

## **Terrestrial Habitats**

The NY SWAP habitats in this report are classified and described using the Northeastern Terrestrial Wildlife Habitat Classification System (NETHCS) at the Macrogroup level (Gawler 2008). The NETHCS uses ecological cover types based on vegetation, with the option of added finer-scale characteristics, to define types that can then be used to represent habitat for one or more wildlife species. For the NY SWAP, terrestrial habitats include all upland habitats, and wetland habitats exclusive of the aquatic habitats of rivers and lakes. Although estuarine habitats are included in the NETHCS, they are described and assessed under the marine habitat section.

The NETHCS habitat systems are hierarchically arranged by Formation Class, Formation, Macrogroup, and Habitat Type. For example, the full classification of the Oak-Pine Forest habitat type in New York would be:

Forest and Woodland Formation Class  
    Northeast Upland Forest Formation  
        Central Oak-Pine Macrogroup  
            Oak-Pine Forest Habitat Type

A table with the complete classification hierarchy for each NY SWAP terrestrial habitat type is included in Appendix A.

### ***Northeast Terrestrial Habitat Map***

The NY SWAP habitats in this report are mapped using A Map of Terrestrial Habitats of the Northeastern United States at the Macrogroup level (Ferree and Anderson 2013). The Northeast Terrestrial Habitat Mapping Project completed in 2012 led by the Northeast Association of Fish and Wildlife Agencies (NEAFWA) as part of its Regional Conservation Needs assessment. The Northeast Terrestrial Habitat map depicts wildlife habitats for 13 northeastern states, including all states from Maine to Virginia, west to New York, Pennsylvania and West Virginia.

The map consists of a spatially comprehensive GIS grid of 30 meter pixels with a legend portraying the Northeastern Terrestrial Habitat Classification System. The NETHCS is based on NatureServe's Ecological Systems Classification, augmented with additional information from individual state wildlife classifications and other information specific to wildlife managers.

The map was created by assembling regional spatial datasets on bedrock and surficial geology, elevation, slope and aspect, waterbodies and streams, wetlands, land position and landform, topographic rugosity, climate, solar influx, and landcover and canopy cover. About 60 variables were derived for use in the analysis. The landform model was developed from a 30 meter DEM using land position, slope, and flow accumulation.

## ***Ecoregions of New York***

The NETHCS Macrogroup distribution maps and habitat condition assessments in this report were assessed for each of the seven ecoregions in the state and for the state as a whole. The distribution of plant and animal species in New York closely corresponds with ecoregional boundaries. These areas of ecological homogeneity are defined by similarities in soil, physiography, climate, hydrology, geology, and vegetation. The ecoregions used in this study are based on The Nature Conservancy (TNC) classifications for the U.S. and are modified from USDA Forest Service ecoregions (Bailey 1997). There are seven ecoregions in New York: Great Lakes (GL), High Allegheny Plateau (WAP), Lower New England/Northern Piedmont (LNE), North Atlantic Coast (NAC), Northern Appalachian/Boreal Forests (NAP), St. Lawrence/Champlain Valley (STL), and Western Allegheny Plateau (WAP). See Figure 4 for an example of a Macrogroup distribution map with labeled ecoregions.

## ***Condition Assessment Scores***

The condition of the NY SWAP habitats were assessed at the Macrogroup level using Index of Ecological Integrity scores and Landscape Condition Assessment scores. Both of these assessment tools are briefly described below.

### **Index of Ecological Integrity (IEI)**

This study uses the Northeast Index of Ecological Integrity, 2010 dataset (McGarigal 2014) developed by the University of Massachusetts as part of their Designing Sustainable Landscapes project (<http://www.umass.edu/landeco/research/dsl/dsl.html>). Here, we use it to assess each Macrogroup for each of the seven ecoregions and for the state as a whole.

The Index of Ecological Integrity (IEI) is a metric that strives to depict the ecological integrity of locations throughout the northeastern United States. This measure is based on environmental conditions existing in approximately 2010. The developers defined ecological integrity as the ability of a site (either local or at the landscape scale) to maintain important ecological functions over considerable time. The primary focus is the ability to support biodiversity and the ecosystem processes needed to sustain this biodiversity.

The IEI is represented as 30-m grid cell raster and presented on a relative scale from 0 to 100. It is mapped using a modified version of the Northeast Terrestrial Habitat Map, the same map used to depict habitats in this project and described earlier. To calculate the index, related ecological systems were grouped into about 25 groups.

Related or similar ecological systems were grouped into about 25 macro-ecological systems such as “Northern Hardwood and Conifer” and “Emergent Marsh.” This version of ecological integrity includes both an intactness category and resiliency category of integrity measure. Intactness tries to measure the freedom from human impairment and resiliency tries to measure

the capacity of the system to recover from disturbance and stress. See Appendix B for details about the Northeast Index of Ecological Integrity, 2010 dataset.

In this report IEI scores for each Macrogroup are depicted in bar graphs as positive scores (i.e., top half of the graph) for each of the seven ecoregions and for the state as a whole. A taller bar above zero indicates that the habitat type occurs in a location with higher ecological integrity in that ecoregion. See an example bar graph in Figure 6 below.

## **Landscape Condition Assessment (LCA)**

In the context of developing protocols to assess wetland condition in New York, the New York Natural Heritage Program developed a Landscape Condition Assessment (LCA) model (Comer and Hak 2012, Grunau *et al.* 2012). Although the model was initially developed to assess wetland condition, it can be more broadly applied to the full range of upland and wetland habitat types. The model depicts a cumulative suite of anthropogenic stressors across the landscape of the state. The model synthesizes these stressors at the 30 m x 30 m pixel scale – each pixel has a score representing cumulative stress and can be applied to answer questions about landscape or site-specific stress. The model includes a set of GIS feature classes (input themes) with consistent statewide coverage representing elements that were expected to negatively affect habitat composition, physical structure, and function.

The model includes 13 inputs: six transportation themes depicting roads of increasing size and impact, and active rail lines; three development themes that increase in intensity; two types of utility corridor; and two managed open space themes (agricultural and open space). See Appendix C for details about the Landscape Condition Assessment predictive model developed by the NY Natural Heritage Program.

In this report LCA scores for each Macrogroup are depicted in bar graphs as negative scores (i.e., bottom half of the graph) for each of the seven ecoregions and for the state as a whole. The more cumulative stressors tallied per pixel the more negative the score. A short bar below zero indicates that fewer stressors were counted for that habitat type in that ecoregion and thus predicted to be in better condition. See an example bar graph in Figure 6 below.

## ***Central Oak-Pine***

### **Macrogroup Description**

The Central Oak-Pine Macrogroup includes five New York SWAP habitat types described below. The habitats in this Macrogroup typically occur on dry, acidic, upland sites that are either closed canopy forests or more open canopy woodlands. These forests and woodlands may be dominated by various oaks; co-dominated by oaks and pines, such as white and/or pitch pine; or dominated by pitch pine in the Coastal Pine Barrens habitat.

**Oak-Pine Forest:** These oak and oak-pine forests are found on well-drained soils and are dominated by a mixture of dry-site oak and pine species such as chestnut oak, white oak, red oak, black oak, pitch pine and white pine. The forest is mostly closed-canopy and a shrub layer, often dense, is characteristic. Disturbance agents include fire, windthrow, and ice damage. In the absence of fire, this system is believed to succeed to northern hardwood and hemlock forests.

**Oak Forest:** These oak-dominated, mostly closed- canopy forests are one of the matrix forest systems in southern New York. Soils are mostly acidic and relatively infertile, but not very dry. Red oak, white oak, black oak, and hickory are dominant in mature stands; red maple, black birch, and yellow birch may also be present. Many of these forests are mid-successional where white pine or tulip tree may be co-dominant.

**Pine Barrens:** These pine barrens occur on glacial sand of inland regions of New England and New York, with coarse-textured, acidic, well-drained soils low in nutrients. Pitch pine is usually dominant, with red oak and white pine as common associates. Tall-shrub and low-shrub layers are commonly present. Grassy areas dominated by little bluestem with native wild lupine and other forbs provide habitat for several rare invertebrates, including the Karner blue butterfly and frosted elfin. Important vertebrate species include the hognose snake, whip-poor-will, nighthawk, pine barrens tree frog, etc. These barrens always have a history of recurrent fires, which are required for maintenance.

**Coastal Hardwoods:** These dry hardwood forests and shrublands are dominated by oaks along the Atlantic Coast and barrier islands on acidic, sandy to gravelly soils with a thick layer of organic material.

**Coastal Coniferous Barrens:** These dry pitch pine woodlands with deep sandy soils are found along the Atlantic Coast. They typically have a canopy of pitch pine, a tall shrub layer dominated by scrub oak, and a low shrub layer, and are heavily influenced by fire. These coastal coniferous barrens are very similar to the structure and composition of pine barrens, but are characterized by additional species.

## **Distribution**

The Northeast Terrestrial Habitat Map predicts that the Central Oak-Pine Macrogroup occurs primarily in the High Allegheny Plateau (HAP) and Lower New England/Northern Piedmont (LNE) ecoregions (Figure 4 and Figure 5). There are over 2000 square miles of this type predicted in HAP and about half that in LNE with the remainder distributed over four remaining ecoregions (Figure 5).

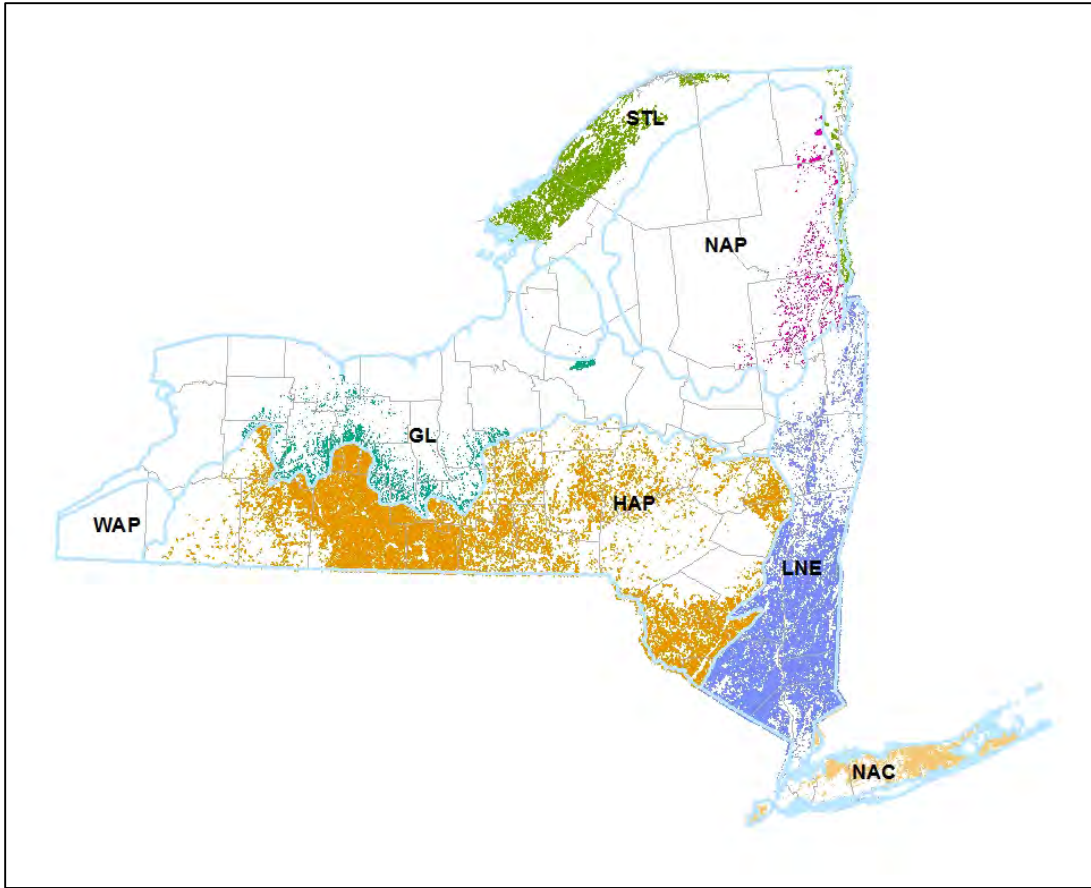


Figure 1. The distribution of the Central Oak-Pine Macrogroup throughout New York by ecoregion, as based on the Northeast Terrestrial Habitat Map.

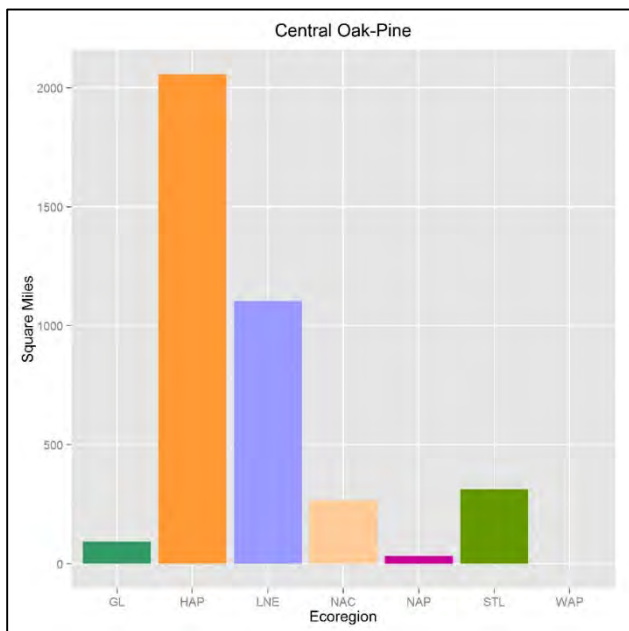


Figure 2. Area distribution of the Central Oak-Pine Macrogroup by ecoregion.

## Condition Assessment

Based on LCA and IEI scores, the highest quality Central Oak-Pine forests are predicted to be in the Northern Appalachian/Boreal Forest Ecoregion (Figure 6), but this ecoregion has the least amount of this type (Figure 5).

Based on NY Natural Heritage Program Element Occurrence Rank, Tongue Mountain in the Lake George Wild Forest has an exemplary occurrence of Appalachian oak-hickory forest in NAP. Large, high-quality examples of Appalachian oak-hickory forest in HAP include Steege Hill, Bristol Hills (Stid Hill MUA and Honeoye Creek WMA), and Letchworth State Park. In LNE, Alander Mountain (Taconic SP), Storm King Mountain (Storm King SP), and Breakneck Scofield Fishkill Ridge (Hudson Highlands SP) are the best examples of this forest currently documented. The best Appalachian oak-pine forests in the state occur at Tongue Mountain (NAP), Steege Hill (HAP), and Saratoga Sandplains (LNE). The best remaining examples of pitch pine-oak forest in the North Atlantic Coast (NAC) ecoregion can be seen at the Otis Pike Preserve and David A. Sarnoff Pine Barrens Preserve (New York Natural Heritage Program 2015).

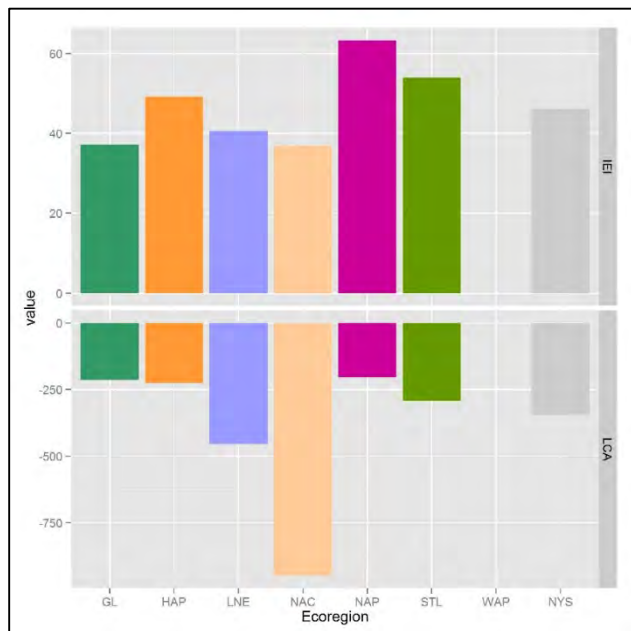


Figure 3. Index of Ecological Integrity score (top) and Landscape Condition Assessment score (bottom) for the Central Oak-Pine Macrogroup for each ecoregion and the state (far right).

## Associated SGCN

Seventy-four SGCN are associated with this Macrogroup (Table 2).

Table 1. SGCN associated with the Central Oak-Pine Macrogroup.

Species	Common name	SGCN category	Habitat link
<i>Abagrotis nefascia</i>	Coastal heathland cutworm	4	Coastal Coniferous Barrens
<i>Anaxyrus fowleri</i>	Fowlers Toad	3	Coastal Coniferous Barrens
<i>Caprimulgus vociferus</i>	Whip-poor-will	2	Coastal Coniferous Barrens
<i>Carphophis amoenus</i>	Eastern wormsnake	3	Coastal Coniferous Barrens
<i>Chaetagnaea cerata</i>	A noctuid moth (waxed sallow)	3	Coastal Coniferous Barrens
<i>Chordeiles minor</i>	Common nighthawk	2	Coastal Coniferous Barrens
<i>Dichagyris acclivis</i>	A noctuid moth (switchgrass dart)	4	Coastal Coniferous Barrens
<i>Eucrotopcnemis fimbriaris</i>	A noctuid moth	3	Coastal Coniferous Barrens
<i>Heterocampa varia</i>	A notodontid moth (prominent moth)	4	Coastal Coniferous Barrens
<i>Heterodon platirhinos</i>	Eastern hog-nosed snake	2	Coastal Coniferous Barrens
<i>Kinosternon subrubrum</i>	Southeastern mud turtle	2	Coastal Coniferous Barrens
<i>Parasa indetermina</i>	Stinging rose caterpillar moth	4	Coastal Coniferous Barrens
<i>Scaphiopus holbrookii</i>	Eastern spadefoot	3	Coastal Coniferous Barrens
<i>Setophaga discolor</i>	Prairie warbler	3	Coastal Coniferous Barrens
<i>Terrapene carolina</i>	Woodland box turtle	2	Coastal Coniferous Barrens
<i>Toxostoma rufum</i>	Brown thrasher	2	Coastal Coniferous Barrens
<i>Abagrotis nefascia</i>	Coastal heathland cutworm	4	Coastal Hardwoods
<i>Ambystoma opacum</i>	Marbled salamander	3	Coastal Hardwoods
<i>Carphophis amoenus</i>	Eastern wormsnake	3	Coastal Hardwoods
<i>Chaetagnaea cerata</i>	A noctuid moth (waxed sallow)	3	Coastal Hardwoods
<i>Cicindela unipunctata</i>	One-Spotted Tiger Beetle	4	Coastal Hardwoods
<i>Haliaeetus leucocephalus</i>	Bald Eagle	3	Coastal Hardwoods
<i>Heterocampa varia</i>	A notodontid moth (prominent moth)	4	Coastal Hardwoods
<i>Piranga olivacea</i>	Scarlet tanager	3	Coastal Hardwoods
<i>Schinia tuberculum</i>	Golden aster flower moth	4	Coastal Hardwoods
<i>Terrapene carolina</i>	Woodland box turtle	2	Coastal Hardwoods
<i>Agkistrodon contortrix</i>	Northern copperhead	3	Oak Forest
<i>Ambystoma opacum</i>	Marbled salamander	3	Oak Forest
<i>Bonasa umbellus</i>	Ruffed grouse	3	Oak Forest
<i>Buteo lineatus</i>	Red-shouldered hawk	3	Oak Forest
<i>Caprimulgus vociferus</i>	Whip-poor-will	2	Oak Forest
<i>Cicindela patruela</i>	Northern Barrens Tiger Beetle	2	Oak Forest
<i>Cicindela unipunctata</i>	One-Spotted Tiger Beetle	4	Oak Forest
<i>Crotalus horridus</i>	Timber rattlesnake	2	Oak Forest
<i>Dichagyris acclivis</i>	A noctuid moth (switchgrass dart)	4	Oak Forest
<i>Euchlaena madusaria</i>	A geometrid moth (sandplain euchlaena)	4	Oak Forest
<i>Glyptemys insculpta</i>	Wood turtle	2	Oak Forest
<i>Haliaeetus leucocephalus</i>	Bald Eagle	3	Oak Forest
<i>Helmitheros vermivorum</i>	Worm-eating warbler	3	Oak Forest

Species	Common name	SGCN category	Habitat link
<i>Heterocampa varia</i>	A notodontid moth (prominent moth)	4	Oak Forest
<i>Heterodon platirhinos</i>	Eastern hog-nosed snake	2	Oak Forest
<i>Hylocichla mustelina</i>	Wood thrush	3	Oak Forest
<i>Melanerpes</i>	Red-headed woodpecker	2	Oak Forest
<i>Monoleuca semifascia</i>	A slug moth (pin-striped slug moth)	4	Oak Forest
<i>Mustela nivalis</i>	Least weasel	4	Oak Forest
<i>Neotoma magister</i>	Alleghany woodrat	2	Oak Forest
<i>Parkesia motacilla</i>	Louisiana waterthrush	3	Oak Forest
<i>Piranga olivacea</i>	Scarlet tanager	3	Oak Forest
<i>Psectraglaea carnosa</i>	Pink sallow	3	Oak Forest
<i>Pyrgus wyandot</i>	Southern grizzled skipper	2	Oak Forest
<i>Sceloporus undulatus</i>	Eastern Fence Lizard	3	Oak Forest
<i>Setophaga cerulea</i>	Cerulean Warbler	3	Oak Forest
<i>Accipiter gentilis</i>	Northern goshawk	3	Oak-Pine Forest
<i>Ambystoma tigrinum</i>	Eastern tiger salamander	2	Oak-Pine Forest
<i>Bonasa umbellus</i>	Ruffed grouse	3	Oak-Pine Forest
<i>Caprimulgus vociferus</i>	Whip-poor-will	2	Oak-Pine Forest
<i>Carphophis amoenus</i>	Eastern wormsneak	3	Oak-Pine Forest
<i>Catocala herodias</i>	Herodias/pine barrens underwing	3	Oak-Pine Forest
<i>Catocala jair</i>	Jersey jair underwing	3	Oak-Pine Forest
<i>Chaetoglaea cerata</i>	A noctuid moth (waxed sallow)	3	Oak-Pine Forest
<i>Chlosyne gorgone</i>	Gorgone checkerspot	4	Oak-Pine Forest
<i>Cicindela patruela</i>	Northern Barrens Tiger Beetle	2	Oak-Pine Forest
<i>Cicindela unipunctata</i>	One-Spotted Tiger Beetle	4	Oak-Pine Forest
<i>Colinus virginianus</i>	Northern bobwhite	2	Oak-Pine Forest
<i>Crotalus horridus</i>	Timber rattlesnake	2	Oak-Pine Forest
<i>Drasteria adumbrata</i>	A noctuid moth (shadowy arches)	4	Oak-Pine Forest
<i>Euchlaena madusaria</i>	A geometrid moth (sandplain euchlaena moth, scrub euchlaena moth)	4	Oak-Pine Forest
<i>Glena cognataria</i>	Blueberry gray	4	Oak-Pine Forest
<i>Haliaeetus leucocephalus</i>	Bald Eagle	3	Oak-Pine Forest
<i>Helmitheros vermivorum</i>	Worm-eating warbler	3	Oak-Pine Forest
<i>Hemileuca maia maia</i>	Barrens buckmoth (Inland &	3	Oak-Pine Forest
<i>Hemileuca maia maia</i>	Coastal barrens buckmoth	3	Oak-Pine Forest
<i>Heterocampa varia</i>	A notodontid moth (prominent moth)	4	Oak-Pine Forest
<i>Heterodon platirhinos</i>	Eastern hog-nosed snake	2	Oak-Pine Forest
<i>Hylocichla mustelina</i>	Wood thrush	3	Oak-Pine Forest
<i>Lithophane lepida lepida</i>	A noctuid moth (Pine Pinion Moth)	4	Oak-Pine Forest
<i>Macaria marmorata</i>	A geometrid moth (Jack pine looper)	4	Oak-Pine Forest
<i>Monoleuca semifascia</i>	A slug moth (pin-striped slug moth)	4	Oak-Pine Forest
<i>Pantherophis</i>	Eastern ratsnake	3	Oak-Pine Forest



Species	Common name	SGCN category	Habitat link
<i>Parasa indetermina</i>	Stinging rose caterpillar moth	4	Oak-Pine Forest
<i>Phoberia ingenua</i>	A Noctuid Moth	4	Oak-Pine Forest
<i>Piranga olivacea</i>	Scarlet tanager	3	Oak-Pine Forest
<i>Psectraglaea carnosa</i>	Pink sallow	3	Oak-Pine Forest
<i>Satyrium favonius ontario</i>	Northern oak hairstreak	2	Oak-Pine Forest
<i>Scaphiopus holbrookii</i>	Eastern spadefoot	3	Oak-Pine Forest
<i>Sceloporus undulatus</i>	Eastern Fence Lizard	3	Oak-Pine Forest
<i>Setophaga cerulea</i>	Cerulean Warbler	3	Oak-Pine Forest
<i>Speranza exonerata</i>	Barrens itame	4	Oak-Pine Forest
<i>Terrapene carolina</i>	Woodland box turtle	2	Oak-Pine Forest
<i>Xylena thoracica</i>	Acadian Swordgrass moth	4	Oak-Pine Forest
<i>Zanclognatha martha</i>	Pine barrens zanclognatha	4	Oak-Pine Forest
<i>Agrotis obliqua</i>	A noctuid moth	4	Pine Barrens
<i>Ambystoma tigrinum</i>	Eastern tiger salamander	2	Pine Barrens
<i>Ammodramus</i>	Grasshopper sparrow	2	Pine Barrens
<i>Anaxyrus fowleri</i>	Fowlers Toad	3	Pine Barrens
<i>Apamea inordinata</i>	A noctuid moth	4	Pine Barrens
<i>Callophrys henrici</i>	Henry's elfin	2	Pine Barrens
<i>Caprimulgus vociferus</i>	Whip-poor-will	2	Pine Barrens
<i>Carphophis amoenus</i>	Eastern wormsake	3	Pine Barrens
<i>Catocala herodias</i>	Herodias/pine barrens underwing	3	Pine Barrens
<i>Catocala jair</i>	Jair underwing	3	Pine Barrens
<i>Catocala jair</i>	Jersey jair underwing	3	Pine Barrens
<i>Chaetagnaea cerata</i>	A noctuid moth (waxed sallow)	3	Pine Barrens
<i>Chlosyne gorgone</i>	Gorgone checkerspot	4	Pine Barrens
<i>Chordeiles minor</i>	Common nighthawk	2	Pine Barrens
<i>Chytonix sensilis</i>	A Noctuid Moth	3	Pine Barrens
<i>Cicindela patruela</i>	Northern Barrens Tiger Beetle	2	Pine Barrens
<i>Cicinnus melsheimeri</i>	Melsheimer's sack bearer	3	Pine Barrens
<i>Datana ranaeceph</i>	A Hand-maid moth	3	Pine Barrens
<i>Drasteria adumbrata</i>	A noctuid moth (shadowy arches)	4	Pine Barrens
<i>Eacles imperialis pini</i>	Imperial moth, Canadian imperial moth	3	Pine Barrens
<i>Erynnis martialis</i>	Mottled duskywing	2	Pine Barrens
<i>Erynnis persius persius</i>	Persius duskywing	1	Pine Barrens
<i>Euchlaena madusaria</i>	A geometrid moth (sandplain euchlaena)	4	Pine Barrens
<i>Eucrotopcnemis fimbriaris</i>	A noctuid moth	3	Pine Barrens
<i>Eumacaria madopata</i>	Brown-bordered geometer	3	Pine Barrens
<i>Euxoa pleuritica</i>	Fawn brown dart moth	4	Pine Barrens
<i>Glena cognataria</i>	Blueberry gray	4	Pine Barrens
<i>Hemileuca maia maia</i>	Barrens buckmoth (Inland & Coastal)	3	Pine Barrens
<i>Hemileuca maia maia</i>	Coastal barrens buckmoth	3	Pine Barrens

Species	Common name	SGCN category	Habitat link
<i>Heterocampa varia</i>	A notodontid moth (prominent moth)	4	Pine Barrens
<i>Heterodon platirhinos</i>	Eastern hog-nosed snake	2	Pine Barrens
<i>Kinosternon subrubrum</i>	Southeastern mud turtle	2	Pine Barrens
<i>Lithophane lepida lepida</i>	A noctuid moth (Pine Pinion Moth)	4	Pine Barrens
<i>Lithophane viridipallens</i>	Pale green pinion moth	4	Pine Barrens
<i>Macaria marmorata</i>	A geometrid moth (Jack pine looper)	4	Pine Barrens
<i>Monoleuca semifascia</i>	A slug moth (pin-striped slug moth)	4	Pine Barrens
<i>Morrisonia mucens</i>	Grey woodgrain	4	Pine Barrens
<i>Paectes abrostolella</i>	A noctuid moth	4	Pine Barrens
<i>Phoberia ingenua</i>	A Noctuid Moth	4	Pine Barrens
<i>Plebejus melissa samuelis</i>	Karner blue	2	Pine Barrens
<i>Psectraglaea carnosa</i>	Pink sallow	3	Pine Barrens
<i>Satyrium favonius ontario</i>	Northern oak hairstreak	2	Pine Barrens
<i>Scaphiopus holbrookii</i>	Eastern spadefoot	3	Pine Barrens
<i>Sceloporus undulatus</i>	Eastern Fence Lizard	3	Pine Barrens
<i>Schinia tuberculum</i>	Golden aster flower moth	4	Pine Barrens
<i>Setophaga discolor</i>	Prairie warbler	3	Pine Barrens
<i>Sideridis maryx</i>	Maroonwing moth	4	Pine Barrens
<i>Speranza exonerata</i>	Barrens itame	4	Pine Barrens
<i>Terrapene carolina</i>	Woodland box turtle	2	Pine Barrens
<i>Toxostoma rufum</i>	Brown thrasher	2	Pine Barrens
<i>Xylena thoracica</i>	Acadian Swordgrass moth	4	Pine Barrens
<i>Zale largera</i>	A Noctuid Moth	4	Pine Barrens
<i>Zanclognatha martha</i>	Pine barrens zanclognatha	4	Pine Barrens

## ***Northern Hardwood and Conifer***

### **Macrogroup Description**

The Northern Hardwood and Conifer Macrogroup is equivalent to one New York SWAP habitat type described below.

**Mixed Northern Hardwoods:** These forest types contain both hardwood and coniferous species in various combinations, including: sugar maple, beech and yellow birch, with hemlock and spruce as minor canopy components, on glaciated soils; pine or pine-oak on dry soils; white pine, hemlock, and red oak on dryish glaciated soils; and beech and maple, with red oak, basswood, and hornbeam as associates on rich loam soils over glacial till. Conversion to agriculture has significantly decreased the range of this forest type, and very few large stands remain intact.

## Distribution

The Northeast Terrestrial Habitat Map predicts that the forests of the Northern Hardwood and Conifer Macrogroup occur in every ecoregion in the state except the North Atlantic Coast (NAC) (Figure 7 and Figure 8). They are predicted to be most abundant in the Northern Appalachian/Boreal Forest (NAP) and the High Allegheny Plateau (HAP) ecoregions with over 6000 square miles in each (Figure 8).

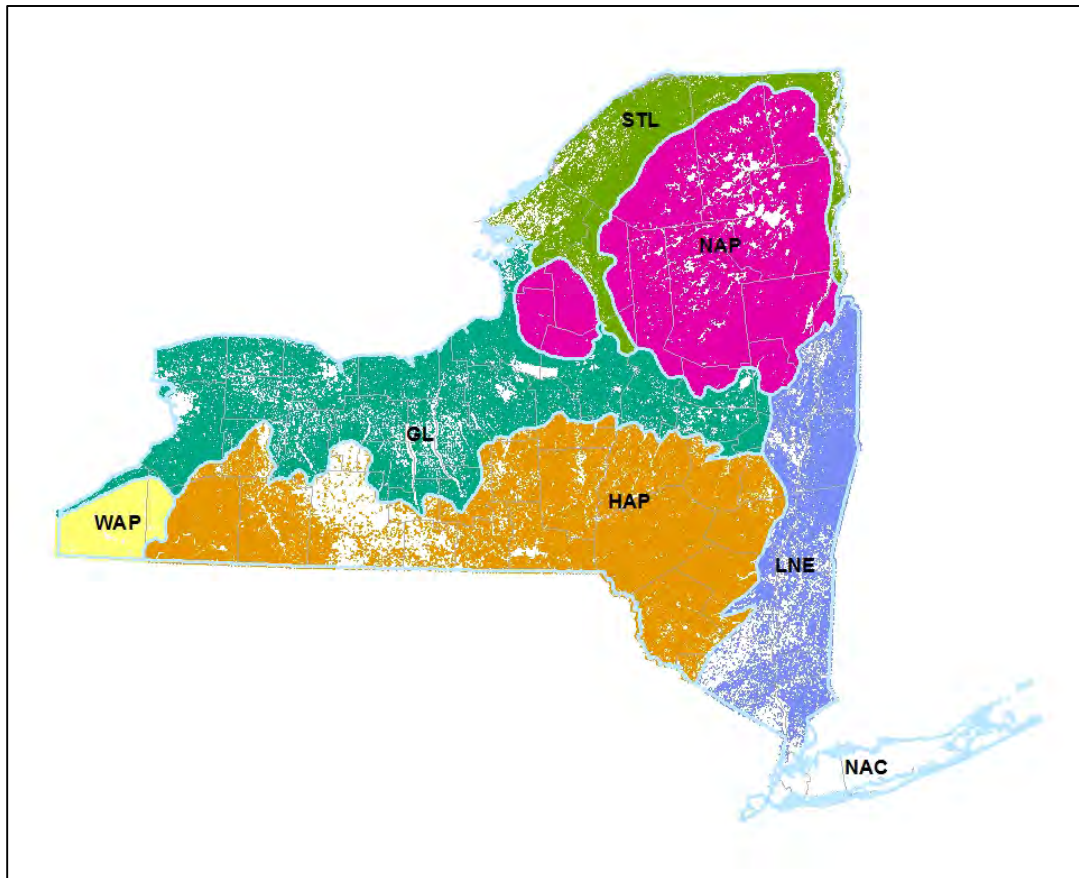


Figure 4. The distribution of the Northern Hardwood and Conifer Macrogroup throughout New York by ecoregion, as based on the Northeast Terrestrial Habitat Map.

