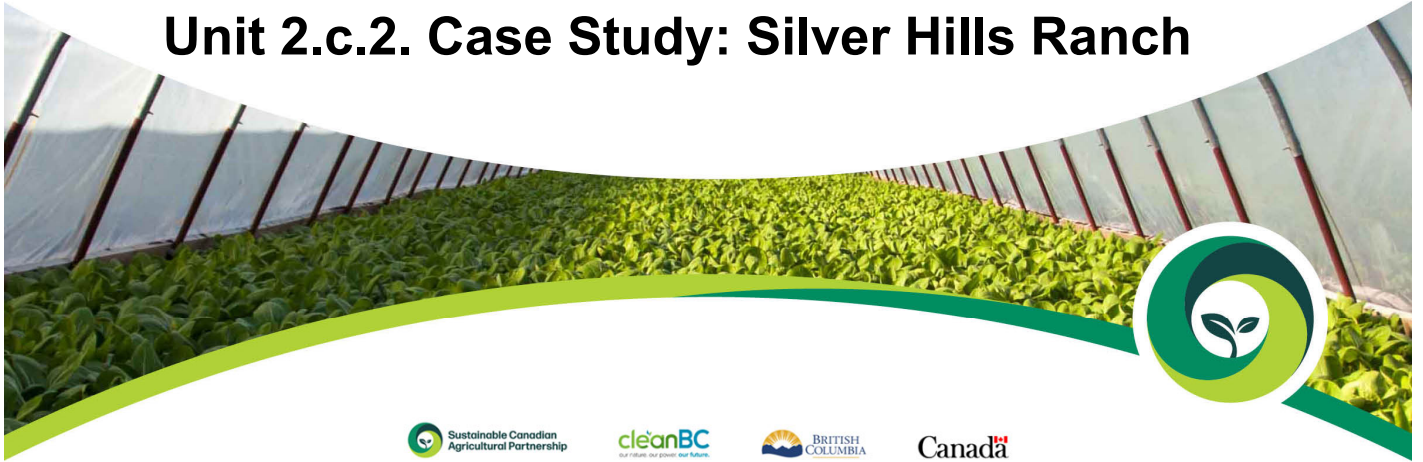


Sustainable Canadian Agricultural Partnership

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Silvopasture In British Columbia Information Series

Unit 2.c.2. Case Study: Silver Hills Ranch





Acknowledgment

This work has been funded by the Governments of Canada and British Columbia under the Sustainable Canadian Agricultural Partnership, a federal-provincial-territorial initiative.

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Insert local indigenous territorial acknowledgment.

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Silvopasture in BC Information Series Content Guide



Core Units	Case Studies	Supplemental Units
0. Series Overview		
1. Introduction		1.s. History of SP in BC
2. Science Behind SP	2.c.1 Production Synergies: Kootenay Tree Farms	2.s.1. Light & Microclimate
	2.c.2 Riparian Silvopasture: Silver Hills Ranch	2.s.2. Hydrology
3.1. SP BMPs - part 1	3.c.1 Small-lot SP: Just Another Weed Patch Farm	3.s. Managing Damage
3.2. SP BMPs - part 2	3.c.2 Mature Forest to SP: Indian Gardens Ranch	
4. SP Planning	4.c.1 Planning on Crown Land: SP Pilot Project	
	4.c.2 Adaptive Planning at Aveley Ranch	

This silvopasture case study is meant to reinforce information provided in the first two units of the Silvopasture in BC Information Series:

- An Introduction to silvopasture; and,
- The science behind designing and managing silvopastures.

Information in this case study also complements the advanced, supplemental unit on silvopasture hydrology

Unit 2.c.2. Case Study: Silver Hills Ranch

Goal

Gain a deeper understanding of silvopasture planning, implementation and management through British Columbia case studies.

Prerequisites

Units 1: Introduction and 2. Science Behind Silvopasture.

Content

Silvopasture for aquatic and riparian stewardship: Silver Hills Ranch.



In this unit we'll look at an example of silvopasture use in BC to gain a better understanding of the planning, implementation and management considerations.

Prior to commencing this module, you should have completed core units 1 and 2 in this information series.

This case study will cover silvopasture used as an aquatic and riparian habitat stewardship tool at Silver Hills Ranch.

Silvopasture For Stewardship

Silver Hills Ranch – A Multifunctional Ranch

- Generational ranch managing forest, grassland and riparian habitats.
- Balancing beef and timber production with conserving biodiversity.
- Lowering costs and improving efficiency by working with natural processes.



