

# Connecticut NEMO Newsletter

Nonpoint Education for Municipal Officials  
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## New NEMO Program Coordinator Announced

Finally, you have someone to call! After a nation-wide search for a NEMO Program Director, it turns out that we had only to look down the hall. John Rozum, an AICP Planner and our first and only National NEMO Network Coordinator, decided to throw his hat into the ring after our original search, this past fall, did not produce quite the right candidate.

After earning Master's degrees at the University of Arizona in Ecology and Land Use Planning, John worked as an environmental and community planner in Michigan for three years. In 1999 he came to UConn to lead the National NEMO Network, which at the time was just starting to take shape. Under John's tender ministrations, the Network has grown like a weed, going from 9 to 34 programs in four years.

While John was nurturing the National Network, he was also delving into local planning in the Nutmeg State. He is a

member of East Haddam's Planning and Zoning Commission, the East Haddam Village Planning Group and the Eightmile River Wild and Scenic Study Management Committee. In addition, John has provided many important contributions to



John Rozum, the new Connecticut NEMO Coordinator.

Connecticut NEMO during his tenure as National Coordinator, including leading the development of the Community Resource Inventory educational module.

With enthusiastic support of the rest of the team, John made the decision to focus on assisting Connecticut's communities, even though he'll miss the national program. Having recently celebrated our 10-year anniversary, the NEMO Program is at an important crossroads. With John at the helm, the NEMO Team will in short order reshape the program to keep all that has made it successful while adding new ideas, new services, new information and new partnerships into the mix. Look for more information on NEMO's exciting new direction in the next issue. ☀

## From NEMO Central

This issue is dedicated to a new study by NEMO's parent entity at UConn, the *Center for Land use Education And Research (CLEAR)*. The *Connecticut's Changing Landscape* project looks at statewide changes in land cover over the period 1985 to 2002. While NEMO was founded on the use of remote sensing technology for land use planning, this project constitutes a major new page in the NEMO story.

This is the first time landscape *change* maps and data have been created for Connecticut and we think that this information will prove instructive given the growing interest in land use policy and practice statewide. This newsletter summarizes some key aspects of the project but the CLEAR effort doesn't stop there. Through a new section of the CLEAR website (see Resources, pg 4) we are making this information available for everyone to inspect, use and download in the form of maps, tables, charts and data. This is a departure from the past, when our map and data delivery was exclusively through NEMO outreach programs. The change in our *modus operandi* is driven by our desire to disseminate this study as widely as possible. It's also in recognition of the fact that the study results can be analyzed and interpreted in many ways, some of which we may not have thought of.

Our mission at CLEAR dictates that the release of these data is the beginning, rather than the end, of our work. In the future, we will be incorporating the study results into our NEMO educational offerings and publications. The job of getting this information to land use decision makers is in the initial stages, and this newsletter is one small part of that job. ☀

## In This Issue

### Spotlight On...

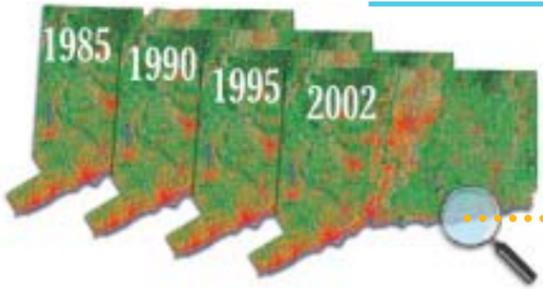
Connecticut's Changing Landscape Project

