Mapping Nova Scotia's Seed Collections Systems

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EXECUTIVE SUMMARY

The seed collections system in Nova Scotia includes people from a wide variety of backgrounds and skill-sets working toward a similar goal – seed conservation as an important element of seed security. Data from nine interviews with individuals prominently involved with the seed network in Nova Scotia provide insights into the roles of various seed organizations including seed libraries, seed banks, gene banks, and seed companies. The project explores various aspects of their form and function, including their audiences, purposes, and their interactions, and barriers to interactions with each other.

The current local seed movement is attributed to growing interest in and availability of local food, and is explored here as both a result of, and a new driving force behind the local food and food security movements. Interaction between various seed organizations is limited but mutually supportive. Project findings also provide insights about future directions of seed initiatives in the province, indicating that a greater number of geographically dispersed small seed libraries is highly desirable.

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Project Background

Seed security is defined by the Food and Agriculture Organization of the United Nations (FAO) as

> …ready access by rural households, particularly farmers and farming communities, to adequate quantities of quality seed and planting materials of crop varieties, adapted to their agro-ecological conditions and socioeconomic needs, at planting time, under normal and abnormal weather conditions.[1]

Jane Rabinowicz, National Program Director of The Bauta Family Initiative on Canadian Seed Security (BFICSS) provides additional context to seed security in Canada, in saying:

> Seed security is a resilient seed system. It has biodiversity; varieties of crops that are adapted to the local environment; varieties that are bred by farmers; farmers that have the right to grow, save, exchange and sell their varieties; and it's ever evolving. You've got the production system, the environment, and the seed, all evolving in a continuous process and you've got varieties that are productive in organic farming systems. Fundamentally, seed security is having enough seeds, of enough varieties, to know that we have the genetic materials to draw on as conditions change in the field over time. This is especially important when we think about climate change. We think of biodiversity as a climate adaptation strategy.[2]

As seed saving in Atlantic Canada has gained momentum, so have seed conservation efforts, reinforcing the idea that preservation of genetic materials is key to achieving seed security. The seed saving network in the region is vast and many of those involved in either professional or hobby seed saving also lend their time to projects aimed at seed conservation and seed security.

This project provides an overview of the seed conservation network in Nova Scotia, focusing on the collections and organizations that promote it, including seed banks, libraries, companies and educational groups, and the relationships between these entities. Although the project pays particular attention to Nova Scotia, which is home to the only seed bank in Atlantic Canada, the very nature of the work makes it impossible to do so

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[1] See http://www.fao.org/agriculture/crops/thematic-sitemap/theme/seeds-pgr/seed-sys/security/en/

[2] See USC Canada (2016). *What is seed security, anyway? Ask Jane Rabinowicz.* Online at http://usc-canada.org/resources/news/item/433-what-is-seed-security-anyway-ask-jane-rabinowicz/433-what-is-seed-security-anyway-ask-jane-rabinowicz

without thinking of the greater Atlantic Canada context. Seed saving efforts in the Atlantic region are carried out by a relatively small and geographically disparate community. Despite this, it is a tightly-knit and highly cooperative community whose efforts are characterized by cross-border, regional (rather than strictly provincial) initiatives and collaborations.

This project was the result of collaboration between Dalhousie University, Carleton University, and the Atlantic Canadian Organic Regional Network (ACORN) via BFICSS. It was funded by the Social Sciences and Humanities Research Council through the *Food: Locally Embedded, Globally Engaged* (FLEdGE) partnership and contributes to the partnership's work on local, sustainable food systems (see fledgeresearch.ca for more information). This project complements the project previously completed by Norma Jean Worden-Rogers[3] , and a study currently being done by Shelby Jamieson (forthcoming).

Seed Organizations

Concern about seeds, where they come from, and how to ensure they are still available in years to come has increased in recent years in Nova Scotia. The establishment of the Atlantic Canada Regional Seed Bank, located on the Dalhousie Agricultural Campus in Truro, is an example of this concern driving action. The seed bank opened in 2014 and is the first of its kind in Atlantic Canada. Currently, over 50 different varieties of seed are held in the seed bank, protecting the genetic resources for the future. The seeds maintained in the seed bank must be replenished every so often to ensure they remain viable. This is often done by outsourcing to local seed savers to grow the crops and return the seed they collect.

