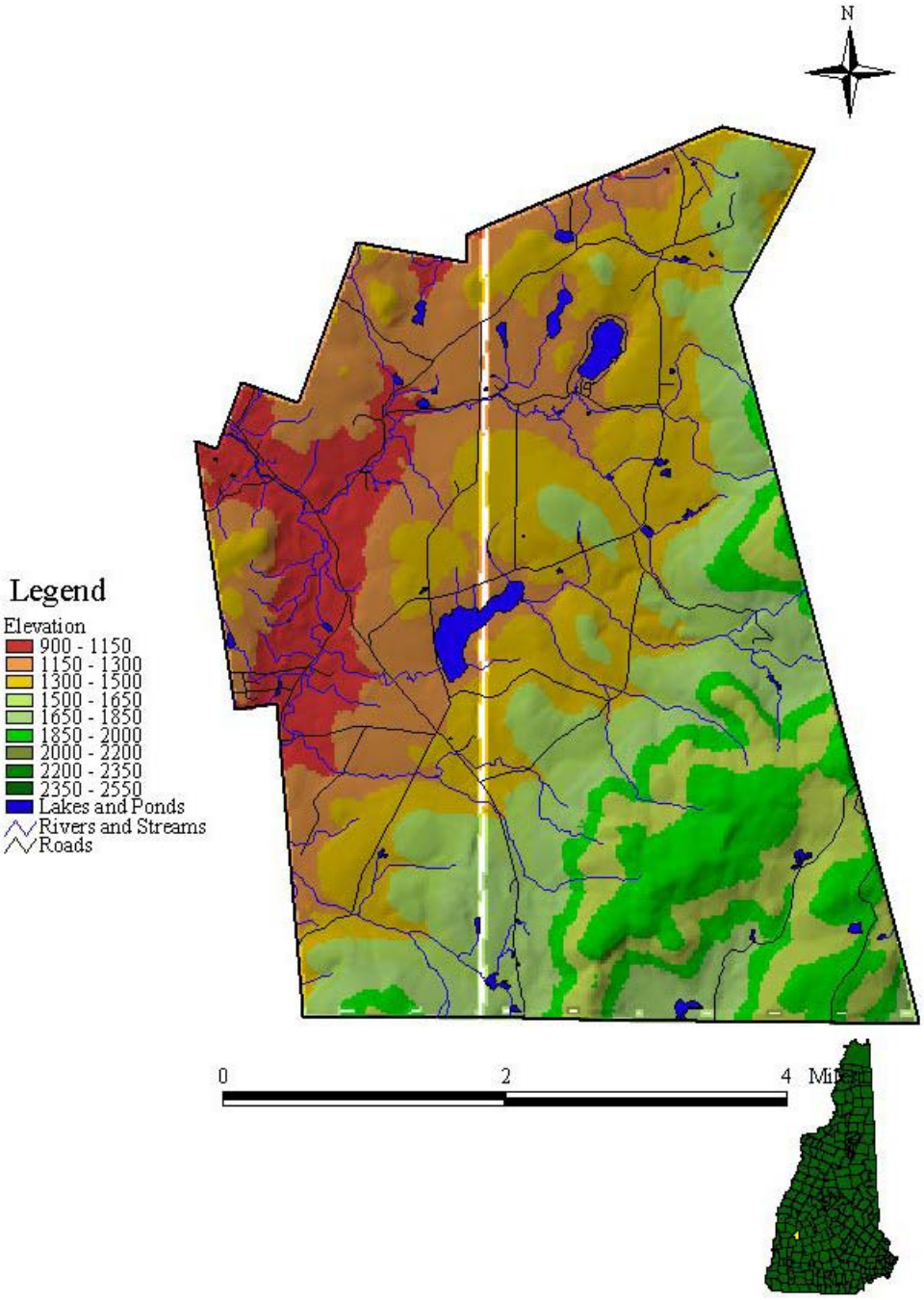
Goshen, NH



Digital data in NH GRANIT represent the efforts of the contributing agencies to record information from the cited source materials. Complex Systems Research Center (CSRC), under contract to the Office of Energy and Planning (OEP), and in consultation with cooperating agencies, maintains a continuing program to identify and correct errors in these data. Neither OEP nor CSRC make any claims as to the validity or reliability or to any implied uses of these data.

Colby-Sawyer College

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

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?

Goshen represents 14,420 acres of the ASLPT region. Of this acreage 22.7% is conserved. The conserved land is made up of 9 parcels. Goshen has almost has met 25% goal of conservation set by New Hampshire Everlasting. For more detailed information on each of the parcels please see attached chart.

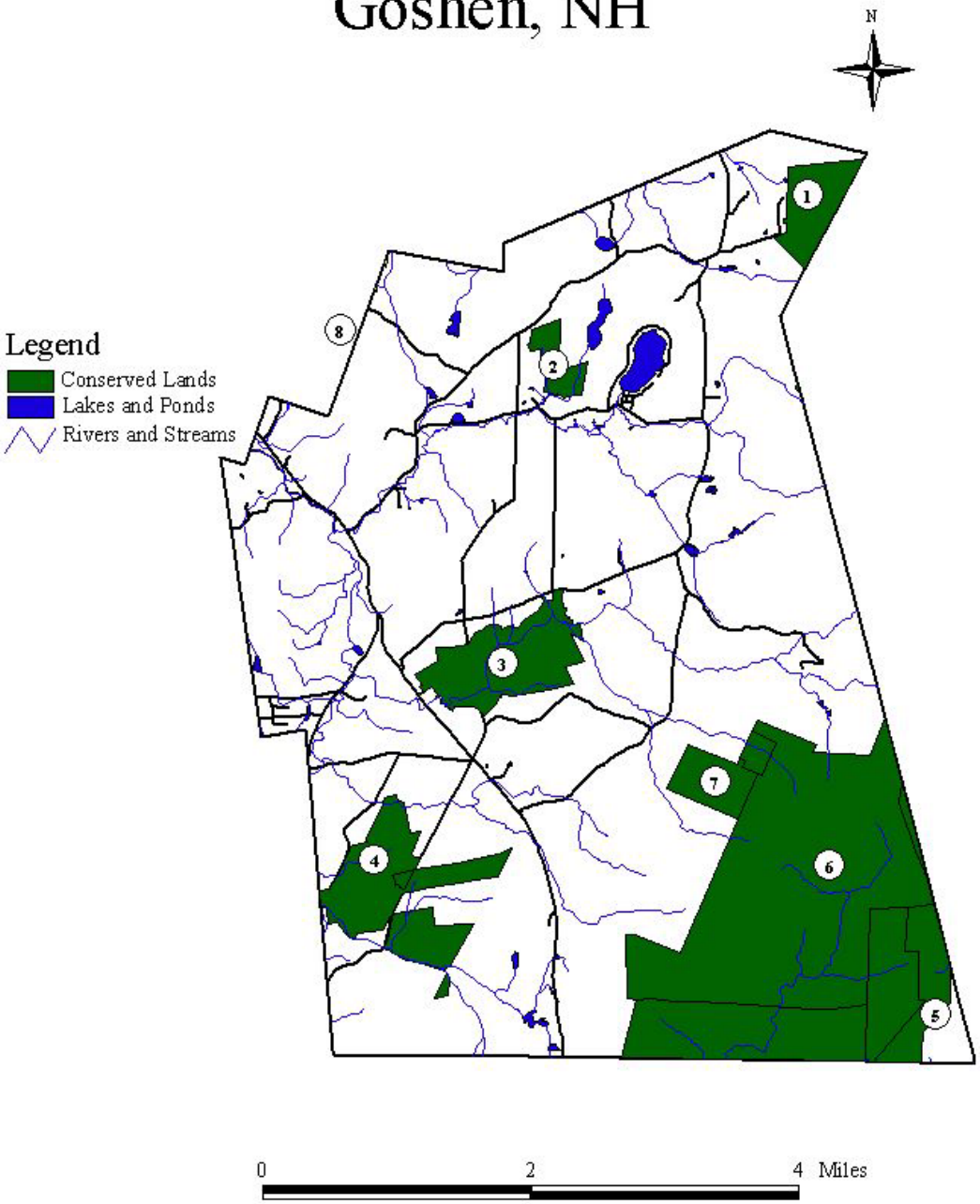
The conserved land in Goshen covers a small number of large parcels. One of the largest conserved parcels is the Pillsbury state park. There is also a small section of Sunapee State park within Goshen. Besides state parks, the private easements are all relatively large. Most are well over 100 acres. These large, conserved parcels are significant because they provide the size of habitat required to support a variety of species.

