FARMLAND
ADVANTAGE

IMPACT REPORT
2022/23

Farmland Advantage is a Payment for Ecosystem Services (PES) program that partners with farmers and ranchers in BC to protect and conserve critical lands, streams, and habitats.

IAF Investment Agriculture Foundation

THANK YOU

Farmland Advantage is an Investment Agriculture Foundation of BC (IAF) Program. Funding for the program during the 2022/2023 fiscal year came from BC Ministry of Agriculture and Food; the Healthy Watersheds Initiative, which is funded by the BC Ministry of Environment and Climate Change Strategy; the Province of British Columbia through the Ministry of Forests; Environment and Climate Change Canada; the Canadian Agricultural Partnership (CAP), a $3 billion five-year (2018-2023), investment by federal, provincial, and territorial (FPT) governments; Renewal Partners; and Kootenay Connect.

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Riparian restoration work on Vancouver Island

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ACRONYMS

AF	BC MINISTRY OF AGRICULTURE AND FOOD
ALR	AGRICULTURAL LAND RESERVE
BMP	BENEFICIAL MANAGEMENT PRACTICE
ECCC	ENVIRONMENT AND CLIMATE CHANGE CANADA
FLA	FARMLAND ADVANTAGE
Ha	HECTARES
IAF	INVESTMENT AGRICULTURE FOUNDATION OF BC
PES	PAYMENT FOR ECOSYSTEM SERVICES
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INTRODUCTION

THE 2022/23 YEAR WAS ONE OF GROWTH FOR IAF'S FARMLAND ADVANTAGE (FLA) PROGRAM. THIS REPORT PROVIDES A PROGRAM OVERVIEW, PRESENTS THE RESULTS ACHIEVED DURING THE 2022/23 FISCAL YEAR (APRIL 1ST, 2022, TO MARCH 31ST, 2023) AND PROVIDES AN OUTLOOK FOR FUTURE GROWTH.

FLA is a BC-based Payment for Ecosystem Services (PES) program that provides financial compensation to farmers and ranchers to protect and enhance ecosystem services, restore riparian areas, enhance native grassland ecosystems, protect Species at Risk (SAR), and contribute to wildfire risk reduction on lands under their stewardship.

FLA identifies sensitive ecosystems and high stewardship opportunity areas on agricultural lands and works with producers and Indigenous communities to restore, maintain, and enhance ecosystem services. Ecosystem services are the beneficial natural processes arising from healthy ecosystems, such as purification of water and air, pollination of plants, improvement to soil health, nutrient cycling, soil carbon sequestration, flood control, and climate regulation, among many others.

The success of FLA is based on new and established relationships with farmers and ranchers, Indigenous community partners, industry associations, non-profit organizations, academia, and local, regional, provincial, and federal governments.

The Farmland Advantage Program provides payment for ecosystem services to BC farmers to help protect the environment, mitigate the impacts of climate change, and increase public trust in agriculture.

FARMLAND ADVANTAGE GOAL:

BC farmers are celebrated and compensated for actively undertaking sustainable agricultural practices and stewardship activities that measure, maintain, and enhance ecosystem health over the long term.

Columbia River Wetlands near Golden, BC

3 FLA Site in near the Koksilah River

HISTORY

FARMLAND ADVANTAGE BEGAN IN 2008 AS A COMMUNITY-LED INITIATIVE WITH THE GOAL OF ESTABLISHING A PAYMENT FOR ECOSYSTEM SERVICES PROGRAM. IN 2020/21, IAF ADOPTED FARMLAND ADVANTAGE AS A PROGRAM AND CONTINUES TO MANAGE AND COORDINATE THE EXPANSION OF THE PROGRAM WITHIN BRITISH COLUMBIA.

2008 - 18

Farmland Advantage begins as a community-led initiative with a goal to establish a Payment for Ecosystem Services program. Fundamental work was done in these early years, including establishing the first network of participating farms.

2019/20

IAF becomes involved in the community-led initiative, working with Environment and Climate Change Canada to pilot the program in the dry grasslands of BC's interior. This pilot paved the way for IAF to utilize organizational expertise and resources to undertake a more expansive, province-wide approach to the Farmland Advantage Program.

