A success story

The rebirth of Iowa's trout streams

Practically since settlement of the state, Iowa trout streams had to be stocked to maintain a trout population. But improvements in water quality are leading to healthier, self-sustaining trout populations - and local communities are reaping the benefits.

Sediment creates a muddy future for Iowa trout and Iowa water

For years, sediment and other pollutants made it hard for eggs to survive; the DNR had to stock fish to keep trout populations alive.

Stocking trout in the coldwater streams of northeast Iowa has been around almost as long as the state itself.

As settlement and agriculture increased in the young state, numbers of brook trout, the only native Iowa trout species, began to decline. Stocking of brown and rainbow trout began in the late 1800s.

As sediment poured into streams over the next century, it could be said that Iowa's trout hit rock bottom. For example, in 1980, only six Iowa streams were sustaining a trout population naturally.

DNR photo, circa 1992

Projects have worked to stabilize streambanks, like the eroded one above on Middle Bear Creek in Winneshiek County. Projects also work to keep cattle from eroding streambanks, like the one below.

More accurately, the trout hit mud bottom.

As you'll read on the next page, trout need clean water and a clean rock streambed to eat, spawn and survive.

But mud was covering that rock bottom. Erosion from hilly northeast Iowa sent hundreds of tons of soil into trout streams. Excess sediment, nutrients and bacteria from intensive farming washed into the streams. Grazing cattle trampled and eroded streambanks.

All that sediment - as well as other pollutants - in the streams made it difficult for trout eggs to survive, and made Iowa trout populations dependent on stocking.

"We were losing a lot of soil into the streams. Too much mud makes spawning impossible," said Bill Kalishek, a DNR fisheries biologist at the Decorah hatchery.

Today, the water is becoming clearer in many Iowa trout streams. That's thanks to work in the streams' watersheds.

Landowners working with DNR-funded watershed projects, as well as in-stream habitat improvements, are keeping streams cleaner and making it easier for trout to maintain natural reproduction.

"There was a layer of silt on the stream bottoms that kept the water muddy for a long time after a rain," said John Beard, a Decorah trout fisherman. "Now in a lot of these watersheds we can get a big rain event and not see any discoloration (in the water)."

"WE'RE CHANGING THE WAY WATER COMES INTO THE STREAM."
- BILL KALISHEK

Today, 29 trout streams boast naturally reproducing trout populations. That includes Spring Falls in Delaware County, which had no naturally sustained brown trout in 1991. Today, there is a naturally reproducing population with more than 1,000 trout per mile of stream.

Why the success? It's simple. Trout depend on clean water to survive. Water quality depends on how land in the watershed is managed. To keep trout thriving, watershed work needs to continue.

"We're changing the way water comes into the stream, and the trout are benefiting," Kalishek said.

What's a watershed?

The area of land that drains into a stream or lake. Water traveling over the surface or through groundwater may pick up pollutants like sediment, chemicals and waste and deposit them in a body of water.

Creating the right conditions for

Natural reproduction

To promote natural reproduction of trout, the solution is clear. Clear water.

Keeping sediment out of a stream is the key to creating an environment where trout eggs can thrive. To spawn, a trout digs a nest in clean gravel with its body, lays the eggs and leaves. Brown and brook trout spawn in November, and the eggs don't hatch until March.

During that time, if excess sediment washes into the stream and covers the nest, it can cut off oxygen to the eggs, killing them. Excess sediment can also kill a newly-hatched trout, called a "fry."

Trout also depend on clean gravel to attract dinner. Gravel and rock-bottom streams have more insects and a better diversity of insects than a stream full of mud. Trout feed mostly on insects until they are about 14 inches long.

"Natural reproduction is important because it's completely self-sustaining," said Bill Kalishek, DNR fisheries biologist. "Plus, many anglers see added value in fishing wild trout. And it's an indicator of good water quality - both in the stream and in groundwater, which a lot of people use for drinking water."

Lowell Washburn, DNR

Trout need clean stream beds, like the one above, to thrive.

What's been done so far

A start to a success story

A number of factors have led to success in Iowa trout streams:

Watershed work

Farming projects that reduce the amount of sediment, nutrients and bacteria reaching streams are called conservation practices and are making a big difference.

