# New Hampshire Fish & Game Department
# Spatial Data Notes

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|---|---|
| **DATA LAYER:** | Grasslands habitat of New Hampshire |
| **COVER NAME:** | grasslands25 |
| **COVER CONTENTS:** | Grassland habitat polygons greater than 25 acres in size |
| **COVER TYPE:** | Poly |
| **SOURCE:** | 2001 NH Land Cover Data |
| **SOURCE SCALE:** | 30-meter |
| **SOURCE MEDIA:** | digital |
| **COORDINATE SYSTEM:** | NH Stateplane feet, horizontal datum NAD1983 |
| **TILE:** | State |
| **AUTOMATED BY:** | NH Fish & Game Department |
| **STATUS:** | Complete |
| **LAST REVISION:** | May 2005; attributes revised April 2006; metadata revised June 2006 |

## General Description of the Data

- Development of this coverage provides general grasslands habitat locations within the state of New Hampshire. Analysis was completed for incorporation into the New Hampshire Wildlife Action Plan. Funding for the Plan was provided by State Wildlife Grants administered by the US Fish & Wildlife Service.

- Agricultural land cover was selected from the 2001 NH Land Cover Assessment data (provided by GRANIT at Complex Systems Research Center, UNH). The raster was then expanded across roads (such that agricultural land cover split by a road became a contiguous area). The cleared/other open land cover class, if immediately adjacent to agriculture, was then added. The resulting raster was then converted to polygons, retaining only those areas of at least 25 acres.

### Item definitions for GRASSLANDS25 polygon attributes:

| ITEM NAME | WDTH | TYPE | N.DEC | DESCRIPTION |
|---|---|---|---|---|
| FGID | 5 | I | 0 | (*unique, sequential ID number*) |
| COUNTY | 20 | C | 0 | Name of NH county in which polygon is located |
| AREA_FEET | 8 | F | 3 | area (square feet) calculated by software |
| PERIMETER | 8 | F | 3 | perimeter length (feet) calculated by software |
| ACRES | 8 | N | 1 | area (acres) |
| HECTARES | 8 | N | 2 | area (hectares) |
| LANDHA | 8 | N | 2 | land area (hectares) |
| LANDSQKM | 8 | N | 2 | land area (square kilometers) |
| GOLFCOURSE | 1 | C | 0 | Y = polygon is contiguous with a golf course |
| AIRPORT | 1 | C | 0 | Y = polygon represents an airport feature |
| DOTROADKM | 8 | N | 2 | Km of all NHDOT roads |
| DENSROADS | 5 | N | 2 | Density of all DOT roads (km/km2) |
| DOTMAJORKM | 8 | N | 2 | Km of all state and town roads |
| DENSMAJOR | 5 | N | 2 | Density of all state and town roads |
| DISTROUTE | 8 | I | 0 | Distance to nearest route (meters) |
| DOTMINORKM | 8 | N | 2 | Km of all unmaintained roads and private roads |
| DENSMINOR | 5 | N | 2 | Density of unmaintained and private roads |
| DISTROAD | 8 | I | 0 | Distance to nearest road (meters) |
| CONSFO | 8 | N | 2 | Area in conservation/fee ownership (hectares) |
| CONSFO_PCT | 5 | N | 1 | Percent in conservation/fee ownership |
| CONSCE | 8 | N | 2 | Area in conservation/easement or other (ha) |
| CONSCE_PCT | 5 | N | 1 | Percent in conservation/easement or other |