Much of the conserve land is focused on a particular body of water or an area of high elevation. In order for a variety of habitats to be conserved, lowlands and wetlands may be areas that should be taken into consideration.

ACRES	#	NAME	Holding Agency
143	1	Sunapee State Park	NH Dept. of Resources & Economic Dev. (DRED)
65	2	Johnson Easement	Ausbon Sargent Land Preservation Trust
318	3	Sugar River Watershed Site #D2	35100 NH DES, Water Resources Division/Goshen
390	4	Schendler Easement	Society for the Protection of NH Forests
1896	5	Pillsbury State Park	NH Dept. of Resources & Economic Dev. (DRED)
163	6	Pillsbury-Sunapee Corridor	NH Dept. of Resources & Economic Dev. (DRED)
114	8	Jessie Barton Memorial Forest	New England Forestry Foundation
1	9	Merritt - Agric. Pres. Rest.	NH Dept. of Agriculture

"GRANIT Data." GRANIT. 25 Oct. 2005. University of New Hampshire and NH Office of Energy and Planning. 07 Mar. 2005 <http://www.granit.sr.unh.edu/>.

Conserved Lands
Goshen, NH



Digital data in NH GRANIT represent the efforts of the contributing agencies to record information from the cited source materials. Complex Systems Research Center (CSRC), under contract to the Office of Energy and Planning (OEP), and in consultation with cooperating agencies, maintains a continuing program to identify and correct errors in these data. Neither OEP nor CSRC make any claims as to the validity or reliability or to any implied uses of these data.

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

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. To identify unfragmented lands, a 500 foot buffer was placed on both sides of all roads. The land outside of the roads buffers was considered unfragmented. The unfragmented parcels were then measured in acres and the color coded according to their size. In order to find unfragmented parcels that cross town boundaries, a one mile buffer was placed around the town boundary.

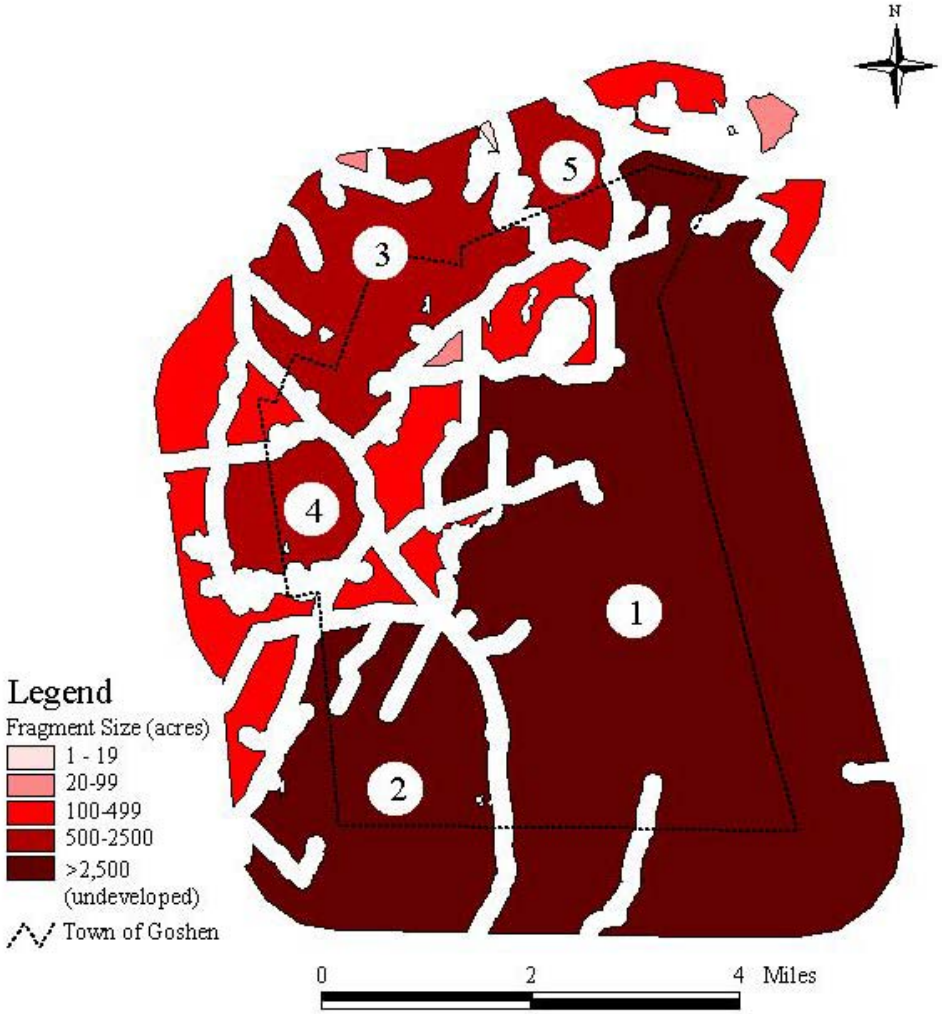
Goshen has five large parcels of unfragmented land. Parcel #1 is the largest spanning 12811 acres. It contains Beech and oak stands, paper birch, mixed forests and other hardwoods. Parcel #2 is 3124 acres in size, and the dominant plant communities within the parcel consists of spruce, fir, beech, oak, mixed forest, and other hardwoods. Parcel #3 is 2339 acres in size and consists of hemlock, spruce, fir, and mixed forest. Parcel #4 is 808 acres in size and consists of hemlock, spruce, fir, and mixed forest. Parcel #5 is 577 acres in size and consists of beech, oak, hemlock, spruce, fir, and mixed forest.

Parcel #	**Parcel Size** (in acres)	**Percent Conserved**	**Landcover**
1	11819	10	OH, MF
2	3184	0.34	MF, SF
3	3020	70	MF, SF
4	1794	0	MF, SF, OH
5	642	0	MF, SF, OH, PB

"GRANIT Data." GRANIT. 25 Oct. 2005. University of New Hampshire and NH Office of Energy and Planning. 07 Mar. 2005 <http://www.granit.sr.unh.edu/>.

Lambert, Nancy. Mapping Wildlife Habitat using ArcView 3.2 and NH GRANIT Data. Durham: University of New Hampshire Cooperative Extension, 2004.

Unfragmented Lands
Goshen, NH



Digital data in NH GRANIT represent the efforts of the contributing agencies to record information from the cited source materials. Complex Systems Research Center (CSRC), under contract to the Office of Energy and Planning (OEP), and in consultation with cooperating agencies, maintains a continuing program to identify and correct errors in these data. Neither OEP nor CSRC make any claims as to the validity or reliability or to any implied uses of these data.

