



Beavers: Friends or Foe?

How can we live with 'em and why should we?



Norine Ambrose, Cows and Fish

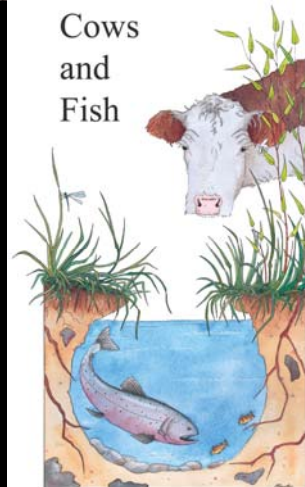
Putting Beavers to Work for Watershed Resiliency and Restoration www.rockies.ca/beavers



**Miistakis
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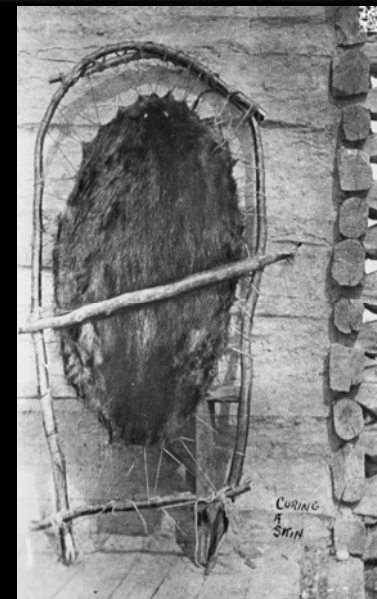


Cows
and
Fish



A Canadian Icon

- 709 Canadian place names
- 50 Alberta place names









Good Beaver, Bad Beaver?



FEAR THE BEAVER



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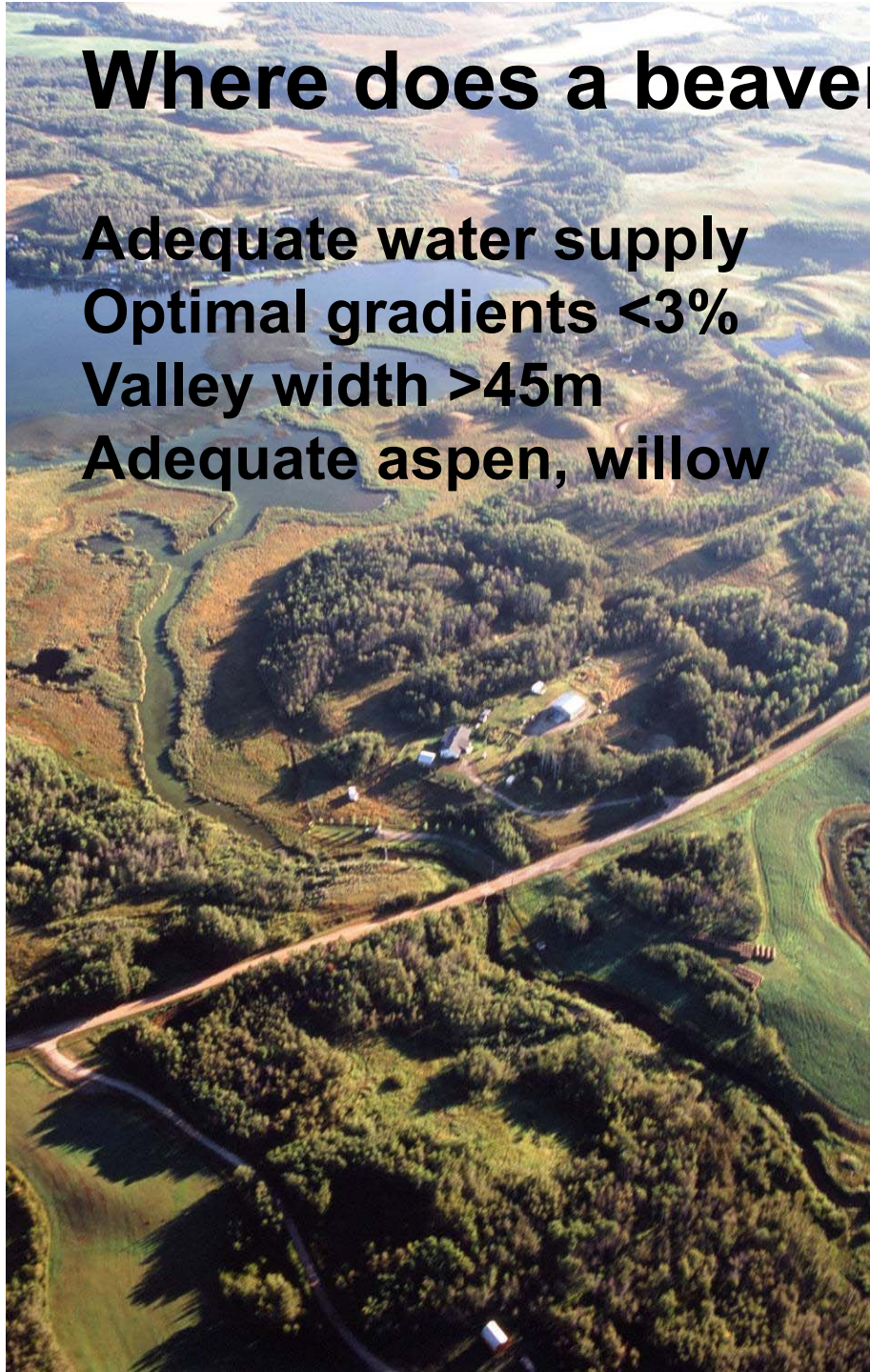
Typical beaver colony:

- 2 adults
- 2 young of the year
- 2 two year olds



Where does a beaver like to live?

Adequate water supply
Optimal gradients $<3\%$
Valley width $>45\text{m}$
Adequate aspen, willow



Annual Diet- 53% wood

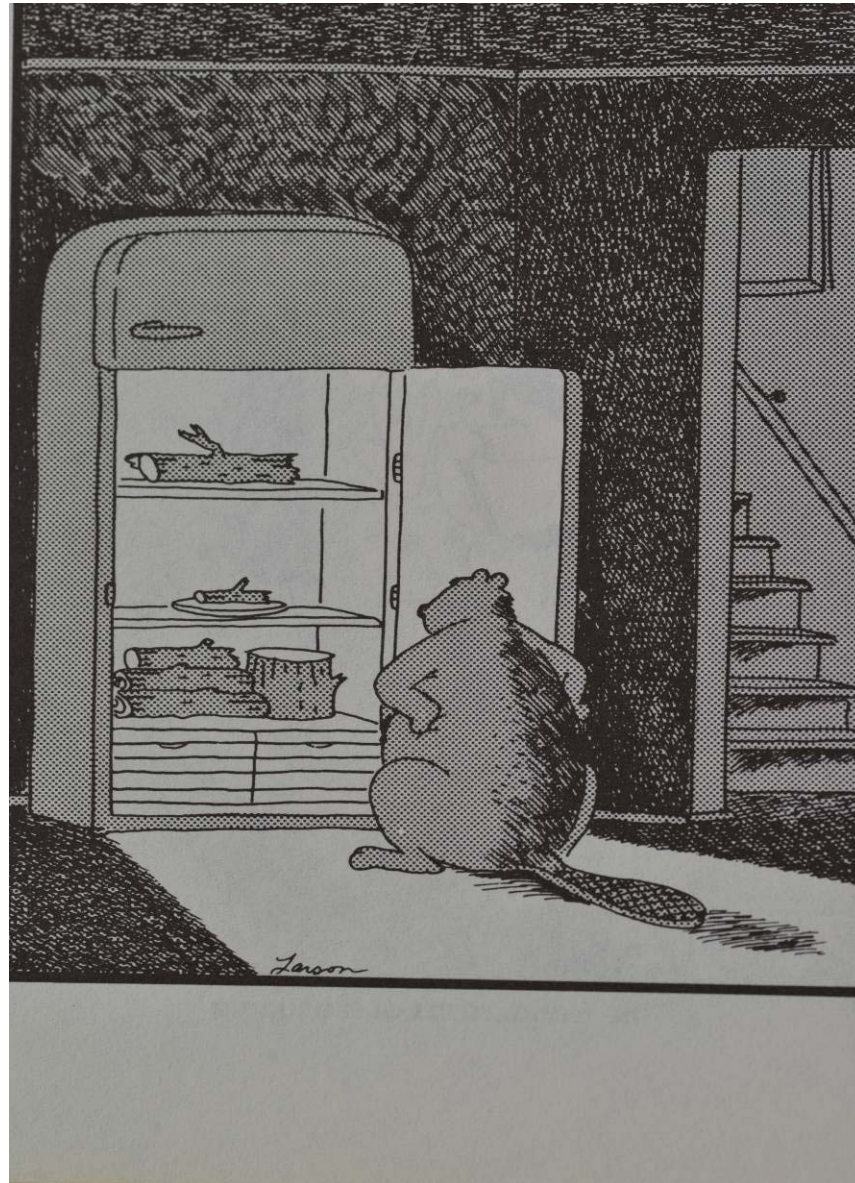
Seasonally:

Winter- 86%

Spring- 32%

Summer- 16%

Fall- 60%



Beaver pond cycles



Rights Available from CartoonStock.com

"We were too busy."

From 35 – to up to 6500 m³ of sediment stored in each pond (382 tandem dump trucks)

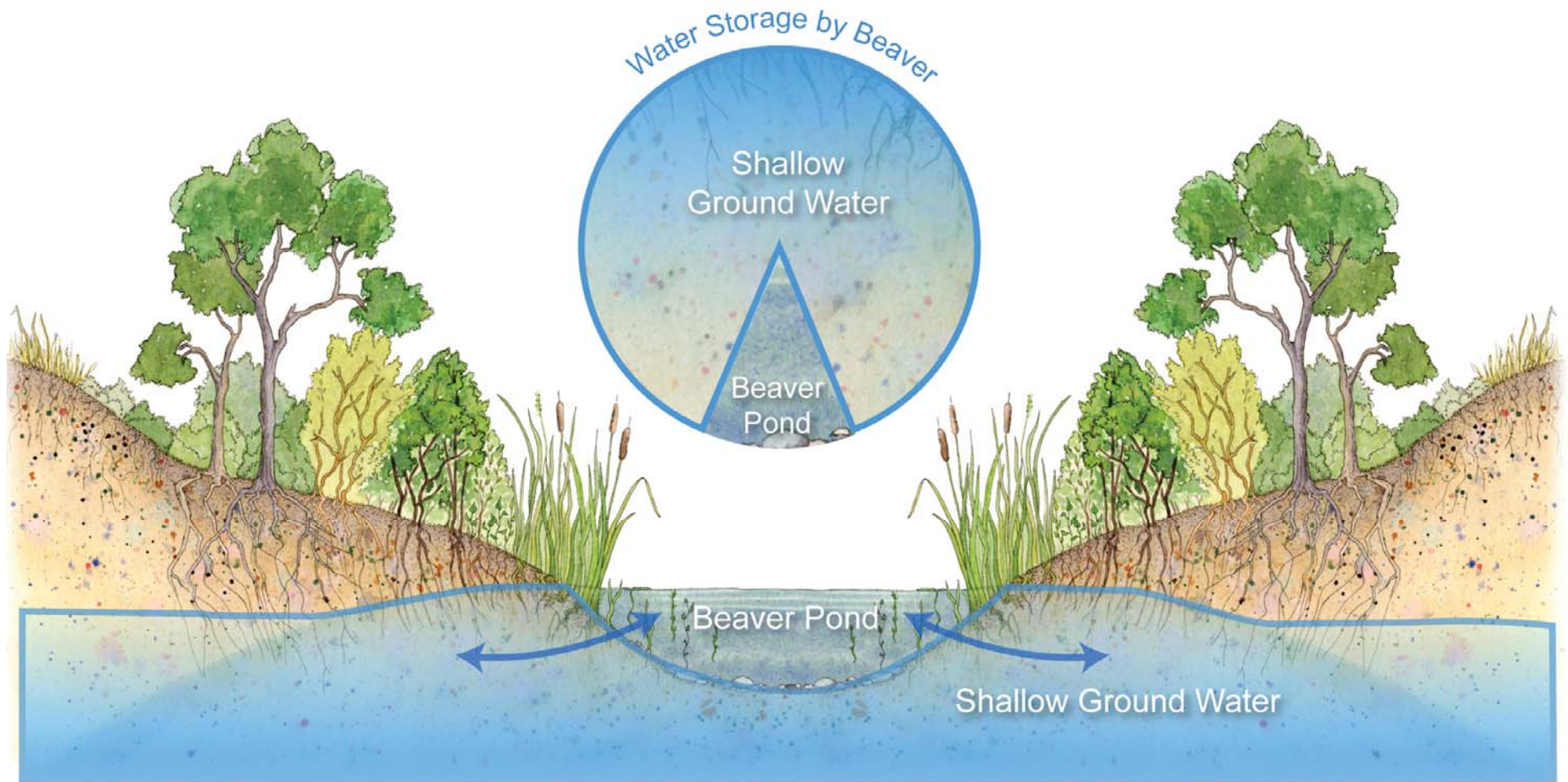


Downstream of each pond:

- 50-75% less suspended solids**
- 20-60% less phosphorus**
- 20-25% less nitrogen (1000X of amount in riffles)**
- up to 23% carbon sequestered**
- reduced fecal coliforms**



Ground water storage - 100s of meters laterally and 300-600 m downstream



Ground water storage exceeds surface dam storage 5 - 10X



**A high roughness coefficient dampens
velocity and discharge**

A 5.3% reduction in peak flows

**As pond numbers increase so does
potential for flood reduction**

Speed Bumps for Streams
Beaver

dams and ponds check the
velocity of streams and dissipate
water energy laterally. This decreases the
risk (and costs) of major flooding and
slows erosion.



<http://cowsandfish.org/publications/documents/BeaverOurWatershedPartnerWEB.pdf>



Beavers in Our Landscape

A workshop on understanding and living with beavers

Please join us to share your knowledge and experiences, developed for Alberta natural resource managers, municipalities, landowners and others!

Whether you love them, hate them, want to understand them, think you need them, or want to learn how to live with them, you will find this workshop useful. Topics include:

Beaver basics - Ecology, natural history, watershed connections

Beaver challenges - Issues, management, options and alternatives

Beaver case studies - How others are dealing and living with beavers

Beaver banter - Round table discussion on beaver messages, messaging, management issues, management options, information needs

Beaver next steps - Awareness messages, tool development, beaver role in watersheds, reintroductions and future management

An integral part of the workshop will be discussion about challenges, concerns and values.

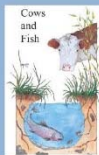
March 2, 2017 from 10:00 AM to 2:30 PM

Goodridge Hall (3 miles west on TWP 624 from Highway 881)

Lunch and refreshments will be provided

To attend this FREE workshop please call LARA at 780-826-7260 or email sustainag.lara@mcsnet.ca

Workshop Partners:



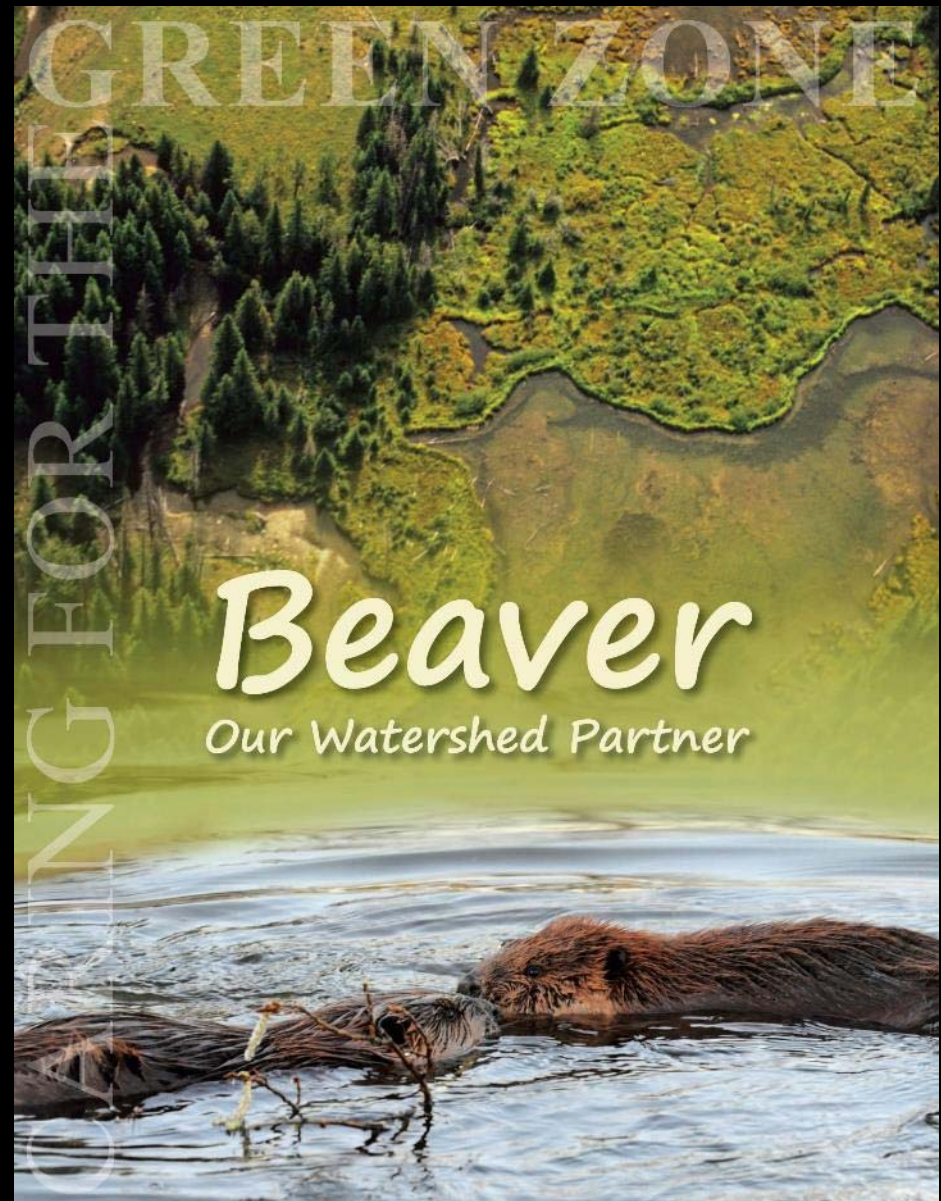
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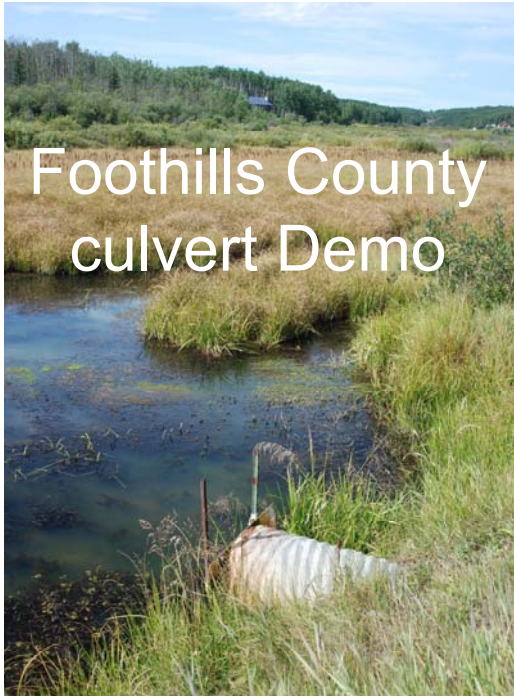


