FOREST DELINEATION
TOWN OF NORTH HAMPTON, NH
PROJECT REPORT

Introduction:

The Conservation Commission for the town of North Hampton requested a review of its undeveloped land. Specifically, the Town desired a baseline evaluation of total forest area (i.e. acreage) with the species variety (e.g. deciduous, coniferous, mixed, etc.) depicted based on recently captured aerial imagery. This information is to serve as a benchmark for comparison with future land use assessments, specifically relating to increased development.

Method:

For a town-wide forest area assessment, the most efficient method was to use ESRI GIS software for identification and mapping of land cover using 2010, 1 foot, 4-band color aerial photography available from NH GRANIT.   A visual assessment of the land cover was followed by a manual delineation of the undeveloped areas using the software features into the following categories: coniferous, deciduous, mixed, field, wetland, water and development. The rules of the classification are below:

- Coniferous - > 75% softwood forest species
- Deciduous - >75% hardwood forest species
- Mixed - <75% hardwood or softwood forest and >25% forested
- Field - >75% open grass/field
- Wetland – visibly vegetated with water saturated soil
- Water – open water with no vegetation
- Development – roads, structures, small lawns, cemeteries, etc.

For the purposes of this project, an area had a minimum mapping unit of 0.25 acre (i.e. anything smaller in size was not classified differently than its neighboring polygon). As with any aerial photointerpretation, a great deal of classification depends upon determinations made by the operator. To improve consistency, several assumptions were made through the course of land cover delineation:

- Wetlands were classified as a single type, regardless of salt or fresh water.
- Proximity to other habitat was considered when determining whether a large, residential lawn was closer to development or field. The proximity of other habitats was also considered when reviewing other imprecise situations (e.g. small, backyard tree stands).
- For lawns/fields where objects such as fences, horse jumps, etc. could be seen, they were classified as developed as they are unlikely to provide suitable habitat.
- As wetlands are often difficult to identify from photographs (given they can be forested), the National Wetlands Inventory (NWI) layer (2001 by the US Fish and Wildlife Service available from NH GRANIT) was used to assist in the identification of wetland areas. Therefore, although an area may be forested, if the NWI layer indicated it was a wetland and there was visible water patterning, it was classified as such.
- The area under large power lines was considered field.

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Results:

From this delineation, a landcover type map layer of North Hampton was created and each land cover classification area was calculated. This map was provided in shapefile format to the Rockingham Planning Commission to allow for future overlay, analysis and map production. The resulting landcover classification area totals was:

Type	Acres	Total % Landcover
Coniferous	1,265.38	14%
Deciduous	455.12	5%
Field	431.87	5%
Mixed	943.03	11%
Water	16.81	0%
Wetland	2,737.01	31%
Developed	3,073.58	34%
Total Area	8,922.80	100%

Discussion:

As can be seen in the above table, wetlands account for nearly half (47%) of undeveloped land. However, a wetland may also have characteristics of other landcover types. For instance, a wetland may contain many coniferous species, but, because of the abundance of visible water (or due to a NWI classification), it was classified as a wetland. Although all categorized as wetland, the areas themselves may be very diverse in structure and vegetation.

Forested land accounted for 30% of North Hampton's total acreage and 46% of its undeveloped space, while fields accounted for 5% of the town's total acreage. As of 2010 when the aerial imagery was flown, a total of 34% of North Hampton's acreage could be classified as developed with 66% remaining largely undeveloped.