



Previous Issue



Inside This Issue:

[Ranch House Spring Creek Update](#)
[Upper Big Spring Creek Spawning](#)
[Willow Planting Update](#)
[West Nose Creek Restoration](#)
[Beaver Snacks on Willows](#)
[Willows on the Edge](#)

[Brown Trout](#) [Fish Habitat](#)
[BVHD Video Channel](#) [Books by Guy Woods](#)

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STREAM TENDER MAGAZINE GROWING IN POPULARITY!
 The publisher of this magazine is pleased to report that a record number of page views was recorded for the month of October 2013! A total of 20,044 page requests were made.

From August to October 2013, a total of 53,047 page requests were made. The publisher is very pleased that so many readers share the same interest in this "grassroots" publication!



A Fly Fishers Perspective

"Large trout make you serious - Small trout make you smile!"
 - Guy Woods



Right Photo:

This is a photo of the West Nose Creek, just upstream of the Country Hills Golf Course. You can see that the stream lacks a healthy riparian zone along its banks.

West Nose Creek is a small tributary to Nose Creek, in the City of Calgary. It flows along Beddington Boulevard and enters Nose Creek near the Deerfoot Trail, in northwest Calgary.

I have walk along the stream channel near the Stoney Trail crossing, and I was surprised by the volume of flow in the creek. This volume of the creek "sparked" a real interest in my mind. I was determined to find out more about this small stream.

In my research, I discovered that brown trout were present in the very bottom end of West Nose Creek, just upstream of its confluence with Nose Creek.

As the leaves of the willow plants from this season's planting started to turn color this fall, they were easy to spot along the water's edge.

I managed to visit the planting sites for one last time, before the winter snow flies and the leaves have vanished.

Prior to the first snow of the winter season, this is the best time of the year to distinguish the young plants, while their leaves are starting to turn color.

The shoreline grasses and sedge plants along the creeks, are a different color than the willow leaves.

Despite the flooding on the host streams, the plant crop from 2013 is doing just fine! It may take a few years, but eventually, the planted willows and trees will become quite noticeable along the edge of the streams. I estimate that this will take approximately six years!



WEST NOSE CREEK ADDED TO THE LIST!



Finding trout on the lower end of West Nose Creek, further heightened my interest! This small stream has a lot of potential, and the right kind of habitat to support a population further upstream!

However, I needed consider what possible limitations that there were that would be responsible for preventing trout populations from residing in the stream, further up the system.

In my mind, the answer was very simple! Water temperature! The upper reaches of West Nose Creek are almost void of any riparian habitat that would help keep the water temperatures in the stream cool enough for trout.

The best way to remediate this deficiency would be to restore a healthy riparian zone along the stream's channel. Even if it was completed on a limited number of properties, the benefits of riparian recovery would become evident over time.

Once the summer water temperatures in West Nose Creek are brought down, brown trout will start to repopulate the stream from the bottom up. Riparian enhancement work will also provide better fish habitat on the creek, so that trout can reside in a more natural environment.



FALL 2013 SPAWNING ON BIGHILL CREEK!

With the big flood event of 2013, on the Bow River, I had a suspicion that the spawning activity on the tributaries to the river, may be down this fall.

Both brown trout and brook trout that reside in the Bow River, were most likely impacted by the flooding, and no doubt some of these fish were lost to the high flows.

So it was no surprise to me that the number of trout returning to the Bighill Creek to spawn this fall, were down in numbers. In comparison to previous years.

However, despite the flood there were still enough spawning trout in the BHC, to make a positive contribution to future generations of the species.

Bow Valley Habitat Development did not conduct a comprehensive spawning survey on the BHC this fall, but some of the key spawning habitats were monitored.

This annual spawning activity by both brook trout and brown trout, on the Bighill Creek, will play a major role in the recovery of the stream's fishery, into future years.



Above: These spawning brook trout, in the BHC, are insuring that future generations will re-populate the stream. The photo shows a light color female, with two brightly coloured male brook trout, competing for the opportunity to fertilize the female's eggs. You can see a short video of this trio on the link above.

SPAWNING ON RANCH HOUSE CREEK

I was in for a big surprise this fall, when I decided to check out Ranch House Spring Creek for any spawning activity!

It all started in the spring of 2013, in early May, while inspecting the 2010 Ranch House Spring Creek project site. While walking the small stream, I observed a few juvenile brook trout in the shallow channel of the creek. This would not have been all that unusual, if the month had been June or July, but was May, and the juvenile brook trout were just too small to have migrated up from the Bighill Creek to spawning.

There were a number of flowing chutes downstream of where I saw the young fish. I knew that really small trout, such as the ones that I spotted, could not have negotiated these fast flowing passages.

