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Climate Change Challenges for Land Conservation: Rethinking Conservation Easements, Strategies, and Tools

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CLIMATE CHANGE CHALLENGES FOR LAND CONSERVATION: RETHINKING CONSERVATION EASEMENTS, STRATEGIES, AND TOOLS

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DEDICATION

We dedicate this Article to our coauthor Fred Cheever. Fred passed away during the final stages of this work. He was a driving force behind this project, greatly shaping both its academic rigor and practical application to conservation in a changing world. It was a rare privilege to work closely with Fred, and we honor him by continuing the work to conserve the lands and waters that sustain us.

ABSTRACT

Climate change has significant consequences for land conservation. Government agencies and nonprofit land trusts heavily rely on perpetual conservation easements. However, climate change and other dynamic landscape changes raise questions about the effectiveness and adaptability of permanent conservation instruments like conservation easements. Building upon a study of 269 conservation easements and interviews with seventy conservation-easement professionals in six different states, we examine the adaptability of conservation easements to climate change. We outline four potential approaches to enhance conservation outcomes under climate change: (1) shift land-acquisition priorities to account for potential climate change impacts; (2) consider conservation tools other than perpetual conservation easements; (3) ensure that the terms of conservation easements permit the holder to adapt to climate change successfully; and (4)

^{*} Professor, SUNY Buffalo Law School. We would like to thank Resources Legacy Fund, the Woods Institute at Stanford, and the Baldy Center for Law & Social Policy for financial support for this effort. This project would not have been possible without the support of the land trust community and the seventy organizations that provided conservation easements and agreed to interviews. We have presented portions of this work at the Land Trust Alliance's annual rallies and many conferences and workshops. While several of us have links to land-conservation organizations, the work here is our own and does not represent the opinions of any such organizations. We also want to thank the students who assisted in gathering and synthesizing data, along with Josh Eagle and Cinnamon Carlane who coordinated the students at the University of South Carolina.

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provide for more active stewardship of conservation lands. There is still a good deal of uncertainty as to the legal fate of a conservation easement that no longer meets its original purposes. Many state laws provide that conservation easements can be modified or terminated in the same manner as traditional easements. Yet conservation easements are in many ways unlike other easements. The beneficiary is usually the public, not merely a neighboring landowner, and the holder is always a nonprofit conservation organization or a government agency. Thus, there is a case to be made for adaptive protection. An overly narrow focus on perpetual property rights could actually thwart efforts to meet adaptation needs over the long term. We call for careful attention to ensuring conservation outcomes in dynamic landscapes over time.

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INTRODUCTION

Climate change will alter the composition of our land-, water-, and sea-scapes and the natural communities that inhabit them.¹ Climate change has significant consequences for land conservation.² From habitat protection to coastal conservation, climate change will make effective conservation efforts more difficult and at the same time more important.³ Much of what is happening now is surprising.⁴ Much of what will happen in the future is unforeseeable.⁵

Healthy functioning ecosystems are important to a functioning society. Unfortunately, healthy functioning ecosystems do not dominate our world today. Instead, human impacts have thrown natural systems into disarray.⁶ Ecologists and conservation biologists offer guidance on how to sustain Earth's systems, ensuring a healthy future for humanity.⁷ Many call for conservation efforts that focus on resilient adaptable landscapes protected from most human interference in the long term.⁸ This presents conservation organizations with the difficult challenge of balancing flexi-

1. See generally Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2014: Synthesis Report* (2015); Gian-Reto Walther et al., *Ecological Responses to Recent Climate Change*, 416 NATURE 389 (2002).

2. See, e.g., L. Hannah et al., *Climate Change-Integrated Conservation Strategies*, 11 GLOBAL ECOLOGY & BIOGEOGRAPHY 485, 485–86 (2002); Jonathan R. Mawdsley et al., *A Review of Climate-Change Adaptation Strategies for Wildlife Management and Biodiversity Conservation*, 23 CONSERVATION BIOLOGY 1080, 1082 (2009); Paul Opdam & Dirk Wascher, *Climate Change Meets Habitat Fragmentation: Linking Landscape and Biogeographical Scale Levels in Research and Conservation*, 117 BIOLOGICAL CONSERVATION 285, 285 (2004).

