PART TWO

STATUS REPORT AND MAPS

Elizabeth Farnsworth © Native Plant Trust

CONTENTS

Cushion plant *(Diapensia lapponica)* and Lapland rosebay *(Rhododendron lapponicum)*
Liza Green © Native Plant Trust

OVERVIEW

Approach

Plants have evolved to exploit almost every terrestrial situation on Earth, and in each they negotiate the challenges and limitations of the local conditions. Thus, plant communities translate the land's geophysical variation into living habitats that support many types of species. In this report, we focus on the diversity and resilience of habitats as an embodiment of plant diversity, rather than on plant diversity defined more simply as "richness," the number of species within a given area or the average number of species within a habitat. Conserving multiple intact examples of every habitat across its range within a region is a strategy for preserving plant diversity, sustaining the natural benefits plants provide, and maintaining the full diversity of species that depend on them. As the climate changes, we expect the compositional details of each habitat to adjust in response, but the underlying geophysical settings and terrain-driven processes to remain stable.

This section describes 43 of New England's terrestrial habitats and analyzes them with respect to distribution, resilience, securement, associated species, and threat of conversion. Our ability to understand the trends and spatial relationships among habitats was made possible by the recent development of several key datasets, which are described in the main body of the report. Here we briefly review the data sources and provide more detail on the Northeast Terrestrial Habitat Map. Synthetic analysis comparing habitats to one another is also provided in the main body of the report, but we realize that readers may not be familiar with the full range of habitats found throughout the region. In this section, we profile each habitat individually; provide information on its distribution, composition, and associated species; and assess its level of securement and resilience to climate change.

Data Sources

The method of mapping terrestrial habitat types is described below. To assess the status of each habitat, we relied on three key datasets described in detail in the main report.

Climate Resilient Land

As climate change drives shifts in species and ecosystems, conservation plans based on current biodiversity patterns will become less effective at sustaining species and natural processes over the long term (Pressey et al. 2007). Thus, conservationists need a way to ensure that sites targeted for protection will continue to conserve biological diversity and ecological functions into the future. To address this issue, The Nature Conservancy (TNC) devised an approach for assessing climate resilience based on enduring geophysical characteristics of the land (Anderson et al. 2014; see nature.org/climateresilience).

Plants experience climate at a very fine scale (inches to yards), such that a site with ample topographic and hydrologic variation is experienced by plants as a mix of microclimates. If well connected, areas of high topoclimate variation have the potential to buffer climate-change impacts by enabling local dispersal to more favorable microclimates and may also provide stepping-stones to facilitate longer-distance range shifts (Suggitt et al. 2018).

In New England, topography, landforms, and elevation modify local conditions and create microclimatic patterns that are relatively predictable at the site scale. These factors can be used in combination with moisture models to estimate the variety of climatic environments available to resident species. The TNC dataset (Anderson et al. 2014) evaluates and scores every pixel of land with respect to the diversity of microclimates and degree of connectedness. Scores are calculated relative to the land's geophysical setting (geology and soil) and ecoregion. Scores are expressed as standard deviations above or below the average values for the setting.

Securement

Measures of land securement are based on The Nature Conservancy's Secured Land dataset (Prince et al. 2018), which is developed and maintained by each state office and aggregated by the regional science office. The dataset contains the boundaries of all land that is permanently secured against conversion to development, including public and private land held in fee or easement by state agencies, federal agencies, land trusts, and private conservation holders. The land is classified by GAP status (Crist et al. 1998) into three categories:

- **GAP Status 1**: Secured for nature and natural processes

  An area having permanent protection from conversion of natural land cover and a mandated management plan in operation to maintain a natural state within which disturbance events (of natural type, frequency, intensity, and legacy) are allowed to proceed without interference or are mimicked through management. *Examples:* nature reserves, Forever Wild easements, wilderness areas.

- **GAP Status 2**: Secured for nature with management

  An area having permanent protection from conversion of natural land cover and a mandated management plan in operation to maintain a primarily natural state, but which may receive uses or management practices that degrade the quality of existing natural communities, including suppression of natural disturbance. *Examples*: national wildlife refuges, national parks.

- **GAP Status 3**: Secured for multiple uses

  An area having permanent protection from conversion of natural land cover for the majority of the area, but subject to extractive uses of either a broad, low-intensity type (e.g., logging) or localized intense type (e.g., mining), or motorized recreation. It also confers protection on federally listed endangered and threatened species throughout the area. *Examples*: state forests, forest management easements, conservation restrictions on working forest.

- **Unsecured**: Land that is not permanently secured against conversion; this includes most private land.

GAP 1 and 2 lands are considered **protected**, which is the term we use in this report, and are the only lands that satisfy the GSPC targets. The New England targets include GAP 1-3 lands in the benchmark of 30% secured and use GAP 1-2 for the 5-15% that should be "secured for nature."

Predicted Loss to Development

To estimate the threat of conversion, we used a Land Transformation Model developed by the Human-Environment Modeling and Analysis Laboratory at Purdue University (Tayyebi et al. 2013). In this model the quantity of urban growth at county and city scales is simulated using population, urban density, and nearest-neighbor-dependent attributes. Future land use predictions were created for every 30-m pixel in the region in five-year increments from 2010 to 2060 and used NLCD 2001 version 2 as the basis for projections. To estimate loss, we calculated acres of each habitat present in 2020 that are predicted to be developed by 2050.

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NEW ENGLAND'S TERRESTRIAL HABITATS

The terrestrial habitats defined and described in this report follow the Northeast Terrestrial Wildlife Habitat Classification (Gawler et al. 2008) with modifications as necessary to enable consistent mapping in the Northeast Terrestrial Habitat Map (Ferree and Anderson 2014) – our key data source. The latter is a comprehensive and standardized representation of natural habitats across fourteen states and four Canadian provinces (FIGURE 1. US PORTION). The habitats are equivalent in scale and concept to the NatureServe ecological system (Comer 2010), which was developed to provide a common base for characterizing vegetation habitats across states. The map was developed to promote an understanding of terrestrial and aquatic biodiversity patterns across the region, and is not intended to replace state classifications, which often have more detail and nuance.

Concepts and Terminology

NatureServe's ecological system classification presents units that are readily identifiable by conservation and resource managers in the field (Comer 2010). Although based on dominant vegetation, they are defined as recurring groups of biological communities that are found in similar physical environments and are influenced by similar dynamic ecological processes, such as fire or flooding. Each ecological system type is named based on biogeographic region, dominant cover type, and ecological setting such as an elevation zone, moisture regime, or disturbance process (e.g., Acadian Low-Elevation Spruce-Fir-Hardwood Forest). The classification includes all upland, wetland, and estuarine habitats. It does not include aquatic freshwater or marine habitats.

In this report, as in Gawler et al. (2008), we use the term "terrestrial habitat" as synonymous with "ecological system" and roughly equivalent to "vegetation type" or "plant community." Although ecological systems are tied to the U.S. National Vegetation Classification (USNVC, FGDC 2008), they are not a formally recognized level of the USNVS hierarchy, which is based on physiognomy, not on a common ecological setting. Users should also realize that within a single terrestrial habitat, such as Acadian Low-Elevation Spruce-Fir-Hardwood Forest, there may be variation related to local conditions that may be described at a finer "plant association" level.

The classification system describes terrestrial habitats in relation to ecological setting, but these may occur on the land at fundamentally different scales. To account for this, each habitat has been assigned to one of three landscape patterns:

- **matrix forest**: dominant forest types that occupy large contiguous areas (generally >5,000 acres under natural conditions) and form the background matrix of a geographic region. Other habitats tend to nest within the matrix where local conditions differ in moisture, soil depth, or disturbance regimes. An example of a matrix forest is the Acadian Low-Elevation Spruce-Fir-Hardwood Forest, which dominates at low elevations in northern Maine.

- **wetland**: swamps, bogs, marshes, floodplains, and fens that form in annually flooded or permanently saturated conditions where water collects. These habitats are smaller than the matrix-forming forests and generally occupy 10 acres to 5,000 acres under natural conditions. An example is the North Atlantic Coastal Plain Basin Peat Swamp, which is a peat-accumulating forested wetland common to the coastal plain.

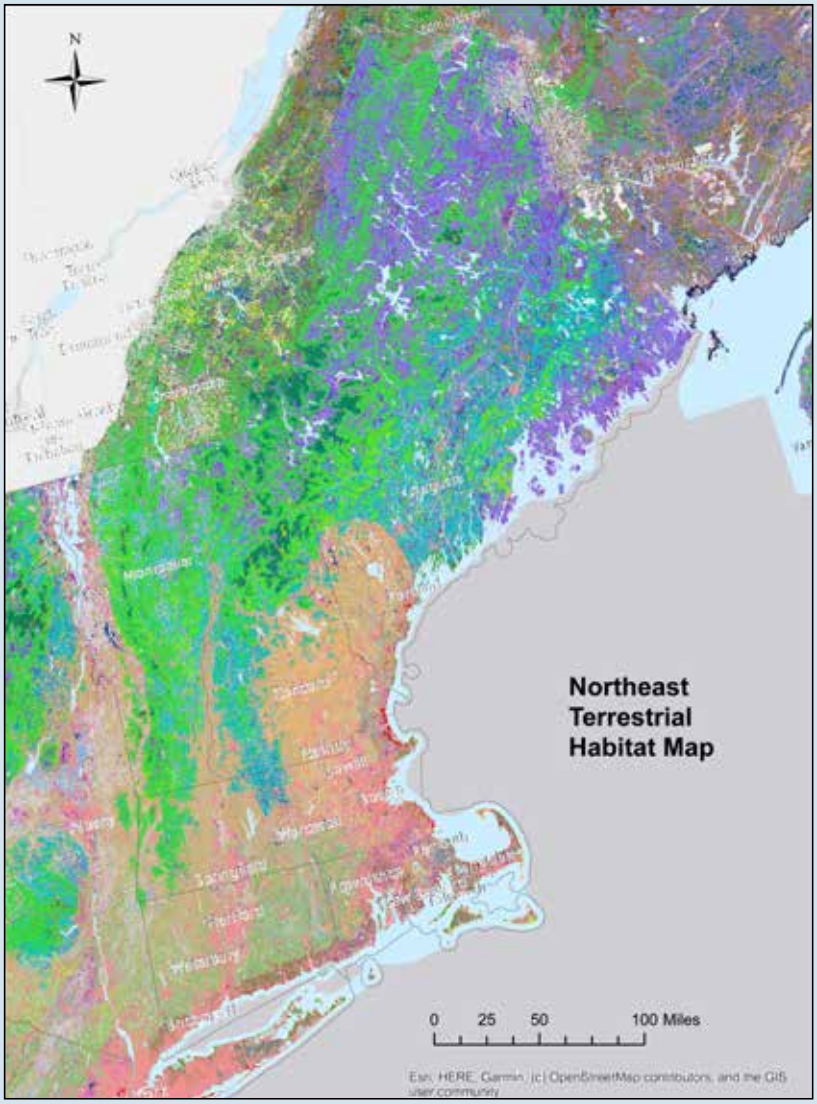
- **patch-forming habitats**: these habitats occur under very localized environmental conditions that are distinctly different from the surrounding landscape (e.g., Acidic Rocky Outcrop). The habitat often reflects extreme conditions in soil (bedrock or shifting sand), exposure (alpine winds, steep slopes), or disturbance regime (fire, mowing). Patch habitats tend to have high plant diversity and host some of New England's rarest species.

In addition, newly identified Important Plant Areas (IPAs) occur within all three landscape patterns in New England. Based on criteria in the Global Strategy for Plant Conservation (GSPC), here an IPA is defined as a contiguous patch of resilient land with a diversity of rare plant species relative to its size. The IPAs are characterized by their dominant habitat but can be evaluated by the number of other habitats and the number of rare species contained within. Collectively they contain multiple occurrences of 212 of our rarest species and resilient examples of 92% of the habitats.

Attention to these scales is an important part of understanding the distribution, securement, and resilience patterns of plant diversity.

FIGURE 1. The Northeast Terrestrial Habitat Map

This dataset (Ferree and Anderson 2015) maps the distribution of 140 types of forests, wetlands, unique communities, and tidal systems across the Northeast. To explore the map and view the legend, go to http://nature.ly/NEhabitat



Geography

The map used for this study covers the six New England states as well as PA, NJ, MD, DE, WV, VA and the Canadian provinces of New Brunswick, Novia Scotia, Prince Edward Island, and Quebec. All statistics in this report are for New England only: CT, MA, ME, NH, RI, VT.

Naming Conventions

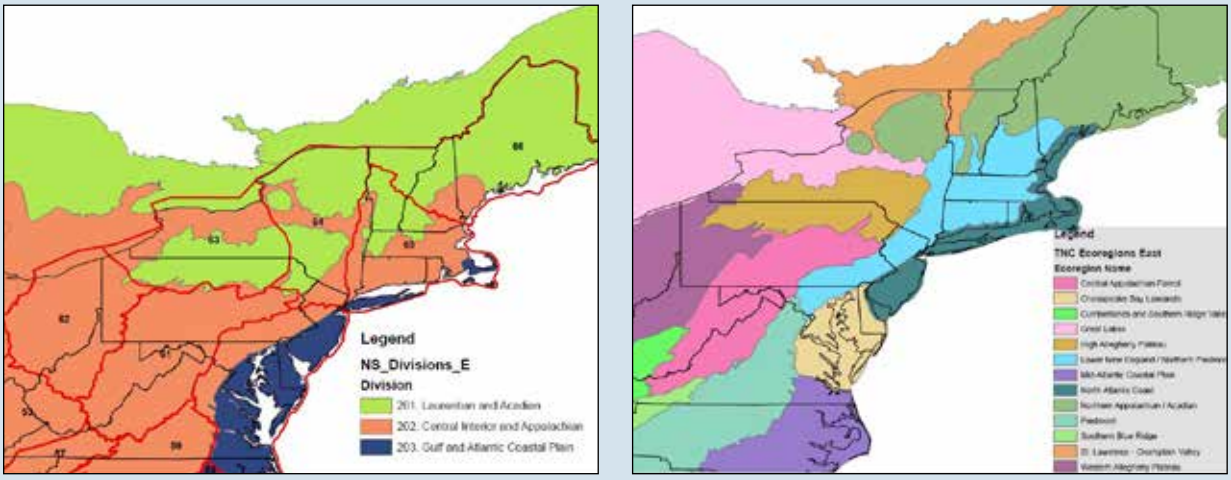
The names of ecological systems incorporate a biogeographic reference, and the ecological systems classification for the continental United States uses major geographic divisions as an upper-scale descriptor (Comer et al. 2003). Those divisions were adapted from Bailey (1995 and 1998), with division lines modified according to ecoregion lines developed by The Nature Conservancy (Groves et al. 2002) and World Wildlife Fund (Olson et al. 2001). These divisions (FIGURE 2) are sub-continental landscapes reflecting similar climate and biogeography. Three divisions cover the Northeast:

- Laurentian-Acadian (Div. 201)
- Central Interior and Appalachian (Div. 202)
- Gulf and Atlantic Coastal Plain (Div. 203).

Each ecological system has a "home" division with which it is most closely allied ecologically, and the Northeast terrestrial habitat classification uses the three divisions as one of the grouping variables. An ecological system name may use its "home" division in its name (e.g., Laurentian–Acadian) or, depending upon the system range, a narrower biogeographic reference such as "Central Appalachian" (part of Div. 202).

FIGURE 2. Biogeographic Divisions Used in the Classification

The map on the left shows the major divisions used in naming the ecological system types. The map on the right shows the TNC ecoregions, which are occasionally used to add further limits to the distribution of a system type.



Mapping Methods

The methods used to create the Terrestrial Habitat map are relatively detailed and summarized in a methods document with further detail on the classification system (Ferree and Anderson 2013).

The mapping process was intensely data-driven, relying on comprehensive datasets of ecological variables (geology, landforms, precipitation, etc.) and more than 70,000 ecological community samples. Whenever possible, we used field-collected data combined with national datasets. Very briefly, the basic mapping steps were as follows:

- Compile foundation datasets for the entire region (landforms, geology, climate, land cover, etc.).
- Develop a list of ecological systems, and meet with appropriate state, federal, and NGO staff to understand the distribution, scale, and landscape pattern of ecological systems.
- Compile plot samples for ecological systems using State Natural Heritage data, forest inventory and analysis points, and other sources. Tag each sample with the appropriate ecological system.
- Develop models for the dominant matrix-forming forest types using regression tree analysis of tagged plot samples on the data sets of ecological information.
- Map the dominant forest types onto the landscape using landform-based units.
- Develop models for the wetland systems (swamps, marshes, bogs, etc.) and the patch-forming upland systems (barrens, glades, summits, cliffs, etc.).
- Assemble models into one region-wide map and develop legend.

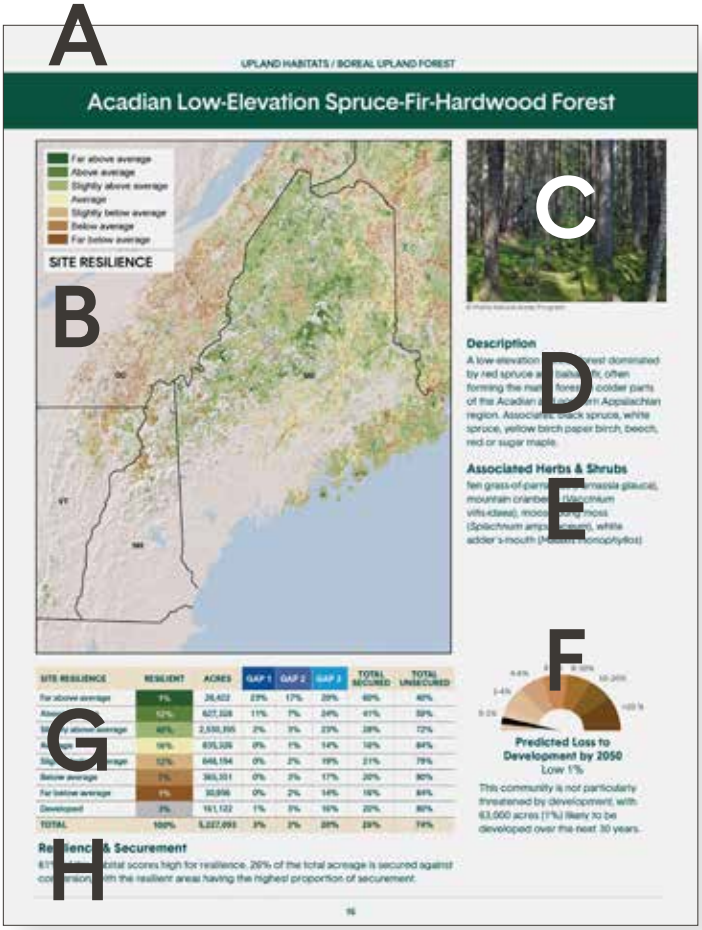
TABLE 1. Terrestrial Habitats and Level of Securement

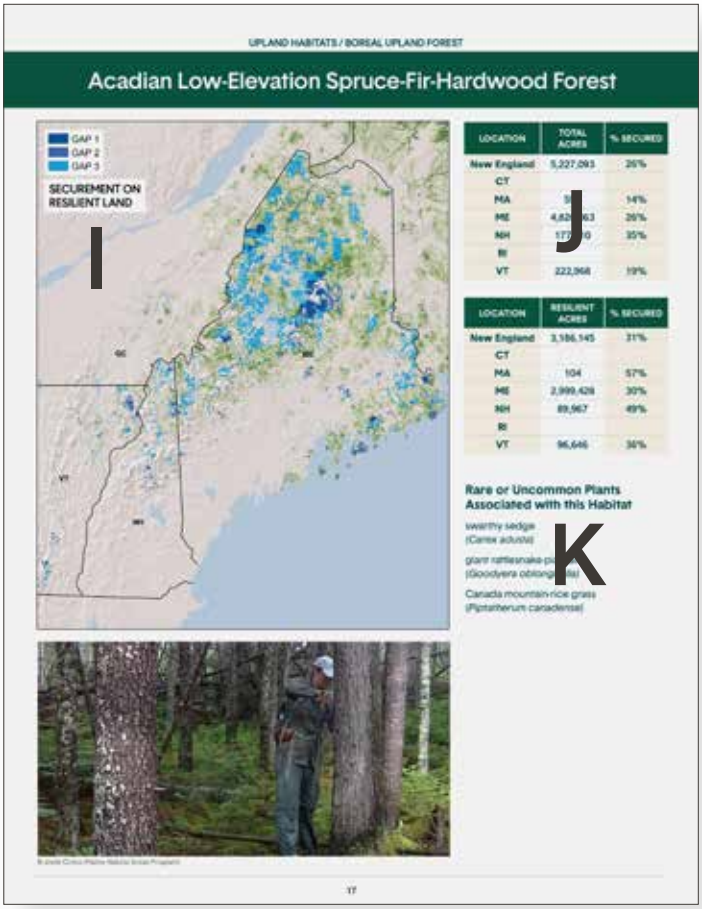
UPLAND HABITATS	ACRES	GAP 1	GAP 2	GAP 3	UNSECURED
MATRIX FOREST HABITATS	**29,141,876**	**4%**	**5%**	**18%**	**74%**
Boreal Upland Forest	**7,520,051**	**8%**	**8%**	**22%**	**61%**
Acadian Low-Elevation Spruce-Fir-Hardwood Forest	5,227,093	3%	3%	20%	74%
Acadian Sub-boreal Spruce Flat	1,418,525	2%	3%	23%	71%
Acadian-Appalachian Montane Spruce-Fir-Hardwood Forest	874,432	19%	19%	23%	38%
Central Oak-Pine Forest	**2,257,390**	**3%**	**5%**	**17%**	**74%**
North Atlantic Coastal Plain Hardwood Forest	634,467	2%	4%	14%	81%
North Atlantic Coastal Plain Maritime Forest	79,051	1%	10%	12%	77%
North Atlantic Coastal Plain Pitch Pine Barrens	104,801	8%	7%	29%	55%
Northeastern Interior Pine Barrens	19,829	6%	3%	32%	59%
Northeastern Interior Dry-Mesic Oak Forest	1,387,176	1%	3%	14%	82%
Glacial Marine & Lake Mesic Clayplain Forest	32,066	3%	1%	4%	93%
Northern Hardwood & Conifer Forest	**19,364,435**	**2%**	**2%**	**16%**	**81%**
Laurentian-Acadian Northern Hardwood Forest	8,280,091	4%	3%	23%	70%
Laurentian-Acadian Pine-Hemlock-Hardwood Forest	4,460,233	1%	1%	11%	86%
Laurentian-Acadian Red Oak-Northern Hardwood Forest	1,071,860	2%	3%	13%	82%
Appalachian (Hemlock)-Northern Hardwood Forest	4,016,594	1%	2%	15%	82%
Northeastern Coastal & Interior Pine-Oak Forest	1,535,658	1%	2%	15%	83%
PATCH-FORMING HABITATS					
Cliff & Talus	**156,190**	**11%**	**10%**	**20%**	**60%**
Acidic Cliff & Talus	113,213	19%	17%	19%	45%
Calcareous Cliff & Talus	29,225	8%	7%	21%	64%
Circumneutral Cliff & Talus	13,752	5%	4%	19%	72%
Outcrop, Summit & Alpine	**191,618**	**32%**	**10%**	**18%**	**40%**
Acadian-Appalachian Alpine Tundra	7,900	76%	9%	14%	1%
Acidic Rocky Outcrop	152,972	15%	15%	21%	49%
Calcareous Rocky Outcrop	30,746	5%	6%	19%	70%
Grassland & Shrubland					
Atlantic Coastal Plain Beach & Dune	36,484	1%	26%	14%	59%
North Atlantic Coastal Plain Heathland & Grassland	25,219	2%	18%	13%	66%
Ruderal Grassland & Shrubland	53,047	1%	1%	13%	85%
Agricultural Grassland	2,571,409	0%	0%	3%	97%

TABLE 2. Palustrine Habitats and Level of Securement

	ACRES	GAP 1	GAP 2	GAP 3	UNSECURED
WETLAND HABITATS	**3,947,104**	**3%**	**7%**	**18%**	**72%**
Northern Swamp	**2,195,240**	**2%**	**3%**	**17%**	**78%**
Northern Appalachian-Acadian Conifer-Hardwood Acidic Swamp	761,511	4%	3%	20%	74%
Laurentian-Acadian Alkaline Conifer-Hardwood Swamp	573,968	1%	3%	13%	84%
North-Central Appalachian Acidic Swamp	608,230	2%	4%	20%	75%
North-Central Interior & Appalachian Rich Swamp	251,531	2%	3%	16%	80%
Northern Peatland	**381,256**	**4%**	**11%**	**18%**	**67%**
Boreal-Laurentian-Acadian Acidic Basin Fen	323,874	5%	5%	19%	71%
Boreal-Laurentian Bog	37,537	9%	14%	14%	63%
Acadian Maritime Bog	5,223	4%	21%	3%	73%
Laurentian-Acadian Alkaline Fen	217	2%	0%	29%	69%
North-Central Interior & Appalachian Acidic Peatland	14,406	2%	13%	24%	60%
Coastal Plain Swamp & Peatland	**18,628**	**7%**	**10%**	**25%**	**58%**
North Atlantic Coastal Plain Basin Peat Swamp	17,783	11%	7%	27%	56%
Atlantic Coastal Plain Northern Bog	845	3%	13%	24%	60%
Central Hardwood Swamp	**39,338**	**2%**	**2%**	**11%**	**86%**
North-Central Interior Wet Flatwoods	25,306	0%	3%	13%	84%
Glacial Marine & Lake Wet Clayplain Forest	14,032	3%	0%	9%	88%
Large River Floodplain	**340,645**	**2%**	**5%**	**19%**	**73%**
Laurentian-Acadian Large River Floodplain	309,055	3%	5%	17%	76%
North-Central Appalachian Large River Floodplain	31,590	2%	6%	22%	70%
Freshwater Marsh & Shrub Swamp	860,248	2%	4%	16%	77%
Laurentian-Acadian Freshwater Marsh	367,506	3%	4%	16%	77%
Laurentian-Acadian Wet Meadow-Shrub Swamp	492,741	2%	3%	17%	78%
Tidal Marsh	111,748	2%	14%	22%	62%
Acadian Coastal Salt & Estuary Marsh	23,350	1%	11%	19%	69%
North Atlantic Coastal Plain Tidal Salt Marsh	88,398	2%	16%	25%	56%

PAGE LAYOUT





A. Habitat Name

B. Map of Relative Climate Resilience of the Habitat

C. Photo

D. Description

E. Associated Herbs and Shrubs

F. Predicted Loss to Development by 2050

G. Resilience by Securement Table

H. Resilience and Securement

I. Map of Resilient Areas and Securement

J. State Statistics on Resilience and Securement

K. Associated Rare Plant Species

Click on any map to go to the mapping tool.

A. Habitat Name

The standardized name or macrogroup based on NatureServe ecological systems. More detail can be found on the terrestrial habitats here.

B. Map of Relative Climate Resilience of the Habitat

The boundaries of the habitat come directly from the Northeast Terrestrial Habitat map, but the information displayed is the climate resilience score for each pixel of land. Climate resilience is scored on a relative scale adjusted to the average score of the underlying physical habitat on which this habitat/vegetation type occurs. The legend is:

- Far above average (> 2 standard deviations) Most Resilient
- Above average (1 to 2 standard deviations) More Resilient
- Slightly above average (0.5 to 1 standard deviation) Somewhat Resilient
- Average (-0.5 to 0.5 standard deviations) Average
- Slightly below average (-0.5 to -1 standard deviation) Somewhat Vulnerable
- Below average (-1 to -2 standard deviations) More Vulnerable
- Far below average (<-2 standard deviations) Most Vulnerable

More detail can be found on TNC's climate resilience map here.

C. Photo

Photos were provided by the state Natural Heritage Programs or TNC staff and are intended to convey the look and structure of the habitat.

D. Description

The text for this field was taken directly from the Northeastern Terrestrial Wildlife Habitat Classification (Gawler et al. 2008) with editing to shorten the description. The original document is here.

When a description was not provided in Gawler (2008), we modified a description of the habitat from one of the state natural community classification documents, usually from the state with the majority of the habitat. The state classifications provide much more detail on the habitat and a more localized description of environmental setting and associated species. We encourage readers to check out these terrific documents, which contain a body of information not readily found in any other source.

E. Associated Herbs and Shrubs

This section includes species that are tracked by the state Natural Heritage programs and that occur in statistically higher numbers in this habitat than any other (chi-squared test). These species were determined by an overlay of 117,000 species locations obtained from the Natural Heritage programs and used with permission. Lists were not corrected for current range, so if a habitat occurs from CT to ME and a plant species is common in the habitat only in CT, it will still show up in the list.

F. Predicted Loss to Development by 2050

This chart shows the percent of the habitat projected to be converted to development by 2050, if development keeps the same pace as the last two decades. The estimate was made using a Land Transformation Model developed by Amin Tayyebias and others at Purdue University (Tayyebi et al. 2013). When combined with the habitat grid, the model predicts the amount of habitat lost to development in future decades based on the past decade (1990–2000 data and validated using change in the 2001 and 2006 National Land Cover Databases).

G. Resilience by Securement Table

This table lists the acres and percentages of each resilience category by its GAP status. With respect to the global diversity targets 4 and 5, the securement status of the entire habitat is given in the top row. For the New England Target, the area and securement status of the most resilient land is equal to the sum of the three highest resilience categories shaded in green (>0.5 SD, i.e., slightly above average or higher).

On the macrogroup pages, this table is securement by state and includes the number of Important Plant Areas (IPAs) and the number that meet the GSPC target of 75% protected (GAP 1-2), have 75% of their area secured (GAP 1-3) in a combination of protected and multiple-use land, or are unsecured, although many have some level of securement below the 75% threshold. IPAs are assigned to their dominant habitat, although they include a variety of habitats. Two unsecured open-water IPAs in Maine and Vermont are not included here.

H. Resilience and Securement

This text summarizes proportion of resilience land and the degree of securements (GAP 1-3) for the habitat across all of New England.

I. Map of Resilient Areas and Securement

This map shows only the resilient portion of the habitat (areas with a resilience score >0.5 SD, i.e., slightly above average, or better). Blue colors indicate that the resilient areas are already under some sort of securement (GAP 1, 2, or 3). The accompanying web map lets users explore these areas in detail.

J. State Statistics on Resilience and Securement

This box includes relevant statistics on the distribution, resilience, and securement by state.

UPPER BOX: Total areas of the habitat in each state, and proportion that is secured (GAP 1-3)

LOWER BOX: Total resilient acres of the habitat (>0.5 SD) in the state and the proportion that is secured (GAP 1-3)

K. Associated Rare Plant Species

This list comes from expert knowledge of rare species distributions in the habitats described here.

Variations: Macrogroups and Tidal Systems

The habitats are organized by NatureServe Macrogroups. Each macrogroup page shows the distribution and securement of the group, a table showing GAP status by state, and a chart of predicted loss to development. The page is followed by maps and photos of each individual habitat within the macrogroup that occurs in New England.

Tidal systems are treated differently, as they are subject to the unique threat of sea-level rise, which is analyzed differently from the climate-resilient land.

UPLAND HABĪTATS
MATRĪX FOREST

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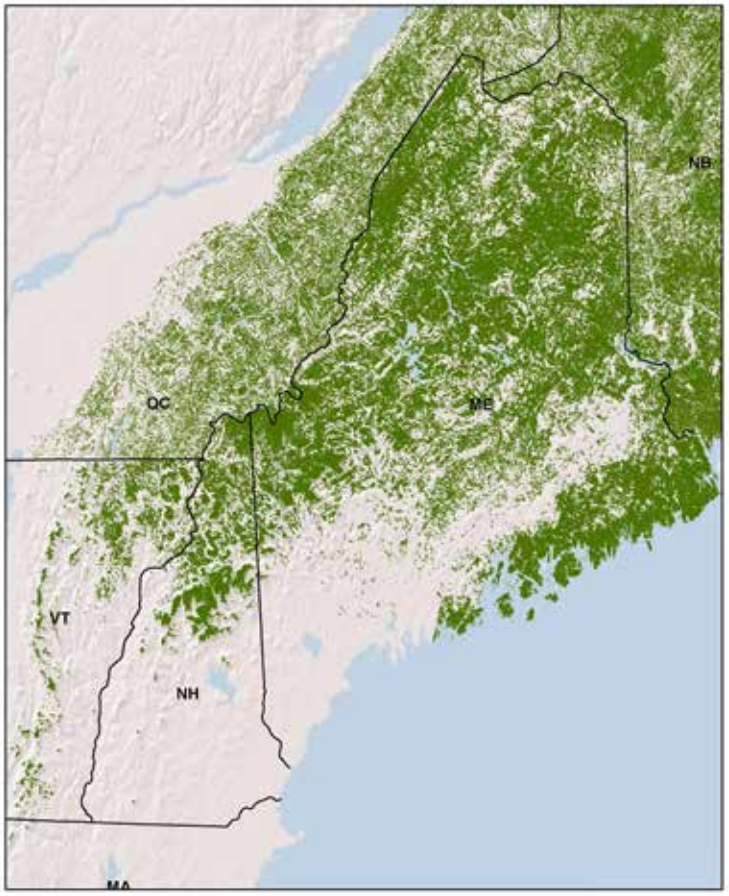
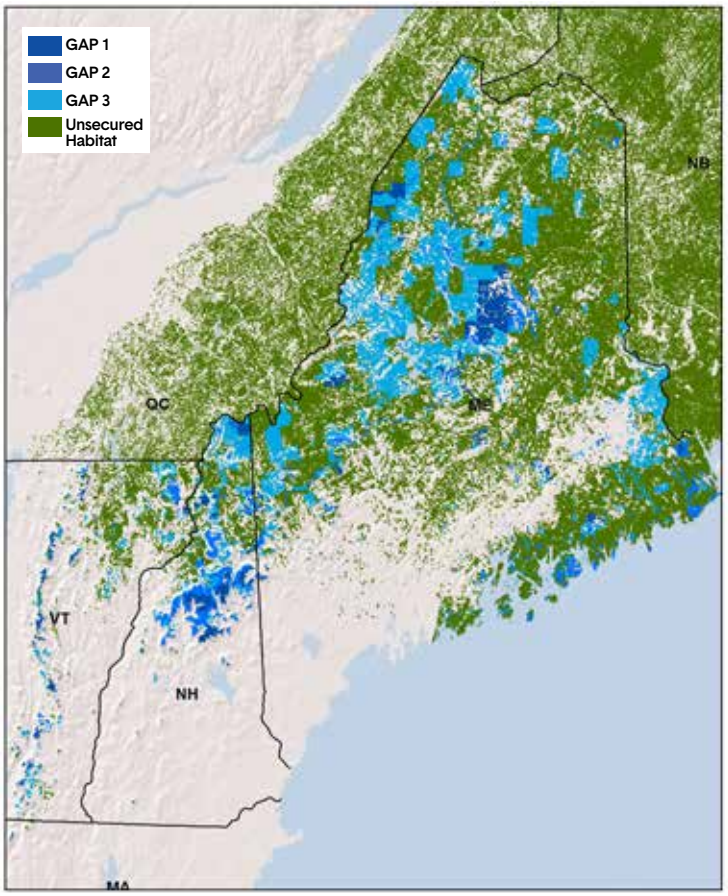
MACROGROUP

BOREAL UPLAND FOREST

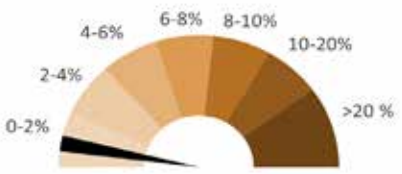




Boreal Upland Forest
Conifer-dominated forests of cold northern climates characterized by spruce and fir.

Acres in New England
7.5 million

Percent Secured
GAP 1 = 5%
GAP 2 = 5%
GAP 3 = 21%

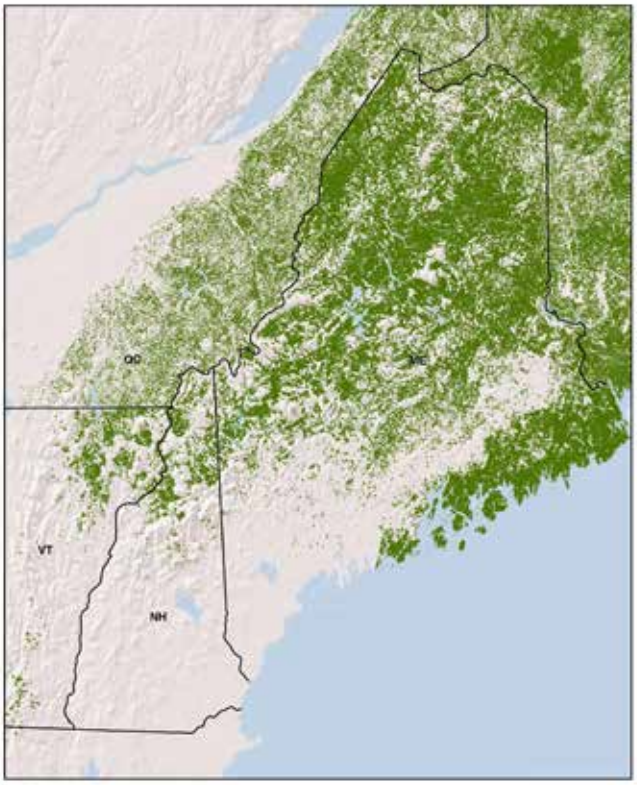


Predicted Loss to Development by 2050
38,731 acres (<1%)

						IMPORTANT PLANT AREAS			
	ACRES	GAP 1	GAP 2	GAP 3	UNSECURED	TOTAL	P	S	U
Boreal Upland Forest	**7,520,051**	**5%**	**5%**	**21%**	**69%**	**21**	**3**	**5**	**13**
Massachusetts	1,248	26%	0%	29%	45%				
Maine	6,574,320	3%	3%	21%	72%	19	3	3	13
New Hampshire	573,597	18%	27%	23%	32%	2		2	
Vermont	370,886	10%	5%	16%	69%				
New England	**7,520,051**	**348,045**	**373,204**	**1,595,224**	**5,203,578**				

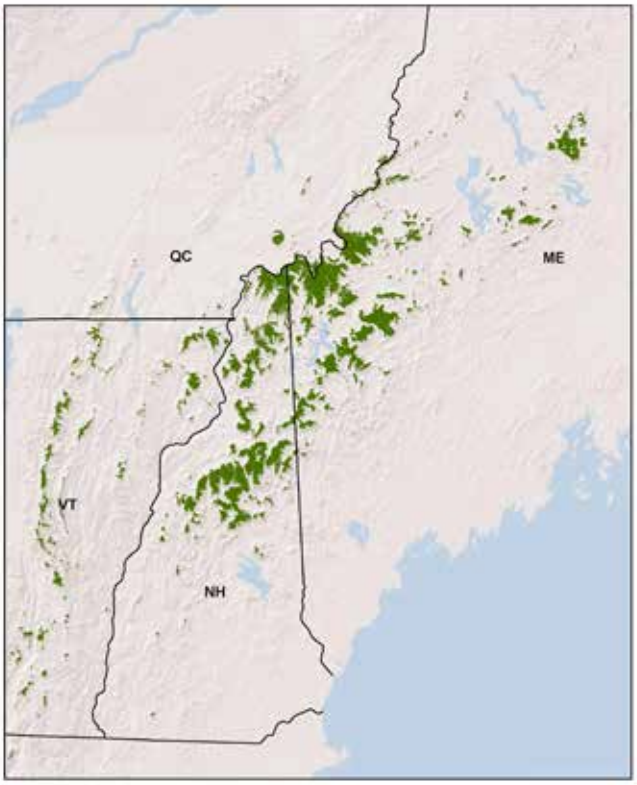
P = Protected S = Secured
U = Unsecured

DISTRIBUTION OF HABITATS



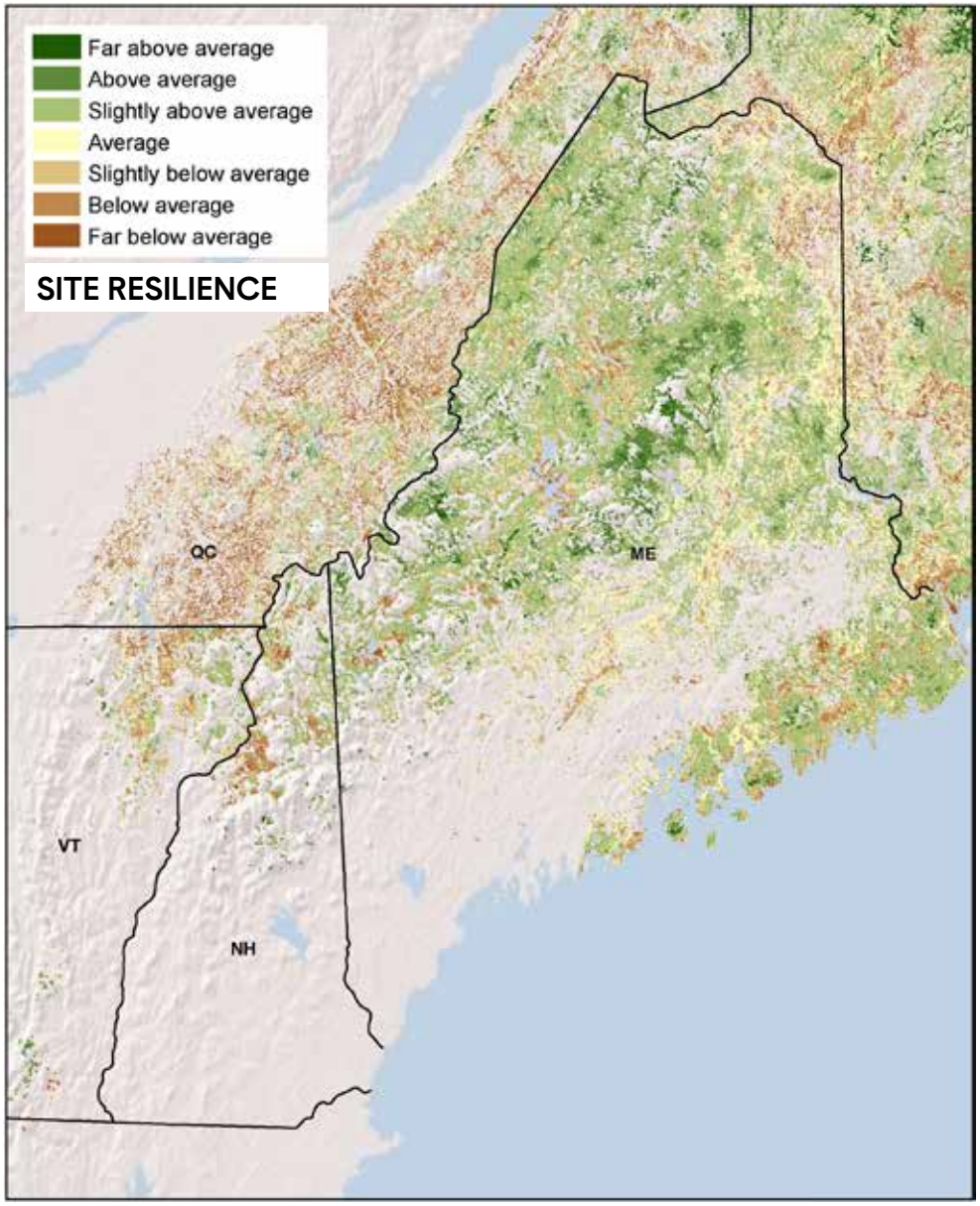
Acadian Low-Elevation Spruce-Fir-Hardwood Forest

Acadian Sub-boreal Spruce Flat



Acadian-Appalachian Montane Spruce-Fir-Hardwood Forest

Acadian Low-Elevation Spruce-Fir-Hardwood Forest



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Description

A low-elevation conifer forest dominated by red spruce and balsam fir, often forming the matrix forest in colder parts of the Acadian and northern Appalachian region. Associates: black spruce, white spruce, yellow birch paper birch, beech, red or sugar maple.

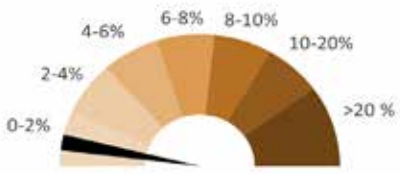
Associated Herbs & Shrubs

fen grass-of-parnassus (*Parnassia glauca*), mountain cranberry (*Vaccinium vitis-idaea*), moose dung moss (*Splachnum ampullaceum*), white adder's-mouth (*Malaxis monophyllos*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	1%	28,422	23%	17%	20%	60%	40%
Above average	12%	627,328	11%	7%	24%	41%	59%
Slightly above average	48%	2,530,395	2%	3%	23%	28%	72%
Average	16%	835,326	0%	1%	14%	16%	84%
Slightly below average	12%	648,194	0%	2%	19%	21%	79%
Below average	7%	365,351	0%	3%	17%	20%	80%
Far below average	1%	30,956	0%	2%	14%	16%	84%
Developed	3%	161,122	1%	3%	16%	20%	80%
TOTAL	100%	5,227,093	3%	3%	20%	26%	74%

Resilience & Securement

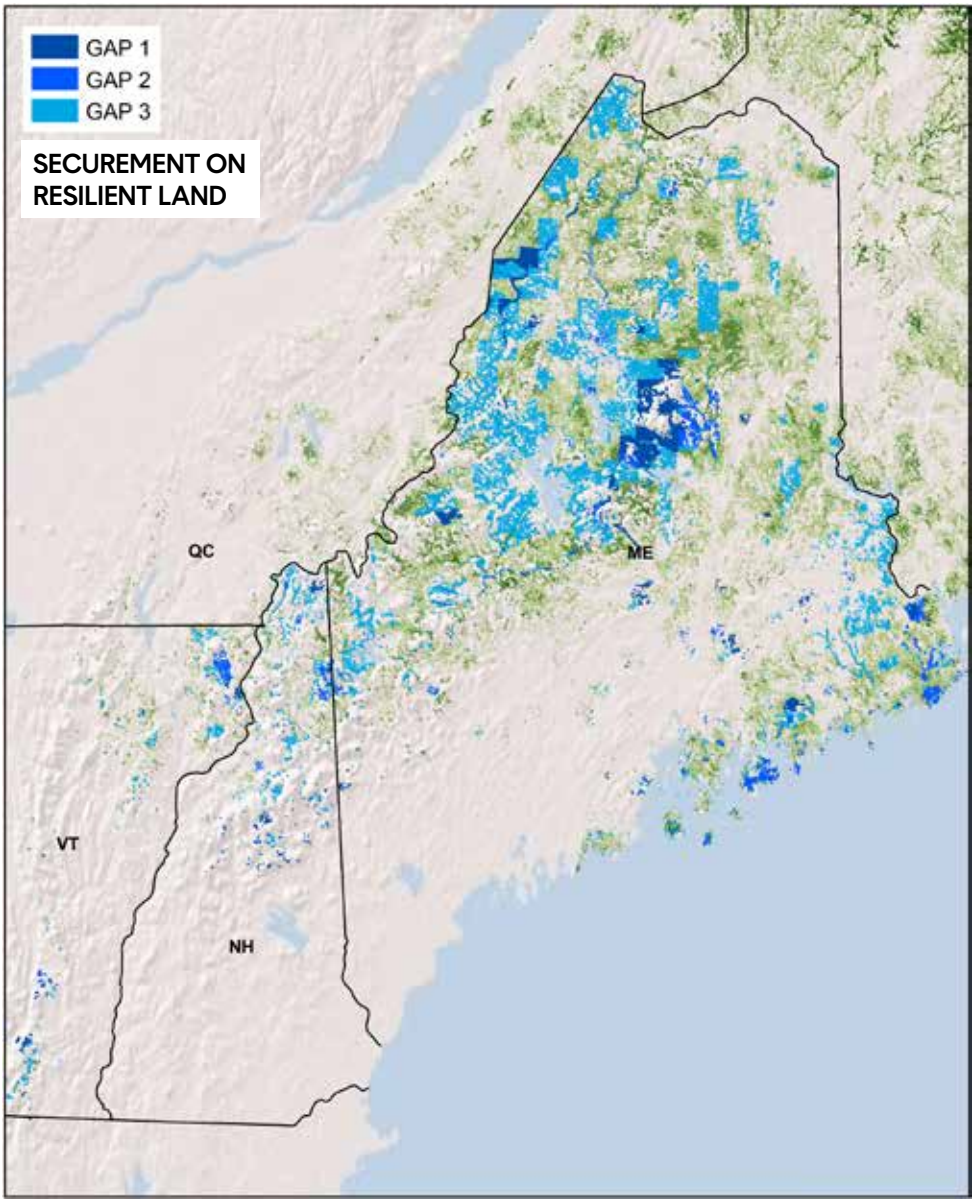
61% of this habitat scores high for resilience, and 26% of the total acreage is secured against conversion, with the resilient areas having the highest proportion of securement.



Predicted Loss to Development by 2050
Very low 1%

This community is not particularly threatened by development, with 34,136 acres (<1%) likely to be lost over the next 30 years.

Acadian Low-Elevation Spruce-Fir-Hardwood Forest



LOCATION	TOTAL ACRES	% SECURED
New England	5,227,093	26%
CT		
MA	553	14%
ME	4,826,063	26%
NH	177,510	35%
RI		
VT	222,968	19%

LOCATION	RESILIENT ACRES	% SECURED
New England	3,186,145	31%
CT		
MA	104	57%
ME	2,999,428	30%
NH	89,967	49%
RI		
VT	96,646	36%

Rare or Uncommon Plants Associated with this Habitat

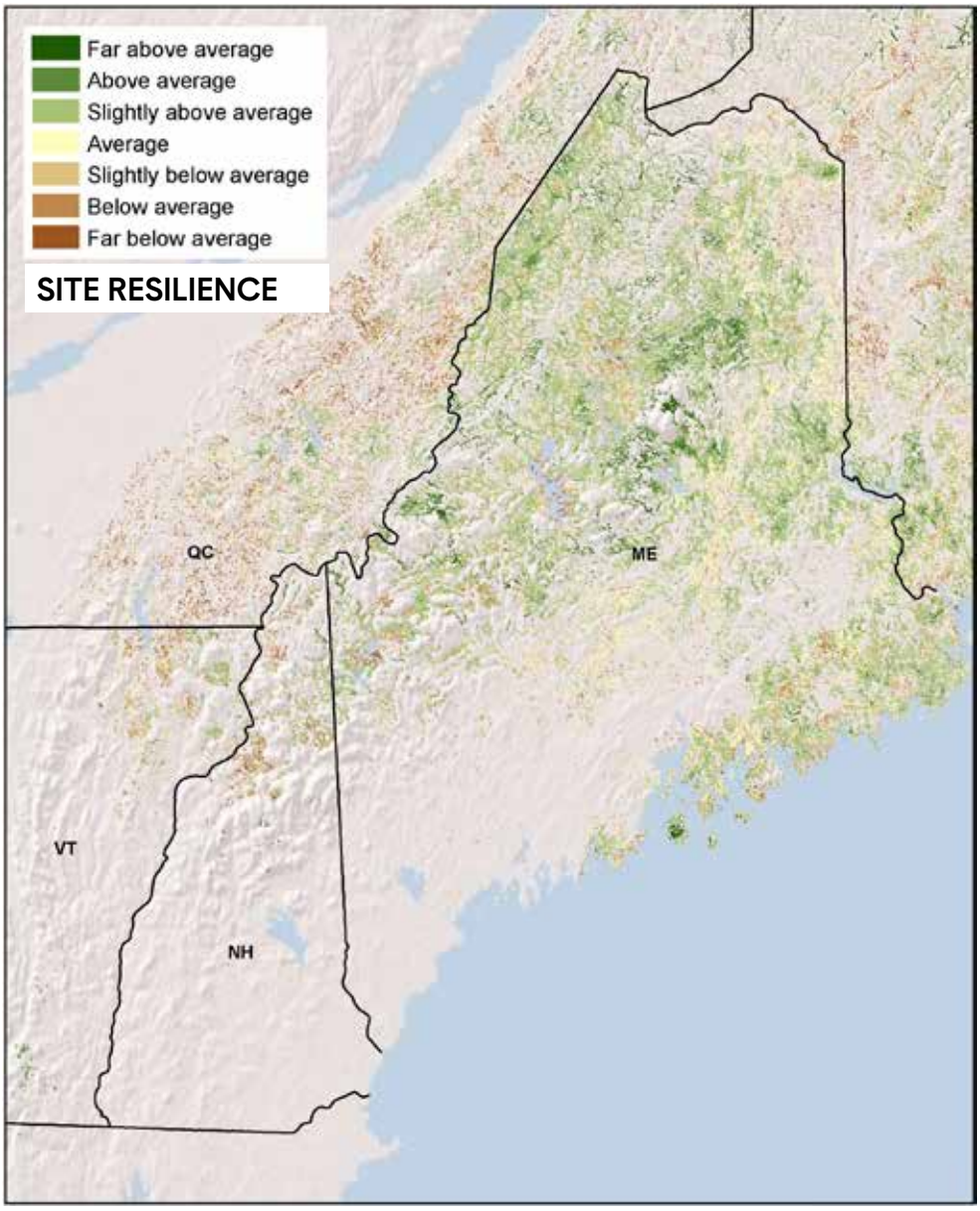
swarthy sedge
(*Carex adusta*)

giant rattlesnake-plantain
(*Goodyera oblongifolia)*

Canada mountain-rice grass
(*Piptatherum canadense*)

© Andy Cutco (Maine Natural Areas Program)

Acadian Sub-boreal Spruce Flat



© Maine Natural Areas Program

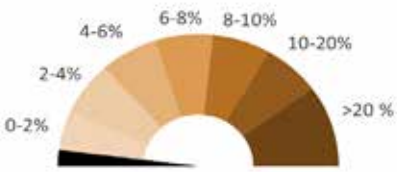
Description

A conifer or mixed forest forming extensive flats on areas of imperfectly drained soils. Black spruce, red spruce, and balsam fir dominate a mostly closed canopy; yellow birch, hemlock, black cherry, and red maple are sometimes present in smaller numbers. Bryophytes and low herbs are abundant.

Associated Herbs & Shrubs

mountain fly-honeysuckle (*Lonicera villosa*), fen grass-of-parnassus (*Parnassia glauca*), sheathed sedge (*Carex vaginata)*

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	1%	3,121	27%	13%	19%	58%	42%
Above average	11%	149,814	9%	5%	25%	39%	61%
Slightly above average	54%	762,799	2%	3%	26%	31%	69%
Average	17%	234,211	1%	1%	16%	18%	82%
Slightly below average	10%	148,563	1%	2%	21%	24%	76%
Below average	6%	83,053	0%	3%	19%	23%	77%
Far below average	0%	6,491	0%	3%	20%	23%	77%
Developed	2%	30,473	1%	3%	20%	24%	76%
TOTAL	100%	1,418,525	2%	3%	23%	28%	72%



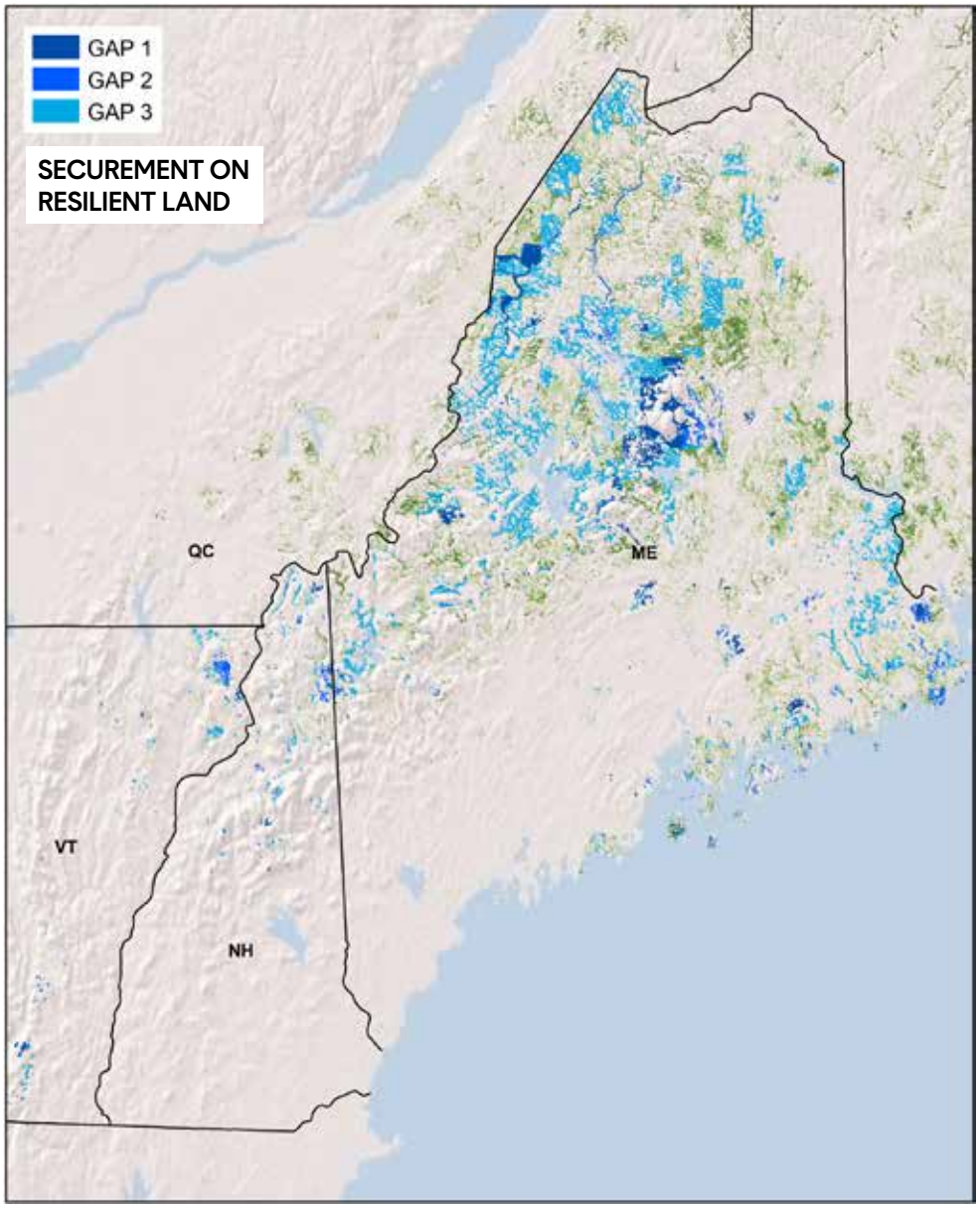
Predicted Loss to Development by 2050
Very low 1%

This community is not threatened by development. Only 4,169 acres (<1%) are likely to be lost over the next 30 years.

Resilience & Securement

66% of this habitat scores high for resilience, and 28% of the total acreage is secured against conversion, with the resilient areas having the highest proportion of securement.

Acadian Sub-boreal Spruce Flat



LOCATION	TOTAL ACRES	% SECURED
New England	1,418,525	29%
CT		
MA	91	3%
ME	1,328,319	28%
NH	43,952	35%
RI		
VT	46,164	27%

LOCATION	RESILIENT ACRES	% SECURED
New England	915,734	33%
CT		
MA	3	100%
ME	875,583	32%
NH	21,296	48%
RI		
VT	18,852	53%

Rare or Uncommon Plants Associated with this Habitat

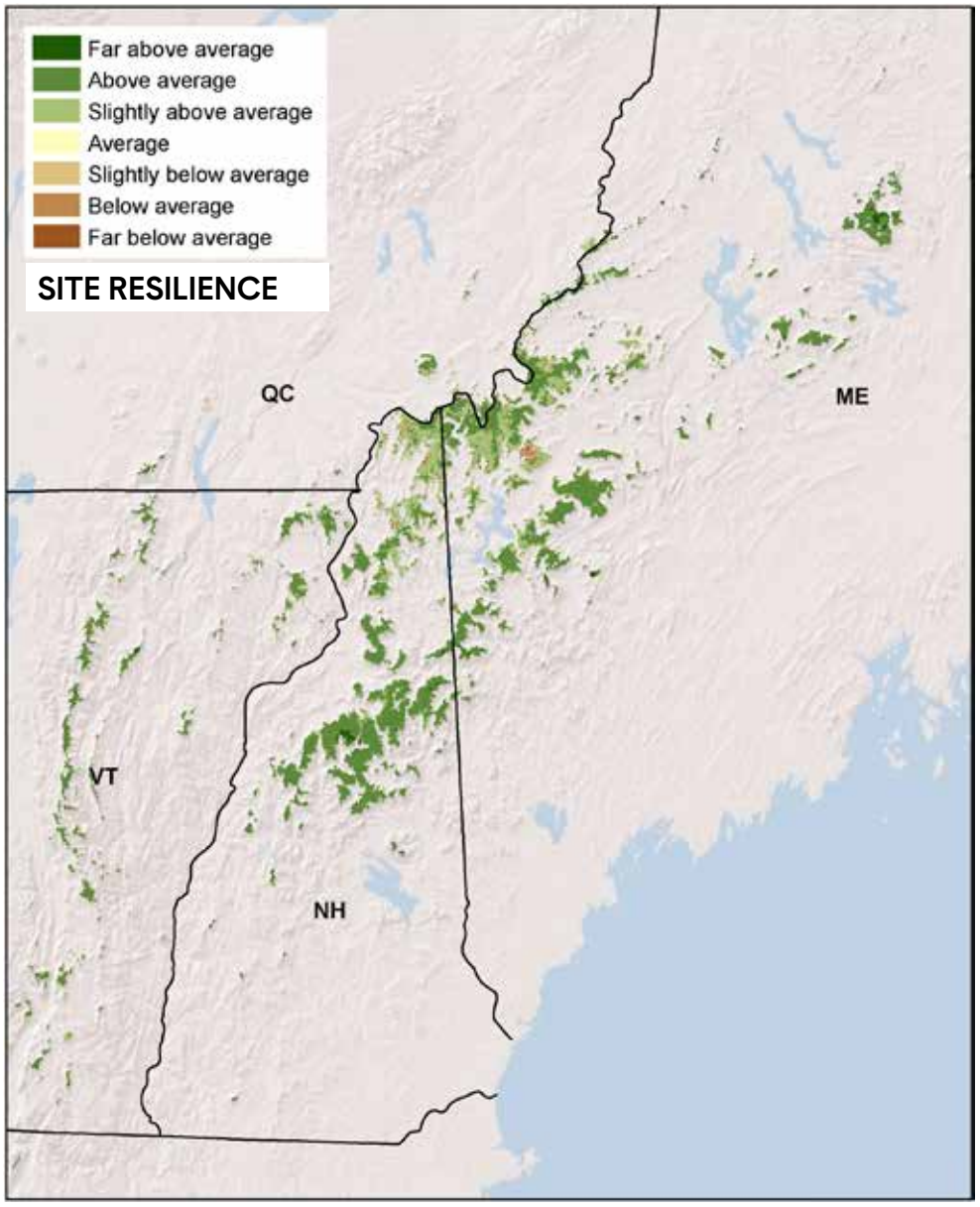
mountain cranberry (*Vaccinium vitis-idaea*)

Lapland-crowfoot (*Coptidium lapponicum*)

swamp thistle (*Cirsium muticum*)

lance-leaved violet (*Viola lanceolata*)

Acadian-Appalachian Montane Spruce-Fir-Hardwood Forest



© Maine Natural Areas Program

Description

A high-elevation conifer forest dominated by red spruce and balsam fir and forming small to very large patches on the highest peaks of the Northern Appalachian mountains. Heart-leaved birch is a characteristic tree, along with yellow birch, white birch, mountain maple, striped maple, mountain ash, and occasionally black spruce.

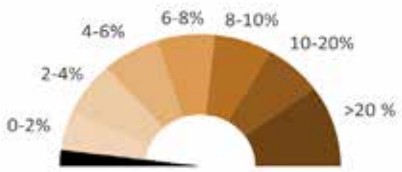
Associated Herbs & Shrubs

boreal bedstraw (*Galium kamtschaticum*), Bartram shadbush (*Amelanchier bartramiana*), Hornemann's willow-herb (*Epilobium hornemannii*), purple crowberry (*Empetrum atropurpureum*), northern bentgrass (*Agrostis mertensii*), cushion-plant (*Diapensia lapponica*), small-flowered wood rush (*Luzula parviflora*), squashberry (*Viburnum edule*), bearberry willow (*Salix uva-ursi*), little shinleaf (*Pyrola minor*), false toadflax (*Geocaulon lividum*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	2%	19,013	52%	17%	9%	77%	23%
Above average	70%	609,688	24%	24%	19%	67%	33%
Slightly above average	25%	221,127	5%	7%	37%	49%	51%
Average	0%	0	0%	0%	0%	0%	0%
Slightly below average	0%	13	0%	0%	67%	67%	33%
Below average	1%	13,038	3%	7%	41%	51%	49%
Far below average	0%	3,626	2%	1%	32%	36%	64%
Developed	1%	7,926	4%	4%	37%	45%	55%
TOTAL	100%	874,432	19%	19%	23%	62%	38%

Resilience & Securement

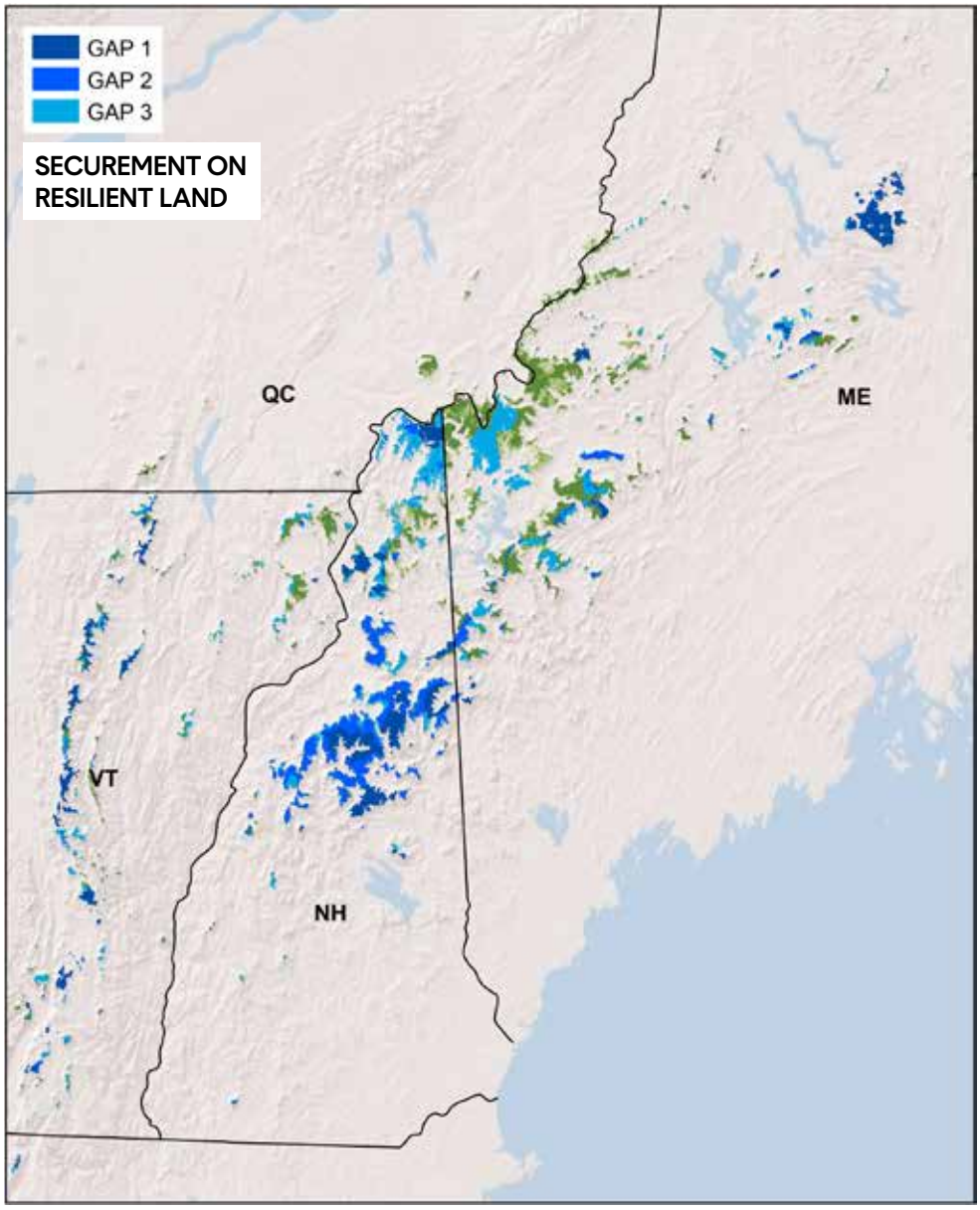
97% of this habitat scores high for resilience, and 62% of the total acreage is secured against conversion, and 38% is protected.



Predicted Loss to Development by 2050
Very low 0%

This community is not threatened by development. Only 434 acres (<1%) are likely to be lost over the next 30 years.