### Resources

- New Land Cover Website
- New Land Cover Presentation

### Noteworthy

- What is CLEAR?
- GIS Training Class in June



## How were these maps made?

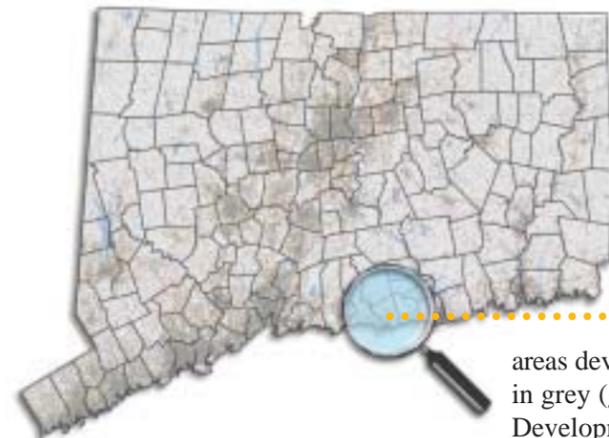
Connecticut's Changing Landscape (CCL) uses remote sensing data from the Landsat satellite collected during 1985, 1990, 1995 and 2002. This four-date, seventeen year history is the first of its kind in the nation, and was created by meticulously analyzing the satellite imagery from each time period, making not one but *four* totally new maps. Since a special goal of the project was to get a handle on urban land, road data was fused into the original land cover maps. Using a technique called "cross-correlation," CLEAR staff were able to

carefully track changes across the years and then further refine the maps through on-screen editing and correction. The four new land cover datasets allowed us to produce all-important *change* information that can be obtained from comparing the four dates. In addition, the land cover will be analyzed via landscape change models that CLEAR developed as part of a NASA project (see *So What's Next*, pg 4). To view the maps, go to [Statewide Data/Land Cover Maps](#) section of the CCL website. To get more specifics on methodology, visit [The Project](#) section.

## Spotlight On ...

# Connecticut's Changing Landscape Project

(Below) land cover change map of Connecticut for 1985-2002.



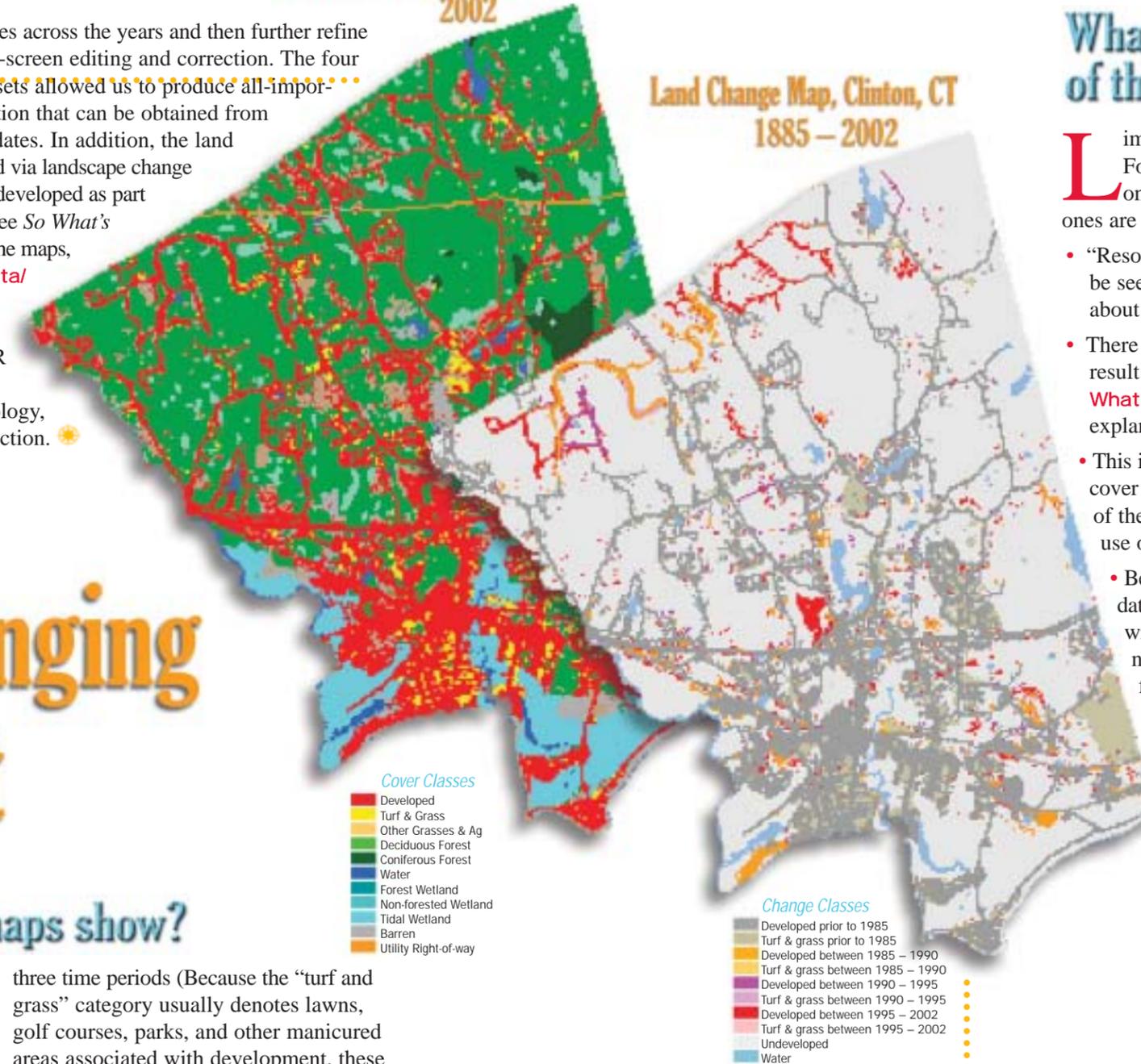
## What do the change maps show?

