Johnsonia Shoreline Pilot/Demonstration Project – 2017 Overview

Project Objective

To demonstrate and use for education purposes, how a shoreline can be restored to a healthy and functional riparian area that also maintains recreational access and key features that ensure enjoyment by the homeowner. The pilot is also to learn which of 3 types of willows fair best in the sandy near lake soil.

Why are Healthy Shorelines (riparian areas) Important?

- A 2008 video shoreline assessment showed that 65% of Pigeon Lake's shorelines are highly compromised.
- Shorelines are the last chance to filter nutrients and other pollutants from runoff before it enters the lake.
- 80% of all wildlife depend on a healthy shoreline during at least some part of their life cycle. The plant biodiversity provides fish, mammals, birds, amphibians and invertebrates food and shelter.
- Healthy shorelines stop erosion and protect the shoreline from much of the damage ice can do.

Pre-construction – September 2015

In 2015, the site assessment and selection was completed. In, 2016 partnerships and grants secured; permissions requested. Both the AEP and the local council supported the project. There was some vegetation cover but it was sparse and mostly invasive and disturbance plant species. However, there was reed canary grass, shining willow shrub and a seedling aspen tree. These native plants were left alone.

Site Preparation: Started with the removal of the invasive plants. 15 bags were removed by Cows and Fish and PLWA.

Species	Removal Technique	Additional Information
Canada thistle (*Cirsium arvense*)	Pulled	Bagged and removed from site. Disposed at a landfill. Sept 15 and Oct 24, 2016
Common tansy (*Tanacetum vulgare*)	Clipped	Bagged and removed from site. Disposed at a landfill. Sept 15 and Oct 24, 2016
Ox-eye daisy (*Chrysanthemum leucanthemum*)	Dug out	Bagged and removed from site. Disposed at a landfill. Sept 15 and Oct 24, 2016
Yellow toadflax/ butter and eggs (*Linaria vulgaris*)	Clipped, some pulling	Bagged and removed from site. Disposed at a landfill. Sept 15 and Oct 24, 2016
Perennial sow-thistle (*Sonchus spp.)*	Pulled	Bagged and removed from site. Disposed at a landfill. Sept 15 and Oct 24, 2016
Himalayan Balsam (*Impatiens glandulifera)*	Pulled	Bagged and removed from site. Disposed at a landfill. Fall 2015/Summer 2016 by PLWA and home owner

Restoration: Approximately 60 willow cuttings of 3 different types were added to the shoreline along with 2 bundles of willows that were buried Oct 2016. The types of willows were selected because:

1) They are native plants with great root systems that can compete with the invasive species.

2) In 3 years, once they are well established they can be cut like a hedge or pruned from the bottom to provide the owners with a view.

There is a gap to allow access to the lake to take the hoist and boat in and out of the lake in the spring and fall.



Post Construction – 1 month: A check in November, showed a good snow cover to provide protection and moisture over the winter. **Following summer:** July 2, 2017 (middle picture below) showed a mixture of plants with the first growing season. A good many of invasives were amongst them. A brief assessment was conducted on July 7, 2017 (right picture below) after which many oxeye daisies were dug out and more common tansy clipped.



A number of the willows at the south end do not appear to have taken but the majority have.


Some, invasives like common tansy will require constant cutting back, but the cut back and sunlight depravation should win out over time. Other invasives were not dug out because any little bit will grow a new plant and compound the problem.

There are also a number of willows that have taken!

Further progress updates will be forthcoming.

A collaborative Project between Cows and Fish, the Alberta Low Impact and Development Partnership and the PLWA and the Pigeon Lake Lot Owners