Funding from the DNR and the Iowa Department of Agriculture and Land Stewardship support watershed projects, which help landowners install practices.

For more information on how these practices are keeping streams clean, see pages 6 and 7.

Cattle roundup

Another part of watershed projects includes moving cattle away from streams. Cattle can trample streambanks, speeding streambank erosion. Waste from cattle can add nutrients and bacteria.

Moving cattle, along with better manure management and storage, has reduced the amount of pollutants in the streams.

In-stream work

DNR Fisheries has installed a number of bank hides, which are wooden boxes placed underwater to provide trout overhead cover habitat and protection from predators.

In addition, DNR land acquisition efforts also protect the streams through streambank stabilization and in-stream habitat work.

Wild things

Historically, trout streams have been stocked with offspring from domesticated, captive trout. Recently, the DNR began using eggs from naturally reproducing wild trout. The fish are raised to two inches.

When stocked, these wild trout survive three to four times better than fish raised from captive brood stock. Plus, they are reproducing naturally on many streams.

Volunteer efforts

In addition to landowners, groups are also donating their time. Groups like Trout Unlimited and the Hawkeye Fly Fishing Association have helped complete and fund stream projects.

These efforts are just a starting point. To keep improving our streams, work needs to be ongoing. Please see page 8 to learn what still needs to be done.

About trout streams

There are about 105 coldwater trout streams in 10 northeast Iowa counties. The geologic characteristics of the area contain exposed bedrock and abundant springs to feed the streams a constant supply of cold, 50 degree Fahrenheit water. The spring flow is what keeps water temperatures cold enough for trout, normally lower than 75 degrees Fahrenheit, during the critical summer period.

Trout tourism:
Good for trout, good for Iowans

Improved water quality not only helps trout, but the anglers who fish them benefit nearby communities.

It's a small stream, but a big business.

As water quality improves in Iowa's trout streams, it's not only good for trout, but good for Iowa towns and businesses.

According to a 2001 DNR trout angler survey, licensed trout anglers made an estimated 372,338 trips to trout fisheries in Iowa. At approximately $25 per day – that includes food, lodging, transportation and equipment – more than $9.3 million is spent annually on trout fishing in Iowa.

That's proof that better water quality is an important investment in Iowa on many levels.

A bigger, better catch

With cleaner water, streams have better aquatic insects for trout to feed on, and anglers are rewarded with a greater diversity of trout, according to John Beard, a Decorah trout fisherman.

"I've fished a lot of other streams, and we have some of the best spring creeks anywhere," said Beard. "The variety of habitat we have is wonderful."

Beard remembers catching his first trout as a child. He also remembers the sediment that would run into creeks after a rain.

But Beard has also seen the creeks clear up and fishing improve, especially with the addition of wild trout.

"The fishing's gotten better because there's more natural reproduction of trout," said Decorah angler Steve Matter, who has fished Iowa trout for about 40 years. "The streams seem healthier than they ever were."

Bob Cobbs has worked to improve water quality and the catch. As president of the Iowa Driftless Chapter of Trout Unlimited, his group has worked on a number of stream and habitat improvement projects.

"Improving the water quality improves fishing and the whole environment," said Cobbs. "The banks have improved, there's less erosion, and we've actually seen the fish population increase."

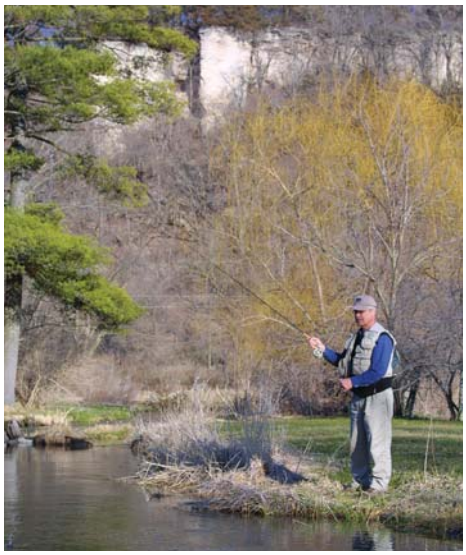
MORE THAN $9.3 MILLION IS SPENT ON TROUT FISHING IN IOWA EACH YEAR.