The addition of the seed bank to the seedscape of the region, as this report will show, has highlighted confusion regarding the terminology associated with seed saving and conservation. Seed banks, seed libraries, seed companies and gene banks all have specific roles to play in seed awareness and preservation, yet can be easily confused with one another.

Seed banks (and gene banks) are locations where plant material is placed in short- and long-term storage and are intended to preserve the genetics of the species or variety. Teresa Molen, technician at the federally-run Canadian Potato Genetic Resources located at the Fredericton Research and Development Centre in Fredericton NB, explains there is at times confusion between gene banks and seed banks: "It depends on what you use the term

[3] See Worden-Rogers, N.J. (2015). *Seed Saving in Atlantic Canada – A Case Study*. Waterloo, ON: Nourishing Communities. Online at http://nourishingontario.ca/the-social-economy-of-food/seed-saving-in-atlantic-canada/

seed to define, some people think strictly seed, while others may count seed potatoes." A "seed" bank may contain seeds whereas a gene bank may preserve seeds as well as other plant material such as in vitro plantlets (tissue culture) and tubers. Though gene banks may contain various plant materials, for the purpose of genetic diversity preservation, they serve virtually the same purpose as seed banks. Bob Wildfong, Executive Director of Seeds of Diversity Canada (SODC) noted that gene banks are often organizations funded and sustained by the Canadian Federal Government instead of those being hosted by research institutions or non-profit institutions. Seed banks and gene banks tend to have a variety of small quantities of seed from species that are less commercially available or may be at risk of being lost.

Seed libraries are places focused on seed education and awareness where anyone can "borrow" small quantities of seeds, grow them out and return them to the library if they are successful.

Local (or "regional") seed companies are commercial entities that provide larger quantities of seed that is, predominantly, grown in the region. In contrast to agricultural corporations that are also in the seed business, local seed companies typically provide varieties of seed that are non-hybridized and locally and sustainably grown. These companies may sell seed they grow themselves, contract from local growers, or a combination of this alongside seed sourced further afield to fill out a catalogue. Bob Wildfong commented that Atlantic Canada is unique in treating many local heirlooms as commercial varieties, thus ensuring those varieties are continuously propagated.

Finally, there are numerous other organizations in the region, taking a wide variety of forms, that provide community seed education and often offer workshops and other activities to promote seed saving and preservation, but do not necessarily keep seed collections for commercial or non-commercial purposes.

All of these organizations can be found scattered throughout Nova Scotia as well as the rest of Atlantic Canada, and with the exception of the latter group, are listed in Table 1. The variety of organizations that host seed education and awareness components is vast and including them all here is beyond the scope of the project.

Table 1: Distribution

	Seed Bank / Gene Bank	Seed Libraries	Seed companies
New Brunswick	1[4]	8	1
Newfoundland and Labrador	0	1	3
Nova Scotia	1[5]	5	7
Prince Edward Island	0	3	2
Total	**2**	**17**	**13**

Approach

This project entailed an environmental scan (preliminary assessment of seed-related activities in the province), work with the Dalhousie University's seed bank in Truro, Nova Scotia, and interviews with those who are active in seed saving and preservation work in the region. Kathleen Glasgow (first author on this report) sought guidance from Stephanie Hughes, Regional Coordinator (for Atlantic Canada) for BFICSS to identify and scan the existing seed related resources, as well as to gauge the prevalence and types of seed organizations in the region.[6] During the recruitment phase, individuals were selected for interviews based on information gleaned from the environmental scan, and in consultation with Irena Knezevic (FLEdGE/Carleton University) and Stephanie Hughes. Twelve individuals were contacted electronically and invited to participate in the research. During the summer of 2016 interviews were conducted with nine individuals, each representing one of the various groups within the Nova Scotia seedscape. These groups were: seed banks or gene banks (two participants), seed companies (two participants), seed libraries (two participants) and seed educators (three participants). The nine individuals who agreed to participate were interviewed in person (two interviews) or by phone (seven interviews)[7].

