EASTERN HILL SECTION

Landscape Level Elements

CONTIGUOUS LANDS

As we move beyond the traffic of Route 5, we find larger areas of undeveloped land. These "undeveloped" areas contain a great deal of land in agricultural production. The farms include much of the Sweet Tree Farm, the Miller Orchard and Farm, Elysian Hills Tree Farm, the Scott Farm, and the Bunker Farm. This is, therefore, a region with a high human impact, often just the sort of impact that provides great habitat for species that thrive in open areas, along edges, and in proximity to humans. The orchards and farmland provide a lure for even shy, area sensitive species like black bear at certain times of year, though perhaps to the farmers' dismay.

The largest of these areas is about 639 acres in size, 220 of which, Sweet Tree Farm, are conserved by the Vermont Land Trust. Some of the smaller areas, when the collective conservation elements are added, also have high value for biodiversity.

RIPARIAN CORRIDORS

The riparian corridors along the of the Salmon Brook and Canoe Brook have been highlighted on these maps. The northern stretch of Salmon Brook flows through a fairly wide, forested valley. There are few houses within sight of the Brook, and little to no disturbance of the riparian vegetation. Animals moving upstream along this brook reach undeveloped areas on Putney Mountain.

Canoe Brook flows through a sheltered valley for much of its length. Where the brook forks, we consider the southern branch to be a more important corridor, since it flows through forest and shrubland from an area in Putney that has less development, and provides wildlife with good access to conserved lands owned by the Putney Mountain Association.

ROAD CROSSINGS

Among the areas of importance, and potentially at risk, are the crossing areas between Black Mountain and the area to the east. These are forested areas that contains parcels that do not have houses on them currently. If these parcels are built on, the major route from the forested lands to the west and north could be impacted. They are circled in yellow on the map to the left.

The other undeveloped road segment that connects these lands is the hilly, windy section of East West Road. This is also the site of a spring amphibian migration. ***A small underpass for amphibians and small mammals could be considered for this site.***

EASTERN HILL SECTION

Contiguous Habitat & Connecting Lands: Two Views

Areas at least 600 feet from a structure

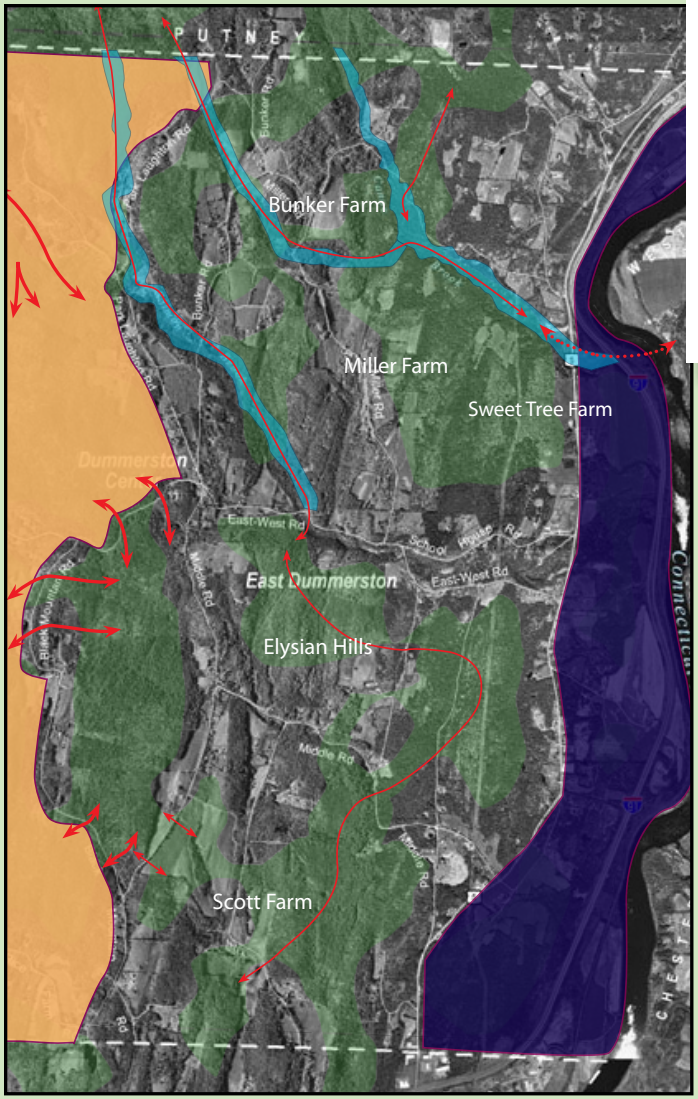
Paired **bold** arrows delineate areas 1,200 feet wide that might serve as important connecting habitat

