

# **Introduction to Geospatial Technology**

2020 Virtual CAP Field Week

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*deciduous understory*

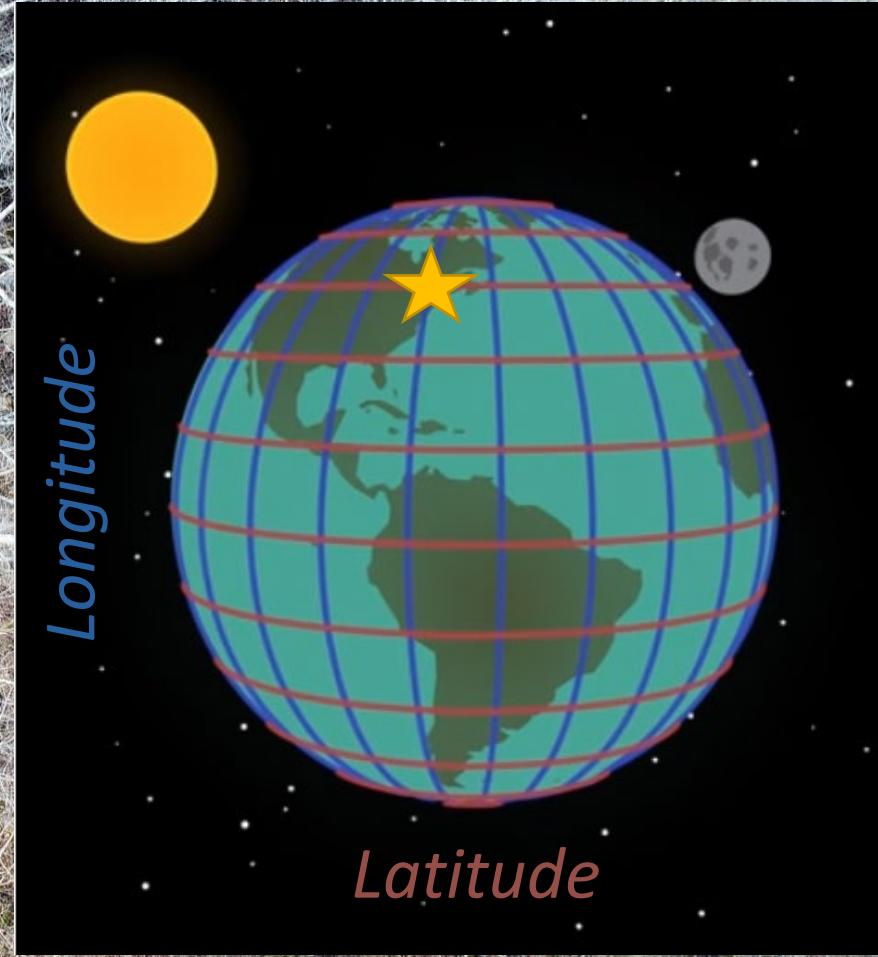
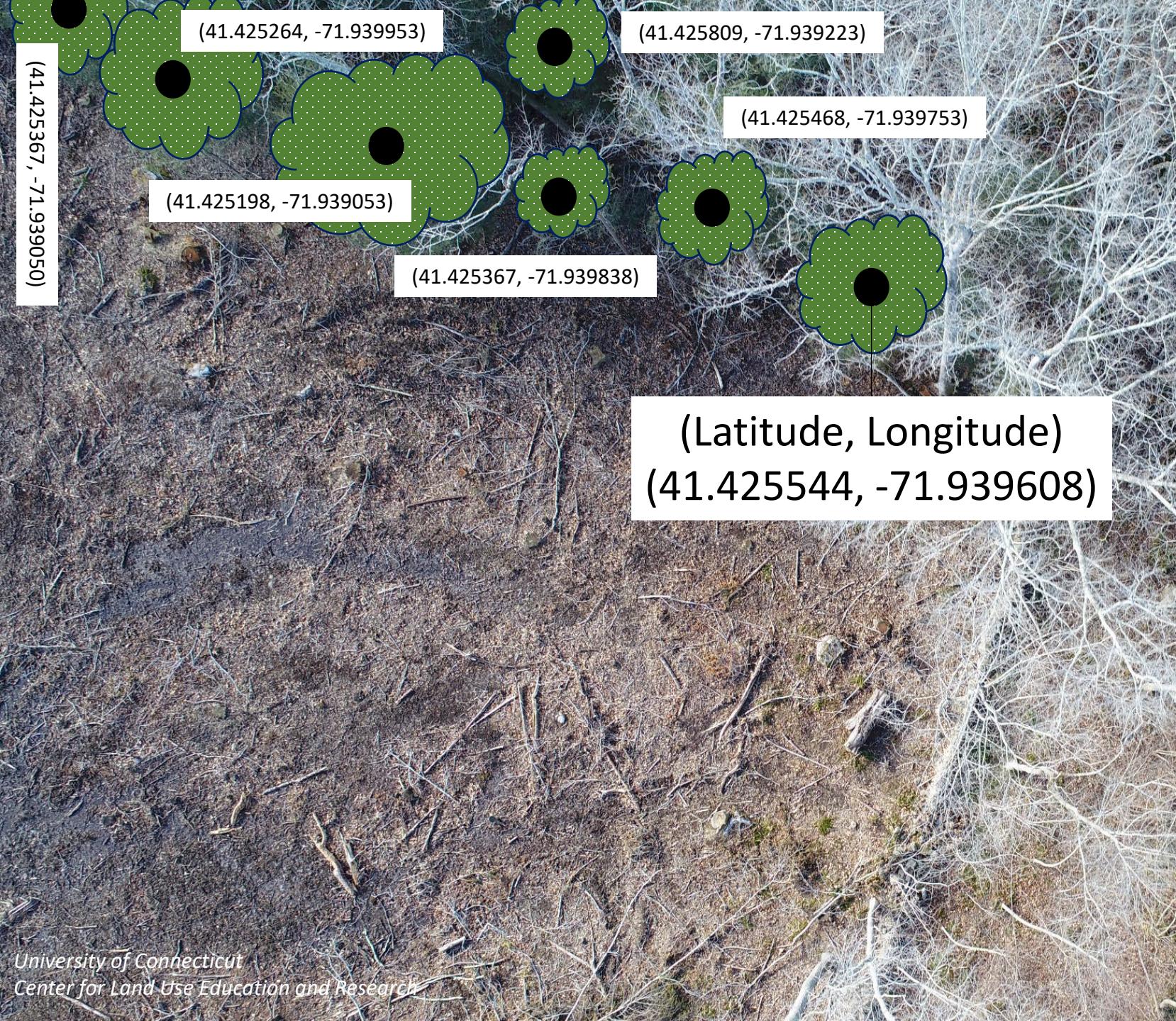
timber harvest area