2020/21

IAF officially brings on Farmland Advantage as an IAF program to expand its reach, focusing on grassland and riparian ecosystems. Funding is provided by the Species at Risk Partnerships on Agricultural Lands initiative and by the Healthy Watersheds Initiative.

2021/22

Following the program's success in it's first years, IAF begins to scale the program around grasslands and riparian areas. By the end of the year, there are 47 farms under contract, 14 hectares of riparian areas assessed, and 400 hectares of grasslands assessed.

IAF enters into a new pilot project with the BC Ministry of Forests, BC Wildfire Service to trial and demonstrate the impact of on-farm activities that reduce the fuel load for wildfires in the BC Interior, and therefore reduce risk of catastrophic wildfire risk to nearby communities.

2022/23

During the fiscal year, there are 76 farms under contract, 120 hectares of riparian areas assessed and 417 hectares of wildfire-risk areas assessed. Funding is provided by the BC Ministry of Agriculture and Food, BC Ministry of Water Land and Resource Stewardship Environment and Climate Change Canada and the BC Ministry of Forests.

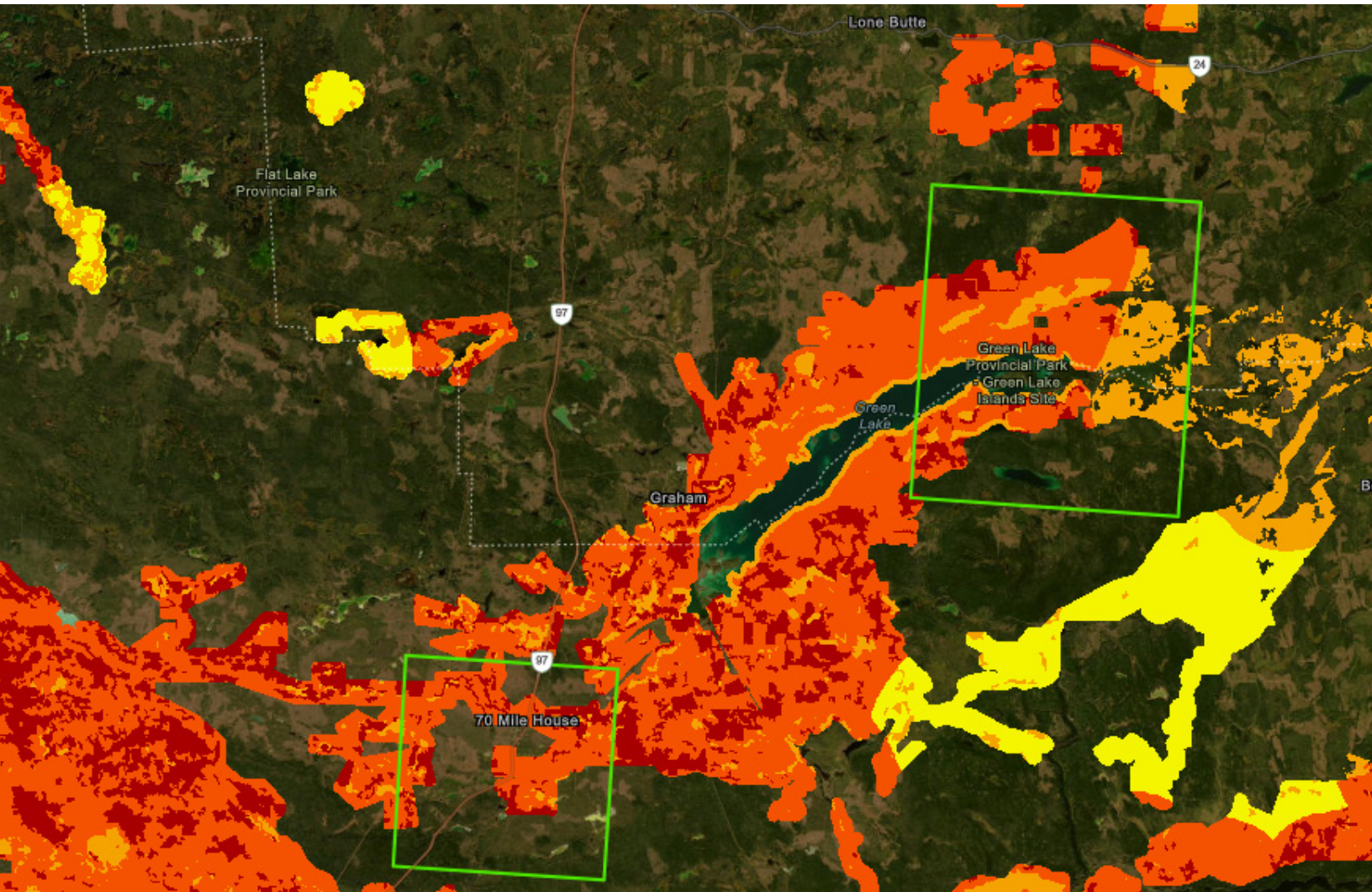
APPROACH

FLA USES AGILE AND ITERATIVE PROCESSES TO TARGET REGIONS, WATERSHEDS, AND SPECIFIC SITES; REVISE AND CONDUCT ECOSYSTEM HEALTH ASSESSMENTS; IMPLEMENT MEASURES FOR IMPROVEMENT; AND EVALUATE RESULTS.

One of the unique elements of FLA is its site selection methodology. FLA is not an application-based program; rather, sites are identified through GIS hot-spot analysis which stacks mapping layers on top of one another to identify hot-spots. Hot-spots have high opportunities for positively influencing ecosystem health on agricultural land. Subject matter experts were consulted to help determine appropriate mapping layers for each area of focus. The mapping will be updated annually as new data becomes available.

The map below shows potential areas of interest targeted at grassland restoration and conservation. Five mapping layers are used to identify the hot-spots on this map. The map's dark red "Very High" areas have all five layers overlapping. The lighter red and orange colours have a combination of the layers, but not all five. Lastly, the yellow areas on the map are grassland habitats in the ALR but have no other characteristics. The green boxes indicate areas where FLA currently has project sites.

