



# A WIDE-ANGLE VIEW: Considering Climate Change in Conservation Planning

BY MARINA SCHAUFFLER

Wildacres Retreat sits high in the mountains of North Carolina between the Blue Ridge Parkway and 10,000 acres of Pisgah National Forest. The historic center, dedicated since 1946 to the “betterment of human relations,” offers nonprofit groups a scenic perch—at 3,300 feet—to gather and reflect.

Owner Philip Blumenthal has watched ecosystems on the 1,076-acre property evolve over the decades; he’s seen a shift in seasons as the climate warms, as well as continuous change in the forest composition. American chestnuts were still “the most important tree in the forest” when his uncle acquired the land in 1936, he says, but within decades blight had eradicated them.

Now the forests on his family’s land are changing again in response to hemlock woolly adelgid, an invasive insect that has killed off half the state’s hemlock forests. There are “constant environmental changes that a lot of people aren’t aware of,” Blumenthal reflects.

Wanting to limit future development, his family placed two easements on Wildacres last year, working with the accredited

Conservation Trust for North Carolina (CTNC) and the accredited Foothills Conservancy of North Carolina (FCNC). Through that process, the Blumenthal family discovered another value of their land that even they had not known.

By participating in the accredited Open Space Institute’s (OSI) Resilient Landscapes Initiative, which helped fund the easement acquisition, CTNC and FCNC learned that Wildacres has characteristics that make it likely to sustain many species even as the climate grows hotter and less predictable. The property’s marked changes in elevation, its linkages to undeveloped land and its diverse microclimates embody a variability that could help species

In addition to protecting clean water and climate-resilient benefits for the region, the easements on Wildacres Retreat in North Carolina connect two federally protected areas: Pisgah National Forest and the Blue Ridge Parkway National Park.

COURTESY OF WILDACRES RETREAT

adapt. It is, Blumenthal says, “all about providing options.”

### Creating Options

A growing number of land trusts are working to identify “climate-resilient” sites like Wildacres that could offer a diversity of life the best possible chance to thrive despite inevitable disruptions. Groups around the country have received grants and technical support in this process from OSI and, more recently, the Land Trust Alliance. To guide decision-making, most land trusts rely on state and regional data and on terrestrial resilience research first developed by The Nature Conservancy (accredited) in 2012.

Resilience shifts the traditional focus of conservation from particular species or “actors” to what’s become known as “nature’s stage”—the geophysical settings that can support a changing “cast of characters” over time. Mark Anderson, director of conservation science for the Conservancy’s Eastern Region, notes that “the types of soils and underlying geology and topography in a setting have a huge effect on how diversity is spread across the land.” The other essential concept, he adds, is that species’ capacity to survive upheavals depends to a surprising degree on having access to numerous microclimates, dictated by elevation, orientation to the sun, proximity to water and other factors. Research is under way on why and how species persist, Anderson says, “and very much of it comes down to microclimates.”

Labeling key elements of climate-resilient landscapes is fairly simple; mapping those settings at a relatively fine scale is a whole different proposition. Researchers tackling this challenge have been at it for a decade and it’s still a work in progress. When the Conservancy first released its terrestrial resilience maps six years ago, the scientists involved envisioned it primarily for an internal audience. When 9,000 people visited the website over a six-month period, it took them by surprise. What really shocked us, Anderson now jokes with chagrin, was “how many people tried to use the data without actually having read our 250-page manual!”

Fortunately, a collaboration developed between OSI and the Alliance, funded with generous support from the Doris Duke Charitable Foundation (DDCF), to help land trusts and others factor climate resilience into strategic conservation planning. “DDCF deserves great credit for recognizing early on the value of The Nature Conservancy’s research and the importance of translating that science for land trusts—helping them to keep land protection relevant as the climate changes,” observes Abigail Weinberg, OSI’s director of research.

DDCF also contributed to a capital fund that enabled OSI to create its Resilient Landscapes Initiative in 2013, helping accredited land trusts in seven focus areas of the eastern United States protect more than 45,000 climate-resilient acres.

