

Watershed Resiliency and Restoration Program (WRRRP)

Improving Alberta's natural watershed resiliency to flood and drought

WRRRP aims to build long-term watershed resiliency to flood and drought by improving natural watershed functions and engaging Albertans in the conservation, restoration, enhancement and stewardship of critical watershed features including wetlands, riparian areas and floodplains.



Photo: Stewart Flood

Cottonwood seedling growth, post-flood in the Oldman River floodplain.

"We recognize that helping communities adapt to a changing climate must start with a healthy landscape. Through the Watershed Resiliency and Restoration Program, we are funding projects that will improve natural watershed functions and the flood and drought resilience of communities downstream."

-The Honourable Shannon Phillips,
Minister of Environment and Parks

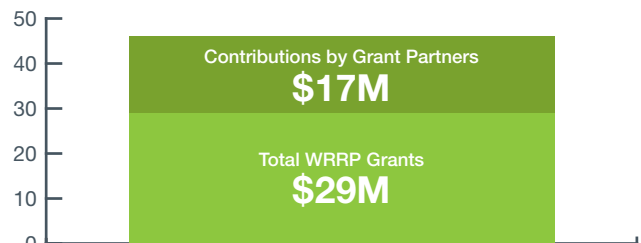
Program Highlights

WRRRP was established in 2014, in recognition of the importance of improving natural watershed functions to build long-term resiliency for flood and drought.

The original 3-year program was extended by 4 years to March 2021. A total of \$32.5 million in grant funding will be awarded under the program to external partners working to improve Alberta's natural watershed resiliency.

By June 2018, over \$29 million has been granted to 52 organizations partnering with others on 80 watershed resiliency projects involving thousands of Alberta's landowners, watershed stewards, scientists and industry practitioners.

Projects are located throughout Alberta in WRRRP priority watersheds. Priority areas are based on indicators of watershed resilience, consequence and hazard. See "Priority Areas Maps and Summary Report" online at www.wrrp.alberta.ca.



Alberta's investment in the WRRRP has leveraged an additional \$17 million in cash and in-kind contributions by grant partners on collaborative watershed resiliency projects in the North and South Saskatchewan Rivers, Peace River, Athabasca River and Milk River basins. (June 2018)

For program information go to www.WRRRP.Alberta.ca

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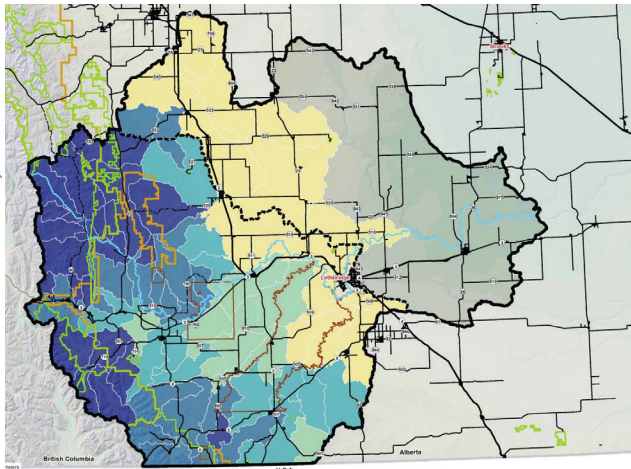
In three years, WRRP collaborative projects have:

Restored or enhanced **over 1000 hectares** of wetlands in priority watersheds, with an estimated **1.9 million cubic metres** of restored capacity for water storage on the landscape.

Restored **over 1400 hectares** of riparian areas with native vegetation plantings or enhanced by being protected from agricultural activities.

Designated **over 2000 hectares** of riparian lands for permanent conservation, with more areas on the way.

Engaged **over 3300 Albertans** through training workshops on natural restoration techniques and other practices that enhance watershed resiliency, and directed outreach and digital stories to **over 1 million Albertans**.