Learn more about Farmland Advantage's Site Selection Methodology, and view the interactive maps at www.FarmlandAdvantage.ca/approach



PARTICIPATION

1. Farms/ranches are identified using rigorous mapping methodologies to target high-risk and high-opportunity farmland for enhancing ecosystem health.

2. Farmers are approached for participation in the program. If the farmer agrees to participate, a FLA Advisor will visit the site to conduct an initial ecosystem health assessment of the riparian, grassland, or other ecosystem under consideration.

3. The FLA Advisor will present potential ecosystem restoration and/or enhancement actions to the landowner through a proposed Management Plan and then prescribe Beneficial Management Practices (BMPs) to improve the targeted ecosystem services on the land.

4. If the farmer agrees to the BMPs prescribed by the FLA Advisor, the farmer will enter into a contract with IAF to implement the BMPs on their land and to maintain and monitor the BMPs into the future. Local, non-profit organizations and/or registered professional contractors may be involved in on-farm restoration work.

5. After the restoration work has been completed, the FLA Advisor will conduct annual site visits to monitor and evaluate the BMPs' efficacy and ensure that restored areas are being maintained per the farmer/rancher's contract with IAF. The FLA Advisor will conduct this assessment at least once a year over the contract's lifetime, which is typically active from one to five years.

6. The FLA Advisor reports back to IAF on the project outcomes. An annual payment is issued if the farmer/rancher has successfully met the actions outlined in the contract.

7. IAF shares the aggregate program outcomes and reports the findings to the funding agencies and the public.

AREAS OF FOCUS

Farmland Advantage targets agricultural lands within the Agricultural Land Reserve with sensitive riparian and grassland ecosystems. More recently, FLA has also begun targeting sites with the potential to mitigate wildfire risk under FLA's Wildfire Risk Reduction Pilot Project. Regions within BC targeted for 2022/23 were Vancouver Island, South Coast, Okanagan, Cariboo, Thompson-Okanagan-Nicola, and the Kootenays. As IAF expands the program, further research will be conducted into additional high-opportunity sites throughout BC.

