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MILLENNIUM CREEK PROJECT PHASE TWO

INSIDE THIS ISSUE:

Special points of interest:

- This year we removed approximately 37 cubic metres of silt from Millennium Creek.
- Volunteers contributed 112 hours of their time, helping out this summer.
- The invertebrate habitat created by placing flat rocks on riffle areas of the stream has already produced positive results.
- The Town of Cochrane, Operational Services, Parks and Facilities Division has increased it's contribution towards this years program. Both in heavy equipment time and manpower.
- The pool habitats are maintaining a self cleaning result over the summer months.

FALL COLORS MARK THE END OF THE WORK SEASON ON MILLENNIUM CREEK!

As deciduous leaves carpet the ground along the creek, so ends another working season on the Millennium Creek Program. Under our permitting guidelines, all in-stream construction activities must end before October 1st.

It turned out to be a very productive and rewarding enhancement program this season. A major contributing factor in this summers work program, was our volunteer team. On weekends through out the summer, volunteers invested 112 hours of their time, helping out with the project.

As one volunteer exclaimed about the work program: *"it's as grueling as spending two hours in the gym - but far more rewarding!"*

Channel modifications along the entire reach of the stream have resulted in a more balanced gradient, which has increase flow velocity in the new channel. Much of this work was completed by our volunteers.

Photo of a rock v-weir pool, complete with fish cover habitats. The pool habitat was constructed on Millennium Creek this summer.

Newly generated riparian growth continues to encroach in along the stream banks. Areas of the creek that do not receive as much sun light are slow in plant regeneration; another growing season will make the difference.

Although it is anticipated that there will be some frost heaving along the creek this winter, the new plant growth will help insulate the banks and reduce the amount, compared to last winter's impacts.

I will be monitoring the frost build up along the creek this winter and comparing notes with 2005 results.

GREAT NEWS! MORE MONEY FOR THE 2006 MILLENNIUM CREEK PHASE TWO PROGRAM!

On October 9th, I was contacted by TRANSALTA CORPORATION and informed that they had a contribution of $5,000.00 for this years program.

With the in-stream activities on the creek ending on October 01, I had to revise the operational budget for the season, to accommodate this new money.

I contacted the Alberta Conservation Association and asked if I could defer some of their contribution in funds into next years program. My proposal was accepted.

A result of this good news of extra dollars for Phase Two, we are off to a good start in next years funding to complete the Phase Two Millennium Creek Program.

TIMBER DEFLECTORS ARE CONSTRICTING FLOW— INCREASING CHANNEL VELOCITY!

The first results are evident, the timber deflectors are working well. Areas of the creek channel that are wider than the norm and exhibit lower gradient have been enhanced by the installation of timber bundle deflectors.

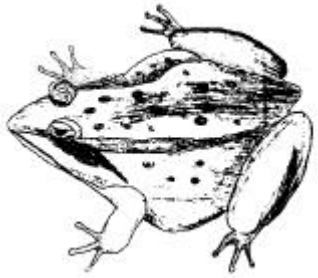
The deflectors are made up of a number of Lodge-pole pine posts that are driven horizontally into the stream-bank, one on top of the other. This results in a constriction of flow that deepens the channel and increases velocity.

Silt is collected along the stream-bank on both the upstream and downstream side of the structures. This fine silt encourages riparian vegetation to take root and encroach in on the channel.

In a year or so, the posts will be hidden beneath a cover of bank grasses. Already, Narrow Leafed Water Plantain and American Speedwell are growing in along the waters edge.

Volunteer, Hans Reisenleiter and I transplanted sprigs of Water Plantain along the edge of 50 m of channel in order to speed up this riparian recovery. The transplant work well over the following weeks.

Above - Photo of channel before deflectors were installed.
Below - Photo of channel with deflectors, one month later.



"Early this summer I spotted a Western Toad on Millennium Creek. Leopard Frogs were also once abundant on both Bighill Creek and Millennium Creek, but for some reason they disappeared over the last 35 years or so. Remember; Frogs hop, Toads crawl."

SILT REMOVAL - CONTINUES!

This year approximately 37 cubic metres of silt have been removed from the creek. Most of that silt was collected from our primary silt trap pool.

Prior to cleaning the primary trap pool, a by-pass pipe is installed to divert the flow across the pool to the outlet. Then seine nets are used to capture any fish in the pool before silt removal.

During the last two cleanings, a total of 30 Five Spine Stickle-back minnows were captured and held until the job was completed. They were then released back into the stream.

At the end of the Millennium Creek Project, the silt trap pool will be transformed into a pool with an oxbow channel that will meander to the present outflow.

Pictured right - This is a photo of the primary silt trap pool the day before it was cleaned out.

A VOLUNTEERS PERSPECTIVE.