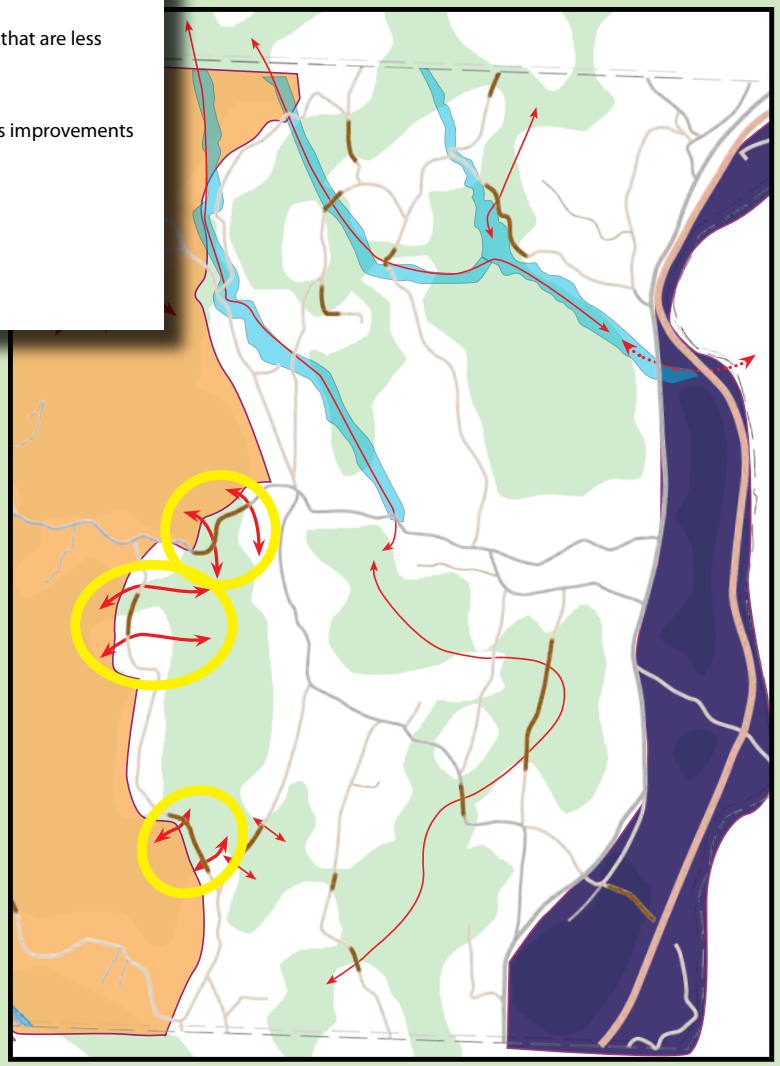
Potential travel routes for species that are less sensitive to disturbance