3. See, e.g., W. Neil Adger et al., *Social-Ecological Resilience to Coastal Disasters*, 309 SCIENCE 1036, 1037–39 (2005); James Battin et al., *Projected Impacts of Climate Change on Salmon Habitat Restoration*, 104 PNAS 6720, 6720 (2007); Christopher D. G. Harley et al., *The Impacts of Climate Change in Coastal Marine Systems*, 9 ECOLOGY LETTERS 228, 229–30 (2006); Kirk R. Klausmeyer & M. Rebecca Shaw, *Climate Change, Habitat Loss, Protected Areas and the Climate Adaptation Potential of Species in Mediterranean Ecosystems Worldwide*, 4 PLOS ONE, no. 7, 2009, at 4–8; Robin Kundis Craig & J.B. Ruhl, *Governing for Sustainable Coasts: Complexity, Climate Change, and Coastal Ecosystem Protection*, 2 SUSTAINABILITY 1361, 1363–64 (2010).

4. Stephen H. Schneider, *Abrupt Non-Linear Climate Change, Irreversibility and Surprise*, 14 GLOBAL ENVTL. CHANGE 245, 245 (2004).

5. See Alejandro E. Camacho, *Adapting Governance to Climate Change: Managing Uncertainty Through a Learning Infrastructure*, 59 EMORY L.J. 1, 10–15 (2009).

6. See BRIAN WALKER & DAVID SALT, RESILIENCE THINKING 2 (2006).

7. See, e.g., CRAIG GROVES, DRAFTING A CONSERVATION BLUEPRINT: A PRACTITIONER'S GUIDE TO PLANNING FOR BIODIVERSITY 4 (2003); MATHIS WACKERNAGEL & WILLIAM E. REES, OUR ECOLOGICAL FOOTPRINT: REDUCING HUMAN IMPACT ON THE EARTH 3 (1996); F. Stuart Chapin, III et al., *Earth Stewardship: Science for Action to Sustain the Human-Earth System*, 2 ECOSPHERE, no. 8, 2011, at 1, 10–13; Richard J. Hobbs et al., *Intervention Ecology: Applying Ecological Science in the Twenty-First Century*, 61 BIOSCIENCE 442, 444–47 (2011).

8. See, e.g., IAN THOMPSON ET AL., FOREST RESILIENCE, BIODIVERSITY, AND CLIMATE CHANGE: A SYNTHESIS OF THE BIODIVERSITY/RESILIENCE/STABILITY RELATIONSHIP IN FOREST ECOSYSTEMS 7–8 (2009); Carla M. Sgrò et al., *Building Evolutionary Resilience for Conserving Biodiversity Under Climate Change*, 4 EVOLUTIONARY APPLICATIONS 326, 332–34 (2011) (arguing for the need of what they call “evolutionary resilience” in landscape conservation). See generally Nicole E. Heller & Erika S. Zavaleta, *Biodiversity Management in the Face of Climate Change: A Review of 22 Years of Recommendations*, 142 BIOLOGICAL CONSERVATION (2009) (describing views from different researchers).

bility and permanence. Both present and future on-the-ground implications of climate change highlight the need for robust climate change adaptation programs. In some cases, climate change adaptation requires altering current land uses over time or actively managing lands for conservation.⁹

To accomplish environmental protection and achieve adaptation goals, conservationists look to schemes that can limit human development and save space for changing coastlines, habitats, and other ecosystem features. Strategic use of legal tools is necessary to fulfill these policy goals. In the realm of land conservation, public and private entities have long heavily relied on perpetual conservation easements. However, climate change and other dynamic landscape changes raise questions about the effectiveness and adaptability of permanent conservation instruments like conservation easements, calling for careful attention to conservation outcomes over time. An overly prescriptive use of perpetual property tools could actually thwart efforts to meet adaptation needs over the long term.

In this Article, we examine the traditional perpetual conservation easement in the context of climate change. Conservation easements are widespread in the United States; a conservative estimate is 40 million acres.¹⁰ Other countries are also rapidly embracing this model and developing property-law tools as ways to achieve land conservation goals.¹¹ When conservation organizations prevent development with a conservation easement, they often impose a present-day image of what that habitat should look like.¹² Conservation groups have been largely unsuccessful in

9. Mawdsley et al., *supra* note 2, at 1082.

10. *Conservation Easements and the National Conservation Easement Database: What Is NCED?*, NAT'L CONSERVATION EASEMENT DATABASE, <https://conservationeasement.us/story-map/index.html> (last visited Mar. 22, 2018).

