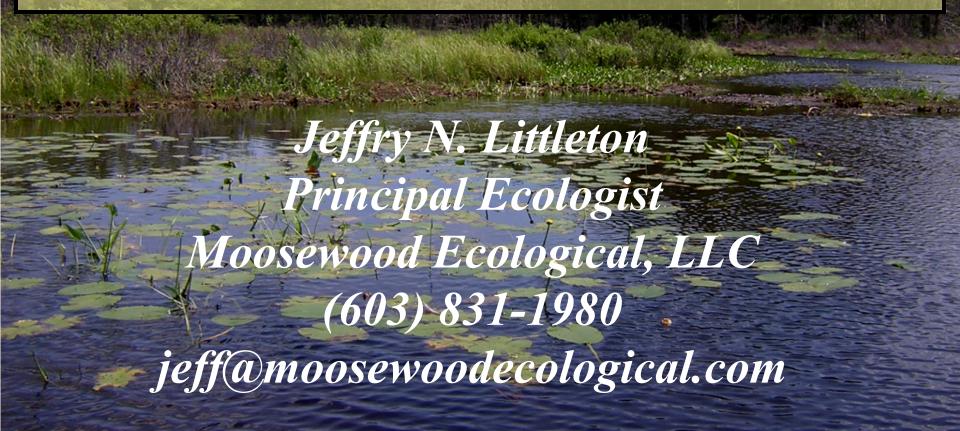
KNOW YOUR NATURAL RESOURES: USE YOUR NRI!



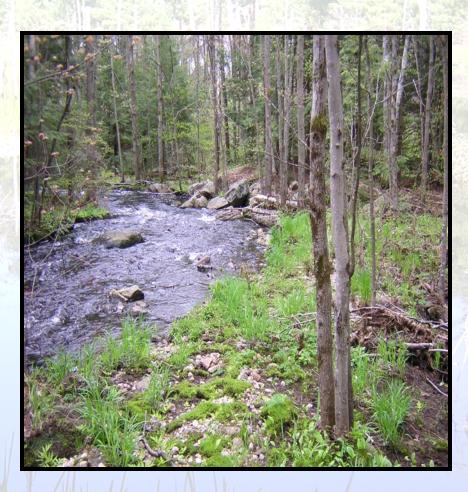
Natural Resources Inventories

• What is an NRI?

Conservation
 Commission's role in
 NRI?

- Why conduct an NRI?
- Uses an NRI?

Components of an NRI?



RSA 36-A:2

"Such commission shall conduct researches into its local land and water areas [and] ... shall keep an index of all open space and natural, aesthetic or ecological areas within the city or town ... with the plan of obtaining information pertinent to the proper utilization of such areas, including lands owned by the state or lands owned by a town or city. It shall keep an index of all marshlands, swamps and all other wetlands in a like manner..."

Why conduct a Natural Resources Inventory?

- Provides a foundation for informed decisionmaking, land use planning (i.e., resource conservation and protection, Master Plan)
- Contributes to vital part of cultural, economic and community structure
- Identifies resources threatened by human population growth and over exploitation
- Provides the first phase of a conservation plan

How do we use a Natural Resources Inventory?

- Public Education and Civic Engagement
- Conservation Planning
- Master Planning
- Land Use and Zoning Changes
- Review Development Proposals
- Stewardship Planning
- Restoration Opportunities
- Prioritizes Detailed Studies



Planning Your NRI

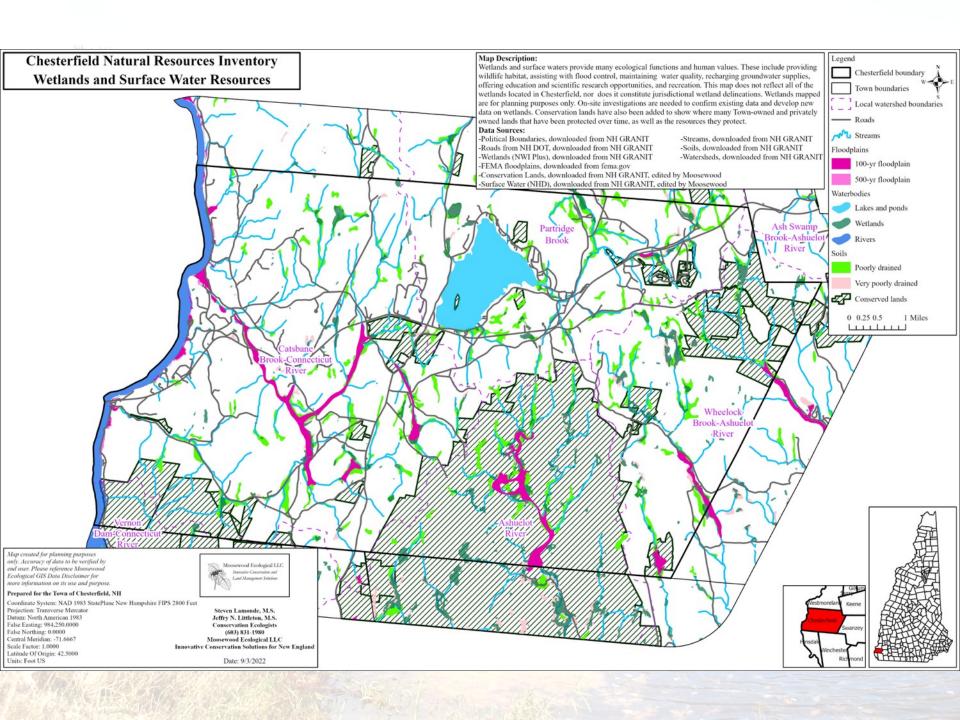
- Establish a Work Group
- Determine Goals and Scope of Project
- Determine Study Area
- Review Existing Documents
- Develop a Report Outline
- Develop a Budget