Important connecting land, needs improvements

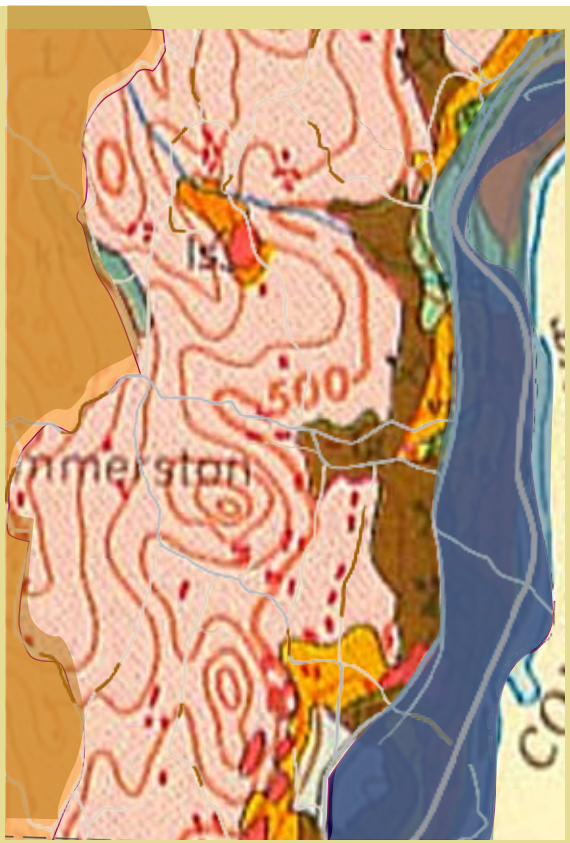
Riparian areas

Important road crossing sites





Elevation



Surficial Deposits

Surficial Deposits Key

- Till
- Bedrock exposure
- Well-sorted littoral (lake shore) sand, no pebbles
- Pebbly sand
- Kame terrace, ice-contact outwash gravel
- Silt, silty clay, and clay
- Gravel

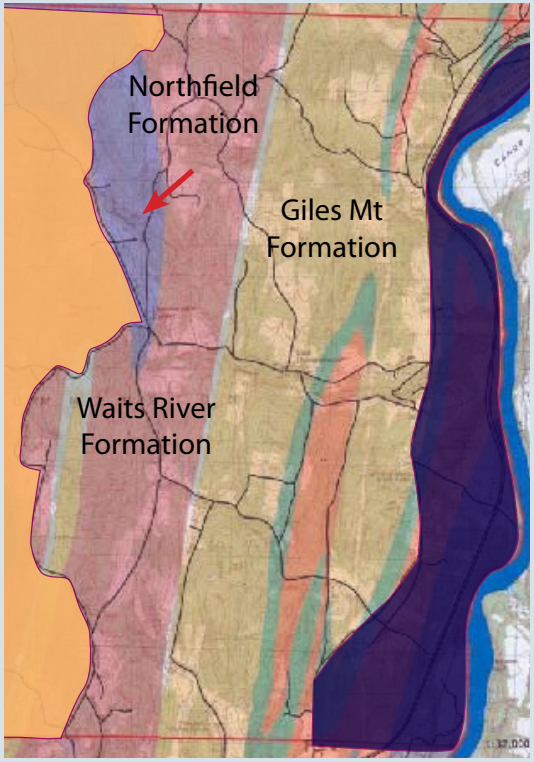
Surficial Geologic Map of Vermont, 1970, C.G. Doll, Ed.

Important Bedrock Formations

Waits River Formation: calcium rich

Northfield Formation: some calcium enrichment

Giles Mountain Formation: lowest on calcium enrichment spectrum, but some present



ENDURING FEATURES

This is an area of rolling hills with steep slopes found primarily along the brooks. The soils are mainly glacial till. In the north central part of this section, adjacent to Miller Road and Canoe Brook are well-sorted sands, likely remnants of a small glacial lake. The gravels of a kame terrace also extend into this section from the west along the Salmon Brook. The well-drained soils affiliated with these deposits may provide a substrate for unusual plants.