11. Gerald Korngold, *Globalizing Conservation Easements: Private Law Approaches for International Environmental Protection*, 28 WIS. INT'L L.J. 585, 633–37 (2010). They are already well-established in Canada. See KIMBERLY GOOD & SUE MICHALSKY, SUMMARY OF CANADIAN EXPERIENCE WITH CONSERVATION EASEMENTS AND THEIR POTENTIAL APPLICATION TO AGRICULTURAL POLICY 3 (2008). Australia and New Zealand have developed similar structures. Vanessa M. Adams & Katie Moon, *Security and Equity of Conservation Covenants: Contradictions of Private Protected Area Policies in Australia*, 30 LAND USE POL'Y 114, 114 (2013); Caroline Saunders, *Conservation Covenants in New Zealand*, 13 LAND USE POL'Y 325, 325 (1996). Scotland has had a law in place for several years, see Colin T. Reid, *The Privatisation of Biodiversity? Possible New Approaches to Nature Conservation Law in the UK*, 23 J. ENVTL. L. 203, 206 (2011), and there is pending legislation in England and Wales, see *Conservation Covenants: Current Project Status*, LAW COMMISSION, <http://www.lawcom.gov.uk/project/conservation-covenants> (last visited Mar. 8, 2018). We also see examples popping up elsewhere. See, e.g., R. WATSON ET AL., AFRICAN WILDLIFE FOUND., EXPANDING OPTIONS FOR HABITAT CONSERVATION OUTSIDE PROTECTED AREAS IN KENYA: THE USE OF ENVIRONMENTAL EASEMENTS 5 (2010); M. Root-Bernstein et al., *Conservation Easements and Mining: The Case of Chile*, 1 EARTH'S FUTURE 33, 33–34 (2013); Blanca Soro Mateo et al., *Custodia del Territorio y Bancos de Conservación*, in DERECHO AMBIENTAL PARA UNA ECONOMÍA VERDE (2016) (describing a related program of land stewardship in Spain).

12. See Gerald Korngold, *Solving the Contentious Issues of Private Conservation Easements: Promoting Flexibility for the Future and Engaging the Public Land Use Process*, 2007 UTAH L. REV. 1039, 1042 (describing conservation easements as preventing any changes to the “ecological status quo”); Duncan M. Greene, Comment, *Dynamic Conservation Easements: Facing the Problem of Perpetuity in Land Conservation*, 28 SEATTLE U. L. REV. 884, 902 (2005).

creating agreements that enable changing land uses, even if such changes might be necessary for meeting conservation goals. Too little flexibility may create pressure to break, rather than bend, a conservation easement.¹³ There is still a good deal of uncertainty as to the legal fate of a conservation easement no longer meeting its original purposes. Many state laws allow modification or termination of conservation easements in the same manner as other easements.¹⁴ But this may not be appropriate because conservation easements are unlike traditional easements.¹⁵ The beneficiary is the public and the holder or enforcer of the agreement is a nonprofit conservation organization or a government agency working in the public interest. This enhanced public interest and involvement in these conservation measures suggests that applying rules regarding simple private transactions could be inadequate. This public investment enhances the argument for adaptive protection.

As part of a 2011 study of conservation easements and conservation-easement professionals in six states, we reached out to the land-conservation community to learn how organizations are addressing climate change, if at all, and specifically to assess the effectiveness of conservation easements in the face of a changing climate.¹⁶ We interviewed more than seventy officials from land-conservation organizations, including both nonprofit land trusts and government conservation agencies, and reviewed more than 260 conservation easements.¹⁷ The investigation indicated that land-conservation organizations are slowly beginning to incorporate goals or strategies related to climate change. Yet conservation easements themselves almost never mention climate change and may not have many mechanisms that make them responsive to change. Since the study, we have been exploring the implications of the data gathered as well as researching alternative land-conservation tools that might be better able to

13. Jessica E. Jay, *When Perpetual Is Not Forever: The Challenge of Changing Conditions, Amendment, and Termination of Perpetual Conservation Easements*, 36 HARV. ENVTL. L. REV. 1, 37–43 (2012) (describing conundrums around conservation-easement termination); Jessica Owley, *Conservation Easements at the Climate Change Crossroads*, 74 LAW & CONTEMP. PROBS. 199, 209–13 (2011) (discussing various common law doctrines that can lead to dissolution of conservation easement in the face of too much change).

14. See, e.g., Jay, *supra* note 13, at 43–61; Jessica E. Jay, *Understanding When Perpetual Is Not Forever: An Update to the Challenge of Changing Conditions, Amendment, and Termination of Perpetual Conservation Easements, and a Response to Ann Taylor Schwing*, 37 HARV. ENVTL. L. REV. 247, 252 (2013).

