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
Forest Types of New England

Duvenek et al. 2015
Forests of Southern New England

Butler et al. 2012

Diagram showing the percentage of forest land by different tree types.
Forests of Southern New England

Butler et al. 2012
Forests of Southern New England

Butler et al. 2012
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 “untrammeled 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

Thompson et al. 2013

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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
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
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