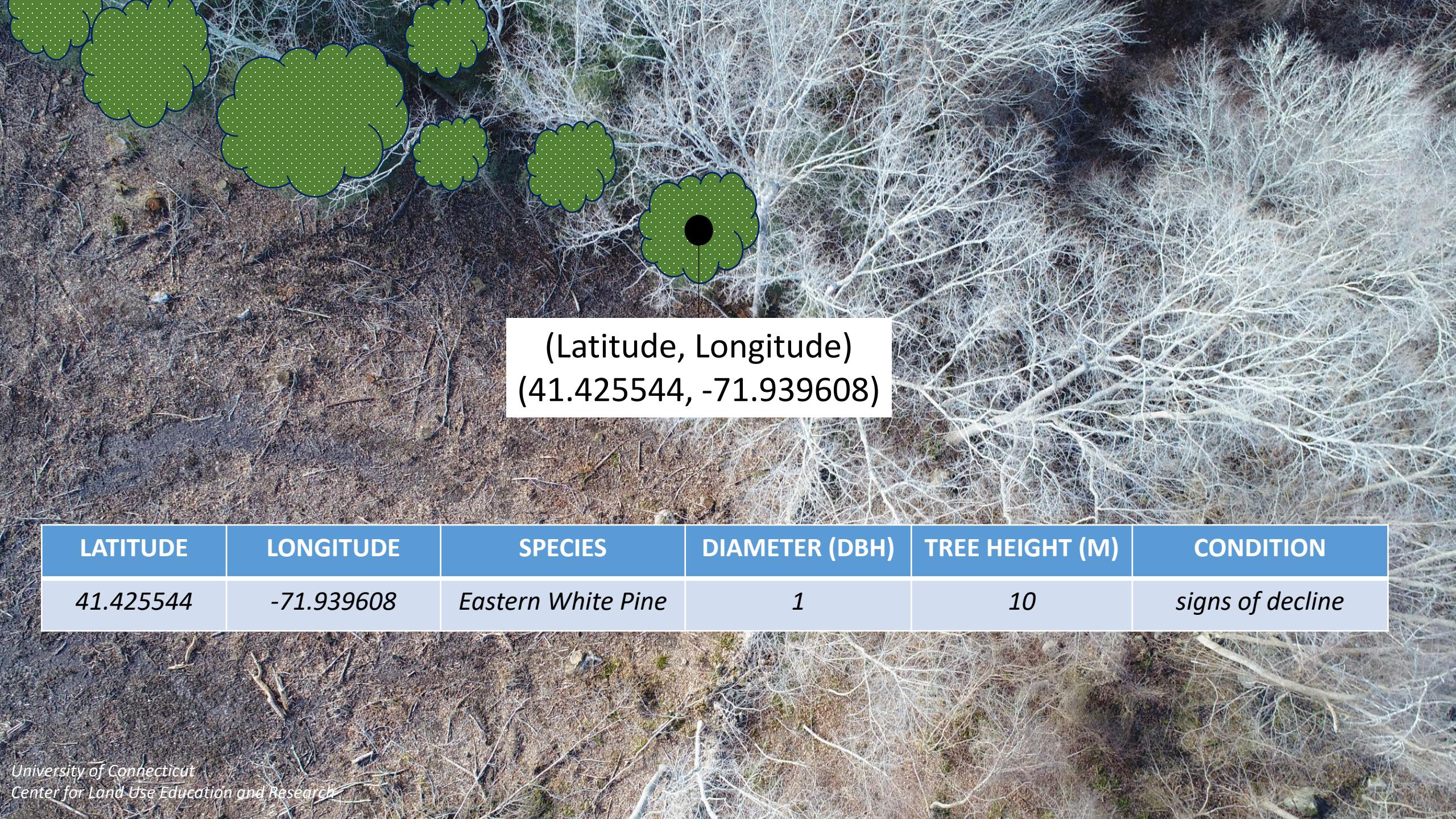
vernal pool?

