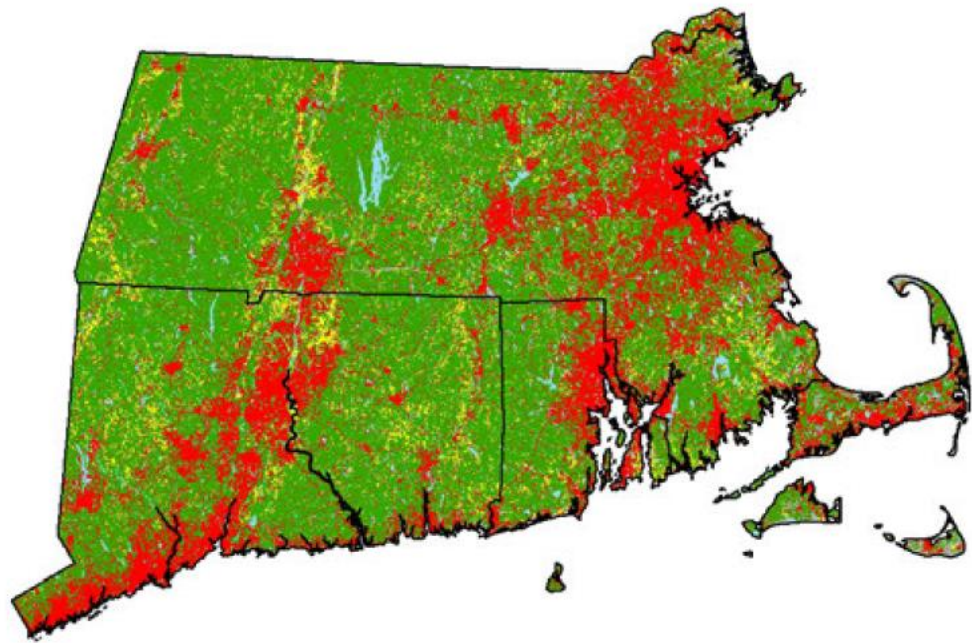


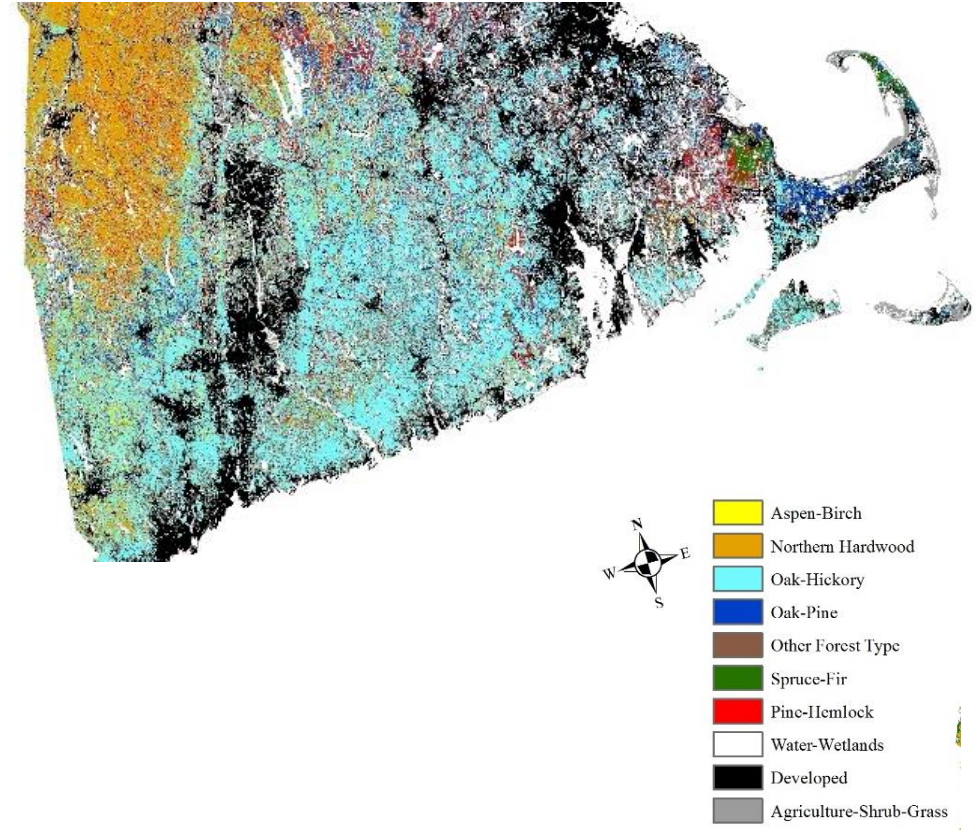
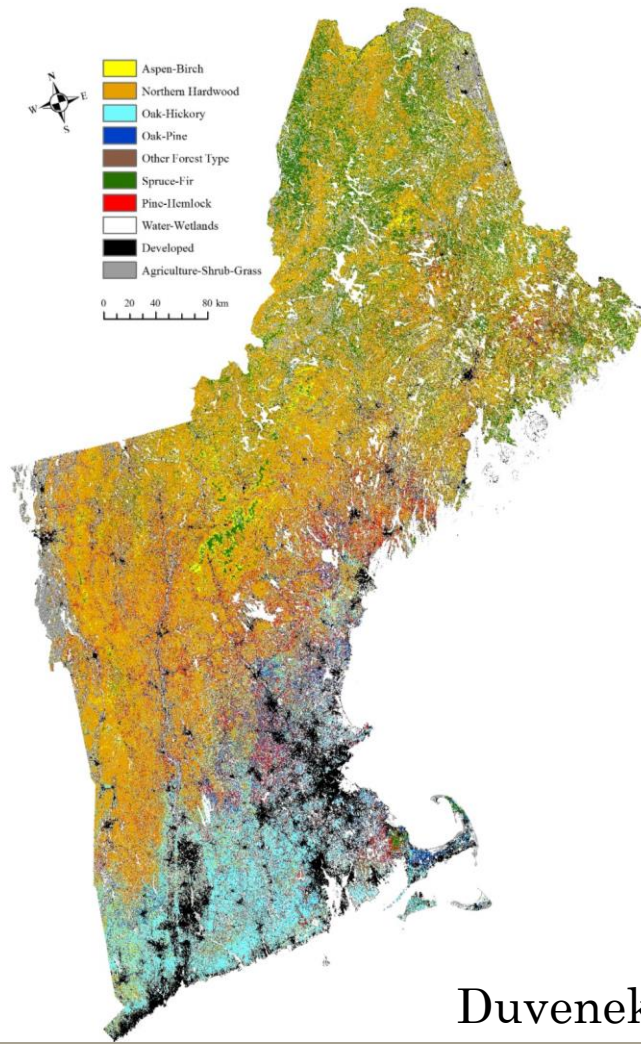
Overview of Southern New England Oak- Hickory Forests