Acadian-Appalachian Montane Spruce-Fir-Hardwood Forest



LOCATION	TOTAL ACRES	% SECURED
New England	874,432	62%
CT		
MA	605	100%
ME	419,938	40%
NH	352,135	89%
RI		
VT	101,753	60%

LOCATION	RESILIENT ACRES	% SECURED
New England	849,828	62%
CT		
MA	584	100%
ME	406,177	40%
NH	342,263	89%
RI		
VT	100,804	60%

Rare or Uncommon Plants Associated with this Habitat

lance-leaved arnica (*Arnica lanceolata*)

open field sedge (*Carex conoidea*)

russet sedge (*Carex saxatilis*)

heart-leaved twayblade (*Neottia cordata*)

spiked wood rush (*Luzula spicata*)

woodland arctic-cudweed (*Omalotheca sylvatica*)

silvery whitlow-wort (*Paronychia argyrocoma*)

little yellow-rattle (*Rhinanthus minor* ssp. *groenlandicus*)

purple crowberry (*Empetrum atropurpureum*)

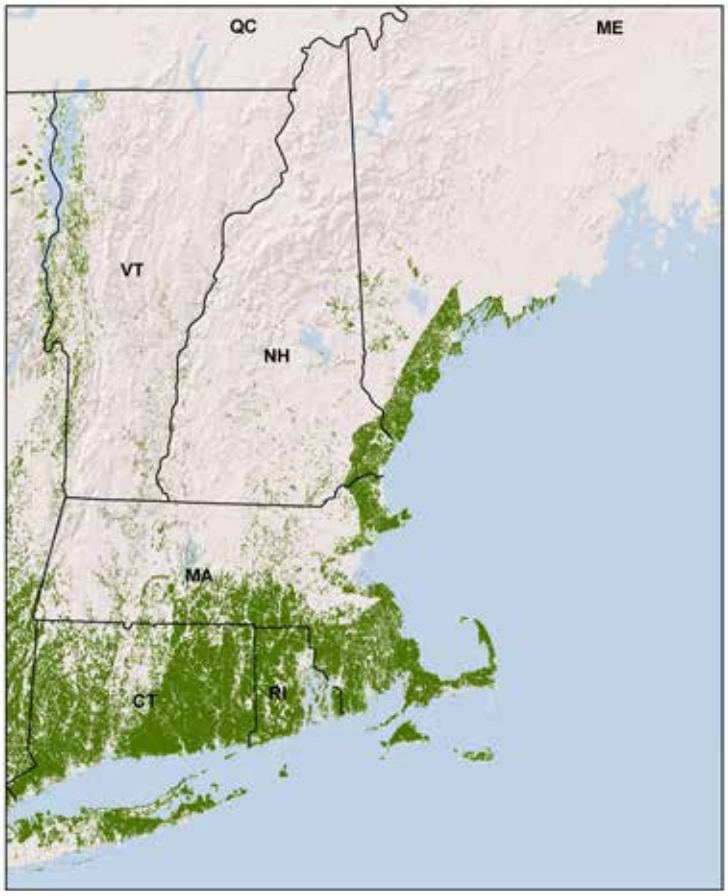
Hornemann's willow-herb (*Epilobium hornemannii*)

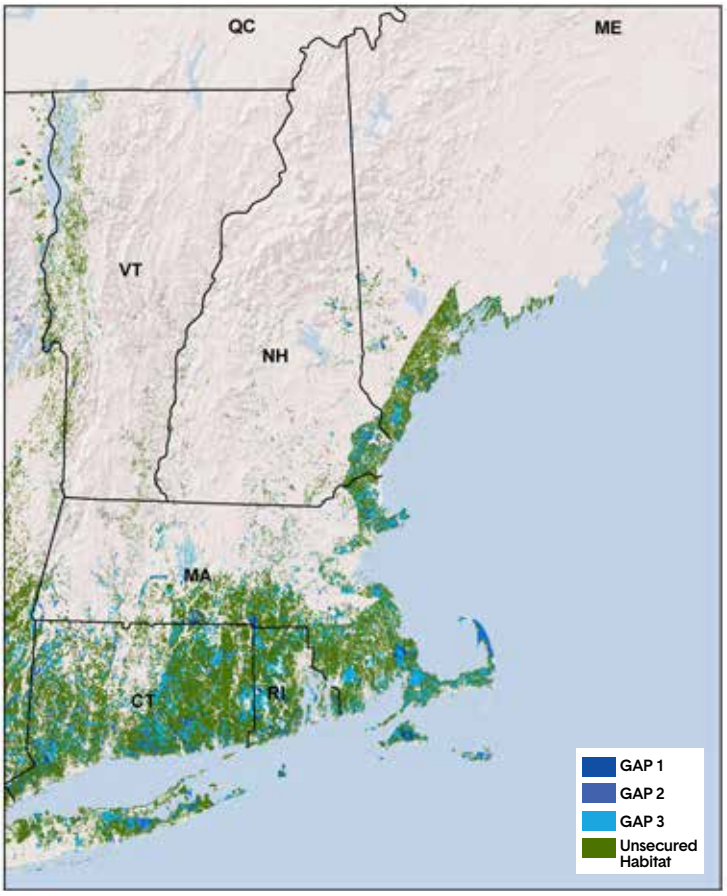
boreal bedstraw (*Galium kamtschaticum*)

northern willow (*Salix arctophila*)

MACROGROUP

CENTRAL OAK-PINE FOREST

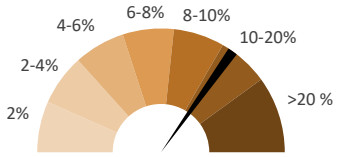




Central Oak-Pine Forest
Mixed hardwood-conifer forest of southern New England dominated by oaks (red, black, scarlet, chestnut) and pine (white, pitch).

Acres in New England
2.4 million

Percent Secured
GAP 1 = 2%
GAP 2 = 4%
GAP 3 = 14%



Predicted Loss to Development by 2050
246,497 acres (11%)

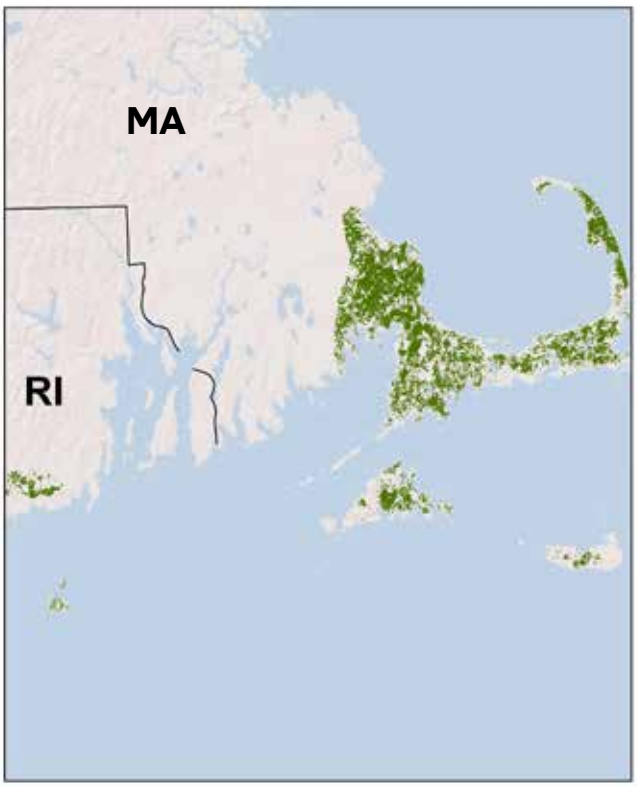
	ACRES	GAP 1	GAP 2	GAP 3	UNSECURED	IMPORTANT PLANT AREAS TOTAL	P	S	U
Central Oak-Pine Forest	**2,257,390**	**2%**	**4%**	**14%**	**80%**	**33**	**3**	**4**	**26**
Connecticut	1,164,346	1%	4%	12%	83%	17	2		15
Massachusetts	642,197	4%	3%	19%	74%	13	1	4	8
Maine	117,372	1%	5%	10%	85%				
New Hampshire	42,310	3%	4%	16%	77%				
Rhode Island	258,565	2%	4%	15%	79%	3			3
Vermont	32,599	2%	1%	4%	93%				
New England	**2,257,390**	**41,892**	**79,149**	**326,660**	**1,809,688**				

P = Protected S = Secured
U = Unsecured

DISTRIBUTION OF HABITATS

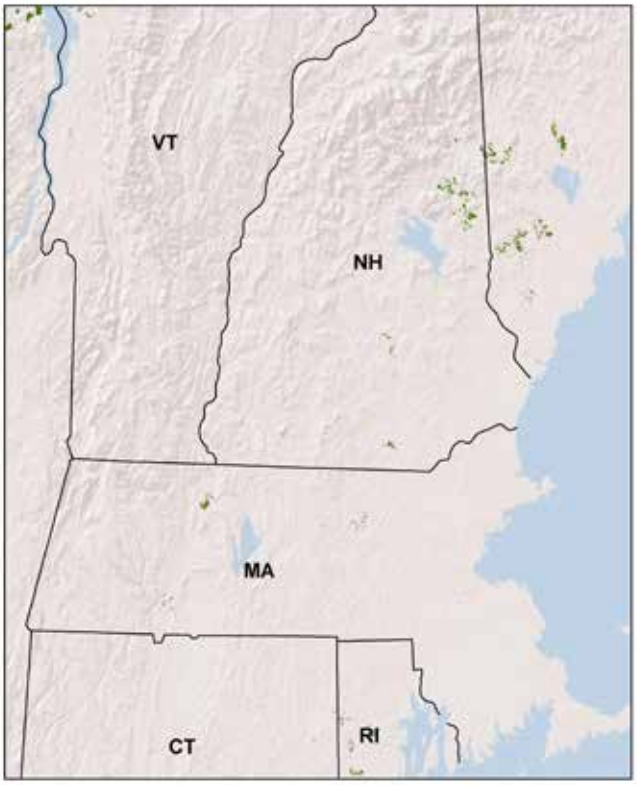
COASTAL | **North Atlantic Coastal Plain Hardwood Forest**

COASTAL | **North Atlantic Coastal Plain Maritime Forest**

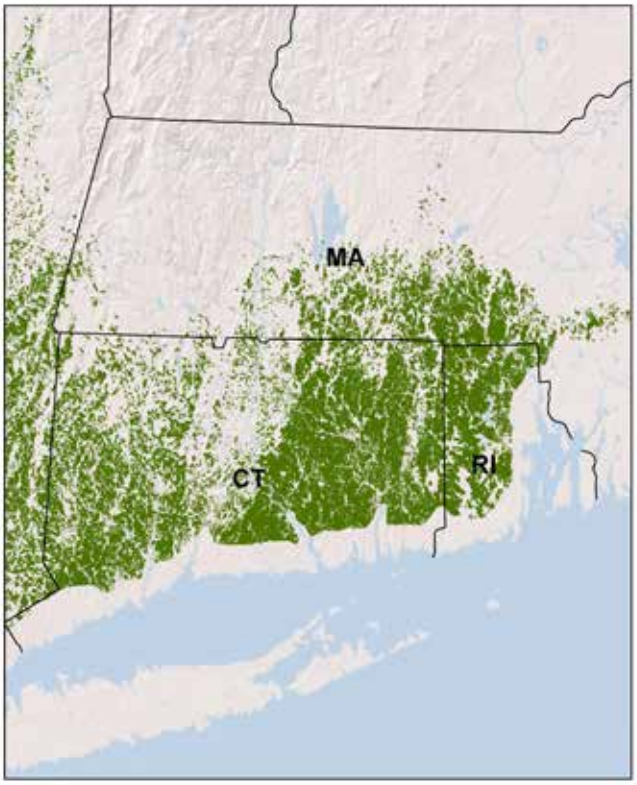


COASTAL | **North Atlantic Coastal Plain Pitch Pine Barrens**

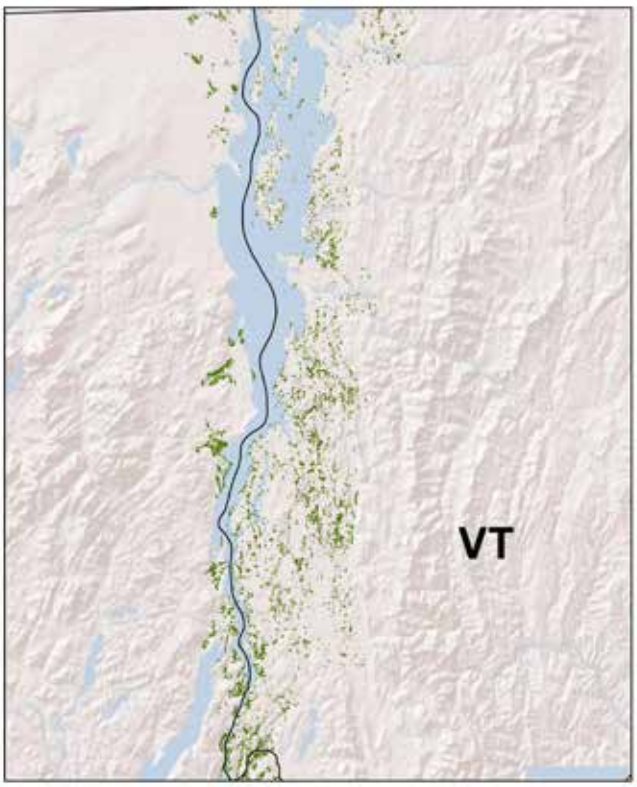
DISTRIBUTION OF HABITATS



INTERIOR | **Northeastern Interior Pine Barrens**

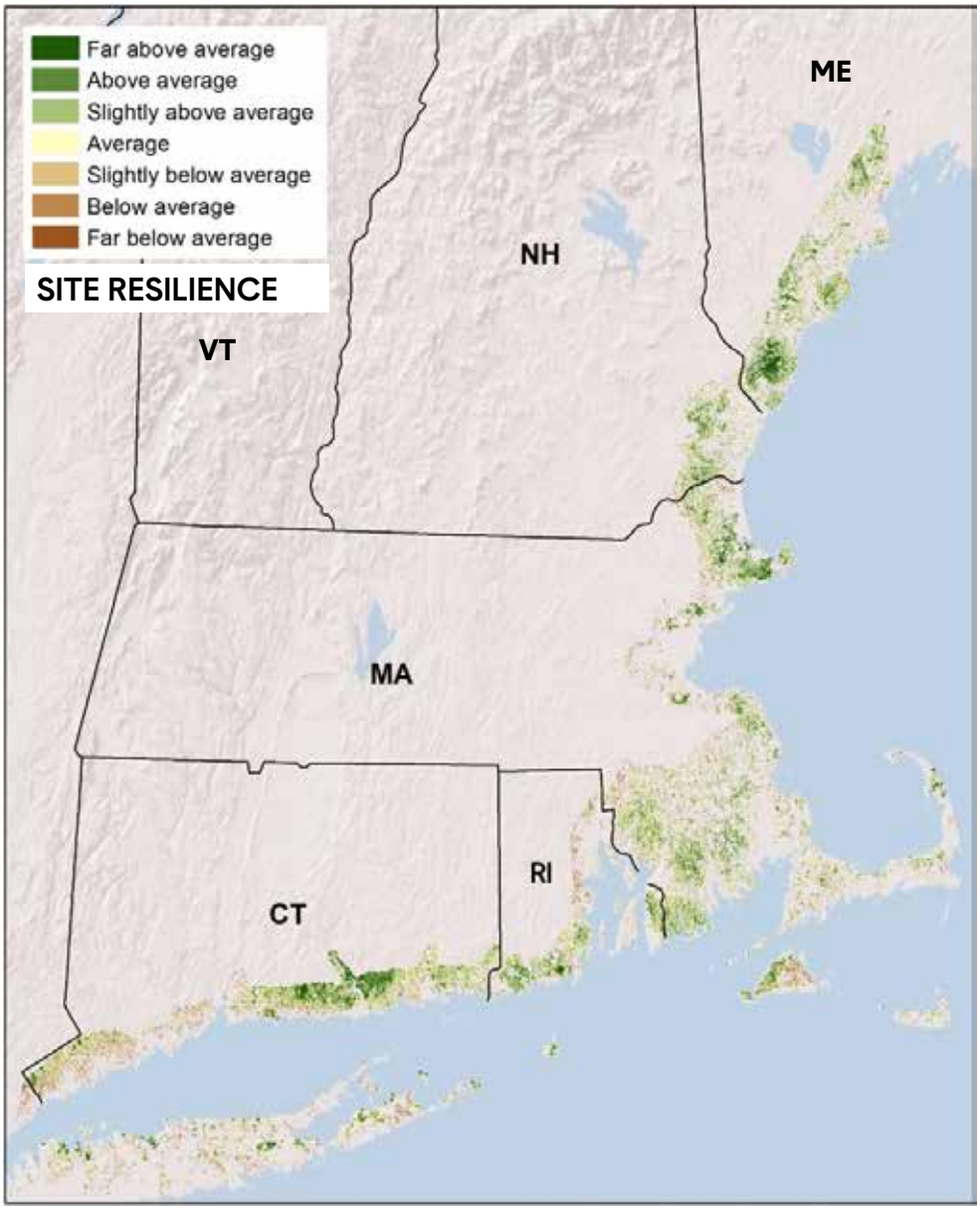


INTERIOR | **Northeastern Interior Dry-Mesic Oak Forest**



INTERIOR | **Glacial Marine & Lake Clayplain Forest**

North Atlantic Coastal Plain Hardwood Forest



© Robert Coxe (Delaware Species Conservation & Research Program)

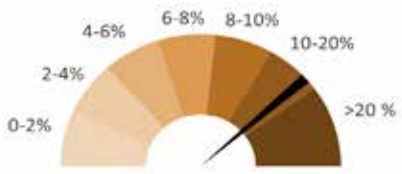
Description

A hardwood forest largely dominated by oaks, often mixed with pine. White, red, chestnut, black, and scarlet oaks are typical, and American holly is sometimes present. Sassafras, birch, aspen, and hazelnut are common.

Associated Herbs & Shrubs

lion's-foot rattlesnake-root (*Nabalus serpentarius*), northern blazingstar (*Liatris novae-angliae*), arrow-feather threeawn (*Aristida purpurascens*), northern tubercled bog-orchid (*Platanthera flava* var. *herbiola*), large whorled pogonia (*Isotria verticillata*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	2%	11,865	3%	11%	30%	44%	56%
Above average	12%	75,212	2%	6%	23%	31%	69%
Slightly above average	18%	111,672	2%	4%	17%	22%	78%
Average	38%	241,398	1%	4%	14%	19%	81%
Slightly below average	11%	66,978	2%	2%	12%	15%	85%
Below average	7%	45,680	2%	2%	10%	14%	86%
Far below average	1%	9,290	1%	1%	7%	10%	90%
Developed	11%	72,373	1%	1%	7%	8%	92%
TOTAL	100%	634,467	2%	4%	14%	20%	80%



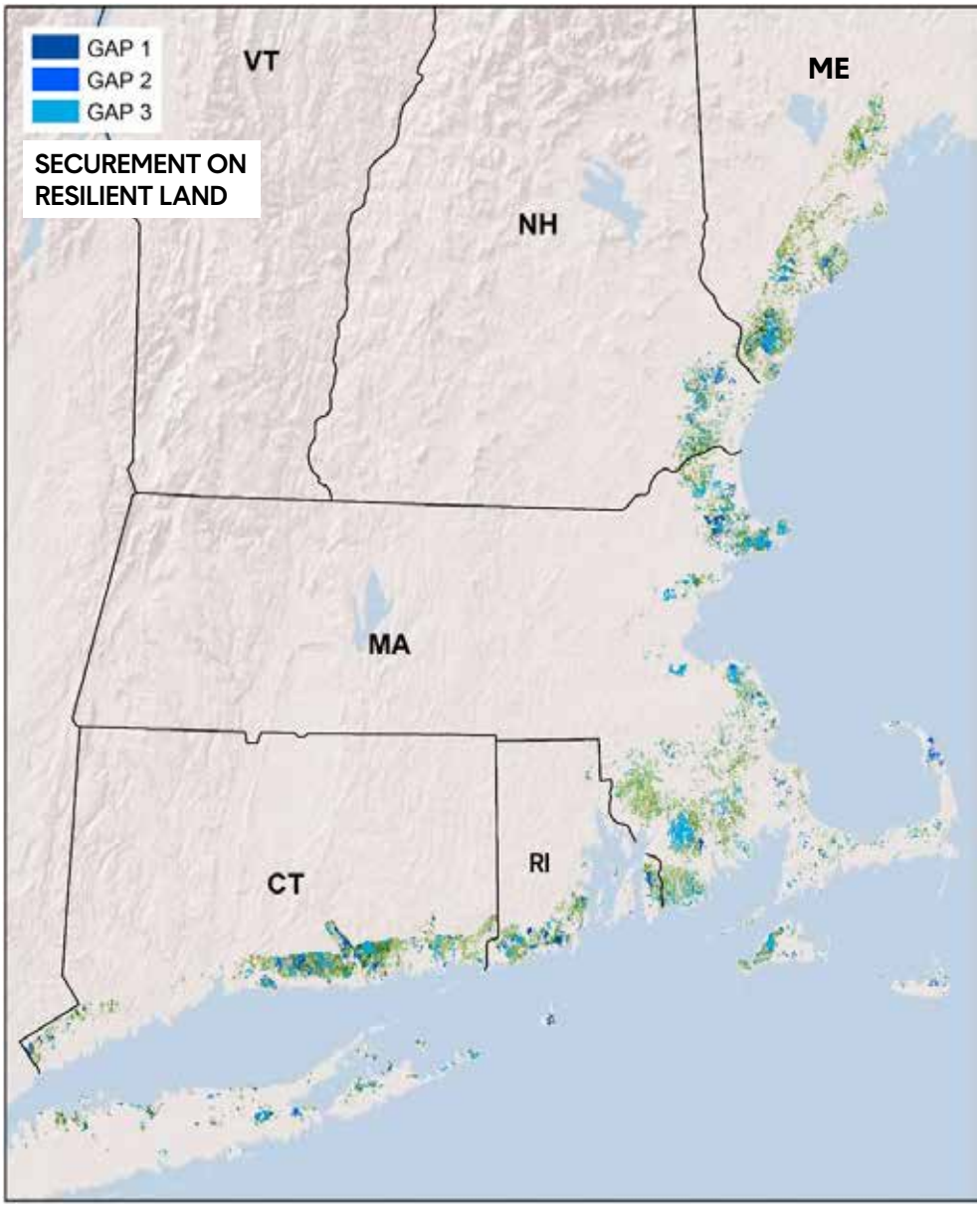
Predicted Loss to Development by 2050
High 18%

This community is one of New England's most threatened by development, with 112,063 acres (18%) likely to be lost over the next 30 years.

Resilience & Securement

32% of this habitat scores high for resilience, and 20% of the total acreage is secured against conversion, with the resilient areas having the highest proportion of securement.

North Atlantic Coastal Plain Hardwood Forest



LOCATION	TOTAL ACRES	% SECURED
New England	634,467	19%
CT	193,633	14%
MA	263,497	26%
ME	76,292	13%
NH	35,815	22%
RI	65,230	18%
VT		

LOCATION	RESILIENT ACRES	% SECURED
New England	198,749	27%
CT	62,255	21%
MA	72,484	35%
ME	33,566	21%
NH	10,853	27%
RI	19,591	27%
VT		

Rare or Uncommon Plants Associated with this Habitat

purple milkweed (*Asclepias purpurascens*)

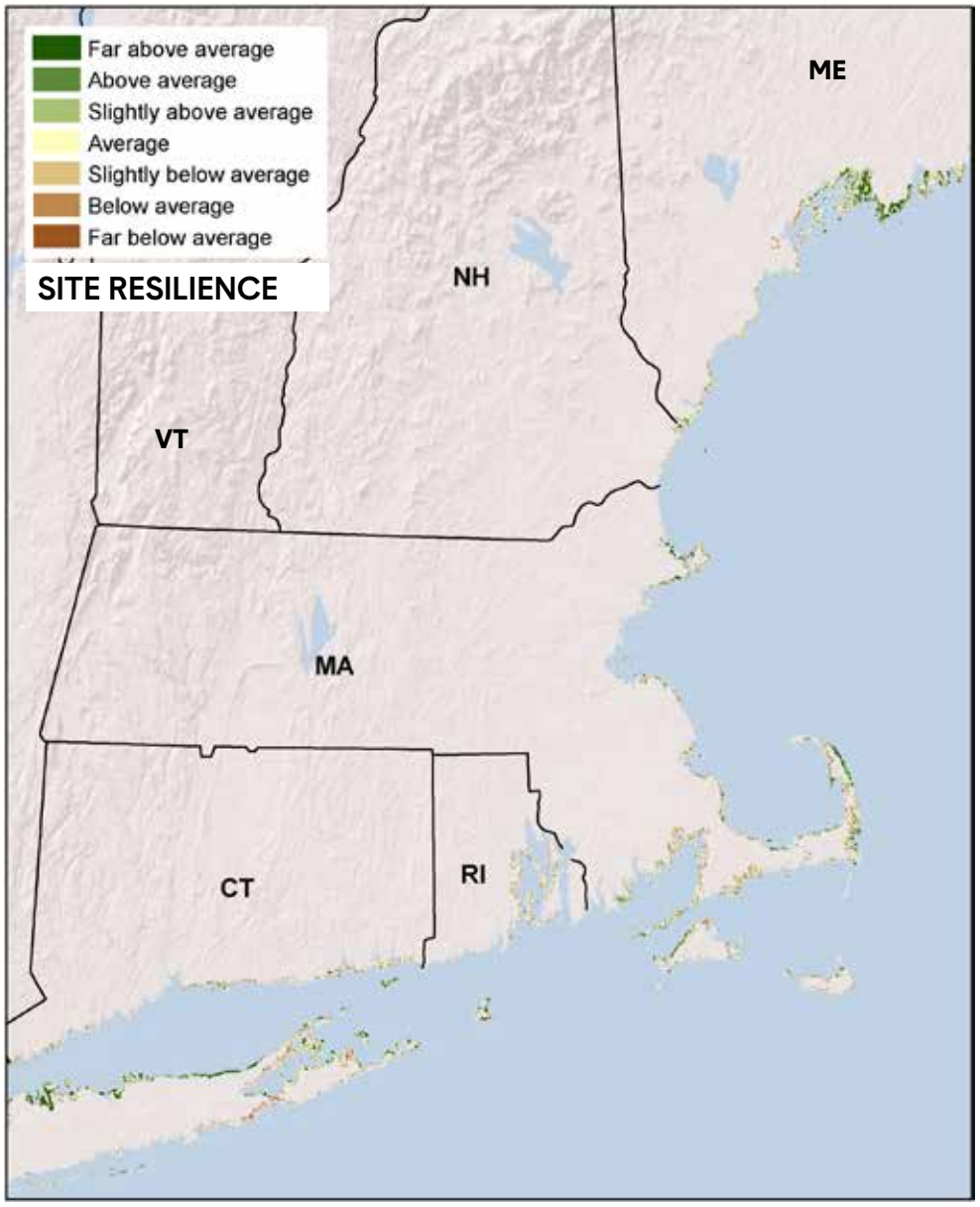
Carolina few-flowered nutsedge (*Scleria pauciflora* var. *caroliniana*)

few-flowered nutsedge (*Scleria pauciflora* var. *pauciflora*)

eastern silver American-aster (*Symphyotrichum concolor* ssp. *concolor*)

cranefly orchid (*Tipularia discolor*)

North Atlantic Coastal Plain Maritime Forest



© Robert Coxe (Delaware Species Conservation & Research Program)

Description

A forest-shrubland mosaic encompassing a range of woody vegetation on barrier islands, near-coastal strands, and bluffs at the outer edge of the coastal plain. Defined by its proximity to maritime environments, the stunted vegetation includes pines (pitch, white) and oaks (scarlet, black, scrub, post) as well as eastern red cedar, black cherry, American holly, and sassafras.

Associated Herbs & Shrubs

northern blazing star (*Liatris novae-angliae*), lion's-foot rattlesnake-root (*Nabalus serpentarius*), sundial lupine (*Lupinus perennis*), butterfly milkweed (*Asclepias tuberosa*), eastern silver American-aster (*Symphyotrichum concolor* var. *concolor*), ramps (*Allium tricoccum*), coastal plain blue-eyed-grass (*Sisyrinchium fuscatum*), yellow thistle (*Cirsium horridulum* var. *horridulum*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	4%	3,147	0%	25%	15%	41%	59%
Above average	16%	12,374	1%	15%	15%	31%	69%
Slightly above average	17%	13,530	1%	13%	12%	25%	75%
Average	34%	27,055	2%	9%	12%	23%	77%
Slightly below average	8%	6,592	1%	7%	12%	20%	80%
Below average	4%	3,557	3%	5%	12%	20%	80%
Far below average	1%	456	1%	2%	13%	16%	84%
Developed	16%	12,339	0%	5%	6%	11%	89%
TOTAL	100%	79,051	1%	10%	12%	23%	77%

Resilience & Securement

37% of this habitat scores high for resilience, and 23% of the total acreage is secured against conversion, with the resilient areas having the highest proportion of securement.

Predicted Loss to Development by 2050
High 16%

This is one of New England's most threatened communities, with 12,622 acres (16%) likely to be lost over the next 30 years.

North Atlantic Coastal Plain Maritime Forest

LOCATION	TOTAL ACRES	% SECURED
New England	79,051	23%
CT	5,489	26%
MA	32,901	30%
ME	31,930	15%
NH	774	21%
RI	7,957	26%
VT		

LOCATION	RESILIENT ACRES	% SECURED
New England	29,051	29%
CT	1,065	41%
MA	11,352	43%
ME	15,060	18%
NH	170	43%
RI	1,404	33%
VT		

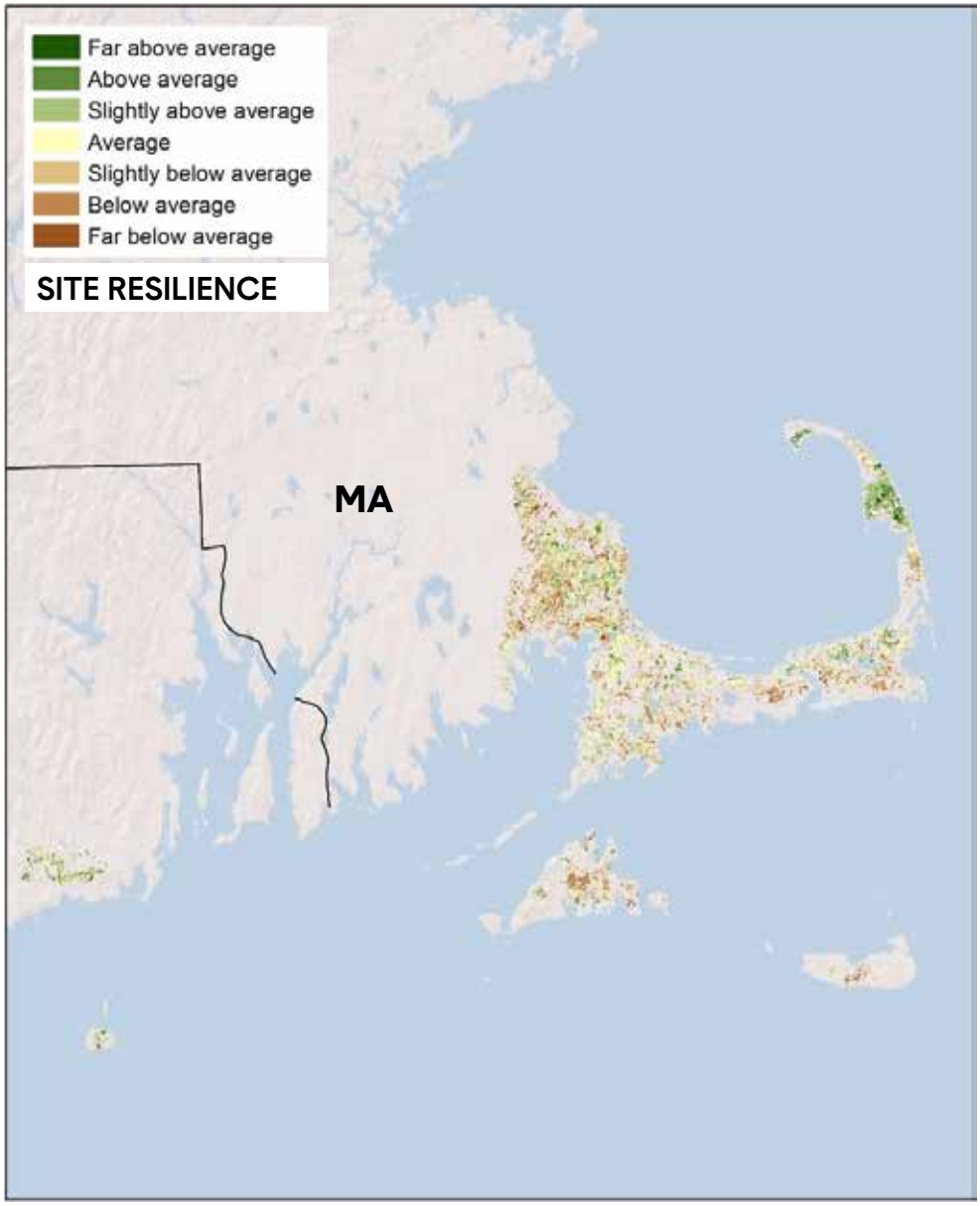
Rare or Uncommon Plants Associated with this Habitat

southern fragile fern
(*Cystopteris protrusa*)

herbaceous seablight
(*Suaeda maritima* ssp. *richii*)

Macoun's rabbit-tobacco
(*Pseudognaphalium macounii*)

North Atlantic Coastal Plain Pitch Pine Barrens



© Kathleen Strakosch Walz
(New Jersey Natural Heritage Program)

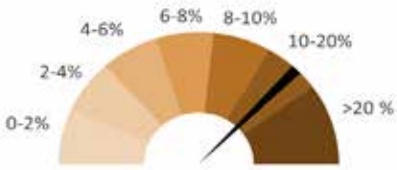
Description

A dry, fire-adapted forest with a variable canopy of pitch pine, a tall-shrub layer dominated by scrub oak, and a low-shrub layer of blueberry and other heaths. Other oaks (scarlet, black, chestnut, white) are usually present. Composition and structure vary with fire frequency.

Associated Herbs & Shrubs

few-flowered nutsedge (*Scleria pauciflora* var. *pauciflora*), post oak (*Quercus stellata*), little ladies'-tresses (*Spiranthes tuberosa*), northern blazing star (*Liatris novae-angliae*), butterfly milkweed (*Asclepias tuberosa*), arrow-feather threeawn (*Aristida purpurascens*), Nuttall's milkwort (*Polygala nuttallii*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	0%	315	0%	69%	5%	75%	25%
Above average	5%	5,095	5%	33%	19%	57%	43%
Slightly above average	11%	11,395	7%	19%	26%	52%	48%
Average	36%	38,212	8%	4%	36%	48%	52%
Slightly below average	16%	16,892	11%	5%	31%	48%	52%
Below average	15%	15,622	13%	3%	27%	42%	58%
Far below average	3%	2,720	14%	1%	24%	38%	62%
Developed	14%	14,550	4%	4%	18%	25%	75%
TOTAL	100%	104,801	8%	7%	29%	44%	56%



Predicted Loss to Development by 2050
High 15%

This rare community has a high development threat, with 15,826 acres (15%) likely to be lost over the next 30 years.

Resilience & Securement

Only 16% of this habitat scores high for resilience, but 44% of the total acreage is secured against conversion. Long-term management is likely needed to sustain this habitat.

North Atlantic Coastal Plain Pitch Pine Barrens

LOCATION	TOTAL ACRES	% SECURED
New England	104,801	45%
CT		
MA	101,027	46%
ME		
NH		
RI	3,774	25%
VT		

LOCATION	RESILIENT ACRES	% SECURED
New England	16,804	54%
CT		
MA	15,061	57%
ME		
NH		
RI	1,743	30%
VT		

Rare or Uncommon Plants Associated with this Habitat

bushy frostweed (*Crocanthemum dumosum*)

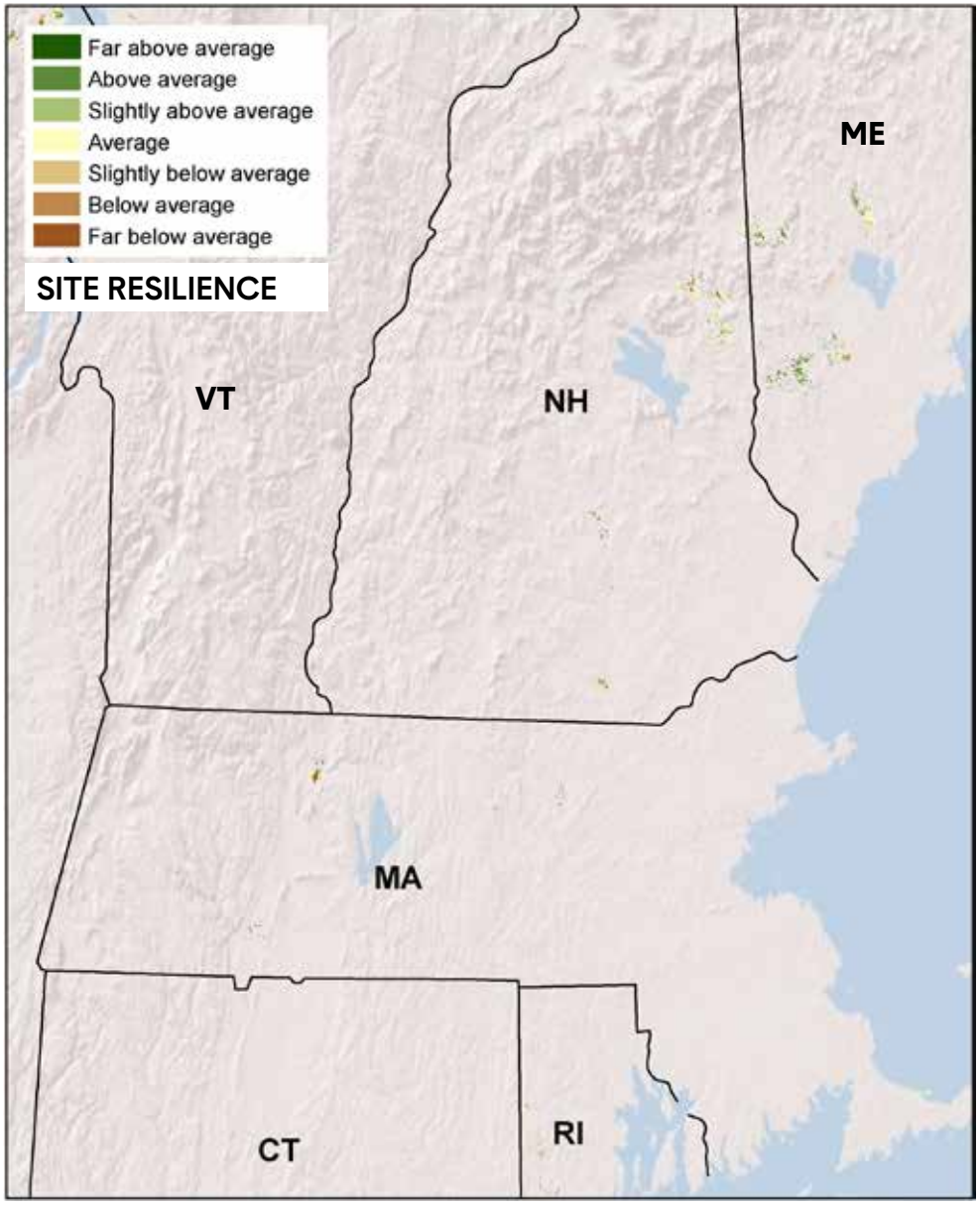
Bayard's adder's-mouth (*Malaxis bayardii*)

Bicknell's hawthorn (*Crataegus bicknellii*)

Carolina few-flowered nutsedge (*Scleria pauciflora* var. *caroliniana*)

eastern silver American-aster (*Symphyotrichum concolor* ssp. *concolor*)

Northeastern Interior Pine Barrens



© Jennifer Case (The Nature Conservancy, Pennsylvania)

Description

A fire-adapted system of Northeast glacial sandplains, typically an open woodland but sometimes including patches of closed-canopy forest and herbaceous openings. Pitch pine is the usual dominant; red oak, white pine, and gray birch are common associates. A tall-shrub layer of scrub oak or dwarf chinkapin oak is characteristic, as is a low-shrub layer of heath and sweetfern.

Associated Herbs & Shrubs

Canada frostweed (*Crocanthemum canadense*), tall hairy lettuce (*Lactuca hirsuta*), large whorled pogonia (*Isotria verticillata*), hoary frostweed (*Crocanthemum bicknellii*), racemed milkwort (*Polygala polygama*), sundial lupine (*Lupinus perennis*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	0%	53	13%	0%	17%	30%	70%
Above average	13%	2,642	18%	4%	21%	44%	56%
Slightly above average	20%	4,043	4%	3%	31%	37%	63%
Average	40%	7,997	4%	4%	41%	49%	51%
Slightly below average	10%	2,018	3%	3%	26%	32%	68%
Below average	7%	1,422	7%	0%	17%	24%	76%
Far below average	2%	493	0%	0%	58%	58%	42%
Developed	6%	1,162	1%	3%	22%	26%	74%
TOTAL	100%	19,829	6%	3%	32%	41%	59%

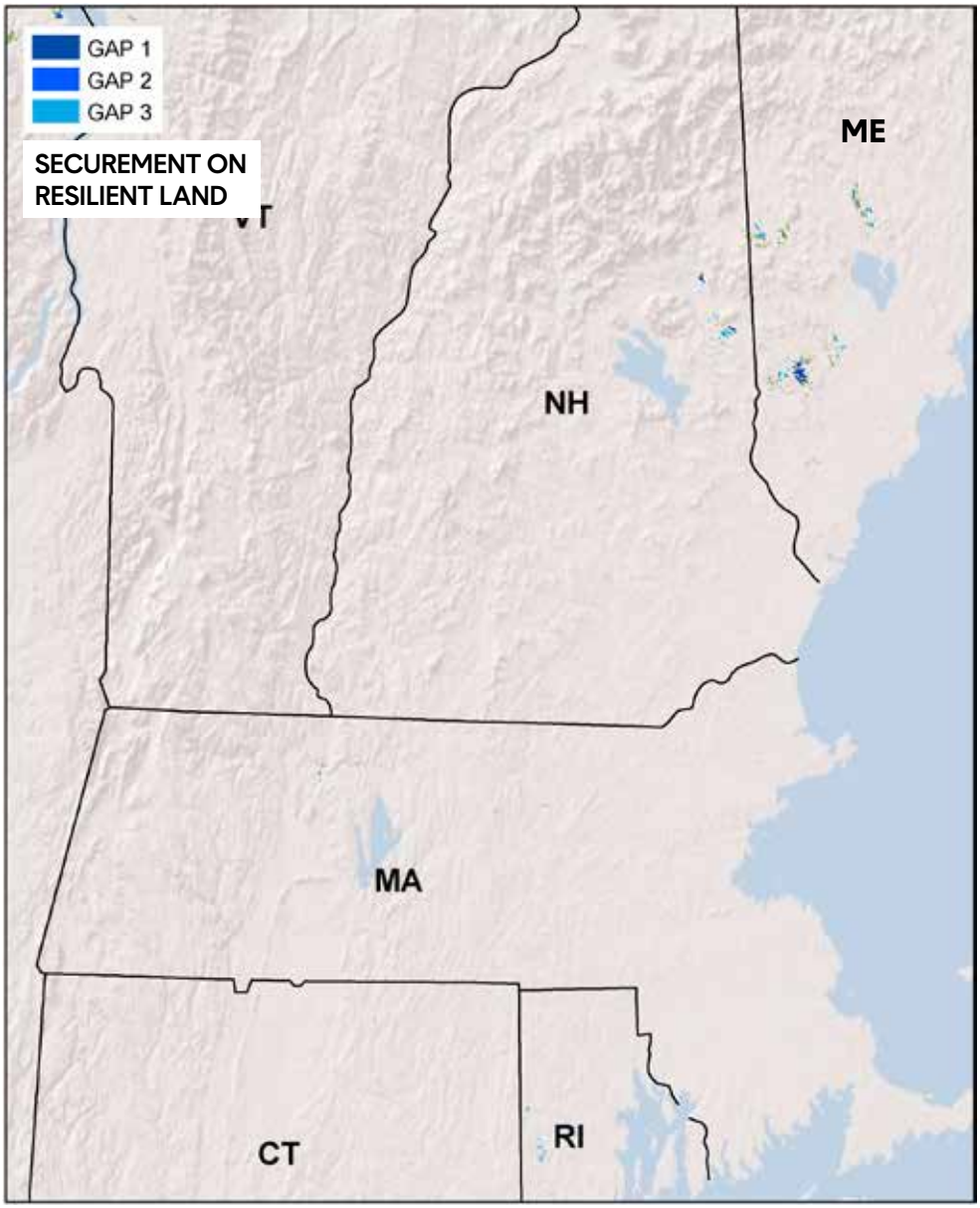
Predicted Loss to Development by 2050
Low 3%

This rare community has a low development threat, with 569 acres (3%) likely to be lost over the next 30 years.

Resilience & Securement

33% of this habitat scores high for resilience, and 41% of the total acreage is secured against conversion. Long-term management is likely needed to sustain this habitat, especially on vulnerable lands.

Northeastern Interior Pine Barrens



LOCATION	TOTAL ACRES	% SECURED
New England	19,829	41%
CT	147	55%
MA	2,049	43%
ME	9,150	39%
NH	5,721	35%
RI	2,228	69%
VT	534	0

LOCATION	RESILIENT ACRES	% SECURED
New England	6,738	40%
CT	22	60%
MA	97	40%
ME	5,214	35%
NH	870	53%
RI	395	80%
VT	140	24%

Rare or Uncommon Plants Associated with this Habitat

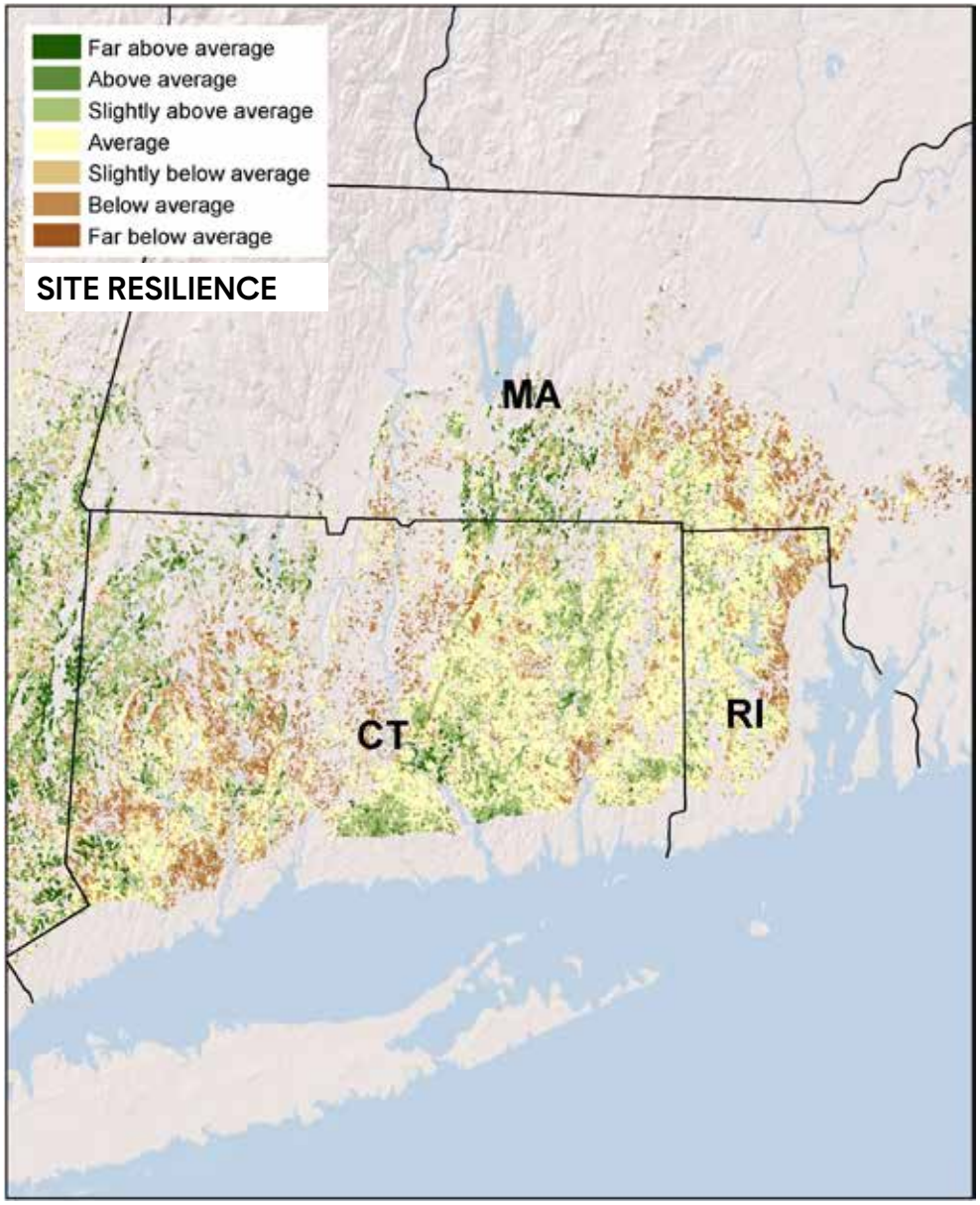
rattlesnake hawkweed (*Hieracium venosum*)

mountain and wild honeysuckle (*Lonicera villosa* and *Lonicera dioica*)

hairy rosette-panicgrass (*Dichanthelium acuminatum* ssp. *columbianum*)

ground-cedar hybrid (*Diphasiastrum xsabinifolium*)

Northeastern Interior Dry-Mesic Oak Forest



© Gary P. Fleming (Virginia Department of Conservation & Recreation Natural Heritage Program)

Description

An oak-dominated, mostly closed-canopy forest that occurs in southern New England. Oak species characteristic of dry to mesic conditions (e.g., red, white, black, scarlet, and occasionally chestnut oak) and hickories are typical.

Associated Herbs & Shrubs

American wintergreen (*Pyrola americana*), blunt-lobed cliff fern (*Woodsia obtusa*), eastern bottle-brush grass (*Elymus hystrix*), common golden Alexanders (*Zizia aurea*), early buttercup (*Ranunculus fascicularis*), elliptic-leaved shinleaf (*Pyrola elliptica*), sicklepod rockcress (*Boechera canadensis*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	1%	13,178	4%	10%	21%	35%	65%
Above average	6%	87,590	3%	6%	22%	31%	69%
Slightly above average	19%	261,867	3%	4%	20%	28%	72%
Average	45%	630,713	1%	3%	13%	17%	83%
Slightly below average	12%	172,782	1%	2%	9%	12%	88%
Below average	8%	108,357	0%	2%	7%	9%	91%
Far below average	1%	13,734	0%	1%	5%	5%	95%
Developed	7%	98,956	0%	1%	5%	7%	93%
TOTAL	100%	1,387,176	1%	3%	14%	18%	82%

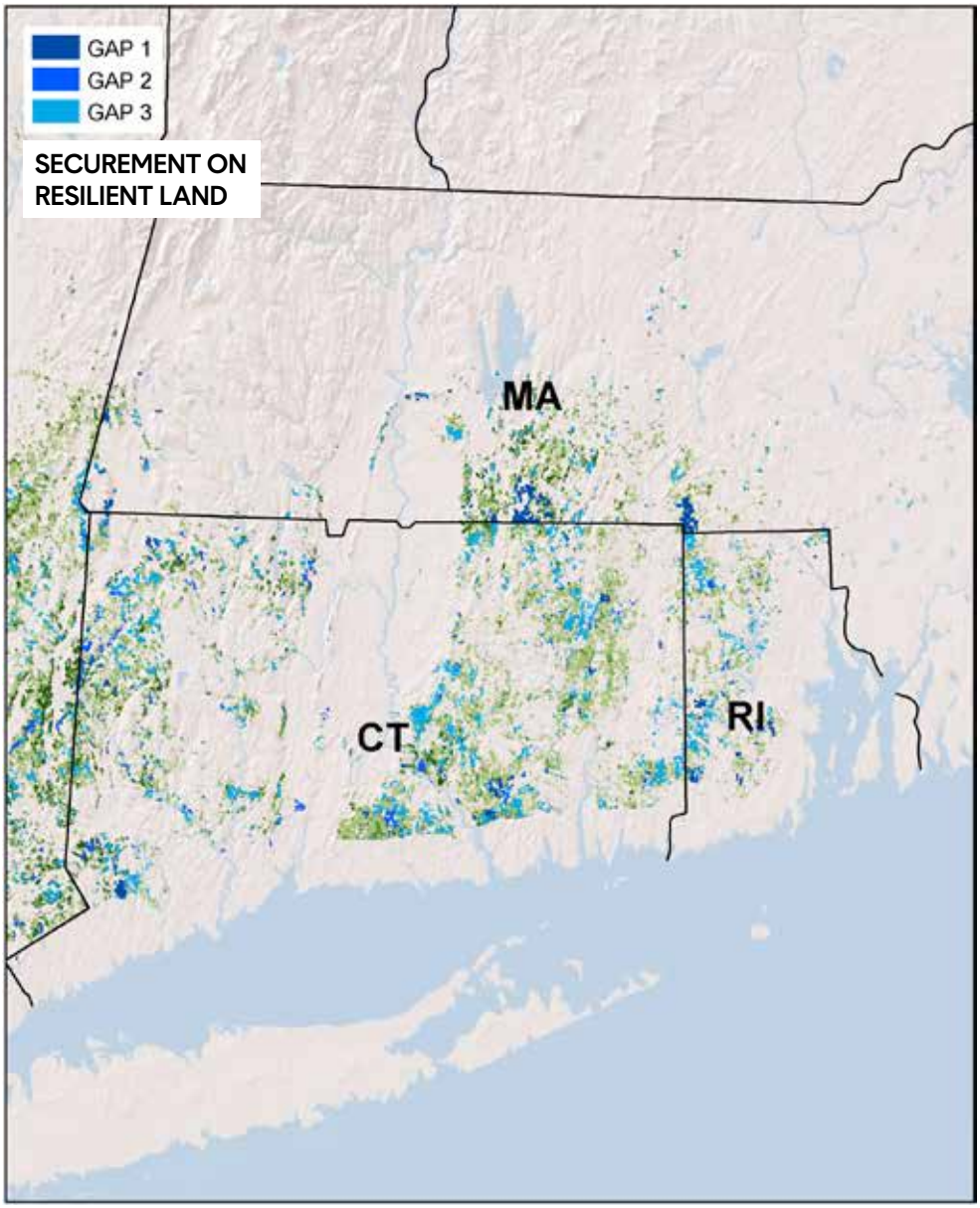
Predicted Loss to Development by 2050
Moderate 8%

This community is threatened by development, with 104,180 acres (8%) likely to be lost over the next 30 years.

Resilience & Securement

26% of this habitat scores high for resilience, and 18% of the total acreage is secured against conversion, with the resilient areas having the highest proportion of securement.

Northeastern Interior Dry-Mesic Oak Forest



LOCATION	TOTAL ACRES	% SECURED
New England	1,387,176	18%
CT	965,078	18%
MA	242,723	17%
ME		
NH		
RI	179,375	21%
VT		

LOCATION	RESILIENT ACRES	% SECURED
New England	362,635	29%
CT	272,306	28%
MA	60,869	28%
ME		
NH		
RI	29,459	39%
VT		

Rare or Uncommon Plants Associated with this Habitat

small whorled pogonia (*Isotria medeoloides*)

devil's bit (*Chamaelirium luteum*)

goldenseal (*Hydrastis canadensis*)

two-flowered dwarf-dandelion (*Krigia biflora* var. *biflora*)

creeping bush-clover (*Lespedeza repens*)

common yellow flax (*Linum medium* ssp. *texanum*)

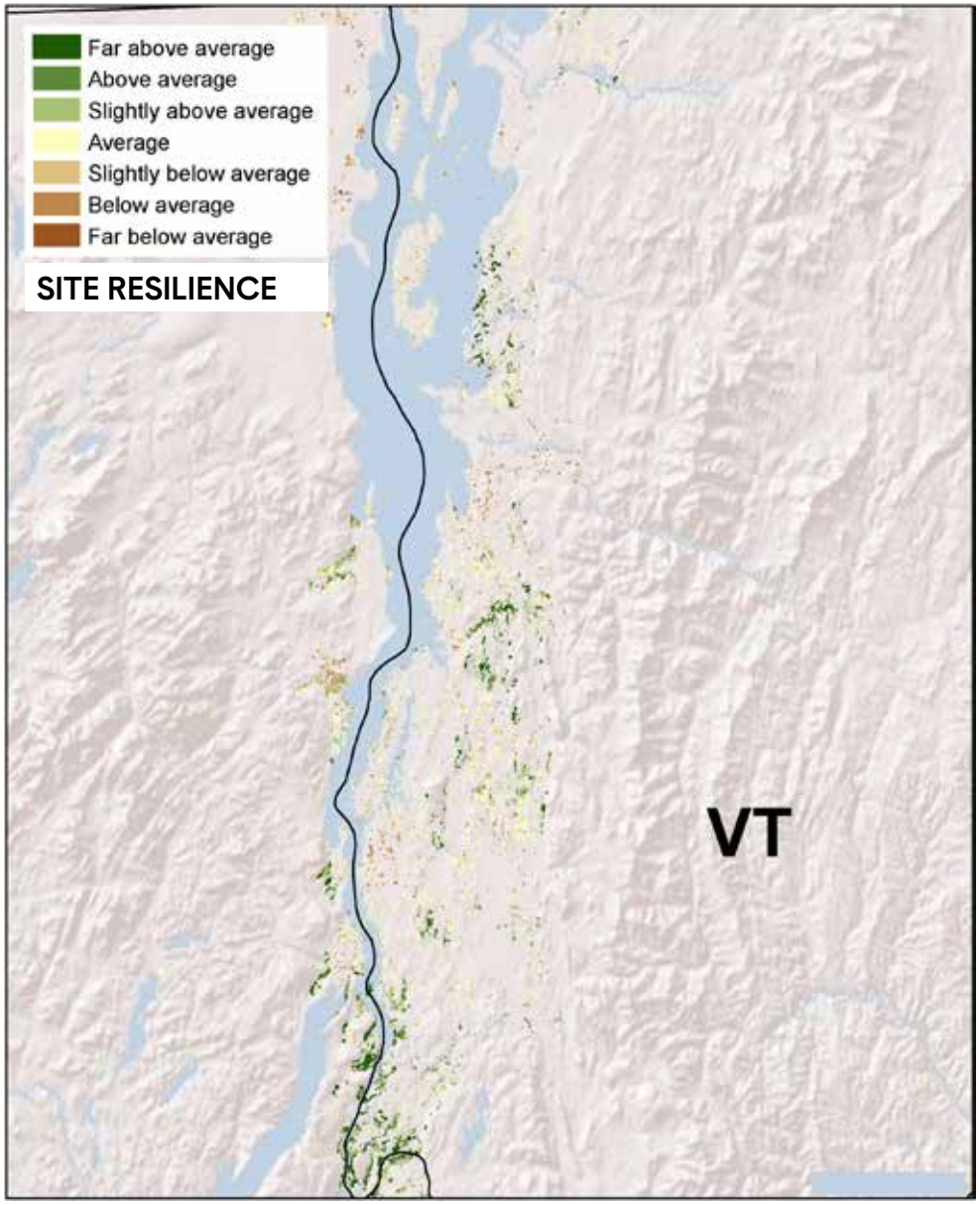
lily-leaved wide-lipped orchid (*Liparis liliifolia*)

trumpet honeysuckle (*Lonicera sempervirens* var. *sempervirens*)

whip nutsedge (*Scleria triglomerata*)

shiny wedgescale (*Sphenopholis nitida*)

Glacial Marine & Lake Mesic Clayplain Forest



© Eric Sorenson (Vermont Fish & Wildlife)

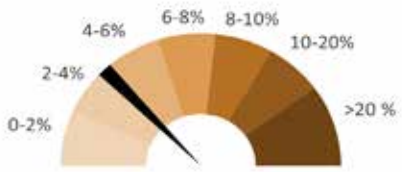
Description

A hardwood forest of northern clayplains dominated by a shifting balance of oaks (white, red, swamp white, bur), maples (red and sugar), hemlock, white pine, ash, shagbark hickory, and other associates. The understory herb layer is distinctive and rich, and native/non-native shrubs can be dense.

Associated Herbs & Shrubs

American hazelnut (*Corylus americana*), broad beech fern (*Phegopteris hexagonoptera*), old pasture bluegrass (*Poa saltuensis* ssp. *languida*), leafy bulrush (*Scirpus polyphyllus*), Canada sanicle (*Sanicula canadensis*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	4%	1,385	13%	1%	3%	17%	83%
Above average	17%	5,472	6%	0%	4%	11%	89%
Slightly above average	20%	6,255	3%	1%	3%	6%	94%
Average	42%	13,610	1%	1%	4%	5%	95%
Slightly below average	9%	2,928	0%	1%	4%	4%	96%
Below average	4%	1,261	0%	0%	3%	3%	97%
Far below average	0%	74	0%	0%	0%	0%	100%
Developed	3%	1,082	0%	0%	6%	6%	94%
TOTAL	100%	32,066	3%	1%	4%	7%	93%



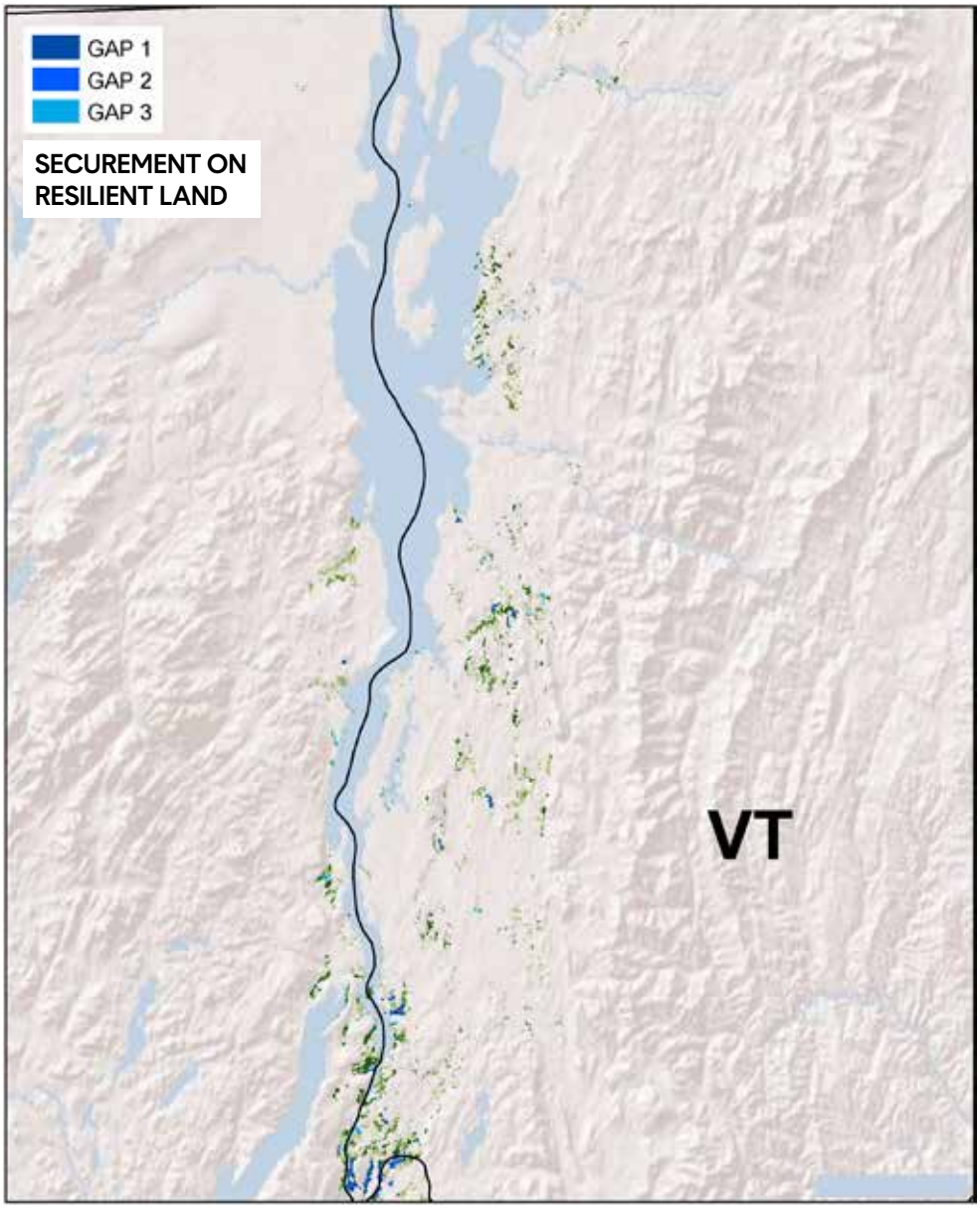
Predicted Loss to Development by 2050
Moderately low 4%

This community is somewhat threatened by development, with 1,237 acres (4%) likely to be lost over the next 30 years.

Resilience & Securement

41% of this habitat scores high for resilience, but only 7% of the total acreage is secured against conversion.

Glacial Marine & Lake Mesic Clayplain Forest



LOCATION	TOTAL ACRES	% SECURED
New England	32,066	7%
CT		
MA		
ME		
NH		
RI		
VT	32,066	7%

LOCATION	RESILIENT ACRES	% SECURED
New England	13,112	9%
CT		
MA		
ME		
NH		
RI		
VT	13,112	9%

Rare or Uncommon Plants Associated with this Habitat

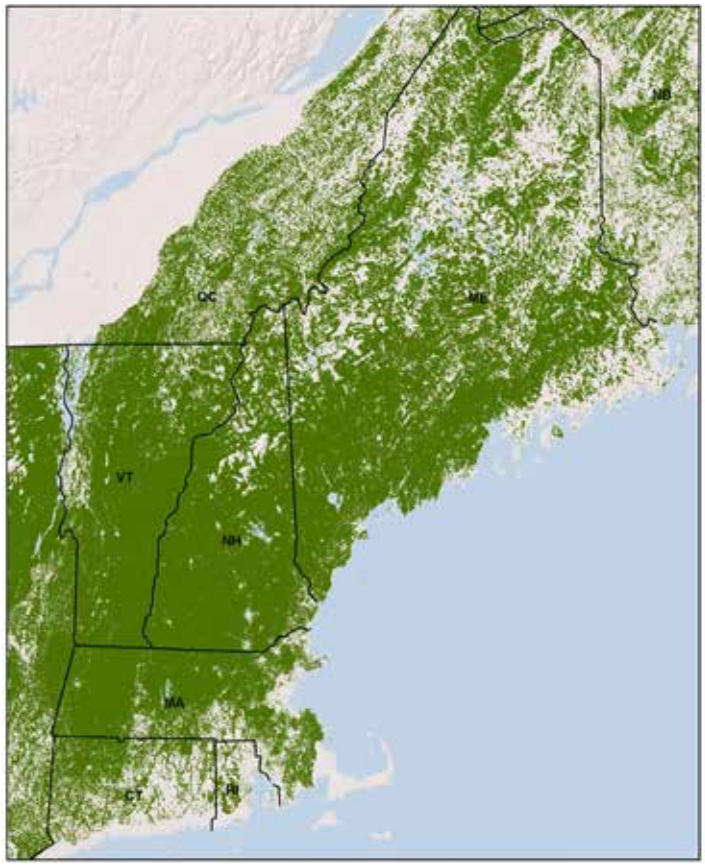
floodplain avens
(*Geum laciniatum*)

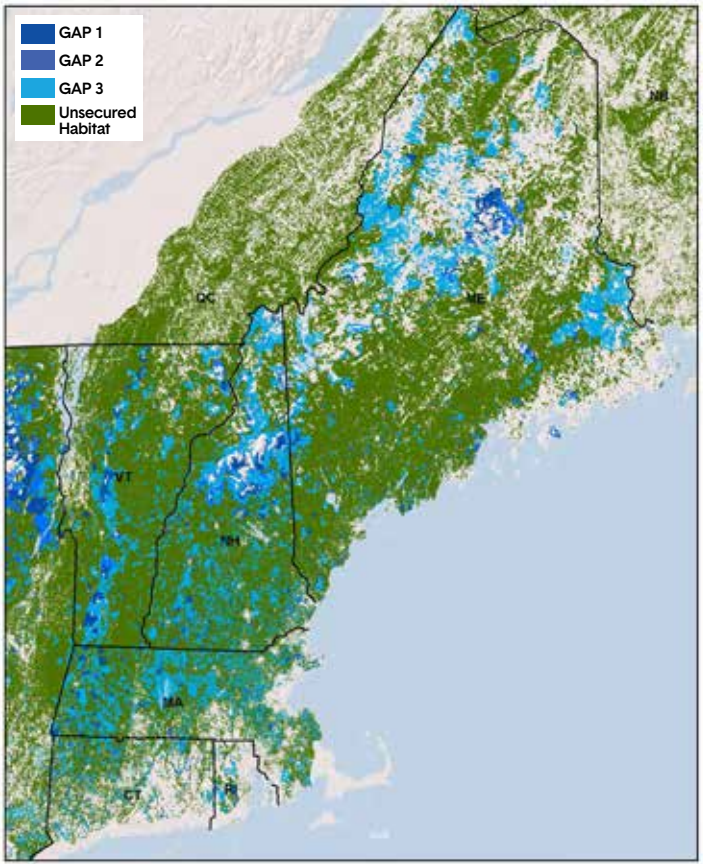
field thistle
(*Cirsium discolor*)

narrow-leaved blue-eyed-grass
(*Sisyrinchium angustifolium*)

MACROGROUP

NORTHERN HARDWOOD & CONIFER FOREST





Northern Hardwood & Conifer Forest

Mixed hardwood-conifer forest of northern New England dominated by maple, beech, and birch, with Eastern hemlock and/or white pine.

