, with the advent of contour farming and reforestation efforts in the 1940s, the stream began to heal.

In the late 1980s, wishing to improve habitat for trout, Paul—an angler himself—used federal resources and formed partnerships with fly-fishing clubs and the Wisconsin Department of Natural Resources to rebuild the creek's stream channel.

With restoration nearing completion, Spring Coulee Creek began to remind Paul of a Western trout stream, rich with aquatic life. Wanting to capitalize on his efforts, and the growing number of trout, he constructed several rental cabins on his property. As word spread, his cabins, known as Rockin' K Farms, have become so popular that the revenue they produce now provides 30 to 50 percent of the income derived from his farm.

“Long-term benefits far outweigh short-term costs.”

*Paul Kogut,
farmer*

While stream restoration is strenuous and costly work, Paul is quick to note, “Long-term benefits far outweigh short-term costs.” When asked about the potential drawbacks of restoration, he says with a smile, “Well, with the cabins always booked, I don't get that much time to fish the water by myself.”

A Call to Action



The Driftless Area is an important region but still faces many challenges that deserve immediate and significant attention from all who care about conservation and the quality of life of the area. The ecological restoration of the area, and the resulting social and economic benefits, can serve as a blueprint for communities throughout the region and nation.

However, unique issues confront conservation work within the region, including the need to improve coordination of existing efforts. The Driftless Area lies within the boundaries of four states potentially involving an array of state, federal, and local entities in restoration activities. There are four state natural resource agencies; numerous federal agencies including those from the U.S. Department of Agriculture, Environmental Protection Agency, Army Corps of Engineers, and the U.S. Fish & Wildlife Service; county land and water conservation departments; and an array of private conservation organizations and land trusts throughout the region. Some focus more on erosion control and land use practices, and others on water quality, fisheries habitat, and prairie restoration. Still others focus on working to improve agricultural productivity and rural economic development. Unfortunately, the large size of the region and the varying abilities, jurisdictions, and interests of these agencies and organizations have at times resulted in inconsistent watershed restoration and conservation efforts.



Trout Unlimited volunteers restore a trout stream. Credit: Duke Welter.



Unrestored (left) and restored sections of the Blue River. Credit: S.R. Kinsella.

The Anatomy of a Driftless Area Stream Restoration

When a stream is restored in the Driftless Area, steps are taken to undo the damage of the past, while replicating the natural characteristics of a tall grass prairie stream.

When many Driftless Area streams are restored, the first step is to cut or bulldoze the invasive trees, such as box elder. Compensating for the large deposits of eroded sediments in the stream valley, the banks of the stream are often tapered or, in cases where there are tall cut banks, pulled back to create a gentle slope to recreate a stable floodplain and reduce further erosion and help reconnect the stream back to its floodplain.

The in-stream habitat is often rebuilt with boulders, weirs to recreate pools, and lunger structures, a manmade instream feature designed to provide permanent overhead cover for trout lost due to chronic flooding. Streambanks are stabilized with rock and seeded with native grasses and other plants to help hold them in place.

If a restored stream is on land actively engaged in agriculture, grazing is often managed using a rotational system. The streamside and surrounding area can be broken into “paddocks.” Cattle graze a paddock for 1-2 days, and then are moved and do not return for 30-35 days. This rest period ensures lush vegetative regrowth. In a well-managed rotational grazing system, soil erosion, manure, and pesticide and herbicide runoff can be reduced to negligible amounts.

The end result of a newly stabilized stream can be remarkable. After Wisconsin’s Timber Coulee was restored, it showed a 1,400-1,500% increase in its trout population. All those trout are products of natural reproduction; the stream has not been stocked since its restoration. Timber Coulee was recently ranked among the 100 top trout streams in the United States and anglers come from across the Midwest to fish it and nearby streams. Perhaps more important, soil erosion is minimized in a restored, stabilized stream, and cattle are able to graze the restored area without breaking down the banks.

Managing local watershed restorations involves more than just understanding natural resources. It also requires a need to comprehend the complex social and economic cultures that connect to and depend upon these watersheds. Building coalitions among those who are interested, as well as those who are impacted by the restoration and management of those watersheds, is paramount to achieving success in improving the health of the coldwater resources of the Driftless Area. Of equal importance is the need to apply sound scientific principles in any restoration efforts to ensure an enduring legacy for future generations.

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The potential exists for full-scale cooperative restoration of the watersheds, streams and rivers of the Driftless Area.

The potential exists for full-scale cooperative restoration of the watersheds, streams, and rivers of the Driftless Area. Trout Unlimited hopes this report will help to catalyze efforts to improve the quality of the coldwater watersheds within the region by providing the focus and energy to bring together varied government and private interests to form partnerships that will begin the work necessary to allow the Driftless Area to reach its full ecological, economic, and social potential.

Examples exist throughout the Driftless Area on a small scale as to the potential of these partnerships. On Wisconsin's Blue River, an agricultural producer who, as a young boy, remembered seeing trout in the river running through his land asked for help in the restoration of 1800 feet of the river that runs through his property. A diverse group of private interests and governmental agencies answered the call—including six local and regional chapters of Trout Unlimited, the Wisconsin DNR, the Iowa County Land Conservation Department, Land's End, Patagonia, Inc. and others. In 2004, these entities worked together to restore the section of the stream on his property and will restore another two-thirds of a mile in 2005. As is often the case, success breeds success. Recently, neighboring landowners have expressed interest in similar restoration projects on portions of the river running through their property.

