

Agriculture and Forest Resources

Purpose

The purpose of this section is to inventory agricultural and forestry resources and to describe their importance for the town's future.

Introduction

A land use inventory and analysis is an important part of a comprehensive plan because it identifies past trends, areas of seemingly incompatible uses, and areas where future growth is likely to occur. All of these factors provide valuable input for planning the future of our agricultural and forestry resources. .

This section provides a brief analysis of how land is used in Clinton and is accompanied by three maps. Two of the maps show the approximate location and type of structures in Town; and the third map shows commercial/industrial land, agricultural and commercial forest land. These maps, which are on file in the Town office, provide valuable tools for developing a land use plan for the future which will promote orderly growth, protect rural character, make efficient use of public facilities and services, and prevent urban sprawl.

The Town of Clinton has a total land area of approximately 24,796 acres. It is located approximately 10 miles northeast of Waterville. There is a small village center located in the southeastern portion of the community, surrounded by rural areas served by an extensive rural road network. The Interstate divides the Town, creating a small southern portion which includes the village center, and a larger, more rural northern part. At one time, most of the non-farm dwellings were located in the village center. Within the past 20 years, non-farm development has occurred along the Town's rural road network.

In 2003 a total of 6,533 acres of land are enrolled in the tree growth, farmland and open space tax programs. Land placed under one of these tax programs are currently removed from being developed. However, a landowner may withdraw from the tax program, usually after paying a monetary penalty.

Between 1980 and 1990 residential development in Clinton has been substantial. In 1988, there were an estimated 1,171 dwelling units in the Town, which represents an increase of 230 units, or 24.4%, over the level of 941 units in 1980.

For the most part, the newer dwellings have been either single-family dwellings or mobile homes. The residential growth boom of the 1980's is by far the most conspicuous evidence of land use change in Clinton. Most of the newer site built homes have been located along the Town's rural road network, either in small subdivisions or on single lots, where they are served by their own on-site water and sewer systems. Some of the more significant concentrations of growth have occurred on Hinckley Road, the Bellsqueeze Road, Hill Road, and Mutton Lane. An analysis of single family dwellings built since 1987 indicates that 45 of them, or 85%, have been located north of the Interstate.

Development between 1990 and 2004 has added 262 housing units and like the previous decade most has occurred in the more rural areas of the town.

Most commercial and industrial uses are located in or adjacent to the village center and near Route 95.

Agriculture

Farming, and in particular dairy farming, has been the dominant land use activity in the rural areas of Clinton. Farmers own 47.2%, or almost half of the land area of the Town. This percentage is not an accurate indication of active farm land because it includes not only active farm land, but forest land, wetlands, and other land not used for farming purposes. On the other hand, a number of farmers, including many dairy farmers, lease other lands to carry on their operations. Nevertheless, the percentage of land owned by farmers gives an indication of the importance of agriculture in Clinton, and its importance to the local and regional economy.

The town has 82 parcel amounting to 812 acres of land enrolled in the farmland tax program as of 2003.

The largest concentrations of farms are located north of the Interstate along concentrations of farms are located north of the Interstate along Hill Road, Battle Ridge Road, Upper Hinckley Road, and River Road (see Map 2-4). There are 14 landowners in Clinton who own 300 acres or more for a total combined acreage of 8,380 acres, or 34% of the total acreage of the Town. Ten of the 14 largest landowners are dairy farmers. The largest dairy farm in the State is located in Clinton.

According to the Soil Conservation Service, there are 2,964 acres of prime farmland in Clinton and 3,997 acres of farmland of State-wide importance, for a total of 6,961 acres, or 24% of the Town's total land area. There are 29 farmers who are SCS "cooperators" in Clinton.

Clearly, the agricultural resources of Clinton are a significant element in the rural character of the Town. Farmlands and fields make up a large percentage of the open space in Town. The land is flat and open along many of the Town's rural roads, so that any conversion to houses, subdivisions and other developments would be usually quite noticeable unless concentrated in small areas and screened from view. Scattered developed has contributed to an impression of sprawl in some areas.