The Hawkeye Fly Fishing Association has also donated labor and funding to improve trout and other streams.

"We want to make sure that the resource is preserved and ensure it exists for future generations," said Ron Stahlberg, the group's president. "And there are economic benefits to having nice recreational places."

All the community benefits

For many small businesses in northeast Iowa, a large portion – if



not all – of their business depends on trout anglers.

"We would not be here if it weren't for them," said Bev Stortz, who owns Highland General Store and Campground, along with her husband Gary.


Patti Glanz, Glanz Landing

For Glanz Landing Sports in Manchester, trout fishing accounts for 90 percent of their fishing business, said Patti Glanz, who owns the business with her husband Gary.

Glanz calls the business "a real mom and pop store" that also carries other sports equipment and clothing.

Almost all the trout anglers that stop in Glanz's store or visit the Highland General Store are from out of town, the owners said. Many are from across the Midwest - Iowa City, Des Moines, Kansas City, Chicago, even as far away as Colorado and Texas, Glanz said.

They come for at least a two-day trip, if not a week, and sometimes bring family and friends. They spend time and money in sports stores as well as at local hotels, gas stations, restaurants and other small shops.

Dave Nading sees the same clientele at his Strawberry Point convenience and sports store, Nading's Service and Sporting.

"We do cater to the trout fisherman, and in northeast Iowa a big chunk of sales come from that," Nading said. "When they come, they come to buy."

Better water quality means more anglers

As water quality has improved in recent years, local stores have also seen an increase in business.

To meet demand, the Stortzes added two log cabins to their campground, located on South Bear Creek northeast of Decorah. They plan to build three to four more cabins in the near future.


Dave Nading, Nading's Service and Sporting

"People love fishing the Iowa streams," Stortz said. "It amazes me, the influx of people. I never imagined when we bought the store that so many people would come to this remote area."

Nading, who grew up near Ensign Hollow in northeast Iowa, has also noticed a difference – in both the water and business.

"When I grew up, there were clear bottoms and lots of rock. Then it silted in. Now you can see rock bottoms again," Nading said. "There are way more anglers now then there ever used to be."

> "WE WOULDN'T BE HERE IF IT WEREN'T FOR THEM."
> - BUSINESS OWNER BEV STORTZ ON TROUT ANGLERS

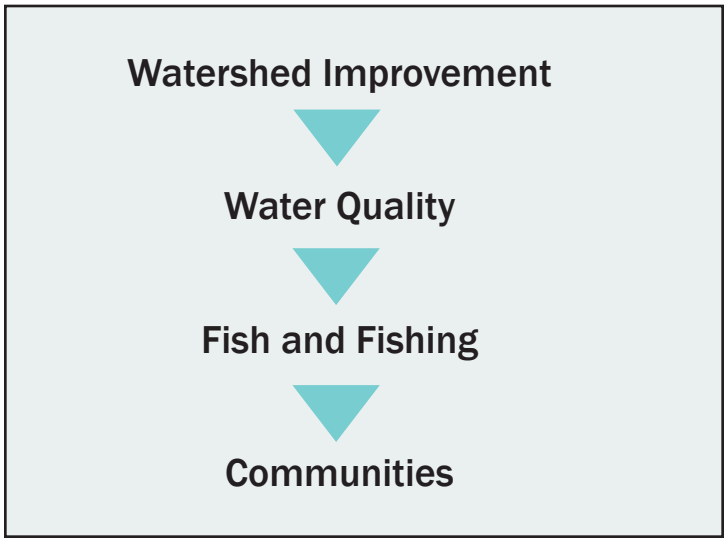
Businesses also recognize that if work isn't done to maintain improvements in trout streams, business could decline along with the water quality.

"It's just getting harder and harder for small businesses in small towns to survive," Nading said. Losing trout anglers would make it even harder, he said.

Glanz agreed. "Trout fishermen would have found someplace else to go, like Wisconsin or Minnesota," she said of poor water quality. "But they tell me how well-maintained the streams are here."

To help struggling businesses, the Fayette County Tourism Council plans to publicize its trout streams this year.

