

Interior Forest Blocks

Description

Interior Forest Blocks are a selection of habitat blocks that best provide interior forest conditions in each Biophysical region. Habitat blocks themselves are areas of contiguous forest and other natural habitats that are unfragmented by roads, development, or agriculture. This dataset is a selection of the largest habitat blocks in each biophysical region and has the best likelihood of offering interior forest conditions. 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. Developed lands, most roads and lands in most agricultural cover classes (including cultivated crops, grasslands and pasture) are not considered natural cover. To more accurately identify interior forest conditions, buffers were assigned to roads with wider buffers assigned to larger and busier roads. Class four roads and most logging roads are fragmenting features for some species, but not necessarily for wide-ranging species that are the focus of the habitat block analysis.

Interior Forest Blocks serve as a coarse filter for a host of finer scaled elements detailed in the attached matrix. (Panzer and Schwartz 1998; Molina et al. 2011; Shuey et al. 2012)(Hunter 1991; NCASI 2004; Schulte et al. 2006). (Jenkins 1985; Noss 1987; Hunter et al. 1988;; Noss and Cooperrider 1994; Haufler et al. 1996; Jenkins 1996; Poiani et al. 2000; USDA 2004).

Highest Priority Forest Blocks: are the largest forest blocks with a minimum amount of core forest from all biophysical regions that provide the foundation for interior forest habitat and associated ecological functions. Priority Interior Forest Blocks are smaller forest blocks from all biophysical regions that provide important interior forest habitat and provide ecological support to the highest priority Forest Interior Blocks.

Ecological Function:

Interior forest 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 forest 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.

In addition, large, topographically diverse forest blocks will allow many species of plants and animals to shift to suitable habitat within a forest block in response to climate change within the next century without having to cross developed areas to other forest blocks (Beier 2012).

The coarse-filter conservation approach can provide for the habitat needs of many of Vermont's species, allowing for efficiency in conservation planning and design. We have very high confidence that this conservation design identifies areas essential for the long-term functioning of Vermont's landscape and the species it contains.

Forest blocks provide many ecological and biological functions critical for protecting native species and the integrity of natural systems (Austin et al. 2004), including:

- Supporting natural ecological processes such as predator-prey interactions and natural disturbance regimes;
- Helping to maintain air and water quality and flood resilience;
- Supporting the biological requirements of many plant and animal species, especially those that require interior forest habitat or require large areas to survive;
- Supporting viable populations of wide-ranging animals by allowing access to important feeding habitat, reproduction, and genetic exchange; and
- Serving as habitat for source populations of dispersing animals for recolonization of nearby habitats that may have lost their original populations of those species.

Guidelines for Maintaining Ecological Function

The primary goal is to maintain the interior forest conditions that forest blocks provide by avoiding permanent interior forest fragmentation resulting from development. Limited development on the margins of existing large forest blocks may not have significant adverse effects as long as it does not reduce connectivity between blocks and does not encroach into the forest block interior. Forest management that maintains forest structure within the block and results in a distribution of all age classes is compatible with maintaining interior forest conditions over the long term.

Interior Forest Blocks Conservation Goal

To conserve interior forest blocks across Vermont that support interior forest ecological processes as well as 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

Interior Forest Blocks were created by choosing a selection of Habitat Blocks from the updated 2023 Habitat Blocks dataset of the largest blocks in each biophysical region with minimum core forest.

Vermont Habitat Blocks, Hawkins-Hilke et al. 2023. Vermont Fish & Wildlife Department.

Description

Habitat blocks show all areas of natural cover (Combining 2016 Forest canopy, Shrubland, & Wetland landcover data from University of Vermont Spatial Analysis Lab) surrounded by roads, development and agriculture, ranging in size from 150-acres to 150,000-acres and prioritized for biological importance.