This part of town has bands of Waits River Formation, the most calcium rich, and Giles Mountain, with less calcium enrichment. A finger of Northfield extends into the northwest part of this section. Putney Mountain Volcanics and the Littleton Formation are harder rocks with fewer available nutrients. Where bedrock is close to the surface, as it is along Nourse Hollow Road and Route 5, it forms an impervious substrate where a number of vernal pools are found.

Community Level Elements

NATURAL COMMUNITIES

The natural communities map was not created using GPS technology, and therefore gives a general idea of how the mapped communities appear. The map is based on some site visits, information gathered from the community, and orthophotographs. In this part of Dummerston, with low, rolling hills, and pockets of impure marble in the bedrock, the matrix forest is red-oak northern hardwood forest. Sugar maple replaces red oak in the forest mix where soils are calcium-rich.

Hemlock and hemlock northern hardwood communities are most likely to occur on north and west facing hillsides, and on very steep terrain. The northern hardwoods are often on the less steep terrain.

Several rich northern hardwood communities have been mapped. Rich northern hardwood communities are high in species diversity. These are the communities that support carpets of spring ephemerals, the woodland wildflowers that bloom before the trees leaf out. The tree species that excel in rich soils in Dummerston include sugar maple, bitternut hickory, and white ash. Rich site plants include wild leeks, sharp-lobed hepatica, dutchman's britches, squirrel corn, blue cohosh, and wild ginger. Plants that grow in these nutrient-rich sites vary from location to location. This is a result of differences in the physical landscape and in the land use history. Two exceptional examples of this community type occur in this part of town. One is on a fairly steep, moist slope. Here Bitternut hickory, white ash, and sugar maple grow tall and straight, but are vulnerable to being uprooted, which creates openings in the canopy. The understory is carpeted in wild leeks and blue cohosh in the spring, while rich site ferns and sedges keep the forest floor green throughout the summer. These include silvery spleenwort, Goldie's fern, maidenhair fern, and plaintain-leaved sedge.

The second site has drier soils and greater diversity in understory plants. These include:

- Wild leek
- Blue cohosh
- Plantain-leaved sedge
- Maidenhair fern
- Rattlesnake fern
- Dutchman's Britches
- Squirrel corn
- Sharp-lobed hepatica
- Dwarf ginseng