Origins and
Timeline of
the Southern
New England
Exurban
Forest



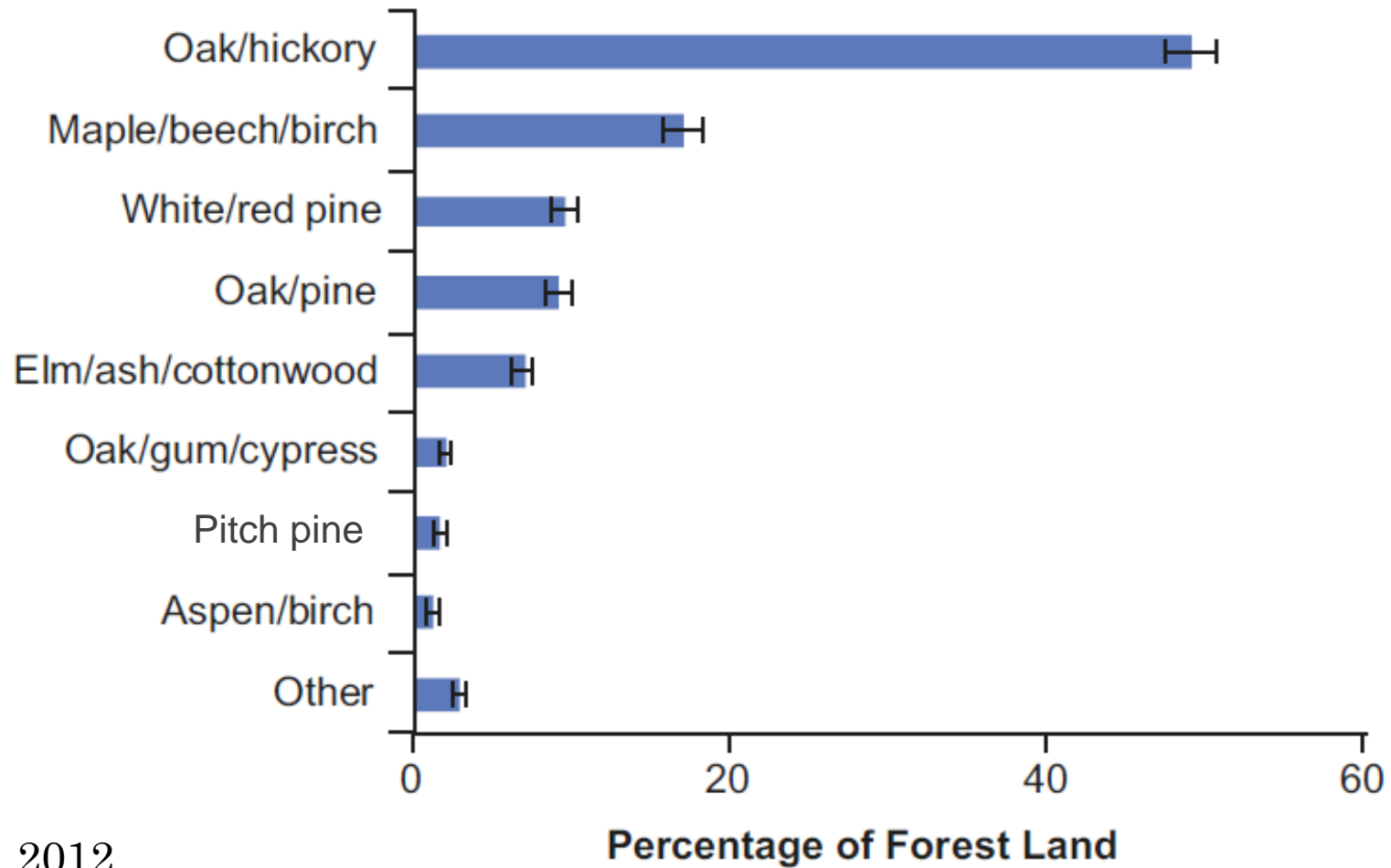
Forests of Southern New England

~60% Forest Land & ~70% canopy cover



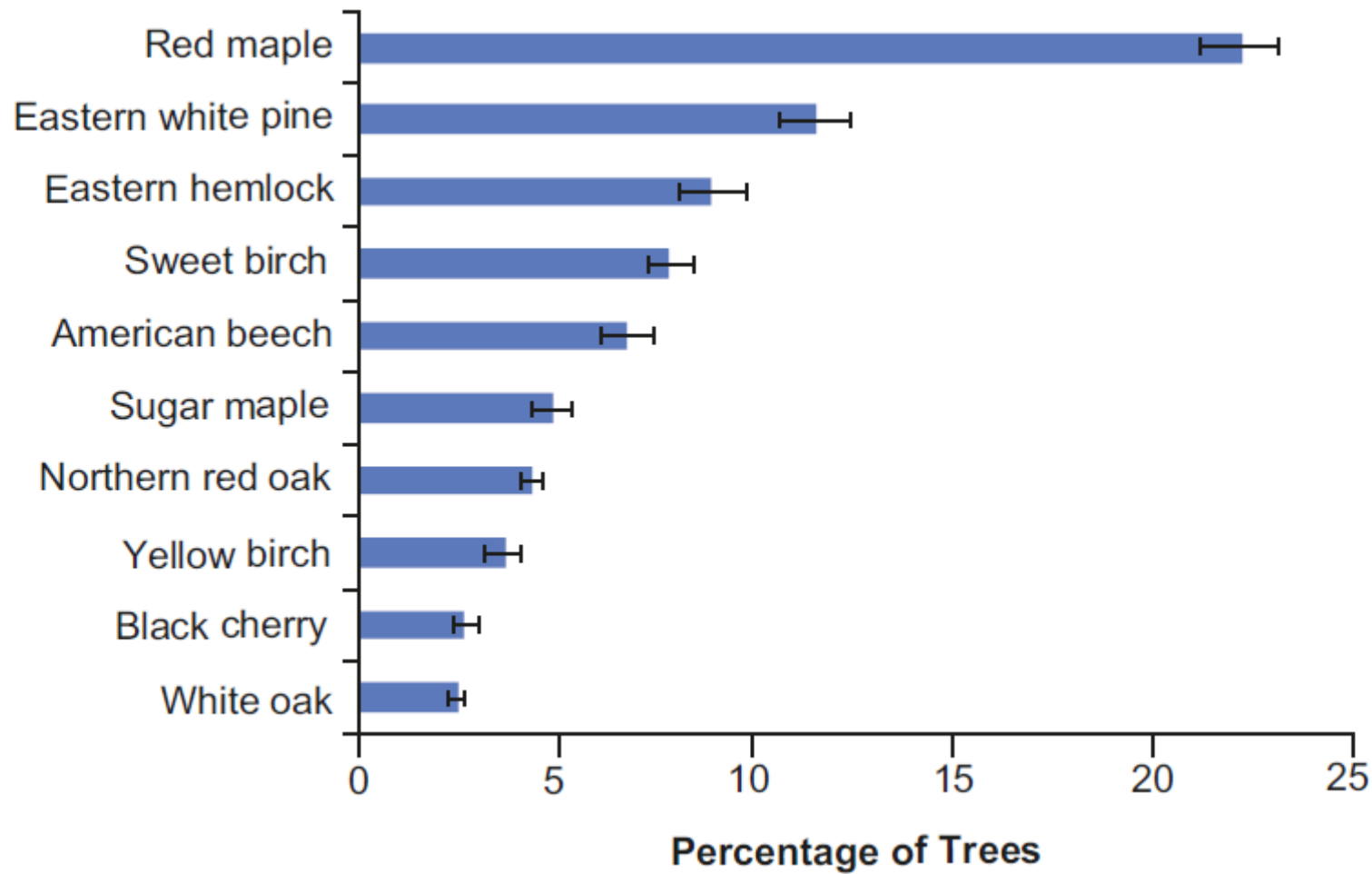
Duvenek et al. 2015

Forest Types of New England



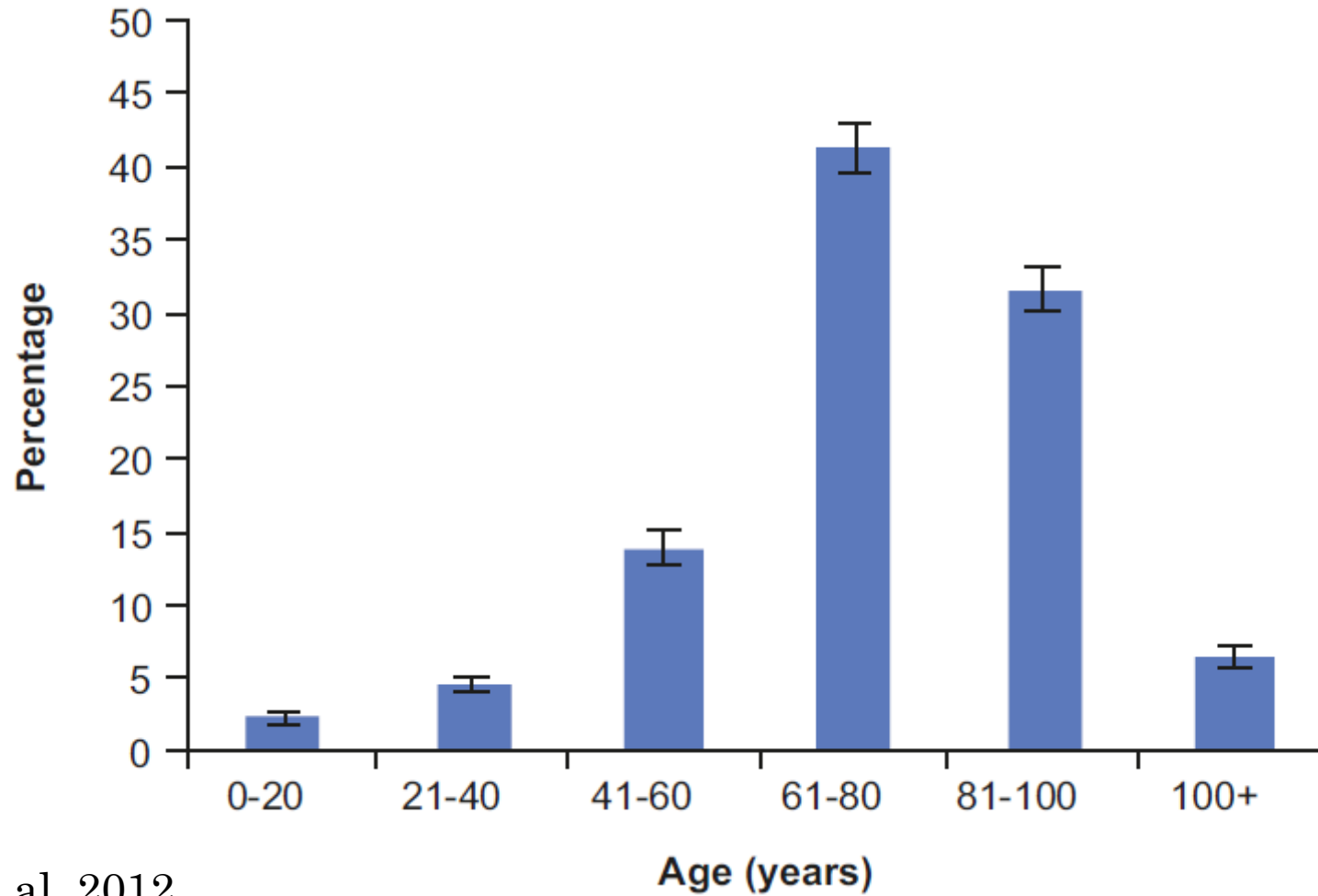
Butler et al. 2012

Forests of Southern New England



Butler et al. 2012

Forests of Southern New England



Butler et al. 2012

Forests of Southern New England

Forests of Southern New England

- ~60% forest cover
- Oak-hickory forests – with major component of maple, birch, & pine
- Transitional between Mid-Atlantic oak-hickory and New England maple-beech
- Young-ish forests – largely ~80-100 years old

How did we get here?