At that point in time, I had a very strong suspicion that brook trout were actually spawning in the spring creek. When I visited the creek in early October of this year, I was pleasantly surprised to find mature brook trout, spawning in the creek!



Above: If you look carefully at this photo, you will see two mature brook trout hiding under a canopy of willow branches, on Ranch House Creek.

SMALL STREAMS REVEAL BIG SECRETS!

If you are a regular reader of this magazine, you will notice that a considerable amount of attention is directed towards articles about very small streams. Many of the projects that I have been involved in recently, are focused on the enhancement of riparian and fish habitat on very small feeder spring tributaries. All of them are very short in length and they provide clean water throughout the year.

These small feeders are often overlooked in their importance to an area or watershed's fishery. With a consistent flow of clean water and good available habitat for fish, small feeders provide a great habitat for juvenile trout. Fisheries managers use the expression, nursery habitat.

More in importance, providing spawning habitat for migrating mature trout from the main stem of the stream that they feed. Having a steady flow of clean water during the trout egg incubation period, increases the survival rate of the hatching eggs. If the main stem of a trout stream is vulnerable to silt loading or turbid water during post spawning, the trout eggs may be smothered by the silt or killed by poor water quality. This makes a ground water spring feeder a superior habitat for reproduction of generations of new trout into a fishery.

You may view a small feeder spring creek differently, next time you jump across it!



Above: This is a brook trout that has moved into a small feeder tributary to spawn. The cover of grass and willows along the water's edge is vital habitat for these fish.

SPAWNING SURVEY COMPLETED ON THREE BIGHILL CREEK TRIBUTARIES!

Bow Valley Habitat Development completed a spawning survey on three tributaries to the Bighill Creek this fall. It was a very important year in the Bighill Creek Project's story!

Major discoveries about spawning activity on two of the creek's tributaries were made this fall!

It was discovered that brook trout were spawning on Ranch House Spring Creek and that brook trout were also spawning on the upper BHC spring, which hasn't seen spawning trout for many years! The spawning survey revealed the following:

Redd Count:
Millennium Creek— 20 redds
Ranch House Creek—14 redds
Upper Spring Creek—15 redds

All of the redds counted were brook trout redds. This amount of spawning activity on three small tributaries, is significant!



Ranch House Spring Creek - Background and Results!

Background:

In 2009, during a fisheries study completed by Bow Valley Habitat Development, juvenile brook trout were captured below a small waterfall on Ranch House Spring Creek. The small trout could not negotiate the waterfall and move upstream.

The juvenile trout were captured in bottle traps, placed along the entire reach of the spring creek. No trout were captured above the waterfall. It was determined that if the waterfall was removed and a series of opposing rock deflectors were installed along the channel, this would create a step-down effect, that would allow trout to migrate upstream.

Just upstream of the waterfall, there was a relatively steep section of channel, so the modification would need to cover a 20 metre reach of the stream channel.

A plan was made by BVHD to remove the waterfall in 2010 and modify the stream channel to allow fish to pass upstream. There was plenty of good habitat for the brook trout, above the waterfall, including spawning habitat!

However, the thought of trout utilizing the spawning habitat was pure speculation, at that time!

In the summer of 2010, after all of the necessary permits and permissions were obtained, BVHD completed the Ranch House Spring Creek Channel Project. BVHD utilized flow by-pass and silt fence containment equipment, to insure that no silt loading from the work activities ended up downstream of the site.

A total of 20 large, class 2 rock were used to create the opposing rock deflectors in the program. These large rocks were bedded into the streambed and banks, to withstand any future high flow events on the stream.

All of the large rocks were installed under the stream banks, so we had to tunnel under the banks, before placement. Only a small portion of the large rocks would be visible after the project was completed.

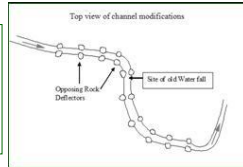
As is the case on all of BVHD fish habitat enhancement projects, it is important that the project's finished product is as natural in appearance, as possible. The use of area native rock is always the best choice for such projects, and they blend into the environment nicely!

The project was funded by the Alberta Conservation Association!

Right Photo:
This is a photo of the waterfall, taken at stream level and looking upstream. The drop was approximately 50 cm down to a shallow pool.



Right:
This is a sketch of the project plan for the opposing rock deflectors.



Right Photo:
This is a photo of the large rocks used in the project.



Left Photo:
This is a photo of the stream channel at the waterfall's prior location. You can see two opposing rock deflectors in this photo. The photo was taken in the following year.



See the Video of this project - [CLICK HERE!](#)

Volunteer Beaver Dam Removal Project Helped to Re-populate the Upper Reaches of Bighill Creek!

