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Program Partners



Cochrane Foundation

Recent Update! Bow Valley Habitat Development has just received word that once again, the Cochrane Foundation will be participating in the 2014 Bighill Creek Riparian Recovery Program!

The Cochrane Foundation has been a strong supporter of a number of local fish and riparian habitat enhancement projects that BVHD has been involved in over the recent past.

We thank them for their ongoing support and this year's contribution will make a huge difference in the Bighill Project's restoration work!



Contact Us: info@streamtender.com

"Great News!" – Another Trout Hatch for Millennium Creek!"



Above: This was the first hatched trout that I observed during the late winter trout egg hatch on the Millennium Creek Spawning Channel.

*** [Read More](#)

This February, I was closely watching the spawning channel on Millennium Creek for the first sign of a trout hatch for the 2014 season.

I started monitoring the channel in the first week of the month, but I suspected that due to the extreme winter that we have experienced this year, I would not see any trout for a while.

However, knowing that the trout had spawned a little earlier than normal in the fall of 2013, I was visiting the creek early just in case the hatch would also be early.

It wasn't until February the 12th that I spotted the first trout below the spawning channel. I had been sitting for some time, waiting to possibly get a few photos of the new generation of trout.

I was just about ready to give up, when I saw the tiny trout swimming out from under a cover of ice. The lighting conditions were not the best, but I did manage to get a few acceptable photos of the first hatched trout of the 2014 season.

It may not have been the first trout to hatch, but I like to think that it was, because I had not seen any other fish either before or after this one, on that particular day or on the days before.

In any case, it was great to see the trout, because I knew that there would be plenty more to come. Possibly, this will turn out to be almost as good as last year's hatch! The 2013 hatch was amazing! Hopefully there will be many more on the spawning channel!

RHS Creek - An Important Wintering Habitat!



Above: Brook trout are stacked up in the pool habitat on Ranch House Spring Creek to spend their winter months in a safe environment. The spring creek provides clear warm water all thru the winter's harsh weather conditions. Without small feeder spring creeks like Ranch House and Millennium Creek, the state of the fishery would not be as bright as it is presently looking!

In the fall of 2013, an important discovery was made on Ranch House Spring Creek. It was discovered that brook trout were utilizing the small feeder spring creek as a spawning habitat.

While I was monitoring the stream for the trout egg hatch from the 2013 spawning season, I discovered that there were lots of brook trout wintering over in the small creek.

It was great to find that the small stream was also important to trout as a winter refuge. This only adds to the importance of the roll that this small tributary plays in the local fishery.

All of this new information regarding how trout use Ranch House Spring Creek, is very important in the future protection of the stream, from a fisheries perspective. Often, small feeder tributaries are overlooked or neglected, because very little data has been collected on the state of the fishery and its importance.

If future development plans are considered, the state of the fishery in Ranch House Spring Creek should be front and foremost in considerations of how that development will impact this fishery.

This recent discovery adds to the Ranch House Spring Creek's importance as a wild trout habitat. It provides a spawning habitat, a nursery habitat for juvenile trout and a wintering habitat for a considerable number of trout in the watershed.

These recent discoveries made on Ranch House Spring Creek elevate the status of the spring creek to the same level as Millennium Creek. So now we have two very important feeder spring creeks to look after.

Sometimes it takes years to learn the full value of a small trout stream and its importance. Having an interest always helps one recognize the tell tale signs!

*** [Read and See More](#)

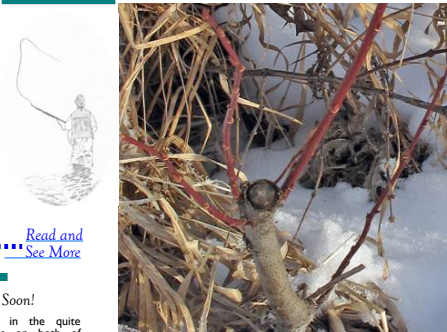
"New Generation of Trout in Millennium Creek"



Above: The trout in this pool are from the 2013 trout egg hatch in the spawning channel on Millennium Creek. They may appear large in size, but they are only around 4 inches in length. If you look closely, you will see 11 trout in this photo. In the spring of this year, most of these trout will migrate downstream into the Bow River and its larger tributaries. [Read More!](#)

"Willow Plants are Doing Very Well!"