Colby-Sawyer College

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

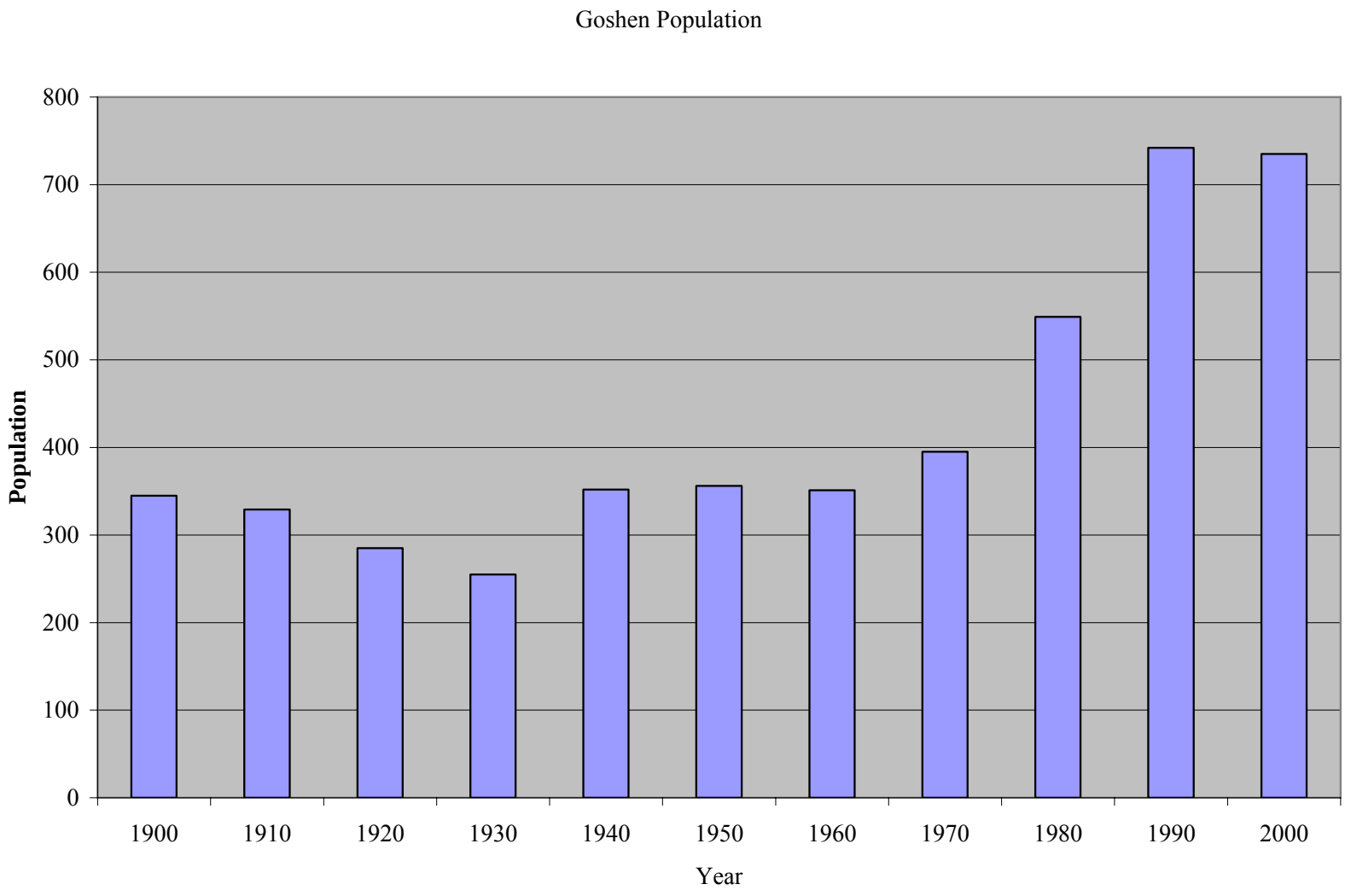
3. What is the rate of development in the past ten years, where has new development occurred, what is the potential for development, and has a build-out analysis been done?

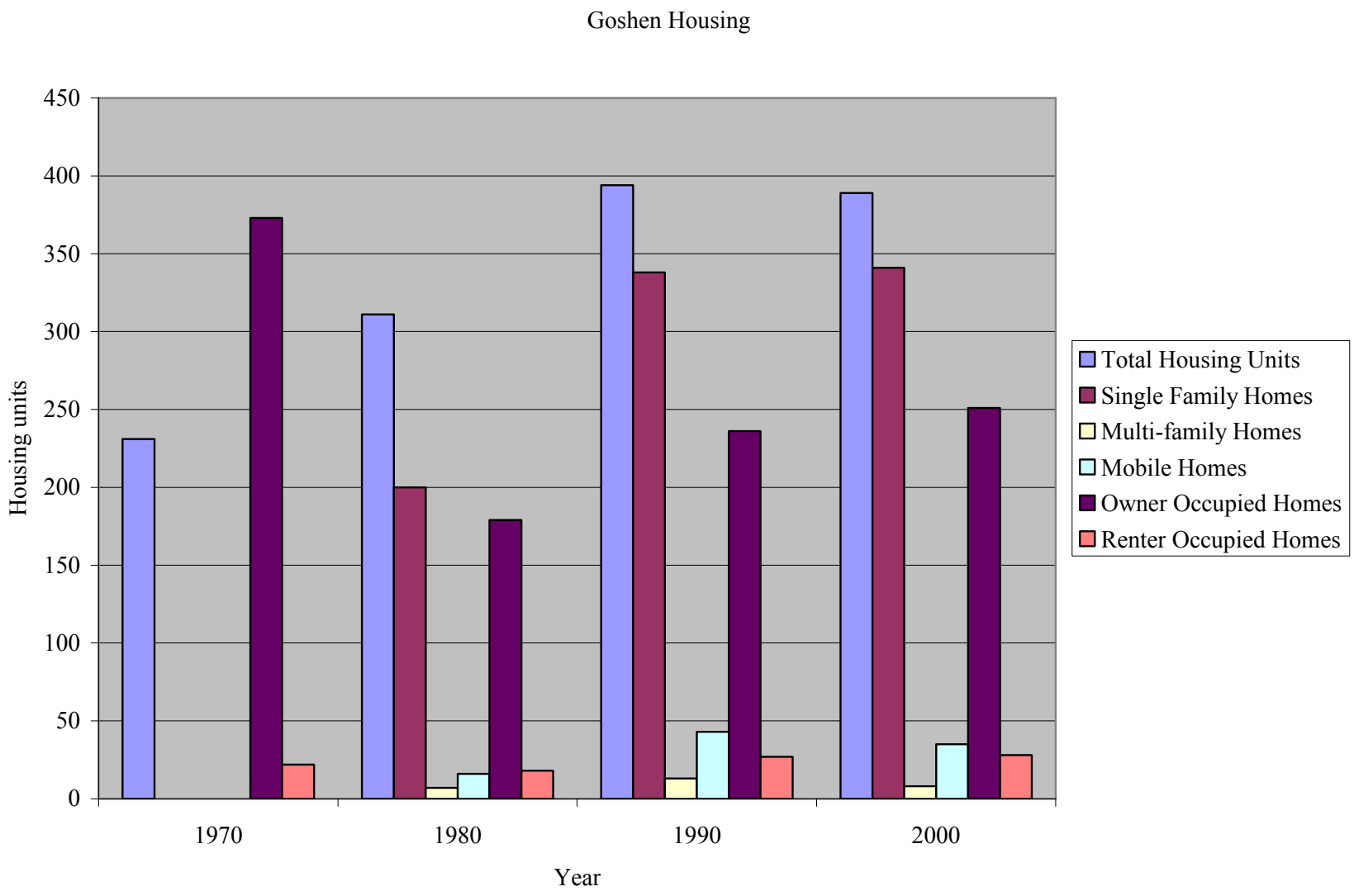
Goshen has shown a steady increase in population over the past century. There are a few areas where population stabilizes or drops, but overall the trend shows an increasing population.

As far as housing is concerned, there has been a large increase in total housing units over the past thirty years, although there has been a slight decrease over the past decade. The number of single family, and renter occupied homes have both increased, while the number of multi-family, and mobile homes have decreased. The number of owner occupied homes decreased between 1970 and 1980, but then began to increase again between 1990 and 2000. These trends in housing units show that more families are choosing to live in their own dwelling as opposed to in multi-family homes. This implies that is will take more land to house the same number of people than if people were living in multi-family homes.

In terms of industry, Goshen has shown fluctuating numbers in all areas of industry. The industries that are of most importance to the regional investigation are farming, forestry, and fishing. This is because they all involve managing land. It is also one of the goals of New Hampshire Everlasting to conserve one working farm in each town.

UVLSRPC Home. 7 Mar 2005. Upper Valley Lake Sunapee Regional Planning Commission. 09 Mar. 2005 <http://www.uvlsrpc.org/>.


Goshen Population
Population
800
700
600
500
400
300
200
100
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000
Year


Goshen Housing
450
400
350
300
250
200
150
100
50
0
Housing units
1970
1980
1990
2000
Year
Total Housing Units
Single Family Homes
Multi-family Homes
Mobile Homes
Owner Occupied Homes
Renter Occupied Homes

Goshen Employment
160
140
120
100
80
60
40
20
0
Jobs
1990
2000
year
Managerial and Professional
Technical Sales and Administrative Support
Service
Farming, Forestry, and Fishing
Precision Production, Craft, and repair
Operators, Fabricators, and Laborers

4.-5. Does the master plan in your town address conservation? Is there a conservation commission? Are they actively pursuing any parcels?

The Town of Goshen both addresses conservation in its master plan and has a conservation commission. The master plan addresses conservation funds and where them money used for conservation went. The money spent was $75 for the ASLPT and the SRK Greenway. The conservation commission notes that they are actively pursuing a parcel of land for conservation.