15. Michael Allan Wolf, *Conservation Easements and the “Term Creep” Problem*, 33 UTAH ENVTL. L. REV. 101, 116–20 (2013) (explaining that conservation easements are not really like traditional easements and do not merit the same label).

16. We did so through a distributed graduate seminar. For details of the seminar structure, see generally Jessica Owley & Adena R. Rissman, *Distributed Graduate Seminars: An Interdisciplinary Approach to Studying Land Conservation*, 2 PACE ENVTL. L. REV. ONLINE COMPANION 88 (2011).

17. For more information about the data gathered, see generally Jessica Owley & Adena R. Rissman, *Trends in Private Land Conservation: Increasing Complexity, Shifting Conservation Purposes and Allowable Private Land Uses*, 51 LAND USE POL’Y 76 (2016); Adena R. Rissman et al., *Adapting Conservation Easements to Climate Change*, CONSERVATION LETTERS, Jan./Feb. 2015, at 68.

respond to changing landscapes and social conditions. This Article describes the findings of the research, what we have labeled the Six-State Study, along with recommendations for how the land-conservation community should address the challenge of climate change. Building upon the 2011 study, we examine flexibility (or often lack thereof) in conservation easements. We discuss ways to improve the responsiveness of the tool and the resiliency of lands under protection; we include some alternative land-conservation tools; and we consider how conservation easements might evolve to become more adaptive.

The Six-State Study shows widespread awareness of the potential impacts of climate change on private land conservation but a lack of explicit action on the issue in terms of actual land-conservation practices. Few land-conservation organizations in our study considered mitigation of or adaptation to climate change as an organizational goal. This may be changing as the Land Trust Alliance and other entities become more engaged in climate change issues.¹⁸ Despite the lack of focus on climate change, many land-conservation organizations in our study believed their land protections would fare well even in a changing landscape because of the broad and flexible purposes of the land restrictions. In the Sections below, we describe the positions of the land-conservation organizations and evaluate the resiliency of their land-conservation tools. Overall, we conclude that land-conservation organizations could do more to improve conservation outcomes in the context of a changing world.

We identify a first (and continuing) step in the process: encouraging conservation organizations to inform themselves about the potential effects of climate change on the lands and waters they steward.¹⁹ This appears a particular problem for land trusts—the private land-conservation organizations we examined. Universities, government agencies, and larger land trusts will often be willing to help.²⁰ Furthermore, conservation organizations should work to educate everyone involved in their work and conservation transactions (e.g., staff, board members, and landowners) and integrate climate information into their strategies, business processes, and analyses of risks.

Beyond informing themselves, the land trust community can take a variety of steps to better ensure that its efforts are effective in the face of

18. For instance, the Land Trust Alliance launched the Land Trust Climate Change Initiative in January 2017. *Climate Change: Land and Climate Program*, LAND TRUST ALLIANCE, <https://www.landtrustalliance.org/topics/climate-change> (last visited Mar. 8, 2018). See also the work of The Nature Conservancy, NATURE CONSERVANCY, <https://www.nature.org/ourinitiatives/urgentissues/global-warming-climate-change/index.htm> (last visited Mar. 8, 2018), and the Open Space Institute, OPEN SPACE INST., <https://www.openspaceinstitute.org/what/land-for-climate-protection> (last visited Mar. 8, 2018).

19. See *infra* Section V.A.

20. Acknowledging, however, the apparent trend toward a reduced federal government role under the Trump Administration.

climate change. This Article outlines four types of climate-responsive land conservation strategies:

1. **Shift land acquisition priorities to account for potential climate change impacts.**²¹ Conservation organizations should evaluate the benefits of protecting lands—including migration corridors, species refugia, and areas of resilience—that could help in climate-adaptation efforts. When acquiring lands that are highly susceptible to climate-induced changes, organizations should develop a climate-vulnerability assessment and adaptation plan to protect conservation purposes over time. Climate change efforts generally follow two pathways: mitigation of greenhouse gases in the atmosphere or adaptation to the changing world that is the outcome of the increased level of greenhouse gases in the atmosphere. Conservation organizations are in a position to work on both goals, but the organizations are strategically placed to think about adaptation because of their desire to protect landscapes and seascapes in perpetuity. Many land trusts operate on a parcel-by-parcel basis. Indeed, some acquisitions are ad hoc and opportunistic without regard for the environmental or strategic value of the land, due in part to landowner demand for tax deductions or development mitigation.²² Even where an organization uses an acquisition plan, it can be difficult to determine how the plan can work in the climate change context. Organizations need to undertake considered and deliberate efforts to incorporate climate change risks into acquisition and management decisions consistently.
2. **Consider conservation tools other than perpetual conservation easements.**²³ Conservation organizations should consider using tools that provide greater flexibility in time and space in either the powers that the organizations enjoy over their lands or in the duration of the protection, including fee ownership, option agreements, contractual payments, term conservation easements, moving conservation easements, tradable conservation easements, and flexible reserves.
3. **Ensure that the terms of conservation easements permit the holder to adapt to climate change successfully.**²⁴ Where conservation organizations do use conservation easements, they should consider the terms carefully and contemplate the potential implications for climate change on their holdings. In particular, conservation organizations should incorporate climate change in