Willow Plants Wintering Over Just Fine!



Above: This photo of a willow plant that was planted on Bighill Creek in 2013, was taken on February 7th of 2014. You can easily tell the winter survivors by the condition of their new limbs. If they are alive, they will appear full and fresh in appearance. If they have not survived, they will appear shriveled up or dry in appearance. The condition of the buds on this plant is quite obvious. *** [Read More!](#)

First Plantings are Showing Great Results!



Left Photo: This shows the growth of willow plants that were planted in 2007.

It has been 7 years since the first willow plantations were planted along the Millennium Creek! Bow Valley Habitat Development, its partners and project volunteers completed a major planting program in 2007, as part of the stream's restoration program.

All of the new willow plants were planted close to the water's edge, so that they would help to stabilize the newly constructed stream channel and it has worked out perfectly.

Trout now reside in the restored creek year round!

**** [Read More](#)

Expecting More Trout Hatches Soon!

I have closely monitored both Ranch House Spring Creek and the Park Spring Creek for the first signs of trout hatching this year. Due to colder water temperatures and the timing of the 2013 spawning, young trout have yet to start emerging from the gravel.

I expect that this month (March) I will get lucky and spot some new trout on both of these streams. If so, I will be publishing an announcement in the next issue of Stream Tender Magazine, in June of this year!

I can hardly wait to see some new trout fry

swimming in the quiet backwaters on both of these small creeks! I already know that incubation is successful on Ranch House Spring Creek, because of the small brook trout that I spotted early in the spring of 2013.

It is easy to assume that new trout will also hatch on the Park Spring Creek as well, but until positive identification of trout fry is made, this will remain purely speculation.

Hard evidence is required when any future management decisions are to be made for the creek.

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Inter Pipeline and Evergreen are in for 2014!

Both Inter Pipeline and Evergreen are good to go for the 2014 Riparian Programs for Bighill Creek and Nose Creek.

This early in the season, it is nice to have a few committed partners already on board for 2014!

Inter Pipeline has been actively involved as a partner on the Bighill Creek Project since 2008, and the companies contributions to a number of projects has made a major positive change in both the riparian and fisheries on the system.

Evergreen and its partners has also been actively participating over the past few years on both the Nose Creek and West Nose Creek programs.

It is great to have partners that are so committed to making a on-going contribution to our area streams!

"Young of the Year" Trout – Utilizing the Pool Habitats on Millennium Creek!



You can vaguely see small trout holding at the back end of this pool habitat

zooms in for a closer look

Above: One of the many pool habitats that were constructed in the stream restoration program on Millennium Creek. These pool habitats are being inhabited by "Young of the Year" brook trout, until they are large enough to migrate downstream into the larger streams and river. Some of these trout will stay in the creek as resident trout for the remainder of their lives. The competition for food will drive most of the trout downstream!



Above: This school of small brook trout are doing very well in their first year of growth. This indicates that there is sufficient food in the creek to maintain this rapid growth. These photos were taken in February of 2014. The warmer spring water keeps the channel open for most of the winter months and this contributes to a less stressful environment for this new generation of trout in the stream!

"Trout Distribution Through Competition"

I have mentioned that the small trout that are now present in Millennium Creek, will soon migrate downstream into the larger water of the Bow River and its tributaries. The following should help you understand why these trout need to move out of the system:

Every trout stream has a maximum carrying capacity for a given population of resident trout.

Trout are density dependent, so if their density (population) exceeds the carrying capacity of a stream, the smaller, less competitive trout, will be forced to disperse, to survive.

So what forces these smaller trout to move to a new habitat?