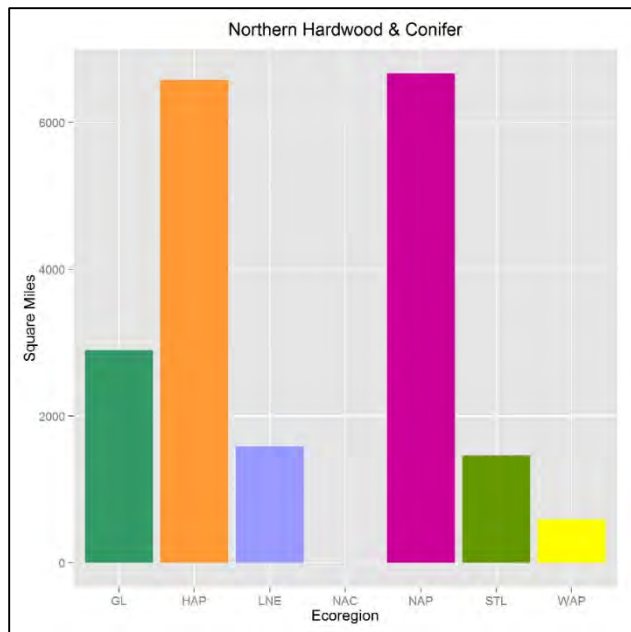


Figure 5. Area distribution of the Northern Hardwood and Conifer Macrogroup by ecoregion.

## Condition Assessment

Based on LCA and IEI scores, the highest quality Northern Hardwood and Conifer forests are predicted to be in the Northern Appalachian/Boreal Forest Ecoregion (NAP) (Figure 9).

Based on NY Natural Heritage Program Element Occurrence Ranks (New York Natural Heritage Program 2015), the largest and best quality occurrences of forest communities in the Northern Hardwood and Conifer Macrogroup are as follows:

Beech-maple mesic forest: Catskill Park (HAP), West Canada Lake Wilderness (NAP), and Five Ponds Wilderness (NAP).

Maple-basswood rich mesic forest: Lake George Wild Forest (NAP), Allegany State Park (HAP), Pitcairn Forest (NAP/STL), Letchworth State Park (HAP/GL), and John Boyd Thacher State Park (HAP/LNE).

Hemlock-northern hardwood forest: Catskill Park (LNE/HAP), Allegany State Park (HAP), Zoar Valley (HAP/WAP/GL), Rensselaer Plateau (LNE), Tongue Mountain in the Lake George Wild Forest (NAP), and Five Ponds Wilderness (NAP).

Pine-northern hardwood forest: Wilmington Wild Forest (NAP), Five Ponds Wilderness (NAP), Wilcox Lake Wild Forest (NAP), and Buck Mountain in the Lake George Wild Forest (NAP).

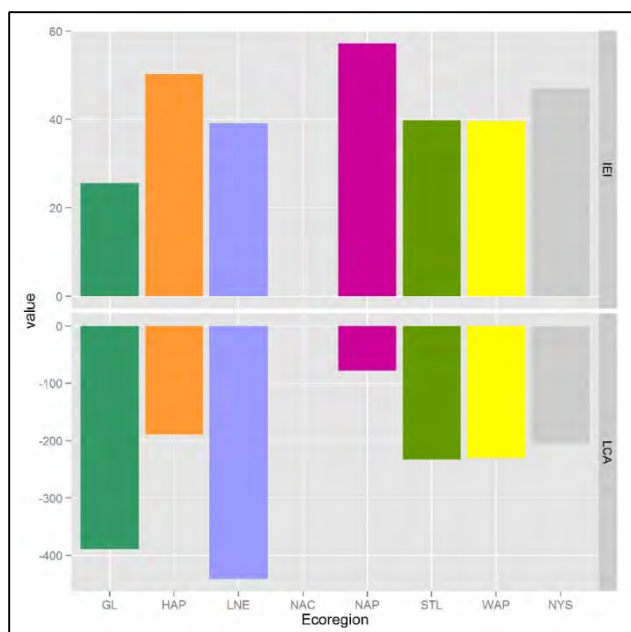


Figure 6. Index of Ecological Integrity score (top) and Landscape Condition Assessment score (bottom) for the Northern Hardwood and Conifer Macrogroup for each ecoregion and the state (far right).

## Associated SGCN

Twenty-seven SGCN are associated with this Macrogroup (Table 3).

Table 2. SGCN associated with the Northern Hardwood and Conifer Macrogroup.

Species	Common name	SGCN category	Habitat link
<i>Accipiter gentilis</i>	Northern goshawk	3	Mixed Northern Hardwoods
<i>Ambystoma jeffersonianum</i>	Jefferson salamander	4	Mixed Northern Hardwoods
<i>Ambystoma laterale</i>	Blue-spotted salamander	1	Mixed Northern Hardwoods
<i>Bonasa umbellus</i>	Ruffed grouse	3	Mixed Northern Hardwoods
<i>Buteo lineatus</i>	Red-shouldered hawk	3	Mixed Northern Hardwoods
<i>Caprimulgus vociferus</i>	Whip-poor-will	2	Mixed Northern Hardwoods
<i>Cardellina canadensis</i>	Canada warbler	2	Mixed Northern Hardwoods
<i>Carphophis amoenus amoenus</i>	Eastern wormsneak	3	Mixed Northern Hardwoods
<i>Cicindela unipunctata</i>	One-Spotted Tiger Beetle	4	Mixed Northern Hardwoods
<i>Citheronia regalis</i>	Regal moth	3	Mixed Northern Hardwoods
<i>Clemmys guttata</i>	Spotted turtle	2	Mixed Northern Hardwoods
<i>Coccyzus erythrophthalmus</i>	Black-billed cuckoo	3	Mixed Northern Hardwoods
<i>Contopus borealis</i>	Olive-sided flycatcher	2	Mixed Northern Hardwoods
<i>Eurycea longicauda</i>	Eastern long-tailed salamander	2	Mixed Northern Hardwoods
<i>Geothlypis formosus</i>	Kentucky Warbler	1	Mixed Northern Hardwoods
<i>Haliaeetus leucocephalus</i>	Bald Eagle	3	Mixed Northern Hardwoods
<i>Helmitheros vermivorum</i>	Worm-eating warbler	3	Mixed Northern Hardwoods

Species	Common name	SGCN category	Habitat link
<i>Hemidactylium scutatum</i>	Four-toed salamander	2	Mixed Northern Hardwoods
<i>Hylocichla mustelina</i>	Wood thrush	3	Mixed Northern Hardwoods
<i>Lithobates septentrionalis</i>	Mink frog	4	Mixed Northern Hardwoods
<i>Melanerpes erythrocephalus</i>	Red-headed woodpecker	2	Mixed Northern Hardwoods
<i>Parkesia motacilla</i>	Louisiana waterthrush	3	Mixed Northern Hardwoods
<i>Piranga olivacea</i>	Scarlet tanager	3	Mixed Northern Hardwoods
<i>Pseudotriton ruber ruber</i>	Northern red salamander	4	Mixed Northern Hardwoods
<i>Setophaga caerulescens</i>	Black-throated Blue Warbler	3	Mixed Northern Hardwoods
<i>Sorex hoyi</i>	American Pygmy Shrew	4	Mixed Northern Hardwoods
<i>Sylvilagus transitionalis</i>	New England cottontail	2	Mixed Northern Hardwoods

## ***Plantation/Pioneer Forest***

### **Macrogroup Description**

The Plantation/Pioneer Forest Macrogroup is equivalent to one New York SWAP habitat type described below.

**Plantation, Disturbed Land, Pioneer Forest:** These forests occur where the land has been modified or completely cleared and are either conifer tree plantations or undifferentiated upland forests resulting from succession. These disturbed land forests typically have combinations of early-successional trees (red maple, white pine, red-cedar, aspen, and birch associated with black locust, pin cherry, and sometimes walnut) that cannot be identified as natural ecological systems even in an incipient state. They usually contain lesser amounts of more natural matrix forest species such as oaks, northern hardwoods, and hemlocks. These low-diversity forests, often with non-native species in the understory, can limit insects and other factors important to wildlife.

### **Distribution**

The Plantation/Pioneer Forest Macrogroup likely occurs throughout the state. This type is not included in the Map of Terrestrial Habitats of the Northeastern United States, but is likely included in the maps of other forested Macrogroups.

### **Condition Assessment**

The condition of this Macrogroup could not be assessed because this type is not included in the Map of Terrestrial Habitats of the Northeastern United States.

Assessment of the natural condition for plantations may not be appropriate because it is primarily a cultural type. Cultural Macrogroups are disturbed or artificial types created and maintained by human activities, or modified by human influence to such a degree that the physical structure of the substrate, or species composition are substantially different from the substrate and

composition of the site as it existed prior to human influence; non-native species may be dominant.

## Associated SGCN

Thirteen SGCN are associated with this Macrogroup (Table 4).

Table 3. SGCN associated with the Plantation/Pioneer Forest Macrogroup.

Species	Common name	SGCN category	Habitat link
<i>Accipiter gentilis</i>	Northern goshawk	3	Plantation, Disturbed Land, Pioneer Forest
<i>Asio otus</i>	Long-eared owl	3	Plantation, Disturbed Land, Pioneer Forest
<i>Bonasa umbellus</i>	Ruffed grouse	3	Plantation, Disturbed Land, Pioneer Forest
<i>Buteo lineatus</i>	Red-shouldered hawk	3	Plantation, Disturbed Land, Pioneer Forest
<i>Chlosyne gorgone</i>	Gorgone checkerspot	4	Plantation, Disturbed Land, Pioneer Forest
<i>Coccyzus erythrophthalmus</i>	Black-billed cuckoo	3	Plantation, Disturbed Land, Pioneer Forest
<i>Hylocichla mustelina</i>	Wood thrush	3	Plantation, Disturbed Land, Pioneer Forest
<i>Icteria virens</i>	Yellow-breasted chat	1	Plantation, Disturbed Land, Pioneer Forest
<i>Pantherophis alleghaniensis</i>	Eastern ratsnake	3	Plantation, Disturbed Land, Pioneer Forest
<i>Piranga olivacea</i>	Scarlet tanager	3	Plantation, Disturbed Land, Pioneer Forest
<i>Setophaga discolor</i>	Prairie warbler	3	Plantation, Disturbed Land, Pioneer Forest
<i>Vermivora chrysoptera</i>	Golden-winged warbler	1	Plantation, Disturbed Land, Pioneer Forest
<i>Vermivora cyanoptera</i>	Blue-winged warbler	3	Plantation, Disturbed Land, Pioneer Forest

## *Exotic Upland Forest*

### Macrogroup Description

The Exotic Upland Forest Macrogroup is equivalent to one New York SWAP habitat type described below.

**Non-native Upland Forest:** These forests, dominated by Norway maple, tree-of-heaven, black locust, or other exotic trees, occur where land cover is significantly altered/disturbed. These usually reflect a history of substantial soil disturbance that may preclude development of a more natural forest system without intervention.

## **Distribution**

The Exotic Upland Forest Macrogroup probably occurs throughout the state. This type is not included in the Map of Terrestrial Habitats of the Northeastern United States, but is likely included in the maps of other forested Macrogroups.

## **Condition Assessment**

The condition of this Macrogroup could not be assessed because this type is not included in the Map of Terrestrial Habitats of the Northeastern United States.

Assessment of the natural condition for this Macrogroup may not be appropriate because it is primarily a cultural type. Cultural Macrogroups are disturbed or artificial types created and maintained by human activities, or modified by human influence to such a degree that the physical structure of the substrate, or species composition are substantially different from the substrate and composition of the site as it existed prior to human influence; non-native species may be dominant.

## **Associated SGCN**

No SGCN are associated with this Macrogroup.

## ***Coastal Plain Swamp***

### **Macrogroup Description**

The Coastal Plain Swamp Macrogroup includes two New York SWAP habitat types described below. Both types are forested wetlands with the first type ranging from conifer to mixed swamp with a peat substrate and the second type being a hardwood swamp underlain by mineral soils.

**Atlantic White Cedar Swamp:** These coastal acidic peat swamps with hummocks and hollows are formed in basins of various sizes. Atlantic white cedar is often dominant; red maple may also be present, especially after logging.

**Coastal Red Maple-Black Gum Swamp:** These non-riverine hardwood swamps are seasonally flooded coastal habitats, affected by groundwater and overland flows.

## **Distribution**

The Northeast Terrestrial Habitat Map predicts that nearly all of the Coastal Plain Swamps occur in the North Atlantic Coast Ecoregion (NAC) covering nearly 25 square miles with trace amounts predicted for the Lower New England/Northern Piedmont Ecoregion (LNE) (Figure 10 and Figure 11).



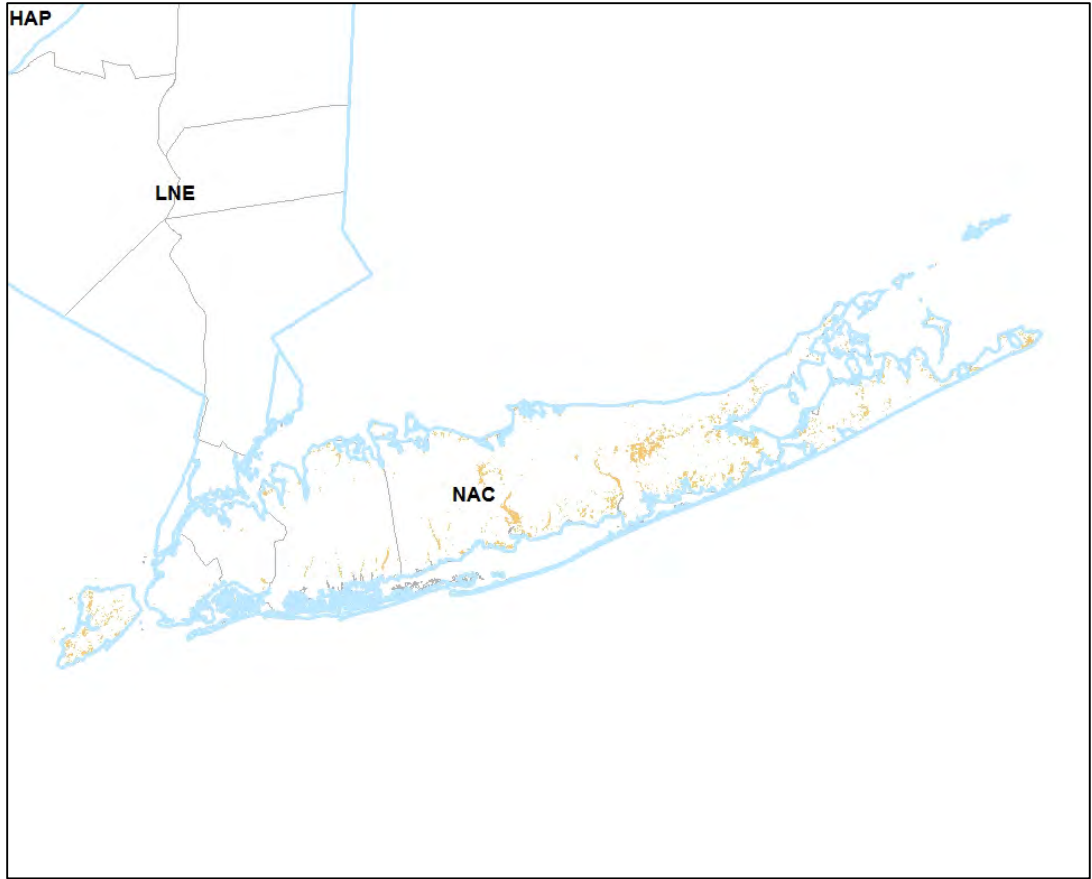


Figure 7. The distribution of the Coastal Plain Swamp Macrogroup throughout the North Atlantic Coast and Lower New England/Northern Piedmont ecoregions, as based on the Northeast Terrestrial Habitat Map.

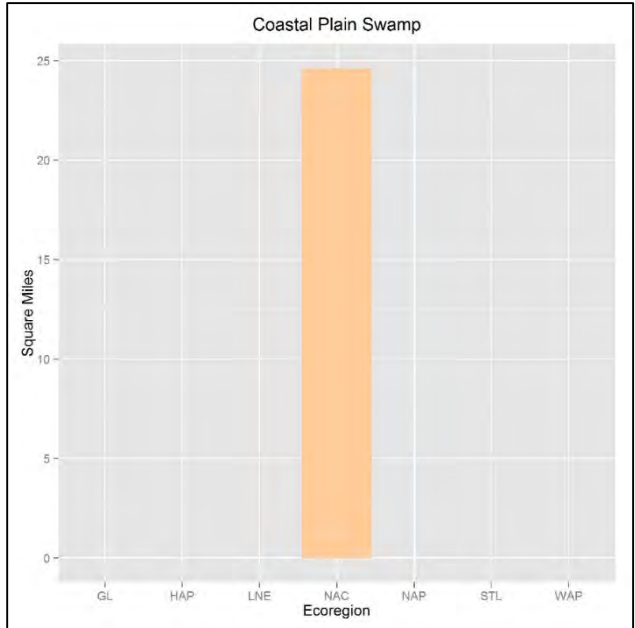


Figure 8. Area distribution of the Coastal Plain Swamp Macrogroup by ecoregion.

## Condition Assessment

Based on LCA and IEI scores, the highest quality Coastal Plain Swamps are predicted to be in the North Atlantic Coast Ecoregion (NAC) (Figure 12) where nearly all of this type occurs.

There are only four coastal plain Atlantic white cedar swamps documented on Long Island. They are all in the Town of Southampton in Suffolk County. The condition of these swamps ranges from good to poor based on NY Natural Heritage Program Element Occurrence Ranks. The best example of red maple-blackgum swamp on Long Island based on NY Natural Heritage Program Element Occurrence Ranks occurs at Connetquot River State Park (New York Natural Heritage Program 2015).

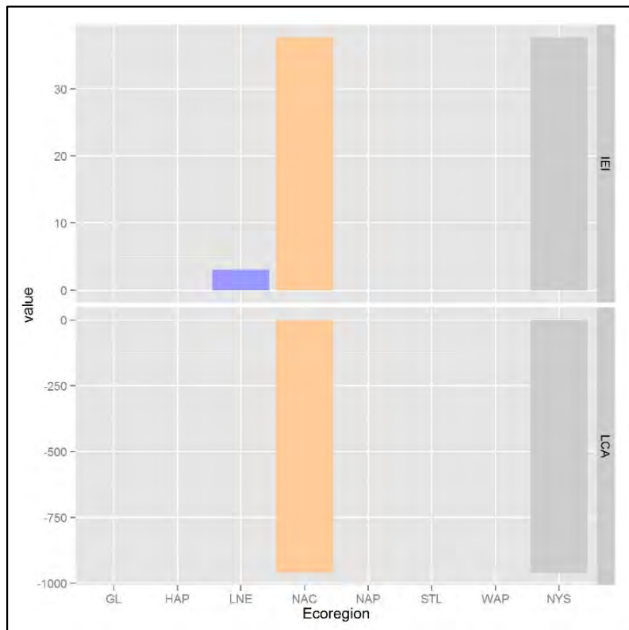


Figure 9. Index of Ecological Integrity score (top) and Landscape Condition Assessment score (bottom) for the Coastal Plain Swamp Macrogroup for each ecoregion and the state (far right).

## Associated SGCN

Five SGCN are associated with this Macrogroup (Table 5).

Table 4. SGCN associated with the Coastal Plain Swamp Macrogroup.

Species	Common name	SGCN category	Habitat link
<i>Callophrys hesseli</i>	Hessel's hairstreak	1	Atlantic White Cedar Swamp
<i>Protonotaria citrea</i>	Prothonotary warbler	1	Atlantic White Cedar Swamp
<i>Hylocichla mustelina</i>	Wood thrush	3	Coastal Red Maple-Black Gum Swamp
<i>Nycticorax</i>	Black-crowned Night-Heron	3	Coastal Red Maple-Black Gum Swamp
<i>Parkesia motacilla</i>	Louisiana waterthrush	3	Coastal Red Maple-Black Gum Swamp
<i>Protonotaria citrea</i>	Prothonotary warbler	1	Coastal Red Maple-Black Gum Swamp

## ***Central Hardwood Swamp***

### **Macrogroup Description**

The Central Hardwood Swamp Macrogroup is equivalent to one New York SWAP habitat type described below.

**Hardwood Swamp:** These swamps usually occur on poorly drained uplands or glaciated depressions; saturation can vary from ponding in wetter seasons and drought during summer and fall. These changing moisture regimes result in mixtures of forest and wetland species, including pin oak, swamp white oak, red maple, alder, and sedges.

### **Distribution**

The Northeast Terrestrial Habitat Map predicts that the Central Hardwood Swamp Macrogroup occurs primarily in the St. Lawrence/Champlain Valley Ecoregion (STL) where it covers close to 100 square miles (Figure 13 and Figure 14). Lower New England/Northern Piedmont Ecoregion (LNE) has the second most coverage of this type (>60 square miles) with small amounts in four remaining ecoregions and not predicted for the North Atlantic Coast (NAC) (Figure 13).

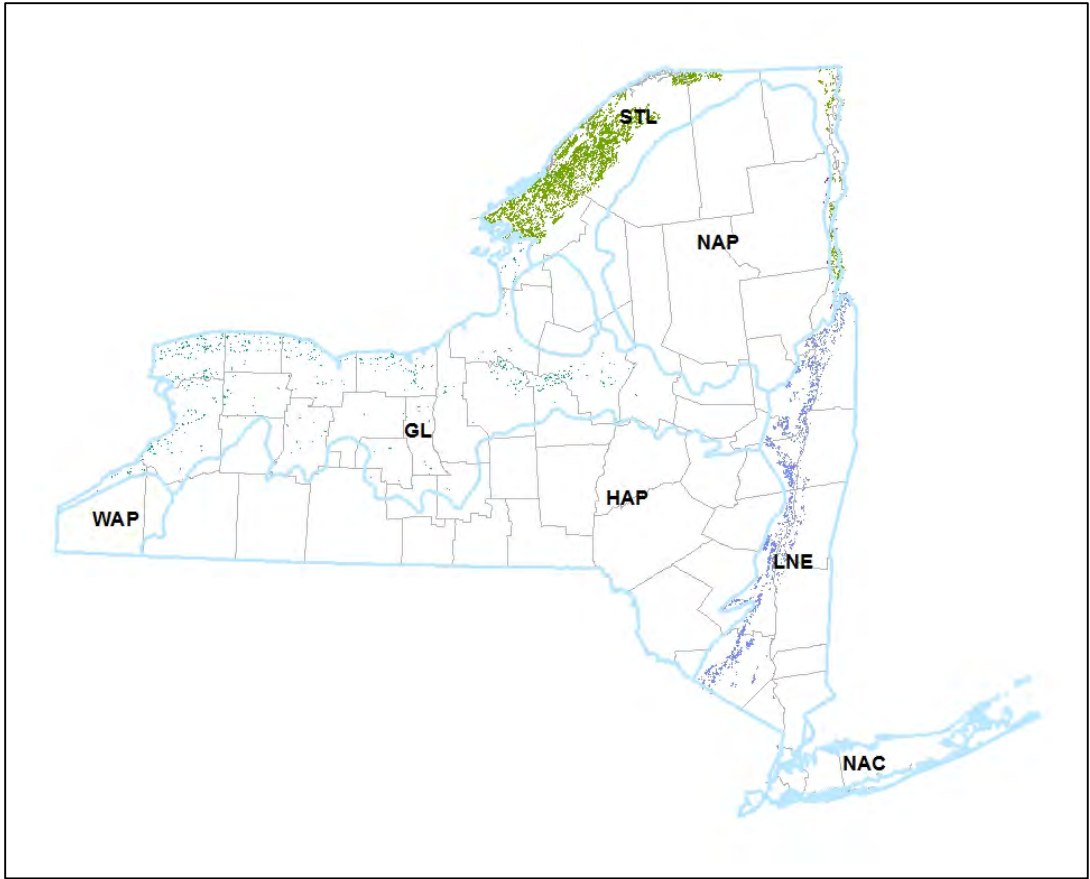


Figure 10. The distribution of the Central Hardwood Swamp Macrogroup throughout New York by ecoregion, as based on the Northeast Terrestrial Habitat Map.

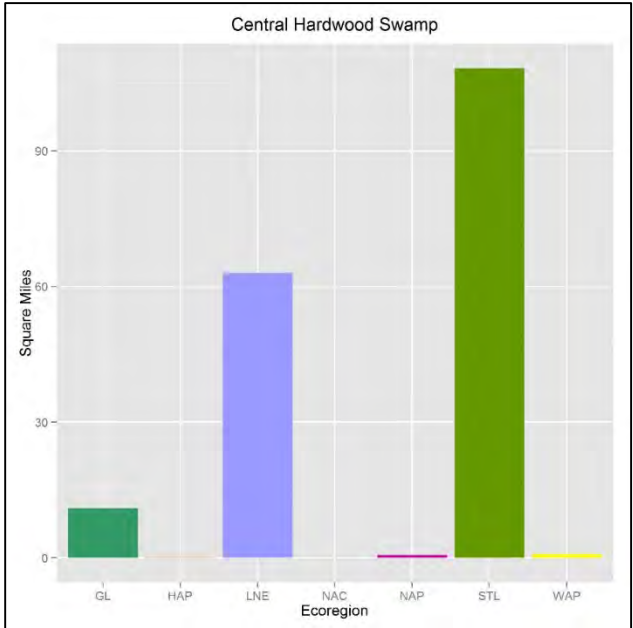


Figure 11. Area distribution of the Central Hardwood Swamp Macrogroup by ecoregion.

## Condition Assessment

Based on LCA and IEI scores, the highest quality Central Hardwood Swamps are predicted to be in the High Allegheny Plateau (HAP), Western Allegheny Plateau (WAP), and St. Lawrence/Champlain Valley (STL) ecoregions (Figure 15).

The largest, high-quality examples of red maple-hardwood swamp in the state based on NY Natural Heritage Program Element Occurrence Ranks are on NYS DEC Wildlife Management Areas, such as Three Mile Bay WMA (GL), Deer Creek Marsh WMA (GL), and Great Swamp WMA (LNE) (New York Natural Heritage Program 2015).

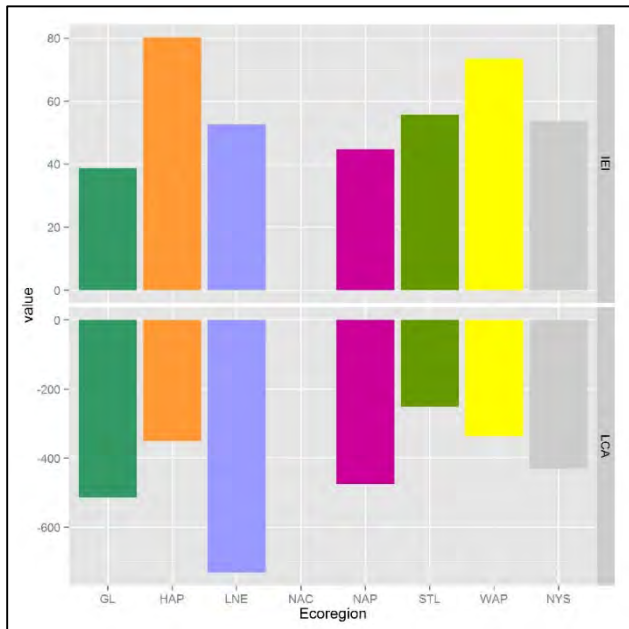


Figure 12. Index of Ecological Integrity score (top) and Landscape Condition Assessment score (bottom) for the Central Hardwood Swamp Macrogroup for each ecoregion and the state (far right).

## Associated SGCN

Nineteen SGCN are associated with this Macrogroup (Table 6).

Table 5. SGCN associated with the Central Hardwood Swamp Macrogroup.

Species	Common name	SGCN category	Habitat link
<i>Acris crepitans</i>	Eastern cricket frog	2	Hardwood Swamp
<i>Ambystoma jeffersonianum</i>	Jefferson salamander	4	Hardwood Swamp
<i>Ambystoma laterale</i>	Blue-spotted salamander	1	Hardwood Swamp
<i>Ambystoma opacum</i>	Marbled salamander	3	Hardwood Swamp
<i>Anas rubripes</i>	American Black Duck	2	Hardwood Swamp
<i>Buteo lineatus</i>	Red-shouldered hawk	3	Hardwood Swamp
<i>Cardellina canadensis</i>	Canada warbler	2	Hardwood Swamp
<i>Egretta caerulea</i>	Little blue heron	3	Hardwood Swamp

Species	Common name	SGCN category	Habitat link
<i>Geothlypis formosus</i>	Kentucky Warbler	1	Hardwood Swamp
<i>Hemidactylium scutatum</i>	Four-toed salamander	2	Hardwood Swamp
<i>Melanerpes erythrocephalus</i>	Red-headed woodpecker	2	Hardwood Swamp
<i>Parkesia motacilla</i>	Louisiana waterthrush	3	Hardwood Swamp
<i>Piranga olivacea</i>	Scarlet tanager	3	Hardwood Swamp
<i>Protonotaria citrea</i>	Prothonotary warbler	1	Hardwood Swamp
<i>Scolopax minor</i>	American woodcock	3	Hardwood Swamp
<i>Setophaga cerulea</i>	Cerulean Warbler	3	Hardwood Swamp
<i>Sistrurus catenatus catenatus</i>	Eastern massasauga	2	Hardwood Swamp
<i>Vermivora chrysoptera</i>	Golden-winged warbler	1	Hardwood Swamp
<i>Vermivora cyanoptera</i>	Blue-winged warbler	3	Hardwood Swamp

## ***Northeast Floodplain Forest***

### **Macrogroup Description**

The Northeast Floodplain Forest Macrogroup includes two New York SWAP habitat types described below. Both types are adjacent to rivers and subject to seasonal flooding. The first type represents the forested part of the broader floodplain while the second captures the forested and open areas immediately along the river shoreline.

**Floodplain Forest:** These floodplain forests occur along medium to large rivers with various mixtures of wetland and upland vegetation, including silver maple, red maple, musclewood, cottonwood, sycamore, and black willow; they are typically underwater in the spring.

**Riparian:** These areas are located on shores along rivers that lack a broad flat floodplain and higher-gradient reaches. The vegetation is often a mixture of forest, shrubland, and herbaceous communities, including river birch, sycamore, and box-elder.

### **Distribution**

The Northeast Terrestrial Habitat Map predicts that Northeast Floodplain Forests occur in all seven ecoregions in the state (Figure 16 and Figure 17). The Great Lakes Ecoregion (GL) has the most Floodplain Forest in the state covering nearly 125 square miles (Figure 17).

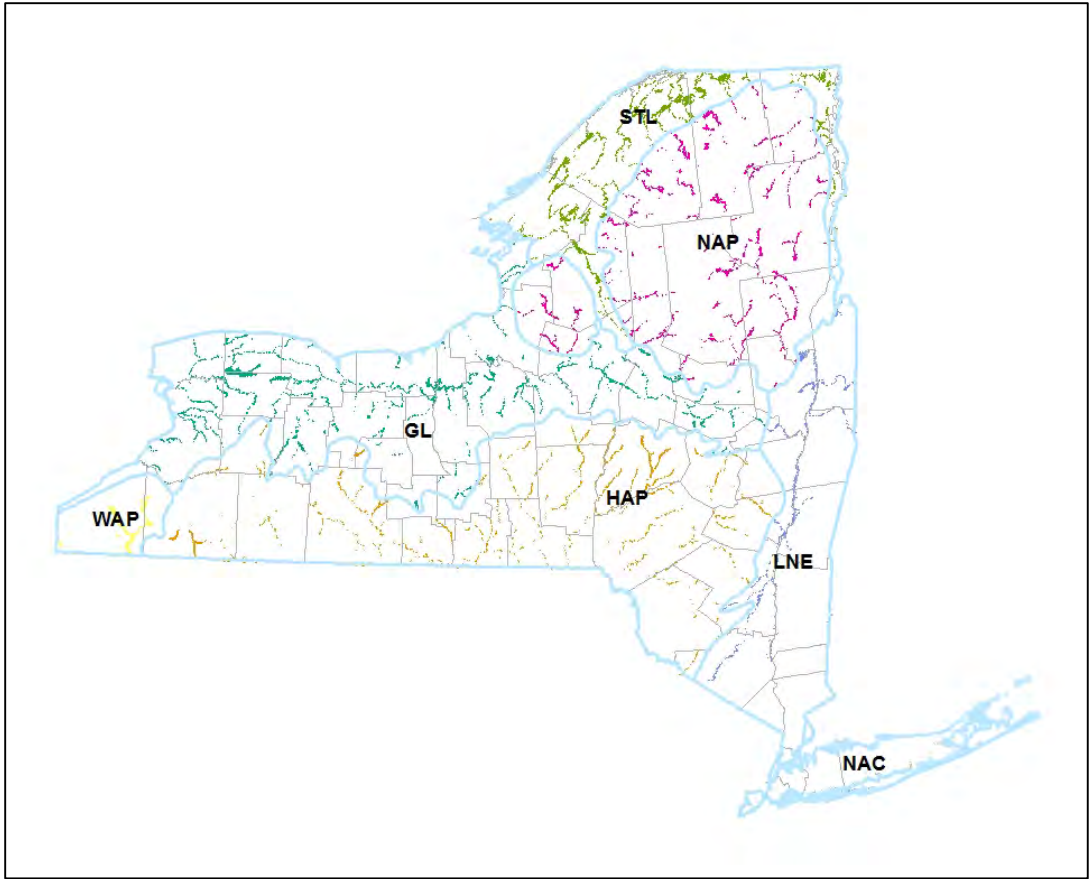


Figure 13. The distribution of the Northeast Floodplain Forest throughout New York by ecoregion, as based on the Northeast Terrestrial Habitat Map.