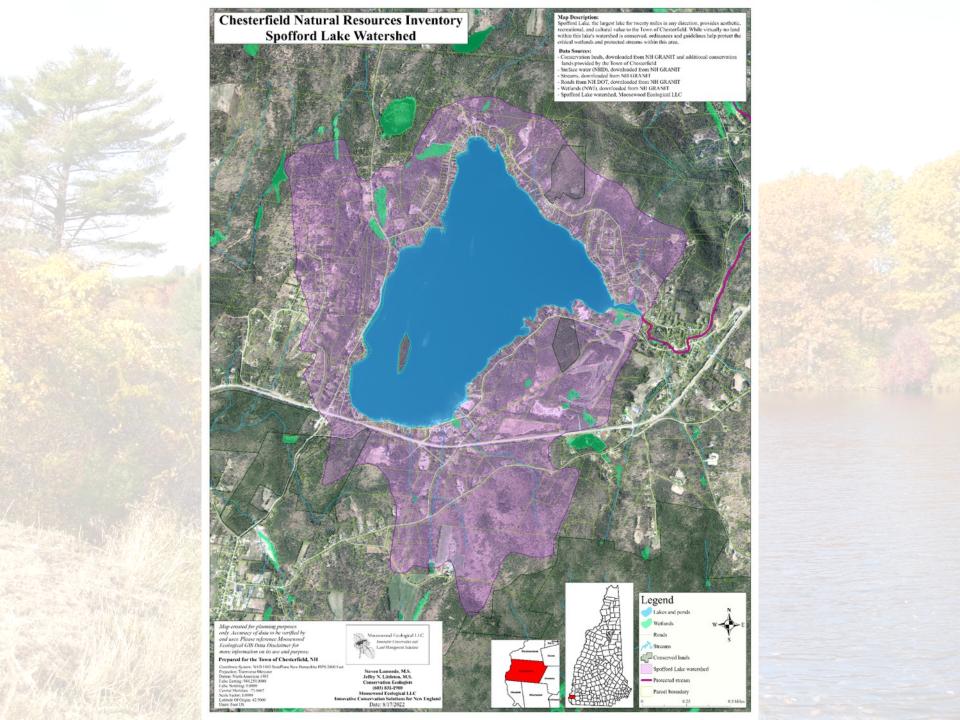
Planning Your NRI

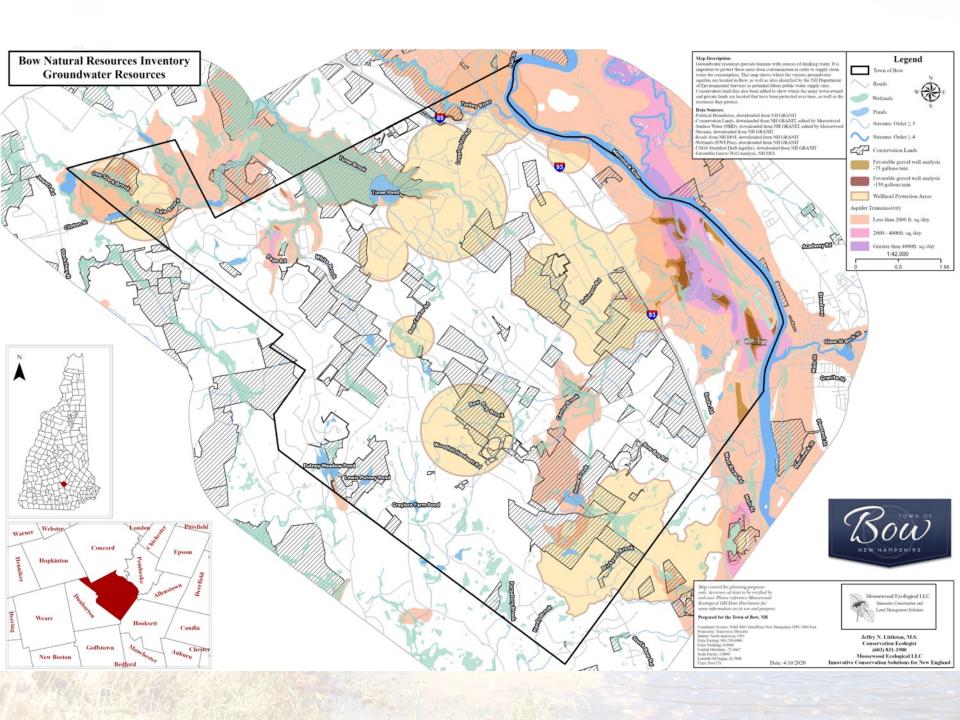
- NH Association of Conservation Commissions
- UNH Cooperative Extension
- Taking Action for Wildlife
- Natural Resources Professionals
- https://nhnriguide.org/natural-resources-inventories
- GRANIT View
- NH Wetlands Mapper
- NH Fish and Game habitat and ranking maps