RIPARIAN ECOSYSTEMS

Riparian areas link water to land. The riparian is the area surrounding lakes, streams, rivers, or other bodies of water. Collectively, rivers, streams, lakes, and wetlands provide habitat for at least 25% of BC's vertebrate, invertebrate, and vascular plant species[1].

Riparian areas provide crucial ecological functions such as habitat for species at risk, pollinators, and wildlife; water storage and flood control; and improved water quality for salmon and other fish species. In addition, native plants that grow in riparian areas usually have deep roots. These deep root masses help reduce erosion and maintain bank stability by holding the soil together. Reducing erosion means less sediment is transported into the water body, which helps keep fish spawning areas clear, reduces nutrients, and makes water treatment easier.

Much of BC's agricultural lands are adjacent to, and intersecting with, riparian areas of rivers, lakes, streams, and wetlands. Agricultural threats to riparian habitats include cropland expansion and development, livestock grazing, nutrient loading, and invasive plants.

GRASSLAND ECOSYSTEMS

Native grassland ecosystems are a declining habitat and the most endangered ecosystem in Canada[2]. More than 30% of BC's SAR depend on grasslands for survival, even though these habitats occupy just 1% of BC's total area[3].

Healthy grassland ecosystems provide ecosystem services such as increased biodiversity and habitats for SAR and other wildlife; forage for livestock and wildlife populations; soil retention and nutrient cycling; water capture, storage, and release; and carbon storage.

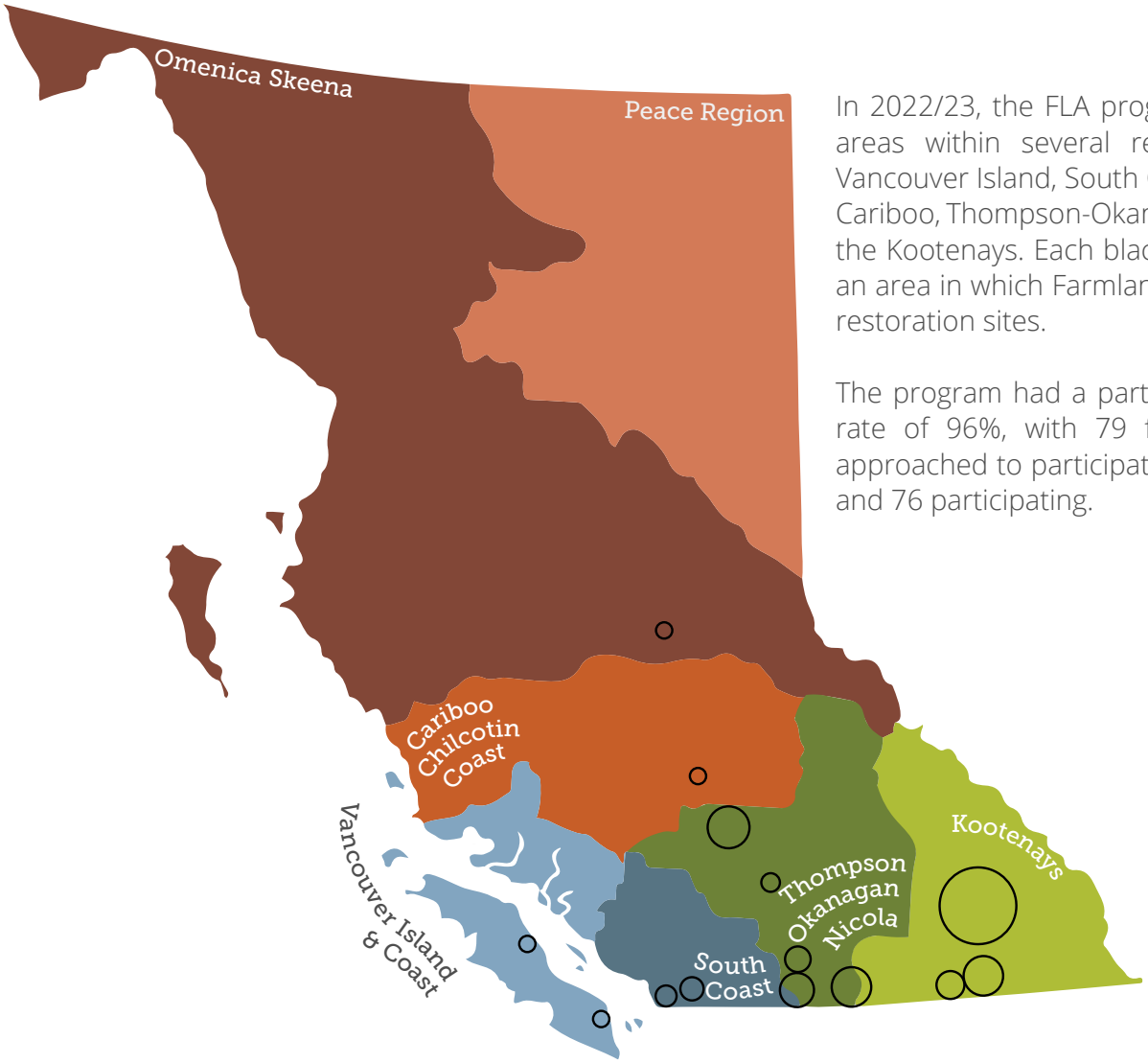
Threats to native grasslands include tree encroachment, urban development, cropland development, overgrazing, recreation activities, fire suppression and invasive plants. Farmers and Ranchers that steward agricultural land are vital to supporting grassland ecosystems.

