

Habitat Blocks (L1) Mapping Component Abstract

Description

Habitat blocks are areas of contiguous forest and other natural habitats that are unfragmented by roads, development, or agriculture. Vermont's habitat blocks are primarily forests, but also include wetlands, rivers and streams, lakes and ponds, cliffs, and rock outcrops. Forests included in habitat blocks may be young, early-successional stands, actively managed forests, or mature forests with little or no recent logging activity. The defining factor is that there is little or no permanent habitat fragmentation from roads, agricultural lands and other forms of development within a habitat block. BioFinder includes a subset of the best examples of habitat blocks 500 to 1,000 acres and larger identified by Vermont Fish & Wildlife Department (Sorenson & Osborne, in prep.). Developed lands, most roads and lands in most agricultural cover classes (including cultivated crops, grasslands and pasture) are not considered natural cover. Roads were buffered by class with interstates and higher volume roads receiving wider buffers, to further demarcate areas of contiguous natural cover. Class four roads and many logging roads are not considered fragmenting features.

Ecological Importance

Habitat blocks support the biological requirements of many native plants and animals. They support viable populations of wide-ranging animals, including bobcat, American Marten, and black bear, that require large areas to survive by allowing access to important feeding habitat, the ability to move and find mates for reproduction, and as a result ensure genetic integrity of populations. Larger habitat blocks serve as habitat for source populations of dispersing animals for recolonization of nearby areas that may have lost their original populations of those species. Such habitat, together with other important habitats such as wetlands, also supports natural ecological processes such as predator/prey interactions, hydrologic regimes and natural disturbance. They also serve to buffer species against the negative consequences of fragmentation, maintain air and water quality.

Habitat Block Conservation Goal

To conserve habitat blocks across Vermont that support viable populations of Vermont's native fish and wildlife, including a variety of interior forest birds, wide ranging species such as black bear, bobcat, and American marten, and form a network of lands and waters that include representation of the state's physical landscape diversity.

Component Mapping Goal

To identify the best examples of habitat blocks across Vermont and include appropriate representation of habitat blocks in all biophysical regions.

Source Data and Selection Criteria

Habitat Blocks, Vermont Fish & Wildlife Department (Sorenson & Osborne, in prep.)

Description

Habitat blocks show all areas of natural cover (Using 2006 landcover data from NOAA Coastal Change Analysis Program (CCAP)) surrounded by roads, development and agriculture, ranging in size from 500-acres to 153,000-acres and prioritized for biological importance.

Selection Criteria

Habitat block selection criteria were designed to consider the varying land use patterns within each biophysical region as follows:

Piedmont Biophysical Region (BPR)—all blocks larger than 1000a and all blocks with priority ranks 6-10.

Champlain Valley BPR—all blocks larger than 500a and all blocks with priority ranks 6-10.

Vermont Valley BPR—all blocks larger than 500a and all blocks with priority ranks 6-10.

Taconics, Greens, & NE Highlands BPRs all blocks with priority ranks 6-10

Component Strengths

Habitat blocks are spatially accurate. They are not modeled, but rather are based on land cover data. They reflect a mix of different land cover types, and hence serve as a coarse filter for a wide variety of plant and wildlife species. This dataset includes its own ranking. This ranking system evaluated biological values and physical landscape characteristics for each block allowing for a full range of biological diversity present within the blocks to be highlighted. This dataset excludes roads, development, and agriculture, ensuring that only unfragmented habitat is included.

Component Limitations

The habitat blocks dataset is biased towards higher elevation lands away from larger river valleys and lowlands as it excludes roads and a buffer around each road, and most of Vermont's roads and development are along rivers and in lowlands. This is a very typical development pattern in Vermont, where roads often closely follow streams and rivers where it is easiest to build. It results in some areas of streams not being considered due to their proximity to roads and development. However, the important influence of aquatic habitats is captured through other data sources, as described later, for purposes of this project.

Component Weight and Justification

The Habitat Blocks dataset is weighted a 7 on a scale of 1-10 (with 10 as highest contribution to biological diversity). Habitat blocks are important components of Vermont's biological diversity. These habitats provide critical contiguous natural cover for a variety of wide-ranging animal species and room for natural processes. They also serve as a coarse filter for a variety of finer scaled natural communities and species that occur therein. Although the weighting for this critically important feature was 7 and not 9 or 10, it is important to remember that the weights are meant to put each of the 21 data sets into relative context compared to each other.

Summary Statistics for Habitat Blocks

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
Landscapes							
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%
Aquatics							
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%
Species & Natural Communities							
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%
SN3	Tier 1	Rare Natural Communities	100.0%	0.0%	0.0%	0.0%	0.0%
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.

References

Sorenson, E. and J. Osborne. In prep. Vermont Habitat Blocks & Wildlife Corridors, an analysis using geographic information systems. Vermont Fish & Wildlife Department. Draft report.

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. For more information specific to this component, contact Eric Sorenson, Vermont Fish & Wildlife Department, 802-476-0126, eric.sorenson@state.vt.us