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1. How many acres does the town represent, and are there any conserved lands within the
town. If so what is the percentage of conserved lands?

We were able to gather this information with the aid of GIS (Geographic
Information Systems). We used GRANIT, New Hampshire’s primary source for GIS
data to retrieve the conserved lands layer for our towns. Using GIS we gathered the total
area of the town, and the total area of conserved lands to find the percent of the land in
each town that is conserved.

Bradford covers 22,993 acres and with 1,532 acres in conservation, Bradford
needs some work to increase the 7% of conserved land in the town. Bradford has one
large conserved parcel along with 3 smaller parcels. The Low State Forest is the largest
parcel which takes credit for the majority of conserved land in Bradford with 1098 acres.
Two other large parcels are Blitzer with 143 acres and Aiken Pasture Town Forest which
is 135 acres. The smallest parcel is Pearl Town Forest which is 40 acres.

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Conserved Lands
Bradford, NH

Legend
- Roads
- Lakes and Ponds
- Streams and Rivers
- Conserved Lands

Institute for Community & Environment
541 Main Street
New London, NH 03257
(603) 526-3444

Colby-Sawyer College
<table>
<thead>
<tr>
<th></th>
<th>NAME</th>
<th>ACRES</th>
<th>AREA_FEET</th>
<th>Held by:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Whitman Park</td>
<td>4</td>
<td>177097</td>
<td>Town of Bradford</td>
</tr>
<tr>
<td>2</td>
<td>Bradford Pines Natural Area</td>
<td>5</td>
<td>215158</td>
<td>State of New Hampshire</td>
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<tr>
<td>3</td>
<td>Bensley Easement</td>
<td>0</td>
<td>4043</td>
<td>ASLPT</td>
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<td>4</td>
<td>Pearl Town Forest</td>
<td>40</td>
<td>1723098</td>
<td>Town of Bradford</td>
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<td>5</td>
<td>French's Park</td>
<td>7</td>
<td>321039</td>
<td>Town of Bradford</td>
</tr>
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<td>6</td>
<td>L. Dodge Lot</td>
<td>7</td>
<td>310486</td>
<td>Town of Bradford</td>
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<td>7</td>
<td>Blitzer</td>
<td>143</td>
<td>6248549</td>
<td>ASLPT</td>
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<tr>
<td>8</td>
<td>Low State Forest</td>
<td>1098</td>
<td>47839987</td>
<td>State of New Hampshire</td>
</tr>
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<td>9</td>
<td>Aiken Pasture Town Forest</td>
<td>135</td>
<td>5877015</td>
<td>Town of Bradford</td>
</tr>
<tr>
<td>10</td>
<td>Penhallow Lots</td>
<td>6</td>
<td>245983</td>
<td>Town of Bradford</td>
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<tr>
<td>11</td>
<td>Penhallow Lots</td>
<td>3</td>
<td>127938</td>
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</tr>
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<td>12</td>
<td>Bradford Springs Site</td>
<td>16</td>
<td>696357</td>
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</tr>
<tr>
<td>13</td>
<td>Bradford Bog</td>
<td>68</td>
<td>2973745</td>
<td>Town of Bradford</td>
</tr>
</tbody>
</table>
2. Are there large undeveloped parcels of land in your region?

Unfragmented parcels are areas that are not intersected by roads, housing, or any other type of human developments. These areas are prime habitat for many species of wildlife. Generally, the larger the size of the unfragmented parcel the more beneficial it is to wildlife for habitat use. Bradford has eight unfragmented lands and the total acreage includes a 1 mile buffer which travels over the town borders into neighboring towns. These unfragmented lands are located throughout the town. Parcel #1 spans 7,455 acres, high elevation areas lie inside this unfragmented area. Parcel #2 is 800 acres. Parcel #3 is 852 acres. Parcel #4 is 802 acres. Parcel #5 is 530 acres. Pearl Town Forest is a 40 acre piece of conserved land which lies on this unfragmented parcel. Parcel #6 is 875 acres. Parcel #7 is 3,215 acres, both the Aiken Pasture Town Forest which is a 135 acre conserved parcel and the Bradford Bog which is a 68 acre conserved parcel lie on this unfragmented parcel. Parcel #8 is 10,163 acres. Both Low State Forest which is a 1,098 acre conserved parcel and Blitzer a 58 acre conserved parcel lie on this section of unfragmented land. High elevation areas lie inside this unfragmented area.

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Legend
- Lakes and Ponds
- Unfragmented Lands (acres)
  - 1-19
  - 20-99
  - 100-499
  - 500-2500
  - > 2500 (undeveloped)

Unfragmented Lands
Bradford, NH

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3. What is the rate of development in the past ten years, where has new development occurred, what is the potential for development, and has a build-out analysis been done?

   From 1990 – 2000 Bradford had a small population increase. Between 1990-2000, there was a 3% growth rate which put Bradford’s population at 1,454 in 2000. In 2003 the census estimate was 1,493.