WILDFIRE RISK REDUCTION

Many ecosystems in BC rely on natural fires to regenerate and thrive, but fire can also be devastating for communities when it is out of control. According to the Government of BC, the current 10-year average number of wildfires per year is 1,483, burning over 407, 373 hectares[4]. On average, 42% of those are human-caused, and 58% are caused by lightning.

Agricultural lands are often at the interface between human development and natural areas; therefore, reducing fire risk on these lands by treating and managing sections of private forests and grasslands may also reduce the risk or intensity of wildfires impacting nearby human population centres. Well-managed healthy grasslands have less forest in-growth and lower fine fuel levels, which can help reduce the risk of a catastrophic, high-intensity fire.

PROGRAM OUTCOMES



In 2022/23, the FLA program focused on areas within several regions, including Vancouver Island, South Coast, Okanagan, Cariboo, Thompson-Okanagan-Nicola, and the Kootenays. Each black circle indicates an area in which Farmland Advantage has restoration sites.

The program had a participation success rate of 96%, with 79 farmers/ranchers approached to participate in the program and 76 participating.

By the end of the 2022/23 fiscal year:

76	52	19	5
Farms under contract	Riparian BMPs	Grassland BMPs	Participating in the Wildfire Risk Reduction Pilot

PROGRAM OUTCOMES

Riparian Ecosystems

A total of 52 farms were contracted through Farmland Advantage (FLA) to restore, improve, and/or maintain riparian ecosystems in 2022/23. Of those contracts, 24 were for new sites. A riparian health assessment was completed for each farm, and a site prescription for restoration activities was created. Restoration activities occurring on the sites were coordinated by qualified restoration partner organizations. Restoration activities included removing invasive species, replanting native species, fencing out livestock, and stabilizing stream banks.

Invasive species, such as blackberries, reed canary grass, or Canada thistle, were removed. Generally, weeds are removed manually or by mowing. In a few instances, herbicide was used for Japanese Knotweed. Landscape fabric or coconut matting was recommended to control regrowth on invasives, along with farmer maintenance through manual or mowing management.

Beneficial species that were planted included spirea, red osier dogwood, cottonwood, western red cedar, willow, ninebark, big leaf maple, alder, black hawthorn, ponderosa pine, spruce, and others. When needed, beaver guarding was installed around new plantings to help secure the survival of young plants.

On some sites, additional restoration work took place, which included establishing livestock exclusion fencing to restrict livestock access to riparian areas and stabilizing stream banks.

