

Inventory of Farmland in the Merrymeeting Bay Region of Maine

June 2012



Table of Contents

Project Purpose	3
Background	3
Data Used and Methods	3
Results	5
Future Steps	6
Appendix A: Maps	
A1. Prime Farmland Soils	
Entire Area	1
BTLT Area and Towns	2
KELT Area and Towns	6
A2. Prime Farmland Soils by Parcel	
Entire Area	16
BTLT Area and Towns	17
KELT Area and Towns	21
A3. Farms	
Entire Area	31
BTLT Area and Towns	32
KELT Area and Towns	36
Appendix B: Inventory of Farms	i

Acknowledgements

This inventory project has been funded principally by the Elmina B. Sewall Foundation. Analytical assistance and data have been provided by Bowdoin College, the Maine Department of Agriculture, and the municipalities of Bath, Bowdoin, Bowdoinham, Brunswick, Dresden, Topsham, West Bath, Westport Island, Georgetown, and Woolwich.

This project began in the fall of 2009 with the help of Bowdoin College students Jane Koopman, Leah Wang, and Catherine Hamley in conjunction with the Sagadahoc Regional Rural Resource Initiative. The students, principally Jane Koopman, continued their work in the spring and fall of 2010. Kennebec Estuary Land Trust and Brunswick-Topsham Land Trust staff and contractors including Erin Witham and Chris Cabot wrote portions of the document and compiled and edited much of the students' writing and GIS work.

While we have undertaken great effort to ensure the accuracy of the information contained within this document and depicted in the maps, it is likely that the data contains flaws and omissions. We apologize for these errors and would greatly appreciate any suggested corrections. We also understand that this document is a snapshot in time as the working landscape of farmland in Maine continues to evolve.

Project Purpose

The Brunswick-Topsham Land Trust (BTLT) and the Kennebec Estuary Land Trust (KELT) undertook this project to identify the working farms in twelve towns in the southern Midcoast region of Maine (this geographic region will be referred to as the Merrymeeting Bay Region in this document). The data and maps produced through this project will include an inventory of existing farms and their locations, depictions of “Prime Farmland Soils” or those soils identified as beneficial for agricultural use. In addition to land trusts’ use internally, the finished documents and the associated data is likely to be of use to farmers, local agricultural related businesses and entrepreneurs, public officials, and the general public.

Background

With its flat topography and prime farmland soils, the Merrymeeting Bay region supports many working farms which contribute greatly to the local economy, public and environmental health, and quality of life.

In order to ensure that farming remains a viable opportunity in the region and the local food system remains vibrant into the future, KELT and BTLT collaborated to create a program called Local Farms-Local Food. The aim of the program is to conserve farmland in the service areas of the two land trusts and work to promote local food issues and support the farms and farmers’ markets of the Merrymeeting Bay area.

With improved data on the locations of farms and farmland soils, the land trusts will be able to achieve their goals more effectively. To aid in the identification of productive farmland soils, the Natural Resource Conservation Service (NRCS) maintains a list of soils described as Prime Farmland Soils and Farmland Soils of Statewide Importance. Additionally, various counties in Maine have soils identified as Farmland Soils of Local Importance. Such as list has been created for Sagadahoc County, but none exists for Cumberland or Lincoln Counties.

Data Used and Methods

The identification of farmland throughout the BTLT and KELT service areas was completed through several separate projects. The assessment began with a focus on the town of Brunswick in December 2009 through a project by Bowdoin College students. In the spring of 2010, five additional towns (Bowdoin, Bowdoinham, Dresden, Richmond, and Topsham) were analyzed by Bowdoin students. Three additional towns (Bath, West Bath, and Woolwich) were added to the project in the fall of 2010 by one of the Bowdoin students who had recently graduated.

Much of the data that was used in this process came from the US Geological Service (USGS), the Natural Resource Conservation Service (NRCS), Maine Office of GIS (MEGIS) or directly from some of the municipalities including Bath, Bowdoin, Bowdoinham, Brunswick, Dresden, Topsham, West Bath, Westport Island, Georgetown, and Woolwich.

Significant Farmland Soils

Prime soil types were identified using soils data from USGS and a list of prime soils by NRCS. These data include Prime Farmland Soils (Federal), Farmland Soils of Statewide Importance (State), and Farmland Soils of Local Importance (County).

A list of Prime Farmland Soils and Farmland Soils of Statewide Significance was created for each county in Maine. Select counties also have a list of Farmland Soils of Local Importance. These soils lists were obtained, and GIS layers of these three categories of soils and their locations were created for the counties that comprise the BTLT and KELT service areas. The twelve towns analyzed in this project are contained within three different counties (Cumberland, Lincoln, and Sagadahoc). Sagadahoc County, which contains nine of the twelve towns, is the only one of the three counties included in this project that has a defined list of Farmland Soils of Local Importance. According to staff at the county field offices of NRCS, no locally important soils list exists for Cumberland or Lincoln Counties. Therefore, the towns within Cumberland County (Brunswick) and Lincoln County (Westport Island and Dresden) lack this layer on the maps in this document. (Hereafter, all three categories of soils are referred to collectively as "prime farmland soils.")

Maps revealing the locations of the prime farmland soils color coded by category (Prime Farmland Soils, Farmland Soils of Statewide Importance, or Farmland Soils of Local Importance) were created for the entire region, the KELT service area, the BTLT service area, and each of the twelve towns.

