



Land trusts navigate
the uncertainties
surrounding climate change

STORMY SEAS

How might land trusts get their arms around climate change? A huge, global issue, climate change is fraught with political, scientific, economic and other uncertainties over long periods of time. Yet, more land trusts are feeling the need to engage on climate matters—both in response to threats to their work, as well as opportunities to enhance it.

This article reviews the ways that climate change may connect to the core work of land trusts. The goal is to provide a framework that land trusts can use to decide whether they might integrate climate considerations into their activities and, if so, how to do so.

Threats and Opportunities

For many reasons, an increasing number of land trusts are seeing climate change as an issue they need to incorporate into their work. For some, the science is clear: emissions from fossil fuel combustion, industrial operations (including intensive farming) and land clearance are changing the climate in ways that endanger their mission of permanent land protection. For others, it is a question of insurance: if the potential risks from

climate change are huge and the costs of responding are comparatively low, then taking action is a sensible thing to do—like buying insurance you hope you never have to use.

Other land trusts look at the Obama administration's proposals and see the nexus of climate, energy and the environment as the best route to increasing federal funding for their conservation work over the next several years. Still others see the plans to build many more renewable energy projects and lay thousands of miles of transmission lines as among the biggest threats to their efforts.

Mitigation and Adaptation

Whatever the reasons, once a land trust has decided to think through how climate change might affect its work, it needs

to start with the two major responses to climate change: mitigation and adaptation.

Mitigation means reducing emissions of greenhouse gasses from human activities. There are many ways to do so, posing both opportunities and threats to conservation goals. Some mitigation responses are a natural part of land conservation, such as protecting forests, grasslands and farms that store carbon (above ground and in the soil). Others are consistent with encouraging development within already developed areas, such as efforts to reduce transportation emissions through smart growth or local food. Still others, while important to reducing greenhouse gas emissions—such as wind, solar, nuclear and clean coal—have large footprints, sometimes in areas of high conservation value.

Adaptation means responding to changes in the climate. While the climate models vary in their details, generally, warming temperatures, more extreme storm events, rising sea levels and changing rainfall patterns are predicted over the next century or more. The potential

impacts on “permanent” land conservation will vary from place to place, but significant changes to the climate are predicted to occur for decades to come.

The rest of this article explores some of the connections between core land trust activities (particularly acquisition and stewardship) and climate change. By no means is this a comprehensive list, as our understanding of the threats and opportunities posed by climate change to the land trust community are evolving rapidly.

Acquisition: targeting sites that help reduce emissions or are resilient to climate change

Site selection has always been a key part of land trust work. Efforts to both mitigate and adapt to climate change have a wide variety of implications for choosing the lands on which to focus acquisition efforts.

As the global markets for carbon offsets have expanded, so too have the efforts of conservation groups to sell into them—raising new capital for their work. The basic opportunity comes from the decision of an entity that emits greenhouse gasses (an elec-



ASHOK KHOSLA

The northward and inland movement of North American birds, confirmed by thousands of citizen-observations, provides new and powerful evidence that global warming is having a serious impact on natural systems, according to a recent report by the National Audubon Society.

tric utility, for example) (“Emitting Entity”), to pay another entity (the “Offsetting Entity”) to reduce the Offsetting Entity’s emissions rather than the Emitting Entity having to reduce its own (such as by installing expensive CO₂ capture equipment).

Since forests and grasslands take emitted carbon out of the atmosphere and store it, many people view them as a relatively inexpensive way to reduce emissions—thereby also being a good source of carbon offsets. In fact, in 2007 land-based carbon offsets made up over 18% of the voluntary carbon market (Ecosystem Marketplace, New Carbon Finance 2008).

Choosing sites that offer good opportunities to increase the carbon stored in plants and soils is the key to these efforts. The Pacific Forest Trust, Nature Conservancy, Conservation

These are fragmented and opaque markets, posing complex scientific, economic and political issues. Yet the opportunity for selling forest and agricultural carbon credits is only expected to grow as more states, the federal government and the international community work their way toward requiring more reductions in emissions of greenhouse gasses—thereby driving demand for less expensive ways to reduce or store emissions.

Reducing vehicle miles traveled—hence fossil fuel burned—is another focus of the efforts to reduce emissions. This creates opportunities for land trusts to work even more closely with the smart growth community to help promote denser development close to transit hubs—thereby shifting new construction away from the

open space around urban growth boundaries, to advocacy in favor of denser development in particular locations—and less dense in others. Site selection—for both the development and conservation areas—is critical to these efforts. Similar opportunities also exist with the local food movement.

On the adaptation side, the issues are different, but the pressures on site selection are growing as well. Most obviously, as storms become more severe, ocean levels rise and flooding becomes more of a danger in some areas, questions will arise about whether it is wise to invest in sites that are likely to be inundated in the years to come. In some cases, the answer will be yes, in others no. In all cases it will be helpful to have considered the implications and moved forward with them in mind.

Similarly, attention to conservation corridors is expanding to include species movement as a result of climate change. While isolated, high mountain species have

Stewardship: managing carbon storage, energy infrastructure and species change

As land trusts succeed in protecting more lands, the importance of managing the conservation values on those lands in perpetuity will grow. Efforts to mitigate and adapt to climate change will have profound implications for these stewardship efforts.

One of the concerns about storing carbon in forests, grasslands and farms is whether it will provide a permanent offset to emissions elsewhere. The focus of land trusts on preserving land in perpetuity makes them uniquely well qualified to ensure that land-based carbon offsets provide a credible degree of permanence.