Starting in 2009, volunteers assisted BVHD in opening up beaver dams on the lower reach of Bighill Creek. The objective, was to allow populations of trout on the lower portion of BHC, to migrate further up the system.

The program was carried out in the spring of the year, when trout species such as brook trout, are known to migrate up stream systems, to spend the summer months in productive stream habitats.

During the spring, when high flow events occur in the watershed, trout instinctively are triggered into a migratory impulse.

By opening up beaver dams at this time of the season, the trout will easily pass upstream of the dams and continue their migration. The secret to a successful program of beaver dam removal, is to make sure that the dams are opened up to allow easy passage for the smaller trout.

This program was carried out over a four year period, leading up until this year. Now that there are trout spawning on the upper reach of BHC, it will be unnecessary to continue this program, as the objective has been successfully completed. Many thanks to the volunteers!!



Above: In this photo, you can see a light color patch of gravel in the streambed. This is actually an brook trout egg nest, or redd. Over time, the gravel will change color and blend in with the other streambed substrate.

Ranch House Spring Creek – Results

The year following the project's completion, I visited the creek a number of times to assess the results of the stream channel's modifications. My primary goal was to see if I could spot any juvenile trout upstream of the 2010 project site.

Fortunately, on all of my visits, I spotted juvenile trout upstream of the old waterfall site. One of these trout was captured to verify that it was definitely a brook trout. It was!

In 2012, while walking the stream banks of the creek, I saw the first mature brook trout in the creek. It was very gratifying to see that larger trout were also utilizing the upper area of the stream, now that the waterfall had been removed.

When I observed that first newly hatched brook trout in the spring of 2013, I got really excited about the possibility of brook trout using the stream as a spawning habitat. I would have to wait until the fall of this year to find out for sure.

On October 7th, I headed up to the creek with my camera and video equipment to have a look. It didn't take long to find spawning fish that day. As I first approached the stream channel, I immediately noticed a female brook trout fanning an egg nest (redd).

I pulled out my video camera and took some footage, which is featured in the video link to the right. On the photo of the small brook trout.

This fall I documented and mapped a total of 14 brook trout redds, on the creek!



Above: This is a photo of the size of juvenile brook trout that I discovered on Ranch House Spring Creek in the spring of 2013. At this stage in their lives, they are poor swimmers and have trouble swimming upstream against the current.



Left Photo:
If you look beyond the leaves in this photo, you will see mature brook trout, spawning in Ranch House Spring Creek. There is plenty of overhead cover and spawning gravel on a 30 metre reach of the creek, just above where the channel modification project was completed in 2010.



Spawning on Upper BHC Spring Creek!

The last time that I observed spawning activity on the Upper BHC Spring Creek, was in 1985! So seeing trout spawning in this primary tributary of the Bighill Creek was a major surprise this fall! And a very pleasant one at that!!

What really excites me about this year's discovery on this upper feeder to the BHC, is now we have recruitment happening on the upper reach of the stream! It is far easier to re-populate a trout stream, if you have spawning trout on the top end of the system.

New generations of trout are easily flushed down the creek, rather than having trout negotiate some of the many beaver dams, while trying to migrate upstream. Simply put, we can expect a more rapid recovery of the trout fishery in the Bighill Creek, in the near future!

So you can see why I am so pleased with this year's findings!

I have monitored this feeder spring creek for over 20 years, and I have never observed so much water flowing in the channel. This abundant water volume in the entire BHC system, is the primary influence in the stream's trout fishery recovery.

BVHD completed a spawning survey on the Upper Spring Creek this fall, and mapped a total of 15 brook trout redds. It is anticipated that this annual spawning event will only grow more productive in future years, as long as we have comparable flows of water in the stream.

I will be monitoring this spawning activity into the future, and I am very excited about observing an increase in the number of trout that will utilize this upper spring creek.

This new recruitment of brook trout will have a very positive influence on the recovery of the trout fishery, downstream!



Above: The crystal clear waters of the Upper Spring Creek, and the abundant spawning habitat, make this tributary to the Bighill Creek, a perfect re-productive stream.

DIAGEO FALL PLANTING ON NOSE CREEK

The community of Williamstown, in the City of Airdrie, was the site of the 2013 Diageo fall planting program. This site is located on a new development on the north side of the city, and it is virgin ground for any planting projects, up until this fall.

A volunteer force of nine workers, from Diageo, Evergreen and BVHD, planted 170 willow and tree plants in late September. The entire program went really fast and the crew had the plants in the ground in under 2 hours.

This is a perfect site for a planting program. The property is comprised of class 1 & 2 wetland, and waterfowl utilize this section of Nose Creek throughout the open water season.

