

Chapter VI NATURAL FEATURES

INTRODUCTION

Dunbarton occupies approximately 19,730 acres of land in the Central New Hampshire Region. Contained within its borders are a rich diversity of natural resources, and numerous distinct natural features.

OBJECTIVES OF THE CHAPTER AND RECOMMENDATIONS

- To increase the level of protection for water systems including, but not limited to, ponds and wetlands.
 - Educate the public on the importance of upland buffers.
 - Review Town regulations to determine if present buffers are adequate.

- To locate and protect important wildlife corridors to maintain biodiversity.
 - Identify large tracts of land to be protected or smaller tracts of land that could be joined to create larger tracts.

- To identify viewsheds and determine their importance for protection.
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- Identify parcels and acquire conservation lands.

- Encourage the donation of conservation lands to the Town by landowners.
- Work in conjunction with area land trusts, nonprofits, and government agencies to secure funds to purchase conservation lands.

COMMUNITY SURVEY RESULTS

The community survey results reveal how the respondents felt about natural resources within Dunbarton. The responses to these questions helped to contribute to the formation of the chapter objectives and recommendations. Provided below are a list of the questions asked, and the responses given to each question.

Table VI-1

Question 22: Please indicate how important the preservation of open space (undeveloped land) in Dunbarton is to you.

| | Total | Percent |
|-----------------------|------------|--------------|
| Very Important | 326 | 67.9% |
| Important | 81 | 16.9% |
| Somewhat Important | 51 | 10.6% |
| Not Important | 15 | 3.1% |
| No Opinion | 7 | 1.5% |
| Grand Total | 480 | 100.0% |

Table VI-2

Question 23: Do you support the acquisition of lands by the Town for conservation and low impact recreation purposes?

| | Total | Percent |
|-------------|------------|--------------|
| Yes | 393 | 82.9% |
| No | 42 | 8.9% |
| No Opinion | 39 | 8.2% |
| Grand Total | 474 | 100.0% |

Table VI-2a

If yes, how should the acquisition be funded?

| | Total | Percent* |
|--|------------|--------------|
| Through the Current Use Change Tax Fund? | 233 | 59.3% |
| Through General Tax Revenues? | 105 | 26.7% |
| Through a Bond Issue? | 103 | 26.2% |
| Through Donations? | 331 | 84.2% |
| Through Grants? | 320 | 81.4% |
| Other | 26 | 6.6% |

*respondents could choose more than one answer

A majority of respondents (67.9%) indicated that they think that it is important to preserve open space, as shown in Table VI-1, while only 3.1% of the respondents think that preservation of open space is not important. In addition, as Table VI-2 indicates, 82.9% of the respondents thought that it was important for the Town to conserve lands for recreation and conservation. The majority of the respondents (over 80%) think that money to obtain

these lands should be collected through donations and grants, while 59.3% of the respondents think that the Current Use Change Tax should be used. As indicated in Table VI-3, approximately 46% of respondents want to keep the Current Use Change Tax allocation at 50% allocation to the Conservation Commission, while 27.5% of respondents want greater than 50% of the money to be allocated to the Conservation Commission.

Table VI-3

Question 24: Would you support an increase or decrease in the portion of the current use change tax to be allocated to the Conservation Commission for land protection and acquisition, now currently at 50%?

| | Total | Percent |
|----------------------|------------|--------------|
| Increase | 131 | 27.5% |
| Decrease | 50 | 10.5% |
| Keep the Same | 219 | 45.9% |
| No Opinion | 77 | 16.1% |
| Grand Total | 477 | 100.0% |

Table VI-4

Question 25: Should wetlands protection be an important land management objective in Dunbarton?

| | Total | Percent |
|-------------|------------|--------------|
| Yes | 372 | 78.0% |
| No | 56 | 11.7% |
| No Opinion | 49 | 10.3% |
| Grand Total | 477 | 100.0% |

Table VI-5

Question 26: Should Dunbarton enact an ordinance to maintain vegetated buffer areas along wetlands and streams?

| | Total | Percent |
|-------------|------------|--------------|
| Yes | 296 | 62.3% |
| No | 93 | 19.6% |
| No Opinion | 86 | 18.1% |
| Grand Total | 475 | 100.0% |

Both Table VI-4 and Table VI-5, indicate that most of the respondents think that protection

Table VI-6

Question 27: What are the most important land conservation objectives to you?
Please choose the three most important.

