Currents

The National Magazine of Trout Unlimited Canada • Volume 12 No. 4

Winter Issue 2007

ONTARIO'S SAUGEEN RIVER
A WATERSHED AT A CROSSROADS

A NOVA SCOTIA GEM
THE TUSKET RIVER

PLUS **CHAPTER NEWS, ATLANTIC SALMON RECOVERY** AND *MORE*

TRANSFORMATONS
THE SCIENCE & ART OF RIVER REHABILITATION

OUR MISSION:

To conserve, protect and restore Canada's freshwater ecosystems and their coldwater resources for current and future generations.

OUR GOALS:

To conserve and protect Canada's freshwater fish and their ecosystems and restore their coldwater resources to a healthy and productive state;

To develop and apply effective, science-based and measurable coldwater conservation solutions in the field;

To inform the public about coldwater conservation issues and educate communities about their watersheds;

To build and sustain a healthy organization.

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PARTING SHOTS: Back cover, 2007 Artist of the Year, Joseph Cross.

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For the last few years we have been publishing Currents in Outdoor Canada magazine. This issue, however, we self-published with the intent of giving ourselves a little more room to let our members speak to each other about what they are doing and the successes they are having. We hope you enjoy it.

Speaking of successes, I am particularly pleased with the progress TUC has been making courtesy of your hard work as well as that of the Board of Directors and the staff. We've realized significant increases in our on-the-ground conservation activity right from PEI and Nova Scotia through to British Columbia. The Yellow Fish Road™ Program has been growing at a very satisfying rate with more expansion planned. The number of Chapters has increased by 40% to now stand at 37 and some real imagination is being applied to the development and expansion of fundraising events.

This summer, Jack Imhof, our National Biologist, and I had the privilege of crossing the country to consult with Chapters on the draft National Conservation Agenda and a set of proposals regarding TUC's governance structure. Not only did we receive thoughtful comments on the proposals and encouragement toward their implementation, but we also saw first-hand, the dedication, initiative and enthusiasm for TUC's work.

Late this summer Ontario staged the first Ontario Chapter Symposium. It was a weekend event which gave the Ontario Chapters the opportunity to get together to discuss what they are doing, to learn from each other and to improve their understanding of what the National Office does and can do. It was extremely well received and is an event we intend to replicate in the west and in the east. Improving our communication with Chapters and between Chapters is one of the keys to our growth and improvement.

Doug Cressman
CEO
Trout Unlimited Canada

For the Love of it

Article and photos by Clive Schaupmeyer

Frank Dalziel photo

Rainbow trout

I like to go fishing and I like to catch fish. Fortunately I live in southwestern Alberta, and within two hours of my home there are many high-plains, foothills and mountain streams containing several species of trout as well as mountain whitefish. I spend many days each year wandering their banks with fly rod and camera in hand.

The pleasures I get from "my" streams go way beyond the actual fishing experience and those things we normally associate with fishing—like catching fish. Fishing is only part of the enticement. There is the scenery, the pristine waters, the bluebird skies, and the plants, animals and birds that haunt these riparian wonderlands. Maybe it is because I am getting older that I appreciate these fishing adjuncts more than I did forty years ago.

There are many reasons why I fish. One is the anticipation of a fishing trip and I look forward to each trip with the excitement of a 12-year-old. I am not a daydreamer, but anyone who likes to fish can't deny the pleasure of getting pumped for tomorrow's fishing trip. Of course, I cherish the actual angling experience as it unfolds and is enhanced by the wildlife and scenery. These are all good things, and I'd not spend countless hours astream were it not for these other pleasures connected to fishing.

The memories and the friendships that have developed with the fishing seasons mean the most to me. I've been lucky to have had a rather adventurous career and I have traveled to some marvelous places in the world, but some of the best memories from my adult life were minted while fishing here in Canada. Who does not cherish the memories of fishing with their children, (and now, grandchildren) and with friends—maybe lifelong friends met while on a river years ago? And now there are the sweet memories of friends I have fished with who have since passed on.

I take a lot of photographs and sell "commercial" images to ad agencies. I've sold a few to outdoor magazines—even a few cover shots for fishing magazines. These are usually fancy, high-end images. But my all-time favorite fishing picture is a poorly lighted shot of our two sons, Evan and Mike, taken over 25 years ago at a mountain lake in B.C. I get misty just thinking of that picture. Memories.

I get hassled sometimes because I fish a lot and (partly because I can't eat fish or seafood) I release almost all of the fish I catch. "What's the point?" I am asked. Well, of course, there all of the "warm and fuzzy" reasons already mentioned. But anglers truly are the "hall monitors" of our water resources. I doubt if many so-called environmentalists have such an intimate relationship with their surroundings as do most anglers—many of whom are TUC members. Maybe that is just arrogance on my part, but I believe it to be true—it is our duty to keep an eye on things. We care, we notice and we try to take action if something is awry.

We need to preserve the future of angling in Alberta and across Canada. What will the waters and fishing opportunities be like when my grandchildren are my age, in about fifty years? Will the waters be as clean and uncrowded as they are now? Will there be restrictions on how often and where they can fish? Will only the rich be able to fish rivers and streams—as is the case in some European countries—while commoners are resigned to angle in put-and-take ponds? Will conflicting interest groups prevent us from keeping an eye on things?

Our water supplies are finite and some argue they are declining. Even if water supplies stay the same, Alberta's population is ever increasing—as in most Canadian provinces—and there will be growing demands for water. We must have the wisdom and determination to learn to use water wisely and preserve our water resources, aquatic life, riparian areas and wetlands.

Will my grandchildren enjoy the beauty and bounty of our rivers as I have been so blessed to enjoy? When they are my age, in about 2055, will they fall asleep excitedly anticipating the morning fishing trip to a nearby pristine stream?

We must work hard to ensure it will be so.

I get hassled sometimes because I fish... "What's the point?" I am asked.

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Atlantic salmon parr. Oliver Haddrath. Map, David Soltess.

once there were Salmon

The Lake Ontario Atlantic Salmon Restoration Project **by Jerry Smitka**

Many people, even hardcore anglers, may not know that one of the most popular sport fish in the world, Atlantic salmon, were once present and abundant in Lake Ontario and its tributaries.

Atlantic salmon may have found their way into the lake over 12,000 years ago and adapted to a completely freshwater lifecycle. The Lake Ontario population occurred in great numbers, and was important to native peoples and the first European settlers, forming a critical part of their winter diet. As settlement progressed, however, damming of streams, clear-cutting of forests along river banks, as well as over-harvesting, resulted in the population declining throughout the 19th century. The last of the original Atlantic salmon was caught in Lake Ontario in 1898, making this fish population one of the first in Canada to be eliminated by human activity.

Little changed in the early part of the 20th century, but after decades of stream restoration and research it was time to move forward to the next stage and successfully reintroduce Atlantic salmon to Lake Ontario. In 2002 Jack Imhof, TUC's national biologist, and Jerry Smitka, an Ontario TUC member, began talking and developing a mechanism by which such a large restoration project might take shape.

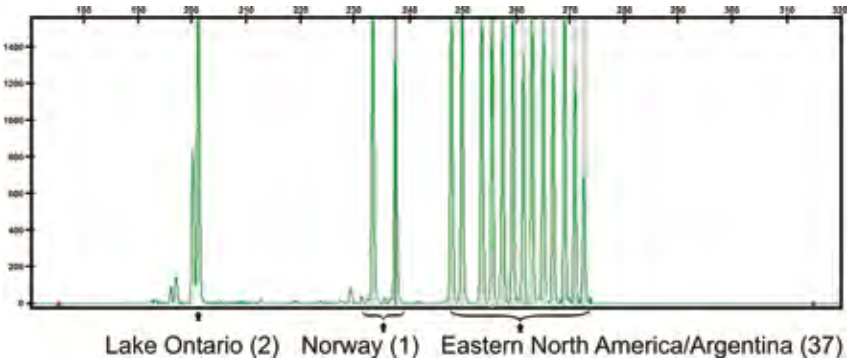
First came discussions with the Ontario Ministry of Natural Resources. Next came the problem of how the project might get appropriate funding. As Jack put it, "I guess Lady Luck was with us," because as it turned out the first potential partner they talked with, the Ontario Federation of Anglers and Hunters (OFAH), thought that it was an excellent idea. And as they say, the rest is history.

The OFAH knew somebody who knew somebody who knew somebody else. At the end of the day, the OFAH, along with committed funding partners Banrock Station Wines and the Liquor Control Board of Ontario, were prepared to stay the course to see Atlantic salmon returned to Lake Ontario. In April 2006, the OFAH and these conservation-minded organizations launched the *Lake Ontario Atlantic Salmon Restoration Program*.

Good news travels fast, and these initial partners are now supported by a coalition that includes the Canadian Sportfishing Industry Association, Fishing Forever Foundation, Ontario Ministry of Natural Resources, Sir Sandford Fleming College, Trout Unlimited Canada, Trees Ontario Foundation, Canadian Wildlife Federation, Ontario Wildlife Foundation and the World Fishing Network, as well as many local clubs and community groups.

The long-term goal of the Lake Ontario Atlantic Salmon Restoration Program is to restore a self-sustaining population of salmon to the lake and its tributaries. The recovery strategy for Atlantic salmon focuses on four components: producing and stocking of fish, restoring stream habitat, research and assessment, and education.

For the initial five-year phase, Cobourg Creek, Credit River and Duffins



DNA from native Lake Ontario Atlantic salmon specimens was compared with that of other wild salmon stocks in an attempt to identify blood relatives that may still survive. So far, it appears the stock was unique. Oiver Haddrath image.

Creek were deemed 'best bet' streams, with 244,000 Atlantic salmon fry being stocked initially in spring 2006. Stocking will occur every spring and fall, and numbers increased, as the project ramps up. Over the course of the project, another three to five streams are targeted for restoration.

Trout Unlimited Canada's support for the project includes science support for stock selection and habitat needs, as well as on-the-ground habitat restoration expertise. The stock selection itself was exhaustive. It took almost two years to research, report on, and come to a decision about what Atlantic stocks might work in the Lake Ontario environment.

In 2004 TUC also initiated a major research project that ultimately will answer the question, "Are there any blood relatives of the Lake Ontario population that still thrive somewhere?"

Principle leads on this DNA work are TUC's Jerry Smitka and Oliver Haddrath of the Royal Ontario Museum, with work being conducted by researchers at the Royal Ontario Museum. And although the project is not complete, initial results suggest that the Lake Ontario population colonized the lake a long time ago.

Meanwhile on the habitat front, Jack Imhof and Silvia D'Amelio, TUC's Ontario Biologist, are working with TUC chapters on Bronte Creek, the Credit River, Humber River and Duffins Creek to develop habitat programs that will help restore water quality and habitat not only for Atlantic salmon, but also native brook trout and other coldwater species. Jack has led the charge to assist the OFAH, MNR and the other partners to deal with all sorts of habitat related problems and establish essential related habitat restoration protocols related to Atlantic salmon recovery.

This article was adapted by Jerry Smitka from an article prepared by the Ontario Federation of Anglers and Hunters. The DNA image and detail was provided by Oliver Haddrath of the Royal Ontario Museum.