Many of the Town's farms have been in the same family for generations, and are protected by the Tree Growth Tax Law and the Farm and Open Space Tax Law. They are considered healthy and stable and are not threatened by development. In fact, over 80 percent of the land owned by the Town's dairy farmers is protected by the Tree Growth Tax Law and the Farm and Open Space Law. Many farm holdings consist of a number of parcels acquired over the years. As of this writing, all but one or two of the Town's farmers have indicated they plan to stay in business for the foreseeable future. All of the dairy farmers have invested money in their farms; these investments include the construction of expensive manure pits. Over half the farmland in Clinton, or approximately 75 parcels of land, constituting 6,666 acres, are classified as farmland under the Farm and Open Space Tax Law. There are no parcels classified as "open Space." It is anticipated that additional farmland will be placed under these categories because of the Town's recent revaluation. Farms which stay in the same family are often better able to survive, economically, than recently purchased farms where the economic returns are relatively low compared to the costs of a mortgage for the purchase price of substantial farmlands.

Clinton's dairy farmers contribute significant amounts of milk to in-state and out-of-state dairies. Collectively, the Town's farms provide employment to local people, and support the local and regional economies through the purchase of equipment and supplies, and the sale of farm produce. In terms of cash flow, a number of the town's farms could be considered big businesses. Clinton's farms do not require much in the way of Town services, except that roads be kept up for the transportation of agricultural commodities.

Agricultural and Farm Table

The following table shows some of the significant agricultural and farm operations in the town. The list does not contain all the agricultural activities that are taking place within the community.

Farm Name/Owner	Location	Acres	Farm Type
Caverly Farms LLC	1457 River Road	623	Dairy
Flood Bros. Dairy Farm	893 River Road	825.50	Dairy
Herrin Farm (Operations ceased 7/2005)	986 hinckley raod	45	Dairy
Lary, Richard and Janet	1177 Hinckley Road	62	Dairy
Misty Meadows	308 Hill Road	768	Dairy
Richards Gary	1978 Bangor Road	106	Dairy
Stedy-Rise Farm	77 Peavey Road	388.20	Dairy
Wright Place LLC	77 Wright Road	1,000	Dairy
Windsor Firewood & Logging	846 Mutton Lane	22.20	Forestry
FEDCO Seeds Inc.	Bellsqueeze Road		Nursery
McGraw, Dorothy	Bangor Road	66	Nursery
Richardson, Stephen and Sandra	563 Canaan Road	61	Produce

Farmlands in Clinton are a valuable community and regional resource. In the future, Maine may face increasing food prices and diminishing supplies, in part because of our heavy reliance on out-of-state producers, and our heavy reliance on transportation and refrigeration, both of which are driven by fossil fuels. Once farmland has been converted to development, the soil is irreversibly committed and can no longer be used for farming purposes. Thus, there is considerable merit in trying to preserve farmlands.

Based on meetings with the Town's farmers, farmers in Clinton want to see agricultural land preserved. On the other hand, they also want to be able to sell the land for other purposes such as retirement or funding a college education. There is a delicate balance between protecting farmland from irreversible conversion to other uses, and allowing farmers a fair return on their land.

Some of the options for achieving this balance include the acquisition of land or easement by local land trusts (purchase by the town would be prohibitively expensive), requiring cluster development, requiring buffers between development and active farmland, and providing for density bonuses where farmland is preserved.

Forestry

Bessey Development owns 1,581 acres of commercial forest land in Clinton. This land consists of approximately 6 separate parcels located along the eastern boundary of the Town, including land in the northeast corner of Town, land near the Interstate, and land near the southeastern corner of Town.

There are approximately 5,674 acres of land, or 20.2% of the total land area of the community, classified as forest land under the Tree Growth Tax Law. This includes 938 acres of softwoods, 1,296 acres of hardwoods, and 3,440 acres of mixed wood. These lands have not been located on a single map, as they are widely scattered and the exact composition of the parcels changes on a yearly basis. Some of the land owned by the Town's farmers is classified under this law.