| | Total | Percent* |
|----------------------------|------------|--------------|
| Fields / Agriculture | 139 | 28.4% |
| Streams | 101 | 20.6% |
| Recreation | 63 | 12.9% |
| Other | 13 | 2.7% |
| Aquifers | 89 | 18.2% |
| Ponds | 135 | 27.6% |
| Fish / Wildlife management | 129 | 26.3% |
| Forests | 225 | 45.9% |
| Scenic Views | 96 | 19.6% |
| Natural Habitat | 272 | 55.5% |
| Wetlands | 146 | 29.8% |

Table VI-7

Question 28: There are 19,734 acres of land in Dunbarton, 3,611 acres of which are permanently protected for public conservation purposes (including the federally owned flood control area at Clough State Park).
What do you feel is the ideal goal for permanent conservation land in Dunbarton?

| | Total | Percent |
|-------------|------------|--------------|
| More | 281 | 60.3% |
| Less | 13 | 2.8% |
| Same | 135 | 29.0% |
| No Opinion | 37 | 7.9% |
| Grand Total | 466 | 100.0% |

STEVE TO ADD ANALYSIS OF SELECT TABLE RESULTS

INVENTORY OF NATURAL RESOURCES

In order to establish the need for conservation and preservation, it is necessary to inventory the resources that define Dunbarton's character. The majority of this information was taken directly from the *1999 CNHRPC Natural, Cultural, and Historical Resources Inventory* that the Dunbarton Conservation Commission supplied information for and from mapped sources. Additional information was gathered from Town files and Subcommittee input. A series of maps was developed which depict these resources of the Town.

Geologic Resources

Geological resources play an important role in defining the shape and type of natural resources found within Dunbarton. The bedrock, that underlies the land, impacts the location of aquifers, wetlands and forests. Additionally, bedrock type has the potential to impact water quality, types and depth of soils that are found in a specific area. Steep slopes have the potential to limit development, while being more susceptible to erosion. The many hills and mountains in Dunbarton serve as potential sites for recreation and scenic views. The presence of seismic lines may show the potential location of past or future earthquakes. The many geological features contribute to the appearance and development patterns of Dunbarton's landscape.

Surficial and Bedrock Geology

The *Bedrock and Surficial Geology Map* depicts the bedrock geology of Dunbarton and the location of the hills and mountains.

Bedrock Geology

Bedrock is the solid material that underlies the soil or other unconsolidated material of the earth. It is most often comprised of a complex of materials. The types of bedrock found in Dunbarton are listed:

- **Dc1m** - Concord Granite (Late Devonian)—Gray two-mica granite, locally grading to tonalite
- **Ds1-6** - Spaulding Tonalite (of the NH Plutonic Suite, Late to Early Devonian) – weakly foliated to nonfoliated, spotted biotite quartz diorite, tonalite, granodiorite, and granite; garnet and muscovite may or may not be present.
- **Sp** - Perry Mountain Formation (Metasedimentary and Metavolcanic, Middle to Lower Silurian) – sharply interbedded quartzites, light-gray nongraphitic metapelite, and “fast-graded” metaturbidites. Cotichule layers common.

- Srl - Lower part of Rangeley Formation—Gray, thinly laminated (5-25 mm) metapelite containing local lentils of turbidites and thin quartz conglomerates in western New Hampshire. Sparse calc-silicate pods and coticule. Probably equivalent to member B of Rangeley Formation of Maine
- Sru - Upper part of Rangeley Formation—Rusty-weathering, pelitic schist, metasandstone, and local coarse-grained metasandstone lentils; calc-silicate pods common; minor coticule. Probably equivalent to member C of Rangeley Formation of Maine

United States Geological Services (USGS) has conducted many studies in NH on bedrock geology and its effects on water contamination. Findings by USGS have indicated that bedrock geology plays a role in the presence of radon and arsenic in drinking water, a problem in several private wells found within Dunbarton. Presently, public water supplies are tested and regulated by the United States Environmental Protection Agency. However, testing of private wells is not required and is only performed by landowners if they choose to do so. A greater understanding of the role that bedrock geology plays in the natural environment could be an important step in controlling water quality issues.

Not only does bedrock affect water quality, but it affects the location of surface water and groundwater as well. The materials that comprise bedrock vary in density and permeability, resulting in water that “pools” in some areas, while running quickly over other areas. This results in the formation of aquifers and wetlands, in some areas while creating drier lands in other areas. Fractures in the bedrock also provide valuable sources for water supplies, often being able to support public water sources. In addition, the water that collects in the bedrock aquifers provides a valuable source of water for private wells.