To learn more about the program or to find out how to get involved, please contact Jack Imhof or Silvia D'Amelio, or visit ***www.bringbackthesalmon.ca*** *or* ***www.atlanticsalmonontario.ca****.*

CSI *Biology...*

One of three mounts from the 1880's in the ROM. Two of them yielded useable DNA. Oliver Haddrath.

With the last native Atlantic salmon disappearing from Lake Ontario over a century ago, how do you determine if there are any surviving close relatives? DNA, of course—but who has a 100-year-old mouth swab?

The answer came from the vaults of the Royal Ontario Museum. The ROM had three mounted Lake Ontario salmon, dating from the late 1800s, in its collection.

"DNA work on the Atlantic salmon was to determine if there are any blood relatives which still may exist in populations in eastern North America," says researcher Jerry Smitka. "If there are, and we can get access to them, then the plan would be to re-introduce into Lake Ontario a blood relative.

"Stephen Thomas, an archeologist, who works in the Toronto area, was kind enough to share some Atlantic salmon vertebrae sections to see if we could extract DNA from these vertebrae sections, which date back to the 13th and 14th centuries, [to compare with] the findings from the ROM specimens."

Researchers were able to isolate useable DNA from fin sections of two of the three mounts. The good news is that the process worked; the bad news is that Lake Ontario salmon appear, indeed, to have been unique.

THE TUSKET RIVER

Nova Scotia's Historic Blue Ribbon Trout Stream

by Bill Curry

Tusket River and inhabitant Bill Curry photo

The Province of Nova Scotia is shaped roughly like its most famous export — a lobster. The claws which form the island of Cape Breton are on the northeast end of the province; the body which lies to the east of, but is attached to, New Brunswick and mainland Canada by a thin strip of marsh; and the tail located to the southwest sticking out into the Bay of Fundy, separating Nova Scotia from the state of Maine. Trout fishing in the province is still superb despite the entire landmass falling in the path of the destructive acid rain produced to the west, and despite the population growth centered around the burgeoning city centre of Halifax. It is on the claws and the tail of the Province that the best fishing still occurs, with Cape Breton's marvelous Highlands producing runs of healthy brook trout in rivers like the North, Baddeck, Middle and the famed Margaree. The heart of the southwestern trout fishing, though, is in the wilderness bordered

and cross cut by the largest river in that end of the Province, the Tusket.

The Tusket River has a rich character and a long history of sport fishing along its entire length. The Tusket begins in its upper reaches on the east branch at still lakes like Oakland Lake, site of a lodge and several guiding operations before becoming part of a recently expanded Tobeatic Wilderness. Wentworth Lake on the Carleton Branch and New France, once the famous "Electric City" on the rocky and rough flowing Silver River Branch, form the other main sections of the Tusket. In fact, in the Tusket's heyday for sport fishing (roughly the early to mid part of the 1900's) there were lodges and fishing operations such as Birchdale, on the Carrying Lake portion of the river; an outfit which attracted sports from all over the world for trout fishing. The most famous lodge of all, Braemar Lodge, which was located on the sister river, the Annis, had many guides who would fish the Tusket with their sports; sports who included people like Babe Ruth and Zane Grey. How good was the fishing? There are guides' records still existent—records which read like:

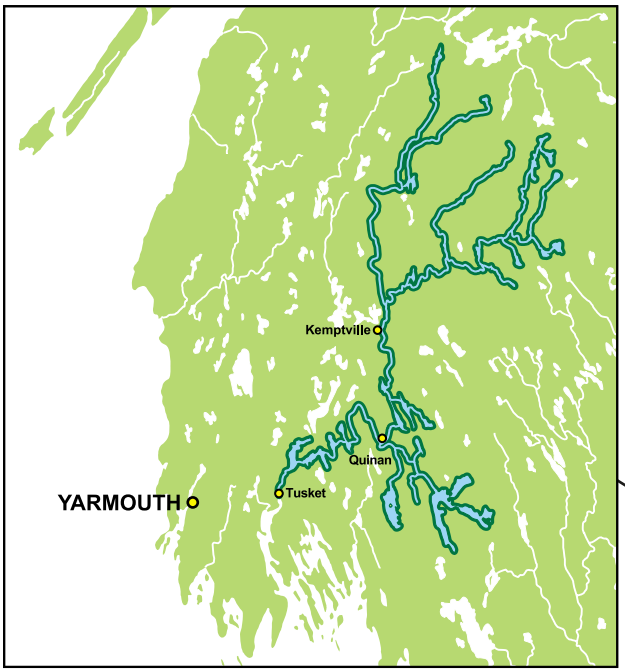
"June 3 – Cannan to Gavel's Bridge, 102 trout"

"June 5 – Kemptville to Gavel's Bridge, 280 trout"

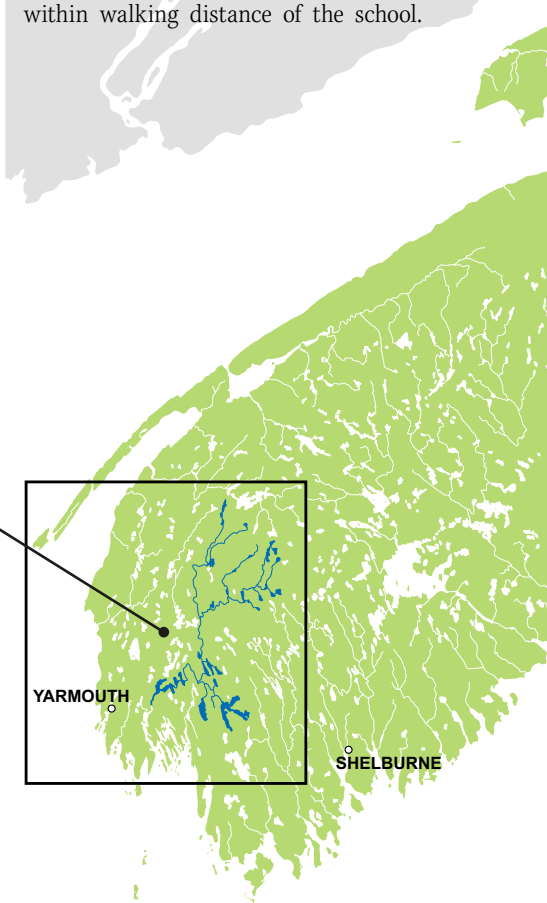
or one of another year's June entries:

"June 3 – Main Tusket river, Northeast of Wallace's Lake to Kempt, 187 trout"

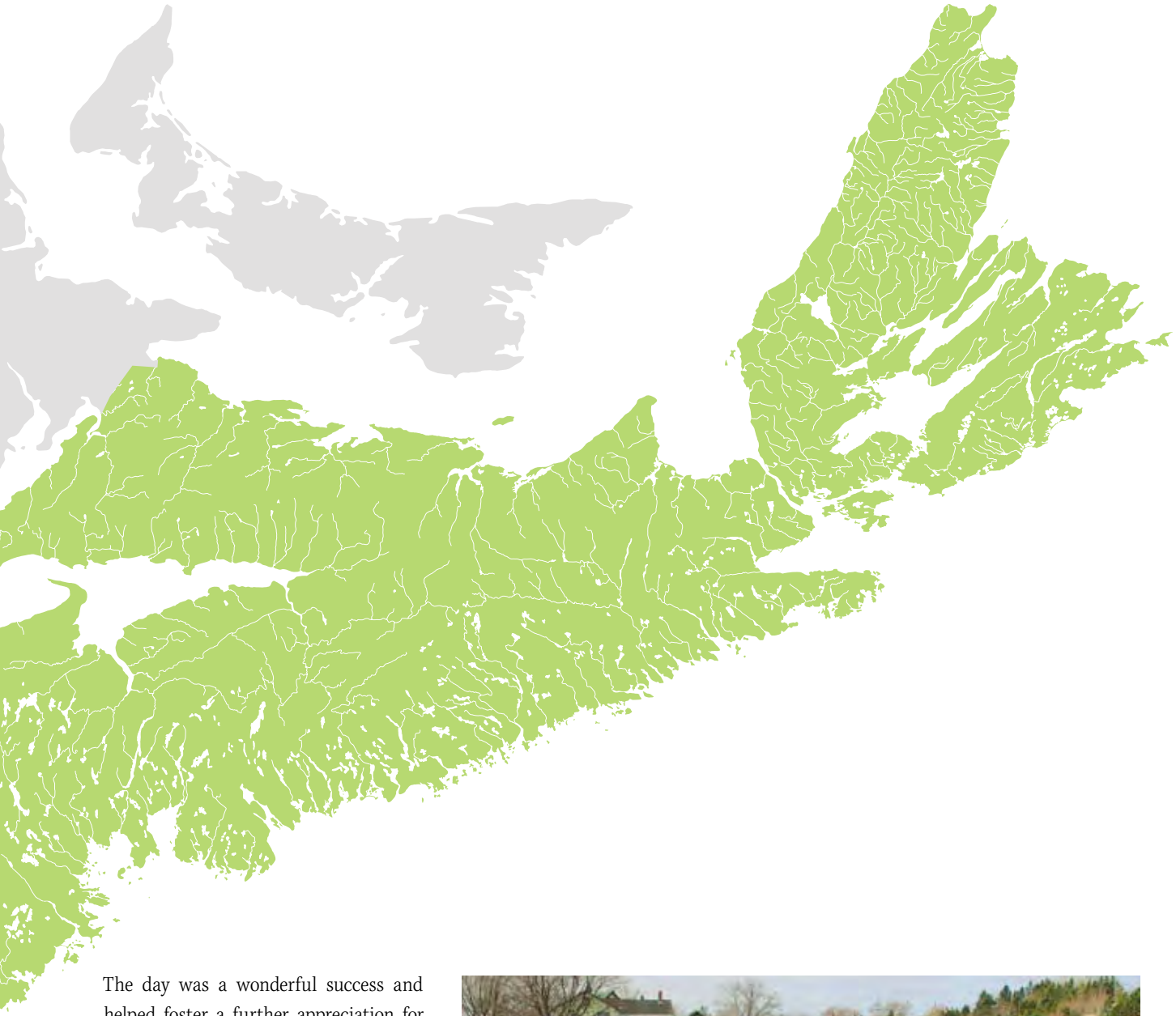
Today, the fishing is still very good for native brook trout in sections of the Tusket river. The river can be accessed almost its entire length from all-season roads—the western portions being roughly in parallel with Route 340 running from Yarmouth to Weymouth, and the eastern portion being accessible via Route 203 which traverses the southwest part of Nova Scotia by going along the wilderness border from Yarmouth to Shelburne. Local guides can provide a day's fishing, or several days' canoe/camping trips through some of the remote areas, but there is also near road fishing access. In the height of the Mayfly season (roughly from mid-May to mid-June) the entire river has sections where the fishing is a reminder of why this river still draws many people to it. This past summer, several fishers hit triple digits for numbers of trout caught and released in a day on the Tusket during season's peak, and in the fall catch and release season, several days of over 50 fish caught and released were not uncommon, fish ranging from 10 to 14 inches, no less.