Natural Communities Key

Upland

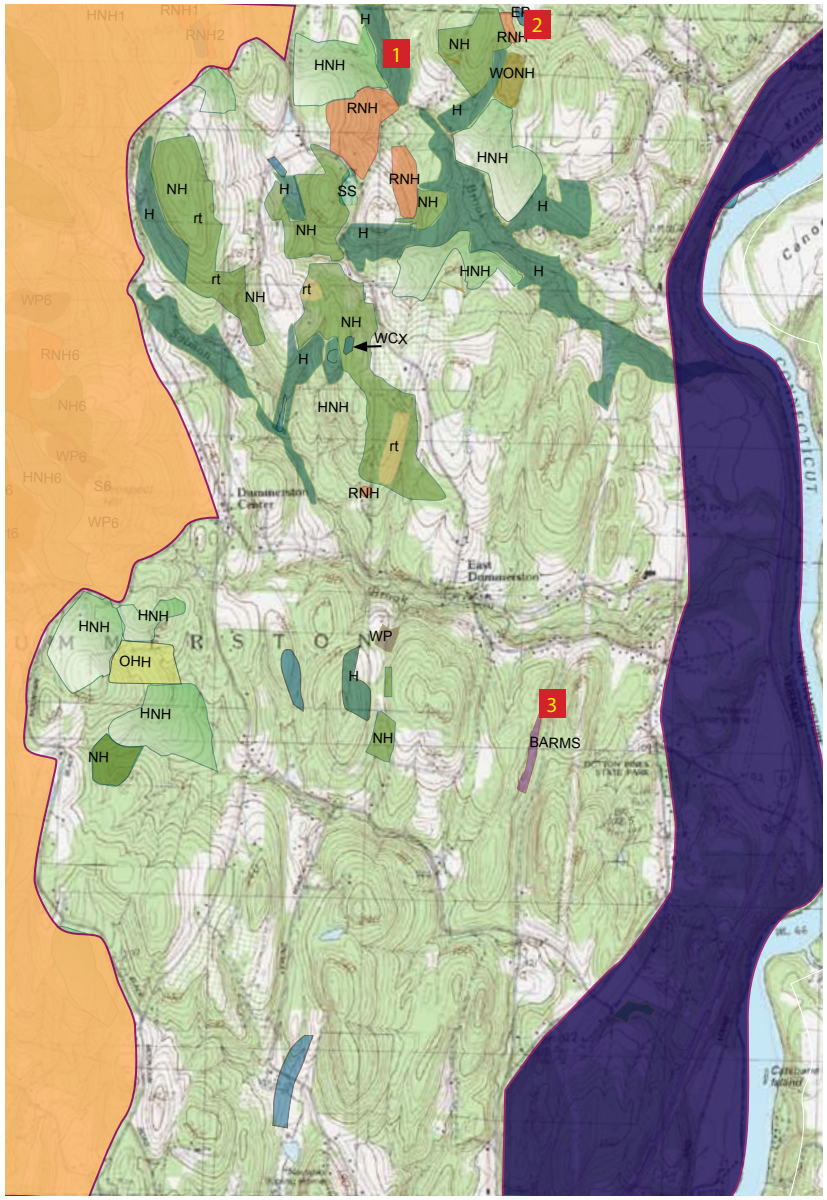
H	Hemlock Forest
NH	Northern Hardwood Forest
RNH	Rich Northern Hardwood Forest
HNH	Hemlock-Northern Hardwood Forest
WONH	White Oak-Northern Hardwood Forest
OHH	Oak-Hickory-Hop Hornbeam Forest

Wetland

RMS	Black Ash-Red Maple Swamp
SS	Scrub Shrub Wetland
WCPX	Wetland Complex

Also Noted:

rt	Rich Site Tree Species



1 Exceptional rich northern hardwood sites
2 White oak northern hardwood forest
3 Significant wetland community

- Spring beauties
- White wood nettle

There are other sites where there are indicators of rich soils, but where a full suite of rich site plants is missing. These are places where rich northern hardwood communities may re-establish if the sites are undisturbed or are managed carefully.

Also noteworthy in this section of town is a variation of the mesic red oak-northern hardwood forest. Here white oak, rather than red oak is the large

Scapes from wild leeks on rich hillside site

canopy oak. A number of handsome white oaks grow on this hillside, and are clearly former pasture shade trees. White oak is often found in warmer drier sites, and particularly sites that are fire prone. In the case of this site, it is possible that the trees were planted, perhaps even by native Americans. White oak acorns are much more palatable than those of red oak, and it is known that some Native Americans of the northeast planted their preferred nut trees, especially along the large rivers where they settled.

WETLANDS

A 4.5 acre swamp has been inventoried by the Nongame and Natural Heritage Program, and is described as "small but significant," since it is in a good natural condition. The shrub layer includes spicebush, silky dogwood, and winterberry holly. Royal fern and cinnamon fern are prolific in the understory.

A few other small wetlands occur, but have not been visited and inventoried. They include a wetland complex that can be seen from Middle Road. This wetland has some open water, a cattail marsh, and a shrub swamp. The largest wetland in this section, mapped as an emergent persistent marsh by the National Wetlands Inventory, is found off Kipling Road and extends to the Brattleboro boundary.

RIPARIAN AND AQUATIC FEATURES

Two brooks flow across this area, draining from Putney into the Connecticut River, the Salmon Brook and Canoe Brook. Crosby Brook originates in Dummerston, and then drains into the Connecticut through the north end of Brattleboro.