Seismic Lines

Dunbarton contains one seismic line; located by Stark Pond Marsh just east of the junction of Ray Road and Hoyt Road. This line is approximately 850 feet long. Seismic lines are associated with earthquake potential, either indicating a past earthquake or signifying a potential site for future earthquakes.

Steep Slopes

Steep slopes are defined as having a slope greater than 15%. These areas are most often associated with increased erosion and are often too steep to be built upon. According to the 2003 Natural Resource Conservation Services (NRCS) draft soils layer, Dunbarton has 4773.37 acres of steep slopes. Most of the steep slopes in the Town occur east of NH 13 and West of Kimball Pond Road and Montalona Road.

Hills and Mountains

Four promontories are located in Dunbarton. Their location can be seen on the *Bedrock and Surficial Geology Map*. Table VI-8 shows the elevation of each of these features. The highest elevation in Dunbarton, is Mills Hill with an elevation of 900', located _____.

Table VI-8
Hills and Mountains

| Mountains & | Elevatio |
|------------------------|-----------------|
| Kuncanowet | 650' |
| Burnham | 825' |
| Quimby | 850' |
| Mills | 900' |

Sources: CNHRPC 1999 Natural, Cultural and Historical Resources Inventory

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Excavation Materials

Dunbarton contains five excavation sites. Four of these sites are presently used for gravel excavation, while one Town owned gravel site remains inactive.

Table VI-9
Excavation Operations

| Name or Location | Map & Lot # | Type of Material(s) |
|---------------------|-------------|---------------------|
| McDeavitt (private) | H2-2-6 | Gravel |
| Bellanger (private) | I1-3-1 | Gravel |
| Town of Dunbarton | H2-2-3 | Gravel |
| Town of Dunbarton | B5-3-1 | Gravel |
| Town of Dunbarton | C5-1-4 | Gravel (Inactive) |

Sources: Subcommittee Input, Town Files

Water Resources

The *Water Resources Map* details the water resources as noted here in this section. The comprehensive map includes the hydrographic features, aquifer transmissivity (how much water flows), wetlands, watershed, public water supplies and well locations.

Water Supplies

The Town of Dunbarton has one public water supply, the Dunbarton Elementary School, which serves a population of up to 180 persons. Between 1983 and 1997, the NHDES has issued 132 private well permits to residents of Dunbarton. The majority of them occur on Robert Rogers Road (16) and on Route 13 (13). Others roads which have several of these well sited on them are: Gorham Pond Road (8), Leg Ache Hill Road (6), Clifford Farms Road (7), and Black Brook Road (7). These new well locations have been mapped by NHDES.

Ponds

Gorham Pond is the main tributary to Gorham Brook. This 103-acre pond has a maximum sounded depth of 14 feet.

The 10.8-acre Stark Pond is also one of Dunbarton's ponds, yet its shallowness yields an average depth of only six feet.

Kimball Pond is 52 acres in area with an average depth of nine feet. This pond becomes a tributary to the Merrimack through the Black Brook.

Long Pond is a natural 32-acre pond and is a tributary to the Piscataquog River.

Purgatory Pond is a small 14-acre pond. The maximum depth sounded was 14 feet with an average depth of 10 feet.

Rivers

There are no rivers located within the boundaries of Dunbarton. On the western side of Dunbarton, within the boundaries of Weare and running through Dunbarton, lies the Piscataquog River. On the eastern side, within the boundaries of Hooksett, lies the Merrimack River. Many of the lakes and streams within Dunbarton empty into these two major rivers.

Brooks

Harry Brook flows from Long Pond south into Goffstown.

Black Brook flows southward out of Kimball Pond and out of Dunbarton into Goffstown.

Gorham Brook flows from Gorham Pond in the Southwest area of Dunbarton over the border and into Goffstown where it makes its way to the Piscataquog River.

Stark Brook flows from the Stark Marsh area several miles into the north branch of the Piscataquog River.

Bela Brook flows from Dunbarton into Bow.

Purgatory Brook travels a short distance from Purgatory Pond into Goffstown.