The Tusket is still a wonderful trout stream in part due to the efforts of Trout Unlimited Canada in Nova Scotia. The local TUC Chapter is called the Tusket River Chapter of Trout Unlimited Canada, with this Chapter's main focus the education of youth and the protection and restoration of rivers in the Southwestern portion of Nova Scotia, the area the Tusket River cuts through—Digby, Yarmouth and Shelburne Counties. Youth under Tusket TUC's care have been doing cleanups along rivers such as the Tusket, and, in a rather unique effort last April for an Earth Day project, the Chapter organized a "Cache in, Trash out" exercise along 8 watersheds, including the Tusket River. This was an event where school children, in Grades 2 to 6, learned about the outdoor sport of Geocaching by using a GPS to locate a plastic container hidden within walking distance of the school.



The container held prizes for the students, along with rubber gloves and garbage bags for the kids to do a clean-up as they walked back to school along the banks of the river. The students were taught about mapping and used Graphic Information Systems programs like Google Earth and NASA Whirlwind to plot their tracks.



Government of Nova Scotia map, adapted by David Soltess.

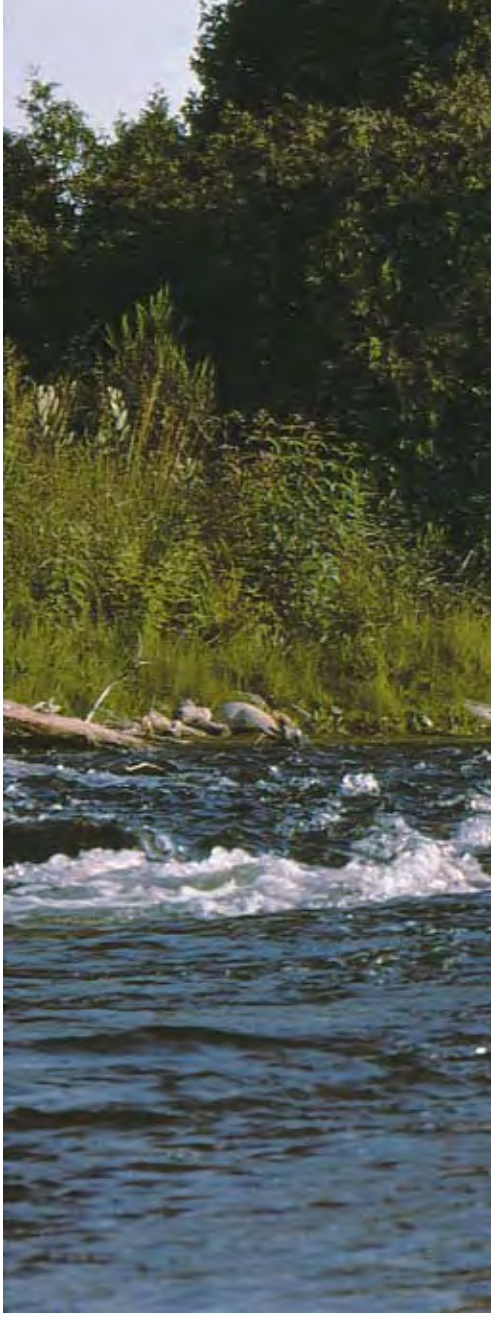
The day was a wonderful success and helped foster a further appreciation for the environment and an understanding of the fragility of the watersheds.

The Tusket River is a beautiful river and is one of those special places that organizations like the Tusket River Chapter of Trout Unlimited work very hard to protect and preserve for future generations of anglers.

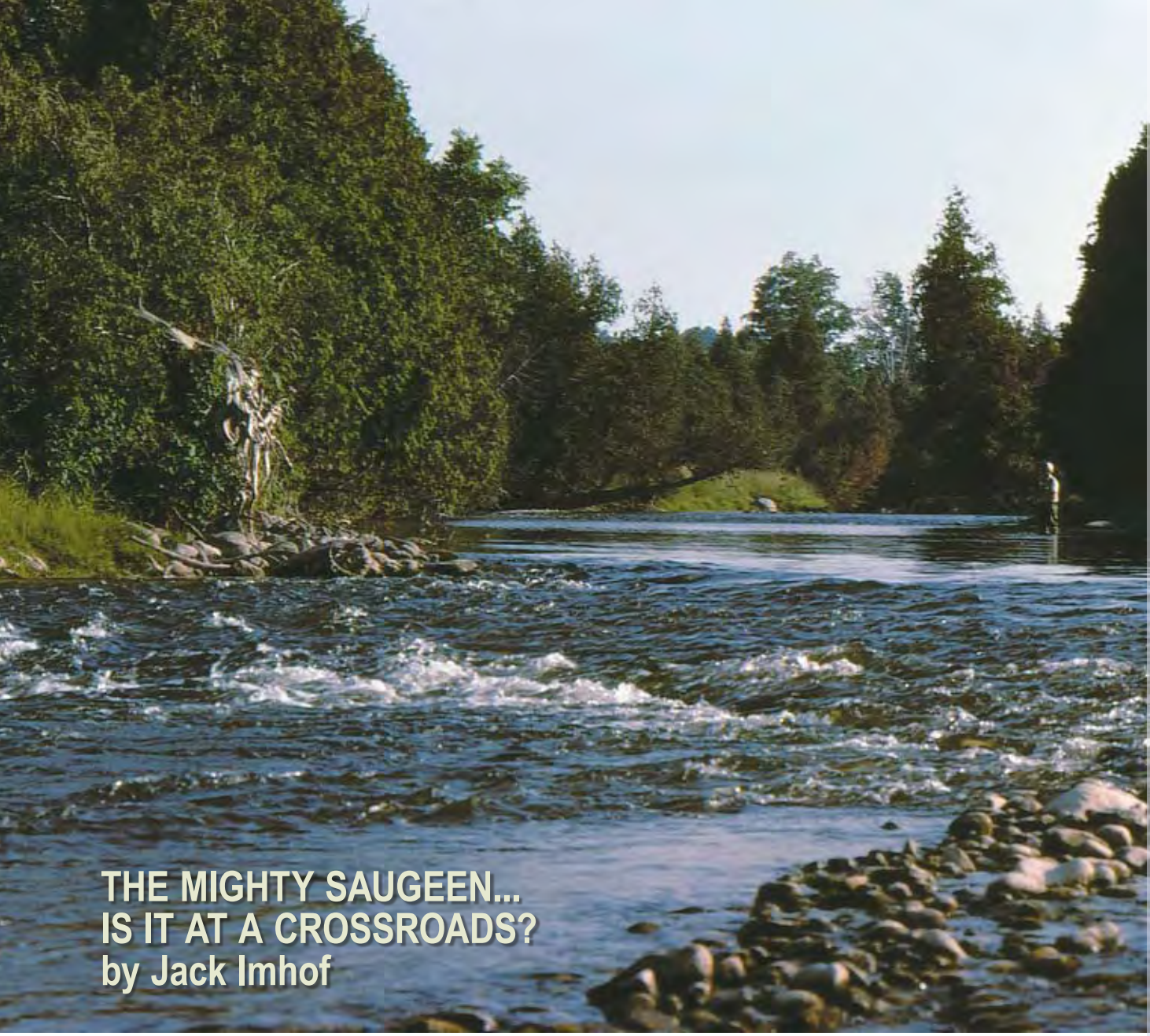
Bill Curry is the President of the Tusket River Chapter of Trout Unlimited Canada, a member the TUC National Board, and a Master Professional Guide with over 45 years of fly fishing experience on the Tusket River.

Tusket River Chapter volunteers lead a "Cache In, Trash Out" exercise with area schoolchildren, Grades 2 to 6. Not only did participants don gloves and haul bags to clean up the river banks, they also had an introduction to 'geocaching', using GPS systems, Google Earth and other high-tech mapping and navigation aids.

The Saugeen and its tributaries contain more miles of potentially high-quality trout water than any other watershed in southern Ontario. Not only can the Saugeen be considered the "Beaverkill of the north", but its lower watershed is also a renowned coolwater/warmwater fishery. Brook, rainbow & brown trout, chinook salmon, smallmouth bass, pike and even muskie can be found within its 3860 km^2 watershed. But the very characteristics that make the Saugeen such a rich fishery create demands from human industry and use—often to its detriment. As a result, all may ***not*** *be well in paradise.*



Saugeen River brookie. Jack Imhof photo.



Fishing on the main stem of the Saugeen upsteam of Hanover Jack Imhof photo

THE MIGHTY SAUGEEN... IS IT AT A CROSSROADS?

by Jack Imhof

A friend and I planned our first trip to the Saugeen like a military campaign.

We poured over topographic maps, reviewed the road network and quizzed as many local anglers as we could. Everyone told us that the Saugeen was the "holy grail" of trout streams in southern Ontario. Since neither of us had fished the river before, we did not know where to go, but several knowledgeable anglers suggested that anywhere between Durham and Hanover was good. With that in mind, we decided to travel to a dead end road north of Highway 4, west of Durham. The topographic sheets showed a section of river with no road crossings for at least five or six kilometers. The topo lines suggested that not only did the river have a good gradient in this reach, but a major tributary called the Rocky Saugeen joined the main river, smack dab in the middle of the section!

The day of our excursion was cold, but bright. An arctic high was building that late May morning. The air was sharp, and the sky was streaked with a mix of fast moving clouds breaking up the otherwise clear sky. The dirt road we took off Highway 4 was in good shape, but after the first cross road, it degenerated into a rough track. At a laneway at the end of the road, we left our vehicle and set out on foot.

Almost half a kilometer along a ridge, with tantalizing glimpses of the river through the cedars, we finally found a path down to the river and came out at a large cobbly bend. The river looked like all the pictures I had seen of high quality rivers in the USA. The water was lively and clear, flowing over a mixture of cobble and boulder with deep fishy-looking troughs. We began fishing down the stream, occasionally catching small brook trout. Another 500 m down the stream, we came upon a long stretch of bouldery rapids, flanked by a dense

The Saugeen's complex geology, largely forested headwaters and wetlands make it, potentially, the finest cold-water system in southern Ontario—with more miles of high quality habitat than any other single watershed.

cedar riparian zone. We fished wet flies in the pocket water as we worked down the river. Ahead, we could see a chalk white cliff face that the river seemed to disappear under. We decided to stop fishing and head straight downstream to explore this phenomenon.

This is how I was introduced to the junction of the Rocky Saugeen and the main Saugeen Rivers: one of the most beautiful sections of river in southern Ontario and the location of one of the most intriguing pools on the Saugeen. The Junction Pool resembles a capital "T". The vertical portion of the "T" is the main Saugeen River, while the Rocky, entering from the right, forms the top of the "T". In effect, the main river is forced to turn 90 degrees to the left as it hits a large rocky cliff of dolostone that is 10 meters high and approximately 60 meters long. The main Saugeen River increases by half with the addition of the clear, cold, high quality water from the Rocky Saugeen.