"Cochrane resident Hans Reisenleiter is an Environmental Surveillance Office for Parks Canada. He signed up to volunteer on the project and has since become a valued member of the team. With his experience in a related field, I asked Hans if he would write down some of his thoughts about the project on paper, for this newsletter." G.W.

Joining the volunteers on the project has been an inspiring and rewarding experience. By the time I joined the project, a lot of restoration work had already been completed.

Based on my weekend participation, the silt trap pools constructed along the creek were an effective way of trapping silt, moved along by the scouring action of the flowing water, in a stream once completely choked with fine silt. All restoration efforts are also preventing further negative impacts to the Bow River, downstream.

Although the final objective has not yet been achieved, the project has already succeeded in restoring many areas of the creek. With the removal of sediments, spawning gravels are being exposed, pools and cover have been created and the riparian vegetation is being re-established along the shoreline.

The future of Millennium Creek looks promising! In addition, during much of the weekend work, recreational users of the path and newly constructed bridge have stopped to acknowledge the work, ask questions about the project or provide encouragement.

In the long run, the Millennium Creek Restoration Project will benefit, restore and support a local fishery and the natural watershed environment. It will also benefit residents and will be a showcase example of what positive steps can be taken in environmental restoration.

The design criteria that I have observed is based on science, practice, experience and will ensure the rehabilitation of this aquatic habitat and natural environment. Some of the pool habitats, with their rock and log v-weirs, are already showing signs of self-cleaning through the natural fluvial processes.

Hans "hunkers down "while two mule deer fawns retreat into the bush.

ANOTHER NEW BRIDGE IS BUILT ON THE CREEK

This summer, another bridge was constructed across Millennium Creek, as part of the Town of Cochrane's new path system. The bridge is located directly below the Griffin Road culvert and above the Newbury riffle/pool complex that we built earlier in the summer.

It is a good location for passer's by to observe trout holding in the pool in future years. There is also good spawning gravel just downstream of the bridge that may be utilized when a resident trout population is established.

We added flat rocks into the riffle channel to enhance aquatic invertebrate populations. May fly nymphs have already been observed clinging to the underside of the rocks.

Above photo shows the new bridge located just below the Griffin Road culvert and above the Newbury riffle/pool complex.

"May fly nymphs have already been observed clinging to the underside of the rocks."

This newsletter is published by Bow Valley Habitat Development

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"Thanks volunteers for your contribution of 112 hours on this years program!" G.W.

To Access this newsletter on the web. Go to www.cochrane.ca and type in the search the site box "millennium Creek Project"

Partners of the Millennium Creek Program are:

The Alberta Conservation Association

The Town of Cochrane, Operational Services Dept.

TransAlta Corporation

Inter Pipeline Fund

Bow Valley Habitat Development

Spray Lakes Sawmills Ltd.

MGM Developments
Angel Enterprises
Shell Canada

I was first introduced to the Log V-weir design in 1989, by Sheldon Lowe; River Engineer and fish habitat design specialist. Since that first introduction to this effective method of creating a self cleaning pool habitat, I have built a number of them.

The original Log V-weir design was published in 1935. Over the years a number of alterations in it 's construction have been contributed. These design revisions have resulted in a very durable, long lasting structure.

I prefer to use log v-weirs on small creeks, with bank-full widths of less than 5 m. On Millennium Creek, where the majority of the channel is comprised of a deep silt bed with low gradient, the v-weir can be installed with a low profile and still maintain a deep pool habitat.

When constructed in the correct manor, the apex of the V in the log structure coverts the velocity of the stream channel flow into a core velocity that scours and maintains a deep pool. The logs are peeled prior to construction, to reduce any tractive force, like bark. The removal of this bark also extends the life of the logs.

Timber that is water-logged in cold water has been known to be rendered into a state of preservation for 50 + years.

In-pool cover habitats

Cover habitats constructed in the v-weir pools provide good overhead cover for trout. If they are installed in an opposing position in the pool, they also can extend the scouring effect created by the v-weir structure.

On Millennium Creek most of the pools will have this type of cover habitat design. They are constructed by driving about 4 posts horizontally into the side of the pool, just below the surface. Then a spruce bough limb is double wired to a fifth post and driven in over top of the posts to provide additional cover.

LOG V-WEIR POOLS ARE AN EFFECTIVE DESIGN USED ON MILLENNIUM CREEK!

Above - A photo of a log v-weir. Below –A photo of a rock v-weir with cover.

In the Phase Two program we have yet to construct another 13 of these log v-weir pool habitats. The construction of the remaining pools are best carried out after the channel adjusts to it 's new gradient over the winter months.

Just a note!

I would like to thank assistant project manager, Andy Degraw of Operation Services, Parks and Facilities, for his contribution in heavy equipment time and the 216 person hours contributed by his staff on the project this summer. G.W.