The change maps show where development has occurred since 1985. They allow you to inspect visually what your town subdivision and zoning records would reveal, if you had the time and the inclination to dig. Shown is a change map for the whole state, with a sample town, Clinton, shown in more detail. On the change map, all areas developed previous to 1985 are cast in grey (grey/green in this newsletter). Development since 1985 is colored, with shades of orange, pink and red showing development added during the study's

three time periods (Because the "turf and grass" category usually denotes lawns, golf courses, parks, and other manicured areas associated with development, these are also shown in grey.) On the Clinton map, note the large red area near the center of town, which is the Clinton Crossing outlet mall. On the northern border of town can be seen a number of residential subdivisions, built in several phases over the study period as indicated by their color. You can access the change maps as PDF files from the [Statewide Data/Land Cover Change](#) section of the website. Better yet, inspect your favorite town or region via the [Interactive Map](#) section.

Land Cover Map, Clinton, CT 2002

Land Change Map, Clinton, CT 1885-2002



## What are the limitations of this information?

Limitations? Yes, there are a few and they are important. For detailed descriptions, see the FAQs and fact sheets on [The Project](#) portion of the website. Some of the big ones are summarized below:

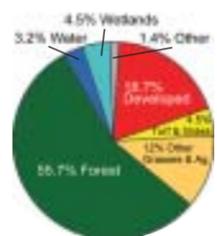
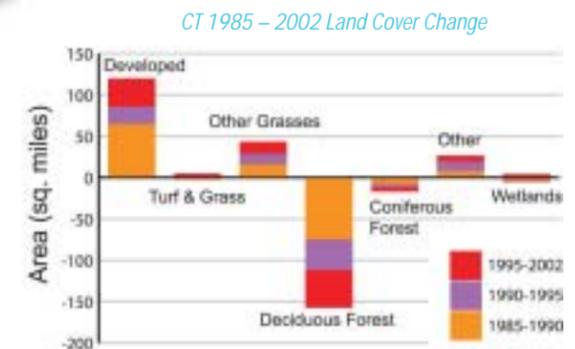
- "Resolution" is the smallest possible level of detail that can be seen. On these maps the resolution is 30 meters—that's about 10,000 square feet, or 1/4-acre.
- There are a number of ways to measure developed land that result in **very** different and yet correct estimates. Visit the [What We're Measuring](#) section of the website for a complete explanation.
- This is a land cover map, not land use. The difference? Land cover is what is on the *ground* while land use denotes the *use* of the land. For example, a forest land cover could have a use of public park or future homes.
- Because of their similar light-reflecting characteristics, our data cannot distinguish between agricultural land and areas with long grass or other shrubby vegetation; thus, there is no true "ag" class that charts the loss of Connecticut's farmland.
- The "water" and "wetlands" categories include changes that reflect the year's climate and are not usually related to any permanent loss or gain of these classes.