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Silver Hills Ranch is a 2,000 acre commercial cow-calf operation nestled in the foothills of the Monashee Mountains, 30 km east of Vernon, bordering on the Middle Shuswap River. The Silver Hills area is noted for its scenic beauty and natural diversity and hosts a range of sensitive fish and wildlife habitats in the forests, grasslands and riparian corridors that span the Ranch.

Like many of the farms and ranches across BC, Silver Hills is family owned and run. Purchased by Rod and Nonie Hesketh in 1962, the ranch remains in the Hesketh family, with their son Mark and his family managing operations today. Their son Lee also helps out and provides assistance addressing environmental and fisheries concerns.

The Hesketh's have made an ongoing commitment to environmental stewardship, and balance beef and timber production with conserving biodiversity.

And their overall management philosophy of working with the natural capacity and flows of the local ecosystems they manage, leads to lower costs and improved efficiency.

Silvopasture For Stewardship

Partnerships and Collaboration



Promoting cooperation and dialogue.

- Address concerns by encouraging sustainable practices in the agricultural sector
- Provide government, industry, First Nations and environmental groups with understanding of the ranching sector and its needs.
- Numerous awards and recognition.

Every farm and ranch is rooted in place by the biophysical setting within the local landscape. Farms and ranches are also an important element of the social fabric of rural BC.

Silver Hills Ranch understands the value of social connections in promoting cooperation and dialogue on agri-environmental issues, on and off the farm. It works from the position that before landowner rights, it has long-term responsibilities towards the environment by being temporary stewards of the land.

The ranch, and Lee Hesketh as manager of the BCCA Farmland Riparian Interface Stewardship Program, have taken a leadership role in encouraging other farms and ranches to adopt sustainable practices. Being a forum for dialogue and collaboration has also provided government, industry, First Nations and environmental groups with a better understanding of the ranching sector and its needs.

Because of its leadership role in partnerships and collaboration, Lee and Silver Hills Ranch have been honoured with numerous awards and recognitions, including being recipients of the Environmental Stewardship Award from the BC Cattlemen's Association.

Silvopasture For Stewardship

Ranch Habitats

- Grasslands
- Forests
- Riparian.
- River Frontage



Silvopastures Blend

- Tree cover and timber production;
- Forage production; and
- Environmental co-benefits.

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Silver Hills Ranch is a mosaic of habitats, including extensive grasslands, forests, riparian and aquatic edges along rivers, streams and wetlands.

Selecting appropriate management practices recognizes the unique structure and diversity of each of these zones. Silver Hills' philosophy of working with the natural capacity and flows of the local ecosystems they manage, leads to lower costs and improved efficiency while diversifying and increasing economic opportunities long term.

Silvopasture is one of the regenerative practices employed at the ranch because they help achieve their goals in blending tree cover for conservation purposes and also timber production, enhancing forage production, as well as generating many other environmental co-benefits.

Silvopasture For Stewardship

Riparian Zones

- 'Green zones' transition from aquatic to upland habitats.
- Well documented benefits for preventing erosion, filtering run-off, providing habitat.
- High quality, seasonal grazing opportunities.



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Riparian zones, or sometimes referred to as the 'green zone', are the transition from aquatic environments to the drier upland habitats. These areas receive seasonal flooding or have high-water tables that create incredibly productive and diverse habitats for ranching and supporting natural values.

Tree and shrub cover in the riparian zone has long been recognized for the important role these deeply rooted plants play in preventing soil erosion, slowing and filtering surface run-off and sustaining a wide array of wildlife by providing habitats, escape and travel corridors.

By retaining tree cover in a silvopasture configuration, Silver Hills Ranch is able to capture the conservation benefits of the trees while also producing high quality grazing opportunities.

Silvopasture For Stewardship

Riparian Zones

- Management is tailored to the unique habitat attributes.
- Summer use:
 - Avoid flooded areas and wet soils
 - Peak forage quality
 - Shade supports animal welfare
- Infrastructure investments benefit forage and biodiversity:
 - Corridor fencing
 - Off-stream stock watering.



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Management in the riparian zones is carried out with recognition of the environmental importance of these areas and is tailored to work with the natural seasonal changes, and maximize production benefits to the ranch.

Summer use of the riparian silvopastures avoids spring flooding and saturated soils, which are more vulnerable to compaction and erosion. It also delivers forage at peak quality relative to open, drier habitats and the shade provided by the trees is a measure of animal welfare for the Silver Hills cattle.

To ensure good animal distribution and avoid use outside of the desired summer use, corridor fencing has been installed. And to minimize the need for animals to enter surface water, off-stream stock watering has been developed.

Silvopasture For Stewardship

Upland forests



Silvopastures mimic the natural structure of fire-maintained forests.