"The trout streams we have are little hidden gems, and that's a good reason to bring people into the county," said Ollie Pleggenkuhle, director of the council.



The above chart shows how different things factor into water quality success. Many communities and businesses depend on fishing tourism; fish and fishing depend on good water quality to thrive; and clean water depends on what happens in the watershed.

Far left: Decorah angler John Beard fishes North Bear Creek in Winneshiek County.
Middle: Mason Stortz, 5, gets a trout fishing lesson at the Highland Campground from his dad, Mitch, brother Gavin, and grandparents Bev and Gary Stortz. His mom, Amanda, looks on. Bev and Gary own the Highland General Store and Campground along South Bear Creek.
Right: Decorah trout fisherman Steve Matter fishes Trout Run in Winneshiek County.

Working together:
Local watershed projects

Funding makes projects that work with landowners possible.

Across the state, local watershed projects are working to clean up lakes, rivers and streams. That includes a number of projects in Iowa's trout country.

Through these watershed projects, landowners work with a watershed coordinator to reduce the amount of pollutants coming from their fields. Project coordinators work one-on-one with landowners to find the best practices to help both their farming operation and water quality.

To do this, landowners install conservation practices. Conservation practices are ways of managing the land to reduce the amount of sediment, nutrients and bacteria reaching streams.

Practices range from building structures like ponds or terraces to planting grass buffers; from changing how manure and fertilizer chemicals are managed to taking land out of production. Common practices in trout stream watersheds are explained on the next page.

Cost-share and financial assistance for farmers installing conservation practices is made available through the watershed projects' funding.

Local watershed projects are sponsored by county Soil and Water Conservation Districts. Many of these projects are funded by the DNR.

This funding is made possible though the Section 319 program of the U.S. Environmental Protection Agency, which provides DNR funding for nonpoint pollution programs.

The DNR generally funds local watershed projects in cooperation with the Iowa Department of Agriculture and Land Stewardship and the Natural Resources Conservation Service.

Iowa trout streams with watershed projects

Listed are trout streams with completed or ongoing watershed projects. Project coordinators are working one-on-one with landowners to use practices that reduce the amount of sediment, nutrients and bacteria entering streams.

STREAM	COUNTY
Bigalk	Howard
Big Mill	Jackson
Bloody Run	Clayton
Coon	Winneshiek
Ensign	Clayton
Fountain Springs	Delaware
Glovers Creek	Fayette
Grannis Creek	Fayette
Little Mill	Jackson
Little Mill (Lower)	Jackson
Little Paint	Allamakee
Little Paint (Upper)	Allamakee
McLoud Run	Linn
Middle Bear	Winneshiek
Mink Creek	Fayette, Clayton
North Bear	Winneshiek
Sny Magill	Clayton
South Bear	Winneshiek
South Pine	Winneshiek
Spring Branch	Delaware
Spring Falls	Delaware
Trout Run	Allamakee
Twin Springs	Winneshiek

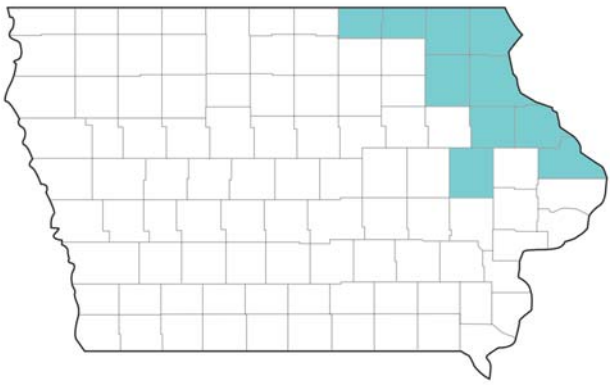
Why trout streams?

Many lakes and streams throughout Iowa have seen the benefits of a watershed project. But the unique trout streams of northeastern Iowa have been a priority.

"Trout streams represent high quality and high value resources for the state, and are a resource that needs protection," said Ubbo Agena, coordinator of the DNR's nonpoint source pollution program.

Because trout need both clean and cold water to thrive, work in the watershed is critical.

