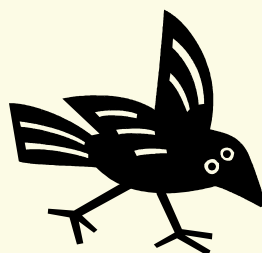


Mason's Natural Resources

A Natural Resources Inventory

Mason Conservation Commission
October 2018





Presentation Outline

- Background about NRIs in general, and about this NRI in particular
- Overview of resources described in this NRI
 - Wildlife habitat
 - Water
 - Soils
 - Forestry and (other) agriculture
 - Conserved land
- These topics are not mutually exclusive



What is an NRI?

- It's an **accounting** of a town's natural resources.
- It's "...an **index** of all open space and natural, aesthetic or ecological areas within the city or town..." —RSA 36-A:2
- It covers the usual things (water, wildlife and wildlife habitat, forests, etc.) and naturally-created "intangibles" like views and recreational opportunities.



Why Create an NRI?

- Because it's required by law:
[The conservation commission] shall keep an index of all open space and natural, aesthetic or ecological areas within the city or town...
—RSA 36-A:2
- Because it's supports Town conservation goals...



NRI Project Goals

Mason's Master Plan articulates Town conservation goals:

- **Invest in protecting large tracts of land** for wildlife habitat and water quality.
- **Create a conservation plan** to guide public policy regarding development and conservation.
- **Protect water** resources and supplies.
- **Encourage the use of conservation easements** with landowners to protect high priority lands.
- **Educate each other** about land and limitations inherent in the land, and the impact that development has on land and water quality.



Project Goals

The CC developed its own set of goals:

- **Write management plans** for town land holdings.
- **Raise public awareness** of conservation topics and issues.
- **Set priorities for land protection:**
 - **Identify best open space** for protection in town, and in subdivisions.
 - **Evaluate potential land purchases** & easements.
- **Make objective decisions** about land use.



Our Approach (in 2012)

- Form a subcommittee (Bob D. chair).
- Rely on volunteer labor
 - Current CC members have necessary skills.
 - Paid contractors are very expensive.
 - About 1,000 hours of work for V1.0. Now (2018) about 1,200 hours with updates.
- Focus on maps with text interpretation.
- Use freely available public data (GRANIT, MassGIS, NRPC) augmented with local knowledge.



NRI Summary

- What's In This NRI?
 - A set of five maps (plus parcel overlay)
 - An associated document describing Mason's resources

The next several slides provide an overview of NRI content, and call out some particularly important or unique aspects...



An Introduction to Mason's NRI

The written report divides content into general categories of resource

1. Protected Land
2. Wildlife and Wildlife Habitat
3. Water
4. Soils
5. Forestry and Agriculture
6. Trails and Recreation



For this talk...

...I'll changed things a little bit:

1. Wildlife and Wildlife Habitat
2. Water
3. Forestry (& Soils)
4. Agriculture (& Soils)
5. Protected Land + Trails and Recreation



An Introduction to the Maps

Conservation Land

Scale and
Technical Info

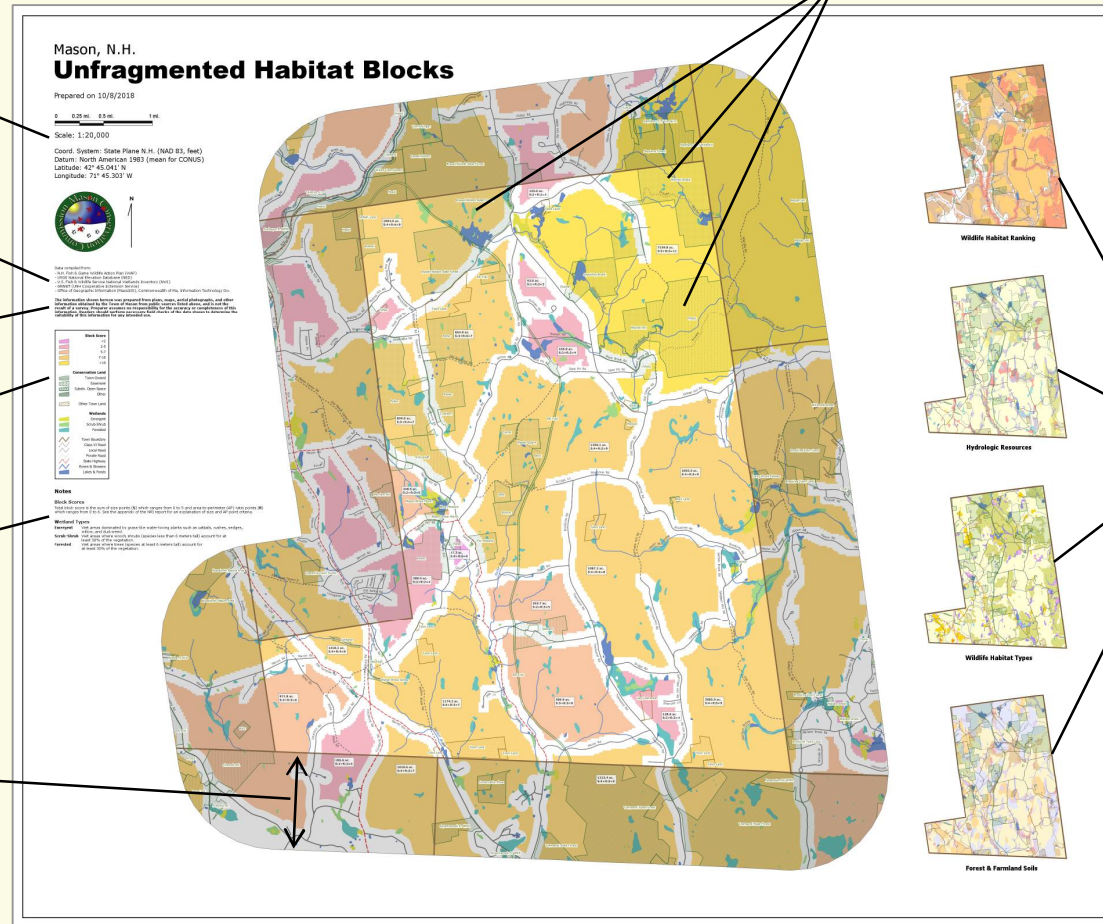
Data Sources

Disclaimer

Legend

Notes

One-Mile Buffer



Reference
Maps



In Introduction to the Maps

The NRI includes five maps:

- Wildlife Habitat Types
- Unfragmented Habitat Blocks
- Wildlife Habitat Rank
- Hydrologic Resources
- Forest and Agricultural Soils

Why These Five?

- Partly because that's the relevant data that's available
- Partly because physical and aesthetic constraints limit how much can be shown on one map
- Mostly it's a judgement call





In Introduction to the Maps

Are other data available? Are other maps possible?