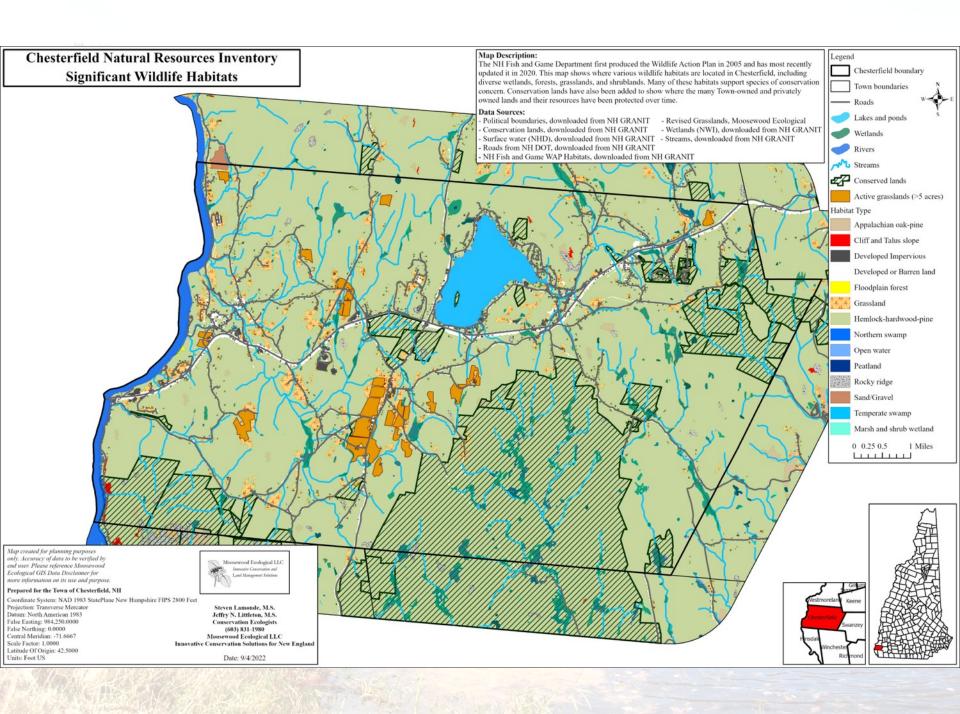


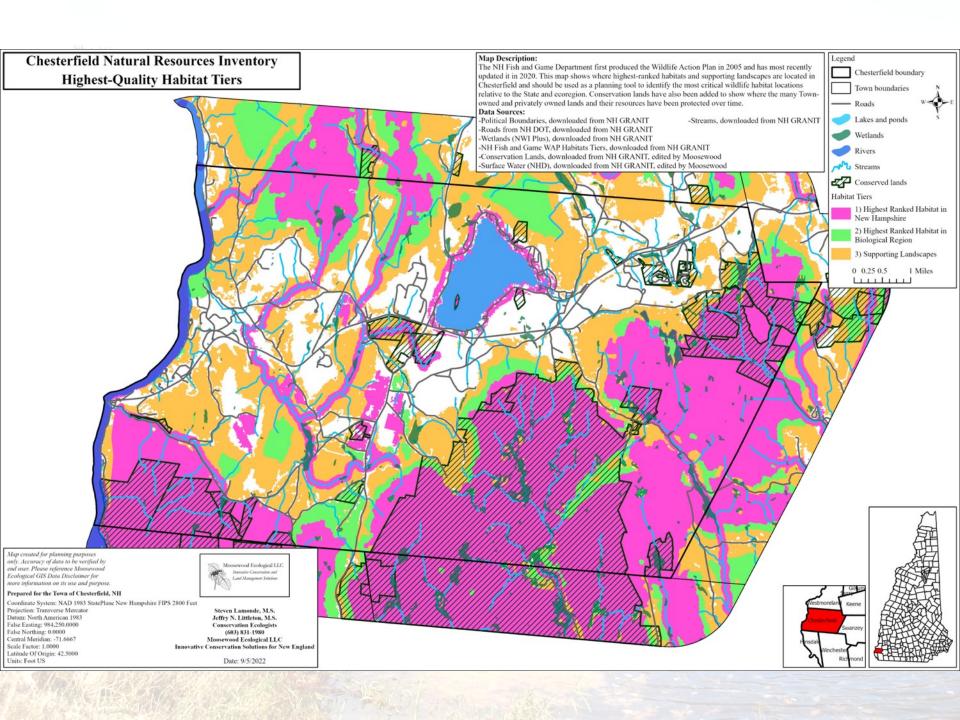


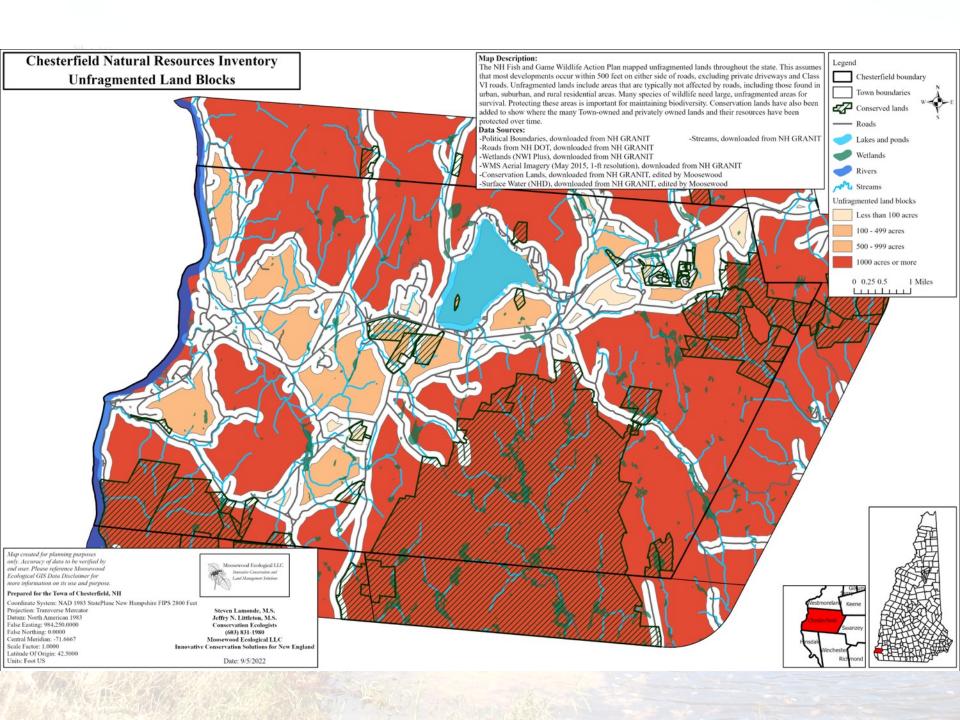








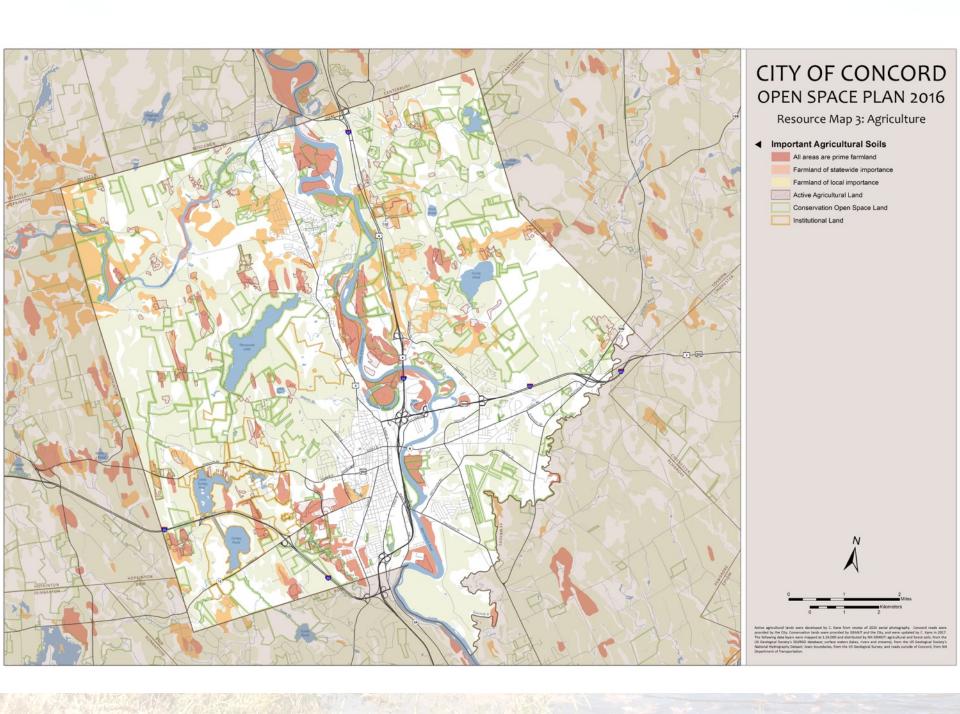


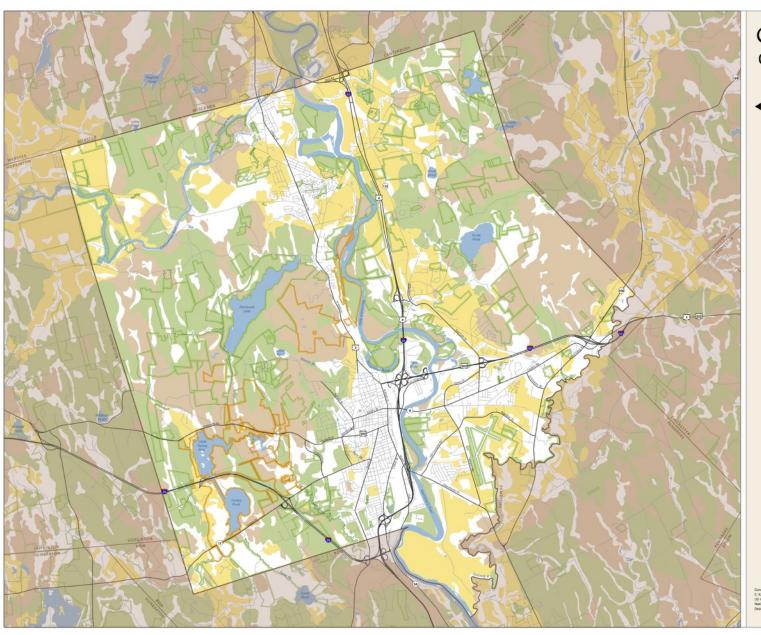


Habitat Block Size Requirements For Wildlife				
1-19 Acres	20-99 Acres	100-499 Acres	500-2,500 Acres	>2,500 Acres
raccoon	raccoon hare	raccoon hare	raccoon hare	hare
	naic	naic	naic	coyote
small rodent	small rodent	small rodent	small rodent	small rodent
Sillan rodent	porcupine	porcupine	porcupine	porcupine
	рогецрите	рогеция	porcupine	bobcat
cottontail	cottontail	cottontail	cottontail	cottontail
Cottontan	beaver	beaver	beaver	beaver
	beaver	beaver	beaver	black bear
squirrel	squirrel	squirrel	squirrel	squirrel
Squirer	weasel	weasel	weasel	weasel
	weaser	mink	mink	mink
		Hillik	ПШТК	fisher
	woodchuck	woodchuck	woodchuck	woodchuck
	Woodendek	deer	deer	deer
muskrat	muskrat	muskrat	muskrat	muskrat
maskiat	maskiat	maskiat	moose	moose
red fox	red fox	red fox	red fox	red fox
songbirds	songbirds	songbirds	songbirds	songbirds
songonus	songonas	sharp-shinned hawk		sharp-shinned hawk
		sharp shamed hawk	bald eagle	bald eagle
skunk	skunk	skunk	skunk	skunk
Sitaria	Sign	Cooper's hawk	Cooper's hawk	Cooper's hawk
		harrier	harrier	harrier
		broad-winged hawk	broad-winged hawk	broad-winged hawk
		oroug winged nawk	goshawk	goshawk
		kestrel	kestrel	kestrel
			red-tailed hawk	red-tailed hawk
		great-horned owl	great-horned owl	great-horned owl
		8	raven	raven
		barred owl	barred owl	barred owl
		osprey	osprey	osprey
		turkey vulture	turkey vulture	turkey vulture
		turkey	turkey	turkey
most reptiles	most reptiles	reptiles	reptiles	reptiles
, a la para la	garter snake	garter snake	garter snake	garter snake
	_	ring-necked snake	ring-necked snake	ring-necked snake
most amphibians	most amphibians		amphibians	amphibians
7	Ψ =====	wood frog	wood frog	wood frog