21. See *infra* Section V.B.

22. See also Jeffrey C. Milder & Story Clark, *Conservation Development Practices, Extent, and Land-Use Effects in the United States*, 25 CONSERVATION BIOLOGY 697, 699 (2011) (describing larger development projects that often incorporate conservation easements).

23. See *infra* Section V.C.

24. See *infra* Section V.D.

the conservation-easement-purposes sections; provide for bio-physical monitoring; allow adequate authority to manage for climate risks and stresses; consider proper responses to changed conditions; and potentially authorize needed amendments. Management plans may provide an especially useful means of providing for flexibility over time, but groups should be wary of using management plans as a way to avoid making important drafting decisions regarding the terms of their conservation easements. Land-conservation organizations need to grapple with how their overall goals and mission might change as both the landscape and social needs change. Furthermore, organizations need to think about how activities and changes outside their own parcels might affect their conservation efforts.

4. **Provide for more active stewardship of conservation assets.**

To ensure effective adaptation to climate change, conservation organizations should gather detailed environmental information when acquiring land; provide for adequate stewardship funds; develop policies to guide ongoing management decisions; and, in the case of conservation easements, develop closer relationships with the owners of the underlying land. An attractive feature of conservation easements for conservation organizations has generally been the low level of involvement required. If a land trust can simply monitor annually, it need not invest much money or time into the land holding each year. To meet some conservation goals, this may be satisfactory, but for meaningful provision of biodiversity and ecosystem services, it is likely inadequate.²⁵ Where active involvement in the operations of the land (or monitoring operations of the land) is called for, so is greater capacity of the land-conservation organizations.²⁶ Conservation organizations should confront the anticipated needs of the land even if this means reducing the amount of land they encumber with restrictions.

Part II of this Article details the concerns created by climate change, Part III describes the current private-land conservation framework, Part IV explains our research project and findings, and then Part V discusses each of the reforms above in detail. These reforms are the first steps conservation organizations should take in preparing for climate change. More sweeping innovations may be needed in the future, accompanied by policy reforms that allow conservation organizations to pursue them.

25. See, e.g., Heller & Zavaleta, *supra* note 8, at 27; K.D. Holl & T.M. Aide, *When and Where to Actively Restore Ecosystems?*, 261 *FOREST ECOLOGY & MANAGEMENT* 1558, 1561 (2011); Maria K. Janowiak et al., *A Practical Approach for Translating Climate Change Adaptation Principles into Forest Management Actions*, 112 *J. FORESTRY* 424, 425 (2014).

26. Rissman et al., *supra* note 17.

I. THE IMPORTANCE OF CLIMATE CHANGE

The Earth's climate is changing, with important implications for conservation efforts. In the twentieth century, the global average temperature increased by 0.85°C (1.53°F); extreme weather and climate events, including heatwaves, droughts, storms, and floods, are increasingly more frequent and intense; and global sea level has risen by 0.17 to 0.21 meters (6.6 to 8.3 inches).²⁷ Even if the atmospheric concentration of carbon dioxide stabilized at today's concentrations of 405 parts per million, scientific studies indicate that global average surface temperatures would continue to increase by another 0.3 to 4.8°C (0.5°F to 8.6°F) by the end of the century.²⁸ If, however, we remain on the current greenhouse-gas-emissions trajectory, climate projections suggest that, through the end of the twenty-first century, we can expect a global mean temperature increase of between 5.4 and 10.8°F and global mean sea-level rise between 0.26 to 0.82 meters (10.2 and 32.3 inches), depending on the greenhouse gas emissions scenario.²⁹ This sea level rise would eliminate significant amounts of coastal land.³⁰

With just under one degree warming thus far, scientists have documented changes in species across the globe including distributional shifts in animals, plants, and insects; changes in the timing of biological phenomena such as flowering, breeding, and migration; and decoupling of co-evolved species interactions such as plants and their pollinators.³¹ In general, these responses have resulted in range shifts both poleward and upward along elevational gradients,³² but the asynchronicity of the responses are resulting in novel ecosystems. Novel ecosystems are combinations and relative abundances of species that have not previously occurred.³³ With the documentation of such dramatic changes in response to a small and incremental temperature increase, conservationists are beginning to ponder the implications of increasingly common extreme weather events in this backdrop.