Yes

- Soil data for the entire town
- More-detailed farmland soil data
- Buildings, power lines, and other infrastructure
- Contour lines and relief shading
- Aerial photographs
- And more

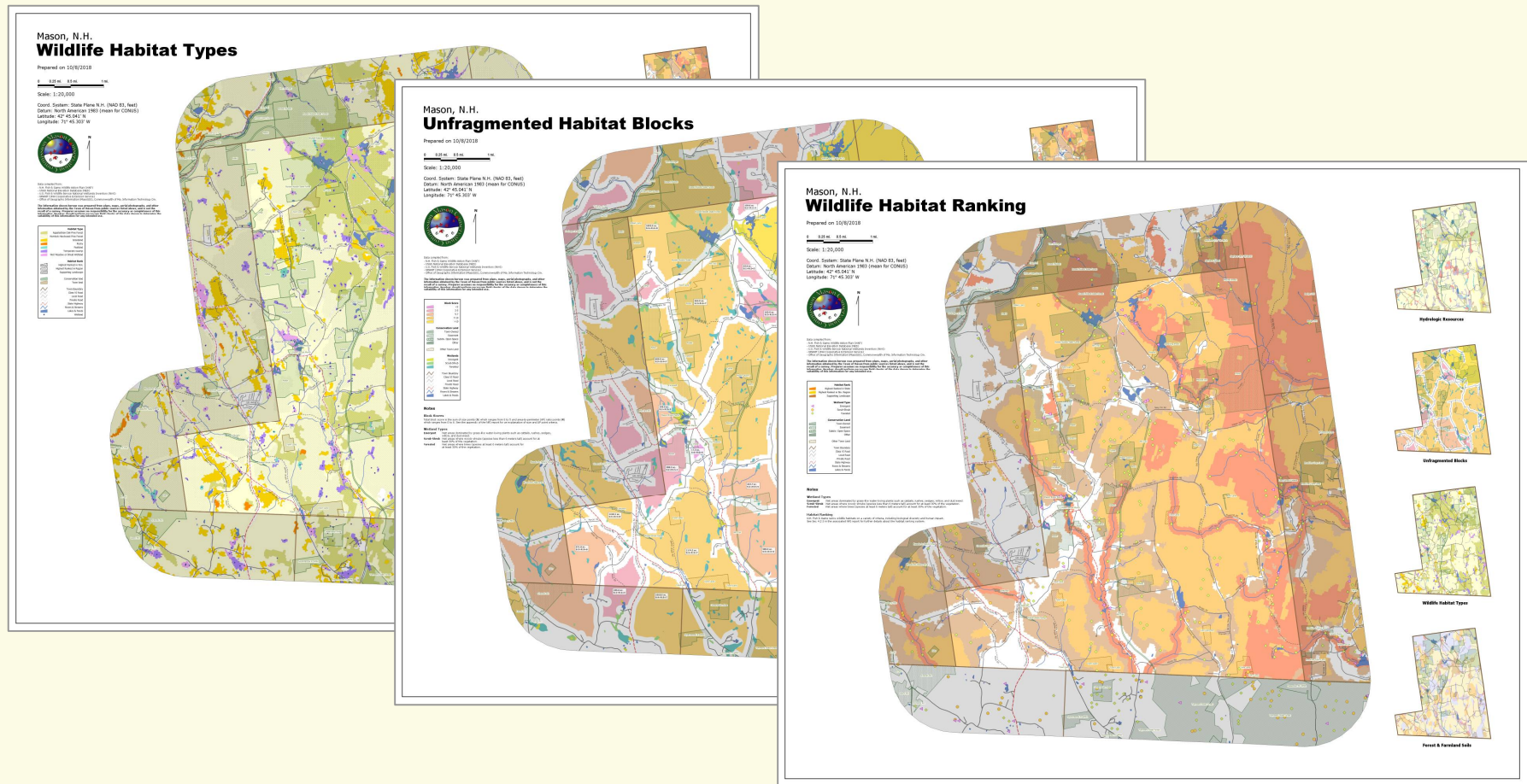
If something's missing you think is important, ask.





Wildlife Habitat

Key Maps



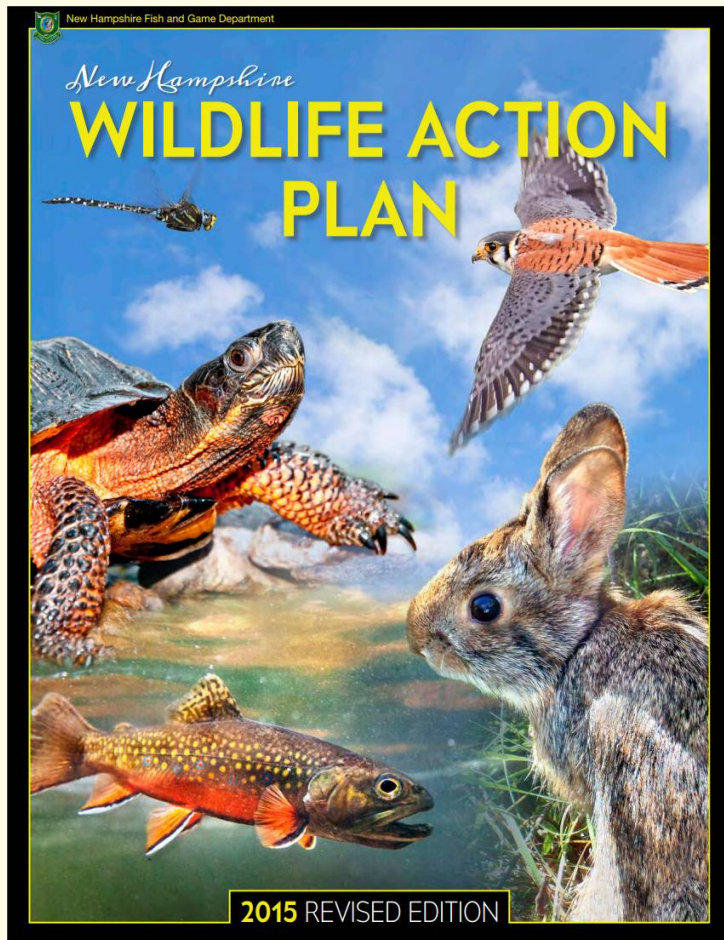


Wildlife Habitat Types

- Different animal species depend on different combinations of natural resources for food, breeding, etc.
- Knowledge of habitat types lets us
 - Manage existing conservation land for particular species
 - Target future conservation efforts for species of interest.
- “Management” might mean encouraging or it might mean protecting.



Wildlife Habitat Types



Habitat types for N.H. are described in the New Hampshire Wildlife Action Plan (NHWAP) available on-line at:

<https://www.wildlife.state.nh.us/wildlife/wap.html>





Unfragmented Habitat Blocks

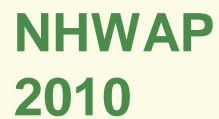
- Paved roads divide a land area into a mosaic of regions called “unfragmented habitat blocks.”
- The term “unfragmented” here simply means “no paved road”.
- Many animal species require large areas of uninterrupted habitat for feeding and breeding.
- Large areas also provide wildlife a refuge from human activity.





Wildlife Habitat Ranking

- Habitats of the same type vary in quality
 - Size, shape, slope
 - Water
 - Connections to other areas and/or habitats
 - Human impact (roads, chemical use, fragmentation)
- Quality of a particular patch of habitat can inform management decisions



Wildlife Habitat Ranking

0 0.25 ml. 0.5 ml. 1 ml.

