

## Rare Natural Communities (SN3)

### Description

A natural community is an interacting assemblage of plants and animals, their physical environment, and the natural processes that affect them. As these assemblages of plants and animals repeat across the landscape wherever similar environmental conditions exist, it is possible to describe these repeating assemblages as natural community types. The Vermont Fish and Wildlife Department uses a ranking scheme that is part of the national Natural Heritage methodology to describe the relative rarity of natural community types in Vermont. The range is from S1 (very rare) to S5 (common and widespread). S1 and S2 (rare) natural community types are considered rare for BioFinder. Natural communities are rare because the physical and environmental conditions that support the communities are rare. This may be the result of natural conditions such as restricted distribution of a bedrock type or edge of climatic range, or the result of habitat loss or fragmentation from development or other human activities. Examples of rare natural community types include Subalpine Krummholz (S1), Red Maple-Black Gum Swamp (S2), and Pitch Pine Woodland Bog (S1), all of which are naturally rare because their landscape positions are rare, and also Mesic Clayplain Forest (S2), which was once extensive but became rare in the 19<sup>th</sup> century because of large-scale conversion to agricultural use.

### Ecological importance

Natural communities represent the distribution of plant and animal species in response to current environmental conditions and natural processes. Although the species composition of natural communities may shift over time in response to changing climate, it is believed that the locations of high quality natural communities represent physical landscape settings that will continue to support important natural communities into the future. Rare natural communities typically include rare species and occur in environmental settings that are rare. Natural communities are commonly referred to as one of the “coarse filters” for conserving biological diversity. This is because there are relatively few natural community types (89 types are currently recognized by Vermont Fish and Wildlife Department) compared to the thousands of plant and animal species, and one approach to conserve most species is to conserve high quality examples of all natural community types across their natural range of distribution. By this approach, natural communities act as a “coarse filter” for conserving species.

### Rare Natural Community Conservation Goal

To conserve, enhance, and restore high quality examples of all rare natural community types across their geographic range of distribution and representing all physical settings (soil, bedrock, elevation, etc.) where they occur. Effective conservation should maintain or restore the ecological processes that support the communities and their component species and a network of connected lands, waters, and riparian areas to allow ecological exchange between communities, including the ability of component species to shift over time in response to changing environmental conditions.

### Component Mapping Goal

To identify and map all of Vermont’s documented rare natural communities using the best available data.

## **Source Data and Selection Criteria**

### **Natural Heritage Database, Vermont Fish and Wildlife Department**

#### **Description**

The Natural Heritage Database contains detailed, geographically-referenced information on Vermont's uncommon, rare, threatened, and species and on Vermont's significant natural communities. The database is periodically updated as new information on species and natural communities becomes available. The data used for BioFinder are current as of March 2012.

#### **Selection Criteria**

All natural communities Element Occurrences in the Natural Heritage Database with S-rank of S1 and S2. An Element Occurrence (EO) is a specific record representing a place where the community occurs.

### **Component Strengths**

Natural community Element Occurrences from Natural Heritage Inventory are based on detailed site surveys and data collected by consistent methods. Inventories for rare and uncommon natural community types are more complete than for common types. Natural communities represent critical coarse-filter elements for conserving biological diversity and overall natural heritage.

### **Component Limitations**

Statewide inventories for rare natural community types are on-going and therefore our knowledge of rare natural community locations is incomplete. A field assessment is always needed to identify whether rare natural communities occur on a site.

### **Component Weight and Justification**

Unlike most other components in this analysis, rare natural communities were not assigned a weight. Instead, rare natural communities were assigned directly to Tier 1 of the prioritization due to the critical natural of rare natural communities for conserving biological diversity.

## Summary Statistics for Rare Natural Communities

Table 1. BioFinder component datasets, component weights, and the distribution (%) of components across tiers

Data #	Weight	Component	Tier 1 Greatest	Tier 2 Very High	Tier 3 High	Tier 4 Moderate	Tier 5 Low
<b>Landscapes</b>							
L1	7	Habitat Blocks	12.7%	18.1%	30.1%	39.1%	0.0%
L2	3	Grasslands & Shrublands	4.3%	20.8%	22.7%	10.9%	41.3%
L3	9	Rare Physical Landscape	15.7%	53.9%	11.0%	19.4%	0.0%
L4	4	Representative Physical Landscape	17.2%	19.1%	43.4%	13.7%	6.6%
L5	7	Connecting Lands (<2000ac)	10.1%	23.4%	19.1%	47.4%	0.0%
L6	4	Connecting Blocks	9.2%	12.2%	24.0%	51.8%	2.7%
L7	3	Anchor Blocks	12.1%	19.7%	35.3%	32.7%	0.1%
L8	8	Riparian Connectivity	36.4%	52.9%	10.8%	0.0%	0.0%
L9	4	Wildlife Road Crossings	12.8%	28.1%	20.9%	26.8%	11.4%
<b>Aquatics</b>							
A1	6	Surface Waters & Riparian Areas	31.1%	48.6%	12.9%	7.4%	0.0%
A2	4	Representative Lakes	10.3%	84.5%	5.3%	0.0%	0.0%
A3	8	Important Aquatic Habitats & Species Assemblages	19.9%	75.2%	4.9%	0.0%	0.0%
<b>Species &amp; Natural Communities</b>							
SN1	Tier 1	Rare Species	100.0%	0.0%	0.0%	0.0%	0.0%
SN2	6	Uncommon Species	62.1%	21.7%	10.0%	6.1%	0.0%
<b>SN3</b>	<b>Tier 1</b>	<b>Rare Natural Communities</b>	<b>100.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>
SN4	6	Uncommon Natural Communities	57.4%	31.0%	11.4%	0.2%	0.0%
SN5	3	Common Natural Communities	9.8%	52.9%	37.1%	0.2%	0.0%
SN6	7	Vernal Pools (Confirmed)	20.5%	57.0%	8.3%	14.1%	0.0%
SN7	5	Vernal Pools (Potential)	6.0%	30.1%	52.3%	2.4%	9.2%
SN8	8	Wetlands	60.9%	31.0%	5.1%	3.0%	0.0%
SN9	4	Mast production areas	10.3%	49.3%	35.2%	4.0%	1.2%

The sum of percentages for each component is 100.

### For more information

A complete report on BioFinder development, methods and findings, including all 21 component summaries can be found at [www.BioFinder.vt.gov](http://www.BioFinder.vt.gov). For more information specific to this component, contact Eric Sorenson, Vermont Fish & Wildlife Department, 802-476-0126, [eric.sorenson@state.vt.us](mailto:eric.sorenson@state.vt.us)