[4] The Canadian Potato Genetic Resources in Fredericton, New Brunswick has a national mandate and more than a regional organization

[5] The Atlantic Canada Regional Seed Bank serves all of Atlantic Canada

[6] During the summer of 2016 Kathleen Glasgow, the first author on this report, also participated in a grow-out project for the seed bank, under the supervision of Dr. Nancy McLean, in order to gain a deeper understanding of seed saving and preservation and to become more familiar with the regional seed network.

[7] Ethics clearance for the project was secured on June 2, 2016 from the Carleton University Research Ethics Board.

The participants all play a role in Atlantic Canada's seed network. Seven participants were from Nova Scotia, and worked on regional issues beyond provincial boundaries, and two participants were from Fredericton, NB and Waterloo, ON but are involved in the Atlantic regional seed network through national initiatives (see table 2).

The questions asked in the semi-structured interviews were formulated to explore how each of these individuals understood their role in the seed system, as well of the roles of the other groups investigated, the kinds of interactions that take place among these groups, barriers to their work, and how the seed security within the region could be advanced in the future. The questions can be found in Appendix 1. Each interview took between 30 and 60 minutes. All interviewees agreed to be identified in this report. The interviews were audio-recorded and handwritten notes were taken afterward, based on those recordings and the researcher's observations. This data set was then analyzed for themes that aligned with the research questions (roles, interactions, barriers, and future of seed security).

Table 2: Participants

Organizational Type	Name	Representing	Location
Seed Bank	Nancy McLean	Atlantic Canada's Regional Seed Bank	Truro, NS
Gene Bank	Teresa Molen	Canadian Potato Genetic Resources	Fredericton, NB
Seed Company	Silvana Castillo	LaFinquita Seed Company	Wallace, NS
	Ashlea Viola	Hope Seeds	Annapolis Royal, NS
Seed Library	Jolene Reid	Seeding Ideas	Truro, NS
	Chris Sanford	South Shore Seed Library	Bridgewater, NS
Seed Educator	Su Morin	Herself- Educator and Activist	River Hebert, NS
	Michelle Smith	Herself- Educator and Activist	Whycocomagh, NS
	Bob Wildfong[8]	Seeds of Diversity Canada	Waterloo, ON

Summary of Key Trends

To contextualize the interview questions, each participant was asked if and why they thought the popularity of seed saving and seed conservation in Atlantic Canada has seen an increase in recent years. All participants agreed that this was the case and some of the explanations mentioned repeatedly are included below.

[8] Bob Wildfong is also responsible for the SODC's national seed collection in Waterloo, ON

- The expansion of the food movement and food literacy activities has stimulated the expansion of seed activities.
- The growing importance of eating local food and supporting local farmers has been in the spotlight in recent years, increasing the interest in where that local food comes from.
- There has been a growth in organized support, both financial and otherwise, for seed activities.

As Chris Sanford, a seed grower and member of the South Shore Seed Library noted:

> My own interest in saving seeds was sparked by the role seeds play in a sustainable system, and there's been an interest in local food for a long time. The issue of food security has come up, and the seeds are kind of like the missing link. You can grow all your own food but if your seeds are coming from somewhere you don't even know where, they might be grown in Israel, they might be grown in South America, that's kind of a link in the food security chain that's slowly become in the public awareness. And with the interest in local food, there is a growing interest in local seeds as well. That movement is already in the works in NS.

Similarly, Michelle Smith, a seed educator and Seeds of Diversity Canada board member explained:

> It has become a 'party piece' of the food movement in terms of public awareness. Part of that was because of Monsanto [concerns regarding corporate overtake of seed resources] and the [establishment of the Truro] seed bank etc. – there was a whole lot of hype in the media. When people become concerned with [genetically modified seeds], then seed saving becomes part of the conversation. This is an opportunity for people that have been doing this since before it became cool to enter the discussion and say 'you're right it is a topic of concern, here is the real reason why'.

Bob Wildfong also drew the parallel between seeds and other food-related activities:

> Every movement with food has an analogous movement with seed; people started talking about food security, then 5 years later began to talk about seed security. Local food movements lead to the local seed movements.

The other important factor credited with the growing momentum of local seeds is the growing organized support, in form of grants and infrastructure support focused on seeds.