That day was over 35 years ago and I still remember it like it was yesterday. Since then, the Saugeen has earned my respect as one of the finest watersheds in Southern Ontario. As a matter of fact, I believe that the Saugeen watershed and its tributaries contain more miles of potentially high quality trout water than any other single watershed in southern Ontario. Not only could the Saugeen be considered the Beaverkill of the north, but its lower watershed is also a renowned coolwater and warmwater fishery.

The main river from Walkerton and Hanover upstream to Durham boasts a population of brown trout in the main river, with the occasional brook trout that drop out of smaller coldwater tributaries into the main river over the winter and spring. From Durham upstream to Priceville, native brook trout dominate the coldwater population in the main stem and colder tributaries. Migratory rainbow trout from Lake Huron run the river in the spring and fall. These beautiful fish have access to spawning areas from Walkerton upstream to Hanover and then, through an old management plan, to the Beatty and South Saugeen Rivers for their production. The lower river also appears to support a wild population of Chinook salmon.

The river downstream of Walkerton is primarily a coolwater river with an abundant, although fragile, population of smallmouth bass and populations of northern pike and the occasional muskie.

The Saugeen watershed encompasses approximately 3,860 km^2 of landscape. It begins northeast of Dundalk and flows through a wide range of landscape before eventually discharging into Lake Huron at Southampton. The watershed is surrounded by several other interesting watersheds, including the Maitland to the south, the Grand to the southeast, Beaver River to the north east and the Sydenham to the north and west. It shares a common height of land in its headwaters with rivers flowing into Georgian Bay and Lake Erie, even though it flows into Lake Huron.

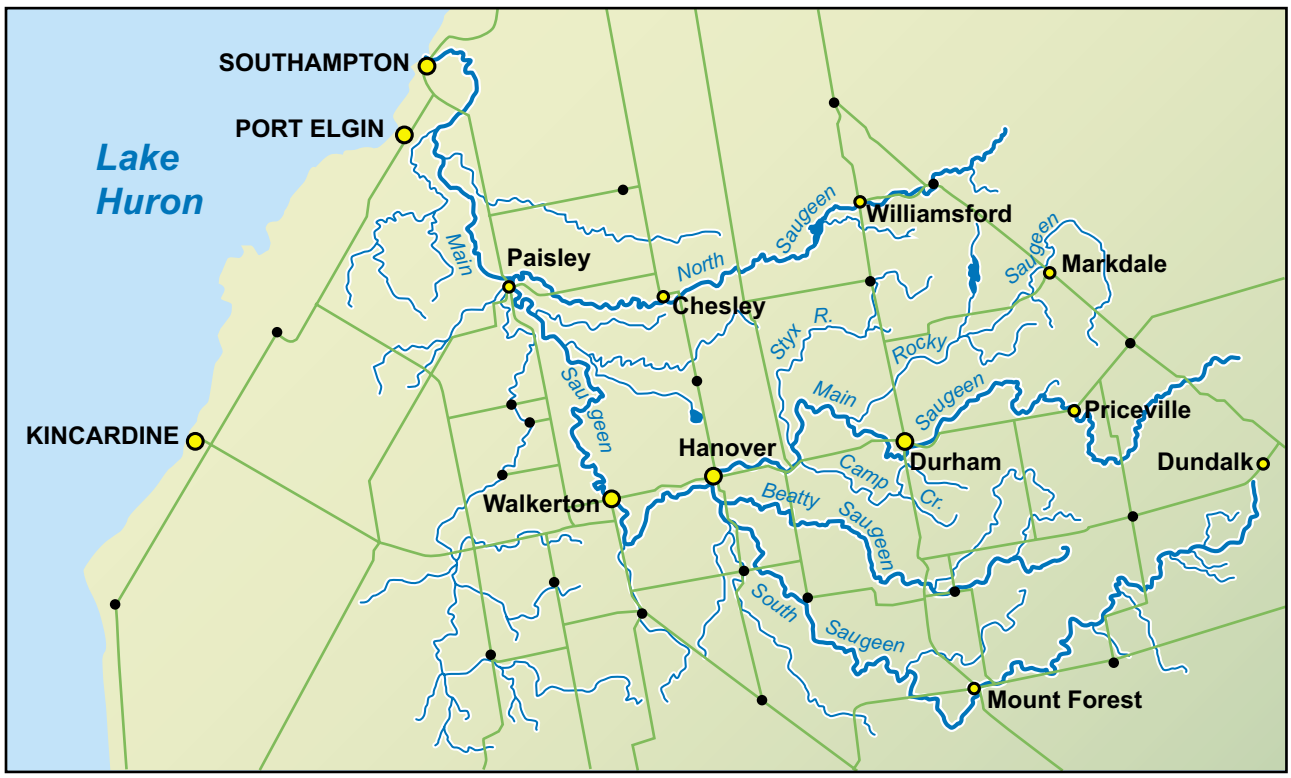
The Saugeen's complex geology and largely forested headwaters and wetlands create the perfect potential for an incredible watershed. Geology creates the potential for a watershed, while local conditions determine how far that potential will be realized. On the Saugeen, the most productive portions of the watershed occur where the local landscape is layered by large and deep moraine deposits of gravel and sand overlaying a porous sedimentary dolostone bedrock called the Amabel Formation. This bedrock

Camp Creek (above) and a tributary of the Rocky Saugeen (above right) are just two of the Saugeen's many quality coldwater trout streams. J.Imhof.

structure is one of the most important regional aquifers in southern Ontario and provides the stable, cold clean flows of groundwater that also make the Credit River and Beaver River such productive trout streams. On the Saugeen watershed, this combination of geological layering creates two major groundwater systems: a shallow groundwater system that captures, stores and then discharges large quantities of locally recharged groundwater; and the bedrock aquifer system that contains larger quantities of more ancient water, recharged over a large area. These groundwater discharges moderate river flow, cool temperatures and provide ideal conditions for trout.

A large portion of the main stem of the river and tributaries such as the Rocky, Beatty, Camp Creek and Styx Rivers flow through this combination of surficial and bedrock geology. In some locations, portions of these streams have cut small gorges into the Amabel Formation. In these locations, bedrock groundwater discharges can be quite substantial, further enhancing the quality and lowering the maximum temperature of the particular stream.

The geology of the watershed also influences the general water quality and productivity of the system. The water quality of the river is still quite good, despite the horrible circumstances that created the Walkerton tragedy. This good water quality is, in no small part, due to the large amounts of groundwater that discharge throughout large portions of the watershed. The groundwater in the Saugeen watershed issues from highly soluble sedimentary rock with the result that the water is not only clean and abundant, but is also high in natural mineral salts, making it alkaline. The average pH of the Saugeen and its tributaries is between 8.0-8.4, similar to some of the chalk streams of England and the spring creeks of Pennsylvania. In effect, some of the tributaries of the Saugeen are freestone spring creeks.



Map by Cartographic Section, Dept. of Geography, University of Western Ontario, adapted by David Soltess.

The final key element that makes this watershed so exceptional is the extensive headwater wetlands and forested areas of the main Saugeen and some of its major tributaries. The wetlands in the headwaters of the main Saugeen, Beatty Saugeen, Rocky Saugeen and other tributaries occur on a large flat till plain. Some of these wetlands have been drained for marginal agriculture, but to date, the majority of these wetlands are still intact as shrub wetlands and swamps. Water is stored

in these wetlands like a giant sponge during spring melt and severe summer storms and then gradually released into the river, providing better base flow conditions and moderating and dampening the more frequent flood flows. Other portions of the upper watershed still have extensive forest cover. These forested areas occur on the large moraines, creating the ideal conditions for optimum recharge during heavy storm events and during spring melt, feeding the water tables that will maintain the streams in the valleys through the summer. Without this combination of largely intact wetlands and forests, the Saugeen watershed would not be the incredible system that it is.

ALL IS NOT WELL IN PARADISE

The characteristics of the watershed that make this system one of the finest coldwater and warmwater systems in southern Canada, have in the past, and continue today, to create opportunities for human industry and use, often to the detriment of the system. These uses include dams and pond building, bottled water extraction, aggregate extraction, golf course development and habitat destruction.

The high base flows, natural gorges and deep valleys of many areas of the watershed were harnessed from the mid-1880's to early 1900's by dams for saw mills, grist mills and hydropower. Many of these old dams are gone, but a substantial number still remain on the main river and tributaries. A few are still used for power generation, although most are in disrepair, full of sediment, waiting to fail. Many of these dams heat the river in the summer, creating long sections of river downstream not suitable for coldwater species, especially sensitive species like our native brook trout. There was hope in the 1980's and 1990's that many of the dams no longer of practical use could be modified or removed to restore historical functions of the river.

Land use practices and habitat destruction (above), obsolete dams (lower right), aggregate removal, water withdrawals, on-line pond building and recreational development are all things that can negatively affect the Saugeen watershed. Once-abundant brook trout (far right) are declining in many sections. Jack Imhof photos.

It is a testimony of the watershed and its groundwater abundance that, despite many of these old dams, the river in the past has been able to recover between many of the dams. Some of these dammed tributaries still maintain temperatures that can hold non-native trout such as browns and rainbows, although in many cases, brook trout can no longer survive in these reaches.

Characteristics of the watershed that make this system one of the finest...

CREATE OPPORTUNITIES FOR HUMAN INDUSTRY AND USE—OFTEN TO THE DETRIMENT OF THE SYSTEM.

THESE USES INCLUDE DAMS AND POND BUILDING, BOTTLED WATER EXTRACTION, AGGREGATE EXTRACTION, GOLF COURSE DEVELOPMENT AND HABITAT DESTRUCTION.

As we enter the new "normal" brought on by increasing climate variability, we will need to accelerate our actions to help recover the coldwater capacity that has been eroded over the last century and a half by dam and pond building. At stake is the capability of the Saugeen and its tributaries to sustain coldwater species in the face of more extreme summers.