Over time, when the willow and tree plants have matured, they will become important habitat for a wide variety of wildlife. The extra cover of willow will enhance nesting habitat for both waterfowl and nesting songbirds.

All of the plants went into the ground in the transition zone between the class 1 wetland habitat and the class 2 zone. Eventually, the willows will start to establish themselves closer to the water's edge. When this happens, the long term benefits to the creek's fishery will be realized.

The Williamstown area on Nose Creek is a large piece of property and we can look forward to many years of future planting programs on this site!



Above: This photo was taken over a week later. You can see a few of the new plants, especially if you zoom in a bit. The planting area covered approximately 200 Square Metres of riparian zone.

Left Photo: The planting crew takes a break to get a group photo for the album. In the background is Nose Creek. As you can see it could use some willows and trees!



Fall Inspection Tour on Nose Creek Airdrie

Right Photo:

The photo on the right shows some of the plants in the Willowbrook community of Airdrie. This photo was taken in late October and the leaves of the plants are turning color at the site.

The plants that have made it this late in the season, without rodent damage, will be off to a great start, next growing season.

During this season's planting in Willowbrook, a total of 775 willow and tree plants were planted by partners Canadian Pacific and the Honda Canada foundation.

The Willowbrook site should show some positive results after a few years of growth.



Willowbrook Planting Site



Sierra Springs Planting Site

Bighill Springs Creek - Fall Planting Update!

With Bighill Creek only a block away from my house, it is easy for me to keep a close eye on things! I have monitored the willow crop from this year's planting program very closely and I am happy to report that the plants are doing very well.

I have a number of photos that I have taken of some of the planting sites, so that I can use them in future reports for "before and after" results of our planting efforts. However, this summer, I did some more baseline photos for my records, along with some video footage as well.

It will take approximately 5 or 6 years, before the planted willows and trees are tall enough to show a substantial result, but at that time the media records of the sites that I have filed, will come in handy.

This year was a great growing season on the Bighill Creek and despite some major flooding, the survival of the willow crop is very good. Even the amount of rodent damage is down, when compared to previous years!

Because the Bighill Creek is so close to where I live, the stream is of special interest to me. Also, knowing that both brown trout and brook trout utilize this stream for their reproductive spawning events, I know that the planting program will have a direct benefit towards improving the spawning habitat on the lower reach of the stream.

This year, partners in the planting program planted a total of 2,946 willow and tree plants on the creek. The partners involved are Shell Canada, Inter Pipeline, ATCO Pipelines, the Cochrane Foundation and the Cochrane Community Grant Program.

Last year, a total of 2,586 plants were planted in the 2012 program. This brings the total of plants for the last few years of the Bighill Creek Riparian Recovery and Enhancement Program to a total of 5,532 willow and tree plants.

The visible results of this program will become quite apparent by the time the plants grow into maturity!



Right Photo:

The photo to the right shows some of this year's willow plants in the Sierra Springs Community of the City of Airdrie.

The photo was also taken in late October and it shows a very good survival rate on this particular reach of the Nose Creek. The plants are doing very well and they should be off to a great start next spring, when the frost has left the ground.

In total, 2,446 willow and tree plants were planted by partners Microsoft and Walmart/Evergreen in Sierra Springs.

2014 Riparian Recovery and Enhancement Programs in the Works!

Bow Valley Habitat Development has started working on next year's riparian planting programs. As was the case in this year's programs, existing and new potential partners will be approached about support for the 2014 planting season.

Both Nose Creek and Bighill Creek are in next year's program objectives. Hopefully the same interest will be realized, as was in the 2013 program.

Permissions in writing have already been obtained, from the City of Airdrie and the Town of Cochrane, so efforts to find enough partners will be the focus of BVHD's attention in the following months.

Starting in 2014, a new stream will be added to the riparian recovery program for this area. West Nose Creek will be another stream system that will receive the attention

that it deserves!

There will be three different planting sites available on West Nose Creek, to start with. Permission to plant in the City of Calgary, a piece of public access property just outside of the City of Calgary, and a conservation easement, will be part of the 2014 program.

I am very excited about this new stream and I feel that it has a lot of potential for future rehabilitation work!

WEST NOSE CREEK RIPARIAN RECOVERY AND ENHANCEMENT PROJECT

During my research, I discovered that the area upstream of the confluence of West Nose Creek and Nose Creek was electro-fished in 2010 and again in 2012. In both fishing programs, brown trout were captured.

Now that we know that natural migration of brown trout can possibly repopulate West Nose Creek, all attention can be directed toward habitat improvements. It is a long term goal!