Table VI-10
Percent of Protected Shorelands in Dunbarton

| Name | Total Shore Area | % of Shore Protected |
|-----------------|------------------|----------------------|
| Harry Brook | | |
| Black Brook | | |
| Gorham Brook | | |
| Stark Brook | | |
| Bela Brook | | 0 |
| Purgatory Brook | | 0 |

Source: GIS Layers, Subcommittee Input

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Watersheds

Although no rivers are found within its own borders, Dunbarton is situated in many sub-watersheds of the Piscataquog and Merrimack Rivers. The watersheds of the Concord, Henniker, and Manchester Tributaries of the Merrimack River (Concord Tributaries) cover the northern and eastern boundaries of the Town. The Upper and Lower Piscataquog watersheds cover the remaining southern and western portions of Dunbarton

Aquifers

A fairly large aquifer resides beneath the Stark Pond, Stark Brook, and Stark Marsh area. This aquifer stretches from a few miles south of Hopkinton, travels along Stark Brook to Stark Marsh, then down to Stark Pond. After Stark Pond, the aquifer becomes less continuous with small segments periodically underlying the surface until Clough State Park. The other main aquifer in Dunbarton lies along the Kimball Pond/Black Brook watershed. This aquifer is concentrated around Kimball Pond with smaller portions north and south of the pond. A few additional small aquifers underlie the Town in the southeastern parts and southwestern parts.

Wetlands

Wetlands inventoried, field-checked, and mapped by the US Fish and Wildlife Services, between 1986 and 1990, dot the entire Town. A large wetland resides in the Kimball Pond area, encompassing it and the entire surrounding area. A second large wetland begins north of Gorham Pond in the south western corner of Dunbarton. From north of the pond this wetland continues through the Gorham Pond drainage area and thins as it follows the Gorham Brook into Goffstown. Other large wetland areas include: Stark Marsh, portions along Stark Brook, areas of Purgatory Pond, and portions along Bela Brook. Many other smaller isolated wetlands exist throughout Dunbarton.

Hydric Soils

CALCULATE PERCENT OF LAND COVERED BY HYDRIC SOIL

Very Poorly Drained Soils (Hydric A)

Water is removed so slowly that the water table remains at or on the ground surface for the greater part of the surface for the greater part of the time (9-10 months of the year). Very poorly drained soils occupy level or depressed sites, are frequently ponded, commonly have a thick, dark colored surface layer, and have gray subsoil.

Poorly Drained Soils (Hydric B)

Water moves so slowly that the water table remains at or near the ground surface for a large part of the time (6-9 months of the year). These soils occupy nearly level to sloping sites, are ponded for short periods in some places, have a dark colored surface layer, and have grayish colored subsoil which is mottled in most places.

Dams

According to the NH Department of Environmental Services, there are 12 dams within Dunbarton. The hazard classification system categorizes the dams on the basis of safety.

Four dams (4) in Dunbarton are classified as AA, which means the failure of which would not threaten life or property, and one (1) is classified as A, which means a low hazard potential.

No dams in Dunbarton are classified as B, meaning the dam has a significant hazard potential were it to fail.

The most dangerous class is Class C, which means the dam has a high hazard potential with possible loss of life and damage to major highways. Dunbarton has two (2) Class C dams (Everett Reservoir North & East Dikes).

The remaining five (5) dams are not classified according to NH DES' records. This is because the dams were not built or are in ruins and are not currently holding back water.

Table VI-11
Dams in Dunbarton

| Index | Name | Hazard Class | Type | Status | Ownership |
|-------|------------------------------|--------------|----------|-----------|-----------|
| 1 | Black Brook I Dam | | Earth | Ruins | Private |
| 2 | Bruzga Farm Pond Dam | | Earth | Not Built | Private |
| 3 | Everett Reservoir East Dike | C | Earth | Active | Federal |
| 4 | Everett Reservoir North Dike | C | Earth | Active | Federal |
| 5 | Harris Brook Dam | | Earth | Ruins | Private |
| 6 | Harris Brook I Dam | | Earth | Ruins | Private |
| 7 | Kimball Pond Dam | A | Concrete | Active | Town |
| 8 | Recreation Pond | AA | Earth | Active | Private |
| 9 | Recreation Pond | AA | Earth | Active | Private |
| 10 | Stark Pond Dam | AA | Concrete | Active | State |
| 11 | Wildlife Pond | AA | Earth | Active | Private |
| 12 | Wildlife Pond Dam | | Earth | Ruins | Private |

Source: NH Department of Environmental GIS data

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Protection from Nonpoint Source Pollution

