

# Farmland and Wildlife

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## Milestone for Hedgerow Stewardship Program

- Drew Bondar -

Delta Farmland & Wildlife Trust (DF&WT) planted its 26th hedgerow this past October. At 315 m long, this newest addition brings the total length of hedgerows planted by the Trust to just under 10 km. The hedgerow included 632 native trees and shrubs, which brings the total quantity of trees and shrubs planted through our Hedgerow Stewardship Program to over 13,400!

Hedgerows are linear rows of trees and shrubs typically located along field margins. There are many benefits to planting new and maintaining existing hedgerows.

Some specific examples of how biodiversity supports agriculture include crop pollination, pest control, disease regulation, soil fertility, nutrient cycling, and mitigation of soil erosion. Biodiversity can be seen as an insurance policy against abrupt changes and alterations to an agricultural system. The greater the biological diversity the more resilient the system.

There has been plenty of research globally that shows reductions in pest pressures and improved crop pollination when natural habitats are increased in an



DF&WT Stewardship Programs:  
Barley winter cover crop field (left), new hedgerow and grassland set-aside (right)

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Hedgerows provide year-round foraging, shelter and nesting habitat for a diversity of bird and insect species. Through four years of field studies conducted in partnership with the British Columbia Institute of Technology, we observed over 60 bird species utilizing hedgerows planted by DF&WT.

Preserving existing hedgerows and increasing the area of natural habitat has been identified as one of the largest contributors to improving biodiversity on farmland. Biodiversity and agriculture are inextricably linked where agriculture can contribute to the conservation of habitat.

agricultural landscape. Increases in natural habitats lead to increases in abundance and diversity of beneficial insects including ladybugs, parasitoid wasps and native bees. To understand how natural habitats such as hedgerows impact invertebrate communities, DF&WT is beginning a multi-year study with the University of British Columbia to assess the effect of grass margins, grassland set-asides and hedgerows on both beneficial and pest insect populations (more on page 3).

Please get in touch with DF&WT if you're interested in planting a hedgerow or would like more information.





**UBC Students conducting soil samples for the IAF Grassland Set-aside Project**

## **Investment Agriculture Foundation Grassland Set-aside Project**

*- Drew Bondar -*

Grassland Set-asides (GLSA) are one of DF&WT's core stewardship programs where over 13,100 acres (roughly 1.5 x the size of Burns Bog) have been established and maintained since the mid-90s. \$3.6 million have been disbursed in cost-share payments to support the program and the many benefits these fields provide for species-at-risk and soil health. In order to better understand the impact that set-asides have on enhancing soil quality, University of British Columbia (UBC) students have been busy sampling the soils of GLSA across Delta and Richmond over the past four years. Five masters students and over thirty undergraduate students have participated in the study.

The project is being conducted in partnership with the UBC and includes an examination of the effects of short (2 year) to medium (4 year) term recurrent set-asides on various soil properties. Federal funding for the project is being delivered by the Investment Agriculture Foundation of BC. Three of the masters' students have completed their theses. One paper (entitled "Short-term effects of grassland set-asides on soil properties in the Fraser River delta of British Columbia") has been published in the Canadian Journal of Soil Science (<https://doi.org/10.1139/cjss-2018-0097>). A second paper is currently under review by the Soil Research Journal and is expected to be published in early 2020.

Results thus far have been very encouraging and support the benefit of DF&WT's GLSA Stewardship Program on soil health. Improvements in various soil structural properties including bulk density, aggregate stability and aeration porosity have been identified after three seasons of GLSA establishment. Bulk density is a measure of the dry weight of soil divided by its volume. Higher bulk densities tend to be associated with soil compaction and low soil porosity. Soils with a lower bulk density have a higher volume of

pore spaces which are essential for water infiltration, root growth, aeration and plant nutrient availability. Aggregate stability is a measure of a soil's ability to resist disintegration when exposed to external forces including cultivation and water. Poor aggregate stability can result in creating soil surface crusts, which cause water ponding. In a region that sees as much precipitation as we do, it's important that soils maintain optimal aggregate stability to decrease water ponding and improve field access in the spring for planting.

In regards to the impact of GLSA on plant available nitrogen (PAN) and subsequent crop yields after incorporating a set-aside, results were mixed. PAN is a measure of the amount of nitrogen available for plant uptake in the form of nitrate and ammonium. Results found that GLSA did not increase PAN, but did have the potential to reduce nutrient loss post-harvest. Although yields increased for beans following a 2-year-old set-aside, potato yields did not change as a result of 2 or 3-year-old set-asides. The study is coming to its conclusion with a final report on the results to be completed in the spring of 2020.

Partnerships with local post-secondary institutions, such as UBC, continue to remain a critical component of the ongoing success of DF&WT. This study is one of many that have been conducted to assess the benefits of planting a set-aside and continues to support the value this practice provides for maintaining long-term soil health. After 25 years of the cost-share rate for the program remaining the same, DF&WT has approved an increase in the rate to \$400/acre in order to ensure that this program remains a viable option for vegetable growers to include in their crop rotations for the years ahead.