stone wall

stream







LATITUDE	LONGITUDE	SPECIES	DIAMETER (DBH)	TREE HEIGHT (M)	CONDITION
41.425544	-71.939608	<i>Eastern White Pine</i>	1	10	<i>signs of decline</i>

# Geographic Information Systems

*GIS is a technological field that incorporates geographical features with tabular data in order to map, analyze, and assess real-world problems.*

maps

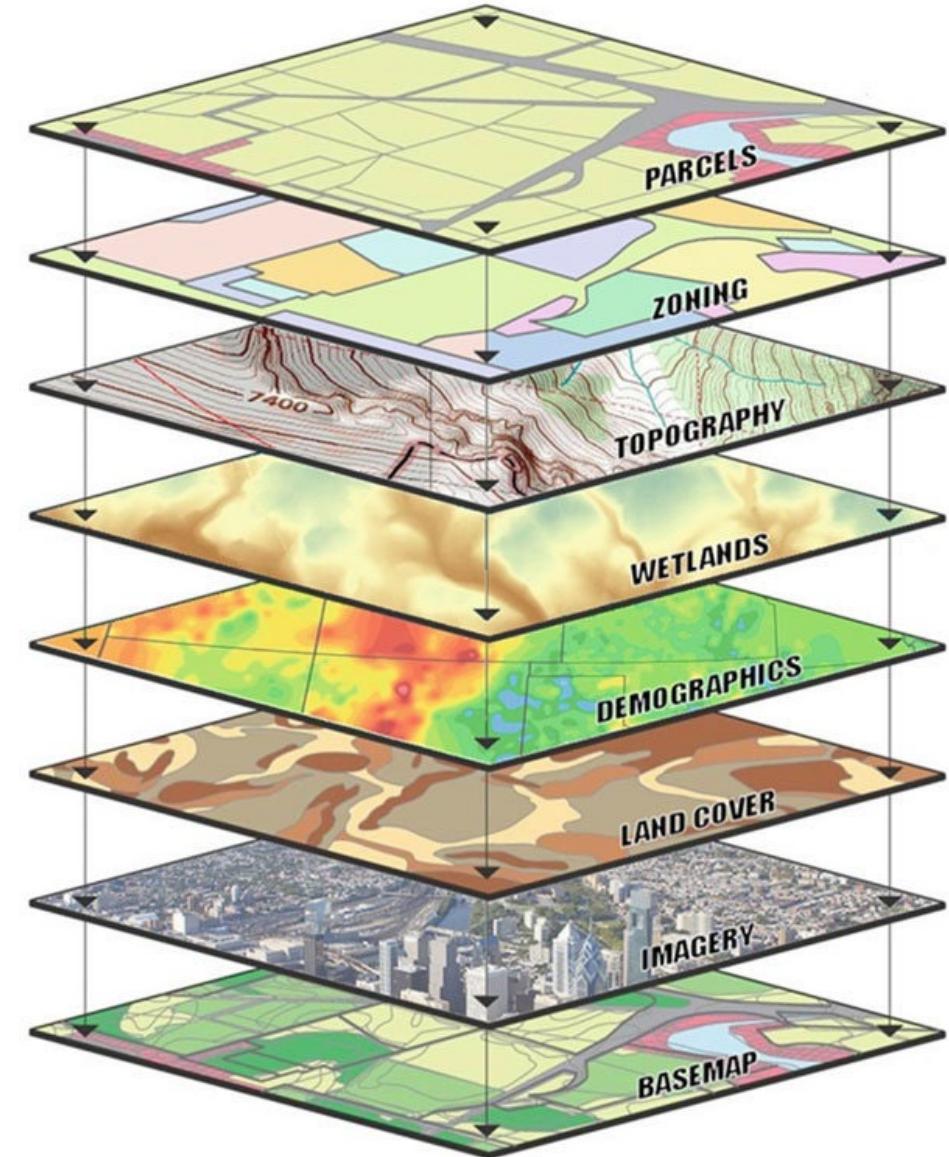
software

apps

data

analysis

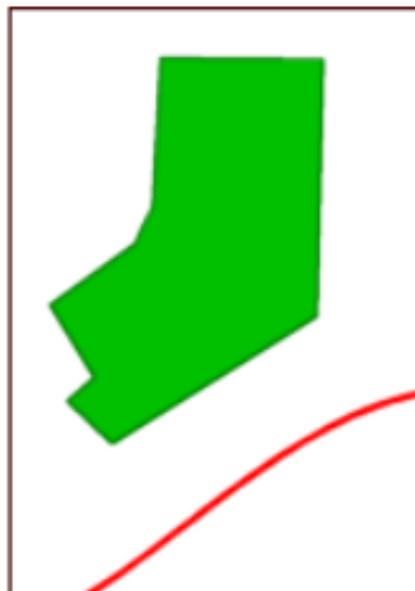
people



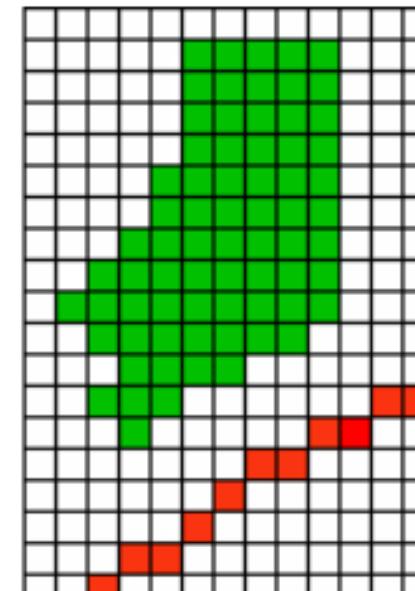
# Describing the World, Spatially



Real World

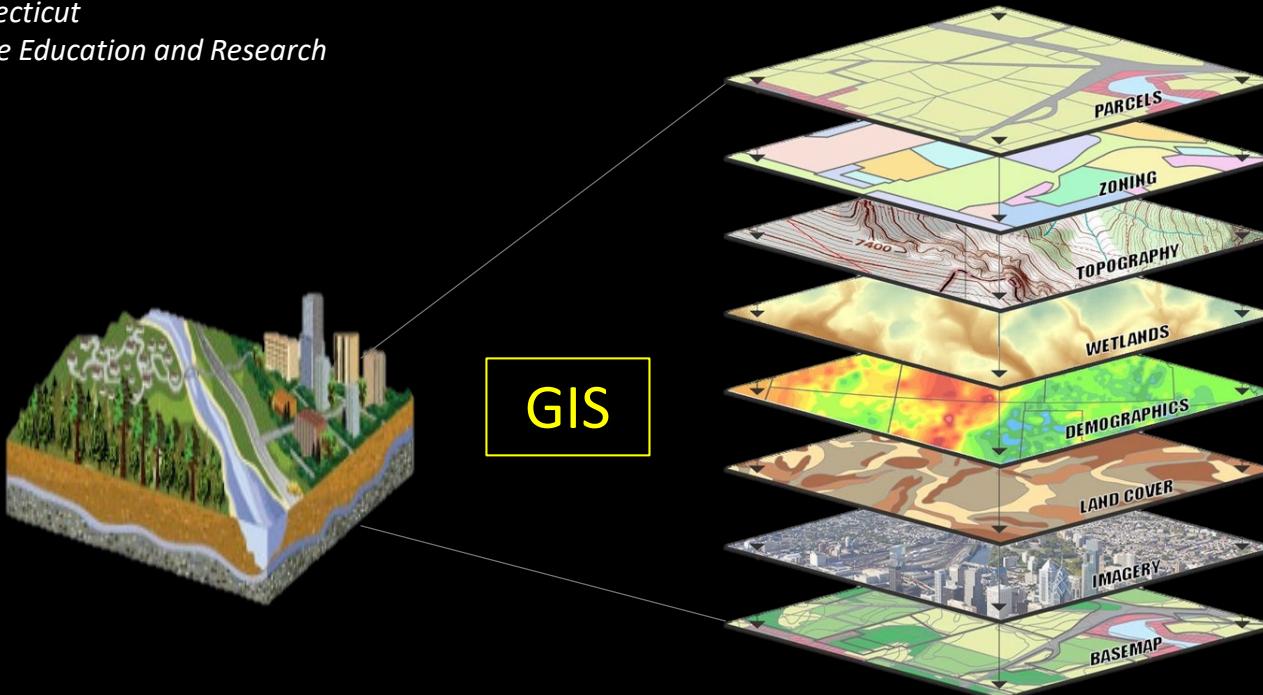


Vector

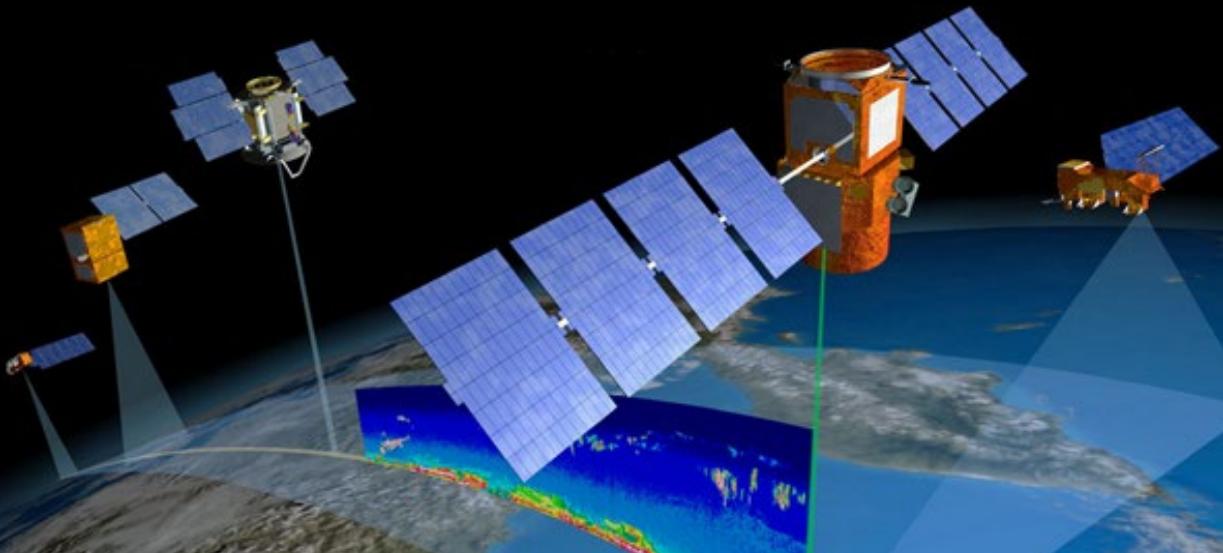


Raster





Remote Sensing



GPS