The greatest threat to Dunbarton's waterways is perhaps nonpoint source (NPS) pollution, also known as polluted runoff. Nonpoint source pollution (NPS) is pollution that cannot be traced back to any specific source; it is the accumulated pollution resulting from everyday activities. Its effects are magnified by impervious surfaces, such as building roofs and paved surfaces. Water cannot infiltrate these surfaces, causing more water to run off over the land. As water washes over the land, it picks up oil, pesticides, nutrients, sediment, and other pollutants that have been placed into the environment by everyday activities. The runoff water flows into storm drains and sewer systems or directly into water bodies, carrying the pollutants that have been deposited. Sewers and storm drains are not the answer to this problem; they are direct lines to waterways, meaning that polluted runoff is being poured right into surface waters. As little as 10% impervious surface on a lot can begin to negatively impact a waterway. Thus, the more intensively used a piece of land is, the more nearby waterways are negatively affected by polluted runoff.

Locations which are potentially hazardous to groundwater have been mapped on the *Potential Threats to Water Resources Map*. The locations include junkyards, autobody shops, above ground storage tanks, and gravel pits.

Land Resources

The *Conservation Lands Map* depicts the conservation lands noted here in this section.

Conservation Lands

A narrative is needed to describe the state of cons lands in Dunbarton

Table VI-12
Dunbarton Conservation Lands

| Conservation Lands | Held by | Acres |
|---|---------------|-------------|
| KTFCFA - Brown (Gorham Pond) (LCIP) | Town | 50 |
| Clough State Park (small portion in Dunbarton) | NH DRED | 1 |
| Kuncanowet Natural Area - Erikson Lot | Town | 122 |
| KTFCFA - Fogg (Gorham Pond) (LCIP) | Town | 58 |
| KTFCFA - Fogg (Gorham Pond) (LCIP) | Town | 14 |
| KTFCFA - Freeport Development (Gorham Pond) (LCIP) | Town | 62 |
| French #5 easement | SPNHF | 127 |
| Grant easement & Grant Flowage easement | Town | 8 |
| KTFCFA - Gravis (Gorham Pond) (LCIP) | Town | 269 |
| Great Meadow - Three Lots | Town | 75 |
| KTFCFA - Greenhalge (Gorham Pond) (LCIP) | Town | 22 |
| Greenhalge easement | SPNHF | 50 |
| Hopkinton-Everett Reservoir (portion in Dunbarton) | US Army Corps | 1187 |
| Hough easement | SPNHF | 130 |
| Kimball Pond | Town | 72 |
| Kuncanowet Town Forest and Conservation Area (KTFC) | Town | 43 |
| Kuncanowet Town Forest - Heino Lot | Town | 34 |
| Kuncanowet Town Forest - Holiday Shore Lot | Town | 12 |
| Town Forest - Kimball Pond Road | Town | 278 |
| Town Forest - Mansion Road | Town | 12 |
| Kuncanowet Town Forest - Parker/Stinson Lot | Town | 259 |
| Kuncanowet Town Forest - Town Forest & Cons Area | Town | 123 |
| Town Forest - Winslow Lot #1 | Town | 107 |
| Town Forest - Winslow Lot #2 | Town | 41 |
| Kuncanowet Town Forest - Upton Lot | Town | 14 |
| Long Pond Lot | Town | 10 |
| Gorham Pond Lot | Town | 5 |
| Ray Road Lot | Town | 20 |
| Richards easement (Kimball Pond) | Town | 76 |
| Story Easement | Town | 53 |
| Taylor easement | Town | 145 |
| KTFCFA - Whitney #1 (Gorham Pond) (LCIP) | Town | 190 |
| KTFCFA - Whitney #2 (Gorham Pond) (LCIP) | Town | 2 |
| Total Protected Acreage | | 3671 |

Source: 1998 Nat, Cult, & Historic Invent., 2002 Digital Tax Maps; Subcommittee Input

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Current Use

Property owners can file for reduced property taxes through the Current Use Taxation program. The current use value is the assessed valuation per acre of open space land based upon the income-producing capability of the land in its current use— not its real estate market value. This valuation shall be determined by the Town’s assessor in accordance with the range of current use values established by the Current Use Board (CUB) and in accordance with the class, type, grade, and location of land. Owners of parcels of land which are not anticipated to be used for a different type of use in the future can apply at the Town Office for the following categories:

- “Farm land” means any cleared land devoted to or capable of agricultural or horticultural use as determined and classified by criteria developed by the Commissioner of Agriculture, Markets, and Food and adopted by the CUB.
- “Forest land” means any land growing trees as determined and classified by criteria developed by the State Forester and adopted by the CUB. For the purposes of this paragraph, the CUB shall recognize the cost of responsible land stewardship in the determination of assessment ranges.
- “Open space land” means any or all farm land, forest land, or unproductive land as defined by this section. However, “open space land” shall not include any property held by a city, town or district in another city or town for the purpose of a water supply or flood control, for which a payment in place of taxes is made in accordance with RSA 72:11.
- “Unproductive land” means land, including wetlands, which by its nature is incapable of producing agricultural or forest products due to poor soil or site characteristics, or the location of which renders it inaccessible or impractical to harvest agricultural or forest products, as determined and classified by criteria developed by the CUB. The CUB shall develop only one category for all unproductive land, setting its current use value equal to that of the lowest current use value established by the CUB for any other category.
- “Wetlands” means those areas of farm, forest and unproductive land that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

A land use change tax shall be levied when the land use changes from open space use to a non-qualifying use.

Table VI-13
Current Use Acreages by Land Type, 1993-2003

| CU Acreage by Land Type | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|-------------------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|----------------|----------------|----------------|----------------|
| Farm Land | 794.66 | 782.66 | 812.28 | 812.28 | 808.69 | 876.93 | 839.86 | 820.22 | 819.35 | 788.58 | 788.58 |
| Forest Land | 7634.58 | 7323.08 | 7533.01 | 8125.11 | 8247.28 | 8567.09 | 8730.98 | 8684.28 | 8507.55 | 7818.48 | 7713.96 |
| Unproductive | 449.50 | 467.24 | 502.38 | 531.99 | 527.25 | 430.81 | 475.33 | 493.30 | 477.87 | 433.14 | 429.14 |
| Wet Land | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total CU Acres | 8878.74 | 8572.98 | 8847.67 | 9469.38 | 9583.22 | 9874.83 | 10046.17 | 9997.80 | 9804.77 | 9040.20 | 8931.68 |

Sources: Dunbarton Town Files

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Table VI-14
Land Use Change Tax Collected, 1993-2002

| Year | Total (\$) |
|------|------------|
| 1993 | 8,825 |
| 1994 | 9,070 |
| 1995 | 20,600 |
| 1996 | 40,940 |
| 1997 | 21,515 |
| 1998 | 30,137 |
| 1999 | 61,536 |
| 2000 | 16,120 |
| 2001 | 23,009 |
| 2002 | 34,409 |
| 2003 | |

Sources: Dunbarton Annual Reports

A narrative is necessary to describe what is in Dunbarton

Agricultural Resources

Prime farmland soils, soils of statewide importance, and soils of local importance to Merrimack County are depicted using the 1981 & 1985 Soil Conservation Service (now Natural Resources Conservation Service, the NRCS) Survey digital information on the *Agricultural Soils Map*.

Prime farmland soils are described nationally as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and are also available for these uses.

Categorized soils of Statewide importance have properties that exclude them from the prime farmland list. However, they are important to agriculture in the State of New Hampshire. They produce fair to good crop yields when properly treated and managed. As a general rule, erosion control and irrigation practices are necessary to produce high-yield crops.

Soils of local importance are identified by County agencies within the State. These soils also support the production of food, feed, fiber, forage, and oilseed crops. These soils produce fair to good crops when managed properly.

The definition of a farm varies greatly among individuals. Some people consider farms to be any land that produces crops or is used to raise livestock, whether the products produced are sold or used by the landowner, while others consider a farm to be land that is used solely for commercial use. Even the United States Legislation has changed the definition of a farm nine times since 1850 when the first definition was developed. For the purposes of this Master Plan a farm will be defined as “any place from which \$1,000 or more of agricultural products (crops and livestock) were sold or normally would have been sold during a given year.” This definition has been in place since 1975 and is utilized by the United States Department of Agriculture, the Office of Management & Budget, and the Bureau of the Census. Utilizing this definition, Dunbarton has one active farm, Stone’s Farm, a producer of dairy.

Table VI-15
Active Farms in Dunbarton

| Name | Location | Products or Use |
|-------------|----------|-----------------|
| Stones Farm | | Dairy |
| | | |
| | | |

Source: Subcommittee input

Forest Resources

The *Forestry Soils Map* depicts the location of the best forestry soils in Town.