Acres in New England

19.4 million

Percent Secured

GAP 1 = 2%
GAP 2 = 2%
GAP 3 = 18%

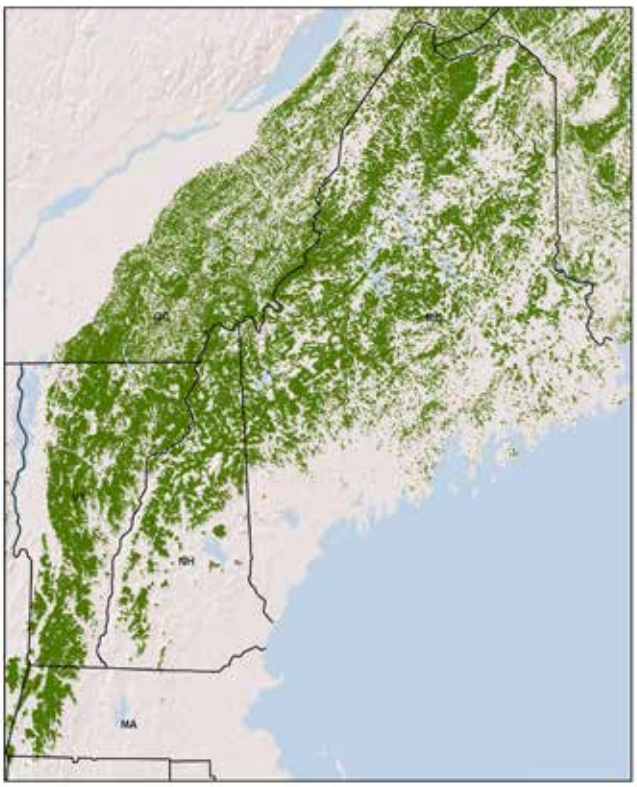
Predicted Loss to Development by 2050

480,309 acres (2%)

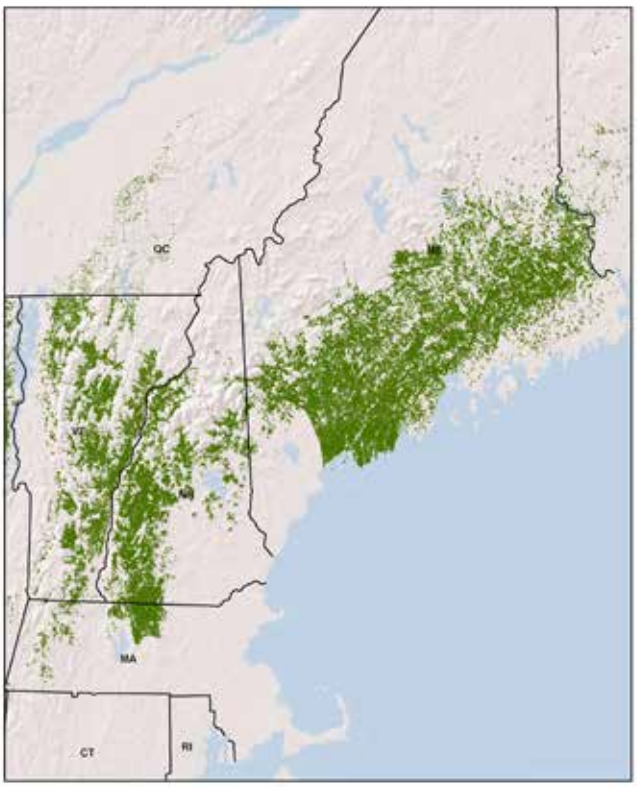
	ACRES	GAP 1	GAP 2	GAP 3	UNSECURED	IMPORTANT PLANT AREAS TOTAL	P	S	U
Northern Hardwood & Conifer Forest	**19,364,435**	**2%**	**2%**	**18%**	**78%**	**126**	**3**	**17**	**106**
Connecticut	627,338	1%	5%	15%	79%	10	1		9
Massachusetts	2,017,572	4%	1%	27%	68%	42		8	34
Maine	8,795,168	2%	2%	15%	82%	28	1	3	24
New Hampshire	3,960,144	3%	4%	22%	71%	9		2	7
Rhode Island	61,931	2%	4%	32%	63%				
Vermont	3,902,283	3%	1%	15%	81%	37	1	4	32
New England	**19,364,435**	**467,619**	**418,688**	**3,408,800**	**15,069,328**				

P = Protected S = Secured
U = Unsecured

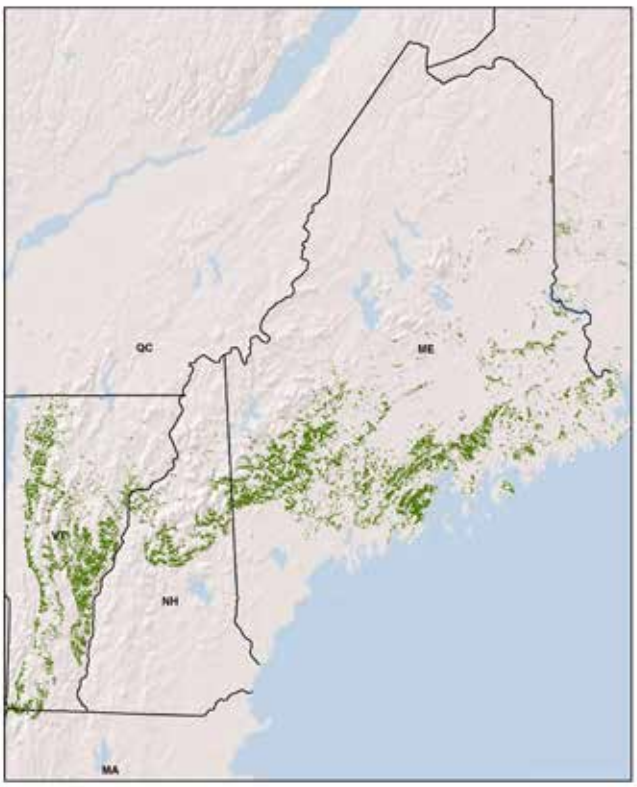
DISTRIBUTION OF HABITATS



NORTHERN | **Laurentian-Acadian Northern Hardwood Forest**

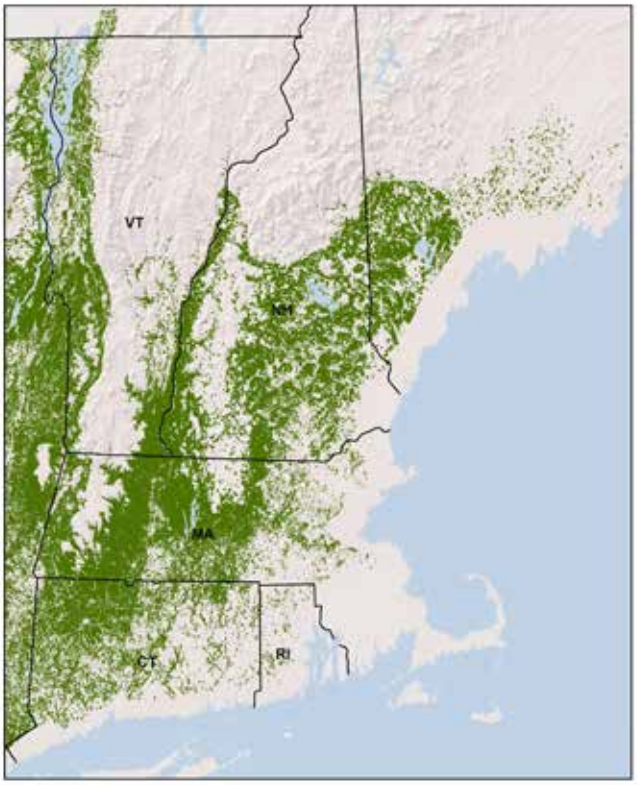


NORTHERN | **Laurentian-Acadian Pine-Hemlock-Hardwood Forest**

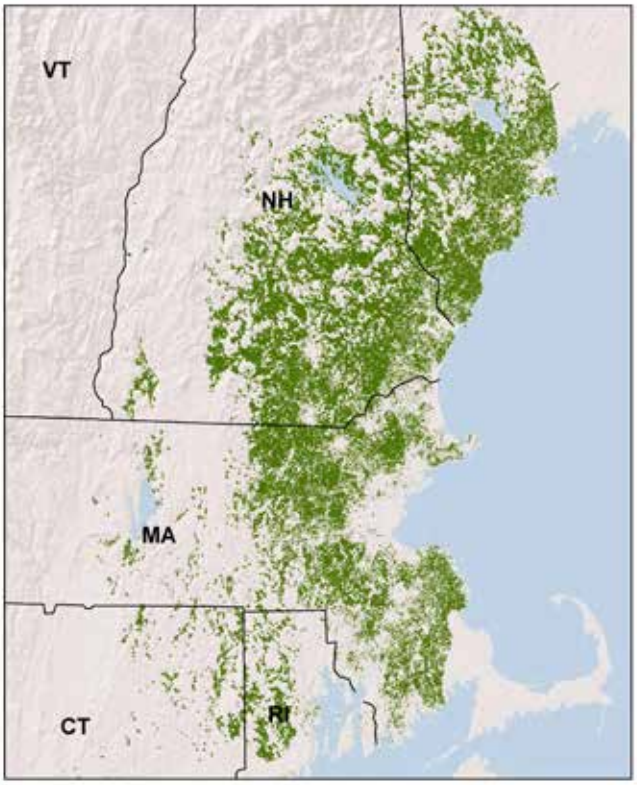


NORTHERN | **Laurentian-Acadian Red Oak-Northern Hardwood Forest**

DISTRIBUTION OF HABITATS

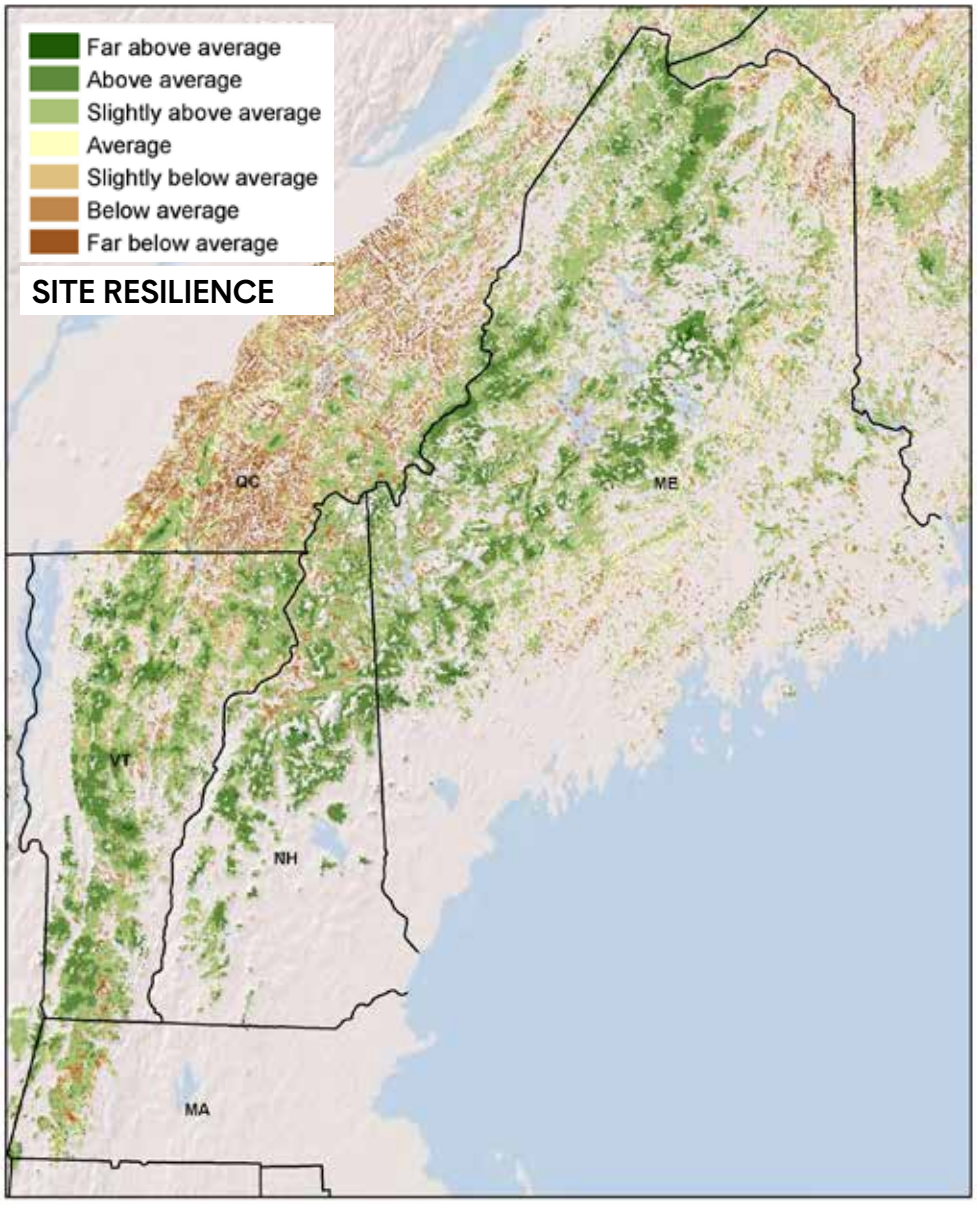


SOUTHERN | **Appalachian (Hemlock)-Northern Hardwood Forest**



SOUTHERN | **Northeastern Coastal & Interior Pine-Oak Forest**

Laurentian-Acadian Northern Hardwood Forest



© Elizabeth Thompson (Vermont Land Trust)

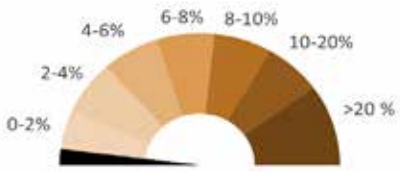
Description

A hardwood forest dominated by sugar maple, American beech, and yellow birch. White ash, hemlock, and red spruce are frequent but minor canopy associates. Paper birch, red maple, and aspen are common.

Associated Herbs & Shrubs

bristly swamp currant (*Ribes lacustre*), broad beech fern (*Phegopteris hexagonoptera*), mountain wood fern (*Dryopteris campyloptera*), pale jewelweed (*Impatiens pallida*), squirrel-corn (*Dicentra canadensis*), swamp red currant (*Ribes triste*), American twinflower (*Linnaea borealis* ssp. *americana*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	1%	121,505	13%	6%	24%	43%	57%
Above average	28%	2,325,747	9%	6%	29%	44%	56%
Slightly above average	50%	4,102,761	2%	2%	24%	28%	72%
Average	8%	621,970	0%	0%	11%	12%	88%
Slightly below average	6%	509,620	0%	1%	15%	16%	84%
Below average	5%	388,551	1%	2%	17%	19%	81%
Far below average	0%	36,950	1%	2%	15%	18%	82%
Developed	2%	172,987	1%	1%	18%	21%	79%
TOTAL	100%	8,280,091	4%	3%	23%	30%	70%



Predicted Loss to Development by 2050

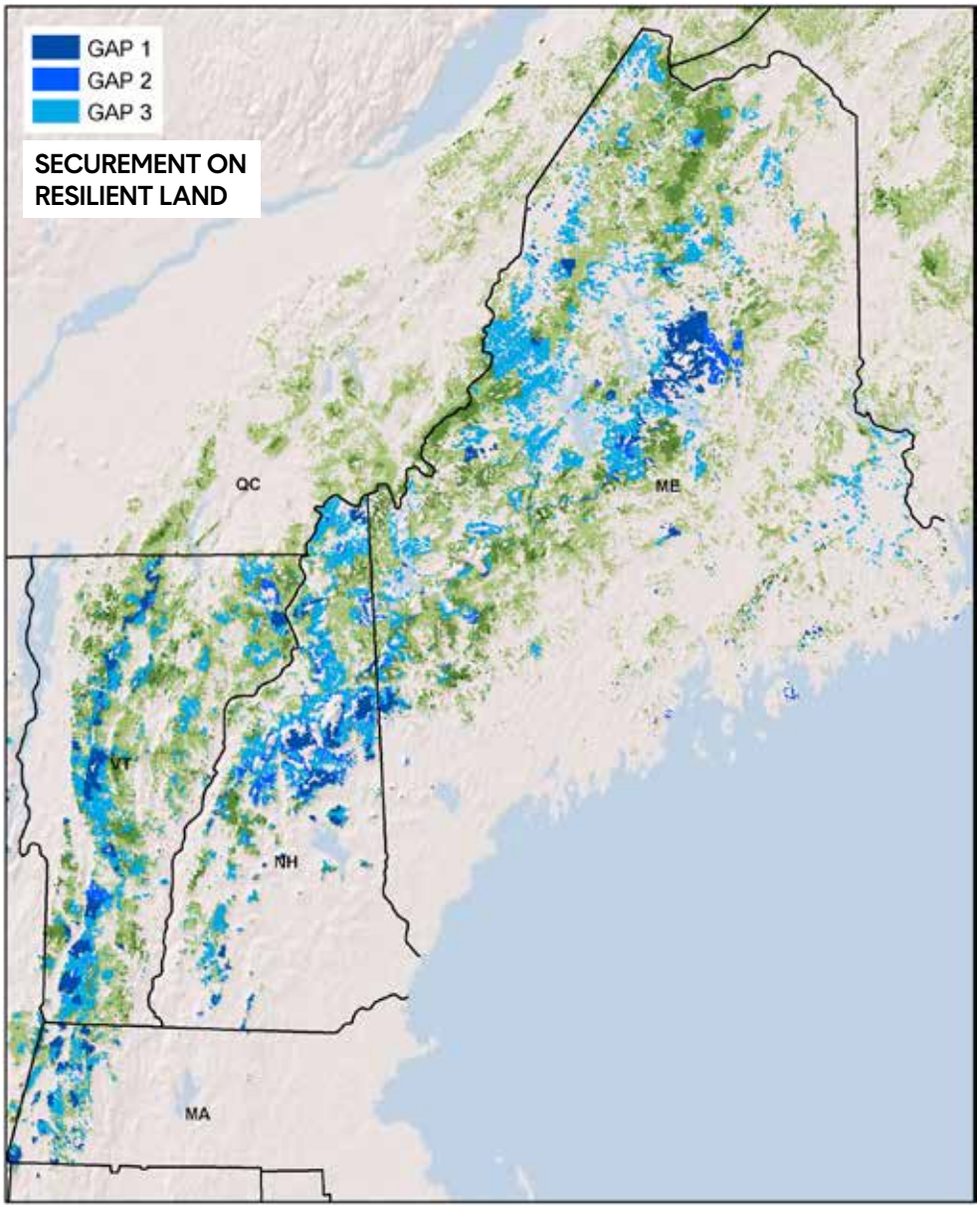
Very low 1%

This community is little threatened by development, with 42,894 acres (<1%) likely to be lost over the next 30 years.

Resilience & Securement

79% of this habitat scores high for resilience, 30% of the total acreage is secured against conversion, and 7% is protected.

Laurentian-Acadian Northern Hardwood Forest



LOCATION	TOTAL ACRES	% SECURED
New England	8,280,091	30%
CT	4,922	22%
MA	304,911	46%
ME	4,660,932	25%
NH	1,148,942	53%
RI		
VT	2,160,384	28%

LOCATION	RESILIENT ACRES	% SECURED
New England	6,550,013	34%
CT	4,376	24%
MA	210,563	53%
ME	3,562,565	27%
NH	989,577	58%
RI		
VT	1,782,933	32%

Rare or Uncommon Plants Associated with this Habitat

American ginseng (*Panax quinquefolius*)

three-birds orchid (*Triphora trianthophora* ssp. *trianthophora*)

hairy wood-mint (*Blephilia hirsuta* var. *hirsuta*)

zigzag hawthorn (*Crataegus irrasa* var. *blanchardii*)

grove hawthorn (*Crataegus lucorum*)

Oakes' hawthorn (*Crataegus oakesiana*)

poplar hawthorn (*Crataegus populnea*)

wild hound's-tongue (*Cynoglossum virginianum* ssp. *boreale*)

male wood fern (*Dryopteris filix-mas* ssp. *brittonii*)

early wild rye (*Elymus macgregorii*)

giant rattlesnake-plantain (*Goodyera oblongifolia*)

narrow-leaved hawkweed (*Hieracium umbellatum*)

green-violet (*Hybanthus concolor*)

goldenseal (*Hydrastis canadensis*)

Vasey's rush (*Juncus vaseyi*)

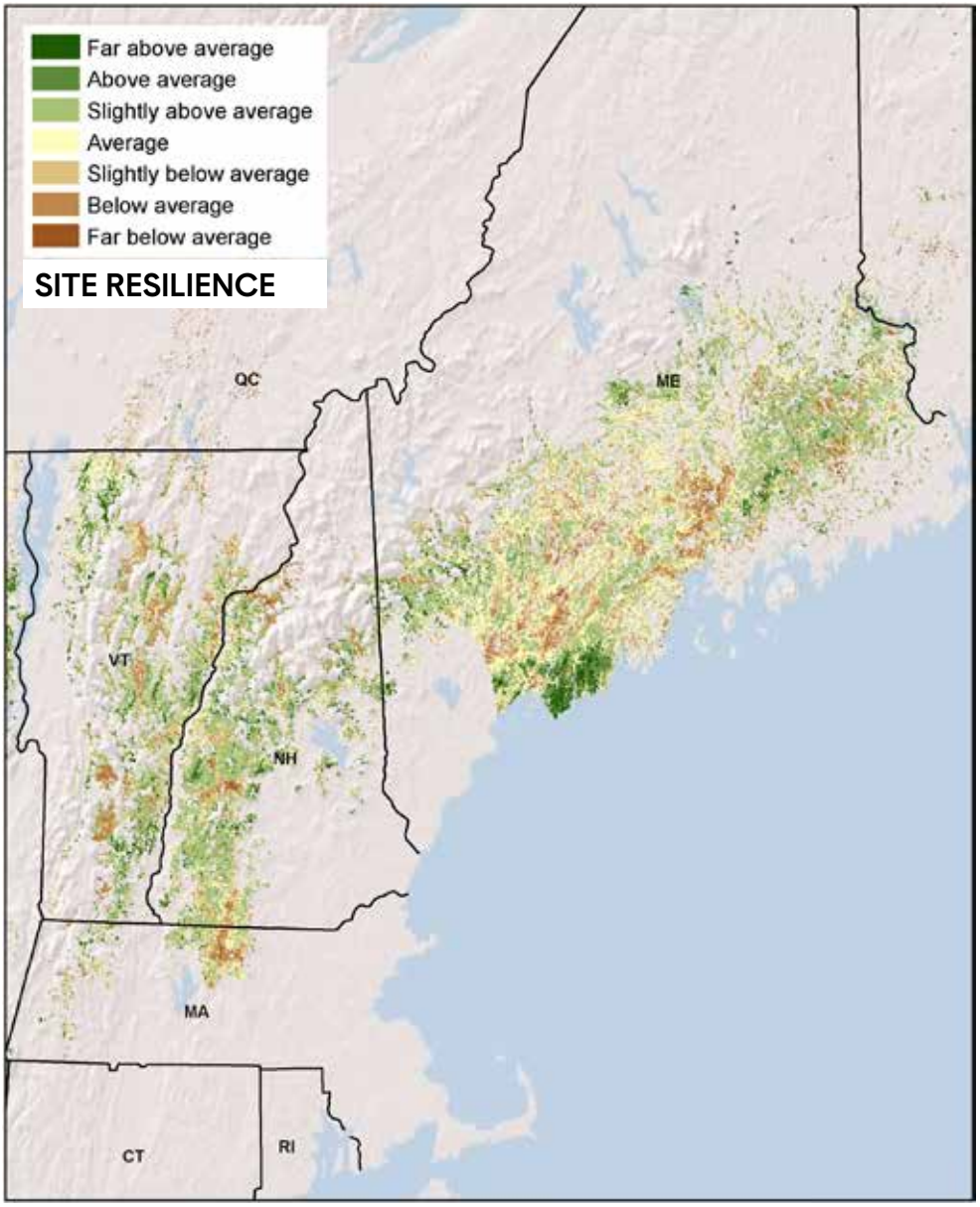
lily-leaved wide-lipped orchid (*Liparis liliifolia*)

old-pasture blue grass (*Poa saltuensis* ssp. *languida*)

white-flowered leaf-cup (*Polymnia canadensis*)

green rockcress (*Boechera missouriensis*)

Laurentian-Acadian Pine-Hemlock-Hardwood Forest



© Josh Royte (The Nature Conservancy, Maine)

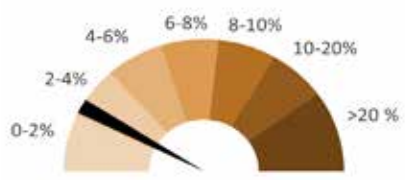
Description

A coniferous or mixed forest of foothills and lowlands. White pine, hemlock, and red oak are typical canopy dominants. Red maple, sugar maple, beech, and birch also occur. Red spruce and balsam fir are infrequent.

Associated Herbs & Shrubs

Appalachian barren-strawberry (*Geum fragarioides*), pine-drops (*Pterospora andromedea*), green adder's-mouth (*Malaxis unifolia*), Loesel's wide-lipped orchid (*Liparis loeselii*), hook-spurred violet (*Viola adunca*), short-awned mountain-rice grass (*Piptatherum pungens*), spotted wintergreen (*Chimaphila maculata*), Graham's rockcress (*Boechera grahamii*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	1%	60,050	3%	3%	13%	20%	80%
Above average	9%	413,972	2%	3%	16%	21%	79%
Slightly above average	39%	1,720,390	1%	1%	15%	18%	82%
Average	23%	1,038,767	0%	1%	8%	9%	91%
Slightly below average	14%	628,410	0%	1%	8%	9%	91%
Below average	9%	390,676	0%	1%	6%	7%	93%
Far below average	1%	30,814	0%	0%	3%	4%	96%
Developed	4%	177,154	0%	1%	9%	10%	90%
TOTAL	100%	4,460,233	1%	1%	11%	13%	87%



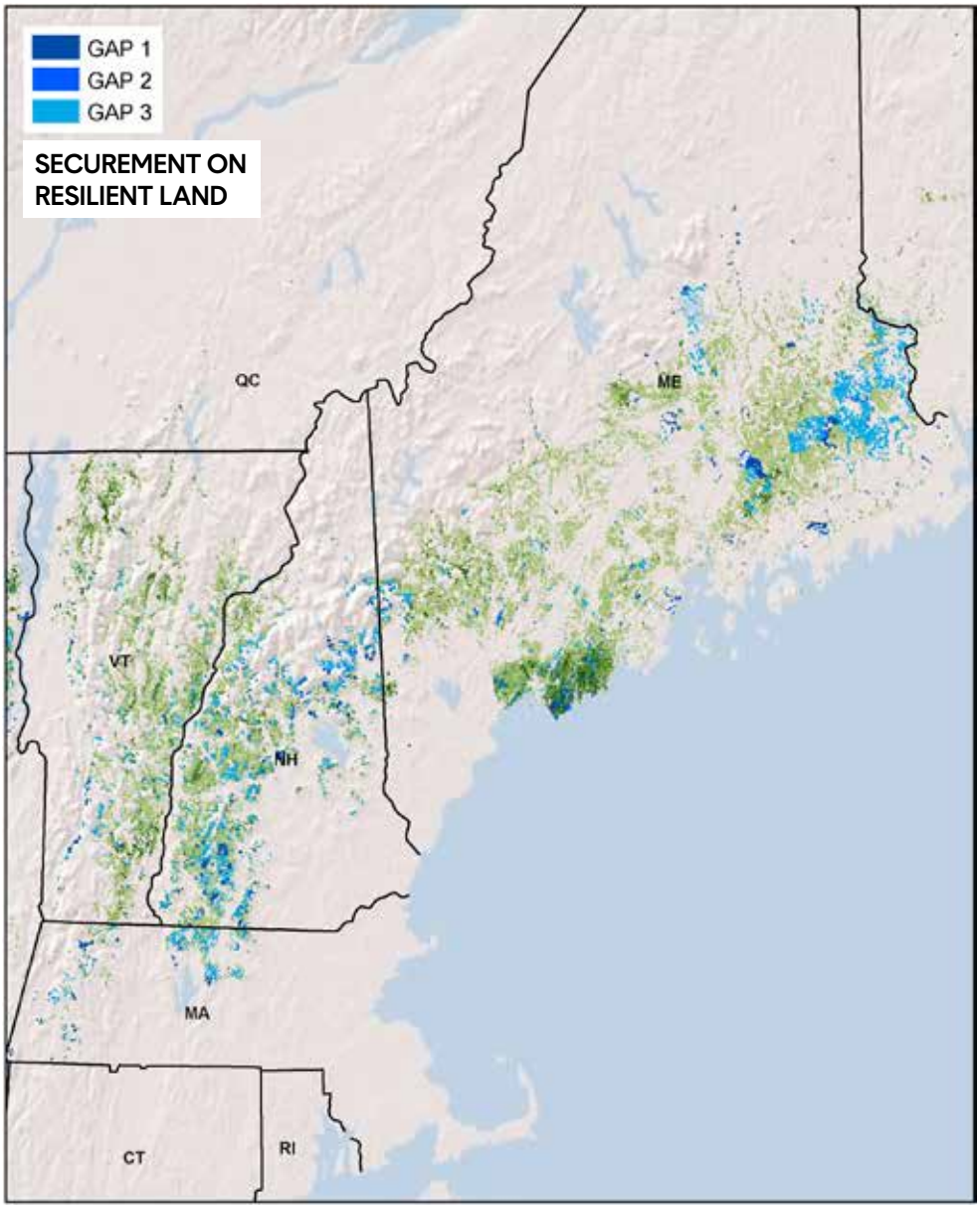
Predicted Loss to Development by 2050
Low 2%

This community is little threatened by development, with 94,112 acres (2%) likely to be lost over the next 30 years.

Resilience & Securement

49% of this habitat scores high for resilience, but only 13% of the total acreage is secured against conversion, and 2% is protected.

Laurentian-Acadian Pine-Hemlock-Hardwood Forest



LOCATION	TOTAL ACRES	% SECURED
New England	4,460,233	14%
CT	4	0%
MA	158,090	36%
ME	2,683,041	12%
NH	845,774	22%
RI		
VT	773,325	6%

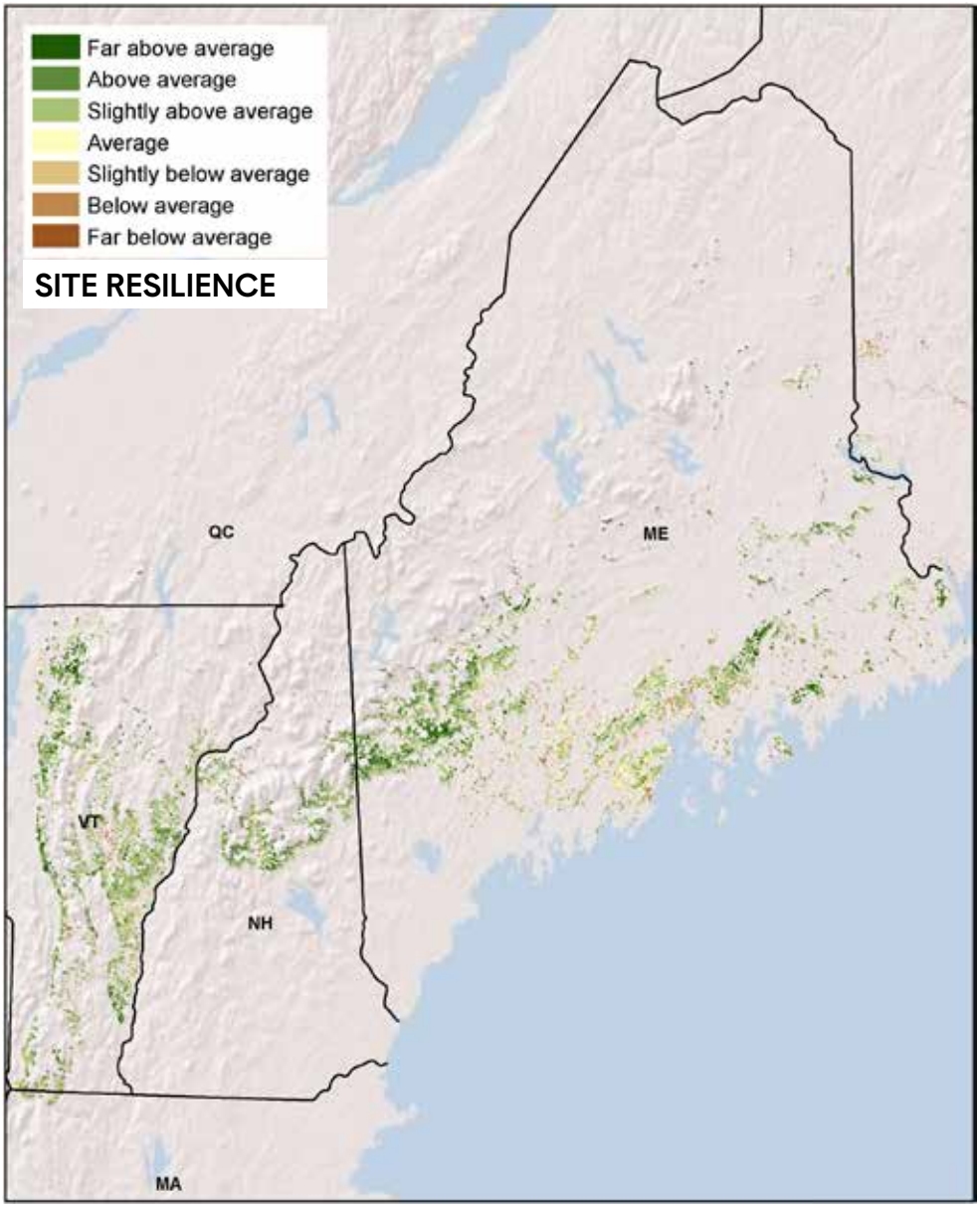
LOCATION	RESILIENT ACRES	% SECURED
New England	2,194,412	18%
CT	2	0%
MA	52,481	47%
ME	1,215,410	17%
NH	520,186	27%
RI		
VT	406,333	8%

Rare or Uncommon Plants Associated with this Habitat

swarthy sedge
(*Carex adusta*)

pine-drops
(*Pterospora andromedea*)

Laurentian-Acadian Red Oak-Northern Hardwood Forest



© Eric Sorenson (Vermont Fish & Wildlife)

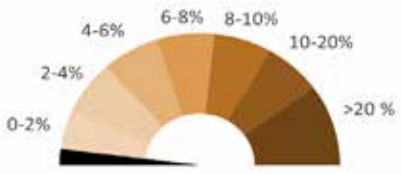
Description

A closed canopy forest where a significant component of red oak is present along with the suite of northern hardwoods, primarily sugar maple, beech, and yellow birch. Red maple, hemlock, and white pine are common associates.

Associated Herbs & Shrubs

American squaw-root (*Conopholis americana*), broad beech fern (*Phegopteris hexagonoptera*), flowering big-bracted dogwood (*Benthamidia florida*), perfoliate bellwort (*Uvularia perfoliata*), slender loose-flowered sedge (*Carex gracilescens*), leathery grapefern (*Botrychium multifidum*), sharp-fruited rush (*Juncus acuminatus*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	2%	24,337	3%	6%	16%	25%	75%
Above average	24%	253,653	3%	6%	21%	31%	69%
Slightly above average	50%	531,348	1%	3%	13%	17%	83%
Average	12%	129,123	0%	1%	4%	5%	95%
Slightly below average	6%	69,476	1%	1%	3%	5%	95%
Below average	3%	34,030	1%	1%	5%	7%	93%
Far below average	0%	2,691	4%	0%	6%	10%	90%
Developed	3%	27,202	0%	1%	8%	9%	91%
TOTAL	100%	1,071,860	2%	3%	13%	18%	82%



Predicted Loss to Development by 2050

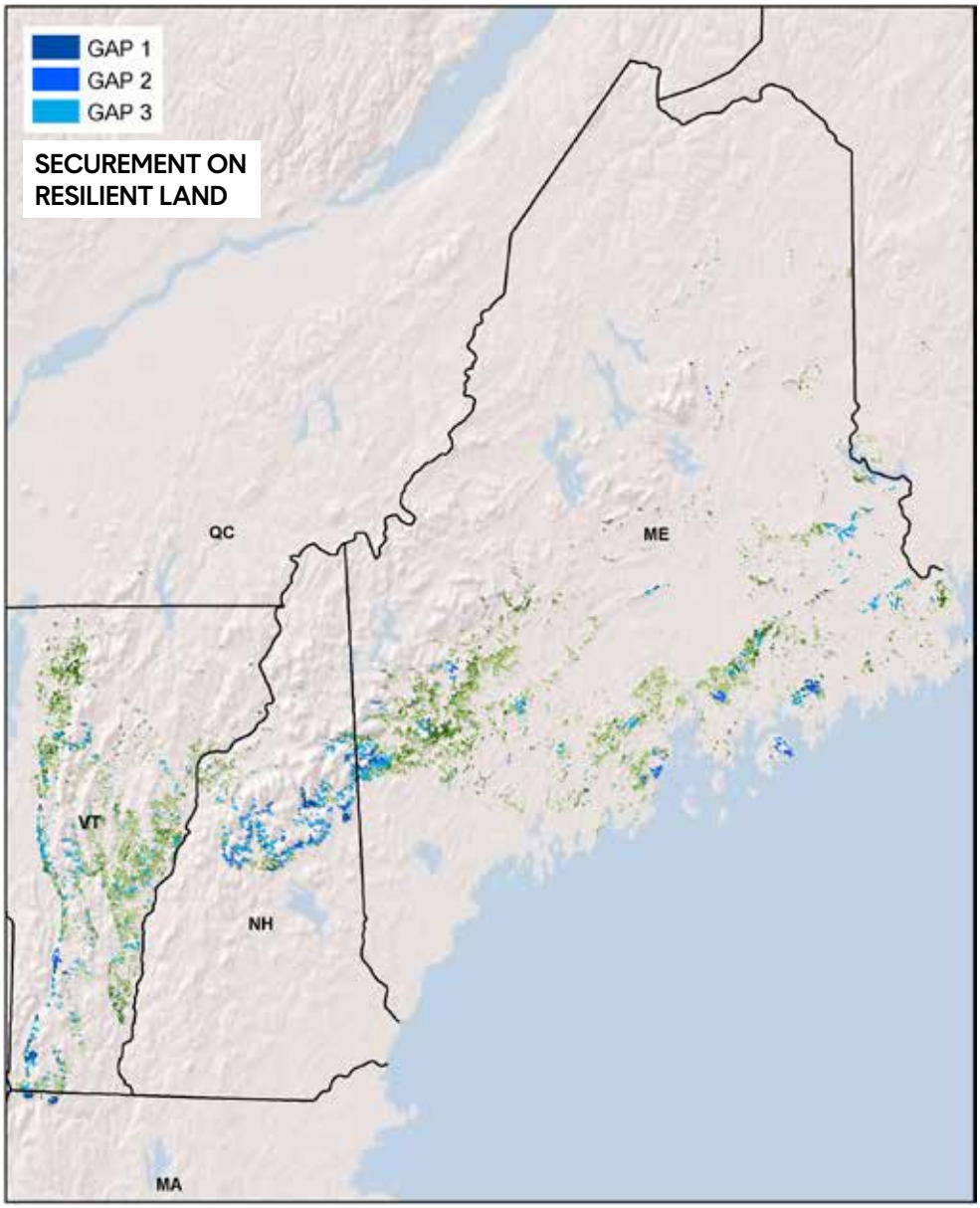
Very low 1%

This community is not threatened by development, with 13,201 acres (1%) likely to be lost over the next 30 years.

Resilience & Securement

76% of this habitat scores high for resilience, and 18% of the total acreage is secured against conversion, with the resilient areas having the highest proportion of securement.

Laurentian-Acadian Red Oak-Northern Hardwood Forest



LOCATION	TOTAL ACRES	% SECURED
New England	1,071,860	18%
CT		
MA	6,566	46%
ME	601,479	12%
NH	114,383	54%
RI		
VT	349,432	15%

LOCATION	RESILIENT ACRES	% SECURED
New England	809,338	22%
CT		
MA	4,911	48%
ME	417,248	15%
NH	102,967	58%
RI		
VT	284,213	17%

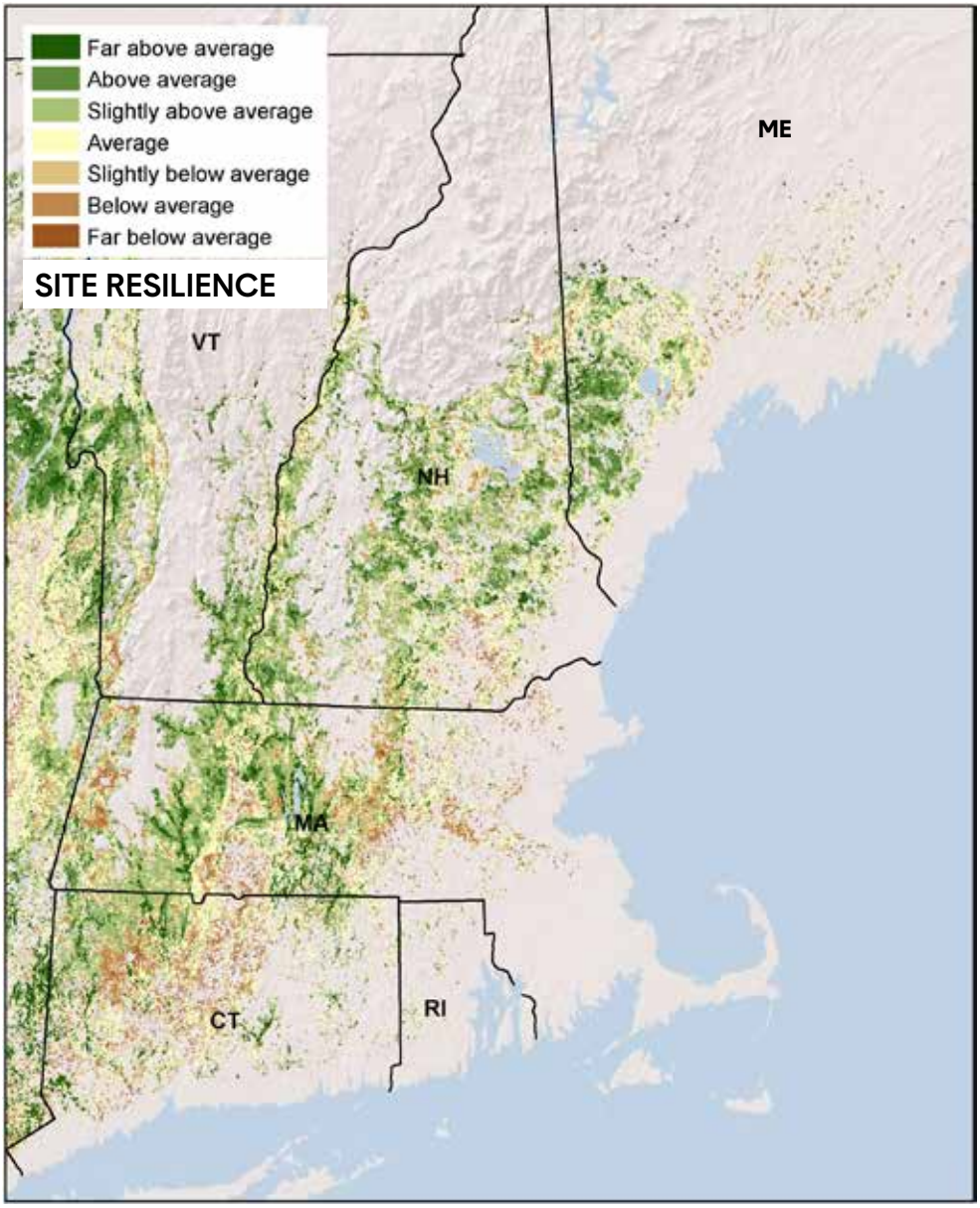
Rare or Uncommon Plants Associated with this Habitat

American ginseng
(*Panax quinquefolius*)

large whorled pogonia
(*Isotria verticillata*)

summer sedge
(*Carex aestivalis*)

Appalachian (Hemlock)-Northern Hardwood Forest



© Maine Natural Areas Program

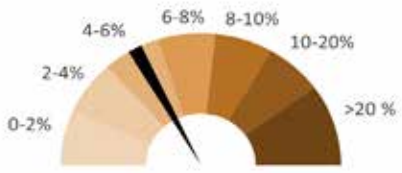
Description

A hardwood forest of sugar maple, American beech, and yellow birch, sometimes mixed with, and sometimes dominated by, eastern hemlock. Northern red oak and white oak occur commonly, but do not dominate. Black cherry, black birch, white pine, and tuliptree are typical on nutrient rich sites.

Associated Herbs & Shrubs

broad beech fern (*Phegopteris hexagonoptera*), four-leaved milkweed (*Asclepias quadrifolia*), perfoliate bellwort (*Uvularia perfoliata*), round-leaved trailing tick-trefoil (*Desmodium rotundifolium*), northern spicebush (*Lindera benzoin*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	4%	154,153	3%	2%	25%	31%	69%
Above average	18%	736,753	2%	2%	19%	23%	77%
Slightly above average	33%	1,339,229	2%	2%	17%	21%	79%
Average	25%	1,016,503	1%	1%	12%	15%	85%
Slightly below average	9%	349,797	1%	1%	13%	15%	85%
Below average	5%	188,029	1%	1%	10%	11%	89%
Far below average	0%	19,345	0%	0%	6%	7%	93%
Developed	5%	212,785	1%	1%	8%	10%	90%
TOTAL	100%	4,016,594	1%	2%	15%	18%	82%



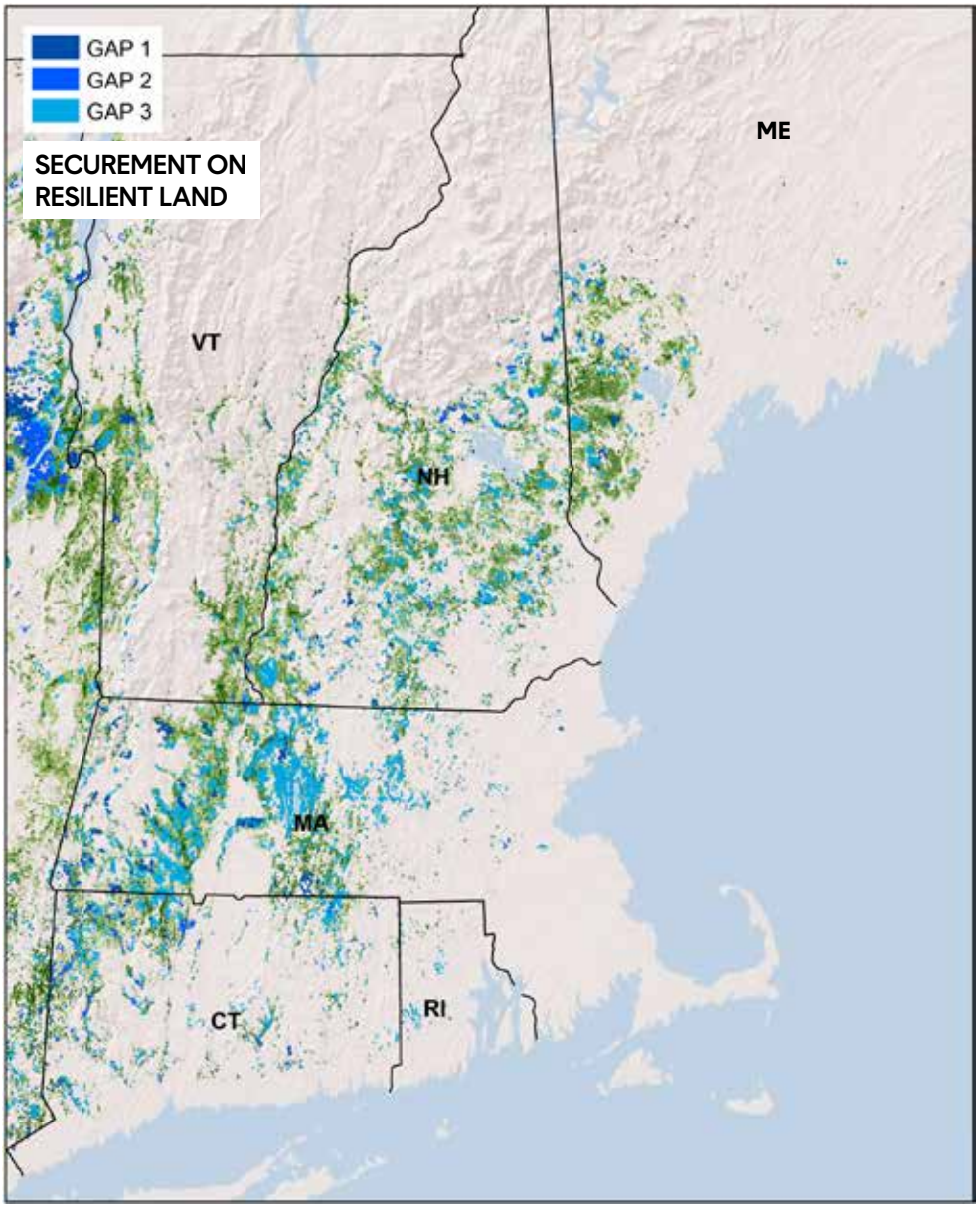
Predicted Loss to Development by 2050
Moderately low 5%

This community is threatened by development, with 195,274 acres (5%) likely to be lost over the next 30 years.

Resilience & Securement

55% of this habitat scores high for resilience, and 18% of the total acreage is secured against conversion, with the resilient areas having the highest proportion of securement.

Appalachian (Hemlock)-Northern Hardwood Forest



LOCATION	RESILIENT ACRES	% SECURED
New England	4,016,594	18%
CT	584,064	20%
MA	1,145,701	30%
ME	458,126	8%
NH	1,197,641	16%
RI	11,920	42%
VT	619,141	8%

LOCATION	RESILIENT ACRES	% SECURED
New England	2,230,135	22%
CT	224,222	29%
MA	588,283	38%
ME	265,563	10%
NH	751,166	19%
RI	4,271	57%
VT	396,630	10%

Rare or Uncommon Plants Associated with this Habitat

ram's-head lady's-slippers (*Cypripedium arietinum*)

small whorled pogonia (*Isotria medeoloides*)

southern lady fern (*Athyrium asplenioides*)

downywood mint (*Blephilia ciliata*)

Reznicek's sedge (*Carex reznicekii*)

devil's bit (*Chamaelirium luteum*)

Appalachian white-aster (*Doellingeria infirma*)

southeastern wild-rye (*Elymus glabriflorus*)

green-violet (*Hybanthus concolor*)

big-leaved holly (*Ilex montana*)

hairy honeysuckle (*Lonicera hirsuta*)

lion's-foot rattlesnake-root (*Nabalus serpentarius*)

stiff flat-topped-goldenrod (*Oligoneuron rigidum*)

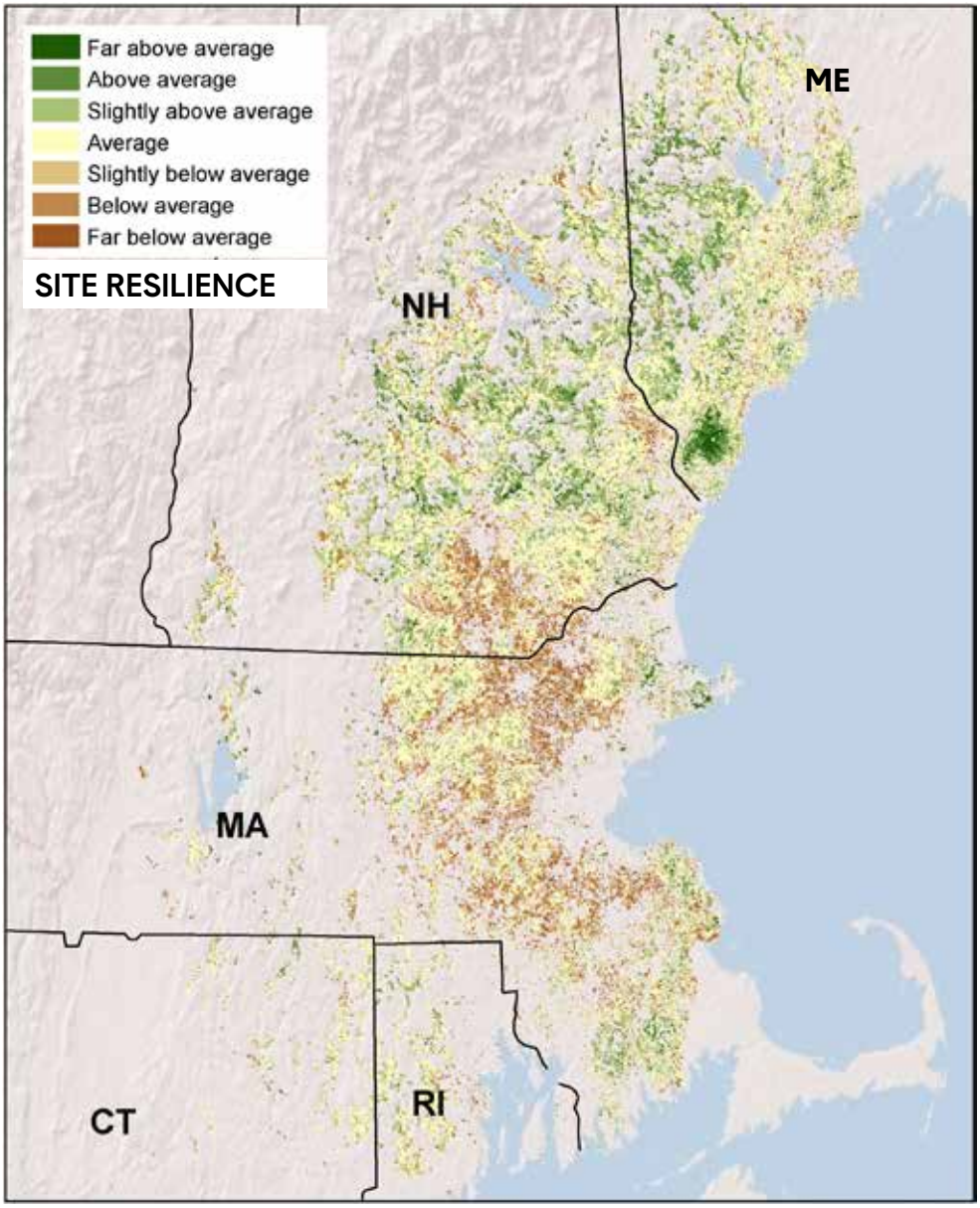
Appalachian gooseberry (*Ribes rotundifolium*)

Case's ladies'-tresses (*Spiranthes casei*)

hidden dropseed (*Sporobolus clandestinus*)

smooth blackhaw (*Viburnum prunifolium*)

Northeastern Coastal & Interior Pine-Oak Forest



© Patricia Swain (Massachusetts Division of Fisheries & Wildlife/Natural Heritage & Endangered Species Program)

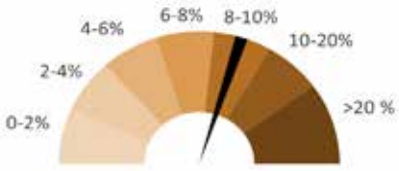
Description

A mixed forest dominated by white pine, red oak, and hemlock in varying proportions. Red maple and white oak are common associates, as are northern hardwoods like white ash and American beech.

Associated Herbs & Shrubs

sundial lupine (*Lupinus perennis*), large whorled pogonia (*Isotria verticillata*), northern blazing star (*Liatris novae-angliae*), Philadelphia panicgrass (*Panicum philadelphicum*), sassafras (*Sassafras albidum*), swamp small-flowered-saxifrage (*Micranthes pensylvanica*), hook-spurred violet (*Viola adunca*), northern tuberculed bog-orchid (*Platanthera flava* var. *herbiola*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	0%	6,159	2%	4%	39%	44%	56%
Above average	9%	138,368	2%	2%	21%	25%	75%
Slightly above average	21%	320,941	1%	2%	17%	19%	81%
Average	43%	662,069	1%	2%	15%	18%	82%
Slightly below average	11%	161,484	1%	1%	13%	15%	85%
Below average	6%	98,241	1%	1%	12%	13%	87%
Far below average	1%	12,097	0%	1%	7%	8%	92%
Developed	9%	136,299	0%	1%	7%	8%	92%
TOTAL	100%	1,535,658	1%	2%	15%	18%	82%



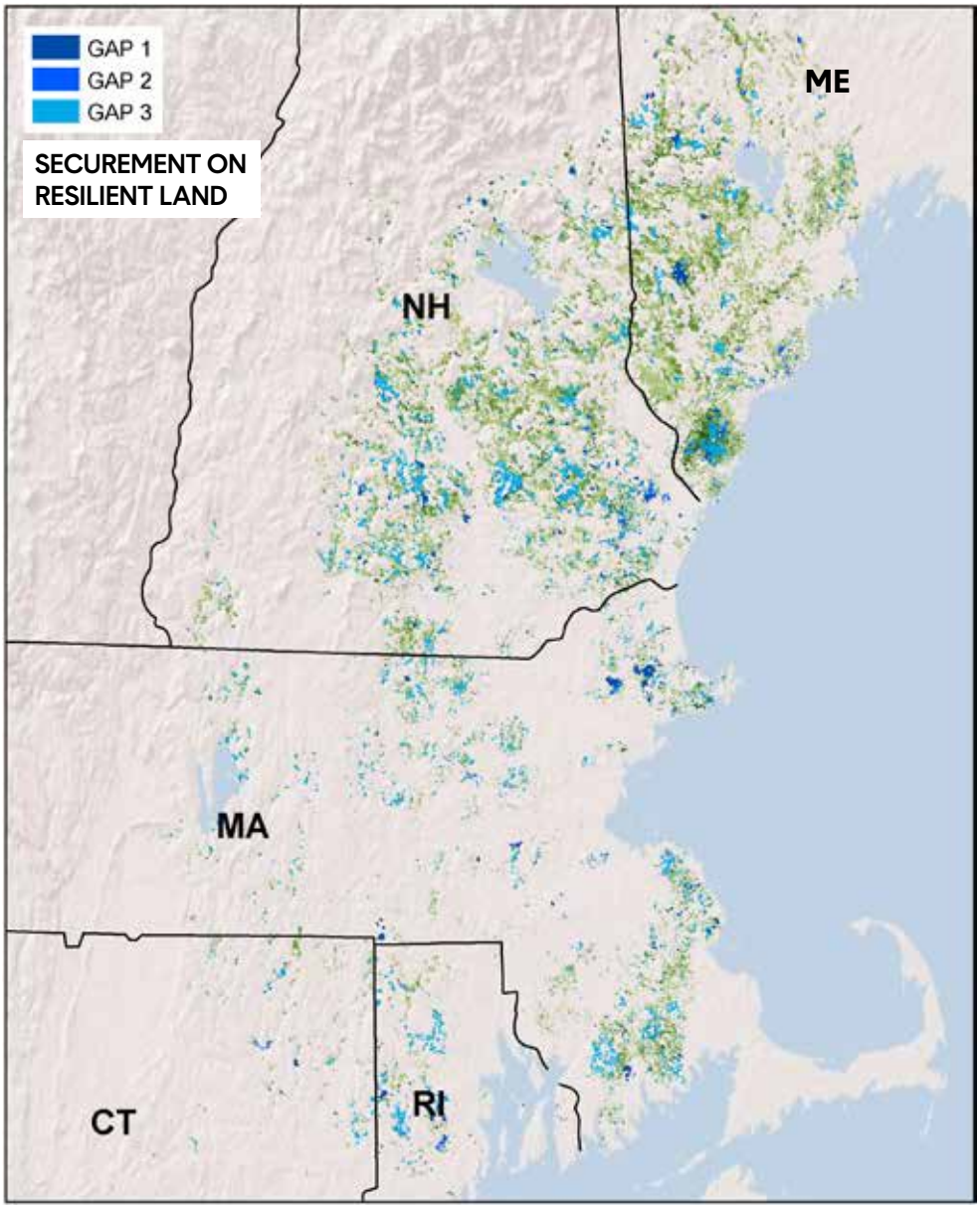
Predicted Loss to Development by 2050
Moderate 9%

This community is threatened by development, with 134,828 acres (9%) likely to be lost over the next 30 years.

Resilience & Securement

30% of this habitat scores high for resilience, and 18% of the total acreage is secured against conversion, with the resilient areas having the highest proportion of securement.

Northeastern Coastal & Interior Pine-Oak Forest



LOCATION	TOTAL ACRES	% SECURED
New England	1,535,658	17%
CT	38,349	23%
MA	402,304	24%
ME	391,590	9%
NH	653,405	16%
RI	50,011	36%
VT		

LOCATION	RESILIENT ACRES	% SECURED
New England	465,468	21%
CT	8,888	29%
MA	54,656	38%
ME	168,507	13%
NH	220,752	22%
RI	12,664	48%
VT		

Rare or Uncommon Plants Associated with this Habitat

Torrey's mountain-mint (*Pycnanthemum torrei*)

lesser snakeroot (*Ageratina aromatica*)

Appalachian white-aster (*Doellingeria infirma*)

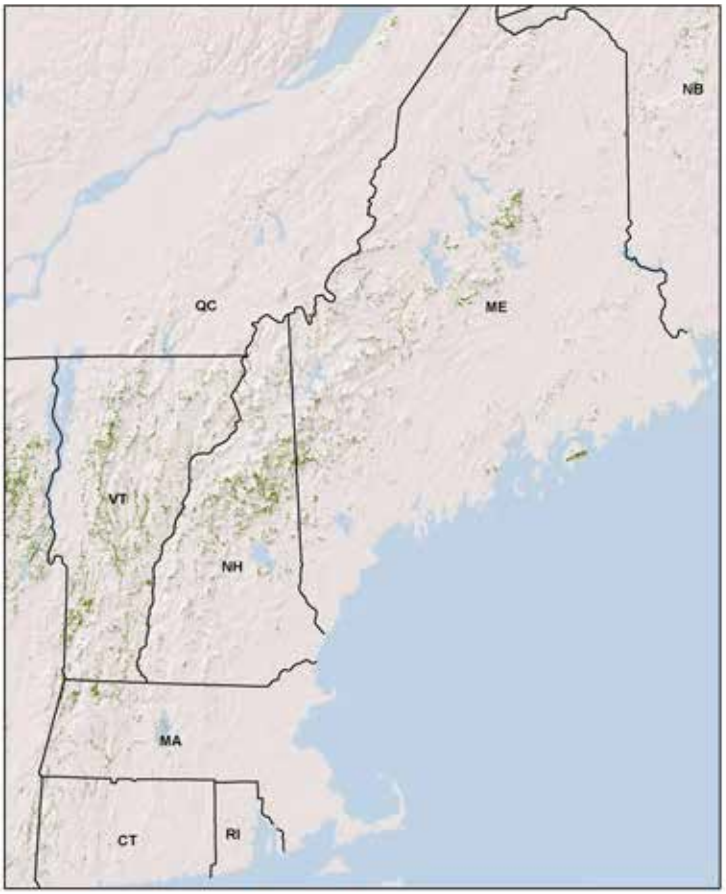
willow-leaved American-aster (*Symphyotrichum praealtum* ssp. *angustior*)

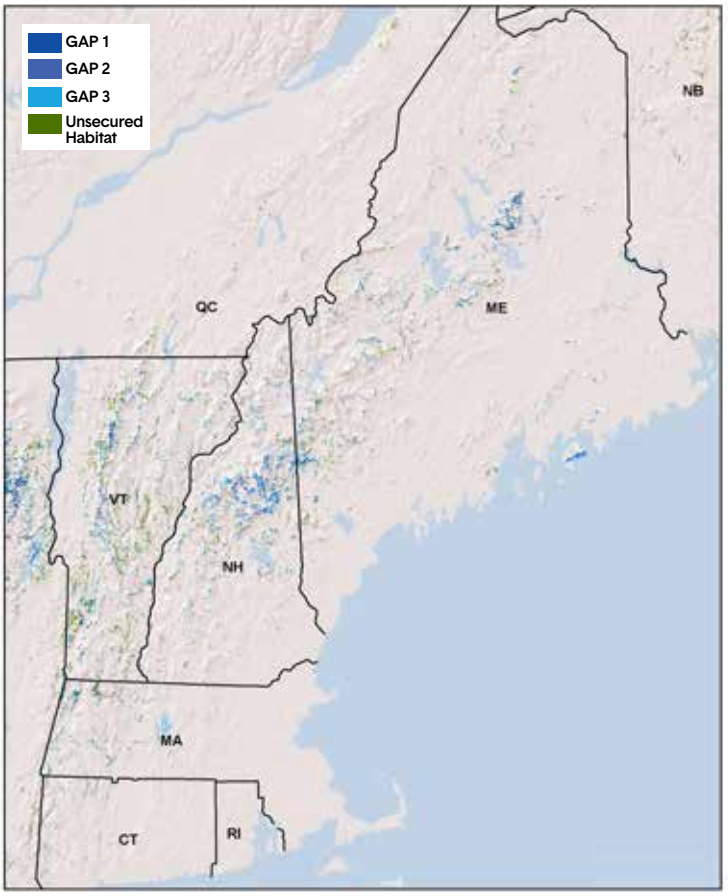
UPLAND HABĪTATS
PATCH-FORMĪNG HABĪTATS

©Jenny Wollensak Lussier

MACROGROUP

CLIFF & TALUS





Cliff & Talus

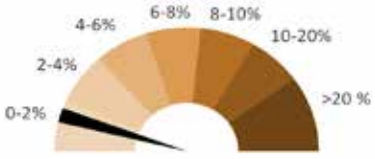
A sparsely vegetated cliff or talus slope formed on bedrock. The lack of soil limits the vegetation to mosses, lichens, and herbs growing on bare rock or in crevices.