Watershed Resiliency and
Restoration Program &
Alberta Environment and Parks



Case Studies

Foothills County culvert Demo



Robin Hood bribes beaver to spare Sherwood Forest



Pierre Bolduc – feeding station



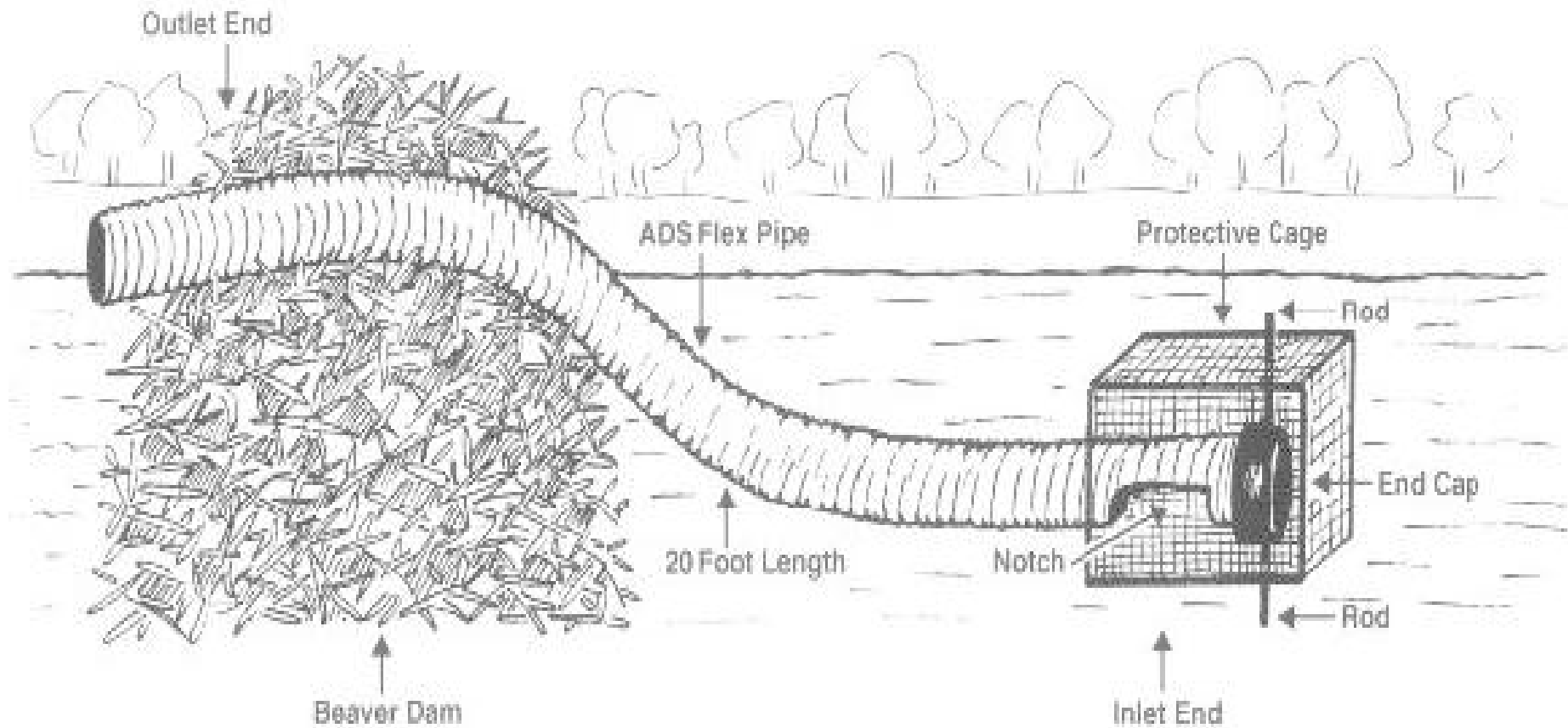
Beaver County's Beaver Management Project

"Mitigating Human-Beaver Conflict
through Adaptive Management"
Research Project

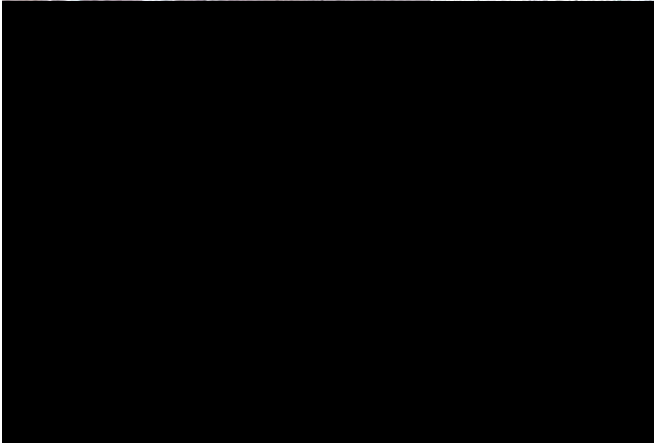
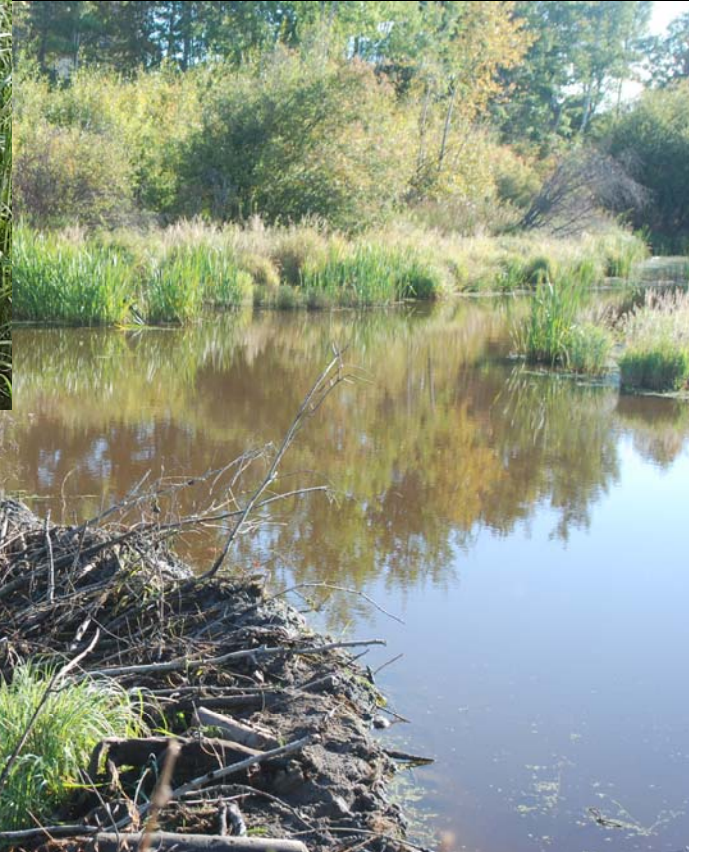