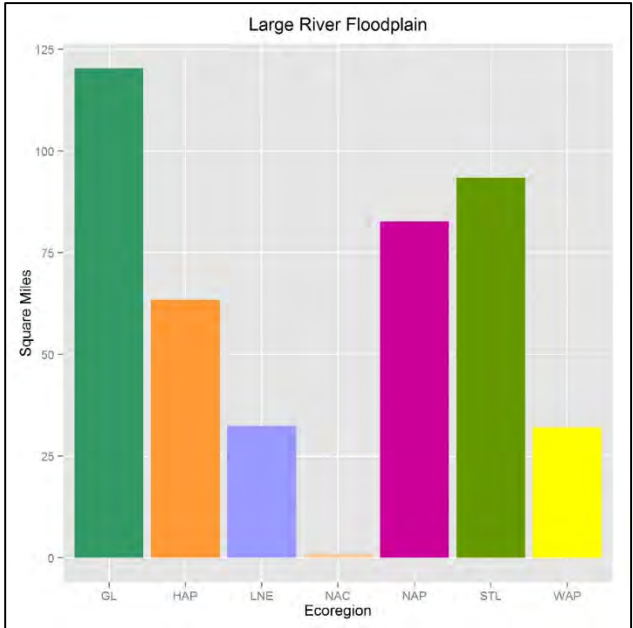


Figure 14. Area distribution of the Large River Floodplain Macrogroup by ecoregion.

## Condition Assessment

Based on LCA and IEI scores, the highest quality Northeast Floodplain Forests are predicted to be in the Western Allegheny Plateau, Northern Appalachian/Boreal Forest (NAP), and St. Lawrence/Champlain Valley (STL) ecoregions (Figure 18).

Based on NY Natural Heritage Program Element Occurrence Ranks, the best floodplain forest in WAP is in the Connewango Swamp WMA. Large, high-quality examples of floodplain forests in NAP are on the Raquette River in Harrietstown and Fall Stream in the Jessup River Wild Forest. The best example in STL is on the Ausable River in the Ausable Marsh WMA (New York Natural Heritage Program 2015).

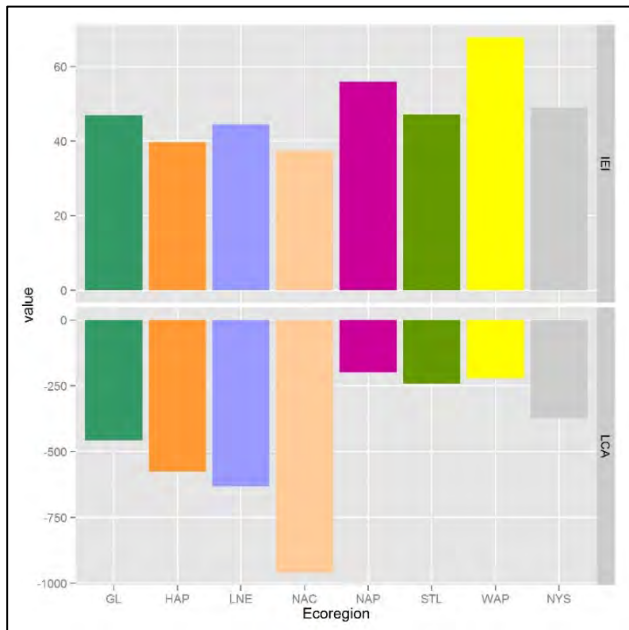


Figure 15. Index of Ecological Integrity score (top) and Landscape Condition Assessment score (bottom) for the Northeast Floodplain Forest Macrogroup for each ecoregion and the state (far right).

## Associated SGCN

Seventy-one SGCN are associated with this Macrogroup (Table 7).

Table 6. SGCN associated with the Northeast Floodplain Forest Macrogroup.

Species	Common name	SGCN category	Habitat link
<i>Acris crepitans</i>	Eastern cricket frog	2	Floodplain Forest
<i>Ambystoma opacum</i>	Marbled salamander	3	Floodplain Forest
<i>Anas rubripes</i>	American Black Duck	2	Floodplain Forest
<i>Anaxyrus fowleri</i>	Fowlers Toad	3	Floodplain Forest
<i>Bucephala clangula</i>	Common goldeneye	3	Floodplain Forest
<i>Buteo lineatus</i>	Red-shouldered hawk	3	Floodplain Forest



Species	Common name	SGCN category	Habitat link
<i>Cardellina canadensis</i>	Canada warbler	2	Floodplain Forest
<i>Cicindela ancocisconensis</i>	Appalachian Tiger Beetle	2	Floodplain Forest
<i>Egretta caerulea</i>	Little blue heron	3	Floodplain Forest
<i>Eurycea longicauda</i>	Eastern long-tailed salamander	2	Floodplain Forest
<i>Falco peregrinus</i>	Peregrine falcon	3	Floodplain Forest
<i>Glyptemys insculpta</i>	Wood turtle	2	Floodplain Forest
<i>Haliaeetus leucocephalus</i>	Bald Eagle	3	Floodplain Forest
<i>Hemidactylium scutatum</i>	Four-toed salamander	2	Floodplain Forest
<i>Melanerpes erythrocephalus</i>	Red-headed woodpecker	2	Floodplain Forest
<i>Piranga olivacea</i>	Scarlet tanager	3	Floodplain Forest
<i>Plestiodon anthracinus anthracinus</i>	Northern Coal Skink	3	Floodplain Forest
<i>Protonotaria citrea</i>	Prothonotary warbler	1	Floodplain Forest
<i>Pseudotriton ruber ruber</i>	Northern red salamander	4	Floodplain Forest
<i>Scolopax minor</i>	American woodcock	3	Floodplain Forest
<i>Setophaga cerulea</i>	Cerulean Warbler	3	Floodplain Forest
<i>Acentrella barbarae</i>	A mayfly	4	Riparian
<i>Allocapnia illinoensis</i>	Illinois Snowfly	3	Riparian
<i>Alloperla leonarda</i>	A Stonefly	4	Riparian
<i>Alloperla voinae</i>	Lawrence sallfly	4	Riparian
<i>Alloperla vostoki</i>	Scotia sallfly	4	Riparian
<i>Ameletus tarteri</i>	None	3	Riparian
<i>Ameletus tertius</i>	None	4	Riparian
<i>Apalone spinifera spinifera</i>	Eastern spiny softshell	2	Riparian
<i>Baetis rusticans</i>	None	4	Riparian
<i>Buteo lineatus</i>	Red-shouldered hawk	3	Riparian
<i>Cambarus diogenes</i>	Devil crawfish	4	Riparian
<i>Cicindela ancocisconensis</i>	Appalachian Tiger Beetle	2	Riparian
<i>Coccyzus erythrophthalmus</i>	Black-billed cuckoo	3	Riparian
<i>Contopus borealis</i>	Olive-sided flycatcher	2	Riparian
<i>Dannella provonshai</i>	None	3	Riparian
<i>Egretta caerulea</i>	Little blue heron	3	Riparian
<i>Egretta thula</i>	Snowy egret	3	Riparian
<i>Epeorus punctatus</i>	None	3	Riparian
<i>Epeorus suffusus</i>	None	3	Riparian
<i>Euphagus carolinus</i>	Rusty blackbird	2	Riparian
<i>Eurylophella bicoloroides</i>	None	4	Riparian
<i>Falco peregrinus</i>	Peregrine falcon	3	Riparian
<i>Geothlypis formosus</i>	Kentucky Warbler	1	Riparian
<i>Glyptemys insculpta</i>	Wood turtle	2	Riparian
<i>Gomphus abbreviatus</i>	Spine-crowned clubtail	2	Riparian
<i>Gomphus quadricolor</i>	Rapids clubtail	3	Riparian
<i>Gomphus septima</i>	Septima's clubtail	2	Riparian

Species	Common name	SGCN category	Habitat link
<i>Gomphus ventricosus</i>	Skillet clubtail	2	Riparian
<i>Gomphus ventricosus</i>	Skillet clubtail	2	Riparian
<i>Gomphus ventricosus</i>	Skillet clubtail	2	Riparian
<i>Gomphus viridifrons</i>	Green-faced clubtail	2	Riparian
<i>Haliaeetus leucocephalus</i>	Bald Eagle	3	Riparian
<i>Hemidactylium scutatum</i>	Four-toed salamander	2	Riparian
<i>Heterodon platirhinos</i>	Eastern hog-nosed snake	2	Riparian
<i>Icteria virens</i>	Yellow-breasted chat	1	Riparian
<i>Isoperla gibbsae</i>	A Stonefly	3	Riparian
<i>Isoperla myersi</i>	A Stonefly	4	Riparian
<i>Leucrocuta thetis</i>	None	4	Riparian
<i>Nixe rusticalis</i>	None	4	Riparian
<i>Nixe rusticalis</i>	None	4	Riparian
<i>Opheodrys vernalis</i>	Smooth greensnake	3	Riparian
<i>Ophiogomphus howei</i>	Pygmy snaketail	2	Riparian
<i>Ophiogomphus howei</i>	Pygmy snaketail	2	Riparian
<i>Plauditus gloveri</i>	None	4	Riparian
<i>Plestiodon anthracinus anthracinus</i>	Northern Coal Skink	3	Riparian
<i>Procloeon mendax</i>	None	4	Riparian
<i>Procloeon ozburni</i>	None	4	Riparian
<i>Procloeon simile</i>	None	4	Riparian
<i>Procloeon vicinum</i>	A mayfly	4	Riparian
<i>Protonotaria citrea</i>	Prothonotary warbler	1	Riparian
<i>Pseudotriton ruber ruber</i>	Northern red salamander	4	Riparian
<i>Pteronarcys comstocki</i>	Spiny Salmonfly	4	Riparian
<i>Regina septemvittata</i>	Queensnake	2	Riparian
<i>Rhithrogena anomala</i>	None	4	Riparian
<i>Scolopax minor</i>	American woodcock	3	Riparian
<i>Setophaga cerulea</i>	Cerulean Warbler	3	Riparian
<i>Siphonisca aerodromia</i>	Tomah Mayfly	2	Riparian
<i>Siphonurus barbaroides</i>	None	3	Riparian
<i>Siphonurus barbarus</i>	None	3	Riparian
<i>Sparbarus maculatus</i>	None	4	Riparian
<i>Terrapene carolina carolina</i>	Woodland box turtle	2	Riparian
<i>Thamnophis sauritus sauritus</i>	Common ribbonsnake	3	Riparian
<i>Utaperla gaspesiana</i>	Gaspe Sallfly	4	Riparian
<i>Valvata sincera</i>	Mossy valvata (boreal turret snail)	4	Riparian
<i>Vermivora chrysoptera</i>	Golden-winged warbler	1	Riparian
<i>Vermivora cyanoptera</i>	Blue-winged warbler	3	Riparian

## ***Northern Swamp***

### **Macrogroup Description**

The Northern Swamp Macrogroup includes three New York SWAP habitat types described below. The habitats include conifer and mixed swamps with either peat or mineral soil substrate. As the Macrogroup name implies this type is more common in the northern and higher elevation portions of the state.

**Conifer Forest Swamp:** These areas are found on gentle to moderate slopes where groundwater seepage provides constant moisture. Northern white cedar and red spruce are typically dominant, with an extensive herbaceous layer.

**Northern White Cedar Swamp:** These forested wetlands have relatively high pH and nutrient levels, often with an extensive moss layer. Northern white cedar is dominant, mixed with other conifers or deciduous trees such as red maple or black ash.

**Mixed Hardwood Swamp:** These basin swamps occur on poorly drained mineral soils, with some peat development, at low to mid elevations. Typical tree species include red maple, red spruce, balsam fir, and hemlock.

### **Distribution**

The Northeast Terrestrial Habitat Map predicts that the Northern Swamp Macrogroup occurs in every ecoregion in the state except the North Atlantic Coast (NAC) (Figure 19 and Figure 20). It is most abundant in the Northern Appalachian/Boreal Forest Ecoregion (NAP) with almost 1000 square miles, followed by the Great Lakes Ecoregion (GL) with over 750 square miles predicted (Figure 20).

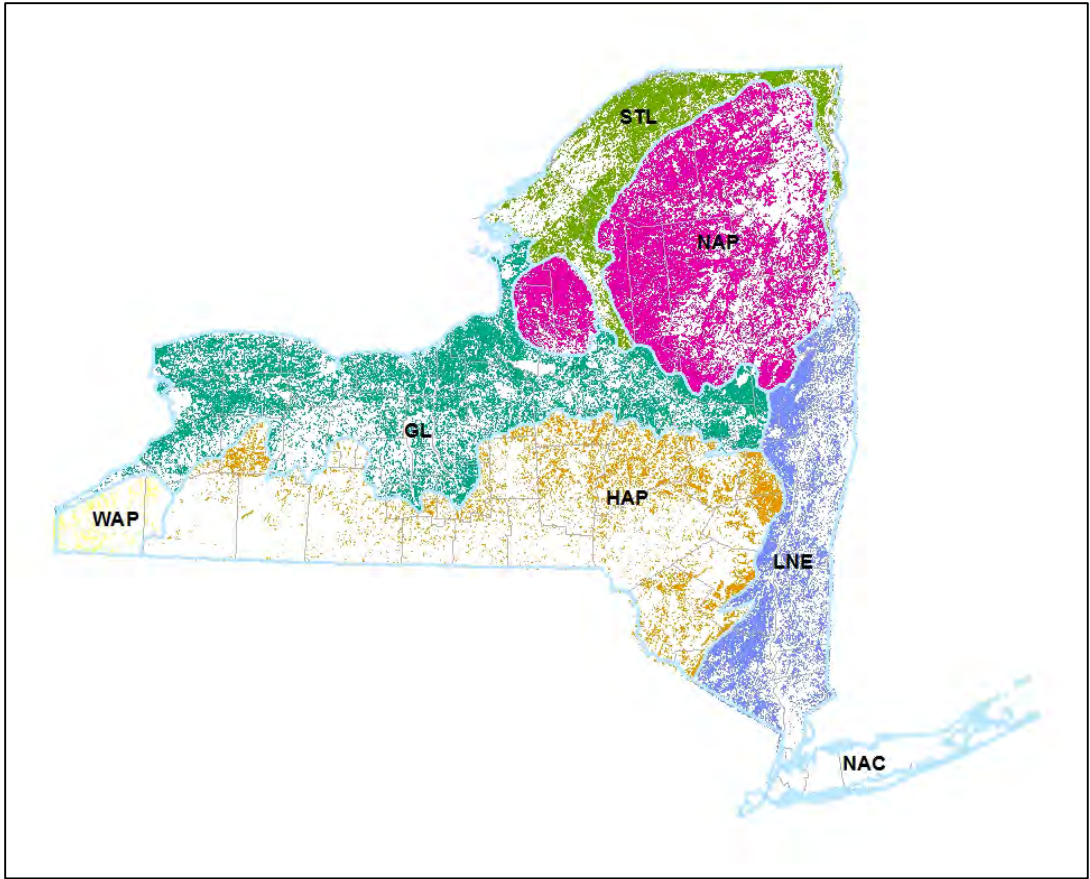


Figure 16. The distribution of the Northern Swamp Macrogroup throughout New York by ecoregion, as based on the Northeast Terrestrial Habitat Map.

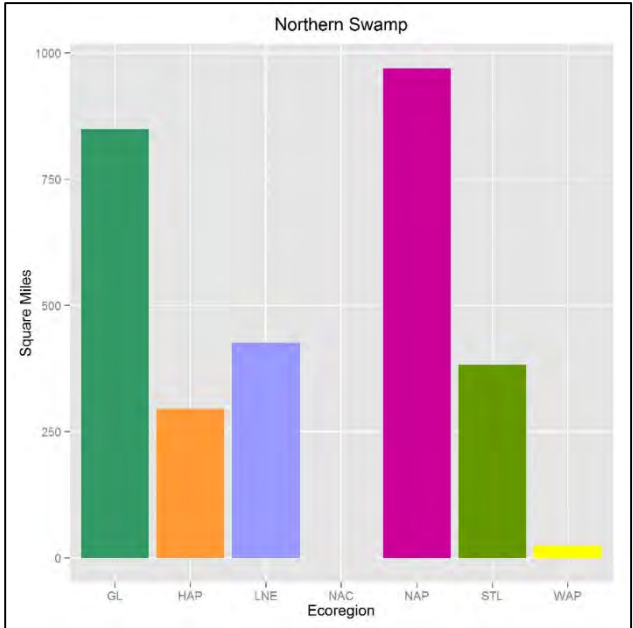


Figure 17. Area distribution of the Northern Swamp Macrogroup by ecoregion.

## Condition Assessment

Based on LCA and IEI scores, the highest quality Northern Swamps are predicted to be in in the Northern Appalachian/Boreal Forest Ecoregion (NAP) (Figure 21).

Based on NY Natural Heritage Program Element Occurrence Ranks, the best northern white cedar swamps in the state include Bergen Swamp (GL), Three Mile Bay WMA (GL), Jadwin State Forest (NAP/STL), Marion River (NAP), Fort Drum (STL), and Dunham Bay Marsh in the Lake George Wild Forest (NAP). Large, high-quality spruce-fir swamps in the state include Black Pond Swamp in the Saranac Lakes Wild Forest (NAP), Raquette-Jordan Boreal Primitive Area (NAP), Balsam Swamp in the Catskill Park Sundown Wild Forest (HAP), and Whetstone Gulf State Park (NAP). The best hemlock-hardwood swamps in the state include Vly Swamp in Catskill Park (HAP), Bear Swamp in Cayuga State Forest (HAP), and Harriman State Park (LNE) (New York Natural Heritage Program 2015).

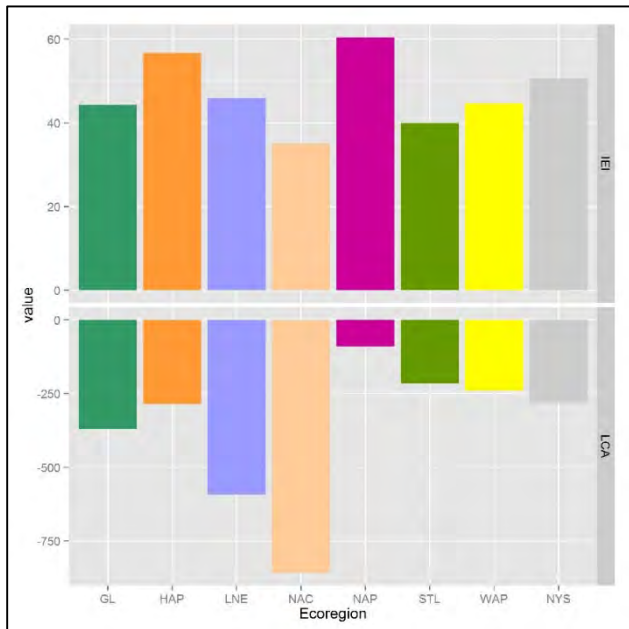


Figure 18. Index of Ecological Integrity score (top) and Landscape Condition Assessment score (bottom) for the Northern Swamp Macrogroup for each ecoregion and the state (far right).

## Associated SGCN

Nineteen SGCN are associated with this Macrogroup (Table 8).

Table 7. SGCN associated with the Northern Swamp Macrogroup.

Species	Common name	SGCN	Habitat link
<i>Cardellina canadensis</i>	Canada warbler	2	Conifer Forest Swamp

Species	Common name	SGCN	Habitat link
Contopus borealis	Olive-sided flycatcher	2	Conifer Forest Swamp
Euphagus carolinus	Rusty blackbird	2	Conifer Forest Swamp
Oreothlypis peregrina	Tennessee Warbler	4	Conifer Forest Swamp
Picoides tridactylus	American three-toed	2	Conifer Forest Swamp
Scolopax minor	American woodcock	3	Conifer Forest Swamp
Setophaga castanea	Bay-breasted warbler	2	Conifer Forest Swamp
Setophaga tigrina	Cape May Warbler	2	Conifer Forest Swamp
Ambystoma jeffersonianum	Jefferson salamander	4	Mixed Hardwood Swamp
Ambystoma laterale	Blue-spotted salamander	1	Mixed Hardwood Swamp
Cardellina canadensis	Canada warbler	2	Mixed Hardwood Swamp
Contopus borealis	Olive-sided flycatcher	2	Mixed Hardwood Swamp
Euphagus carolinus	Rusty blackbird	2	Mixed Hardwood Swamp
Glyptemys muhlenbergii	Bog turtle	1	Mixed Hardwood Swamp
Hemidactylium scutatum	Four-toed salamander	2	Mixed Hardwood Swamp
Lithophane viridipallens	Pale green pinion moth	4	Mixed Hardwood Swamp
Oreothlypis peregrina	Tennessee Warbler	4	Mixed Hardwood Swamp
Picoides tridactylus	American three-toed	2	Mixed Hardwood Swamp
Plestiodon anthracinus	Northern Coal Skink	3	Mixed Hardwood Swamp
Scolopax minor	American woodcock	3	Mixed Hardwood Swamp
Setophaga caerulea	Black-throated Blue Warbler	3	Mixed Hardwood Swamp
Setophaga castanea	Bay-breasted warbler	2	Mixed Hardwood Swamp
Sorex hoyi	American Pygmy Shrew	4	Mixed Hardwood Swamp
Sylvilagus transitionalis	New England cottontail	2	Mixed Hardwood Swamp
Cardellina canadensis	Canada warbler	2	Northern White Cedar
Egretta caerulea	Little blue heron	3	Northern White Cedar
Lithophane viridipallens	Pale green pinion moth	4	Northern White Cedar
Protonotaria citrea	Prothonotary warbler	1	Northern White Cedar
Scolopax minor	American woodcock	3	Northern White Cedar

## ***Boreal Upland Forest***

### **Macrogroup Description**

The Boreal Upland Forest Macrogroup includes two New York SWAP habitat types described below. Both types are upland forests dominated by conifer trees, such as red spruce and balsam fir, which are characteristic of higher latitudes and elevations of eastern North America.

**Spruce-Fir Forests and Flats:** These are low to mid elevation forests dominated by red spruce and balsam fir; associated hardwoods are yellow birch, beech, red maple, and sugar maple. The habitat includes both uplands and seasonally wet areas (flats), but not saturated conifer swamps.

**Mountain Spruce-Fir Forests:** These forests occur at high elevations and are more than 50% coniferous; red spruce and balsam fir are dominant.

### **Distribution**

Based on Northeast Terrestrial Habitat Map model, the majority of Boreal Upland Forest is predicted to be in the Northern Appalachian/Boreal Forest Ecoregion (NAP) in the Adirondacks covering nearly 1000 square miles with a very small amount in the High Allegheny Plateau Ecoregion (HAP) in the Catskills, and trace amounts in the Great Lakes Ecoregion (Figure 22 and Figure 23).

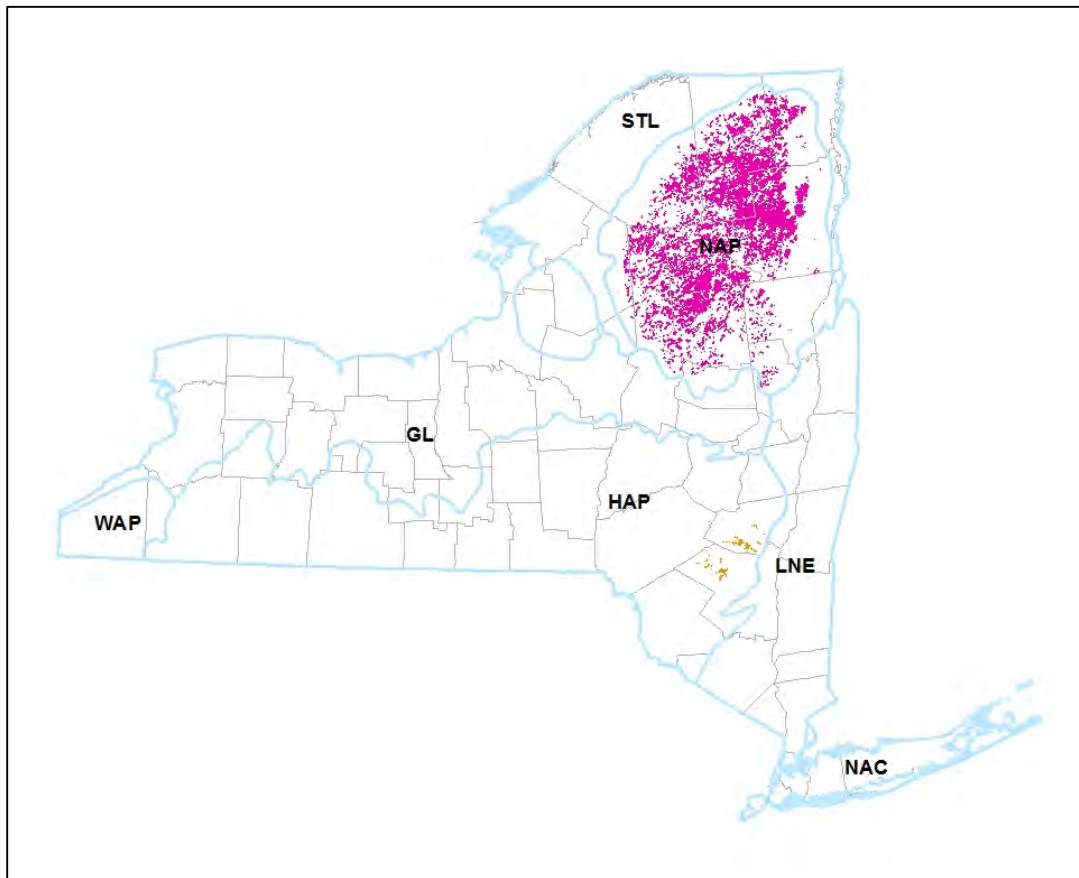


Figure 19. The distribution of the Boreal Upland Forest Macrogroup throughout New York by ecoregion, as based on the Northeast Terrestrial Habitat Map.

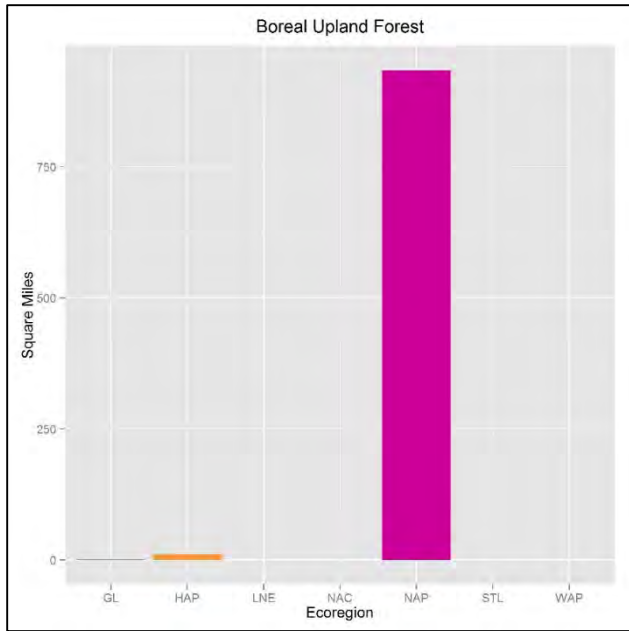


Figure 20. Area distribution of the Boreal Upland Forest Macrogroup by ecoregion.

### Condition Assessment

Based on LCA and IEI scores, the highest quality Boreal Upland Forests are predicted to be in the Great Lakes Ecoregion (GL) (Figure 24), but since nearly all of this type occurs in the Northern Appalachian/Boreal Forest Ecoregion (NAP) high-quality examples are known from this ecoregion as well.

Large high-quality examples of mountain spruce-fir forests in the state based on NY Natural Heritage Program Element Occurrence Ranks are limited to the Adirondack Park High Peaks Wilderness and Catskill Park (New York Natural Heritage Program 2015).



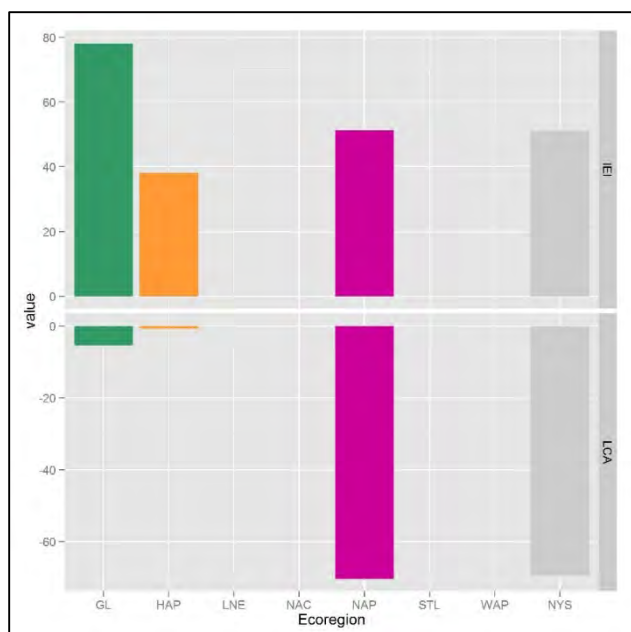


Figure 21. Index of Ecological Integrity score (top) and Landscape Condition Assessment score (bottom) for the Boreal Upland Forest Macrogroup for each ecoregion and the state (far right).

## Associated SGCN

Fourteen SGCN are associated with this Macrogroup (Table 9).

Table 8. SGCN associated with the Boreal Upland Forest Macrogroup.

Species	Common name	SGCN category	Habitat link
<i>Agrotis obliqua</i>	A noctuid moth	4	Mountain Spruce-Fir Forests
<i>Catharus bicknelli</i>	Bicknell's Thrush	2	Mountain Spruce-Fir Forests
<i>Contopus borealis</i>	Olive-sided flycatcher	2	Mountain Spruce-Fir Forests
<i>Falcipectes canadensis</i>	Spruce Grouse	2	Mountain Spruce-Fir Forests
<i>Glena cognataria</i>	Blueberry gray	4	Mountain Spruce-Fir Forests
<i>Oeneis jutta</i>	Jutta arctic	3	Mountain Spruce-Fir Forests
<i>Perisoreus canadensis</i>	Gray jay	2	Mountain Spruce-Fir Forests
<i>Picoides tridactylus</i>	American three-toed woodpecker	2	Mountain Spruce-Fir Forests
<i>Psectraglaea carnosus</i>	Pink sallow	3	Mountain Spruce-Fir Forests
<i>Setophaga castanea</i>	Bay-breasted warbler	2	Mountain Spruce-Fir Forests
<i>Setophaga tigrina</i>	Cape May Warbler	2	Mountain Spruce-Fir Forests
<i>Sorex hoyi</i>	American Pygmy Shrew	4	Mountain Spruce-Fir Forests
<i>Agrotis obliqua</i>	A noctuid moth	4	Spruce-Fir Forests and Flats
<i>Bucephala clangula</i>	Common goldeneye	3	Spruce-Fir Forests and Flats
<i>Catharus bicknelli</i>	Bicknell's Thrush	2	Spruce-Fir Forests and Flats
<i>Contopus borealis</i>	Olive-sided flycatcher	2	Spruce-Fir Forests and Flats
<i>Oeneis jutta</i>	Jutta arctic	3	Spruce-Fir Forests and Flats
<i>Oreothlypis peregrina</i>	Tennessee Warbler	4	Spruce-Fir Forests and Flats

Species	Common name	SGCN category	Habitat link
<i>Perisoreus canadensis</i>	Gray jay	2	Spruce-Fir Forests and Flats
<i>Picoides tridactylus</i>	American three-toed woodpecker	2	Spruce-Fir Forests and Flats
<i>Setophaga castanea</i>	Bay-breasted warbler	2	Spruce-Fir Forests and Flats
<i>Setophaga tigrina</i>	Cape May Warbler	2	Spruce-Fir Forests and Flats
<i>Sorex hoyi</i>	American Pygmy Shrew	4	Spruce-Fir Forests and Flats

## ***Boreal Forested Peatland***

### **Macrogroup Description**

The Boreal Forested Peatland Macrogroup is equivalent to one New York SWAP habitat type described below.

**Boreal Forested Peatland:** These are forested peatlands with partial to full cover of black spruce and larch. Peat moss forms the substrate, but nutrient levels are somewhat higher than in a true bog.

### **Distribution**

This type is not included in the Map of Terrestrial Habitats of the Northeastern United States, but is likely included in the maps of other forested wetland Macrogroups.

### **Condition Assessment**

The condition of this Macrogroup could not be assessed because this type is not included in the Map of Terrestrial Habitats of the Northeastern United States.

Based on NY Natural Heritage Program Element Occurrence Ranks, the best black spruce-tamarack bogs in the state include Raquette-Jordan Boreal Primitive Area (NAP), Cicero Swamp WMA (GL), Massawepie Mire in the Cranberry Lake Wild Forest (NAP), Bay Pond and Spring Pond Bogs (NAP), Sunday Swamp in Jadwin State Forest (NAP), and Round Lake (NAP) (New York Natural Heritage Program 2015).

### **Associated SGCN**

Fifteen SGCN are associated with this Macrogroup (Table 10).

Table 9. SGCN associated with the Boreal Forested Peatland Macrogroup.

