Quantum of Buffer

Emily Wilson

Juliana Barrett

CT NEMO, CT Sea Grant

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OUTLINE

Agent Emily

- **Landcover**
- **Riparian Buffers Methods**
- **Results**

Agent Juliana

- **Outreach**
- **Towns**

University of Connecticut
COOPERATIVE EXTENSION SYSTEM
College of Agriculture and Natural Resources

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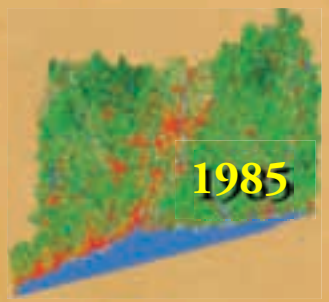
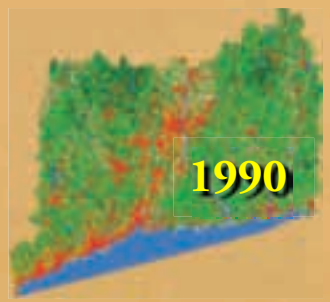
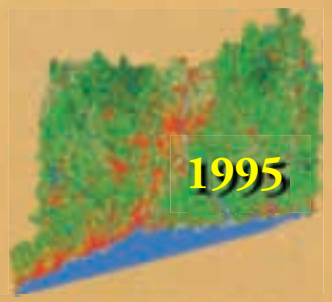
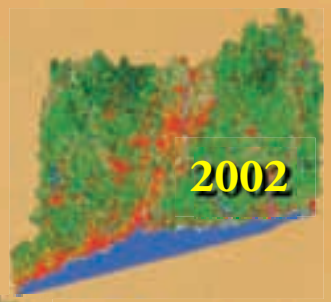
CONNECTICUT'S CHANGING LANDSCAPE

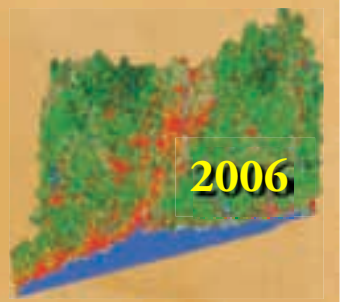
Version 1: 4 Dates of Consistent Land Cover
Version 2: 5 Dates of Consistent Land Cover
Addition of Agricultural Field Class
Refinement of all classes in all dates

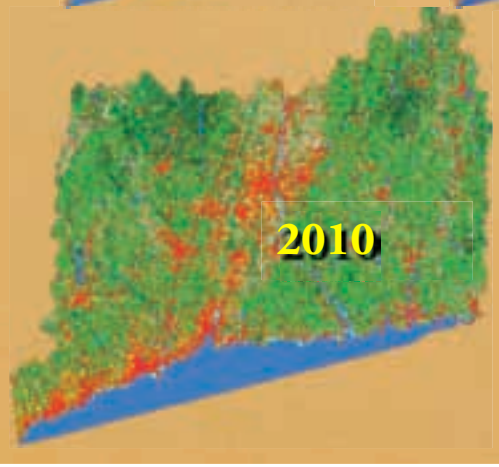












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WHAT IS LAND COVER?

Satellite image

Land cover map

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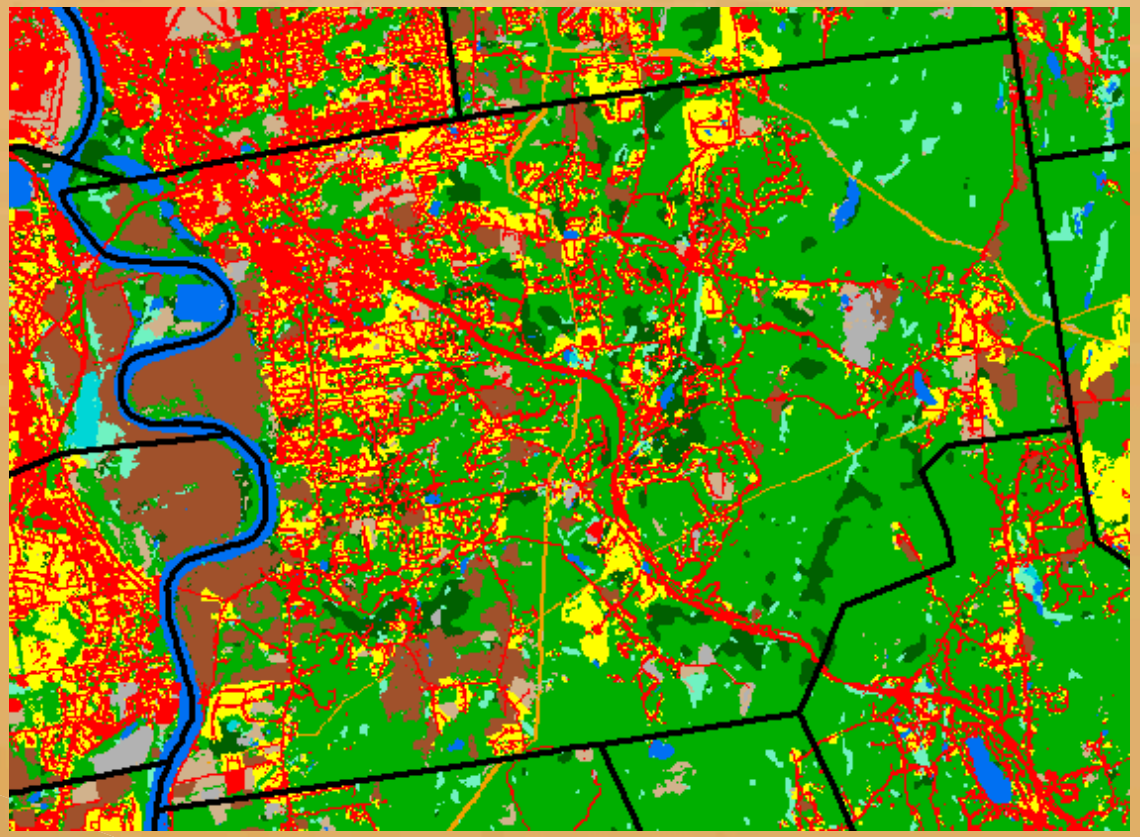
QUANTIFY AND COMPARE

Increase in Development:	**1613 acres**
Loss of Forest:	**1778 acres**
Loss of Ag Field:	**1306 acres**



1985

2006

- Developed
- Turf & Grass
- Other Grasses
- Agricultural Field
- Deciduous Forest
- Coniferous Forest
- Water
- Forest Wetland
- Non-forested Wetland
- Tidal Wetland
- Barren
- Utility Right-of-way

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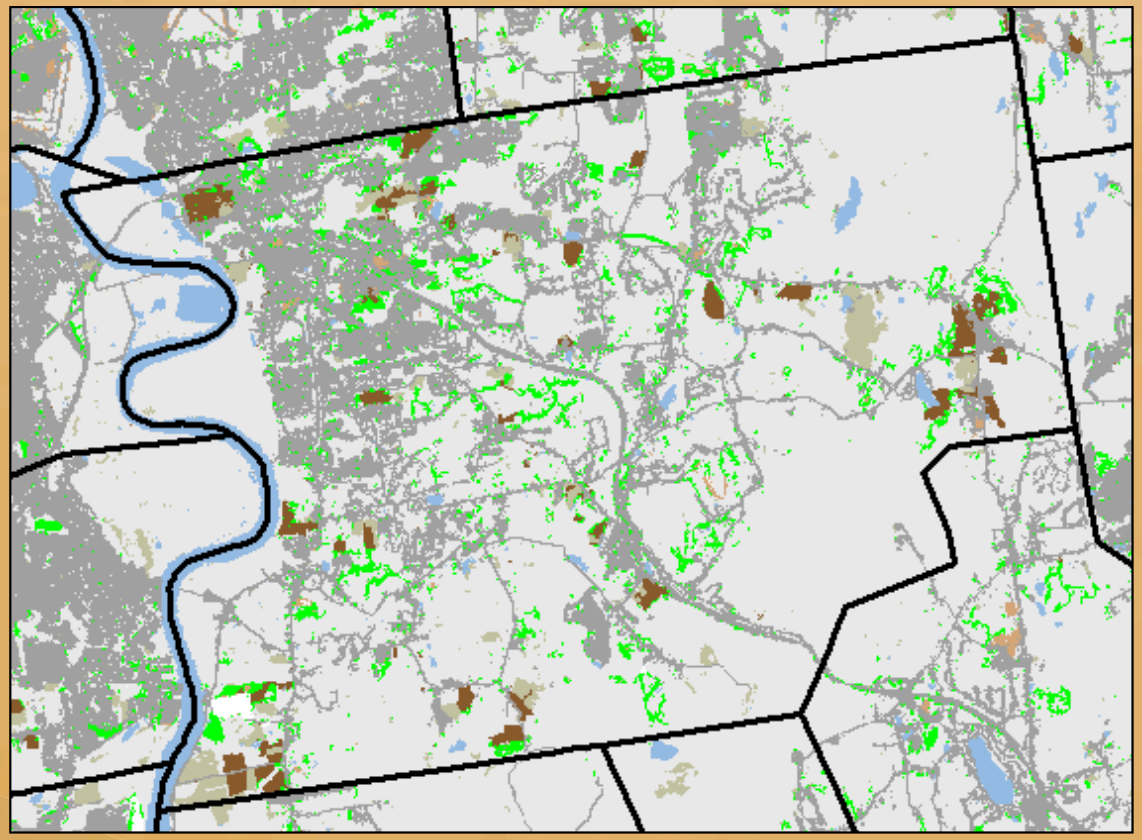
QUANTIFY AND COMPARE