Scale: 1:20,000

Coord. System: State Plane N.H. (NAD 83, feet)
Datum: North American 1983 (mean for CONUS)
Latitude: 42° 45.041' N
Longitude: 71° 45.303' W

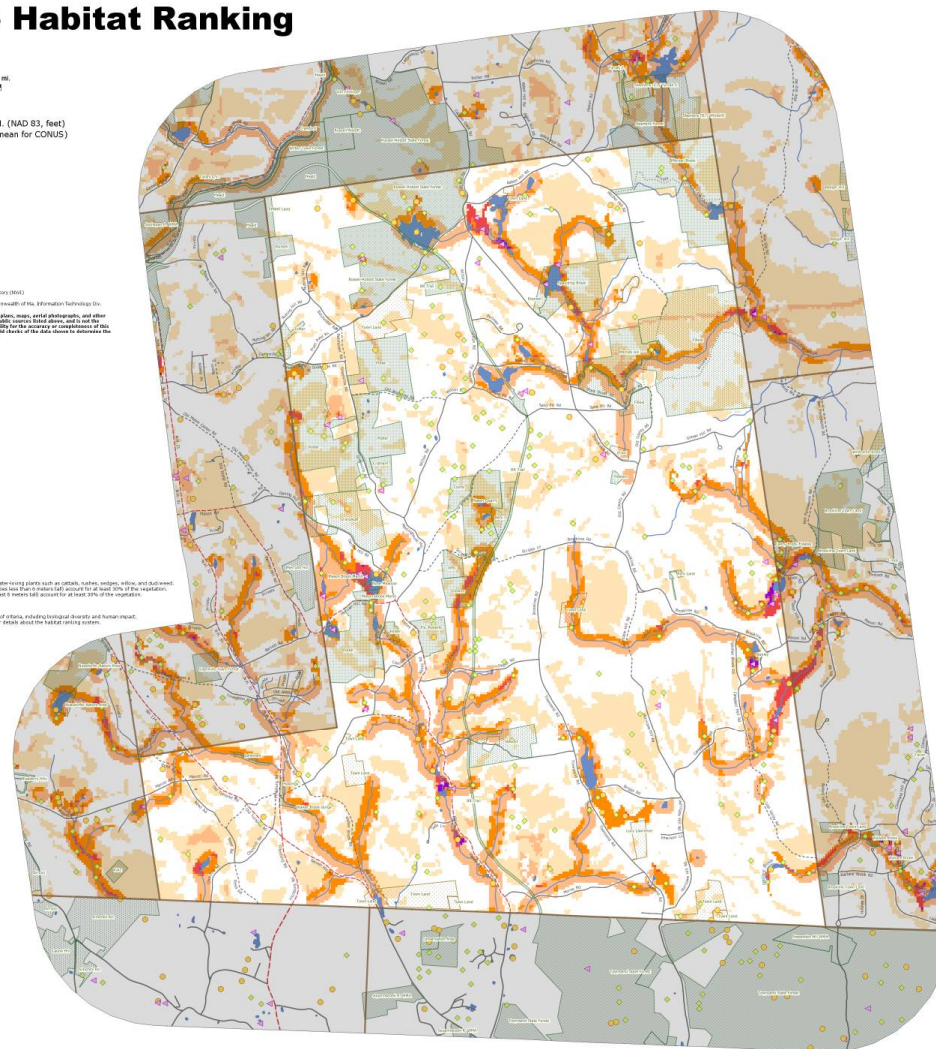


Notes

Wetland Types

Wetland Types	
Emergent	Wet areas dominated by grass-like water-loving plants such as cattails, rushes, sedges, willow, and duckweed.
Scrub-Shrub	Wet areas where woody shrubs (species less than 6 meters tall) account for at least 30% of the vegetation.
Forested	Wet areas where trees (species at least 6 meters tall) account for at least 33% of the vegetation.

Habitat Ranking
Now, fish is game rare's wildlife habitats as a variety of criteria, including biological diversity and human impact. See Sec. 4.2.3 in the associated NRI report for further details about the habitat ranking system.



Hydrologic Resources



Unfragmented Blocks



Wildlife Habitat Types



Forest & Farmland Soils



Wildlife Habitat Ranking

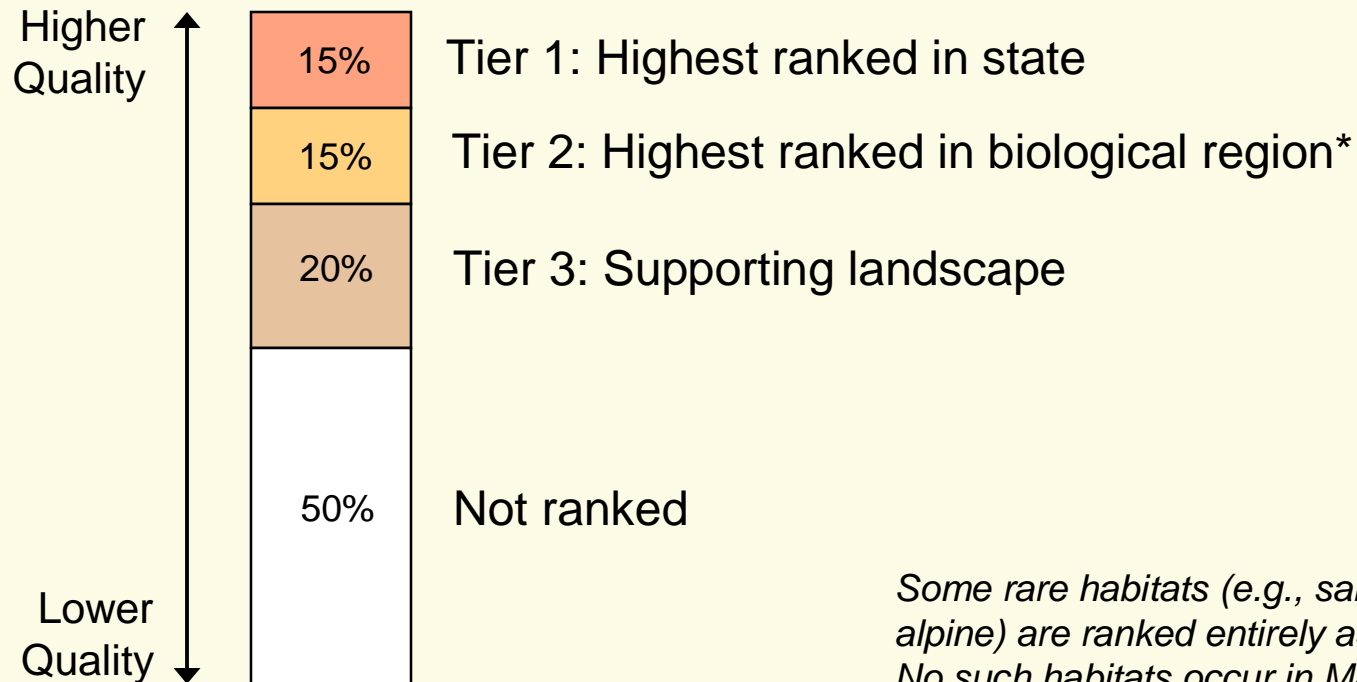
- In 2015, N.H. Fish & Game adopted a new method for assessing habitat quality*
- The new method defines
 - New ranking criteria in **three categories**:
 1. Plant and animal species diversity (especially w.r.t. species of concern)
 2. Arrangement and proximity of habitat types
 3. Impact of human activity
 - Different criteria for **each habitat type**.