Public land

There are no lands owned by the U.S. Government in Clinton, and the only State-owned land consists of the Interstate. Municipally owned land includes the town Hall, the Fire Station, the landfill, the library, and a number of cemeteries. SAD 49 owns the Clinton Elementary School.

There are 2 land parcels listed in the open space tax program. This accounts for a total of 47.3 acres.

Issues

- 1 What is the future of agriculture in Clinton?
- 2 Will dairy farms continue to be as important as in past years?
- 3 What changes are occurring in farming?
- 4 Is housing development interfering with farming?
- 5 What can the town do to further promote farming?
- 6 What is the future for forestry in Clinton?
- 7 Is the town satisfied with the current forest practices in the community?

Natural Resources

Purpose

The natural resource section of the plan inventories all the significant natural resources of the town and

identifies measures to protect these resources.

Topography/Geology

The Town of Clinton consists of approximately 24,746 acres or 38.67 square miles. The topography is characterized by gently rolling hills interspersed with numerous streams and wetlands. The Kennebec River forms the Town's western boundary. The Sebasticook River forms portion of the Southern boundary.

The topography of the Town is a result of events that occurred during the last ice age at a time when ancient oceans extended over parts of the State and glaciers scraped, scoured and coated other areas with glacial tills, sands and clay. In Clinton, glaciomarine deposits that accumulated on the floor of the ancient ocean or that were deposited by glacial meltwater as it entered the ocean, are found in a wide band along the Kennebec River, Twelve Mile Brook and the Sebasticook River. These areas are generally flat to moderately sloping except in areas deeply dissected by modern streams. The central and northeasterly portions of the town consist of glacial till which is a heterogeneous mixture of sand, silt, clay, stones and sometimes boulders. The ridges in these areas have a north-south orientation which is a result of the flow of glacial ice.

Two eskers, one associated with twelve Mile Brook and another extending along Gustafson Road and Hinckley Road, dissect the Town. Eskers consist of individual or multiple ridges that were deposited by meltwater streams flowing in tunnels within or beneath the glacial sheet.

Soils

Knowledge of the types of soils which exist in a community helps in planning land use activities. The various characteristics of soil types present different limitations for development which can often be overcome through special planning, design, construction, and/or maintenance.

The Medium Intensity Soil Survey of Kennebec County Maine, published by the U.S. Soil Conservation Service, describes the different soil types which exist in the County and provides information on their limitations. The soils map displays the predominate soil type for an area, although there may be pockets of other soils. Therefore, a high intensity soil survey is necessary to gather the precise information needed for individual site planning.

According to the Soil Survey, there are five soil associations located in Clinton. Associations are groups of different soil types that usually occur together. Each association has major and minor soils within it. Table 5-1 describes each of Clinton's five associations.

TABLE 5-1

SOILS ASSOCIATION AND THEIR CHARACTERISTICS

Soil Association Description	Uses/Limitations

<p>Hollis-Paxton-Charlton-Woodbridge association: Shallow and deep, somewhat excessively drained to moderately well drained, gently sloping to moderately steep, moderately coarse textured soils; on hills and ridges.</p>	<p>These soils are mainly in woodland, but many areas are farmed and used for other purposes. The well drained Paxton and Charlton soils are suited to cultivate crops, orchards, and other intensive uses. The Woodbridge soils have some limitations for both farm and non-farm uses. Many orchards and dairy farms are located on this soil association.</p>
<p>Buxton-Scio-Scantic association: Deep, moderately well drained to poorly drained, nearly level to sloping, medium textured soils; in flat areas and near waterways.</p>	<p>The soils in this association are used mainly for hay, pasture, or woodland. Wetness and permeability are the major limitations to use for cultivated crops and septic tank absorption fields. Supplemental drainage and erosion control are the major concerns of management.</p>
<p>Hinckley-Windsor-Deerfield association: Deep, excessively drained and moderately well drained, nearly level to moderately steep, coarse textured and moderately coarse textured soils; mainly on outwash terraces and plains.</p>	<p>Most of this association is woodland. Many areas are a source of gravel and sand which can be used for construction materials.</p>
<p>Scantic-Ridgebury-Buxton association: Deep, poorly drained to moderately well drained, nearly level to sloping, medium textured soils in valleys and moderately coarse textured soils in flat areas or depressions on upland ridges.</p>	<p>Some areas of these soils are in grassland, but most of the association is in woodland.</p>
<p>Monarda association: Deep, poorly drained, nearly level, medium textured soils; on smooth, low, upland ridges.</p>	<p>Most of this association is in woodland. Some areas have been cleared of surface stones and drained for use as hayland and pasture.</p>