Increase in Development:	**1613 acres**
Loss of Forest:	**1778 acres**
Loss of Ag Field:	**1306 acres**



No Change Classes
- Developed
- Turf & Grass
- Water
- Undeveloped

Change Classes from Undeveloped to:
- Developed 1985-1990
- Turf & Grass 1985-1990
- Developed 1990-1995
- Turf & Grass 1990-1995
- Developed 1995-2002
- Turf & Grass 1995-2002
- Developed 2002-2006
- Turf & Grass 2002-2006

No Change Classes
- Developed/Turf & Grass
- Agriculture
- Water
- Undeveloped

Change Classes: Between 1985 and 2006, change to Developed or Turf & Grass
- Other Grasses
- Agriculture
- Forest or Wetland
- Barren

- Other Changes

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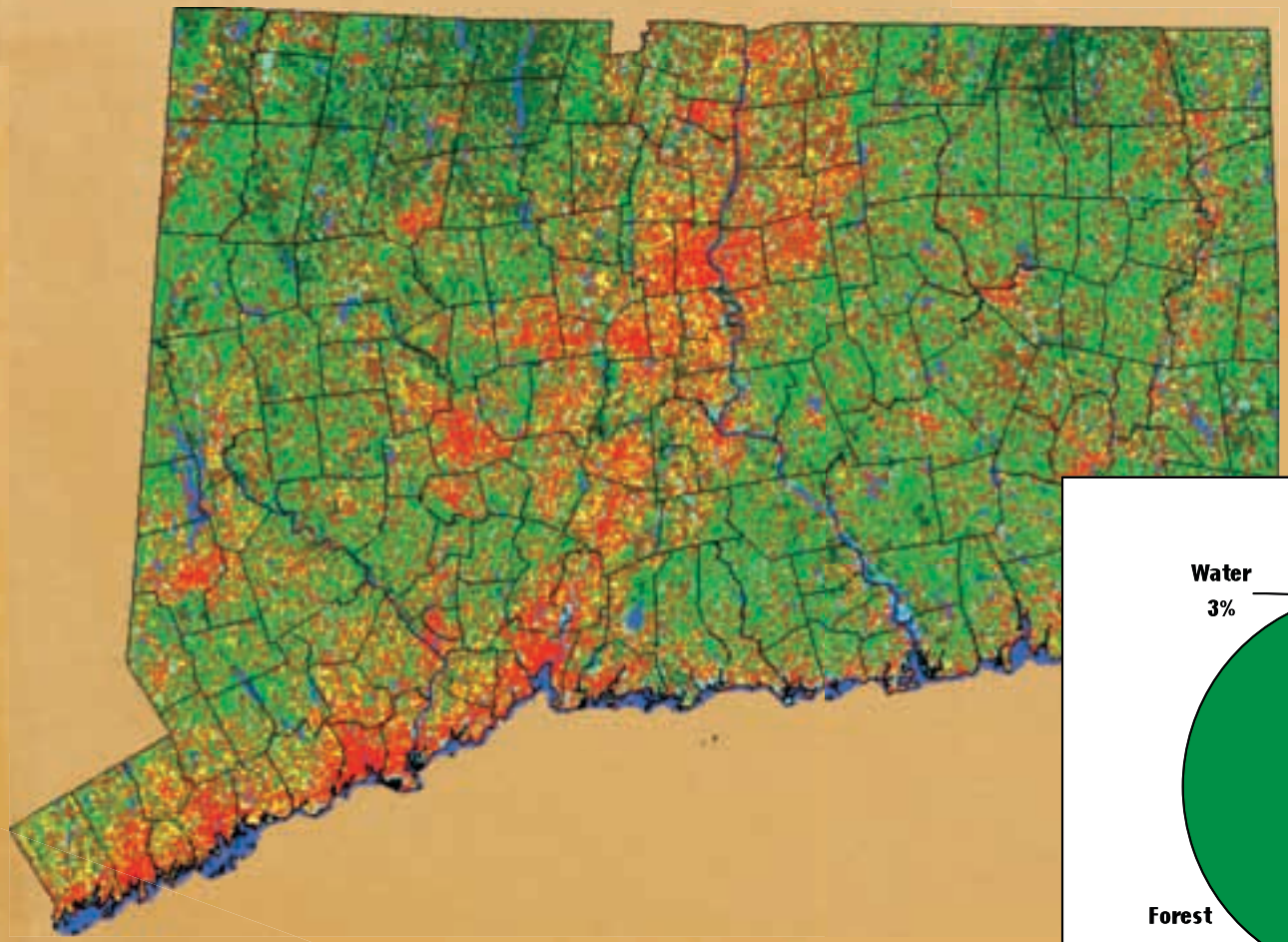
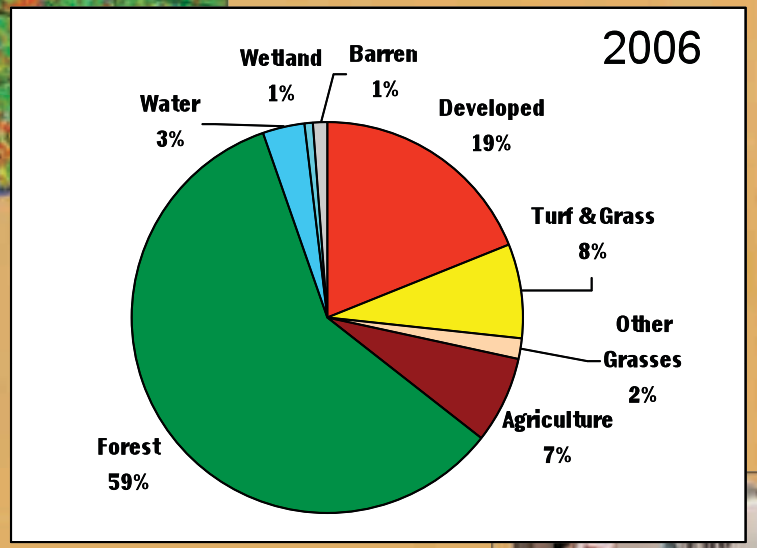
QUANTIFY AND COMPARE