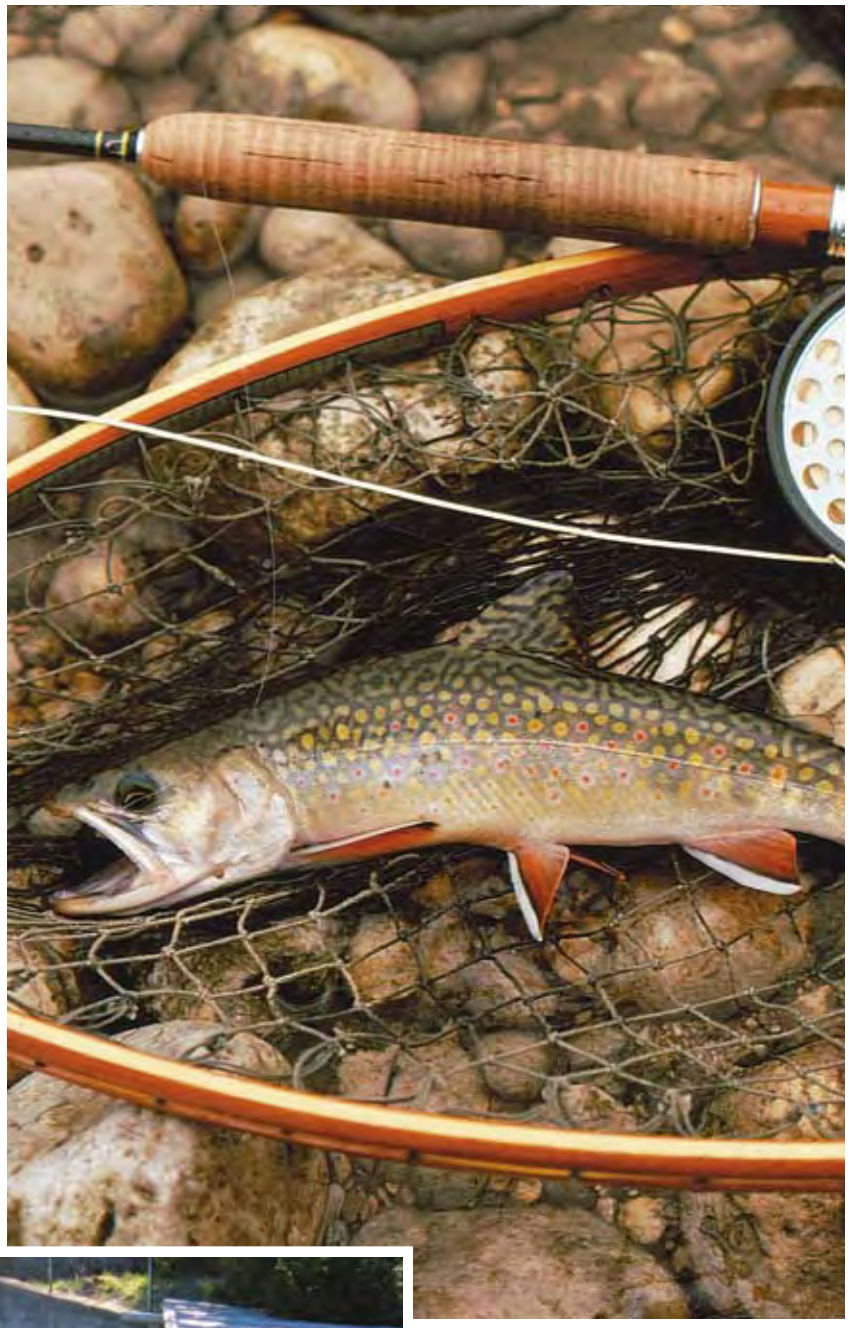
However, this emphasis on old mill dam removal is running headlong into the Province's need for more power generation and its willingness to allow small hydro-electric redevelopment. Most of the old dam sites on watersheds such as the Saugeen, are not cost-effective, but the push for a quick fix tends to ignore this fact, despite the enormous negative impacts on water quality, quantity and aquatic resources that redevelopment of these small sites would cause.

Pond development on the tributaries is increasingly a problem for the watershed. Many people are acquiring recreational properties in the watershed and wish to have standing water as well as flowing water, on their properties. Off-channel ponds create a problem if they siphon substantial amounts of water from the nearby coldwater streams, thereby reducing vital base flow in the stream and returning the water back to the stream much warmer than it was. Most of the negative impacts of these types of ponds can be mitigated. The biggest problem is online ponds that warm the stream water, and prevent migration and movement of

fish up and down the river (sometimes to critical spawning areas). As climate variability increases, the cumulative impact of these ponds on water temperatures will be a substantial and major ongoing issue on the watershed, destroying cold-water fish communities and affecting water quality. The sadly humorous part of all of this is that many of the people building ponds want to have trout in them but, through their actions destroy the capability of the wild trout populations to survive in the streams on their properties.

Additional problems arise with the perceived opinion that bottled water from private industry is better than water from well maintained private wells or properly maintained municipal supplies. Given the groundwater rich nature of the Saugeen, many entrepreneurs are exploring opportunities to extract groundwater from the aquifers of the watershed. Although the Saugeen is groundwater rich, the severe drought that occurred from 1997-2003 demonstrates that even a groundwater rich system does NOT have massive surplus that can be extracted.

Hydrogeologists are quick to point out that in total, bottled water companies do not extract significant amounts of water, based on the overall volumes found in the watershed. However, from an eco-



logical perspective, what they often fail to consider is that the two major issues are the locations that companies choose to develop and the specific aquifers that they target. Many of these developments occur on headwater systems, preferring to extract water from locally discharging springs. Headwaters are selected because this is where groundwater can be found close to the surface. Shallow, discharging water tables are extracted (i.e. those that are creating these headwater streams) because under international trade agree-

ment definitions, they can only call their product "spring water" if it is extracted near the surface. There is an enormous supply of high quality groundwater in the deeper regional aquifers, but they cannot sell their product labeled as spring water from these deeper systems. Therefore, these industries target our extremely vulnerable headwaters, the capillaries of the watershed and the life blood of these headwater streams, because of a trade ruling definition.

Aggregate extraction is presently a minor issue in different portions of the watershed, but may increase substantially as gravel reserves closer to the GTA are exhausted and better transportation corridors are developed to bring these gravels and sands to the major markets of southern Ontario. In this case, better research on the potential impacts of aggregate extraction on groundwater recharge, discharge, storage and movement are needed in order to ensure that aggregate development does not damage the groundwater resources and health of the river and its valley. This research is not currently being undertaken by any government agency or university.

Additional issues arising in the watershed include over-harvest of existing fish populations, golf course development and its clearing of the forested landscape, increased use of water, nutrients, herbicides and pesticides, in-channel habitat destruction, and extensive urbanization immediately along the river and streams.

I BELIEVE THE SAUGEEN WATERSHED IS AT A CROSSROADS

Recreationalists, industry and commercial interests are rapidly discovering it. A sound set of management plans must be established. These plans must help direct the protection of the watershed's groundwater resources, determine how we will maintain the natural flows of the river, reduce water temperatures, and better manage the streams and stream corridors of the watershed. If we do not develop and implement these plans, water quality will diminish, habitat will degrade and we will lose the fish populations that we know and enjoy.

There are many of us that know and love this watershed. Whether you are an angler, conservationist, landowner, resident or visitor, the watershed is exceptional and beautiful. However, there are more and more pressures occurring on the watershed, and those that care about it are not organized or focused.

With increasing pressure on the watershed, fish like these need friends. Jack Imhof photo.

The watershed needs not only more friends, but friends that both communicate with each other and work to develop more information-based strategies to ensure the health of the watershed, valley, river and water resources as other uses are proposed and developed. It will be the communities, supported by non-government organizations, landowners, watershed based conservation agencies and municipalities working more closely together, developing sound science-based information and management plans that will ensure that the Saugeen River not only is protected, but restored to its full potential.

NO ONE EVER SAID THAT THIS WOULD BE EASY

Rivers all across our country face some of the same dilemmas. However, there are things that can be done:

- We can help and support the local conservation agencies with their work, we can help to inform the local communities of what they still have and what makes this watershed special.
- We can connect with landowners and municipalities and provide the best information and support that we can offer.
- We can associate with organizations that can provide a voice for us at the local, provincial and even national level.
- We must provide awareness and knowledge to those that are watershed residents, those that will be most affected by negative changes when incremental, poorly designed development occurs.

The goal is a healthy watershed, a healthy river, a productive fishery and a better quality of life for the Saugeen and other Canadian rivers.

Junior Biologist Corner:

Getting Bugged! Making a Bug Sampling Net

by Silvia D'Amelio

This activity is most suitable for ages 14 years and older, with adult help.

What You'll Need

- 2 pieces of wood dowel 3-4 ft. (1-1.3 m) long. Old broom handles work well;
- a piece of screening about 3 ft. (1 m) x 4 ft. (1.3 m), the kind used in windows and screen doors;
- duct tape or a staple gun (with adult permission).

How To Put It Together

- lay the screening on the ground and place a piece of dowel at each of the short ends;
- wrap a bit of the screening around the dowel making sure that one of the ends is in line with the edge of the screening;
- use duct tape or, with extreme caution (and adult permission), a staple gun to secure the screening in place.

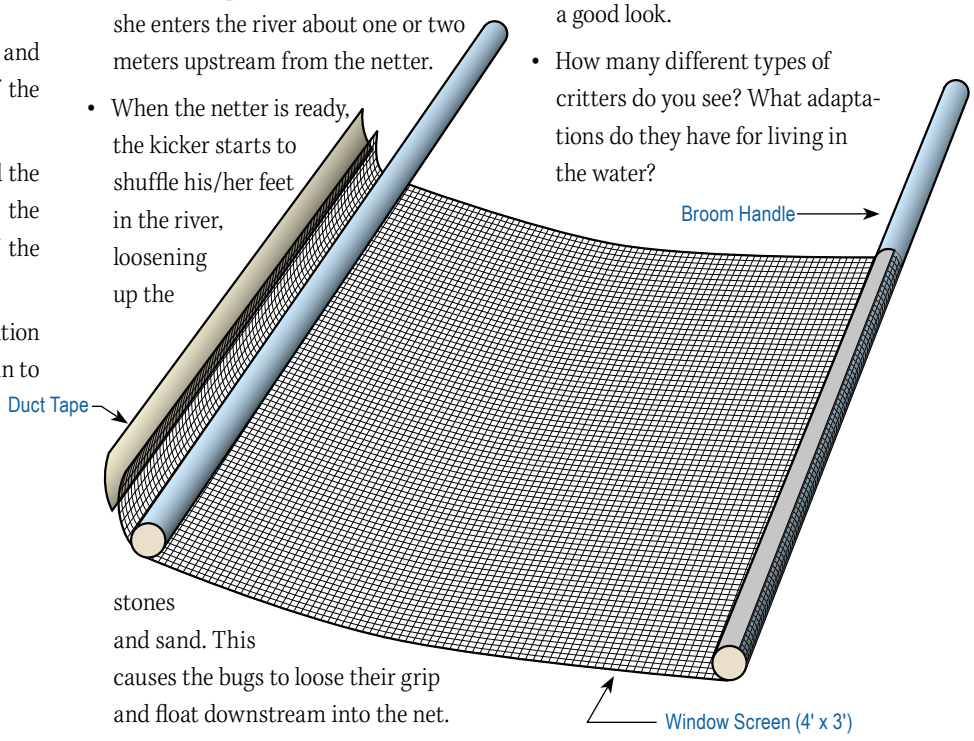
Sampling A River (It Takes Teamwork!)

What you'll need

- magnifying glass;
- 2 plastic trays or glass bottles;
- waders or water shoes;
- a partner, or a few friends;
- life jackets.

How to do it

- Choose a slow flowing spot on the creek or stream. The water should be at or below knee height;
- Fill your trays or bottles with water from the creek. Leave these on shore;
- Put on your lifejackets;
- One person stands in the river facing upstream, just below the area you want to sample—this is the 'netter'.
- The netter holds the net in front (upstream) of himself/herself, spreading the dowels out towards the banks. Make sure the net is firmly planted on the stream bottom and lean it back (downstream) slightly. This makes it easier to hold and catches more bugs.
- The second person is the 'kicker'; he or she enters the river about one or two meters upstream from the netter.
- When the netter is ready, the kicker starts to shuffle his/her feet in the river, loosening up the stones and sand. This causes the bugs to loose their grip and float downstream into the net.