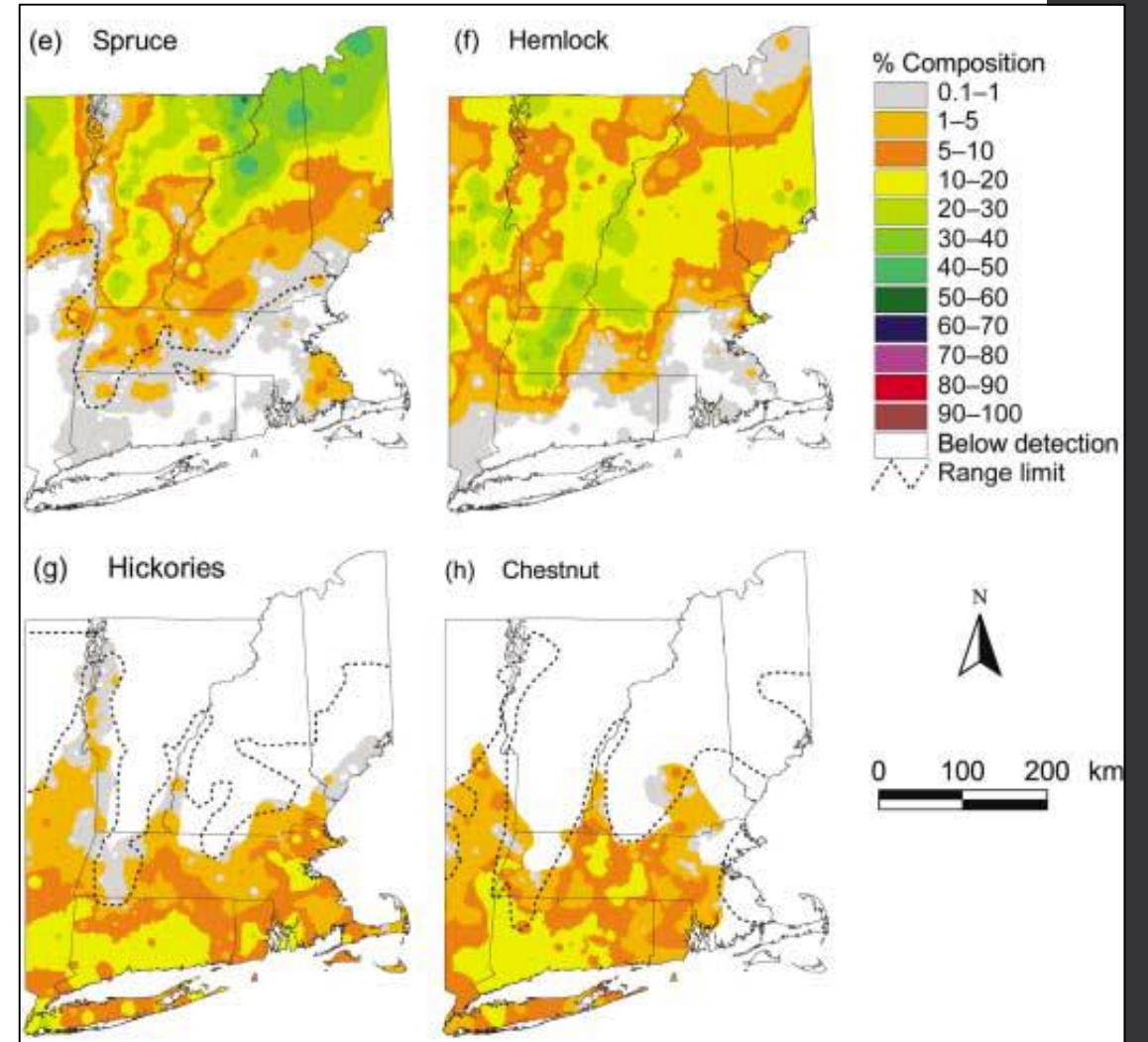
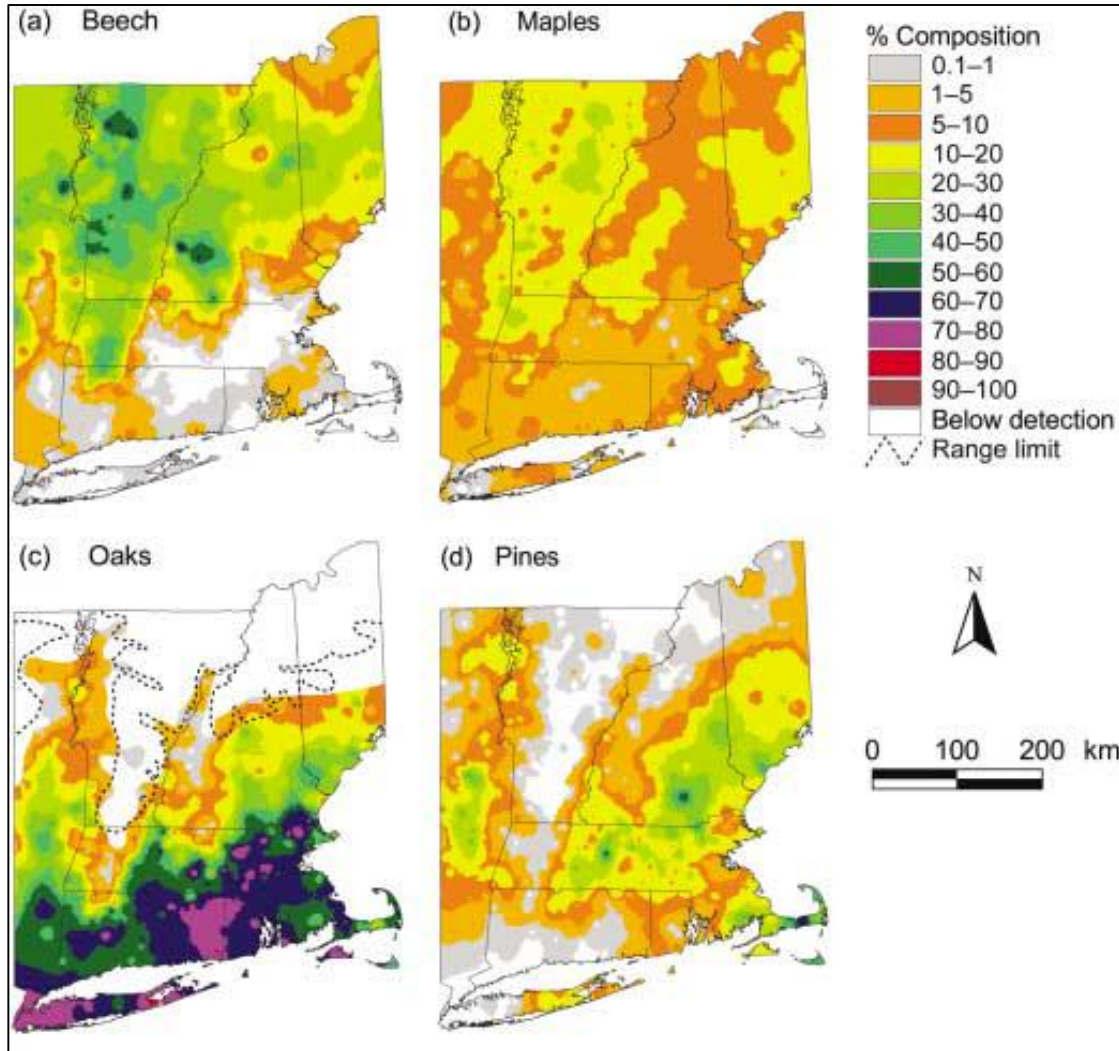
Forests of Southern New England

- “Original forest” or “Forest Primeval” in the “pre-settlement” era of the 1700’s when European colonization occurred
- Was this the “natural” condition of our region?