Basic NRI – Phase I

- Water Resources
- Ecological Resources
- Working Landscape
 - o Agricultural Resources
 - o Forest Resources





CITY OF CONCORD OPEN SPACE PLAN 2017

Resource Map 4: Forestry

◄ Important Forest Soils

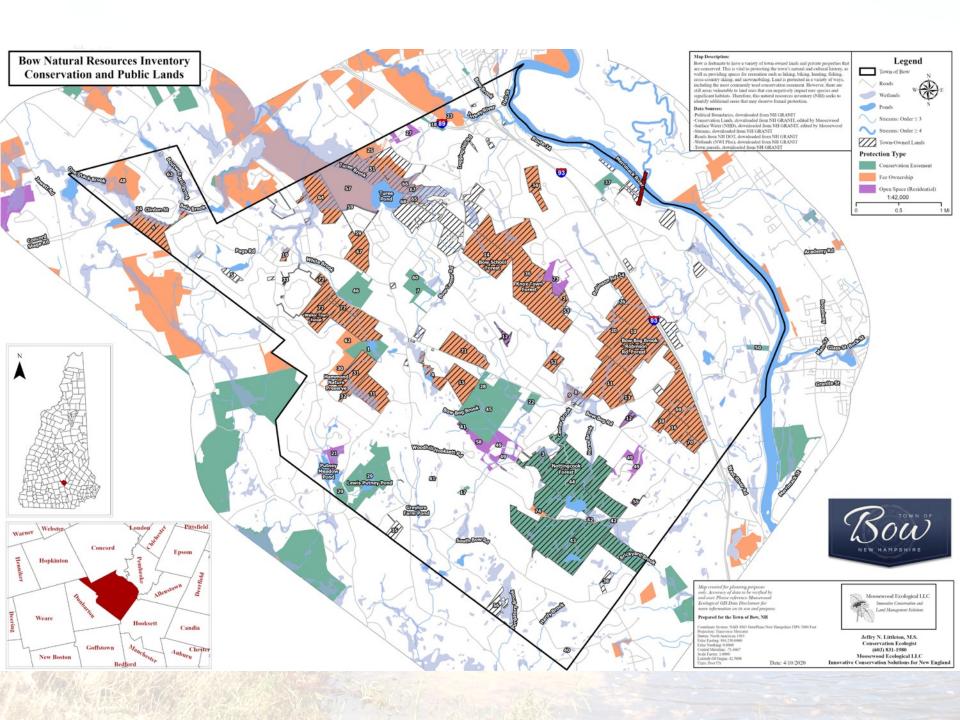
- Group IA Deeper, loamy textured, moderately well and well-drained soils that support a variety of hardwood species such as beech, sugar and red maple, yellow and white birch, white ash and red oak, with spruces, hemlock and balsam fir also present.
- Group IB Moderately well and well-drained soils that are sandier in texture, generally less moist and less fertile than 1A soils. The tree species found on these soils are similar to those on 1A soils, but productivity is not as high.
- Group IC These soils are moderately well drained to well drained and excessively well drained outwash sands and gravels. These soils favor the growth of softwoods such as white pine, balsam fir, red spruce and hemiock, while some hardwoods such as red maple, aspen and white birch may also be present.
- Conservation Open Space Land
- Other Open Space
- Major Road
- Local Road



coor traces were provised by the Loty, conservation status were provised by utually and the Loty, and were upposed by Jame in 2017. The following data layers were mapped at 124,000 and distributed by Nid GAMIT forest 50s, from the Geological Society's SSURGO distribute; surface waters (false, nivers and streams), from the US Geological Society's local Hydrography Dataset; town boundaries, from the US Geological Survey; and roads outside of Cancord, from NH attended of Tenanoportation.

Basic NRI – Phase I

- Water Resources
- Ecological Resources
- Working Landscape
 - o Agricultural Resources
 - Forest Resources
- Conservation Lands



Mapping Resources

- GRANITView
- TNC Resilient and Connected Landscapes
- Wetlands Mapper
- DES Aquatic Mitigation Mapper
- Ecological/GIS Consultant
- Wildlife Corridor Mapper

Conservation Priorities and Co-occurrence Analyses

- Parcel-based Ecological Analyses
 - o GIS assessment
 - Field assessment

I. Parcel Size

a. 15-49 acres	1 points
b. 50-199 acres	2 points
c. 200-500 acres	3 points

II. Wetlands

Percent Wetland Cover

a. no <mark>wetlands</mark>	0 points
b. <10% wetlands	1 point
c. 10-50% wetlands	2 points
d. >50% wetlands	3 points