*The 2015 ranking system is described at: <https://www.wildlife.state.nh.us/wildlife/wap-high-rank.html>



Wildlife Habitat Ranking (2015)

For each habitat type:



Some rare habitats (e.g., salt marsh, alpine) are ranked entirely as Tier 1. No such habitats occur in Mason.

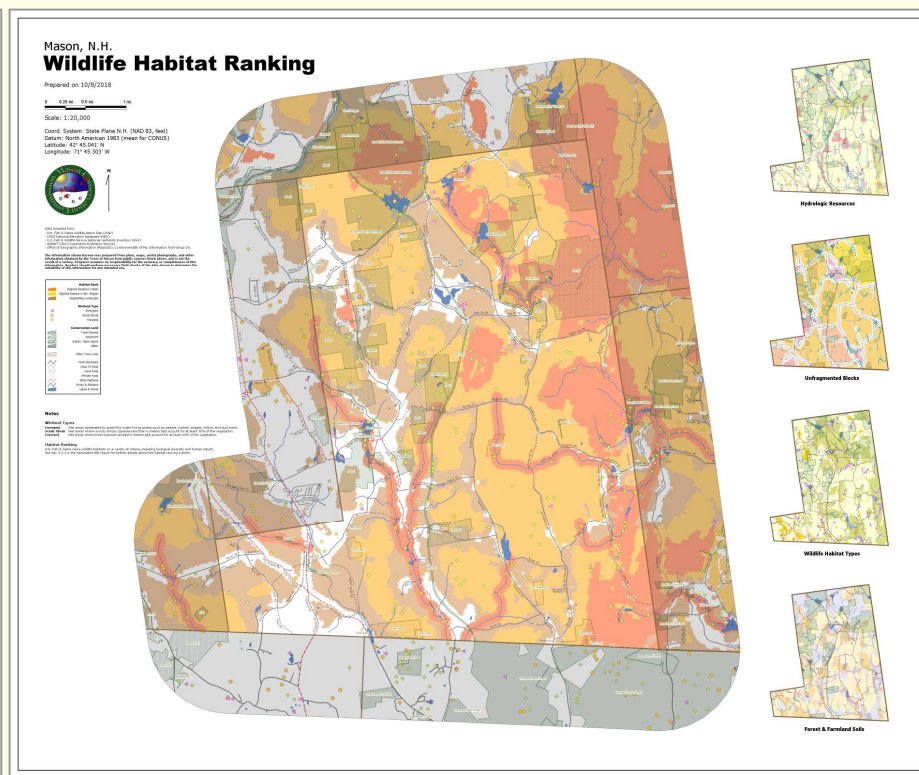
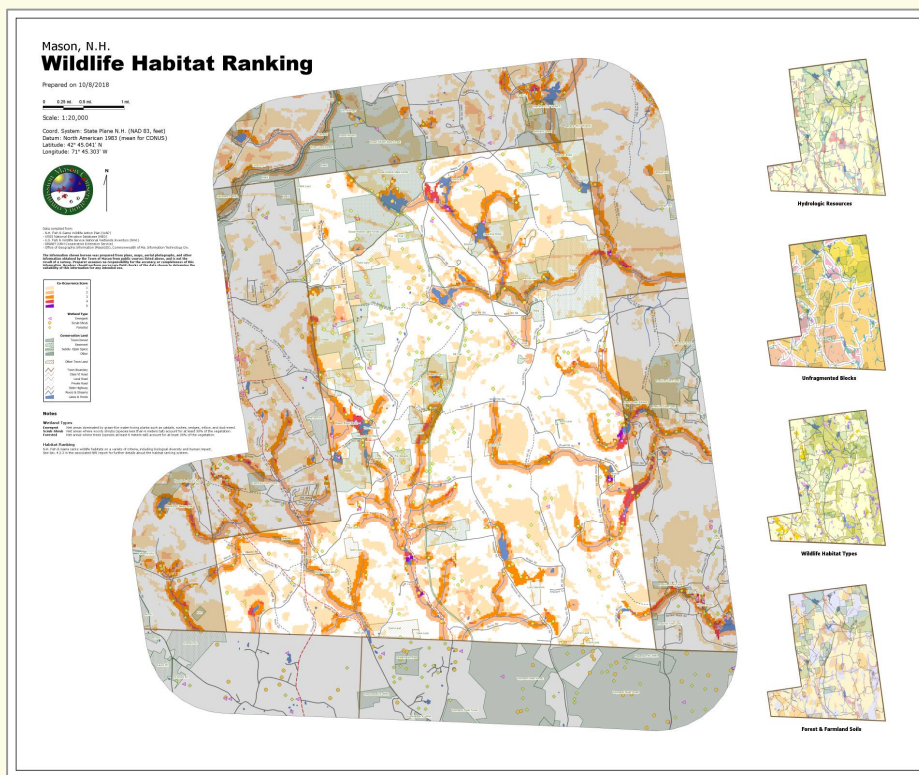
* A “biological region” (a.k.a. bioregion a.k.a ecoregion) consists of areas of similar climate and geology and other factors that influence biology. N.H. includes 9 bioregions. Mason is in the Gulf of Maine Coastal Plain bioregion, which includes most of the southeastern quarter of N.H.

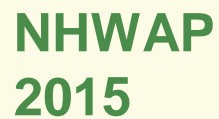


Changes in Habitat Ranking

2010

2015





Wildlife Habitat Ranking

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Scale: 1:20,000

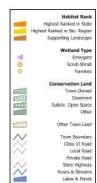
Coord. System: State Plane N.H. (NAD 83, feet)
Datum: North American 1983 (mean for CONUS)
Latitude: 42° 45.041' N
Longitude: 71° 45.303' W



Data compiled from:

- Nat. Fish & Game Wildlife Action Plan (NAP)
- United Nations Development Database (NDP)
- USGS Fish & Wildlife Service National Wetlands Inventory (NWI)
- GDADET (U.S. National Cooperative Oceanic Data)
- Office of Geographic Information (PMSOIS), Commonwealth of the Information Technology Div.