While small restoration projects like the one that took place on the Blue River are continuing in the states of Wisconsin, Minnesota, and Iowa, if the Driftless Area is to reach its full environmental and economic potential, this effort must take place on a larger scale. That will only occur if all of the potential interests agree that it should be done and then commit the time, resources, personnel and energy to bring the effort to fruition.

The effort to protect and restore the watersheds, streams, and rivers of the Driftless Area must be expanded to increase the ability to carry out more and larger high quality projects with a wider range of partners. Taking the steps to accomplish that will make the region a national showcase for coldwater fishery and watershed conservation and partnerships in the 21st century.

Blue River restoration partnership. Credit: S.R. Kinsella.



Recommendations for the Future



The watershed improvement efforts of 70 years ago in the Driftless Area offer many lessons. Foremost among those is the need to approach the four-state area as a single region and to secure a long-term commitment from all affected parties. This commitment may come in the form of financial resources, landowner cooperation, volunteer labor, promotion, advertising, marketing, and so on. What is critically important is that people become more involved in the effort.

The Driftless Area is faced with an evolving economic base that presents both challenges and opportunities. Those challenges will only be overcome and those opportunities realized if the full force of its residents, conservation stakeholders, and local, state, and federal agencies are directed toward a restoration effort that has at its core the permanent healing of the region's lands and waters.

The Driftless Area is faced with an evolving economic base that presents both challenges and opportunities.

To help the Driftless Area achieve its full potential and the resulting economic, environmental, and social benefits, Trout Unlimited recommends that the following actions be taken:

Planning

~ Develop an inventory of coldwater resources across the entire Driftless Area and a catalog of current restoration activities building on existing database mapping efforts. Use computer models to forecast the scale of restoration effort required to have the desired effect of improving water quality and stream habitat for coldwater species and reducing nutrient inputs in the Upper Mississippi system.

~ Prioritize all watersheds in the region based on the restoration potential and resource benefit, partner willingness and capacity, and potential landowner cooperation. Utilize information from existing natural resource and watershed assessments of the broader Upper Mississippi basin already developed by conservation organizations and government agencies. Develop a staged strategy for restoration planning and implementation.

Partnerships

~ Cultivate strategic alliances to help implement watershed restoration projects, including local, state, and federal resource management agencies, other conservation organizations, sustainable agriculture organizations, landowners, foundations, and corporate and business interests.

~ Establish sub-regional partnership teams to facilitate long-term planning for priority restoration areas, similar to the ongoing planning efforts taking place between TU and other conservation groups and interested agencies in the northern end of Wisconsin's Driftless Area. These interests have met several times a year for the past seven years to discuss and plan potential projects, partnerships, and funding opportunities.

Recommendations for the Future, *continued*

Outreach

~ Foster a sense of regional identity in the Driftless Area focused on the unique landscape and wealth of spring-fed streams. Implement a communication campaign to raise awareness among elected and non-elected decision makers, as well as the general public, as to the value and importance of the Driftless Area, and to advocate for both individual actions and policy initiatives necessary for conservation and protection efforts.

~ Document, disseminate, and encourage implementation of “Best Management Restoration Practices” for stream restoration challenges unique to the Driftless Area.

~ Conduct an assessment of the potential economic benefits resulting from concerted upland conservation and stream restoration to 1) the Driftless region as a result of increased recreational opportunities and more sustainable farming systems, and 2) the nation from reduced sediment and nutrients inputs into the Mississippi River system and ultimately the hypoxia zone of the Gulf of Mexico.

~ Work with the educational community to increase opportunities for understanding and involvement among a broad spectrum of the community as well as strengthening the scientific basis for improving the Driftless Area watershed and fisheries.

Restoration

~ Coordinate fundraising efforts for restoration projects among stakeholders. Seek targeted state and federal funding to help reduce sediment inputs into the Upper Mississippi River system through investments in upland soil conservation and stream corridor restoration.

~ Increase the capacity of actively engaged organizations to facilitate the implementation of restoration projects, coordinate activities, cultivate strategic partnerships, and lead outreach and fundraising efforts.

~ Increase efforts to obtain conservation and access easement in strategic locations, by developing land-owner outreach information campaigns, providing training to volunteers, and using standard templates for easement forms.

Volunteers assist with stream restoration. Credit: Duke Welter.



“Our goal is to enable all interested parties to devote appropriate and effective attention to preserving the Driftless Area for those who will enjoy it in coming generations.”

*~ Duke Welter,
Trout Unlimited*



Credit: Duke Welter.

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Thumbnail photo credits: Wolfgang Hoffmann, University of Wisconsin-Madison, College of Agriculture and Life Sciences (*pages 1, 2, and 8*); Matt Handy (*page 12*); S.R. Kinsella (*page 5*).

Front cover: A characteristic Driftless Area scene—a misty Kickapoo Valley. Credit: Wolfgang Hoffmann, University of Wisconsin-Madison, College of Agriculture and Life Sciences. Back cover credit: S.R. Kinsella.



The Midwest's Driftless Area is a national treasure. Its distinctive topography, deep caves and springs, and vast number of coldwater streams make the region unique.