If the population exceeds the amount of food and habitat available in the stream, trout will be forced to migrate, due to the competition for these two necessities of survival.

As was mentioned previously, on a number of occasions, Millennium Creek is a nursery stream. It is a stream that provides a good habitat for new generations of trout to start their lives in. Without the fear of having to compete with larger trout that may also prey on them.

This distribution through competition is part of the natural process, and because trout spawn and recruit new generations on Millennium Creek, it is comforting to know that these new fish will help repopulate other streams in the system, by being forced to move into the new habitats.

This natural occurrence adds importance to the role that Millennium Creek now plays in the fishery of this part of the watershed. It may not be a good place to fish for trout, but it definitely benefits the area's fishery!

Spawning Channel Produces 4th Generation of Trout!

In 2010, Bow Valley Habitat Development and Inter Pipeline partnered up to complete a spawning habitat enhancement project on Millennium Creek.

During the four year restoration program on Millennium Creek, spawning habitat was created at key locations on the stream. However, it was determined that the survival of eggs during incubation was limited.

To insure that recruitment would be optimal on the newly restored creek, a spawning channel habitat was constructed at a location where clean ground water provided by a spring flow would insure successful trout egg incubation.

The spawning habitat was built with the appropriate velocity, depth of flow and gravel substrate size, conducive to spawning brook trout. During the fall immediately after the spawning channel was built, trout spawned in the new habitat.

In March of 2011, the trout eggs in the new spawning channel hatched, and a new generation of brook trout started their lives in the system. Over twenty trout redds were mapped on the spawning channel in the fall of 2010, so a substantial number of new trout entered the system!

The new spawning channel has been closely monitored since it was first constructed and this year's egg hatch is the fourth since the structure was built. It is estimated that the spawning channel has produced thousands of new trout into the watershed over the past four years.

Having an environment where trout can consistently reproduce is a real asset to the fishery in the watershed. Trout spawning in the main-stem of Big Hill Creek are vulnerable to environmental conditions that can adversely affect the survival of incubating trout eggs during the fall and winter months. Turbidity in the Big Hill Creek is a major problem!



Above: In this photo you can see two brook trout in the spawning channel, in the process of guarding an egg nest or redd.

Below: Small male brook trout will also attempt to spawn with a larger female, but they are usually unsuccessful.



Above: Newly hatched trout need to be on the lookout for last year's trout hatch. Last year's fish would make a meal of the 2014 trout fry, so shallow water habitat, especially woody debris, is important for cover.

"New Trout Utilize Woody Debris for Cover"



During the construction of the spawning channel, a large amount of woody debris was placed in the water, downstream of the spawning beds.

The dead willow and tree branches would provide good cover for the newly hatched trout and help protect them from winged predators and larger fish.

Just after the trout hatch in the spawning channel, most of them will drift with the current, downstream into quiet water habitats. In this still water, they don't have to deal with the turbulence of stream currents and

the presence of larger trout that may decide to feed on them.

It is in this quiet water habitat that I find most of the newly hatched trout. This makes it easier to take some photos and videos of the fish, in the shallow clear water.

I also believe that by providing the new trout with this abundant cover habitat, the survival rate for trout fry in the creek is increased substantially.

The woody debris adds to the organic balance at this particular site and increases invertebrate populations for

the new trout to feed on. I have observed both caddis and midge larva on the submerged branches and Mayfly nymphs as well.

This safe productive habitat will support these young trout until they are large enough to venture out into other habitats on the stream. It takes some time before the trout are strong enough swimmers to start dispersing from this first habitat.

There are plenty of trout from last year's hatch that the new trout are vulnerable to, for the first year of their lives.



"The Approach for the West Nose Creek Restoration Program"

Lower Reach of West Nose Creek



Above: Most of West Nose Creek looks like the photo above. The stream banks are void of both willows and tree plants. Due primarily to livestock grazing over the last century, most of the natural riparian habitat has been decimated. Now, with portions of the stream protected from grazing, there is hope for recovery on certain areas of the stream.