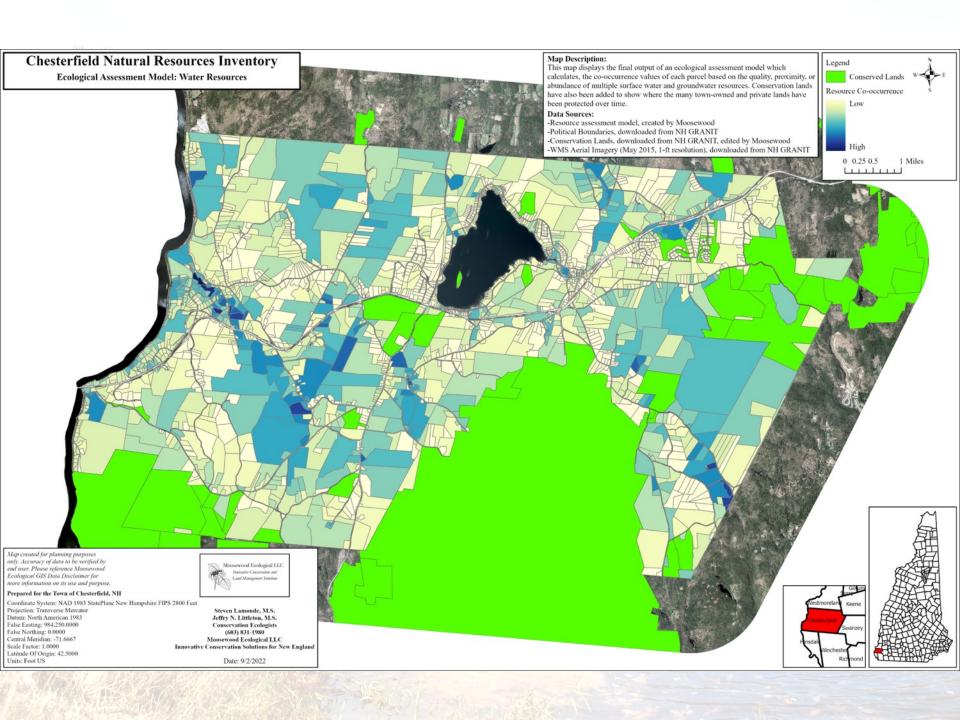
III. Surface Waters

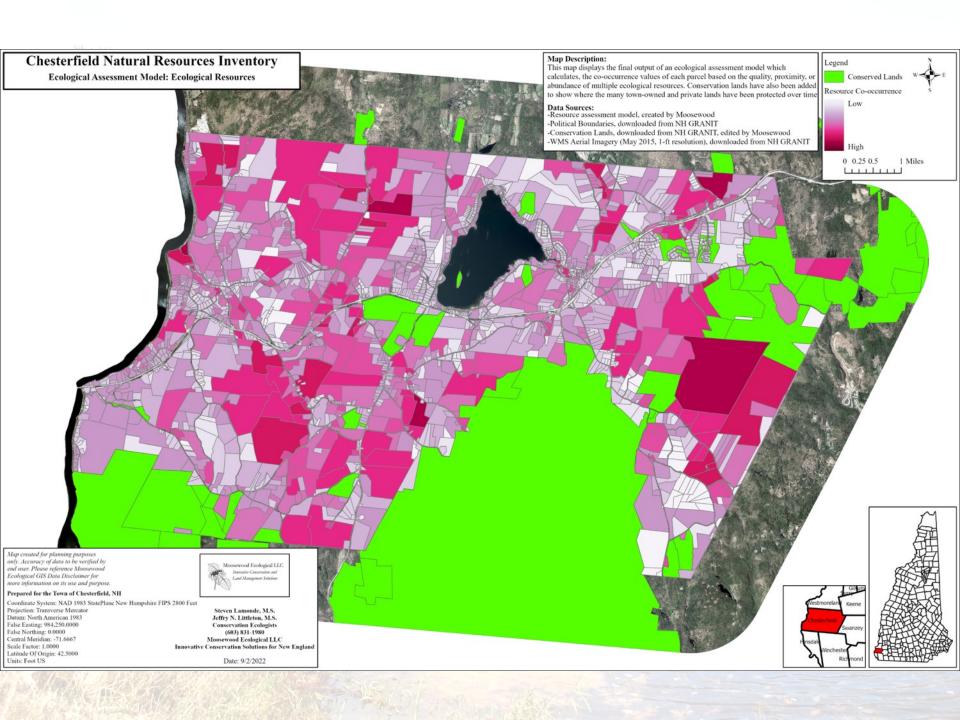
Waterbodies (ponds)

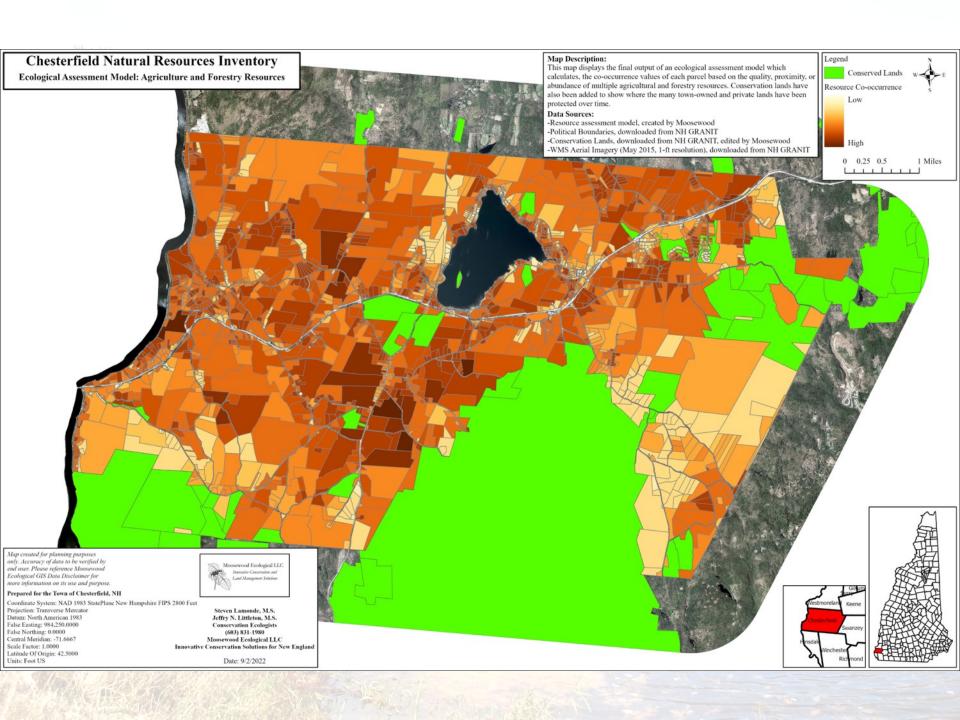
a. no waterbodies present	0 points
b. waterbody <10 acres present	1 point
c. waterbody >10 acres present	2 points
Watercourses (streams)	
a. no watercourses present	0 points
b. 1st order perennial stream	1 point
c. 2 nd order perennial stream	2 points
d. 3 rd order perennial stream	3 points

4 points

e. 4th order or larger stream

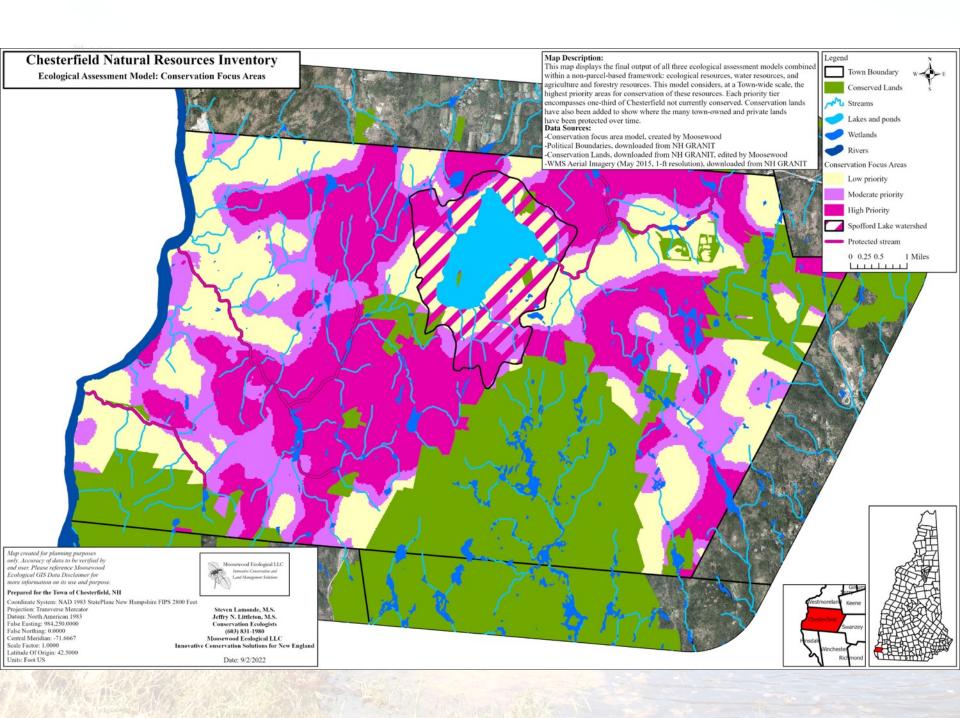






Conservation Priorities and Co-occurrence Analyses

- Parcel-based Ecological Assessment
- Co-occurrence Analyses





Strengths and Challenges

 What are the strengths of natural resources and working lands (forestry and agriculture)?

• What are some of the challenges and concerns facing these resources?

Consider the social, political and physical characteristics

Significant Open Space Areas

- What Open Space/Natural Areas do you visit?
- Why do you visit these areas? What makes them interesting or significant Open Space?
- What could enhance your use of these areas?

Future Open Space Protection

• What other Open Space lands would you like to see protected?

• Why specifically would you support the protection of these areas?