Examples of these are The Bauta Family Initiative on Canadian Seed Security (BFICSS), Seeds of Diversity Canada (SODC) and Atlantic Canada Organic Regional Network (ACORN). All of these organizations have provided financial support or organizational support to seed programs in recent years.

> The momentum of local seeds is supported by the growing organized support, in form of grants and infrastructure.

Jolene Reid, coordinator of Seeding Ideas, the Truro NS seed library, believes the increasing interest in the seed library and growing your own food is intensified by multiple factors:

> Climate constraints in addition to a rural area limiting the availability of food, as well as the increasing cost of food are thought to lead to an interest [among] non-farming folks [in growing] their own food. It's a perfect storm where food isn't as accessible as it was, our knowledge of food isn't as strong as it was, and our skillsets for producing our own food aren't quite the same.

Major Roles of Seed Organizations

How exactly seed banks, gene banks, seed libraries and local seed companies fit together in order to contribute to sustainable seed system in Nova Scotia is not easy to map. One significant trend that emerged during the interviews with respect to the roles of seed entities was that seed libraries in particular have come into prominence because of the important role they play in the regional seedscape.

> Seed libraries address the need for outreach, education and seed community building.

Six of the nine participants stated that seed libraries address the need for outreach, education and seed community building. Seed libraries are a fairly recent development in Atlantic Canada—many having begun within the last five years—and their arrival has been met with some skepticism from those in the seed world. Several participants expressed doubt as to the ability of seed library members to return seed of the same quality they borrowed. However, upon further probing, they conceded that the main function of seed libraries is education and awareness regarding seeds. This indicates the concerns surrounding the quality of the seed returned to libraries may be misplaced, as the purpose of the library is more about knowledge than about propagating high quality seeds. Bob Wildfong explained that seed libraries have a way of bringing together individuals already interested in seeds and connecting them with those who are just being introduced to the world of gardening and seed saving. Before anyone can come to have a major role in saving

seeds of valuable and rare plants, they first have to be introduced to seed saving and gain the knowledge to do it properly; therefore although seed libraries may not have a marked impact on seed security in Atlantic Canada, they certainly are still contributing to seed literacy which in the long term is an important component of seed security. "A *lot* of education, that's probably our biggest part" noted Jolene Reid.

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Similarly, Su Morin, a seed educator explained:

> [In the seed library] it doesn't matter all that much if the seeds you've grown out in your kitchen garden got cross-pollinated and turn out to be yellow instead of green beans, but in the seed bank it would matter a whole lot. Seed bank seeds need to be saved by knowledgeable growers and have the proper isolation distances and such, to ensure high quality seed. *The seed library is about access for backyard gardeners and community gardeners to experiment and learn. It still plays a conserving function by keeping interest alive in local seeds.* (emphasis added)

Interaction

The interaction among the seed groups was of particular interest to this project. Interactions depend on communication, and conventional wisdom would suggest that the greater levels of communication would lead to more productive interactions among these groups and thus would benefit the efforts directed at creating a more stable and sustainable seed system. The findings from the interviews, however, suggest that communication could be improved in some areas, but that these organizations did not necessarily need to be intimately linked in all of their operations. Selective, purposeful communication and interactions seemed preferred by the participants. The strongest interactions found were between the seed libraries and seed companies, and amongst organizations of the same type, for example between seed libraries.

Seed libraries and seed companies tend to have excellent and mutually beneficial relationships.

Seed libraries and seed companies tend to have excellent and mutually beneficial relationships. The seed libraries source their seed from seed companies first either by donation or purchase and

then teach and encourage people to enjoy growing seeds. Seed libraries then direct these people back to local seed companies when they begin to reach a scale beyond the capacity of the seed library. The educational focus of the seed library can also provide a resource as seed companies can refer new gardeners to them, making the relationship valuable to both groups. Interaction was also seen to occur between seed libraries, mostly in the form of guidance in the establishment of operations. Jolene Reid commented on how the seed library tries to help other libraries develop their programs and share as many resources as possible, such as forms, procedures and educational material. Chris Sanford commented that when South Shore Seed Library began, they modified materials provided by the seed library in Truro. This type of mentorship and guidance is an excellent example of how interaction within the community can help assist the community's seed conservation efforts.

