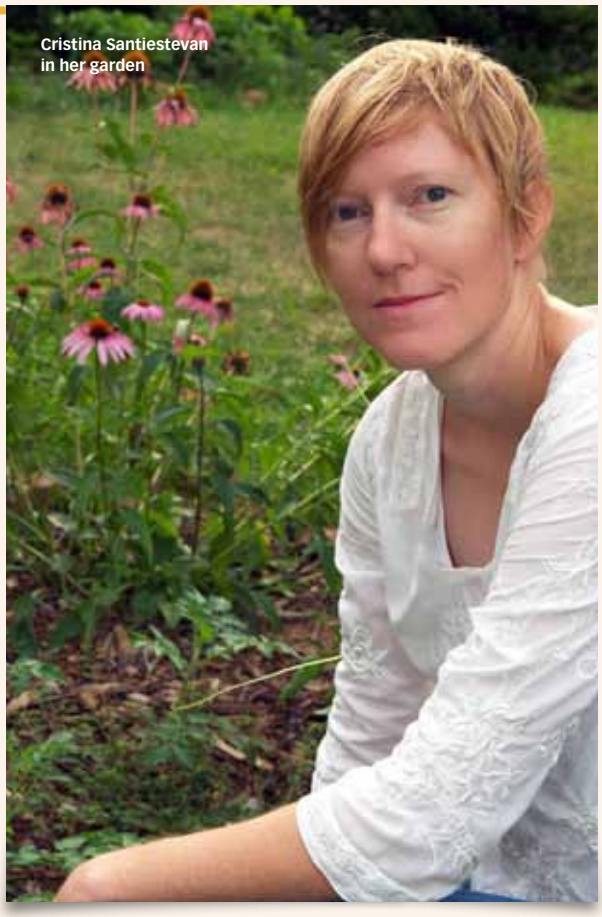
ESSAY **SIX**

BY Cristina Santiestevan

A Common CHALLENGE

Land Conservation and *Climate Change*



Cristina Santiestevan in her garden

FAITH MADDOX

The winter of 2011-2012 was unusual. Highly unusual. The soil never froze in my northern Virginia garden, and the kale and parsley continued to grow through January and February.

In Washington, D.C., the cherry blossoms peaked on March 20, more than two weeks earlier than normal. Across the United States, unseasonable heat shattered 15,272 record high temperatures in the month of March. Then, in June, a devastating "derecho" sent hurricane-force winds blowing from Illinois to Virginia, leaving 3.4 million without power.

August 2011 to July 2012 is currently the warmest 12-month period ever recorded in the country, and July 2012 is now the hottest month on record for the continental states. In 118 years of recordkeeping, the United States has never experienced a hotter month than July 2012. This may change as data for August becomes available.

The overly warm winter. The early spring. The fierce storms. This is climate change in action.

Probabilities

Climate change is a game of probabilities. Imagine a typical set of dice. Now, imagine that the numbers 1 and 2 refer to below-average temperatures, 3 and 4 refer to average temperatures, and 5 and 6 refer to above-average temperatures. Go ahead and give one of those dice a roll. There are even chances of rolling an average, above-average or below-average temperature. One in three. This is essentially how climate works. Or, more accurately, this is essentially how climate worked. Things have begun to change.

This is where the game of probabilities comes into play. Climate change doesn't guarantee every year will be hotter than the last. Nor does it eliminate the chances of below-average temperatures. Climate change simply increases the probability of hotter-than-average temperatures while decreasing the probability of lower-than-average temperatures. Consider that set of dice again. Imagine we've changed the value of the numbers: 1 refers to below-average temperatures, 2 and 3 refer to average temperatures, and 4, 5 and 6 refer to above-average temperatures. Now, give one of those dice a toss. Odds are good you'll see above-average temperatures (4, 5 or 6), but

there's still a decent chance of average temperatures (2 or 3). And it's not impossible that you'll roll a 1 for below-average temperatures.

The example is simplistic, but essentially accurate. Climate change increases the odds of hotter-than-average temperatures. The dice are loaded. And, like a game of dominoes, those rising temperatures trigger an array of changes that affect habitats and ecosystems around the world and within our own communities. Many of the impacts are tangible: sea level rise, drought, increased frequency and intensity of forest fires, species migrations and extinctions. In most areas, winter will be shorter and warmer, and spring will come earlier. Extreme weather—droughts, strong storms, wild swings in temperature—will likely become more common and severe.