The figure is a map of Connecticut titled "CLEAR Connecticut's Changing Landscape". The map displays the state's land cover in 2015, categorized into various colors representing different land types. The legend on the right side lists the categories and their corresponding colors:

- Developed (Red)
- Turf and Grass (Yellow)
- Other Grass (Light Green)
- Ag Field (Brown)
- Deciduous Forest (Dark Green)
- Coniferous Forest (Medium Green)
- Water (Blue)
- Non-forested Wetland (Light Blue)
- Forested Wetland (Teal)
- Tidal Wetland (Light Teal)
- Bare (Grey)
- Utility (Forest) (Orange)

The map also features a search bar at the top left labeled "Find address or place" and a magnifying glass icon. The word "Springfield" is visible near the top center of the map. A legend box titled "Legend" is located in the top right corner, containing the "Town Stats" section which includes a small house icon.

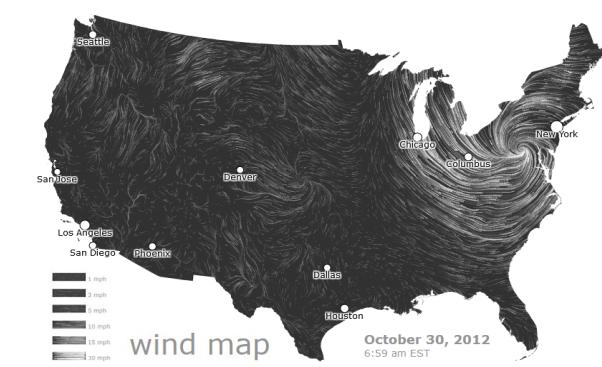
The map displays air quality across the contiguous United States. The air quality index (AQI) is color-coded as follows:

- Moderate (0-50)
- Unhealthy for Sensitive Groups (101-150)
- Unhealthy (151-200)
- Very Unhealthy (201-300)
- Hazardous (301-500)
- Data Not Available

A legend on the right side provides more details about the AQI scale and includes a note that AQI values above 500 are considered "Data Not Available". The map also features state and county boundaries, major cities, and rivers.