Presently, there is a small population of brown trout on the very bottom end of West Nose Creek, near the confluence with the mainstem of Nose Creek, in the City of Calgary.

The reason that these trout have not moved further up the system on West Nose Creek, is that the water temperatures get too warm during the summer months. In my opinion, this is the primary limiting factor in the re-population of the stream with wild trout!

I have inspected the stream further up the system, and I have observed acceptable invertebrate populations for a food supply for trout, and even some suitable spawning habitat. However, the lack of a healthy riparian zone along the stream is quite evident.

Historic agriculture activities on the West Nose Creek watershed have been the main reason for the result of present day riparian loss!

With livestock grazing still taking place on the middle to upper reaches of the stream, it would be impossible to do any riparian remediation work to completely restore the system. However, there is one option open for consideration!

There are a few properties on the middle and upper reaches of the creek that are protected from cattle grazing. If we can complete riparian plantings on those few locations, possibly, the efforts will result in a lowering of the water temperatures on the stream.

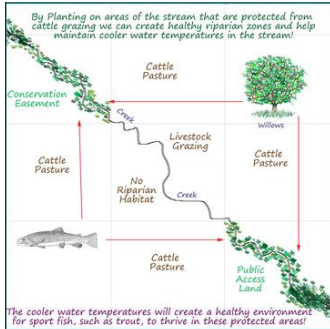
The end result would be a repopulation of trout on key areas of the stream. Especially on the lower end of West Nose Creek, in the habitat. However, the lack of a healthy riparian zone along the stream is quite evident.

Presently, there are two properties that I have obtained permission to plant willows and trees on, just outside of the City of Calgary's boundaries.

Bow Valley Habitat Development has also obtained permission to do plantings within the City limits, on West Nose Creek. Having three different property owners already on board for this program, is a

great start!

In the spring of 2014, BVHD has plans for the planting of native willow and tree plants to get this program underway! Baseline data on fish populations in the creek has already been documented!



The Plants from the 2013 Planting are Looking Good!

I have inspected a few of the 2013 planting sites along Bighill Creek this winter. Many of the plants are hidden by a carpet of snow, but a few are exposed and looking good!

I suspect that some plants are better suited to the soil conditions where they were planted along the creek, because they seem to be doing better than others. Even plants that are planted together.

Also, I believe that some of the plants are a more hardy strain of plant and better suited for survival. This has always been the case on all of the planting sites. Some plants just seem to take to the soil conditions with a more advanced growth during the first season that they are in the ground.

Once these more hardy plants are more

mature, I will probably collect cuttings from them to start new plants with a bit of an advantage for growing in the soil where the mother plant has thrived.

It is easy to see which plants are doing well during the winter months. They have fresh looking branches with new bud growth ready for the spring months. I look forward to watching them in 2014!

"Small Feeder Springs are Vital to Prairie Streams!"



Over the past decade, you may have noticed that most of the projects completed by Bow Valley Habitat Development and its partners, have been focused on small feeder springs.

There is a good reason for this! Small feeder springs that contribute to the volume of flow in foothills and prairie streams are often overlooked in their importance!

On the Bighill Creek, two of its feeder springs on the lower reach are utilized for reproduction by resident trout on the creek. The trout use these feeders as a nursery habitat and a spawning habitat.

These feeders also supply the main-stem of the BHC with a consistent volume of clean pure water, that is cold during the summer months and warmer than the main

stem of the BHC during the winter months.

As far as stream restoration work goes, these small feeder springs are the perfect place to start a project on. That is, only if the small feeder springs need a helping hand!

Small feeder springs are generally fairly short in length and restoration programs can be completed without major costs, in most cases!



Above: This past spring, a part of the stream bank collapsed into the Bighill Creek, exposing a waste brick pile, from the Historic Cochrane Brick factory. There is still a lot of waste brick evident in the Bighill Creek's stream channel over approximately 1.5 kilometres of the stream's course.

"Winter Snows will be Good for 2014!"