   Of the 757 housing units in Bradford there are 540 housing units are clumped in the northeasterly section of town. This section of town is only about 30% of the area of the town. Due to the lack of conserved lands in Bradford and 70% of the population living in 30% of the town, there is great potential for development in Bradford. No build-out analysis has been done for Bradford, (Master Plan pgs.16-15)


   <http://www.nhes.state.nh.us/elmi/htmlprofiles/bradford.html>.

New Hampshire Association of Regional Planning Commissions. Feb. 2005
Bradford Employment

Year

1970
1980
1990
2000

Managerial & Professional
Technical Sales & Administrative Support
Service
Farming, Forestry & Fishing
Precision Production, Craft & Repair
Operators, Fabricators & Laborers
4.+ 5. Does the master plan in your town address conservation? Is there a conservation commission? Are they actively pursuing any parcels?

The master plan for Bradford addresses conservation of natural, historical, and cultural resources. There is a conservation commission in Bradford. They are pursuing the purchase of the Bradford Bog, as well as helping the planning board update the Wetland Ordinance, and starting work on a Rural Heritage Connection program, which is a newly formed historical/environmental land protection effort.

6. Are there actively managed agricultural lands in town, do they provide a public or private benefit, and do they have an easement on them?

There are actively managed agricultural lands in the town of Bradford over 10 acres. Many people may also have small personal farms (gardens). As far as what is managed, the following has been determined:

- Robert W. Messer- 20 acres
- Robert A. Messer- 50 acres
- Douglas Webb Jr.- 41 acres
- Masonic Home- 43 acres
- Jennifer Dow- 21 acres
- Harry Hasey III- 22 acres
- Battles Farm- Joseph O. Battles- 40 acres (Farm Rec.)
- Sunshine Farm

The following map shows aerial photos taken of Bradford in 1998. The large open parcels of land were identified and digitized using GIS. The digitized land was then queried to 10 acres allowing the map to show only the parcels of land greater then ten acres, in accordance to the ASLPT standards. Furthermore the maps were shown to community members to ground truth the findings.


Bradford Landuse Documents.

Tax Maps in Bradford Town Office.
Agriculture
Bradford, NH
7. Are there any actively managed forested lands in town, and do they have an easement on them.

Tree farms are a form of forest management. To become a tree farmer, a landowner must have 10 acres set aside for current use and it may become a tree farm or another form of actively managed forests. A tree farm owner does not need to state his name or information about his parcel; he simply has a green and white triangle sign on the edge of the road that signifies that parcel as a tree farm. The Society for the Protection of New Hampshire Forests’ 2004 Tree Farm Data lists 6 tree farms within Bradford and 1 which is in Bradford and Hillsboro. These 7 tree farms total 1871 acres. The Bradford Master Plan notes that “The timber resources are being utilized only in a limited way. With about 90% of the land area in town considered capable of being forested, harvesting 600-800 acres each year is quite minimal. ‘Best Management Practices’ are not always followed with timber harvesting being treated as a very individual concern.” (Bradford Master Plan p.43)


Society for the Protection of New Hampshire Forests Tree Farm Data.
Unfragmented Lands
Bradford, NH

Legend
- Lakes and Ponds
- Unfragmented Lands (acres)
  - 1-19
  - 20-99
  - 100-499
  - 500-2500
  - > 2500 (undeveloped)

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8. What plant communities are in town, and are any of them rare or threatened?

GIS Landcover Data was used to examine the plant communities in Bradford. Acreages for each type of landcover were calculated and are listed in the following chart.

A GIS data layer was used to identify endangered species. The locations and specifics on type are offset to keep them protected. Reptiles and vegetation were the types of endangered species which the GIS layer listed for Bradford.

<table>
<thead>
<tr>
<th>Landcover</th>
<th>Acres</th>
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<tbody>
<tr>
<td>Developed</td>
<td>114</td>
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<tr>
<td>Transportation</td>
<td>518</td>
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<tr>
<td>Agriculture</td>
<td>851</td>
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<tr>
<td>Hardwoods</td>
<td>6813</td>
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<tr>
<td>Conifers</td>
<td>5279</td>
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<tr>
<td>Mixed Forest</td>
<td>7526</td>
</tr>
<tr>
<td>Open Water</td>
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<td>Wetland</td>
<td>604</td>
</tr>
<tr>
<td>Disturbed</td>
<td>35</td>
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<tr>
<td>Other Cleared</td>
<td>748</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>22995</strong></td>
</tr>
</tbody>
</table>
Landcover Types
Bradford, NH
Endangered Species
Bradford, NH

Legend

Endangered Species
Vegetation
Reptiles
Lakes and Ponds
Streams and Rivers
Roads

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9. Are there ecologically important lands in your town to wildlife?

One of the main goals of the New Hampshire Everlasting initiative is to conserve ecologically important lands. Protecting these lands involves protecting prime habitat for native species, and in order to identify these lands, a number of techniques were used. The only important wildlife habitat identified by the New London master plan is deer wintering areas and deer yards. There are two locations in the center of the town where uncommon species are found (to protect the species they will not be identified and the locations, which can be found on the regional map of endangered or threatened species, are estimations of their actual locations). One of these is a plant community system and the other is an insect. In the state of New Hampshire both are imperiled and globally the insects are uncommon/rare.