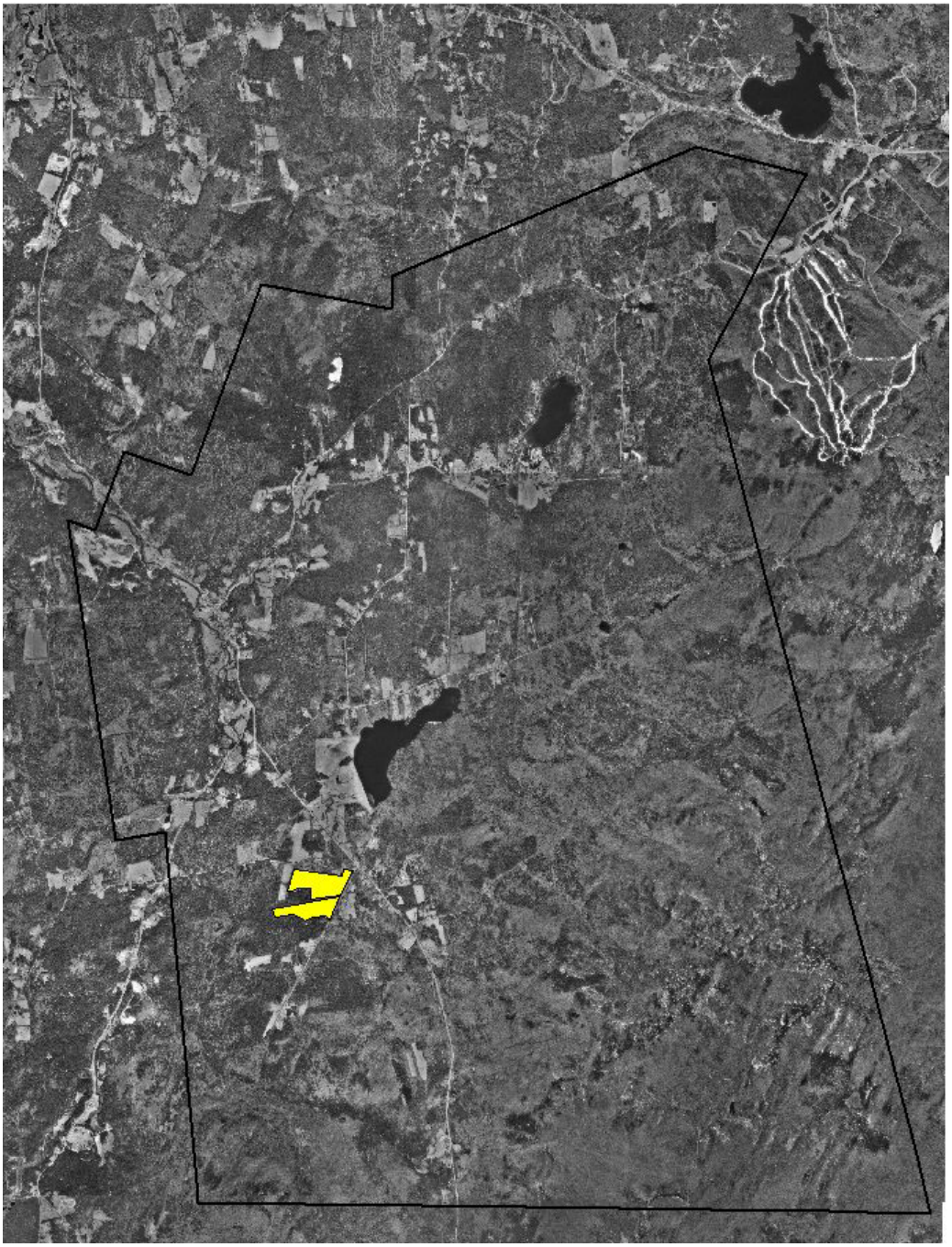
Goshen Master Plan.

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 no actively managed agricultural lands in the town of Goshen that were over 10 acres listed in the Goshen current use document. There was, however, one property that was identified by the Goshen Conservation Commission, as an actively managed agricultural land.

The following map shows aerial photos taken of Goshen 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.

Agriculture
Goshen, NH



Digital data in NH GRANIT represent the efforts of the contributing agencies to record information from the cited source materials. Complex Systems Research Center (CSRC), under contract to the Office of Energy and Planning (OEP), and in consultation with cooperating agencies, maintains a continuing program to identify and correct errors in these data. Neither OEP nor CSRC make any claims as to the validity or reliability or to any implied uses of these data.

Colby-Sawyer College

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

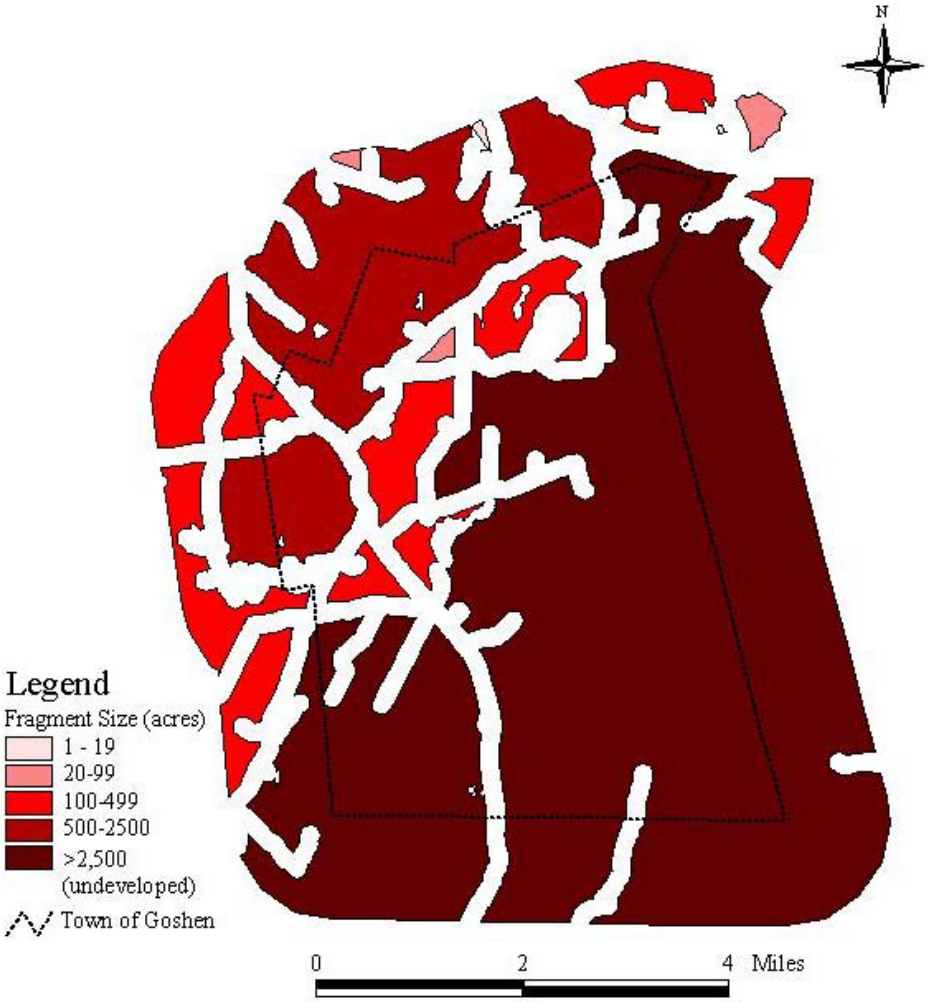
7. Are there any actively managed forested lands in town, and do they have an easement on them.

In Goshen, there is a substantial amount of actively managed forested land. There are three tree farms that cover a total area of 893 acres. There is not specific parcel data on these tree farms because many landowners would like that information to remain confidential.

To get approximate locations of actively managed forests that are not listed as tree farms, a map show unfragmented lands was made using GIS. Unfragmented lands are parcels that are not intersected by roads or development. The location of these areas can be seen on the attached map.

"GRANIT Data." GRANIT. 25 Oct. 2005. University of New Hampshire and NH Office of Energy and Planning. 07 Mar. 2005 <http://www.granit.sr.unh.edu/>.

Unfragmented Lands
Goshen, NH



Digital data in NH GRANIT represent the efforts of the contributing agencies to record information from the cited source materials. Complex Systems Research Center (CSRC), under contract to the Office of Energy and Planning (OEP), and in consultation with cooperating agencies, maintains a continuing program to identify and correct errors in these data. Neither OEP nor CSRC make any claims as to the validity or reliability or to any implied uses of these data.