Wind turbines, solar arrays and the new smart grids through which clean energy will be transmitted are essential parts of the effort to mitigate climate change—and often the first exposure of land trusts to the implications of climate change for their work. Should they support or oppose the siting of such facilities? Should they participate in efforts to identify and separate development zones/corridors from conservation areas? Should they pursue amendments to existing or change the terms of future easements to allow for more or less renewable energy development on conserved sites?

While there are no easy, one-size-fits-all answers to these questions, two things seem clear: 1) New energy facilities are coming and they will take up land; and 2) Land trusts will be under increasing

The potential impacts on “permanent” land conservation will vary from place to place, but significant changes to the climate are predicted to occur for decades to come.

Fund, Trust for Public Land, Ducks Unlimited and several other U.S.-based organizations have all done so. This has enabled them to sell land-based carbon credits to buyers that range from electric utilities to investment funds to individuals.

farms, forests and other open spaces that most land trusts are seeking to protect. Such collaborations can take many forms, from participation in local programs to purchase or trade of development rights, to coordinated efforts to acquire

few options to migrate, it is expected that others will slowly be moving north as temperatures warm. Providing corridors through which that movement can occur will be an important way to help conserve those species over time.

Conservation Easements and Climate Change

The Woods Institute for the Environment at Stanford University School of Law and The Nature Conservancy convened a two-day meeting of distinguished scholars and senior attorneys to explore climate change and private conservation efforts in February 2009.

Three components of climate change that may affect conservation easements are carbon mitigation, adaptation and emissions reduction. The group that formed at the workshop, the Stanford Conservation and Climate Change Committee, focused on developing practical, tangible assistance for land trusts that would be delivered through the Land Trust Alliance starting this summer. This will include, in part:

1. Articulating the full problem in understandable terms.
2. Promoting integration across organizations to maximize protection.
3. Developing strategies to address climate change issues presented in existing easements.
4. Providing drafting suggestions and model paragraphs for future easements.
5. Suggesting ways to improve easement laws.
6. Developing and proposing possible new instruments.

Stay tuned to the Alliance website at www.landtrustalliance.org for more developments.

pressure to support new “clean energy” projects.

An increasing number of organizations—such as Audubon, Maine Coast Heritage Trust, the Peconic Land Trust and others—are developing policies on how to respond. Regional Land Trust Alliance conferences are adding programs on these issues. Additional efforts to share information, experiences and ways forward are urgently needed—both within the conservation community, as well as in collaboration with those working on clean energy issues.

Different questions are posed on the adaptation side of stewardship—less a yes or no proposition, and more a what, when and how. As the climate changes, some areas will become wetter, some drier. Most will see gradually warming temperatures with periodic extreme variations. Some coastal areas will be

inundated; others will become parts of new coastlines.

Over time, these changes will alter the mix of species on individual pieces of land. When the bog dries up, the bog turtle will no longer live there. The productivity of agricultural lands and forests is expected to change in different ways across continents. How these changes will play out in any particular location is still a matter of debate, as the global climate models show great variation in predictions at the regional and local level.

How any particular land trust changes its stewardship practices in response will reflect its goals and circumstances. Is it focused more on ensuring that open space is available in its town or on protecting endangered species? Are its lands getting wetter or drier? Groups like the National Wildlife Federation, Audubon Society and the Conservation

Innovation Program at Harvard are hosting meetings to explore and develop guidance on these and other questions on adapting to climate change. Such efforts will only increase in importance over the coming decades.

Looking to the Future

Responses to climate change are creating new sources of funding for land conservation. Voluntary carbon markets are transferring money from emitters to owners of forested lands to pay for carbon storage in trees and soil. Discussions are underway at the state, federal and global level, not only to require more organizations to reduce their emissions, but also to allow them to pay forest and agricultural landowners to store/offset those emissions as a way to meet these new requirements. These policy discussions are also considering ways to

increase funding for adaptation efforts. Expanded energy infrastructure is also likely to increase the funding for mitigating the impacts on wetlands and other natural resources.

The remarkable power of the land trust community lies in its ability to focus the time, passion and resources of individuals on the permanent protection of natural and working lands. Permanent land protection and climate change will be connected for decades to come. In some situations, this means new opportunities for conservation funding or collaborations with new groups. In others, it means new threats—from development or relentless change over time.

The implications of these connections are playing out on local, regional, national and global scales. As individual land trusts develop their own responses, there will be increasing needs to share their experiences and then focus their joint efforts on the areas of greatest impact—presumably at the state and federal levels. By doing so, land trusts will best be able to manage the connections—both good and bad—between their efforts to protect land in perpetuity and the expected changes in climate over time. 🍌

RESOURCE

Ecosystem Marketplace and New Carbon Finance, 2008, *Forging the Frontier: State of the Voluntary Carbon Markets 2008*

BRAD GENTRY IS DIRECTOR OF THE PROGRAM ON STRATEGIES FOR THE FUTURE OF CONSERVATION AT THE YALE SCHOOL OF FORESTRY & ENVIRONMENTAL STUDIES, AS WELL AS OF THE CENTER FOR BUSINESS AND THE ENVIRONMENT AT YALE. HE IS ALSO ONE OF THE HOSTS OF YALE'S CONSERVATION FINANCE BOOT CAMP AND A CONSULTANT TO THE UN CLIMATE CHANGE SECRETARIAT IN BONN, GERMANY.