

HIGHEST RANKED WILDLIFE HABITAT BY ECOLOGICAL CONDITION
New Hampshire Fish and Game Department February 2007.

Information about habitat condition was analyzed to develop a statewide and regional ranking and identify the highest condition habitat relative to all polygons of a given habitat type in the state. The goal is to provide regional planners and conservation professionals a tool in identifying the most critical wildlife habitat locations. Results will be re-evaluated in the future to monitor the effectiveness of conservation actions and respond appropriately to new information or changing conditions. The overall condition of each polygon was assigned a relative rank based on all polygons of a habitat type that occur in NH.

Tier 1 Habitats of Highest Relative Rank by Ecological Condition in NH

Tier 2 Habitats of Highest Relative Rank by Ecological Condition in Biological Region

Tier 3 Supporting Landscapes

| HABITAT | TIER | FACTOR | LEVEL |
|---------------------------|------|--------|--|
| Matrix Forests | 1 | COND2 | Top 15% in NH by area |
| | 2 | COND2 | Top 15% in Subsection by area |
| | 3 | COND2 | Top 30% in Subsection by area |
| Pine Barrens | 1 | COND1 | Top 10% in NH by area |
| | 2 | COND1 | Top 50% in Subsection by area |
| Rocky Ridges/Talus Slopes | 1 | COND1 | Top 10% in NH by area |
| | 2 | COND1 | Top 50% in Subsection by area |
| Cliffs | 1 | COND1 | Top 10% in NH by quantity |
| | 2 | COND1 | Top 50% in Subsection by quantity |
| Grassland 25+ acres | 1 | COND1 | Top 10% in NH by area |
| | 2 | COND1 | Top 50% in Subsection by area |
| Wet Meadow/Shrub Wetland | 1 | COND2 | Top 10% in NH by area |
| | 2 | COND2 | Top 50% in Watershed Group by area |
| Peatland | 1 | COND2 | Top 10% in NH by area |
| | 2 | COND2 | Top 50% in Watershed Group by area |
| Floodplain Forest | 1 | COND2 | Top 10% in NH by area |
| | 2 | 100% | Top 100% in Watershed Group by area |
| Watersheds (HUC12s) | 1 | COND2 | Top 15% in Watershed Group by area (entire HUC12 watershed) |
| | 2 | COND2 | Top 30% in Watershed Group by area (100m buffer of water bodies in these HUC12) |
| Lakes/Ponds | 1 | | TNC's Top 10 most intact lakes, by lake class (including a 200m buffer of these lakes) |
| Saltmarsh | 1 | 100% | 100% |
| Coastal Islands | 1 | 100% | 100% |
| Dunes | 1 | 100% | 100% |
| Alpine | 1 | 100% | 100% |
| TNC top forest blocks | 3 | | TNC forest blocks top-ranked in ELU Group and/or Ecoregion Subsection |
| Aquatic features | 1-3 | | S1,S2,WAP level 1-4 Species, other occurrences (100m buffer of water bodies) |
| Animal occurrences | 1-3 | | S1,S2,WAP level 1-4 Species, other occurrences |
| Ecological features (NHB) | 1-3 | | Important ecological areas per NHB not overlapping a Tier 1 or 2 habitat polygon |

The overall condition of each habitat polygon was assigned a relative rank based on all polygons of a given habitat type that occur in New Hampshire. Generally, condition is based on:

- 1.) landscape diversity (biological)
- 2.) landscape integrity (landscape)
- 3.) minimum human influence (human)
- 4.) documented rare wildlife (NH Fish & Game Department)
and significant ecological features (NH Natural Heritage Bureau)

The first three factors were equally weighted for the fewest assumptions. However, we couldn't afford errors for specialist species with imperiled populations, so a select set of wildlife Element Occurrences were used either to elevate underlying habitat polygons to the top rank (highest ranked in NH), or where the EOs only overlaid a matrix forest then a buffered location of the occurrence was added to the highest ranked habitat in NH. The same was done for significant ecological features identified by NH Natural Heritage Bureau. Both additions are incorporated in the WAPTIRS data layer.