Species	Common name	SGCN category	Habitat link
<i>Aeshna subarctica</i>	Subarctic damer	2	Boreal Forested Peatland
<i>Coenagrion interrogatum</i>	Subarctic bluet	4	Boreal Forested Peatland
<i>Contopus borealis</i>	Olive-sided flycatcher	2	Boreal Forested Peatland
<i>Enallagma recurvatum</i>	Pine barrens bluet	2	Boreal Forested Peatland
<i>Falciptennis canadensis</i>	Spruce Grouse	2	Boreal Forested Peatland

Species	Common name	SGCN category	Habitat link
<i>Nannothemis bella</i>	Elfin skimmer	2	Boreal Forested Peatland
<i>Nasiaeschna pentacantha</i>	Cyrano darner	2	Boreal Forested Peatland
<i>Oeneis jutta</i>	Jutta arctic	3	Boreal Forested Peatland
<i>Perisoreus canadensis</i>	Gray jay	2	Boreal Forested Peatland
<i>Picoides tridactylus</i>	American three-toed woodpecker	2	Boreal Forested Peatland
<i>Somatochlora forcipata</i>	Forcipate emerald	2	Boreal Forested Peatland
<i>Somatochlora franklini</i>	Delicate emerald	2	Boreal Forested Peatland
<i>Somatochlora incurvata</i>	Incurvate emerald	4	Boreal Forested Peatland
<i>Somatochlora minor</i>	Ocellated emerald	4	Boreal Forested Peatland
<i>Sorex hoyi</i>	American Pygmy Shrew	4	Boreal Forested Peatland
<i>Williamsonia fletcheri</i>	Ebony boghaunter	4	Boreal Forested Peatland

## ***Glade and Savanna***

### **Macrogroup Description**

The Glade and Savanna Macrogroup is equivalent to one New York SWAP habitat type described below.

**Native Barrens and Savanna:** These grasslands and shrublands occur along the Great Lakes. Grasslands have less than 60% tree cover that is maintained by geologic and hydrologic processes. They tend to flood each spring, then experience moderate to severe drought in summer months. The oak barrens are scrubby and open-treed and occur on sandy soils dominated by grasses. Fire was an important factor in maintaining this community.

### **Distribution**

The Northeast Terrestrial Habitat Map predicts that the Glade and Savanna Macrogroup is primarily found in the Great Lakes Ecoregion (GL) where it covers almost 12 square miles with about half that amount predicted in the St. Lawrence/Champlain Valley Ecoregion (STL) (Figure 25 and Figure 26). These grasslands are concentrated along the eastern shore of Lake Ontario in Jefferson County (Figure 25).

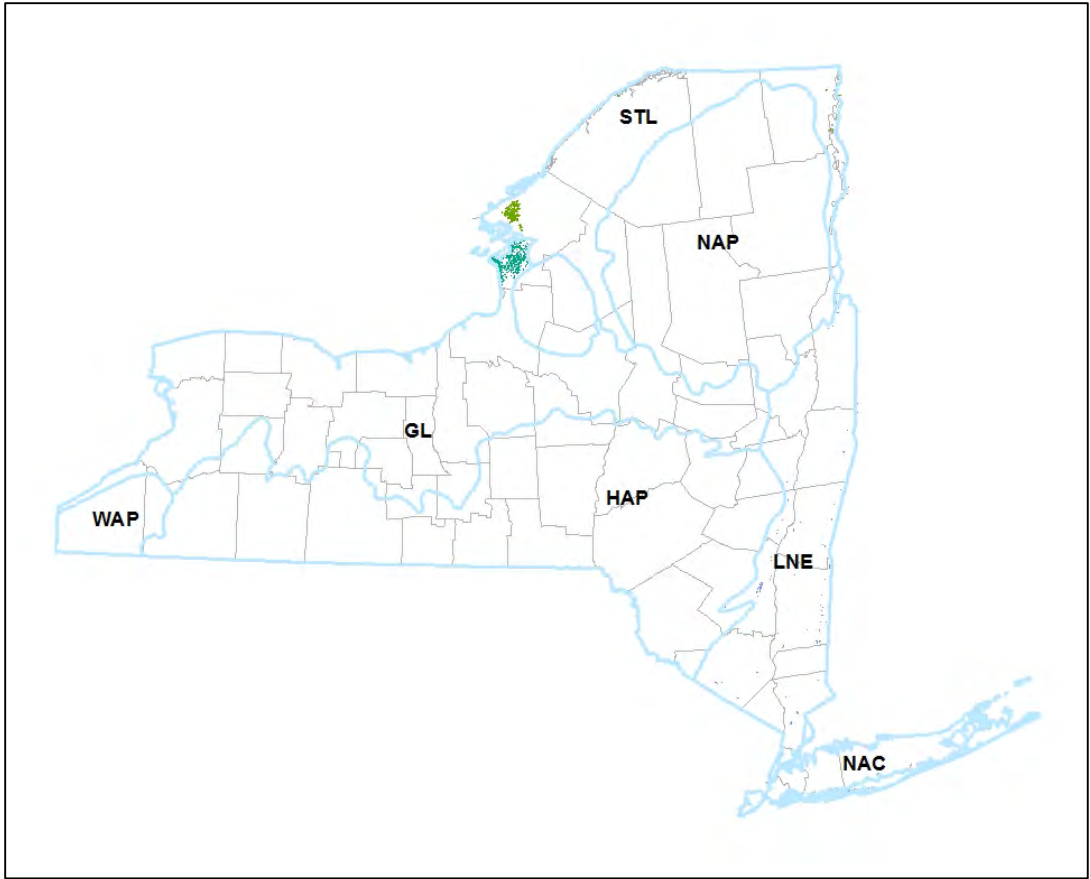


Figure 22. The distribution of the Glade and Savanna Macrogroup throughout New York by ecoregion, as based on the Northeast Terrestrial Habitat Map.

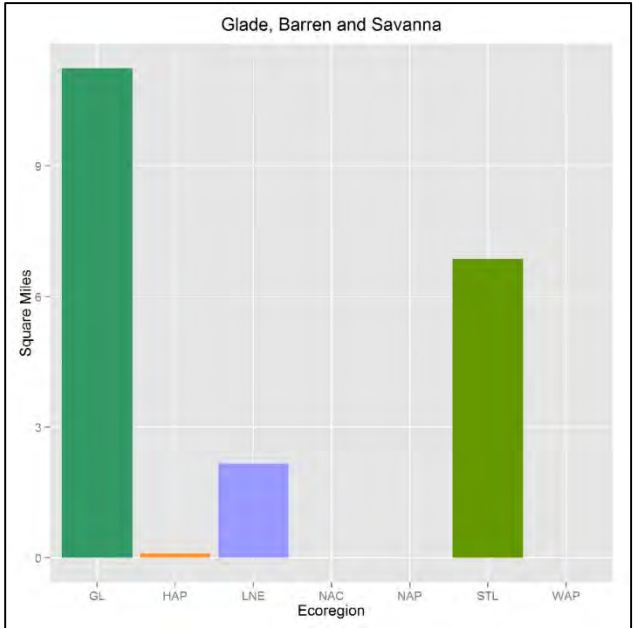


Figure 23. Area distribution of the Glade and Savanna Macrogroup by ecoregion.

## Condition Assessment

Based on LCA and IEI scores, the highest quality Glades and Savannas are predicted to be in the High Allegheny Plateau Ecoregion (Figure 27), but this ecoregion has the least amount of this type (Figure 26). Of the two ecoregions with the most coverage of this type (GL and STL) the better examples are predicted to be in the St. Lawrence/Champlain Valley Ecoregion (STL) (Figure 27).

Based on NY Natural Heritage Program Element Occurrence Ranks, the top two largest, high-quality alvar pavement grasslands in the state are at Chaumont Barrens and Limerick Cedars in Jefferson County (STL). The best remaining example of oak openings in the state is at Rush Oak Openings Unique Area (GL) and the best remaining occurrence of pitch pine-scrub oak barrens is located in the Albany Pine Bush (LNE) (New York Natural Heritage Program 2015).

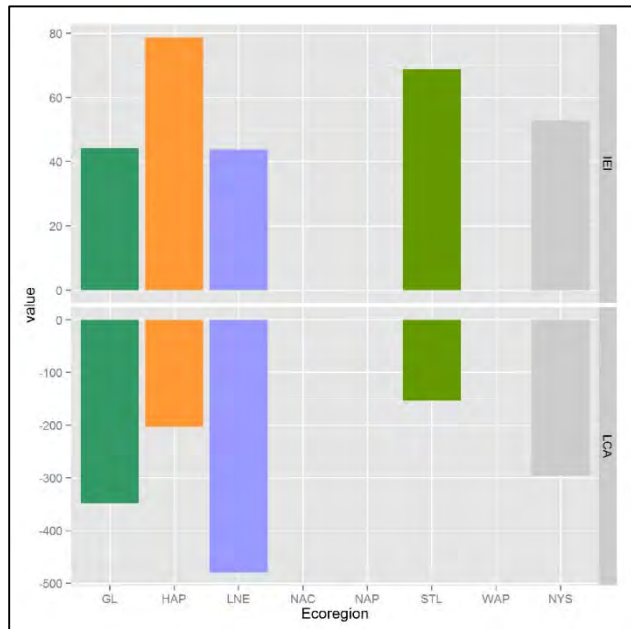


Figure 24. Index of Ecological Integrity score (top) and Landscape Condition Assessment score (bottom) for the Glade and Savanna Macrogroup for each ecoregion and the state (far right).

## Associated SGCN

Twenty-eight SGCN are associated with this Macrogroup (Table 11).

Table 10. SGCN associated with the Glade and Savanna Macrogroup.

Species	Common name	SGCN category	Habitat link
<i>Ammodramus savannarum</i>	Grasshopper sparrow	2	Native Barrens and Savanna
<i>Aquila chrysaetos</i>	Golden Eagle	3	Native Barrens and Savanna
<i>Asio otus</i>	Long-eared owl	3	Native Barrens and Savanna
<i>Bartramia longicauda</i>	Upland sandpiper	2	Native Barrens and Savanna
<i>Botaurus lentiginosus</i>	American bittern	3	Native Barrens and Savanna

Species	Common name	SGCN category	Habitat link
<i>Callophrys irus</i>	Frosted elfin	2	Native Barrens and Savanna
<i>Caprimulgus vociferus</i>	Whip-poor-will	2	Native Barrens and Savanna
<i>Catocala jair</i>	Jair underwing	3	Native Barrens and Savanna
<i>Catocala jair</i>	Jersey jair underwing	3	Native Barrens and Savanna
<i>Chytonix sensilis</i>	A Noctuid Moth	3	Native Barrens and Savanna
<i>Circus cyaneus</i>	Northern harrier	3	Native Barrens and Savanna
<i>Coccinella novemnotata</i>	ninespotted lady beetle	1	Native Barrens and Savanna
<i>Coccinella transversoguttata</i>	transverse lady beetle	1	Native Barrens and Savanna
<i>Digrammia denticulata</i>	A geometrid moth	4	Native Barrens and Savanna
<i>Eremophila alpestris</i>	Horned Lark	2	Native Barrens and Savanna
<i>Eucoptocnemis fimbriaris</i>	A noctuid moth	3	Native Barrens and Savanna
<i>Euxoa pleuritica</i>	Fawn brown dart moth	4	Native Barrens and Savanna
<i>Falco sparverius</i>	American kestrel	3	Native Barrens and Savanna
<i>Icteria virens</i>	Yellow-breasted chat	1	Native Barrens and Savanna
<i>Lanius ludovicianus</i>	Loggerhead shrike	2	Native Barrens and Savanna
<i>Melanerpes erythrocephalus</i>	Red-headed woodpecker	2	Native Barrens and Savanna
<i>Poecetes gramineus</i>	Vesper sparrow	2	Native Barrens and Savanna
<i>Pseudacris triseriata</i>	Western chorus frog	3	Native Barrens and Savanna
<i>Setophaga discolor</i>	Prairie warbler	3	Native Barrens and Savanna
<i>Sturnella magna</i>	Eastern meadowlark	2	Native Barrens and Savanna
<i>Terrapene carolina carolina</i>	Woodland box turtle	2	Native Barrens and Savanna
<i>Toxostoma rufum</i>	Brown thrasher	2	Native Barrens and Savanna
<i>Tyto alba</i>	Barn owl	2	Native Barrens and Savanna

## ***Outcrop and Summit Scrub***

### **Macrogroup Description**

The Outcrop and Summit Scrub Macrogroup is equivalent to one New York SWAP habitat type described below.

**Rocky Outcrop:** These ridges and summits of bedrock. The vegetation is a mixture of woodlands and grasses. Tree species include black spruce, jack pine, northern white cedar, and red oak.

### **Distribution**

Based on the Northeast Terrestrial Habitat Map prediction model, the vast majority of the Outcrop and Summit Scrub areas occur throughout the Northern Appalachian/Boreal Forest Ecoregion (NAP) where it covers well over 75 square miles (Figure 28 and Figure 29). Much smaller amounts are predicted for three other ecoregions (LNE, STL and GL) (Figure 29).

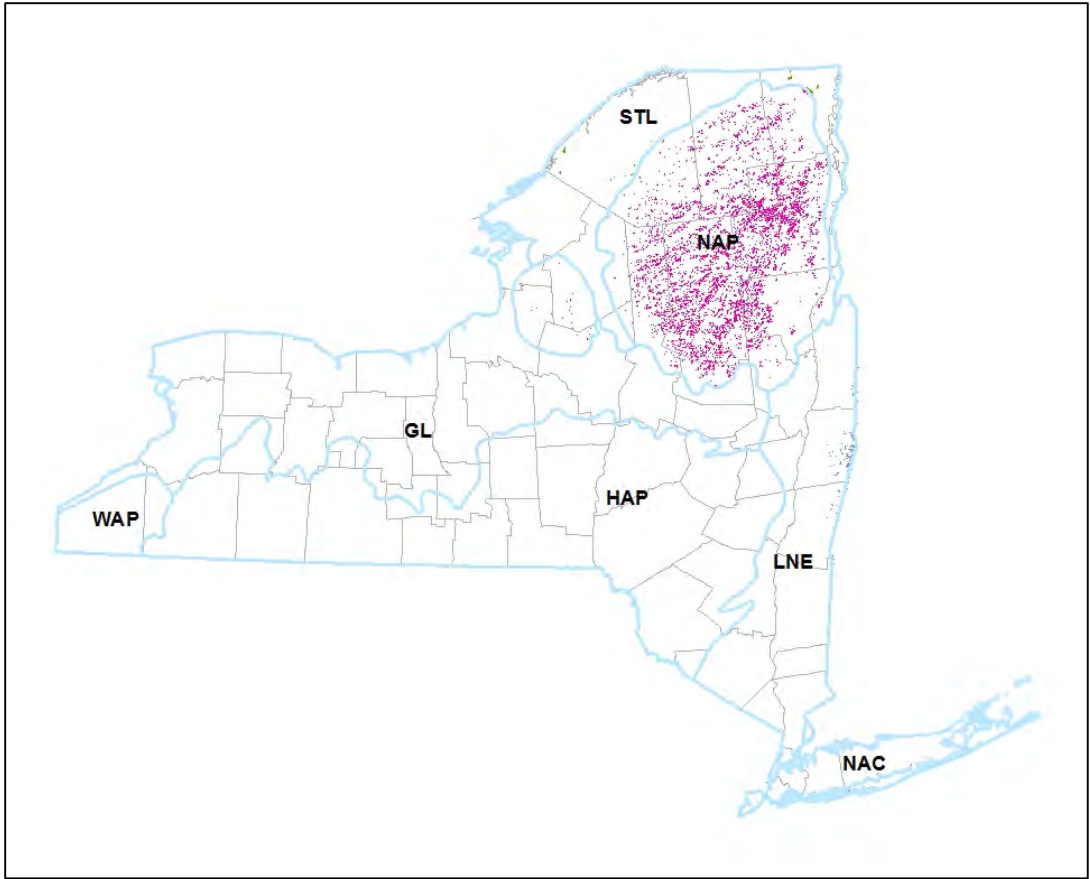


Figure 25. The distribution of the Outcrop and Summit Scrub throughout New York by ecoregion, as based on the Northeast Terrestrial Habitat Map.

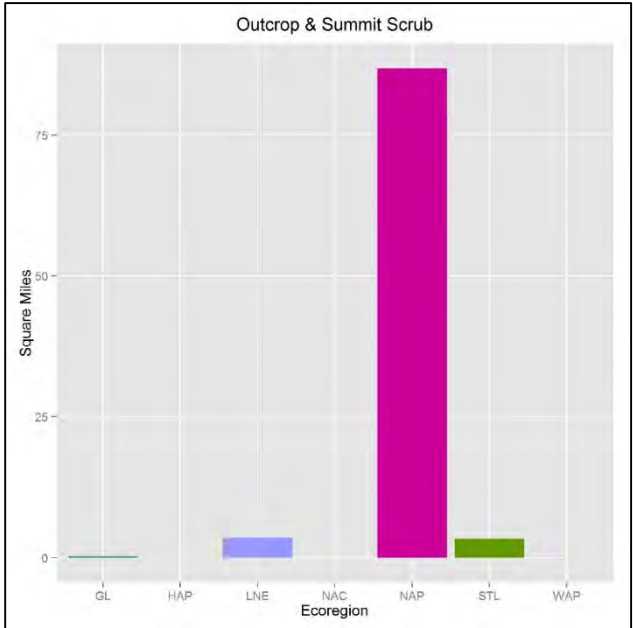


Figure 26. Area distribution of the Outcrop and Summit Macrogroup by ecoregion.

## Condition Assessment

Based on LCA and IEI scores, the highest quality Outcrop and Summits are predicted to be in the Northern Appalachian/Boreal Forest Ecoregion (NAP) (Figure 30) where the majority of this type is found.

Based on NY Natural Heritage Program Element Occurrence Ranks, the best spruce-fir rocky summits in the state include East Dix Mountain (NAP), Giant Mountain (NAP), High Peaks (NAP), and Pitchoff Mountain (NAP). The best northern white cedar rocky summits include Big Nose & Little Nose (GL) and Valcour Island (STL) (New York Natural Heritage Program 2015).

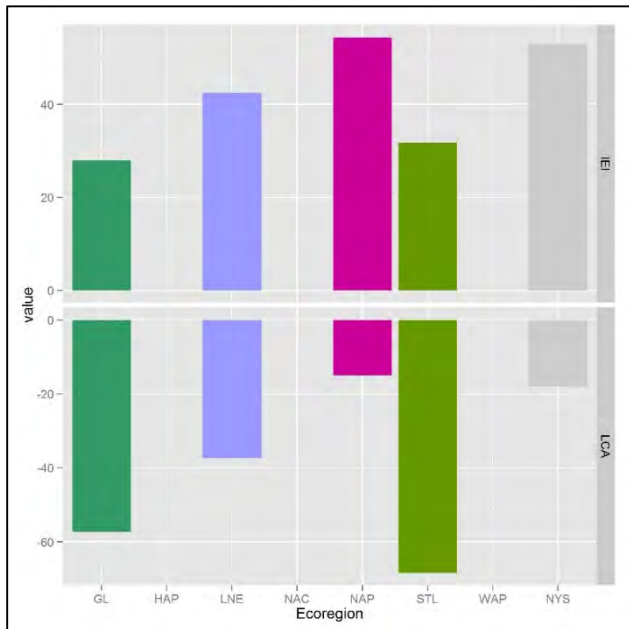


Figure 27. Index of Ecological Integrity score (top) and Landscape Condition Assessment score (bottom) for the Outcrop and Summit Scrub Macrogroup for each ecoregion and the state (far right).

## Associated SGCN

Nine SGCN are associated with this Macrogroup (Table 12).

Table 11. SGCN associated with the Outcrop and Summit Scrub Macrogroup.

Species	Common name	SGCN category	Habitat link
<i>Aquila chrysaetos</i>	Golden Eagle	3	Rocky Outcrop
<i>Calephelis borealis</i>	Northern metalmark	2	Rocky Outcrop
<i>Cicindela patruela patruela</i>	Northern Barrens Tiger Beetle	2	Rocky Outcrop
<i>Cicindela unipunctata</i>	One-Spotted Tiger Beetle	4	Rocky Outcrop
<i>Pantherophis alleghaniensis</i>	Eastern ratsnake	3	Rocky Outcrop
<i>Plestiodon anthracinus anthracinus</i>	Northern Coal Skink	3	Rocky Outcrop
<i>Pyrgus wyandot</i>	Southern grizzled skipper	2	Rocky Outcrop
<i>Sceloporus undulatus</i>	Eastern Fence Lizard	3	Rocky Outcrop



Species	Common name	SGCN category	Habitat link
Tyto alba	Barn owl	2	Rocky Outcrop

## ***Lake and River Shore***

### **Macrogroup Description**

The Lake and River Shore Macrogroup is equivalent to one New York SWAP habitat type described below.

**Lake and River Beach:** These are narrow zones of primarily upland vegetation along lake and river shores that might be briefly inundated during high water periods. The substrate is sandy to gravelly; ice-scour is not a major influence.

### **Distribution**

This type is not included in the Map of Terrestrial Habitats of the Northeastern United States. The features of this type may be too small to map and depict at a statewide scale.

### **Condition Assessment**

The condition of this Macrogroup could not be assessed because this type is not included in the Map of Terrestrial Habitats of the Northeastern United States.

Based on NY Natural Heritage Program Element Occurrence Ranks (New York Natural Heritage Program 2015), the largest and best quality occurrences of shoreline communities in the state are as follows:

Riverside ice meadow: South of the Glen, Hudson River Gorge, and Sacandaga River in NAP.

Floodplain grassland: Upper Delaware Scenic and Recreation River (HAP).

Riverside sand/gravel bar: Deer River Gorge (NAP), Upper Schroon River (NAP), and Ausable River (STL), and Zoar Valley (GL/WAP).

Shoreline outcrop: Lake Lila (NAP), Twin Hill (STL), South of the Glen (NAP), and Upper Delaware Scenic and Recreation River (HAP).

Calcareous shoreline outcrop: Valcour Island (STL), Hudson River Gorge (NAP), Taughannock Falls State Park (GL), Catskill Creek Austin Glen (LNE), and Ausable Chasm (STL).

Cobble shore: Schuyler Island Primitive Area (STL), Upper Delaware Scenic and Recreation River (HAP), Letchworth State Park (GL), and South of the Glen (NAP).

Cobble shore wet meadow: Valcour Island (STL) and Fort Montgomery Swamp (STL)

Inland calcareous lake shore: Ausable Marsh WMA (STL), Harris Lake (NAP), and Valcour Island (STL).

Inland non-calcareous lake shore: Polliwog Pond in the Saranac Lakes Wild Forest (NAP).

## Associated SGCN

Twenty-three SGCN are associated with this Macrogroup (Table 13).

Table 12. SGCN associated with the Lake and River Shore Macrogroup.

Species	Common name	SGCN category	Habitat link
<i>Apalone spinifera spinifera</i>	Eastern spiny softshell	2	Lake and River Beach
<i>Aplexa elongata</i>	Lance aplexa	4	Lake and River Beach
<i>Aythya marila</i>	Greater scaup	3	Lake and River Beach
<i>Bucephala clangula</i>	Common goldeneye	3	Lake and River Beach
<i>Chroicocephalus philadelphia</i>	Bonaparte's Gull	3	Lake and River Beach
<i>Cicindela ancocisconensis</i>	Appalachian Tiger Beetle	2	Lake and River Beach
<i>Cicindela hirticollis</i>	Hairy-necked tiger beetle	2	Lake and River Beach
<i>Cicindela marginipennis</i>	Cobblestone Tiger Beetle	2	Lake and River Beach
<i>Egretta caerulea</i>	Little blue heron	3	Lake and River Beach
<i>Enallagma doubledayi</i>	Atlantic Bluet	3	Lake and River Beach
<i>Gavia immer</i>	Common Loon	3	Lake and River Beach
<i>Glyptemys insculpta</i>	Wood turtle	2	Lake and River Beach
<i>Graptemys geographica</i>	Northern map turtle	3	Lake and River Beach
<i>Haliaeetus leucocephalus</i>	Bald Eagle	3	Lake and River Beach
<i>Hydroprogne caspia</i>	Caspian Tern	3	Lake and River Beach
<i>Lestes unguiculatus</i>	Lyre-tipped Spreadwing	2	Lake and River Beach
<i>Libellula needhami</i>	Needham's skimmer	3	Lake and River Beach
<i>Malaclemys terrapin terrapin</i>	Northern diamond-backed terrapin	3	Lake and River Beach
<i>Numenius phaeopus</i>	Whimbrel	1	Lake and River Beach
<i>Nyctanassa violacea</i>	Yellow-crowned night-heron	3	Lake and River Beach
<i>Pluvialis squatarola</i>	Black-bellied plover	3	Lake and River Beach
<i>Sterna hirundo</i>	Common tern	3	Lake and River Beach
<i>Tringa melanoleuca</i>	Greater yellowlegs	3	Lake and River Beach

## *Disturbed Land/Pioneer*

### Macrogroup Description

The Disturbed Land/Pioneer Macrogroup includes two New York SWAP habitat types described below. All three types develop on sites that have been cleared (for farming, logging, utility line

maintenance, etc.) or otherwise disturbed (by fire, ice scour, wind throw, flooding, etc.). The successional trajectory typically starts with herbaceous vegetation that thrives in full-sun conditions, followed by woody plants, such as shrubs and tree seedlings and saplings. These early successional or “pioneer” species may be native or non-native depending on the availability of vegetative propagules from within the habitat or the surrounding landscape.

**Non-native Shrublands:** These shrublands are dominated by aggressive exotic species including honeysuckles, multiflora rose, barberry, privet, kudzu, and others. They are primarily upland but can occur in seasonally wet situations, and most typically develop on disturbed former fields where soil structure and/or chemistry have been altered. Return to native species dominance requires intensive and prolonged intervention.

**Powerline:** Shrub-dominated vegetation maintained in power line rights-of-way. Some of these areas mimic early-successional phases of the natural systems through which they cut, though they are artificially maintained.

**Old Field/Managed Grasslands:** Herbaceous or herb-shrub vegetation resulting from succession following virtually complete removal of native woody cover of an area, primarily on lands cleared for agriculture or pasture. Lands may have been cleared decades ago or more recently, but have been maintained in a non-forested state (at least until relatively recently) and may still be annually mowed to control tree incursion. These fields are dominated by pasture grasses plus early-successional native or introduced forbs, usually with some shrub component. Compared to the pasture/hay system (under the Agricultural formation), this type has more forbs (excluding legumes that may be a pasture component) and more shrubs, and does not produce useable hay.

## **Distribution**

The Northeast Terrestrial Habitat Map predicts that the Disturbed Land/Pioneer Macrogroup occurs in all seven ecoregions in the state (Figure 31 and Figure 32). The Great Lakes Ecoregion (GL) has the most of this type in the state covering over 600 square miles with three other ecoregions having almost 400 square miles each (HAP, NAP, and STL) (Figure 32).

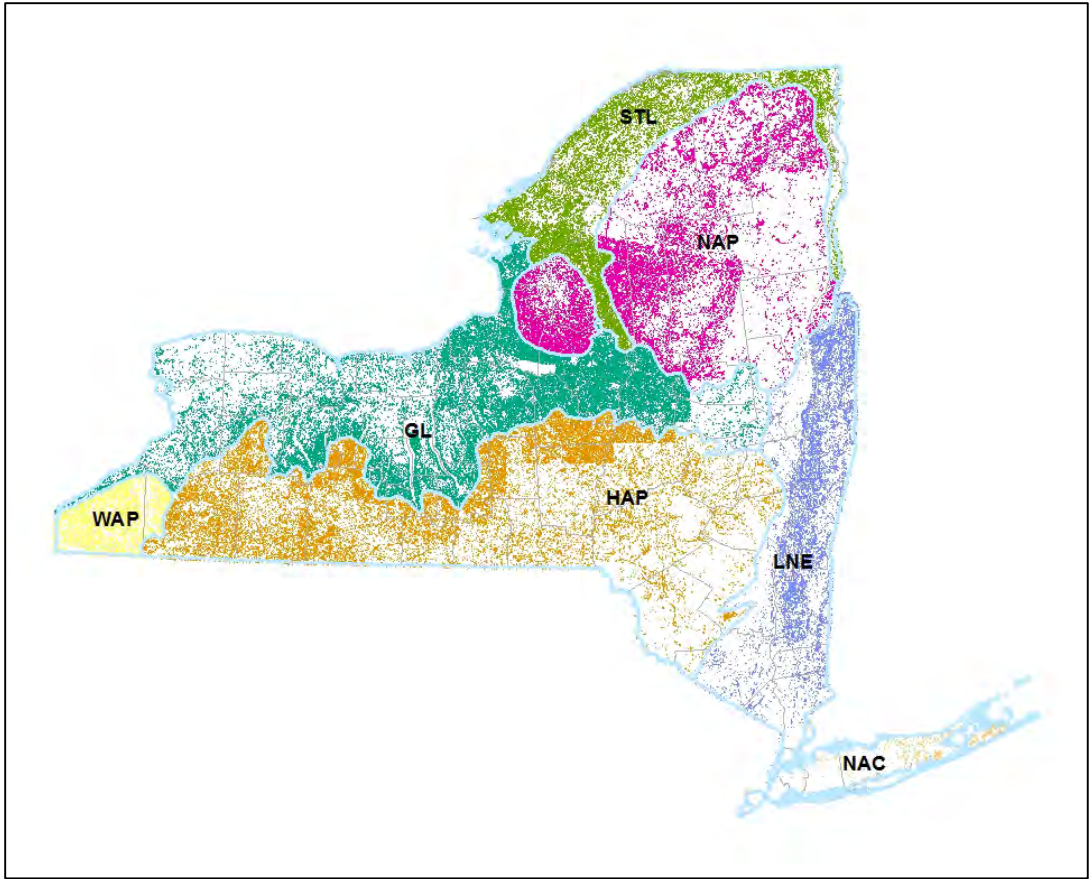


Figure 28. The distribution of the Disturbed Land/Pioneer Macrogroup throughout New York by ecoregion, as based on the Northeast Terrestrial Habitat Map.

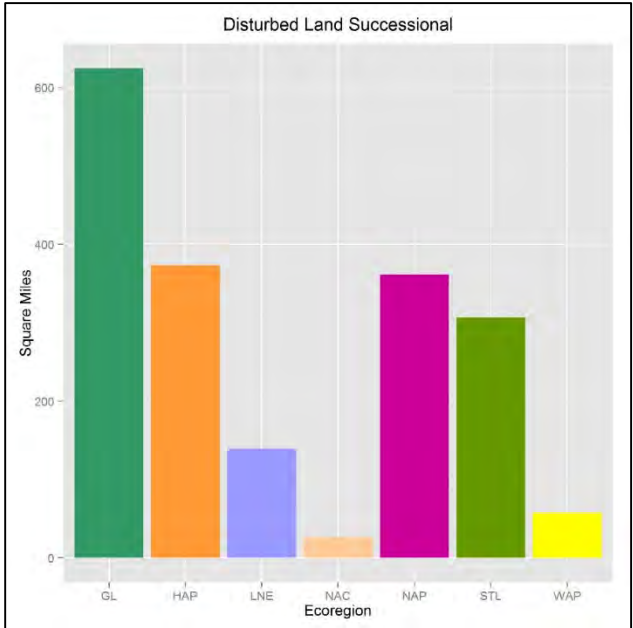


Figure 29. Area distribution of the Disturbed Land/Pioneer Macrogroup by ecoregion.

## Condition Assessment

Based on LCA and IEI scores, the Disturbed Land/Pioneer areas in the Northern Appalachian/Boreal Forest (NAP) and Western Allegheny Plateau (WAP) ecoregions are predicted to be in a slightly better landscape setting than the state average (Figure 33). We recognize that assessing the landscape condition of a disturbed habitat type may be circular.

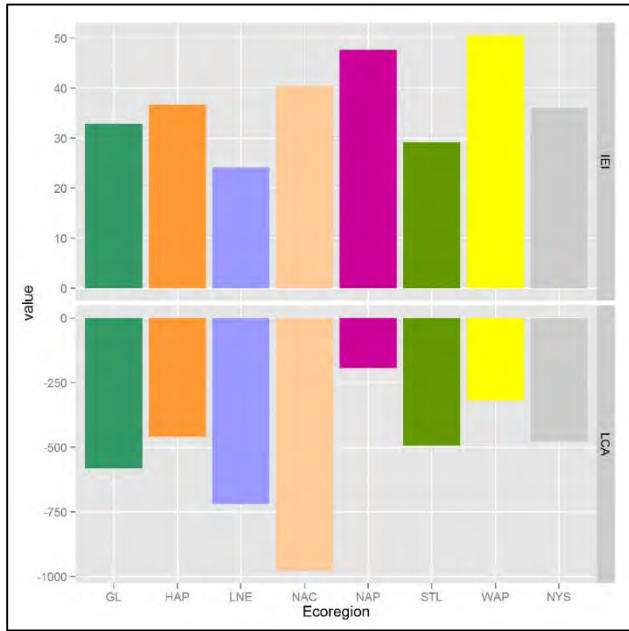


Figure 30. Index of Ecological Integrity score (top) and Landscape Condition Assessment score (bottom) for the Disturbed Land/Pioneer Macrogroup for each ecoregion and the state (far right).

## Associated SGCN

Fifty-one SGCN are associated with this Macrogroup (Table 14).

Table 13. SGCN associated with the Disturbed land/Pioneer Macrogroup.