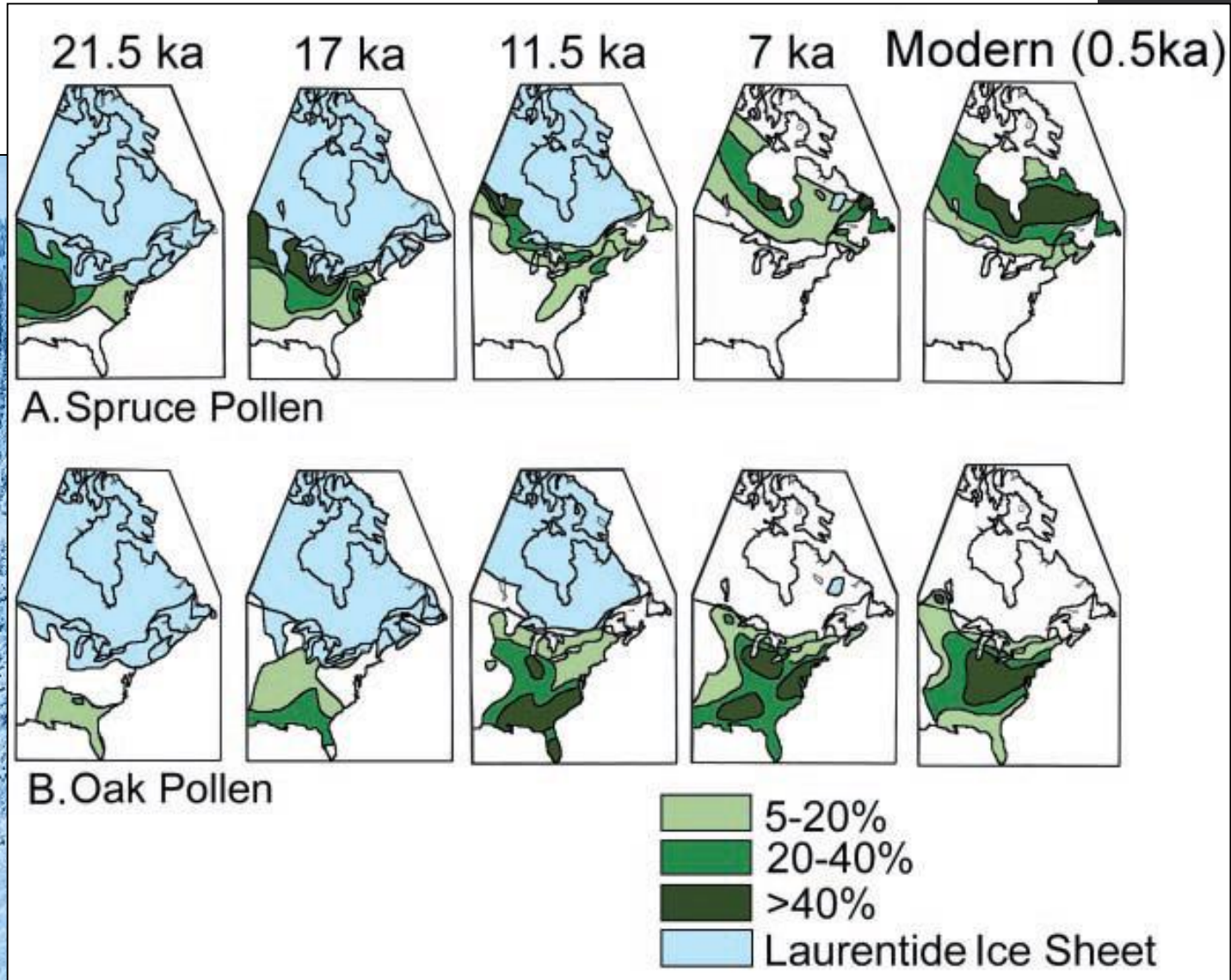
Pre-European Forests

- Forest composition ~1618
- From Town surveys – Cogbill et al. 2002



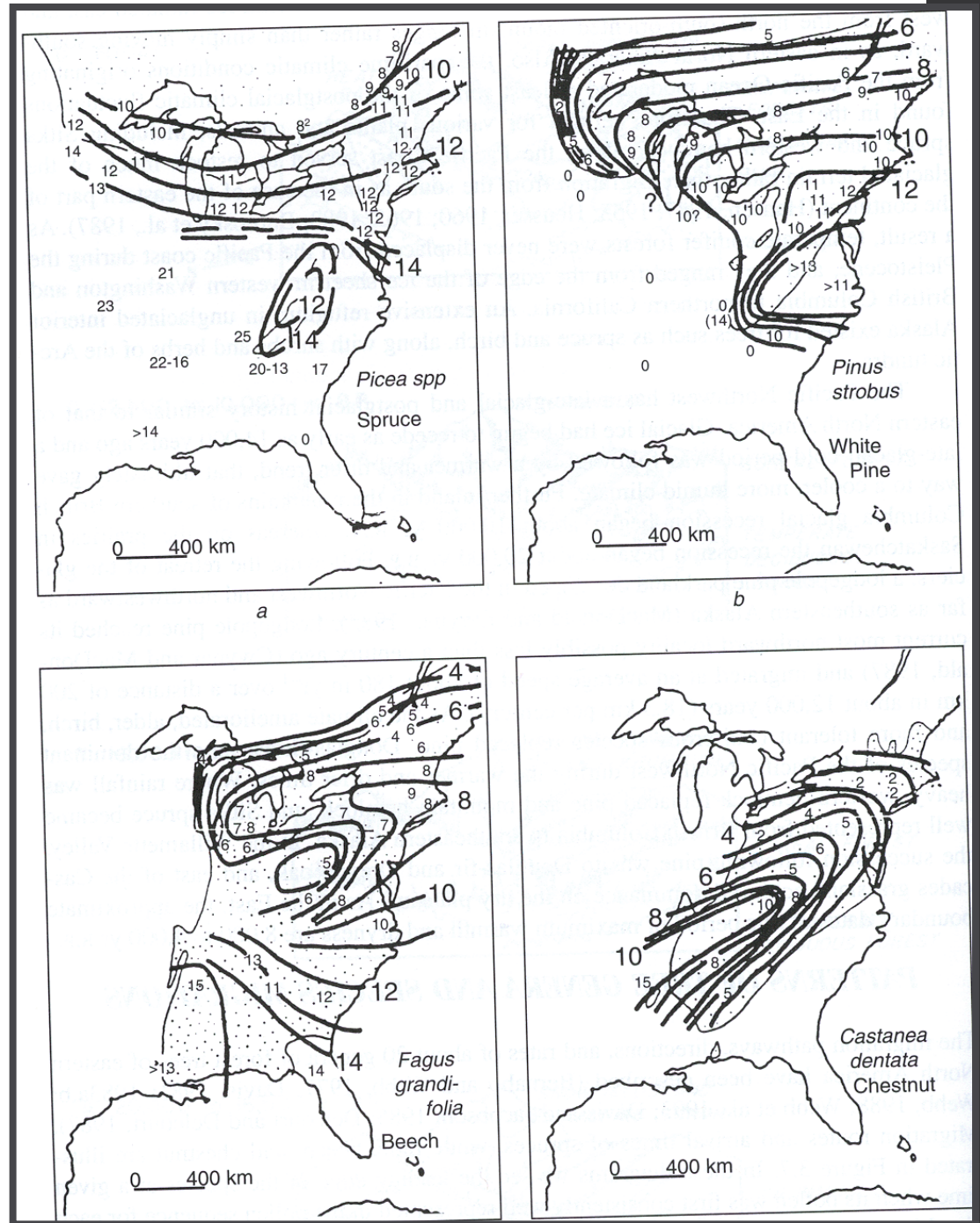
Paleoecology

- What about 15000BC?



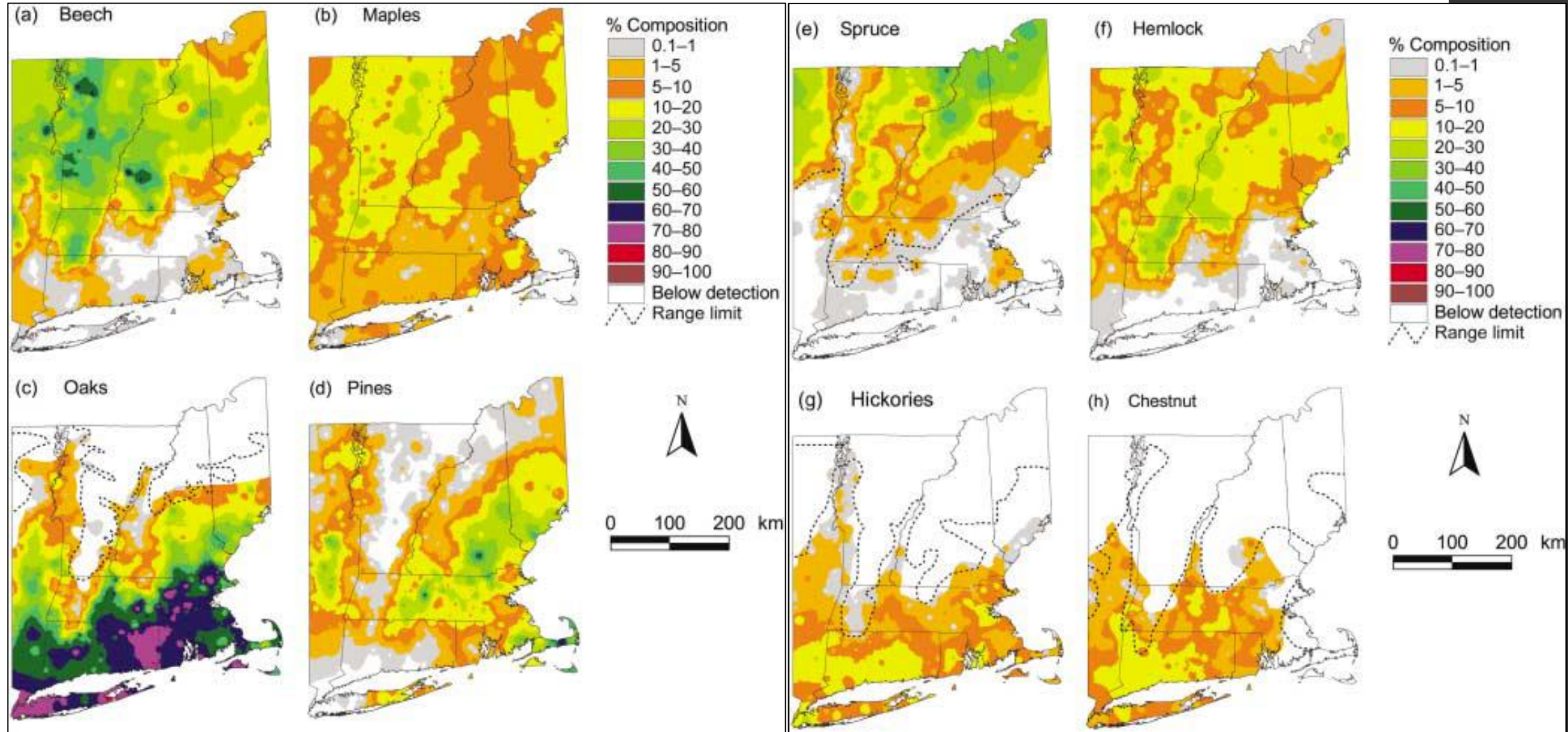
Paleoecology

- Species migrations – refugia and trajectories differed among species
- Different arrival times – communities of today are really a snapshot of these combined trajectories...