- After kicking for a minute or two, the kicker grasps the bottom of the net in the water and slowly lifts up. As the water drains away you can see all the bugs and sometimes fish you've caught.
- Take the net carefully to shore and empty the net into one jar or tray. Use the second container to rinse the rest of the sample into the jar or tray. Have a good look.
- How many different types of critters do you see? What adaptations do they have for living in the water?
- Carefully return the bugs to the water when you're done.

To help you identify your critter-catch, visit these websites:

- www.usask.ca/biology/skabugs/
- www.kidfish.bc.ca/insects.htm
- www.nature.ca/rideau/b/b5_2-e.html

Jack Imhof (back) with Doran Creek project volunteers.

White hats & Hip Boots...

Ontario's Near North Chapter Activities, by Bob Burke. Photos by David Lewis.

A Trout Unlimited Canada Chapter is the grassroots operating unit which carries out TUC's work on the ground (and in the water) and raises funds for these activities.

As of the fall of 2006, we are into our fourth year as a local, organized, and active chapter of Trout Unlimited Canada.

Our beginnings as a chapter are rooted in the fly-fishing and fly-tying groups that have existed in the Nipissing region of Ontario since the 1980's.

Although a few of the founding members of our specific chapter had been paid up members-at-large of Trout Unlimited Canada, it wasn't until the winter and then spring of 2004 that David Lewis and I met at a fly-tying meeting in one of our local pubs.

It was as simple and as complicated as a few beers and a few fish stories and a plan was hatched to develop a local chapter of TUC.

The core of our group consisted of mainly fly-tiers and fly-fishers including Dave Lewis, David Lafayette, Mike and Jerry Beaulieau, Don Boissonneault, Andre Leblanc and myself. Our original group has since changed, but the makeup of the core group has remained constant.

We decided to take on a project we believed would be straightforward and achievable...

AS USUAL, HOWEVER, THINGS ARE RARELY AS STRAIGHTFORWARD AS THEY FIRST APPEAR

David Lewis took the bull by the horns and organized our affiliation with the National office of Trout Unlimited Canada. We were off and running, and of course, not knowing what or where we were running to or from, I became our first President. In the beginning, we had the very good fortune of interesting a local MNR biologist, Dave Fluri, who has since joined our core group as our active technical expert, liaison to the public sector, and mentor to those of us with limited knowledge of aquatic habitat and stream restoration. Suffice it to say, we were organized, affiliated and ready to embark on a project!

We decided as a group to take on Doran Creek as a project that we believed would be straightforward and achievable. As usual, however, things are rarely as straightforward as they first appear.

The headwaters of this creek move through an aggregate pit, down an es-

carpment bordered by several houses, some farms, and empty into a bay at Trout Lake. What we came to realize was that you just had to mention Doran Creek to most knowledgeable observers of the environment in North Bay and their eyeballs would start to roll. It seems that in the early to mid 1980's a catastrophe occurred when a beaver dam adjacent to the pit broke and let loose several tons of sand leaving a thick layer over the stream's bed.

There were some interventions, some fines and finger pointing, hard feelings and bad blood. Oblivious to this, our Chapter jumped into the fight with both feet, decked out in our white hats and riding our trusty steeds.

We talked things over amongst ourselves, noted that with insight of the history of the creek's dilemmas we as a chapter should change tactics. We could see that the blaming and finger pointing had not been effective so we charted a more diplomatic approach beginning with a sense that a local solution could be applied to a local problem: local problem—local solution.

TUC's National Biologist, Jack Imhof, became our hero! At our request, Jack listened to us, visited the sites in question, and formulated a comprehensive plan for us to follow. He suggested that some sediment traps be dug in the stream to allow the natural movement of the water a chance to clean the stream bed and deposit the unwanted sand in the traps.

The late spring of 2006 saw the implementation of our "boots in the creek" phase of the work plan.

Five sediment traps were dug with the cooperation of Bruman Construction, the owners of the pit, and subsequently this fall were emptied again with the work, equipment and cooperation of Bruman Construction.

Several hours of volunteer time has been spent restoring the creek using deflectors, which have served their function of filling the traps up in no time at all. Removing obstacles and trash became the task of the volunteers.

Prior to the "boots in the creek" phase, water monitoring sampling and electrofishing had taken place so we had the baseline information we needed to measure the results of our work on the creek.

Our chapter's organization phase has turned into an accomplishment phase. We have learned that the more diverse our membership is, the more productive it can be as the different skills are applied to our different challenges. Like other chapters across the country, we are growing, and encouraging member participation at all different levels.

We are committed to our community at large and as such will be seeking the partnership of like-minded environmental groups. At the same time we will do our best to raise awareness of the TUC's particular areas of interest and concern.

Our work on the creek has demonstrated our value to the community with recognition given in our local newspaper and a folder of our activities distributed at our City Council. We are preparing to participate in some cable TV shows as phone-in guests. There is interest from the media in our Project and in the TUC mandate.

We are looking forward to increasing our activity level and to collaborating with our local community college and university, Conservation Authority, and community gardeners, and we are engaging in a link to our local chapter of the Cancer Society through *Casting for Recovery*.

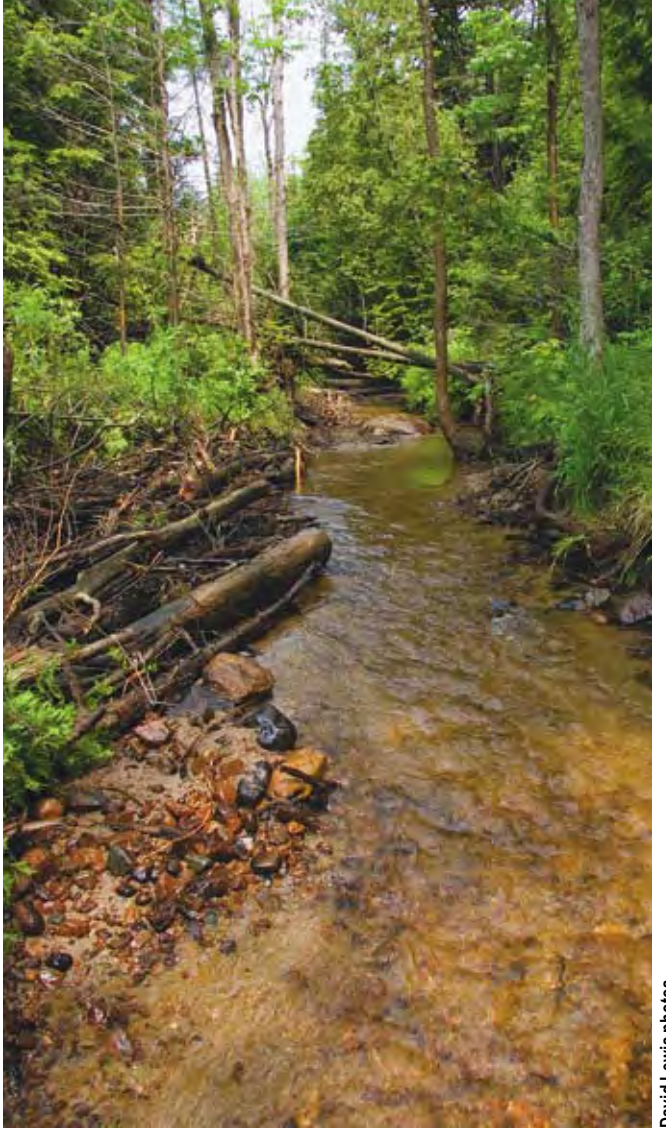
As a chapter of TUC, we want to be part of the big picture but retain our local flavour. *Think global, act local!*

Whereas other people seemed just to roll up their eyes at the mere mention of Doran Creek, TUC's Near North Chapter members chose to roll up their sleeves instead.

The result—a real showcase example of what good project planning, a little local diplomacy and a lot of hard work from dedicated volunteers could achieve in relatively short order. TUC congratulates Near North on their success.

For more information on this project, see "The Science & Art of Stream Rehabilitation" (page 20). We also encourage you to view the project video at Near North's website: ***www.nearnorthtuc.org***

Near North volunteer Donald Boissoneault.



David Lewis photos.

Transformation is a powerful concept. To transform something from one state to another takes thought, good science, knowledge, understanding and effort. If done correctly, the results—like Ontario's Doran Creek, above— can be nothing short of miraculous.

The Science and Art of River Rehabilitation

by Jack Imhof and Silvia D'Amelio

In this article we want to introduce you to some of the rationale, principles and approaches we utilize and recommend to Trout Unlimited Canada chapters interested in the science of restoring health and productivity to damaged or altered coldwater streams.

It is important to understand the difference between restoration and rehabilitation. We may all try to restore a degraded system to its original condition, but in many cases that may no longer be possible given the permanent changes in the surrounding lands and watershed. Under these circumstances, what we are trying to do is rehabilitate the system to as good a level of health and functionality possible, given the factors and conditions we can manage or change. And if done hastily, our efforts can have disastrous effects on the system.

THE RATIONALE

Most of the watersheds in southern Canada have been dramatically changed since Europeans first settled Canada. We made an enormous ecological footprint.

Forests were cleared for roads and farms. Sod was turned, and towns, and then cities were built. Our prosperity in Canada was built upon development and associated industries such as forestry and mining. This helped to create our current society and the standard of living we enjoy today. However, everything has its cost. Along with progress came the negative consequences and the real need to reduce our footprint upon the land. Rivers can be damaged quickly, in a matter of weeks or months. Conversely, it can take a river many years to recover.

Healthy, functional natural streams and lakes provide clean water and a healthy living environment to us and ask little in return. Rehabilitation should strive to reduce the direct and indirect negative effects we have on our landscape and watersheds. A damaged and degraded river and watershed not only destroys the fish we enjoy but reduces the quality and quantity of water available to us and the environment, damages our property, and costs us money to protect ourselves from its violent moods.

Trout Unlimited Canada is fortunate that we have members and chapters who strive to restore their home waters and watersheds. This work takes careful and clear planning, thought and sound science, but done right leads to amazing results.

THE APPROACH

Whenever contemplating a project, the first question should be, "do we need to do anything?" The local chapter should determine, with assistance from a TUC biologist or agency biologist, whether the stream has a problem or not. Is the issue perceived or actual? Once a decision is made that the problem does require an intervention, then the design of the rehabilitation projects should work with the river's natural tendencies to allow long term stability of the project and system.

Our challenge is to try to determine what the healthy, natural endpoint for a particular degraded stream should be and determine what has created the problem in the first place and if this problem can be resolved. We then, through careful efforts, push or nudge it towards this natural tendency. In other words, point it in the right direction, give it some help and then let nature takes its course and fine-tune itself. You will know really quickly if you did the right job: though sometimes messy at first, the stream will change into a new, healthier state, the alterations will continue to improve and the fish will respond.

Within the context of a healthy, functional stream and corridor, an additional major priority of TUC is to ensure that habitat is available for native naturally reproducing fish species and their related fish communities. (As a second, design to ensure that habitat is suitable for naturalized, naturally reproducing fish species and their related fish community).