Acres in New England

156,031

Percent Secured

GAP 1 = 16%
GAP 2 = 14%
GAP 3 = 19%



Predicted Loss to Development by 2050

3,433 acres (2%)

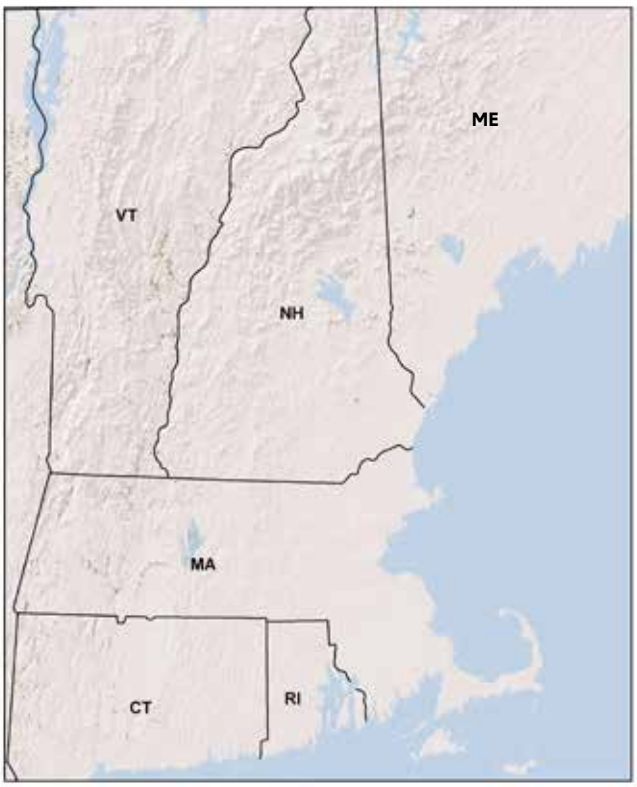
	ACRES	GAP 1	GAP 2	GAP 3	UNSECURED	IMPORTANT PLANT AREAS TOTAL	P	S	U
Cliff & Talus	**156,190**	**16%**	**14%**	**19%**	**51%**				
Connecticut	3,901	2%	14%	19%	66%				
Massachusetts	11,700	22%	1%	28%	49%				
Maine	43,935	19%	19%	15%	48%				
New Hampshire	39,892	16%	32%	21%	32%				
Rhode Island	3	0%	0%	0%	100%				
Vermont	56,758	13%	1%	20%	66%				
New England	**156,190**	**24,283**	**22,266**	**30,254**	**79,387**				

P = Protected S = Secured
U = Unsecured

DISTRIBUTION OF HABITATS

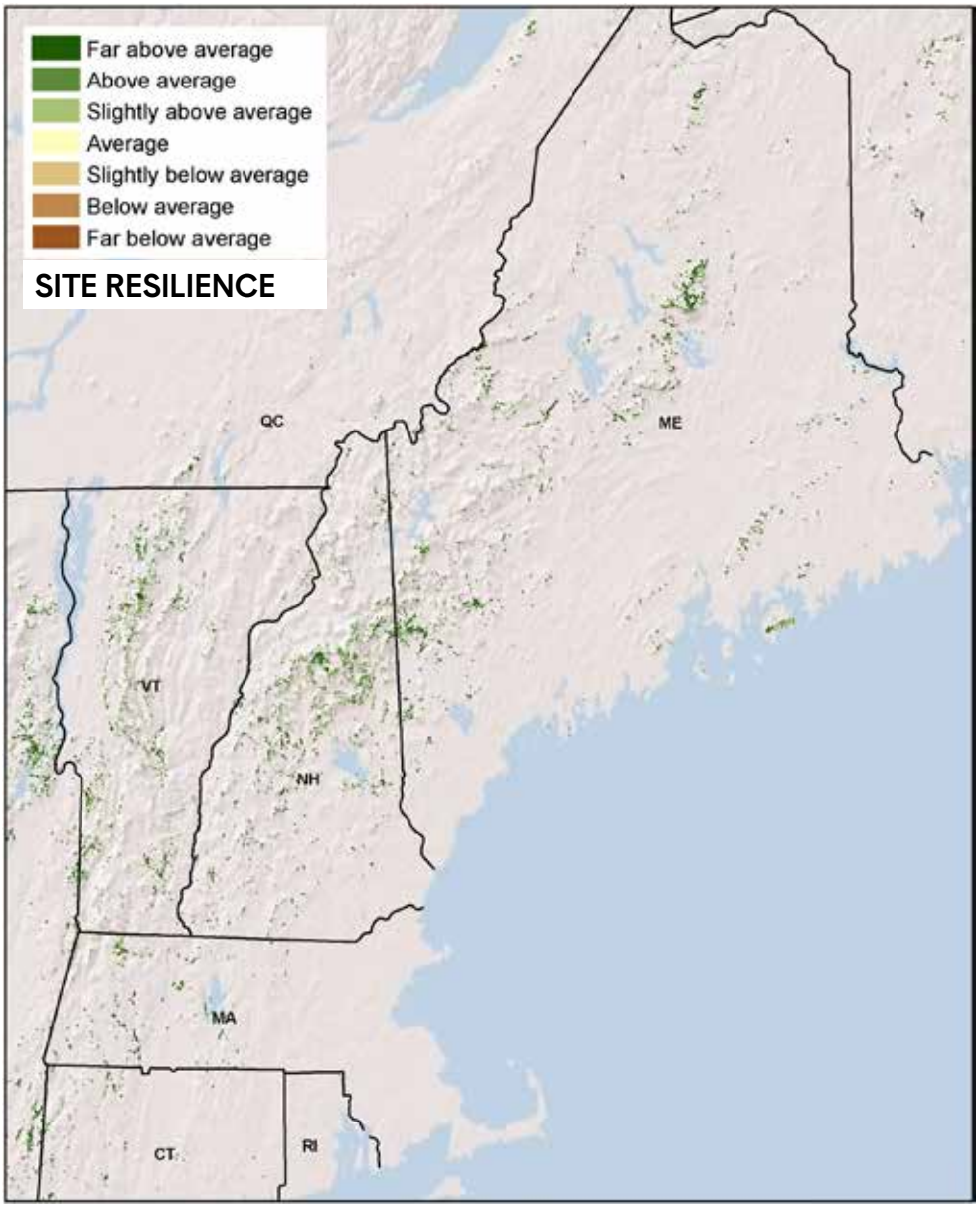
Acidic Cliff & Talus

Calcareous Cliff & Talus



Circumneutral Cliff & Talus

Acidic Cliff & Talus



© Maine Natural Areas Program

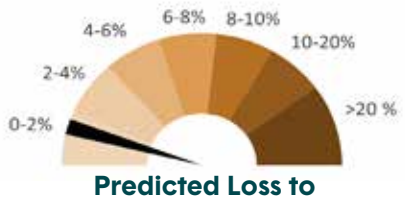
Description

A sparsely vegetated cliff or talus slope formed on granitic, sandstone, or other acidic bedrock. The lack of soil, highly acidic bedrock, and constant erosion limit the vegetation to mosses, lichens, herbs, and stunted trees growing in rocky crevices.

Associated Herbs & Shrubs

violet butterwort (*Pinguicula vulgaris*), fragrant wood fern (*Dryopteris fragrans*), Goldie's wood fern (*Dryopteris goldiana*) canescent whitlow-mustard (*Draba cana*), Blake's milk-vetch (*Astragalus robbinsii* var. *minor*), Michaux's sandplant (*Minuartia michauxii*), small-flower bittercress (*Cardamine parviflora*), smooth false foxglove (*Aureolaria flava*), summer grape (*Vitis gestivalis* var. *bicolor*), white mountain saxifrage (*Saxifraga paniculata*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	13%	14,837	22%	12%	18%	52%	48%
Above average	68%	76,522	21%	21%	19%	61%	39%
Slightly above average	18%	20,365	7%	10%	19%	37%	63%
Average	0%	404	5%	6%	8%	19%	81%
Slightly below average	0%	169	2%	4%	11%	16%	84%
Below average	0%	143	1%	9%	32%	42%	58%
Far below average	0%	6	0%	4%	23%	27%	73%
Developed	1%	767	9%	11%	17%	37%	63%
TOTAL	100%	113,213	19%	17%	19%	55%	45%



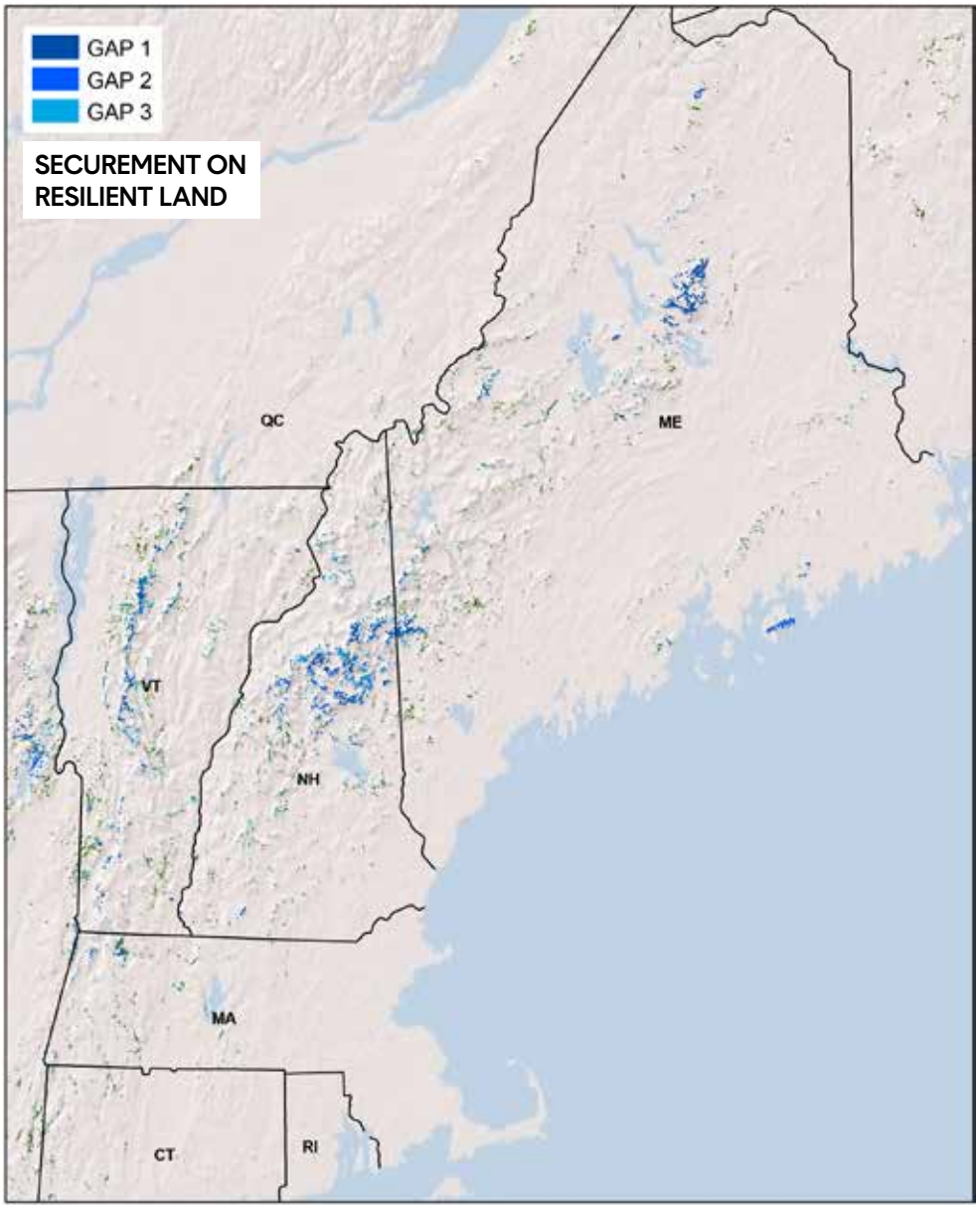
Predicted Loss to Development by 2050
Low 2%

This community is not threatened by development, with 2,054 acres (2%) likely to be lost over the next 30 years.

Resilience & Securement

99% of this habitat scores high for resilience, 55% of the total acreage is secured against conversion, and 36% is protected.

Acidic Cliff & Talus



LOCATION	TOTAL ACRES	% SECURED
New England	113,213	55%
CT	2,059	39%
MA	6,149	49%
ME	35,209	56%
NH	35,125	73%
RI	3	0%
VT	34,668	39%

LOCATION	RESILIENT ACRES	% SECURED
New England	111,724	56%
CT	1,962	41%
MA	6,009	50%
ME	34,896	56%
NH	34,833	73%
RI	3	0%
VT	34,021	39%

Rare or Uncommon Plants Associated with this Habitat

mountain spleenwort (*Asplenium montanum*)

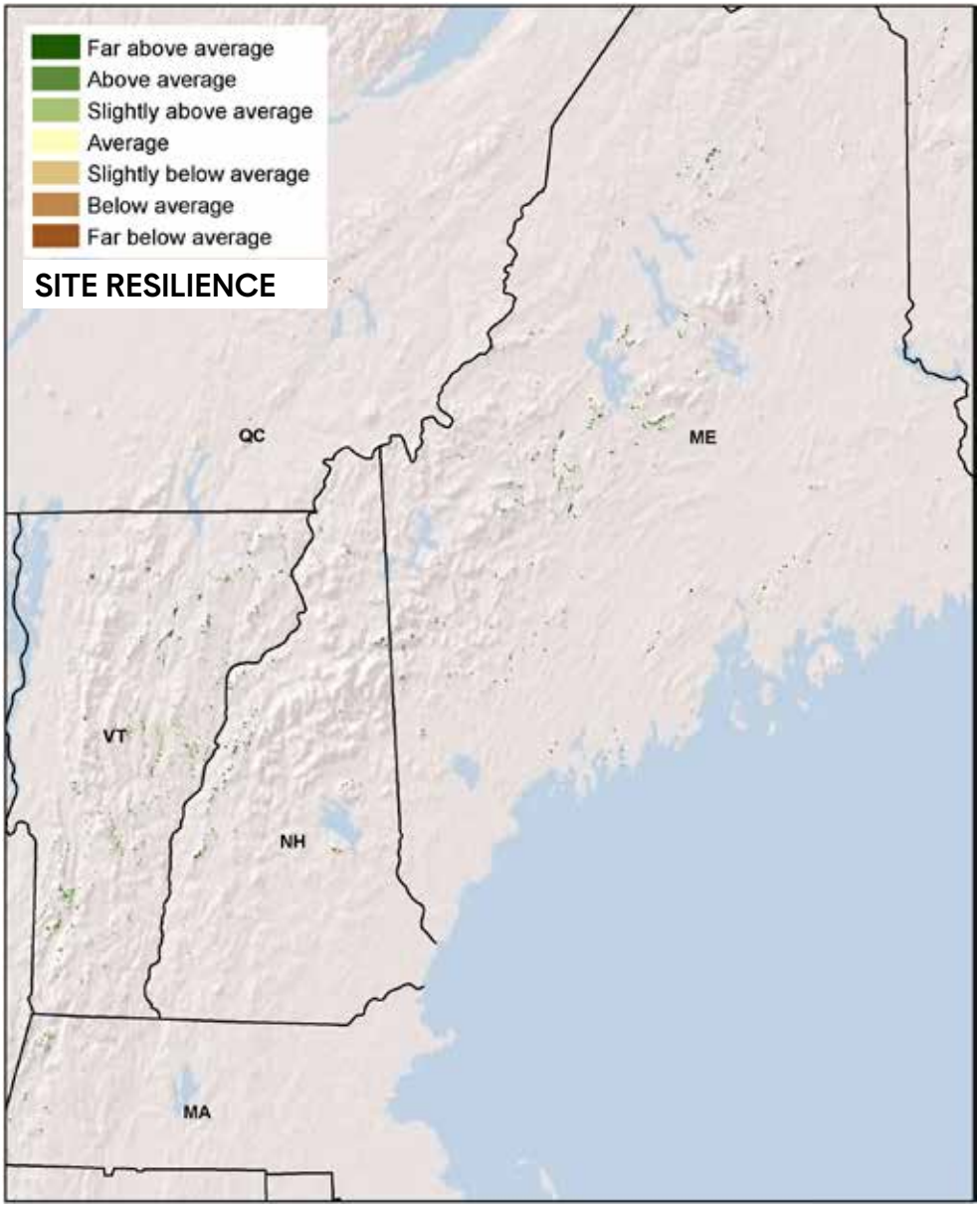
violet butterwort (*Pinguicula vulgaris*)

Canada mountain-rice grass (*Piptatherum canadense*)

neglected reed-grass (*Calamagrostis stricta* ssp. *inexpansa*)

silvery whitlow-wort (*Paronychia argyrocoma*)

Calcareous Cliff & Talus



SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	7%	1,975	2%	10%	19%	31%	69%
Above average	64%	18,810	9%	9%	22%	40%	60%
Slightly above average	27%	7,782	8%	3%	18%	29%	71%
Average	1%	182	0%	0%	3%	3%	97%
Slightly below average	0%	89	0%	1%	6%	7%	93%
Below average	0%	102	5%	0%	3%	7%	93%
Far below average	0%	6	7%	0%	19%	26%	74%
Developed	1%	279	5%	1%	19%	25%	75%
TOTAL	100%	29,225	8%	7%	21%	36%	64%

Resilience & Securement

98% of this habitat scores high for resilience, 36% of the total acreage is secured against conversion, and 15% is protected.

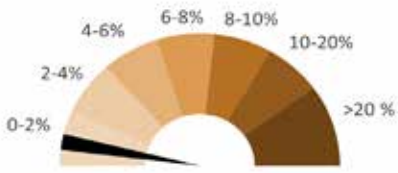
© Elizabeth Thompson (Vermont Land Trust)

Description

A sparsely vegetated talus slope formed on limestone, dolomite, dolostone, or other calcareous bedrock. Edaphic conditions limit vegetation to herbs, ferns, and sparse trees growing in rock crevices. Northern white cedar is characteristic. Ash, basswood, and bladdernut are other indicators.

Associated Herbs & Shrubs

Lake Mistassini primrose (*Primula mistassinica*), Blake's milk-vetch (*Astragalus robbinsii* var. *minor*), alpine northern-rockcress (*Braya humilis* ssp. *humilis*), Canadian single-spike sedge (*Carex scirpoidea*), few-flowered spikesedge (*Eleocharis quinqueflora* ssp. *fernaldii*), slender rock-brake (*Cryptogramma stelleri*), fragrant wood fern (*Dryopteris fragrans*), hyssop-leaved fleabane (*Erigeron hyssopifolius*), thale-cress (*Arabidopsis lyrata*), roseroot (*Rhodiola rosea*), slender cliff-brake (*Pellaea glabella*), smooth rockcress (*Boechera laevigata*), smooth cliff fern (*Woodsia glabella*), boreal sandplant (*Minuartia rubella*)

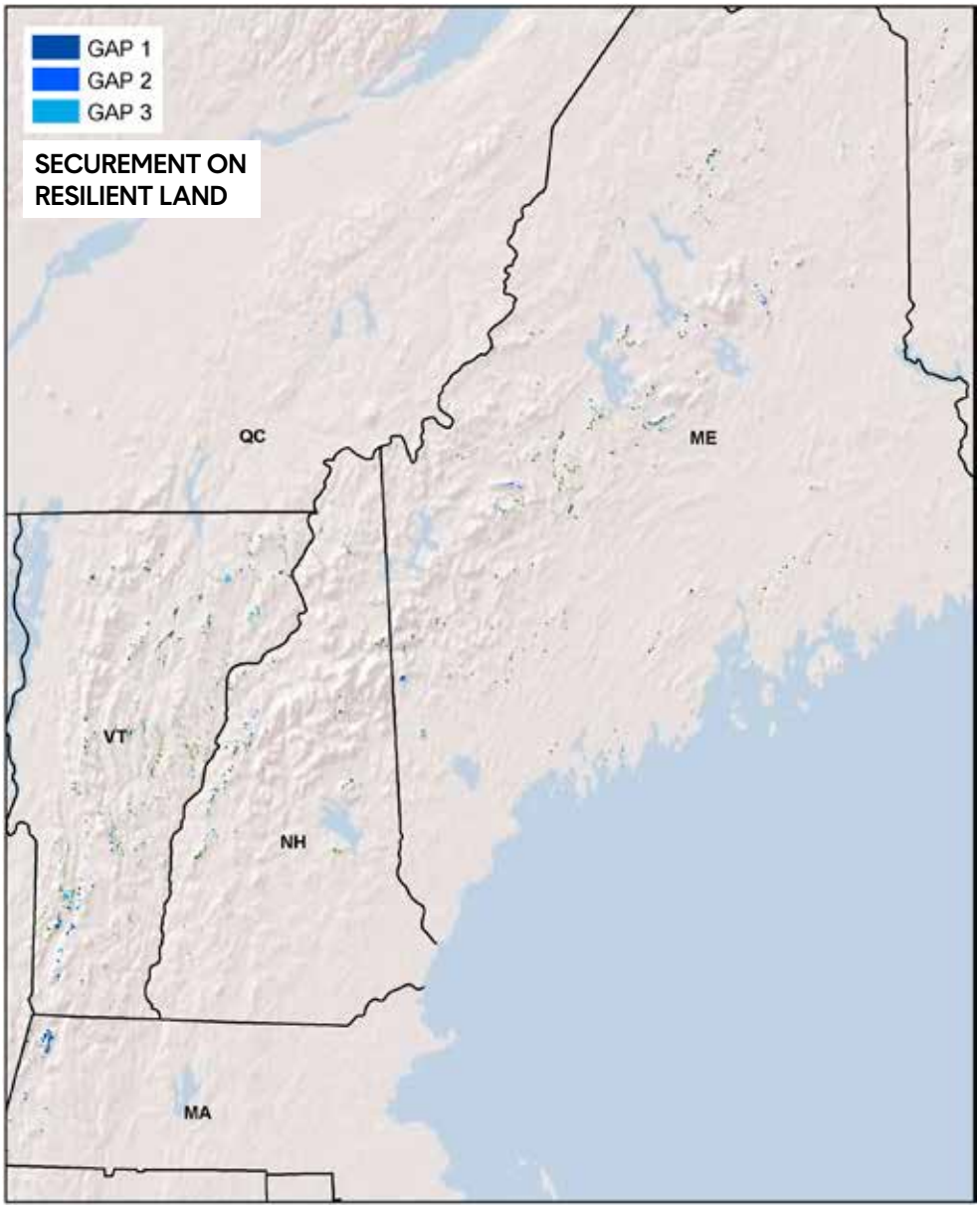


Predicted Loss to Development by 2050

Very low 1%

This community is not threatened by development, with only 428 acres (<1%) likely to be lost over the next 30 years.

Calcareous Cliff & Talus



LOCATION	TOTAL ACRES	% SECURED
New England	29,225	36%
CT		
MA	1,868	63%
ME	7,868	38%
NH	3,757	35%
RI		
VT	15,732	31%

LOCATION	RESILIENT ACRES	% SECURED
New England	28,567	36%
CT		
MA	1,834	63%
ME	7,804	38%
NH	3,732	36%
RI		
VT	15,198	32%

© Eric Sorenson (Vermont Fish & Wildlife)

Rare or Uncommon Plants Associated with this Habitat

mountain death camas (*Anticlea elegans* ssp. *glauca*)

green spleenwort (*Asplenium viride*)

Crave's sedge (*Carex crawei*)

slender rock-brake (*Cryptogramma stelleri*)

wiry panicgrass (*Panicum flexile*)

northern cliff fern (*Woodsia alpina*)

violet butterwort (*Pinguicula vulgaris*)

glaucous blue grass (*Poa glauca* ssp. *glauca*)

yellow mountain saxifrage (*Saxifraga aizoides*)

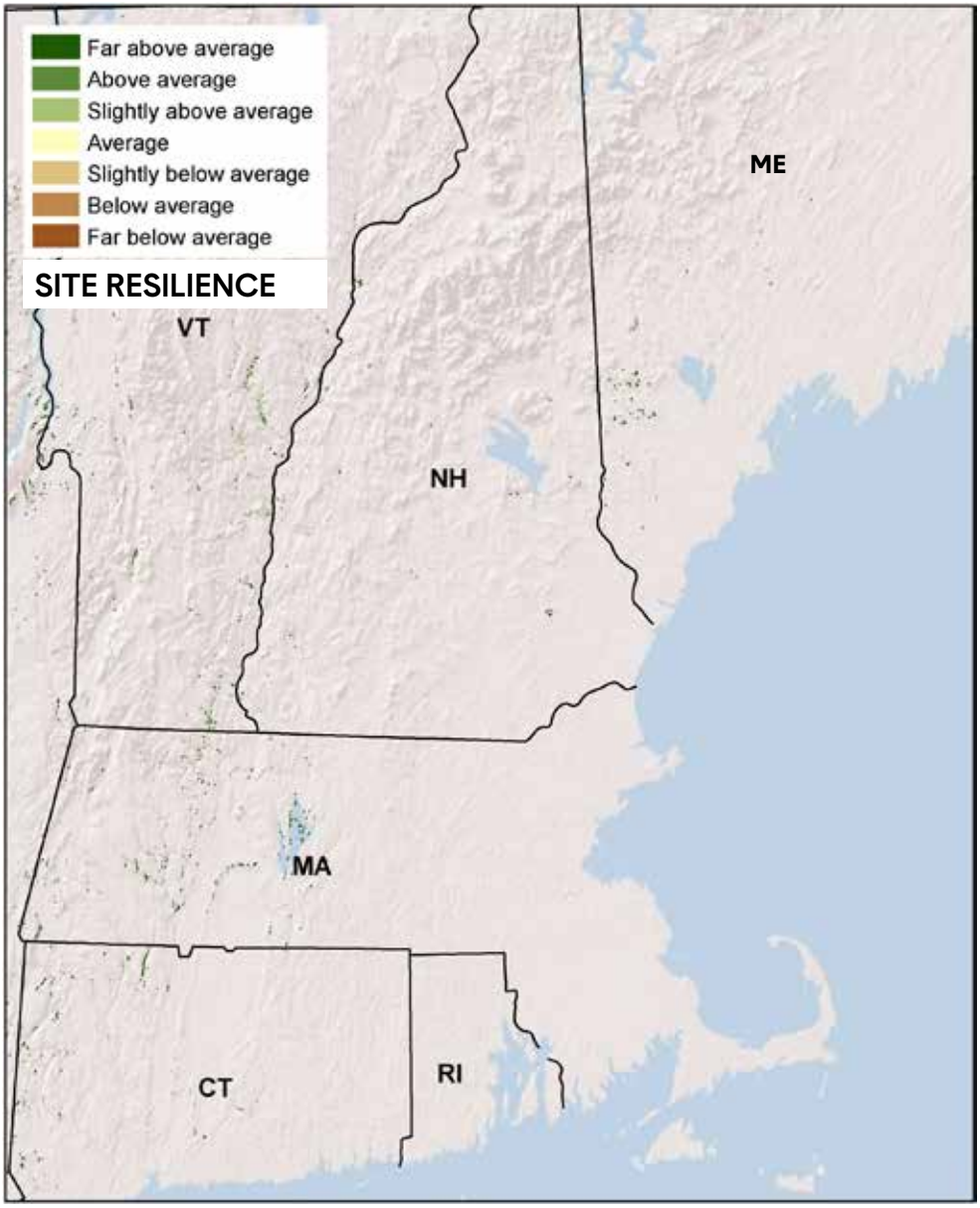
purple mountain saxifrage (*Saxifraga oppositifolia*)

little skullcap (*Scutellaria parvula* var. *parvula*)

small dropseed (*Sporobolus neglectus*)

pennyroyal bluecurls (*Trichostema brachiatum*)

Circumneutral Cliff & Talus



© West Virginia Division of Natural Resources

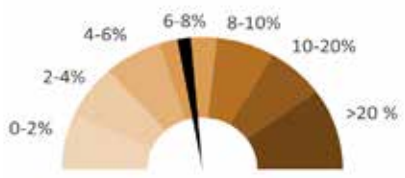
Description

A sparsely vegetated cliff or talus slope formed on moderately calcareous substrates such as calcareous shales or sandstones mixed with limestone. Edaphic conditions limit vegetation to herbs, ferns, and sparse trees growing in rock crevices.

Associated Herbs & Shrubs

rock muhly (*Muhlenbergia sobolifera*), Allegheny-vine (*Adlumia fungosa*), downy arrowwood (*Viburnum rafinesquianum*), narrow-leaved glade fern (*Diplazium pycnocarpon*), ledge spikemoss (*Selaginella rupestris*), whorled milkweed (*Asclepias verticillata*), Michaux's stitchwort (*Minuartia michauxii*), narrow-leaved vervain (*Verbena simplex*), nodding stickseed (*Hackelia deflexa* ssp. *americana*), purple virgin's-bower (*Clematis occidentalis*), small-flowered crowfoot (*Ranunculus micranthus*), upland boneset (*Eupatorium sessilifolium*), wall-rue spleenwort (*Asplenium ruta-muraria*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	19%	2,632	11%	3%	21%	35%	65%
Above average	45%	6,204	6%	5%	19%	29%	71%
Slightly above average	30%	4,083	1%	5%	17%	23%	77%
Average	3%	367	3%	6%	17%	25%	75%
Slightly below average	1%	118	2%	0%	29%	31%	69%
Below average	0%	50	0%	0%	42%	42%	58%
Far below average	0%	1	0%	0%	0%	0%	100%
Developed	2%	298	2%	1%	12%	15%	85%
TOTAL	100%	13,752	5%	4%	19%	28%	72%



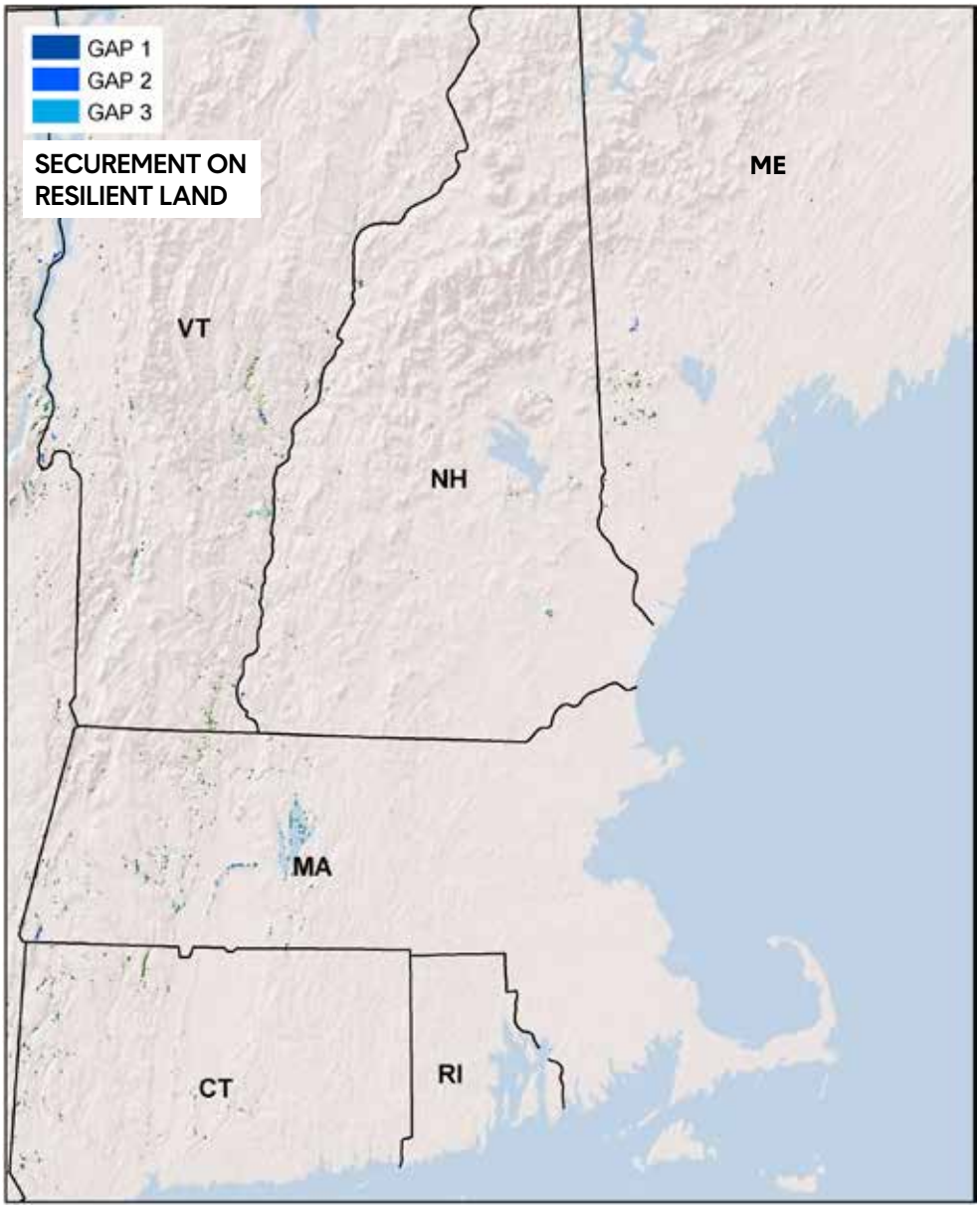
Predicted Loss to Development by 2050
Moderate 7%

This community is somewhat threatened by development, with 951 acres (7%) likely to be lost over the next 30 years.

Resilience & Securement

94% of this habitat scores high for resilience, 28% of the total acreage is secured against conversion, and 9% is protected.

Circumneutral Cliff & Talus



LOCATION	TOTAL ACRES	% SECURED
New England	13,752	28%
CT	1,842	29%
MA	3,683	48%
ME	858	36%
NH	1,010	32%
RI		
VT	6,358	15%

LOCATION	RESILIENT ACRES	% SECURED
New England	12,919	29%
CT	1,658	29%
MA	3,488	48%
ME	839	36%
NH	955	33%
RI		
VT	5,980	15%

Rare or Uncommon Plants Associated with this Habitat

wavy blue grass (*Poa laxa* ssp. *fernaldiana*)

field wormwood (*Artemisia campestris* ssp. *canadensis*)

neglected reed grass (*Calamagrostis stricta* ssp. *stricta*)

scabrous black sedge (*Carex atratiformis*)

hair-like sedge (*Carex capillaris* ssp. *capillaris*)

Appalachian bristle fern (*Crepidomanes* (*Trichomanes*) *intricatum*)

western tansy-mustard (*Descurainia pinnata* ssp. *brachycarpa*)

canescent whitlow-mustard (*Draba cana*)

smooth whitlow-mustard (*Draba glabella*)

northern firmoss (*Huperzia selago*)

glaucous blue grass (*Poa glauca* ssp. *glauca*)

interior blue grass (*Poa interior*)

bird's-eye primrose (*Primula laurentiana*)

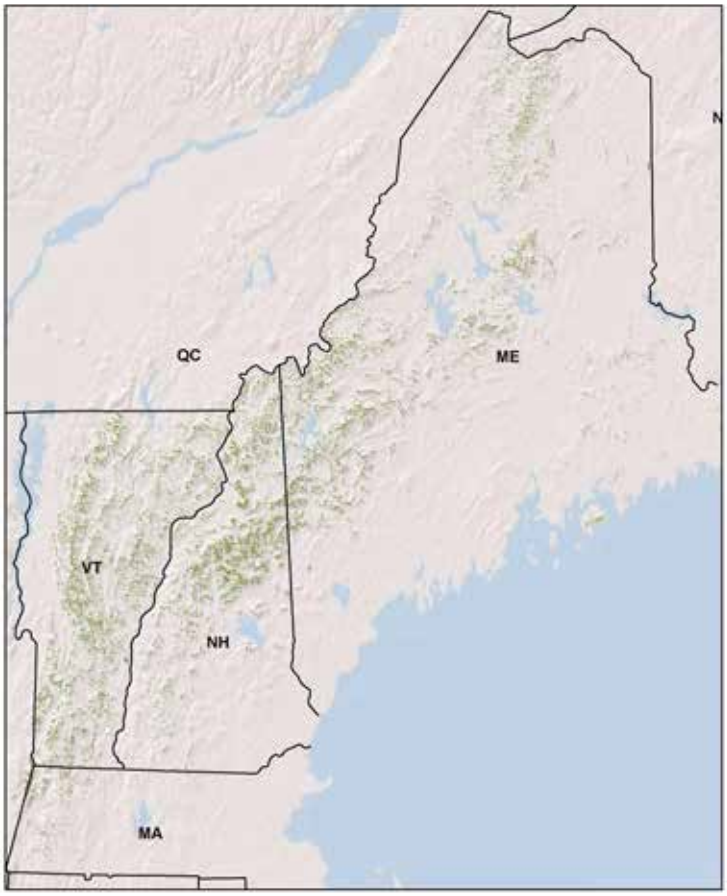
needle beaksedge (*Rhynchospora capillacea*)

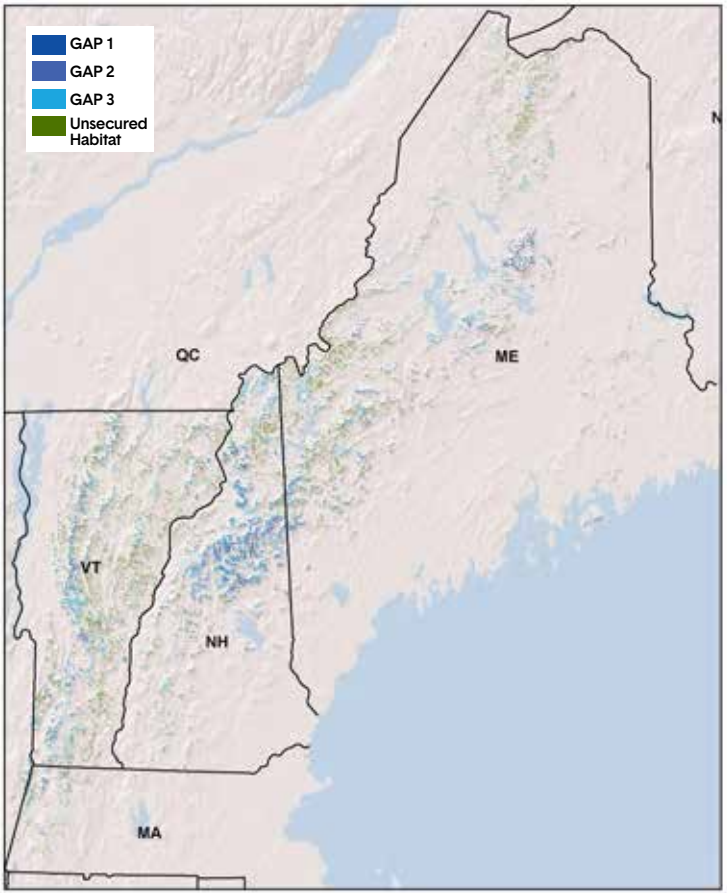
Appalachian gooseberry (*Ribes rotundifolium*)

rough dropseed (*Sporobolus compositus* var. *drummondii*)

MACROGROUP

OUTCROP, SUMMIT & ALPINE

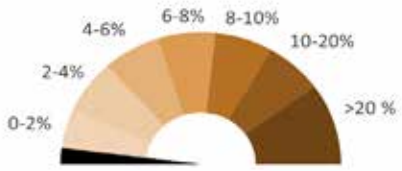




Outcrop, Summit & Alpine
An herbaceous or sparsely vegetated mountain summit with thin soils and bedrock outcrops.

Acres in New England
191,682

Percent Secured
GAP 1 = 16%
GAP 2 = 13%
GAP 3 = 20%

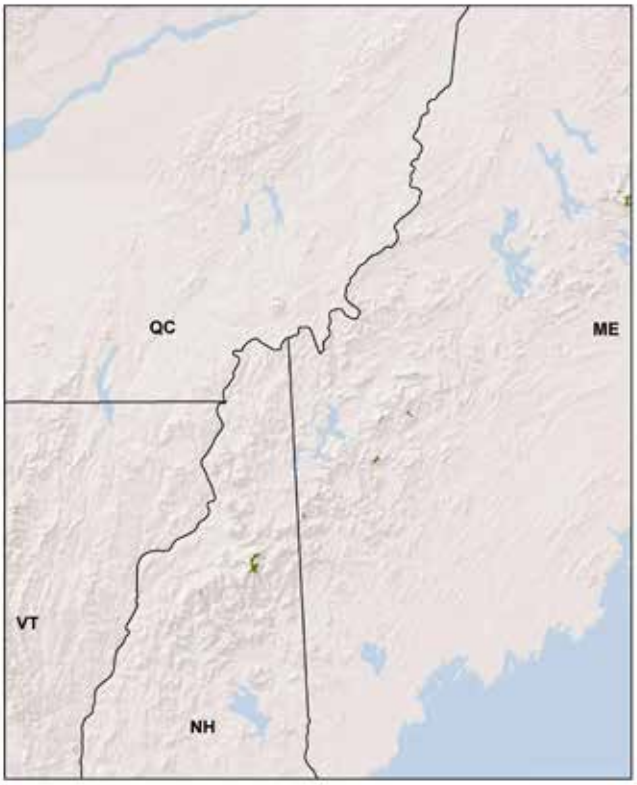


Predicted Loss to Development by 2050
658 acres (0%)

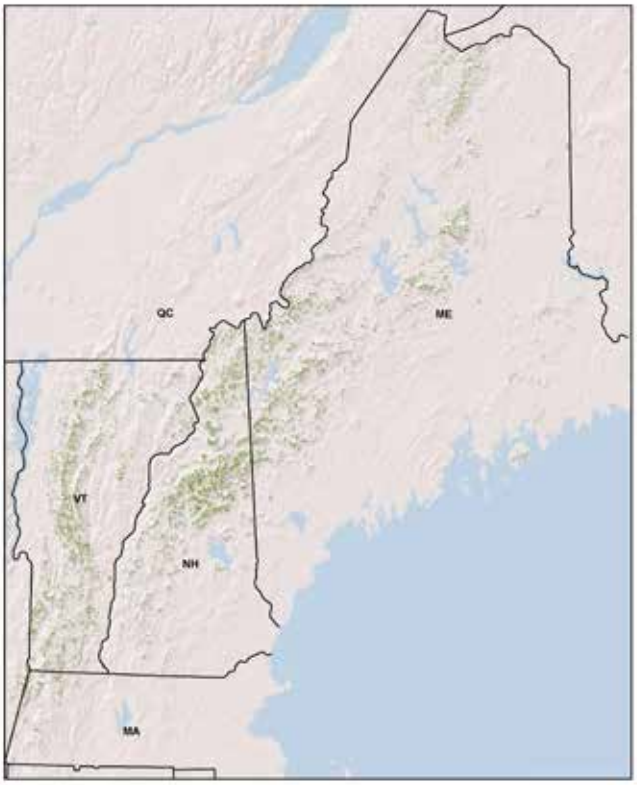
	ACRES	GAP 1	GAP 2	GAP 3	UNSECURED	IMPORTANT PLANT AREAS TOTAL	P	S	U
Outcrop, Summit & Alpine	**191,618**	**16%**	**13%**	**20%**	**51%**				
Connecticut	91	0%	0%	7%	93%				
Massachusetts	5,005	21%	2%	29%	48%				
Maine	67,998	11%	9%	19%	61%				
New Hampshire	57,488	26%	32%	18%	25%				
Vermont	61,036	12%	3%	22%	63%				
New England	**191,618**	**30,610**	**25,831**	**38,339**	**96,837**				

P = Protected S = Secured
U = Unsecured

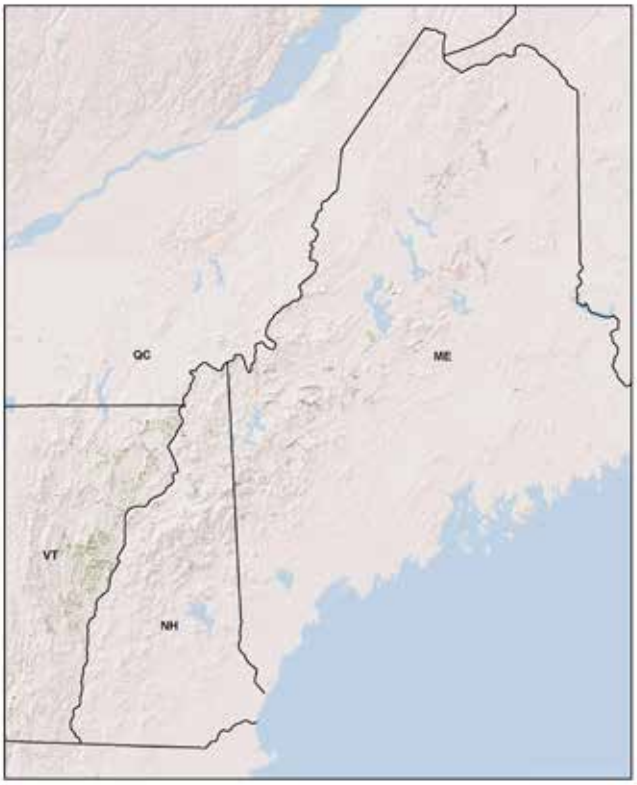
DISTRIBUTION OF HABITATS



Acadian-Appalachian Alpine Tundra

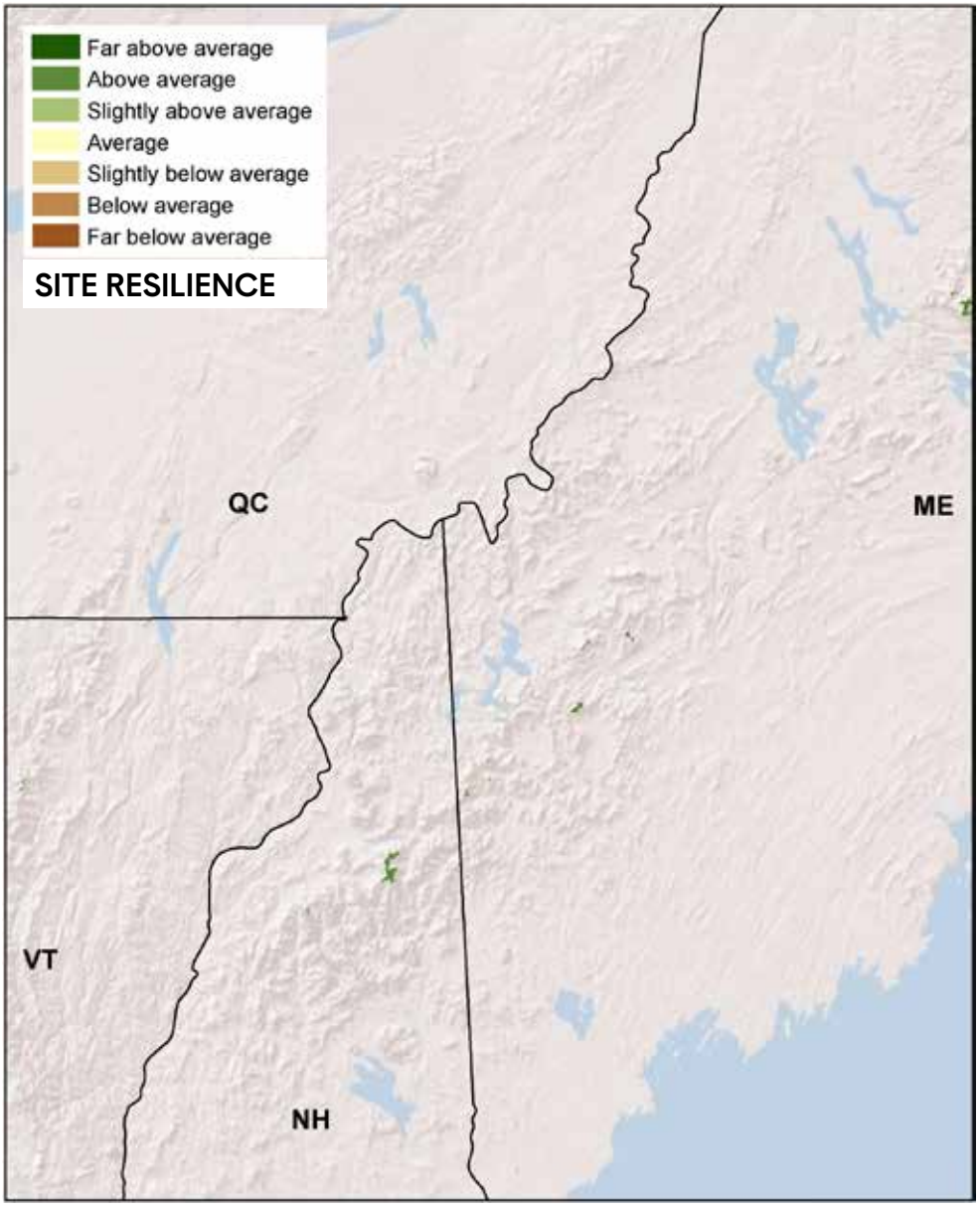


Acidic Rocky Outcrop



Calcareous Rocky Outcrop

Acadian-Appalachian Alpine Tundra



© Josh Royte (The Nature Conservancy, Maine)

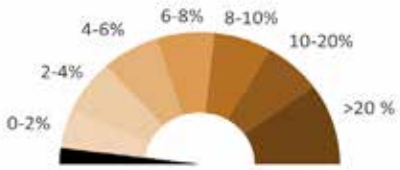
Description

A sparsely vegetated system near or above treeline in the Northern Appalachian mountains, dominated by lichens, dwarf-shrubland, and sedges. At the highest elevations, the dominant plants are dwarf heaths such as alpine bilberry and cushion-plants.

Associated Herbs & Shrubs

alpine-azalea (*Loiseleuria procumbens*), alpine blueberry (*Vaccinium uliginosum*), alpine bitter-cress (*Cardamine bellidifolia*), alpine sweet grass (*Anthoxanthum monticola*), bearberry willow (*Salix uva-ursi*), Bigelow's sedge (*Carex bigelowii*), black crowberry (*Empetrum nigrum*), highland rush (*Juncus trifidus*), cushion-plant (*Diapensia lapponica*), Lapland rosebay (*Rhododendron lapponicum*), mountain cranberry (*Vaccinium vitis-idaea*), mountain sandplant (*Minuartia groenlandica*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	2%	127	76%	5%	19%	100%	0%
Above average	97%	7,647	76%	9%	14%	99%	1%
Slightly above average	1%	101	93%	5%	2%	100%	0%
Average	0%						
Slightly below average	0%						
Below average	0%						
Far below average	0%						
Developed	0%	25	68%	14%	11%	93%	7%
TOTAL	100%	7,900	76%	9%	14%	99%	1%



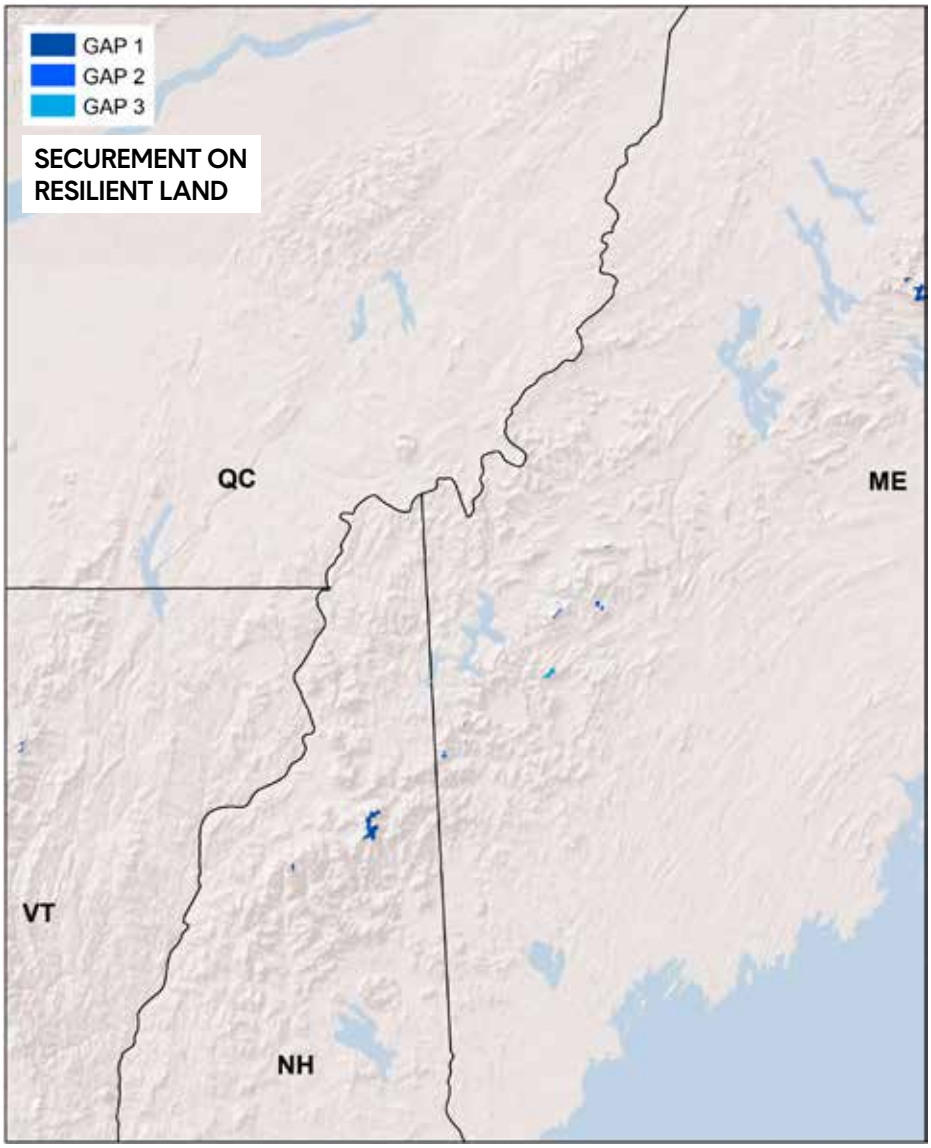
Predicted Loss to Development by 2050
Very low 0%

This community is not threatened by development.

Resilience & Securement

100% of this habitat scores high for resilience, 99% of the total acreage is secured against conversion, and 85% is protected.

Acadian-Appalachian Alpine Tundra



LOCATION	TOTAL ACRES	% SECURED
New England	7,900	99%
CT		
MA		
ME	3,624	99%
NH	4,160	99%
RI		
VT	115	100%

LOCATION	RESILIENT ACRES	% SECURED
New England	7,875	99%
CT		
MA		
ME	3,622	99%
NH	4,138	99%
RI		
VT	115	100%

Rare or Uncommon Plants Associated with this Habitat

lance-leaved arnica (*Arnica lanceolata* ssp. *lanceolata*)

White Mountain avens (*Geum peckii*)

Robbins' cinquefoil (*Potentilla robbinsiana*)

alpine bearberry (*Arctous alpina*)

glandular birch (*Betula glandulosa*)

alpine bistort (*Bistorta vivipara*)

capitate sedge (*Carex arctogena*)

scabrous black sedge (*Carex atratiformis*)

Sitka ground-cedar (*Diphasiastrum sitchense*)

Hornemann's willow-herb (*Epilobium hornemannii* ssp. *hornemannii*)

Oakes" eyebright (*Euphrasia oakesii*)

alpine fescue (*Festuca brachyphylla* ssp. *brachyphylla*)

moss-plant (*Harrimanella hypnoides*)

alpine azalea (*Kalmia procumbens*)

spiked wood rush (*Luzula spicata*)

leafy stemmed saxifrage (*Micranthes foliolosa*)

alpine arctic-cudweed (*Omalotheca supina*)

mountain-sorrel (*Oxyria digyna*)

mountain Timothy (*Phleum alpinum*)

purple mountain-heath (*Phyllodoce caerulea*)

little yellow-rattle (*Rhinanthus minor* ssp. *groenlandicus*)

northern willow (*Salix arctophila*)

Labrador willow (*Salix argyrocarpa*)

nodding saxifrage (*Saxifraga cernua*)

alpine-brook saxifrage (*Saxifraga rivularis* ssp. *rivularis*)

sibbaldia (*Sibbaldia procumbens*)

moss campion (*Silene acaulis*)

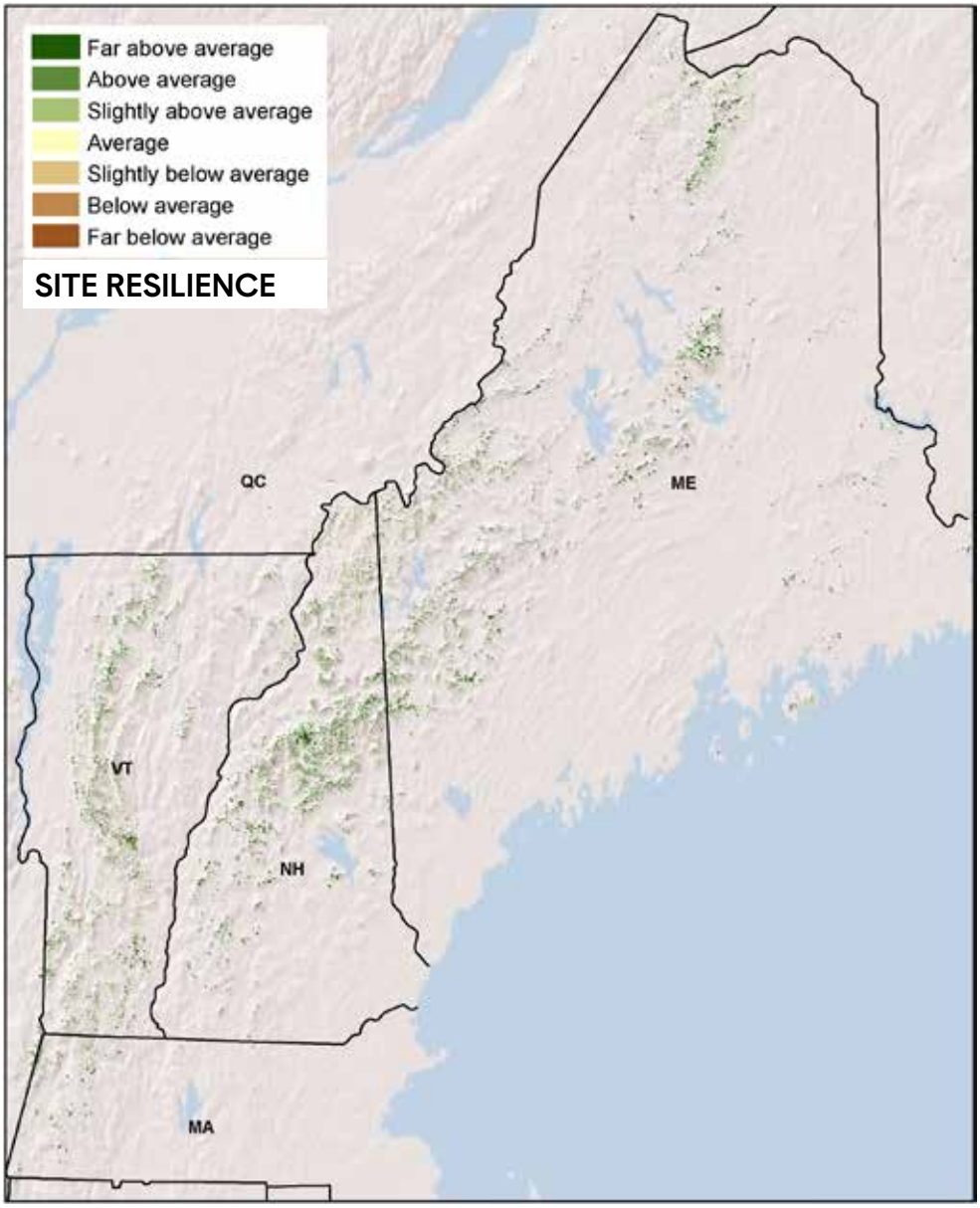
arctic hair grass (*Vahlodea atropurpurea*)

American alpine-speedwell (*Veronica wormskjoldii* var. *wormskjoldii*)

northern marsh violet (*Viola palustris* var. *palustris*)

northern painted-cup (*Castilleja septentrionalis*)

Acidic Rocky Outcrop



© Josh Royte (The Nature Conservancy, Maine)

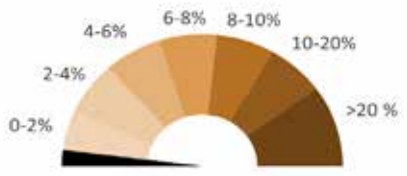
Description

A sparsely vegetated system on resistant acidic bedrock such as sandstone, quartzite, or granite. The vegetation is a mosaic of woodlands and open glades, reflecting the proportion of rock surface to thin soil. Stunted trees over low heath shrubs are characteristic. Lichens and mosses dominate the ground cover.

Associated Herbs & Shrubs

variable depending upon elevation; includes alpine blueberry (*Vaccinium uliginosum*), alpine sweet-grass (*Anthoxanthum monticola*), Canada mountain-rice grass (*Piptatherum canadense*), Douglas's knotweed (*Polygonum douglasii*), mountain sandplant (*Minuartia groenlandica*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	3%	4,362	25%	14%	18%	56%	44%
Above average	63%	96,467	20%	21%	20%	61%	39%
Slightly above average	32%	48,957	5%	5%	23%	33%	67%
Average	1%	781	0%	1%	10%	11%	89%
Slightly below average	0%	513	2%	1%	12%	15%	85%
Below average	1%	1,156	2%	1%	17%	21%	79%
Far below average	0%	164	3%	0%	10%	13%	87%
Developed	0%	571	1%	4%	12%	17%	83%
TOTAL	100%	152,972	15%	15%	21%	51%	49%



Predicted Loss to Development by 2050

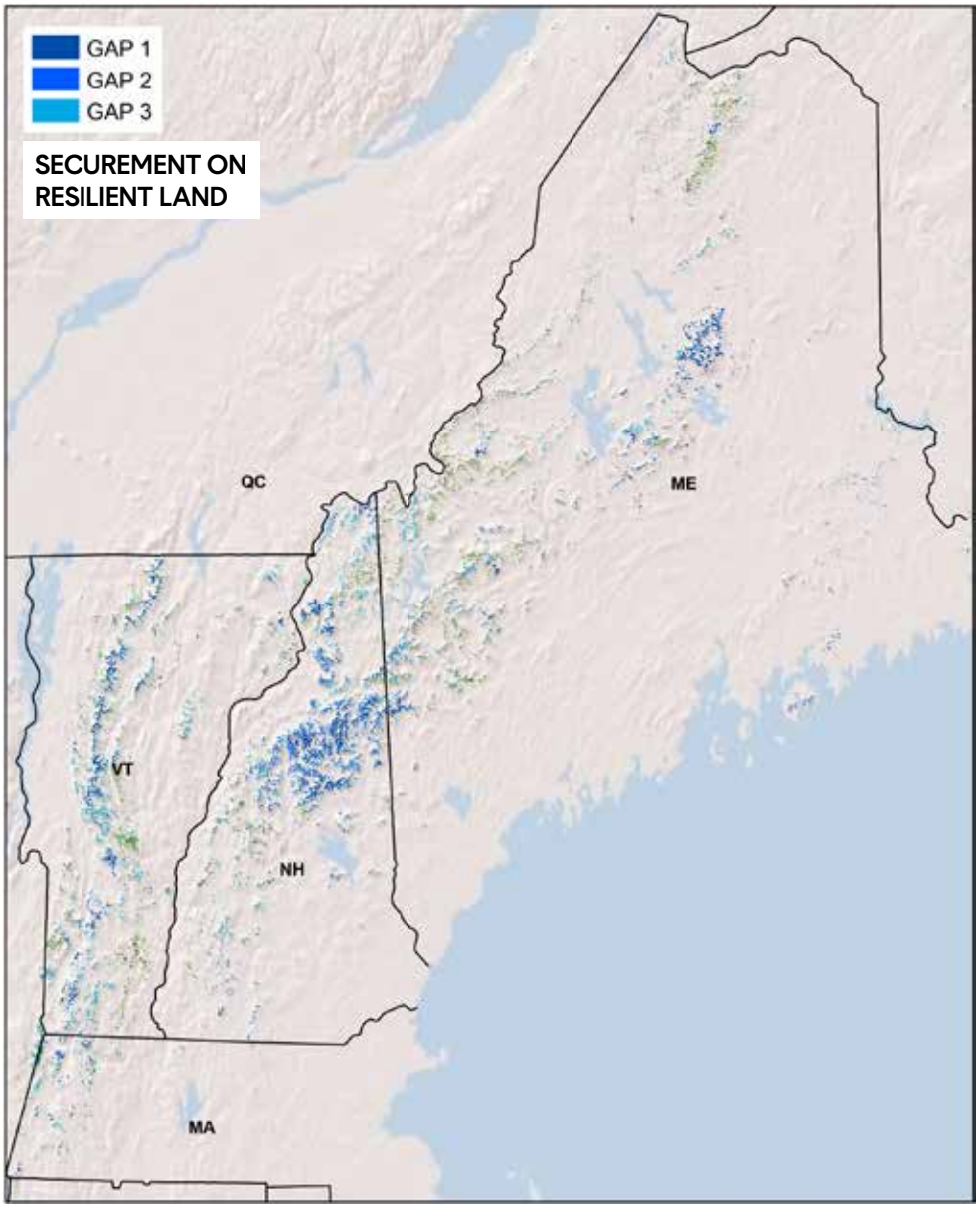
Very low 0%

This community is not threatened by development, with only 560 acres (0%) likely to be lost over the next 30 years.

Resilience & Securement

98% of this habitat scores high for resilience, 51% of the total acreage is secured against conversion, and 30% is protected.

Acidic Rocky Outcrop



LOCATION	TOTAL ACRES	% SECURED
New England	152,972	51%
CT	91	7%
MA	5,005	52%
ME	53,631	36%
NH	50,309	74%
RI		
VT	43,936	42%

LOCATION	RESILIENT ACRES	% SECURED
New England	149,786	52%
CT	87	8%
MA	4,753	53%
ME	52,604	36%
NH	49,446	75%
RI		
VT	42,896	43%

Rare or Uncommon Plants Associated with this Habitat

Nantucket shadbush (*Amelanchier nantucketensis*)

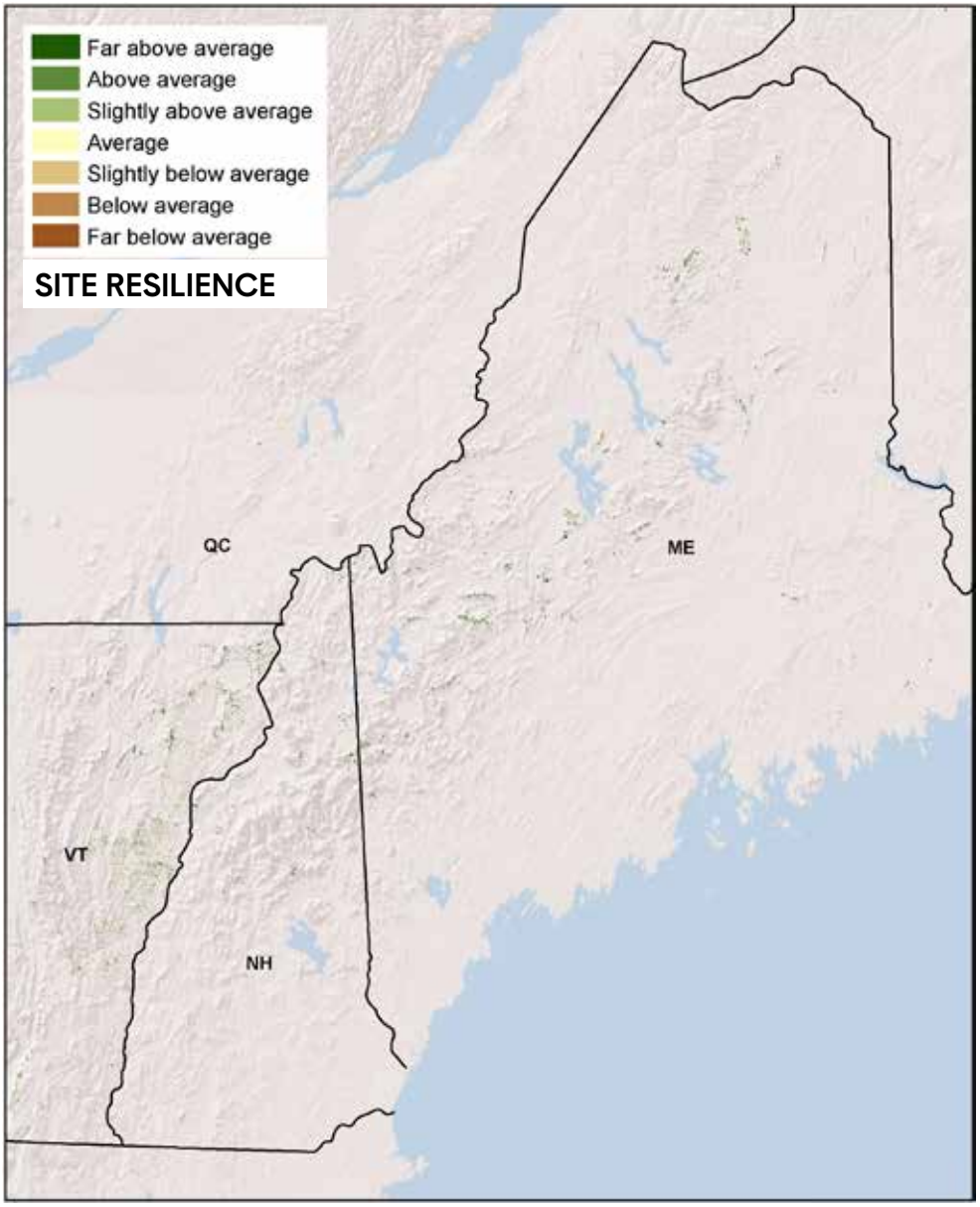
pale-seeded plantain (*Plantago virginica*)

Agassiz's Kentucky blue grass (*Poa pratensis* ssp. *agassizensis*)

silvery whitlow-wort (*Paronychia argyrocoma*)

© George Gress (The Nature Conservancy, Pennsylvania)

Calcareous Rocky Outcrop



© Maine Natural Areas Program

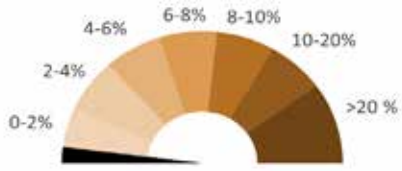
Description

A sparsely vegetated ridge, summit, dome, or flat plain, composed of circumneutral or calcareous bedrock such as limestone or dolomite. The vegetation is a mosaic of woodlands and open glades. Northern white cedar is characteristic.