"Without watershed projects working with landowners to keep soil on the fields and nutrients out of the streams, our trout streams would be in trouble," Agena said.



Iowa trout country: The counties shaded in blue offer trout streams.

Working in the watershed:
Conservation practices

Using the following practices in the watershed improves water quality.

Conservation Reserve Program (CRP)

Land enrolled in CRP reduces erosion, increases wildlife habitat and improves water quality by converting cropland to grasses, trees or other permanent vegetation. CRP includes annual rental payments to landowners.

Erosion control ponds

The ponds trap sediment from their drainage area. They also add recreational, wildlife and aesthetic benefits to landowners.

Streambank stabilization

Stabilizing streambanks with rocks (rip rap), grass, trees or other cover works to reduce erosion, filter out nutrients and minimize flood damage.

Photo by USDA NRCS

Livestock exclusion from streams

Fencing livestock away from streams prevents livestock from trampling streambanks and keeps livestock waste on the land. Buffer areas along the stream filter runoff water and provide habitat for small animals and birds.

Manure containment structures

These structures allow farmers to store manure until conditions are right for land-applying. The structures help keep manure out of streams and can help landowners save on fertilizer costs.

Conservation buffers

Conservation buffers slow sediment and filter runoff water before it reaches a stream. In addition, buffers reduce erosion from wind and provide habitat for wildlife.

Photo by USDA NRCS

Grassed waterways

Grassed waterways are shaped and placed in areas with concentrated water flow to slow water, guide it off the field and reduce gully erosion. Grassed waterways help disperse water, preventing small gullies from forming. They can also trap nutrients and sediment.

Photo by USDA NRCS

Watershed work is the key

Elk Creek

Landowners came together to reduce the amount of pollutants reaching four trout streams in the watershed.

Problems

Sediment was threatening four Delaware County trout streams: Elk Creek and three of its tributaries, Fountain Springs, Schechtman Branch and Twin Springs (Spring Falls).

Natural reproduction was lacking in these streams, all in the Elk Creek watershed.

Sediment harmed trout and aquatic insect habitat by destroying spawning areas, clouding the water, and making streams wider and shallower.

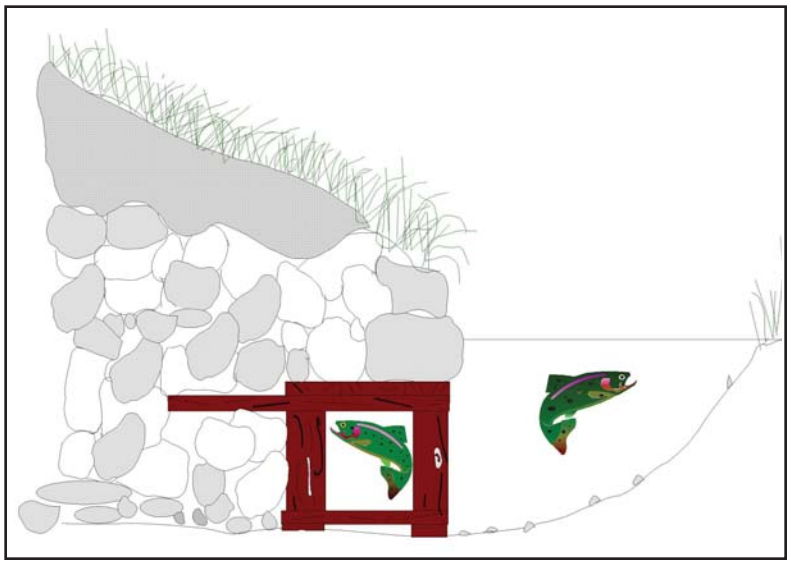


Illustration by Kurt Meek, DNR

A bank hide, like the ones on Fountain Springs, provide overhead cover for trout, as well as providing trout protection from predators.

THE WATERSHED PROJECT REDUCED THE AMOUNT OF SEDIMENT REACHING STREAMS BY 13,000 TONS PER YEAR.

The sediment eroded from farm fields and cattle-trampled streambanks. Nutrients, pesticides and manure washed in from fields.

Solutions

About 70 percent of landowners in the watershed installed conservation practices with the Elk Creek Watershed Project, funded by DNR and DSC.