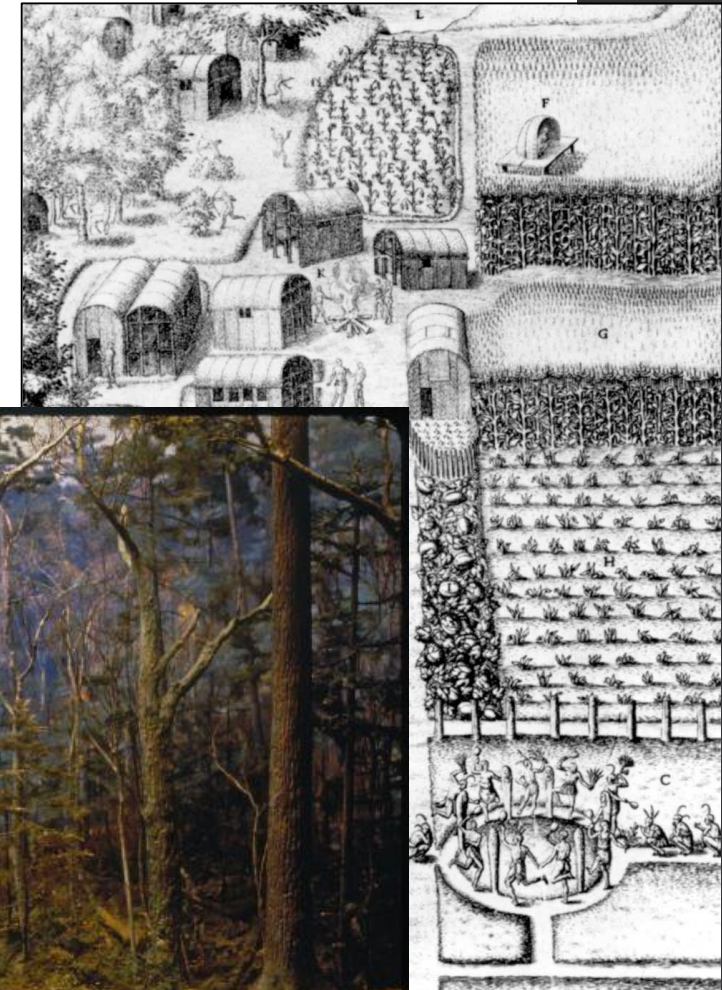
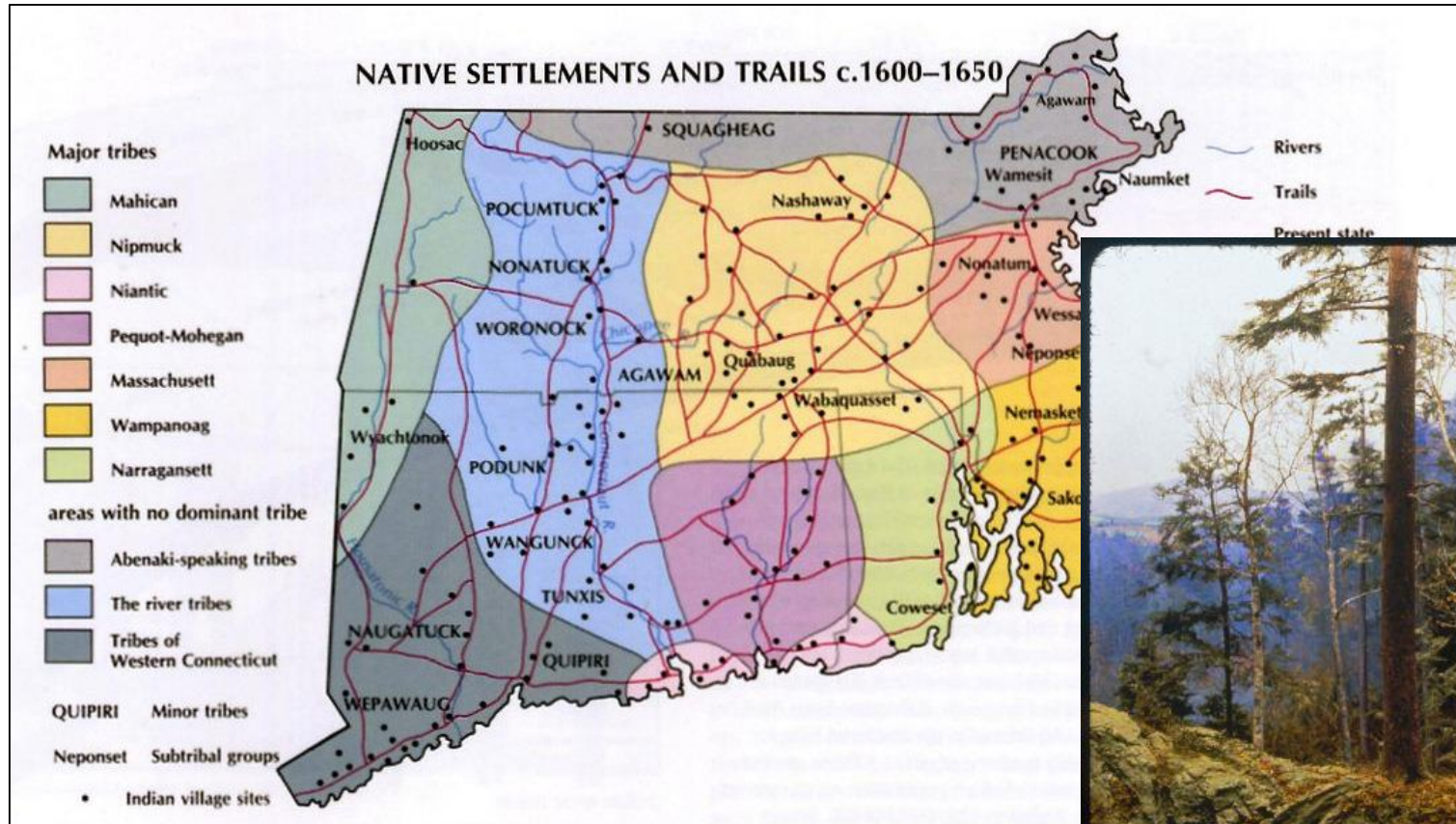
Pre-European Forests

- Forest in ~1618 – so “the original forest” was a product of species migrations/environment...?



Forest Primeval?

- Not really “untrammelled wilderness” though – large Native American populations for thousands of years!
- But declined by 90+% with European contact



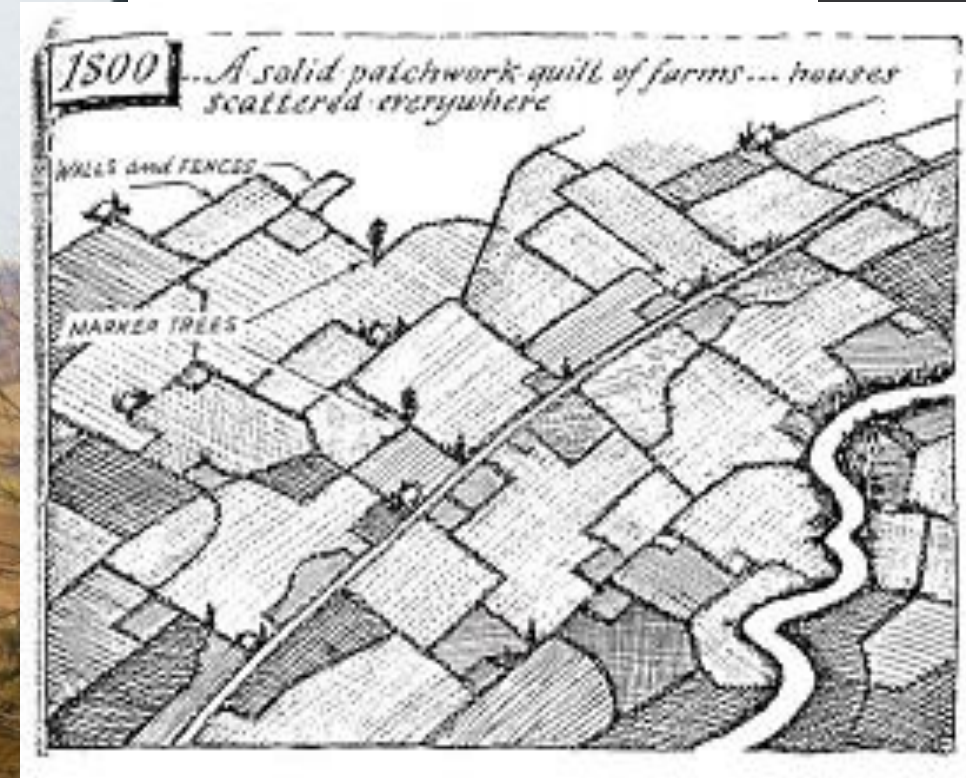
Forest History

- European “settlement” – 1600’s – 1700’s
- “Civilizing” the depopulated landscape – small subsistence farms



Forest History

- Peak agriculture – early 1800's – “Sheep Fever”
- Very little forest (<25%) remained – 120,000 miles of stone walls