Twenty-eight sites had their contracts extended from 2021/22 to ensure farmers/ranchers maintained the riparian restoration work done in the past. Maintenance actions include controlling invasive species that were removed, watering new planting, and maintaining and fixing fences. Some of these past sites required further restoration work to improve ecosystem health, which was completed in 2022/23.

The participating farms are in the following regions:

- Vancouver Island: Koksilah Watershed (6), Black Creek Watershed (5)
- South Coast: Bertrand Creek (10), Little Campbell River (5), Agassiz Slough (7)
- Kootenays: Upper Columbia River (11), Kettle River (6), Kootenay River (2)

192 ha
Total area beneficially impacted

11.2 ha
Riparian area restored

31,309 m
Shoreline restored/protected

7,780 m
Of new fencing installed

18
New fence gates

3,485 m²
Maintenance of previous years' restoration work

Site Highlight: Knott Farm

Ten farms in the Bertrand Creek watershed within the Township of Langley participated in the FLA program in 2022/23, three of which were new this fiscal year. Several returning sites had participated in restoration projects under the previous iteration of the FLA program (the Ecological Services Initiative). These producers continued to maintain and build upon the riparian restoration work on their properties to ensure the long-term benefits of healthy ecosystems.

Knott Farm was one of the returning sites and was contracted to continue maintenance on the restoration work completed in the 2021/22 program year. Previously, an FLA Advisor worked with the Knott's to form a restoration plan, which included several methods to improve the health of the riparian area. In February and March of 2022, the planned restoration work was undertaken with the Farmland Advantage program's financial support. The bank was stabilized with large rocks, native species were planted along the bank, beaver guards were installed around plantings, and a fence was installed to prevent the livestock from accessing the creek, which had led to faster bank erosion.

This year Knott Farm was contracted to maintain the work, including fence repairs, watering, and maintaining the new plantings.

PROGRAM OUTCOMES

Grassland Ecosystems

A total of 19 ranchers participated in grassland habitat enhancement and wildlife risk reduction projects in the Kootenays, South Okanagan, Thompson, and South Cariboo. Some of these ranchers also participated in previous years. Their ongoing participation in the FLA program allows for continued habitat enhancement and conservation for SAR and wildfire risk reduction. For most sites, restoration and maintenance work was producer-led and included fence installation and maintenance for targeted grazing, habitat restoration and protection for Species at Risk, and mitigation of wildfire risk. FLA's grassland sites overlap with SAR critical habitat and aim to positively benefit many species, including:

- American Badger
- Bobolink
- Lewis's Woodpecker
- Tiger Salamander
- Western Rattlesnake
- Lark Sparrow
- Spotted Bat
- Big Sagebrush/Bluebunch Wheatgrass plant community
- Antelope-brush/Needle & Thread Grass plant community
- Alkali Saltgrass
- And more!