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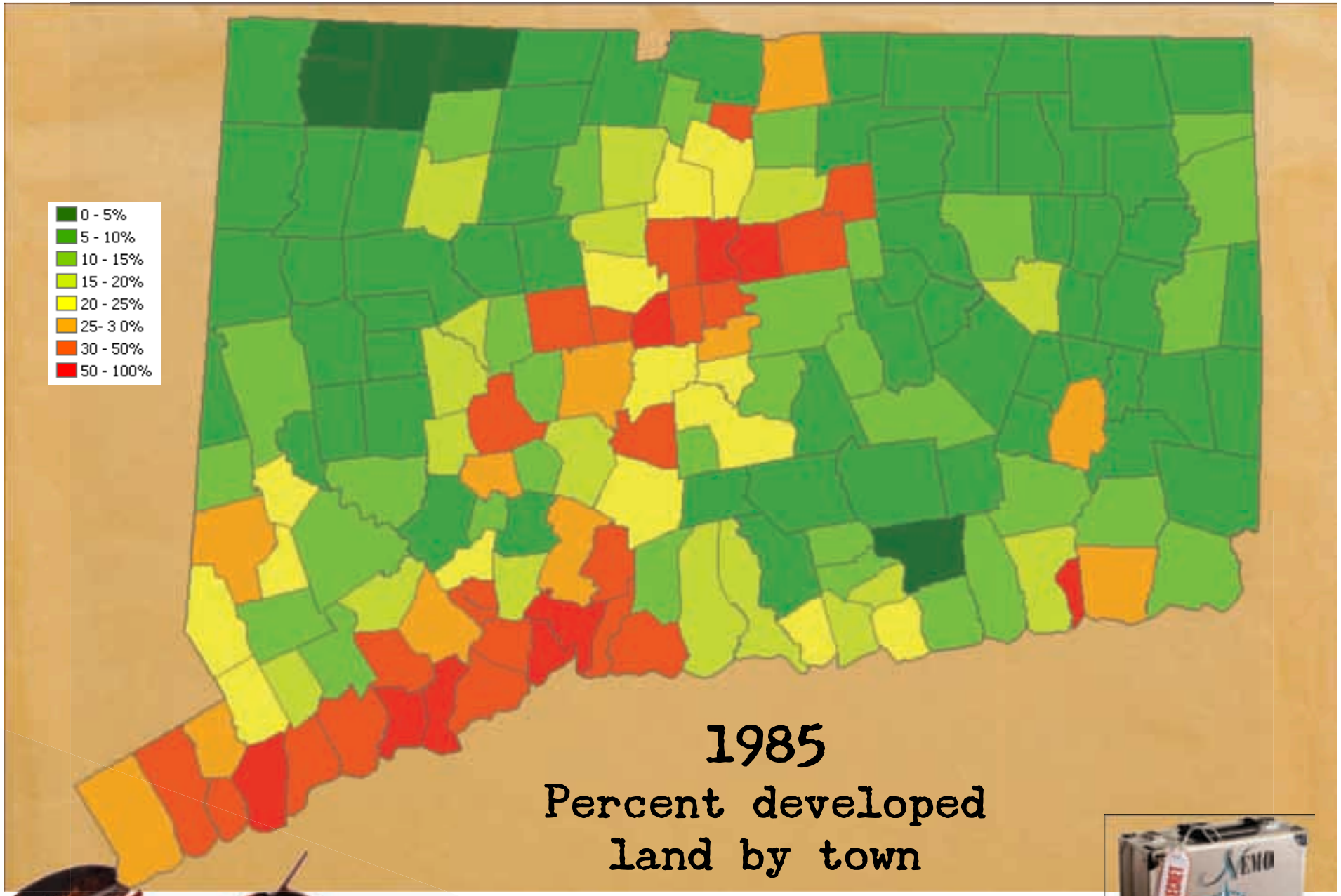

1985
Percent developed land by town

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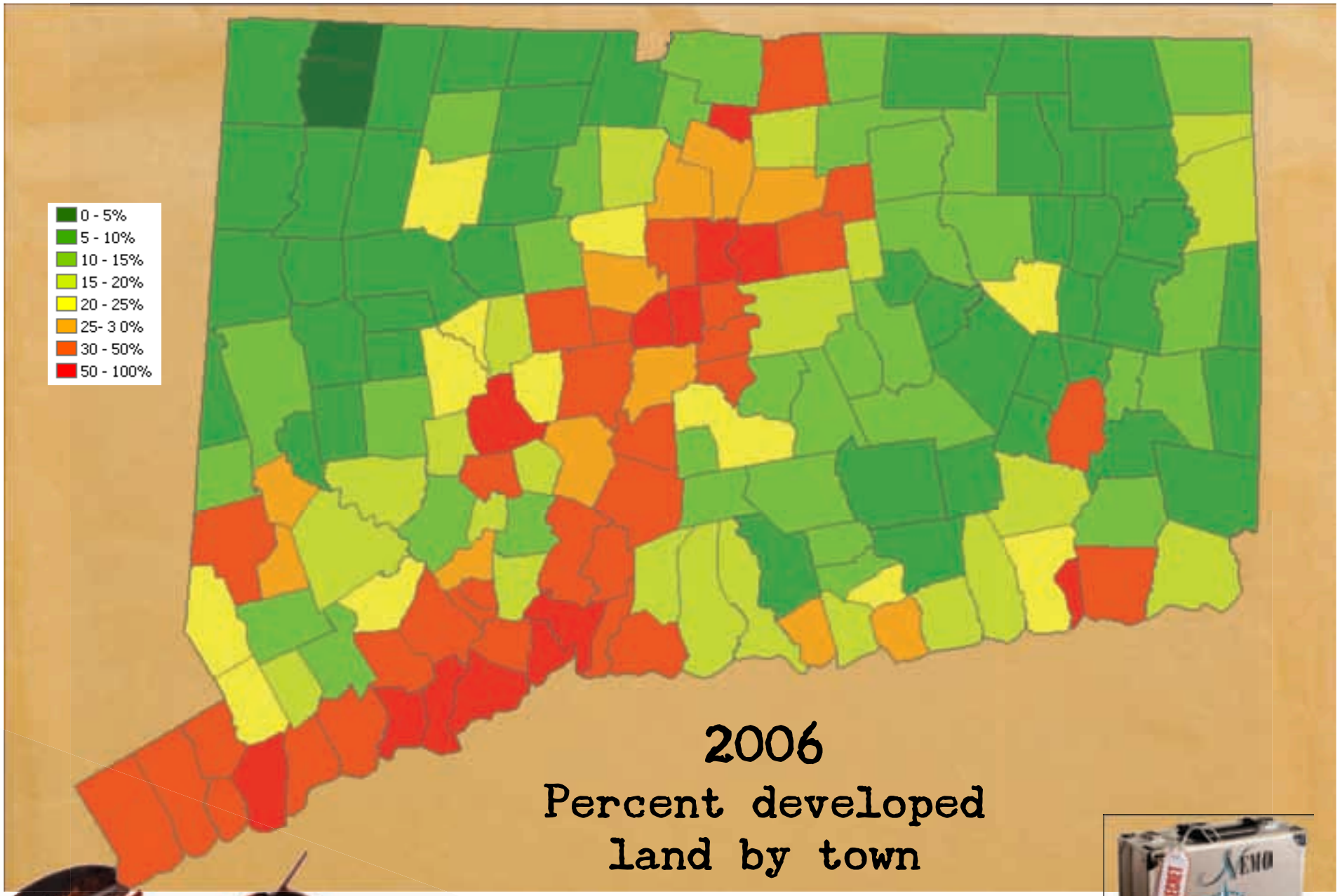