If the stream's habitat conditions are conducive to maintaining trout populations in the future, everything else will take care of itself. In the meantime, all that is necessary is to restore the stream to a more attractive environment.

Riparian recovery projects are the best approach in this particular case. The shade provided by willows and trees will help to keep the water temperatures low enough to support a trout population.

Bow Valley Habitat Development has secured permissions for three different properties for the 2014 West Nose Creek Riparian Recovery and Enhancement Program. Two of these properties are located north of the City of Calgary and the third is within the city itself.

If we can start on a few different properties, the results will benefit the stream's health and over time I expect the program to expand. Even if we can restore healthy riparian zones at different locations along the creek, the water temperatures will be influenced in a positive trend.

All projects with such an ambitious goal, need to start somewhere, and I consider the proposed 2014 program an excellent start!

I will keep you posted on any future developments, in this magazine!



Above: Brown trout are a very hardy member of the trout family, and they are best suited for many of our foothill streams, where influences from development and agriculture have had an negative impact on the health of our flowing waters. Brook trout are often found in the upper reaches of many of our Alberta brown trout streams.



Above: This is the upper property that BVHD has permission to plant on. The property is a conservation easement and already some willow growth is occurring. By planting more plants, we can speed up the recovery. Both of the properties on the upper reach of West Nose Creek are excluded from cattle grazing, so there is an insurance of unimpeded riparian growth, without loss from livestock.



Above: This is a photo of the lower riparian recovery area on West Nose Creek. You can see that there is plenty of meander in this stream channel, which is vital for providing good future fish habitat. You can also see from this photo that there is no willow or tree growth along the stream channel. This makes this site a perfect recovery project site.

LOTS OF WATER FLOWING DOWN BIGHILL CREEK THESE DAYS!

Apart from the major flooding that we experienced this year, it is nice to see so much water flowing down our area trout streams! The water table has definitely come up over the past 10 years or so, around this part of the country.

With an increase in the volume of flow in the creeks, we are witnessing a recovery of the sport fishery. Which also means that certain types of wildlife are going to benefit as well.

There is a growing rookery of blue herons up the valley of the Bighill Creek and I expect that it will continue to grow in size. As long as there is a healthy fishery, the large birds will flourish along the valley bottom.

This fall, I noticed one blue heron discovered the benefits of wading on the bottom side of the trout spawning channel on Millennium Creek. This particular bird was well fed on the mature brook trout that were moving up the spawning channel to lay their eggs.

Fortunately, enough trout made it through the gauntlet to lay their eggs. Obviously, there were enough trout to feed the blue heron on its daily feed time, yet allow other fish to do their reproductive duties.

We just have to accept this natural occurrence as part of the process. As long as there are enough trout to spawn, the birds can have their share of the bounty!

With the high volume of flow in local waters, I am expecting some really good fishing in the future. There is so much more habitat for trout, when the water levels are up high for the entire open water season.

There are some small creeks that I have not visited for a number of years that deserve an inspection, with a fly rod in hand. Trout will quickly migrate up small streams, when the water levels are high enough and there is good habitat for them to maintain their diet and find cover, for the open water season.

I suspect that a considerable amount of shoreline habitat will develop, as a result of the increase in annual precipitation.

I have already noticed new willow growth on some creeks, on pasture land where cattle are grazing. As long as this land is not over grazed, the willows may continue to grow. One needs to be optimistic in such matters.

During this year's spawning survey, it was noted that much of the new spawning activity on small feeder spring creeks that are tributaries to the Bighill Creek, can be directly attributed to the increased volume of water in the system.

I hope that this trend continues long enough that many area small streams can be repopulated with the resident trout that they once held years earlier.

Time will tell!

Beaver "Snacks" on One of Our Willow Plants!

In August of 2013, I noticed that a beaver had made a "snack" of one of our willow plants, from the 2011 Inter Pipeline planting program, on Bighill Creek. I thought that I would take a picture of the stump, so that I could show how a third year plant can recover from such damage.

It took approximately three weeks for the first signs of new growth to show up on the stump of the willow plant. Buds started to form on a few nodes at the base of the remaining trunk of the willow plant. I took a photo of the plant and later put it in a file on my computer.

A few months later, in October, I took the final photo of the recovering willow plant. The signs of recovery were quite evident by that time!

It had been almost three months since the beaver had chewed off the willow plant, near its base. Yet, in that period of time, the plant had developed small branches with leaves and it was growing rapidly.

I expect that this fast growth will be exceptional during next year's growing season. Also, I predict that the plant will be more full with branches and leaves than the other plants that were not touched.

With the root systems well developed on the plant, by the time that the beaver attacked it, its survival was insured.

Depending on what stage of growth these plants are pruned at, we at least know that third year plants are insured of survival!