Those practices included enrolling land in the Conservation Reserve Program (CRP), and building ponds, grassed waterways, contours, terraces and structures to properly store manure.

Landowners also manage nutrients and exclude cattle from streams.

Elk Creek landowner makes a change for land, water

Mike Hunt

When Mike Hunt started farming in the Elk Creek watershed in 1985, he knew the land needed some changes.

Over time, he's made plenty. And those changes have made a difference in his farming operation and water quality.

Hunt uses no-till and nutrient management practices. Through the Elk Creek Watershed Project, he installed waterways, terraces, contours and enrolled land in CRP. So far, anyway. More projects, like filter and buffer strips, are planned.

"Everything we've done has really helped control erosion and runoff," Hunt said of his farm near Greeley, where he raises corn, beans, hay and cattle.

With fewer passes through the field, practices like no-till and contours have also reduced his input costs. That savings, along with available cost-share funding, made many of the practices possible.

The practices have also made a change in the environment. Soil stays on the fields and out of the creeks, and wildlife like pheasant are finding a home in the terraces, Hunt said.

"I feel responsible for the ground, that it maintains its productivity for generations to come," Hunt said.

"The landowners are the most important part of the project," said Mike Freiburger, project coordinator. "They need to continue doing what they're doing to keep improving water quality."

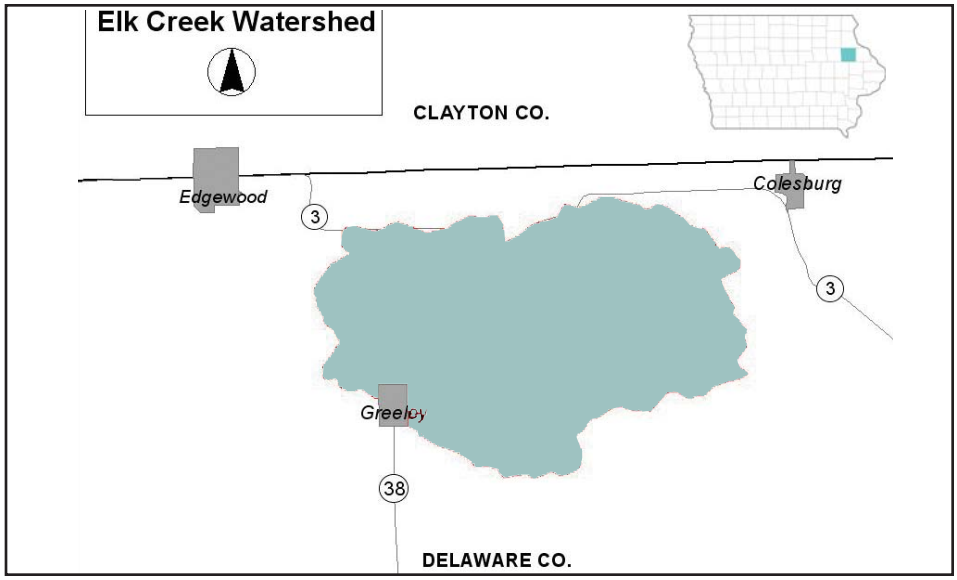
DNR projects improved in-stream habitat by adding rock to Fountain Springs and Spring Falls to stabilize streambanks.

The DNR also added bank hides, which are wooden boxes placed underwater to provide trout overhead cover habitat and protection from predators.

However, those in-stream improvements depend on landowners continuing and maintaining their conservation practices in the watershed.

"THE LANDOWNERS ARE THE MOST IMPORTANT PART OF THE PROJECT."
- MIKE FREIBURGER, PROJECT COORDINATOR

"It's usually a two-sided approach to improving water quality," said Bryan Hayes, a DNR fisheries biologist at the Manchester hatchery. "The in-stream work will be negated if we have poor land management in the watershed."



Above: Where the Elk Creek watershed lies within Delaware County. Inset: Where Delaware County lies within Iowa.

Clear water runs through Fountain Springs in the Elk Creek watershed.

Project results

The conservation practices reduce pollutants in the stream, and make an impact on trout.