2006
Percent developed land by town

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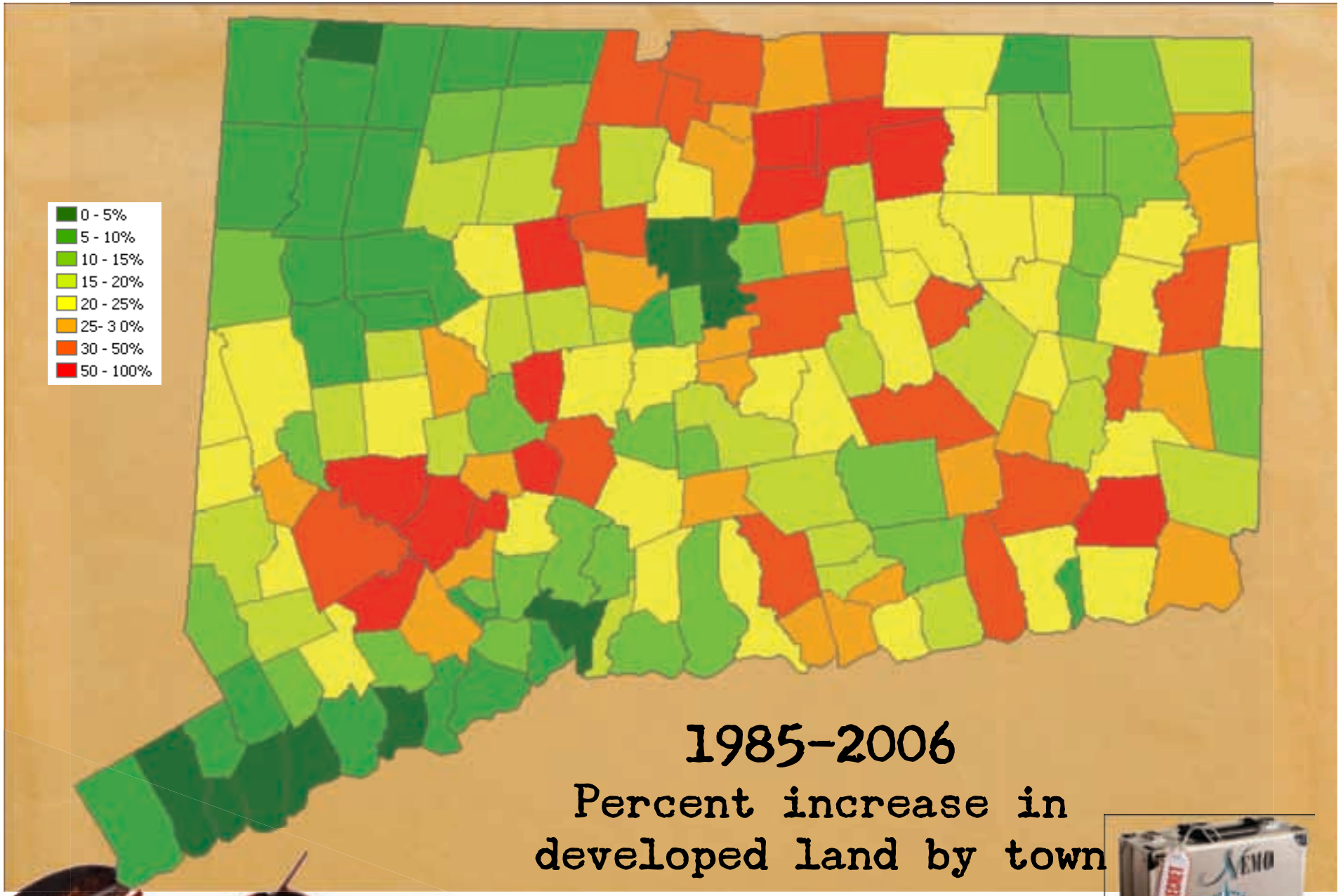

1985-2006

Percent increase in developed land by town

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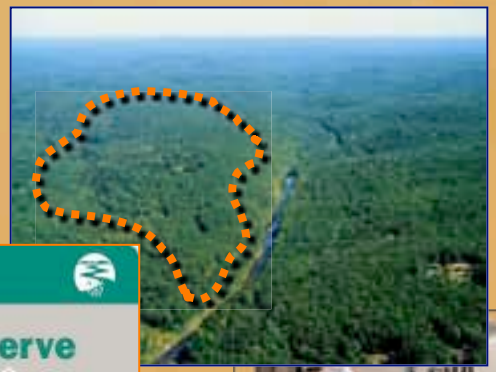
LAND COVER VS LAND USE

- **Land Cover**: Literally, what is covering the land (forest, wetland, pavement)

- **Land Use**: What is planned, practiced or permitted on a given area (commercial, residential, dedicated open space)



RIPARIAN ~~BUFFERS~~ CORRIDORS

Riparian: the area by the banks of a river, stream, or other body of water

Buffer: a designated zone or strip of land of a specified width along the border of an area

Riparian Buffer: is the natural vegetation and soil cover adjacent to a river, stream, or other body of water.

RIPARIAN CORRIDORS FUNCTIONS AND VALUES

- first line of defense against the impacts of impervious surfaces
- slow runoff
- protect shorelines from erosion
- aid in flood control
- filter or trap pollutants
- provide habitat and corridors for wildlife
- shade waters for fisheries enhancement

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RIPARIAN BUFFERS ANALYSIS

- **Provide an overall picture of the state of riparian buffers and the changes over time**
- **Develop diagnostic information at the watershed level which managers can use to direct future efforts**

Version 1:
- Funded by the Long Island Sound Study.
- Used Version 1 Land Cover
- Southern half of Connecticut

Version 2:
- Used Version 2 Land Cover
- Statewide
- Still a work in progress

Long Island Sound Study
A Partnership to Restore and Protect the Sound

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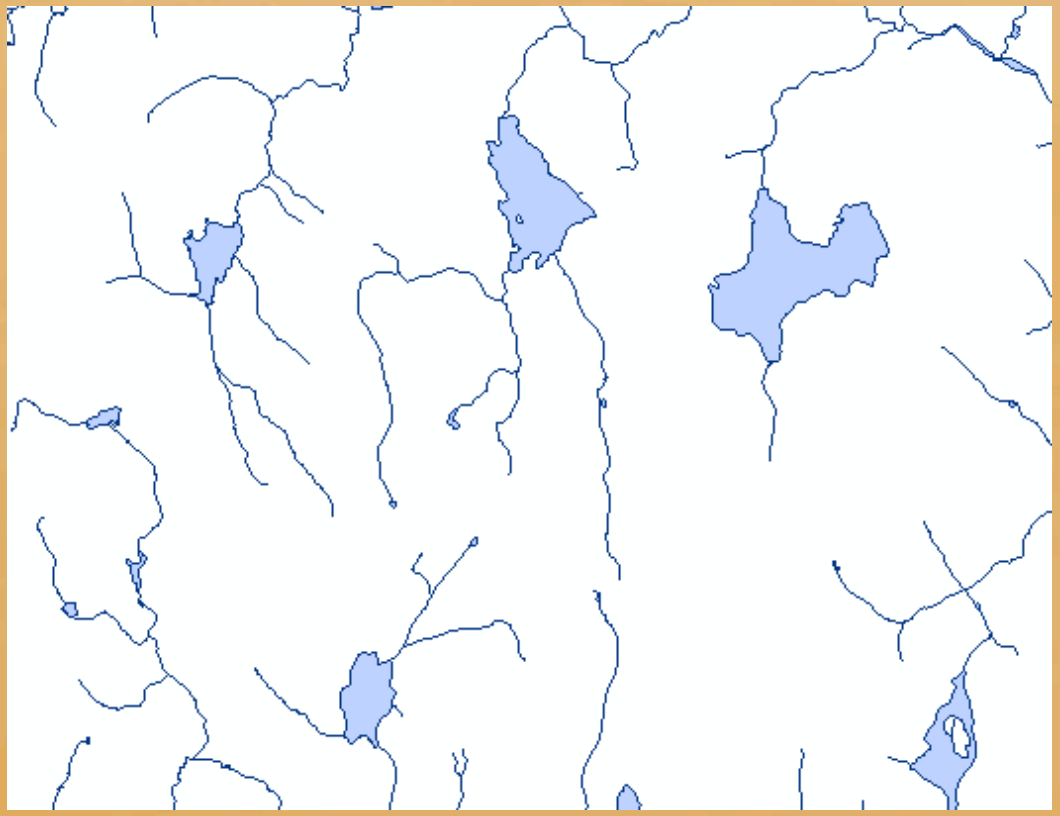
METHODS

GIS Magic to create "To Be Buffered" Line

Stream Lines

+

Shore Lines



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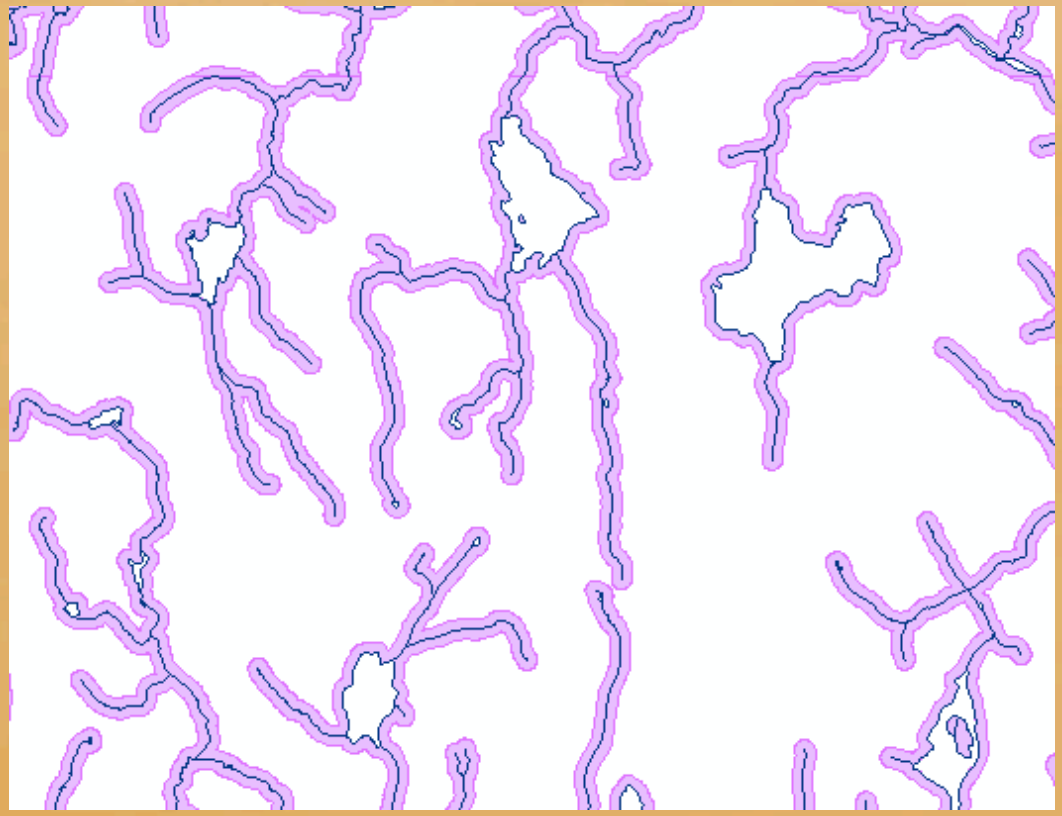
METHODS