**ITEM DEFINITIONS FOR INFO FILE: GRASSLANDS25 (continued)**

| ITEM NAME | WDTH | TYPE | N.DEC | DESCRIPTION |
|---|---|---|---|---|
| CONSHA | 8 | N | 2 | Area in conservation (ha) |
| CONS_PCT | 5 | N | 1 | Percent in conservation |
| GAP123HA | 8 | N | 2 | Area in conservation GAP management status 1, 2, 3 (TNC 2005) |
| GAP123PCT | 5 | N | 1 | % in conservation GAP mgt status 1, 2 or 3 (TNC 2005) |
| BUILDHA | 8 | N | 2 | Buildable area (hectares) |
| CONSTRNDHA | 8 | N | 2 | Buildable with constraints (ha) |
| BUILDPCT | 5 | N | 1 | Percent of area that is buildable (incl constrained) |
| NREL4HA | 8 | N | 2 | Natl' Renewable Energy Laboratory wind power class 4 |
| NREL4PCT | 5 | N | 1 | hectares and percent (commercial turbine potential) |
| NREL2HA | 8 | N | 2 | Natl' Renewable Energy Laboratory wind power class 2 |
| NREL2PCT | 5 | N | 1 | hectares and percent (small turbine potential) |
| NREL4DIST | 5 | N | 1 | Distance to nearest NREL class4 of 4+ acres in size (m) |
| TOWERCNT | 3 | I | 0 | Number of communication towers in the unit |
| TOWERHT | 3 | I | 0 | Max height of communication towers in the unit |
| TOWERDIST | 8 | I | 0 | Distance to nearest communication tower (m) |
| HIKEKM | 8 | N | 1 | Total length of hiking trails in the unit (km) |
| HIKEDENS | 5 | N | 2 | Density of hiking trails in the unit (km/km2) |
| DISTHIKE | 8 | I | 0 | Distance to nearest hiking trail (meters) |
| TRANSKM | 8 | N | 1 | Total length of power transmission lines |
| TRANSDENS | 5 | N | 2 | Density of power transmission lines (km/km2) |
| DISTTRANS | 8 | I | 0 | Distance to nearest power transmission line or pipeline (m) |
| RAILKM | 8 | N | 1 | Total length of active and abandoned railroad (km) |
| RAILDENS | 5 | N | 2 | Density of railroad (km/km2) |
| DISTRAIL | 8 | I | 0 | Distance to nearest railroad (meters) |
| ELU30VAR | 3 | I | 0 | Variety of Ecological Land Units (ELU30 = elevation, substrate, landform) |
| AREA_M2 | 8 | N | 1 | Total area (square meters) |
| PERIM_M | 8 | N | 1 | Total perimeter (meters) |
| NEARDIST | 8 | I | 0 | Distance to nearest neighboring grassland polygon (meters) |
| NEAR_FGID | 4 | I | 0 | ID of nearest neighbor |
| NEARSTATE | 2 | C | 0 | State in which nearest neighbor is located |
| NEARANIMAL | 8 | I | 0 | Dist. to nearest neighbor with grassland animal species present |
| SHAPEINDEX | 5 | N | 1 | Shape index (1=square) |
| A_RICH_BUF | 3 | I | 0 | Species richness of rare animals within their dispersal distances from the polygon |
| A_SF_BUF | 3 | I | 0 | Number of source features of rare animals within their dispersal distances from the polygon |
| A_SHAN_BUF | 3 | N | 3 | Shannon diversity index of rare animal source features within their dispersal distances from the polygon |
| A_RICH_POL | 3 | I | 0 | Species richness of rare animals within polygon |
| A_SF_POLY | 3 | I | 0 | Number of source features of rare animals within polygon |
| A_SHAN_POL | 3 | N | 3 | Shannon diversity index of rare animal source features in poly |
| P_RICH_BUF | 3 | I | 0 | Species richness of rare plants within 1km of polygon |
| P_SF_BUF | 3 | I | 0 | Number of source features of rare plants within 1km of polygon |
| P_SHAN_BUF | 3 | N | 3 | Shannon diversity index of rare plant source features within 1km |
| P_COND_BUF | 2 | C | 0 | Average rank of rare plant source features within 1km of polygon |
| P_DISP_BUF | 3 | N | 3 | Dispersal of rare plant source features within 1km of polygon |
| P_RICH_POL | 3 | I | 0 | Species richness of rare plants in polygon |
| P_SF_POLY | 3 | I | 0 | Number of source features of rare plants in polygon |
| P_SHAN_POL | 3 | N | 3 | Shannon diversity index of rare plant source features in polygon |
| C_RICH_BUF | 3 | I | 0 | Richness of rare and exemplary natural communities within 1km |
| C_SF_BUF | 3 | I | 0 | Number of source features of rare and exemplary natural communities within 1km of polygon |
| C_COND_BUF | 2 | C | 0 | Average rank of rare and exemplary natural community source features within 1km of polygon |

