

Natural Services Network: A Guide for Users

What is a natural service?

The natural world provides the foundation for human health and economic vitality. Natural systems store floodwaters, cleanse air and water, maintain productive soils, support wildlife, recycle wastes, moderate temperature extremes, and more. **The free benefits provided by nature are called *natural services*.**

What is the Natural Services Network?

The New Hampshire Natural Services Network is a GIS-based tool identifying lands that provide important ecological services that are difficult and expensive to replicate. Loss of these services affects human health, safety, quality of life, and economic opportunity. Created by a collaborative of planning and natural resource professionals, the Natural Services Network can be configured for use at multiple scales (municipal, regional, state) and adapted to incorporate additional data, such as resources of local importance.

What does the Network consist of?

After much deliberation, the Natural Services Network development team decided that base maps would consist of four components: **water supply lands, flood storage lands, productive soils, and important wildlife habitat.**

- **Water supply lands** include highly transmissive aquifers identified by the US Geological Survey and favorable gravel well sites identified by the NH Department of Environmental Services.
- **Flood storage lands** include 100-year floodplains identified by FEMA and lacustrine (associated with lakes), riverine (associated with rivers), and palustrine (other non-tidal) wetlands identified by the USFWS National Wetlands Inventory.
- **Productive soils** include prime farmland and farmland of statewide importance identified by the Natural Resource Conservation Service.
- **Important wildlife habitat** includes habitat of statewide priority and habitat of ecoregional priority identified by the NH Fish & Game Department Wildlife Action Plan.

How can the Network help my town or organization?

1. Helps individual jurisdictions understand their natural assets in a regional context.
2. Provides a framework for open space planning at the regional or municipal scale.
3. Fosters collaboration across political boundaries to protect essential ecological services.
4. Provides a rational nexus for zoning districts or overlays.

What about existing plans and data?

The Network shows the most critical land for ecological functions, but towns or conservation groups may add to it based on local priorities and considerations. Once you have acquired the base maps or data layers for your area of interest, you can add layers from your own data sources or from those available at the GRANIT web site (see below). This will create a map customized to your situation. Possible layers to add include:

- **Local priorities for protection**
Many towns and conservation organizations have identified desirable parcels for protection. These may have high priority because of their habitat value, connectivity to protected land, aesthetic value, or availability
- **Developed land**
Some areas of the NSN in your region of interest may already have been developed. You can use the developed land overlay to identify potential problem areas. Flood storage lands continue to function regardless of development, as people with flooded homes know all too well. Developed areas of water supply lands may lead to groundwater contamination and reduced recharge. In some cases, development may have seriously degraded the quality of important wildlife habitats, and revisions to the NSN may be appropriate to eliminate these areas.
- **Protected land**
A valuable exercise is to find out which parts, if any, of your area's NSN are actually protected. Examples of protection include conservation easement or ownership, drinking water supply designation, and park status (where more than 50% remains undeveloped, not for recreation). Not all protection is permanent; for example, the water supply company could build a treatment plant and sell off all its holdings. Knowing the protection status of your area's NSN will help you make well-informed decisions about further protection strategies.

For the most up-to-date protected land data layers, you may need to contact a variety of groups: GRANIT, local boards, the Regional Planning Commission – this layer is notoriously difficult to keep current. You should review the data layer for accuracy before using it.

- **Wildlife habitat: Supporting landscape**
Supporting landscape includes areas of wildlife habitat that were not ranked in the highest condition categories for their ecoregion or the state. Despite their lower condition ranking, these areas support numerous wildlife species and provide buffers between high condition areas and human activities. Data is available with the rest of the Wildlife Action Plan.
- **Information from Natural Resource Inventories:**
A Natural Resource Inventory may include areas of historical and cultural resources, recreational and scenic resources, rare plant and animal habitats, exemplary natural communities, and important resources for wildlife, such as

vernal pools, deer wintering areas, and mast stands that you wish to include as an overlay.

How is the Network different from an Open Space Plan or a Natural Resource Inventory?

The Natural Services Network is a GIS-based tool that shows where critical natural services occur on the landscape. A Natural Resources Inventory (NRI) is a comprehensive document that compiles and describes information about the natural resources of a specific area. An NRI typically includes a descriptive report as well as maps and associated data. An Open Space Plan is a municipal document that provides guidance for land protection efforts based on citizen priorities and potential opportunities for acquisition. The Natural Services Network can provide useful information for the development of both Natural Resource Inventories and Open Space Plans. Conversely, spatial information from a Natural Resource Inventory or Open Space Plan can be overlaid on the Natural Services Network to create a customized and comprehensive planning tool for a region or municipality.

Who created the Natural Services Network?

Many organizations and agencies worked together to develop the NSN:

- Audubon Society of New Hampshire
- Central New Hampshire Regional Planning Commission
- Nashua Regional Planning Commission
- NH Department of Environmental Services
- NH Department of Transportation
- NH Fish & Game Department
- NH State Conservation Committee
- Rockingham Planning Commission
- Society for the Protection of New Hampshire Forests
- Southern New Hampshire Planning Commission
- The Jordan Institute
- The Nature Conservancy
- University of New Hampshire Complex Systems Research Center.

The NH Department of Transportation provided initial funding for development of the Natural Services Network. This project was also supported by funds from the sale of the Conservation License Plates (Moose Plates) under the NH State Conservation Committee grant program.

Countless hours of volunteer effort went into the Natural Services Network as well. The Jordan Institute and NH Audubon extend much gratitude to those who assisted in its development, including staff from the organizations listed above. The NSN has become a robust, valuable tool because of their expertise and generosity.

How can I access Natural Services Network data and maps?

The NSN data set is available through the GRANIT web site, a system that provides access to New Hampshire's geographic information system (GIS) data. From granit.sr.unh.edu, follow links to find and download the NSN composite using the keyword "NSN." Many of the data layers that were used to construct the NSN are also available directly through GRANIT.

If you do not know how to use GIS data or don't have access to GIS software, such as ArcGIS, several other resources are available to you. Staff from each Regional Planning Commission understand the Natural Services Network and may make it available to towns by request. Also, for a small fee, the New Hampshire Audubon Society will create one or more maps of your region of interest and provide them to you in .pdf or paper format.

For more information

Contact Carol R. Foss, Senior Integrative Ecologist, or Vanessa Jones, GIS Specialist, New Hampshire Audubon, 3 Silk Farm Road, Concord, NH 03303; 603-224-9909; cfoss@nhaudubon.org, vjones@nhaudubon.org.

Natural Services Network: Components and Data Sources

Flood Storage	Water Protection	Productive Soils	Wildlife Habitat
Floodplain Maps (FEMA)	Favorable gravel wells (DES)	Prime farmland (NRCS)	Statewide priority (NHFG)
National Wetlands Inventory (USFWS)	Highly transmissive aquifers (USGS)	Soils of statewide importance (NRCS)	Ecoregional priority (NHFG)

Examples of Strategic Overlays

- Local open space priorities
- Developed land
- Protected land
- Steep slopes
- Vernal pools
- Existing farms