Buffer Zones: 100 ft and 300ft



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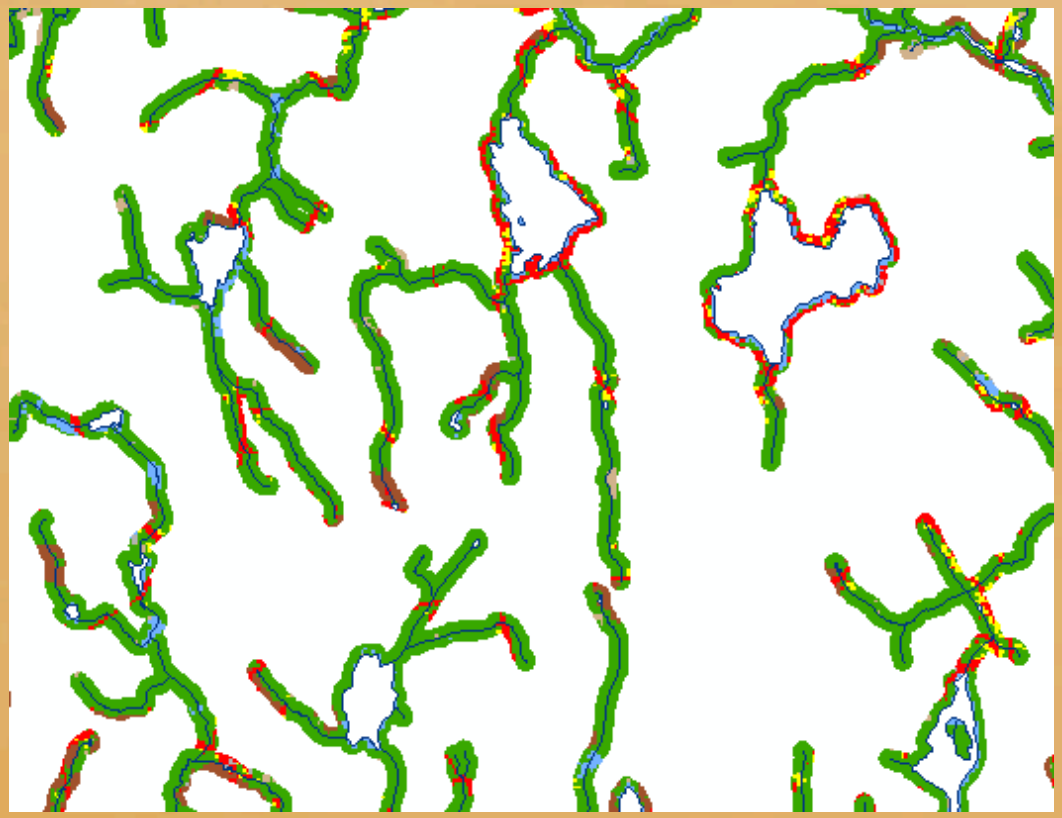
METHODS AND RESULTS

Land Cover in Buffer Zones



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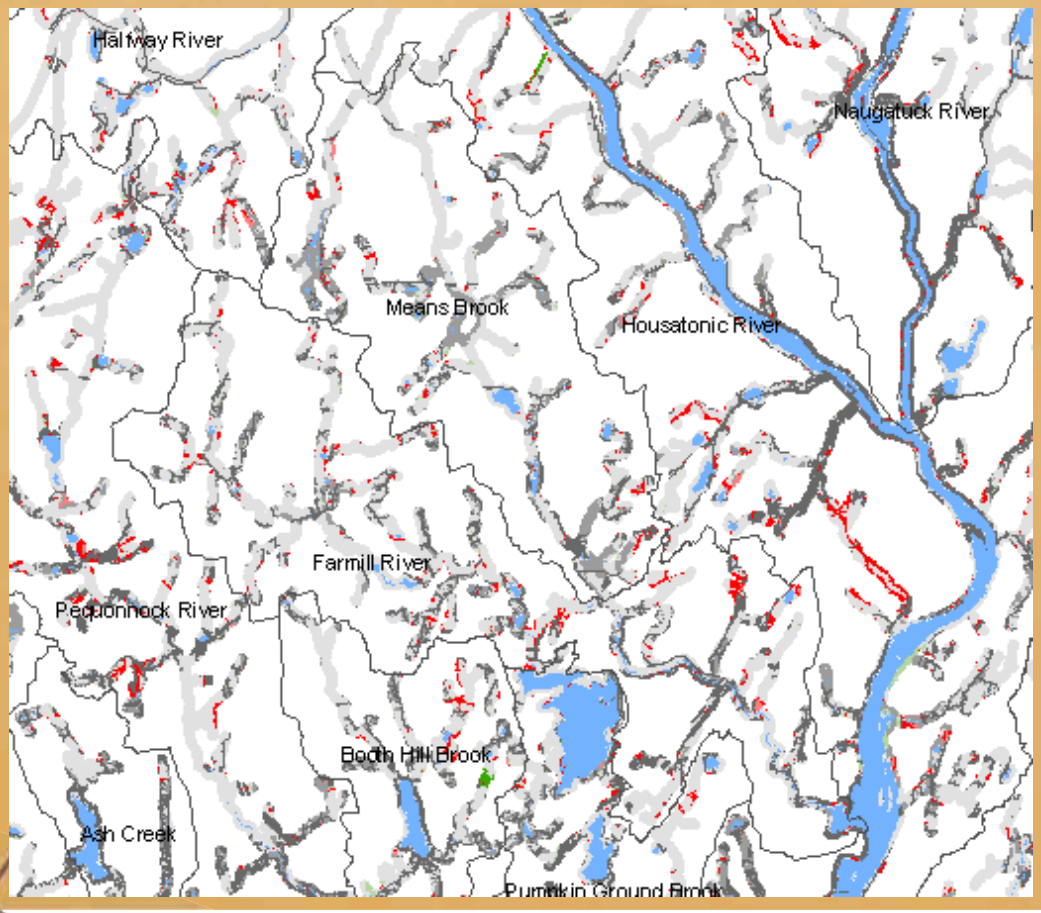
METHODS AND RESULTS