Source: Soil Survey of Kennebec County, Maine, U.S.D.A.

Various soil characteristics, such as depth to water table, depth to bedrock, flooding potential and erosion potential can utilities and cellar foundations are difficult and expensive to construct when bedrock is at or near the surface.

Perhaps one of the most limiting characteristics is depth to water table. Poorly drained soils (9-18 inches depth to water table) place severe limits on the use of the land: Frequent fluctuations in water level as well as frost heaving can be damaging to buildings, roads, and the proper functioning of septic systems. These limitations can, however, sometimes be overcome through special design and maintenance. Moderately well drained soils (18-30 inches to water table) have less severe limitations on land uses, and deep, well drained soils present few problems. The latter have a depth greater than 30 inches to water table. The Monarda Association is identified as poorly drained while the Buxton-Scio-Scantic and Scantic-Ridgebury-Buxton Associations are moderately well drained to poorly drained. The Hollis-Paxton-Charlton-Woodbridge Association is moderately well drained and the Hinckley-Windsor-Deerfield Association is excessively to moderately well drained.

Depth to Bedrock

Areas with shallow depths to bedrock in Clinton are characterized by Lyman or Hollis soils. These soils generally have depths to bedrock that range from six to thirty inches. Utilities, roads, cellars and septic systems can be difficult and expensive to build when depth to bedrock is less than twenty inches.

Land Cover

The Town's topography and geologic history have influenced the existing land cover. When the settlers arrived in the later 1700s the existing forest vegetation was cleared in flatter areas and along roadways, which were built following the paths of least resistance. At the height of agricultural activity, around the mid 1800s, many areas of Clinton had been cleared. With the industrial revolution, and the migration of farmers to urban areas in search of higher paying jobs at the end of the nineteenth century, many of the fields and pastures were abandoned and allowed to revert to second growth forest.

Today, it is roughly estimated that 55% to 60% of the Town is forested. Open areas are interspersed along roadways throughout much of the town. Many steeply sloped areas, such as those on the west side of Battle Ridge, and areas densely dissected by streams and wet areas have remained forested.

Wetlands

The U.S. Fish and Wildlife Service defines wetlands as follows:

“Wetlands are lands transitional between terrestrial and aquatic systems where the water table, usually at or near the surface or the land, is covered by shallow water. For purposes of this classification, wetlands must have one or more of the following three attributes: 1) at least periodically, the land supports predominantly hydrophytes (wetland vegetation); 2) the substrate is predominantly undrained hydric (waterlogged) soils; and 3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year.” (Cowarin, et al. 1979)

Wetlands in Clinton are classified as inland freshwater wetlands which can be further broken down into three ecological systems. One is the Riverine System which is limited to freshwater river and stream channels and is mainly a deepwater habitat system. Another type is the Lacustrine System which is also a deepwater dominated system, but includes standing waterbodies like lakes, reservoirs, and deep ponds. The third is the Palustrine System which encompasses the vast majority of the inland marshes, bogs, and swamps and does not include any deepwater habitat.