This winter will be one to remember! The good news is that it will definitely be good for the 2014 planting programs!

The heavy snow cover that is still present as I write this in February, will insure that there is plenty of moisture in the ground, come the spring thaw. If we get good spring rains on top of this, we should expect another great growing season in 2014!

The snow cover will also benefit the plants from the 2013 season, by helping to hold the moisture in the ground and also insulate the plants against the harsh winter elements. Along with the sudden warming by any winter Chinook winds, it

In 2013, most of the spring crop of willow and tree plants were planted right after the frost was out of the ground, when the soil was moist and soft.

Because all of the plants were pre-rooted with some top development, this early spring planting gave the willows and trees a head start into the growing season.

With these early season plantings, there is always a risk of some early season frost damage to the tender newly developed leaves.

However, if the willows are in good condition when they are planted, they are fairly resilient to any early frost, after the first few days of being in the ground!

"How Big do Willow Plants Grow?"



Above: Pictured above are the oldest willow trees on the Bighill Creek. They are over 20 feet in height and my theory on why they have survived for so long, is that they are growing near to the historic Cochrane Ranch House building site, which would have been protected from brush fires since the late 1880's. Today, these mature willows are located in the Cochrane Ranch Park site, and people often use the area for wedding photos and to enjoy nature. Prairie brush fires will kill mature willows and often the only thing left surviving a brush fire is the root systems on the willows.

"Note how attractive these mature willow plants are to the stream's environment!"



Above: The lower reach of West Nose Creek has adequate volume of flow to support a trout population, but the water temperatures are too warm during the summer months!

I have completed some invertebrate sampling on the lower reach of West Nose Creek and there appears to be enough food to support a population of trout.

However, the most limiting factor is the water temperatures during the warm summer months. There is definitely potential to remediate this problem, with some willow and tree planting along the stream banks all along the entire reach!

The best approach is to start planting on the upper reaches, where riparian habitat loss is most evident. It may take a number of years to make a real difference, but over time the health of the stream will improve.

This will become apparent when trout start to migrate up the system and occupy habitats where there is presently no resident trout in the stream. The most important thing is to start planting now!



Above: This is probably the oldest willow tree on the Bighill Creek. Over the years it has lost a few of its main limbs, but the plant is still alive. Some branches have been removed with a chain saw to help the tree survive.

Right Photo: This mature willow tree is just over 20 feet in height and it is still in very good condition. At its base, a Red-Osier Dogwood thrives in the shade created by the mature Salix willow.

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“Trout Fry Live in a Microscopic World”

Once a trout fry has emerged from the gravel habitat in which the egg has hatched, the fish is ready to start eating. By this time in its life it has used up the nourishment of the egg sack that has sustained it for the months since the egg was deposited in the gravel.

Invisible to the human eye, there is a vast supply of microscopic invertebrates in a stream. This microscopic life will provide the young trout with a food supply for the following weeks, while the trout is still a relatively poor swimmer.

The trout fry will inhabit backwaters and lateral margin habitats where there is little to no velocity of flow. It is in these type of habitats that there is also a good supply of microscopic invertebrate larva to feed on.

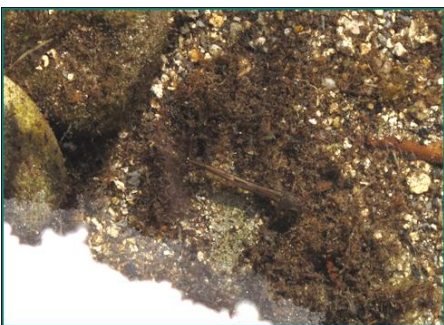
It is also my assumption that the trout will feed on zooplankton, such as rotifers or wheeled plankton. Trout fry have very large eyes and I suspect that there is a reason for this!

I have observed very small trout fry feeding on something that was not

visible to me, while I watch the fish turn and open their mouths to inhale something. So I suspect that they might have been feeding on microscopic zooplankton.