- **Change in Buffer Zones**



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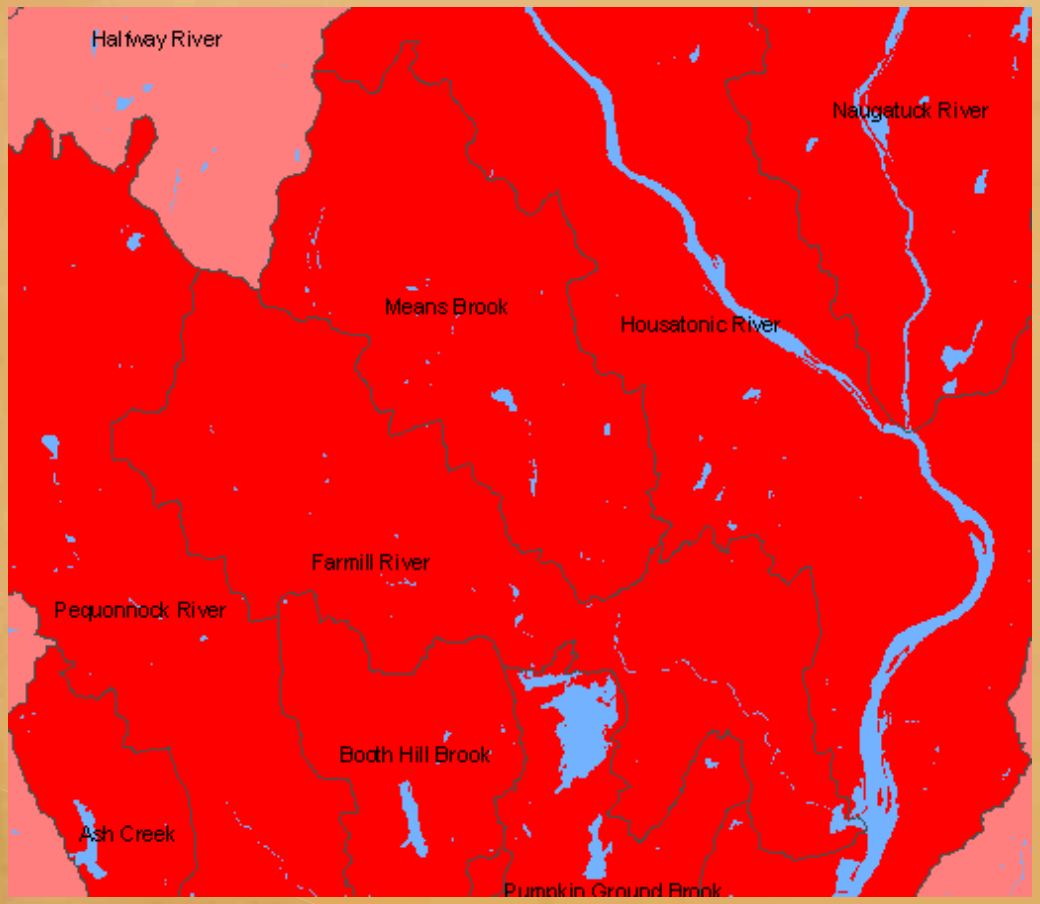
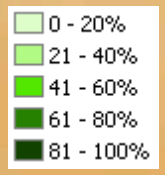
METHODS AND RESULTS

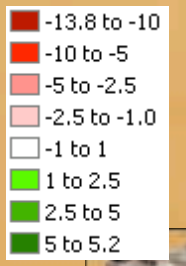


- **1985 percent Natural Vegetation (300ft)**



- **2006 percent Natural Vegetation (300ft)**

- **Change**



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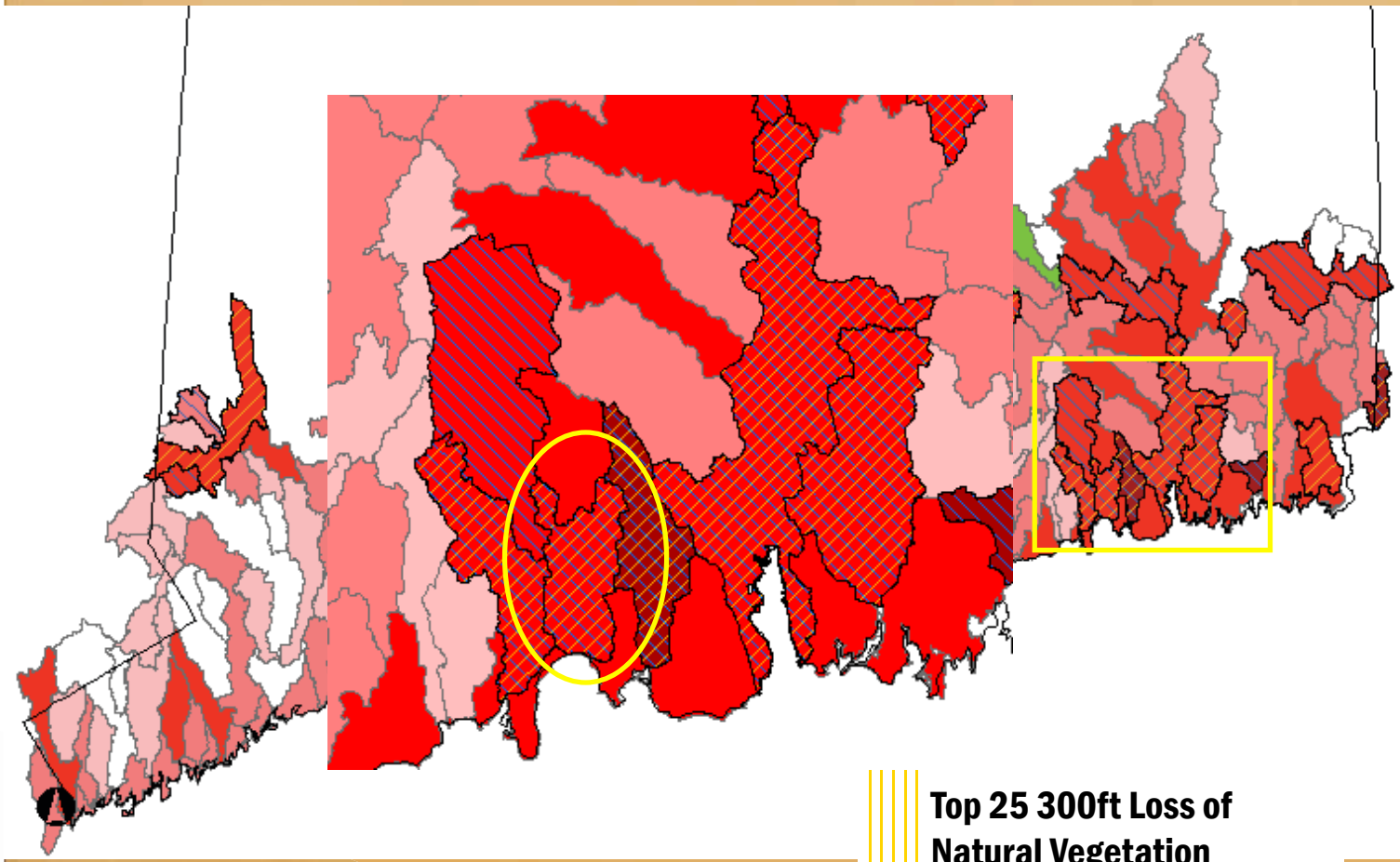
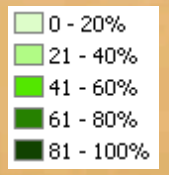
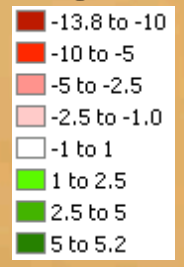
METHODS AND RESULTS



- 1985 percent Natural Vegetation



- 2006 percent Natural Vegetation
- Change



Top 25 300ft Loss of Natural Vegetation

Top 25 100ft Loss of Natural Vegetation

Deny Everythi g.

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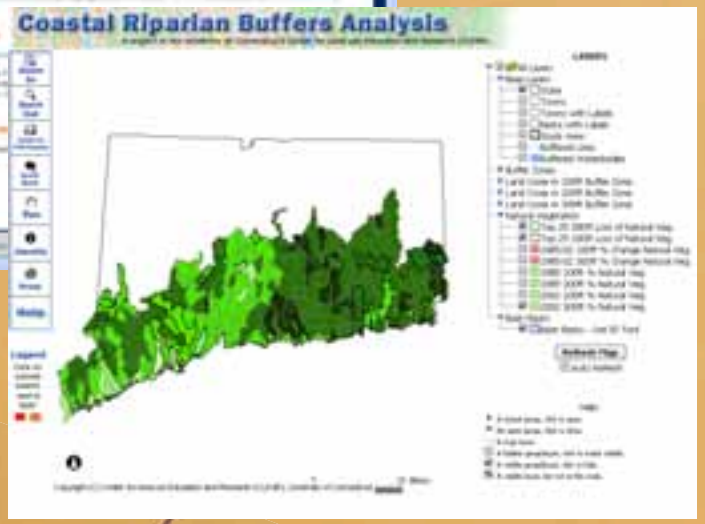
WEBSITE

http://clear.uconn.edu/projects/riparian_buffer/

http://clear.uconn.edu/projects/riparian_buffer2/



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WHAT TO DO WITH THIS GREAT ANALYSIS?