Associated Herbs & Shrubs

straw sedge (*Carex foenea*), creeping juniper (*Juniperus horizontalis*), downy arrowwood (*Viburnum rafinesquianum*), bristle-leaved sedge (*Carex eburnea*), four-leaved milkweed (*Asclepias quadrifolia*), fragrant sumac (*Rhus aromatica*), northeastern beardtongue (*Penstemon hirsutus*), hairy honeysuckle (*Lonicera hirsuta*), pale-leaved sunflower (*Helianthus strumosus*), lyre-leaved thale-cress (*Arabis lyrata*), purple virgin's-bower (*Clematis occidentalis*), Richardson's sedge (*Carex richardsonii*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	1%	391	6%	5%	25%	36%	64%
Above average	50%	15,327	7%	10%	23%	40%	60%
Slightly above average	42%	12,955	3%	2%	16%	21%	79%
Average	2%	579	0%	0%	2%	2%	98%
Slightly below average	2%	594	0%	0%	5%	5%	95%
Below average	2%	719	1%	0%	3%	4%	96%
Far below average	0%	96	0%	0%	5%	6%	94%
Developed	0%	86	4%	0%	7%	11%	89%
TOTAL	100%	30,746	5%	6%	19%	30%	70%



Predicted Loss to Development by 2050

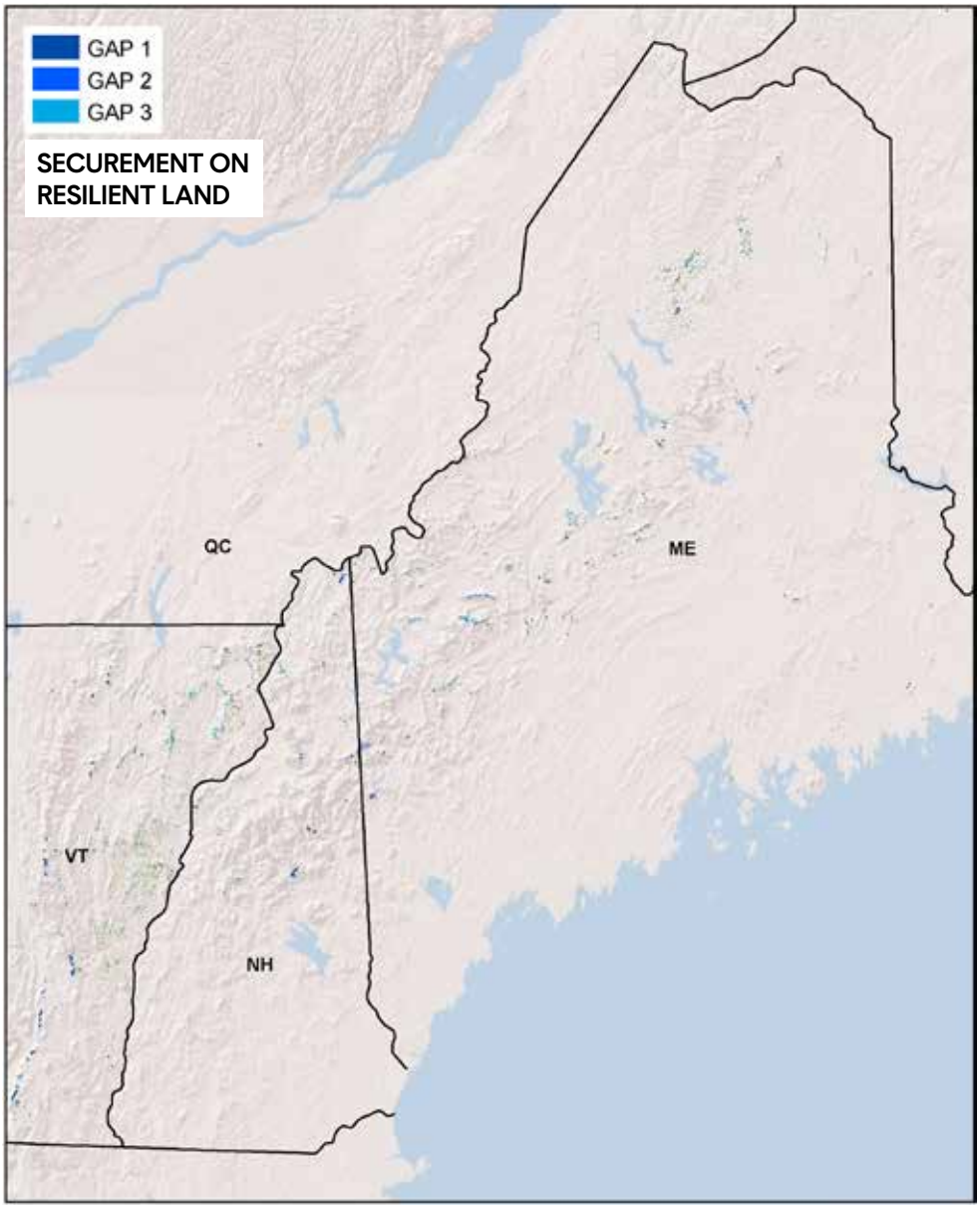
Very low 0%

This community is not threatened by development, with only 98 acres (0%) likely to be lost over the next 30 years.

Resilience & Securement

93% of this habitat scores high for resilience, 30% of the total acreage is secured against conversion, and 11% is protected.

Calcareous Rocky Outcrop



LOCATION	TOTAL ACRES	% SECURED
New England	30,746	30%
CT		
MA		
ME	10,743	35%
NH	3,018	46%
RI		
VT	16,985	23%

LOCATION	RESILIENT ACRES	% SECURED
New England	28,673	31%
CT		
MA		
ME	10,556	35%
NH	2,856	48%
RI		
VT	15,260	26%

Rare or Uncommon Plants Associated with this Habitat

upswept moonwort
(*Botrychium ascendens*)

prairie moonwort
(*Botrychium campestre*)

Fogg's goosefoot
(*Chenopodium foggii*)

northern blazing star
(*Liatris novae-angliae* var. *novae-angliae*)

sideoats grama
(*Bouteloua curtipendula* var. *curtipendula*)

Carolina whitlow-mustard
(*Draba reptans*)

white flat-topped goldenrod
(*Oligoneuron album*)

stiff flat-topped goldenrod
(*Oligoneuron rigidum* var. *rigidum*)

old-pasture blue grass
(*Poa saltuensis* ssp. *languida*)

small-flowered crowfoot
(*Ranunculus micranthus*)

bristly rose
(*Rosa acicularis* ssp. *sayi*)

little skullcap
(*Scutellaria parvula* var. *parvula*)

pennyroyal bluecurls
(*Trichostema brachiatum*)

rock elm
(*Ulmus thomasii*)

green rockcress
(*Boechera missouriensis*)

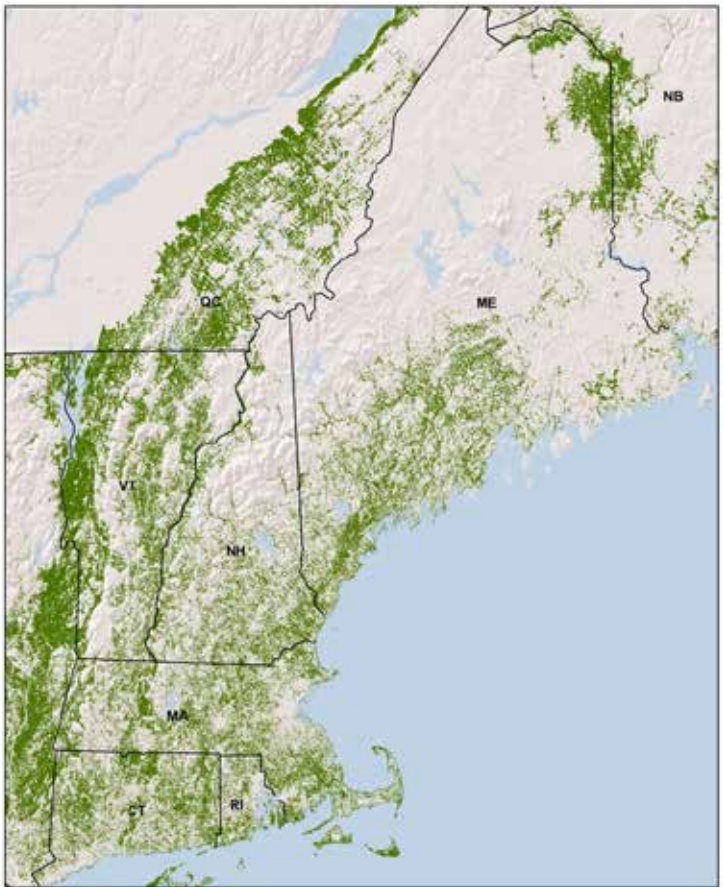
neglected reedgrass
(*Calamagrostis stricta* ssp. *inexpansa*)

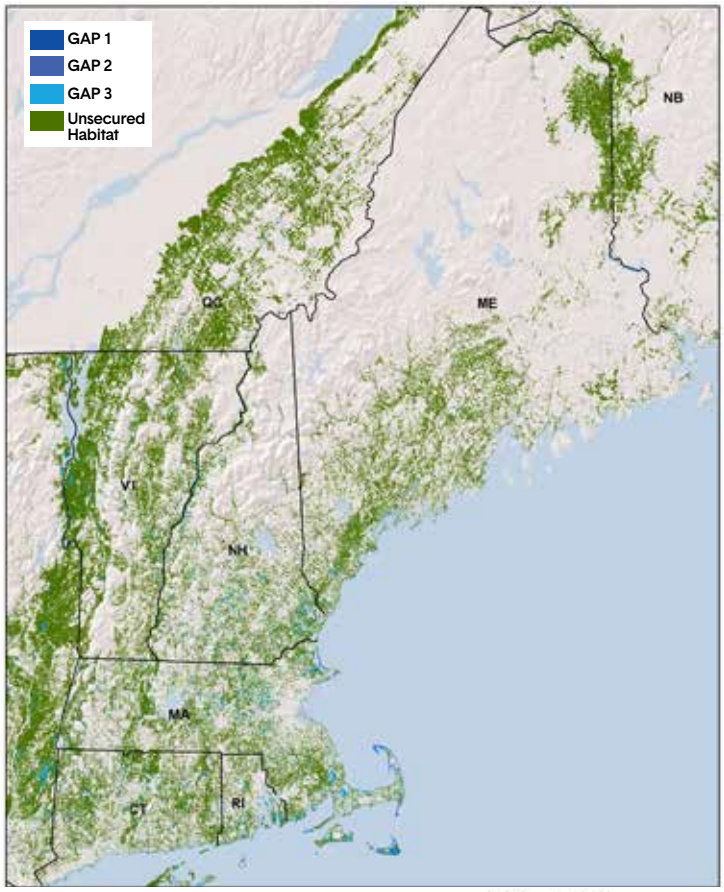
Canadian single-spike sedge
(*Carex scirpoidea* ssp. *scirpoidea*)

rock whitlow-mustard
(*Draba arabisans*)

MACROGROUP

GRASSLAND & SHRUBLAND



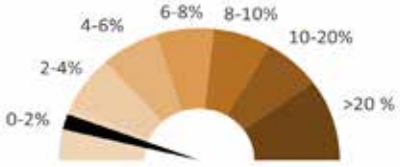


Grassland & Shrubland

Herbaceous communities dominated by grasses and sedges and sparse to dense shrubs. Naturally occurring grasslands are rare and restricted to conditions where soil, fire, or disturbance limits tree growth. This type includes farmland, old fields and agricultural edges, and coastal heathlands.

Acres in New England
2,691,236

Percent Secured
GAP 1 = 0%
GAP 2 = 0%
GAP 3 = 4%



Predicted Loss to Development by 2050
193,318 acres (7%)

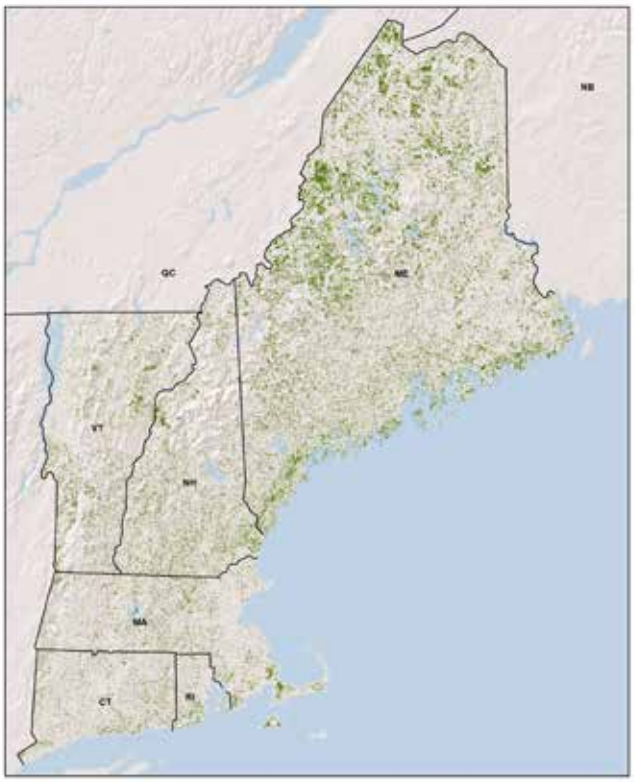
	ACRES	GAP 1	GAP 2	GAP 3	UNSECURED	IMPORTANT PLANT AREAS TOTAL	P	S	U
Grassland & Shrubland	**2,691,236**	**0%**	**1%**	**4%**	**95%**	**13**	**1**	**1**	**11**
Connecticut	282,051	0%	2%	4%	95%				
Massachusetts	415,501	1%	3%	9%	87%	9	1	1	7
Maine	832,972	0%	0%	1%	99%	2			2
New Hampshire	261,934	0%	1%	9%	90%				
Rhode Island	51,672	1%	3%	12%	85%				
Vermont	847,105	0%	0%	2%	98%	2			2
New England	**2,691,236**	**6,094**	**26,964**	**103,037**	**2,555,140**				

P = Protected S = Secured
U = Unsecured

DISTRIBUTION OF HABITATS

Atlantic Coastal Plain Beach & Dune

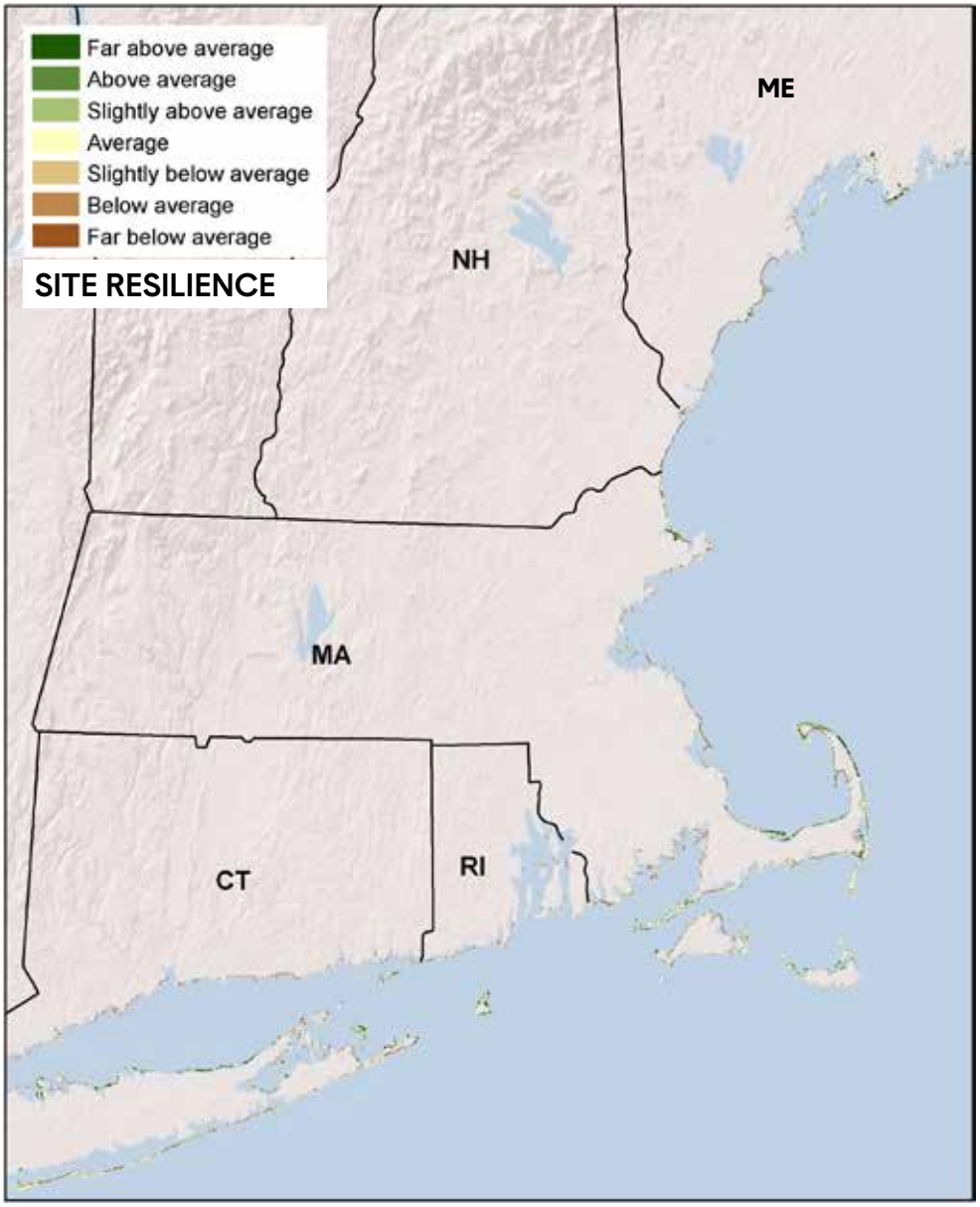
North Atlantic Coastal Plain Heathland & Grassland



Ruderal Grassland & Shrubland

Agricultural Grassland

Atlantic Coastal Plain Beach & Dune



© Kathleen Strakosch Walz
(New Jersey Natural Heritage Program)

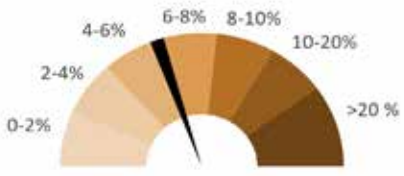
Description

A sparsely vegetated beach, dune, or barrier island on unconsolidated sand and shell sediments on the Atlantic coast. Shifting winds and floods largely limit vegetation to pioneering, salt-tolerant grasses and succulents.

Associated Herbs & Shrubs

American beach grass (*Ammophila breviligulata*), American lyme grass (*Leymus mollis* var. *mollis*), saltmarsh rush (*Juncus gerardii*), maritime marsh-elder (*Iva frutescens*), saltgrass (*Distichlis spicata*), smooth cordgrass (*Spartina alterniflora*), saltmarsh hay (*Spartina patens*), Carolina sea-lavender (*Limonium carolinianum*), American sea-rocket (*Cakile edentula*), seaside-sandwort (*Honckenya peploides*), seaside goldenrod (*Solidago sempervirens*), oysterleaf (*Mertensia maritima*), northern bayberry (*Myrica pensylvanica*), poison-ivy (*Toxicodenron radicans*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	3%	953	0%	48%	20%	68%	32%
Above average	16%	5,822	1%	46%	19%	65%	35%
Slightly above average	17%	6,159	1%	35%	14%	49%	51%
Average	27%	9,898	2%	28%	14%	44%	56%
Slightly below average	6%	2,144	3%	23%	13%	38%	62%
Below average	3%	1,118	1%	20%	14%	36%	64%
Far below average	0%	115	0%	16%	24%	40%	60%
Developed	28%	10,276	0%	8%	10%	18%	82%
TOTAL	100%	36,484	1%	26%	14%	41%	59%



Predicted Loss to Development by 2050

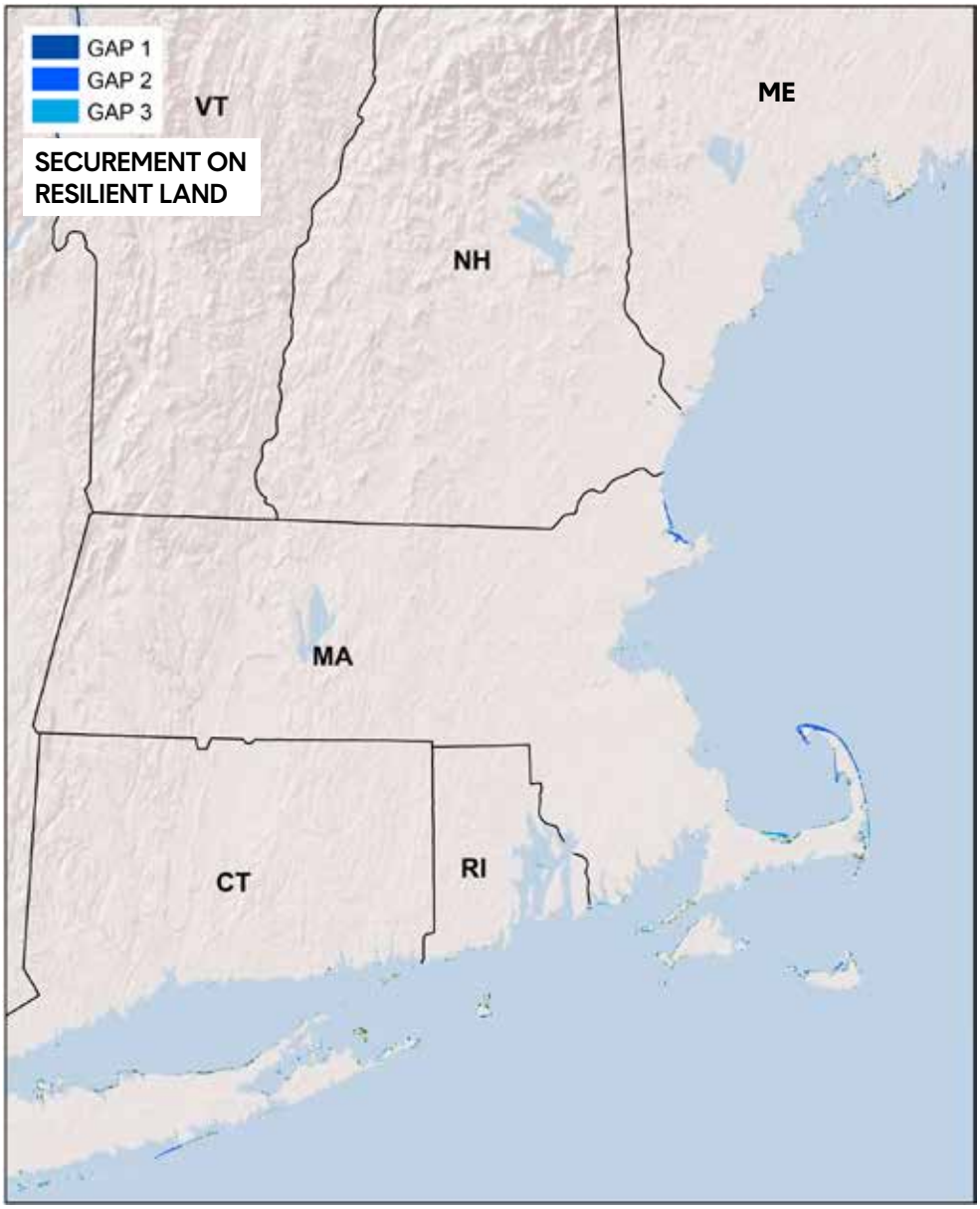
Moderate 6%

This community is moderately threatened by development, with 2,646 acres (6%) likely to be lost over the next 30 years.

Resilience & Securement

36% of this habitat scores high for resilience, 41% of the total acreage is secured against conversion, and 27% is protected.

Atlantic Coastal Plain Beach & Dune



LOCATION	TOTAL ACRES	% SECURED
New England	36,484	41%
CT	2,378	27%
MA	27,104	49%
ME	3,371	14%
NH	743	31%
RI	2,888	17%
VT		

LOCATION	RESILIENT ACRES	% SECURED
New England	12,934	58%
CT	93	52%
MA	11,250	63%
ME	1,021	24%
NH	73	62%
RI	497	24%
VT		

Rare or Uncommon Plants Associated with this Habitat

coastal plain blue-eyed-grass (*Sisyrinchium fuscatum*)

yellow thistle (*Cirsium horridulum*)

eastern prickly-pear (*Opuntia humifusa*)

field wormwood (*Artemisia campestris* ssp. *caudata*)

velvety rosette-panicgrass (*Dichanthelium scoparium*)

foxtail bog-clubmoss (*Lycopodiella alopecuroides*)

ambiguous spikesedge (*Eleocharis ambigens*)

quill-leaved arrowhead (*Sagittaria teres*)

bristly smartweed (*Persicaria setacea*)

Plymouth rose-gentian (*Sabatia kennedyana*)

Torrey's beaksedge (*Rhynchospora torreyana*)

narrow-fruited beaksedge (*Rhynchospora inundata*)

netted nutsedge (*Scleria reticularis*)

Pursh's blue maidencane (*Amphicarpum amphicarpon*)

Wright's rosette-panicgrass (*Dichanthelium wrightianum*)

New England thoroughwort (*Eupatorium novae-angliae*)

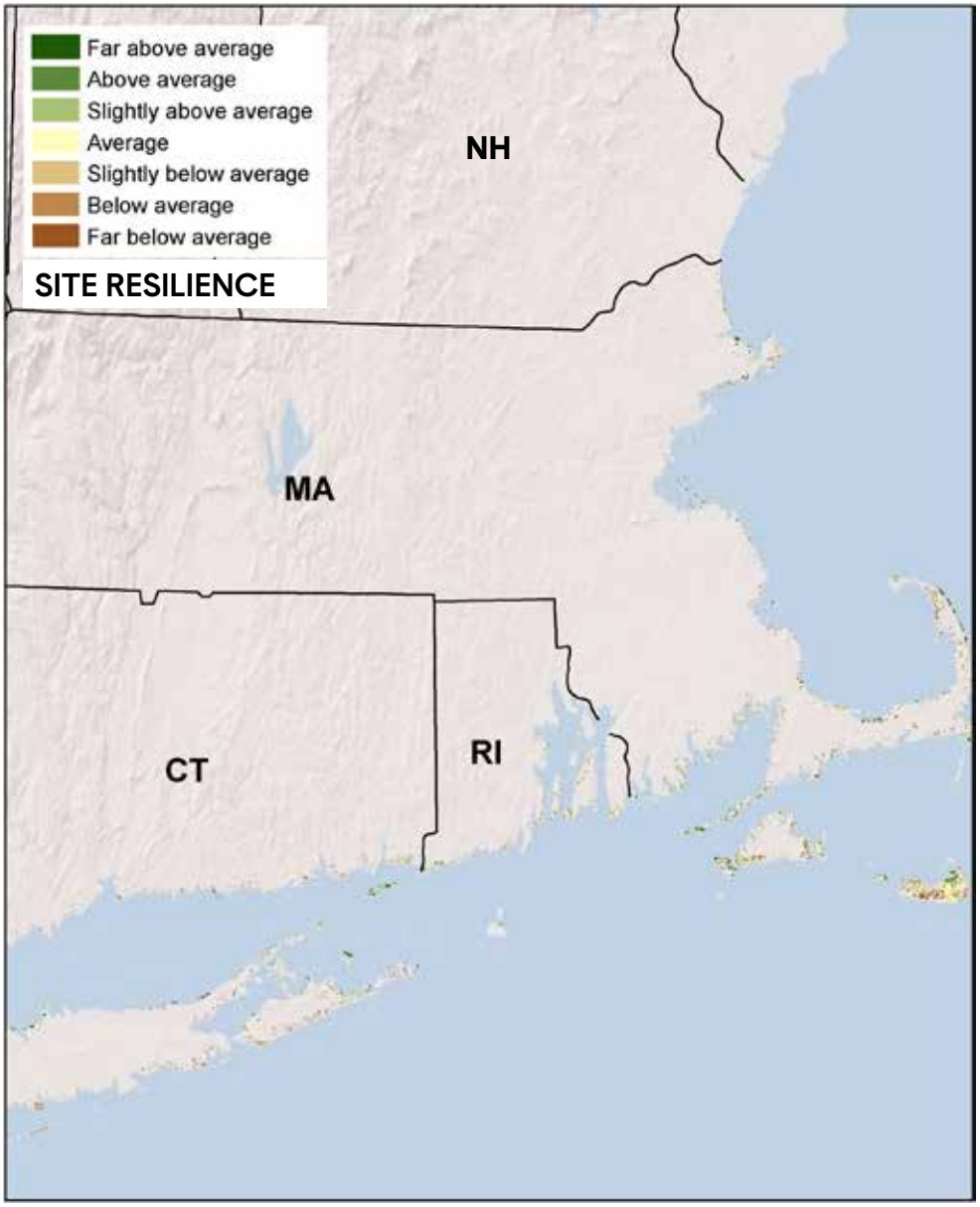
whorled marsh-pennywort (*Hydrocotyle verticillata*)

thyme-leaved pinweed (*Lechea minor*)

seaside knotweed (*Polgyonum glaucum*)

seabeach amaranth (*Amaranthus pumilus*)

North Atlantic Coastal Plain Heathland & Grassland



© Ben Kimball (New Hampshire Natural Heritage Bureau)

Description

A heathland/grassland complex of acidic, nutrient-poor, and very well drained soils in coastal areas. The vegetation is maintained by extreme soil conditions and periodic fire or other disturbance. Characteristic species include huckleberry, bearberry, broom crowberry, Nantucket shadbush, golden heather, blueberry, little bluestem, and Pennsylvania sedge.

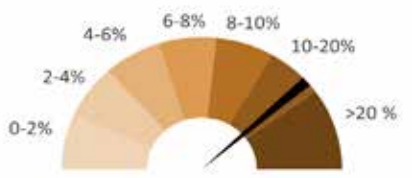
Associated Herbs & Shrubs

Abroom crowberry (*Corema conradii*), bushy rockrose (*Helianthemum dumosum*), hyssopleaf hedge-nettle (*Stachys hyssopifolia*), sandplain flax (*Linum intercursum*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	1%	156	0%	42%	16%	59%	41%
Above average	8%	2,014	1%	17%	19%	37%	63%
Slightly above average	14%	3,491	3%	19%	15%	37%	63%
Average	38%	9,613	3%	25%	14%	42%	58%
Slightly below average	11%	2,729	3%	23%	11%	36%	64%
Below average	7%	1,721	2%	12%	12%	25%	75%
Far below average	2%	411	0%	2%	19%	21%	79%
Developed	20%	5,083	1%	8%	8%	17%	83%
TOTAL	100%	25,219	2%	18%	13%	33%	67%

Resilience & Securement

23% of this habitat scores high for resilience, 33% of the total acreage is secured against conversion, and 20% is protected.



Predicted Loss to Development by 2050

High 18%

This community is highly threatened by development, with more than 4,664 acres (18%) likely to be lost over the next 30 years.

North Atlantic Coastal Plain Heathland & Grassland

LOCATION	TOTAL ACRES	% SECURED
New England	25,219	34%
CT	1,364	28%
MA	20,654	36%
ME		
NH	38	45%
RI	3,163	24%
VT		

LOCATION	RESILIENT ACRES	% SECURED
New England	5,661	38%
CT	182	13%
MA	5,182	39%
ME		
NH	1	0%
RI	296	33%
VT		

Rare or Uncommon Plants Associated with this Habitat

sandplain agalinis (*Agalinis acuta*)

Nantucket shadbush (*Amelanchier nantucketensis*)

arrow-feather threeawn (*Aristida purpurascens*)

butterfly milkweed (*Asclepias tuberosa*)

eastern silver American-aster (*Symphyotrichum concolor*)

yellow thistle (*Cirsium horridulum*)

bushy frowstweed (*Crocanthemum dumosum*)

tall hairy lettuce (*Lactuca hirsuta*)

sundial lupine (*Lupinus perennis*)

Nuttall's milkwort (*Polygala nuttallii*)

northern blazing star (*Liatris novae-angliae*)

coastal plain blue-eyed-grass (*Sisyrinchium fuscatum*)

spring ladies-tresses (*Spiranthes vernalis*)

thyme-leaved pinweed (*Lechea minor*)

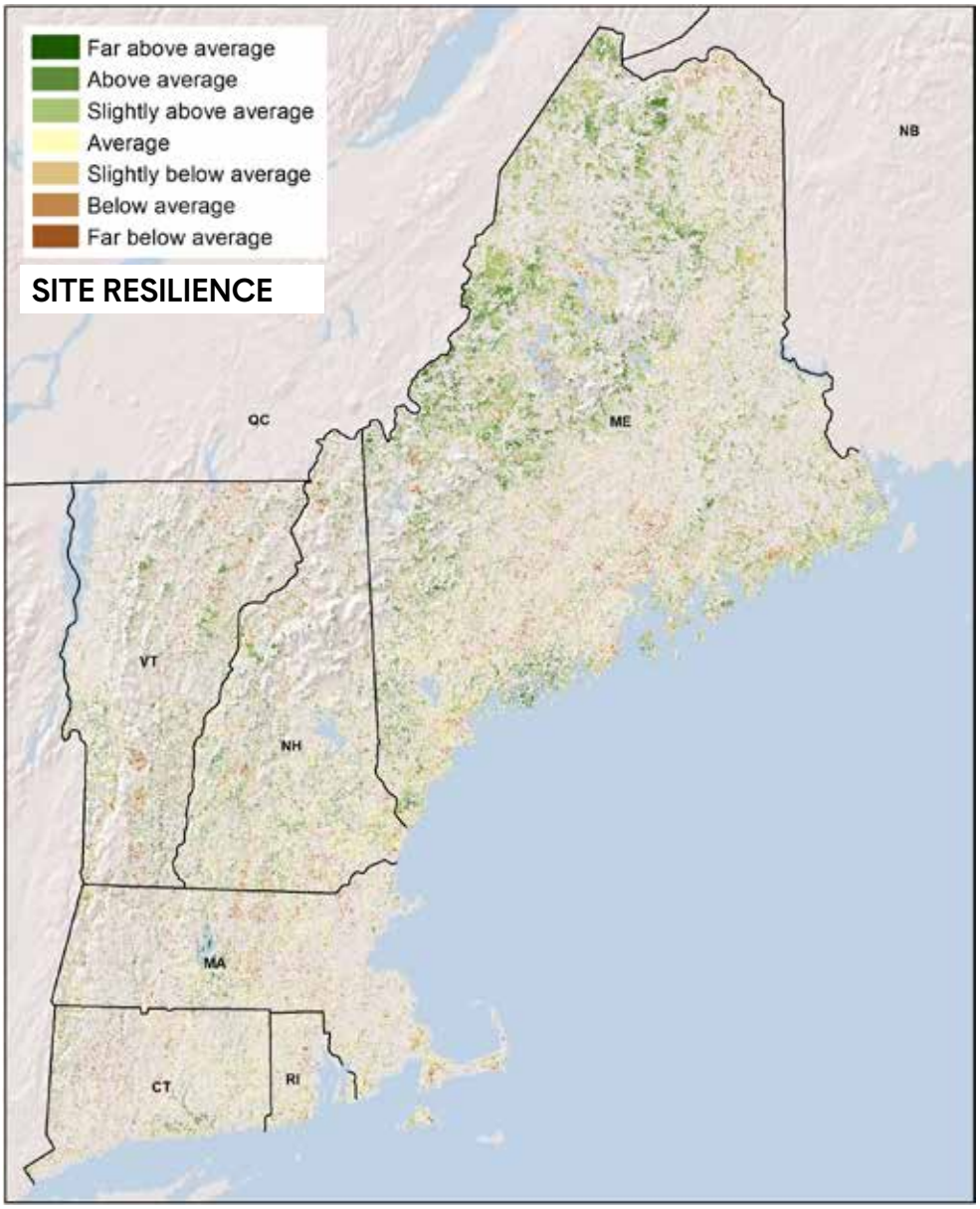
post oak (*Quercus stellata*)

broom-crowberry (*Corema conradii*)

multi-stemmed St. John's-wort (*Hypericum stragulum*)

lion's-foot rattlesnake-root (*Nabalus serpentarius*)

Ruderal Grassland & Shrubland



© Ken Lund (Flickr Creative Commons)

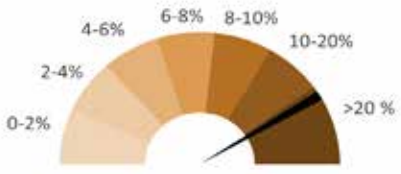
Description

Abandoned, marginal, or recovering agricultural land and/or pastures. Ruderal communities may be found interspersed with working farmlands. The vegetation is dominated by a mix of native and non-native grasses and herbs, with shrub cover becoming more extensive the longer the time since abandonment.

Associated Herbs & Shrubs

common milkweed (*Asclepias syriaca*), common strawberry (*Fragaria virginiana*), common grass-leaved-goldenrod (*Euthamia graminifolia*), common evening-primrose (*Oenethera biennis*), Canada goldenrod (*Solidago canadensis*), common wrinkle-leaved goldenrod (*Solidago rugosa*), New England American-aster (*Symphyotrichum novae-angliae*), staghorn sumac (*Rhus hirta*), smooth sumac (*Rhus glabra*), silky dogwood (*Swida amomum*), eastern red cedar (*Juniperus virginiana*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	2%	941	4%	4%	10%	17%	83%
Above average	10%	5,148	2%	2%	11%	15%	85%
Slightly above average	14%	7,570	2%	2%	9%	13%	87%
Average	34%	18,242	2%	2%	15%	18%	82%
Slightly below average	10%	5,455	2%	1%	20%	23%	77%
Below average	7%	3,694	2%	1%	22%	25%	75%
Far below average	1%	718	1%	0%	18%	19%	81%
Developed	21%	11,174	0%	1%	5%	6%	94%
TOTAL	100%	52,942	2%	1%	13%	16%	84%



Predicted Loss to Development by 2050

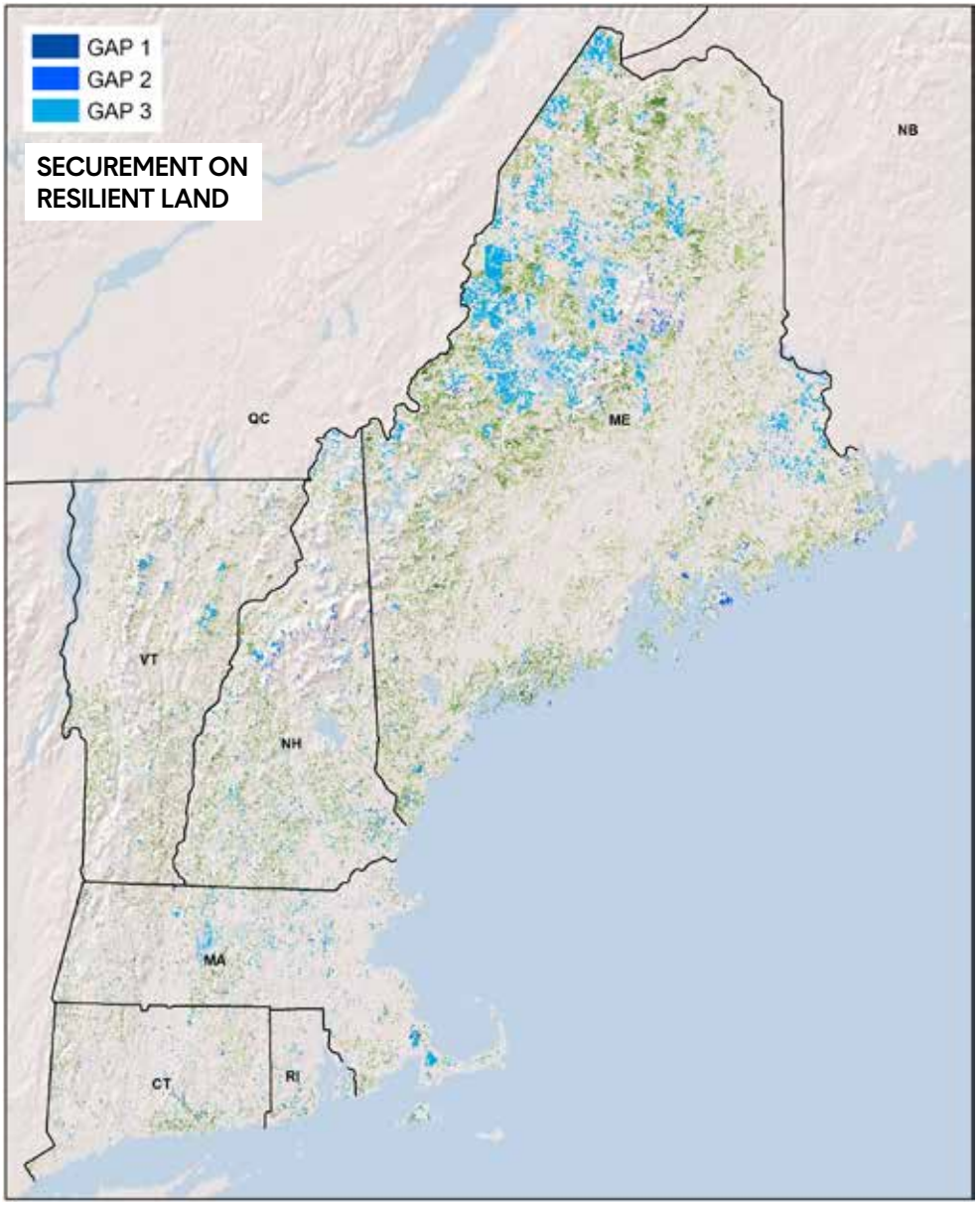
Very high 23%

This community is highly threatened by development, with more than 11,960 acres (23%) likely to be lost over the next 30 years.

Resilience & Securement

26% of this habitat scores high for resilience, 16% of the total acreage is secured against conversion, and 3% is protected.

Ruderal Grassland & Shrubland



LOCATION	TOTAL ACRES	% SECURED
New England	52,942	16%
CT	5,089	5%
MA	17,992	29%
ME	22,569	8%
NH	4,106	12%
RI	3,185	17%
VT		

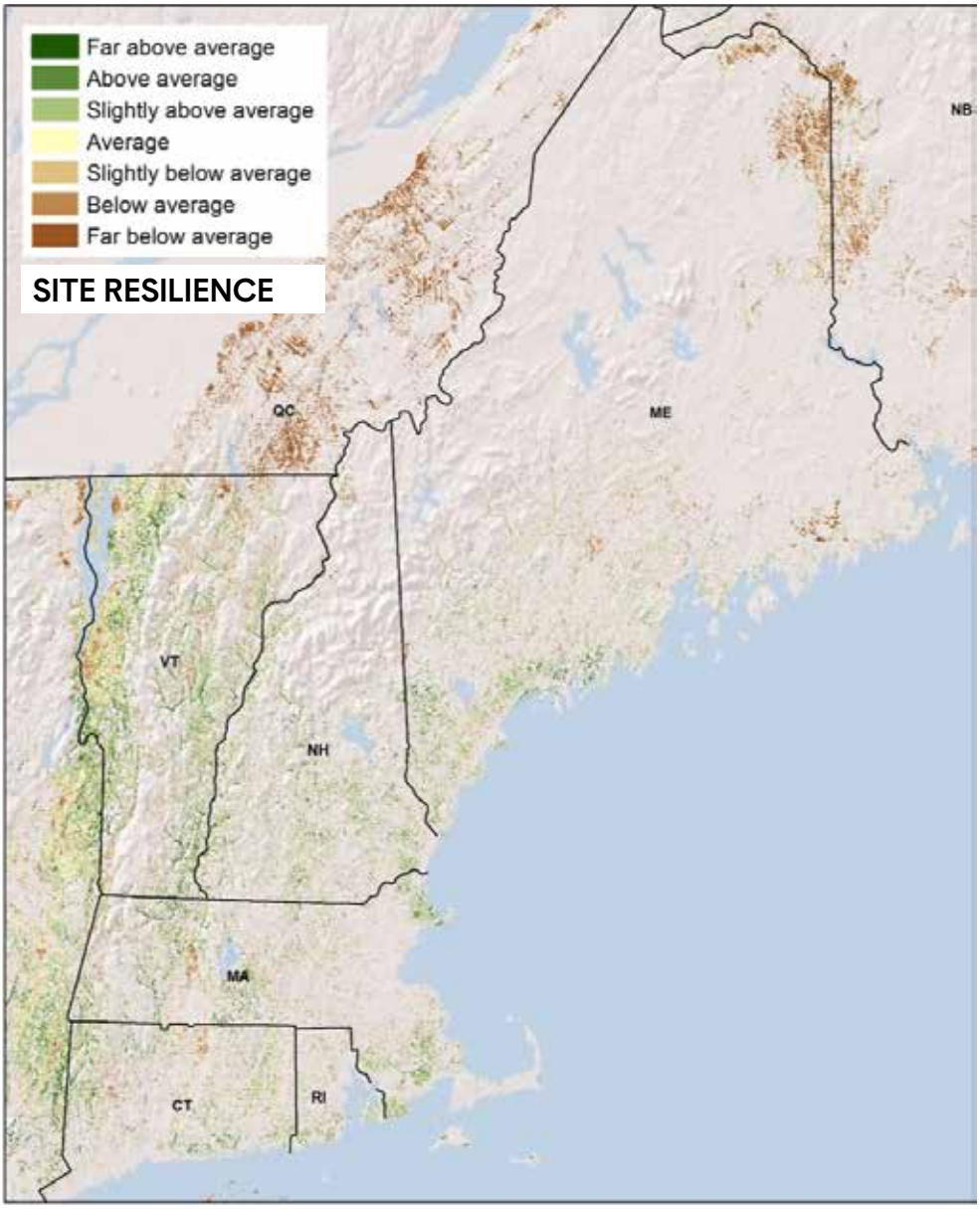
LOCATION	RESILIENT ACRES	% SECURED
New England	13,659	14%
CT	1,246	9%
MA	3,019	25%
ME	8,282	10%
NH	594	25%
RI	518	13%
VT		

Rare or Uncommon Plants Associated with this Habitat

upswept moonwort (*Botrychium ascendens*)

common moonwort (*Botrychium lunaria*)

Agricultural Grassland



© Barbara Slavin (Flickr Creative Commons)

Description

An agricultural field planted in row crops (corn, potatoes, and soybean), field crops (alfalfa, wheat, timothy, and oat), or hay. This also includes land permanently maintained (or recently abandoned) as a pasture area.

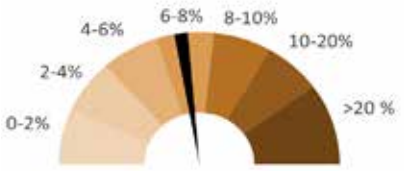
Associated Herbs & Shrubs

common Timothy (*Phleum pratense*), slender meadow-foxtail (*Alopecurus pratensis*), poverty grass (*Danthonia spicata*), little bluestem (*Schizachyrium scoparium*), common wrinkle-leaved goldenrod (*Solidago rugosa*), Canada goldenrod (*Solidago canadensis*), common milkweed (*Asclepias syriaca*), Pennsylvania sedge (*Carex pensylvanica*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	0%	12,809	2%	1%	6%	9%	91%
Above average	4%	104,324	1%	1%	6%	8%	92%
Slightly above average	12%	318,172	0%	1%	5%	6%	94%
Average	30%	766,321	0%	1%	4%	5%	95%
Slightly below average	17%	445,204	0%	0%	3%	3%	97%
Below average	19%	479,378	0%	0%	2%	3%	97%
Far below average	5%	128,286	0%	0%	2%	2%	98%
Developed	13%	322,096	0%	0%	2%	3%	97%
TOTAL	100%	2,576,591	0%	0%	3%	4%	96%

Resilience & Securement

16% of this habitat scores high for resilience, but only 4% of the total acreage is secured against conversion. The data do not include farmland under conservation easement.



Predicted Loss to Development by 2050

Moderate 7%

About 174,048 acres (7%) are likely to be lost over the next 30 years. Many farms have conservation easements that prevent their conversion; these are not included in the secured lands dataset.

Agricultural Grassland

LOCATION	TOTAL ACRES	% SECURED
New England	2,576,591	4%
CT	273,220	5%
MA	349,751	8%
ME	807,032	1%
NH	257,047	10%
RI	42,435	15%
VT	847,105	2%

LOCATION	RESILIENT ACRES	% SECURED
New England	435,305	6%
CT	35,386	8%
MA	60,482	12%
ME	78,902	4%
NH	62,522	13%
RI	5,340	16%
VT	192,673	3%

Rare or Uncommon Plants Associated with this Habitat

straw sedge
(*Carex foenea*)

creeping juniper
(*Juniperus horizontalis*)

downy arrowwood
(*Viburnum rafinesquianum*)

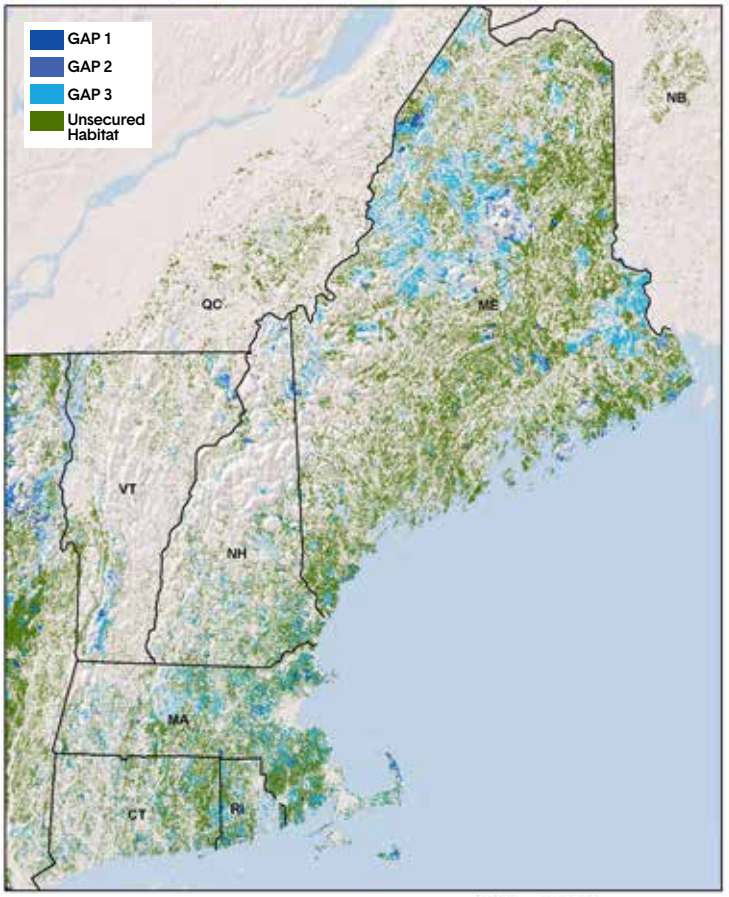
bristle-leaved sedge
(*Carex eburnea*)

butterfly milkweed
(*Asclepias tuberosa*)

sundial lupine
(*Lupinus perennis*)

WETLAND HABĪTATS

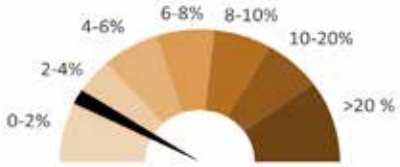
MACROGROUP
NORTHERN SWAMP



Northern Swamp
Conifer or mixed forested swamps of permanently saturated basins with seasonal standing water.

Acres in New England
2.2 million

Percent Secured
GAP 1 = 2%
GAP 2 = 3%
GAP 3 = 17%

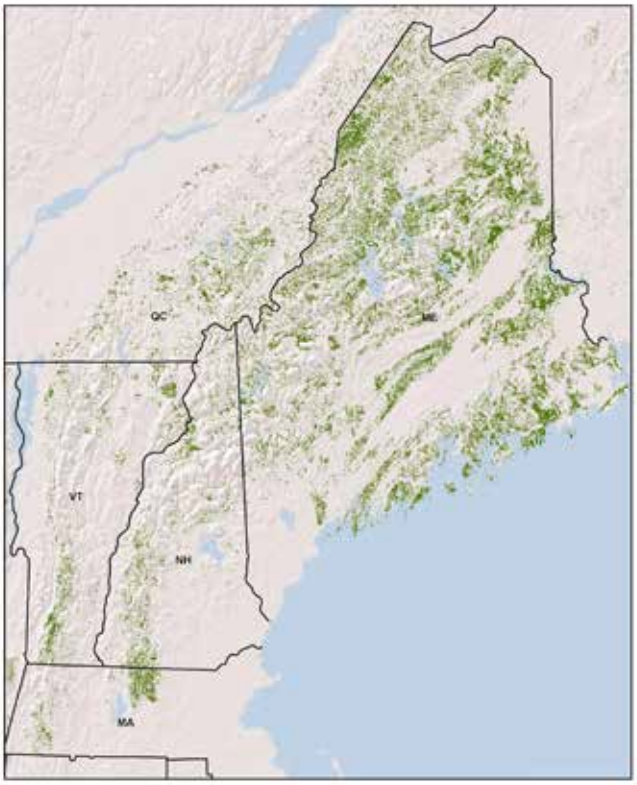


Predicted Loss to Development by 2050
66,414 acres (3%)

	ACRES	GAP 1	GAP 2	GAP 3	UNSECURED	IMPORTANT PLANT AREAS TOTAL	P	S	U
Northern Swamp	**2,195,240**	**2%**	**3%**	**17%**	**77%**	**11**		**2**	**9**
Connecticut	173,279	1%	5%	15%	79%	1			1
Massachusetts	399,178	2%	3%	25%	70%	6		2	4
Maine	1,270,481	2%	2%	15%	81%	1			1
New Hampshire	167,020	3%	4%	19%	74%				
Rhode Island	72,999	3%	7%	20%	71%	3			3
Vermont	112,283	5%	4%	18%	74%				
New England	**2,195,240**	**47,668**	**64,577**	**381,708**	**1,701,287**				

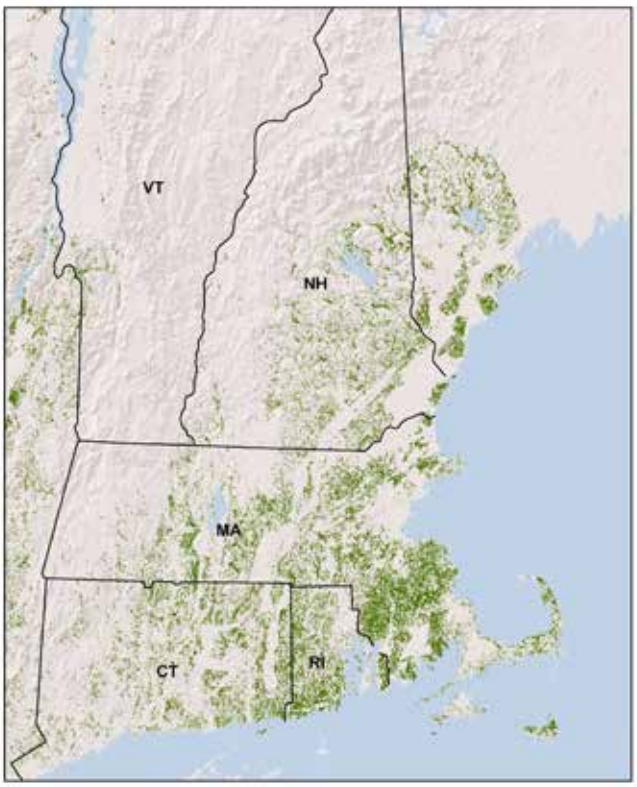
P = Protected S = Secured
U = Unsecured

DISTRIBUTION OF HABITATS

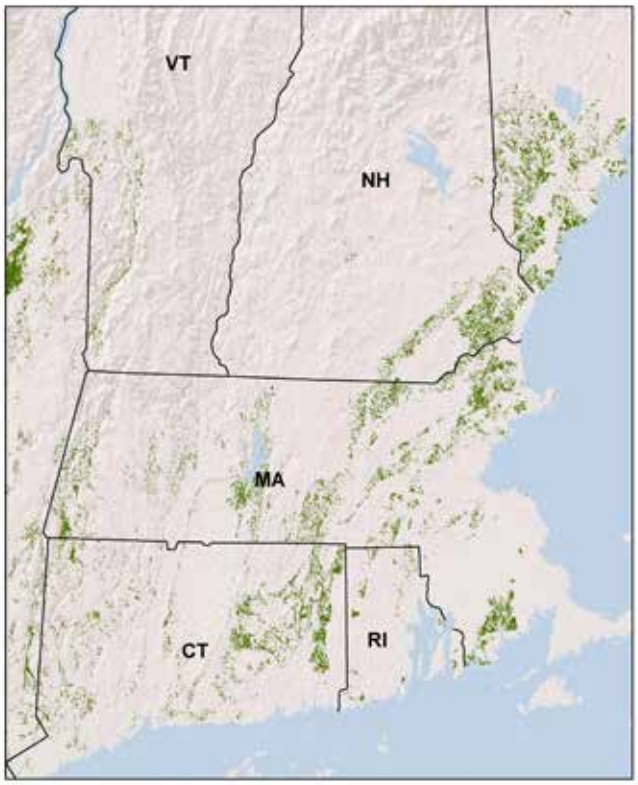


NORTHERN | **Northern Appalachian-Acadian Conifer-Hardwood Acidic Swamp**

NORTHERN | **Laurentian-Acadian Alkaline Conifer-Hardwood Swamp**

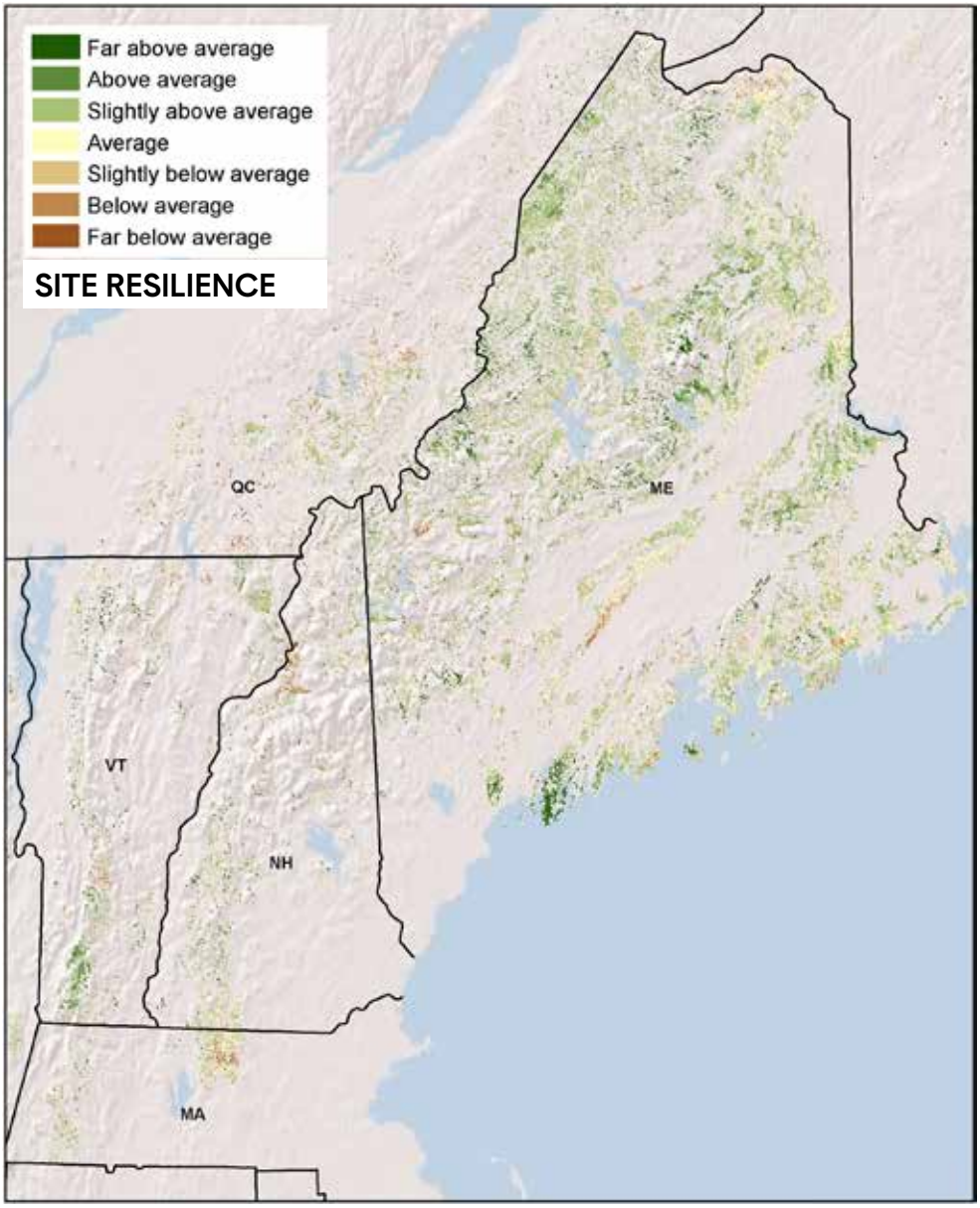


SOUTHERN | **North-Central Appalachian Acidic Swamp**



SOUTHERN | **North-Central Interior & Appalachian Rich Swamp**

Northern Appalachian-Acadian Conifer-Hardwood Acidic Swamp



© Maine Natural Areas Program

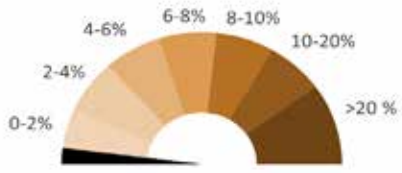
Description

A conifer or mixed forested swamp of permanently saturated basins with seasonal standing water. Peat soils tend to support black spruce and larch, while mineral soils often include red maple, red spruce and balsam fir.

Associated Herbs & Shrubs

greater water-starwort (*Callitriche heterophylla*), large-leaved avens (*Geum macrophyllum*), northern spicebush (*Lindera benzoin*), swamp lousewort (*Pedicularis lanceolata*), small-flowered-saxifrage (*Saxifraga pensylvanica*), mosses (*Calliergon obtusifolium, Calliergon richardsonii*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	1%	5,291	13%	5%	16%	33%	67%
Above average	14%	106,926	9%	4%	23%	35%	65%
Slightly above average	54%	409,013	3%	2%	23%	29%	71%
Average	17%	132,211	1%	1%	11%	14%	86%
Slightly below average	7%	55,575	1%	3%	17%	21%	79%
Below average	4%	31,630	1%	4%	13%	18%	82%
Far below average	0%	3,386	1%	1%	8%	11%	89%
Developed	2%	17,480	1%	2%	13%	16%	84%
TOTAL	100%	761,511	4%	3%	20%	26%	74%



Predicted Loss to Development by 2050

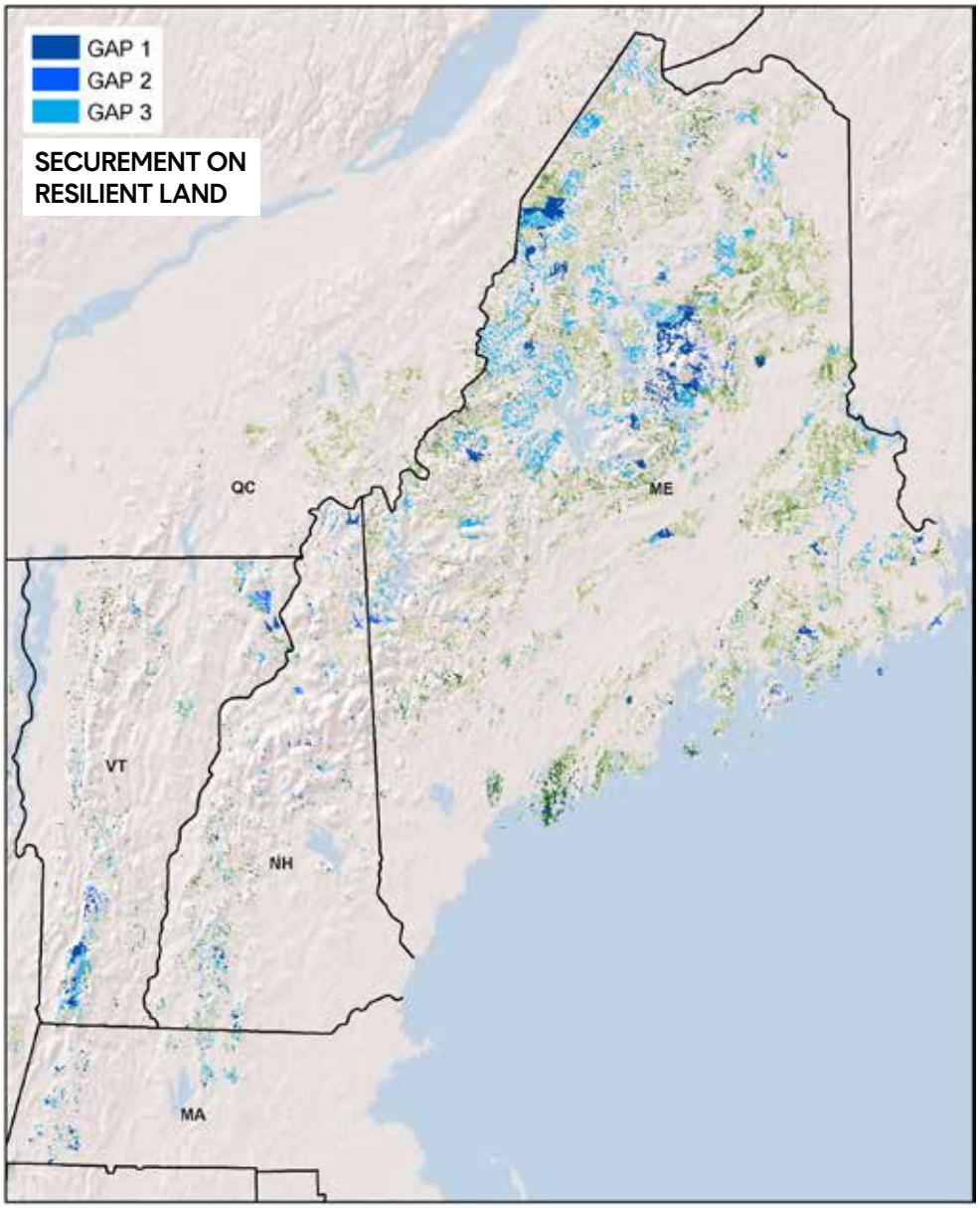
Very low 0%

This community is not threatened by development, with 3,680 acres (0%) likely to be lost over the next 30 years.

Resilience & Securement

69% of this habitat scores high for resilience, 26% of the total acreage is secured against conversion, and 7% is protected.

Northern Appalachian-Acadian Conifer-Hardwood Acidic Swamp



LOCATION	TOTAL ACRES	% SECURED
New England	761,511	26%
CT	218	7%
MA	26,596	44%
ME	639,804	23%
NH	45,741	33%
RI		
VT	49,153	44%

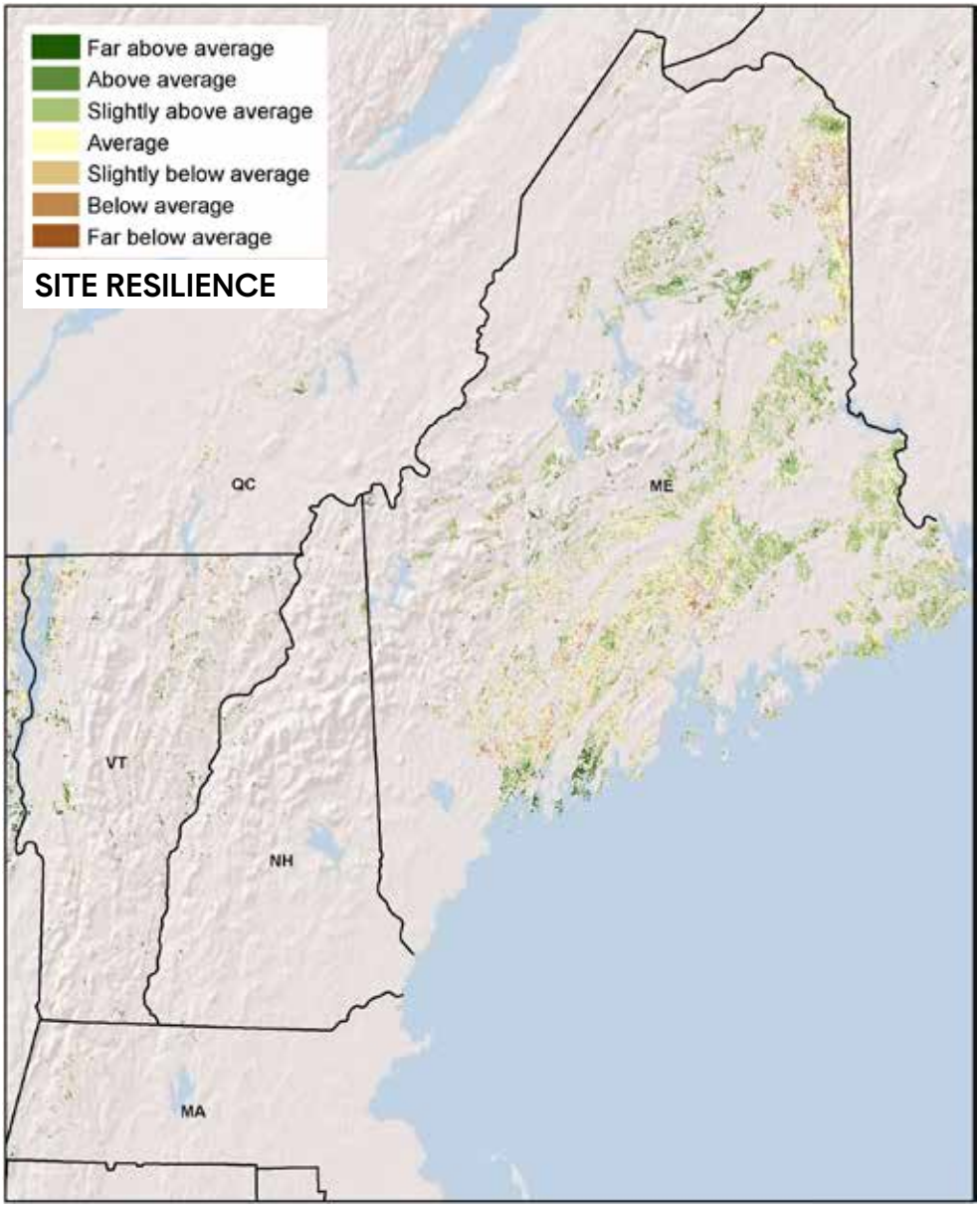
LOCATION	RESILIENT ACRES	% SECURED
New England	521,230	30%
CT	211	7%
MA	9,834	57%
ME	449,498	27%
NH	26,546	40%
RI		
VT	35,141	55%

Rare or Uncommon Plants Associated with this Habitat

slender beadgrass
(*Paspalum setaceum* var. *psammophilum*)

© Elizabeth Thompson (Vermont Land Trust)

Laurentian-Acadian Alkaline Conifer-Hardwood Swamp



© Elizabeth Thompson (Vermont Land Trust)

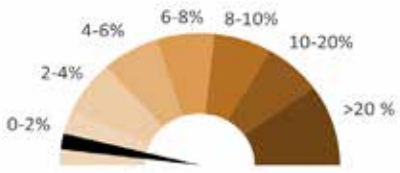
Description

A forested swamp of alkaline wetlands associated with limestone or other calcareous substrate. Northern white cedar may dominate the canopy or be mixed with other conifers and hardwoods like red maple or black ash. Red-osier dogwood is a common shrub.