The first aquatic invertebrate hatches of the season are midges, and these small insects will often hatch during the winter months as well. So midge larva are very important to a young trout's diet, during the first weeks of its life.

If there is plenty of organic biomass in backwater habitats, there will also be plenty of microscopic food for young trout!



Above: You can see a trout fry laying on the bottom of a quite backwater, where there is plenty of organic material that will hold lots of microscopic food for the fish.

Ten Years Since Millennium Creek Project was Started!

Yesterday, I made a trip to the lower reach of Millennium Creek to check out the ice conditions. With this being the coldest winter in many years, I thought that it would be interesting to see what the ice conditions were like on the bottom end of the creek.

Winter time, with a good cover of snow, is also a good time to inspect willow plants and possibly take a few photos. It has been ten years since the Millennium Creek Restoration Program was started and eight years since the first willow and tree plantings were completed on the stream.

For me, visiting past project sites is very rewarding. You have the chance to see how the stream has changed over the years, in a good way! Many volunteer hours went into the restoration work on Millennium Creek, and seeing positive results is the reward that we all look forward to.

Any excuse to get outdoors and enjoy a warmer winter day is also a great motivation as well! Picking a camera along is always part of my outing!

When I got to the lower end of the creek, I decided to take a few photos of one of the reaches on the stream. I had taken photos of the same reach in 2004, prior to our work program commencing on the restoration project.

Having a modern day photo of the same section of stream would be good for a comparative presentation in this magazine. There is nothing like a before and after photos to demonstrate a result!

The particular site that I took photos of, was once an area of the streams flooded wide channel, where water flowed over a bed of sedge and water plantain. The channel was very wide, with a wetted perimeter of 5 to 7 metres in width. There was no defined stream channel that would support a population of trout.

After a new stream channel was cut and pool habitats were constructed, the stream started to be repopulated with wild resident trout. Trout also started to use the creek for spawning, on habitat that was created during the restoration!



Above: This 2004 photo shows how the stream channel was very wide and shallow, and water was flowing thru a cover of water sedge and plantain. There was no defined narrow creek channel that trout could inhabit or migrate up. Many of the old poplar trees downstream had died as a result of the wide wet stream channel.

“Ghost Lake in need of Better Fisheries Management!”



The Ghost Lake Reservoir is a popular ice fishing destination during the winter months!

The Ghost Lake Reservoir is located west of the City of Calgary, and during the winter months, lots of anglers try their luck at ice fishing on the lake. I have noticed that the number of ice fisher's has increased substantially over the past five years.

The reservoir is not stocked by the province, so anglers are totally reliant on the population of self sustaining wild sport fish in the lake. The primary sport fish that are targeted by anglers are mountain whitefish, Lake trout, Lake Whitefish, brown trout and burbot.

Under the present fish management zone (E1) regulations, anglers are permitted to catch and keep a total of 5 trout and 5 mountain whitefish over 30 cm.

There are no limit guidelines on the resident Lake Whitefish limits in the E1 regulations, so the provincial general limit applies, which means that you can harvest 10 of these fish. Considering that these Lake Whitefish in the Ghost, average from 2.5 lbs. to 4.0 lbs., I think that a limit of 10 fish is a little ridiculous!

Anglers on the Ghost may not be aware that the provincial limits for Lake trout are set at a maximum of three trout per day. This is not mentioned in the E1 specific regulations.

Presently, there is no minimum size limit on the Lake trout of the Ghost Lake! This means that young Lake trout that have yet to spawn for their first time, are vulnerable

to be harvested by anglers, before they can make their contribution to future recruitment of new generations of Lake trout. I find this also very annoying and ridiculous!

If the Ghost lake had a management policy that was directed towards sustainability and the future protection of its resident sport fish, we all would enjoy the benefits of a better fishery on the lake.

A good start would be a reduction in the harvest limits for Lake Whitefish and the creation of a size limit for Lake trout, so that they could be at least spawned once before they end up on someone's dinner table.

These modified regulation changes would not take a lot of effort on the part of our fisheries managers!