GUIDING PRINCIPLES

There are certain guiding principles that we try to apply to all work we do on streams.

- Treat causes of the problem, not the effects;
- Strive to make the system, its channel and riparian system functional again within the context of its valley and watershed (this is rehabilitation, but not necessarily restoration);
- Apply an ecosystems approach which includes striving to maintain and rebuild biological diversity;
- Direct the stream towards its natural tendencies using approaches such as the natural channel systems approach;
- Monitor key variables before to aid in the development of the plan and after to assess short and long term effects;
- Use the best science available including scientific and technical planning and design tools;

Good projects (and their resulting success) do not just happen. So how does one go about turning a beaver dammed and windfall-choked stream like the Rocky Saugeen's West Arm tributary (above) into vibrant and productive habitat?

- Engage local communities and landowners to be part of the solution and long-term stewards.

These principles emphasize the need to place the portion of damaged stream in context with the structure and composition of its watershed and local geology, in context with the stream's preferred natural form for the area and in context with the fish communities found in the area. The principles also emphasize the fact that most of environmental management and restoration entails the reduction, mitigation or elimination of human activities adjacent to the stream and its corridor. This means that in order to effect long-term, positive change, we need to engage the local community in order to ensure that work we do will be supported and maintained by the local community. Our application of solutions must also stress the re-establishment of hydrologic and ecological pathways within the watershed and stream corridor.

KEY ELEMENTS OF A GOOD STREAM PROJECT

Good projects (and their resulting success) do not just happen. They are made to happen through careful planning, good information, sound advice and careful implementation. Some additional elements of good projects are listed below.

- Plan carefully and plan well;
- Pull together the best information you can find;
- Gather necessary data where none previously existed;
- Understand how your stream should work;
- Understand what is causing the degradation and the most efficient and effective means of resolving the problem;
- If you don't know, ask an expert;
- Select the approach that will give the best results over the long-term with the least amount of risk;
- Let the approval agencies know well ahead of time what you propose and ensure they have lots of time to review and discuss the plans with you;
- Ensure all the required habitat is available for the target species and its fish community for all their appropriate life cycle;
- Utilize partnerships with agencies and like-minded groups;
- Celebrate success and acknowledge your partners.

We have selected a set of projects that illustrate good stream rehabilitation principles—the Doran Creek Project (Near North Chapter), Rest Acres Creek (Middle Grand Chapter), West Arm Project (Happy Trout Chapter) and Davidson Brook (Cumberland County Enhancement Association, TUC Nova Scotia).

Doran Creek

Doran Creek flows off a large escarpment on the northeast side of North Bay and flows into Trout Lake. The stream once abounded with brook trout but over the last 25 years has slipped by fits and starts into physical degradation. Some of those fits included accidental discharges of vast quantities of sand that covered the gravel substrate, filled in the stream's pools and filled in the stream channel to the point that the stream lost its way through its valley, splitting into numerous channels. The good news is that the stream's ground seeps are still intact and brook trout have held on in secondary springs and small tributaries. The stream is redeemable.

Some of the project goals were to:

- Narrow the channel to allow flow to move surplus sediment naturally and redeposit on inside bends to rebuild banks
- Identify the natural meander pattern of the stream and use surplus logs and branches to accentuate this meander.
- Remove cross channel logs that impede sediment transport.

Compare the result—just one day after restoration work the stream is narrower, faster flowing, digging pools and scouring sand to expose gravel substrate for invertebrates and for spawning. (See photos on page 20.)

West Arm of the Rocky Saugeen

The West Arm of the Rocky Saugeen is a small spring creek, emerging from dolostone bedrock of Grey County, Ontario, and flowing into the fabled main Rocky Saugeen near Markdale, Ontario. The West Rocky is also a coldwater stream, home to a native brook trout popula-

Near North volunteers hard at work on the Chapter's Doran Creek project.

tion. It is located within Grey County and flows through the town of Markdale where it joins the Rocky Saugeen River. Over-widening due to factors such as damming from log jams, deadfalls and beaver dams, significant alteration to the physical structure of the river as well as changes in land use have resulted in an observed decrease in numbers of brook trout within this system.

West Arm, Rocky Saugeen (page 21) showing the effects of historical beaver activity on this section of stream. Blow downs and windfalls block water forcing new secondary channels through the forest, fragmenting, damming the stream, raising water temperatures and reducing food production and holding areas for trout.

The chapter identified the original channel, then volunteers selectively removed log material to allow the stream to redefine its original channel, move out accumulated silty sediments and redefine its riffle/pool sequence (above right). Next year the chapter will add cover in appropriate areas on outside bends to enhance structure.

Rest Acres Creek

Rest Acres Creek is a small coldwater tributary in the Grand River watershed, located in the Apps Mill Conservation area, a 27 acre natural area and youth educational center managed by the Grand River Conservation Authority. The stream provides the watershed with clean cold water. It functions as a spawning tributary for brown trout in Whiteman's creek and as seasonal habitat for young trout. Whiteman's Creek, in turn, is a tributary of the Grand River and has a well-established brown trout and migratory rainbow trout fishery.

Rest Acres Creek has changed significantly throughout its history. A series of small dams were erected in the stream to back up water. These dams were removed and some areas renaturalized by the Grand River Conservation Authority. The stream has slowly widened over time, resulting in shallower, slower waters due to the extensive use of the area. This could be the result of many different factors including the change in sediment transport dynamics due to the culverts and old dam structures in the area, increases in woody buildup in the system, or the result of use of the area (trampling banks, removing rocks, etc.).

Silvia D'Amelio photo

The West Arm of the Rocky Saugeen flowing freely as a result of the TUC Happy Trout Chapter project.

Rest Acres Creek had an old culvert, restricting flow.

The culvert was removed and the banks graded back to allow for revegetation and stabilization. A pool was created to enhance fish use during spawning.

Davidson Brook

Davidson Brook is a second order tributary of the River Philip located in Cumberland County, Nova Scotia. For the past 50 years, the upper 30 km^2 of Davidson brook has been blocked to migrating Atlantic salmon by two waterfalls. This obstacle to salmon migration was caused unnaturally when the Nova Scotia Department of Transport diverted Davidson Brook from its

Rest Acres Creek before and after culvert removal and stream bank improvements by members of TUC's Middle Grand Chapter with help from staff of the Liquor Control Board of Ontario. Photos by Silvia D'Amelio.

Pitch in!

Happy Trout Chapter volunteer Joan Harris. Silvia D'Amelio photo.

There's a job to be done out there in the world of coldwater environments! It's time for all of us to roll up our sleeves and Pitch In!

Whether you're involved in a stream rehabilitation project, involved in an education program like Yellow Fish Road™, or just casting a watchful eye on behalf of the trout while you are out enjoying a stream, you can benefit by having a membership in Trout Unlimited Canada.

And, the larger our membership, the stronger our voice for the protection and enhancement of Canada's coldwaters!

A MEMBERSHIP with Trout Unlimited Canada nets you great benefits including:

- TUC's newsletter, *Currents*
- A FREE one year subscription to *Canadian Fly Fisher*
- Local chapter membership
- Trout pin and decal
- Membership card

MEMBERSHIPS AVAILABLE:

- Regular: $30.00
- Youth/Student: $15.00
- Family: $50.00
- Corporate: $100.00
- Lifetime: $1000.00

As the name implies, the Lifetime Membership includes a membership in Trout Unlimited Canada that never needs renewing, as well as a flyrod that keeps you in touch with the resource!

Call us at 1-800-909-6040 for more information, or visit tucanada.org

Science & Art (continued)

original channel over the two waterfalls (below). Electro-fishing surveys of several hundred meters of in-stream habitat, conducted in 2004 and 2005, revealed no juvenile Atlantic salmon above these two waterfalls.

While the construction of fish ladders is not new, the techniques used in this project are unique. The main challenge of this project was to build a ladder for the fish to ascend the falls, but to do so in the most cost effective manner possible.

After work (above), Davidson Brook shows the fishway holding pools cut into living rock, with chutes connecting the holding pools to allow easy access up the old water fall and a small structure built in the riffle below the lower pool to increase pool depth for entering the fishway.

Since completion of this fish passage, preliminary observations have confirmed the movement of trout through the ladder, and electro-fishing above the ladder has confirmed that Atlantic salmon parr have also migrated upstream.

This project was developed and implemented by the Cumberland County River Enhancement Association with support from Fisheries and Oceans Canada.

Did you know? Storm drains collect runoff water from lawns, sidewalks, driveways and roads. In most municipalities, storm drains empty directly into the local stream, river or lake, untreated!

PAINTING THE TOWN... *YELLOW?*

Trout Unlimited Canada's Yellow Fish Road™ program is a nation-wide storm drain marking program, launched in 1991. Yellow Fish Road™ (YFR) participants paint yellow fish next to storm drains and distribute fish-shaped brochures to nearby households, to remind residents that storm drains connect directly to their local water body, not to the sewage treatment plant.

Over the years, YFR has reached into many communities across Canada. In 2006, YFR has involved 8954 children, 1975 adults, painted 7317 storm drains and reached 30,712 households! Similar programs have also been implemented as far away as the United States, Australia and Scotland!

ONLY RAIN IN STORM DRAINS!

Snowmelt and rain are great moisture for plants and crops, but runoff water (rainfall or snowmelt moving over and through the ground) can pick up debris and chemicals before reaching the local water body. As runoff water moves through the watershed, it picks up and carries away natural and human-made substances such as chemicals, sediment and debris, depositing them into lakes, rivers, wetlands, coastal waters and underground sources of drinking water.

Since about 70% of towns and cities are paved or built over, about half of the precipitation that falls on our cities never touches the soil. Water slowly moving through soil (groundwater) naturally gets filtered. Water running over pavement collects debris and chemicals and goes directly into the storm drain system. Small amounts of things like salt, oil, fertilizers, pesticides and litter from many households can really add up. Storm drain pollution not only affects water quality for humans, but also the plants, insects, fish and animals that rely on those waters.

THE IMPACT OF STORM WATER POLLUTION

Storm water is one of the biggest sources of pollution in our urban waterways. Detergents from washing cars on the street can strip away the protective mucous coating on a fish, which can make fish more susceptible to disease and susceptible to absorbing more chemicals from the water.


Things that go down storm drains can hurt aquatic life. Only rainwater belongs here.

Hydrocarbons (oil and grease) from leaking engines and lubricants from cars and other machines can be toxic to aquatic life in high concentrations (it only takes *one* drop of oil to make *25 liters* of water undrinkable!). Pesticides can harm aquatic plants, wildlife *and* humans through chronic low concentrations or sudden high concentration exposures. Pesticides often cause development and growth changes in aquatic organisms.

Heavy metals from cars, corroding metal, pesticides and herbicides are generally found in very low concentrations, but will accumulate in wildlife (bioaccumulation), affecting organisms over time as they eat and drink from contaminated sources.

Nitrates and phosphates, found in fertilizers and detergents are necessary nutrients for plant growth. These nutrients can cause algal blooms—when algae grows very quickly in the presence of higher concentrations of these nutrients, choking out other organisms by using more oxygen, taking up space, reducing sunlight and clogging gills of fish.