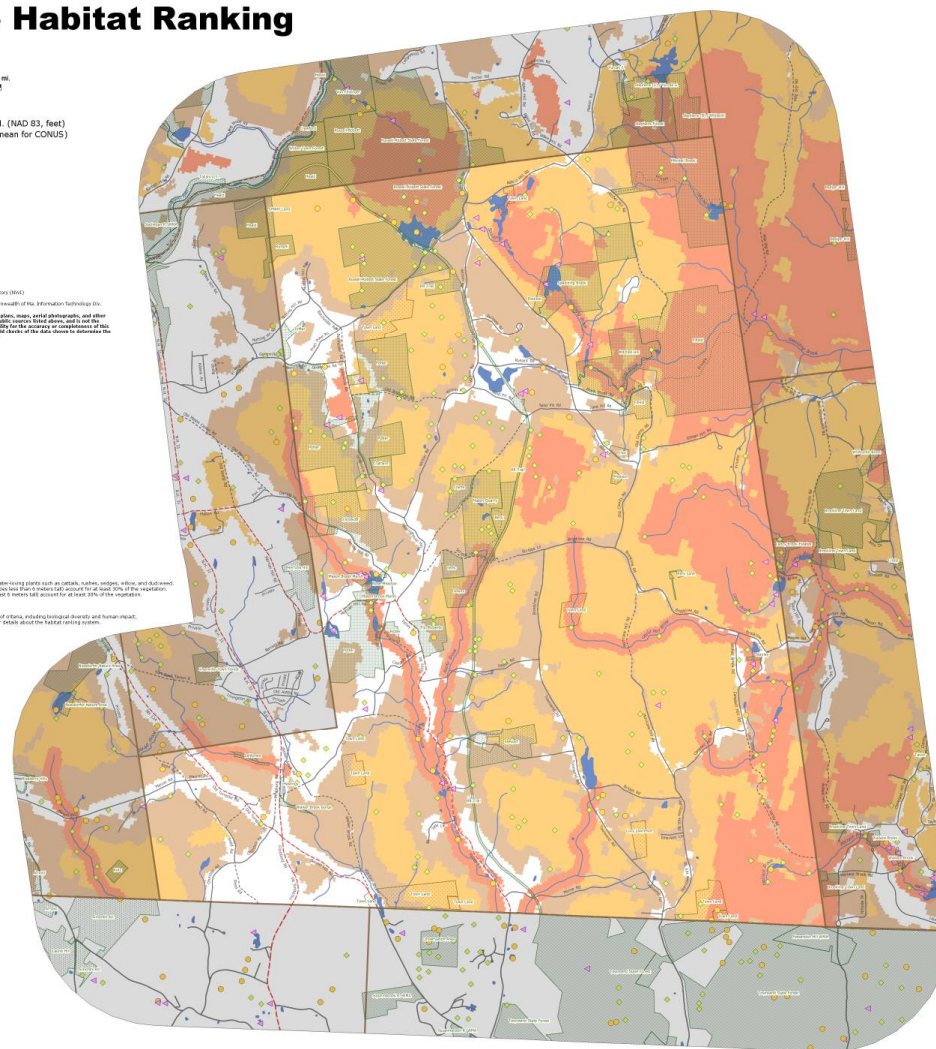
The information shown herein was prepared from plans, maps, aerial photographs, and other information obtained by the Town of Mass from public sources listed above, and is not the result of a survey. Preparer assumes no responsibility for the accuracy or completeness of the information. Readers should perform necessary field checks of the data shown to determine if it is suitable for their purposes.



Notes

Wetland Types
Emergent Wet areas dominated by grass-like wetland plants such as cattails, rushes, sedges, and willow, and duckweed.
Shrub-Swamp Wet areas where woody shrubs (species less than 6 meters tall) account for at least 30% of the vegetation.
Forested Wet areas where trees (species at least 6 meters tall) account for at least 30% of the vegetation.

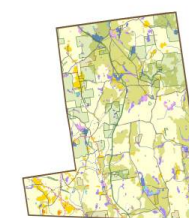
Habitat Ranking
 low. Fish & Game rank wildlife habitats on a variety of criteria, including biological diversity and human impact. The associated Fish & Game details at the habitat category level are:



Hydrologic Resources



Unfragmented Blocks



Wildlife Habitat Types

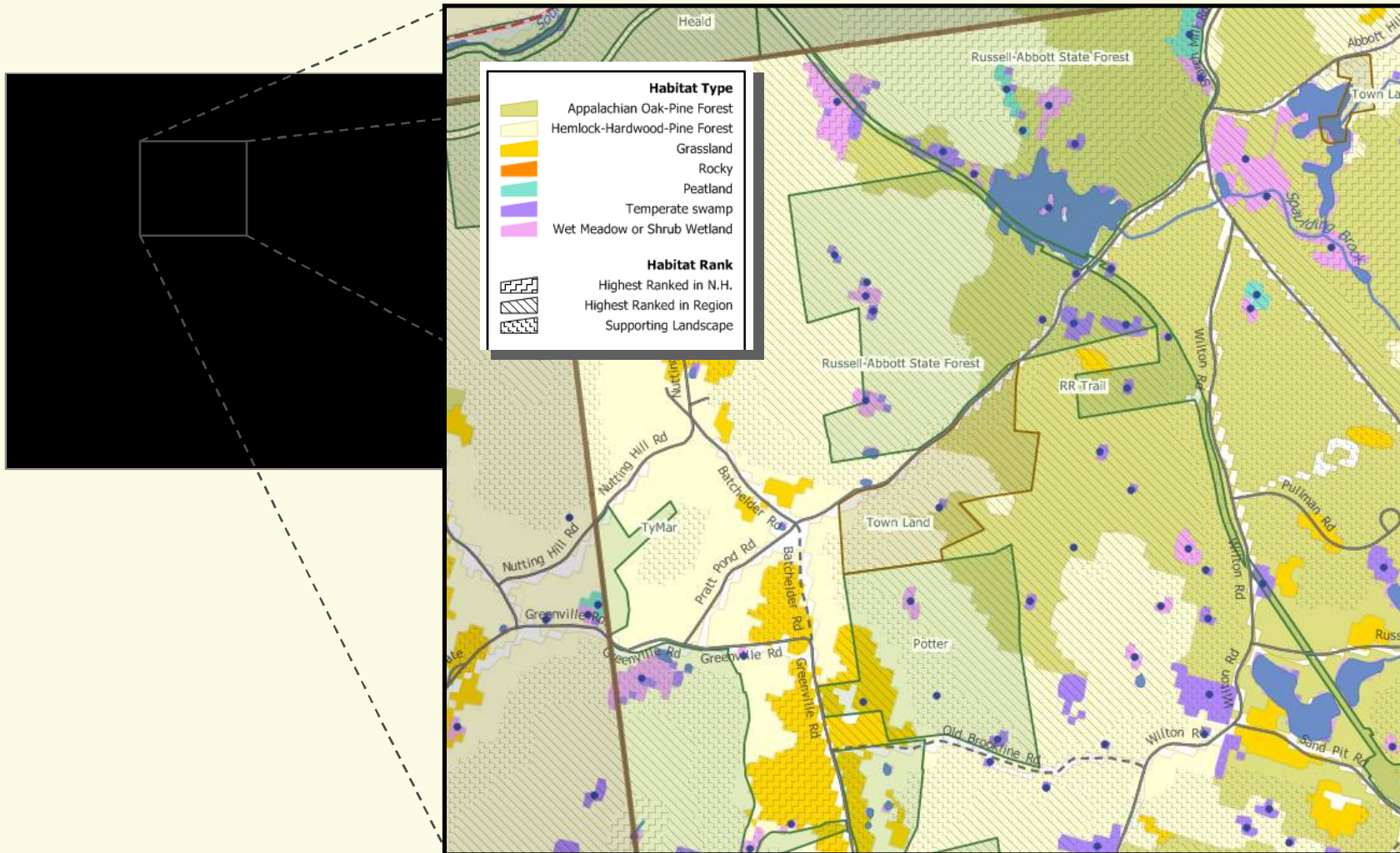


Forest & Farmland Soils

Statewide	50.0%
Mason	87.5%



Habitat Types+Tiers





Wildlife Habitat Ranking

Q. How do you tell why a particular area is ranked the way it is?

A. “You can’t actually.” –N.H. Fish & Game

The list of ranking criteria for each habitat type is available from NHF&G, but the scores for each criterion for a particular area are not.