Flex Pipe Installation



Lac Ste Anne
County, Plummer
pond leveller
demo Sept 2017





Problem Culvert Location August 2014 Installation



Project results:
<https://www.beaver.ab.ca/departments/agricultural-services/beaver-management-project>



Cost-Benefit Analysis

For 14 devices installed, over 3 years

- The savings in management costs -> **net benefit of \$64,632.34.**
- Including wetland valuation (replacement value for wetland loss) - > **net benefit of \$384,312.53**
- Minimum expense for pond leveller installation was \$756.33 including materials, prep, installation labour, and transportation. The highest cost was \$1605.55. **Average cost is \$1024.85.**
- Maintenance and monitoring costs are also quite low after the device has been installed, and the team is continuing to monitor all costs associated with the pond levellers so the analysis can extend over more years.

Cost-Benefit Analysis

For 12 devices installed, over 3 years In Cooking Lake Blackfoot Provincial Recreation Area

Costs of installation of pond levellers/ management	Total
Number of pond levellers	12
Start-up materials	\$ 1,672
Pond-leveller installations	\$ 10,792
Average monitoring and mapping	\$ 4,620
<u>Cumulative monitoring for pond levellers</u>	<u>\$ 16,496</u>
<u>Average annual park management expenses (before)</u>	<u>\$100,926</u>

(Modified from Hood et al. 2018. Emphasis added)

- **Annual maintenance costs were estimated to be \$128 per site, per year**



Lac Ste Anne County, Weller
exclusion demo Sept 2017



Lac Ste Anne County, Weller exclusion demo Sept 2017



Lac Ste.
Anne County

May 2019



Not completely
maintenance or
adjustment-free...

Lac Ste.
Anne County

August 2019



Beating the Beaver at its Own Busy Nature

- Landowners leading the way





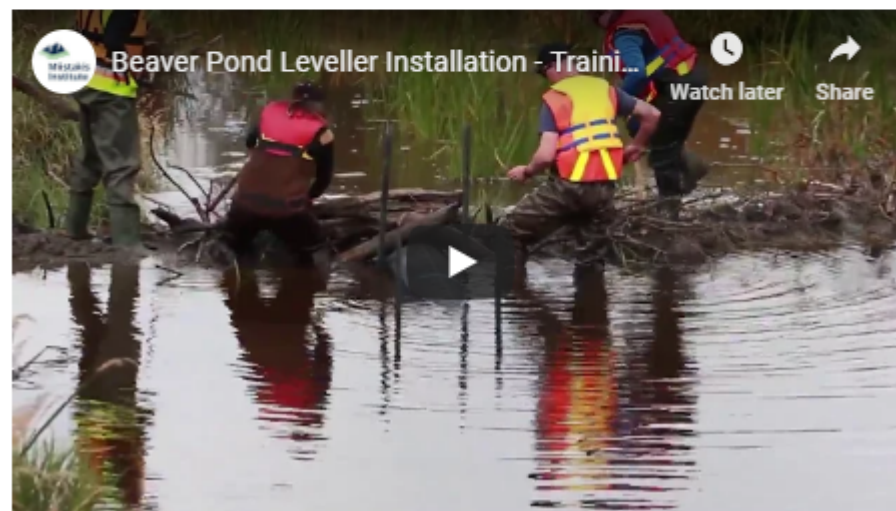
Sand-Paint Recipe
6 cups coarse sand
Gallon indoor latex paint
Mix & brush on tree trunks