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

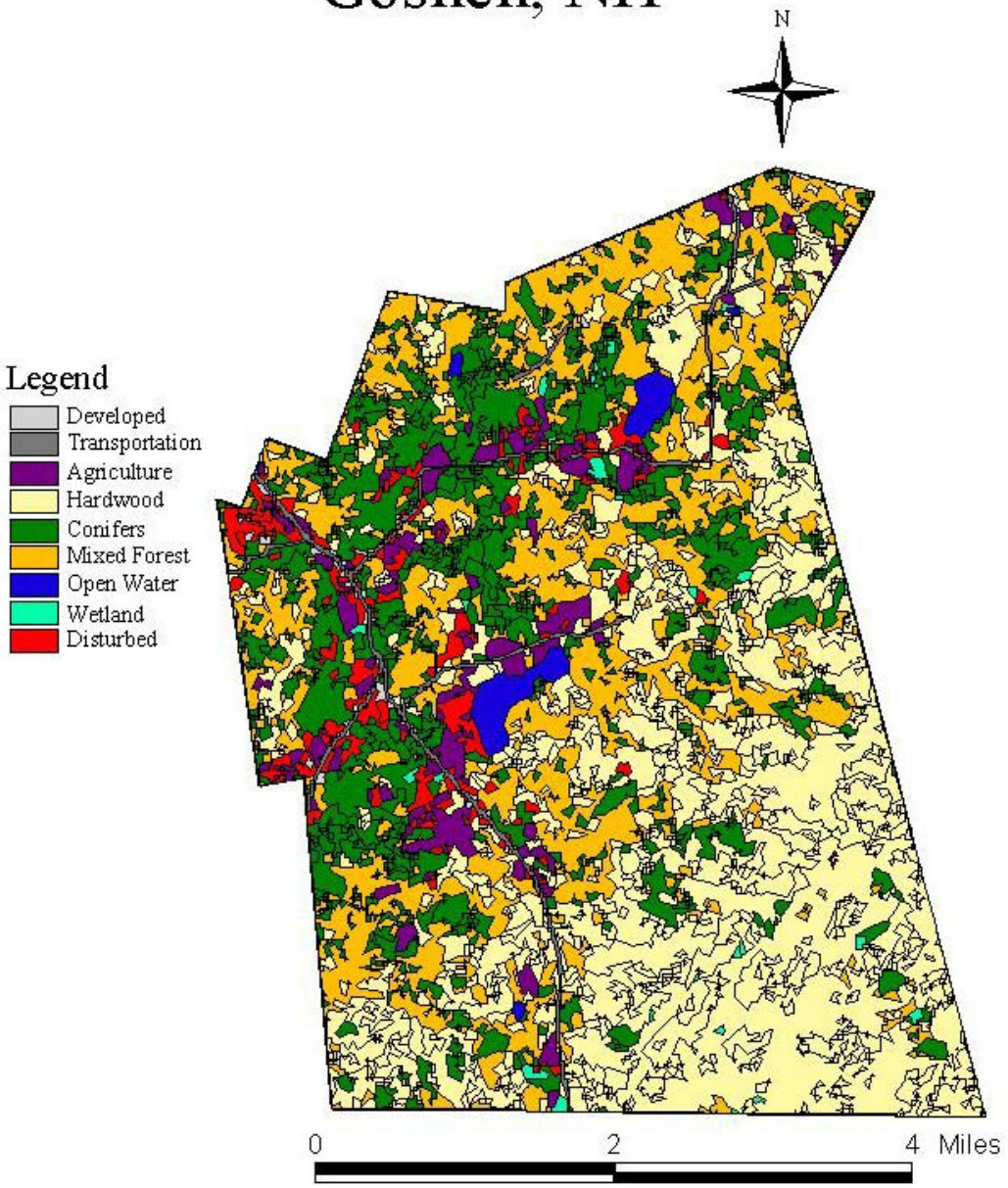
8. What plant communities are in town, and are any of them rare or threatened?

In order to find the types of plant communities in our towns, we used our land cover and calculated each type of habitat to find out how much of that plant community was present. Goshen has hardwood forests as the most prevalent plant community, covering 6,085 acres. The other common landcover types in Goshen are mixed forests and coniferous forests. There are no threatened or endangered species in the town of Goshen.

Landcover Types	**Acres**
Developed	52
Transportation	211
Agriculture	595
Hardwood	6085
Conifers	3057
Mixed Forest	3651
Open Water	186
Wetland	76
Disturbed	501

"GRANIT Data." GRANIT. 25 Oct. 2005. University of New Hampshire and NH Office of Energy and Planning. 07 Mar. 2005 <http://www.granit.sr.unh.edu/>.

Landcover Types
Goshen, NH



Digital data in NH GRANIT represent the efforts of the contributing agencies to record information from the cited source materials. Complex Systems Research Center (CSRC), under contract to the Office of Energy and Planning (OEP), and in consultation with cooperating agencies, maintains a continuing program to identify and correct errors in these data. Neither OEP nor CSRC make any claims as to the validity or reliability or to any implied uses of these data.

Colby-Sawyer College

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

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

All of the maps used to identify ecologically important lands were generated by manipulating the unfragmented lands map. These map show lands that are important for maintaining healthy populations of wildlife.

Interior Habitat

Interior habitat represents the core habitat within each unfragmented parcel. Species that prefer to have no human interaction, such as beer, moose and deer will remain in these pieces of core habitat. If the interior habitat of a parcel is not big enough to support such large animals, it still serves as an ideal habitat for smaller species.

In order to map interior habitat, the unfragmented lands layer was manipulate. 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.

Goshen has a few large pieces of interior habitat towards the southern and eastern part of the town. These large pieces of interior habitat create ideal living conditions for beer, moose, and several other species.

Forest Continuity Index

Forest continuity index (FCI) gives a measurement of how much habitat is infringed on by the edge effect. Edge effect refers to the impacts often related to habitat on the edge of development. Many species will avoid the edge of the habitat in order to stay away from potential human impacts. Certain parcel shapes provide more usable habitat, and therefore a better FCI, than parcels of the same area with a different shape. A circle has the maximum amount of usable habitat. Therefore parcels with a rounder shape will have a better FCI and more usable habitat than long parcels, or parcels with jagged edges. A circle has and FCI of one. Any other shape would have an FCI above one. The closer to one an FCI is, the more usable habitat there is within the parcel.

In order 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:

$$\frac{\text{Perimeter(ft)}}{2\sqrt{(\pi\text{area(sqft)})}}$$

This formula was entered into the GIS program, and FCI value for each parcel was calculated. These values were then used to color-code the parcels according to FCI.

Within the town of Goshen, there are several parcels with reasonable FCI's. Many of these parcels are small, but there round shape makes them more suited for conservation than parcels of similar area with long, thin shapes, or jagged borders.

Forest Connectivity (Corridors)

Corridors are pieces of undeveloped land that connect unfragmented parcels. The connectivity created by the corridors is significant because it allows for interaction between populations in separate parcels. This is an integral aspect of maintaining ecological stability because by allowing interaction between populations, breeding between populations is made possible. Breeding between populations leads to a greater