Water

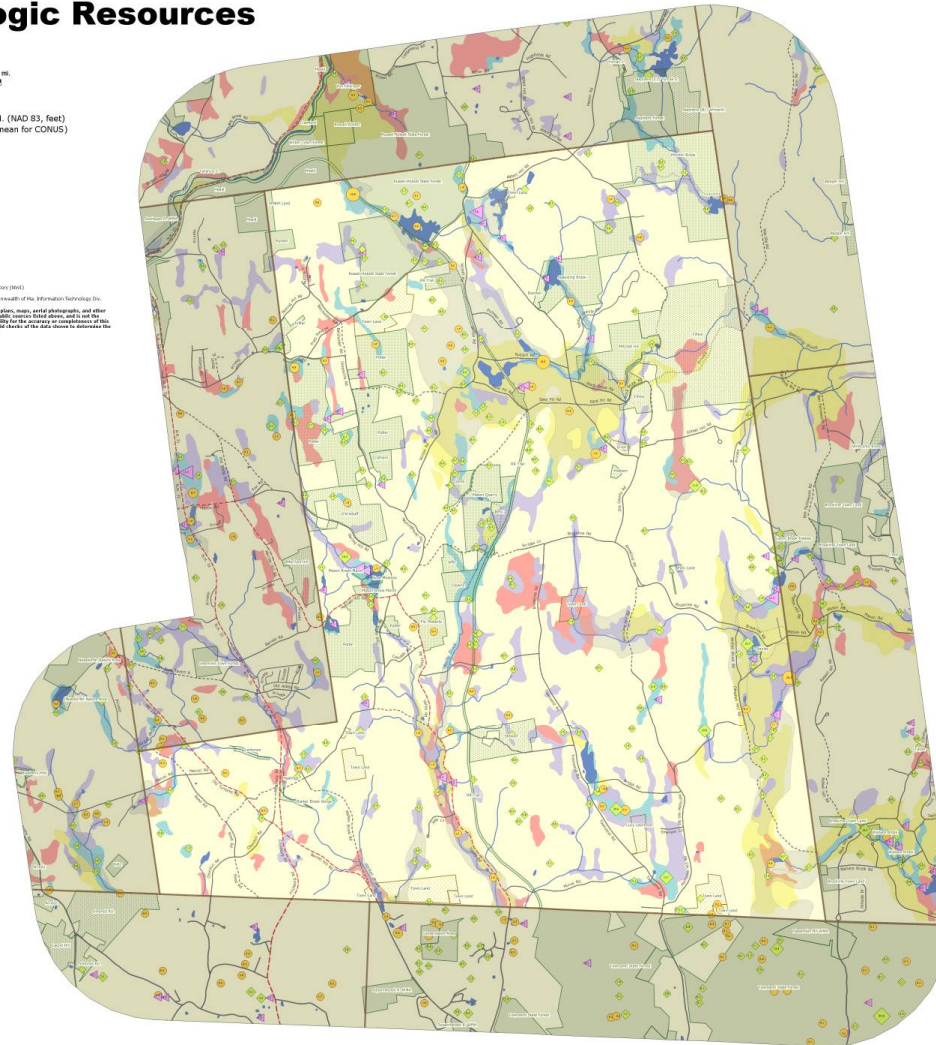
- Mason feeds the headwaters of the Nissitissit and Squannacook Rivers
 - Fine trout streams
 - Supply drinking water for Pepperell and Groton, Mass.
- Mason depends entirely on groundwater for wells*
 - Yields vary greatly. Median yield (5 GPM) is above the state minimum (4 GPM), but...
 - 44 recorded wells yield half the state minimum (2 GPM) and many of these are very deep.

* As of 2012



0 0.25 mi. 0.5 mi. 1 mi.

Coord. System: State Plane N.H. (NAD 83, feet)
Datum: North American 1983 (mean for CONUS)
Latitude: 42° 45.041' N
Longitude: 71° 45.303' W



10/25/2018



Soils – Forestry

- Two thirds of Mason has top-ranked forest soils for growing hardwoods and softwoods.
- Since 1993, 44% of Mason's area has been timbered*
 - 185 board-feet per acre per year.
 - Sustainable for well-managed forests.
 - Unsustainable for unmanaged forests.
 - Long-term management is critical for forest health.

* As of 2012



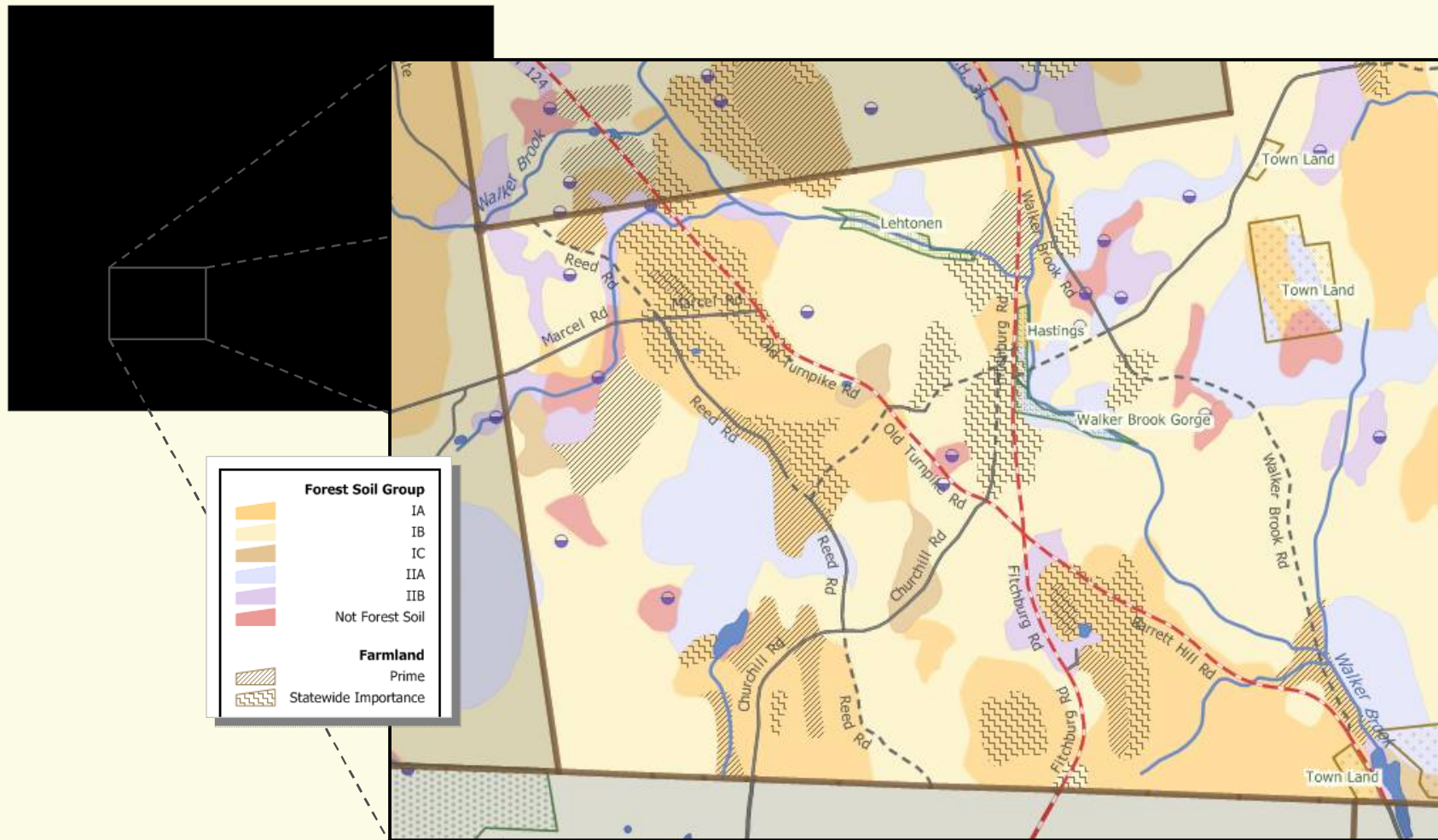


Soils – Agriculture

- Only 6.3% of Mason has high quality farmland soils.
- SW Mason is the most intensively farmed area.
- Small-scale farming and agriculture (eggs, berries, maple syrup) occur throughout town.