**Canada**



## New Research Project on Beneficial Insects

- Drew Bondar -

Delta Farmland & Wildlife Trust (DF&WT) was excited to secure another grant from Investment Agriculture Foundation in the fall of 2019. In partnership with the University of British Columbia we will be undertaking a multi-year research project assessing invertebrate diversity in various types of DF&WT supported stewardship programs including grassland set-asides, grass margins and hedgerows. The goal of the project is to evaluate how these farm management techniques affect insect biodiversity, influence positive and negative effects of insects on crops in the region, and how they affect farmers' production and profitability. Current research is finding that enhancing portions of farmland by preserving or restoring semi-natural/natural habitat can result in higher crop yields due to increased pollination and improved pest management through biological controls. They can also reduce input costs and thus result in higher profitability. This project will contribute to providing growers with the necessary information to make informed decisions regarding restoring portions of their farmland with natural habitat. Site selection will begin over the next couple months followed by invertebrate biodiversity surveys beginning in the spring of 2020.



**Hedgerow planting at West Coast Seeds in October**  
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## Computer Animator Turned Field Technician

- Brooklyn Hillman -

My name is Brooklyn, and I am Delta Farmland & Wildlife Trust's (DF&WT) Field Technician this winter. If you had told me ten years ago that I would be stomping around a muddy field studying species at risk, I would have called you crazy. I studied interactive arts and technology at Simon Fraser University (SFU) with the goal of being an animator for Pixar. However, I soon discovered sitting behind a computer screen staring at pixels long into the night wasn't for me. I left the world of technology and enrolled in the Fish, Wildlife, and Recreation program at British Columbia Institute of Technology (BCIT). Now, just months after graduation, I'm working my dream job at DF&WT.

Every day is different out in the fields. I am particularly excited about our new species at risk monitoring program in Grassland Set-asides. These fields support abundant populations of Townsend's Voles, which are an important food source for Great Blue Herons, Northern Harriers, Short-eared Owls, and Barn Owls. Every week I spend an hour watching the sun rise or set over a picturesque set-aside field and counting any owls I see. So far I have seen three Short-eared Owls and a Barn Owl, which shows how useful these fields are to the owls' winter foraging. I also enjoy walking through the grasslands during the day to count herons, though I have certainly been startled more than once when they burst out of the ditch with a dinosaur-

like screech!

Another part of my job is monitoring waterfowl grazing on agricultural land. Driving through Delta and Richmond each week, I get to see all the beauty that our farmlands have to offer. While counting the migrating geese and ducks foraging in agricultural fields, I have also seen dozens of hawks, harriers, and even a Peregrine Falcon hunting a sparrow. The green cover crop fields are a welcome reassurance that winter won't last forever. We are lucky to be surrounded by nature, even on the coldest and wettest of days.

By now you may have guessed that I enjoy bird watching, but I am also thrilled to be working for an organization that I can be proud of. In a world that too often divides us into black and white issues, DF&WT is working to unite wildlife conservation with local farming. I have been able to speak with many of the landowners and farmers during my time in the field, and everyone has been friendly and passionate. I love hearing about the farms, as well as the people and animals that call them home.

Whether it's getting up before dawn to look for owls or pulling out the measuring tape to monitor foraging of cover crops, every day is an adventure with DF&WT.



## 2019 Day at the Farm - A Community Volunteer's Perspective

- Mackenzie Bentley -

On September 7th, 2019 Westham Island Herb Farm welcomed myself and roughly 4,500 other people onto their farm to celebrate local agriculture and showcase various elements of farmland and wildlife in Delta and neighboring communities. Day at the Farm is an annual event hosted by the Delta Farmland and Wildlife Trust (DF&WT/the Trust) to bring together a variety of communities in a way that informs the public about the importance of agriculture and the non-market environmental services that it produces. By creating a family-friendly atmosphere and including educational activities for all ages, Day at the Farm is an extension of Delta hospitality and the collective goal to educate the community.



Day at the Farm - Hay Wagon Tour

I became involved with DF&WT through a community-service based class offered by Kwantlen Polytechnic University (KPU). The class promotes a deeper level of understanding of one's neighborhood through experience working with a non-profit organization. Through consistent, critical reflection and hands-on experience, volunteers such as myself are able to explore society through civic engagement by integrating relevant and meaningful service work into an academic agenda. The

### Delta Farmland & Wildlife Trust

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Trust uses the strengths of the community to create a symbiotic relationship with society and nature, wherein the support and protection of farmland and wildlife benefit the community as a whole.

I chose to volunteer at DF&WT because I am a somewhat new resident to Tsawwassen and realize that I have very little idea about what is happening in my own backyard! Through engaging with DF&WT, I have learnt the value of conservation: it is more than just "keeping something going," it is about protecting the ecosystem and realizing that what is important is generating ways to preserve the earth for future generations. DF&WT has taught me how to be a forward thinker and how to actively participate in my community to ensure that everyone is able to live a sustainable life. As a volunteer for DF&WT, I can proudly say that I am now a better-informed consumer, a deeper more critical thinker, and an advocate for wildlife preservation and sustainable farming!

### Wildlife Tidbits by John Hatfield

If you want to attract cheap insect exterminators you will need the following items: a building with an overhanging roof and a nearby source of mud. The sides of the building should be clear of trees and shrubs. This is ideal nesting habitat for both barn and cliff swallows.



### Thank you to our 2019/20 Stewardship Program Supporters!

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