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## Regional Textile Production: Mapping the Pacific Northwest Fiber Network

Caroline Vogl  
*Western Washington University*

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# Regional Textile Production: Mapping the Pacific Northwest Fiber Network

Caroline Vogl  
Western Washington University Honors Program  
Spring 2019  
Advisor: Tyson Waldo

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## Introduction

Inspired by the slow food movement, more people have started to question the source of their clothing and textiles due to the environmental and human rights abuses in the current global fashion industry. The Pacific Northwest in particular is a place where questions about textile production and sourcing have been raised and where many textile farmers, retailers and makers already exist. Currently there are many gaps in production and a lack of connection between the various players in this regional economy. The first step in creating a stronger regionally-based fiber economy is to connect the participants in this economy. To this end, this project uses Geographic Information Science (GIS) to begin the process of mapping the fiber and textile network of Washington, British Columbia, and Oregon. This database was created to be turned into an open-source web map that can be queried and updated by the general public to help them find what they are looking for in the fiber network, such as where the mills that turn fiber into yarn are, where all of the Shetland sheep in British Columbia, and so on.

As a fiber artist of ten years and as someone who works at a textile reuse non-profit, I have been highly concerned about textile sourcing for sometime now. I found it extremely difficult to find yarn that was grown and/or milled regionally though. I believed that a central location where producer information was stored would make it easier for users to find regional textile products and make it easier for producers to reach their user-base. It also made sense that this database should include the mills that process the regional fiber, the local stores that sell textile products, the fiber-related events and educators, the regional places that take discarded textiles and transform them, and the various other participants in the regional fiber network. As a GIS student, I believed that a web map would be the best format for displaying the database to the public. During the

process of starting the project, I found that the Pacific Northwest Fibershed and Ecotrust were also creating a map of the regional fiber network. They were at the beginning of their work, so I partnered with these groups to make the database. I created the database structure and the user interface for collecting data from the public and I started completing some data entry. Ecotrust and the Pacific Northwest Fibershed will carry the project on from here.

## Methods

The geodatabase is made up of nine feature classes. The “All Participants” feature class holds data on every participant in the fiber network, including their name, role(s) in the fiber network, location, and contact information. The “Producers” feature class holds specific data for producers (i.e. fiber animal, fiber plant, and/or natural dye plant farmers) such as herd/flock size, fiber animal type, breed, color of fiber, fiber plant type, natural dye plant type, products/services, and where their products are available. The “Processors” feature class holds specific data for processors (i.e. mills that scour, process fiber, weave, and/or knit) such as whether the processor takes custom orders, what services/products they offer, what type of spinning they do, their minimum raw weight requirement, their accepted fiber types, and they required staple length. The “Makers/Retailers” feature class holds specific data for makers (i.e. participants who create regional textile products such as handspun yarn, sewn/knit/crochet/woven garments, dyed items, and so on) and retailers (i.e. local shops that sell textile supplies or regionally made textiles), including what products participants make and/or sell and whether they are regionally made and what services they offer. The “Trade Groups/Associations/Guilds” feature class holds specific data for various groups that are part of the fiber network, such as weaving guilds or sheep producers associations, including what type of group they are, if they are non-profit, if they are a cooperative, and what the focus of the group is. The “Events” feature class holds specific data for fiber festivals, retreats, shearing days, and any other

regional events related to fiber and textiles, including event type, fiber art type, whether there are workshops, and whether there is a market. The “Educators” feature class holds specific data for educators (i.e. individual textile instructors or places of education like textile schools and museums) such as educator type and fiber art type. The “Shearers/Wool Classers” feature class holds specific data for shearers (i.e. people who shear fiber animals) and wool classers (i.e. people who class wool) such as whether the participant is a shearer and/or a wool classer and what services they offer. The “Upcyclers/Recyclers” feature class holds specific data for upcyclers (i.e. participants who take textiles and makes them into a new product without completely breaking down the textiles) and recyclers (i.e. participants who completely break down textiles back into fibers), including whether they upcycle, recycle, and/or resell; if they have a retail shop; if they accept donations; if they teach workshops and/or provide lessons; if they do mending work; if they create custom goods; and if they are a non-profit. The specific data in each feature class was chosen based on research, input from various people involved in the regional fiber network, and personal experience.