Salts from sidewalks and roadways and irrigation practices dissolves very easily in runoff and can increase the salinity of the local water body. Freshwater species of plants and animals are not adapted to high levels of salinity like saltwater species and can be adversely affected. High salinity can also be corrosive to piping systems.

Sediment—including organic debris, silt and sand from roadways, improperly managed construction sites, and eroding stream banks—can increase turbidity or the cloudiness of the water, which can clog fish gills, decrease the amount of dissolved oxygen in the water and suffocate trout and other organisms' eggs. Added sediments can change the course of a river or stream and reduce healthy habitat.

Even heat can be a pollutant! Because storm drain water runs over land and roads, it is usually warmer than the local water body. Increased temperatures can affect the fish, plants and bugs living in the water, since some are adapted to living only within a certain range of temperatures (trout are especially sensitive to temperature changes and prefer waters cooler than 14°C). Warmer water also holds less oxygen, which is a problem for some animals that require a certain amount of oxygen in the water.

HOW DO I GET INVOLVED?

Go to the Yellow Fish Road™ website, www.yellowfishroad.org, to download materials, play online games and to learn more about the hazards of non-point source pollution in storm drains. Download the Yellow Fish Road™ Program Guide from the website (click on "Get Involved") to help prepare for your own painting day.

Depending on your location, you can pick up complete painting kits from a Yellow Fish Road™ Partner. If you are not near a kit distribution centre, we can mail you stencils and fish-shaped door hangers. Yellow Fish Road™ Partners may be able to deliver a presentation with the program.

Then tell us about your accomplishments! Send us your completed Yellow Fish Road™ evaluation, or logon to the website to enter the number of drains painted and receive a certificate for your group and a small gift of appreciation!

HOW ELSE CAN I HELP?

Besides organizing or taking part in a Yellow Fish Road painting day, there are lots of things you can do to help your waters!

- Instead of washing your car in the driveway, take it to your local carwash. The water used there goes into the sewage treatment system, rather than the storm drain system. If you must wash your car at home, wash the car on your lawn and simply rinse with hose water or rain barrel water.
- Use a rain barrel to help prevent runoff water reaching the storm drain. You can use the rain barrel to water your lawn and garden. This will help ease the strain on the storm drain and water treatment plant.

- Use road salt and sand sparingly and in required areas only. It only takes a few grains of salt to maintain a square foot of sidewalk!
- Use compost instead of synthetic chemical fertilizer—compost releases its nutrients more slowly and is less likely to wash away with rain. If you do use synthetic chemical fertilizers, use according to the instructions.
- Weed by hand! Keep a healthy and regularly maintained lawn and garden and you won't have to do this often. If you must use pesticides, use them only when necessary and according to the instructions.
- Look for the EcoLogo symbol on cleaning and other chemical products, which indicates that a product is environmentally friendly.
- Properly dispose of hazardous household materials by taking them to designated drop-offs such as the Fire Hall. Contact your municipality to find out the nearest hazardous roundup location.
- Find a local service station that will accept used motor oil.
- Teach your friends and family what you learn here today!

To find more ways to help reduce your impact on your local stream, river or lake, or to get involved with the Yellow Fish Road™ program, visit: **www.yellowfishroad.org**

TransCanada
In business to deliver

TRANSCANADA FOLLOWS THE YELLOW FISH ROAD™!

Trout Unlimited Canada is happy to have TransCanada Corporation as a National Partner of the Yellow Fish Road™ program. TransCanada's sponsorship of $150,000 over three years is the largest sponsorship commitment to date. This generous funding will enable the YFR program to grow across the country, especially in Ontario and Quebec where there has been an increase in demand for the program.

Yellow Fish Road™ Partners

YFR has increased its participation levels through the help of several Yellow Fish Road™ Partners, who house paint kits and coordinate bookings on a local level. As of September 2006, here are the YFR Partners!

Alberta

- City of Edmonton
- City of St. Albert
- Girl Guides of Canada—Calgary Area
- Scouts Canada—Chinook Region
- Town of Cardston
- Town of Whitecourt

Ontario

- Bay Area Restoration Council
- City of Cambridge—City Green Strategy
- City of Kitchener
- City of Mississauga
- City of Stratford
- City of Waterloo, Partners in Parks
- Conservation Halton (includes Oakville and Burlington)
- Girl Guides of Canada—Northern Area
- Haldimand Stewardship Council
- Maitland Valley Conservation Authority
- Niagara Peninsula Conservation Authority
- Nottawasaga Valley Conservation Authority
- Toronto and Region Conservation Authority
- Township of Woolwich
- West Credit Appreciation Rehabilitation and Enhancement Project (WeCARE)

Saskatchewan

- Brightwater Science and Environment Centre

Yukon

- City of Whitehorse

CONTACT INFORMATION

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Chapter bits...

Ted Knott Cleanup

THE TED KNOT CHAPTER of Trout Unlimited Canada held a river cleanup day on Bronte Creek in Oakville, Ontario, October 21, 2006. Special thanks are due to Jacques Whitford Ltd., a national environmental engineering consulting firm. In addition to staff from the Jacques Whitford Inc. Burlington branch office volunteering time, they also hosted an end of event barbeque for all!

Ontario Symposium

Ontario was host to the first provincial chapter symposium, bringing together 26 representatives from nine chapters. The event included informative and entertaining talks from the Middle Grand and Near North Chapters, information talks on Yellow Fish Road™, provincial and national activities, and information on upcoming administrative changes within the organization and toolkit development. The event proved to be a great opportunity for TUC staff to talk one-on-one with members from many of our chapters, providing valuable feedback on current activities and thoughts on the growth of the organization in the future. Most significantly, the chapter talks and social times allowed members to meet and discuss projects, issues, challenges and interests.

We would like to thank all those who were able to attend the first Ontario Chapter Symposium and helped to make it a great success. We look forward to another productive meeting in 2007.

Nose Creek

Showcasing Habitat Enhancement...

Alberta's Nose Creek originates near Carstairs and flows south for 75 km through Balzac, Airdrie and Calgary, before joining the Bow River. West Nose Creek originates northwest of Calgary flowing for 65 km before joining Nose Creek west of the Calgary International Airport.

The exceptional quality of the water in Nose Creek attracted European settlers and the railway, who developed the land along the creek. However, over time, Nose Creek has become one of the most polluted streams in Alberta.

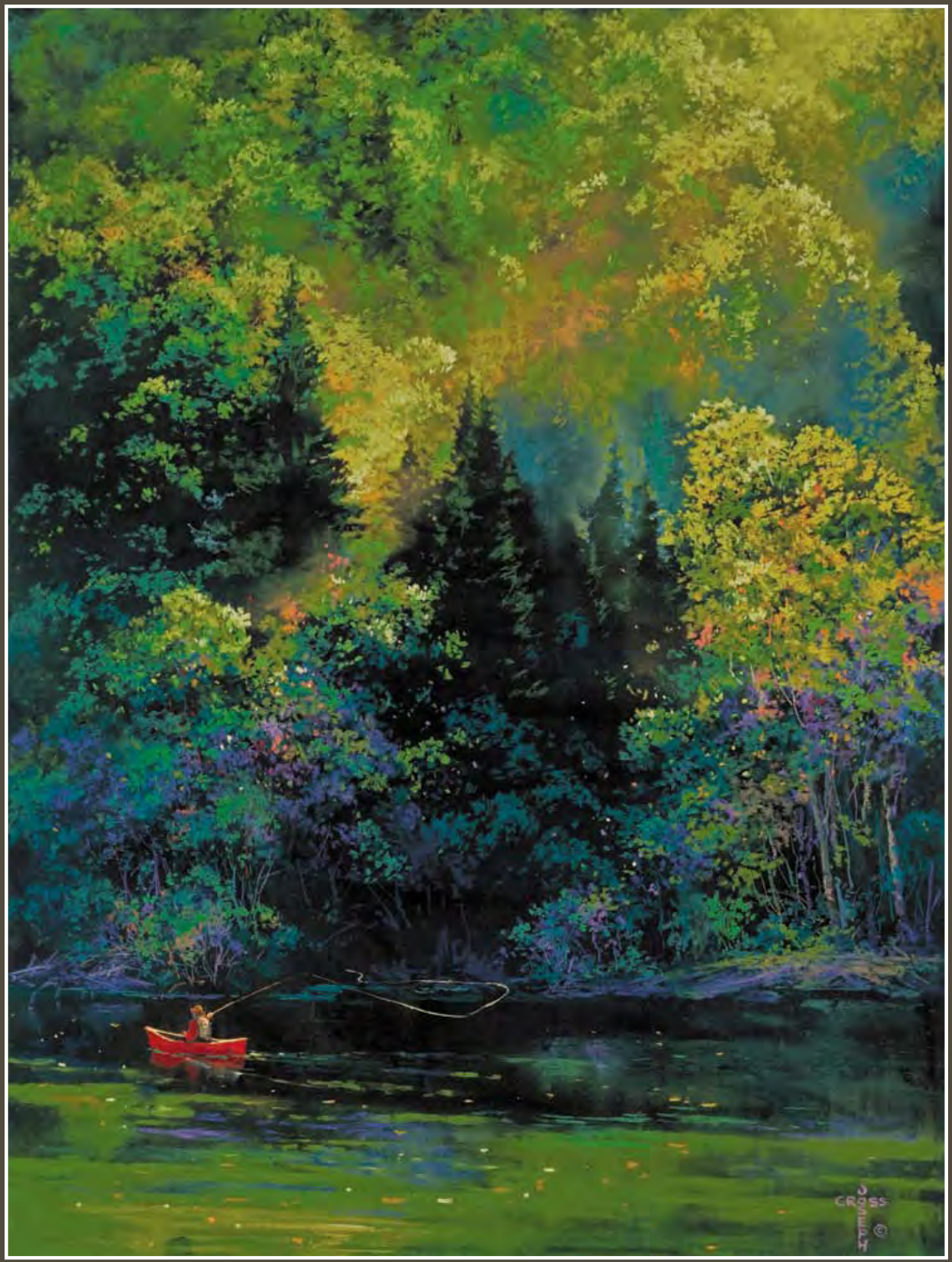
Enter Trout Unlimited Canada. Trout Unlimited Canada is committed to cleaning up and restoring this watershed. This involves clean-up of litter and bioengineering projects to stabilize the eroded streambanks.

At the 2006 National Fundraising Dinner in Calgary this project was put on the auction block. Everyone knows and appreciates that stream work takes cash. Eager corporate bidders competed with one another to fund this visible and worthwhile endeavour. **Petro Canada** came out on top! They made their commitment to the tune of $20,000!

One component of the project included a Petro Canada staff workday. More than forty of their employees came out to Nose Creek one beautiful summer day to learn about the issues facing this watershed. They got busy cleaning up litter, reinforcing eroded banks with willows, and planting willows to further sustain streamside riparian growth.

We salute Petro Canada for their generous donation of both money and employee effort. We look forward to the next steps in this process.

PETRO-CANADA



Just Me and the Morning, Joseph Cross • Trout Unlimited Canada's 2007 Artist of the Year