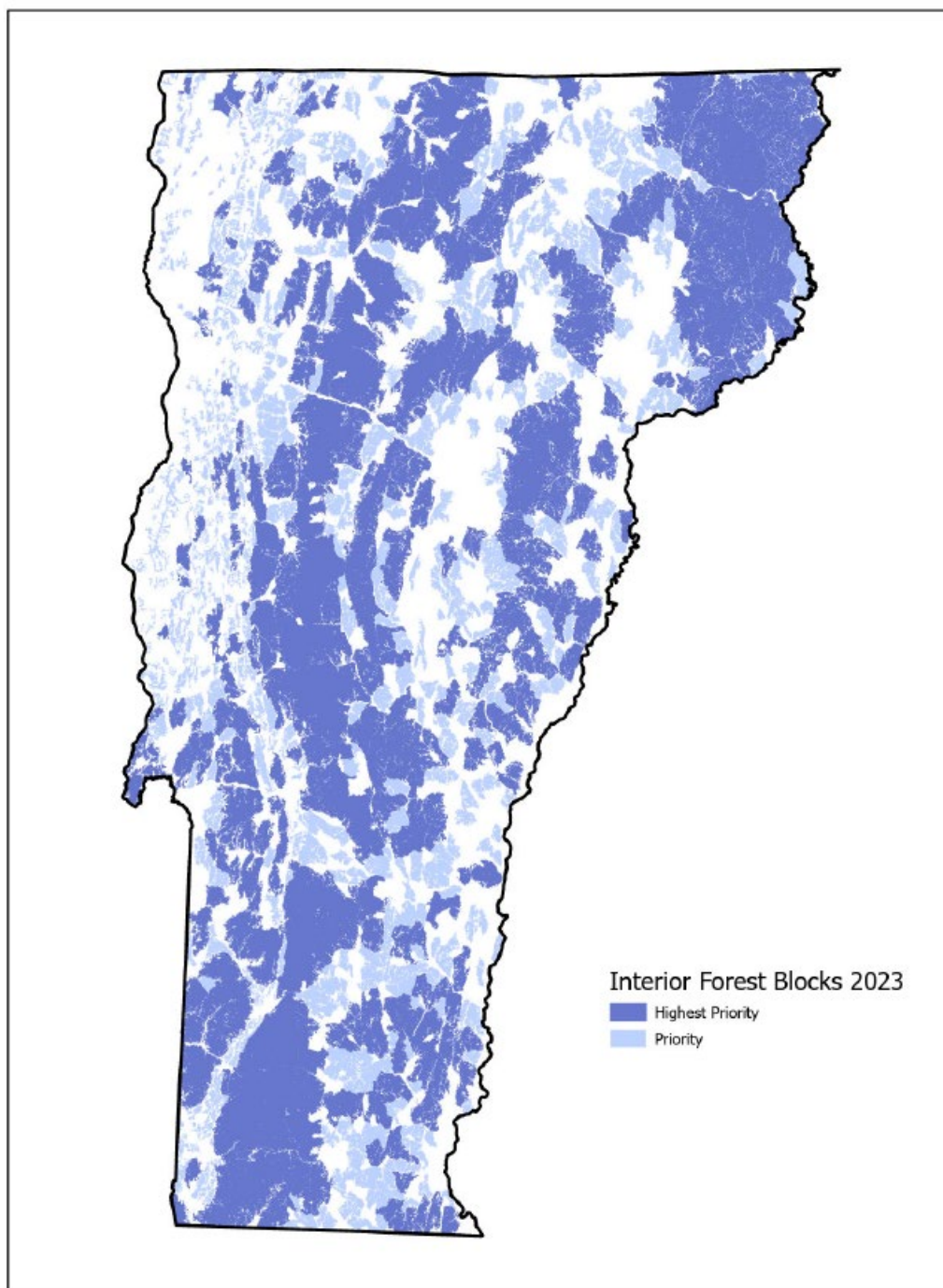
Selection Criteria

215 Habitat blocks were selected as Highest Priority Interior Forest & an additional 784 were selected as Priority. Habitat block selection criteria were designed to consider the varying land use patterns within each biophysical region as follows:

Figure 1.1 Minimum Acreage and Core Forests Acreage that define Highest Priority and Highest Priority Interior Forest Blocks

Biophysical Region	Highest Priority		Priority	
	Minimum Acreage	Minimum Core Forest Acreage	Minimum Acreage	Minimum Core Forest Acreage
Champlain Valley	1000 ac	250 ac	150 ac	0 ac
Taconics	2000 ac	1,000 ac	500 ac	250 ac
Northern Green Mountains	5000 ac	2,500 ac	500 ac	250 ac
Northeast Highlands	5000 ac	2,500 ac	500 ac	250 ac
Champlain Hills	2000 ac	1,000 ac	500 ac	250 ac
Southern Green Mountains	5000 ac	2,500 ac	500 ac	250 ac
Southern Vermont Piedmont	2000 ac	1,000 ac	500 ac	250 ac
Northern Vermont Piedmont	2000 ac	1,000 ac	500 ac	250 ac
Vermont Valley	1000 ac	250 ac	150 ac	0 ac

Figure 1.2 Map of the Highest Priority and Priority Interior Forest Blocks



Component Strengths

Interior Forest 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 Interior Forest 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 Priority & Justification

The Interior Forest Blocks dataset is divided into Highest Priority and Priority based on size.

Highest Priority Forest Blocks: are the largest forest blocks with a minimum amount of core forest from all biophysical regions that provide the foundation for interior forest habitat and associated ecological functions.

Priority Interior Forest Blocks are smaller forest blocks from all biophysical regions that provide important interior forest habitat and provide ecological support to the highest priority Forest Interior Blocks.

References

Hawkins-Hilke, J., Zaino, R., Goodwin, G., Kosiba, A., Perry, S. & Wood, A. 2023 Vermont Habitat Blocks. Vermont Fish & Wildlife Department.

For more information

For more information specific to this component, contact Vermont Fish & Wildlife Department, Jens Hilke, at 802-461-6791, jens.hilke@vermont.gov and Bob Zaino, at 802-476-0128, Robert.Zaino@vermont.gov