Seed and gene banks, however, have a different relationship with the other groups, and currently don't have significant interaction with either seed libraries or companies. Seed banks and gene banks tend to operate fairly independently and have less community accessibility and interaction, possibly because the institutions hosting these collections are more strongly focused on research than public outreach. Supporting this idea, Teresa Molen explains that plant material in the Canadian Potato Genetic Resources falls under a treaty (International Treaty of Plant Genetic Resources for Food and Agriculture) that indicates that everything in collection is protected to be used only for research, education or breeding, not to grow and sell. This lower level of interaction could also be attributed to the seed/gene banks' heavy emphasis on procedures and organization ensuring high seed quality, which are challenging to maintain with significant community input.

Interaction between a seed library and seed bank may not be particularly beneficial to these groups, but the participants did not indicate any concerns regarding this. The two types of organizations serve different roles and the lack of interaction doesn't appear to affect how well these groups collectively contribute to the overall seed security in the region. Su Morin pointed out: "Wide interaction is not as vitally important with the more formal groups, such as seed and gene banks, as it is with maintaining active networks among seed growers. For example, supporting opportunities for intermediate level seed growers to connect with more highly skilled seed growers is paramount."

Seed libraries and seed banks serve different roles and the lack of interaction between them doesn't appear to affect how well these groups collectively contribute to the overall seed security in the region.

Nevertheless, increased communication would likely improve efforts to protect potentially rare or endangered seeds in the region. Increased awareness of what the seed bank does and the types of seeds it accepts would help rescue seeds that may otherwise be lost. Dr. Nancy McLean, a researcher working with the Atlantic Canada Regional Seed Bank in Truro, says that the bank would benefit from increased communication with seed companies regarding varieties that may no longer be commercially viable, but have interesting properties. This would allow the bank the opportunity to archive those seeds. A similar observation was made by Jolene Reid regarding knowing when to refer a member to the seed bank if they were to come in with an interesting variety.

Bob Wildfong also discussed how interactions could be improved:

> Interaction isn't as strong as it could be. There should be things happening like seed banks taking seed that seed companies can no longer use. This happens really congenially, where there is a deep appreciation between seed groups, and they often overlap, where things happen – like a real champion seed saver volunteers, works with the seed library and also owns a seed company, or someone who works with the seed bank also is involved in a community garden.

Barriers to Interaction

The interviews also addressed barriers – structural, organizational, cultural or otherwise – affecting the interaction between groups. The participants indicated that they were typically satisfied with the interactions among the organizations themselves, but wanted to see improvements in interactions between these organizations and individuals who wish to be involved with, or benefit from, their work. Distance and time were the factors blamed for impeding people assisting or accessing these organizations. For example Chris Sanford, who is involved with the South Shore Seed Library, also grows and sells seeds on her farm, and has in the past grown out seed for the seed bank. She declined growing seed this past year because the paperwork required by the seed bank was too difficult to manage in addition to her already dense workload. Distance also has a significant impact on how easily seed growers can access seed, seed education and the rest of the seed community. This is especially true in rural Nova Scotia, where there are many small hubs of seed activity scattered throughout the province, see Figure 1. Silvana Castilio, owner and operator of LaFinquita Seed Company commented that she would like to see the communication between people growing, and saving seeds made easier, so one could connect and learn about the work that people with the same interests are doing and learn from one another in that way.