NOTES:

- 1.) Rare animal, rare plant and natural communities attributes assigned by NH Natural Heritage Bureau (2005).
- 2.) Digital data describing atmospheric deposition of mercury were provided by Ecosystems Research Group, Ltd using the methods described in Miller et al. (2005). Digital data describing the risk of calcium and other base cation depletion and limitation in forested ecosystems provided by Ecosystems Research Group, Ltd. using methods described in Miller (2005).
- 3.) Wind power spatial data were provided by Massachusetts Technology Collaborative (2003). Developed by TrueWind Solutions, LLC under contract to AWS Scientific, Inc. as part of a project jointly funded by the Connecticut Clean Energy Fund, Mass. Technology Collaborative, and Northeast Utilities System.
- 4.) Integrated Fragmentation Effects Surface spatial data provided by The Nature Conservancy, NH (2005).
- 5.) Draft vertebrate distributions in 1993 VT/NH Gap Analysis (report 2001). University of Vermont (2005).
- 6.) Dams and drawdown spatial data provided by NH Dept. of Environmental Services (2005).
- 7.) Wetland permits 2000-2004 spatial data provided by NHDES Wetlands Bureau (2005).
- 8.) Hiking trails spatial data provided by Appalachian Mountain Club, 2005.
- 9.) Timber harvest identified from 1992 and 1998 USGS orthophotos, data provided by Univ. of Vermont, 2005.
- 10.) NHDOT roads spatial data obtained from GRANIT (www.granit.sr.unh.edu) at Complex Systems Research Center, University of New Hampshire. Accessed in 2005.

Please refer to WAP habitat land cover spatial data notes and metadata for complete source information.

Aquatic features and Animal occurrences:

Animal occurrence records were extracted from the NH Natural Heritage Inventory database and overlaid on the WAP habitat polygons.

Criteria used to select species:

- imperiled
- limited populations known or likely to occur
- isolated or restricted in NH
- point specific sensitive information
- provides critical habitat for state's population

Selected Element Occurrences (1985-to-current and excluding "general" precision) included:

- WAP Level 1-4 species identified in the preliminary risk groups
- S1 species State-ranked "critically imperiled"
- S2 species State-ranked "imperiled"
- Peregrine nest EOs
- Bald eagle nesting and wintering habitat - known and potential
- Known bat hibernacula, and small-footed bat EOs
- Supporting habitat of sensitive snake EOs
- Karner blue butterfly, persius duskywing skipper, pine barrens zanc., pine pinion moth, frosted elfin were used to elevate PINE BARREN habitat
- Cobblestone tiger beetle, American brook lamprey, and round whitefish EOs were used to elevate AQUATIC habitat
- Northern harrier, upland sandpiper, grasshopper sparrow EOs were used to elevate GRASSLAND habitat
- New England cottontail (with 1km buffer), Eastern hognose snake (with 1km buffer), marbled salamander (historic EOs), Blanding's turtle, spotted turtle, wood turtle, pied-billed grebe, common nighthawk (non-urban EOs), whip-poor-will, common loon, and northern leopard frog

The EO features listed above were used to elevate the underlying non-matrix forest habitat polygons to Tier 1. If the EO only overlapped a matrix forest habitat polygon, then a buffer was applied to the EO feature before scoring it and adding it to the WAPTIERs data layer.

NHB Additions to habitat polygons:

NH Natural Heritage Bureau provided spatial data identifying NHB-priority sites not covered by habitat polygons meeting "highest quality" tiers based on condition filters. Where NHB additions overlapped non-matrix habitat polygons, the entire polygon was elevated (if necessary) to Tier 1 or Tier 2 (according to NHB specification). Where NHB additions overlapped a matrix forest, the feature was buffered before scoring it and adding it to the WAPTIERs data layer.