1,039 ha

Total Area Beneficially Impacted

43 ha

Area benefited by wildfire risk reduction BMPs

460 m

Of new fencing installed

29,550 m

Of fencing maintained

42

Gates maintained

 FLA site near Greenwood, BC

Site Highlight: Frolek Cattle Company

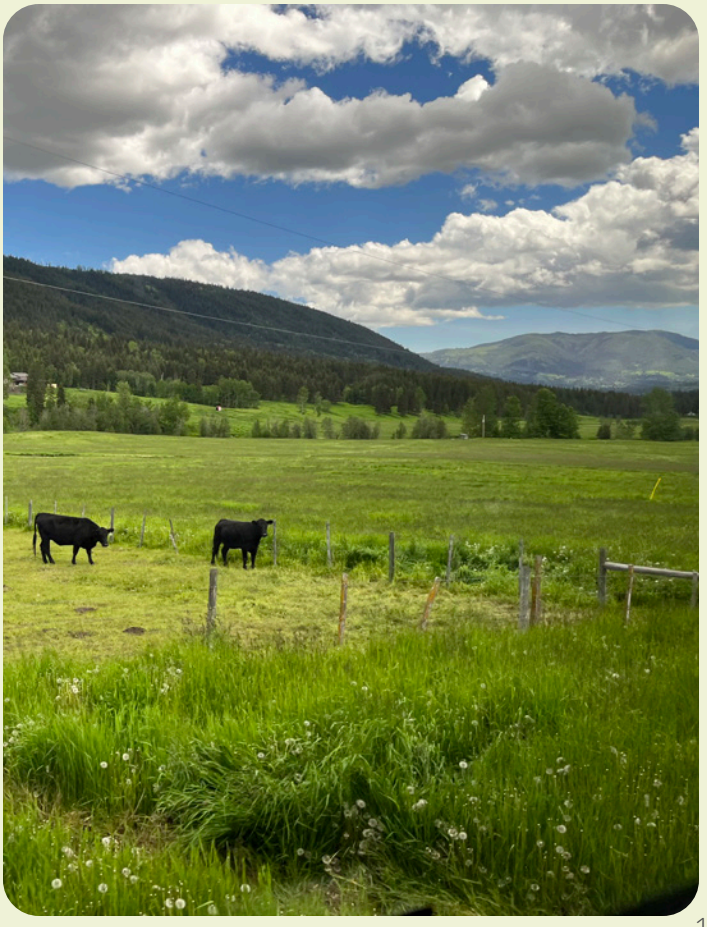
Frolek Cattle Company is undertaking an FLA project involving habitat protection, grazing management, and rangeland enhancements. Several restorative actions are taking place, including weed control and targeted and rotational grazing through fence maintenance and installation.

Invasive species can increase fire vulnerability, impact the health of native species, and diminish the grazing quality of the land. A spot-spray tactic is used to control weeds on the Frolek site, with occasional ATV use to contain knapweed and other noxious invaders.

Grazing herbivores improve grassland biodiversity, contribute to enhanced carbon sequestration, and reduce the fuel that fires use to burn. However, grazing in one area for too long can deplete the land and cause poor grassland health. Managing grazing is frequently done through two methods, targeted and rotational grazing. Targeted grazing is the practice of strategically placing cattle to reduce fuel load, which is an integral part of wildfire prevention. Rotational grazing is the practice of restricting cattle with fences and rotating them through different pastures. Rotational grazing gives the land a break to reap the benefits of being grazed, improving biodiversity and soil health.

On the Frolek site, a 1,800-meter cross fence is being constructed. This fence will split the pasture into two, allowing for better range management. Additional maintenance work is being done to existing fences as well. This action will improve the health of the pasture.

Learn more about the work being done on BC's Grasslands:
https://farmlandadvantage.ca/frolek-cattle-company/



PROGRAM OUTCOMES

Wildfire Risk Reduction

In 2022 five initial wildfire risk reduction sites matching the site selection criteria were chosen.

Site Selection Criteria includes:

- Farmland Advantage site selection criteria
- High or extreme threat rating
- Potential to support or complement nearby Crown land risk reduction activities
- Near a community (within the Wildland Urban Interface) or are near other assets (residences, structures, infrastructure)

Site assessments and prescriptions were completed at all five sites in Fall 2022 by a Registered Professional Forester for forest fuel reductions and a Farmland Advantage Advisor for targeted grazing for fine fuel reduction. The beneficial management practices for these pilot sites will be implemented in the coming year.

 FLA site near Kamloops

Indigenous Outreach and Partnerships

Since the program's early development, Indigenous collaboration and partnership have been at the program's foundation. In 2022/23, riparian and grassland projects continued to foster partnerships with First Nation communities

Several members of Cowichan Tribes worked with restoration partners in the Koksilah River watershed to complete restoration projects. In September 2022, IAF invited project partners to come together and celebrate the ongoing restoration work in the Koksilah River Watershed. Most projects took place along the Koksilah River, Xwulqw'selu Sta'lo', located south of Duncan in the Cowichan Region of Vancouver Island and lie within the traditional territories of Cowichan Tribes and Malahat Nation. Ken Elliot, a Cowichan Tribe Member and long-time salmon activist, spoke about the ways in which humans are hurting nature and thanked the participants on behalf of the salmon whose habitat they are helping to protect. A video from the event can be found on Farmland Advantage's website at this link: https://farmlandadvantage.ca/celebrating-restoration-work-in-the-koksilah-river-watershed/

Koksilah River, Xwulqw'selu Sta'lo' 14

OPPORTUNITIES

The past fiscal year saw Farmland Advantage grow and expand into new areas. Several identified opportunities and key lessons learned throughout 2022/23, and will inform the continued development of the FLA program.