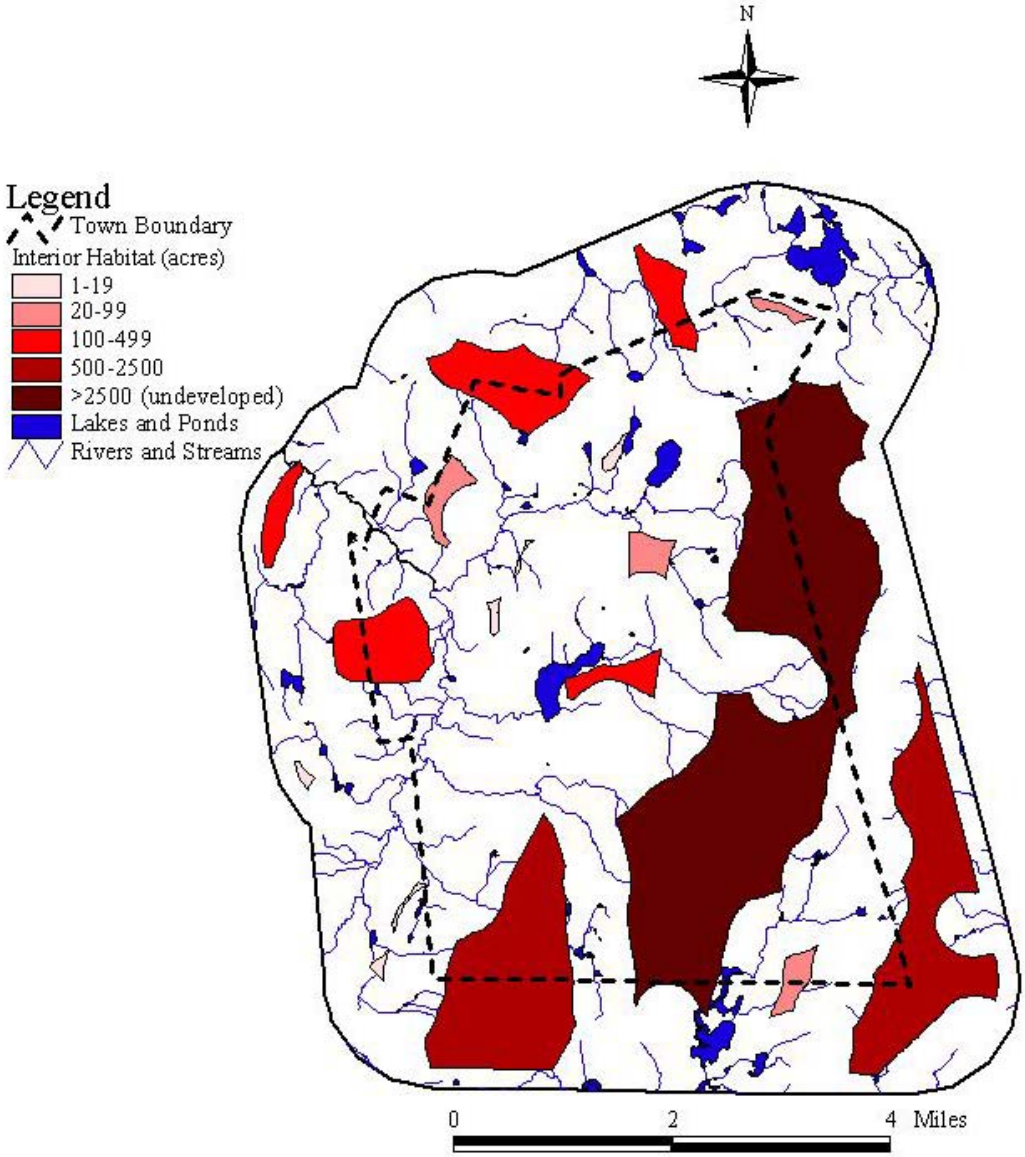
level of diversity, which is essential to sustaining healthy wildlife populations. The best way to allow for interaction between populations is to have large unfragmented parcels, but if this is not possible, corridors can reduce the isolated conditions that are typical of small parcels

Within the town of Goshen, there is an ample amount of connectivity between unfragmented parcels. This helps to promote interaction between wildlife populations in different unfragmented parcels.

"GRANIT Data." GRANIT. 25 Oct. 2005. University of New Hampshire and NH Office of Energy and Planning. 07 Mar. 2005 <http://www.granit.sr.unh.edu/>.

Lambert, Nancy. Mapping Wildlife Habitat using ArcView 3.2 and NH GRANIT Data. Durham: University of New Hampshire Cooperative Extension, 2004.

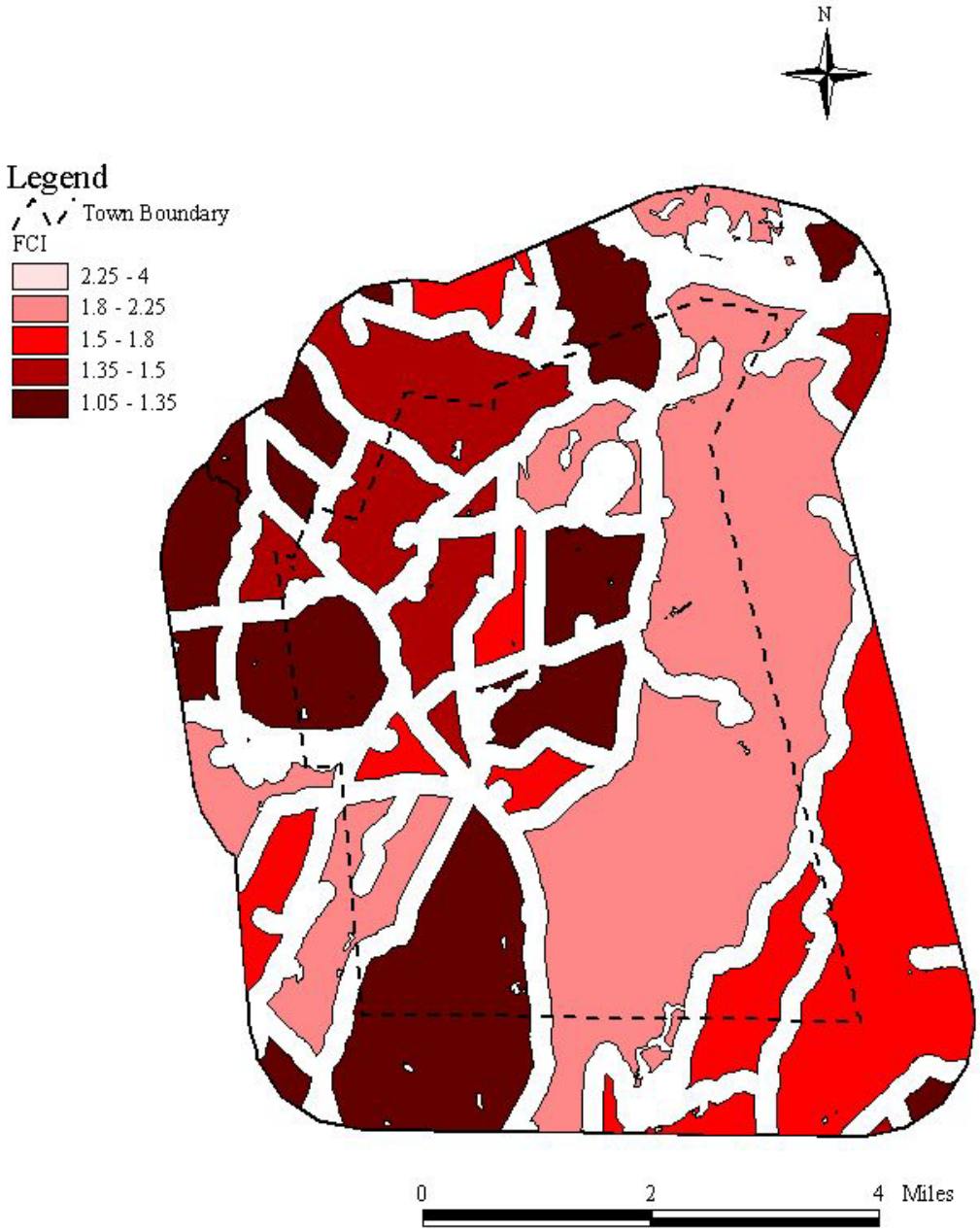
Interior Habitat
Goshen, NH



Digital data in NH GRANIT represent the efforts of the contributing agencies to record information from the cited source materials. Complex Systems Research Center (CSRC), under contract to the Office of Energy and Planning (OEP), and in consultation with cooperating agencies, maintains a continuing program to identify and correct errors in these data. Neither OEP nor CSRC make any claims as to the validity or reliability or to any implied uses of these data.