Associated Herbs & Shrubs

bog aster (*Oclemena nemoralis*), fairy-slipper (*Calypso bulbosa*), green adder's-mouth (*Malaxis unifolia*), sage-willow (*Salix candida*), Lapland-crowfoot (*Coptidium lapponicum*), Loesel's wide-lipped orchid (*Liparis loeselii*), pink shinleaf (*Pyrola asarifolia*), swamp thistle (*Cirsium muticum*), Virginia screwstem (*Bartonia virginica*), greater yellow water-crowfoot (*Ranunculus flabellaris*), fen mosses (*Calliergon* spp., *Meesia triquetra*, etc.)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	0%	2,359	2%	5%	11%	18%	82%
Above average	9%	52,923	2%	4%	16%	21%	79%
Slightly above average	46%	264,129	2%	3%	18%	22%	78%
Average	26%	150,800	1%	2%	7%	10%	90%
Slightly below average	11%	61,218	0%	2%	5%	7%	93%
Below average	5%	27,019	1%	3%	6%	9%	91%
Far below average	0%	1,693	1%	0%	6%	7%	93%
Developed	2%	13,826	0%	2%	7%	9%	91%
TOTAL	100%	573,968	1%	3%	13%	17%	83%



Predicted Loss to Development by 2050

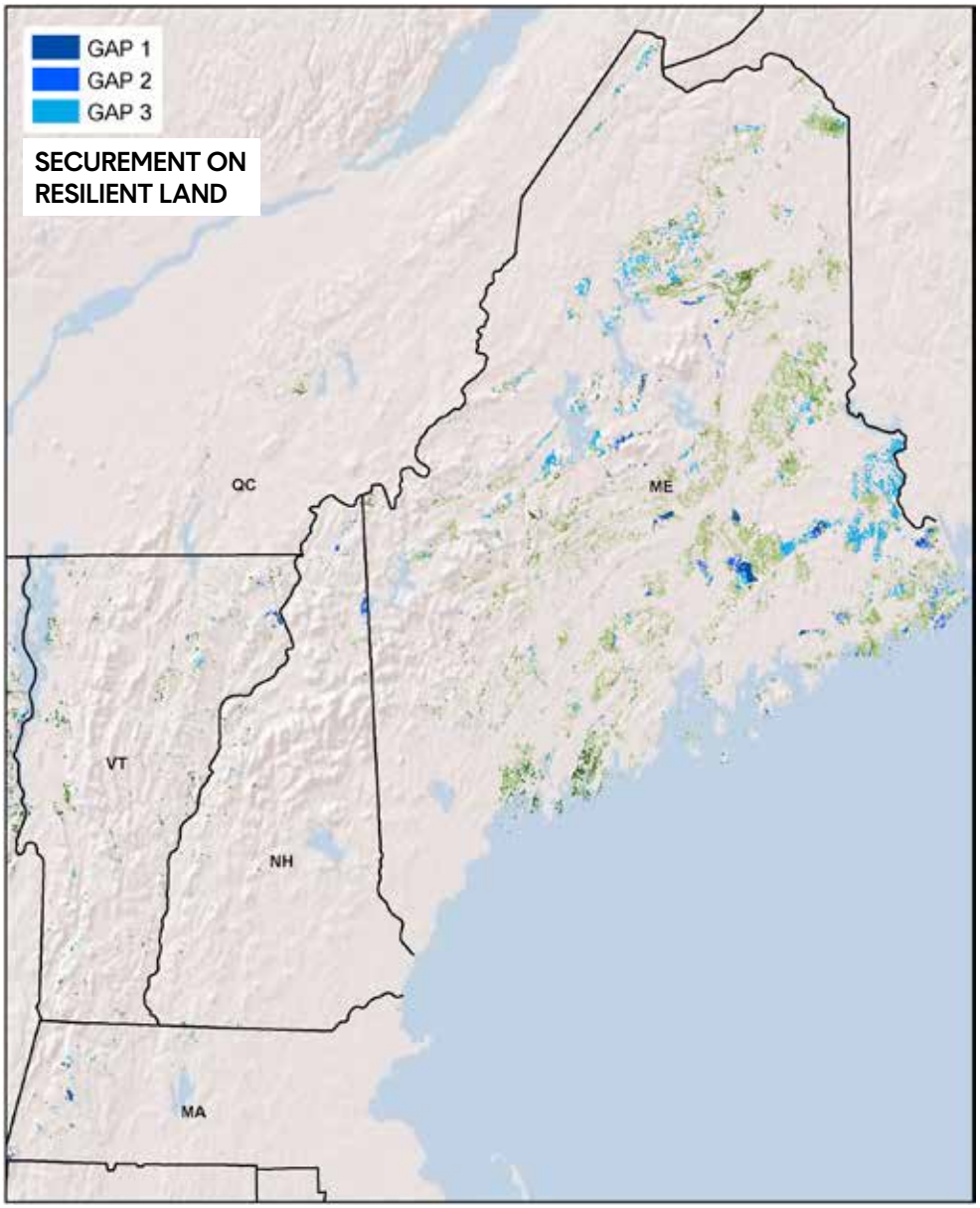
Very low 1%

This community is little threatened by development, with 5,531 acres (1%) likely to be lost over the next 30 years.

Resilience & Securement

45% of this habitat scores high for resilience, 17% of the total acreage is secured against conversion, and 4% is protected.

Laurentian-Acadian Alkaline Conifer-Hardwood Swamp



LOCATION	TOTAL ACRES	% SECURED
New England	573,968	16%
CT	86	0%
MA	4,253	46%
ME	518,316	16%
NH	7,330	42%
RI		
VT	43,985	14%

LOCATION	RESILIENT ACRES	% SECURED
New England	319,412	22%
CT	36	0%
MA	2,556	52%
ME	295,248	21%
NH	4,781	45%
RI		
VT	16,791	21%

© Charles Ferree (The Nature Conservancy)

Rare or Uncommon Plants Associated with this Habitat

ram's-head lady's-slipper (*Cypripedium arietinum*)

auricled twayblade (*Neottia auriculata*)

bog Jacob's-ladder (*Polemonium vanbruntiae*)

round-leaved orchid (*Amerorchis rotundifolia*)

northern bog sedge (*Carex gynocrates*)

sparse-flowered sedge (*Carex tenuiflora*)

yellow lady's-slipper (*Cypripedium parviflorum* var. *makasin*)

lesser yellow water crowfoot (*Ranunculus gmelinii*)

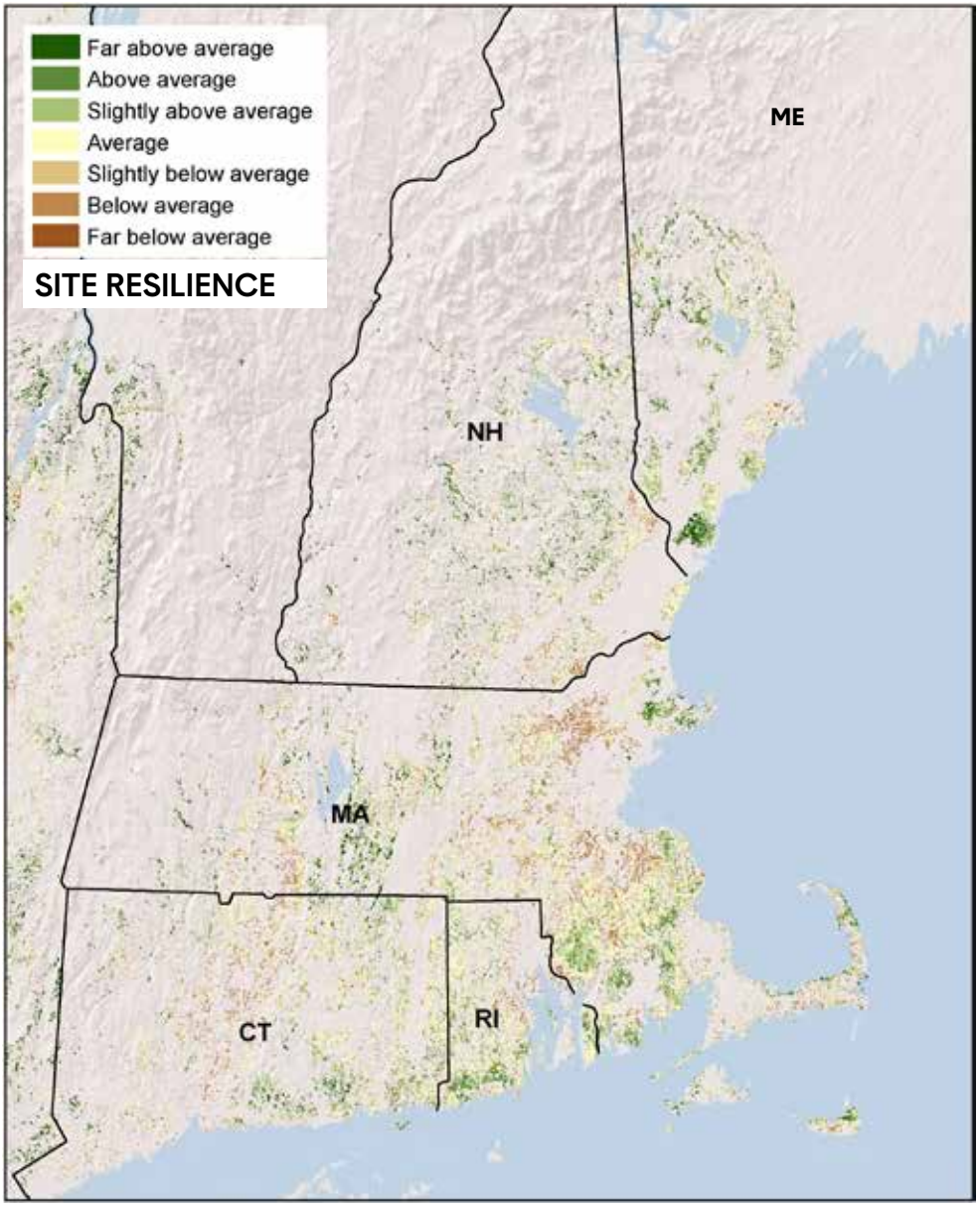
needle beak-sedge (*Rhynchospora capillacea*)

northern spikemoss (*Selaginella selaginoides*)

marsh valerian (*Valeriana uliginosa*)

white adder's-mouth (*Malaxis monophyllos* ssp. *brachypoda*)

North-Central Appalachian Acidic Swamp



© Shane Gebauer (New York Natural Heritage Program)

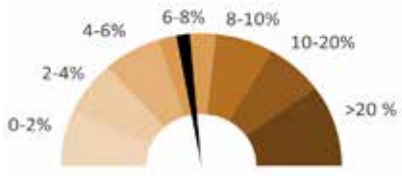
Description

A conifer or mixed conifer-hardwood swamp of poorly drained acidic substrates, encompassing a broad range of basin, seepage, and stream-associated wetland communities. Hemlock may be dominant, along with red maple or black gum.

Associated Herbs & Shrubs

bog-rosemary (*Andromeda polifolia* var. *glaucophylla*), boreal bog sedge (*Carex magellanica*), Canada lily (*Lilium canadense*), Labrador-tea (*Ledum groenlandicum*), creeping snowberry (*Gaultheria hispidula*), hairy hedge-nettle (*Stachys pilosa*), hairy-stemmed gooseberry (*Ribes hirtellum*), swamp dock (*Rumex verticillatus*), sweetgale (*Myrica gale*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	0%	6,842	2%	5%	32%	39%	61%
Above average	5%	85,295	2%	5%	23%	31%	69%
Slightly above average	11%	148,072	2%	4%	21%	27%	73%
Average	36%	242,192	1%	4%	19%	24%	76%
Slightly below average	16%	48,501	1%	3%	19%	23%	77%
Below average	15%	29,550	1%	1%	19%	21%	79%
Far below average	3%	3,665	0%	1%	14%	15%	85%
Developed	14%	44,112	1%	2%	11%	13%	87%
TOTAL	100%	608,230	2%	4%	20%	26%	74%



Predicted Loss to Development by 2050

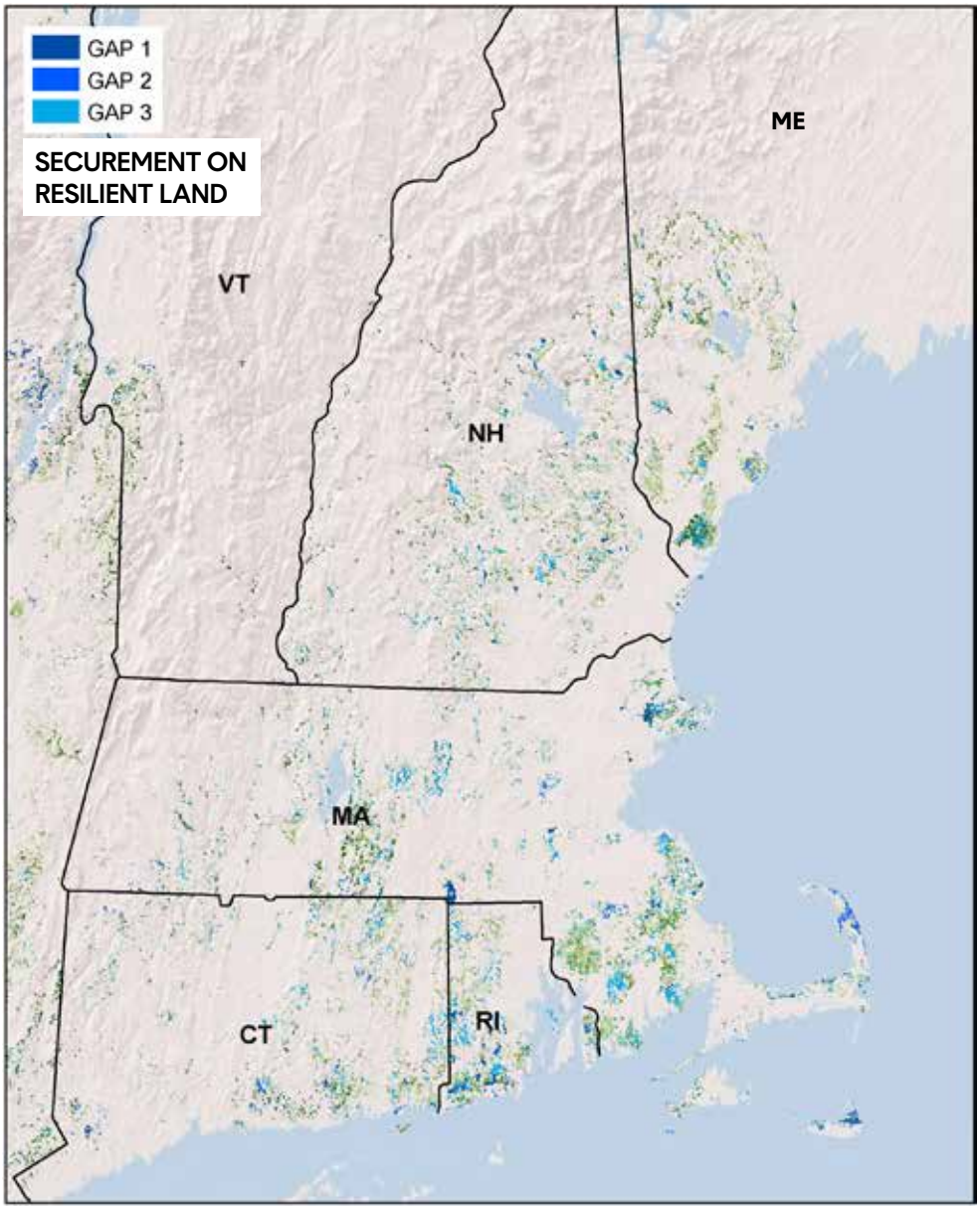
Moderate 7%

This community is somewhat threatened by development, with 43,405 acres (7%) likely to be lost over the next 30 years.

Resilience & Securement

16% of this habitat scores high for resilience, 26% of the total acreage is secured against conversion, and 6% is protected.

North-Central Appalachian Acidic Swamp



LOCATION	TOTAL ACRES	% SECURED
New England	608,230	25%
CT	111,732	22%
MA	271,609	29%
ME	61,573	13%
NH	85,738	23%
RI	67,364	30%
VT	10,214	7%

LOCATION	RESILIENT ACRES	% SECURED
New England	608,230	25%
CT	111,732	22%
MA	271,609	29%
ME	61,573	13%
NH	85,738	23%
RI	67,364	30%
VT	10,214	7%

Rare or Uncommon Plants Associated with this Habitat

southern lady fern (*Athyrium asplenioides*)

blunt-lobed grapefern (*Botrychium oneidense*)

Collins' sedge (*Carex collinsii*)

Mitchell's sedge (*Carex mitchelliana*)

forked rosette-panicgrass (*Dichanthelium dichotomum* ssp. *mattamuskeetense*)

sweet-gum (*Liquidambar styraciflua*)

many-fruited water-primrose (*Ludwigia polycarpa*)

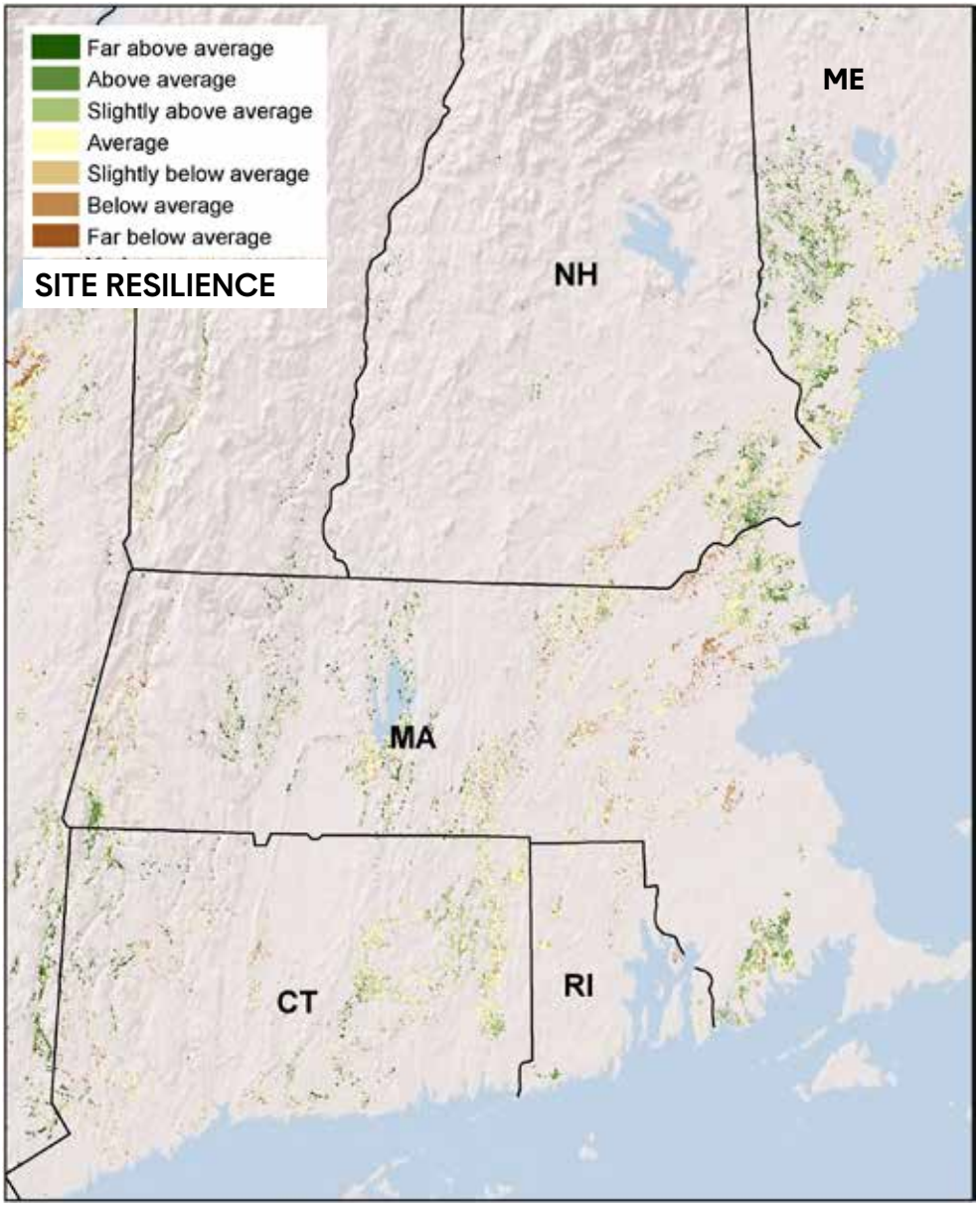
stalked water-horehound (*Lycopus rubellus*)

sweet-bay (*Magnolia virginiana* ssp. *virginiana*)

orange fringed bod-orchid (*Platanthera ciliaris*)

water-plantain crowfoot (*Ranunculus ambigens*)

North-Central Interior & Appalachian Rich Swamp



© Elizabeth Thompson (Vermont Land Trust)

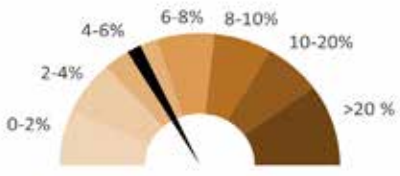
Description

A hardwood or mixed swamp of alkaline wetlands associated with limestone or other calcareous substrate. Red maple and black ash are generally dominant, and conifers may include larch. A diverse ground cover is made up of herbs indicative of nutrient-rich conditions, ferns, and bryophytes characteristic of fens.

Associated Herbs & Shrubs

bunchberry (*Chamaepericlymenum canadense*), four-flowered yellow-loosestrife (*Lysimachia quadriflora*), naked bishop's-cap (*Mitella nuda*), water avens (*Geum rivale*), rough-leaved goldenrod (*Solidago patula*), showy lady's-slipper (*Cypripedium reginae*), yellow-green sedge (*Carex flava*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	1%	3,705	5%	4%	23%	32%	68%
Above average	17%	42,458	4%	3%	17%	24%	76%
Slightly above average	25%	64,044	2%	3%	17%	23%	77%
Average	39%	98,535	1%	3%	15%	19%	81%
Slightly below average	6%	16,054	1%	4%	16%	20%	80%
Below average	4%	9,153	1%	3%	15%	18%	82%
Far below average	0%	1,231	0%	1%	9%	10%	90%
Developed	7%	16,351	1%	2%	8%	10%	90%
TOTAL	100%	251,531	2%	3%	16%	21%	79%



Predicted Loss to Development by 2050

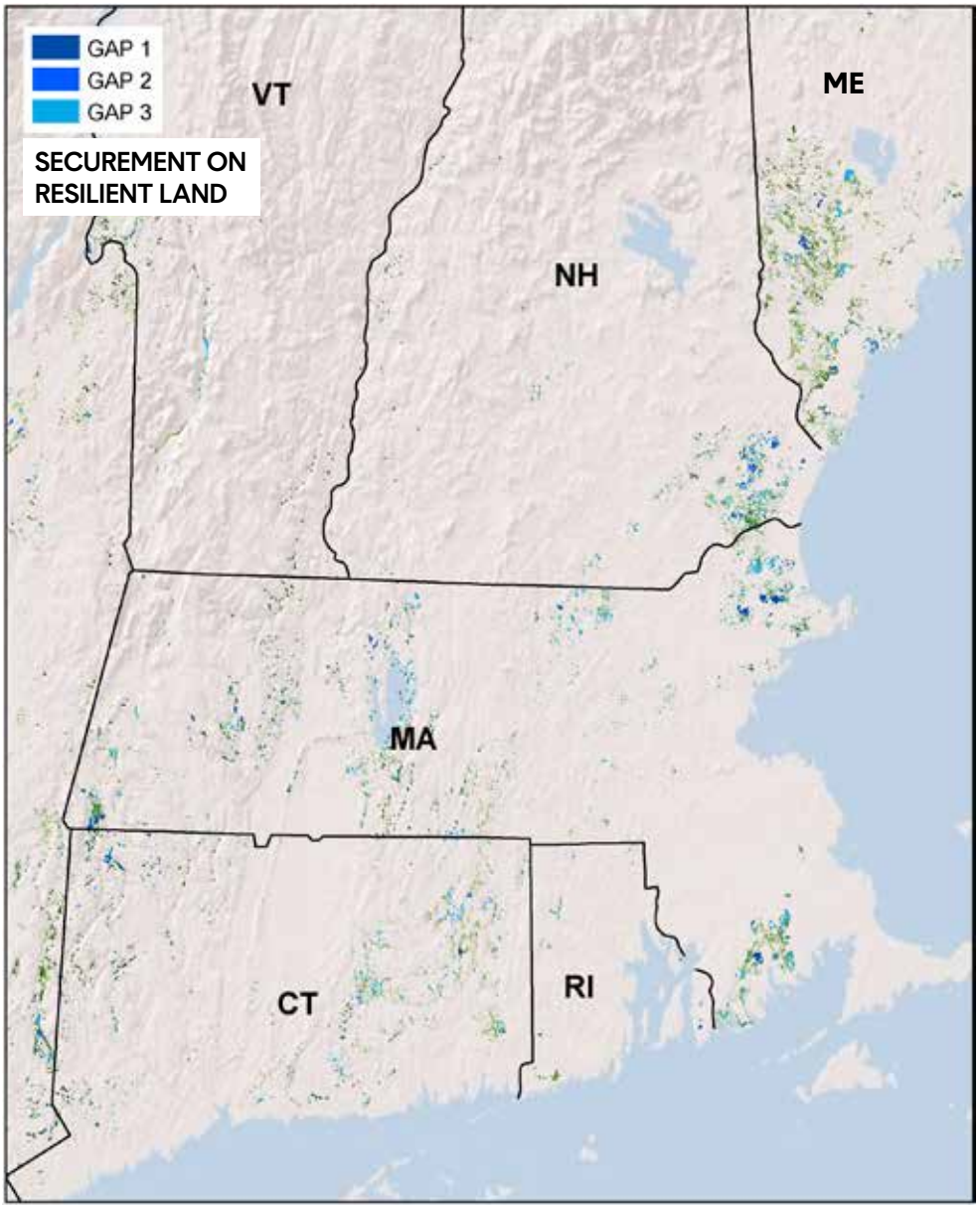
Moderately low 5%

This community is somewhat threatened by development, with 13,798 acres (5%) likely to be lost over the next 30 years.

Resilience & Securement

43% of this habitat scores high for resilience, 21% of the total acreage is secured against conversion, and 5% is protected.

North-Central Interior & Appalachian Rich Swamp



LOCATION	TOTAL ACRES	% SECURED
New England	251,531	20%
CT	61,244	19%
MA	96,720	27%
ME	50,788	11%
NH	28,212	24%
RI	5,635	18%
VT	8,932	9%

LOCATION	RESILIENT ACRES	% SECURED
New England	110,206	23%
CT	23,010	23%
MA	37,937	33%
ME	30,976	12%
NH	12,219	29%
RI	1,665	16%
VT	4,400	14%

Rare or Uncommon Plants Associated with this Habitat

white cuckoo bitter-cress (*Cardamine dentata*)

pink bitter-cress (*Cardamine douglassii*)

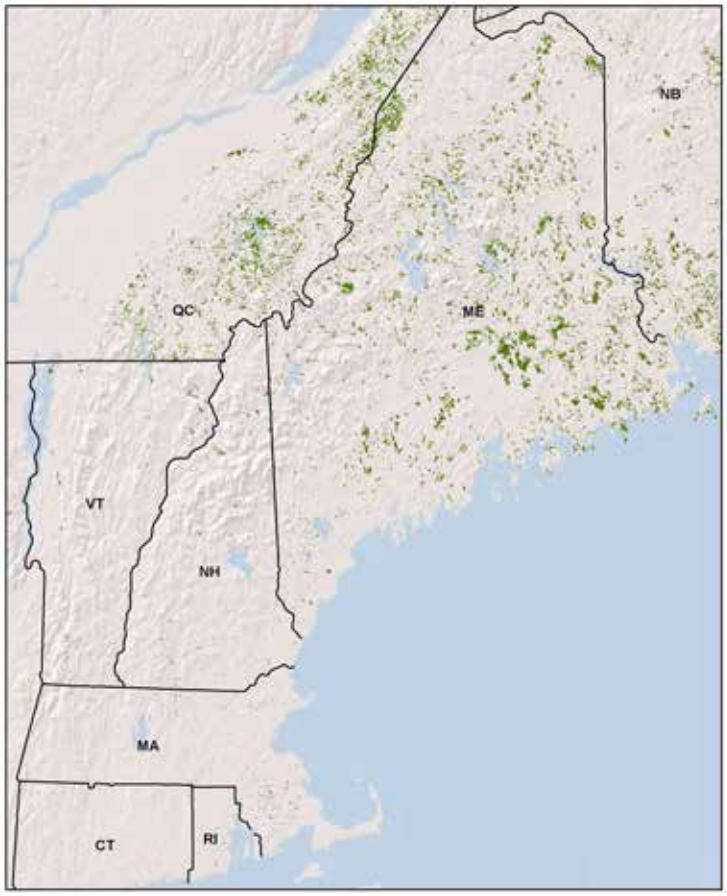
Crawe's sedge (*Carex crawei*)

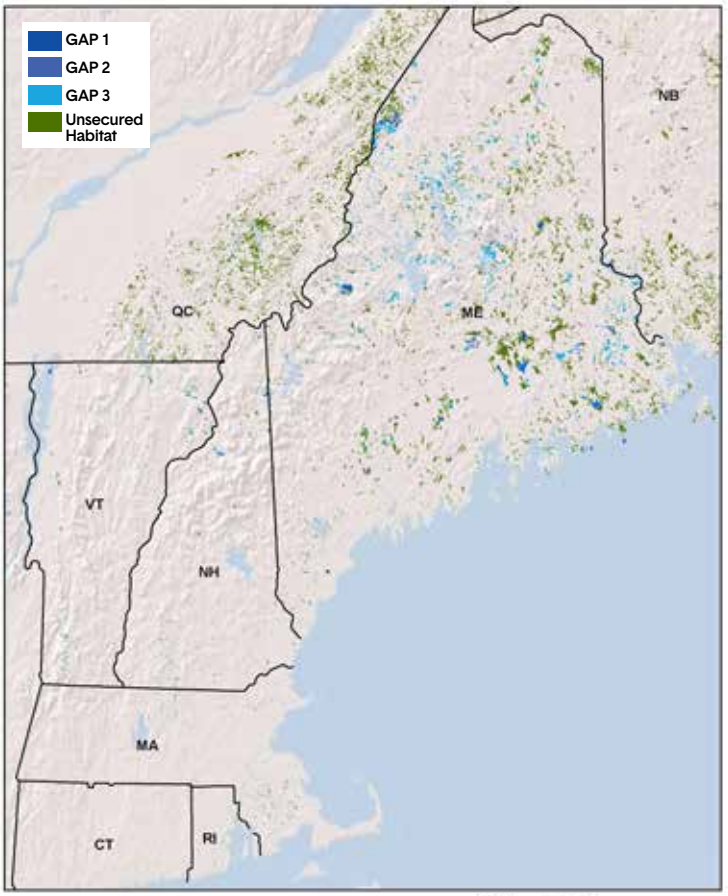
needle beak-sedge (*Rhynchospora capillacea*)

water speedwell (*Veronica catenata*)

MACROGROUP

NORTHERN PEATLAND

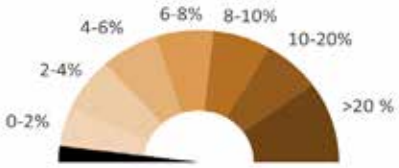




Northern Peatland
Sedge, grass, dwarf-shrub, or tree-dominated peatlands, mostly in northern New England.

Acres in New England
386,247

Percent Secured
GAP 1 = 5%
GAP 2 = 6%
GAP 3 = 19%

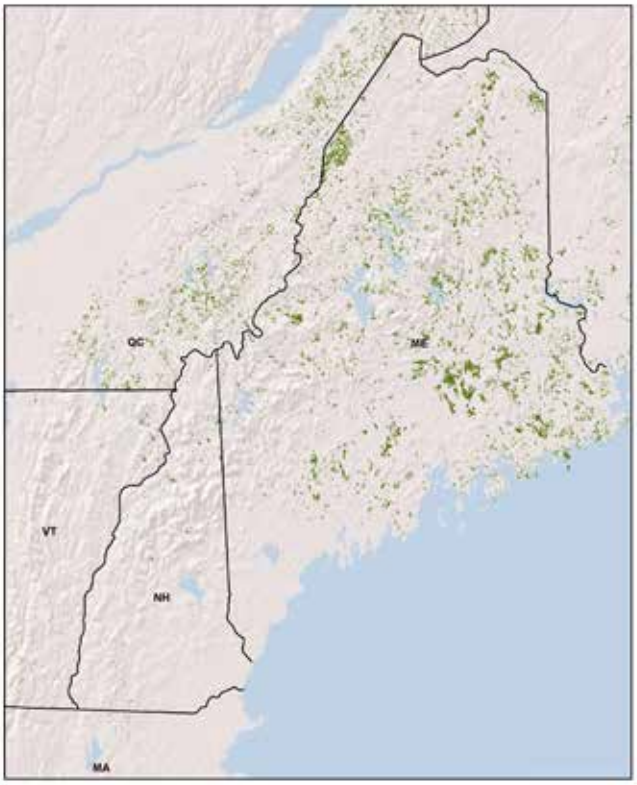


Predicted Loss to Development by 2050
1,965 acres (<1%)

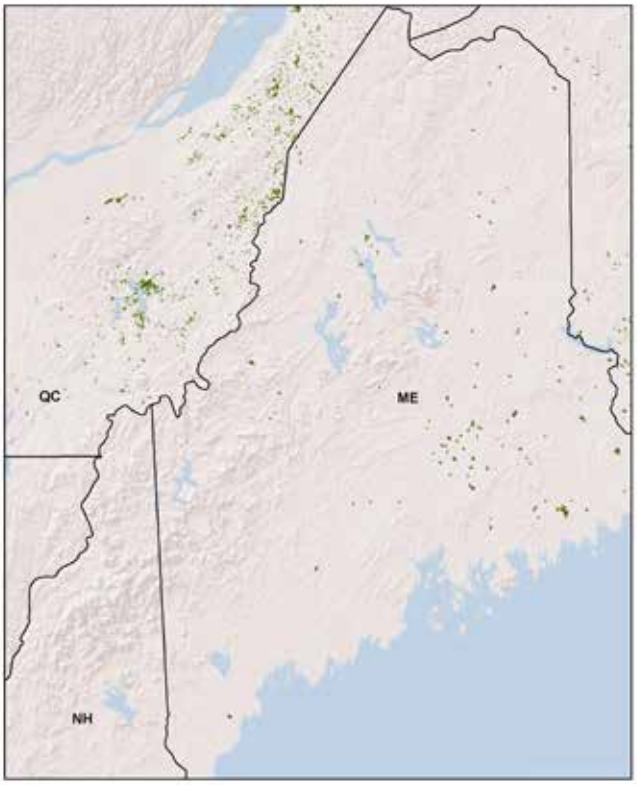
	ACRES	GAP 1	GAP 2	GAP 3	UNSECURED	IMPORTANT PLANT AREAS TOTAL	P	S	U
Northern Peatland	**381,257**	**5%**	**6%**	**19%**	**69%**	**1**			**1**
Connecticut	558	8%	7%	18%	67%				
Massachusetts	4,539	3%	4%	33%	61%				
Maine	357,092	5%	6%	18%	71%	1			1
New Hampshire	9,657	15%	9%	22%	53%				
Rhode Island	333	0%	11%	62%	27%				
Vermont	9,078	13%	27%	24%	35%				
New England	**381,257**	**20,627**	**24,162**	**71,515**	**264,952**				

P = Protected S = Secured
U = Unsecured

DISTRIBUTION OF HABITATS

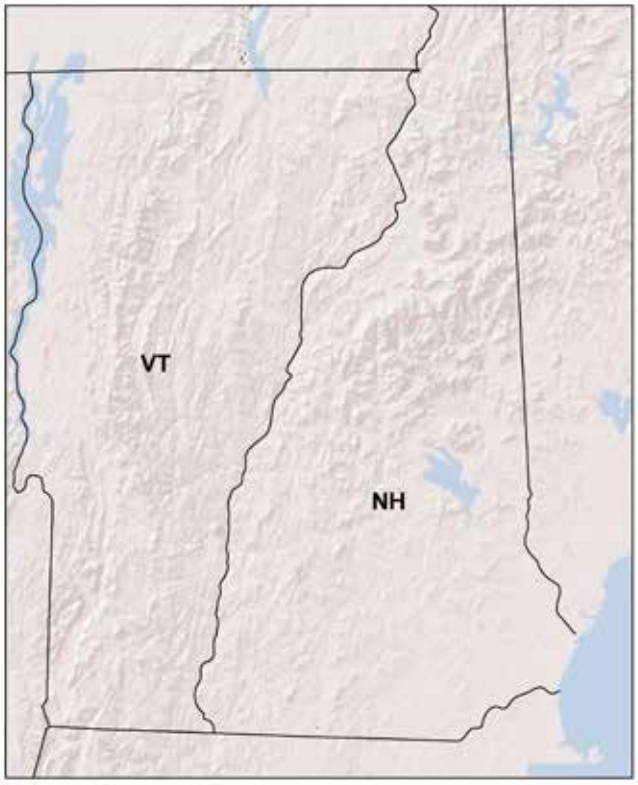


Boreal-Laurentian-Acadian Acidic Basin Fen



Boreal-Laurentian Bog

Acadian Maritime Bog

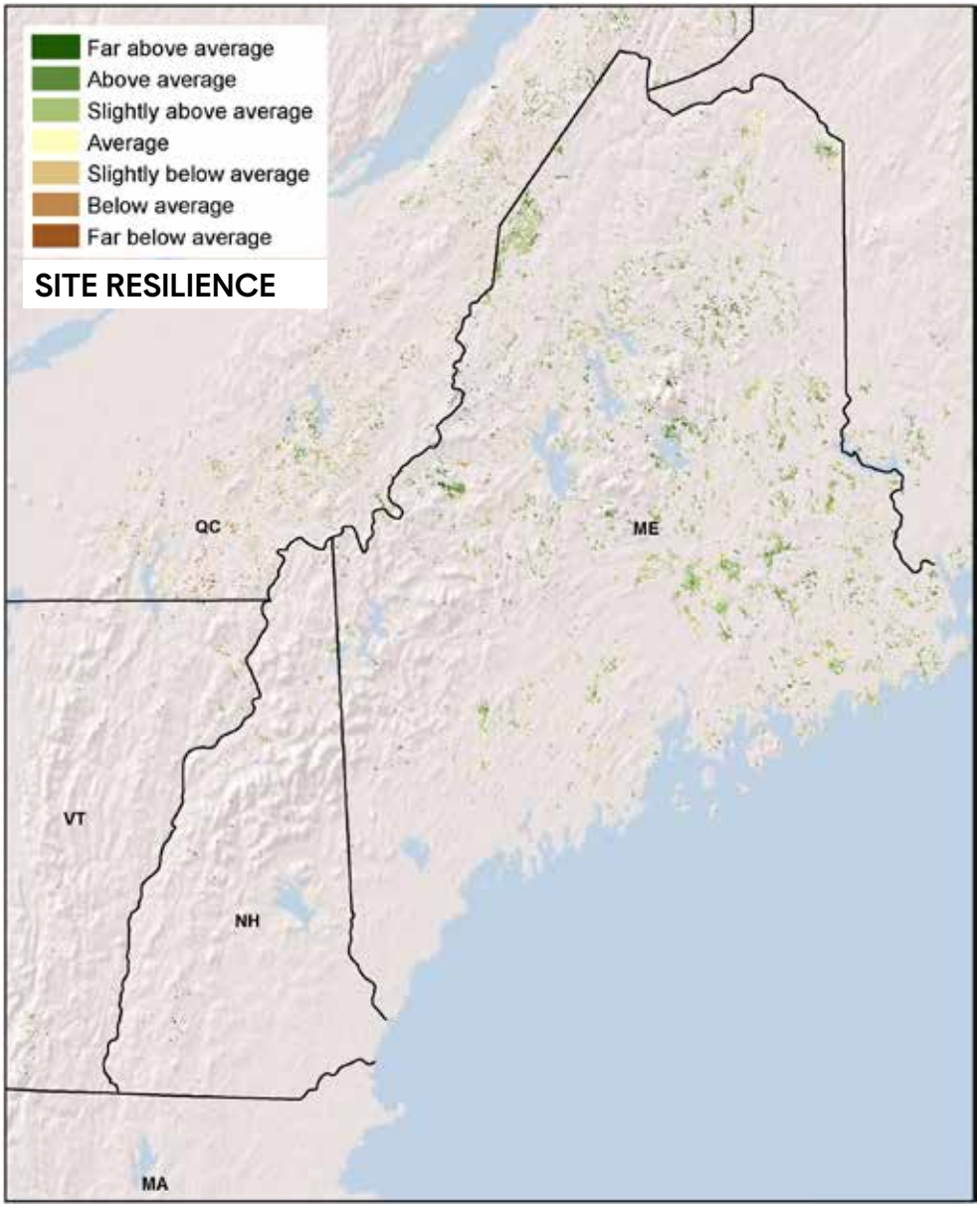


Laurentian-Acadian Alkaline Fen

DISTRIBUTION OF HABITATS

North-Central Interior & Appalachian Acidic Peatland

Boreal-Laurentian-Acadian Acidic Basin Fen



© Eric Sorenson (Vermont Fish & Wildlife)

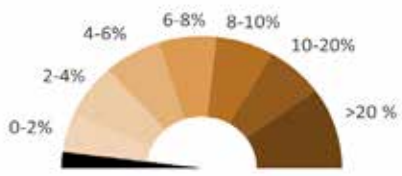
Description

A sedge, grass, and dwarf-shrub dominated peatland of the north. Intermediate between a marsh and a bog, these fens develop in relatively shallow basins with nutrient-poor and acidic conditions and may form a floating peat-based mat over water. Sparse trees.

Associated Herbs & Shrubs

aster (*Oclemena nemoralis*), northern bog bedstraw (*Galium labradoricum*), boreal bog sedge (*Carex magellanica*), bog willow (*Salix pedicellaris*), dwarf water-lily (*Nymphaea leibergii*), mud sedge (*Carex limosa*), prickly bog sedge (*Carex atlantica*), swamp birch (*Betula pumila*), inkberry (*Ilex glabra*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	0%	1,435	17%	3%	33%	53%	47%
Above average	20%	63,531	8%	4%	22%	34%	66%
Slightly above average	59%	190,194	5%	5%	21%	31%	69%
Average	14%	46,890	2%	6%	9%	17%	83%
Slightly below average	4%	13,987	3%	8%	19%	30%	70%
Below average	1%	4,108	12%	10%	21%	43%	57%
Far below average	0%	159	16%	5%	11%	32%	68%
Developed	1%	3,570	3%	3%	12%	18%	82%
TOTAL	100%	323,874	5%	5%	19%	29%	71%



Predicted Loss to Development by 2050

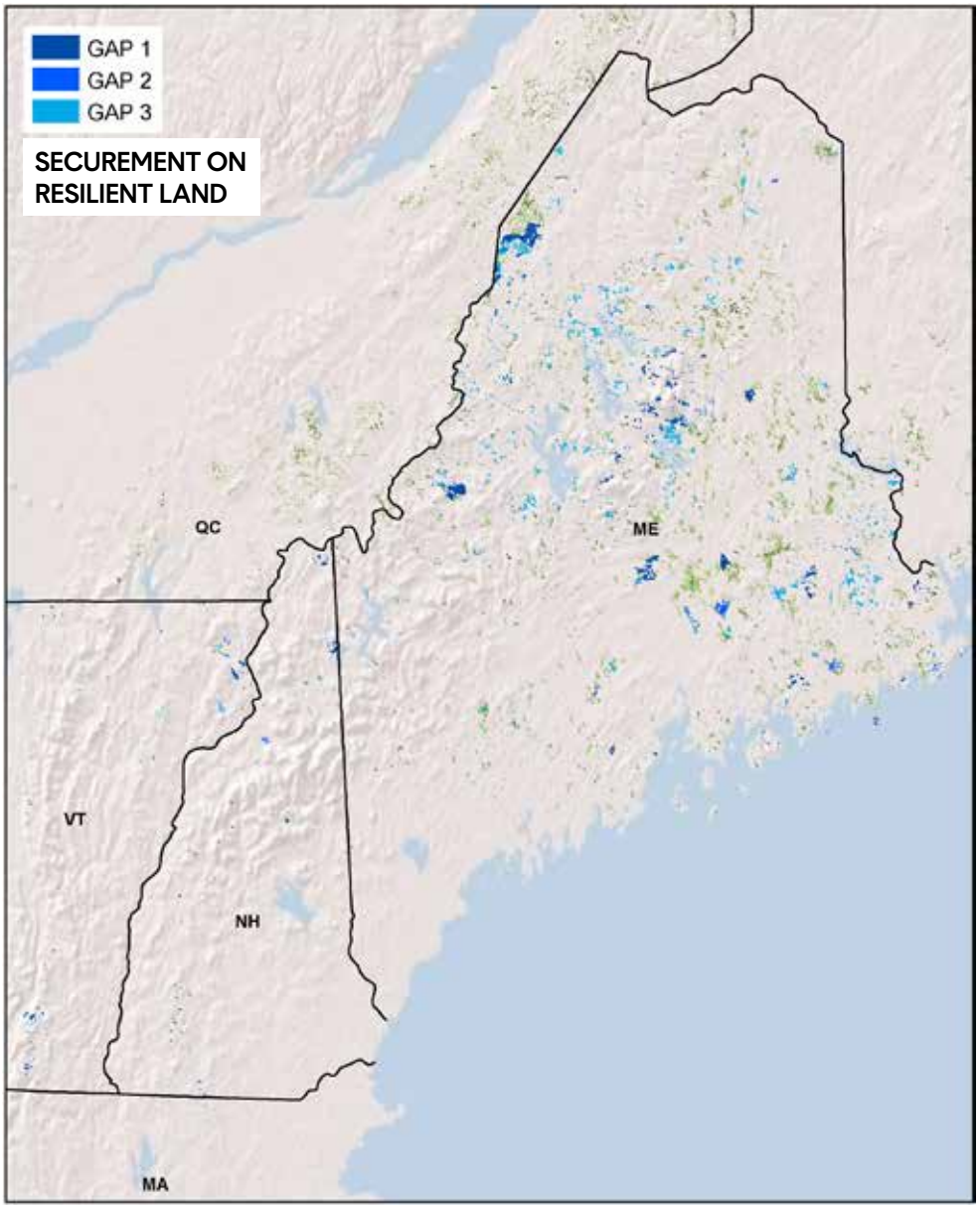
Very low 0%

This community is not threatened by development.

Resilience & Securement

79% of this habitat scores high for resilience, 29% of the total acreage is secured against conversion, and 10% is protected.

Boreal-Laurentian-Acadian Acidic Basin Fen



LOCATION	TOTAL ACRES	% SECURED
New England	323,874	29%
CT		
MA	684	38%
ME	309,849	28%
NH	6,950	50%
RI		
VT	6,391	65%

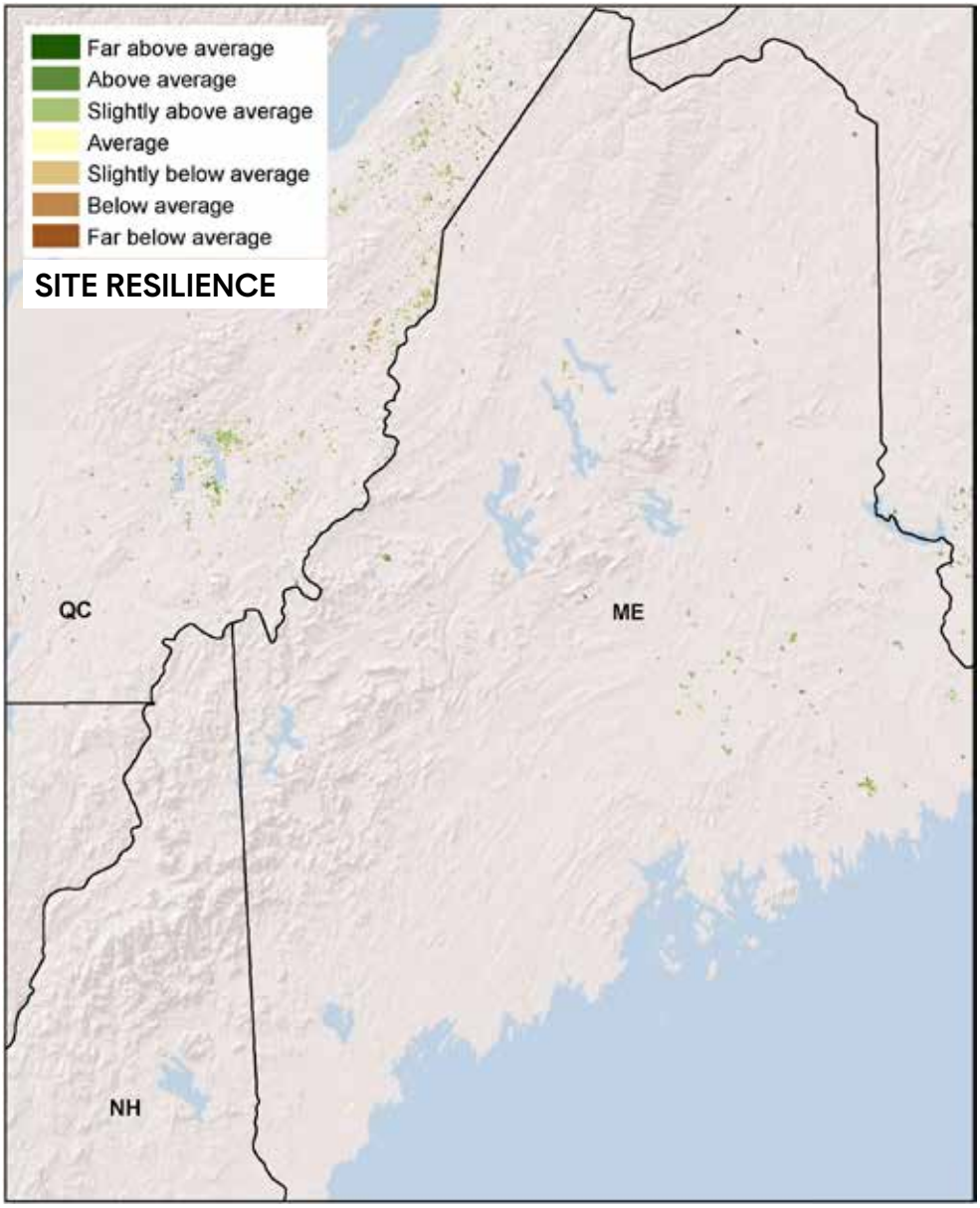
LOCATION	RESILIENT ACRES	% SECURED
New England	255,161	32%
CT		
MA	309	53%
ME	245,653	31%
NH	4,792	50%
RI		
VT	4,407	69%

Rare or Uncommon Plants Associated with this Habitat

Long's woolsedge
(*Scirpus longii*)

© Elizabeth Thompson (Vermont Land Trust)

Boreal-Laurentian Bog



© Maine Natural Areas Program

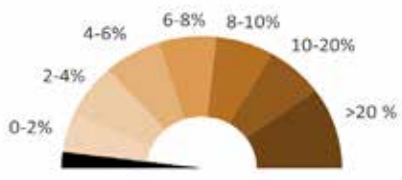
Description

A raised peatland of near-boreal latitudes dominated by low heath shrubs (sheep laurel, bog laurel, Labrador tea, leatherleaf) and patches of sedge and bryophyte lawns. Sparse black spruce and larch are characteristic. Typical forbs include sundews, pitcher plants, and several orchids.

Associated Herbs & Shrubs

bog aster (*Oclemena nemoralis*), boreal bog sedge (*Carex magellanica*), inkberry (*Ilex glabra*), green alder (*Alnus viridis* ssp. *crispa*), mountain cranberry (*Vaccinium vitis-idaea*), twining bartonia (*Bartonia paniculata*), swamp birch (*Betula pumila*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	0%	73	15%	13%	28%	56%	44%
Above average	15%	5,553	6%	20%	13%	39%	61%
Slightly above average	57%	21,393	7%	14%	16%	37%	63%
Average	21%	7,930	17%	12%	7%	36%	64%
Slightly below average	6%	2,266	0%	7%	26%	32%	68%
Below average	1%	257	0%	0%	10%	10%	90%
Far below average	0%						
Developed	0%	65	0%	2%	4%	6%	94%
TOTAL	**100%**	**37,537**	**9%**	**14%**	**14%**	**37%**	**63%**



Predicted Loss to Development by 2050

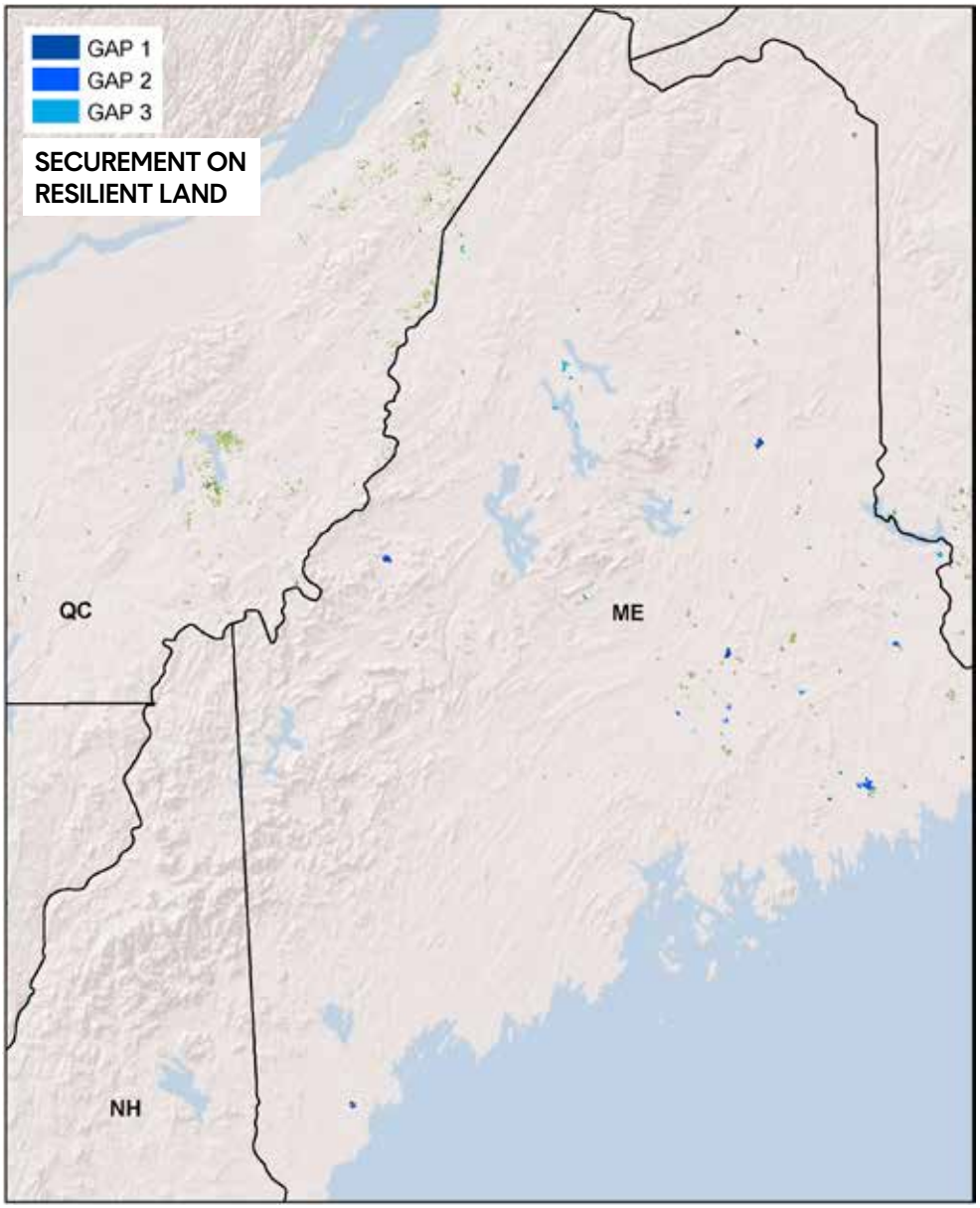
Very low 0%

This community is not threatened by development.

Resilience & Securement

72% of this habitat scores high for resilience, 37% of the total acreage is secured against conversion, and 23% is protected.

Boreal-Laurentian Bog



LOCATION	TOTAL ACRES	% SECURED
New England	37,537	37%
CT		
MA		
ME	37,381	36%
NH	2	57%
RI		
VT	154	100%

LOCATION	RESILIENT ACRES	% SECURED
New England	27,019	38%
CT		
MA		
ME	26,865	37%
NH	0	
RI		
VT	154	100%

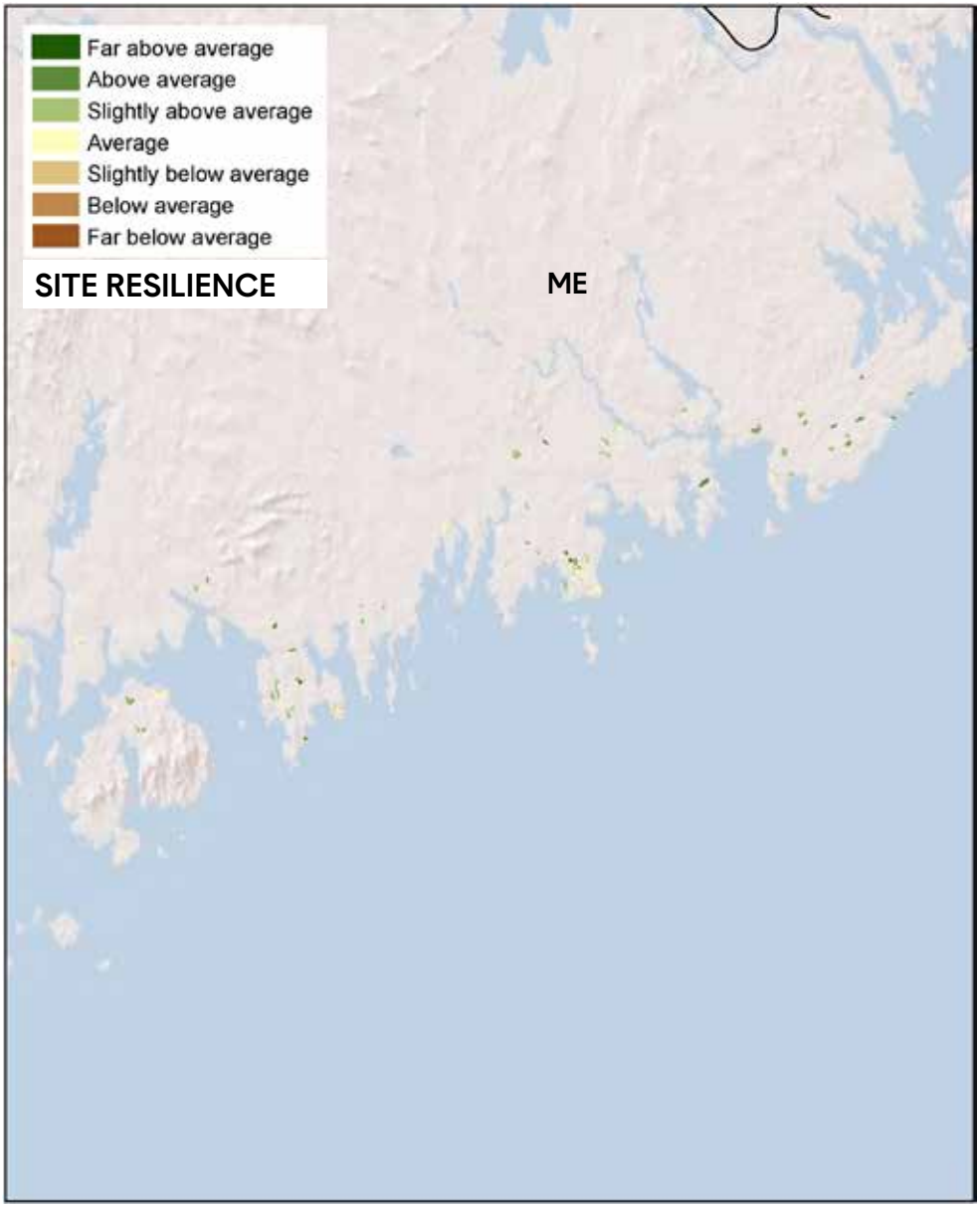
Rare or Uncommon Plants Associated with this Habitat

livid sedge
(*Carex livida*)

southern twayblade
(*Neottia bifolia*)

© Andy Cutco (Maine Natural Areas Program)

Acadian Maritime Bog



© Maine Natural Areas Program

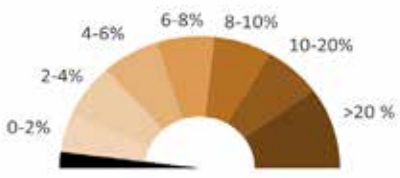
Description

An acidic peatland dominated by dwarf shrubs, sedges, and peat-mosses and occurring along the northern Atlantic Coast. When these form in basins, they develop raised plateaus with undulating sedge and dwarf-shrub vegetation. They also occur as "blanket bogs" over a sloping rocky substrate in extreme maritime settings.

Associated Herbs & Shrubs

swamp birch (*Betula pumila*), sheep-laurel (*Kalmia angustifolia*), bog laurel (*Kalmia polifolia*), black huckleberry (*Gaylussacia baccata*), Labrador-tea (*Rhododendron groenlandicum*), black crowberry (*Empetrum nigrum*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	1%	38	18%	22%	0%	40%	60%
Above average	15%	773	12%	29%	4%	45%	55%
Slightly above average	43%	2,252	2%	18%	4%	24%	76%
Average	34%	1,757	3%	19%	1%	22%	78%
Slightly below average	6%	310	3%	30%	0%	32%	68%
Below average	1%	54	0%	21%	0%	22%	78%
Far below average	0%	1	0%	100%	0%	100%	0%
Developed	1%	38	0%	53%	6%	59%	41%
TOTAL	100%	5,223	4%	21%	3%	27%	73%



Predicted Loss to Development by 2050

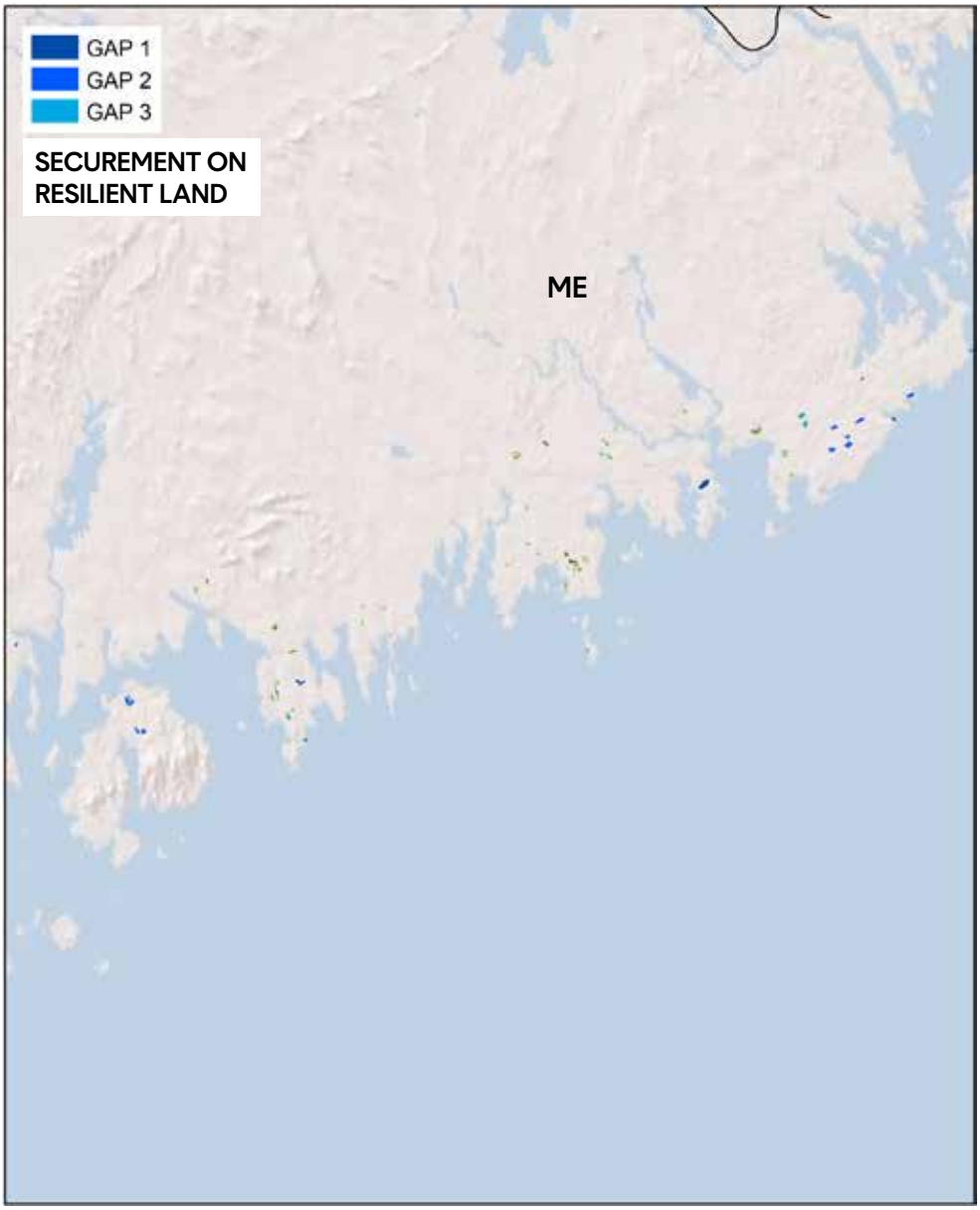
Very low 0%

This community is not threatened by development.

Resilience & Securement

59% of this habitat scores high for resilience, 28% of the total acreage is secured against conversion, and 25% is protected.

Acadian Maritime Bog



LOCATION	TOTAL ACRES	% SECURED
New England	5,223	27%
CT		
MA		
ME	5,223	27%
NH		
RI		
VT		

LOCATION	RESILIENT ACRES	% SECURED
New England	3,063	29%
CT		
MA		
ME	3,063	29%
NH		
RI		
VT		

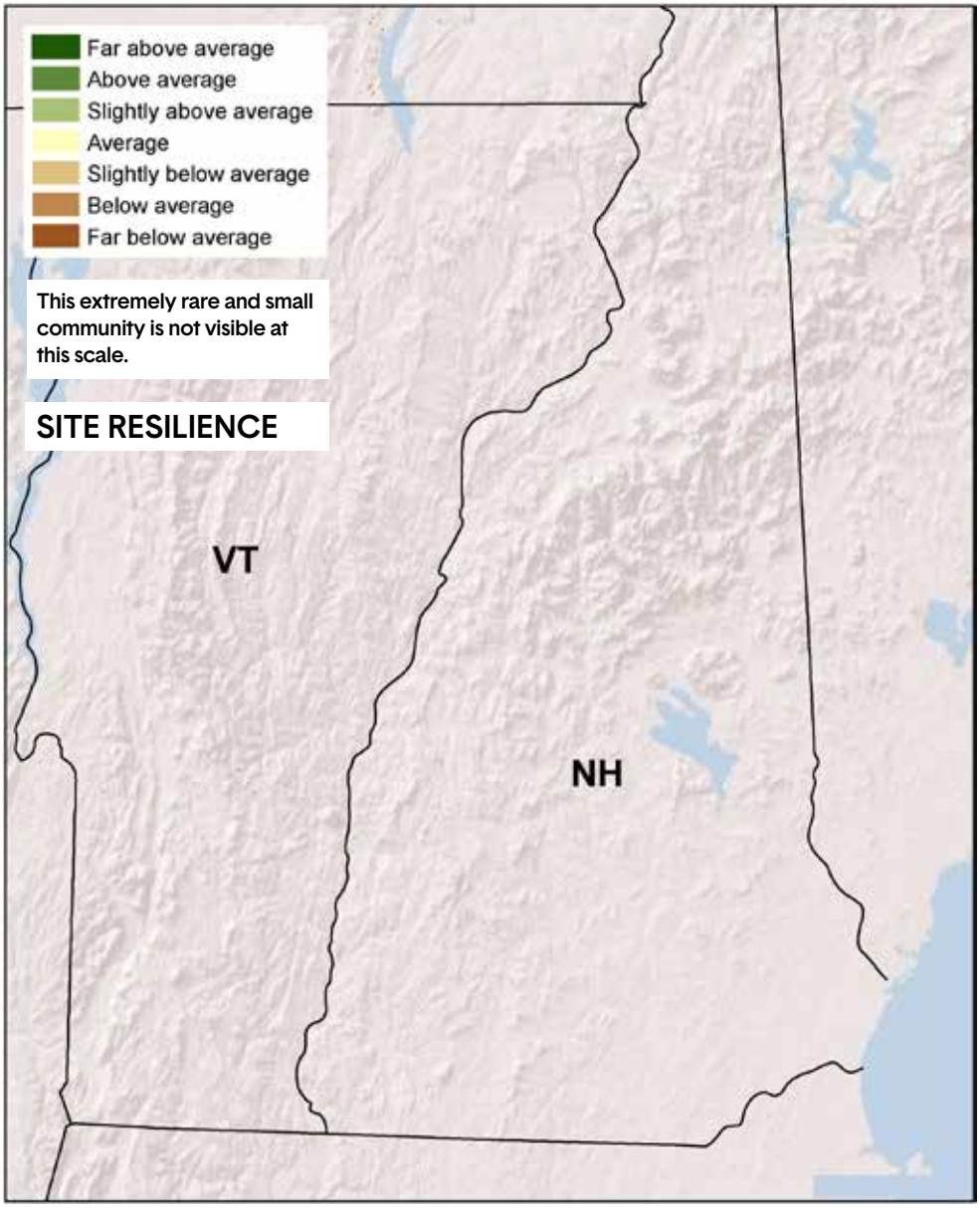
Rare or Uncommon Plants Associated with this Habitat

baked-apple-berry
(*Rubus chamaemorus*)

northern comandra
(*Geocaulon lividum*)

© Josh Royte (The Nature Conservancy, Maine)

Laurentian-Acadian Alkaline Fen



© Maine Natural Areas Program

Description

A sedge-shrub wetland associated with calcareous groundwater or seepage. Dominated by sedges such as yellow-green sedge, wooly-fruited sedge, and herbs such as fen grass-of-Parnassus, buck-bean, and shrubby-cinquefoil.