Awareness Materials: www.rockies.ca/beavers

Beaver Exclusion Fencing Installation - Training Session



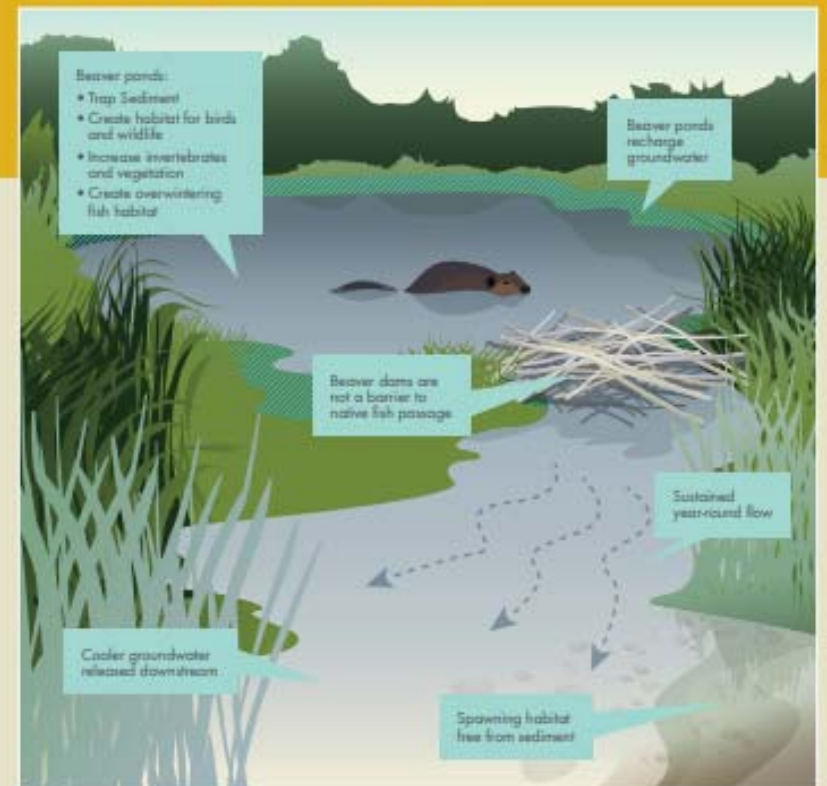
Beaver Pond Leveller Installation - Training Session



BEAVERS AND FISH

This fact sheet outlines the general relationship between beavers and fish, along with addressing some of the common misconceptions about how beavers impact fish, including that they increase water temperature, increase sediment accumulation on spawning gravels, and create barriers to fish movement.

Beavers are significantly reduced in numbers or absent from much of their historic range and habitat in Alberta due to trapping, and habitat loss, both historic and present. Prior to the 1700's beavers were abundant in Alberta and lived harmoniously with fish, having evolved together. The beavers that exist on the landscape today are a benefit to fish species, just as they are a benefit to many other wild species.



Want to learn more?

CowsandFish.org &
www.rockies.ca/beavers

Join our Community of Practice:

- Beaver mailing list: holly@rockies.ca
- Map of Tools: post your sites to help tracking lessons learned through a knowledge transfer template, sharing input from practitioners

<https://www.rockies.ca/beavers/map.php>





A landscape photograph showing a wide, grassy valley. A small, winding stream flows through the center of the valley. The hills in the background are covered in dense green forest. The sky is overcast. The word "Time" is overlaid in white text on the left side of the image.

Time

Space

Poll



Beavers: Friends, and sometimes, Foe

Yet, finding ways to live with them





Cows and Fish

Thanks to our Funders and Beaver Collaborative Partners



Watershed Restoration and Resiliency Program

Acknowledgement for use of images

Myrna Pearman- Ellis Bird Farm
Glynnis Hood- University of Alberta
Alberta Trapper's Association
Evan Bedford- Red Deer County



<http://www.rockies.ca/beavers/>





Cows and Fish

Members and Supporters



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Alberta Environment and Parks



CANADIAN
CATTLEMEN'S
ASSOCIATION

Trout Unlimited
CANADA



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CANADA



*Producers, municipalities and
community groups in Alberta*



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**Check our website for staff in Red Deer, Airdrie, Calgary and
Lethbridge**