Above: You can see the new growth starting on the stump of the willow plant that was left by the beaver.



Above: This is the same plant approximately three months later. Note the rapid growth on the willow.

Left Photo:

This photo of the Bighill Creek was taken on November 5th of this fall. You can see that there is a considerable amount of water in the stream channel, for November.

If this trend of higher annual flows continues, we should expect to see a more rapid recovery of the trout fishery.

The dramatic increase in spawning activity on the Bighill Creek, in the fall of recent years, can be directly attributed to the increase in the volume of flow in the stream!

"Willows Along the Water's Edge"

Willows and trees along the shoreline and riparian zone of flowing streams contribute to a healthy natural environment, and they play an integral role in the biodiversity of our waterways. They create habitat for wildlife, maintain stability in stream banks and keep the water temperatures cool enough to support life.

With my attentions directed towards the enhancement of a stream's fishery and the habitat that fish depend on, I have learned a lot about the importance of these plants. Over the past 30 or so years, I have had the opportunity to study the benefits of willows and trees to both fish and the invertebrates that fish feed on.

It has become quite apparent to me that a healthy riparian zone, with good willow and tree growth, creates a complex web of life that is full of new discoveries. There is always something new to learn, for the keen observer or those that work in the environment along streams.

As a fly fisherman and fisheries researcher, I have learned how trout relate

to different types of in-stream habitats. I know that submerged and overhanging woody debris provides important habitat to trout, especially juvenile fish! Depending on the life stage or year class of young trout, they will utilize different types of submerged and overhead willow and tree cover.

Over the years, I have conducted a number of juvenile trout trapping programs on a few different streams. It was during these operations that I really began to learn more about the importance of various woody debris habitats.

Shallow lateral margin habitats along the stream banks, with plenty of twigs and branches, were the best place to find young of the year (YOY) trout. While submerged branches and trunks over moderate riffles and medium depth runs, provided great habitat for trout that were large enough to occupy these areas of the shoreline.

When I was fly fishing, I found that woody debris in or over deeper water would usually provide habitat for the larger trout. Especially brown and brook trout.

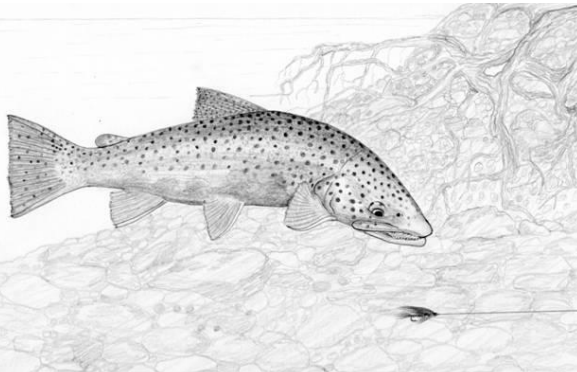
Apart from providing fish with decent habitat, willows and trees also benefit a stream natural process of maintaining narrow constricted flows, with clean substrate bottoms. I have observed areas of partially submerged willow plants, that acted as debris catchers for leaves, twigs, branches, grasses, weeds and silt. Over time, this debris becomes part of the stream bank.

The root systems of willows and trees that grow along the water's edge provide great stability to the stream banks. These areas along the water also have some really nice undercutts that trout will utilize.

Something that is often overlooked, when it comes to submerged wood, is how this organic biomass benefits invertebrates in streams. Even leaves from willows and trees are feed upon by a wide variety of invertebrates. Lots of wood in the water increases the amount of bio-mass which enriches a trout stream.

There is a lot to think about when it comes to willows along the water's edge!

The German Brown Trout - A Cherished Sport Fish!



The first variety of brown trout to be introduced in Alberta waters, was the Scottish Loch Leven strain. Later on in the 1930's, the more common and popular German brown trout arrived in our province. Today, the German strain is the common catch on all of our area brown trout streams.

I suspect that the preference for the German brown trout came about due to their more attractive coloring and also German brown trout are a fluvial strain of trout. This means that they do far better at living in streams than they do in lakes.

The color difference between the two is that German brown trout have red spots and Loch Leven's don't! Also, Loch Leven's are a lake strain of trout, thus the name Loch.

One of the primary reasons that brown trout are best suited to many of our foothill streams, is that they are fall-spawning trout. They lay their eggs in the fall, when the water quality is more conducive to a successful incubation.

With the impacts of agriculture and centuries. At least this is my theory on the matter! development, many foothill streams experience dirty water conditions during spring run-off, when cutthroat trout and rainbow trout spawn. Which impacts the incubating trout eggs, by smothering them with silt.