## What's the overall picture?

The charts on the right summarize the study for the entire state. The pie chart shows that in 2002, nearly 56% of the state was forested and almost 19% was developed. The bar chart summarizes the gain/loss of several key land cover categories over the entire study period. The state gained about 120 square miles of developed land during the entire 17-year study period, a chunk of Connecticut about the size of Norwalk, Waterford, Avon, Old Saybrook and Lisbon combined. Most of this came at the

expense of forested land, which lost about 170 square miles of cover during the same period. The pie chart shows that in 2002, nearly 56% of the state was forested and almost 19% was developed. The bar chart summarizes the gain/loss of several key land cover categories over the entire study period. The state gained about 120 square miles of developed land during the entire 17-year study period, a chunk of Connecticut about the size of Norwalk, Waterford, Avon, Old Saybrook and Lisbon combined. Most of this came at the

There are many, many ways to slice and dice this data, some of which appear on the charts and table of the [Statewide Data](#) section of the website.



The pie chart shows the overall land cover for Connecticut in 2002.

# Resources

## Steal These Maps!

No need for larceny, you can download the maps and information on *Connecticut's Changing Landscape* project for free on the CLEAR website. Here you will find more information on how the data were created, some preliminary interpretation, fact sheets, frequently asked questions, as well as ways to download the GIS information for those geospatially inclined. If you don't have the latest GIS software on your computer, no worries. The website also includes an interactive mapping section that allows you to view, query and print the maps using nothing more than your internet browser. So grab your favorite beverage and point your browser to the CLEAR website to learn more about Connecticut's changing landscape. ☀

Go to [clear.uconn.edu](http://clear.uconn.edu)

## So What's Next?

*Connecticut's Changing Landscape* is a project in several installments. Over the next year, CLEAR researchers will be applying several landscape analyses to the new 1985, 1990, 1995 and 2002 land cover datasets. Urban growth and forest fragmentation models will help us to further mine the land cover data. With this type of information, we hope to be able to better address some of the more qualitative issues involved with development—in other words, not just *how much* we've developed, but in *what pattern*, and with what implications for the health of our communities and natural resources.

Another analysis will deal specifically with that nemesis familiar to NEMO veterans—impervious surfaces, an indicator of the impacts of urbanization on water resources. Using the developed category from the new land cover data as a “first cut” identifier, and then applying cutting-edge “subpixel” analysis that estimates the amount of impervious cover directly from the satellite data, CLEAR researchers will be able to accurately chart the growth

## Connecticut's Changing Landscape Presentation

Website isn't enough? Want to learn more about Connecticut's changing landscape right from the horse's mouth? Your friendly neighborhood NEMO Team has a 45 minute presentation about the project that we'd be glad to bring to your town. Call **John Rozum** at (860) 345-4511 or email [nemo@canr.uconn.edu](mailto:nemo@canr.uconn.edu). ☀



The new Connecticut Changing Landscape website home page.

in impervious cover from 1985 to the present.

So what about the million dollar question: Does Connecticut's changing landscape present compelling evidence on sprawl in our state? We still don't know enough about what the data is telling us to say much in the way of definitive statements. What we do know is that the study is coming at an opportune time, given the debates on sprawl and “smart growth” that are taking place from the Capitol to town halls across the state. It's interesting to note that the first two organizations to request downloading of our data were the Connecticut Homebuilder's Association and The Nature Conservancy! Like those groups, we invite you to pour over the study results and come to your own conclusion. As we collectively absorb and debate the results of the study, the true take home messages may become clear. By the time of our next newsletter issue, you can expect some of the preliminary results of the next wave of studies to hit the web! ☀

# Noteworthy



## What is CLEAR?

*Connecticut's Changing Landscape* is the first project to come out of the *Center for Land Use Education And Research* (CLEAR). As such, we feel a brief description of CLEAR is in order.

CLEAR is a partnership between the University of Connecticut's Department of Natural Resources Management and Engineering (NRME) and the Cooperative Extension System (CES), two units of the College of Agriculture and Natural Resources (CANR). CLEAR brings together those University efforts which target community and private land use decision makers, providing research-based information, education and training on how to protect natural resources and community character while accommodating economic growth. ☀

## Interested in learning how to use GIS?



Sign up today for *Geospatial Technologies at Work*, June 14–18, 2004. For more information and to download the registration form, visit the Geospatial Technology website at [clear.uconn.edu/geospatial/](http://clear.uconn.edu/geospatial/).

## Connecticut NEMO Newsletter

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