- Blend timber and forage production.
- Reduced erosion potential.
- Role in good watershed stewardship.
- Lower wildfire risks.



Upland areas on the ranch also use silvopastures as means to blend timber and forage production, in a system that mimics the natural structure of fire-maintained ecosystems, with a savannah-like setting of grasslands and trees.

Thinned and pruned stands, together with strategic deployment of prescribed fires have cascading positive effects on ranching, efficiently blending timber and forage production, reducing soil erosion risks on steeper slopes, providing a role in capturing and holding precipitation on site, and reducing the risk of catastrophic wildfires.

The ranch focuses on harvesting wood that could or should be removed while improving the opportunities for grass and healthy young trees to grow back. This means not just marketing logs to mills but also firewood, house building logs, poles, cottonwood for chopsticks, cedar boughs, birch logs for wooden cutlery, rails, posts, shake blocks and debris wood for fish habitat.

Silvopasture For Stewardship

Enhancing Aquatic Habitat

- Proactive approach to sustaining fisheries
- Avoid direct impacts on the aquatic zone, and use supportive practices in upland and riparian habitats.
- Work closely with government agencies and conservation groups on habitat restoration and enhancement.



Habitat 'complexing' in river side-channel with coarse woody debris.

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The ranch has a 5 km interface along the Middle Shuswap River. These areas where fish habitat and agriculture meet can be a source of conflict in BC. But not at Silver Hills Ranch. It has taken a proactive approach to stewardship along their aquatic zone interface.

It does this by avoiding direct impacts on the river and connected stream channels through livestock and habitat management in the riparian and upland habitats. And, indeed, the ranch was the first Salmon-Safe certified farm in British Columbia.

The ranch, and Lee through his work in the Farmland Riparian Interface Stewardship Program also work closely with federal and provincial government agencies and conservation groups to facilitate habitat restoration and enhancement projects, such as this habitat complexing work in a side channel of the river, developed to help protect spawning and rearing areas for fish.

Silvopasture For Stewardship



Enhancing Aquatic Habitat

- Build good will and mutual understanding.
- Forest resources are raw materials for habitat restoration.



Bio-engineering river bank restoration.

Lee has built trust and good will with conservation interests across the province. And the connections from the ranch move beyond just aiding in education and logistical support.

Indeed, forest resources from the farm have been used as raw materials for habitat restoration in a process referred to as bioengineering. This is a step in returning degraded river banks to naturally functioning condition.

Silvopasture For Stewardship

Improved Economics



- Working with nature is often the low-cost option.
- Avoiding future problems by using sustainable practices avoids future expenses.
- Diverse ranch habitats provide returns in the face of unpredictable climate impacts.

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The use of silvopastures and other conservation-focused production measures on the ranch also make good economic sense.

Working with nature is often times the lowest cost option for establishing production zones. For example, retaining tree and shrub cover can reduce land clearing costs.

Working with the natural cycles and flows of the ranch setting also avoids future expenses by lowering the risk of damaging events. Flood damage, erosion and wildfire may all require rebuilding and repairing ranch infrastructure, plus the opportunity costs of foregone grazing during the recovery period. Lowering those risks, lowers the time, money and effort over the long term.

And climate change is making the importance of diverse production zones in ranching even more important. Silvopastures can help ranches adapt to the increased occurrence of severe weather, flooding, droughts and fire and the disruptions to forage and livestock production they bring. Having a variety of habitats to support Silver Hills' herd, means they have a measure of ranch insurance built into their production scheme against total loss in any given year.

Silvopasture For Stewardship

Some Key Lessons Learned

- Adapt silvopasture practice to the ecosystem and objectives.
- Have the right equipment and operators with proper instructions.
- Water availability for livestock is critical to a functioning silvopasture.
- Ensure grazing is adequate to achieve benefits without overgrazing.



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With a long management history using silvopasture, Silver Hills Ranch has found some keys to management success:

- Silvopasture must be tailored to the ecosystem and the objectives. Different ground requires different solutions so adaptive management is key. Knowledge and awareness is key to effective adaptive management. Working with nature and understanding consequences of actions goes a long way in making things successful.
- Having the right equipment with the right operators with proper instruction is key to having results you planned for as you fall a tree only once.
- Water availability for livestock is critical to a functioning silvopasture.
- A critical pillar for success of a silvopasture system is to ensure adequate grazing without over grazing. Silvopasture management systems can be more effective to achieve timber production than standard forestry systems largely through the suppression of brush and enhanced nutrient cycling.
- Make sure there is adequate coarse woody debris to protect new tree seedlings. The use of obstacle planting is also a valuable tool for riparian management considerations.

Questions and Discussion



Questions and discussion on the case study.