Also, brown trout are very tough fish! They had to be, in their native European home land, where angling pressure has been very high for many

You will find that brown trout are abundant, on many foothill streams north of the Bow River. Streams such as the Dogpound, Fallentimber, Little Red and so on. Hopefully they will also be more abundant in the Bighill Creek!

The local brown trout streams are known to produce some very large trout on occasion. They can grow up to 5 or 6 pounds and surprise even the most active and experienced angler.

When they spawn in the fall, they fan a rather large nest or redd in the gravel bottom of a streambed, where there is adequate velocity of depth for the eggs to incubate successfully. These redds can be pretty large in size, averaging approximately 12" X 24" , and larger.



Above: The willow tree shown in this photo has its base growing right along the water's edge. The plant provides shade and overhead cover for trout. Some of its broken off branches, just downstream, are submerged and are providing good habitat for smaller trout.



Above: The willow branches on this lateral margin habitat are collecting silt and debris, such as leaves. Over time, this will spot will grow into the stream bank. In the meantime, it will provide great habitat for "young of the year trout". This is vital habitat for small fish!



Left Photo:

Brown trout such as this German brown, are common on many brown trout streams, to the north of the Bow River, in Cochrane. I especially enjoy catching brilliantly dressed brown trout like the one in this photo. Its color is accentuated by a golden yellow hue, that is typical in the tainted color streams of the foothills.

The Dogpound Creek is known to produce some real monsters. I know of a few 9 pound fish that have been captured, one by electro fishing and the other on a fishing rod. The largest fish that I have heard of, was captured by Fish & Wildlife electro fishers, and it topped the scales at 12 pounds. This fish was accurately weighed and measured during the study program, so it is no fish tale!

The larger brown trout are often caught by fly fishers that used streamer patterns. A large part of a mature brown trout's diet consists of minnows and other large invertebrates such as leeches, dragon flies, grasshoppers, stoneflies and so on. Like other trout species, they don't like to expend too much energy while feeding, so the bigger the meal, the better!

" Just the mere beauty of these trout should inspire us to take care of the environment in which they live! I know that it helps to motivate me! "



Above: This is an average brown trout redd. You can see a mound of clean gravel and at the top end of the redd, is a depression. The small depression is where the fish fanned gravel over the eggs to finish off the spawning event. The clean gravel mound makes the redds easily identifiable when you know what to look for and when.



FISH HABITAT - A BASIC UNDERSTANDING

What is fish habitat? To start to understand fish habitat, you first must learn from the basics. Fish require water, habitat and food to survive. The quality of these requirements determines how well fish do in any given environment.

There are two environments that freshwater fish inhabit, those are lake and stream habitats. Because this magazine focuses on stream environments, this article will cover that particular topic.

Also, because trout is the primary variety of fish that is mentioned in this publication, we will focus of trout habitat.

Trout stream require three basic components to support populations: riparian habitat, clean and cold water and structure that trout can utilize for both cover and as a feeding habitat.

Submerged structure habitat consists of three primary things: weeds, rock and woody debris. Emergent cover habitat is provided by

undercut stream banks, over hanging branches, limbs and grasses, etc..

In-channel, submerged or partially submerged structure will also help to break the velocity of flow in a stream, creating holding habitats for trout. Especially in riffle areas, where the depth and surface disturbance created by the gradient is sufficient to hide trout from predators.

Flow dynamics will provide cover for trout by altering the surface of the stream's water.

The surface chop created by a riffle or counter acting currents can blur the visibility of clear water. This will make it difficult for predators to see trout holding near the bottom of a stream. We can consider this habitat as well.

Once you understand some of these basic components of what fish habitat is, you will have an easier task in furthering your knowledge of the topic. The task of being able to know complexities of where and why trout use particular habitats, adds a whole new element to how you look at a stream. This is called "reading water".

TROUT SPAWNING HABITAT

There is one specialized type of trout habitat that is very important to the ongoing survival of the species, and this is spawning habitat. Without it, reproduction would be impossible!

Trout require a clean gravel substrate, with adequate depth of water and the right velocity of flow. Also, the gravel size range needs to be just right for each mature female trout.

Trout need to fan an egg

nest in the gravel with their tail, so it is important that the gravel is the right size, relative to the size of the female trout.

Once the eggs are laid and fertilized, the female will fan a cover of gravel to protect the eggs and allow water to percolate thru, while the eggs incubate. A good supply of well oxygenated water is a must for the eggs to hatch.