Community Outreach

- Community Forums
- Community Survey
- Educational Workshops and Hikes
- Communications with Town Boards
- Bioblitz iNaturalist
- NH Extension Nature Groupie

BIOLOGICAL INVENTORY and iNATURALIST Project



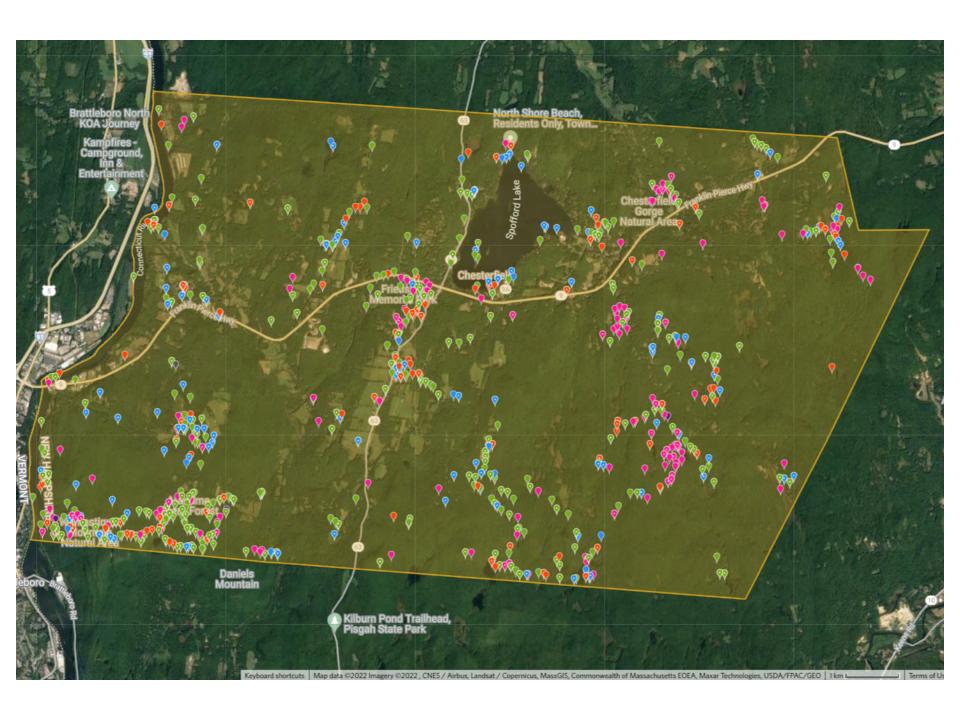
IDENTIFIERS

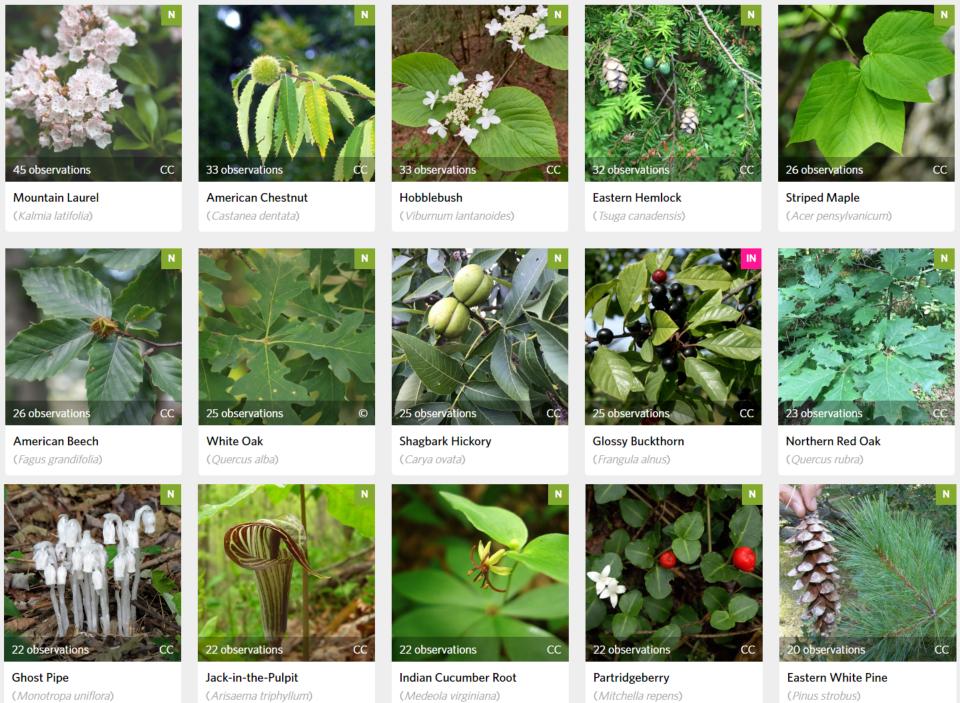
OBSERVERS

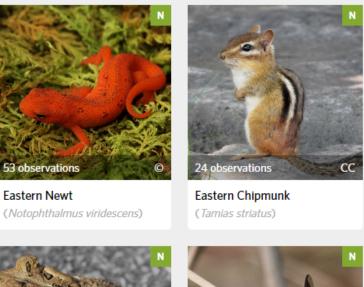
Overview

OBSERVATIONS

SPECIES



















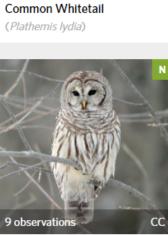




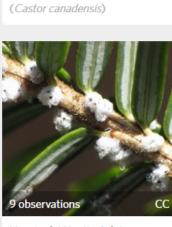
American Toad (Anaxyrus americanus) 10 observations

Stream Bluet

(Enallagma exsulans)







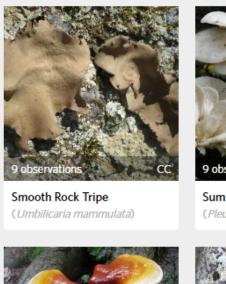
American Beaver



Barred Owl (Strix varia)

North American Porcu... (Erethizon dorsatum)

Hemlock Woolly Adel... Common Eastern Bum... (Adelges tsugae) (Bombus impatiens)







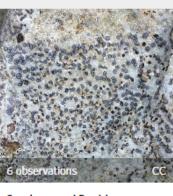




(Russula rosacea)

(Trametes versicolor)











Hemlock Varnish Shelf Smokey-eyed Boulder ... (Ganoderma tsugae) (Porpidia albocaerulescens)



CC



CC



5 observations 5 observations Crowded Parchment Reddish Brown Bitter B... (Tylopilus rubrobrunneus) (Stereum complicatum)



5 observations Flame Chanterelle (Craterellus ignicolor)

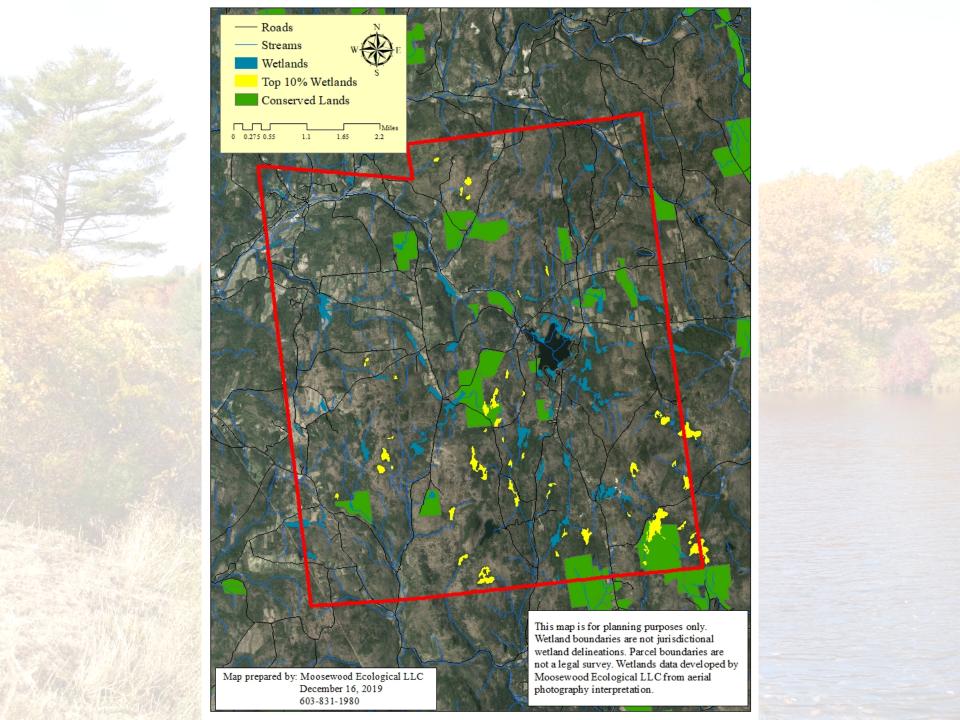
4 observations Chicken of the Woods (Laetiporus sulphureus)