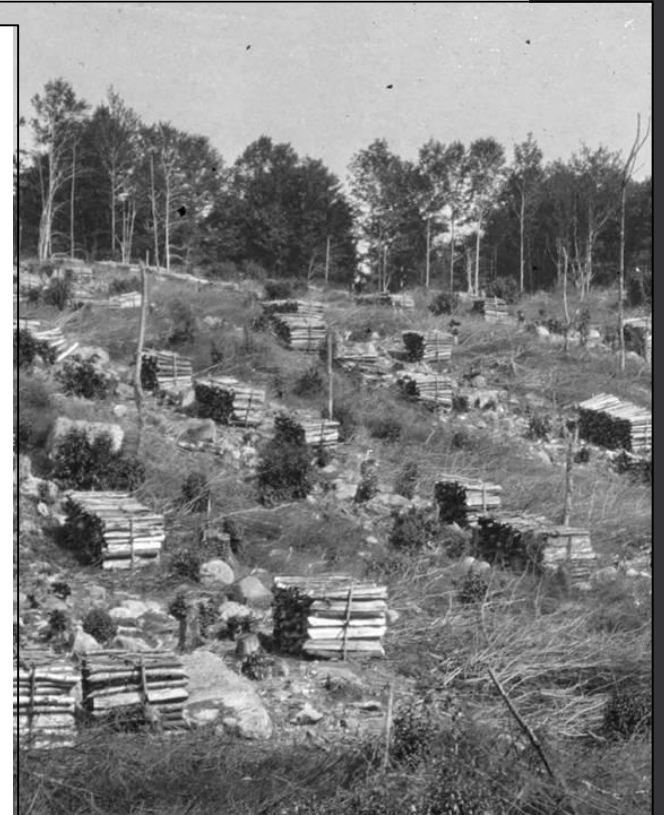
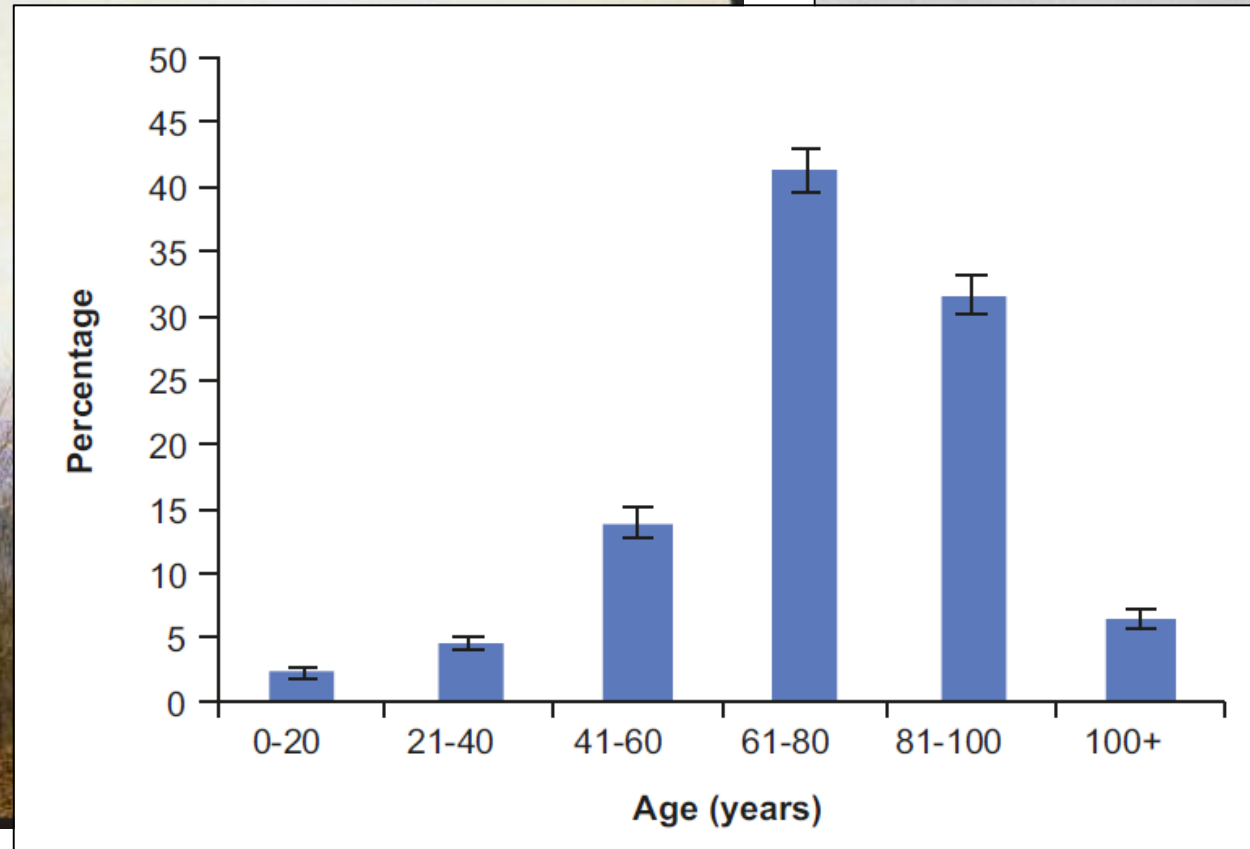
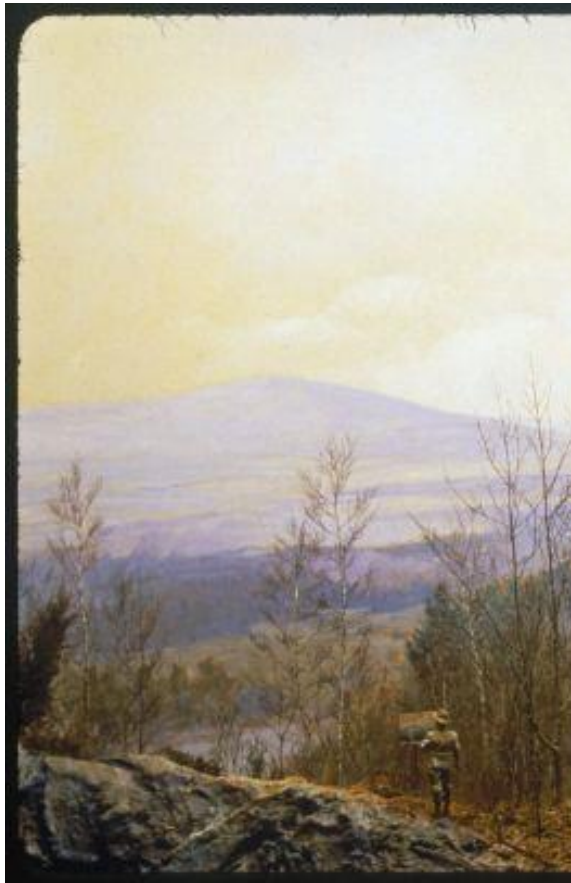
Forest History

- Agricultural abandonment – late 1800's
- Erie Canal (1821) and railroads – Ag moved west & trees reinvaded fields

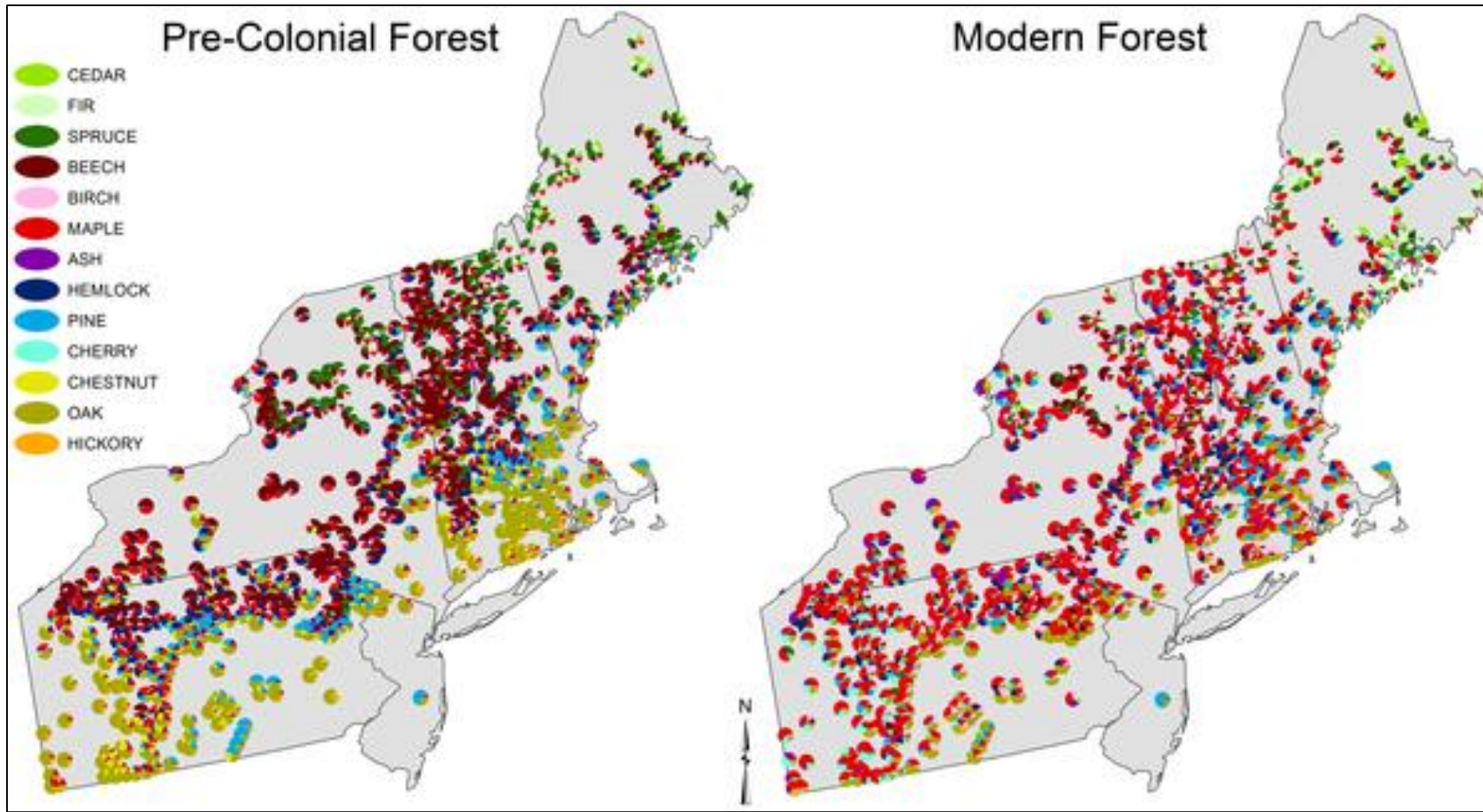


Forest History

- Return of forests – early 1900's – but still substantial forest harvesting for wood products and charcoal production until the 1920's and 30's – then the forests of today really started
- Legacy still apparent in modern age structure