Loaded dice are our future. Although we can potentially still reduce the scope of the problem, we cannot stop climate change. It is too late. The dice have already been tossed.

A Starting Point

"Climate change is making our work more important and more difficult," says Bill Holman, board member with the Triangle Land Conservancy in North Carolina and director of state policy at the Nicholas Institute for Environmental Policy Solutions at Duke University. Holman is especially concerned about the White Pines Nature Preserve, which protects one of the few remaining stands of white pines in North Carolina. "These pines were left behind during the last ice age," explains Holman. "I worry that climate change will complicate our efforts here."

Holman is right to be concerned. Climate change will complicate their efforts, both at the preserve and elsewhere. In fact, impacts associated with climate change will complicate the efforts of land trusts across the country, in every region and in all habitats. Adapting to these changes will be an essential and unavoidable task for all land trusts, no matter their size, location or demographics.

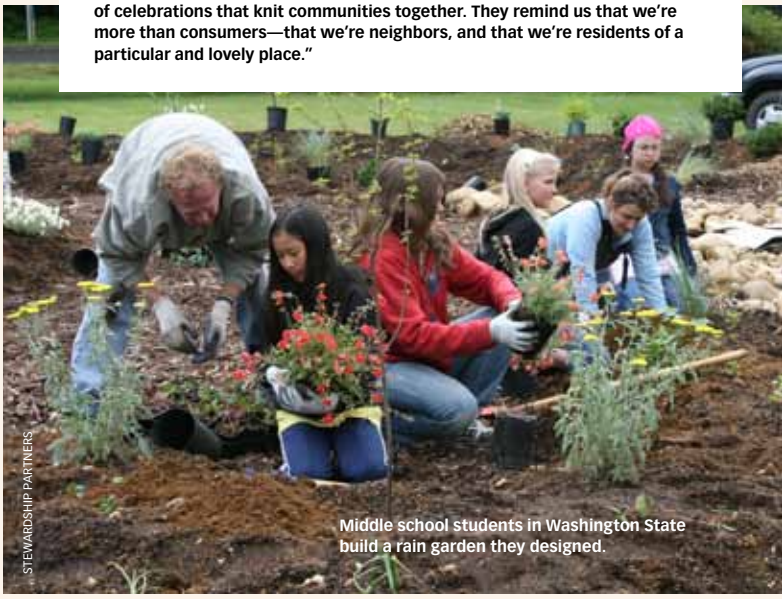
"Every land trust in America should be aware of climate change and the resources out there," says Walter Ernest, executive director of the Weeks Bay Foundation in coastal Alabama. "It's not going away."

Now, land trusts have a starting point: the new Land Trust Alliance Climate Change Toolkit, designed in cooperation with Coastal Conservation Networking.

Triangle Land Conservancy has protected the 275-acre White Pines Nature Preserve in Catham County, North Carolina, but climate change could harm the pines, trees more commonly found in higher, cooler climes.

SUNKE OHLSEN

Famous Voice
Award-winning author and climate change activist Bill McKibben believes in the power of local action. A board member of the Adirondack Land Trust (NY), McKibben says, "Protected lands are often the center for the kinds of celebrations that knit communities together. They remind us that we're more than consumers—that we're neighbors, and that we're residents of a particular and lovely place."



STEWARDSHIP PARTNERS

Middle school students in Washington State build a rain garden they designed.

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The wild beauty of Pine Island Preserve in Florida, protected by the Conservation Foundation of the Gulf Coast, is captured by renowned photographer Clyde Butcher.

Four Steps

There are essentially four steps to preparing for climate change: learn, plan, adapt and inspire.

Learn: Despite uncertainties about pace and magnitude, climate change is real. Land trusts should understand and account for it in their work.

The path toward climate change resilience—the ability to survive impacts associated with climate change—starts with education. Land trust professionals and volunteers will find useful information and suggestions in the newly completed Climate Change Toolkit.

But the toolkit is just a starting point. For example, coastal land trusts will want to explore interactive maps that plot the advancing flood of sea level rise, while western land trusts may be more interested in the latest predictions about drought and forest fire. In order to plan for the future, land trusts need to first understand how climate change will affect their region and protected lands.

Plan: Climate change is already here and these changes will *accelerate in the coming years and decades. We cannot stop climate change, so we must plan for it.*

"Climate change is long-term," explains Ernest. "You can't think about today. You've got to think about tomorrow."