Further analysis of the data was undertaken to determine the parcels which contained a high percentage of prime farmland soil. Using tax map data provided by the towns or MEGIS, parcels greater than five acres in size that intersected with prime soils were selected. This layer of parcels containing prime soils was clipped using all the prime soils to get the area of the parcel that was covered by prime soil. New columns were created in the attribute table of this layer to calculate the percentage of prime soil contained within the original parcel size. Maps were created to reveal the location of the prime farmland soil color coded by the percentage of prime soil in each parcel. In parcels which contained greater than 50% prime farmland soils, the soil was shown in red. In parcels which contained less than 50% prime farmland soils, the soil was shown in gray.

Farmland Inventory

A number of steps were undertaken to create an inventory of farms for the BTLT and KELT service area. A list of working farms was created by incorporating lists generated by other organizations and state agencies including the Maine Department of Agriculture, the Maine Organic Farmers and Gardeners Association (MOFGA), Eat Local Food Coalition of Maine, and the Town of Bowdoinham. The merged list was reviewed and edited by land trust staff and a number of local residents familiar with the agricultural community of the area.

This list will continue to evolve over time but provides the land trusts with a starting point for communications with farmers and for use in future documents such as a planned food guide to the Merrymeeting Bay area.

These farms and others were incorporated into GIS to create a series of maps showing the locations of farms in the area. In addition to the farms included in the inventory list, other properties were listed as "farms" if they were identified under one of the following:

Farmland, Tree Growth, and Open Space Tax Classification

Many of the municipalities of the region provided data showing which parcels were enrolled in various tax classification status including farmland, tree growth, and open space tax classes. Parcels enrolled in farmland tax class were highlighted because they indicate active use of the land for agricultural purposes, which could include land in hay production or livestock rotation. Those parcels enrolled in open space or tree growth and identified as containing open fields through aerial photograph analysis were also depicted as farms for the mapping portion of this project.

Classification of Land Use

A dataset created by the MEGIS provided another tool used to accomplish the task of identification of existing actively farmed parcels throughout each town. The Maine Landcover Dataset 2004 (MELCD 2004) was created using aerial photography and infrared data. The raster dataset, which has a 5-meter resolution and 75% accuracy, identified the type of land cover throughout the state using the following categories, among others: developed, cultivated crops, blueberry field, bare ground, pasture/hay, grassland/herbaceous, deciduous forest, evergreen forest, and scrub/shrub. Properties that included greater than five acres of land identified as cultivated crops, blueberry field, or pasture/hay were labeled as farms for this project's mapping purposes.

Results

Prime Farmland Soils

Because Lincoln and Cumberland Counties have not identified a list of Farmland Soils of Local Importance, it is difficult to compare the potential productivity of the soils in each of the towns of the BTLT and KELT service area. General assumptions can be drawn by examining the distribution of Prime Farmland Soils and Farmland Soils of Statewide Importance. Additionally, the nine towns within Sagadahoc County can be compared against each other to evaluate the distribution of Farmland Soils of Local Importance.

The towns of Brunswick, Topsham, Bowdoin, Bowdoinham, Richmond, and Dresden all have a large percentage of their land identified as containing prime farmland soils. High concentrations of prime agricultural soils exist along the shoreline of Merrymeeting Bay and floodplain areas of the Androscoggin and Kennebec Rivers.

Productive farmland soils are distributed fairly evenly throughout the six towns with concentrated areas generally in central Brunswick, south and central Topsham eastern Bowdoinham along Merrymeeting Bay, northwest and southern Richmond, northwest Dresden and the east and west edges and central area of Bowdoin.

Unfortunately, much of the prime farmland soil in Bath is located beneath the most developed area of the city. A band of prime soils does exist on the northern tip of the city that runs down the New Meadows River. In the neighboring town of West Bath, prime soils are not very widespread other than along the New Meadows as in Bath and in a patch near the southern boundary with Phippsburg.

When compared to Bowdoin, Bowdoinham, and Richmond, the town of Woolwich contains significantly less Farmland Soils of Local Importance. There are large areas of Farmland Soils of Statewide Importance especially in the western side of the town.

The towns of Westport Island, Arrowsic, and Georgetown contain very little prime farmland soil compared to the other towns in the BTLT and KELT service area. The soils of these towns are characteristic of much of the outer peninsulas of the Midcoast to Downeast Maine with shallow soil depth, high acidity, and steep slopes. However, prime farmland soil has been identified in these three towns in small patches.

Prime Farmland Soils by Parcel

Due to the undeveloped nature of many of the towns of the BTLT and KELT area, large parcels of land still exist. Many of these parcels contain greater than 50% prime farmland soils. Parcels of large size are particularly evident in the maps of Bowdoin, Bowdoinham, Brunswick, Richmond, Topsham, and Woolwich.

Farm Locations

Because farmers often utilize various fields for cultivation, livestock grazing, or hay production, the number of farm businesses is certainly less than the number of farm properties indicated on the maps.

The farms of the area are scattered widely over the territory. Large corridors of farmland exist in Brunswick along Pleasant Hill Road extending southwest to Freeport and in western Brunswick near the border shared with Durham.

The coastal towns of the region such as Georgetown, Arrowsic, and Westport Island contain relatively few active farms, which could be attributed to the rocky, acidic soils of the outer peninsulas. The inland towns of Woolwich, Bowdoinham, Richmond, and Dresden contain a high percentage of farmland soils and, therefore, possess a high concentration of farms.

Future Steps

Due to the evolving nature of the agricultural field in Maine, the farmland inventory and associated maps are considered an ongoing project for the land trusts. BTLT and KELT staff will continue to refine the list of farms of the area and edit the maps as necessary. Many farms were likely omitted through this process and some other properties have likely been incorrectly identified as farms due to inconsistencies in the data or human oversight.

Efforts such as communicating with additional individuals knowledgeable of the farming community and municipal officials for their expertise; field checking the locations of farms; and further GIS analysis will be undertaken by land trust staff and volunteers.