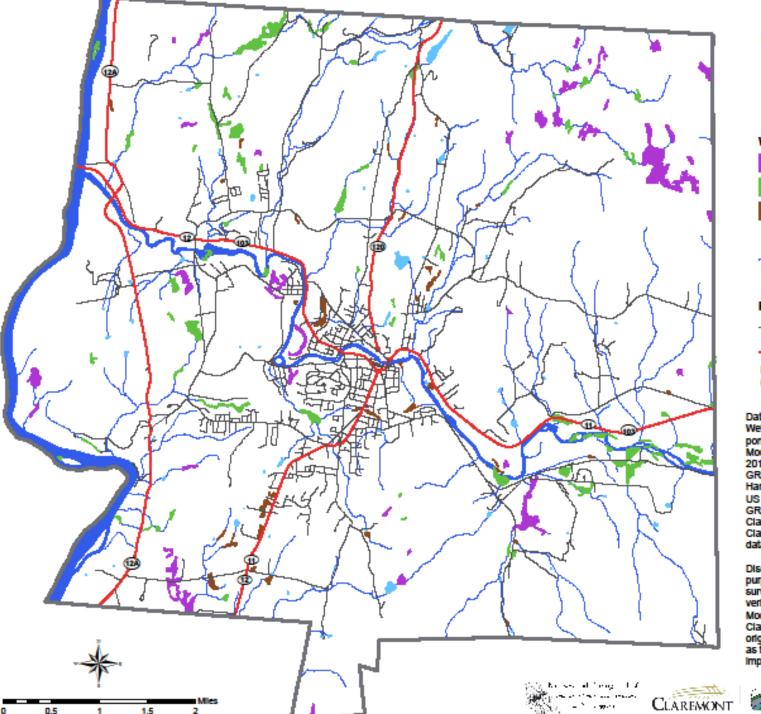
Many-forked Cladonia (Cladonia furcata)

Biological Inventory Results

- More than 4,000 observations submitted
- Over 1,000 species documented
- Participation from >200 people
- Many new records for the Town, County, or State

- Wetlands Comparative Evaluation
 - ID sites for restoration
 - ID sites for mitigation to implement within the community
 - Prioritize for conservation/protection
 - Develop wetlands zoning ordinance
 - ID Prime Wetlands
 - Habitat management (beavers, waterfowl, invasive species)
 - Grants and Cost Share Programs (ARM, NRCS, NH F&G)
 - Education for Community and Government Officials
 - nhmethod.org for more details





Wetlands Evaluation City of Claremont, NH Map 2

Legend



High Ranking

Medium Ranking

Low Ranking

Ponds and Reservoirs

Streams

Rivers

Roadways

Town Roads

State Roads

Note: Streams include both perennial (year-round) and intermittent streams.

Data Sources:

Wetiands ranking and refined wetiands, ponds and reservoirs developed by Moosewood Ecological, 2013, based on 2010 aerial photography, distributed by NH GRANIT. Streams and rivers from New Hampshire Hydrography Dataset, 2006, US Geological Survey, distributed by NH GRANIT. Roadways from the City of Claremont. Town boundary adjusted to Claremont tax map by UVLSRPC, original data from NH GRANIT.

Disclaimer: Map to be used for planning purposes only. Map not intended for survey purposes. Accuracy of data to be verified by end user. UVLSRPC, Moosewood Ecological, the City of Claremont, NH GRANIT and other data originators or distributors make no claim as to the validity or reliability or to any implied uses of these data.



CITED WALLEY DATE SUNABLE AGO ONALPLAN 4.1% COMMISSION

- Wetlands Comparative Evaluation
- Refined Habitat Mapping and WAP Ground-truthing
 - Better sense of the location and types of actual habitats
 - Better habitat representation within community
 - Confirm WAP habitats
 - ID fine-scale habitats
 - ID rare/unique natural communities
 - Inform stewardship and land management

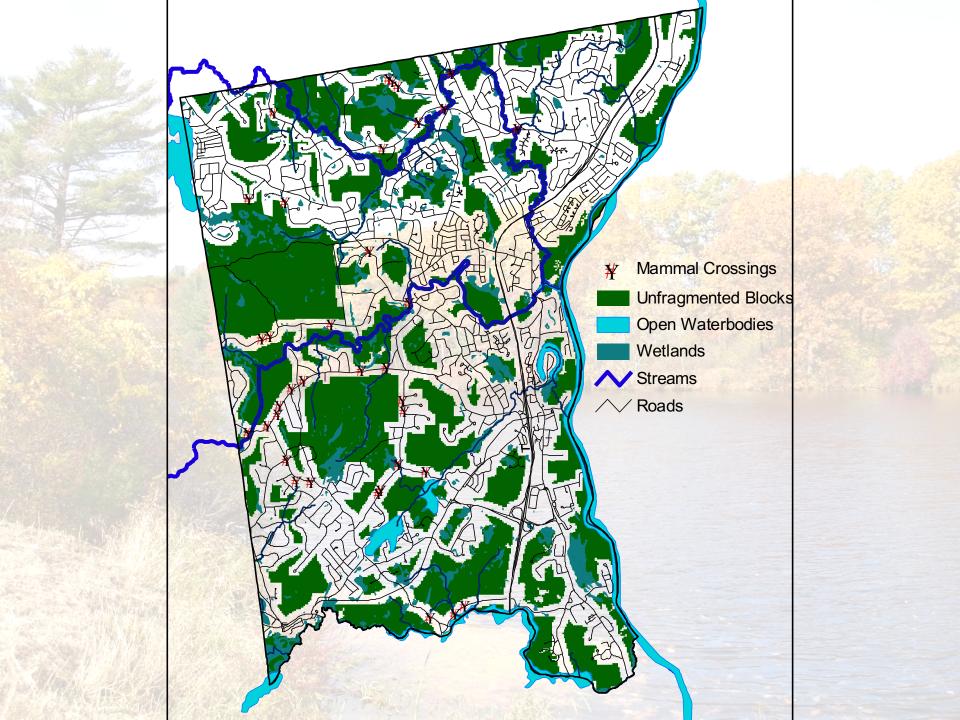
Significant Wildlife Habitats

- Vernal Pools
- Den Sites
- Caves/Mines
- Turtle Nesting Areas
- Deer Wintering Areas
- Rare/Declining Habitat
 Types
- Rare/Endangered Species Habitats

- Floodplain Forests
- Mast Forests
- Talus Slopes
- Heron Rookeries
- Wildlife Corridors
- Amphibian Migration
- Migratory waterfowl

Stopover Areas

- Wetlands Comparative Evaluation
- Refined Habitat Mapping and WAP Ground-truthing
- Natural Community Mapping and Rare Species Surveys
- Wildlife Corridors Assessment