Species	Common name	SGCN category	Habitat link
<i>Glyptemys insculpta</i>	Wood turtle	2	Non-native Shrublands
<i>Icteria virens</i>	Yellow-breasted chat	1	Non-native Shrublands
<i>Pantherophis</i>	Eastern ratsnake	3	Non-native Shrublands
<i>Pontia protodice</i>	Checkered white	3	Non-native Shrublands
<i>Setophaga discolor</i>	Prairie warbler	3	Non-native Shrublands
<i>Terrapene carolina</i>	Woodland box turtle	2	Non-native Shrublands
<i>Toxostoma rufum</i>	Brown thrasher	2	Non-native Shrublands
<i>Vermivora chrysoptera</i>	Golden-winged warbler	1	Non-native Shrublands
<i>Vermivora cyanoptera</i>	Blue-winged warbler	3	Non-native Shrublands

Species	Common name	SGCN category	Habitat link
<i>Ammodramus henslowii</i>	Henslow's sparrow	2	Old Field/Managed Grasslands
<i>Ammodramus savannarum</i>	Grasshopper sparrow	2	Old Field/Managed Grasslands
<i>Anas discors</i>	Blue-winged teal	3	Old Field/Managed Grasslands
<i>Apamea inordinata</i>	A noctuid moth	4	Old Field/Managed Grasslands
<i>Aquila chrysaetos</i>	Golden Eagle	3	Old Field/Managed Grasslands
<i>Asio flammeus</i>	Short-eared owl	2	Old Field/Managed Grasslands
<i>Asio otus</i>	Long-eared owl	3	Old Field/Managed Grasslands
<i>Bartramia longicauda</i>	Upland sandpiper	2	Old Field/Managed Grasslands
<i>Bonasa umbellus</i>	Ruffed grouse	3	Old Field/Managed Grasslands
<i>Botaurus lentiginosus</i>	American bittern	3	Old Field/Managed Grasslands
<i>Callophrys irus</i>	Frosted elfin	2	Old Field/Managed Grasslands
<i>Carphophis amoenus amoenus</i>	Eastern wormsnake	3	Old Field/Managed Grasslands
<i>Chlosyne gorgone</i>	Gorgone checkerspot	4	Old Field/Managed Grasslands
<i>Chordeiles minor</i>	Common nighthawk	2	Old Field/Managed Grasslands
<i>Circus cyaneus</i>	Northern harrier	3	Old Field/Managed Grasslands
<i>Cistothorus platensis</i>	Sedge wren	2	Old Field/Managed Grasslands
<i>Colinus virginianus</i>	Northern bobwhite	2	Old Field/Managed Grasslands
<i>Coluber constrictor constrictor</i>	Northern black racer	3	Old Field/Managed Grasslands
<i>Cryptotis parva</i>	North American least shrew	4	Old Field/Managed Grasslands
<i>Dolichonyx oryzivorus</i>	Bobolink	2	Old Field/Managed Grasslands
<i>Egretta caerulea</i>	Little blue heron	3	Old Field/Managed Grasslands
<i>Euchloe olympia</i>	Olympia marble	4	Old Field/Managed Grasslands
<i>Falco sparverius</i>	American kestrel	3	Old Field/Managed Grasslands
<i>Heterodon platirhinos</i>	Eastern hog-nosed snake	2	Old Field/Managed Grasslands
<i>Icteria virens</i>	Yellow-breasted chat	1	Old Field/Managed Grasslands
<i>Lanius ludovicianus</i>	Loggerhead shrike	2	Old Field/Managed Grasslands
<i>Marimatha nigrofimbria</i>	Black-bordered lemon moth	4	Old Field/Managed Grasslands
<i>Mustela nivalis</i>	Least weasel	4	Old Field/Managed Grasslands
<i>Opheodrys vernalis</i>	Smooth greensnake	3	Old Field/Managed Grasslands
<i>Pantherophis alleghaniensis</i>	Eastern ratsnake	3	Old Field/Managed Grasslands
<i>Pontia protodice</i>	Checkered white	3	Old Field/Managed Grasslands
<i>Setophaga discolor</i>	Prairie warbler	3	Old Field/Managed Grasslands
<i>Sistrurus catenatus catenatus</i>	Eastern massasauga	2	Old Field/Managed Grasslands
<i>Spiza americana</i>	Dickcissel	4	Old Field/Managed Grasslands
<i>Sturnella magna</i>	Eastern meadowlark	2	Old Field/Managed Grasslands
<i>Sylvilagus transitionalis</i>	New England cottontail	2	Old Field/Managed Grasslands
<i>Terrapene carolina carolina</i>	Woodland box turtle	2	Old Field/Managed Grasslands

Species	Common name	SGCN category	Habitat link
<i>Thamnophis brachystoma</i>	Short-headed gartersnake	3	Old Field/Managed Grasslands
<i>Toxostoma rufum</i>	Brown thrasher	2	Old Field/Managed Grasslands
<i>Tryngites subruficollis</i>	Buff-breasted Sandpiper	2	Old Field/Managed Grasslands
<i>Tyto alba</i>	Barn owl	2	Old Field/Managed Grasslands
<i>Vermivora cyanoptera</i>	Blue-winged warbler	3	Old Field/Managed Grasslands
<i>Agkistrodon contortrix</i>	Northern copperhead	3	Powerline
<i>Bonasa umbellus</i>	Ruffed grouse	3	Powerline
<i>Callophrys irus</i>	Frosted elfin	2	Powerline
<i>Carphophis amoenus</i>	Eastern wormsnake	3	Powerline
<i>Chlosyne gorgone</i>	Gorgone checkerspot	4	Powerline
<i>Coluber constrictor</i>	Northern black racer	3	Powerline
<i>Crotalus horridus</i>	Timber rattlesnake	2	Powerline
<i>Cryptotis parva</i>	North American least shrew	4	Powerline
<i>Erynnis persius persius</i>	Persius duskywing	1	Powerline
<i>Icteria virens</i>	Yellow-breasted chat	1	Powerline
<i>Mustela nivalis</i>	Least weasel	4	Powerline
<i>Pantherophis</i>	Eastern ratsnake	3	Powerline
<i>Plebejus melissa samuelis</i>	Karner blue	2	Powerline
<i>Plestiodon anthracinus</i>	Northern Coal Skink	3	Powerline
<i>Pontia protodice</i>	Checkered white	3	Powerline
<i>Pyrgus wyandot</i>	Southern grizzled skipper	2	Powerline
<i>Scolopax minor</i>	American woodcock	3	Powerline
<i>Setophaga discolor</i>	Prairie warbler	3	Powerline
<i>Terrapene carolina</i>	Woodland box turtle	2	Powerline
<i>Toxostoma rufum</i>	Brown thrasher	2	Powerline
<i>Vermivora chrysoptera</i>	Golden-winged warbler	1	Powerline
<i>Vermivora cyanoptera</i>	Blue-winged warbler	3	Powerline

## ***Coastal Grassland/Shrubland***

### **Macrogroup Description**

The Coastal Grassland/Shrubland Macrogroup includes two New York SWAP habitat types described below. Both habitat types in this Macrogroup are typically dominated by grasses, such as beach grass, that develop on sand dunes subject to storm processes (e.g., storm surge, overwash, sand deposition, flooding etc.) that originate over large water bodies, such as the ocean or one of the Great Lakes. In both maritime and Great Lake settings the dunes may become stabilized and succeed to woody plants over time.

**Great Lakes Dune and Swale:** These vegetated sand dune systems are found on the shores of the Great Lakes; plant cover can range from sparse to grasses, shrubs, and trees. Swales or depressions occur behind the dunes and are influenced by short-term variation in lake levels, are usually grass-dominated, and can be filled by dune sands following major storms.

**Maritime Dunes:** These coastal habitats are primarily grass and shrub dominated on sandy soils, and can include both upland and non-flooded wetland vegetation. The maritime environment includes frequent salt spray, saltwater overwash, and sand movement.

### Distribution

Based on the Northeast Terrestrial Habitat Map prediction model, the North Atlantic Coast Ecoregion (NAC) has the most Coastal Grassland/Shrubland in the state covering over 5 square miles (Figure 36) mostly occurring around the perimeter of Long Island (Figure 35). Smaller areas of grassland occur on the shores of Lake Ontario, Lake Erie, and Lake Champlain (GL and STL) with a small inland example occurring on the western edge of the Tug Hill Plateau (NAP) (Figure 34).

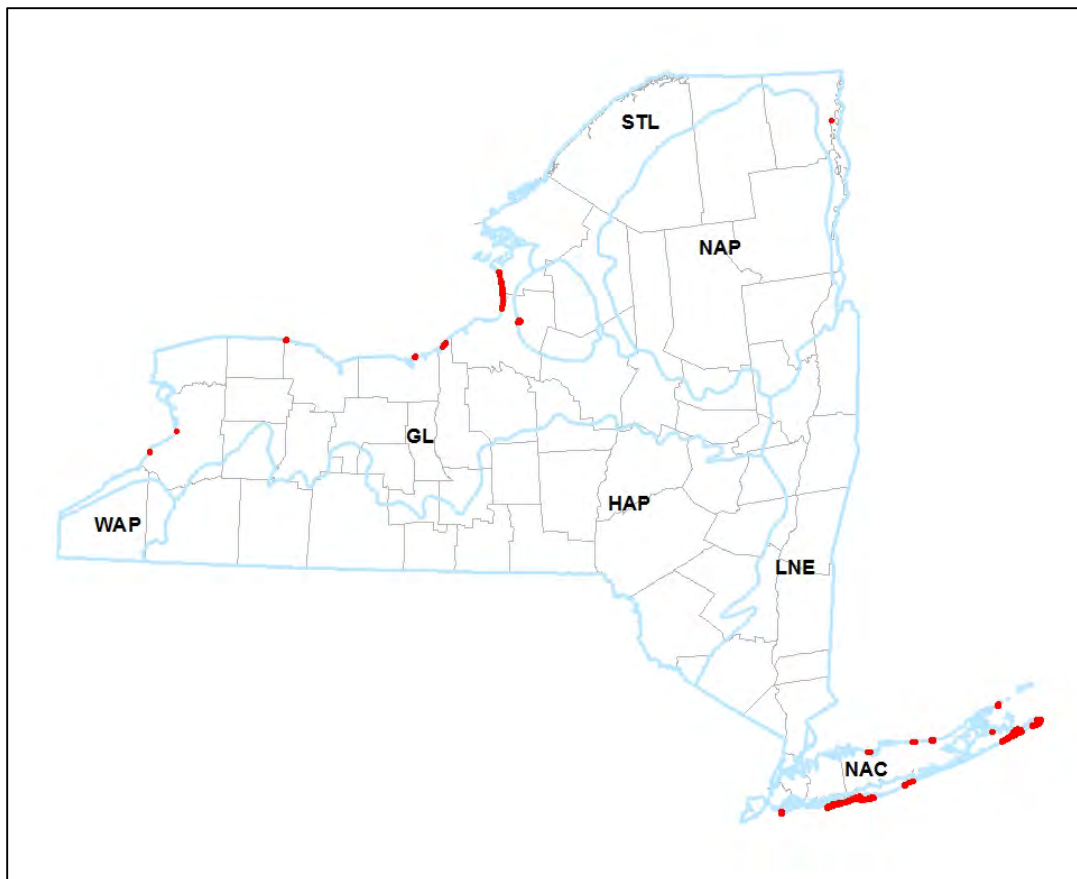


Figure 31. The distribution of the Coastal Grassland/Shrubland Macrogroup throughout New York by ecoregion, as based on NY Natural Heritage Program occurrences of Great Lakes dunes, Great Lakes bluffs, maritime dunes, maritime freshwater interdunal swales, and maritime shrublands.



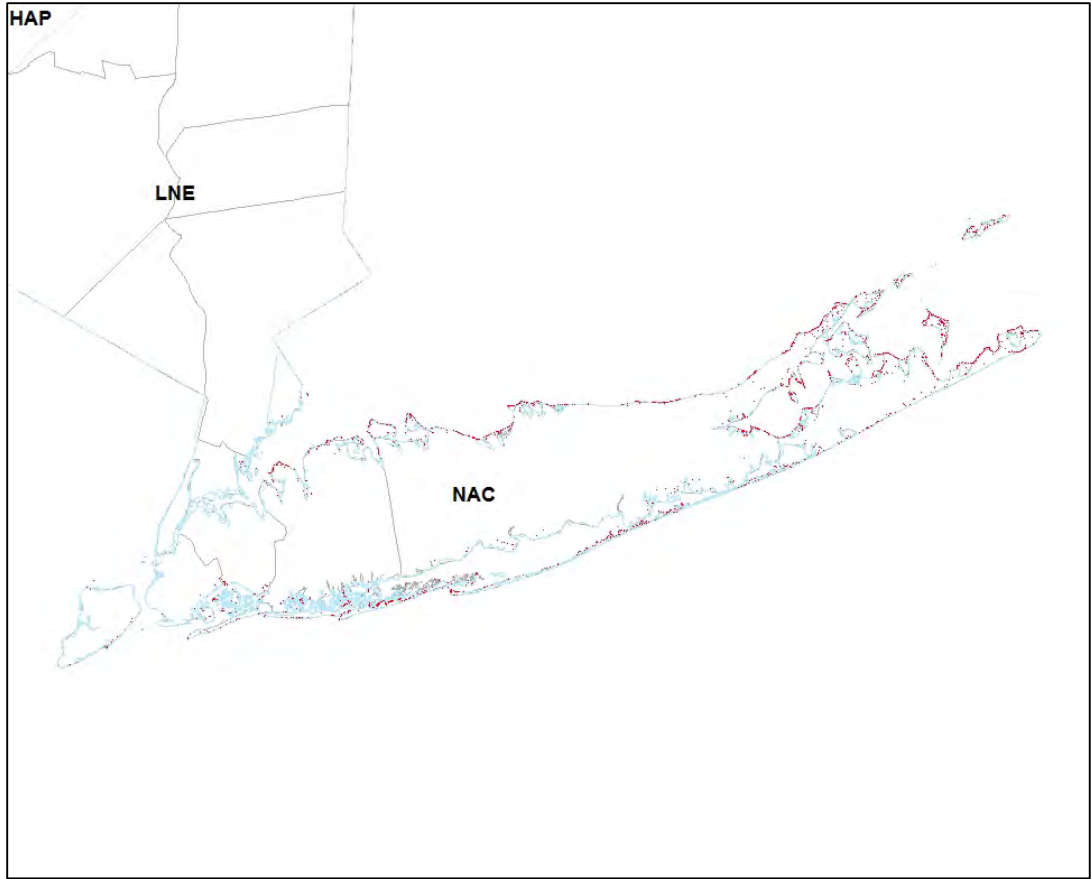


Figure 32. The distribution of the Coastal Grassland/Shrubland Macrogroup throughout the North Atlantic Coast and Lower New England ecoregions, as based on the Northeast Terrestrial Habitat Map.

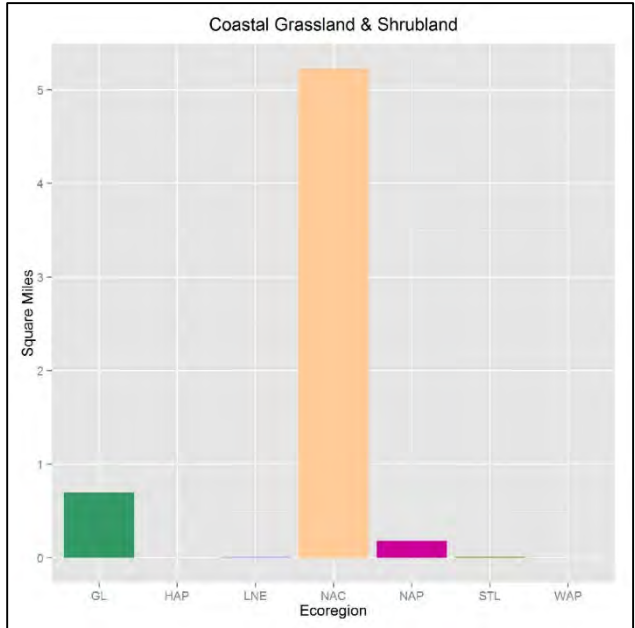


Figure 33. Area distribution of the Coastal Grassland/Shrubland Macrogroup by ecoregion.

## Condition Assessment

Based on LCA and IEI scores, the highest quality Coastal Grassland/Shrublands are predicted to be in the Great Lakes (GL) and Northern Appalachian/Boreal Forest Ecoregion (NAP) ecoregions (Figure 37) where this Macrogroup is represented as Great Lakes dunes. Several high-quality examples of this Macrogroup persist on the North Atlantic Coast (NAC) where it is represented as maritime dunes, such as those found on Fire Island National Seashore.

The best examples of Great Lakes dunes in the state based on NY Natural Heritage Program Element Occurrence Ranks occur on Eastern Lake Ontario on NYS DEC Wildlife Management Areas (WMAs), such as Lakeview WMA, Black Pond WMA, and Deer Creek Marsh WMA. Larger maritime dunes in very good condition based on NY Natural Heritage Program Element Occurrence Ranks include those on Fire Island National Seashore and Atlantic Double Dunes Preserve. Good examples also occur at several state parks, such as Jones Beach, Hither Hills, and Napeague (New York Natural Heritage Program 2015).

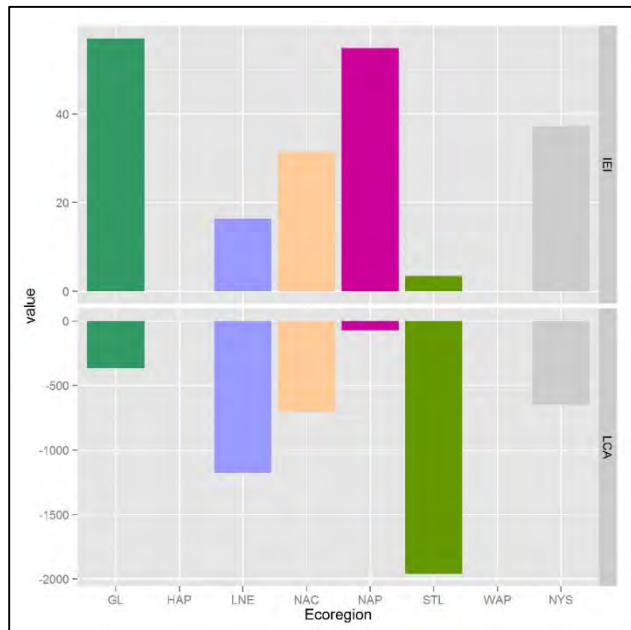


Figure 34. Index of Ecological Integrity score (top) and Landscape Condition Assessment score (bottom) for the Coastal Grassland/Shrubland Macrogroup for each ecoregion and the state (far right).

## Associated SGCN

Thirty-six SGCN are associated with this Macrogroup (Table 15).

Table 14. SGCN associated with the Coastal Grassland/Shrubland Macrogroup.

Species	Common name	SGCN category	Habitat link
<i>Abagrotis orbis</i>	A noctuid moth (well-marked cutworm moth)	4	Great Lakes Dune and Swale
<i>Circus cyaneus</i>	Northern harrier	3	Great Lakes Dune and Swale

Species	Common name	SGCN category	Habitat link
<i>Eremophila alpestris</i>	Horned Lark	2	Great Lakes Dune and Swale
<i>Euchloe olympia</i>	Olympia marble	4	Great Lakes Dune and Swale
<i>Euxoa pleuritica</i>	Fawn brown dart moth	4	Great Lakes Dune and Swale
<i>Sterna hirundo</i>	Common tern	3	Great Lakes Dune and Swale
<i>Abagrotis nefascia benjamini</i>	Coastal heathland cutworm	4	Maritime Dunes
<i>Apamea inordinata</i>	A noctuid moth	4	Maritime Dunes
<i>Asio flammeus</i>	Short-eared owl	2	Maritime Dunes
<i>Catocala badia</i>	Bay underwing	3	Maritime Dunes
<i>Catocala jair</i>	Jersey jair underwing	3	Maritime Dunes
<i>Charadrius melodus</i>	Piping plover	2	Maritime Dunes
<i>Charadrius melodus</i>	Piping plover	2	Maritime Dunes
<i>Cicindela hirticollis</i>	Hairy-necked tiger beetle	2	Maritime Dunes
<i>Cicindela marginata</i>	Salt marsh tiger beetle	4	Maritime Dunes
<i>Circus cyaneus</i>	Northern harrier	3	Maritime Dunes
<i>Coluber constrictor constrictor</i>	Northern black racer	3	Maritime Dunes
<i>Dichagyris acclivis</i>	A noctuid moth (switchgrass dart)	4	Maritime Dunes
<i>Eacles imperialis pini</i>	Imperial moth, Canadian imperial moth	3	Maritime Dunes
<i>Egretta thula</i>	Snowy egret	3	Maritime Dunes
<i>Eremophila alpestris</i>	Horned Lark	2	Maritime Dunes
<i>Eucrotopcnemis fimbriaris</i>	A noctuid moth	3	Maritime Dunes
<i>Eumacaria madopata</i>	Brown-bordered geometer	3	Maritime Dunes
<i>Euxoa pleuritica</i>	Fawn brown dart moth	4	Maritime Dunes
<i>Gelochelidon nilotica</i>	Gull-billed Tern	3	Maritime Dunes
<i>Haematopus palliatus palliatus</i>	American oystercatcher	3	Maritime Dunes
<i>Heterodon platirhinos</i>	Eastern hog-nosed snake	2	Maritime Dunes
<i>Leucophaeus atricilla</i>	Laughing gull	3	Maritime Dunes
<i>Malaclemys terrapin terrapin</i>	Northern diamond-backed terrapin	3	Maritime Dunes
<i>Marimatha nigrofimbria</i>	Black-bordered lemon moth	4	Maritime Dunes
<i>Numenius phaeopus</i>	Whimbrel	1	Maritime Dunes
<i>Parasa indetermina</i>	Stinging rose caterpillar moth	4	Maritime Dunes
<i>Rynchops niger</i>	Black skimmer	2	Maritime Dunes
<i>Sterna dougallii</i>	Roseate tern	2	Maritime Dunes
<i>Sterna forsteri</i>	Forster's tern	3	Maritime Dunes
<i>Sterna hirundo</i>	Common tern	3	Maritime Dunes
<i>Sternula antillarum</i>	Least tern	3	Maritime Dunes
<i>Sympistis perscripta</i>	A moth (Scribble sawfly)	4	Maritime Dunes
<i>Tringa melanoleuca</i>	Greater yellowlegs	3	Maritime Dunes
<i>Tringa semipalmata</i>	Willet	3	Maritime Dunes
<i>Tyto alba</i>	Barn owl	2	Maritime Dunes

## ***Northern Peatland***

### **Macrogroup Description**

The Northern Peatland Macrogroup is equivalent to one New York SWAP habitat type described below.

**Open Acidic Peatlands:** These bogs and fens consist of acidic peat moss substrates over water. Vegetation is predominantly shrubs with associated herbaceous and sparse tree layers.

### **Distribution**

The Northeast Terrestrial Habitat Map predicts that the Northern Peatland Macrogroup occurs in every ecoregion in the state except the North Atlantic Coast (NAC) (Figure 38 and Figure 39). It is most abundant in the Northern Appalachian/Boreal Forest Ecoregion (NAP) where it nearly reaches 100 square miles (Figure 5).

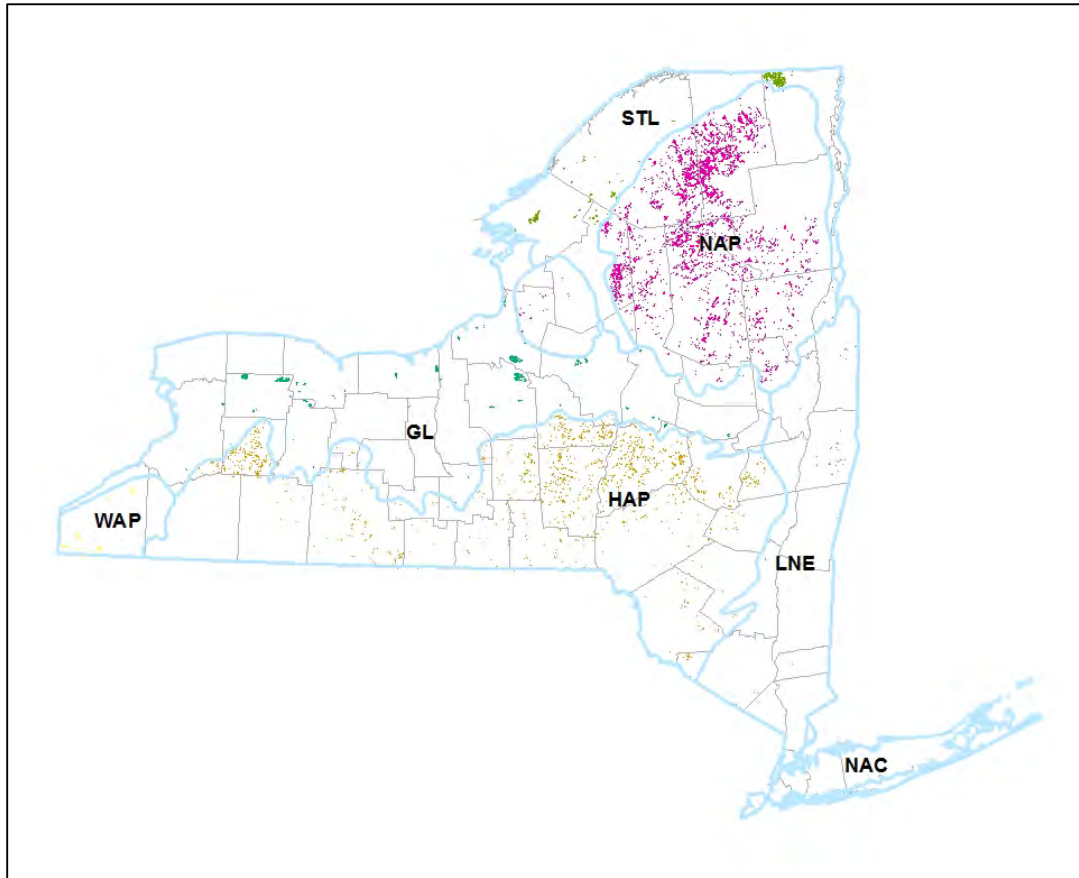


Figure 35. The distribution of the Northern Peatland Macrogroup throughout New York by ecoregion, as based on the Northeast Terrestrial Habitat Map.

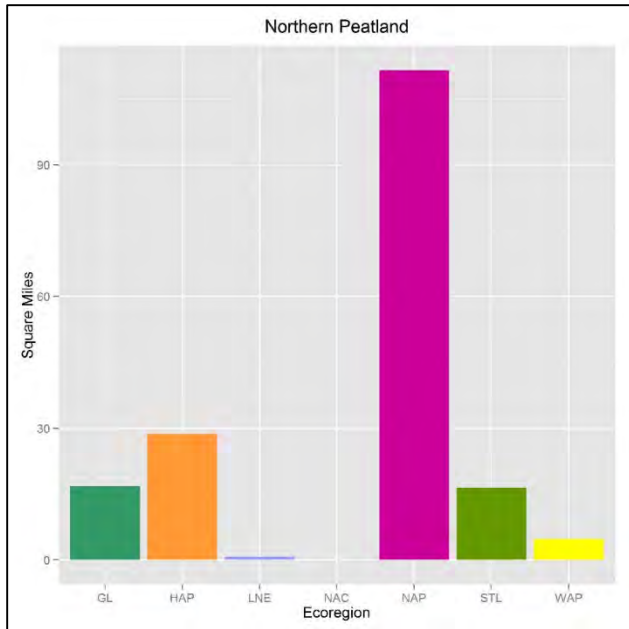


Figure 36. Area distribution of the Northern Peatland Macrogroup by ecoregion.

### Condition Assessment

Based on LCA and IEI scores, the highest quality Northern Peatlands are predicted to be in the Northern Appalachian/Boreal Forest (NAP) and the St. Lawrence/Champlain Valley ecoregions (Figure 40).

Based on the NY Natural Heritage Program Element Occurrence Ranks of patterned peatland, dwarf shrub bog, and inland poor fen the best Open Acidic Peatlands in the state occur at the following sites: Spring Pond Bog (NAP), Bay Pond Bog (NAP), Hitchins Pond Bog North (NAP), Massawepie Mire in the Cranberry Lake Wild Forest (NAP), Sunday Swamp in Jadwin State Forest (NAP), Raquette-Jordan Boreal Primitive Area (NAP), Willis Brook Bog (NAP), and Cranberry Vly (LNE) (New York Natural Heritage Program 2015).

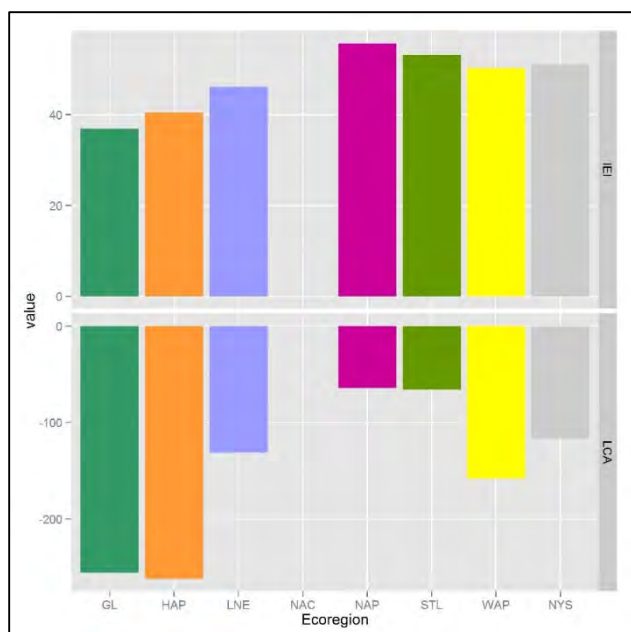


Figure 37. Index of Ecological Integrity score (top) and Landscape Condition Assessment score (bottom) for the Northern Peatland Macrogroup for each ecoregion and the state (far right).

## Associated SGCN

Thirty-four SGCN are associated with this Macrogroup (Table 16).

Table 15. SGCN associated with the Northern Peatland Macrogroup.

Species	Common name	SGCN category	Habitat link
<i>Acris crepitans</i>	Eastern cricket frog	2	Open Acidic Peatlands
<i>Aeshna subarctica</i>	Subarctic damer	2	Open Acidic Peatlands
<i>Anas rubripes</i>	American Black Duck	2	Open Acidic Peatlands
<i>Botaurus lentiginosus</i>	American bittern	3	Open Acidic Peatlands
<i>Calephelis borealis</i>	Northern metalmark	2	Open Acidic Peatlands
<i>Circus cyaneus</i>	Northern harrier	3	Open Acidic Peatlands
<i>Cistothorus platensis</i>	Sedge wren	2	Open Acidic Peatlands
<i>Clemmys guttata</i>	Spotted turtle	2	Open Acidic Peatlands
<i>Coenagrion interrogatum</i>	Subarctic bluet	4	Open Acidic Peatlands
<i>Contopus borealis</i>	Olive-sided flycatcher	2	Open Acidic Peatlands
<i>Emydoidea blandingii</i>	Blanding's Turtle	2	Open Acidic Peatlands
<i>Enneacanthus obesus</i>	Banded sunfish	3	Open Acidic Peatlands
<i>Epitheca semiaquea</i>	Mantled baskettail	3	Open Acidic Peatlands
<i>Euphagus carolinus</i>	Rusty blackbird	2	Open Acidic Peatlands
<i>Fagitana littera</i>	A noctuid moth (marsh fern moth)	4	Open Acidic Peatlands
<i>Glyptemys muhlenbergii</i>	Bog turtle	1	Open Acidic Peatlands
<i>Hemidactylum scutatum</i>	Four-toed salamander	2	Open Acidic Peatlands
<i>Hemileuca sp. 1</i>	Bogbean buckmoth	1	Open Acidic Peatlands

Species	Common name	SGCN category	Habitat link
<i>Libellula flavida</i>	Yellow-sided skimmer	4	Open Acidic Peatlands
<i>Nannothemis bella</i>	Elfin skimmer	2	Open Acidic Peatlands
<i>Oeneis jutta</i>	Jutta arctic	3	Open Acidic Peatlands
<i>Papaipema stenocelis</i>	Chain fern borer moth	4	Open Acidic Peatlands
<i>Rhionaeschna mutata</i>	Spatterdock darner	3	Open Acidic Peatlands
<i>Sideridis maryx</i>	Maroonwing moth	4	Open Acidic Peatlands
<i>Sistrurus catenatus catenatus</i>	Eastern massasauga	2	Open Acidic Peatlands
<i>Somatochlora forcipata</i>	Forcipate emerald	2	Open Acidic Peatlands
<i>Somatochlora franklini</i>	Delicate emerald	2	Open Acidic Peatlands
<i>Somatochlora incurvata</i>	Incurvate emerald	4	Open Acidic Peatlands
<i>Somatochlora minor</i>	Ocellated emerald	4	Open Acidic Peatlands
<i>Sympetrum danae</i>	Black meadowhawk	2	Open Acidic Peatlands
<i>Thamnophis sauritus sauritus</i>	Common ribbonsnake	3	Open Acidic Peatlands
<i>Williamsonia fletcheri</i>	Ebony boghaunter	4	Open Acidic Peatlands
<i>Xylena thoracica</i>	Acadian Swordgrass moth	4	Open Acidic Peatlands
<i>Zale largera</i>	A Noctuid Moth	4	Open Acidic Peatlands

## ***Coastal Peatland***

### **Macrogroup Description**

The Coastal Peatland Macrogroup is equivalent to one New York SWAP habitat type described below.

**Open Alkaline Peatlands:** These open fens and bogs develop on peatlands over bedrock. The vegetation is primarily grasses and sedges with coastal shrubs.

### **Distribution**

The Northeast Terrestrial Habitat Map predicts that Coastal Peatlands are restricted to North Atlantic Coast Ecoregion (NAC) covering under 0.15 square miles (or <100 acres).