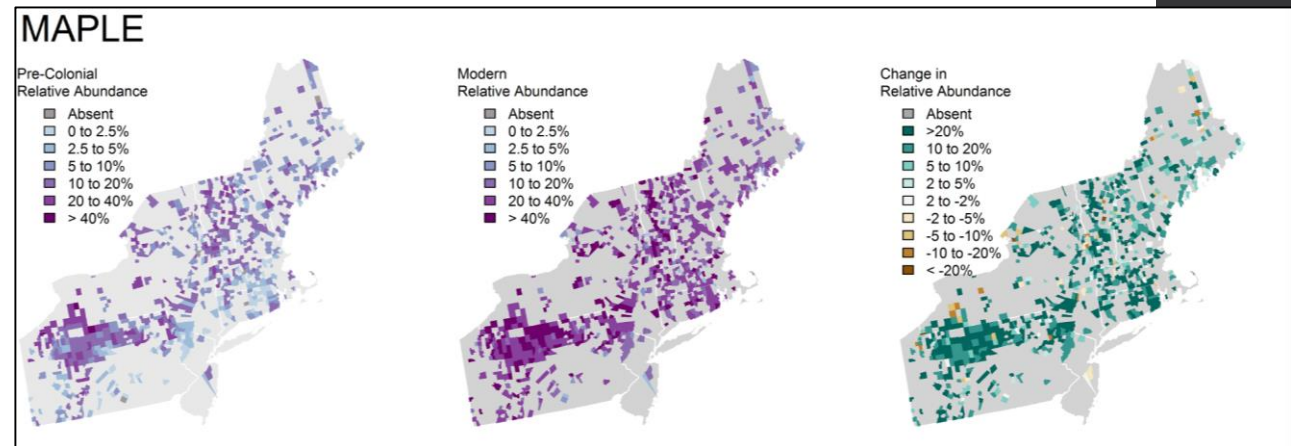
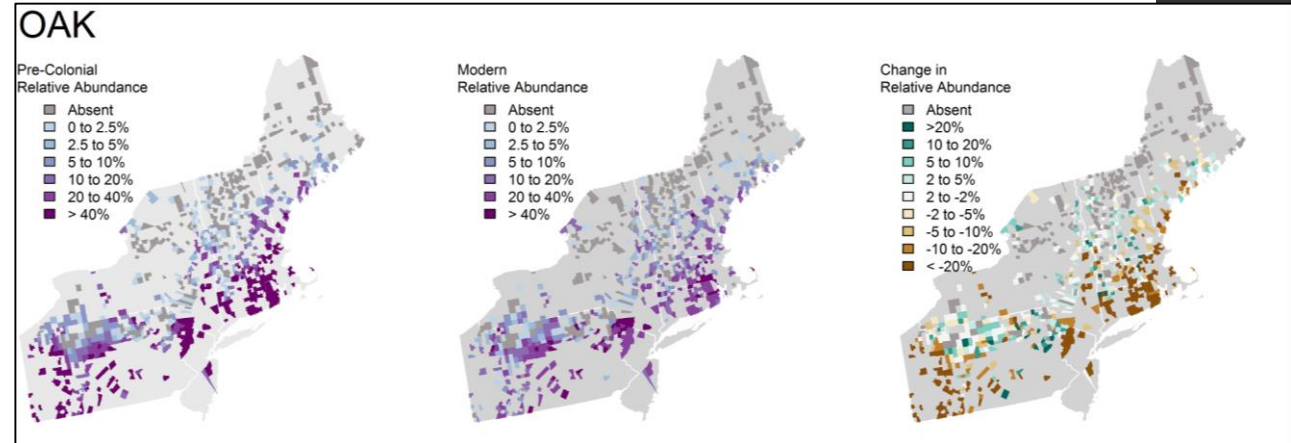
Forest Change



Taxon	Pre-Colonial		Modern	
	Towns	Stems	Towns	Stems
Ashes	547	3916	500	3996
Basswood	390	1655	180	538
Beech	615	31909	474	7525
Birches	655	9678	657	11467
Blackgum	118	460	94	475
Cedar	132	976	116	2278
Cherries	220	546	462	4565
Chestnut	332	7616	11	11
Cypress	23	82	4	34
Elms	331	1433	152	555
Fir	216	2047	222	6178
Hemlock	605	15817	467	8184
Hickories	309	7493	208	1094
Hornbeam	384	1683	245	1017
Magnolias	63	162	46	108
Maple	692	17017	699	33167
Oak	489	49014	467	11662
Pines	516	12176	442	7398
Poplars	258	1109	345	2401
Spruces	355	9288	296	5076
Sycamore	84	162	4	10
Tamarack	63	181	39	269
Tulip	113	335	73	368
Walnuts	156	421	27	69
TOTAL	701	176715	701	109784

Forest Change

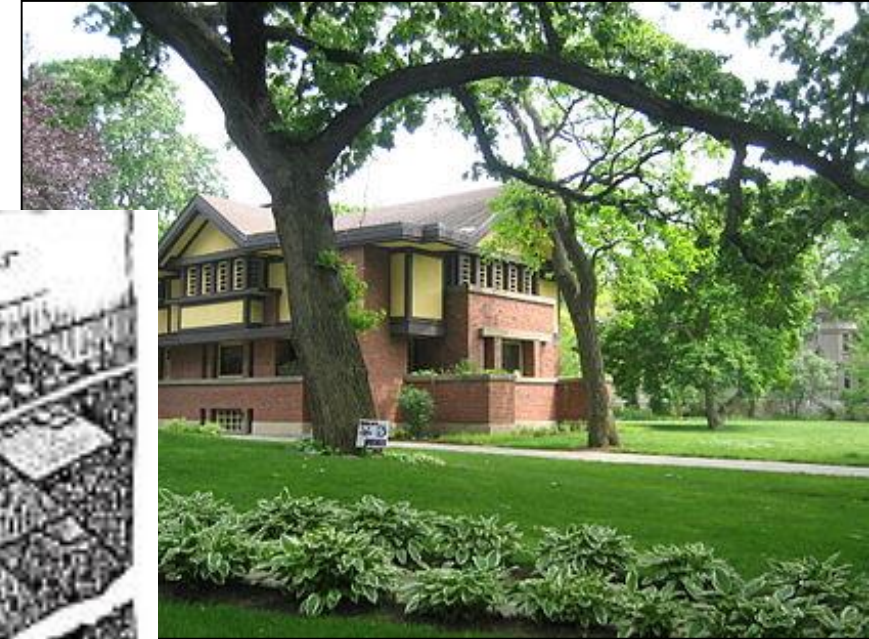
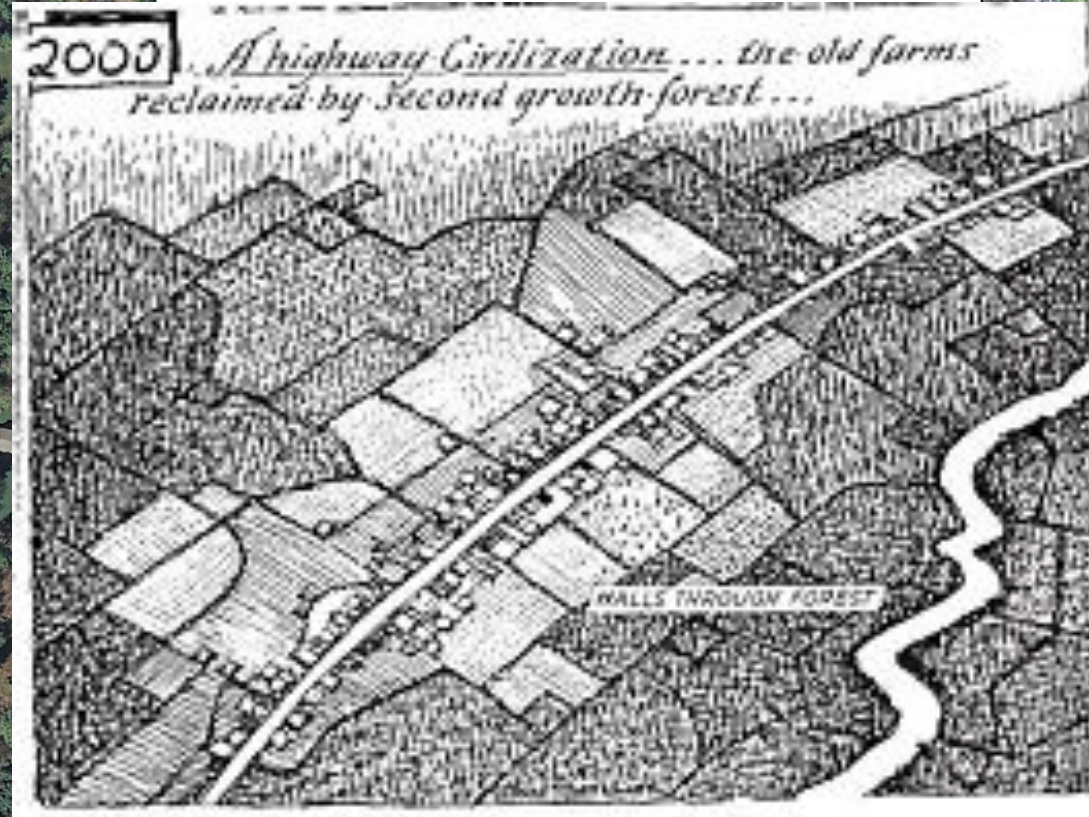
- Mesophication and decline in fire
- Introduced pests and diseases
- Deer abundance
- Invasive species