- Wetlands Comparative Evaluation
- Refined Habitat Mapping and WAP Ground-truthing
- Natural Community Mapping and Rare Species Surveys
- Wildlife Corridors Assessment
- Grasslands and Active Farmlands
 - ID diversity of grasslands and fields
 - Better understand wildlife communities
 - Map locations of a declining habitat type

Legend

Marlborough Grasslands Land Use Categories





Hay field

Hay or Pasture

Cemetery

Other Cleared

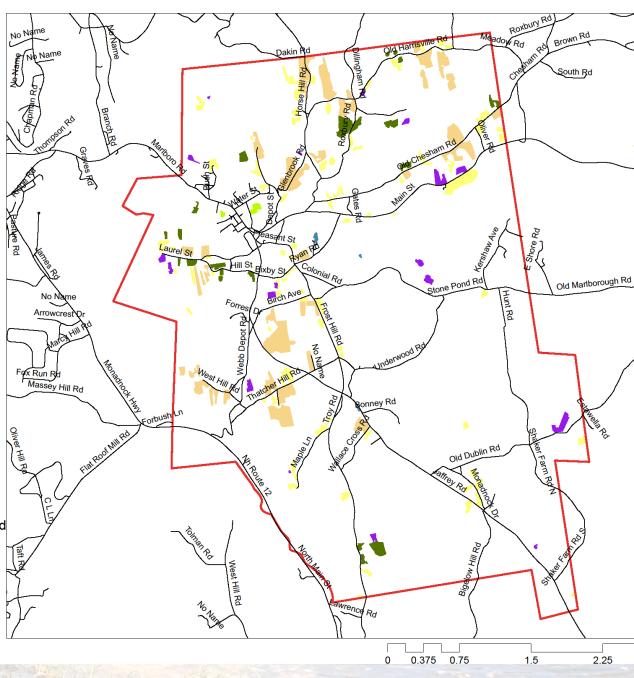
Land Use Type	Area (acres)	Range (acres)	Number of Polygons
Meadow	48.4	0.3-9.5	19
Pasture	76.8	0.9-15.1	21
Hayfield	369.2	1-33.7	42
Hay or Pasture	199	0.2-23.9	101
Cemetery	6.6	1.5-5.1	2
Other Cleared	3.4	0.4-2.1	3

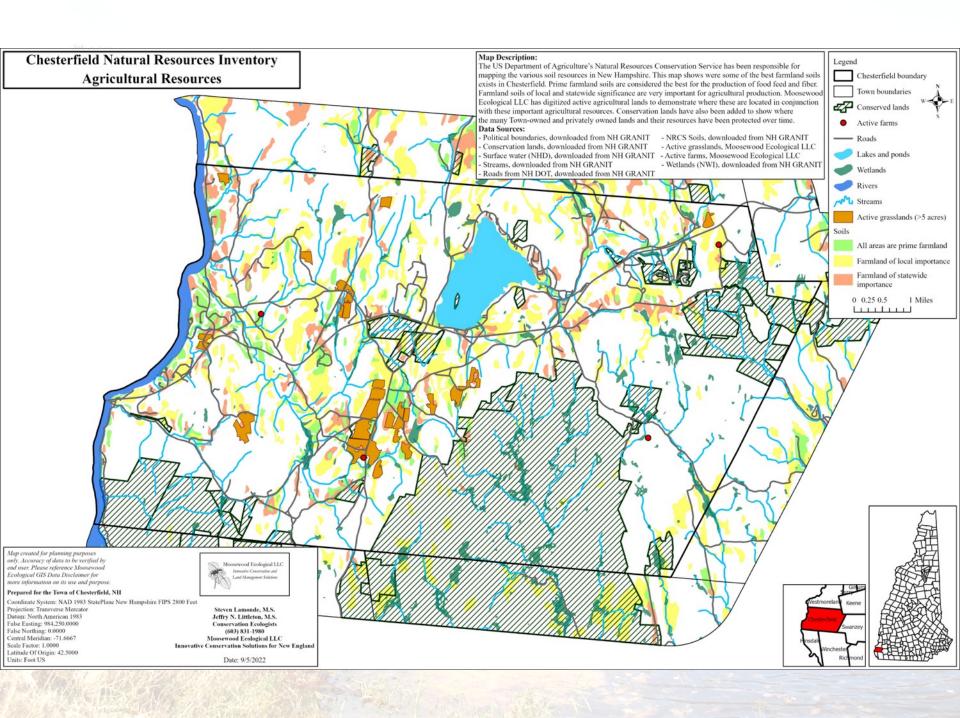
Data Sources: land use categories developed by Moosewood Ecological LLC (2015) with assistance from George Iselin; roads and town boundary acquired from GRANIT database

Map prepared by: Jeffry N. Littleton, M.S.

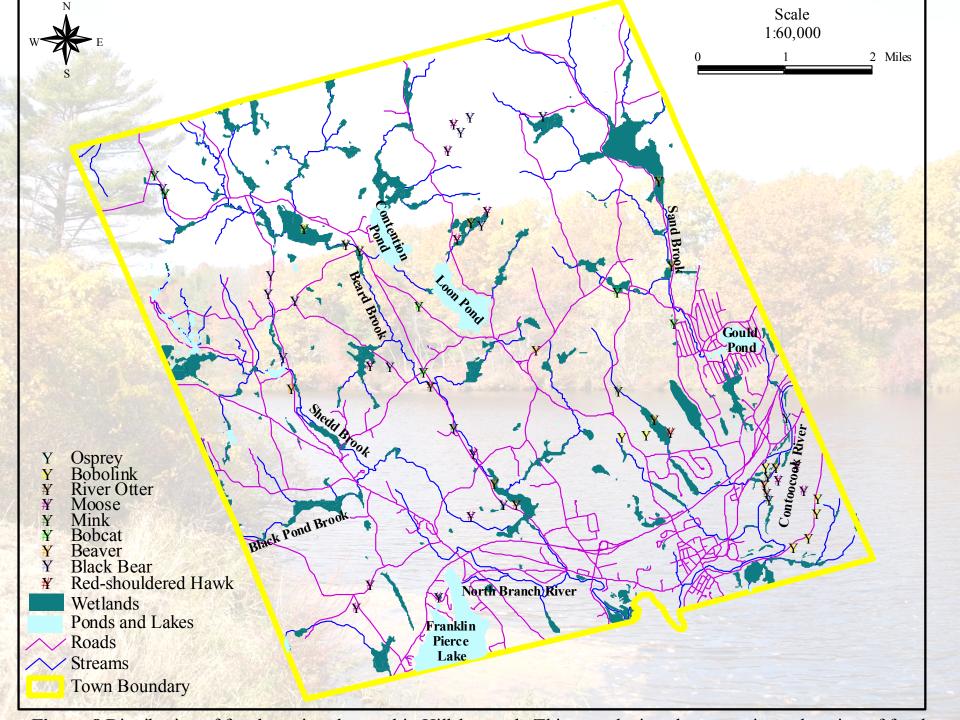
Moosewood Ecological LLC
(603) 831-1980

October 26, 2015





- Wetlands Comparative Evaluation
- Refined Habitat Mapping and WAP Ground-truthing
- Natural Community Mapping and Rare Species Surveys
- Wildlife Corridors Assessment
- Meadows and Active Farmlands
- Focal Species Assessment
 - Certain species provide clues to ecological health
 - ID rare species



- Wetlands Comparative Evaluation
- Refined Habitat Mapping and WAP Ground-truthing
- Natural Community Mapping and Rare Species Surveys
- Wildlife Corridors Assessment
- Meadows and Active Farmlands
- Focal Species Assessment
- Habitat Restoration and Enhancement