For many areas, wetlands were considered breeding habitat for mosquitoes and areas that need to be drained or filled for agricultural purposes or to create developable land. More recently, there has been a growing awareness of the value of wetlands. In a recent study of the impacts of development in Southern Maine, the State Planning Office examined the functions of wetlands and the implications of the loss of these areas. The State study identified the following features:

1. Ground water recharge. Wetlands may serve to replenish and cleanse aquifers which the town uses for water supply.

2. Ground water discharge. Ground water may discharge into wetland, providing public water supply, wildlife habitat, and a means of maintaining lake and river quality.
3. Flood flow alterations. Wetlands serve as temporary storage areas during high water flows, thus reducing peak flows and potentially damaging floods.
4. Sediment and toxicant retention. In agricultural areas, wetlands can retain and stabilize sediments and toxic materials.
5. Nutrient retention and removal. Wetlands can retain or transform inorganic phosphorus and/or nitrogen into their organic form and may save downstream lakes and ponds from eutrophication.
6. Productivity export. Wetlands flush out dead plant and animal life, thereby providing nutrients for a new generation of plant and animal life.
7. Aquatic diversity. Certain wetlands provide habitat, including breeding grounds and nurseries, for fish.
8. Wildlife diversity and abundance. Wetlands serve as habitat and a food source for birds, deer, and other animals.
9. Uniqueness. A number of rare plant and animal species can be found in Wetlands. Approximately 43% of the 230 rare plants which occur in Maine are found exclusively in wetlands.

The Maine Geological Survey of the Maine Department of Conservation has mapped seventeen wetlands of ten acres or more on maps of 1:50,000 scale. The wetlands were identified based on aerial photographs at a scale of 1:40,000 flown in 1980-81. The wetland boundaries, which are shown on Map 5-3, represent the limits of the wetlands at the time the photographs were taken; actual areas of the wetland will vary seasonally. The characteristics of these wetlands are shown in table 5-2.

TABLE 5-2

SUMMARY OF WETLANDS INFORMATION PREPARED BY
MAINE GEOLOGICAL SURVEY

Wetland Number	Maine Inland Fisheries and Wildlife Wetland type	Soil type (s)
131	Inland Deep Fresh Marsh	Peak and Muck

132	Inland Fresh Meadow	Biddeford Mucky Peat Scantic Silt Loam
133	Inland Deep Fresh Marsh	Scantic Silt Loam
134		Water
135		Monarda VST Silt Loam
162		Scantic Silt Loam
163		Scantic Silt Loam
164		Scantic Silt Loam Scio VF Sandy Loam, 3-8% slopes
165	Bog	Monarda VST Silt Loam
166		Scantic Silt Loam
167		Monarda VST Silt Loam Mondarda Silt Loam
168		Biddeford Mucky Peat
240		Rifle Mucky Peat Scantic Silt Loam
241		Biddeford Mucky Peat
242		Scantic Silt Loam Biddeford Mucky Peat
243		Limerick Silt Loam
249		Limerick Silt Loam Scantic Silt Loam

The Mandatory Shoreland Act, Title 38 M.R.S.A. Sections 435-448, requires that municipalities regulate the area of land around moderate to high value, 10-acre wetlands. As of this writing, towns will be given until December 31, 1991 to adopt shoreland zoning regulations to the land areas adjacent to these wetlands. Wetlands of ten acres or more which are not part of a great pond or river are protected by the State's Natural Resources Protection Act, Title 38 M.R.S.A. Sections 480-A through 480-S.

Water Resources

The Town's surface water resources include two rivers, and a number of streams. The Kennebec River borders Clinton on the west and the Sebasticook River runs through the southeast portion of the Town. The Carrabassett Stream runs through the northwest and into the Kennebec River. Beaver Brook runs through the south to the Sebasticook and Twelve Mile Brook runs through the center of Town to the Sebasticook.

Two sand and gravel aquifers were identified by the Maine geological Survey in Clinton. These aquifers have the potential for moderate to good ground water yield. Both the aquifers run north to south. One is located towards the east and one is located towards the west. Portions of the westerly aquifer are rated as having good to excellent potential ground water yields. The Clinton Water District's well is located in this aquifer.

Wildlife Resources

The Town of Clinton has a number of important wildlife resources including deer wintering areas and wetlands critical to waterfowl and other species.