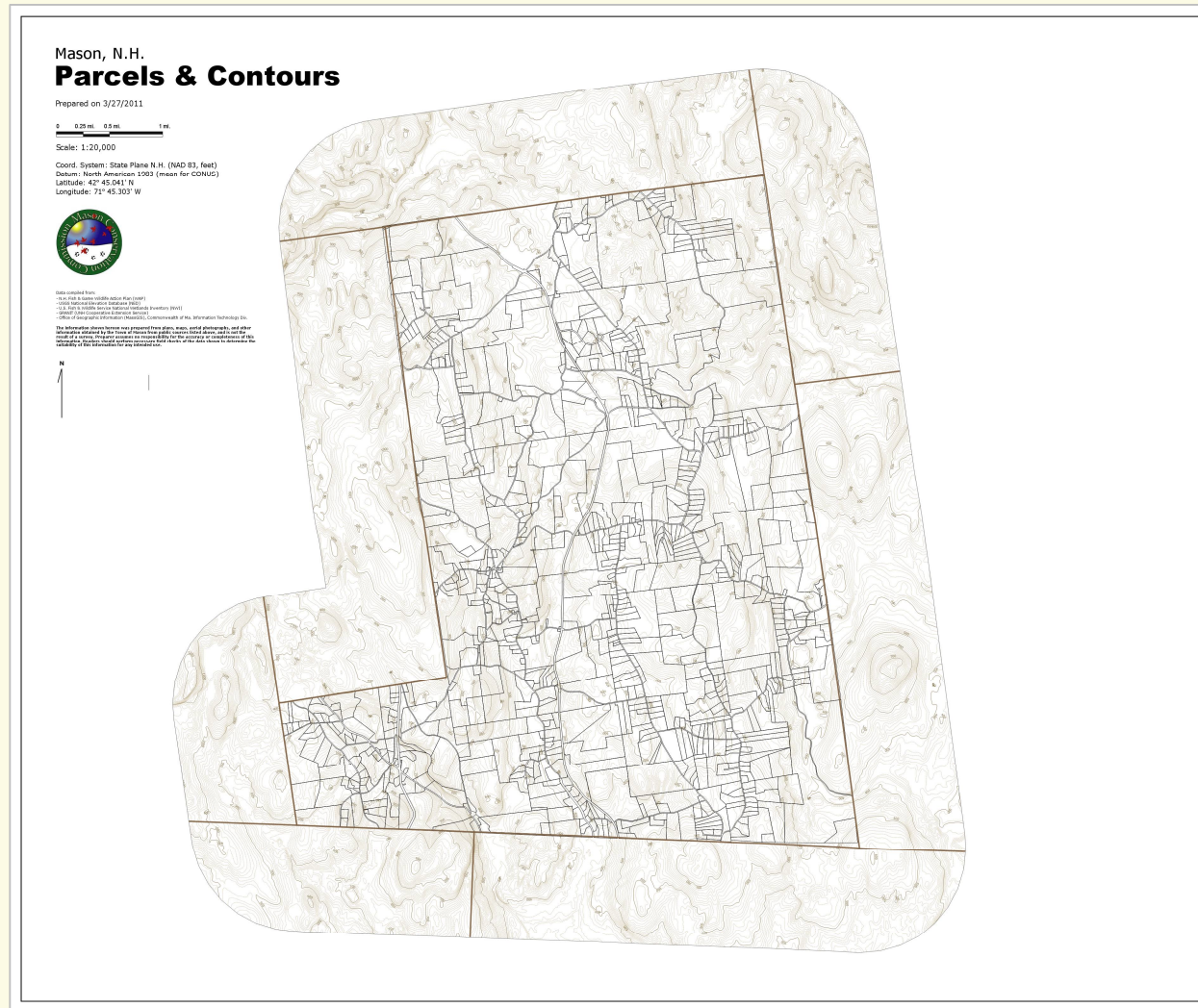


Soils – Agriculture





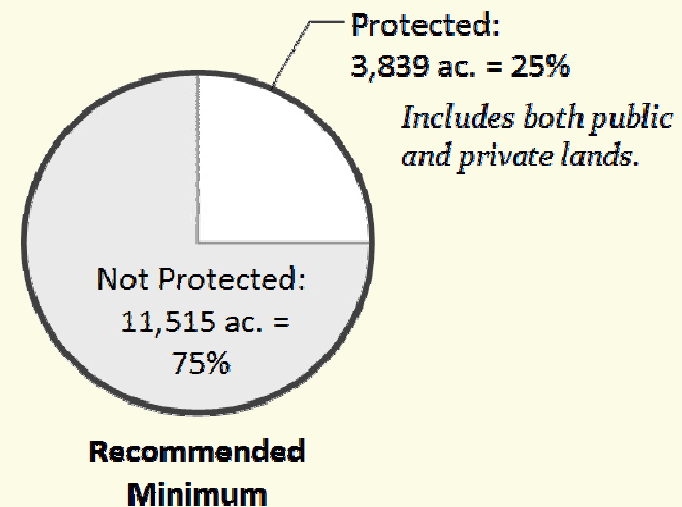
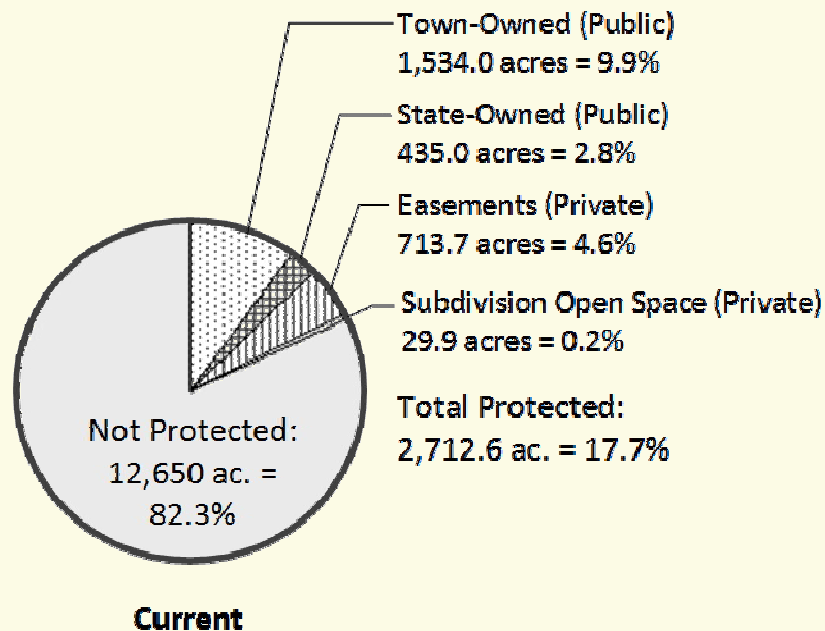
One Final Map