Extreme climatic events such as heat waves, droughts, storms, floods, and fires will deliver punctuated impacts in time and space that will magnify the influence of the average climatic trends and other stressors. That

27. IPCC, *supra* note 1, at 2–4.

28. *Id.* at 8–10.

29. *Id.* at 13.

30. *Id.*

31. *Id.* at 6; MICHELLE D. STAUDINGER ET AL., IMPACTS OF CLIMATE CHANGE ON BIODIVERSITY, ECOSYSTEMS, AND ECOSYSTEM SERVICES: TECHNICAL INPUT TO THE 2013 NATIONAL CLIMATE ASSESSMENT 2-11 to 2-19 (2012); Camille Parmesan, *Ecological and Evolutionary Responses to Recent Climate Change*, 37 ANN. REV. ECOLOGY EVOLUTION & SYSTEMATICS 637, 638 (2006).

32. Walther et al., *supra* note 1, at 390.

33. Richard J. Hobbs et al., *Novel Ecosystems: Implications for Conservation and Restoration*, 24 TRENDS ECOLOGY & EVOLUTION 599, 599 (2009); Volker C. Radeloff et al., *The Rise of Novelty in Ecosystems*, 25 ECOLOGICAL APPLICATIONS 2051, 2052 (2015).

is, the character and severity of impacts from climate extremes depend not only on the extremes themselves but also on the background exposure and vulnerability of the species that result from sustained incremental temperature and precipitation changes.³⁴ Slow, incremental changes can set in motion fundamental changes that make ecosystems much more vulnerable in the face of extreme events. An illustrative example comes from the Rocky Mountains where rising temperatures have stressed conifer tree species allowing for expanded infestation by the mountain pine bark beetle, whose range previously had been confined by cold temperatures.³⁵ Since the 1990s, this climate-change-propelled dynamic has induced forest die-off on sixty million acres from northern New Mexico through British Columbia,³⁶ impacting millions of acres of protected areas.³⁷ Extreme climate events such as prolonged severe drought have resulted in the death of beetle-infested trees, creating increased fuel for fires and an increase in large, high-intensity fires across the western United States.³⁸

Adaptation measures differ from mitigation measures, which seek to reduce the overall impact of climate change by reducing its intensity (generally through programs in carbon reduction or carbon storage).³⁹ While mitigation measures tend to have one overarching goal—reduction of the level of greenhouse gases in the atmosphere—adaptation is more varied. Because the impacts of climate change vary so greatly, so do the re-

34. Omar-Dario Cardona et al., *Determinants of Risk: Exposure and Vulnerability*, in *MANAGING THE RISKS OF EXTREME EVENTS AND DISASTERS TO ADVANCE CLIMATE CHANGE ADAPTATION* 67 (Christopher B. Field et al. eds., 2012).

35. Barbara J. Bentz et al., *Climate Change and Bark Beetles of the Western United States and Canada: Direct and Indirect Effects*, 60 *BIOSCIENCE* 602, 609 (2010).

36. Forest Service maps show the spread of insects and diseases. FRANK J. KRIST, JR. ET AL., U.S. FOREST SERV., 2013–2027 NATIONAL INSECT AND DISEASE FOREST RISK ASSESSMENT (2012), https://www.fs.fed.us/foresthealth/technology/pdfs/2012_RiskMap_Report_web.pdf. See also LINDA A. JOYCE ET AL., U.S. GLOBAL CHANGE RESEARCH PROGRAM 175–94 (2014) (detailing climate change impacts on forests in the United States), https://nca2014.globalchange.gov/system/files_force/downloads/low/NCA3_Full_Report_07_Forestry_LowRes.pdf; Teresa B. Chapman et al., *Spatiotemporal Patterns of Mountain Pine Beetle Activity in the Southern Rocky Mountains*, 93 *ECOLOGY* 2175, 2175 (2012). See generally Sally Embrey, Justin V. Remais & Jeremy Hess, *Climate Change and Ecosystem Disruption: The Health Impacts of the North American Rocky Mountain Pine Beetle Infestation*, 102 *AM. J. PUB. HEALTH* 818 (2012) (describing the loss of trees and citing a U.S. Forest Service study suggesting a die off of more than 58 million acres); Constance I. Millar & Nathan L. Stephenson, *Temperate Forest Health in an Era of Emerging Megadisturbance*, 349 *SCIENCE* 823 (2015).