Town Forests

WHERE ARE THEY?

Forest Management

Timber harvesting remains a viable source of income in New Hampshire. Timber is considered a renewable resource and when managed properly provides a continuous supply of wood products. Harvesting of timber occurs throughout Dunbarton most notably ____ (WHERE?) ____ . Timber is considered real estate, so when it is harvested an Intent to Cut form must be filled out, and a timber tax is collected.

Table VI-16 shows the timber tax collected in Dunbarton from 1993 to 2003.

Although the amount collected varies from year to year, the Timber Tax still provides a source of income to the Town.

Table VI-16
Timber Tax Collections, 1993-2003

| Year | Total (\$) |
|------|------------|
| 1993 | 8,824 |
| 1994 | 7,970 |
| 1995 | 14,181 |
| 1996 | 17,962 |
| 1997 | 8,772 |
| 1998 | 18,102 |
| 1999 | 15,569 |
| 2000 | 12,875 |
| 2001 | 24,701 |
| 2002 | 13,189 |
| 2003 | |

Sources: *Dunbarton Annual Reports*

Tree Farms

Table VI-17
Tree Farms in Dunbarton

| Name | Location | Products or Use |
|------|----------|-----------------|
| | | |
| | | |
| | | |
| | | |

Source: Subcommittee input

ARE THERE PRESENTLY MANAGEMENT PRACTICES IN PLACE? SHOULD THERE BE?

Forestry Soils

The *Forestry Soils Map* shows the location of the various soils groups in Dunbarton. The data depicted is based on the draft soils survey data from NRCS. The soils categories they identified are as follows:

IA Soils Type

The successional trends on these soils are toward stands of shade tolerant hardwood, i.e., beech and sugar maple. Successional stands frequently contain a variety of hardwoods such as beech, sugar maple, red maple, white birch, yellow birch, aspen, white ash, and northern red oak in varying combinations with red and white spruce, balsam fir, hemlock, and occasionally white pine. Hardwood competition is severe on these soils. Softwood regeneration is usually dependent upon persistent hardwood control efforts. This group consists of the deeper, loamy textured, moderately well, and well-drained soils. Generally, these soils are more fertile and have the most favorable soil moisture relationships.

IB Soils Type

This group has successional trends toward a climax of tolerant hardwoods, predominantly beech. Successional stands, especially those which are heavily cutover, are commonly composed of a variety of hardwood species such as red maple, aspen, paper birch, yellow birch, sugar maple, and beech, in combinations with red spruce, balsam fir, and hemlock. The soils in this group are generally sandy or loamy over sandy textures and slightly less fertile than those in group IA. These soils are moderately well and well drained. Soil moisture is adequate for good tree growth, but may not be quite as abundant as in group IA soils. Hardwood competition is moderate to severe on these soils. Successful softwood regeneration is dependent upon hardwood control.

IC Soils Type

Because these soils are highly responsive to softwood production, especially white pine, they are ideally suited for forest management. The soils in this group are outwash sands and gravels. Soil drainage is somewhat excessively to excessively drained and moderately well drained. Soil moisture is adequate for good softwood growth, but is limited for hardwoods. Hardwood competition is moderate to slight on these soils. Due to less hardwood competition, these soils are ideally suited for softwood production. With modest levels of management, white pine can be maintained and reproduced on these soils. Successional trends on these coarse textured, somewhat droughty and less fertile soils are toward stands of shade tolerant softwoods, i.e., red spruce and hemlock. Balsam fir is a persistent component in many stands, but is shorter lived than red spruce and hemlock. White pine, red maple, aspen, and paper birch are common in early and midsuccessional stands.

IIA Soils Type

This diverse group includes many of the same soils as in groups IA and IB. However, these mapping units have been separated because of physical limitations which make forest management more difficult and costly, i.e., steep slopes, bedrock outcrops, erosive textures, surface boulders, and extreme rockiness. Due to the diverse nature of this group, it is not possible to generalize about successional trends or to identify special management opportunities. Usually, productivity of these soils is not greatly affected by their physical limitations. However, management activities such as tree planting, thinning, and harvesting are more difficult and more costly.