Complementing the capital grants, a growing partnership between OSI and the Alliance provides technical assistance, workshops and small grants to land trusts that want to factor climate resilience into their strategic conservation planning. To date, more than 100 land trusts have received training

and support to incorporate climate resilience into their conservation planning.

Building on the outreach model developed by OSI, the Alliance is now establishing a national program, expanding training and technical support on climate resilience to the Great Lakes, Great Plains and Pacific Northwest as terrestrial resilience datasets become available for those regions. The Conservancy expects to complete its mapping of the entire country by the end of 2019.

### Finding Connections

Traditionally, land trusts focus on permanence, Weinberg observes, “but when everything is in transition, how do we set conservation priorities? If we’re aiming to protect habitat, we need to think about it differently than in the past—looking beyond single-species approaches and educating communities about the kinds of natural infrastructure that might offer a resilient network of habitats.”

When land trusts embark on strategic planning, many now see integration of climate considerations as—in Weinberg’s words—“an ecological imperative.” Brad Nye, conservation

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JAY MATHER/DESCHUTES LAND TRUST

Climate resilience mapping identified the Aspen Valley Ranch in Oregon as a “hot spot” for resilience.

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director at the accredited Deschutes Land Trust in Central Oregon, views it as an ethical obligation as well: “You can’t be silent.”

Deschutes Land Trust has worked at a landscape scale for nearly two decades, primarily on habitat restoration efforts involving salmon and steelhead. “There’s always been a fairly intense and high level of strategic planning,” says Nye, “but climate came along later.” Having climate-centered data that show impediments to migration has greatly advanced the land trust’s efforts, he adds.

Teton Regional Land Trust (accredited) staff found climate resilience mapping useful as “part of our methodology for understanding which areas are most important to protecting the broadest suite of species and the ecological function of the landscape we strive to protect,” notes Executive Director Joselin Matkins. TRLT’s approach concentrated on habitat features essential for 10 “umbrella species” (those with wide-ranging habitat needs) like trumpeter swans, sandhill crane, elk and mule deer. “If we can protect the suite of habitats these species rely on,” she says, “we’ll be protecting it for the vast majority.” TRLT developed maps that highlight areas with the most overlapping habitat features and is now working to protect secure migratory corridors for each species.

It’s a demanding process, Matkins concedes; TRLT’s recently completed plan

took 1,200 staff hours. The trust is already transforming its land protection process, though, as it runs properties through an analytical tool to see how the habitat priorities it identified align on a single property. The process has confirmed that its current priorities are on target, Matkins says. “It reinforced what we instinctually knew but didn’t have the data to back up.”

### Discovering New Opportunities

The resilience-mapping process can unveil unexpected patterns in familiar landscapes. Valuable forest corridors appeared through mapping when the accredited Columbia Land Conservancy in upstate New York, with support from OSI, incorporated climate resilience into the process for updating its strategic conservation plan. CLC identified a distinct forest corridor crossing the Hudson Valley that is especially resilient and “critical because of its function in the valley,” says Lee Alexander, CLC’s conservation projects manager. “We’re more active now initiating conservation in areas that arose as important.”

Identifying that significant forest corridor led CLC to launch a cluster of projects—totaling nearly 2,000 acres—within the most highly ranked resilient area. “We haven’t worked much in that area before,” Alexander explains. “We knew that it was home to valuable forestland and wildlife

habitat, but it turns out that those woods are of vital importance to the entire region.”

CLC staff members have found that integrating climate into conservation planning energizes landowners and funders. Being better able to explain and show on maps the significance of key parcels “helps us tell the story in fundraising,” Alexander says. “People get excited by this approach; it’s made a big difference.”

Nye found that their mapping exercises identified “project opportunities that we hadn’t realized before” and became a critical tipping point, encouraging the trust to undertake a new project in a location that data had identified as a hot spot for climate resilience.

Land trusts often draw on additional data sources for geographic areas that The Nature Conservancy’s layers don’t adequately assess—like the fast-growing community of Bend, Oregon, where Deschutes Land Trust is based. Andrea Reese, senior land conservation specialist at the accredited Northern Virginia Conservation Trust (NVCT), reached a similar conclusion working in a service area with 2.5 million people. Highly urban and suburban areas typically “don’t score very well” for climate resilience, she notes.