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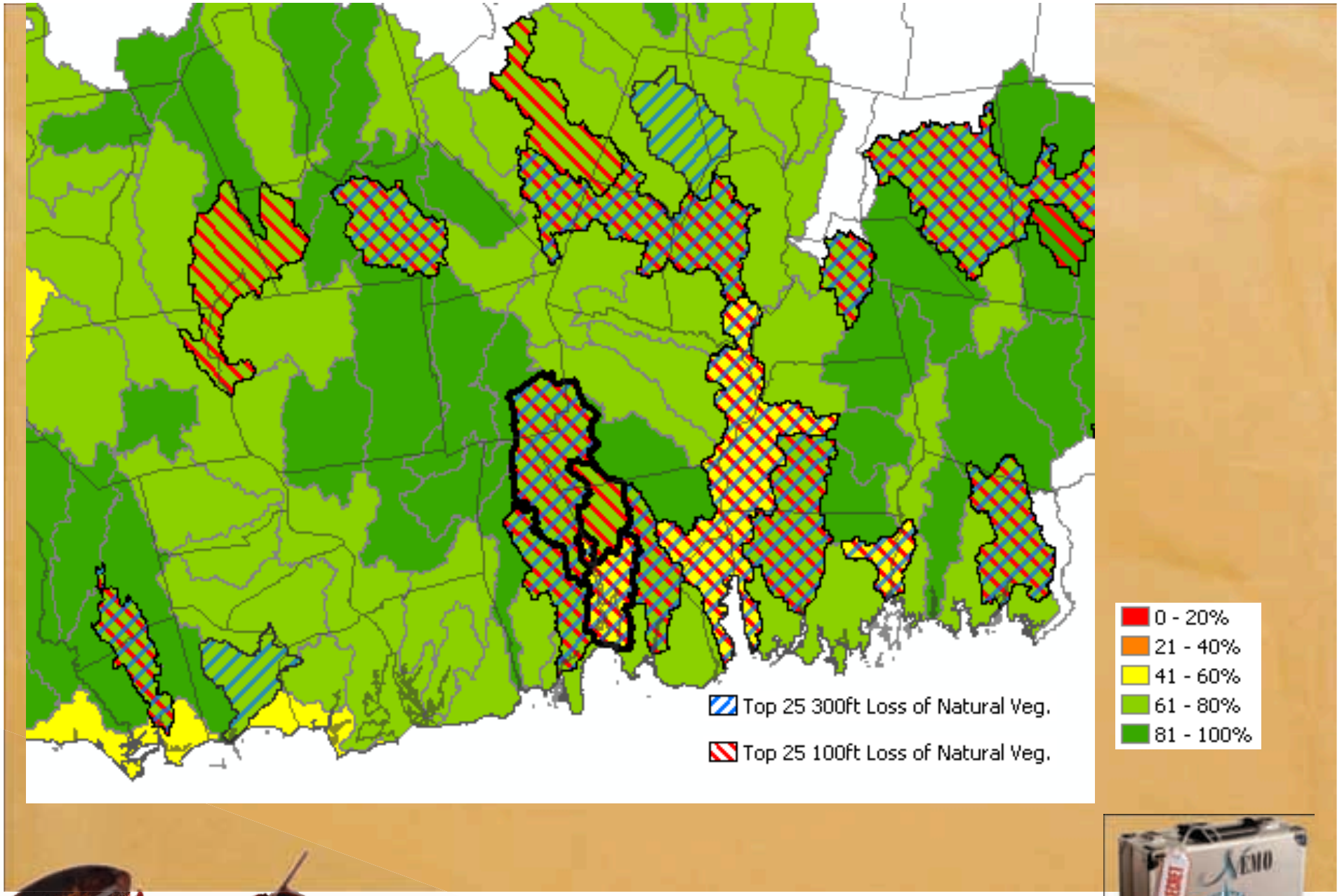

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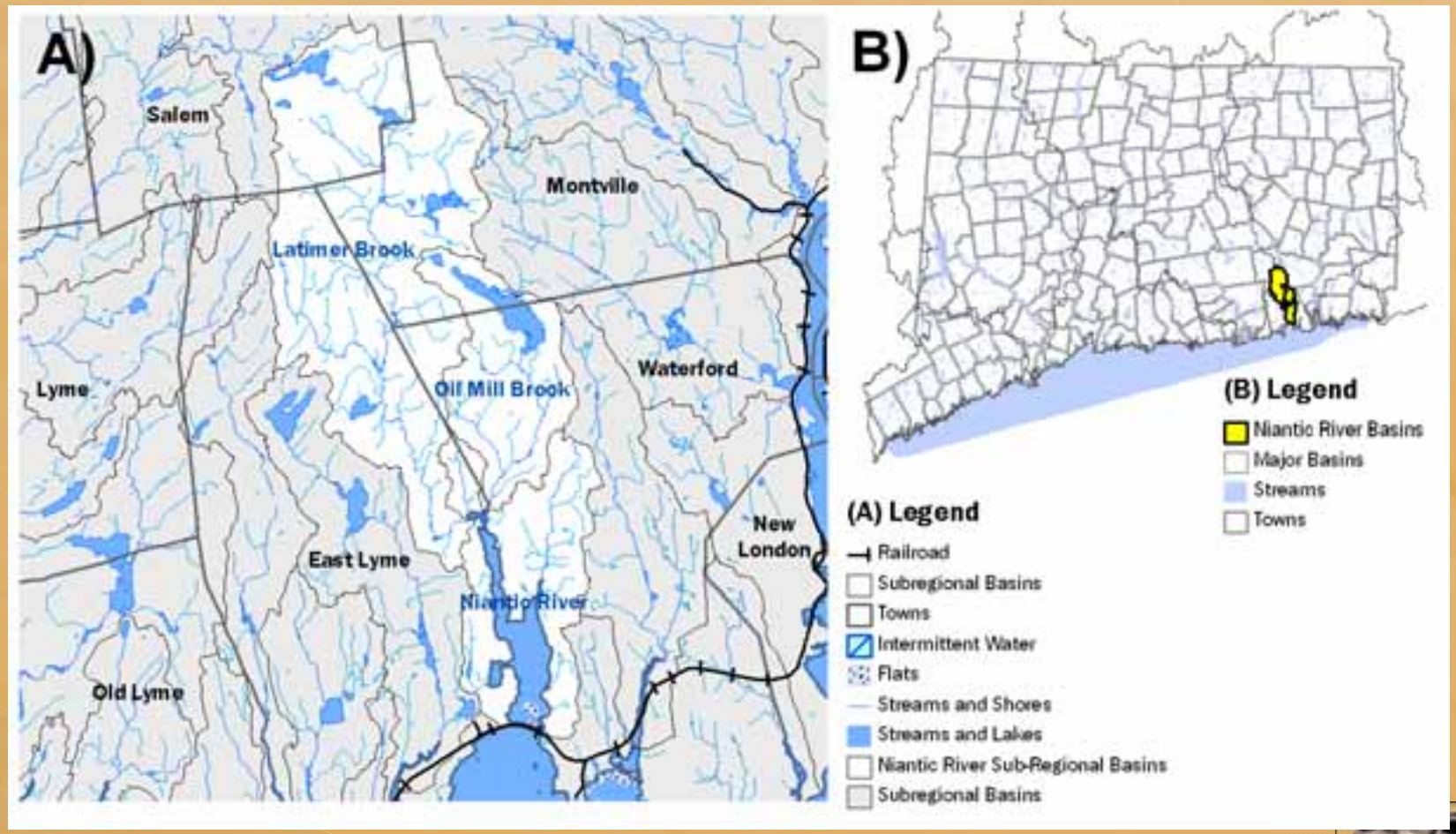
NIANTIC RIVER WATERSHED



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NIANTIC RIVER WATERSHED

- "Yellow" zone watershed
- Watershed has a state plan with a watershed coordinator working through a local Conservation District
- Nonpoint source pollution identified as the greatest threat to the water quality and ecological health of the Niantic River
- Four towns (2 coastal, 2 inland); opportunity to talk about riparian areas and climate change

NIANTIC RIVER WATERSHED

Submitted grant to:

- **Create updated (to 2006) state-wide riparian buffer land cover change dataset**
- **Develop educational workshop on riparian buffers for local land use officials**
- **Develop educational workshop on riparian buffers for homeowners**
- **Contribute to NEMO website on riparian buffers**

NIANTIC RIVER WATERSHED

Received grant from Long Island Sound Studies Futures Fund – (US Fish and Wildlife Foundation)

- **Met with Environmental Planners for each town**
- **Each town set up slightly differently with commissions, different issues, concerns**
- **UConn Service Learning Project**