The long-term implications of climate change vary by region and habitat. In Alabama and other coastal regions, planning for tomorrow often means planning for sea level rise. This process begins with identifying land that is uphill from protected areas and existing coastlines. Ernest suggests looking to aerial maps and photographs for guidance when considering new properties. "The first thing we do is pull out an aerial. I look at the wetlands layer. And, if it has uplands, I'll point that out. Because those uplands could very well be wetlands one day."

Adapt: We cannot prevent climate change from impacting our protected lands. But, by adapting our management practices, land trusts can promote climate change resilience in priority species, habitats and resources.

In Florida, the Conservation Foundation of the Gulf Coast (Conservation Foundation) is also looking upland from the current coast. "We're here forever," says Conservation Foundation president, Christine Johnson. "Land is here forever. We're supposed to protect it forever. So, if we're only protecting land that scientists say won't be here in 100 years, then we won't be here either."

Already, Conservation Foundation has identified 100 landowners and more than 3,500 acres as priority properties for protection. Conservation Foundation

is now working with those landowners and the local government to protect their land and establish a series of conservation corridors that will allow species to migrate inland as conditions change and sea level rises.

"3,500 acres is not going to save the state of Florida, but it's going to save some species, both plants and animals," explains Johnson. "If we plan it right, we have the time to allow them to adapt and migrate to what will be the coastline with sea level rise."

Inspire: By planning for climate change, your land trust is already making a positive impact in your community. Extend that reach by raising awareness of climate change and inspiring individuals and groups to take action.

"You've got to have the community tie-in," says Ernest, who believes public support for climate change planning is essential. "We can preach to the choir all we want, to all of our colleagues in the land trust field and other environmental arenas. But, you've got to preach to that local country store owner. The marina owner. The developers."

Inspiring public support for such a complex issue is a challenge. In some regions, including Alabama, the term "climate change" is so politically charged and divisive that simply mentioning it is likely to shut down conversation and start up arguments. The trick, explains Ernest, is to modify your language while staying on message. "You just don't walk in a room and start talking about climate change. At least, not in coastal Alabama. But you can walk in a room talking about coastal resiliency."

"Land conservation is becoming more important to water quality and quantity in our area," says Bill Holman. "More intense storms associated with climate change are increasing runoff and pollution from development. This message about water quality resonates with our community."

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In coastal Alabama, don't talk about "climate change." Talk about "coastal resiliency."

Meeting the Challenge

Climate change is here. It is in my garden, where I harvested fresh parsley in mid-February. It is in Alabama and Florida, where coastal land trusts are already preparing for sea level rise and increasingly powerful storm surges. It is in North Carolina, where runoff threatens water quality. And it is in your state, too, where it could be contributing to drought or severe weather or forest fires.

Every land trust is different, but all share a common promise to protect saved lands forever. And now, every land trust faces a common challenge in the form of climate change. The impacts will vary by region and ecosystem. The viable solutions will vary from one parcel to another. But the steps toward climate change resiliency are the same: Learn. Plan. Adapt. Inspire.

The role for land trusts extends beyond local communities and saved lands and into the national conversation about climate change. By joining together, land trusts have the opportunity to effect real change in how the United States protects land and adapts those protections to work in a rapidly changing world. "You've got to think outside the box," says Ernest. "You've got to think of the impact that all the land trusts together can have."

Johnson agrees. "Many voices speak louder than one."

CRISTINA SANTIESTEVAN WRITES REGULARLY ABOUT CLIMATE CHANGE SCIENCE, IMPACTS AND SOLUTIONS FOR THE LAND TRUST ALLIANCE AND OTHERS. MOST RECENTLY, SHE COLLABORATED WITH ALLIANCE STAFF ON THE NEW CLIMATE CHANGE TOOLKIT.

Learn more about climate change

- Explore the Land Trust Alliance Climate Change Toolkit: www.lta.org/climate-change-toolkit
- Identify local partners who may be helpful, such as universities, NGOs and other land trusts.
- Check out online resources devoted to climate change science, education and adaptation:
  - › NOAA Climate Services (www.climate.gov) and Climate Smart Habitat Conservation (habitat.noaa.gov/ourwork/climate.html)
  - › EPA Smart Growth and Climate Change (epa.gov/smartgrowth/climatechange.htm)
  - › Climate Central (climatecentral.org)
  - › US Forest Service Climate Change Resource Center (www.fs.fed.us/ccrc)
  - › US Global Change Research Program (www.globalchange.gov)
  - › Climate Adaptation Knowledge Exchange (cakex.org)