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

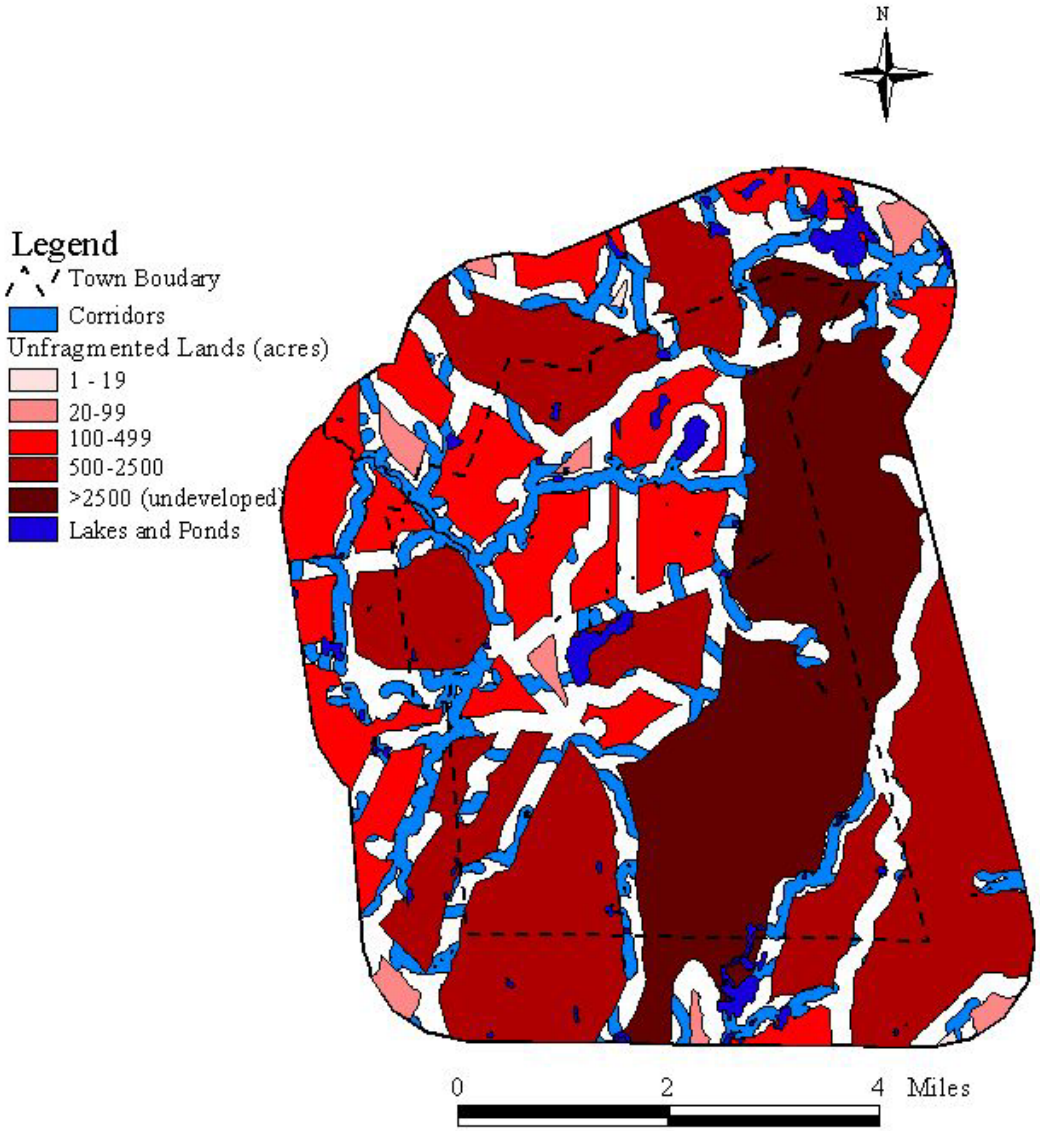
Forest Continuity Index
Goshen, NH



Digital data in NH GRANIT represent the efforts of the contributing agencies to record information from the cited source materials. Complex Systems Research Center (CSRC), under contract to the Office of Energy and Planning (OEP), and in consultation with cooperating agencies, maintains a continuing program to identify and correct errors in these data. Neither OEP nor CSRC make any claims as to the validity or reliability or to any implied uses of these data.

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

Corridors
Goshen, NH



Digital data in NH GRANIT represent the efforts of the contributing agencies to record information from the cited source materials. Complex Systems Research Center (CSRC), under contract to the Office of Energy and Planning (OEP), and in consultation with cooperating agencies, maintains a continuing program to identify and correct errors in these data. Neither OEP nor CSRC make any claims as to the validity or reliability or to any implied uses of these data.

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

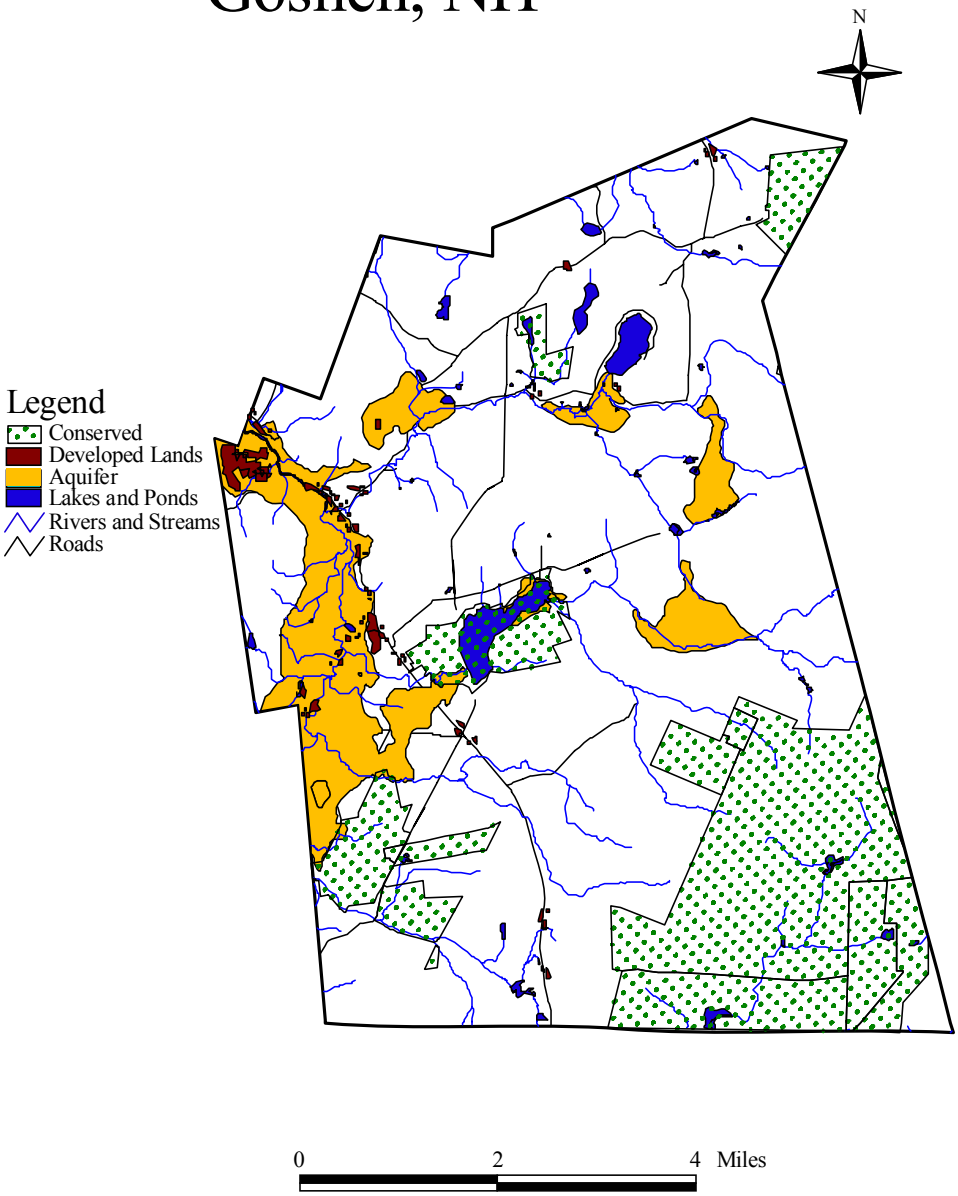
10. Are there areas in town adjacent to surface waters that are undeveloped, are there any aquifers in town? Identify where impervious surface threatens water quality.

One of the major goals stated in the *New Hampshire Everlasting* is to protect water resources. One way of doing this is to minimize development surrounding water resources. Water resources include both surface water and aquifers.

While there is little development surrounding much of the surface water in Goshen, there is a significant amount of development located directly on top of the aquifer. It is impossible to get rid of development once it is already in place, so a reasonable plan of action for Goshen in order to protect water resources is to conserve as much land surrounding surface water, and land surrounding or on top of aquifers, as possible.

"GRANIT Data." GRANIT. 25 Oct. 2005. University of New Hampshire and NH Office of Energy and Planning. 07 Mar. 2005 <http://www.granit.sr.unh.edu/>.