Getting acquainted with the Conservancy methodology, though, helped NVCT realize it needed better mapping tools to analyze potential acquisitions. Through the Alliance’s Land and Climate Program, it received a modest grant and invaluable coaching support from OSI. “It was a really great partnership,” Reese says. “We were so excited to be a part of this pilot. It made all the difference.”

NVCT staff decided to focus on two climate metrics: protection of drinking water and protection against urban heat islands. “We’ve now created a parcel-by-parcel score for drinking water protection for the whole service area that we can use in evaluating prospects,” Reese explains. “It’s given us a new way to prioritize our work and reach out to potential partners.” NVCT recently approached a water district to explore a possible partnership, and the maps helped facilitate that dialogue,



RENEE HIEBERT

Conservation planning that incorporates climate-resilient lands helps Teton Regional Land Trust protect habitat for trumpeter swans, which are periodically reintroduced to the area.



LEE ALEXANDER

Columbia Land Conservancy is working to protect a regional wildlife corridor that crosses the Hudson River Valley. The Nature Conservancy predicts that much of the land in the forested corridor will be resilient in the face of climate change.

she says, giving the district staff “something concrete to look at and respond to.”

### Collaborating on Many Levels

The Columbia Land Conservancy now finds itself looking more broadly within its county-wide service area, and reaching beyond that to lead a regional effort. “The more we all have access to regional resources,” Alexander says, “the better work we can do and the more we can do together.”

Having ready access to climate resilience data and technical support from the Alliance and OSI can help local organizations like CLC “get a handle on the data and what they mean,” Alexander says. “It’s a game-changer. I’d encourage any land trust to try and make use of these data because they can really make a huge difference in effectiveness.”

Realizing the value of the climate resilience planning it had done internally, the Conservation Trust for North Carolina helped other land trusts statewide embark on a similar process, working in partnership with OSI and with funding from the Z. Smith Reynolds Foundation, to support six local land trusts and one regional land trust partnership in climate resilience planning. There were collective trainings, explains CTNC Associate Director Caitlin Burke, and a closing session in which land trusts shared their final products and described how they would use them. What

they learned in the process, she says, is that “climate has to be part of the planning if we’re going to be good stewards for the long run.”

### Expanding the Field of View

Fostering climate resilience will be critical to land trusts moving forward and CTNC is exploring some of the new forms that planning may take. “We’re always asking, ‘What’s the next layer of climate implications?’” notes Executive Director Chris Canfield. Its focus is shifting to include human community planning, particularly the roles that land trusts might take in helping communities respond to hurricanes and flooding.

CTNC has begun connecting with more community development associations and is exploring ways—working with the North Carolina African American Heritage Commission—to integrate cultural history layers into the land trust’s datasets. “We’d never thought of melding the two together,” Canfield says, but now realize the importance of considering cultural preservation, knowing that “land has many different values to many different people.” Planning needs to account not just for ecological resilience but for community vulnerability, he explains. “Climate is an accelerator of the need to connect with community organizations.” 🍌

MARINA SCHAUFFLER IS A FREQUENT CONTRIBUTOR TO SAVING LAND.

## Learn More

The Alliance’s Land and Climate website has extensive resources, such as case studies, articles and reports, including a 2015 guide by the Open Space Institute titled *Conserving Nature in a Changing Climate* (<http://climatechange.lta.org/resilience-guide>). While this publication highlights land trusts in the Northeast, much can be extrapolated for use in other regions.

The Alliance periodically offers webinars on climate issues. Check [www.lta.org/webinars](http://www.lta.org/webinars).

The Nature Conservancy’s Resilient Land Mapping Tool is at [maps.tnc.org/resilientland](http://maps.tnc.org/resilientland). Its Resilient and Connected Landscapes webpage ([www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/edc/reportsdata/terrestrial/resilience/Pages/default.aspx](http://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/edc/reportsdata/terrestrial/resilience/Pages/default.aspx)) has additional resources.

<https://databasin.org> includes many free regional datasets and an interactive mapper.