Associated Herbs & Shrubs

boreal bedstraw (*Galium kamtchaticum*), bog willow (*Salix pedicellaris*), seaside arrow-grass (*Triglochin maritima*), rope-root sedge (*Carex chordohrizza*), dragon's-mouth (*Arethusa bulbosa*), rigid sedge (*Carex tetanica*), few-flowered spikesedge (*Eleocharis quinqueflora*), flat-leaved bladderwort (*Utricularia intermedia*), hard-stemmed club-bulrush (*Schoenoplectus acutus*), many-headed sedge (*Carex synchocephala*), prairie sedge (*Carex prairea*), slender cottongrass (*Eriophorum gracile*), bog birch (*Betula pumila*), swamp thistle (*Cirsium muticum*), northern sweet-coltsfoot (*Petasites frigidus* var. *palmatus*), water sedge (*Carex aquatilis*)

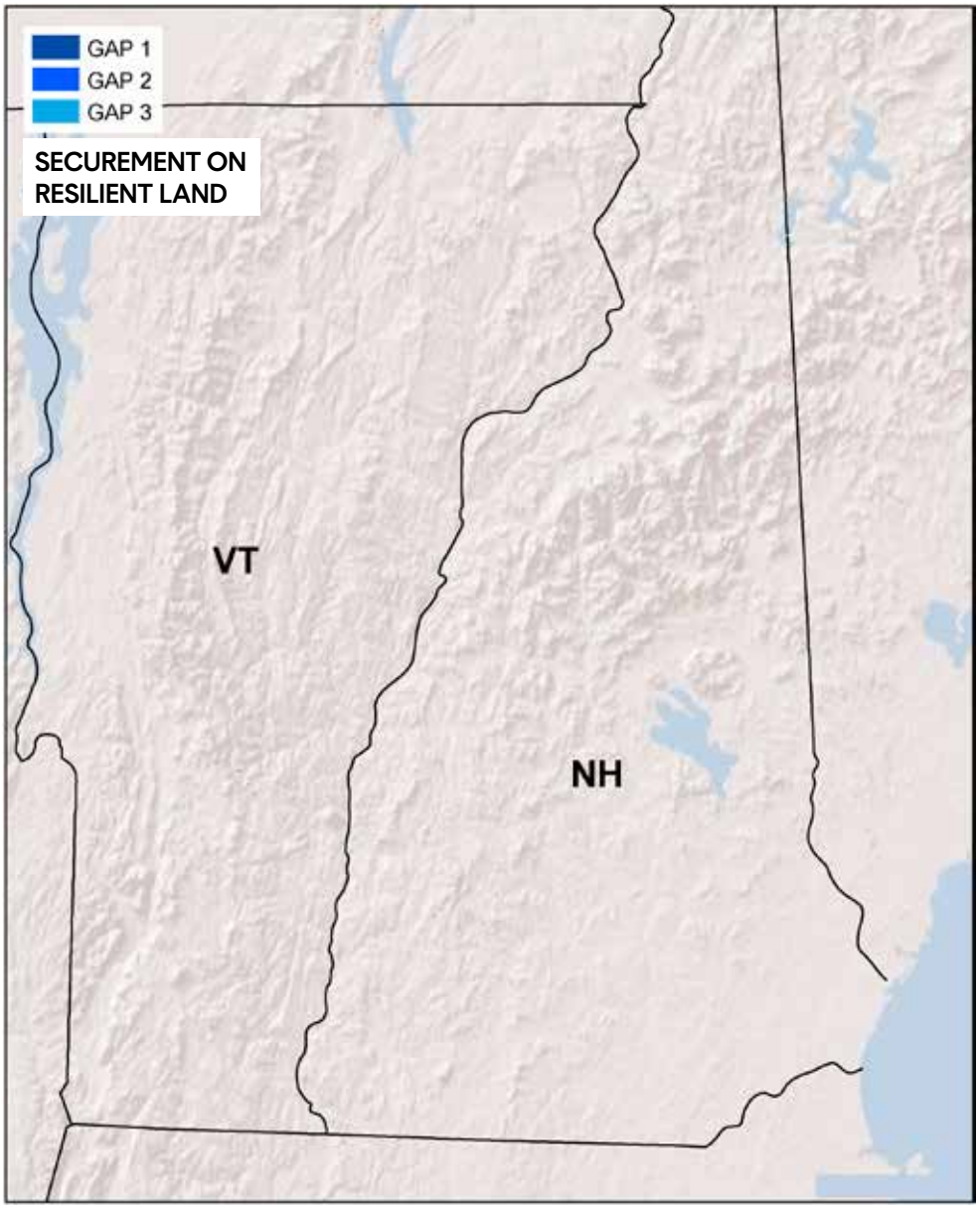
SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	2%	4	0%	0%	22%	22%	78%
Above average	14%	29	8%	0%	23%	31%	69%
Slightly above average	30%	65	2%	0%	60%	62%	38%
Average	21%	46	0%	0%	29%	29%	71%
Slightly below average	27%	58	0%	0%	3%	3%	97%
Below average	6%	14	6%	0%	6%	13%	87%
Far below average	0%						
Developed	1%	1	0%	0%	40%	40%	60%
TOTAL	100%	217	2%		29%	31%	69%

This rare habitat is not well mapped, and the numbers on these pages should be considered very approximate.

Resilience & Securement

46% of this rare habitat scores high for resilience, 31% of the total acreage is secured against conversion, and 2% is protected.

Laurentian-Acadian Alkaline Fen



LOCATION	TOTAL ACRES	% SECURED
New England	217	31%
CT		
MA	23	38%
ME	20	76%
NH	80	53%
RI		
VT	95	1%

LOCATION	RESILIENT ACRES	% SECURED
New England	98	51%
CT		
MA	17	43%
ME	20	76%
NH	35	75%
RI		
VT	26	5%

Rare or Uncommon Plants Associated with this Habitat

livid sedge
(*Carex livida*)

English sundew
(*Drosera anglica*)

slender-leaved sundew
(*Drosera linearis*)

moor rush
(*Juncus stygius* ssp. *americanus*)

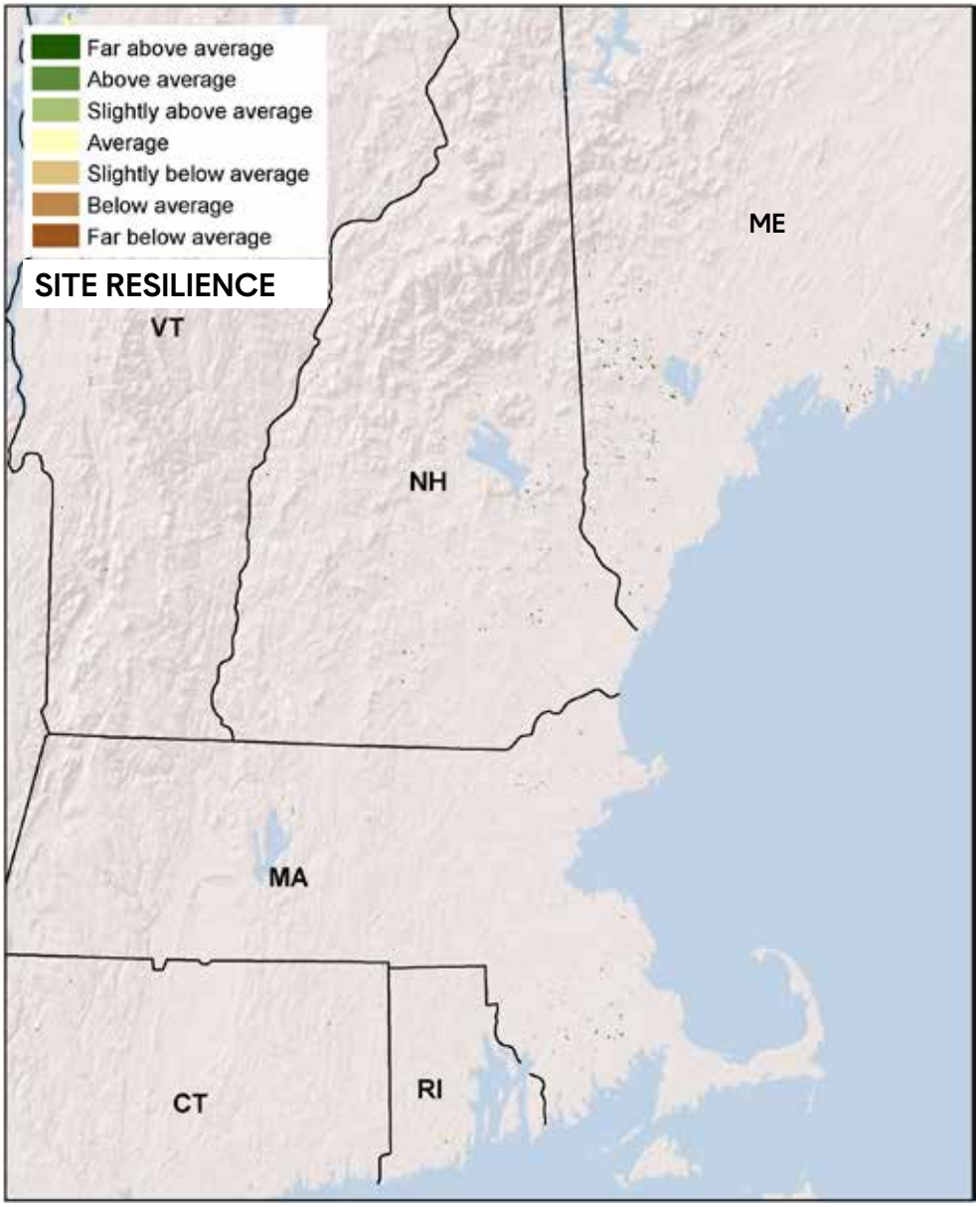
northern spikemoss
(*Selaginella selaginoides*)

hair-like sedge
(*Carex capillaris* ssp. *capillaris*)

needle beaksedge
(*Rhynchospora capillacea*)

sparse-flowered sedge
(*Carex tenuiflora*)

North-Central Interior & Appalachian Acidic Peatland



© Maine Natural Areas Program

Description

A dwarf-shrub peatland of small basins near the glacial boundary, where stagnated ice left coarse deposits and glacial depressions. Dominated by heath shrubs and dwarf-shrubs (e.g., leatherleaf), with patches of sedges and forbs, and sparse trees (black spruce, larch, pitch pine).

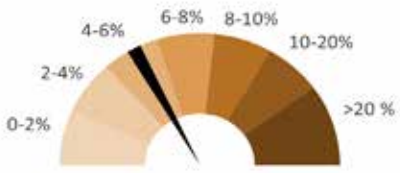
Associated Herbs & Shrubs

bog goldenrod (*Solidago uliginosa*), bog-rosemary (*Andromeda polifolia*), boreal bog sedge (*Carex magellanica*), northern comandra (*Geocaulon lividum*), north wind bog-orchid (*Platanthera aquilonis*), sword-like bog-mat (*Wolffiella gladiata*), smooth saw-edge (*Cladium mariscoides*) pod-grass (*Scheuchzeria palustris*), flat-leaved bladderwort (*Utricularia intermedia*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	3%	362	5%	3%	28%	37%	63%
Above average	31%	4,437	3%	4%	25%	32%	68%
Slightly above average	25%	3,624	2%	8%	28%	38%	62%
Average	32%	4,663	2%	25%	21%	48%	52%
Slightly below average	4%	595	0%	33%	23%	55%	45%
Below average	2%	234	0%	0%	33%	34%	66%
Far below average	0%	10	0%	0%	0%	0%	100%
Developed	3%	481	2%	5%	13%	20%	80%
TOTAL	100%	14,406	2%	13%	24%	39%	61%

Resilience & Securement

59% of this rare habitat scores high for resilience, 39% of the total acreage is secured against conversion, and 15% is protected, mostly in areas with average resilience.

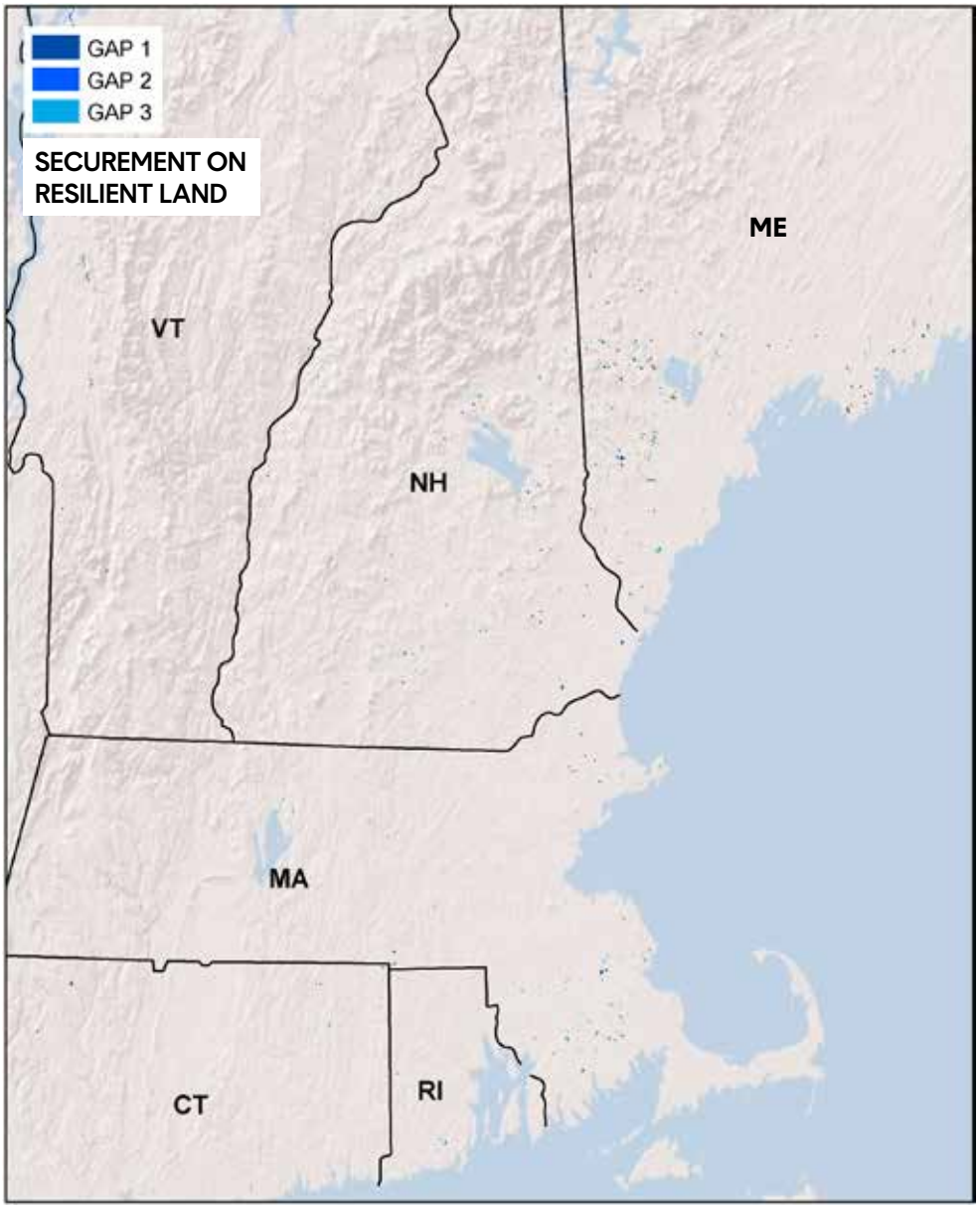


Predicted Loss to Development by 2050

Moderately low 5%

This community is mildly threatened by development, with 738 acres (5%) likely to be lost over the next 30 years.

North-Central Interior & Appalachian Acidic Peatland



LOCATION	TOTAL ACRES	% SECURED
New England	14,406	40%
CT	558	33%
MA	3,833	39%
ME	4,619	25%
NH	2,626	39%
RI	333	73%
VT	2,437	65%

LOCATION	RESILIENT ACRES	% SECURED
New England	8,423	35%
CT	293	52%
MA	1,694	42%
ME	3,720	27%
NH	1,728	39%
RI	103	83%
VT	885	37%

Rare or Uncommon Plants Associated with this Habitat

dragon's mouth (*Arethusa bulbosa*)

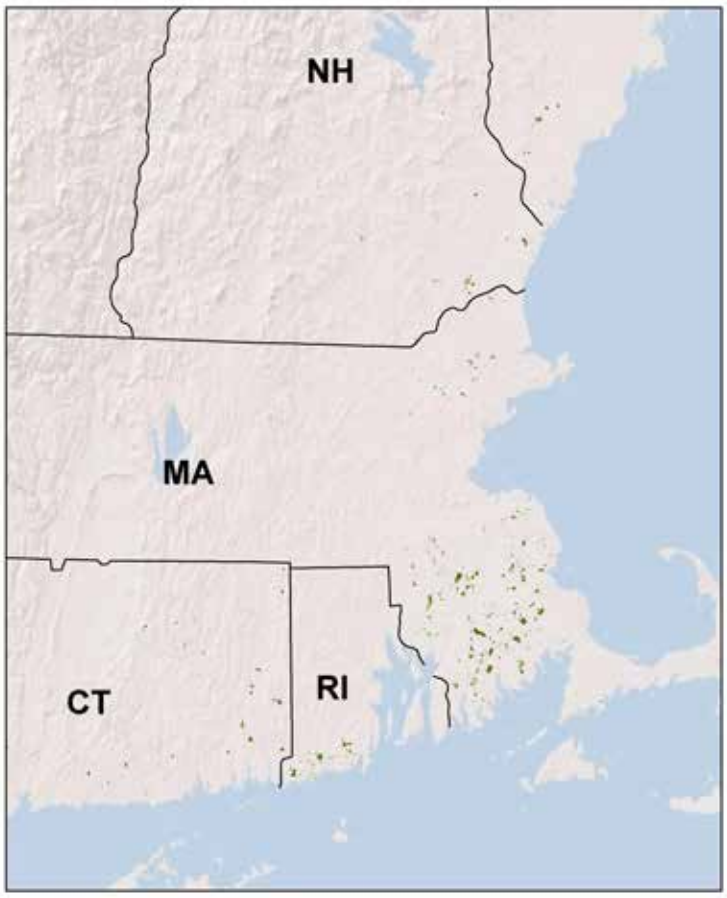
Long's woolsedge (*Scirpus longii*)

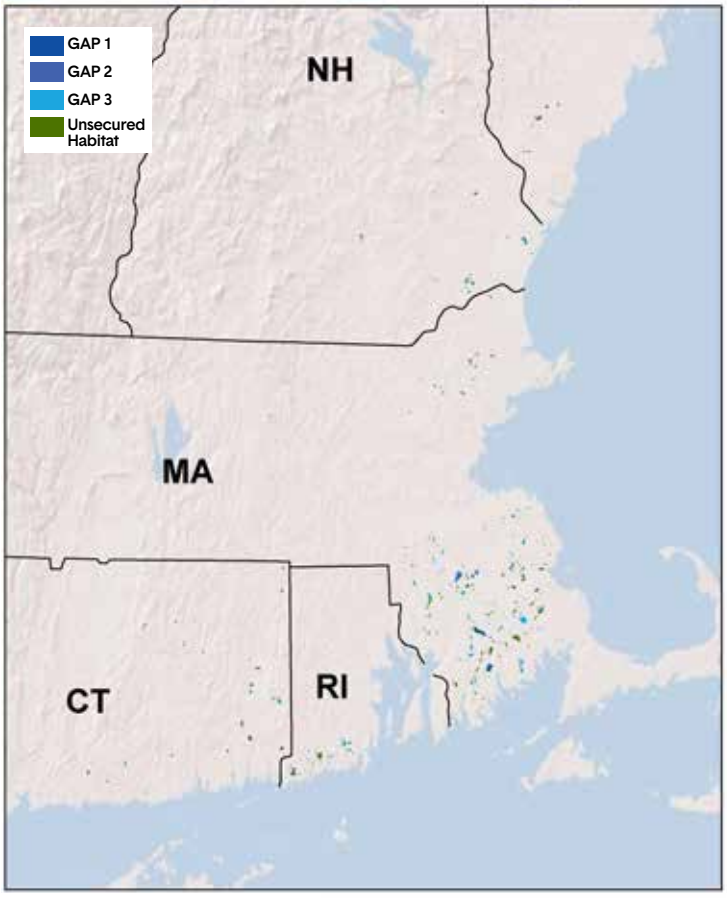
mud sedge (*Carex limosa*)

bog birch (*Betula pumila*)

MACROGROUP

COASTAL PLAIN SWAMP & PEATLAND





Coastal Plain Swamp & Peatland

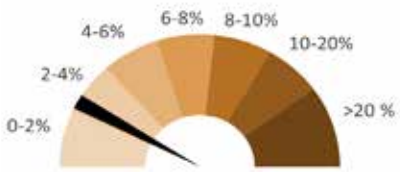
Sedge, grass, dwarf-shrub, or tree-dominated peatlands in southern New England.

Acres in New England

18,628

Percent Secured

GAP 1 = 10%
GAP 2 = 7%
GAP 3 = 26%



Predicted Loss to Development by 2050

571 acres (3%)

	ACRES	GAP 1	GAP 2	GAP 3	UNSECURED	IMPORTANT PLANT AREAS TOTAL	P	S	U
Coastal Plain Swamp & Peatland	**18,628**	**10%**	**7%**	**26%**	**56%**				
Connecticut	2,474	1%	8%	24%	67%				
Massachusetts	12,619	12%	8%	27%	53%				
Maine	637	0%	4%	17%	79%				
New Hampshire	1,154	18%	4%	38%	40%				
Rhode Island	1,744	6%	3%	25%	66%				
New England	**18,628**	**1,911**	**1,313**	**4,924**	**10,480**				

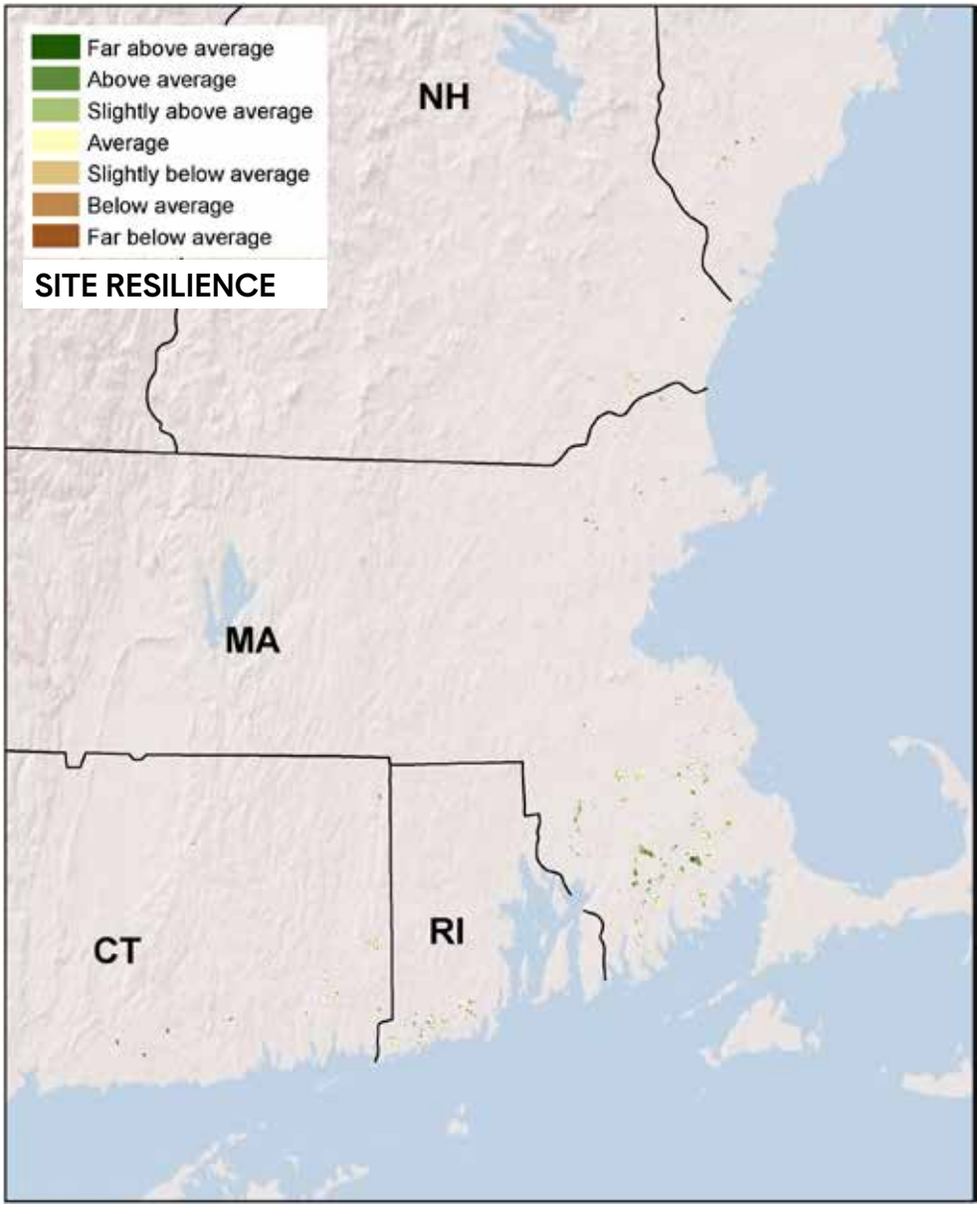
P = Protected S = Secured
U = Unsecured

DISTRIBUTION OF HABITATS

North Atlantic Coastal Plain Basin Peat Swamp

Atlantic Coastal Plain Northern Bog

North Atlantic Coastal Plain Basin Peat Swamp



© Robert Coxe (Delaware Species Conservation & Research Program)

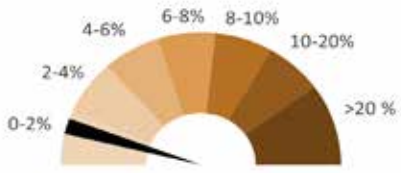
Description

A forested swamp of peat-accumulating basins in the coastal plain. Atlantic white cedar is characteristic; red maple and/or black spruce may be present. Understory plants include alder, great laurel, high-bush blueberry, winterberry, swamp azalea, and sphagnum moss.

Associated Herbs & Shrubs

bayonet rush (*Juncus militaris*), bushy bluestem (*Andropogon glomeratus*), coastal sedge (*Carex exilis*), woolly-fruited sedge (*Carex lasiocarpa*), tussock sedge (*Carex stricta*), Billings' sedge (*Carex billingsii*), tawny cottonsedge (*Eriophorum virginicum*), leatherleaf (*Chamaedaphne calyculata*), bayonet rush (*Juncus militaris*), bushy bluestem (*Andropogon glomeratus*), coastal sedge (*Carex exilis*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	1%	137	0%	5%	9%	15%	85%
Above average	21%	3,743	15%	5%	24%	44%	56%
Slightly above average	28%	4,945	11%	4%	28%	43%	57%
Average	42%	7,522	10%	10%	27%	47%	53%
Slightly below average	4%	757	2%	4%	35%	41%	59%
Below average	2%	359	0%	0%	22%	22%	78%
Far below average	0%	10	0%	0%	11%	11%	89%
Developed	2%	310	7%	3%	18%	28%	72%
TOTAL	100%	17,783	11%	7%	27%	45%	55%



Predicted Loss to Development by 2050

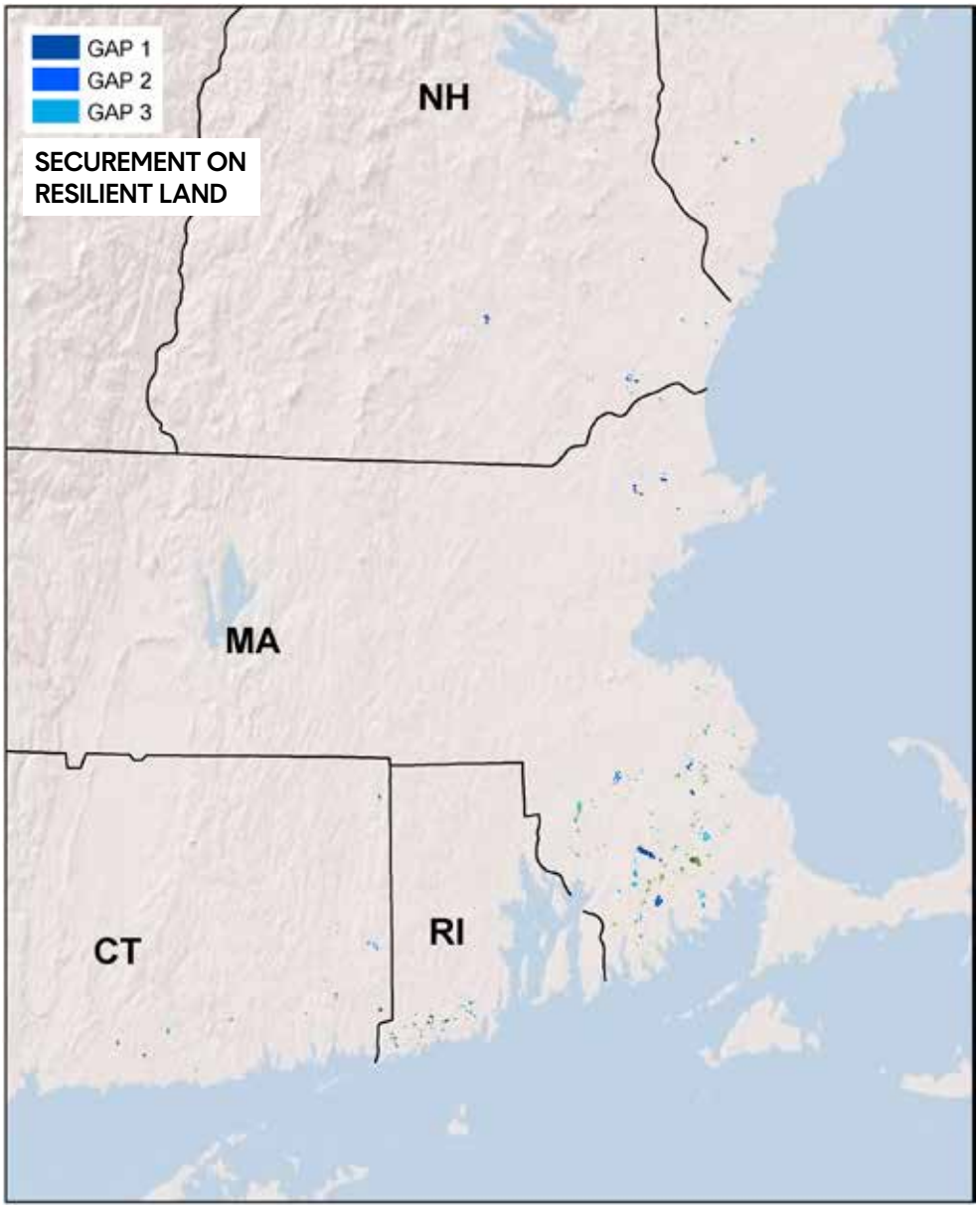
Low 2%

This community has a low development threat, with 444 acres (2%) likely to be lost over the next 30 years.

Resilience & Securement

50% of this rare habitat scores high for resilience, 45% of the total acreage is secured against conversion, and 18% is protected.

North Atlantic Coastal Plain Basin Peat Swamp



LOCATION	TOTAL ACRES	% SECURED
New England	17,783	44%
CT	2,475	33%
MA	11,774	47%
ME	637	21%
NH	1,154	60%
RI	1,744	34%
VT		

LOCATION	RESILIENT ACRES	% SECURED
New England	8,826	43%
CT	1,234	36%
MA	5,950	45%
ME	443	25%
NH	389	54%
RI	810	43%
VT		

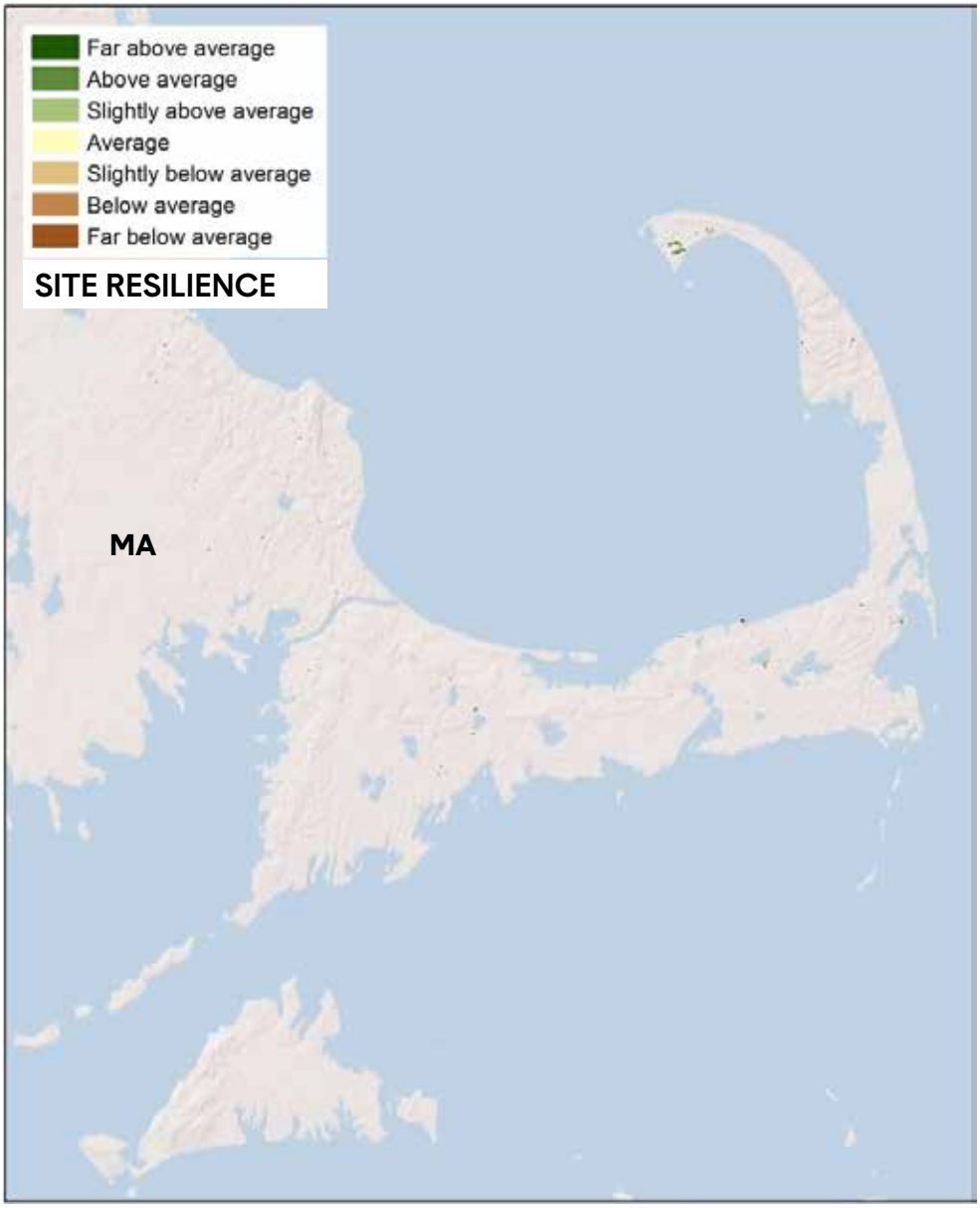
Rare or Uncommon Plants Associated with this Habitat

Collins' sedge
(*Carex collinsii*)

swamp wedgescale
(*Sphenopholis pensylvanica*)

© Keith Love

Atlantic Coastal Plain Northern Bog



© Kathleen Strakosch Walz
(New Jersey Natural Heritage Program)

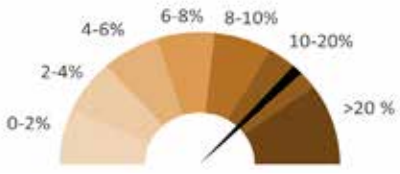
Description

Dwarf-shrub and sphagnum bogs occurring in isolated glacial kettleholes. The system is characterized by acidic, tannic water supporting a floating or grounded sphagnum mat over which leatherleaf and dwarf huckleberry are rooted.

Associated Herbs & Shrubs

highbush blueberry (*Vaccinium corymbosum*) swamp-loosestrife (*Decodon verticillatus*), pitch pine (*Pinus rigida*), Atlantic white cedar (*Chamaecyparis thyoides*), black spruce (*Picea mariana*), white water-lily (*Nymphaea odorata*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	1%	7	0%	0%	0%	0%	100%
Above average	21%	181	0%	49%	21%	70%	30%
Slightly above average	16%	135	1%	7%	38%	46%	54%
Average	38%	322	4%	0%	24%	28%	72%
Slightly below average	7%	60	15%	0%	21%	35%	65%
Below average	2%	20	0%	0%	13%	13%	88%
Far below average	0%	0					
Developed	14%	121	0%	8%	20%	29%	71%
TOTAL	**100%**	**845**	**3%**	**13%**	**24%**	**40%**	**60%**



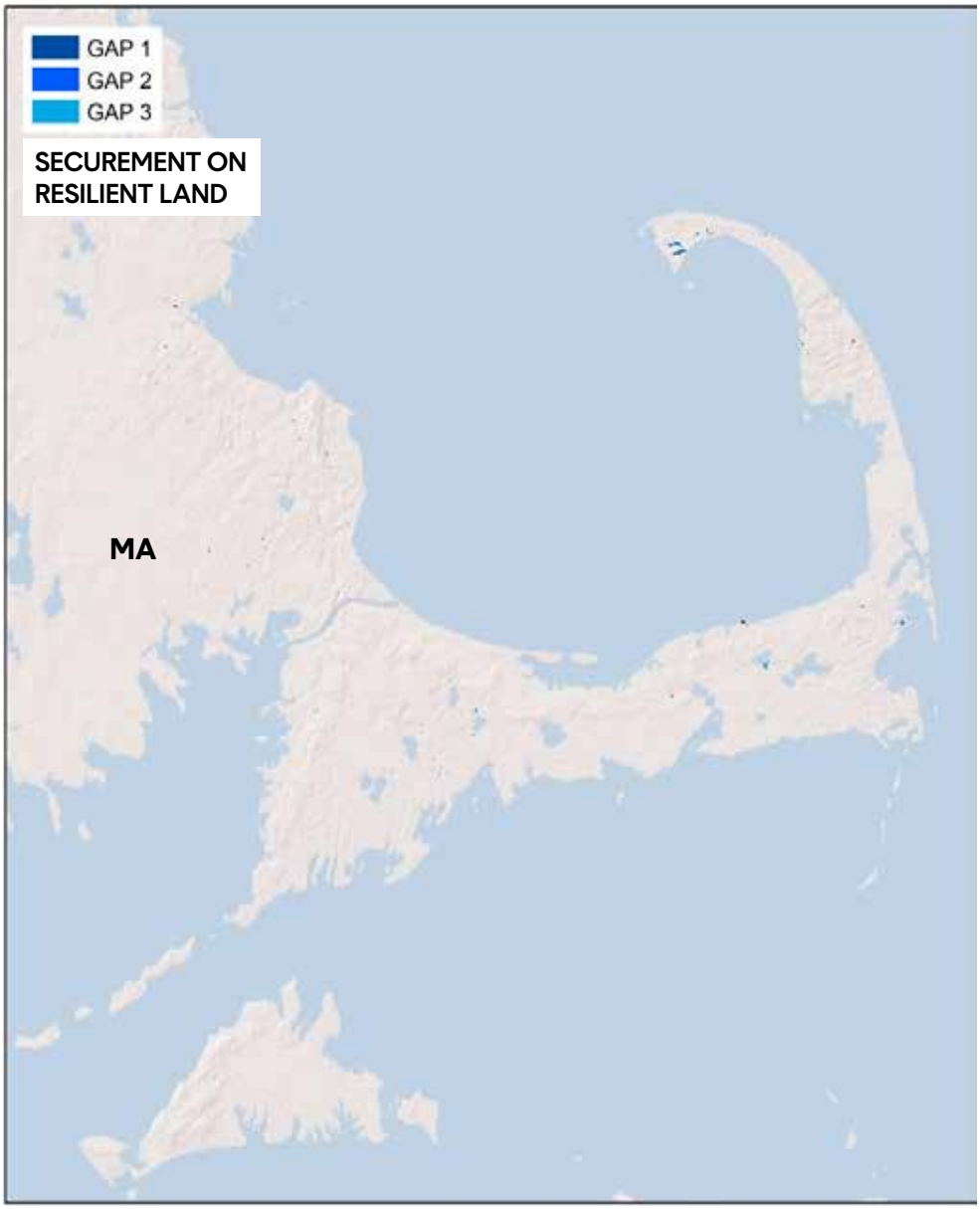
Predicted Loss to Development by 2050
High 15%

This community is threatened by development, with127 acres (15%) likely to be lost over the next 30 years.

Resilience & Securement

38% of this rare habitat scores high for resilience, 40% of the total acreage is secured against conversion, and 16% is protected.

Atlantic Coastal Plain Northern Bog



LOCATION	TOTAL ACRES	% SECURED
New England	845	40%
CT		
MA	845	40%
ME		
NH		
RI		
VT		

LOCATION	RESILIENT ACRES	% SECURED
New England	323	58%
CT		
MA	323	58%
ME		
NH		
RI		
VT		

Rare or Uncommon Plants Associated with this Habitat

dwarf mistletoe
(*Arceuthobium pusillum*)

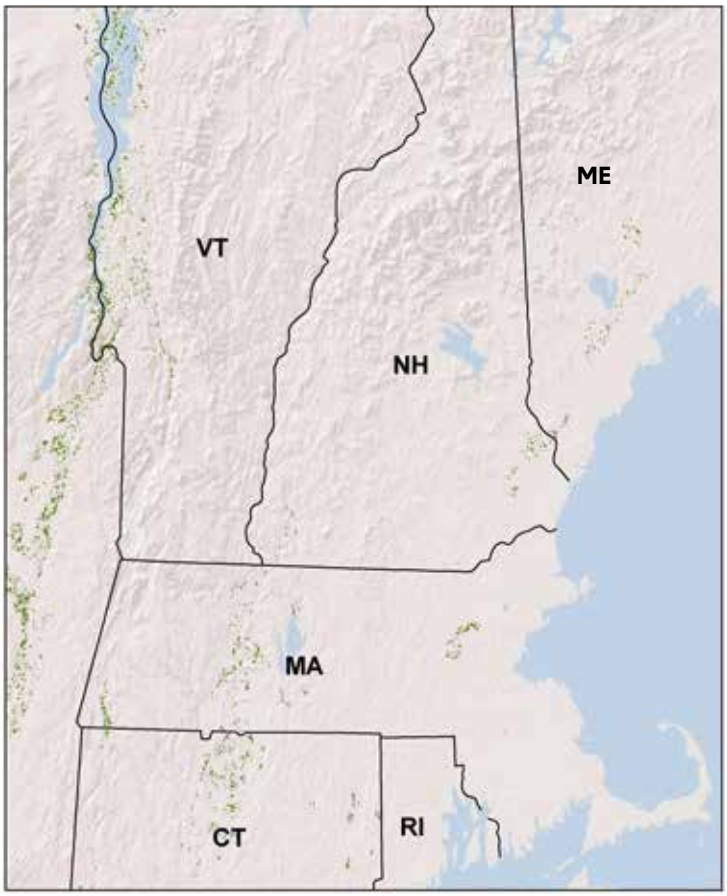
mud sedge
(*Carex limosa*)

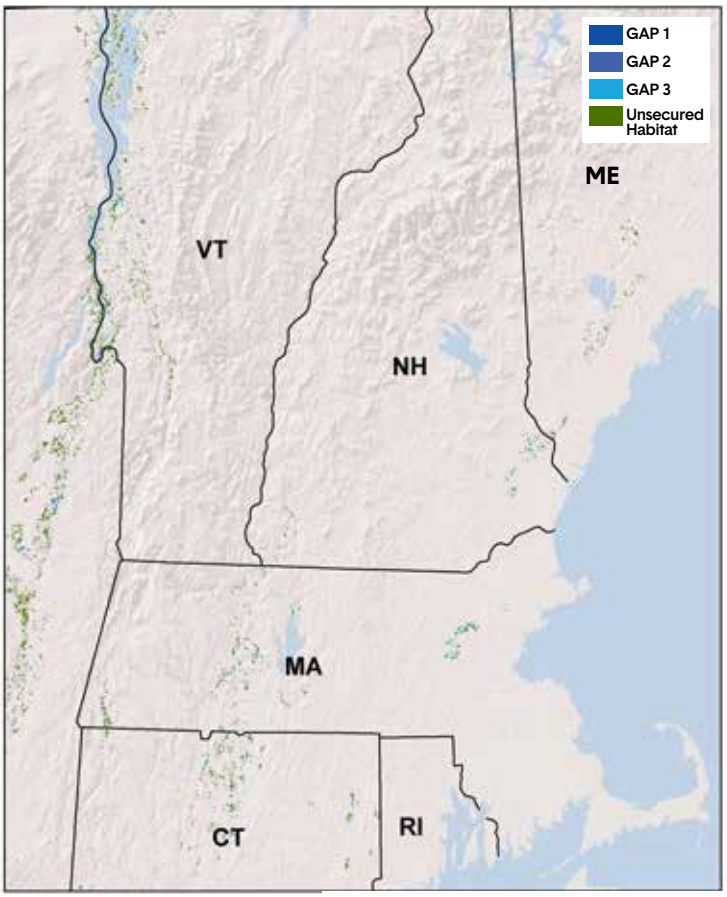
pod-grass
(*Scheuchzeria palustris*)

Long's woolsedge
(Scirpus longii)

MACROGROUP

CENTRAL HARDWOOD SWAMP





Central Hardwood Swamp

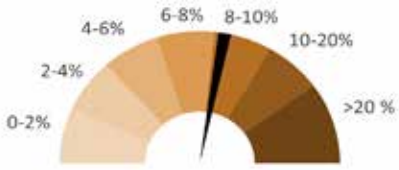
Broadleaved or mixed forested swamps in central New England.

Acres in New England

39,338

Percent Secured

GAP 1 = 1%
GAP 2 = 2%
GAP 3 = 11%



Predicted Loss to Development by 2050

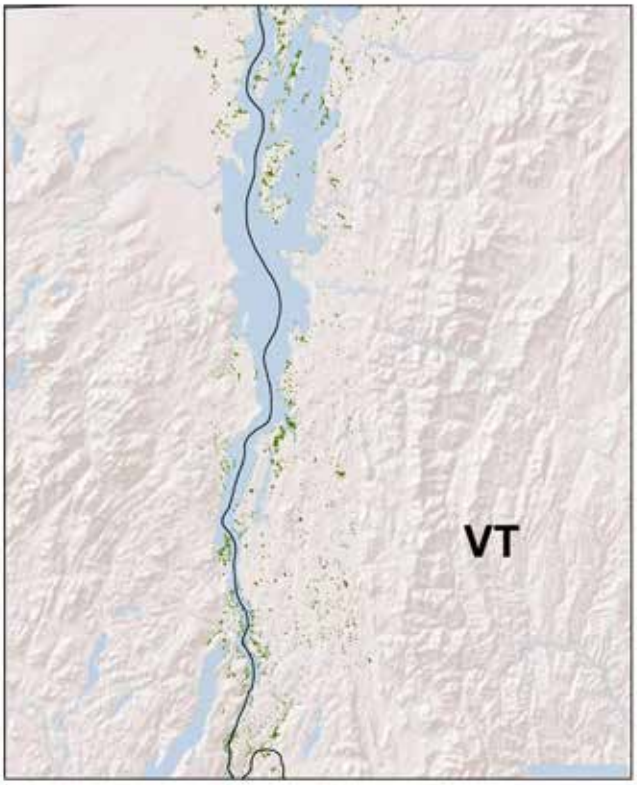
3,120 acres (8%)

	ACRES	GAP 1	GAP 2	GAP 3	UNSECURED	IMPORTANT PLANT AREAS TOTAL	P	S	U
Central Hardwood Swamp	**39,338**	**1%**	**2%**	**11%**	**85%**	**1**			**1**
Connecticut	9,249	0%	3%	13%	84%				
Massachusetts	9,553	0%	3%	17%	80%	1			1
Maine	2,783	0%	2%	1%	97%				
New Hampshire	1,955	1%	3%	20%	76%				
Rhode Island	0	0%	0%	0%	100%				
Vermont	15,798	3%	0%	8%	88%				
New England	**39,338**	**499**	**787**	**4,501**	**33,550**				

P = Protected S = Secured
U = Unsecured

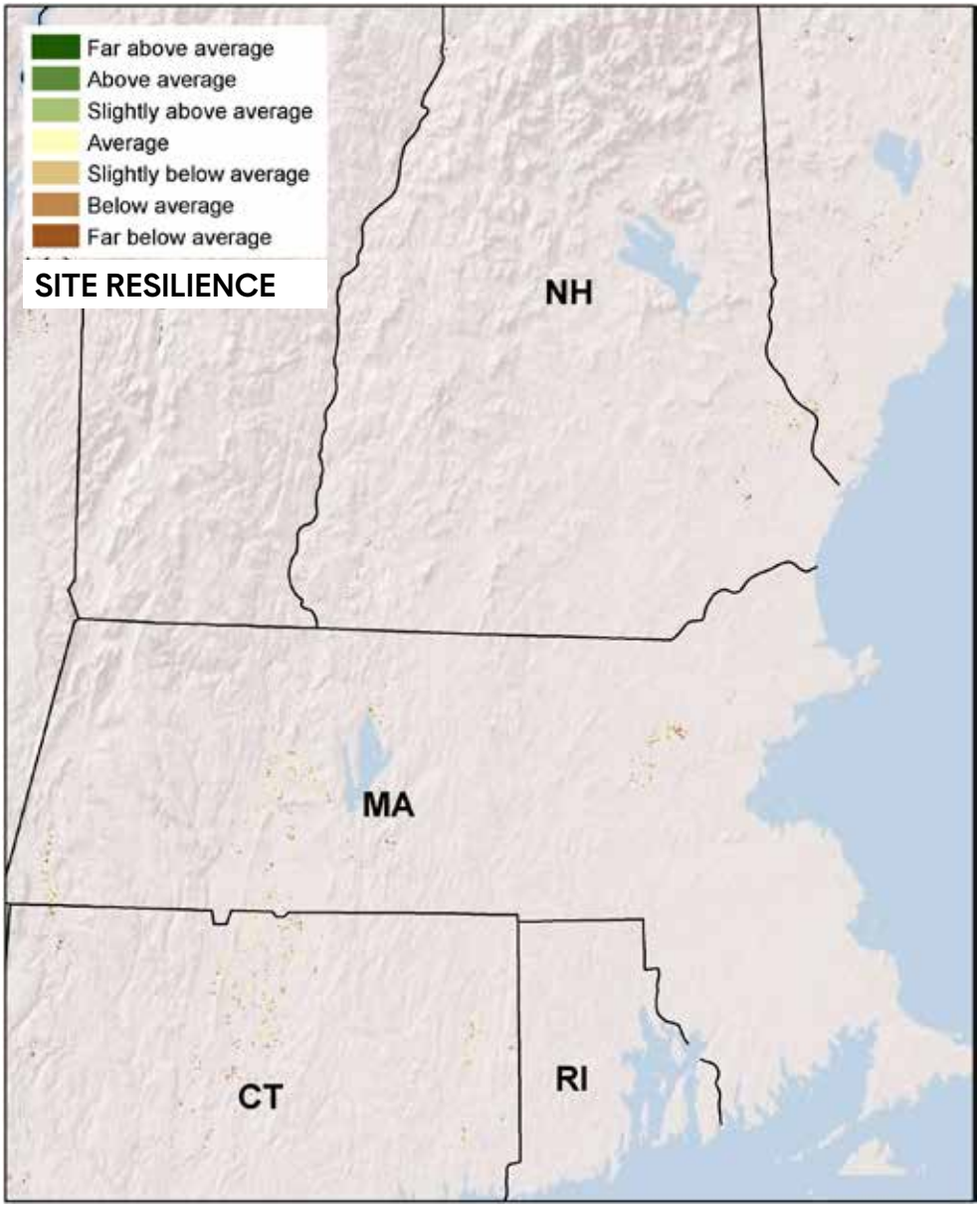
DISTRIBUTION OF HABITATS

North-Central Interior Wet Flatwoods



Glacial Marine & Lake Wet Clayplain Forest

North Central Interior Wet Flatwoods



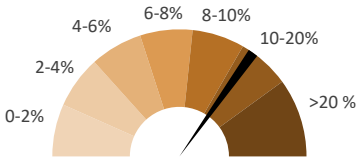
Description

A hardwood forest of upland and wetland species occurring in depressions or poorly drained lowlands. Pin oak dominates in many areas; other common trees include swamp white oak, bur oak, black gum, sweet gum, and red maple. Buttonbush, winterberry, alder, various sedges, and cinnamon fern are typical.

Associated Herbs & Shrubs

Canada moonseed (*Menispermum canadense*), American climbing fern (*Lygodium palmatum*), common hackberry (*Celtis occidentalis*), fall sneezeweed (*Helenium autumnale*), fox-tail sedge (*Carex alopecoidea*), Virginia spring-beauty (*Claytonia virginica*), pink bitter-cress (*Cardamine douglassii*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	0%	88	6%	1%	6%	12%	88%
Above average	8%	1,901	2%	2%	14%	17%	83%
Slightly above average	17%	4,308	0%	5%	12%	17%	83%
Average	44%	11,016	0%	3%	13%	16%	84%
Slightly below average	13%	3,405	0%	1%	13%	15%	85%
Below average	11%	2,725	0%	2%	17%	19%	81%
Far below average	1%	296	1%	4%	11%	16%	84%
Developed	6%	1,565	0%	2%	10%	12%	88%
TOTAL	100%	25,306	0%	3%	13%	16%	84%



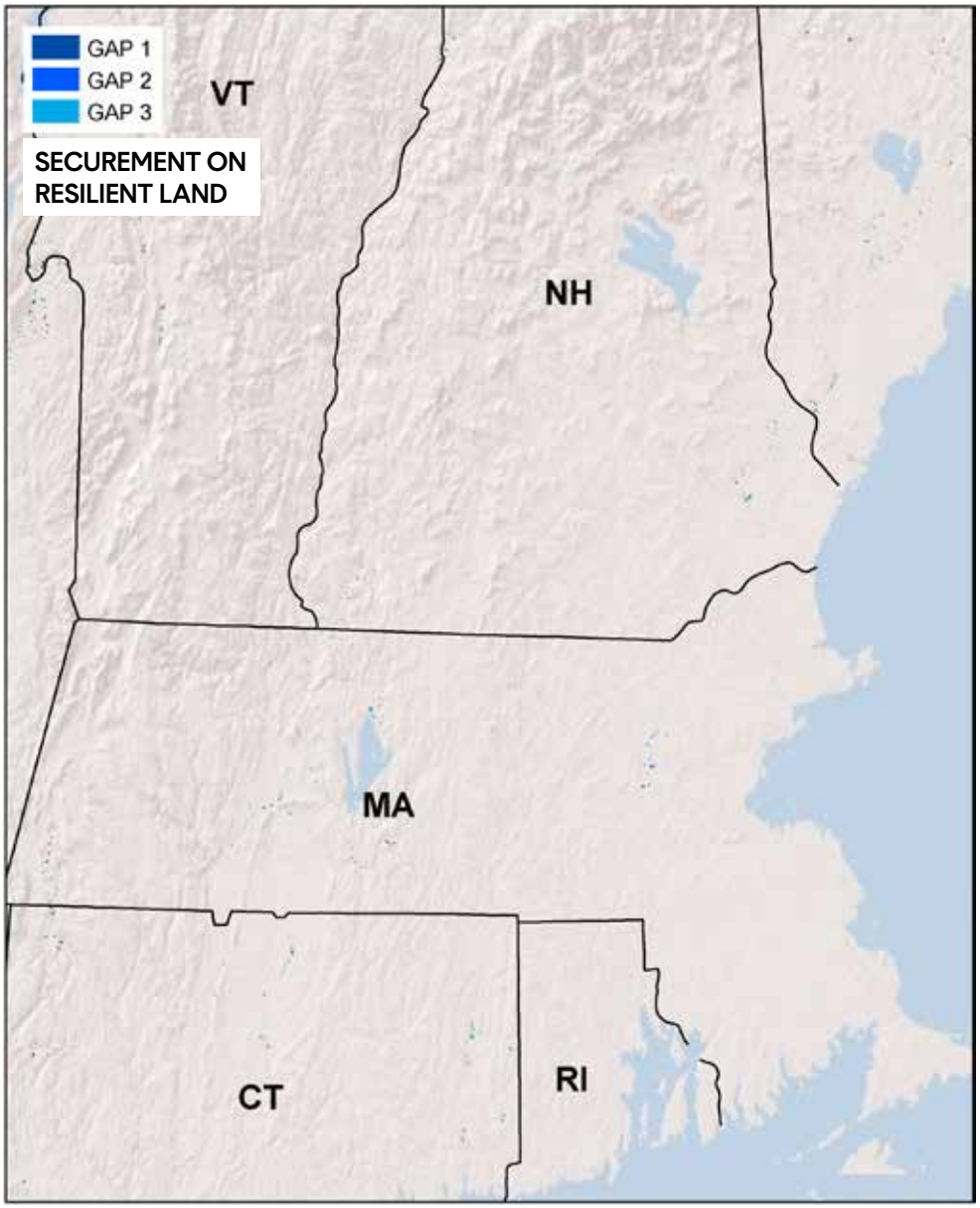
Predicted Loss to Development by 2050
High 11%

This community is threatened by development, with 2,743 acres (11%) likely to be lost over the next 30 years.

Resilience & Securement

25% of this rare habitat scores high for resilience, 16% of the total acreage is secured against conversion, and 3% is protected.

North Central Interior Wet Flatwoods



LOCATION	TOTAL ACRES	% SECURED
New England	25,306	16%
CT	9,249	16%
MA	9,553	20%
ME	2,783	3%
NH	1,955	24%
RI		
VT	1,765	6%

LOCATION	RESILIENT ACRES	% SECURED
New England	6,297	17%
CT	1,551	21%
MA	1,829	26%
ME	1,548	3%
NH	613	23%
RI		
VT	757	9%

Rare or Uncommon Plants Associated with this Habitat

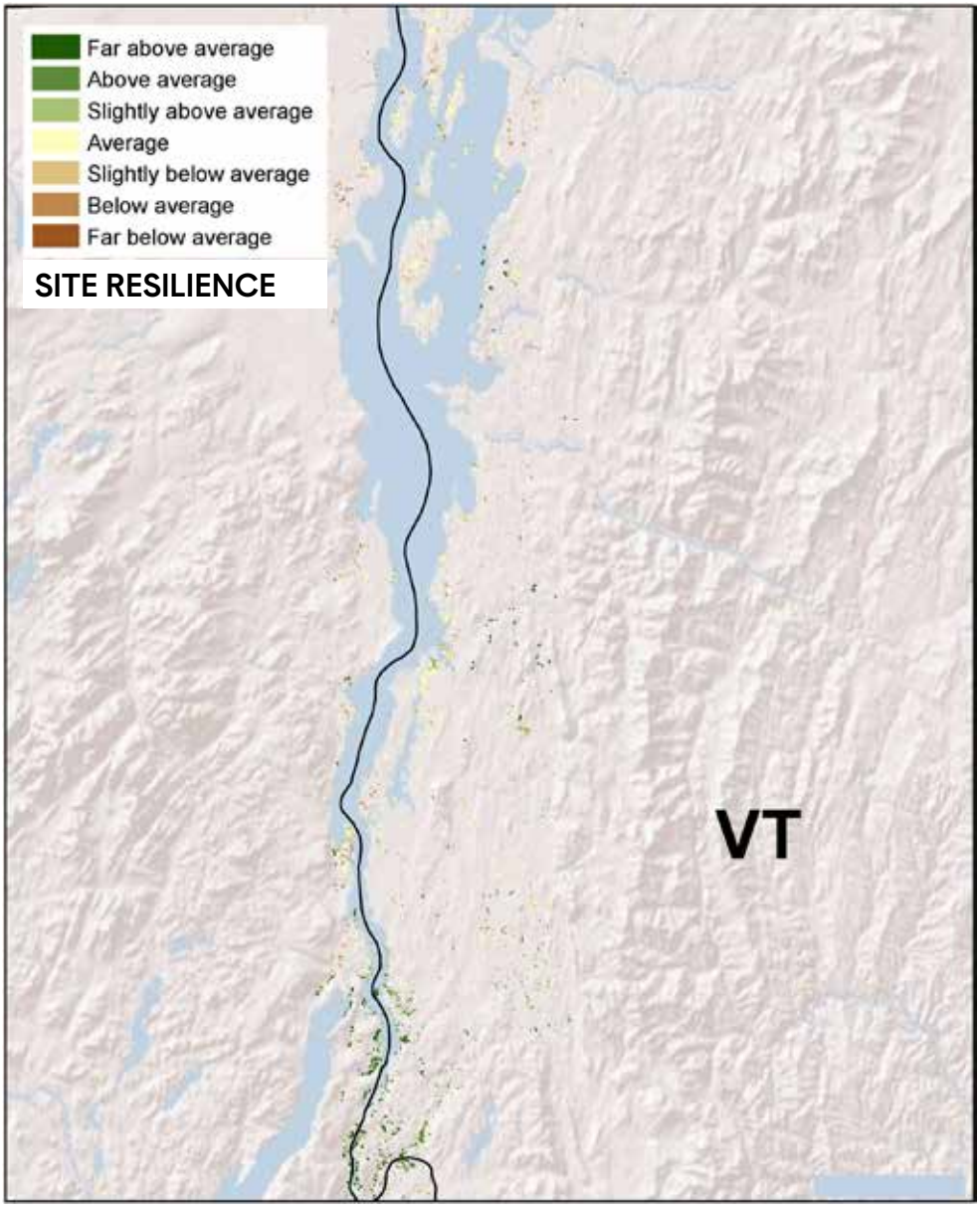
southern agrimony (*Agrimonia parviflora*)

fox-tail sedge (*Carex alopecoidea*)

Virginia spring-beauty (*Claytonia virginica*)

sweet-gum (*Liquidambar styraciflua*)

Glacial Marine & Lake Wet Clayplain Forest



© Eric Sorenson (Vermont Fish & Wildlife)

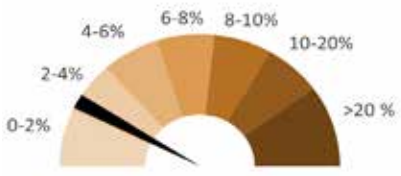
Description

A wetland variant of the mesic clayplain forest. The two types occur in a tight mosaic on the landscape. Swamp white oak, green ash, red maple, black ash, and musclewood are common along with moisture-loving sedges and herbs such as sensitive fern and water hemlock.

Associated Herbs & Shrubs

American hazelnut (*Corylus americana*) broad beech fern (*Phegopteris hexagonoptera*), buxbaum's sedge (*Carex buxbaumii*), folliculate sedge (*Carex folliculate*), fragrant sumac (*Rhus aromatic*), rough avens (*Geum laciniatum*), spicebush (*Lindera benzoin*), leafy bulrush (*Scirpus polyphyllus*), white ash (*Fraxinus americana*), green ash (*Fraxinus pennsylvanica*), black ash (*Fraxinus nigra*), eastern hemlock (*Tsuga canadensis*), northern red oak (*Quercus rubra*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	2%	301	13%	0%	6%	19%	81%
Above average	10%	1,396	8%	1%	5%	14%	86%
Slightly above average	19%	2,642	6%	1%	7%	14%	86%
Average	52%	7,332	2%	0%	10%	12%	88%
Slightly below average	11%	1,513	0%	0%	9%	9%	91%
Below average	3%	449	0%	0%	3%	3%	97%
Far below average	0%	18	0%	0%	0%	0%	100%
Developed	3%	381	1%	1%	15%	17%	83%
TOTAL	100%	14,032	3%	0%	9%	12%	88%



Predicted Loss to Development by 2050

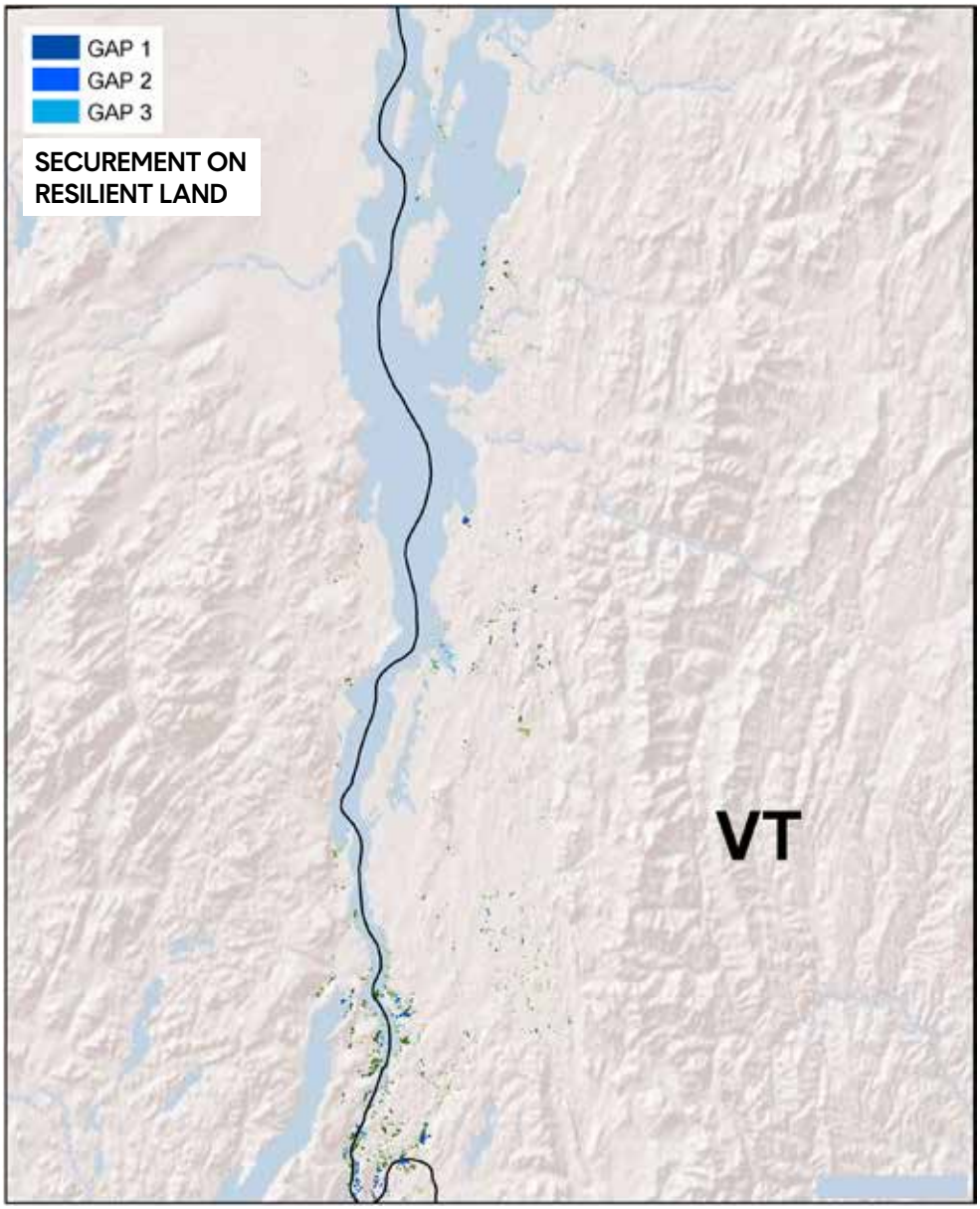
Low 3%

This community is not threatened by development, with 377 acres (3%) likely to be lost over the next 30 years.

Resilience & Securement

31% of this rare habitat scores high for resilience, 12% of the total acreage is secured against conversion, and 3% is protected.