The screenshot shows the homepage of the Environmental Justice Atlas. At the top, there's a dark header with the title "Environmental Justice Atlas" in white. Below the header is a navigation bar with links for "Home", "EJAtlas", "Featured Maps", and "Login". A globe icon is positioned to the left of the title. On the left side, there's a sidebar with language options: "Available Languages" (Arabic, Mandarin, English, Spanish, French, Italian, Turkish) and a "Map" button. The main content area features a large map of North America with numerous colored dots representing environmental conflicts across the continent. To the right of the map, there's a section titled "Environmental Conflicts in United States of America" with several thumbnail images and titles:

- Native American's Sioux against the Dakota Access Pipeline (DAPL), "We are life protectors";** Shows a group of people holding signs.
- Shawnee Tribe vs. Kinder Morgan Pipeline;** Shows a group of people holding signs.
- Shawnee Tribe vs. Kinder Morgan Pipeline;** Shows a group of people holding signs.
- Thousands of Flint residents exposed to lead since 2014 to lead and other pollutants in their water;** Shows a group of people holding signs.
- Luxury residential units in Bayview-Hunter's Point, San Francisco, California;** Shows a building at night.
- Gas Pipeline Violations and Geologic Hazards in San Francisco's Bayview-Hunters Point neighborhood;** Shows a building at night.
- Worker Deaths & Power Plant, Cincinnati, OH;** Shows a power plant.
- Opening of Gas Fired-Power Plant will worsen Existing Air Quality; Poorly Managed Biomass Plants are Causing Harmful Emissions; Coal Fired Plant to be Exterminated;** Shows a power plant.
- Homestead Air Reserve Base Jeopardized, Florida, USA;** Shows a map of Florida.
- Immigrant Children Separated from their Families and Left Homeless in October of 2018;** Shows a group of people holding signs.
- Northern Access Pipeline, Pennsylvania and New York;** Shows a map of the northern US.



# The Bears are Back

Getting to Know Connecticut's Bears



UCONN  
COLLEGE OF AGRICULTURE,  
NATURAL RESOURCES &  
ENVIRONMENT



GEND



CL

## Corrals in Action

175 corrals were distributed across northwest Connecticut using four sampling grids (one corral per cell).  
Hair was collected every week from June - August in 2013 and 2014. Wildlife camera traps were set up at several sites to catch digital photographs of visitors to the site. [Click on a grid cell](#) or [two, three, four](#) to see pictures of the corrals in action!



Study Site: 84  
No. Bears Lived by DNA: 4

Bear activity captured by camera trap



The figure shows the Movebank website's main page. At the top, there is a logo featuring a bird icon above the word "MOVEBANK". Below the logo, the text "for animal tracking data" is displayed in blue. The central feature is a world map with numerous green and grey circular markers representing tracked animals. A legend in the top left corner indicates that green dots represent "Map" and grey dots represent "Satellite". The map includes labels for major regions like "North Atlantic Ocean", "South Atlantic Ocean", and "Mediterranean Sea". A "Google" logo is visible in the bottom left corner.

# How's My Waterway?

Informing the conversation about your waters.

**Let's get started!**

Search for a location or enter address:

Search for a location or enter address:

Use My Location

Map: Farms, Towns of Mansfield, Connecticut  
watershed (Farmington River) (11) (20200304)

**Aquatic Life**

EPA, states, and tribes monitor and assess water quality to determine the impact of impacts on plants and animals in our waterways.

Plants and animals depend on clean water. Impairments can affect the quality of water, which can have adverse effects on plants and animals living in the water... [Show more](#)

5 waterbodies have been assessed for aquatic life

Condition	Count
Good	4
Impaired	1
Condition Unknown	2

Waterbody Conditions:

- Good
- Impaired
- Condition Unknown

Waterbodies assessed for aquatic life in the Farmington River watershed:

- Brownfield Pond (Mansfield) - 01 (CT2019\_01-14-1)
- Elbridge Brook (Willingboro) - 01 (CT2019\_01-07\_01)
- Foxon River (Mansfield) - 01a (CT2019\_06\_06\_01a)
- Foxon River (Mansfield) - 01b (CT2019\_06\_06\_01b)

Legend: Healthy Good Healthy Impaired Condition Unknown

The figure shows a screenshot of the Global Forest Watch Fires application. The interface includes a sidebar with various filters and a main map view.