Water Resources
Goshen, NH



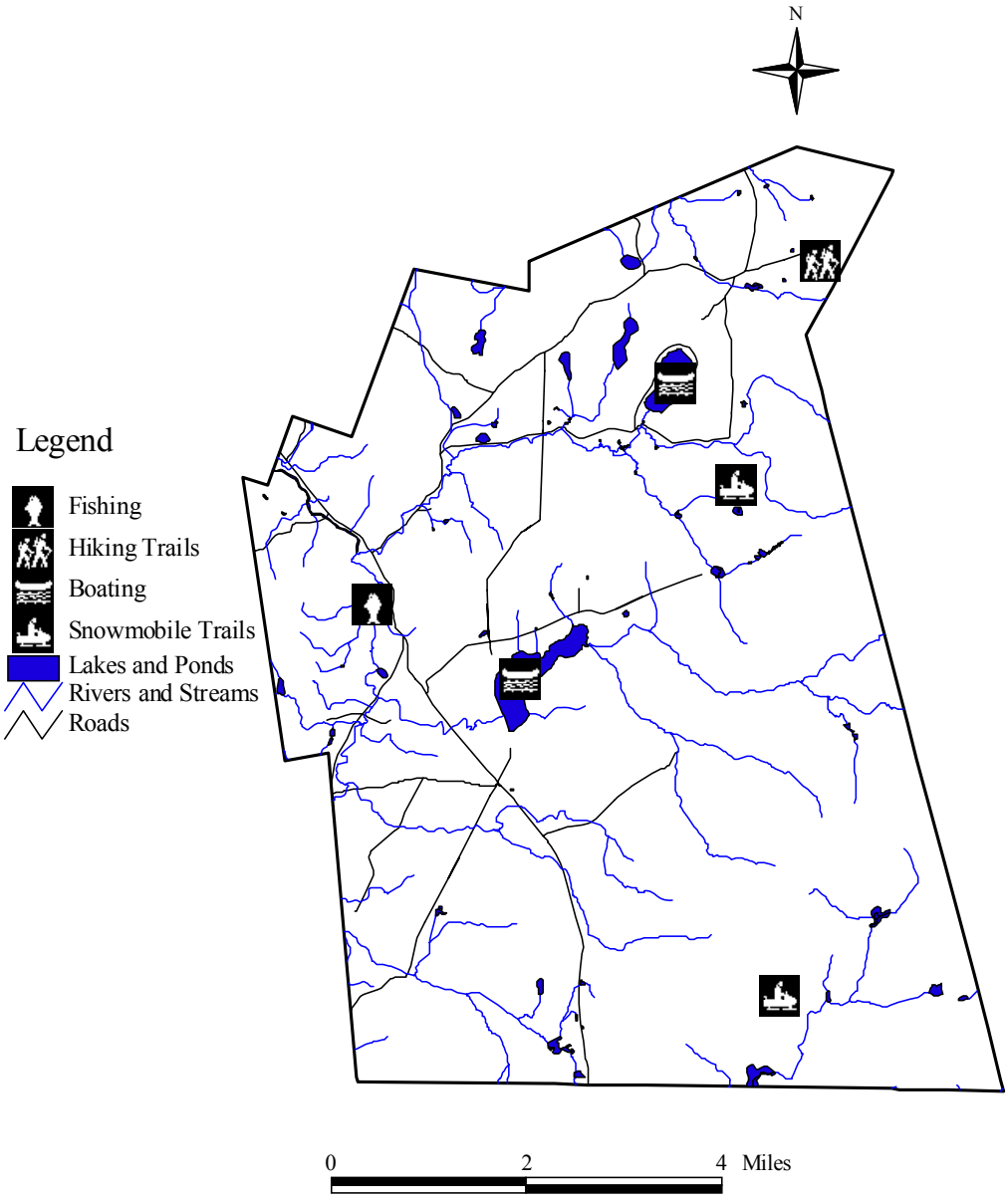
Digital data in NH GRANIT represent the efforts of the contributing agencies to record information from the cited source materials. Complex Systems Research Center (CSRC), under contract to the Office of Energy and Planning (OEP), and in consultation with cooperating agencies, maintains a continuing program to identify and correct errors in these data. Neither OEP nor CSRC make any claims as to the validity or reliability or to any implied uses of these data.

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

11. What are the recreational uses of land in town?

Recreational is very important to the residents of Goshen, as such there are large amounts of recreational opportunities available in Goshen. The recreational uses of the land in Goshen include the following: Boating, fishing, snowmobiling, hunting, cross-country skiing, biking, hiking, swimming, canoeing, horse back riding, and many more. The icons on the map are a general representation of recreational activities within the area. They do not mean that the area is limited only to the type of recreation that the icon represents

Recreation Resources
Goshen



Digital data in NH GRANIT represent the efforts of the contributing agencies to record information from the cited source materials. Complex Systems Research Center (CSRC), under contract to the Office of Energy and Planning (OEP), and in consultation with cooperating agencies, maintains a continuing program to identify and correct errors in these data. Neither OEP nor CSRC make any claims as to the validity or reliability or to any implied uses of these data.

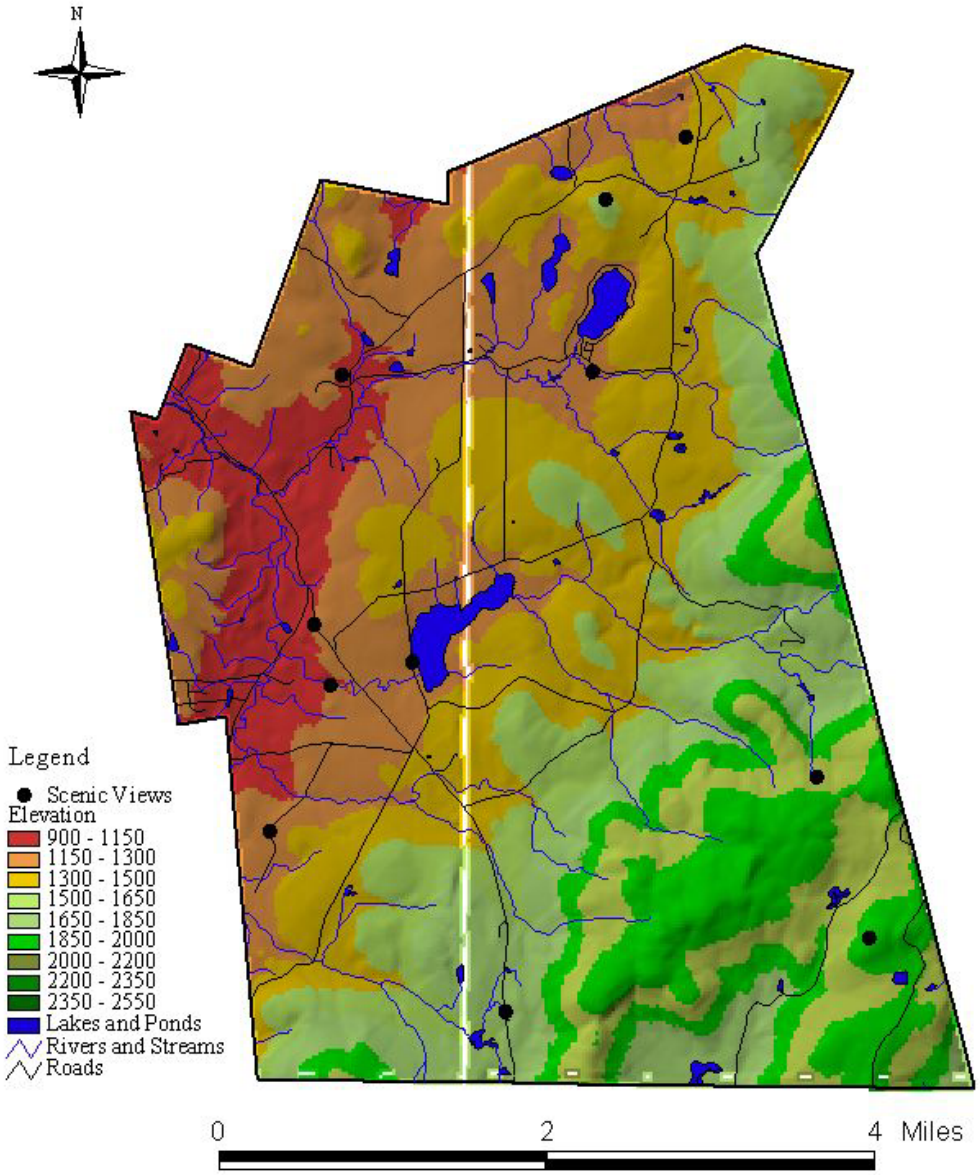
Colby-Sawyer College
Institute for Community & Environment
541 Main Street
New London, NH 03257
(603) 526-3444

12. Where are there scenic viewing opportunities in town?

The scenic views in Goshen were collected by asking town representatives and the conservation commission what they felt were aesthetically pleasing areas in the town. These points were then mapped using GIS. The areas identified are the ridge above the Goshen Ocean, Brook Road, Route 31 going toward Route 10, Chandler Stage Coach Road, Blood Brook, Rand Pond, Providence Road, and Messer Road.

Meeting of the Goshen Conservation Commission, March 31, 2005.

Scenic Views
Goshen, NH



Digital data in NH GRANIT represent the efforts of the contributing agencies to record information from the cited source materials. Complex Systems Research Center (CSRC), under contract to the Office of Energy and Planning (OEP), and in consultation with cooperating agencies, maintains a continuing program to identify and correct errors in these data. Neither OEP nor CSRC make any claims as to the validity or reliability or to any implied uses of these data.

Colby-Sawyer College

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