**ITEM DEFINITIONS FOR INFO FILE: GRASSLANDS25 (continued)**

| ITEM NAME | WDTH | TYPE | N.DEC | DESCRIPTION |
|---|---|---|---|---|
| C_AREA_BUF | 3 | N | 3 | Percent of area within 1km of polygon that is rare or exemplary natural community |
| C_AREA_POL | 6 | N | 3 | Percent of polygon that is rare or exemplary natural community |
| C_RICH_POL | 3 | I | 0 | Richness of rare and exemplary natural communities in polygon |
| C_SF_POLY | 3 | I | 0 | Number of source features of rare and exemplary natural communities in polygon |
| UNFRAGAC | 12 | N | 2 | Unfragmented acres (NHFG coarse filter wildlife habitat analysis) |
| UNFRAGHA | 12 | N | 2 | Unfragmented hectares (NHFG coarse filter analysis, 2005) |
| UNFRAGPCT | 5 | N | 1 | Percent unfragmented (NHFG coarse filter analysis, 2005) |
| IFESMEAN | 2 | I | 0 | Mean Integrated Fragmentation Effects score (Zankel, 2005) |
| POP90X00 | 8 | I | 0 | Change in population 1990 to 2000 |
| POPDENSX | 8 | I | 0 | Change in population density 1990 to 2000 |
| POP00SQMI | 8 | I | 0 | Population density in 2000 (persons per square mile) |
| HOUSES00 | 8 | I | 0 | Housing units in 2000 (total count) |
| HU00SQMI | 8 | I | 0 | Housing units density in 2000 (houses per square mile) |
| WET_PCT | 5 | N | 1 | Percent wetland (National Wetlands Inventory) |
| HAB | 8 | C | 0 | Habitat name (abbrv) |
| BIO | 8 | N | 2 | Raw biological score (high score = high quality) |
| LAND | 8 | N | 2 | Raw landscape score (high score = high quality) |
| HUMAN | 8 | N | 2 | Raw human impact score (high score = low impact) |
| COND | 8 | N | 3 | Raw habitat condition score (high score = good condition) |
| DEV | 8 | N | 3 | Raw development risk (high score = high risk) |
| RISK | 8 | N | 3 | Raw risk score (high score = high risk) |
| SUBBIO | 3 | I | 0 | Subsection biological rank (high rank = high quality) |
| SUBLAND | 3 | I | 0 | Subsection landscape rank (high rank = high quality) |
| SUBHUMN | 3 | I | 0 | Subsection human impact rank (high rank = low impact) |
| SUBCOND | 3 | I | 0 | Subsection habitat condition rank (high rank = good condition) |
| SUBDEV | 3 | I | 0 | Subsection development risk (high rank = high risk) |
| SUBRISK | 3 | I | 0 | Subsection risk rank (high rank = high risk) |
| NHBIO | 3 | I | 0 | Statewide biological rank (high rank = high quality) |
| NHLAND | 3 | I | 0 | Statewide landscape rank (high rank = high quality) |
| NHHUMN | 3 | I | 0 | Statewide human impact rank (high rank = low impact) |
| NHCOND | 3 | I | 0 | Statewide habitat condition rank (high rank = good condition) |
| NHDEV | 3 | I | 0 | Statewide development risk rank (high rank = high risk) |
| NHRISK | 3 | I | 0 | Statewide risk rank (high rank = high risk) |
| PRIORITY | 50 | C | 0 | WAP Priority |
| ECOSUB | 40 | C | 0 | Ecoregional subsection |

**NOTES:**

BIO1 Condition score =
($A\_RICH\_BUFF_R$*.25) + ($A\_RICH\_POL_R$*.25) + ($P\_RICH\_POL_R$*.25) + ($C\_RICH\_POL_R$*.25)
where all biological variables are positive indicators of biological quality and subscript R denotes percentile rank, thus “good” sites score high (maximum percentile rank=100) and “poor” sites score low (minimum percentile rank=0).

LAND1 Condition score = ($HECTARES_R$*.34) + ($PROXINDEX_R$*.33) + ($WETPCT_R$*.33)
where all landscape variables are positive indicators of landscape integrity and subscript R denotes percentile rank, thus “good” sites score high (maximum percentile rank=100) and “poor” sites score low (minimum percentile rank=0).

HUMAN1 Condition = ($IFESMEAN_R$*.5) + ($HU00SQMI_R$*.5)
where deleterious human impact variables have been transformed so that all variables are positive indicators of ecological integrity and subscript R denotes percentile rank, thus “good” sites score high (maximum percentile rank=100) and “poor” sites score low (minimum percentile rank=0).

COND1 The condition index = (BIO1+LAND1+HUMAN1)/3 as defined above

The list above represents the complete set of attributes developed for the WAP habitat data layer. Only select attributes are distributed in the public release version WAP data layers. For more information, please contact the NH Fish and Game Department, Wildlife Division, 11 Hazen Dr, Concord NH 03301 Phone: (603) 271-2461 E-mail: wilddiv@wildlife.state.nh.us

**LITERATURE CITED:**

Complex Systems Research Center. 2001. *New Hampshire land cover assessment – 2001*. 30m raster data. Available from GRANIT,University of New Hampshire. Accessed September 2003.

The Nature Conservancy (J. Tollefson). 2005. GAP Status Assessment of NH Conservation Lands. Unpublished report to the NH Fish and Game Department.

Wind power raster data provided by Massachusetts Technology Collaborative (data finalized June 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.

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