The availability of deer wintering areas leads to higher deer populations year round. Deer in Maine are forced to survive during the winter with limited amounts of food, low temperatures, and wind chill. Severe winters or less than ideal winter habitats can seriously reduce the deer populations. Deer wintering areas have a softwood cover which moderates the harsh effects of winter. The yard maintains warmer than average temperatures and reduces wind chill. Deer are able to travel more easily in deer yards due to a smaller accumulation of snow on the ground.

There are ten deer wintering areas in the Town of Clinton as shown on Map 5-5. The Maine Department of Inland Fisheries and Wildlife (MDIFW) has not yet ranked these deer wintering areas. However, the MDIF has ranked the wetlands in Clinton according to their value for wildlife. These wetlands and their accompanying ratings are shown on Map 5-5.

Fishery Resources

There are five major rivers/streams in Clinton which are rated as high value for fisheries by the MDIF. They are the Kennebec River, the Sebasticook River, Fifteenmile Stream, Johnson Brook, and Carrabassett Stream. Twelvemile Brook and another unnamed brook are of medium value, and there are seven other unnamed brooks of undetermined value.

Critical and Natural Heritage Areas

The Critical Areas Program and the Natural Heritage Program are both run by the State of Maine. Critical which contain natural features of State significance - either highly unusual natural features, or outstanding examples of more common features. They may include exceptional plant or animal habitat, areas of great geological or historical interest, and outstanding scenic areas. The Natural Heritage Program inventories the status and locations of rare animals, plants, and natural communities.

Clinton has five areas that are listed in one or both of these programs. These areas include the site of an esker and the sites of four different plants: American Ginseng, Pale Green Orchis, Threadfoot, and

Vasey's Pondweed. The list is valid as of May, 1989.

Table 5-3 provides the name and status of each known occurrence of these areas and plants. The Maine Natural Heritage Program (MNHP) Rank column lists the relative rarity within the State. "Maine Status" relates to plants and indicates whether they are endangered, threatened, of special concern, or on the watch list. The "Precision" column indicates the quality of data for a particular feature at a particular site. The "Last Seen" column indicates how old the data is for any given site.

It should be noted that the sighting of the Threadfoot plant occurred in 1959 and the location has not been checked since that date. The other three plants which have at one time been sighted are in unknown locations and have not been mapped, although Vasey's Pondweed is only known to grow in wetlands. A biologist would have to be sent in to find the exact locations.

TABLE 5-3

MAINE NATURAL HERITAGE PROGRAM RARE AND ENDANGERED NATURAL FEATURES, INCLUDING MAINE CRITICAL AREAS

(Note: See key for explanation of table reference numbers)

Scientific Name	Maine Common Name	Federal MNHP Rank	Status	Status	Precision	Last Seen
Esker					S	
Panax Quinquefolius	American Ginseng	S2	T	3C	G	7/23/1923
Platanthera Flava	Pale Green Orchis	S2S3	SC	3C	G	7/10/1916
Podostemon Ceratophyllum	Threadfoot	S2	WL		M	8/31/1959
Potamogeton Vaseyi	Vasey's Pondweed	S1	E		G	7/31/1909

KEY:

MNHP Rank - Maine Natural Heritage Program Rank

S1 = Critical imperilled in Maine because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology is especially vulnerable to extirpation from the State.

S2 = Imperilled in Maine because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.

S3 = Rare in Maine (on the order of 20+ occurrences).

Maine Status - Plants

E = Endangered - represented in Maine by one documented, recent occurrence or Federal Endangered.

T = Threatened - represented in Maine by two to ten documented, recent occurrences, and could within the foreseeable future become threatened.

SC = Special Concern - represented in Maine by five to ten documented, recent occurrences, and could within the foreseeable future become threatened.

WL = Watch List - represented in Maine by more than ten documented recent occurrences, but is of concern.

Precision - The accuracy to which the occurrence can be mapped

S = Exact location of occurrence is known.

M = Approximate location is known (3/4 mile radius).

G = General; documented in town, but location is unknown.

