



New Hampshire View Executive Summary

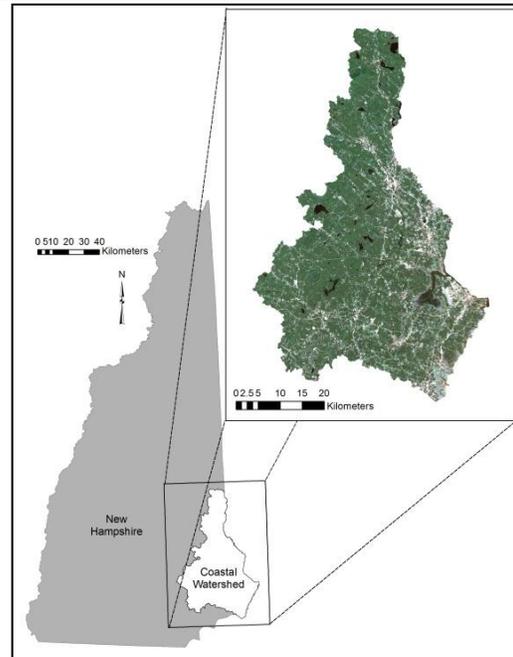


Remote Sensing Resources for New Hampshire

Promoting the Benefits of Remote Sensing Data and Applications

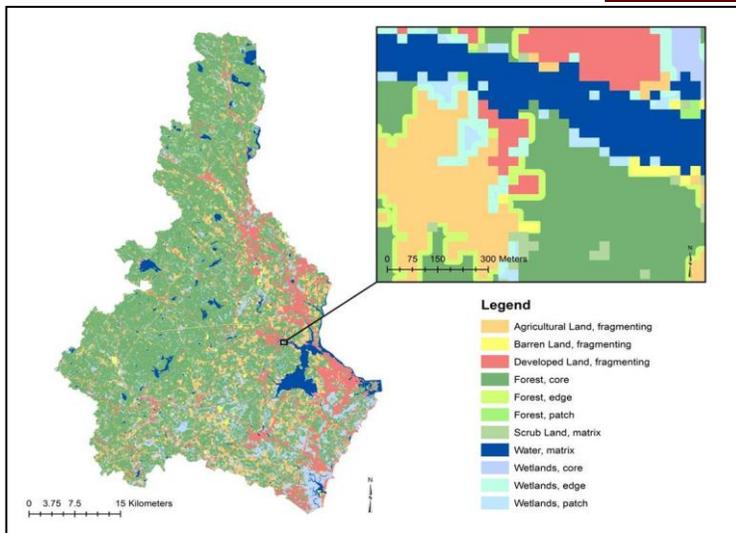
Land Cover Change Detection and Landscape Fragmentation Analysis in the Coastal Watershed of New Hampshire

Landsat Thematic Mapper (TM) satellite imagery was used to create land cover maps of the Coastal Watershed of New Hampshire every three years from 1986-2010. Traditional pixel-based image analysis techniques were compared to new object-based methods. Also, a single date of imagery was compared to using multiple dates of imagery for a single year. A quantitative accuracy assessment was performed and the most accurate maps selected for further analysis. These maps were then used to investigate change in land cover type over this 24 year period. In addition to the change detection, a fragmentation analysis was performed for each map. Fragmentation occurs when a uniform land cover area is split into different parts by some other cover type (e.g., a forest being divided by an agricultural field). A new software program called PolyFrag was developed to conduct the fragmentation analysis.



Project study area including a Landsat Thematic Mapper image showing the extent of the Coastal Watershed.

Benefits of application(s) to New Hampshire



Fragmentation analysis of the Coastal Watershed with the insert showing the detailed results.

A great deal of money has been spent by the federal government and private sector on satellite-based earth observing systems since the early 1970's. In response to this investment, the research community has developed practical applications for mapping, monitoring, and managing natural and environmental resources. The potential of remote sensing technologies has been widely recognized over the years, yet the distribution of real-world applications has and continues to be problematic. The New Hampshire View consortium works to bridge the gap between the research and application communities in NH.

Change detection is extremely useful for monitoring land cover change and investigating the impacts of our management decisions on the environment. Our new software program, PolyFrag, developed to perform the fragmentation analysis will allow policy and decision makers more insight into the impacts of urban development and habitat loss on the landscape.

New Hampshire View is a member of the AmericaView Consortium, a nationally coordinated network of academic, agency, non-profit, and industry partners and cooperators that share the vision of promoting and supporting the use of remote sensing data and technology within each state.



AmericaView Web Site: www.americaview.org

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Other New Hampshire View Activies

Education / Outreach:

- Guest Lectures on Remote Sensing & Geospatial Technologies
- Presentations at AmericaView, American Society for Photogrammetry and Remote Sensing (ASPRS), and other conferences
- Workshops taught on Accuracy Assessment and Object-Oriented Image Classification at ASPRS conferences
- NHView Director Congalton honored with Estes Memorial Teaching Award (ASPRS)

Applied Research:

- Supported 2 Undergraduate Research Internships & 1 Graduate Student
- Accuracy Assessment Tools on NHView website

Data Provision / Support:

- Supports faculty by sharing software licenses and survey-grade GPS units
- Geospatial data and remotely sensed imagery archived by our partners



New Hampshire View Director Russ Congalton was awarded the 2012 Estes Memorial Teaching Award by ASPRS in honor of his commitment to teaching geospatial technologies.

New Hampshire View provides a means to bring many groups that use remotely sensed imagery and other geospatial data together in a formal way to aid communication and the pooling of resources. In addition, the consortium provides a single point of access for anyone in the state needing imagery or wishing to learn more about geospatial technology resources within New Hampshire. For its members, the consortium provides networking and collaboration infrastructure, educational support and outreach.



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StateView Partners / Cooperators

Department of Natural Resources & the Environment, UNH

The Basic and Applied Spatial Analysis Lab (BASAL) for basic research on spatial data uncertainty/map accuracy and applied research applying the tools of remote sensing, GIS, and spatial data analysis to solving natural resource problems.

NH GLOBE Partnership, UNH

Carries out GLOBE teacher training in the areas of atmosphere, land cover, hydrology, soil and earth system science data collection and analysis with a focus on land cover mapping and geospatial technologies.

EOS-WEBSTER, UNH

A digital library of Earth science data that serves scientists, educators and the general public.

NH GRANIT, UNH

A cooperative project to create, maintain, and make available a statewide geographic data base serving the information needs of state, regional, and local decision-makers.

Civil Technology Program, UNH

The Thompson School of Applied Sciences provides a 2-year Associates Degree in the geospatial technologies.

Diamond Library, UNH

The library maintains an extensive map and aerial photo collection for NH.

Forest Watch, UNH

A New England-wide environmental education activity using field, laboratory, and satellite data analysis methods for assessing the state-of-health of local forest stands.

Cooperative Extension, UNH

Offers a series of short courses in geospatial technologies including GIS, GPS, and field mapping.

Dartmouth College

Department of Geography and others

NH Planning Commissions

NH GIS Conservation Collaborative

NH Fish and Game Department