37. See also Aaron S. Weed et al., *Consequences of Climate Change for Biotic Disturbances in North American Forests*, 83 *ECOLOGICAL MONOGRAPHS* 441, 444–54 (2013) (detailing the spread of insects and diseases in North American forests due to climate change).

38. A.L. Westerling et al., *Warming and Earlier Spring Increase Western U.S. Forest Wildfire Activity*, 313 *SCIENCE* 940, 940 (2006).

39. The IPCC defines mitigation as, “An anthropogenic intervention to reduce the sources or enhance the sinks of greenhouse gases.” Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007: Impacts, Adaptation and Vulnerability* 750 (2007). There are measures that can form part of both mitigation and adaptation efforts, such as land conservation that can aid in carbon sequestration while saving space for both human and nonhuman migrations. David Takacs & Jessica Owley, *Flexible Conservation in Uncertain Times*, in *CONTEMPORARY ISSUES IN CLIMATE CHANGE LAW AND POLICY: ESSAYS INSPIRED BY THE IPCC* 65, 69 (2016).

sponses. Climate change has numerous impacts on protected areas that require adaptive responses from managers. For instance, climate-induced shifts in species ranges mean that protected areas may hold a depleted representation of biodiversity, and that conservation organizations will need to create additional protected areas to conserve biodiversity.⁴⁰ Connectivity among protected areas to allow for species migration is increasingly important under climate change.⁴¹ Protected-areas managers need to respond to near-term impacts, as well as plan for longer-term changes.⁴² At the property scale, it may be hard to tell whether climate change drives a particular change.⁴³ For example, if floods occur more regularly, protected-area managers and private landowners will need to adapt regardless of the cause of the floods (e.g., climate change, increasing development, nearby hydrologic changes, or a combination thereof). This may lead some managers to shrug their shoulders and decide that it does not matter what causes their problems. Such an approach can retard active responses to climate change and may miss funding opportunities from climate change adaptation programs or funds.

Protected areas can contribute directly to climate change mitigation by avoiding deforestation and thus reducing greenhouse gas emissions to the atmosphere, by sequestering carbon, and by offering opportunities for restoration of carbon stocks.⁴⁴ Ecosystems represented within global terrestrial protected areas store over 312 gigatons of carbon or fifteen percent of the terrestrial carbon stock.⁴⁵ The sustainable management opportunities offered by these reserves will be essential to reducing carbon fluxes.

II. PRIVATE-LAND CONSERVATION IN THE UNITED STATES

A. Development of Land Conservation

1. Public Land, Public Efforts

Since at least the publication of George Perkins Marsh's *Man and Nature* in 1864, Americans have been concerned with conserving the natural landscape from damage caused by human use and abuse. Over time,

40. Lee Hannah et al., *Protected Area Needs in a Changing Climate*, 5 FRONTIERS ECOLOGY & ENV'T 131, 131 (2007); Alison Johnston et al., *Observed and Predicted Effects of Climate Change on Species Abundance in Protected Areas*, 3 NATURE CLIMATE CHANGE 1055, 1055 (2013); Chris D. Thomas & Phillipa K. Gillingham, *The Performance of Protected Areas for Biodiversity Under Climate Change*, 115 BIOLOGICAL J. LINNEAN SOC'Y 718, 718 (2015).

41. David G. Hole et al., *Toward a Management Framework for Networks of Protected Areas in the Face of Climate Change*, 25 CONSERVATION BIOLOGY 305, 306 (2011).

42. See Heller & Zavaleta, *supra* note 8, at 28.

43. Christine M. Anhalt-Depies et al., *Understanding Climate Adaptation on Public Lands in the Upper Midwest: Implications for Monitoring and Tracking Progress*, 57 ENVTL. MGMT. 987, 990 (2016).

44. Britaldo Soares-Filho et al., *Role of Brazilian Amazon Protected Areas in Climate Change Mitigation*, 107 PNAS 10821, 10821–22 (2010).