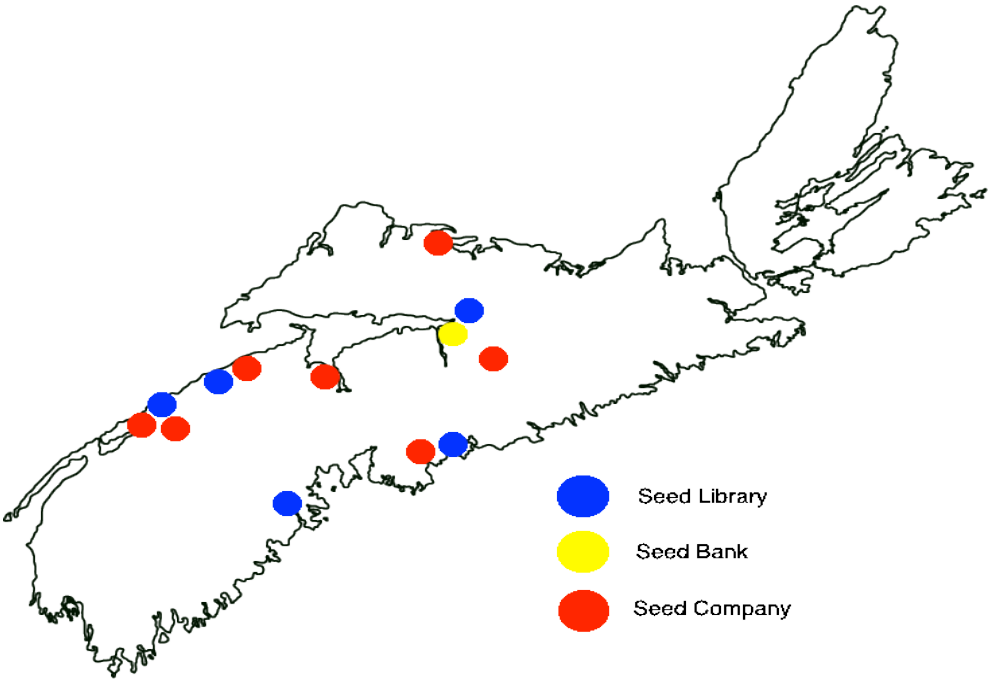

Figure 1: Nova Scotia seed organizations. (Seed education groups not included due to the complexity of representing all of them within the region.)

Needs and Future Directions

The interviews addressed what the participants envisioned for the future of these organizations, including number, scale and integration of the groups, in order to most benefit Nova Scotia, and the greater Atlantic Canada seed system. One theme that emerged was that a greater number of small-scale seed libraries, scattered wherever there appears to be interest, would be more beneficial than fewer, more centralized seed libraries. Seed libraries, as mentioned above, have a major function in education and community building, and this may be more effective if each seed library were tailored to the local needs to encourage and nurture communities of seed savers. Michelle Smith explains:

> Seed libraries tend to be largely community run and … are springing up all over the place, and I think that's just fine, they are educational tools and we are not expecting them to change the seed system. What we are expecting them to do is improve people's understanding and engagement with the seed system.

Conversely, seed banks could and should remain a more centralized, organized and stable entity. As Chris Sanford noted: "There could be a place for this large centralized seed library but there is something very nice about it being community specific".

Interactions with organizations that have provided funding and infrastructure for seed work were repeatedly noted by the participants. Organizations like the BFICSS and ACORN have had a significant impact on the growing interest in seed saving and local seed, and the participants identified a need for the continuation of this kind of support. Ashlea Viola, a representative of Hope Seeds in the Annapolis Valley said that it was beneficial to have people like Stephanie Hughes, working for ACORN, who are not affiliated with a commercial business, to whom to refer people who need more information or resources. Much of the increased interest in seed awareness and security in Nova Scotia is driven by individuals passionate about the topic who donate their time to sustain this work. Having more formal support for these efforts, financial or otherwise, can help seed projects begin and succeed where they otherwise may not have.

Having more formal support, financial or otherwise, for seed efforts can help seed projects begin and succeed where they otherwise mav not have.

Concerns and Reservations

While many small seed libraries would be beneficial to the province, this needs to be done with care. As Chris Sanford says "I've always been of the opinion of start small and grow slowly." It is important that new seed groups be set up in such a way that they are sustainable, and can achieve the tasks they set out to do. For example, when the South Shore Seed Library was first established they received a wide variety of seed from people with disparate seed-saving skill levels and were giving out multiple packs of seed to those who asked for them. It was only later that they realized that along with the actual seeds they needed to provide accompanying educational material. They also needed to modify the library so that they could maintain the seed stock from year to year.

This seed education is not only important for maintaining seed return rates from members, but also for maintaining the quality of the seed preserved by the organization. This is something that was noted in several interviews; skepticism regarding the quality of seeds within the seed library, and the resulting questions regarding the value of the seed library itself. However, Michelle Smith cautions against being overly concerned with this:

> There can be some snootiness from seed banks about the kind of "ragged" seed that goes in and out of a seed library and that can happen in a lot of situations, but if you understand that the two have just very different functions and it's not about preserving seeds in this perfectly scientific way in a seed library… it's about education, it's about engagement, it's about

> building skills, then you don't think about the scruffy seeds. So when there's a bit of back and forth between those two organizations [seed banks and seed libraries] it only stems from the misunderstanding… they are filling two very different but very important functions.