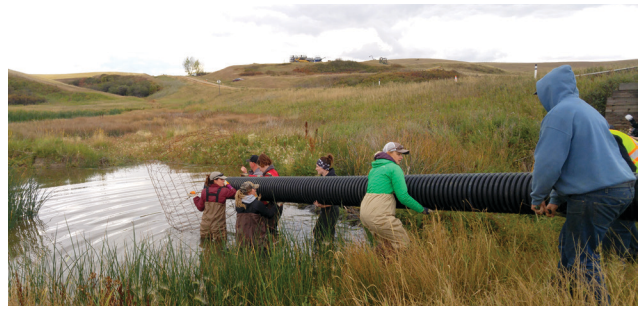
Oldman River sub-basins and priority watersheds for land conservation



WRRP partners have assessed priority watersheds and identified critical lands for conservation and restoration.

The riparian condition of the South Saskatchewan River headwaters was assessed using a coarse filter process for evaluating small forested watersheds, and resulting in priority areas being identified for restoration. Contact fRI Research for more information at www.friresearch.ca.

In a Watershed Simulation Tool developed for the Bow River basin, wetland restoration was found to have the highest mitigating effect on watershed resiliency. The tool also demonstrates the most potential benefit toward watershed resiliency is in the implementation of strategies for reclaiming roads and other linear features, protecting headwater forests, and flood hazard zones. Learn more from the Bow River Basin Council's Watershed Simulation Model at www.brbc.ab.ca.



Beaver pond leveler being installed on Michichi Creek in Starland County

Priority mapping of the Oldman River basin shows areas that are most critical for land conservation, based on indicators of watershed significance. The Oldman Watershed Priority Mapping is online at www.salts.land/maps/.

A riparian assessment of Modeste Creek and its tributaries was developed for municipalities and landowners to inform land development decisions that improve the long-term resiliency of the North Saskatchewan River basin. Other assessments are being completed for Sturgeon and Strawberry watersheds. See the North Saskatchewan Watershed Alliance Resources at www.nswa.ab.ca.

The Bow, Elbow, Sheep and Highwood Rivers are part of the Riparian Disturbance Inventory identifying areas that could benefit from ecological restoration. To view the inventory, visit Trout Unlimited Canada's website at www.tucanada.org/bank-armour-riparian-disturbance-bow-river-basin/.

“Ecological Restoration is the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed. By looking at natural solutions to revegetation we can develop effective restoration systems.”

-David F. Polster



New tools help municipalities and landowners make decisions for improved resiliency to flood and drought.

Beaver dams are proven effective in stream restoration. Beaver co-existence tools help minimize conflicts with beavers, and maximize the benefits of the hydrologic functions of beaver activity. Learn from our experienced partners Miistakis Institute and Cows and Fish about beaver co-existence techniques at www.rockies.ca/beavers/index.php

Municipalities can prepare for successful responses to flood and drought starting with Miistakis' Municipal Flood and Drought Action Planning Primer. To find out how, go to: www.rockies.ca



Willow cuttings being planted by volunteers at Silvester Creek Restoration site



Academic partners increase our understanding of watershed functions.

Through Alberta’s Living Laboratory Project, the recovery rate of ecosystem functions is better understood in restored wetlands. Restored wetlands begin to resemble natural wetlands within 3 to 5 years and the rate of some wetland functions such as carbon sequestration peak at 20 years post-restoration, demonstrating that wetland restoration is a long-term mitigation strategy. Landowner reluctance to restoring wetlands is found to be a common obstacle in restoration efforts, but a reverse conservation auction has shown that financial incentive can be an important contributing factor to restoring previously drained wetlands. To find out more, visit Alberta Land Institute at: www.Restoreourwetlands.ca

The University of Calgary, with partners including the Bow River Basin Council and the Town of Okotoks, are testing the most effective combinations of plants and soil for water absorptive capacity in Alberta’s riparian areas. Visit www.okotoks.ca/sustainability/our-corporate-initiatives/living-soils-filtration-project for more information.

At the University of Lethbridge, the flow regimes of southern Alberta rivers are being observed to understand how they influence the regeneration of vegetation on the floodplain and how the management actions of dam operations could benefit riverine woodland development and create resiliency to flood and drought.