Thompson et al. 2013

Forest History

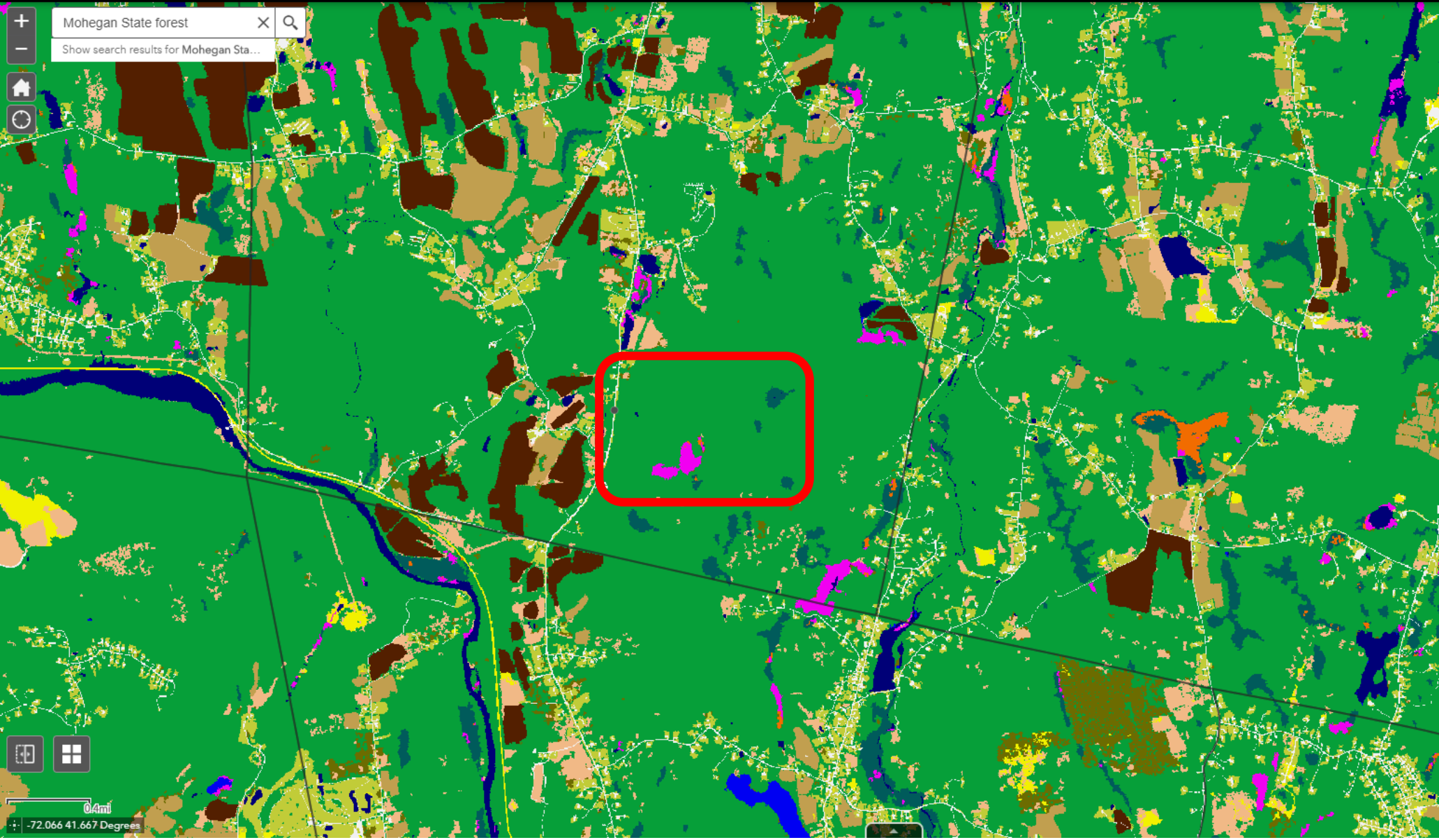
- Urbanization and exurbanization – late 1900's - early 2000's



+ Mohegan State forest X Q
- Show search results for Mohegan Sta...

Home Refresh

0.4mi
-72.066 41.667 Degrees



Legend

CT Towns

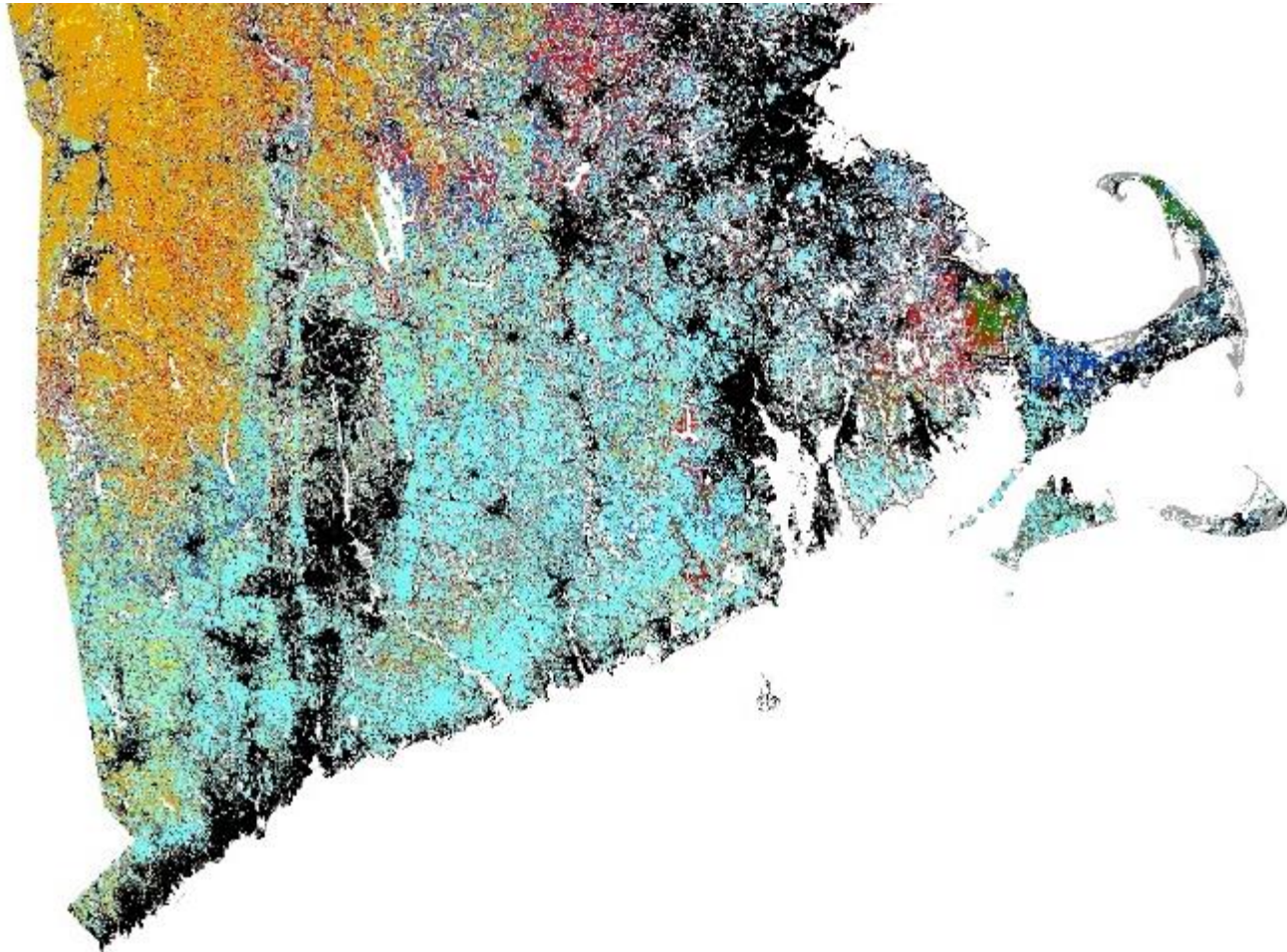
- Connecticut Town
- Water

CT High Res Landcover (NOAA CCAP)

NOAA CCAP 2016 High Res Landcover

- Impervious
- Developed Open Space
- Cultivated Land
- Pasture/Hay
- Grassland
- Mixed Forest
- Scrub/Shrub
- Palustrine Forested Wetland
- Palustrine Scrub/Shrub Wetland
- Palustrine Emergent Wetland
- Estuarine Scrub/Shrub Wetland
- Estuarine Emergent Wetland
- Unconsolidated Shore
- Bare Land
- Open Water
- Palustrine Aquatic Bed
- Estuarine Aquatic Bed

Forests of Southern New England



- Modern forest composition is a construct of:
 - Post-glacial migrations
 - Human land use and abandonment and subsequent management
 - Indirect human impacts such as pests/disease and invasive species

Southern New England Oak-Hickory Forest

- So what is the oak-hickory forest and how do we manage it?
- Forest with canopy dominants that are:
 - Intermediate in shade tolerance
 - Relatively long lived
 - Masting species
 - Rely on advance regeneration
- Historical fire regime on the order of 100-400 year return intervals – may have been affected by human activity
- Some variation in site quality – but not as much as other oak dominated forests
- Competition from maples, black birch, tulip poplar
- Effects of gypsy moth and associated disturbance agents
- Highly susceptible to deer browsing pressure