Canoe brook flows through a steep-sided hemlock clad valley for much of its length. The well-oxygenated water and deep shade result in temperatures that should support a healthy population of trout.

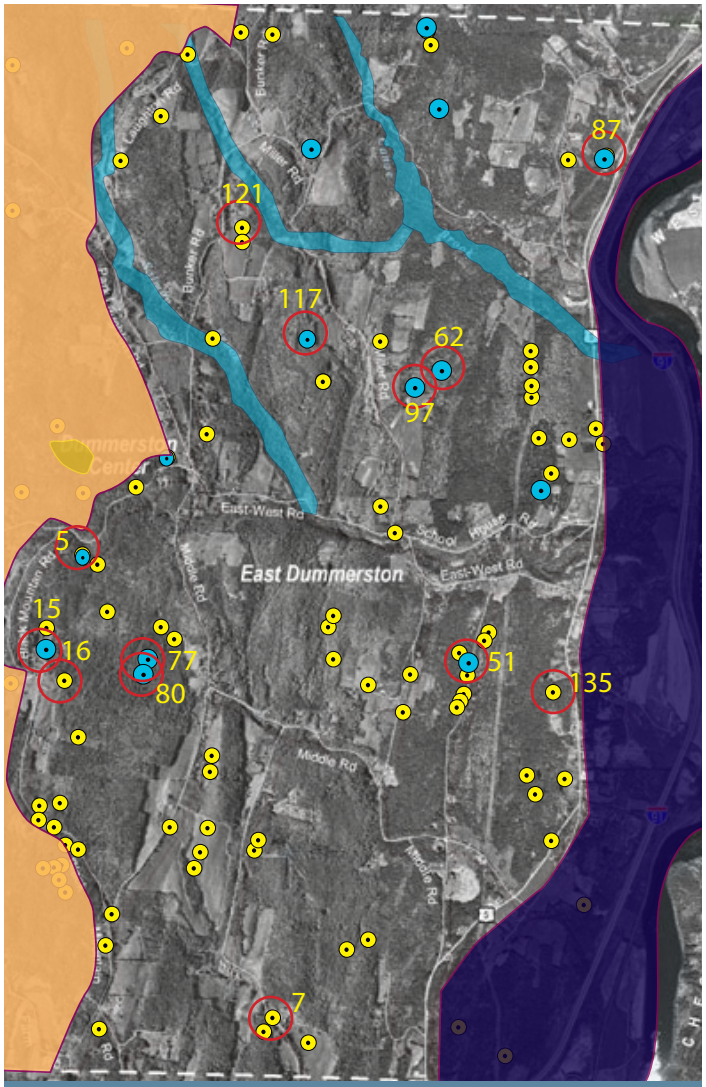
Salmon Brook flows through a wider valley, and has a gentler gradient. It flows through Slab Hollow and down below East-West and Schoolhouse Roads.

Black ash-red maple seepage swamp

VERNAL POOLS

Far more vernal pools have been documented in this section of town than any other. Of a total of 164 documented pools, 89 are found in this section. Many of these pools host Jeffersons salamanders, S2. In some cases only woodfrog eggs were counted, so it is likely that Jeffersons breed in many more pools.

Vernal pool near border with Putney



Vernal Pools & Riparian Features

Vernal pools

Vernal pools with Jeffersons salamanders

Ecologically significant vernal pools

Significant riparian areas

They are significant because they have large numbers of two or more breeding populations of amphibians, and are classic woodland pools.