Glacial Marine & Lake Wet Clayplain Forest



LOCATION	TOTAL ACRES	% SECURED
New England	14,032	12%
CT		
MA		
ME		
NH		
RI		
VT	14,032	12%

LOCATION	RESILIENT ACRES	% SECURED
New England	4,340	14%
CT		
MA		
ME		
NH		
RI		
VT	4,340	14%

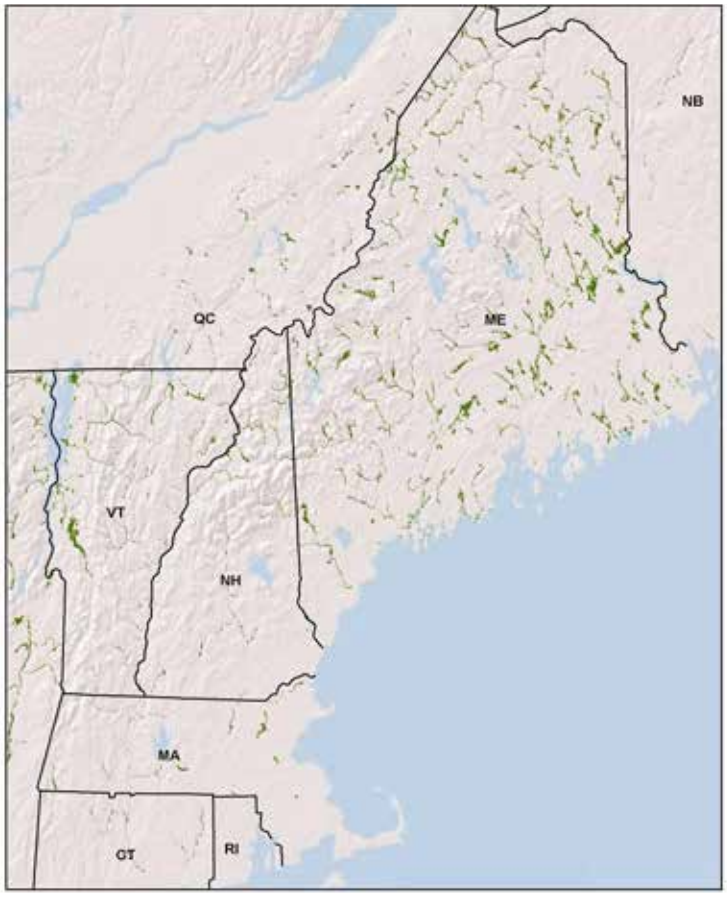
Rare or Uncommon Plants Associated with this Habitat

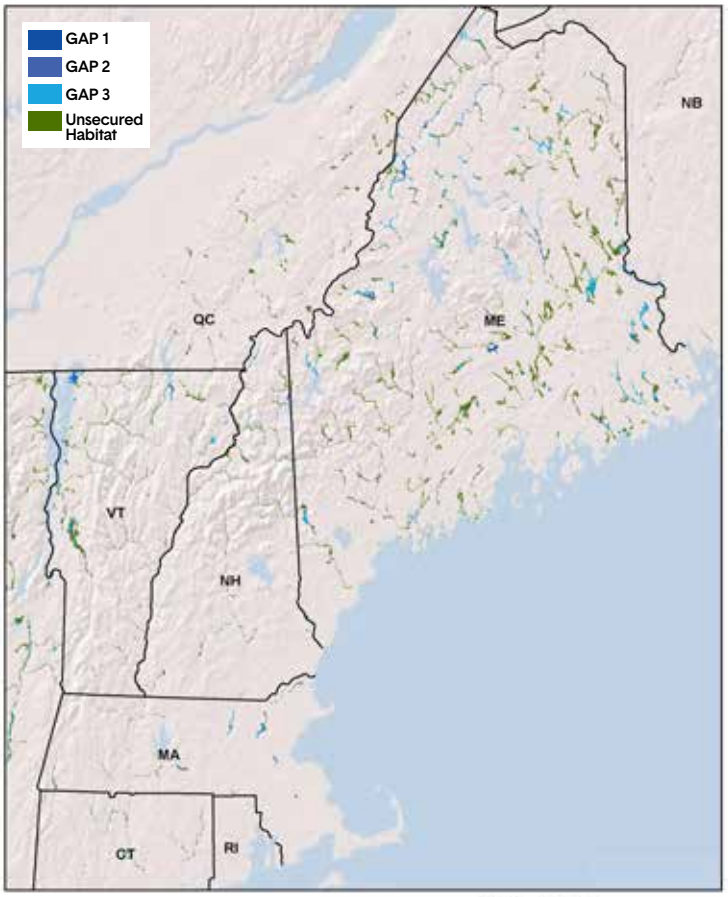
handsome sedge
(*Carex formosa*)

American ginseng
(*Panax quinquefolius*)

pine-drops
(*Pterospora andromedea*)

MACROGROUP
LARGE RIVER FLOODPLAIN

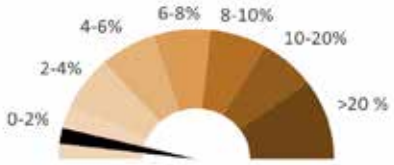




Large River Floodplain
A complex of wetland and upland vegetation on floodplains of medium to large rivers in New England.

Acres in New England
340,644

Percent Secured
GAP 1 = 3%
GAP 2 = 5%
GAP 3 = 17%

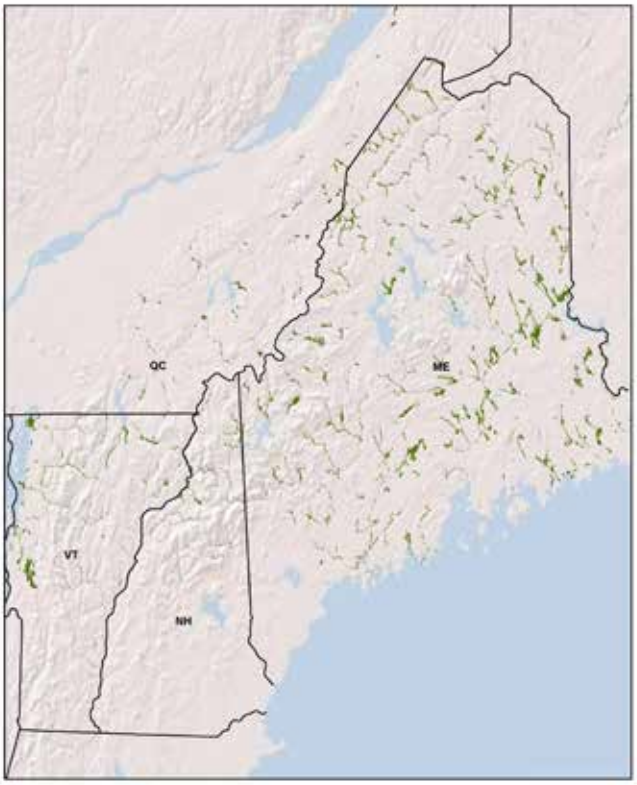


Predicted Loss to Development by 2050
3,846 acres (1%)

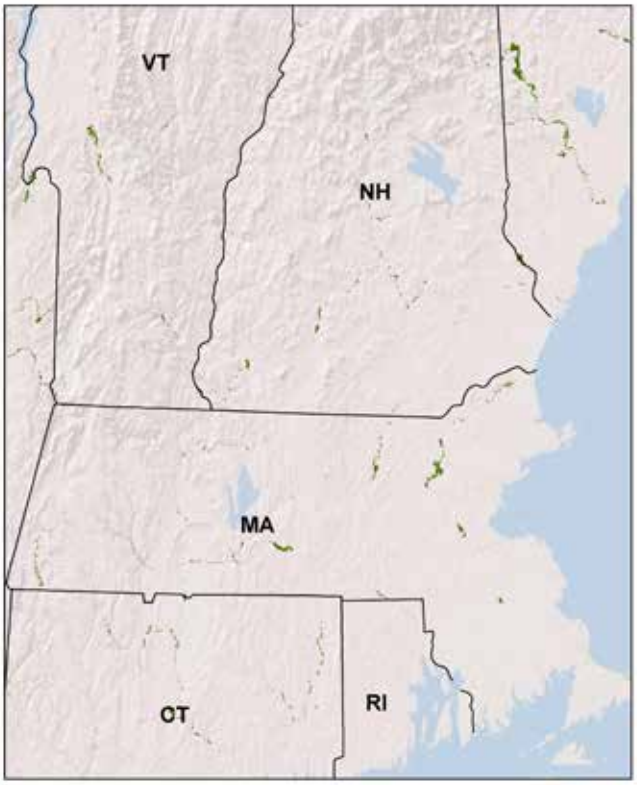
	ACRES	GAP 1	GAP 2	GAP 3	UNSECURED	IMPORTANT PLANT AREAS TOTAL	P	S	U
Large River Floodplain	**340,644**	**3%**	**5%**	**17%**	**75%**	**3**			**3**
Connecticut	3,814	0%	6%	25%	68%				
Massachusetts	9,684	0%	17%	24%	59%	3		1	2
Maine	259,721	3%	3%	18%	76%				
New Hampshire	16,413	3%	5%	12%	80%				
Rhode Island	19	0%	0%	12%	88%				
Vermont	50,993	2%	9%	14%	74%				
New England	**340,644**	**9,409**	**16,055**	**59,440**	**255,741**				

P = Protected S = Secured
U = Unsecured

DISTRIBUTION OF HABITATS

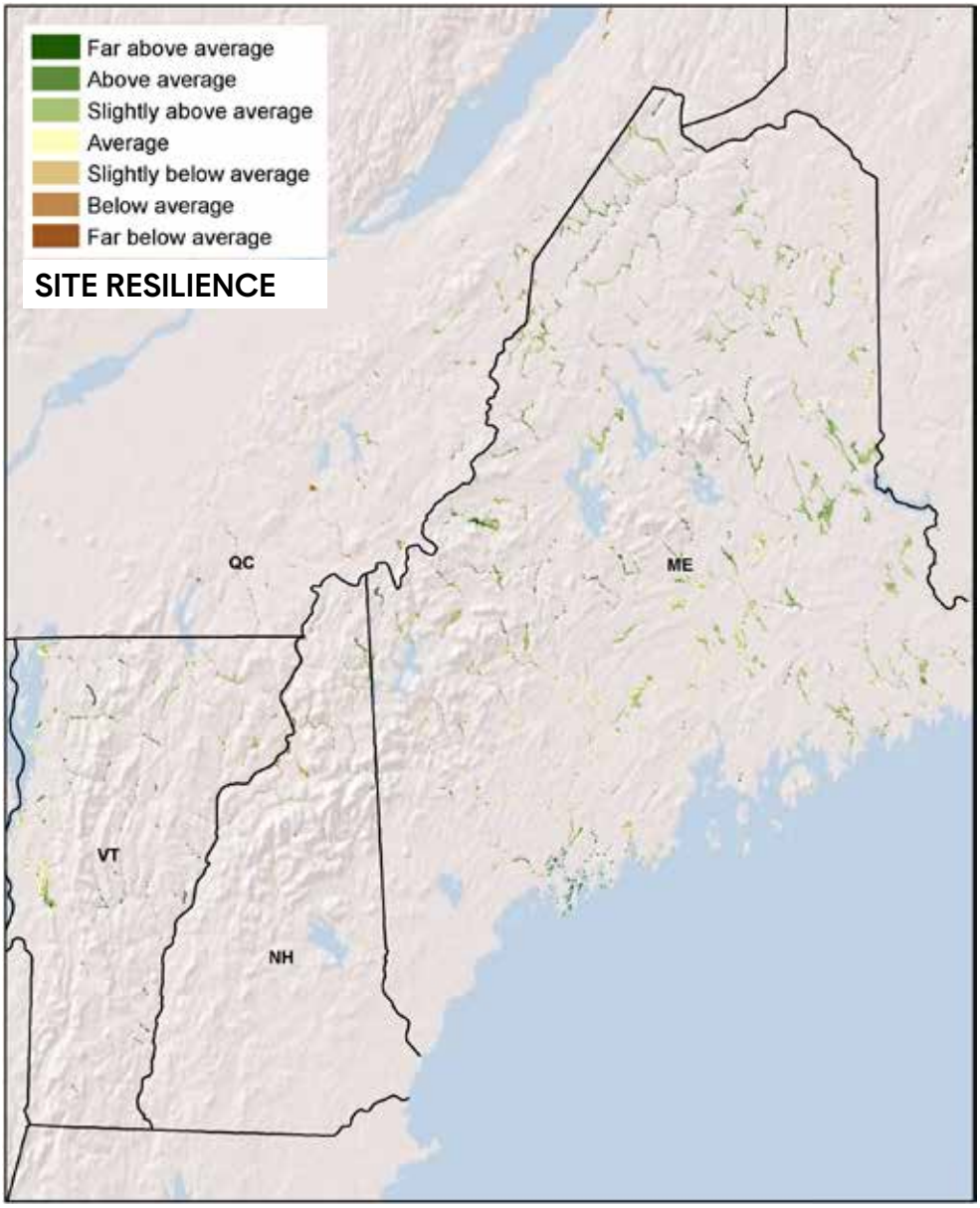


Laurentian-Acadian Large River Floodplain



North-Central Appalachian Large River Floodplain

Laurentian-Acadian Large River Floodplain



© Elizabeth Thompson (Vermont Land Trust)

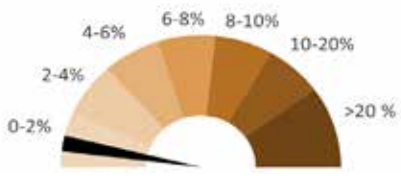
Description

A complex of wetland and upland vegetation on floodplains of medium to large northern rivers. Vegetation includes silver maple forests as well as shrub wetlands. Green ash, American elm, red maple, and musclewood are typical. Spring ephemeral herbs are abundant.

Associated Herbs & Shrubs

eastern bottle-brush grass (*Elymus hystrix*), green-dragon (*Arisaema dracontium*), lance-leaved figwort (*Scrophularia lanceolata*), cut-leaved windflower (*Anemone multifida*), winged loosestrife (*Lythrum alatum*), false water-pepper smartweed (*Polygonum hydropiperoides*), purple virgin's-bower (*Clematis occidentalis*), Virginia water-horehound (*Lycopus virginicus*), greater yellow water crowfoot (*Ranunculus flabellaris*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	1%	2,828	4%	5%	20%	29%	71%
Above average	18%	56,876	5%	6%	21%	32%	68%
Slightly above average	49%	152,433	3%	4%	21%	27%	73%
Average	20%	62,774	2%	6%	9%	16%	84%
Slightly below average	5%	16,559	2%	2%	6%	10%	90%
Below average	3%	8,681	0%	4%	6%	11%	89%
Far below average	0%	913	0%	0%	6%	6%	94%
Developed	3%	7,992	1%	3%	11%	15%	85%
TOTAL	100%	309,055	3%	5%	17%	25%	75%



Predicted Loss to Development by 2050

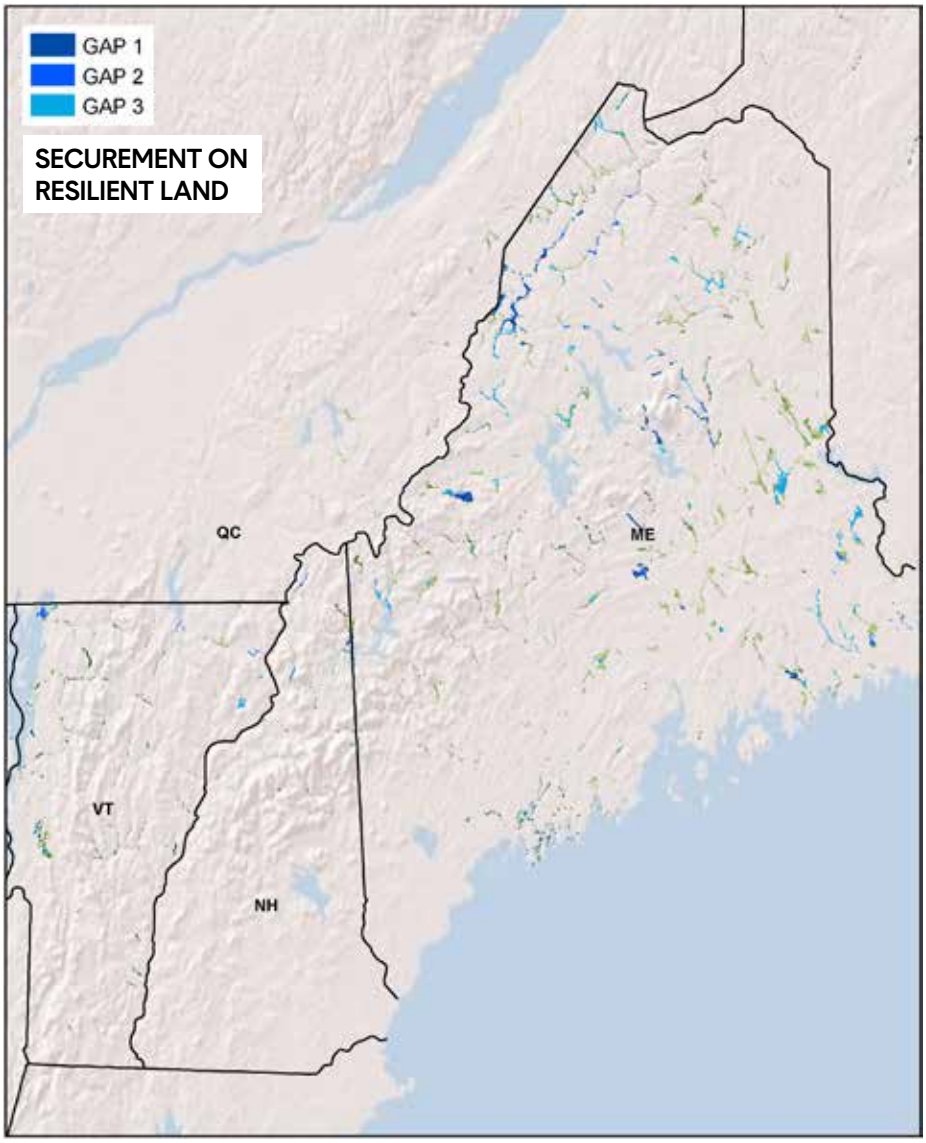
Very low <1%

This community is not threatened by development, with 2,405 acres (<1%) likely to be lost over the next 30 years.

Resilience & Securement

68% of this habitat scores high for resilience, and 25% of the total acreage is secured against conversion, with the resilient areas having the highest proportion of securement.

Laurentian-Acadian Large River Floodplain



LOCATION	TOTAL ACRES	% SECURED
New England	309,055	24%
CT		
MA		
ME	249,426	24%
NH	12,010	20%
RI		
VT	47,620	26%

LOCATION	RESILIENT ACRES	% SECURED
New England	212,136	29%
CT		
MA		
ME	186,857	29%
NH	5,373	27%
RI		
VT	19,906	27%

Rare or Uncommon Plants Associated with this Habitat

Eaton's beggar-ticks (*Bidens eatonii*)

Long's bitter-cress (*Cardamine longii*)

tidal spikesedge (*Eleocharis aestuum*)

Provancher's Philadelphia fleabane (*Erigeron philadelphicus* var. *provancheri*)

parker's pipewort (*Eriocaulon parkeri*)

Robinson's hawkweed (*Hieracium robinsonii*)

auricled twayblade (*Neottia auriculata*)

Furbish's lousewort (*Pedicularis furbishiae*)

Anticosti American-aster (*Symphyotrichum anticostense*)

Gaspe serviceberry (*Amelanchier gaspensis*)

scabrous black sedge (*Carex atratiformis*)

Crawe's sedge (*Carex crawei*)

beaked sedge (*Carex rostrata*)

early wild-rye (*Elymus macgregorii*)

hyssop-leaved fleabane (*Erigeron hyssopifolius*)

musky monkey-flower (*Erythranthe [Mimulus] moschata*)

northern dwarf-gentian (*Gentianella amarella* ssp. *acuta*)

greater creeping rush (*Juncus subtilis*)

Vasey's rush (*Juncus vaseyi*)

field oxytrope (*Oxytropis campestris* var. *johannensis*)

bayberry willow (*Salix myricoides*)

northern wild senna (*Senna hebecarpa*)

rough dropseed (*Sporobolus compositus* var. *drummondii*)

eastern tansy (*Tanacetum bipinnatum* ssp. *huronense*)

veiny-leaved meadow-rue (*Thalictrum venulosum* var. *confine*)

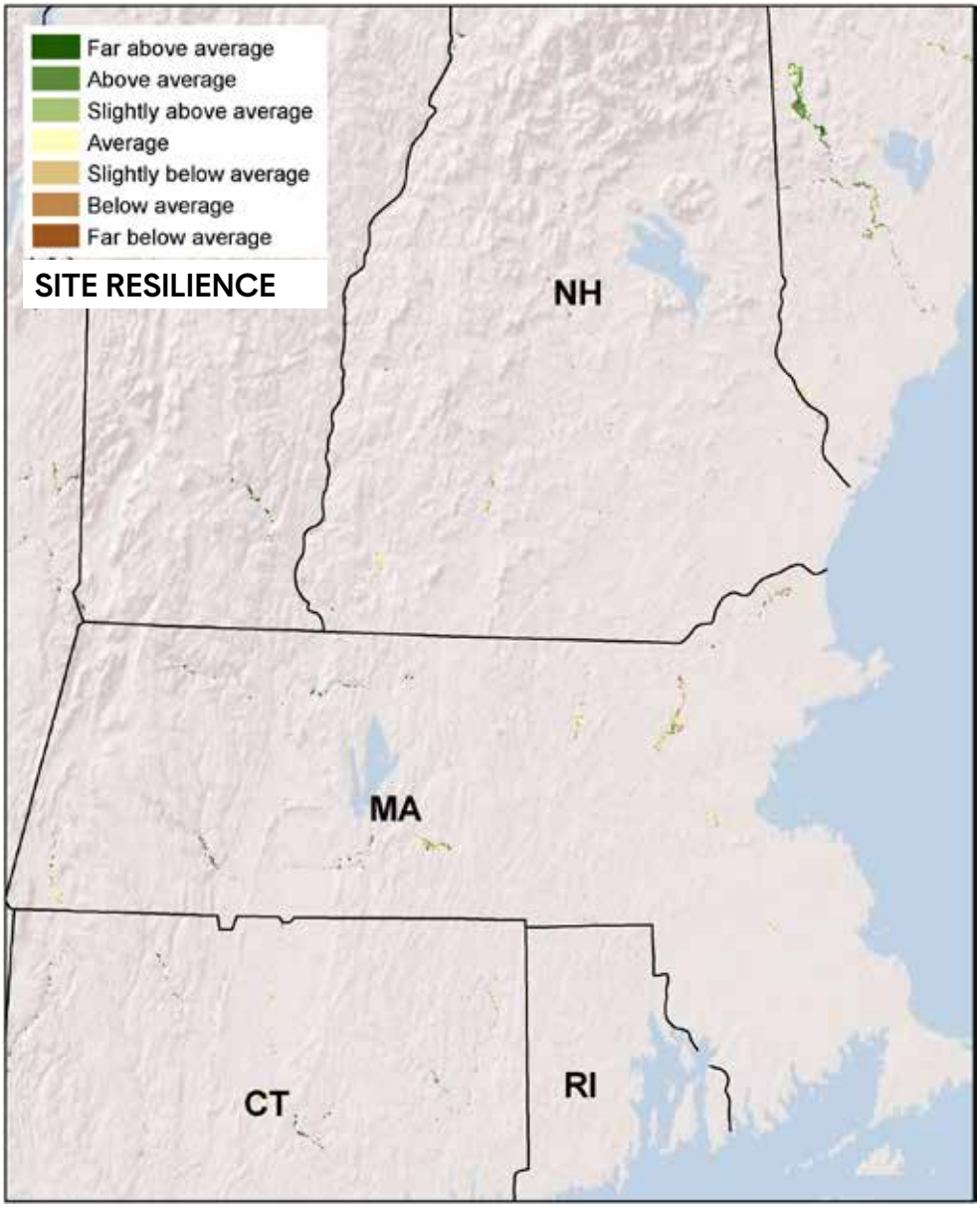
water speedwell (*Veronica catenata*)

Clinton's bulrush (*Trichophorum clintonii*)

New England violet (*Viola novae-angliae*)

elk sedge (*Carex garberi*)

North-Central Appalachian Large River Floodplain



© Bruce A. Sorrie (Massachusetts Division of Fisheries & Wildlife/ Natural Heritage & Endangered Species Program)

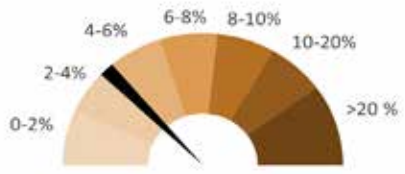
Description

A complex of wetland and upland vegetation on floodplains of medium to large rivers. The vegetation includes floodplain forests of silver maple, sycamore, box elder, and cottonwood, as well as herbaceous sloughs, shrub wetlands, ice scours, and riverside prairies.

Associated Herbs & Shrubs

green-dragon (*Arisaema dracontium*), Canada moonseed (*Menispermum canadense*), smooth beggar-ticks (*Bidens laevis*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	4%	1,183	9%	5%	21%	36%	64%
Above average	24%	7,575	5%	3%	28%	37%	63%
Slightly above average	22%	7,081	1%	4%	26%	31%	69%
Average	34%	10,655	0%	9%	18%	28%	72%
Slightly below average	7%	2,064	1%	14%	18%	33%	67%
Below average	3%	993	2%	10%	14%	25%	75%
Far below average	0%	60	0%	0%	6%	6%	94%
Developed	6%	1,979	1%	5%	12%	18%	82%
TOTAL	100%	31,590	2%	6%	22%	30%	70%



Predicted Loss to Development by 2050

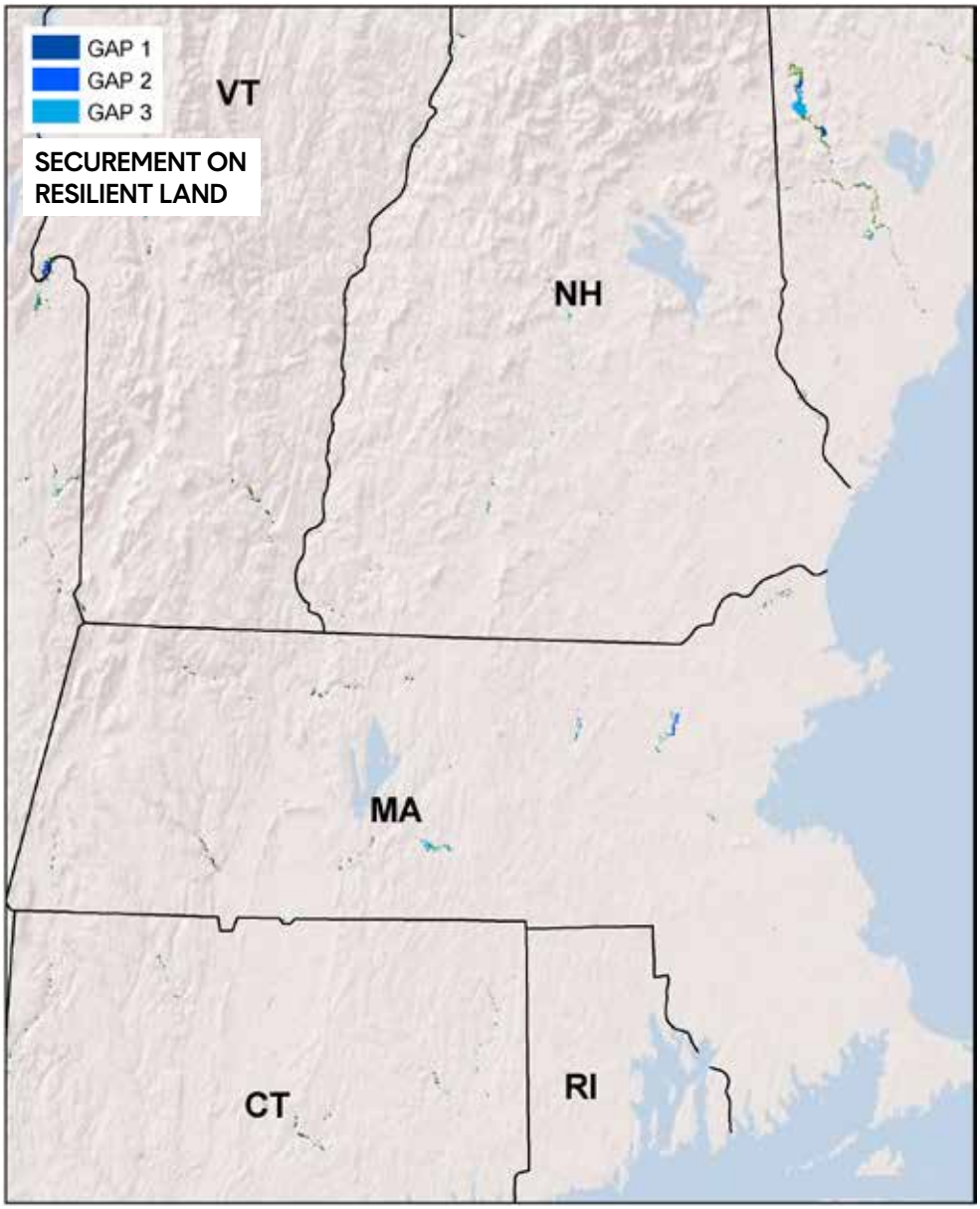
Moderately low 4%

This community is moderately threatened by development, with 1,441 acres (4%) likely to be lost over the next 30 years.

Resilience & Securement

50% of this habitat scores high for resilience, 30% of the total acreage is secured against conversion, and 8% is protected.

North-Central Appalachian Large River Floodplain



LOCATION	TOTAL ACRES	% SECURED
New England	31,590	30%
CT	3,814	32%
MA	9,684	41%
ME	10,296	30%
NH	4,403	20%
RI	19	12%
VT	3,374	15%

LOCATION	RESILIENT ACRES	% SECURED
New England	15,839	34%
CT	1,277	32%
MA	3,173	40%
ME	7,770	37%
NH	1,345	29%
RI	1	0%
VT	2,274	18%

Rare or Uncommon Plants Associated with this Habitat

Provancher's Philadelphia fleabane (*Erigeron philadelphicus* var. *provancheri*)

Robinson's hawkweed (*Hieracium robinsonii*)

early wild-rye (*Elymus macgregorii*)

musky monkey-flower (*Erythranthe [Mimulus] moschata*)

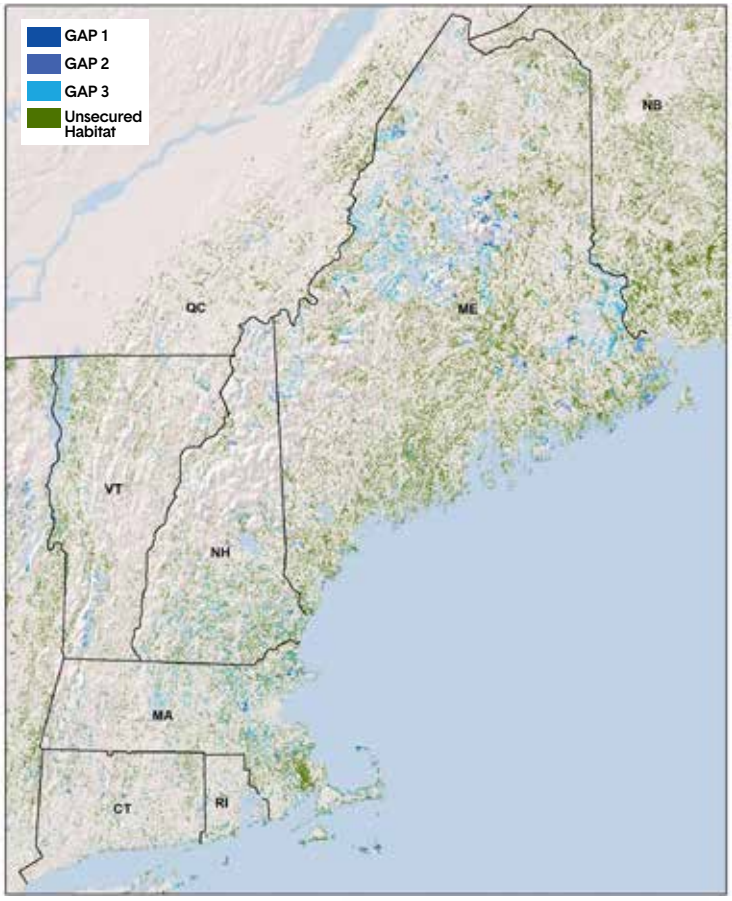
northern wild senna (*Senna hebecarpa*)

hairy hedge-nettle (*Stachys pilosa* var. *arenicola*)

crooked-stemmed American-aster (*Symphyotrichum prenanthoides*)

MACROGROUP

FRESHWATER MARSH & SHRUB SWAMP



Freshwater Marsh & Shrub Swamp

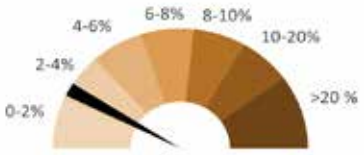
Freshwater marshes, meadows, and shrub swamps dominated by herbaceous or shrubby vegetation without trees.

Acres in New England

860,248

Percent Secured

GAP 1 = 2%
GAP 2 = 4%
GAP 3 = 16%



Predicted Loss to Development by 2050

26,984 acres (3%)

	ACRES	GAP 1	GAP 2	GAP 3	UNSECURED	IMPORTANT PLANT AREAS TOTAL	P	S	U
Freshwater Marsh & Shrub Swamp	**860,248**	**2%**	**4%**	**16%**	**77%**	**8**		**1**	**7**
Connecticut	37,445	1%	7%	16%	76%	2			2
Massachusetts	125,850	2%	5%	25%	69%	5		1	4
Maine	503,015	2%	4%	14%	80%	1			1
New Hampshire	104,684	2%	4%	22%	72%				
Rhode Island	9,349	2%	7%	24%	66%				
Vermont	79,905	0	0	0	1%				
New England	**860,248**	**19,621**	**33,048**	**141,563**	**666,016**				

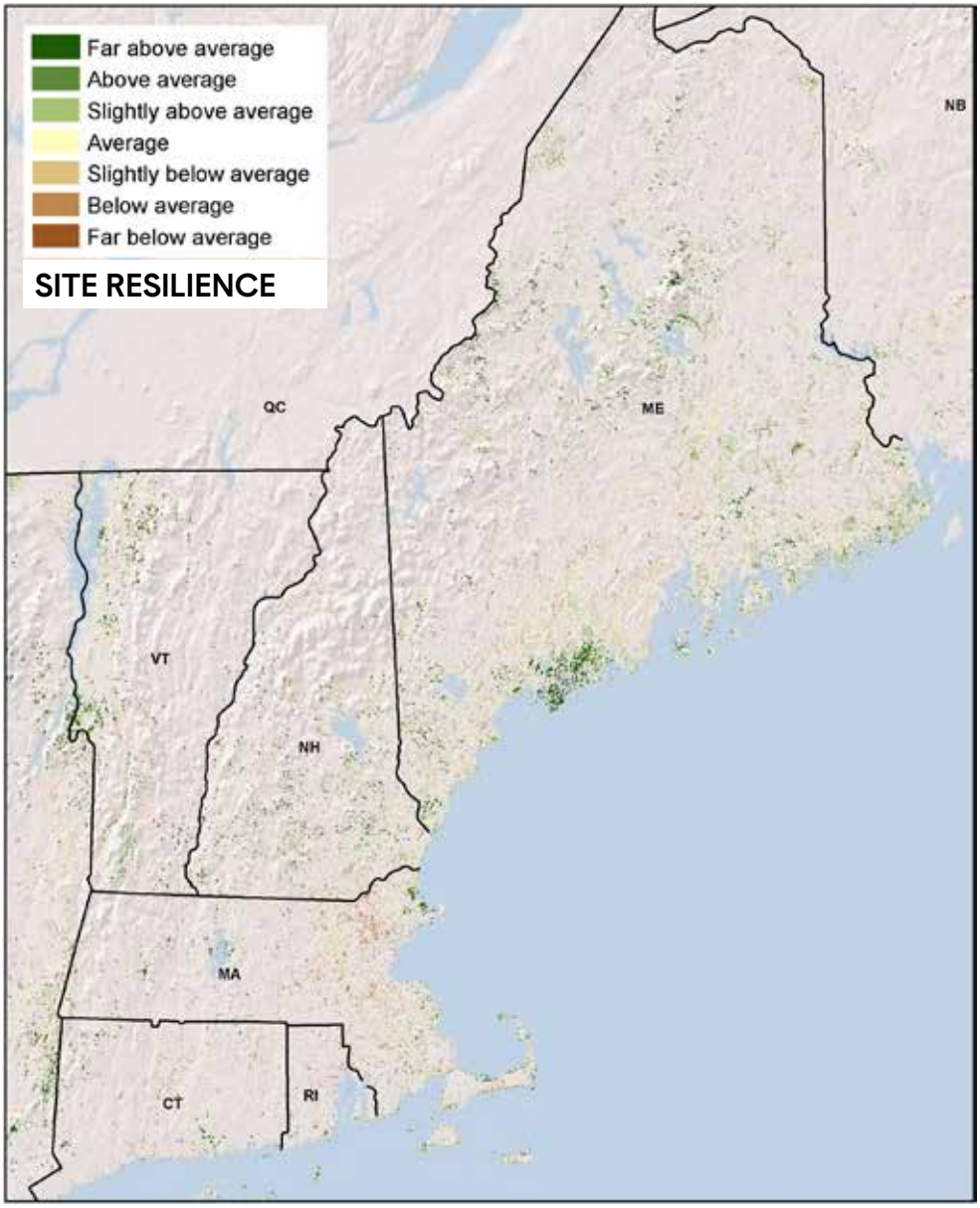
P = Protected S = Secured
U = Unsecured

DISTRIBUTION OF HABITATS

Laurentian-Acadian Freshwater Marsh

Laurentian-Acadian Wet Meadow-Shrub Swamp

Laurentian-Acadian Freshwater Marsh



© Maine Natural Areas Program

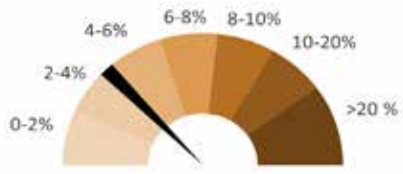
Description

An emergent or submergent freshwater marsh dominated by herbaceous vegetation and associated with basins, streamways, and seepage slopes. Typical plants include cattails, marsh fern, touch-me-not, pondweeds, water lilies, pickerelweed, and tall rushes that die back in winter.

Associated Herbs & Shrubs

autumn water-starwort (*Callitriche hermaphroditica*), hard-stemmed club-bulrush (*Schoenoplectus acutus*), marsh-felwort (*Lomatogonium rotatum*), hairy hedge-nettle (*Stachys pilosa*), whorled marsh-pennywort (*Hydrocotyle verticillata*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	2%	6,717	7%	7%	18%	32%	68%
Above average	18%	67,429	7%	6%	20%	33%	67%
Slightly above average	39%	141,544	2%	4%	18%	24%	76%
Average	25%	92,775	1%	4%	13%	18%	82%
Slightly below average	7%	23,899	1%	4%	13%	18%	82%
Below average	3%	12,784	1%	4%	12%	17%	83%
Far below average	1%	2,019	1%	2%	11%	13%	87%
Developed	6%	20,339	1%	2%	9%	12%	88%
TOTAL	100%	367,506	3%	4%	16%	23%	77%



Predicted Loss to Development by 2050

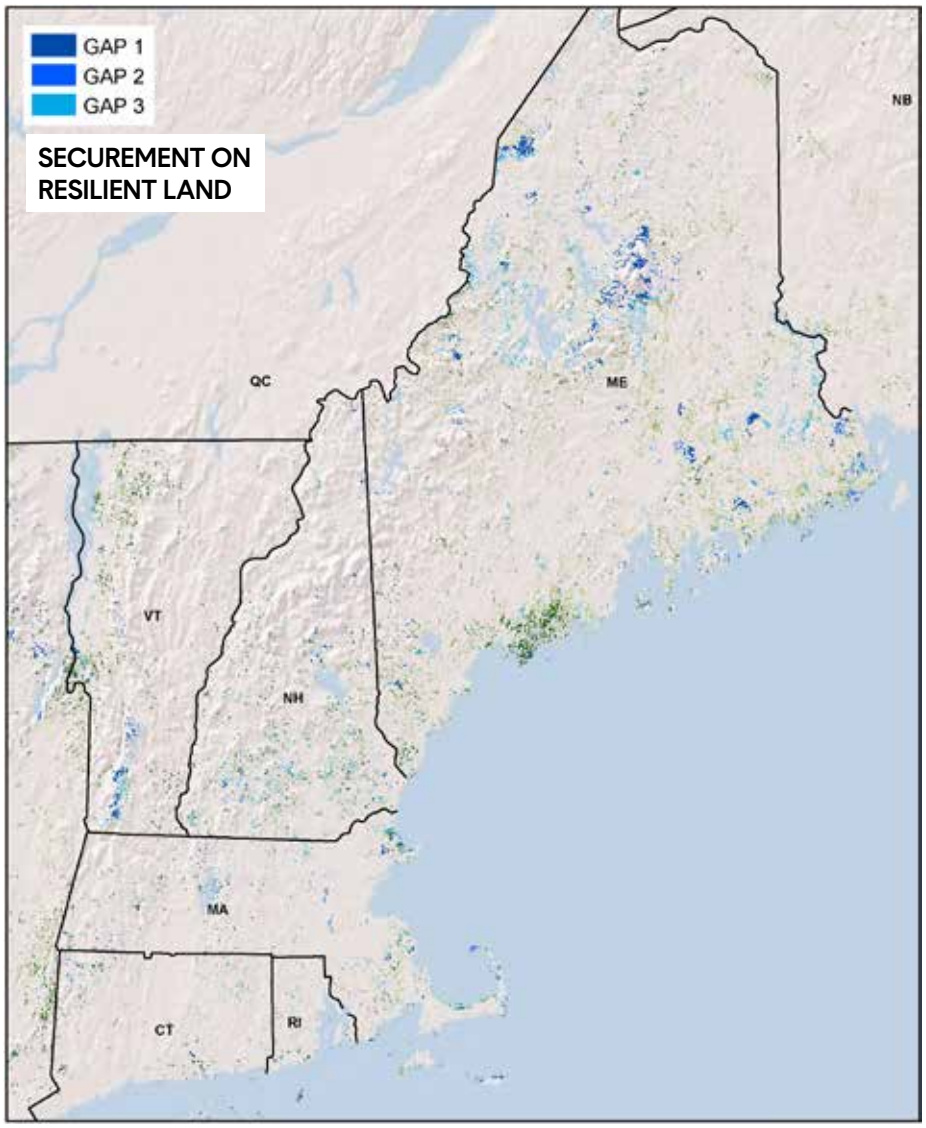
Moderately low 4%

This community is somewhat threatened by development, with 14,428 acres (4%) likely to be lost over the next 30 years.

Resilience & Securement

59% of this habitat scores high for resilience, and 23% of the total acreage is secured against conversion, with the resilient areas having the highest proportion of securement.

Laurentian-Acadian Freshwater Marsh



LOCATION	TOTAL ACRES	% SECURED
New England	367,506	23%
CT	14,698	27%
MA	50,638	32%
ME	213,591	20%
NH	46,252	28%
RI	4,321	30%
VT	38,007	20%

LOCATION	RESILIENT ACRES	% SECURED
New England	215,690	27%
CT	5,917	35%
MA	15,450	40%
ME	144,533	24%
NH	27,559	32%
RI	1,468	44%
VT	20,763	29%

Rare or Uncommon Plants Associated with this Habitat

New England thoroughwort (*Eupatorium novae-angliae*)

Plymouth rose-gentian (*Sabatia kennedyana*)

quill-leaved arrowhead (*Sagittaria teres*)

northeastern bulrush (*Scirpus ancistrochaetus*)

southern agrimony (*Agrimonia parviflora*)

wheat sedge (*Carex atherodes*)

Emory's sedge (*Carex emoryi*)

Mitchell's sedge (*Carex mitchelliana*)

Walter's sedge (*Carex striata*)

collared dodder (*Cuscuta indecora* var. *indecora*)

American waterwort (*Elatine americana*)

horsetail spikesedge (*Eleocharis equisetoides*)

square-stemmed spikesedge (*Eleocharis quadrangulata*)

dwarf burhead (*Helanthium tenellum*)

large grass-leaved rush (*Juncus biflorus*)

many-fruited water-primrose (*Ludwigia polycarpa*)

round-pod water-primrose (*Ludwigia sphaerocarpa*)

foxtail bog-clubmoss (*Lycopodiella alopecuroides*)

cut-leaved water-milfoil (*Myriophyllum pinnatum*)

golden-club (*Orontium aquaticum*)

Puritan smartweed (*Persicaria puritanorum*)

crested orange bog-orchid (*Platanthera cristata*)

Maryland meadow-beauty (*Rhexia mariana* var. *mariana*)

narrow-fruited beaksedge (*Rhynchospora inundata*)

short-beaked beaksedge (*Rhynchospora nitens*)

toothcup (*Rotala ramosior*)

slender rose-gentian (*Sabatia campanulata*)

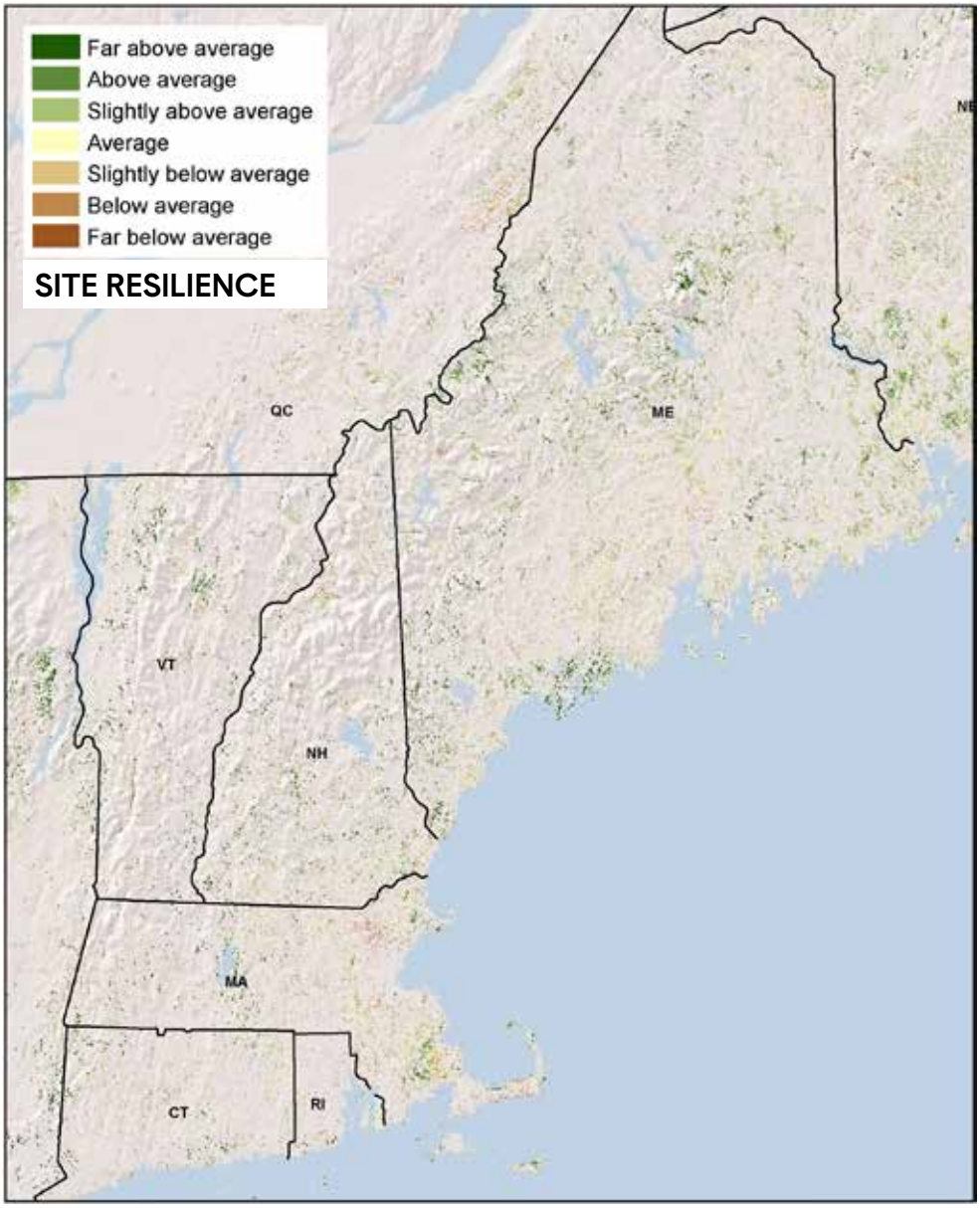
lizard's-tail (*Saururus cernuus*)

whip nutsedge (*Scleria triglomerata*)

sclerolepis (*Sclerolepis uniflora*)

swamp wedgescale (*Sphenopholis pensylvanica*)

Laurentian-Acadian Wet Meadow-Shrub Swamp



© Maine Natural Areas Program

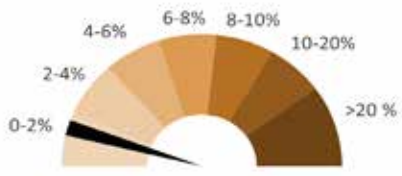
Description

A shrub-dominated swamp or wet meadow on mineral soils. Examples occur in association with waterbodies and can be small and solitary or part of a larger wetland. Typical species include willow, red-osier dogwood, alder, buttonbush, meadowsweet, bluejoint grass, tall sedges, and rushes.

Associated Herbs & Shrubs

northern adder's-tongue fern (*Ophioglossum pusillum*), auricled twayblade (*Neottia auriculata*), marsh bellflower (*Campanula aparinoides*), swamp birch (*Betula pumila*), swamp lousewort (*Pedicularis lanceolata*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	1%	6,428	8%	6%	21%	35%	65%
Above average	17%	81,369	5%	5%	21%	30%	70%
Slightly above average	42%	204,641	2%	3%	20%	25%	75%
Average	25%	121,444	1%	3%	13%	16%	84%
Slightly below average	7%	33,117	1%	3%	13%	17%	83%
Below average	4%	18,811	1%	3%	12%	16%	84%
Far below average	0%	2,349	2%	2%	8%	12%	88%
Developed	5%	24,582	1%	3%	9%	12%	88%
TOTAL	100%	492,741	2%	3%	17%	22%	78%



Predicted Loss to Development by 2050

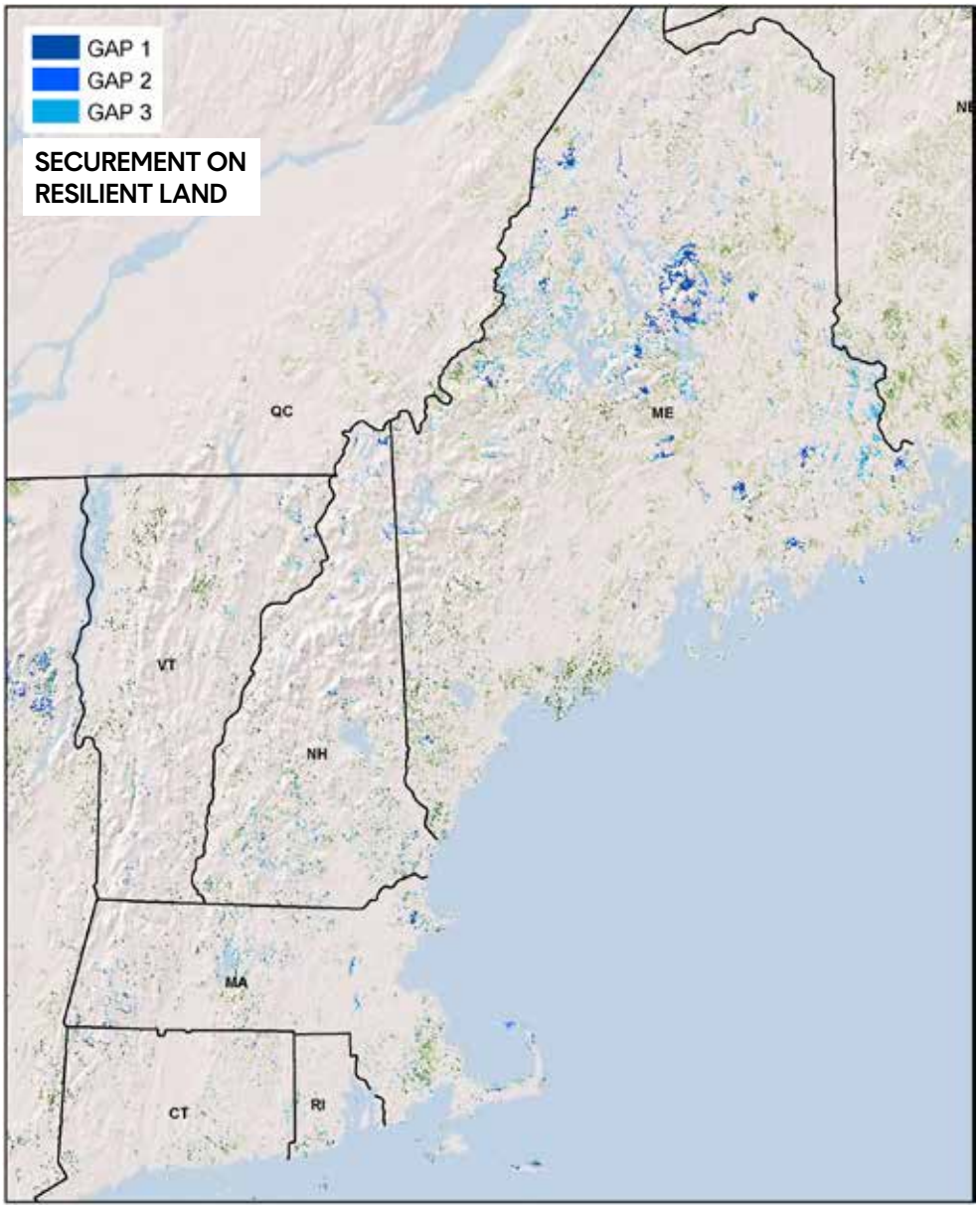
Low 2%

This community is somewhat threatened by development, with 12,556 acres (2%) likely to be lost over the next 30 years.

Resilience & Securement

61% of this habitat scores high for resilience, 22% of the total acreage is secured against conversion, and 5% is protected.

Laurentian-Acadian Wet Meadow-Shrub Swamp



LOCATION	TOTAL ACRES	% SECURED
New England	492,741	22%
CT	22,747	22%
MA	75,212	31%
ME	289,424	20%
NH	58,432	28%
RI	5,028	37%
VT	41,898	16%

LOCATION	RESILIENT ACRES	% SECURED
New England	292,438	27%
CT	8,619	29%
MA	27,185	39%
ME	197,211	24%
NH	34,525	32%
RI	2,135	47%
VT	22,764	23%

Rare or Uncommon Plants Associated with this Habitat

bog Jacob's-ladder (*Polemonium van-bruntiae*)

Long's bulrush (*Scirpus longii*)

wheat sedge (*Carex atherodes*)

Barratt's sedge (*Carex barrattii*)

white-edged sedge (*Carex debilis* var. *debilis*)

blue sedge (*Carex glaucodea*)

wiry panicgrass (*Panicum flexile*)

field beadgrass (*Paspalum laeve*)

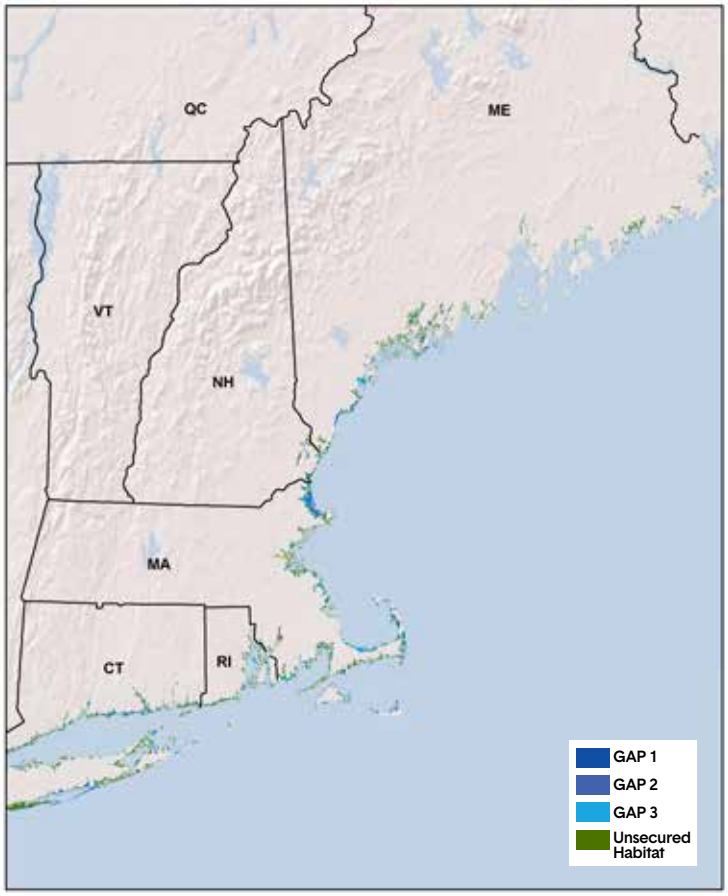
bristly smartweed (*Persicaria setacea*)

orange fringed bog-orchid (*Platanthera ciliaris*)

crested orange bog-orchid (*Platanthera cristata*)

water-plantain crowfoot (*Ranunculus ambigens*)

MACROGROUP
TIDAL MARSH



Tidal Marsh
Here two habitats, Acadian Coastal Salt & Estuary Marsh (ME only) and North Atlantic Coastal Plain Tidal Salt Marsh (CT, ME, NH, MA, RI), are treated as one.

Acres in New England
111,748

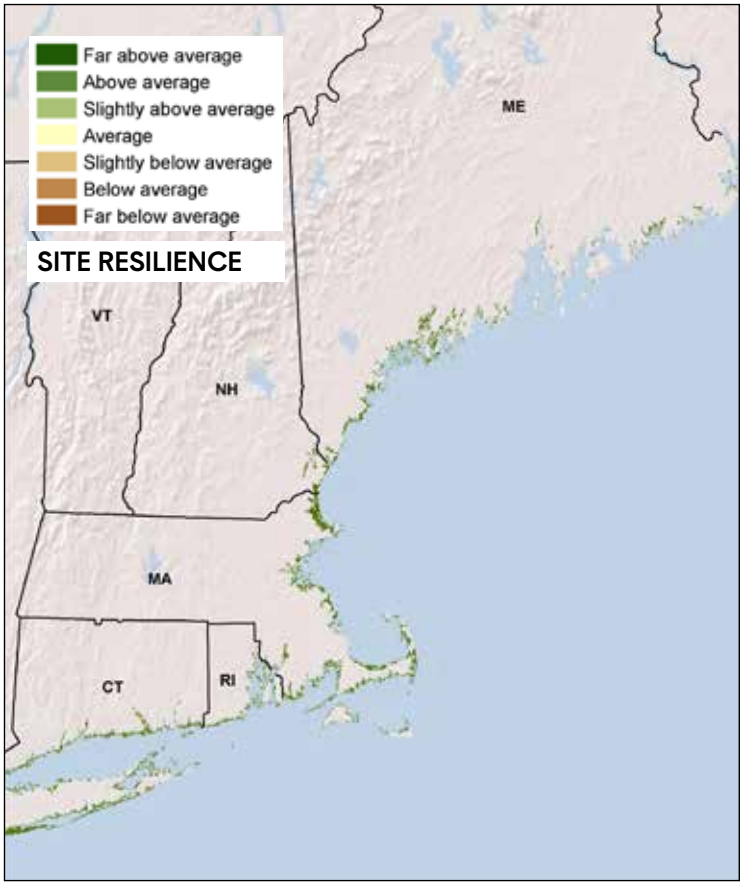
Percent Secured
GAP 1 = 2%
GAP 2 = 15%
GAP 3 = 24%

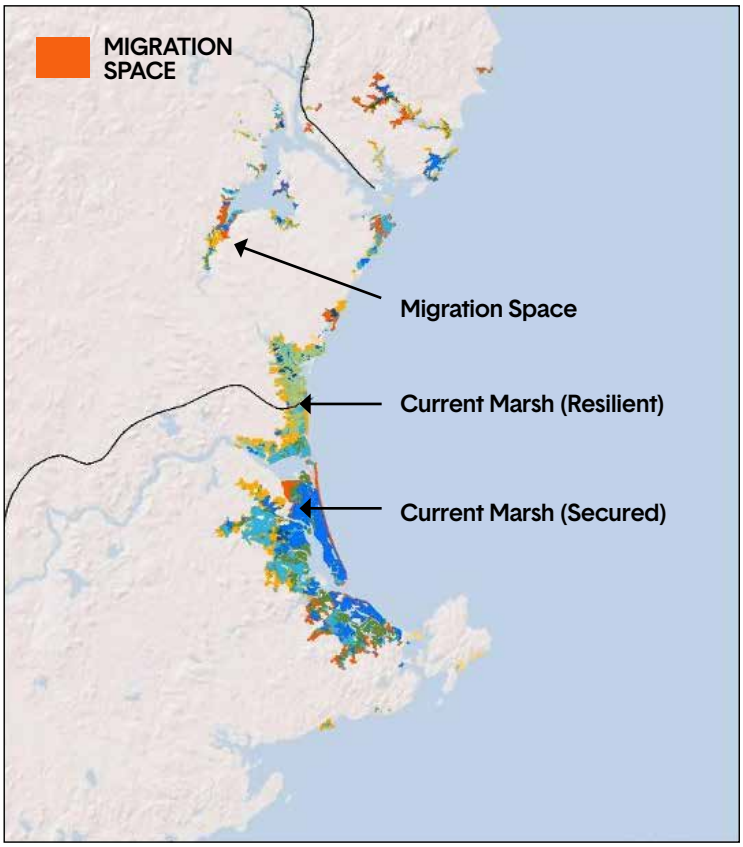
Predicted Loss
Although the land on which they occur is fairly well protected, these marshes are succumbing to sea-level rise, which inundates the marsh and causes die-off.

	ACRES	GAP 1	GAP 2	GAP 3	UNSECURED	IMPORTANT PLANT AREAS TOTAL	P	S	U
Tidal Marsh	**111,748**	**2%**	**15%**	**24%**	**58%**	**15**		**1**	**14**
Connecticut	15,084	4%	15%	24%	58%	2			2
Massachusetts	57,071	2%	16%	29%	53%	11			11
Maine	26,907	1%	16%	17%	66%				
New Hampshire	6,443	4%	4%	17%	74%				
Rhode Island	6,244	3%	16%	17%	65%	2		1	1
New England	**111,748**	**2,427**	**17,002**	**26,958**	**65,361**				

P = Protected S = Secured
U = Unsecured

TIDAL MARSH





© Josh Royte (The Nature Conservancy, Maine)

Description

A complex of tidally influenced marshes from the coastal shore to the tidal rivers. This habitat includes salt marsh, brackish marsh, and freshwater tidal marsh. A salt marsh profile features a low, regularly flooded marsh dominated by salt marsh cordgrass; a higher irregularly flooded marsh dominated by salt meadow cordgrass and saltgrass; low hypersaline pannes characterized by saltwort; and a salt scrub ecotone characterized by marsh elder, groundsel-tree, and switchgrass. Brackish areas support salt marsh cordgrass, giant cordgrass, narrowleaf cattail, and bulrush.

Associated Herbs & Shrubs

American sea-blite (*Suaeda calceoliformis*), dwarf glasswort (*Salicornia bigelovii*), big cordgrass (*Spartina cynosuroides*), saltmarsh tuber-bulrush (*Schoenoplectus maritimus*), saltmarsh agalinis (*Agalinis maritima*), sea pink (*Sabatia stellaris*), sea coast Angelica (*Angelica lucida*)

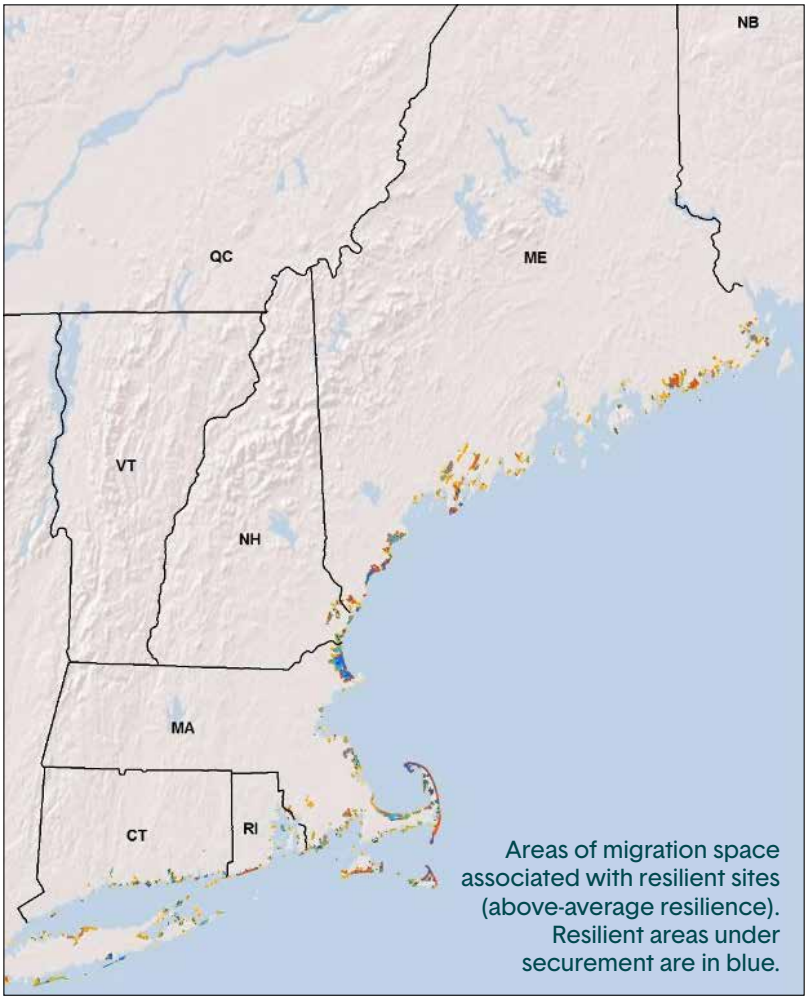
Migration Space

A key concept for estimating the resilience of tidal habitats is whether they have:

1) Migration space: available adjacent lowlands suitable for the formation of future marsh under rising sea levels

2) Intact processes: the processes needed to facilitate migration: sediments, freshwater, and an absence of barriers.

TIDAL MARSH



Areas of migration space associated with resilient sites (above-average resilience). Resilient areas under securement are in blue.

Rare or Uncommon Plants Associated with this Habitat

Eaton's beggar-ticks (*Bidens eatonii*)

Long's bitter-cress (*Cardamine longii*)

tidal spikesedge (*Eleocharis aestuum*)

Parker's pipewort (*Eriocaulon parkeri*)

herbaceous sea-blite (*Suaeda maritima* ssp. *richii*)

New England tuber-bulrush (*Bolboschoenus novae-angliae*)

American waterwort (*Elatine americana*)

beaked spikesedge (*Eleocharis rostellata*)

whorled marsh-pennywort (*Hydrocotyle verticillata*)

Torrey's rush (*Juncus torreyi*)

bearded sprangletop (*Leptochloa fusca* ssp. *fascicularis*)

immigrant pond-lily (*Nuphar advena*)

golden-club (*Orontium aquaticum*)

swamp lousewort (*Pedicularis lanceolata*)

awl-leaved arrowhead (*Sagittaria subulata*)

Annual sea-purslane (*Sesuvium maritimum*)

hairy hedge-nettle (*Stachys pilosa* var. *arenicola*)

yellow thistle (*Cirsium horridulum* var. *horridulum*)

winged monkey-flower (*Mimulus alatus*)

SITE RESILIENCE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	11%	15,031	0%	2%	4%	7%	5%
Above average	42%	55,630	1%	7%	8%	16%	27%
Slightly above average	18%	24,064	0%	1%	3%	4%	14%
Average	18%	23,415	0%	1%	3%	4%	14%
Slightly below average	3%	4,076	0%	0%	0%	0%	3%
Below average	3%	3,724	0%	0%	0%	0%	2%
Far below average	4%	5,552	0%	0%	0%	1%	4%
TOTAL	100%	131,492	2%	12%	19%	33%	67%

MIGRATION SPACE	RESILIENT	ACRES	GAP 1	GAP 2	GAP 3	TOTAL SECURED	TOTAL UNSECURED
Far above average	35%	24,496	0%	8%	6%	15%	20%
Above average	33%	23,432	1%	5%	5%	11%	23%
Slightly above average	12%	8,690	0%	1%	2%	4%	9%
Average	15%	10,467	0%	1%	2%	3%	12%
Slightly below average	3%	2,075	0%	0%	0%	0%	3%
Below average	2%	1,138	0%	0%	0%	0%	1%
Far below average	0%	132	0%	0%	0%	0%	0%
TOTAL	100%	70,429	2%	15%	16%	33%	67%

Total Acres of Tidal Complex = 131,492

Resilient Tidal Complex = 94,724 (72%)

Total Acres Migration Space = 70,429 acres

Resilient Migration Space = 56,618 acres (80%)

Secured Resilient Tidal Complex = 23%

Secured Resilient Migration Space = 29%

These statistics are from "Resilient Sites for Coastal Conservation in the Northeast" (Anderson and Barnett 2017). They summarize the area of Tidal Complex, a slightly broader habitat than tidal marsh that includes brackish marsh and tidal flat. See the full study and web tool here.