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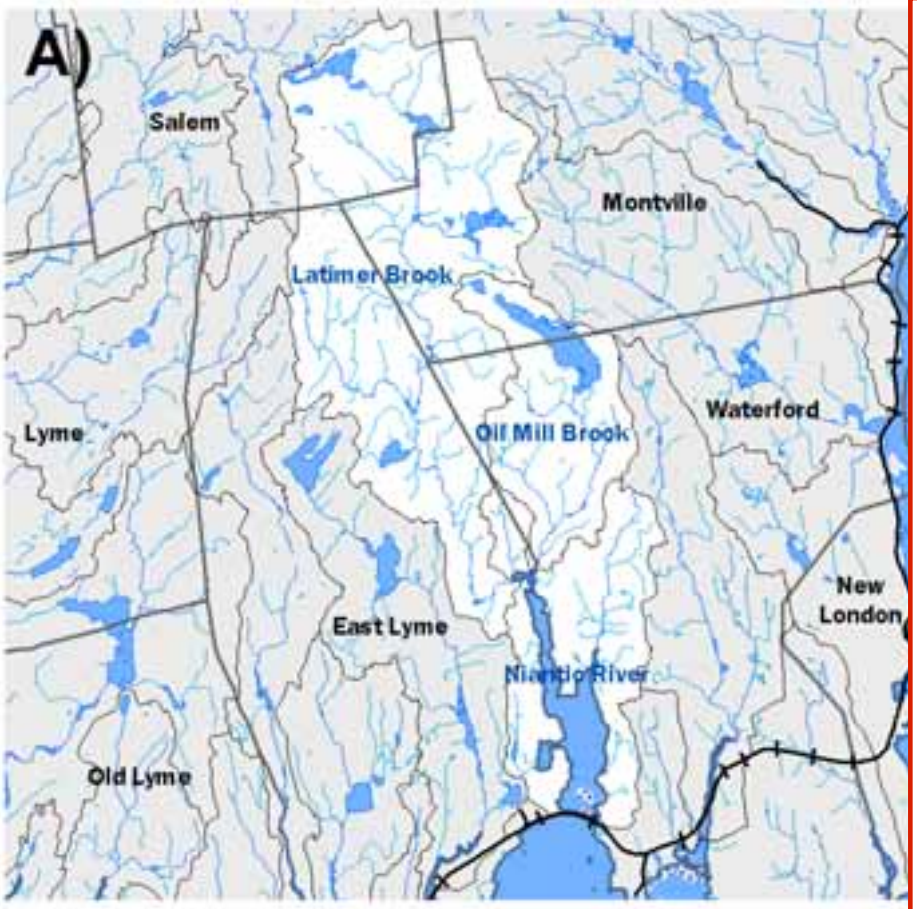
NIANTIC RIVER WATERSHED



- Two coastal towns within I-95 /Amtrak corridor, intense development both commercial and residential

- Two inland towns with largely residential, agrarian concerns, sand and gravel quarries

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NIANTIC RIVER WATERSHED

- Developed individual workshops for each town based on needs identified by environmental planners
- Watershed coordinator provided overview of watershed plan and issues
- Provided town specific information
- All workshops included riparian buffer functions and values, information on climate change

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TOWN COMMISSIONS

Montville • Inland Wetlands Commission • Emphasis on wetlands, watershed	**Waterford** • Invited all commissions • Emphasis on cross cutting issue • Relation to climate change issues • Intense develop along I-95 corridor and along coast
Salem • Invited P & Z and Inland Wetland Commissions • Emphasis on cross cutting issue • Eightmile River Watershed buffer overlay zone	**East Lyme** • Newly formed conservation commission • Very intense coastal development • Whatever worked for Waterford

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LESSONS LEARNED

- Use “corridor” instead of “buffer”
- Emphasize that this is a cross-cutting commission issue
- Encourage environmental planners to invite all commissions or be willing to return
- Follow up with website announcement and link
- Planting seeds of change
- Didn’t get new information from Service Learning Project, but process result rather than product

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LESSONS LEARNED

For homeowners:

- **Local weekly newspapers best way to advertise (not bulk mailing)**
- **Timing was fortuitous as heavy April rains caused numerous flood events giving audience something to relate to**
- **Give people something tangible to take away:**

  brochure on riparian areas; list of plants suitable for riparian areas
- **“You must come talk to…”**

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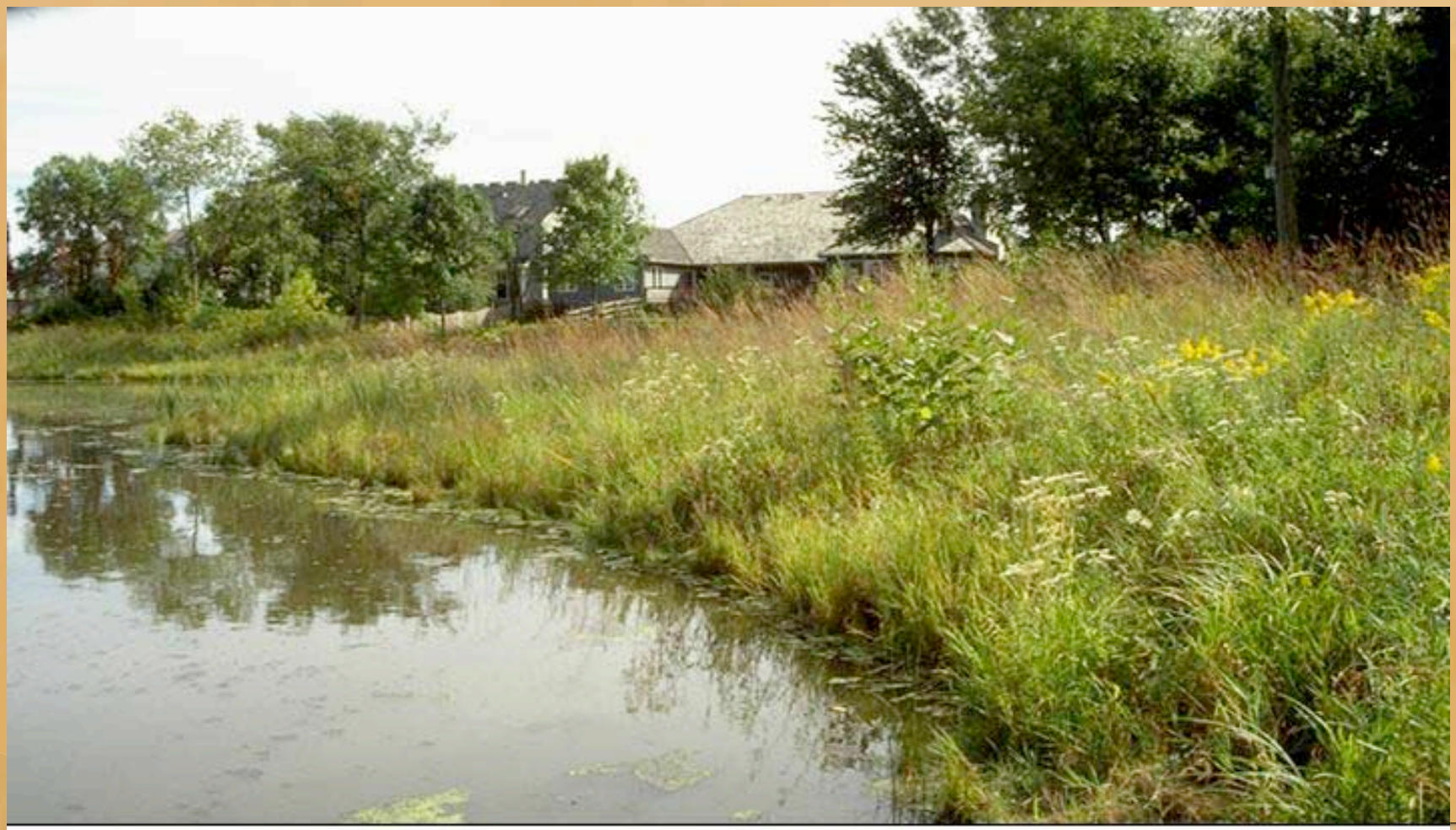
WHERE WE HOPE TO GO...

- Groups working on buffer legislation at the state level
- Salem - buffer overlay zone for Niantic River Watershed; invited back to present to P&Z
- Riparian restoration projects/USFWS
- Buffers in a Bag

QUESTIONS OR COMMENTS....



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