Conclusion

The seed collections system in Nova Scotia is bustling. It includes people from a wide variety of backgrounds and skill-sets working toward a similar goal. Although each of these groups (seed libraries, seed companies, seed banks and gene banks, and seed education organizations) can be broadly defined, in reality, there is a very flexible understanding of the definitions and roles of each organization, which leaves room for change as each evolves. The nine interviews conducted suggest that the local food movement, and its efforts to increase the availability and diversity of food and strengthen local food system resilience, has contributed to a seed movement that resonates throughout Atlantic Canada. Seed libraries have a primary function in seed education and participate in mutually beneficial interactions with seed companies and other seed libraries. The interaction between seed and gene banks with other seed entities seems less significant, and could be expanded to develop a stronger relationship with seed companies which would better preserve seeds of lower commercial interest. Barriers to interaction include distance, time, and accessibility in the case of institutionally hosted initiatives like seed banks. Future directions can include small-scale and dispersed seed libraries throughout the region and increased formal assistance, either monetary or structural. Seed security and conservation in Nova Scotia remain highly dependent on "seed champions", the individuals committed to growing and saving seed, as well as organizational support in the form of education, infrastructure, and leadership.

Resources and links:

Atlantic Canada Organic Regional Network: http://www.acornorganic.org/

The Bauta Family Initiative on Canadian Seed Security: http://seedsecurity.ca

Dalhousie University Agricultural Campus:
http://dal.ca/about-dal/agriculturalcampus.html

Hope Seeds: http://www.hopeseed.com/home

LaFinquita Seeds: http://www.lafinquita.ca/

Plant Gene Resources of Canada: http://pgrc3.agr.gc.ca/about-propos_e.html

Seeds of Diversity Canada: https://www.seeds.ca/

Treaty of Plant Genetic Resources For Food and Agriculture:
http://www.planttreaty.org/

USC Canada (2016). *What is seed security, anyway? Ask Jane Rabinowicz.* Online at http://usc-canada.org/resources/news/item/433-what-is-seed-security-anyway-ask-jane-rabinowicz/433-what-is-seed-security-anyway-ask-jane-rabinowicz

United Nations Food and Agriculture Organization: http://www.fao.org/about/en/

Worden-Rogers, N.J. (2015). *Seed Saving in Atlantic Canada – A Case Study*. Waterloo, ON: Nourishing Communities. Online at http://nourishingontario.ca/the-social-economy-of-food/seed-saving-in-atlantic-canada/

Appendix 1: QUESTIONS FOR SEMI-STRUCTURED INTERVIEWS

1. Tell me a little bit about how you are involved with seed saving/seed conservation

2. In the last several years, there seems to be more and more interest in seed-saving activities in our region. Why do you think that is?

3. We have seed libraries, seed banks, gene banks, and seed companies in Atlantic Canada. How do you think they are different from each other?

4. How do these entities interact with one another?
    a. If talking to a seed company owner: "do you interact with seed banks, libraries, or gene banks? In what way? If not, why not?" ETC. Maybe have a more tailored question depending on who you're talking to?

5. "Who do you tend to interact with the most in terms of your seed collection? Who uses your services most? Why is that?" Are there barriers (structural, organizational, cultural?) to their engagement with each other? Are there government policies that support or impede their interaction?
    a. For a gene bank: "do you receive requests for germplasm from seed banks or libraries? How do you think a request like that would be processed?"
    b. For a seed library: "have you borrowed seed from or lent seed to other seed collections? Which ones? Did it work smoothly? Why/n3ot?"
    c. For seed companies: "have you sold, lent, or donated seed to seed collections? Which ones? Did it work smoothly? Why/not?"

6. Does interaction between these various actors lead to a more robust seed and food system? If yes, how so? If no, who not?

7. Do you see any advantages to increasing the number of such organizations in the region? How about increasing the scale and scope of what the existing organizations do?