- The watershed project has reduced sediment reaching Elk Creek from 29,974 tons per year to 16,707 tons per year.
- In addition, nutrient management practices mean fewer nutrients are being applied to crop fields in the watershed.

The improvements are evident in the trout.

- The brown trout population in Spring Falls depended entirely on stocking in 1991. Now, there is a self-sustaining population that offers more than 1,000 trout per mile of stream.
- Brown trout in Fountain Springs are reproducing naturally, although that population is not yet self-sustaining.

Turning around

Grannis Creek

Sediment in the stream destroyed trout habitat. With the work of landowners, the creek is cleaner and trout are thriving.

Problems

By far, sediment is the largest problem in the Grannis Creek watershed.

Take a look at the area's deep valleys and gently sloping uplands, and it's no surprise that 97 percent of the watershed is classified as "highly erodible land."

In addition, the area's karst topography includes sinkholes and coldwater springs, which can allow surface pollutants to enter groundwater and streams.

Solutions

To prevent excess sediment from reaching the stream, landowners worked with the Grannis Creek Watershed Project, funded by DNR and DSC, to install conservation practices. About 85 percent of owners and operators in the watershed participated in the project.

Those practices included ponds, filter and buffer strips, terraces, streambank stabilization work and more.

THE WATERSHED PROJECT REDUCED THE AMOUNT OF SEDIMENT REACHING THE CREEK BY 56 PERCENT.

"Even people reluctant at first were doing a lot of work by the end of the project," said Carrie Davis, project coordinator. "Benefits of the project spread by word-of-mouth. They knew what their neighbors were doing over the fence, and they wanted to be a part of it, too."

A number of landowners also renewed or signed new CRP contracts, covering 514 acres of cropland. A number of contracts were

Clear water flows through Grannis Creek in Fayette County. Rocks help stabilize the streambank and prevent erosion into the stream.

Project results

At the end of the four year watershed project, the trout have told the tale of success.

- Brown trout increased from 85 fish per mile of stream in 2002 to 1,491 fish per mile in 2006.
- Natural reproduction of brown trout has returned, although the stream does not yet naturally maintain a population.

This success was possible through the reduction of sediment reaching Grannis Creek.

- In total, the watershed project has reduced sediment delivery to the stream by 5,547 tons per year.
- That's a 56 percent reduction in total sediment delivery.

set to expire, which if not renewed, could have increased erosion.

"EVEN PEOPLE RELUCTANT AT FIRST WERE DOING A LOT OF WORK BY THE END OF THE PROJECT."
- CARRIE DAVIS, PROJECT COORDINATOR

With less livestock production and pasture land in the area, the steep, hilly land coming out of CRP would have likely been put into heavily tilled corn and bean rotations.

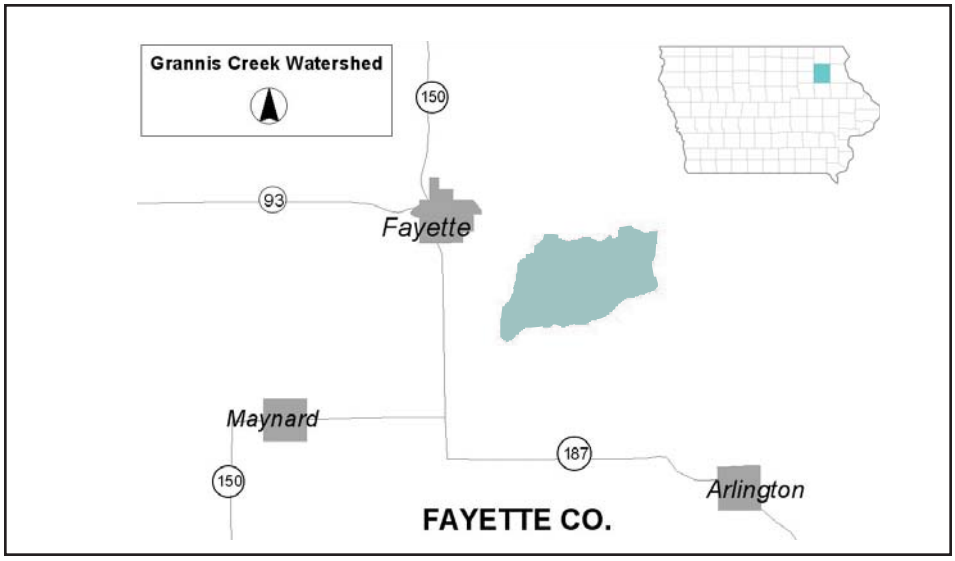
"That would have made a big difference," Davis said. "It would have sent a lot of soil into Grannis Creek."