One of the largest considerations in this project was the database’s ability to be queried by the public. To meet this requirement, many of the fields in the feature class have a domain that restricts the answer to “Yes” or “No.” For instance, the “Producers” feature class includes over thirty sheep breeds as fields. If that had been consolidated to one field called “Sheep Breed” where producers could type in whatever they wanted, that would not have been easily queryable. Instead, if the producer raised Icelandic sheep, it would say “Yes” in the “Icelandic” field and “No” in the other sheep breed fields. This “Yes”/“No” domain was used as much as possible and unrestricted text was mainly limited to descriptions where participants could explain anything that they thought was not covered.

The feature classes in the geodatabase align with matching Google Forms. The Google Forms are created for participants to fill out and provide updates on their own data, rather than requiring a

GIS analyst to enter all of the data through research (i.e. manually entering data from participants' websites). In the case of this database, Google Forms and GIS were not able to be completely aligned. For instance, earlier I discussed the over thirty sheep breed fields in the "Producers" feature class. It would not be a user friendly design to have individual questions for each of those thirty-plus sheep breeds, which is how it would have to be for the data from Google Forms to seamlessly move to GIS. Instead, I made a single sheep breeds question in Google Forms where producers can select all of the breeds they raise. In the results table of the form, there is a single sheep breed field that lists the sheep breeds the producer chose. This will have to be converted to fit into the "Producers" feature class, whether it is done manually or through a script.

## **Data**

The geodatabase currently includes the full or partial data of about 150 participants in the Pacific Northwest fiber network. This data was collected from publicly available information on the participants' websites or social media accounts. Included in this project are additional tables of hundreds of other participants in the fiber network that could be contacted to fill out the Google Forms.

## **Summary**

This project represents a fairly unique application of GIS, but I believe that it was an effective use of GIS technology. In the end, it was not extremely difficult to structure a queryable database that was integrated with Google Forms for this fiber/textile application. There are a few other web maps around the United States of various fiber networks with a variety of different participant types

included or excluded, but none that I have seen attempt to cover the scope that this database does. The similar maps are not queryable and generally only include name, description, website, and contact information. While the scope of this database takes more time for participants to fill out than other database structures, I tried to make the database as minimal as possible while still containing data that many people would want to know. I believe that this more robust database will encourage more buy-in to the database even if it takes more time to completely fill out. I believe that this database has promise for providing a much needed inventory of the state of the Pacific Northwest fiber network if further work is completed to create the web map and get more data from fiber network participants.

## **Recommendations for Future Work**

If this project were to receive funding for future work, there are multiple ways that the project should move forward. Firstly, the transfer of data from Google Forms to GIS should be made more seamless. Currently, the project is designed for the results from the Google Forms to be downloaded as .csv files that are then appended into the existing feature classes in the geodatabase. A script should be created to make this transfer less labor intensive. Secondly, coordinates of participants is currently a challenge. Currently, this has been done manually. It would be much easier if a geolocation service was used. Thirdly, data entry of participants, if not done by the participants themselves, is extremely labor intensive. Having participants fill out their own data will save time and will allow them to completely fill out the wanted information since participants' websites often do not have all of the wanted data. To get participants to buy into this database though, I believe that a number of various participants' data should be completed and then turned into a web map. This will allow other participants to easily see the potential and scope of the database and will hopefully encourage them to spend their time filling out the Google Forms.



## Appendix: Links to Google Forms

All Participants: <https://forms.gle/jj8m56ZkH8U1Fy468>

Producers: <https://forms.gle/YQJYG23MxQHhAmfC6>

Processors: <https://forms.gle/x1m4LepjZiJXgepR6>

Makers/Retailers: <https://forms.gle/aVdsAdnmfYxXv1CP8>

Educators: <https://forms.gle/3Aw61InPEdoE9ogN8>

Events: <https://forms.gle/GsvGaAsbhMeExQ4E6>

Trade Groups/Associations/Guilds: <https://forms.gle/EjWLHY5dajAL6HPx6>

Shearers/Wool Classers: <https://forms.gle/hFU6FxmBJggwtgVa8>

Upcyclers/Recyclers: <https://forms.gle/TBCJe7z9nA77Dfas6>