IIB Soils Type

Productivity of these poorly drained soils is generally less than soils in other groups. Due to abundant natural reproduction in northern New Hampshire, these soils are generally desirable for production of spruce and balsam fir, especially pulpwood. Red maple cordwood stands or slow-growing hemlock saw-timber are common in more southerly areas. However, due to poor soil drainage, forest management is somewhat limited. Severe wind-throw hazard limits partial cutting, frost action threatens survival of planted seedlings, and harvesting is generally restricted to periods when the ground is frozen. Successional trends are toward climax stands of shade tolerant softwoods, i.e., spruce in the north and hemlock further south. Balsam fir is a persistent component in stands in northern New Hampshire and red maple is common on these soils further south. The soils in this group are poorly drained. The seasonal high water table is generally within 12 inches of the surface.

NC Soils Type

Several mapping units in the survey are either so variable or have such a limited potential for commercial production of forest products they have not been considered. Often an onsite visit would be required to evaluate the situation.

Ecological Resources

Explain what ec resources are (copy from Deering NF chap)

Corridors

Not only are corridors and greenways are used by people for recreation and transportation, but wildlife will use these areas to travel from one habitat to another. Maintaining viable and undeveloped corridors provides a measure of biological success for many wildlife species, particularly larger mammals, within an area. The following corridors have been identified in Dunbarton, through the *1999 CNHRPC Natural, Cultural, and Historical Resources Inventory*.

- A large utility line corridor travels through the entire length of Dunbarton from the northern border with Hopkinton to the southern border with Goffstown. This corridor runs through several marshes, conservation lands, and other non-developed lands making it an excellent travel corridor for different wildlife.
- The riparian corridor of Bela Brook is primarily undisturbed by roadways or human activities. A series of wetlands dot the entire Brook as it travels along the Bow/Dunbarton town line to Turkey Pond in Concord.
- Perhaps the most significant corridor is found within the Black Brook watershed, a sub-watershed of the Manchester Tributaries of the Merrimack River watershed. This rich area encompasses Great Meadow, Kimball Pond and Black Brook and follows along the eastern edge of a contiguous block of conservation land.
- North/south trending streams make for excellent corridors, as does the Kuncanowet Ridge.

Exemplary Natural Communities

REFER TO REGIONAL NRI - 1999

A deeryard has been identified to exist between Winslow and Barnard Roads. Excellent habitat is found in a large open space adjacent to Chase Sanctuary in Hopkinton which includes deer wintering yards.

NH Natural Heritage Inventory (NHI)

Dunbarton has a total of four listings on the NH Natural Heritage Inventory. Of the species listed there are two bird species one reptile and one terrestrial community as shown in Table VI-18. Species and habitats listed in the NHI are considered to be threatened or endangered. The species and habitats are listed due to their rarity in the Nation or in the State. Species are ranked according to their rarity based on the following conditions.

Table VI-18
NHI for Dunbarton

| Common Name | Scientific Name | Listed | | # Reported Last 20 yrs | | Status |
|---|----------------------|---------|-------|------------------------|-------|-----------|
| | | Federal | State | Town | State | |
| Birds | | | | | | |
| Great Blue Heron (rookery) | Ardea herodias | - | - | 1 | 37 | High |
| Pied-Billed Grebe | Podilymbus podiceps | - | E | 1 | 21 | Hlgh |
| Reptiles | | | | | | |
| Blanding's Turtle | Emydoidea blandingii | - | - | 2 | 62 | Very High |
| Natural Communities - Terrestrial | | | | | | |
| SNE Circumneutral Rocky Summit/Rock Outcrop | | - | - | 1 | 6 | Very High |

Source: NH Natural Heritage Inventory, date?

Please remove this worksheet link/picture of table and insert regular Word table

Viewsheds

Viewsheds have been identified on the *Conservation and Public Lands and Vistas Map*.

Describe them here

Air Resources

??

NATURAL FEATURE AND RESOURCE CONCERNS

??

PROPOSED REGULATORY PRESERVATION MEASURES

Descriptions? Areas to use them? See Deering

- Open Space Development Zoning
- Large Lot Forestry and Agricultural Zoning
- Overlay Districts
- Aesthetics-Based Land Use Regulations
- Environmental Science-Based Regulations
- Flexible Zoning

NON-REGULATORY PRESERVATION MEASURES

Descriptions? Areas to use them? See Deering

- Urban Growth Districts
- Phased Growth Plan
- Limitations to the Number of Building Permits
- Open Space/Village Design Planning

SUMMARY

- Respectfully Submitted,