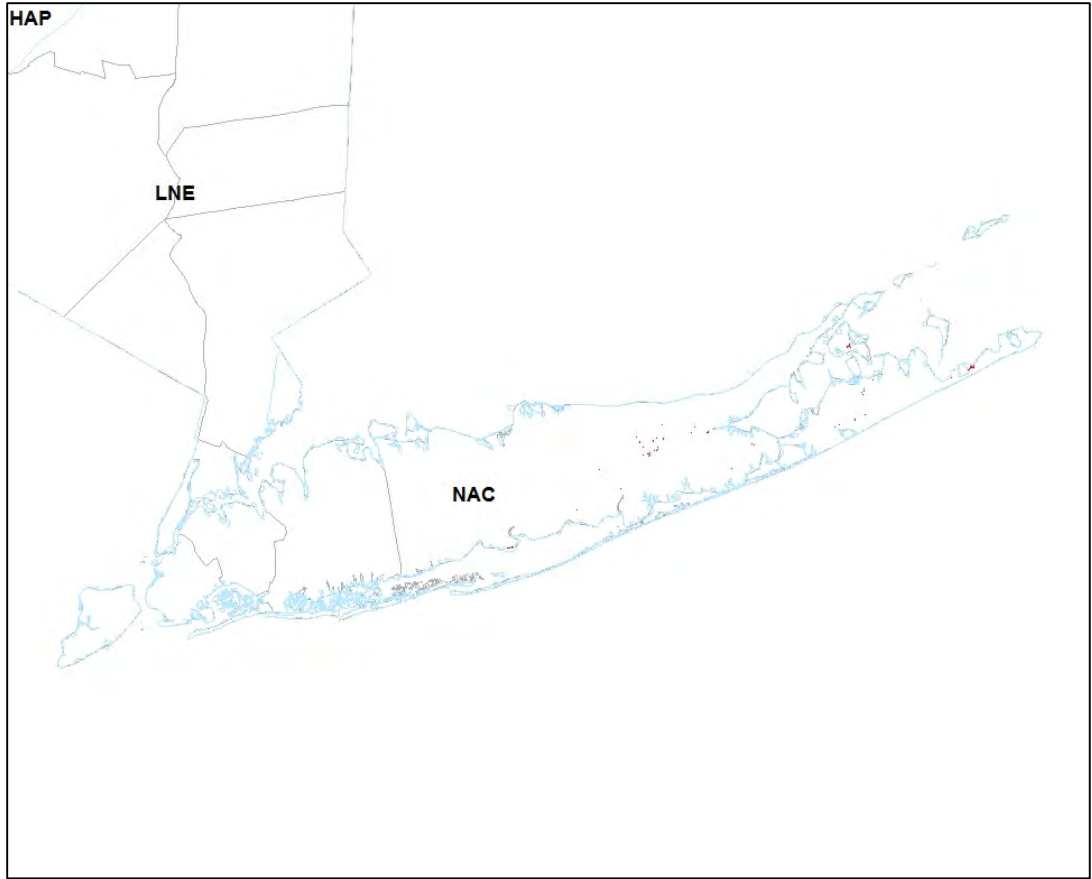


Figure 38. The distribution of the Coastal Peatland Macrogroup throughout the North Atlantic Coast Ecoregion, as based on the Northeast Terrestrial Habitat Map.

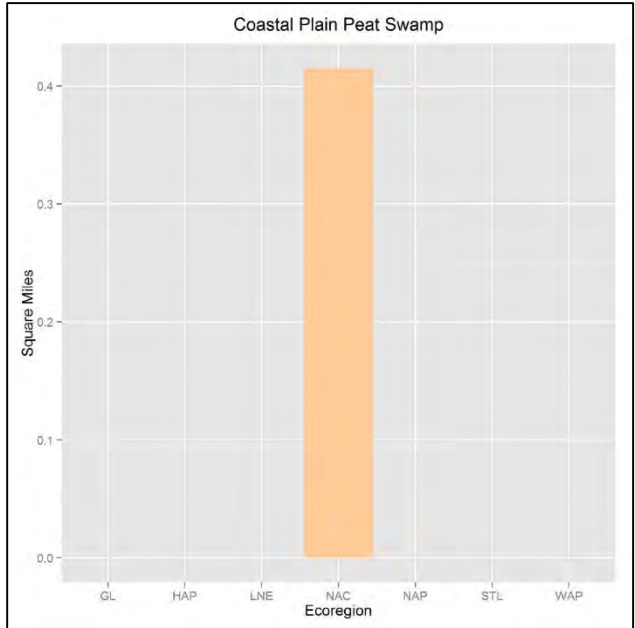


Figure 39. Area distribution of the Coastal Peatland Macrogroup by ecoregion.



## Condition Assessment

Based on LCA and IEI scores, the highest quality Coastal Peatlands are predicted to be in the North Atlantic Coast Ecoregion (NAC) (Figure 43), the only ecoregion in the state with this type.

Based on NY Natural Heritage Program Element Occurrence Ranks of coastal plain poor fen and the coastal plain variant of highbush blueberry bog thicket, the best Coastal Peatlands on Long Island occur at Hither Hills State Park, Sears Bellows County Park, and at Jones Pond in the Otis Pike Preserve (New York Natural Heritage Program 2015).

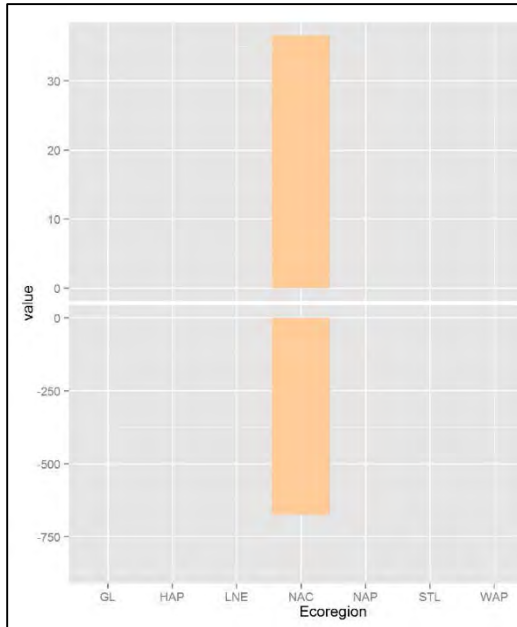


Figure 40. Index of Ecological Integrity score (top) and Landscape Condition Assessment score (bottom) for the Central Appalachian/Coastal Peatland Macrogroup for the North Atlantic Coast ecoregion.

## Associated SGCN

Fifteen SGCN are associated with this Macrogroup (Table 17).

Table 16. SGCN associated with the Central Appalachian/Coastal Peatland Macrogroup.

Species	Common name	SGCN category	Habitat link
<i>Aeshna subarctica</i>	Subarctic damer	2	Open Alkaline Peatlands
<i>Botaurus lentiginosus</i>	American bittern	3	Open Alkaline Peatlands
<i>Cistothorus platensis</i>	Sedge wren	2	Open Alkaline Peatlands
<i>Dichagyris acclivis</i>	A noctuid moth (switchgrass dart)	4	Open Alkaline Peatlands
<i>Eacles imperialis pini</i>	Imperial moth, Canadian imperial moth	3	Open Alkaline Peatlands
<i>Enallagma laterale</i>	New England bluet	2	Open Alkaline Peatlands
<i>Fagitana littera</i>	A noctuid moth (marsh fern moth)	4	Open Alkaline Peatlands
<i>Glena cognataria</i>	Blueberry gray	4	Open Alkaline Peatlands
<i>Glyptemys muhlenbergii</i>	Bog turtle	1	Open Alkaline Peatlands

Species	Common name	SGCN category	Habitat link
<i>Libellula flavida</i>	Yellow-sided skimmer	4	Open Alkaline Peatlands
<i>Nannothemis bella</i>	Elfin skimmer	2	Open Alkaline Peatlands
<i>Rhionaeschna mutata</i>	Spatterdock darner	3	Open Alkaline Peatlands
<i>Somatochlora forcipata</i>	Forcipate emerald	2	Open Alkaline Peatlands
<i>Somatochlora incurvata</i>	Incurvate emerald	4	Open Alkaline Peatlands
<i>Williamsonia fletcheri</i>	Ebony boghaunter	4	Open Alkaline Peatlands

## ***Coastal Plain Pond***

### **Macrogroup Description**

The Coastal Plain Pond Macrogroup is equivalent to one New York SWAP habitat type described below.

**Coastal Plain Pond:** These are coastal groundwater-flooded depressions on sandy soils. They may contain permanent water or may be shallow basins where groundwater drops below the surface late in the growing season. These ponds most often occur in pitch pine barrens.

### **Distribution**

Based on New York Natural Heritage Program documented occurrences of coastal plain pond shores, this Macrogroup is restricted to the North Atlantic Coast Ecoregion (NAC) (Figure 44). There are about 60 individual ponds with a little over 300 acres of pond shore habitat currently documented on Long Island (New York Natural Heritage Program 2015).

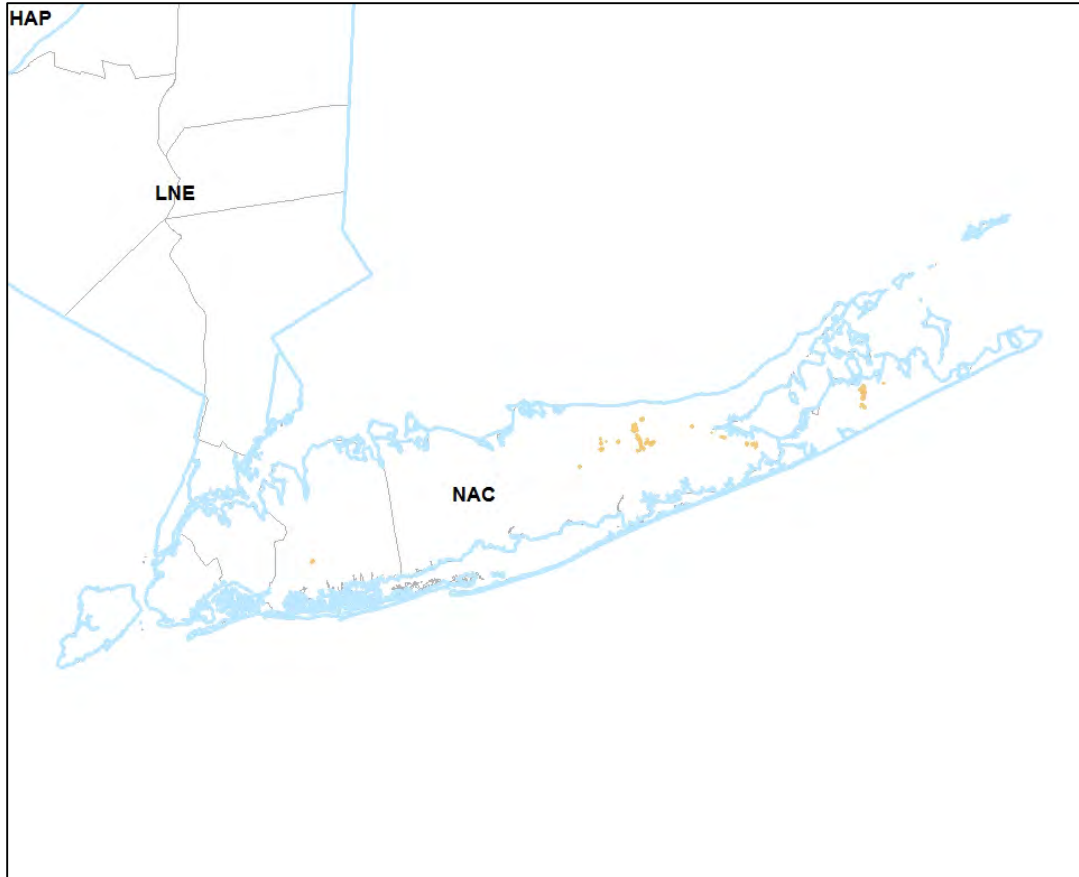


Figure 41. The distribution of the Coastal Plain Pond Macrogroup, throughout the North Atlantic Coast Ecoregion in New York, as based on the NY Natural Heritage Program occurrences of coastal plain pond shore.

### Condition Assessment

Based on LCA and IEI scores, the highest quality Coastal Plain Ponds are predicted to be in North Atlantic Coast Ecoregion (NAC), the only ecoregion in the state with this type.

Based on NY Natural Heritage Program Element Occurrence Ranks, the best coastal plain pond shores on Long Island include the following three principal occurrences comprised of numerous individual ponds, or “sub-occurrences”: Long Pond Greenbelt Preserve (10 ponds), Grassy Pond Chain in the Otis Pike Preserve (13 ponds), and Sears Bellows County Park (8 ponds) (New York Natural Heritage Program 2015).

### Associated SGCN

Thirty-one SGCN are associated with this Macrogroup (Table 18).

Table 17. SGCN associated with the Coastal Plain Pond Macrogroup.

Species	Common name	SGCN category	Habitat link
<i>Ambystoma opacum</i>	Marbled salamander	3	Coastal Plain Pond
<i>Ambystoma tigrinum</i>	Eastern tiger salamander	2	Coastal Plain Pond

Species	Common name	SGCN category	Habitat link
<i>Anas rubripes</i>	American Black Duck	2	Coastal Plain Pond
<i>Anax longipes</i>	Comet darner	3	Coastal Plain Pond
<i>Anaxyrus fowleri</i>	Fowlers Toad	3	Coastal Plain Pond
<i>Brachymesia gravida</i>	Four-spotted pennant	2	Coastal Plain Pond
<i>Celithemis verna</i>	Double-ringed pennant	2	Coastal Plain Pond
<i>Chelydra serpentina</i>	Snapping turtle	3	Coastal Plain Pond
<i>Clemmys guttata</i>	Spotted turtle	2	Coastal Plain Pond
<i>Enallagma doubledayi</i>	Atlantic Bluet	3	Coastal Plain Pond
<i>Enallagma laterale</i>	New England bluet	2	Coastal Plain Pond
<i>Enallagma minusculum</i>	Little bluet	2	Coastal Plain Pond
<i>Enallagma pictum</i>	Scarlet bluet	2	Coastal Plain Pond
<i>Enallagma recurvatum</i>	Pine barrens bluet	2	Coastal Plain Pond
<i>Enneacanthus obesus</i>	Banded sunfish	3	Coastal Plain Pond
<i>Epitheca semiaquea</i>	Mantled baskettail	3	Coastal Plain Pond
<i>Erythrodiplax berenice</i>	Seaside dragonlet	2	Coastal Plain Pond
<i>Ischnura ramburii</i>	Rambur's forktail	3	Coastal Plain Pond
<i>Kinosternon subrubrum subrubrum</i>	Southeastern mud turtle	2	Coastal Plain Pond
<i>Laterallus jamaicensis</i>	Black Rail	1	Coastal Plain Pond
<i>Libellula flavida</i>	Yellow-sided skimmer	4	Coastal Plain Pond
<i>Libellula needhami</i>	Needham's skimmer	3	Coastal Plain Pond
<i>Limosa haemastica</i>	Hudsonian Godwit	4	Coastal Plain Pond
<i>Nehalennia integricollis</i>	Southern sprite	4	Coastal Plain Pond
<i>Nycticorax nycticorax</i>	Black-crowned Night-Heron	3	Coastal Plain Pond
<i>Oxyura jamaicensis rubida</i>	Ruddy duck	3	Coastal Plain Pond
<i>Podilymbus podiceps</i>	Pied-billed Grebe	3	Coastal Plain Pond
<i>Progomphus obscurus</i>	Common sanddragon	4	Coastal Plain Pond
<i>Scaphiopus holbrookii</i>	Eastern spadefoot	3	Coastal Plain Pond
<i>Thamnophis sauritus sauritus</i>	Common ribbonsnake	3	Coastal Plain Pond
<i>Tringa melanoleuca</i>	Greater yellowlegs	3	Coastal Plain Pond

## ***Emergent Marsh***

### **Macrogroup Description**

The Emergent Marsh Macrogroup includes two New York SWAP habitat types described below. Both types are open mineral soil wetlands dominated by herbaceous plants. These non-tidal freshwater wetlands may, or may not, be flooded depending of the time of year and the amount of recent precipitation.

**Freshwater Marsh:** These freshwater emergent and/or submergent marshes are dominated by herbaceous vegetation and are associated with lakes, ponds, slow-moving streams, or

impoundments. Scattered shrubs may be present and usually total less than 25% cover; trees are generally absent.

**Great Lakes Freshwater Estuary Marsh:** These areas include tributary waters and associated wetlands that are directly affected by Great Lakes water regimes. Species distribution and community patterns are determined by the type of aquatic system, water-level fluctuations, bedrock, climate, and land use.

### Distribution

Emergent Marshes occur in all seven ecoregions in the state (Figure 45 and Figure 46) based on the Northeast Terrestrial Habitat Map prediction model. The Great Lakes Ecoregion (GL) has the most marshes in the state covering nearly 100 square miles (Figure 46). The Northern Appalachian/Boreal Forest Ecoregion (NAP) and the Lower New England/Northern Piedmont Ecoregion (LNE) each have between 50 and 70 square miles each (Figure 46).

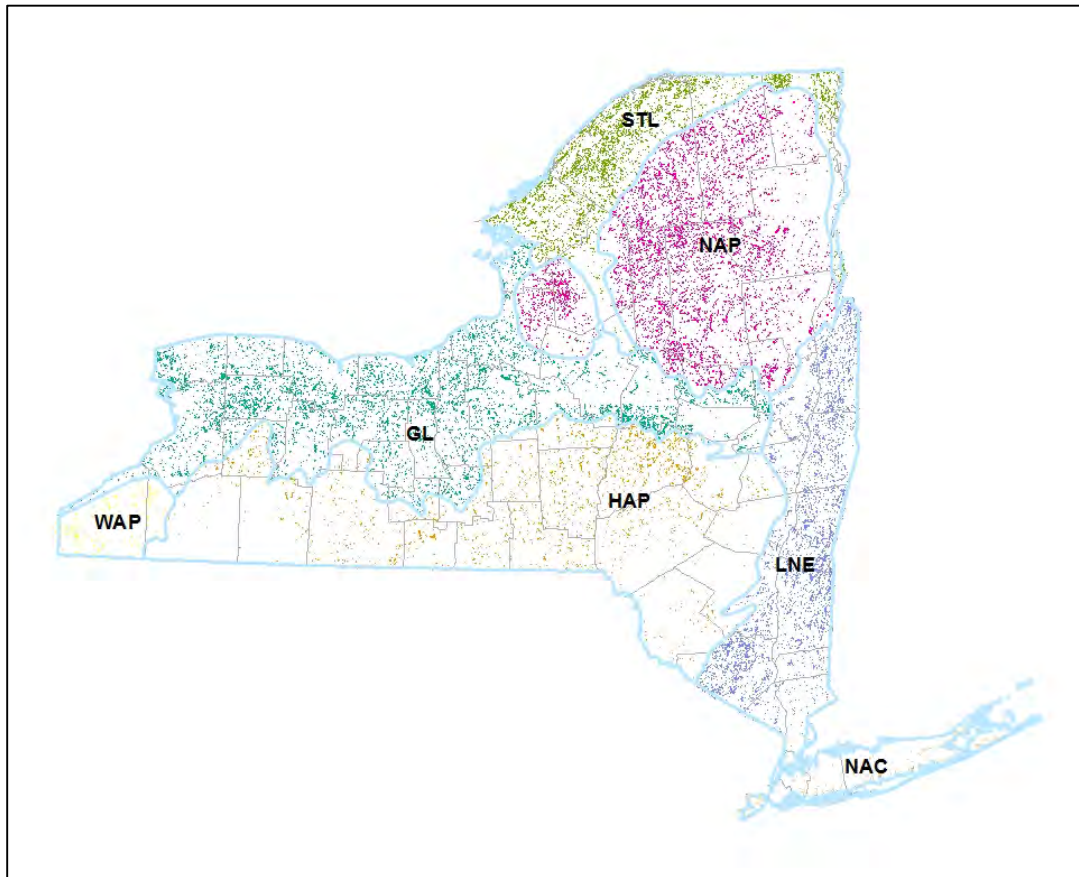


Figure 42. The distribution of the Emergent Marsh Macrogroup throughout New York by ecoregion, as based on the Northeast Terrestrial Habitat Map.

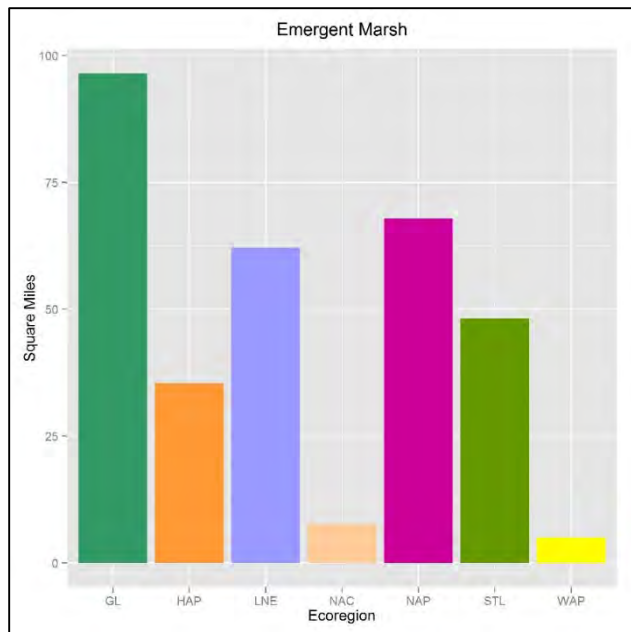


Figure 43. Area distribution of the Emergent Marsh Macrogroup by ecoregion.

## Condition Assessment

Based on LCA and IEI scores, the highest quality Emergent Marshes are predicted to be in the Northern Appalachian/Boreal Forest Ecoregion (NAP) (Figure 47).

Based on NY Natural Heritage Program Element Occurrence Ranks, large, high-quality shallow emergent marshes are located on various state lands in NAP, including the Tug Hill Wildlife Management Area (WMA), along the West Branch Oswegatchie River in Jadwin Memorial State Forest, and along the South Branch Grass River in Cranberry Lake Wild Forest. The best shallow emergent marsh in the Great Lakes Ecoregion occurs at Lakeview WMA. Covering about 1500 acres this is currently the largest occurrence in the state (New York Natural Heritage Program 2015).

Based on NY Natural Heritage Program Element Occurrence Ranks, three high-quality deep emergent marshes in NAP occur in the Southern Basin of Lake Champlain northwest of Whitehall, NY. Other excellent examples in NAP include Lake Lila and Tupper Lake. The best examples in STL include Putts Creek WMA and Upper and Lower Lakes WMA (New York Natural Heritage Program 2015).

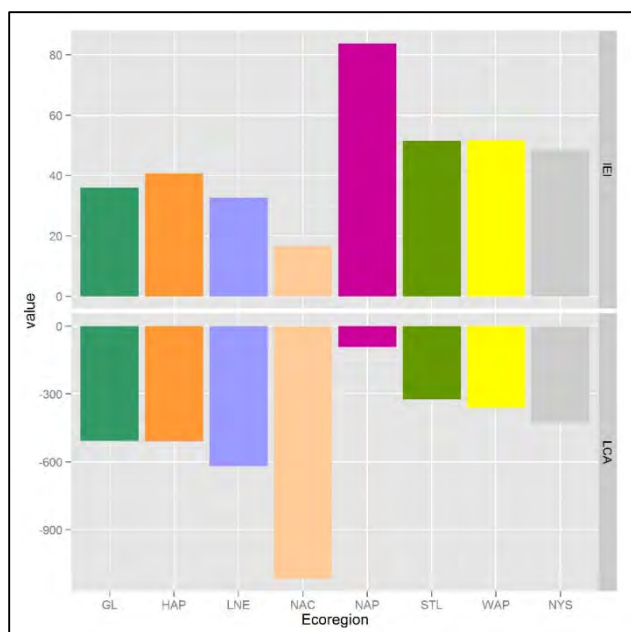


Figure 44. Index of Ecological Integrity score (top) and Landscape Condition Assessment score (bottom) for the Emergent Marsh Macrogroup for each ecoregion and the state (far right).

## Associated SGCN

Forty-nine SGCN are associated with this Macrogroup (Table 19).

Table 18. SGCN associated with the Emergent Marsh Macrogroup.

Species	Common name	SGCN	Habitat link
<i>Acris crepitans</i>	Eastern cricket frog	2	Freshwater Marsh
<i>Amphipoea erepta ryensis</i>	A noctuid moth (An ear	4	Freshwater Marsh
<i>Anas acuta</i>	Northern Pintail	3	Freshwater Marsh
<i>Anas discors</i>	Blue-winged teal	3	Freshwater Marsh
<i>Anas rubripes</i>	American Black Duck	2	Freshwater Marsh
<i>Aplexa elongata</i>	Lance aplexa	4	Freshwater Marsh
<i>Ardea alba</i>	Great egret	3	Freshwater Marsh
<i>Arigomphus cornutus</i>	Horned clubtail	3	Freshwater Marsh
<i>Asio flammeus</i>	Short-eared owl	2	Freshwater Marsh
<i>Botaurus lentiginosus</i>	American bittern	3	Freshwater Marsh
<i>Bubulcus ibis</i>	Cattle Egret	2	Freshwater Marsh
<i>Cambarus diogenes</i>	Devil crawfish	4	Freshwater Marsh
<i>Chelydra serpentina</i>	Snapping turtle	3	Freshwater Marsh
<i>Chelydra serpentina</i>	Snapping turtle	3	Freshwater Marsh
<i>Chlidonias niger</i>	Black Tern	2	Freshwater Marsh
<i>Circus cyaneus</i>	Northern harrier	3	Freshwater Marsh
<i>Clemmys guttata</i>	Spotted turtle	2	Freshwater Marsh
<i>Egretta caerulea</i>	Little blue heron	3	Freshwater Marsh

Species	Common name	SGCN	Habitat link
<i>Egretta thula</i>	Snowy egret	3	Freshwater Marsh
<i>Egretta tricolor</i>	Tricolored heron	3	Freshwater Marsh
<i>Emydoidea blandingii</i>	Blanding's Turtle	2	Freshwater Marsh
<i>Eurycea longicauda</i>	Eastern long-tailed	2	Freshwater Marsh
<i>Fagitana littera</i>	A noctuid moth (marsh fern)	4	Freshwater Marsh
<i>Falco peregrinus</i>	Peregrine falcon	3	Freshwater Marsh
<i>Glyptemys muhlenbergii</i>	Bog turtle	1	Freshwater Marsh
<i>Hygrotus sylvanus</i>	Sylvan hygrotus diving	4	Freshwater Marsh
<i>Ixobrychus exilis</i>	Least bittern	3	Freshwater Marsh
<i>Kinosternon subrubrum</i>	Southeastern mud turtle	2	Freshwater Marsh
<i>Laterallus jamaicensis</i>	Black Rail	1	Freshwater Marsh
<i>Limosa haemastica</i>	Hudsonian Godwit	4	Freshwater Marsh
<i>Lithobates sphenoccephalus</i>	Southern leopard frog	4	Freshwater Marsh
<i>Nyctanassa violacea</i>	Yellow-crowned night-	3	Freshwater Marsh
<i>Nycticorax nycticorax</i>	Black-crowned Night-Heron	3	Freshwater Marsh
<i>Oxyura jamaicensis rubida</i>	Ruddy duck	3	Freshwater Marsh
<i>Papaipema stenocelis</i>	Chain fern borer moth	4	Freshwater Marsh
<i>Plegadis falcinellus</i>	Glossy ibis	3	Freshwater Marsh
<i>Podilymbus podiceps</i>	Pied-billed Grebe	3	Freshwater Marsh
<i>Pseudacris triseriata</i>	Western chorus frog	3	Freshwater Marsh
<i>Rallus elegans</i>	King Rail	1	Freshwater Marsh
<i>Regina septemvittata</i>	Queensnake	2	Freshwater Marsh
<i>Sistrurus catenatus catenatus</i>	Eastern massasauga	2	Freshwater Marsh
<i>Sterna forsteri</i>	Forster's tern	3	Freshwater Marsh
<i>Sterna hirundo</i>	Common tern	3	Freshwater Marsh
<i>Sternotherus odoratus</i>	Eastern musk turtle	2	Freshwater Marsh
<i>Sympetrum danae</i>	Black meadowhawk	2	Freshwater Marsh
<i>Thamnophis sauritus sauritus</i>	Common ribbonsnake	3	Freshwater Marsh
<i>Tringa melanoleuca</i>	Greater yellowlegs	3	Freshwater Marsh
<i>Tringa semipalmata</i>	Willet	3	Freshwater Marsh
<i>Tyto alba</i>	Barn owl	2	Freshwater Marsh
<i>Anas discors</i>	Blue-winged teal	3	Great Lakes Freshwater Estuary Marsh
<i>Apalone spinifera spinifera</i>	Eastern spiny softshell	2	Great Lakes Freshwater Estuary Marsh
<i>Botaurus lentiginosus</i>	American bittern	3	Great Lakes Freshwater Estuary Marsh
<i>Chlidonias niger</i>	Black Tern	2	Great Lakes Freshwater Estuary Marsh
<i>Circus cyaneus</i>	Northern harrier	3	Great Lakes Freshwater Estuary Marsh
<i>Emydoidea blandingii</i>	Blanding's Turtle	2	Great Lakes Freshwater Estuary Marsh
<i>Glyptemys muhlenbergii</i>	Bog turtle	1	Great Lakes Freshwater Estuary Marsh



Species	Common name	SGCN	Habitat link
<i>Ixobrychus exilis</i>	Least bittern	3	Great Lakes Freshwater Estuary Marsh
<i>Laterallus jamaicensis</i>	Black Rail	1	Great Lakes Freshwater Estuary Marsh
<i>Nycticorax nycticorax</i>	Black-crowned Night-Heron	3	Great Lakes Freshwater Estuary Marsh
<i>Oxyura jamaicensis rubida</i>	Ruddy duck	3	Great Lakes Freshwater Estuary Marsh
<i>Podilymbus podiceps</i>	Pied-billed Grebe	3	Great Lakes Freshwater Estuary Marsh
<i>Pseudacris triseriata</i>	Western chorus frog	3	Great Lakes Freshwater Estuary Marsh
<i>Rallus elegans</i>	King Rail	1	Great Lakes Freshwater Estuary Marsh
<i>Sterna hirundo</i>	Common tern	3	Great Lakes Freshwater Estuary Marsh
<i>Tyto alba</i>	Barn owl	2	Great Lakes Freshwater Estuary Marsh

## ***Wet Meadow/Shrub Marsh***

### **Macrogroup Description**

The Wet Meadow/Shrub Marsh Macrogroup is equivalent to one New York SWAP habitat type described below.

**Wet Meadow/Shrub Marsh:** These wet meadows and shrub swamps are found on mineral soils and are associated with lakes and ponds, but are also found along streams where the water level doesn't fluctuate greatly. They are commonly flooded for part of the growing season, and are dominated by a mixture of grass and shrubs, including non-native species.

### **Distribution**

Based on the Northeast Terrestrial Habitat Map model, the Wet Meadow/Shrub Marsh Macrogroup is widespread and occurs statewide in all seven ecoregions (Figure 48 and Figure 49). It is most abundant in the Northern Appalachian/Boreal Forest Ecoregion (NAP) where it covers over 200 square miles (Figure 49).

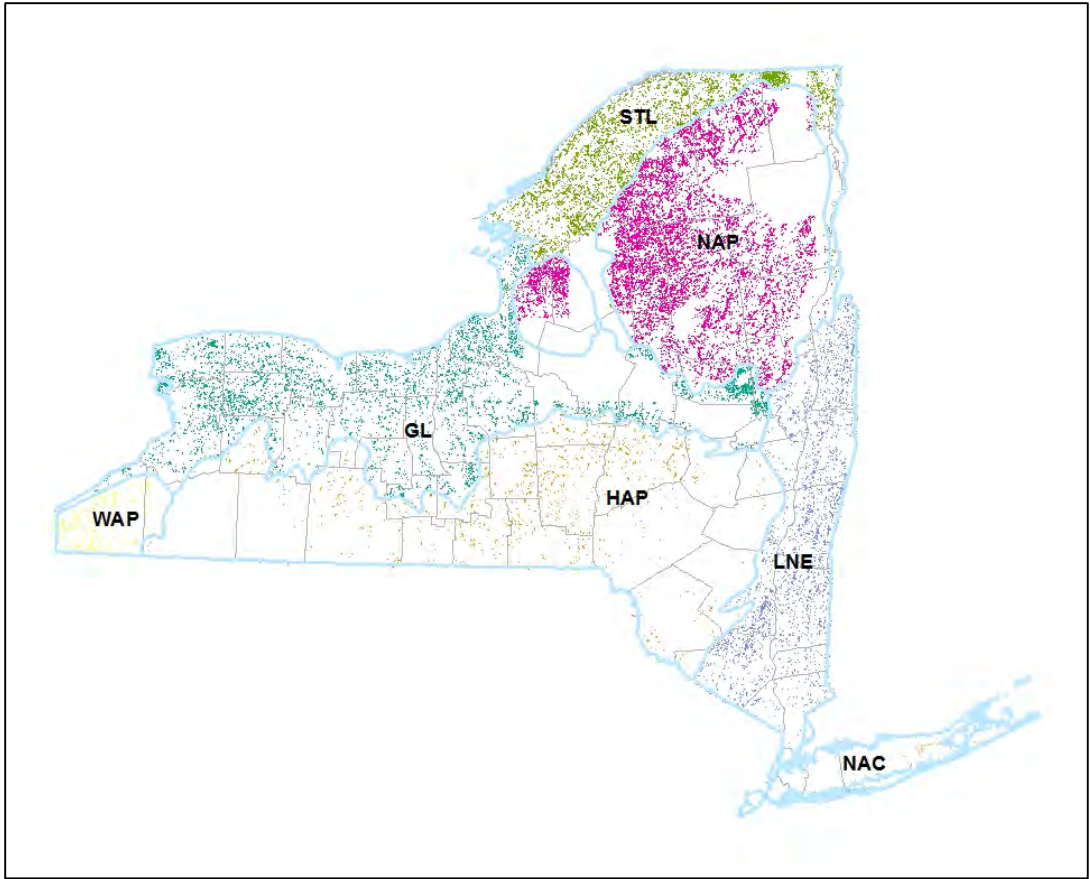


Figure 45. The distribution of the Wet Meadow/Shrub Marsh Macrogroup throughout New York by ecoregion, as based on the Northeast Terrestrial Habitat Map.