Stewardship efforts by WRRP partners create watershed resiliency.

Positive behaviour changes by the off-road vehicle recreation community have occurred in areas where bridges are provided over streams. Prompts such

as signs with messaging saying “Thank you for using the bridge”, have shown to encourage positive behaviour change.

Beneficial management practices have been implemented by hundreds of agricultural producers, by changing their operations to protect wetland areas, riparian soils and vegetation.

Digital stories capturing landowner testimonials have been recorded and shared on social media. For a showcase of land conservation stories from landowners who see firsthand the benefit of maintaining intact riparian and wetland areas with native watershed vegetation, see the work led by our partners Red Deer County [www.rdcountry.ca/207/Conservation, Cows and Fish](http://www.rdcountry.ca/207/Conservation,CowsandFish) www.cowsandfish.org, and Ducks Unlimited Canada www.ducks.ca/places/alberta.

Naturalized stormwater retention areas have been created to replicate natural wetlands, to capture excess stormwater runoff in urban and rural areas. Taber Irrigation District and the Alberta Birds of Prey Centre are establishing constructed wetlands on their lands.



Photo: Milk River Watershed Council Canada

Sprouting willow cuttings planted in the Milk River basin will grow to be a shrub in a few years, creating habitat and a streambank more resilient to flood and drought.



Photo: Milk River Watershed Council Canada

Healthy riparian area one year after willow cuttings sprouted in the ground.

CONTINUING through to March 2021...

A Municipal Toolkit aligned with the Stepping Back from the Water guidebook (<https://open.alberta.ca/publications/9781460100592>) is being developed to help municipalities establish their own policies, bylaws and setback distances around riparian areas.

Work with Alberta's conservation organizations to empower riparian landowners with tools and knowledge about permanent land conservation opportunities. These organizations include Western Sky Land Trust, Southern Alberta Land Trust, Legacy Land Trust, Foothills Land Trust, Nature Conservancy of Canada, Miistakis Institute, and others.

Functional and attractive, rain gardens are being created on urban lots to capture rooftop runoff and minimize street flooding. A guide for building a rain garden in



Photo: Alberta Low Impact Development Partnership

A rain garden is designed to help minimize urban flooding. See this short video on why rain gardens are beneficial in our communities. www.youtube.com/watch?v=3frkqNjScpk&feature=youtu.be

Alberta is being developed. To find out more, visit Alberta Low Impact Development Partnership at www.alidp.org.

Ranchers are protecting the important functions of riparian areas with off-stream watering systems to draw cattle away from water bodies, and in some cases, riparian fencing may not be required. Contact Cows and Fish for information and advice on beneficial practices for watershed resiliency (www.cowsandfish.org/contact.html).

Workshops in riparian restoration, soil bio-engineering, beaver co-existence tools, rain garden construction, and other beneficial management practices are being offered in municipalities all over the province. Contact WRRP for information about workshops supported in your area.



Photo: Milk River Watershed Council, Canada

Off-stream watering systems help remove cattle from watering in the stream and protect sensitive riparian plants and soil from being damaged.

Our Grant Partners



Academic Partners

University of Lethbridge, Dr. Stewart Rood; fRI Research, Dr. Axel Anderson; University of Alberta, Dr. Peter Boxall, Dr. Vic Adamowicz; University of Western Ontario, Dr. Irena Creed; University of Guelph, Dr. Wanhong Yang; Alberta Innovates, Dr. Marian Weber; University of Calgary, Dr. Jennifer He, Dr. Angus Chu and Anton Skorobogatov; Dr. Ryan MacDonald, Dr. Shari Clare, Dr. Hans Schreier, Gregory Lewallen, David Polster, Lisette Ross, as well as other post-doctorate, doctorate and Master's level students and others contributing to the development and delivery of resiliency projects.

Grant applications details and deadlines
Go to www.WRRP.Alberta.ca (Email: aep.wrrp@gov.ab.ca)