The stream gravel aggregate size for spawning trout is usually a mix of some

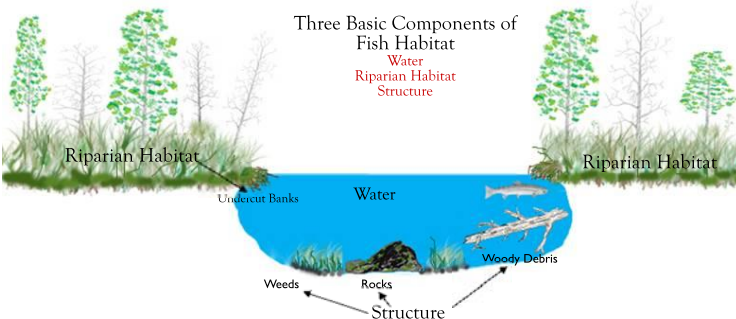
fine pebbles, with gravel ranging in size, with a few larger stones in the mix. The larger stones add stability to the redd or nest, so that high flow events don't move the materials in the redd.

Spawning gravel deposits in streams, are usually enhanced by both boulders and large woody debris that collect pockets of gravel in the right size range for spawning trout.

Also, adequate velocity is

required to create gravel collection, during run-off events. The gravel present in a trout stream is continually replenished by eroding stream banks upstream.

One of the most common negative impact on our foothill streams is silt loading. If too much silt is present in a trout stream, the gravel spawning habitats can be smothered in silt. This can often happen after the eggs have already been laid down.



Right Photo:

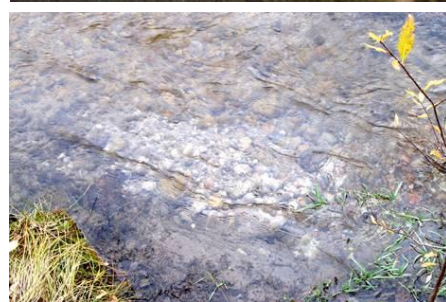
The photo on the right shows a pair of brook trout trying to fan a clean nest of gravel on the stream bottom. As you can see, there is a considerable amount of silt and sand covering the spawning gravel.

It is doubtful that any of the eggs would survive thru an incubation period, under such conditions. Soon after the eggs are laid down, a new covering of silt will smother them! This is a common sight on many of our area trout streams!



Right Photo:

This photo shows a trout redd that was made by brook trout on a clean gravel bottom of a spawning tributary. The redd is distinguished by the very clean gravel patch shown in the photo. The surrounding area is gravel with a covering of algae or rock moss. Soon the trout redd will also start to change color and darken.



TROUT FOOD - HABITAT

Trout feed primarily on aquatic invertebrates. These are small insects that have an exoskeleton, instead of a vertebrae, thus the name. Invertebrates that reside in trout streams, utilize the same structure as trout for their habitats. Rocks, weeds and woody debris provide an environment where this fish food can thrive. Aquatic insects will also

live in the substrate of streams. Varieties of invertebrates have adapted to burrowing into the stream bed or find habitat in gravel, cobble and detritus.

These insects provide a food source for resident trout and without them in good supply, fish would not be able to survive.

Most of a trout streams invertebrate population goes thru a life cycle that includes

The transformation into an airborne insect, where it emerges from the water into the atmosphere.

Aquatic invertebrates that transform into a flying insect, do so for reproductive and distribution purposes. During this emergence and when the insects return to the water to lay their eggs, trout will feed on them with determination.

Trout will also feed on terrestrial insects that live in the riparian zone. A few good examples are grasshoppers, ants, beetles and earth worms. These insects will fall or get blown into the water, where trout will eat them up.

Aquatic invertebrates require clean and pure water to survive!

Above: Burrowing nymphs such as this Brown Drake, will burrow into a streambed of silt, sand and detritus.



Above: In the adult stage of this mayfly life, it will emerge from the water and fly thru the air, before laying its eggs back into the water.



Right:

A healthy riparian zone provides good juvenile trout habitat!



RIPARIAN HABITAT

Riparian habitat is of primary importance to the health of a trout stream. Without a healthy buffer of mature willows, trees and grasses, a stream is susceptible to bank erosion and channel widening.

For the trout that reside in a stream, the constant input of woody debris from a healthy riparian zone, creates necessary in-stream habitat under the water's surface and along its banks.

During high flow events in the stream, willows and trees can be washed into the stream channel, from undermined stream banks.

The weight of winter snow can bend willow limbs down into the stream channel, or wind can blow down dead or dying trees onto the water's surface. All of this woody debris will enhance fish and aquatic invertebrate habitat in the stream channel.

When a healthy riparian buffer exists along the water's edge, the flow in the stream channel is constricted. This narrow channel width provides the necessary scouring to keep the streambed clean, exposing boulders, cobble and gravel.

The trunks of willows, trees and rocks at the water's edge, work as debris catchers, collecting floating wood that travels down the stream channel during high flows.

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