Wild Trout and Their Protection

Back in the 1960's, Alberta Fish and Wildlife stopped their annual stocking programs on Alberta streams. The idea behind this was that if these streams were managed properly, a wild population of sport fish could be sustained.

They did however, continue to stock lakes with hatchery fish, to provide good recreational angling opportunities for avid anglers. When the lakes were depleted of sport fish, they would stock another batch of fish to rejuvenate the population. This seemed to work just fine for the lake stocking programs.

The biggest problem with the stream management strategy was that harvest limits were too generous on the same streams that were once stocked with sport fish. It took a number of years before harvest limits were reduced enough so that populations in the streams could sustain themselves and recruit new generations of fish.

The next step in managing the streams was to insure that there was adequate habitat protection for those wild populations so that the fish had a suitable environment to live and reproduce. Programs to promote the protection and enhancement of "fish habitat" became

BVHD will Continue to Focus on Riparian Programs!

Bow Valley Habitat Development has completed over 40 major fish and riparian habitat projects in the last 26 years on the Bow River watershed. With the permitting process for in-stream projects becoming more difficult, the focus for BVHD has shifted more towards riparian restoration work.

Riparian plantings involve far less hassle to get all of the necessary permits and permissions, and the benefits to both fish and wildlife are just as important as in-stream projects. Plus there is a definite benefit to both

the new "catch-word" or "catch-phrase" in fisheries management.

Today, fish habitat is still an important element of fisheries management. Without protecting the habitat on our trout streams, trout would loose the safe environment in which they live and reproduce.

Human development is the main negative influence which results in the loss of fish habitat, so it is only right that we take measures to prevent these negative development impacts on fish habitat. Which sometimes involves fish habitat enhancement work, to compensate for any losses.

The main "push" for fish habitat enhancement started back in the 1980's and it continues today. However, it has been my experience that streams located on private land are not receiving the attention that they deserve in recent years.

It is also my experience that it has become easier to get a development permit for something that will have a negative impact on our trout streams, than it is for getting a permit to do something of benefit to those same trout streams!

Just me, or is there something wrong going on here?

quantity and quality of water in our area streams.

Although there is plenty of opportunity to enhance in-stream fish habitat in our area, it has become too much work trying to convince the provincial regional biologist of this. They don't seem to share the same enthusiasm for the type of in-stream fish habitat enhancement work that I have been equipping myself with.

Too bad, there is plenty of opportunity to make some positive improvements in this area. At least this is my opinion!

Snow Cover will be Good for 2013 Plants!

Here it is, February 17th, and there is still a lot of snow in the bush! Mixed in with this snow is some ice, which will help to retain the moisture late into the spring thaw. This will give all of the willow and trees from the 2013 planting a great start during the 2014 growing season.

It is far easier to plant willows and trees in the spring, if the soil is so soft and saturated with plenty of moisture. I suspect that we may experience another super growing season in 2014, for this year's new crop!

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Wintering Trout are Hard to Photograph!

It was February 13th, not the most lucky day for a photographer! However, as I walked the stream banks of Ranch House Spring Creek, I was spotting small brook trout darting for cover.

Sometimes, all that I would see would be a swirl of muddy water, left by the rapid retreat of a trout rocketing for the cover of shoreline ice. Other times, I could see a small brook trout suspended along the bottom of the stream, but by the time that I raised my camera, it also would disappear in an instant.

Then, as I approached a bend in the stream, my focus caught an unusual shape on the bottom of the stream bed. As I stared down at the item, which turned out to be a branched top of a terrestrial

weed, I suddenly noticed that a small brook trout was hugging a submerged branch, right next to the weed top.

What a sneaky little bugger this trout was, and if it hadn't been for the odd looking weed fan, next to it, I wouldn't have noticed the trout. It is all about focus and careful observation that allowed me this rare opportunity.

The trout stayed put, while I took a few photos. I believe that it had the utmost in confidence that its hiding spot was the best available. This is often the case with brook trout. They seem to know that their perfect camouflage will help to conceal their presence.