Unfragmented areas represent lands that are uninterrupted by roads or development. These pieces of land are important because many species that cannot adapt well to suburban-type conditions depend on them for habitat. Species that require a habitat with little to no human interaction or impacts require larger parcels than those that can cope with human interactions and impacts. Generally, larger mammals and certain birds require larger parcels. By protecting large pieces of unfragmented land, the greatest number of species can be protected.

Forest Continuity Indexes (FCIs) are a way of measuring the relative shape of each area of unfragmented land. If the FCI is low, a parcel of land is more round than a parcel with a higher FCI. If the parcel of land is round then it has less of an edge effect, making the parcel of land more beneficial for wildlife habitat. Connectivity displays corridors that allow wildlife to move from one area to another safely. They are important for many reasons such as to genetic variation and, for many species, breeding.

In order to identify unfragmented lands, a 500 foot buffer was placed along all roads in the town. This was done because most development is likely to occur on or near a road. The land that was outside the 500 buffer along the roads was considered to be unfragmented. The unfragmented parcels were then color-coded according to acreage. To map interior habitat, the unfragmented lands layer was manipulated. A 1000 foot buffer was placed on the inside of each unfragmented parcel. The 1000 foot buffer was then clipped away, and the land remaining was said to represent the interior habitat of a parcel. In order to determine the placement of corridors, all rivers and streams (excluding intermittent streams) were located within the region. A 300 foot buffer was then placed around the rivers and streams to represent the land surrounding them. This land was interpreted as undeveloped because there is likely to be little or no development directly adjacent to rivers and streams. The undeveloped land represented by the 300 foot buffer was then clipped to the unfragmented lands layer. The parts of the 300 foot buffer that connected unfragmented parcels were seen as corridors. To calculate the FCI’s for each parcel in the ASLPT region, the unfragmented lands layer was manipulated. The FCI of a parcel is equal to:

\[
\text{Perimeter (feet)} \div 2 \sqrt{\pi \times \text{area (sq feet)}}
\]
This formula was entered into the GIS program. An FCI value for each parcel was calculated in the attribute table of the data. These values were then used to color-code the parcels according to their calculated FCI.

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Interior Habitat
Bradford, NH

Legend
- Lakes and Ponds
- Bradford Border
- Interior Habitat (in acres)
  - 1-19
  - 20-99
  - 100-499
  - 500-2500
  - >2500 (undeveloped)

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Legend
- Lakes and Ponds
- Forest Continuity Index
  - 2.423 - 3.223
  - 1.866 - 2.423
  - 1.557 - 1.866
  - 1.322 - 1.557
  - 1.185 - 1.322

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10. Are there areas in town adjacent to surface waters that are undeveloped, are there any aquifers in town? Identify where impervious surface threatens water quality.

Bradford has the majority of development over the large aquifer in the northeast section of town. The Bradford Bog is the only conserved land which lies above an aquifer. Roads and houses have been built around these important water resources, threatening their quality and existence.

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Legend
- Conserved Lands
- Developed
- Aquifers
- Lakes and Ponds
- Streams and Rivers
- Roads

Water Resources
Bradford, NH
11. What are the recreational uses of land in town?

Recreational resources are an important part of the New Hampshire Everlasting initiative. The recreational resources of the land in Bradford are hiking, biking, snowmobiling, horseback riding, cross country skiing, hunting, fishing, boating and swimming. Bradford has several park and recreational fields available to the town. The Lowe State Forest, Pearl Town Forest, The Bradford Bog, Bradford Pines, Devil’s Cave, Aiken Town Forest, Bradford Springs, Avery Ledge, Ayers pond, and Lake Massasecum all serve the town for recreational purposes. The icons on the following map represent the general recreational resources in Bradford.
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Recreational Resources
Bradford, NH

Legend
- Hiking
- Fishing
- Snowmobiling
- Lakes and Ponds
- Streams and Rivers
- Roads

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12. Where are there scenic viewing opportunities in town?

- Views of Lake Massasecum, from French's park and various route 114 locations
- Battles Farm, Center Road...overlooks Hoyt Brook, Goodwin Hill, Jewett Hill, Rowe Mountains
- Rowe Mt. Rd., 2 1/2 miles from Old Center, overlooks Massasecum and the Mink Hills
- Wetland views from Alder Plains Rd.
- View from Bradford Bog of bog itself and surrounding hills
- Views of hay fields (Messers farm), West Meadow Road and Fairgrounds Road
- Blitzer conservation easement, several views to the northeast.
- View of Lake Todd from 103
- "Sherman's field" on Pleasant View Road. View of Sunapee, Bald Sunapee
- Bald Sunapee views from Fairgrounds Road

Eldridge, Anne. "Bradford Scenic." E-mail to Peter Craven. 14 Apr 2005.
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Scenic Views
Bradford, NH

Legend
- Scenic Views
- Roads
- Streams and Rivers
- Lakes and Ponds

Elevation (FT)
- 500-800
- 800-1000
- 1000-1150
- 1150-1300
- 1300-1450
- 1450-1650
- 1650-1800
- 1800-1950
- 1950-2100

Scale: 0-4 miles

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