**GLOBAL FOREST WATCH FIRES**

**FIRE'S (D)**

- VERS ACTIVE fires
  - Past 24 hours
  - Custom range
- MODIS ACTIVE fires
  - Past 24 hours
  - Custom range
- Archive fires for Indonesia
- NOAA-18 fires
- Crossborder fires, burn scars
- Fires
- Humrus

**AIR QUALITY (H)**

- Wind direction (deg)
- Air quality (detail)
  - (optional) use our air quality model
  - Emissions zero
  - Historical air quality database
- Fire risk (R)

**Fire Risk (R)**

Humrus

**Fire History**

Legend: High, Low, None

**Fire Weather**

The main map displays the United States and Mexico. It features a green base layer representing vegetation and a red overlay indicating active forest fires. A legend in the bottom left corner shows a color scale from green (Low) to red (High). The map also includes state/province boundaries and major cities. A sidebar on the left provides detailed information for each selected fire type and allows users to filter data by time period and specific events like the Indonesian fires.

The Sea Level Rise Viewer map for Connecticut displays coastal areas with elevation contours and color-coded zones indicating potential impact from sea level rise. The legend includes:

- SEA LEVEL RISE**
- Visualization Location** (blue dot)
- Water Depth** (blue circle)
- Low-lying Areas** (green circle)
- Area Not Mapped** (grey circle)
- Leveed Areas** (yellow circle)

The map shows various towns and cities along the Connecticut coast, including New Haven, Stamford, Bridgeport, and New Haven. An inset map in the bottom right corner shows the location of Connecticut relative to New England.

## Penguin super-colony spotted from space

By Jonathan Amos and Victoria Gill  
Science correspondents, BBC News

© 2 March 2018 | [Read more](#)

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Largest population of penguins found in Antarctic Peninsula

## How augmented reality can help create sustainable, environment-friendly smart cities

Augmented & virtual reality can help develop public spaces with holistic approach to environmental preservation, good governance & assets management.

SWATI SUDHAKARAN 19 January, 2020 12:24 pm IST

## Researchers use virtual reality, GIS data to enhance trail management

By Robby Korth 381-1679 Apr 26, 2019 0



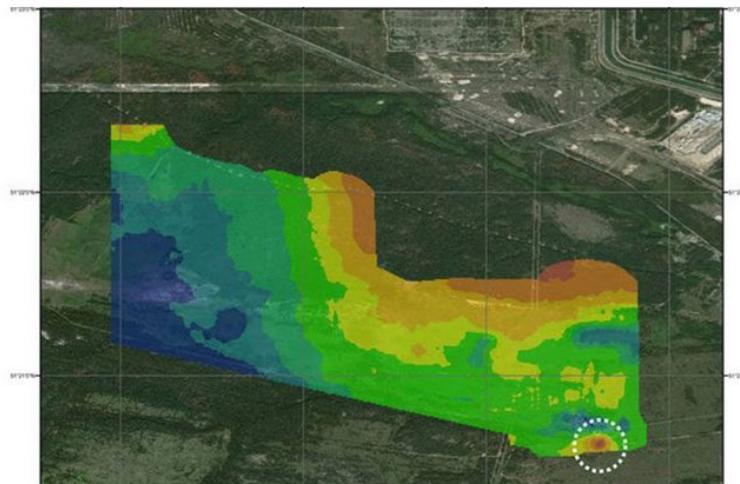
## Chernobyl 3D radiation hotspot map created using LiDAR technology

INTERNATIONAL / NEWS / UK by SAM LEWIS on FEBRUARY 12, 2020

[FACEBOOK](#)

[TWITTER](#)

[LINKEDIN](#)



Red pandas began to track using drones and GPS. They are on the verge of extinction

BY JOHN KESSLER JUNE 15, 2020 11:11 AM GMT+0300

243 VIEWS



# Participatory GIS & Community Science



As Scientists Struggle with Rollbacks, Stay At Home Orders and Funding Cuts, Citizens Fill the Gap

Citizen science sees a boom in participation by people motivated by cuts of environmental protections and Covid-19 impacts on data gathering and justice.

JUN 23, 2020



# Epicollect5