Protected Land

SPNHF* recommends a minimum of 25% protected land to ensure water quality and quality-of-life

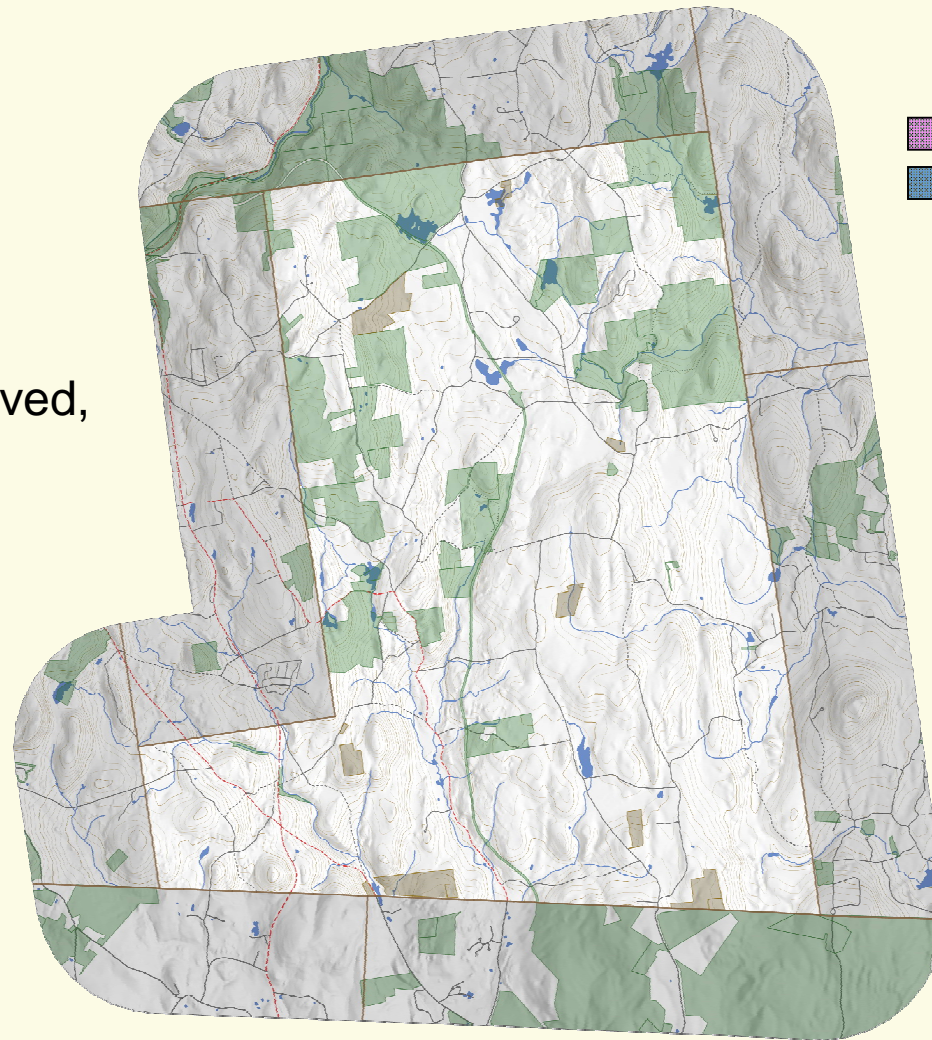




*Society for Protection of N.H. Forests



Mason Conservation Land

2,712.6 acres conserved,
17.7% of Mason



 Conservation Land
 Other Town Land



Trails and Recreation

- Already have numerous local recreational areas for hiking, mountain biking, horseback riding, snowmobiling.
- Have the foundation of a town-wide trail system thanks to Bronson Potter, Florence Roberts, the Fifield family, the Schwenk family, and conservation land acquisitions supported by Mason voters.
- Class 6 roads (unmaintained by the town) are key connectors in this trail system.



Trails and Recreation

Sorry, no recreation and trails map yet, but...



...all maps show conservation land





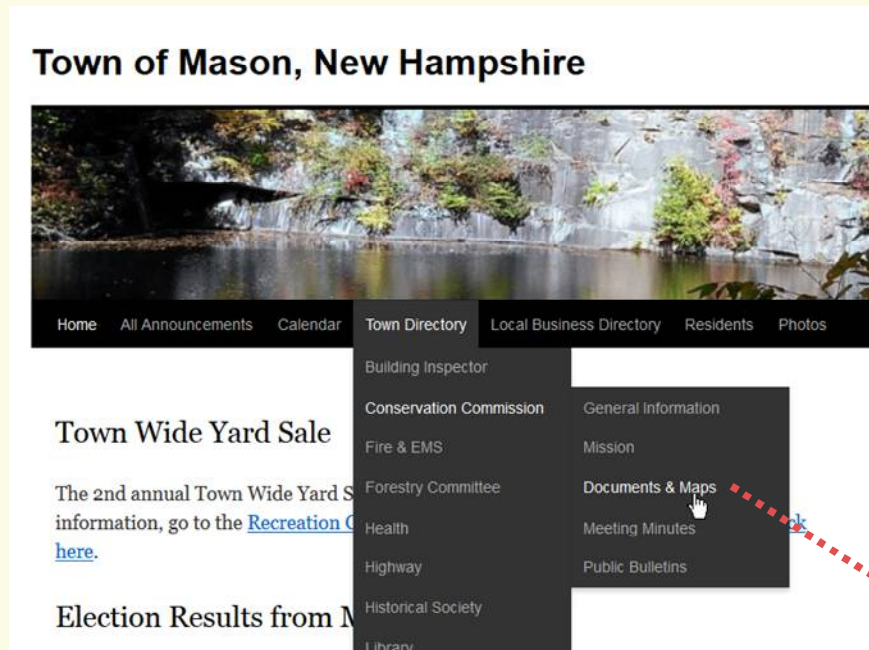
Summary

- The NRI is the first step in developing a comprehensive long-term conservation program for Mason.
- Subsequent efforts will develop
 - A “policy document” in the form of a town conservation plan. A draft of this document is under review.
 - Specific management plans for specific parcels.
 - A town-wide trail system
- Each of these will be a project in itself.



Get Your Own Copy...

...of the maps and report at <http://masonnh.us/>



Natural Resources Inventory

The Mason Conservation Commission published the [Natural Resources Inventory](#) (PDF) in 2012, along with the following maps:

- [Forest & Farmland Soils](#) (PNG, 6.0 MB)
- [Hydrologic Resources](#) (PNG, 5.9 MB)
- [Unfragmented Habitat Blocks](#) (PNG, 5.3 MB)
- [Wildlife Habitat Ranking](#) (PNG, 6.2 MB)
- [Wildlife Habitat Types](#) (PNG, 5.7 MB)
- [Parcels & Contours](#) (PNG, 5.4 MB). (This one is intended for use as an overlay with the other maps.)

The above maps are formatted for printing at 30x36 inches at about 100 dpi, and contain images of around 3,000 x 3,600 pixels. You can print them at smaller sizes, but the smaller the size, the less detail you'll be able to see. Larger maps formatted at 300 dpi are available. They are about 30-40 MB each. For more information, contact the Conservation Commission.



Questions? Discussion?