VP#	Wood Frog Masses	Spotted Masses	Jeffersons Masses
5	163	0	32
7	146	TNTC*	0
15	380	0	45
16	185	0	TNTC*
51	170	15	TNTC*
62	65	0	125
77	0	0	0
80	12	0	45
87	200	0	TNTC*
97	90	0	175
117	327	4	93
121	105	TNTC*	0
135	2	TNTC*	0

*TNTC: Too numerous to count (possibly because visibility was poor, but large numbers were seen)

Species Level Elements

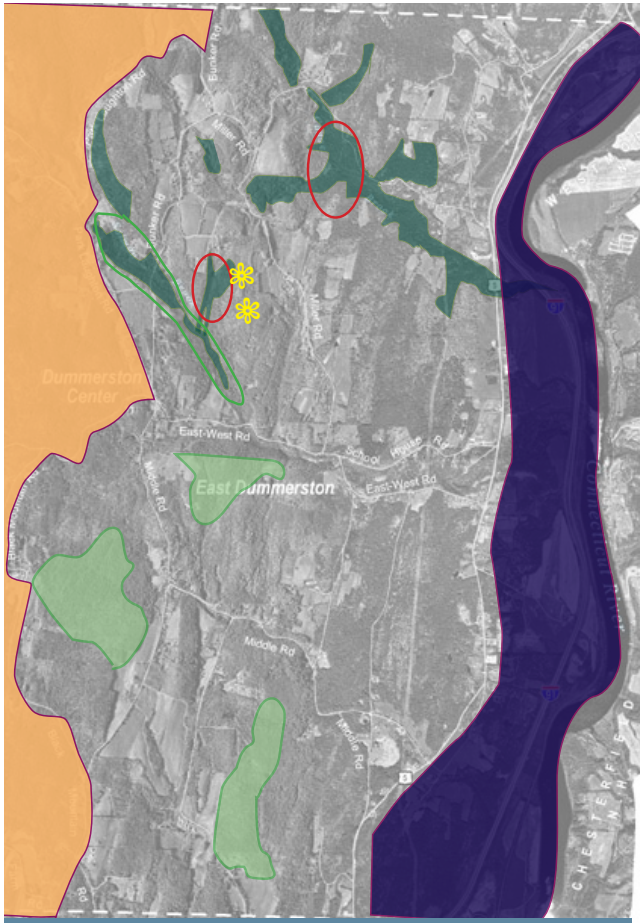
RARE, THREATENED, AND ENDANGERED SPECIES

Two rare plant species have been documented in this section.

Dwight Miller and Nongame Natural Heritage Program botanist Bob Popp visit Dwight's orchids.

GRASSLAND AND BIRD HABITAT

Most of the large fields preferred for nesting by such birds as bobolinks and are mowed for hay. There are a number of orchards in this section, however, and if mowing in orchards is delayed until after the middle of July, these areas could serve as important grassland habitat. Orchards could also provide habitat for eastern racers and other unusual grassland specialists. The large hayfields in this section might also be targeted as sites where grassland bird nests could be marked before mowing.



Rare Plants & Deer Wintering Areas

Rare Plant Site

Hemlock Forest mapped by conservation commission, possible deer wintering habitat

Deer Wintering Areas mapped by VT ANR, not surveyed as part of this project*

Hemlock Forest also included on Windham Regional Commission *Deer Wintering Areas* map*

Hemlock Forest, identified by Dummerston residents as deer wintering areas

* Delineated by the Vermont Agency of Natural Resources, Department of Fish and Wildlife. Digital data released in 1997.

EARLY SUCCESSIONAL AND SHRUB HABITAT

No early successional forest was documented in this section, although there certainly is some. The shrublands here are affiliated with some of the wetlands, and are quite small. Shrubs are also found along riparian areas and fencelines.

DEER WINTERING AREAS

White-tailed deer thrive in this part of town, with the mix of open land, orchards, and a mix of hardwood and softwood forests. Their population is so high that foresters report difficulty regenerating certain trees. While the population needs to be lower for the overall biodiversity of this section, it is important to maintain this winter habitat. We have mapped hemlock stands in parts of town, and residents and conservation commission members have noted that in places these areas show the signs of winter use by deer.

The Vermont Agency of Natural Resources, Department of Fish and Wildlife, has mapped deer wintering areas statewide. They conducted much of this project remotely. Many of these areas need to be checked to see if they serve as deer wintering habitat.