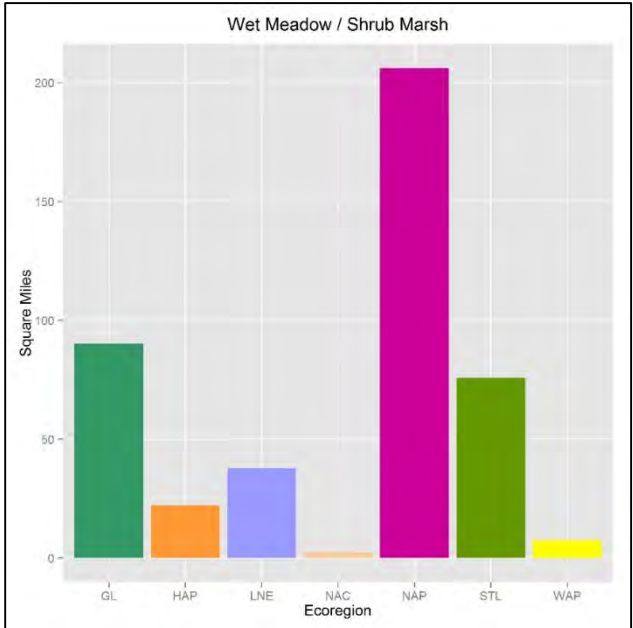


Figure 46. Area distribution of the Wet Meadow/Shrub Marsh Macrogroup by ecoregion.

## Condition Assessment

Based on LCA and IEI scores, the highest quality Wet Meadow/Shrub Marshes are predicted to be in the Northern Appalachian/Boreal Forest Ecoregion (NAP) and the scores for all of the remaining ecoregions are below the scores for the state as a whole (Figure 50).

Based on NY Natural Heritage Program Element Occurrence Ranks, the best examples of sedge meadow in NAP include those along the South Branch Mad River, the West Branch Sacandaga River, and the Jordan River. The largest, high-quality sedge meadow in LNE occurs near the headwaters of the Poestenkill (New York Natural Heritage Program 2015).

Based on NY Natural Heritage Program Element Occurrence Ranks, the best shrub swamps in the state occur on the Tug Hill along the East Branch Fish Creek, and along numerous rivers in the Adirondacks, such as West Branch Sacandaga River, South Branch Grass River, West Branch Oswegatchie River, Shingle Shanty Brook, and Jordan River (New York Natural Heritage Program 2015).

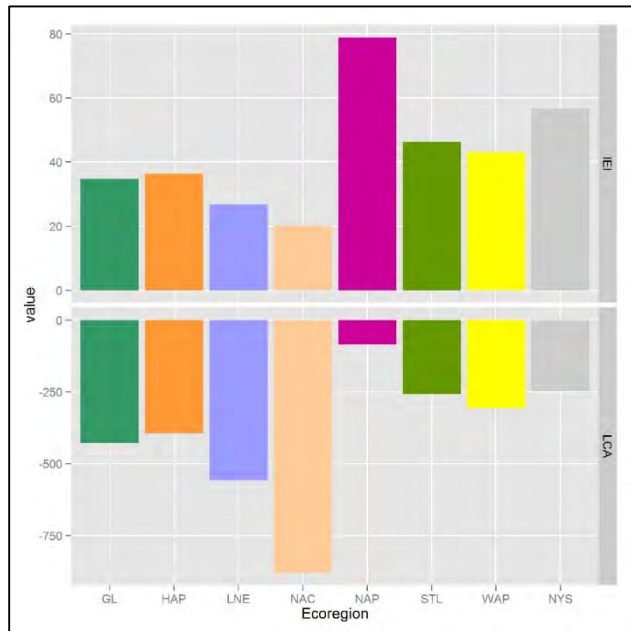


Figure 47. Index of Ecological Integrity score (top) and Landscape Condition Assessment score (bottom) for the Wet Meadow/Shrub Marsh Macrogroup for each ecoregion and the state (far right).

## Associated SGCN

Forty-four SGCN are associated with this Macrogroup (Table 20).

Table 19. SGCN associated with the Wet Meadow/Shrub Marsh Macrogroup.

Species	Common name	SGCN	Habitat link
<i>Agkistrodon contortrix mokasen</i>	Northern copperhead	3	Wet Meadow/Shrub
<i>Ambystoma laterale</i>	Blue-spotted salamander	1	Wet Meadow/Shrub

Species	Common name	SGCN	Habitat link
<i>Ammodramus henslowii</i>	Henslow's sparrow	2	Wet Meadow/Shrub
<i>Anas acuta</i>	Northern Pintail	3	Wet Meadow/Shrub
<i>Anas discors</i>	Blue-winged teal	3	Wet Meadow/Shrub
<i>Anas rubripes</i>	American Black Duck	2	Wet Meadow/Shrub
<i>Ardea alba</i>	Great egret	3	Wet Meadow/Shrub
<i>Asio flammeus</i>	Short-eared owl	2	Wet Meadow/Shrub
<i>Botaurus lentiginosus</i>	American bittern	3	Wet Meadow/Shrub
<i>Cambarus diogenes</i>	Devil crawfish	4	Wet Meadow/Shrub
<i>Chelydra serpentina</i>	Snapping turtle	3	Wet Meadow/Shrub
<i>Chlidonias niger</i>	Black Tern	2	Wet Meadow/Shrub
<i>Circus cyaneus</i>	Northern harrier	3	Wet Meadow/Shrub
<i>Cistothorus platensis</i>	Sedge wren	2	Wet Meadow/Shrub
<i>Clemmys guttata</i>	Spotted turtle	2	Wet Meadow/Shrub
<i>Coluber constrictor constrictor</i>	Northern black racer	3	Wet Meadow/Shrub
<i>Contopus borealis</i>	Olive-sided flycatcher	2	Wet Meadow/Shrub
<i>Egretta thula</i>	Snowy egret	3	Wet Meadow/Shrub
<i>Emydoidea blandingii</i>	Blanding's Turtle	2	Wet Meadow/Shrub
<i>Euphagus carolinus</i>	Rusty blackbird	2	Wet Meadow/Shrub
<i>Eurycea longicauda</i>	Eastern long-tailed salamander	2	Wet Meadow/Shrub
<i>Fagitana littera</i>	A noctuid moth (marsh fern	4	Wet Meadow/Shrub
<i>Glyptemys insculpta</i>	Wood turtle	2	Wet Meadow/Shrub
<i>Glyptemys muhlenbergii</i>	Bog turtle	1	Wet Meadow/Shrub
<i>Laterallus jamaicensis</i>	Black Rail	1	Wet Meadow/Shrub
<i>Limosa haemastica</i>	Hudsonian Godwit	4	Wet Meadow/Shrub
<i>Lithobates sphenoccephalus</i>	Southern leopard frog	4	Wet Meadow/Shrub
<i>Lithophane viridipallens</i>	Pale green pinion moth	4	Wet Meadow/Shrub
<i>Mustela nivalis</i>	Least weasel	4	Wet Meadow/Shrub
<i>Nycticorax nycticorax</i>	Black-crowned Night-Heron	3	Wet Meadow/Shrub
<i>Opheodrys vernalis</i>	Smooth greensnake	3	Wet Meadow/Shrub
<i>Oxyura jamaicensis rubida</i>	Ruddy duck	3	Wet Meadow/Shrub
<i>Papaipema stenocelis</i>	Chain fern borer moth	4	Wet Meadow/Shrub
<i>Plegadis falcinellus</i>	Glossy ibis	3	Wet Meadow/Shrub
<i>Pluvialis squatarola</i>	Black-bellied plover	3	Wet Meadow/Shrub
<i>Pseudacris triseriata</i>	Western chorus frog	3	Wet Meadow/Shrub
<i>Rallus elegans</i>	King Rail	1	Wet Meadow/Shrub
<i>Scolopax minor</i>	American woodcock	3	Wet Meadow/Shrub
<i>Siphonisca aerodromia</i>	Tomah Mayfly	2	Wet Meadow/Shrub
<i>Sistrurus catenatus catenatus</i>	Eastern massasauga	2	Wet Meadow/Shrub
<i>Sylvilagus transitionalis</i>	New England cottontail	2	Wet Meadow/Shrub
<i>Sympetrum danae</i>	Black meadowhawk	2	Wet Meadow/Shrub
<i>Vermivora chrysoptera</i>	Golden-winged warbler	1	Wet Meadow/Shrub
<i>Vermivora cyanoptera</i>	Blue-winged warbler	3	Wet Meadow/Shrub

## ***Modified/Managed Marsh***

### **Macrogroup Description**

The Modified/Managed Marsh Macrogroup is equivalent to one New York SWAP habitat type described below.

**Modified/Managed Marsh:** These areas include created and obviously managed wetlands of varying size resulting from water diversion. This type includes artificial wetlands with obvious built structures that may be distinguished from imagery.

### **Distribution**

The Modified/Managed Marsh Macrogroup likely occurs throughout the state. This type is not included in the Map of Terrestrial Habitats of the Northeastern United States and likely included in the Emergent Marsh Macrogroup described above.

### **Condition Assessment**

The condition of this Macrogroup could not be assessed because this type is not included in the Map of Terrestrial Habitats of the Northeastern United States.

Assessment of the natural condition for the Modified/Managed Marsh Macrogroup may not be appropriate because it is primarily a cultural type. Disturbed or artificial wetland communities are either created and maintained by human activities, or are modified by human influence to such a degree that the physical structure of the substrate, hydrology, and species composition are substantially different from the substrate, hydrology, and composition of the site as it existed prior to human influence; non-native species may be dominant.

### **Associated SGCN**

There are no SGCN associated with this Macrogroup.

## ***Alpine***

### **Macrogroup Description**

The Alpine Macrogroup includes two New York SWAP habitat types described below.

**Alpine:** This habitat type encompasses vegetation above treeline on mountains, including dwarf shrubs and lichen. Wind, snow, and cloud-cover fog are prominent environmental factors.

**Subalpine Woodland and Shrub:** This includes vegetation near and slightly above treeline, located between Mountain Spruce-Fir and Alpine habitats or on ridgelines and summits of lower mountains. Vegetation ranges from woodland to shrubland to sparse dwarf-shrubs and herbs with patches of open rock.

### **Distribution**

The Northeast Terrestrial Habitat Map predicts that the Alpine Macrogroup is restricted to the Northern Appalachian/Boreal Forest Ecoregion (NAP) with a little over 0.4 square miles (~250 acres) of cover predicted in the High Peaks region of the Adirondack Mountains.

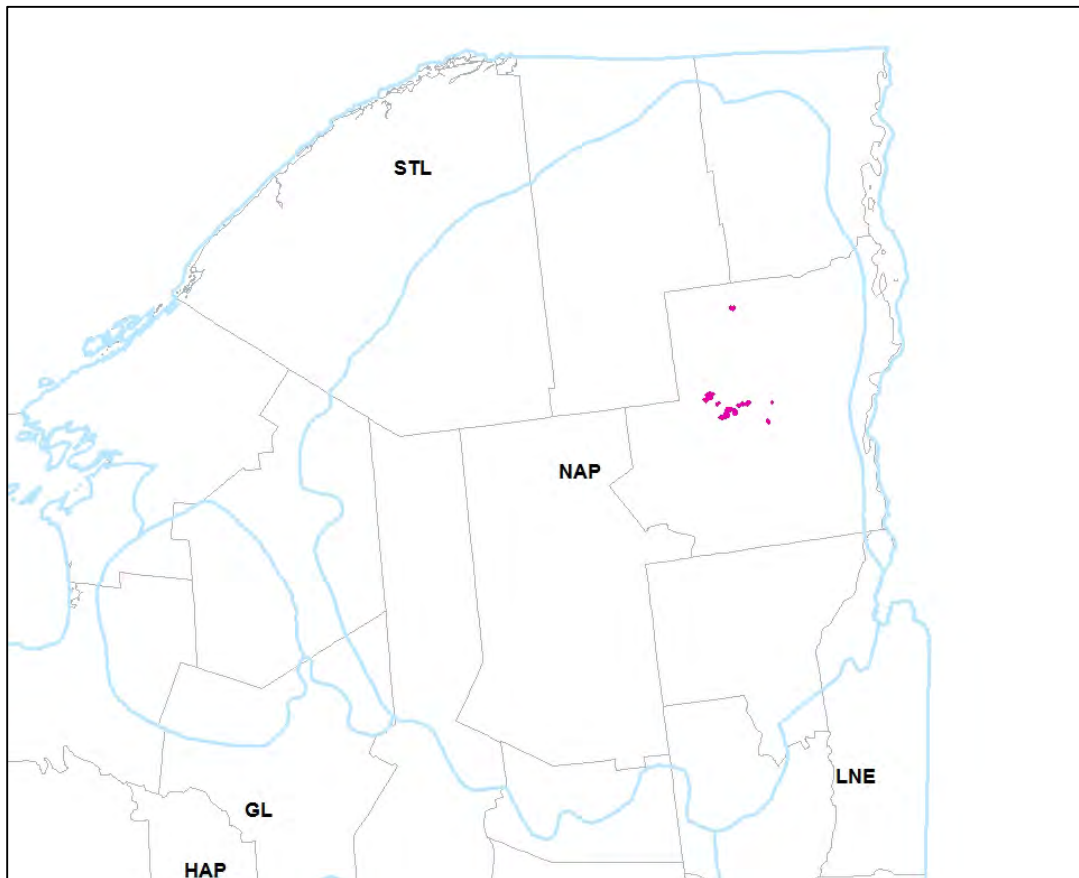


Figure 48. The distribution of the Alpine Macrogroup throughout the Northern Appalachian/Boreal Forest Ecoregion in New York, as based on NY Natural Heritage Program occurrences of open alpine community and alpine krummholz.

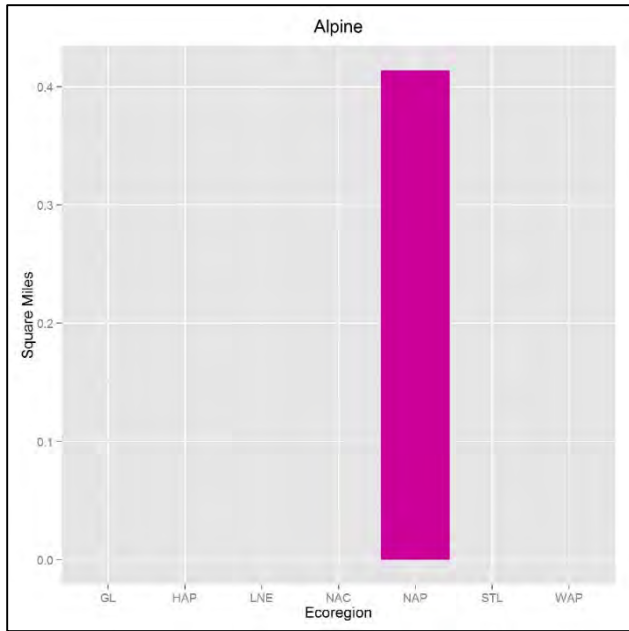


Figure 49. Area distribution of the Alpine Macrogroup by ecoregion.

### Condition Assessment

Based on LCA and IEI scores, the highest quality Alpine areas are predicted to be in the Northern Appalachian/Boreal Forest Ecoregion (NAP), the only ecoregion in the state with this type.

The best examples of alpine natural communities are found on several peaks of the Macintyre Range, including Algonquin, Iroquois, and Wright based on NY Natural Heritage Program Element Occurrence Ranks. Very good examples occur on Haystack Mountain, Mount Skylight, and Mount Marcy. A slightly lower quality occurrence is Whiteface Mountain because of its proximity to roads and other development (New York Natural Heritage Program 2015).

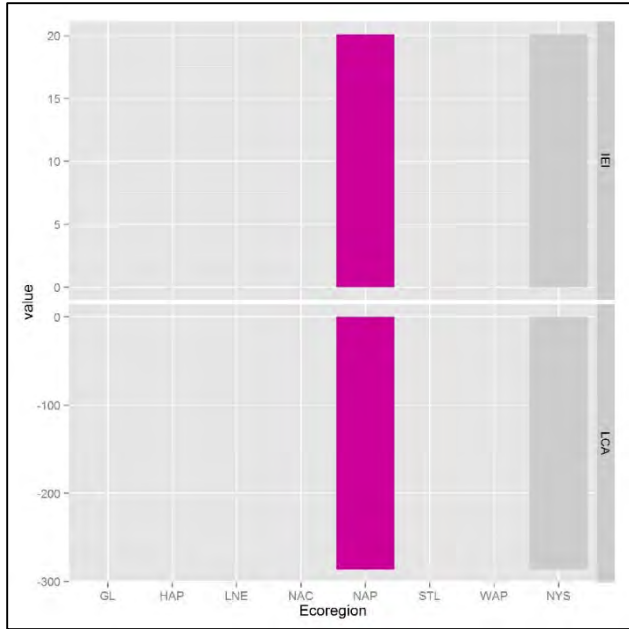


Figure 50. Index of Ecological Integrity score (top) and Landscape Condition Assessment score (bottom) for the Alpine Macrogroup for each ecoregion and the state (far right).

## Associated SGCN

One SGCN is associated with this Macrogroup (Table 21).

Table 20. SGCN associated with the Alpine Macrogroup.

Species	Common name	SGCN category	Habitat link
<i>Cicindela patruela patruela</i>	Northern Barrens Tiger Beetle	2	Alpine

## *Cliff and Talus*

### Macrogroup Description

The Cliff and Talus Macrogroup includes two New York SWAP habitat types described below.

**Cliff and Talus:** These habitat types occur at low to mid elevations well below treeline, and consist of near-vertical cliffs and broken rock and boulder slopes below. Vegetation is often patchy and sparse and includes Northern white cedar, red cedar, and spruce, and may be accompanied by basswood and ash.

**Erosional Bluff:** These steep, linear cliffs form erosional banks of sand, silt, and clay in landscapes that are low in elevation. The substrate is unconsolidated and provides habitat for bank swallows and other burrowing species. Vegetation is sparse and mostly herbaceous. Known



examples occur on the Atlantic coast, Lake Erie and Lake Ontario coastlines, and some large rivers.

## Distribution

The Northeast Terrestrial Habitat Map predicts that the Cliff and Talus Macrogroup occurs in every ecoregion in the state except the North Atlantic Coast (NAC) (Figure 54 and Figure 55). Based on the map, this Macrogroup is most abundant in the High Allegheny Plateau Ecoregion (HAP) with just over 100 square miles, followed by the Northern Appalachian/Boreal Forest Ecoregion (NAP) with over 75 square miles (Figure 55).

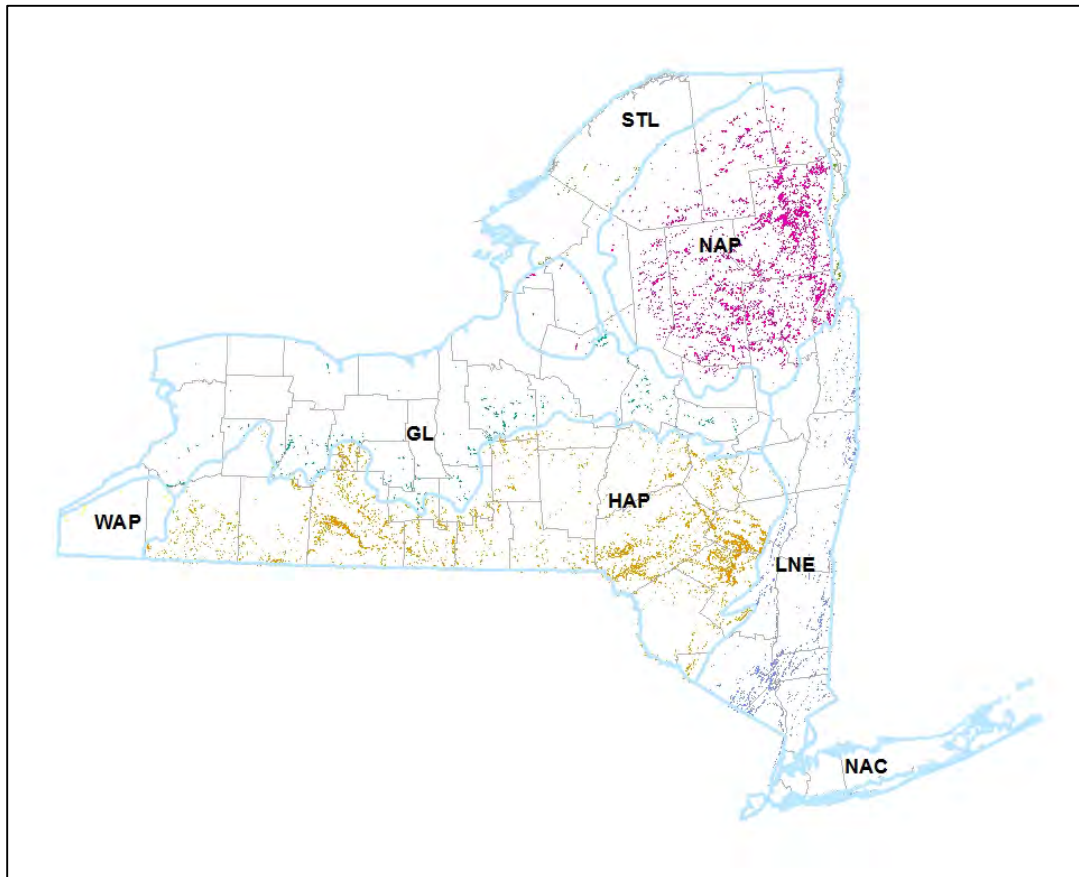


Figure 51. The distribution of the Cliff and Talus Macrogroup throughout New York by ecoregion, as based on the Northeast Terrestrial Habitat Map.

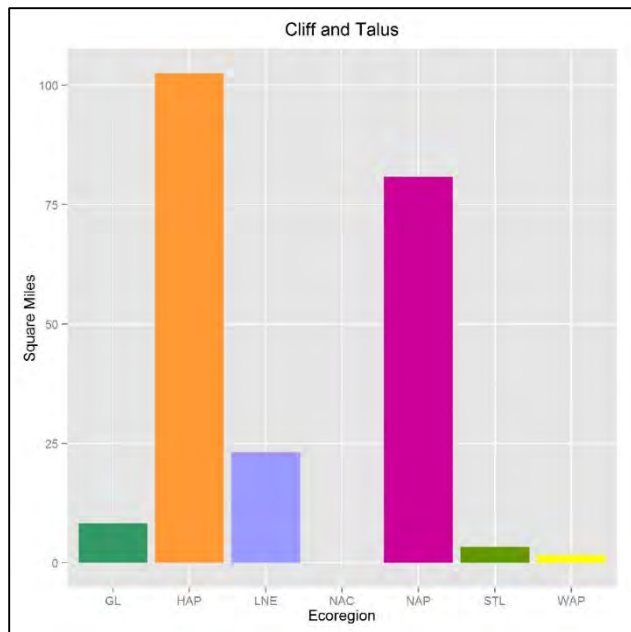


Figure 52. Area distribution of the Cliff and Talus Macrogroup by ecoregion.

## Condition Assessment

Based on LCA and IEI scores, the highest quality Cliff and Talus areas are predicted to be in the Northern Appalachian/Boreal Forest Ecoregion (NAP) (Figure 56).

Based on NY Natural Heritage Program Element Occurrence Ranks (New York Natural Heritage Program 2015), the largest and best quality occurrences of various cliff and talus communities in the state are as follows:

Shale cliff and talus community: Letchworth State Park (GL/HAP), Lorraine Gulf (NAP/GL), Chautauqua Gorge (WAP), Whetstone Gulf (NAP/STL), and Zoar Valley (GL/WAP).

Shale talus slope woodland: Chemung Shale Slopes (HAP), Potic Mountain (HAP/LNE), and Salmon River Falls Unique Area (NAP).

Cliff community: Poke-O-Moonshine Mountain (NAP), Wallface Mountain (NAP), Crane and Huckleberry Mountains (NAP), Minnewaska State Park (HAP), and West Mountain in The Saddles State Forest (NAP).

Acidic talus slope woodland: Black Rock Forest at West Point (LNE), Minnewaska State Park (HAP), Catamount Mountain in Lake George Wild Forest (NAP), and Chapel Pond Valley in Dix Mountain Wilderness (NAP).

Calcareous cliff community: The Diameter, Deer Leap, and Rogers Rock in Lake George Wild Forest (NAP), Helderberg Escarpment in John Boyd Thacher State Park (LNE/HAP), Big Nose (GL), and Warner Hill in East Bay WMA (LNE).

Calcareous talus slope woodland: Bloomer Mountain, The Diameter, and Deer Leap in Lake George Wild Forest (NAP), Warner Hill in East Bay WMA (LNE), Luzerne Mountain in Moreau Lake State Park (NAP), and West Mountain in The Saddles State Forest (NAP).

Great Lake bluff: Chimney Bluffs State Park (GL).

Maritime bluff: Montauk Point at Camp Hero State Park (NAC).

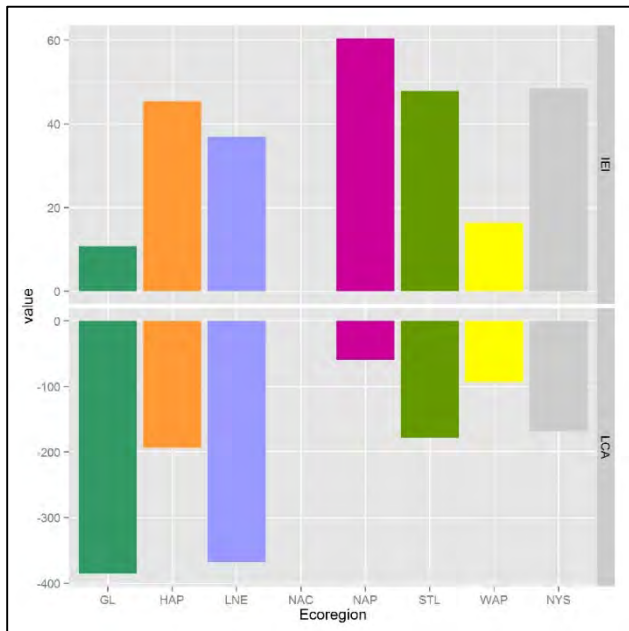


Figure 53. Index of Ecological Integrity score (top) and Landscape Condition Assessment score (bottom) for the Cliff and Talus Macrogroup for each ecoregion and the state (far right).

## Associated SGCN

Fifteen SGCN are associated with this Macrogroup (Table 22).

Table 21. SGCN associated with the Cliff and Talus Macrogroup.

Species	Common name	SGCN category	Habitat link
<i>Agkistrodon contortrix mokasen</i>	Northern copperhead	3	Cliff and Talus
<i>Coluber constrictor constrictor</i>	Northern black racer	3	Cliff and Talus
<i>Crotalus horridus</i>	Timber rattlesnake	2	Cliff and Talus
<i>Falco peregrinus</i>	Peregrine falcon	3	Cliff and Talus
<i>Heterodon platirhinos</i>	Eastern hog-nosed snake	2	Cliff and Talus
<i>Myotis leibii</i>	Small-footed myotis	3	Cliff and Talus
<i>Neotoma magister</i>	Allegheny woodrat	2	Cliff and Talus
<i>Novisuccinea chittenangoensis</i>	Chittenango Ovate Amber Snail	1	Cliff and Talus
<i>Pantherophis alleghaniensis</i>	Eastern ratsnake	3	Cliff and Talus
<i>Sceloporus undulatus</i>	Eastern Fence Lizard	3	Cliff and Talus
<i>Calonectris diomedea borealis</i>	Cory's Shearwater	3	Erosional Bluff

Species	Common name	SGCN category	Habitat link
<i>Larus thayeri</i>	Thayer's gull	4	Erosional Bluff
<i>Macaria marmorata</i>	A geometrid moth (Jack pine looper)	4	Erosional Bluff
<i>Neotoma magister</i>	Allegheny woodrat	2	Erosional Bluff
<i>Orthodes obscura</i>	A noctuid moth	3	Erosional Bluff
<i>Sympistis perscripta</i>	A moth (Scribble swallow)	4	Erosional Bluff

## ***Agricultural***

### **Macrogroup Description**

The Agricultural Macrogroup includes two New York SWAP habitat types described below.

**Cultivated Crops:** Land used for production of crops (corn, potatoes, small grains, vegetables, etc.), orchards, vineyards, nurseries, and Christmas tree farms. Plant cover is variable depending on the season and type of farming.

**Pasture/Hay:** These agriculture lands typically have perennial herbaceous cover in fields used for livestock grazing or the production of hay. There are obvious signs of management such as fencing or haying that distinguish them from natural grasslands.

### **Distribution**

The Agricultural Macrogroup occurs in all seven ecoregions in the state based on the Northeast Terrestrial Habitat Map prediction model (Figure 57 and Figure 58). It is most abundant in the Great Lakes Ecoregion (GL) with almost 5000 square miles predicted followed by the High Allegheny Plateau Ecoregion (HAP) with just over 3000 square miles predicted (Figure 58).

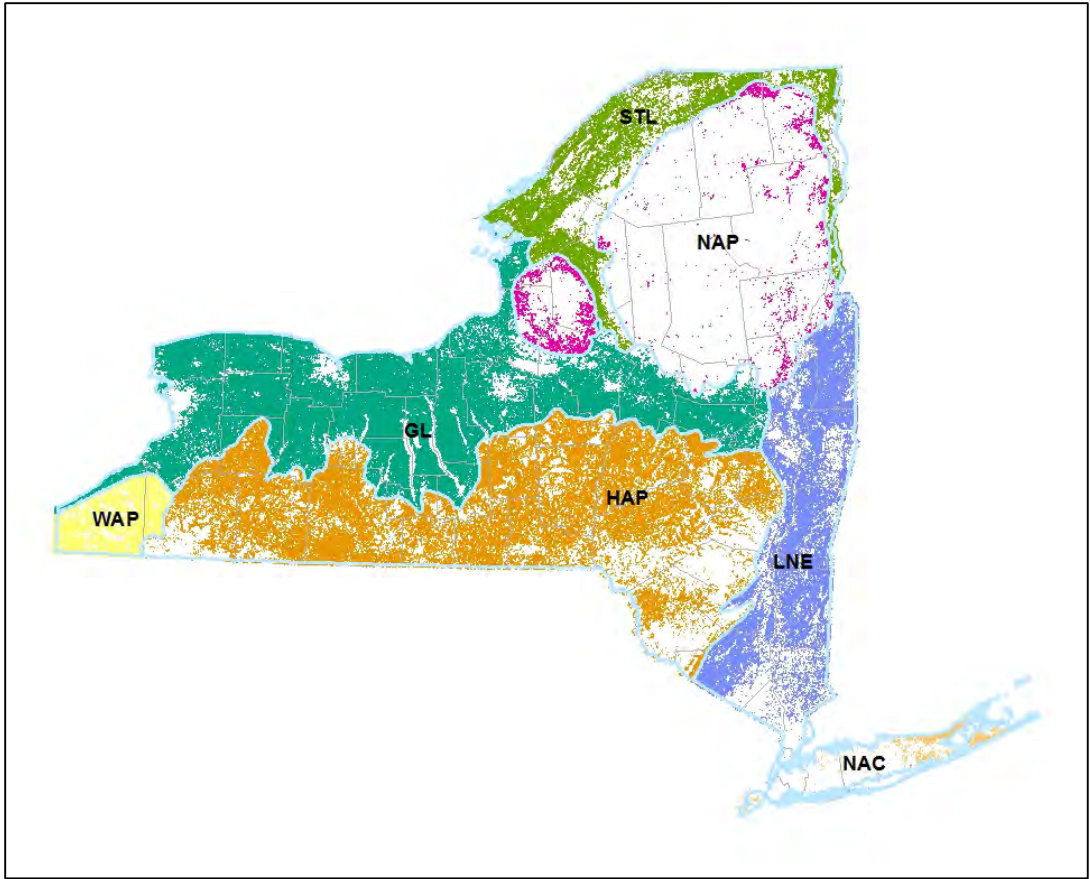


Figure 54. The distribution of the Agricultural Macrogroup throughout New York by ecoregion, as based on the Northeast Terrestrial Habitat Map.

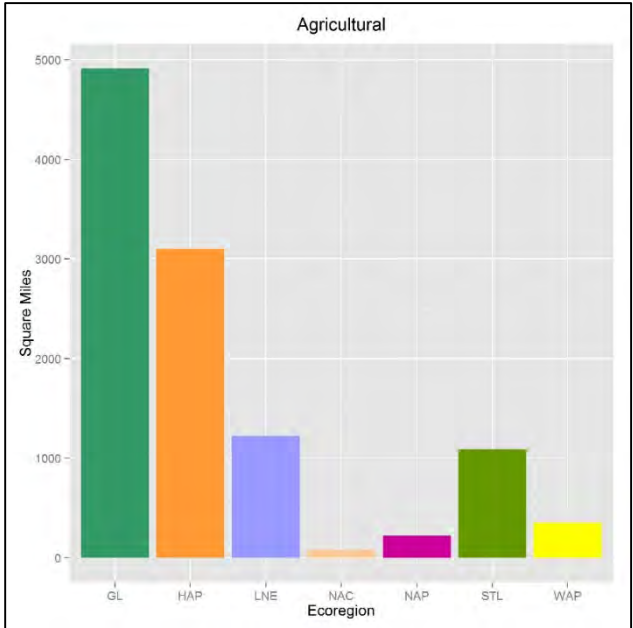


Figure 55. Area distribution of the Agricultural Macrogroup by ecoregion.

## Condition Assessment

Based on LCA and IEI scores, Agricultural areas in the Northern Appalachian/Boreal Forest (NAP) and St. Lawrence/Champlain Valley (STL) ecoregions are predicted to be in a slightly better landscape setting than the state average (Figure 59).

Assessment of the natural condition for this Macrogroup may not be appropriate because it is primarily a cultural type. Cultural Macrogroups are disturbed or artificial types created and maintained by human activities, or modified by human influence to such a degree that the physical structure of the substrate, or species composition are substantially different from the substrate and composition of the site as it existed prior to human influence; non-native species may be dominant.

