

Notes on Science & Strategic Conservation Planning

Session 2: Climate Resilience for Biodiversity: Using the Data to Evaluate your Land Protection

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Climate change is a regional issue. We need a network like the Regional Conservation Partnership Network to work on issues like climate change and land protection. Where do we permanently protect land that is going to remain relevant?

What have we done?

- Gathered terrestrial resilience data and identified four focal areas to invest in.
- Funded 14 capital projects that will permanently protect land to date.
 - We gain a better understanding of the science through planning.
 - Planning Grants are a great way to work across boundaries. There are opportunities available.
- Developing guidance documents for applying climate science across the region, including list of ways in which climate change may be impacting us, vulnerability, and most resilient sites.
- What are issues of most concern?
 - Biodiversity, habitat, and invasive species ranked highest in survey
 - Others included floods, easements, working lands, coastal wetlands, and fresh water habitat

Abby asked the audience: What are you doing? What impacts are of primary concern for you?

- Forest types changing/moving around
- Invasives: we are seeing more and not dealing with them
- Corridors and connectivity: movement of species; gaps in where we are good at maintaining this connectivity; north-south corridors and filling the gaps; development along the coast of CT detracts from the possibility of conservation
- Sedimentation and intense rain events
- Human/nature interactions (buffers)
- Road stream crossings
- Floodplains
- Recreational infrastructure to keep interest in nature, not necessarily due to climate change

What planning are you already doing?

- Road crossings: local and state datasets, modeling and mapping culverts, survey work

What data are you using?

- To assess gaps in connectivity, TNC resiliency data is being used. Don't have the data about development.

What data is available?

- The Nature Conservancy's report shows resilient sites for terrestrial conservation.
- OSI applies this data to conservation. They acknowledge the unpredictability of climate change, but no predictions are made. Focuses on enduring features of the landscape.
- Complements species-based approach, but no species data is in this report.
- No freshwater data, either.
- Brings regional priorities to local sites.
- Resilience is a spectrum ranging from limited capacity to highly resilient, based on four landscape features: Geology, range of elevations, range of latitudes, and amount of calcareous or limestone soils.
- Protecting a full range of geology types is a new and important concept because some calcareous lands are heavily developed, but steep, harsh, acidic settings difficult for human opportunity are well protected. We need to balance this.
- Resilient sites retain species longer and natural processes continue.
- Complexity is important. Diversity of microclimates is associated with landforms and wetlands. A species will be able to hold on much longer with a diversity of microclimates.
- Local connectedness includes retaining landscape functions like maintaining disturbance regimes, fire, etc.
- To incorporate complexity data, counted how many land forms were within 100-acres of a site to calculate diversity of the landscape.
- To include connectedness (permeable landscapes that are locally connected), scored how far a species could go from a center point.
- Final resilience map a combination of landscape complexity filtered by setting and ecoregion.
- Not an overlay approach, but more of a portfolio to help rebalance which landscapes need to be protected.

What can you do with it? What can you get out of this study?

- You can evaluate a parcel using this data. Can I sell this as a climate valuable parcel?
- Develop a conservation plan, evaluate service area, and compliment with other data.

What data do I use to evaluate a parcel? How does it relate to what I'm doing on a parcel?

- Look at an aerial: What is on this parcel? What is protected in this landscape?
- Does this parcel connect resilient sites?
- Next, look at geology types and resilience scale.
- Next, look at regional flow data. Does this fall within an important regional corridor?
- Next, use 30m resilience data for smaller scale data.
- Then complexity data is compared with a topographic map. You see higher complexity, more variation, and more microclimates where topographic lines vary.
- Projects for Capital grant funds are evaluated this way. Several different scores are given and you have to decide what is important to you, your organization, and what is not well protected in this area.
- Resilience score is a nice summary for evaluating potential projects.
- Resilience is still relevant on a small scale, and can be filtered for previously protected areas or scaled based on your own needs or regional data

Conservation planning case study:

- NQRLP and Highstead goals: build a climate resilient conservation plan.
- Key decisions included deciding the planning framework and scale (1000m hexagons or 30m squares) to use for the project.
- Decided, based on their scale, to use 30m cells. They had some concerns about connectivity. They felt the freshwater had high resistance (80/100) vs. forests (10/100). New dataset will probably change freshwater resistance to 30. They ended up using the overall resilience score.
- Data identified which geology sites needed more protection.
- Scores are relative to the resilience of other similar sites in that ecoregion
- Data rescaled to NQRLP region, instead of the entire ecoregion. This revealed a high relative resilience area.
- Can combine several layers of resilience related to biodiversity only.

Emily Bateson announced the OSI Catalyst Grant, a re-grant program offered through Highstead for climate resilient conservation planning.