After taking advantage of my photo break, I continued up the stream channel on Ranch House.

I came to a high bank on the stream, where I spooked a few brook trout that went darting for cover. They had been holding in a small pool, and after I startled the fish they ended up under the stream bank, directly below me.

After waiting for some time, I did manage to see a trout poke its head out from under the bank, but it saw me waiting and I knew that I was wasting my time in trying to get a photo, so I moved upstream.

Finally, I found a small wintering pool that was full of trout. I spent almost an hour, trying to take some good photos, but it was very difficult. The trout were holding under the base of a willow plant and seldom ventured out of the shadows. However, I did manage to get a few shots with my camera.



Above: This sneaky little bugger thought that I could not see him! The piece of branched weed top, to the left of the fish, is what drew my attention to the fish in the first place. These small trout will use any available structure for cover!

Willows Growing Very Fast in the Rich Soil of Millennium Creek!



Above: You can see the willow plants that were planted around a constructed pool habitat in 2007. This photo was taken in the early summer of 2008. The majority of willows were planted on the south side of the pool, so that the thick growth would provide shade over the pool in the summer months. These plants also helped to stabilize the perimeter of the pool habitat. See the photo to the right.



Above: This photo was taken in February 2014, seven years after the plants were placed into the ground. The stream channel and pool habitat are covered with a thin layer of ice and the plants are void of leaves. However, during the warm summer months, there are plenty of leaves on the willows to provide shade, directly over the pool habitat. Trout also winter over in these pool habitats!



All of These Hungry Mouths To Feed!

Finding all of these brook trout wintering over in Ranch House Spring Creek, has led me to think that any new hatching trout may be in terrible jeopardy, come emergence time! Once the trout fry emerge from the gravel this winter, they will have to run a gauntlet of hungry mature fish.

One thing that I have noticed on this small spring fed creek, is that there is limited trout fry habitat, for newly hatched trout to hide in. Many of the hatching trout will be swept by the current, downstream into the hungry jaws of larger brook trout.

However, last year, in the spring, I noticed enough surviving juvenile trout in the creek, which leads me to believe that some of the new generation of brook trout will survive. I will continue to watch the stream for the first signs of a hatch and at that point in time, I will have a better idea of how the survival rates will be for this year's emergence.

Fortunately, most of the wintering trout are further up the system, with many of them located above the spawning habitats. There is plenty of good cover available on the lower reach of the creek, if the new trout can make it that far, after emergence!

How Good are you at Spotting Trout? There are 17 Trout in this Photo! How Many Can You See?



A Hint to Help You Out: My camera flash illuminated the eyes of 13 of the trout. The eyes appear as blue dots in this photo. The other 4 trout don't show any illuminated eyes. You may have to zoom in a bit to help find the fish.

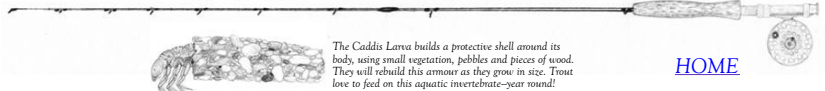
Ardent Survivors of our Flowing Water Environments!

I am often amazed by how efficient brook trout are at surviving in habitats as small as Millennium and Ranch House Spring Creek. It appears to me that these members of the trout family are desperate for a habitat in which they can survive.

I have completed projects on a number of small streams where brook trout were present, and you will find them in the smallest trickles of flow. They have a natural migratory tendency that compels them to move into the headwater areas of small streams, where there is an adequate supply of all the necessities for their survival.

The clean and clear water of ground fed spring creek tributaries usually provide them with enough of the basics that they occupy these small waters throughout the entire year.

I am sure that this natural tendency secures their ongoing survival!



The Caddis Larva builds a protective shell around its body, using small vegetation, pebbles and pieces of wood. They will rebuild this armor as they grow in size. Trout love to feed on this aquatic invertebrate-year round!