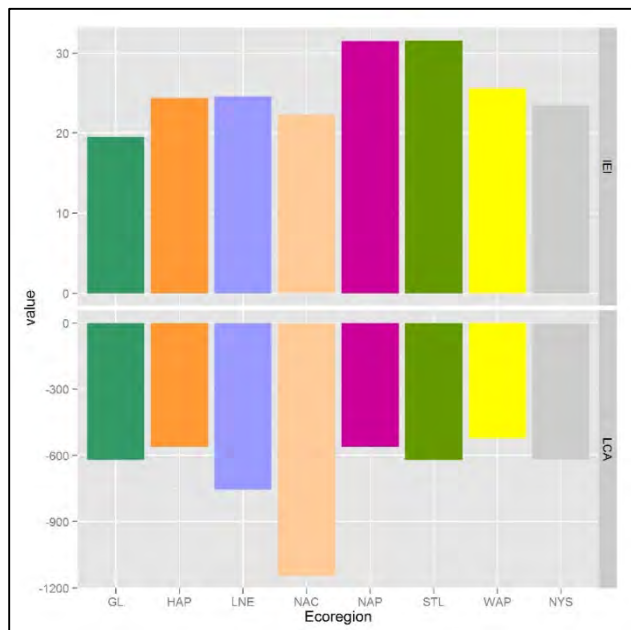


Figure 56. Index of Ecological Integrity score (top) and Landscape Condition Assessment score (bottom) for the Agricultural Macrogroup for each ecoregion and the state (far right).

## Associated SGCN

Thirty-nine SGCN are associated with this Macrogroup (Table 23).

Table 22. SGCN associated with the Agricultural Macrogroup.

Species	Common name	SGCN category	Habitat link
<i>Adalia bipunctata</i>	twospotted lady beetle	2	Cultivated Crops
<i>Anas acuta</i>	Northern Pintail	3	Cultivated Crops
<i>Asio flammeus</i>	Short-eared owl	2	Cultivated Crops
<i>Coccinella novemnotata</i>	ninespotted lady beetle	1	Cultivated Crops
<i>Coccinella transversoguttata</i>	transverse lady beetle	1	Cultivated Crops
<i>Colinus virginianus</i>	Northern bobwhite	2	Cultivated Crops

Species	Common name	SGCN category	Habitat link
<i>Eremophila alpestris</i>	Horned Lark	2	Cultivated Crops
<i>Falco sparverius</i>	American kestrel	3	Cultivated Crops
<i>Glyptemys insculpta</i>	Wood turtle	2	Cultivated Crops
<i>Lanius ludovicianus</i>	Loggerhead shrike	2	Cultivated Crops
<i>Pantherophis alleghaniensis</i>	Eastern ratsnake	3	Cultivated Crops
<i>Pluvialis dominica</i>	American golden-plover	4	Cultivated Crops
<i>Pontia protodice</i>	Checkered white	3	Cultivated Crops
<i>Poocetes gramineus</i>	Vesper sparrow	2	Cultivated Crops
<i>Spiza americana</i>	Dickcissel	4	Cultivated Crops
<i>Sturnella magna</i>	Eastern meadowlark	2	Cultivated Crops
<i>Tryngites subruficollis</i>	Buff-breasted Sandpiper	2	Cultivated Crops
<i>Tyto alba</i>	Barn owl	2	Cultivated Crops
<i>Ammodramus henslowii</i>	Henslow's sparrow	2	Pasture/Hay
<i>Ammodramus savannarum</i>	Grasshopper sparrow	2	Pasture/Hay
<i>Anas acuta</i>	Northern Pintail	3	Pasture/Hay
<i>Apamea inordinata</i>	A noctuid moth	4	Pasture/Hay
<i>Asio flammeus</i>	Short-eared owl	2	Pasture/Hay
<i>Bartramia longicauda</i>	Upland sandpiper	2	Pasture/Hay
<i>Bombus affinis</i>	Rusty-patched Bumble Bee	2	Pasture/Hay
<i>Bombus ashtoni</i>	Ashton's Cuckoo Bumble Bee	1	Pasture/Hay
<i>Bombus auricomus</i>	Black and Gold Bumble Bee	4	Pasture/Hay
<i>Bombus borealis</i>	Northern Amber Bumble Bee	1	Pasture/Hay
<i>Bombus fervidus</i>	Yellow Bumble Bee	2	Pasture/Hay
<i>Bombus pensylvanicus</i>	American Bumble Bee	1	Pasture/Hay
<i>Bombus terricola</i>	Yellow-banded Bumble Bee	1	Pasture/Hay
<i>Bubulcus ibis</i>	Cattle Egret	2	Pasture/Hay
<i>Chordeiles minor</i>	Common nighthawk	2	Pasture/Hay
<i>Circus cyaneus</i>	Northern harrier	3	Pasture/Hay
<i>Cistothorus platensis</i>	Sedge wren	2	Pasture/Hay
<i>Colinus virginianus</i>	Northern bobwhite	2	Pasture/Hay
<i>Dolichonyx oryzivorus</i>	Bobolink	2	Pasture/Hay
<i>Eremophila alpestris</i>	Horned Lark	2	Pasture/Hay
<i>Falco sparverius</i>	American kestrel	3	Pasture/Hay
<i>Glyptemys insculpta</i>	Wood turtle	2	Pasture/Hay
<i>Lanius ludovicianus</i>	Loggerhead shrike	2	Pasture/Hay
<i>Mustela nivalis</i>	Least weasel	4	Pasture/Hay
<i>Numenius phaeopus</i>	Whimbrel	1	Pasture/Hay
<i>Opheodrys vernalis</i>	Smooth greensnake	3	Pasture/Hay
<i>Pantherophis alleghaniensis</i>	Eastern ratsnake	3	Pasture/Hay
<i>Poocetes gramineus</i>	Vesper sparrow	2	Pasture/Hay
<i>Pyrgus wyandot</i>	Southern grizzled skipper	2	Pasture/Hay
<i>Spiza americana</i>	Dickcissel	4	Pasture/Hay

Species	Common name	SGCN category	Habitat link
<i>Sturnella magna</i>	Eastern meadowlark	2	Pasture/Hay
<i>Thamnophis brachystoma</i>	Short-headed gartersnake	3	Pasture/Hay
<i>Tyto alba</i>	Barn owl	2	Pasture/Hay

## ***Maintained Grasses and Mixed Cover***

### **Macrogroup Description**

The Maintained Grasses and Mixed Cover Macrogroup is equivalent to one New York SWAP habitat type described below.

**Urban and Recreational Grasses:** These lands consist of managed vegetation, primarily grass, planted in developed areas such as parks, lawns, golf courses, airports, and industrial areas, for recreation, erosion control, or aesthetics. Impervious surfaces are usually less than 20%.

### **Distribution**

The Maintained Grasses and Mixed Cover Macrogroup occurs in all seven ecoregions in the state based on the Northeast Terrestrial Habitat Map prediction model (Figure 60 and Figure 61). It is most abundant in the Great Lakes Ecoregion (GL) with about 700 square miles predicted followed by the Lower New England/Northern Piedmont Ecoregion (LNE) with almost 600 square miles predicted (Figure 61).



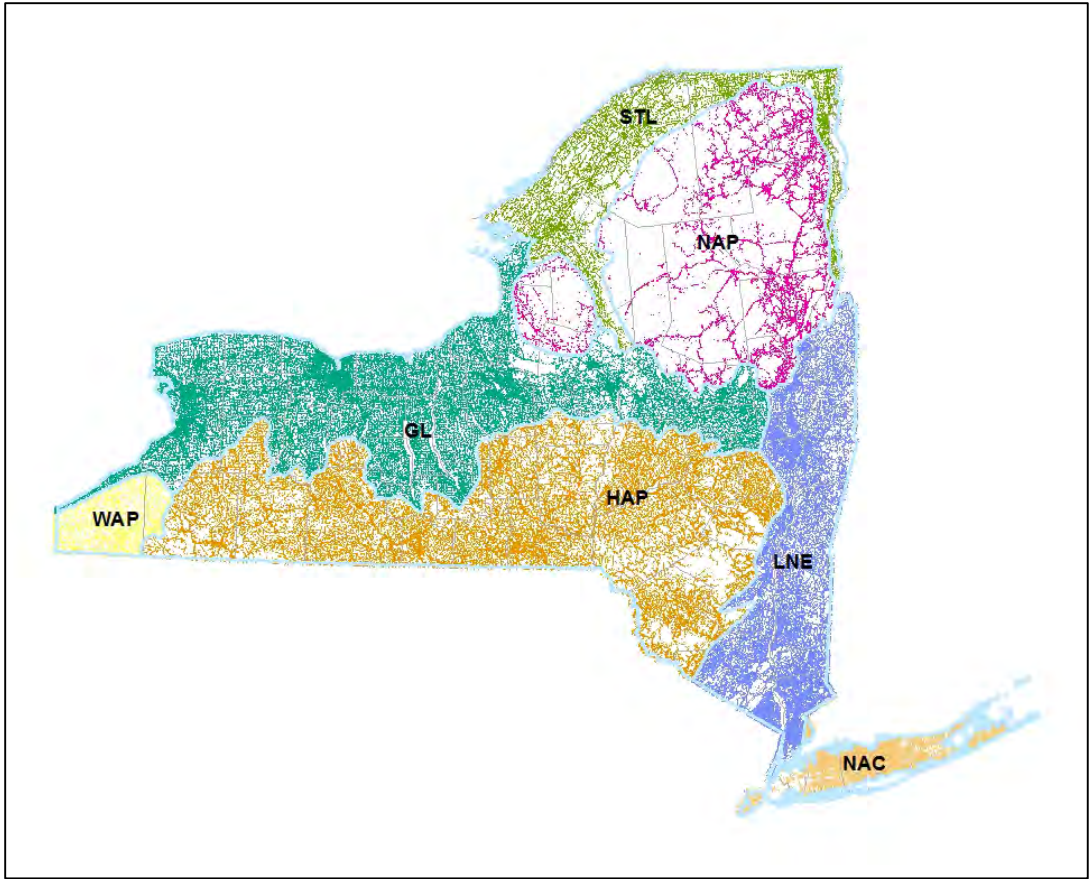


Figure 57. The distribution of the Maintained Grasses and Mixed Cover Macrogroup throughout New York by ecoregion, as based on the Northeast Terrestrial Habitat Map.

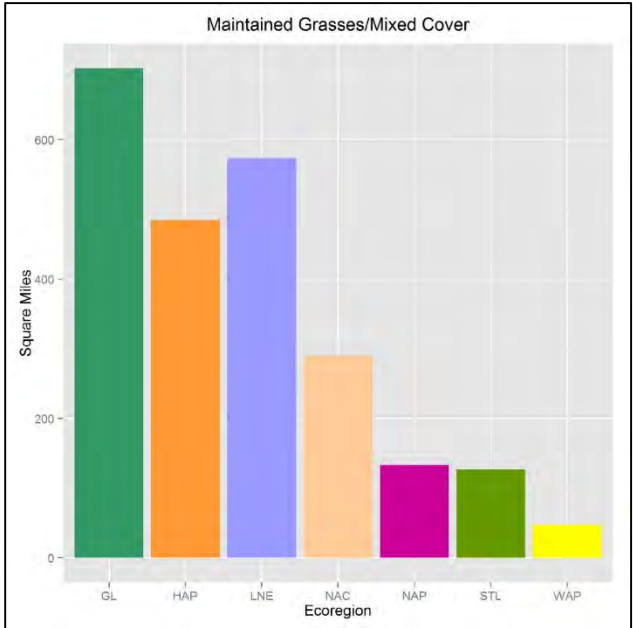


Figure 58. Area distribution of the Maintained Grasses and Mixed Cover Macrogroup by ecoregion.

## Condition Assessment

Based on LCA and IEI scores, Maintained Grasses and Mixed Cover areas in the Northern Appalachian/Boreal Forest (NAP) and High Allegheny Plateau (HAP) ecoregions are predicted to be in a slightly better landscape setting than the state average (Figure 62).

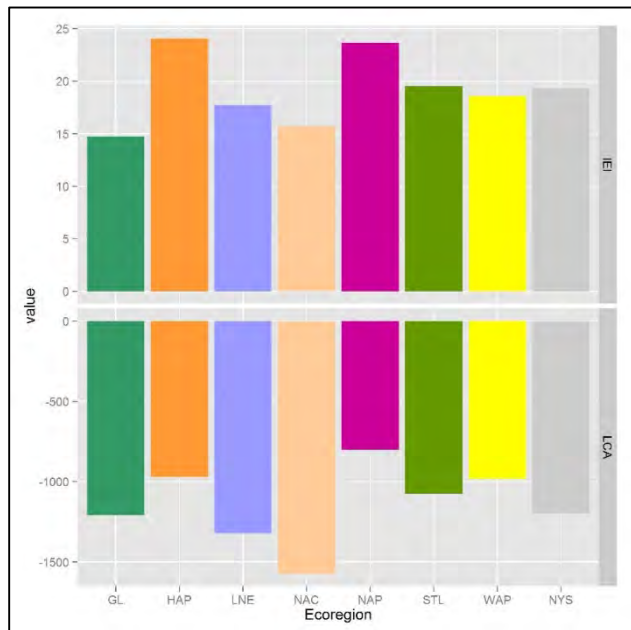


Figure 59. Index of Ecological Integrity score (top) and Landscape Condition Assessment score (bottom) for the Maintained Grasses and Mixed Cover Macrogroup for each ecoregion and the state (far right).

## Associated SGCN

Fifteen SGCN are associated with this Macrogroup (Table 24).

Table 23. SGCN associated with the Maintained Grasses and Mixed Cover Macrogroup.

Species	Common name	SGCN category	Habitat link
<i>Ammodramus savannarum</i>	Grasshopper sparrow	2	Urban and Recreational Grasses
<i>Bartramia longicauda</i>	Upland sandpiper	2	Urban and Recreational Grasses
<i>Bubulcus ibis</i>	Cattle Egret	2	Urban and Recreational Grasses
<i>Eremophila alpestris</i>	Horned Lark	2	Urban and Recreational Grasses
<i>Falco sparverius</i>	American kestrel	3	Urban and Recreational Grasses
<i>Larus thayeri</i>	Thayer's gull	4	Urban and Recreational Grasses
<i>Leucophaeus atricilla</i>	Laughing gull	3	Urban and Recreational Grasses

Species	Common name	SGCN category	Habitat link
<i>Melanerpes erythrocephalus</i>	Red-headed woodpecker	2	Urban and Recreational Grasses
<i>Opheodrys vernalis</i>	Smooth greensnake	3	Urban and Recreational Grasses
<i>Plestiodon anthracinus anthracinus</i>	Northern Coal Skink	3	Urban and Recreational Grasses
<i>Pluvialis dominica</i>	American golden-plover	4	Urban and Recreational Grasses
<i>Pontia protodice</i>	Checkered white	3	Urban and Recreational Grasses
<i>Sturnella magna</i>	Eastern meadowlark	2	Urban and Recreational Grasses
<i>Terrapene carolina carolina</i>	Woodland box turtle	2	Urban and Recreational Grasses
<i>Tryngites subruficollis</i>	Buff-breasted Sandpiper	2	Urban and Recreational Grasses

## ***Urban/Suburban***

### **Macrogroup Description**

The Urban/Suburban Macrogroup includes two New York SWAP habitat types described below.

**Commercial/Industrial and Residential:** This includes developed areas where people reside or work in high numbers (apartment complexes; commercial industrial buildings) and impervious surfaces are more than 80%. It also includes areas with a mixture of constructed materials and vegetation where impervious surfaces account for 15-80%, with lot sizes between 1/4 and 1 acres.

**Residential Rural:** These are sparse residential areas, or single-family housing along rural roadsides, where impervious surfaces are less than 15%; lot sizes are generally larger than 1 acre.

### **Distribution**

Urban/Suburban areas occur in all seven ecoregions in the state based on the Northeast Terrestrial Habitat Map prediction model (Figure 63 and Figure 64). It is most abundant in the North Atlantic Coast Ecoregion (NAC) with about 700 square miles predicted followed by the Great Lakes Ecoregion (GL) with 600 square miles predicted (Figure 64).

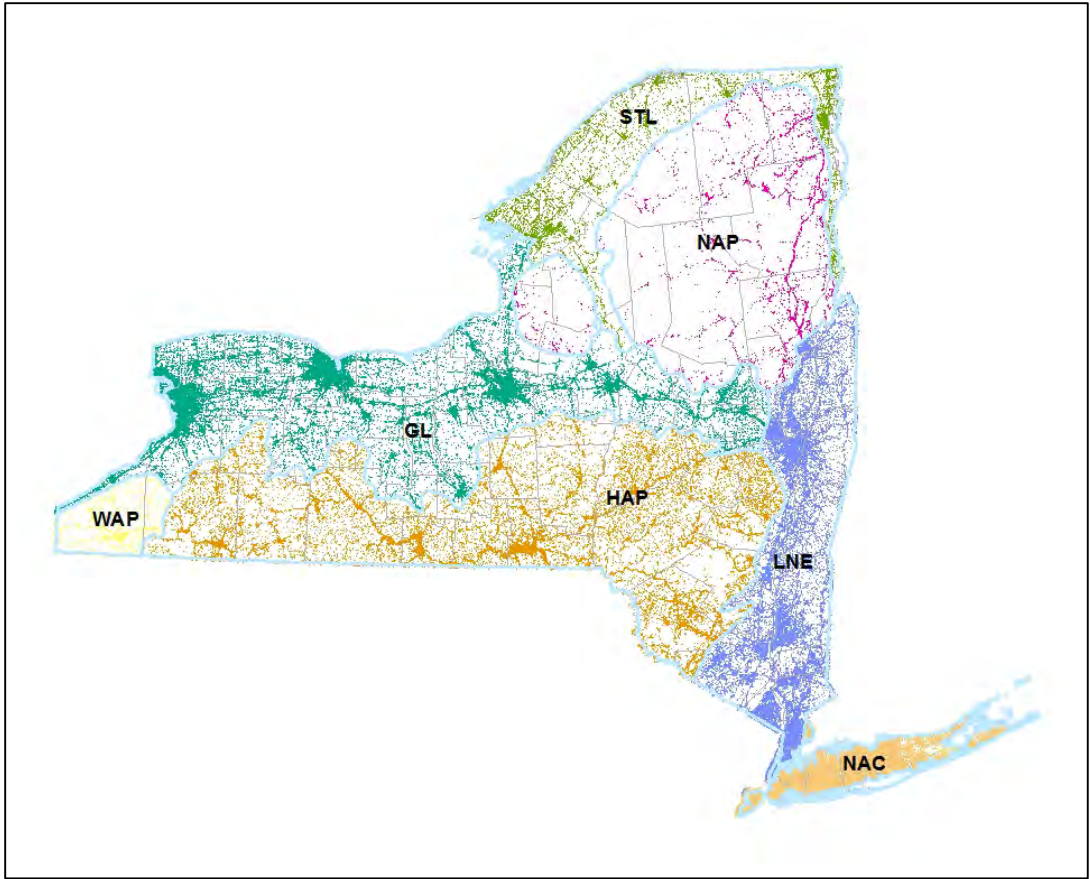


Figure 60. The distribution of the Urban/Suburban Macrogroup throughout New York by ecoregion, as based on the Northeast Terrestrial Habitat Map.

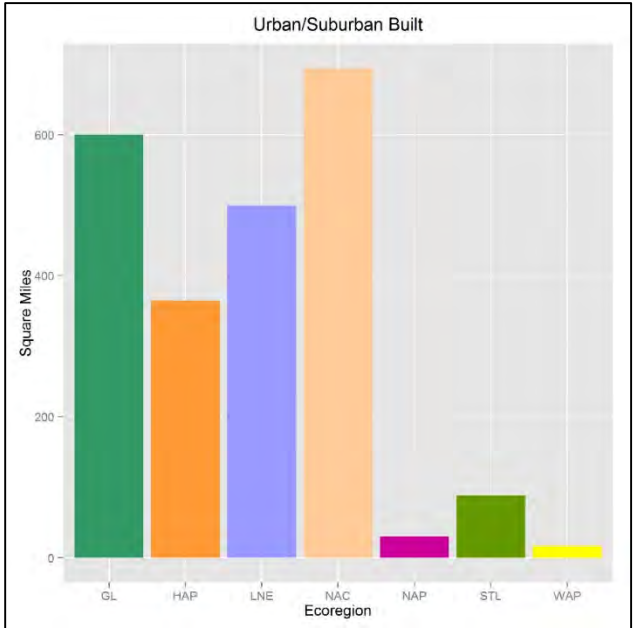


Figure 61. Area distribution of the Urban/Suburban Macrogroup by ecoregion.

## Condition Assessment

Based on LCA and IEI scores, the Urban/Suburban areas in the Northern Appalachian/Boreal Forest Ecoregion (NAP) are predicted to be in a better landscape setting than the state average (Figure 65).

Assessment of the natural condition for this Macrogroup may not be appropriate because it is primarily a cultural type. Cultural Macrogroups are disturbed or artificial types created and maintained by human activities, or modified by human influence to such a degree that the physical structure of the substrate, or species composition are substantially different from the substrate and composition of the site as it existed prior to human influence; non-native species may be dominant.

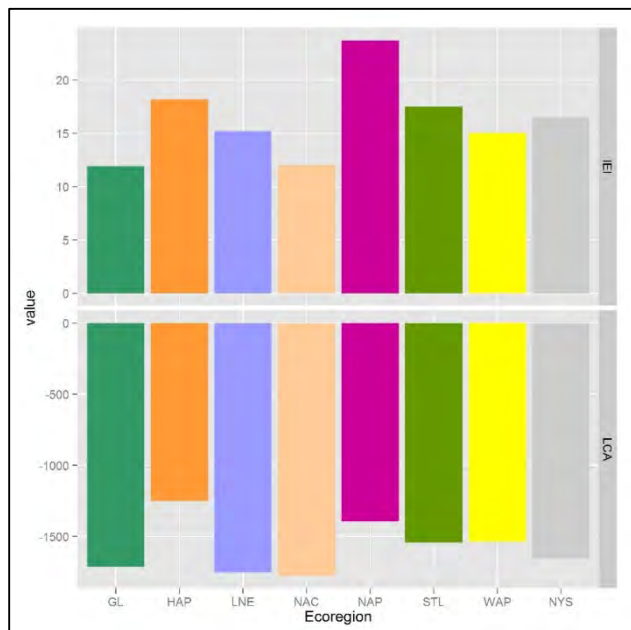


Figure 62. Index of Ecological Integrity score (top) and Landscape Condition Assessment score (bottom) for the Urban/Suburban Macrogroup for each ecoregion and the state (far right).

## Associated SGCN

Twelve SGCN are associated with this Macrogroup (Table 25).

Table 24. SGCN associated with the Urban/Suburban Macrogroup.

Species	Common name	SGCN category	Habitat link
<i>Chordeiles minor</i>	Common nighthawk	2	Commercial/Industrial and Residential
<i>Coccinella trifasciata</i>	three-banded lady beetle	2	Commercial/Industrial and Residential
<i>Falco peregrinus</i>	Peregrine falcon	3	Commercial/Industrial and Residential
<i>Myotis lucifugus</i>	Little brown myotis	2	Commercial/Industrial and Residential

Species	Common name	SGCN category	Habitat link
<i>Perimyotis subflavus</i>	Eastern pipistrelle	1	Commercial/Industrial and Residential
<i>Adalia bipunctata</i>	twospotted lady beetle	2	Developed; Urban/Suburban
<i>Agkistrodon contortrix mokasen</i>	Northern copperhead	3	Residential Rural
<i>Chlosyne gorgone</i>	Gorgone checkerspot	4	Residential Rural
<i>Crotalus horridus</i>	Timber rattlesnake	2	Residential Rural
<i>Falco sparverius</i>	American kestrel	3	Residential Rural
<i>Hylocichla mustelina</i>	Wood thrush	3	Residential Rural
<i>Pantherophis alleghaniensis</i>	Eastern ratsnake	3	Residential Rural
<i>Thamnophis brachystoma</i>	Short-headed gartersnake	3	Residential Rural

## ***Subterranean***

### **Macrogroup Description**

The Subterranean Macrogroup is equivalent to one New York SWAP habitat type described below.

**Caves and Tunnels:** These include both natural caves and abandoned mines.

### **Distribution**

The Subterranean Macrogroup probably occurs throughout the state except for the North Atlantic Coast Ecoregion (NAC). This type is not included in the Map of Terrestrial Habitats of the Northeastern United States.

### **Condition Assessment**

The condition of this Macrogroup could not be assessed because this type is not included in the Map of Terrestrial Habitats of the Northeastern United States. Subterranean types cannot readily be detected using aerial remote sensing tools commonly used for terrestrial habitats.

Based on NY Natural Heritage Program Element Occurrence Ranks of various cave communities (New York Natural Heritage Program 2015) the best examples include the following:

Aquatic cave community: Burroughs Cave in the Vanderwhacker Mountain Wild Forest (NAP).

Ice cave talus community: Moss Lake Mountain in the Fulton Chain Wild Forest (NAP), Shingle Gully in Minnewaska State Park (HAP), and Peekamoose Gorge in Sundown Wild Forest in the Catskills (HAP).

Talus cave community: Moss Lake Mountain in the Fulton Chain Wild Forest (NAP) and Wallface Mountain in the High Peaks Wilderness (NAP).

Terrestrial cave community: Burroughs Cave in the Vanderwhacker Mountain Wild Forest (NAP) and Norton Range Cave in the Chazy Highlands Wild Forest (NAP).

Assessment of the natural condition for mines and artificial subterranean habitats may not be appropriate because they are primarily cultural types. Cultural subterranean habitats are artificial underground structures or cavities that are either created and maintained by human activities, or are modified by human influence to such a degree that the physical structure, hydrology, and species composition are substantially different from the structure, hydrology, and species composition of the site as it existed prior to human influence.

## Associated SGCN

Eight SGCN are associated with this Macrogroup (Table 26).

Table 25. SGCN associated with the Subterranean Macrogroup.

Species	Common name	SGCN category	Habitat link
<i>Agkistrodon contortrix mokasen</i>	Northern copperhead	3	Caves and Tunnels
<i>Myotis leibii</i>	Small-footed myotis	3	Caves and Tunnels
<i>Myotis lucifugus</i>	Little brown myotis	2	Caves and Tunnels
<i>Myotis septentrionalis</i>	Northern myotis	1	Caves and Tunnels
<i>Myotis sodalis</i>	Indiana myotis	2	Caves and Tunnels
<i>Neotoma magister</i>	Allegheny woodrat	2	Caves and Tunnels
<i>Perimyotis subflavus</i>	Eastern pipistrelle	1	Caves and Tunnels
<i>Stygobromus tenuis tenuis</i>	Piedmont groundwater amphipod	4	Caves and Tunnels

## *Extractive*

### Macrogroup Description

The Extractive Macrogroup is equivalent to one New York SWAP habitat type described below.

**Surface Mining:** Surface mining operations for sand, gravel, rock, etc.

### Distribution

Extractive areas occur in all seven ecoregions in the state based on the Northeast Terrestrial Habitat Map prediction model (Figure 66 and Figure 67). It is most abundant in the North Atlantic Coast Ecoregion (NAC) with almost 40 square miles predicted followed by the Great Lakes Ecoregion (GL) with almost 30 square miles predicted (Figure 67).

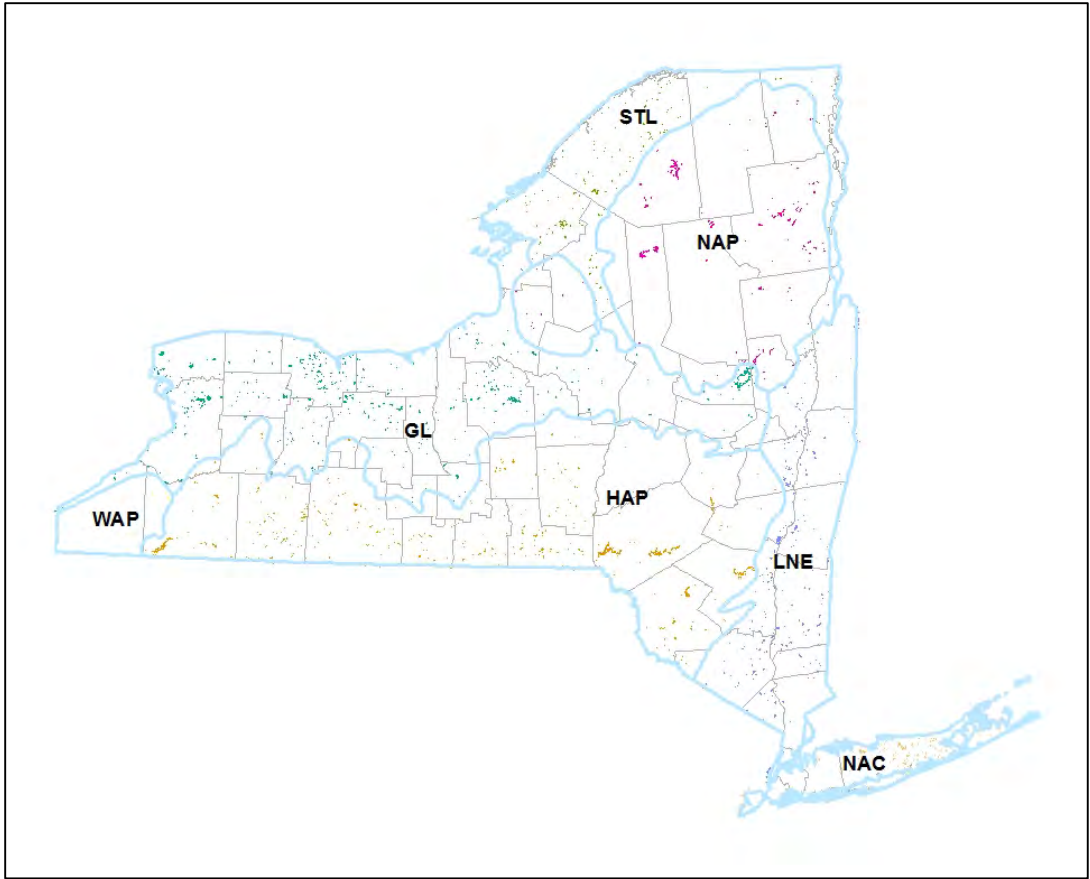


Figure 63. The distribution of the Extractive Macrogroup throughout New York by ecoregion, as based on the Northeast Terrestrial Habitat Map.

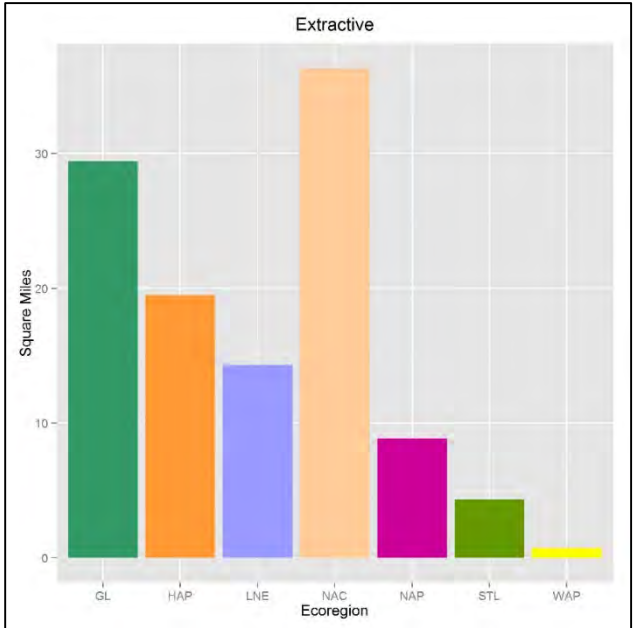


Figure 64. Area distribution of the Extractive Macrogroup by ecoregion.



## Condition Assessment

Based on LCA and IEI scores, the Extractive areas are predicted to be in a better landscape setting than the state average in the Northern Appalachian/Boreal Forest (NAP) and Western Allegheny Plateau (WAP) ecoregions (Figure 33).

Assessment of the natural condition for this Macrogroup may not be appropriate because it is primarily a cultural type. Cultural Macrogroups are disturbed or artificial types created and maintained by human activities, or modified by human influence to such a degree that the physical structure of the substrate, or species composition are substantially different from the substrate and composition of the site as it existed prior to human influence; non-native species may be dominant.

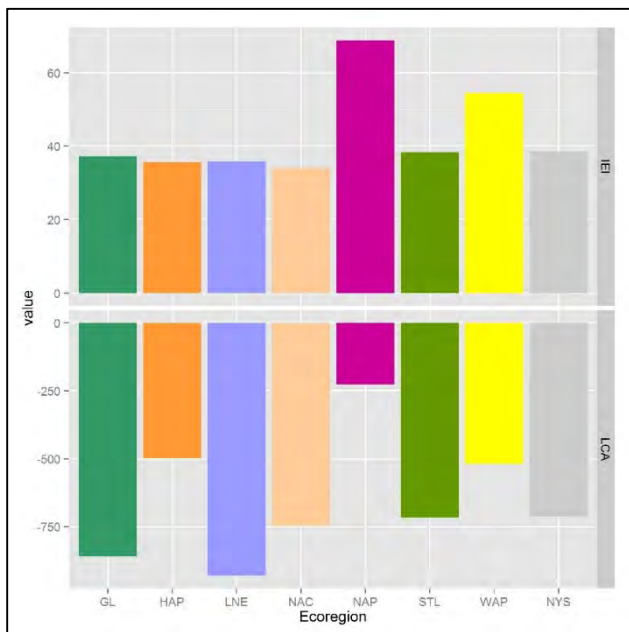


Figure 65. Index of Ecological Integrity score (top) and Landscape Condition Assessment score (bottom) for the Extractive Macrogroup for each ecoregion and the state (far right).

## Associated SGCN

Three SGCN are associated with this Macrogroup (Table 27).

Table 26. SGCN associated with the Extractive Macrogroup.

Species	Common name	SGCN category	Habitat link
<i>Agkistrodon contortrix mokasen</i>	Northern copperhead	3	Surface Mining
<i>Neotoma magister</i>	Allegheny woodrat	2	Surface Mining
<i>Plestiodon anthracinus anthracinus</i>	Northern Coal Skink	3	Surface Mining