Re-enrolling that land in CRP saved an estimated 1,000 tons of soil per year, Davis said.

Habitat improvements were also made in-stream. The project installed bank hides as part of a 350-foot sidewalk that provides fishing access to people with disabilities.

Bank hides are wooden boxes placed underwater to provide trout overhead cover habitat and protection from predators.

Plus, work was done to stabilize streambanks and reestablish prairie along the stream.



Above: Where the Grannis Creek watershed lies within Fayette County. Inset: Where Fayette County lies within Iowa.


Lowell Washburn, DNR

A section of the sidewalk that provides fishing access to Grannis Creek for people with disabilities.

Project helps landowners install practices

Levern Thyer has farmed his entire life on this 400-acre farm southeast of Fayette – he was even born here – raising corn, oats, hay, and beef and dairy cattle. But recently, he and his wife, Shirley, installed a number of conservation practices that are improving the farm and nearby Grannis Creek.


Shirley and Levern Thyer

The farm is a conservation showpiece, with buffer and filter strips, CRP land, a pond, structures to hold manure and fencing to keep cattle out of the creek. The Thyers also practice pasture management.

During heavy rains, the pond and filter strips catch excess sediment before it reaches the creek, and they also attract wildlife. It's common to see pheasant and wild turkey along the buffer and filter strips, Thyer said.

Thyer installed the practices because he felt it was important to act now, before practices could become mandatory and while funding is available. Being able to use cost-share and other available funding made the practices easier to install, he said.

"I think it's money well spent, to help farmers and to do this," Thyer said. "Otherwise, farmers aren't going to do as many projects. It's important for the environment, for the wildlife."

Maintenance and preservation

Continuing the effort

Work is still needed to expand on our successes and to preserve and maintain improvements.

Water quality is not a one-time fix. To keep enjoying improved trout streams, we need to maintain and continually improve water quality. That starts in the watershed.

"The landowners can be proud of what they've done," said Bryan Hayes, DNR fisheries biologist. "But even when projects end, we need to build on what we started and maintain what we've put in place."

One goal is to keep highly erodible fields protected. Keeping land enrolled in the Conservation Reserve Program (CRP) is one way to do that.

"With more grasses, we're holding water on the land longer. That means slower stream flows, which means less streambank erosion," said Bill Kalishek, DNR fisheries biologist. "Plus, less soil washes off fields into streams."

Significant progress has been made, but there are still many fields and miles of trout streams that have not yet been addressed.

Watershed and habitat projects are planned for Twin Bridges, Burr Oak and Turtle Creek, among others.

What you can do

Individual landowners are encouraged to contact their local Natural Resources Conservation Service (NRCS) office to learn about installing watershed practices on their land.

If your county Soil and Water Conservation District (SWCD) sponsors a watershed project, contact the project coordinator. The coordinator can meet one-on-one with you to determine the best practices to help your farming operation and local stream.

Or, work with neighbors and the local SWCD to organize a project if your stream has not yet had one.

Watershed projects can offer funding and cost-share assistance to help landowners install practices.

Watershed projects are made possible though the Section 319 program of the U.S. Environmental Protection Agency, which provides DNR funding for nonpoint pollution programs.

The DNR generally funds local watershed projects in cooperation with the Iowa Department of Agriculture and Land Stewardship and NRCS.

Get involved

Watersheds and conservation practices: www.iowadnr.com/water/watershed/

DNR Fishing: www.iowadnr.com/fish/

Trout Unlimited: www.tu.org or call Bob Cobbs, (563) 547-3940

Hawkeye Fly Fishing Association: www.hawkeyeflyfishing.com or write to P.O. Box 807, Waterloo, Iowa 50704

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