Key opportunities and lessons in 2022/23 included:

1. **DEVELOPING NEW RELATIONSHIPS WITH RESTORATION ORGANIZATIONS IN EXPANDED GEOGRAPHIC REGIONS**
   Outreach to additional restoration organizations was conducted to share information about the program's needs.

2. **INCREASE IAF'S NETWORK OF SKILLED RESTORATION PARTNERS AND LABOUR, IN EXISTING AND NEW GEOGRAPHIC REGIONS, ENHANCING THE QUALITY AND EFFECTIVENESS OF FIELDWORK**
   Two new restoration partners were added to the program during the 2022/23 fiscal year.

3. **EFFICIENT AND EFFECTIVE PROJECT EXECUTION – EVEN IN INCLEMENT WEATHER**
   Coordinated restoration work and implementation between partners and Advisors, working with the weather and planning around predicted weather events. Advisors also exhibit flexibility when weather events arise unexpectedly.

 FLA site near Greenwood, BC

LOOKING AHEAD

The 2022/23 fiscal year was a success for Farmland Advantage. As we advance, IAF will continue to add new high-opportunity regions and sites for ecosystem restoration to the program, ensuring continued biodiversity and ecosystem health gains. The program will also continue supporting existing sites to maintain realized ecosystem gains.

Key objectives for growth in 2023/24 will include:

1. **COLLABORATION WITH PARTNERS**
   Continue to network in the sector to curate new partnerships and seek continued funding for the program within existing thematic areas and expand partnerships related to the wildfire risk-reduction pilot program, intending to launch an entire program in this thematic area in 2023/24.

2. **SITE TARGETING METHODOLOGY UPDATES AND BEST PRACTICES**
   Continue to update, adapt, and maintain the site selection methodology to include updates to the GIS hotspot mapping.

3. **PROJECT SELECTION AND DEMONSTRATING IMPACT**
   Continue to foster relationships with stakeholders and subject matter experts to implement sound monitoring and evaluation methodologies and ensure that program impacts are well documented and reported.

FLA site near Greenwood, BC

REFERENCES

1. Government of BC. Riparian areas. https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/agricultural-land-and-environment/water/riparian-areas#:~:text=Collectively%2C%20rivers%2C%20streams%2C%20lakes%2C%20and%20wetlands%20provide%20habitat,vegetation%20that%20surround%20wetlands%2C%20lakes%2C%20streams%2C%20and%20rivers

2. Iverson K. 2004. Grasslands of the Southern Interior. Ministry of Sustainable Resource Management, Ministry of Water, Land and Air Protection. Retrieved on March 22, 2021.

3. Grasslands Conservation Council of British Columbia. https://bcgrasslands.org/

4. Government of BC. Wildfire Averages. https://www2.gov.bc.ca/gov/content/safety/wildfire-status/about-bcws/wildfire-statistics/wildfire-averages

 Preparing for planting.

FINANCIAL SUMMARY

FUNDING SOURCE	2021/22	2022/23
Real Estate Foundation of BC/Watersheds BC	$ 600,000	
Columbia Wetlands Stewardship Contribution	$ 3,200	
Renewal Partners	$ 25,000	
Investment Agriculture Foundation of BC	$ 200,000	$ 140,998
Environment and Climate Change Canada	$ 134,600	$ 97,100
BC Ministry of Environment and Climate Change Strategy		$ 538,050
Priority Places		$ 45,000
BC Ministry of Agiculture and Food		$ 300,000
BC Wildfire Services		$ 156,950
TOTAL	$ 507,276	$ 615,150

COSTS	2021/22	2022/23
Riparian Sites	$ 686,131	$ 878,350
Grassland Sites	$ 231,994	$ 186,111
Wildfire Sites		$ 156,950
Direct Program Costs		$ 35,469
TOTAL	$ 507,276	$ 615,150