45. ALISON CAMPBELL ET AL., CARBON EMISSIONS FROM FOREST LOSS IN PROTECTED AREAS 2 (2008).

Americans have used three distinct sets of legal tools to achieve conservation goals. First, Americans began managing public lands—lands owned by state and federal governments—to protect resources in the long term. Later, both federal and state governments turned to regulation to protect the environment on both public and private land. Through the twentieth century, Americans increasingly turned to a property-rights-based approach to land conservation, involving increased public–private partnerships. Climate change is transforming all three of these sets of tools.

Public lands have been a fundamental part of the United States since before it became a republic. The state of New York created the first federal public domain in 1781 when it agreed to transfer its claim to unsettled territory westward to the Mississippi River.⁴⁶ In *Federalist No. 7*, Alexander Hamilton argued in favor of a strong federal government as necessary to resolve continuing disputes about western lands.⁴⁷ The federal government currently owns roughly twenty-eight percent of land in the United States.⁴⁸ At one time or another, the federal government owned eighty-one percent of the present land in the United States.⁴⁹

Conservation is an established tradition on public lands. In March 1872, President Grant signed the bill establishing Yellowstone National Park.⁵⁰ Conservation became more systematic on March 3, 1891, when President Harrison signed what we now call the National Forest Reserve Act.⁵¹ The purpose of the almost 200 million acres of forest reserves created in the decades after 1891 was to preserve timber and protect watersheds.⁵² Through the Antiquities Act of 1906⁵³ (authorizing the creation of national monuments), the Weeks Act of 1911⁵⁴ (authorizing the purchase of additional lands for conservation), the National Park Service Organic

46. BUREAU OF LAND MGMT., U.S. DEP'T OF THE INTERIOR, PUBLIC LAND STATISTICS 2016, at 1 (2017).

47. THE FEDERALIST NO. 7 (Alexander Hamilton).

48. CAROL HARDY VINCENT ET AL., CONG. RESEARCH SERV., R42346, FEDERAL LAND OWNERSHIP: OVERVIEW AND DATA 6 (2017).

49. BUREAU OF LAND MGMT., *supra* note 46, at 3.

50. Act of Mar. 1, 1872, ch. 24, 17 Stat. 32 (codified at 16 U.S.C. § 21 (2012)).

51. Forest Reserve Act of 1891, ch. 561, § 24, 26 Stat. 1095, 1103 (“That the President of the United States may, from time to time, set apart and reserve, in any State or Territory having public land bearing forests, in any part of the public lairds wholly or in part covered with timber or undergrowth, whether of commercial value or not, as public reservations, and the President shall, by public proclamation, declare the establishment of such reservations and the limits thereof.”).

52. See SAMUEL TRASK DANA & SALLY K. FAIRFAX, FOREST AND RANGE POLICY: ITS DEVELOPMENT IN THE UNITED STATES 59, 66 (2d ed. 1980).

53. Antiquities Act, ch. 3060, 34 Stat. 225 (1906) (codified as amended at 54 U.S.C. §§ 320301–320303 (2012)).

54. Weeks Act, ch. 186, 36 Stat. 961 (1911) (codified as amended at 16 U.S.C. § 552 (2012)).

Act of 1916⁵⁵ (creating the National Park Service and system), the Wilderness Act of 1964⁵⁶ (creating the National Wilderness Preservation System), and many other statutes, the federal government has managed federal public lands for conservation. Similar legal structures have emerged within states, creating state parks and state forests.⁵⁷

In the 1970s and 1980s, building on antecedents in state law,⁵⁸ the federal government enacted a far-reaching set of regulatory protections for the environment.⁵⁹ On January 1, 1970, President Nixon signed the National Environmental Policy Act, the first of the flood of environmental laws that would emerge within the decade and continue to protect environmental quality in the United States.⁶⁰ By the time Russell Train, first chairman of the President's Council on Environmental Quality, issued the first edition of *Environmental Quality*⁶¹ in August 1970, the "effects" of "environmental problems" had begun to take on their now characteristic mix of health concerns, aesthetics, economic costs and benefits, and concern about humans' effects on natural systems.⁶² The report declared that the human health "impact of environmental deterioration on health is subtle, often becoming apparent only after the lapse of many years."⁶³ Under economic costs, the report noted "[a]ir pollution causes the housewife to

55. National Park Service Organic Act, ch. 408, 39 Stat. 535 (1916) (codified as amended at 54 U.S.C. §§ 100301–100303 (2012)).

56. Wilderness Act, Pub. L. No. 88-577, 78 Stat. 890 (1964) (codified as amended at 16 U.S.C. §§ 1131–36 (2012)).

57. See, e.g., N.Y. COMP. CODES R. & REGS. tit. 6, § 190.0 (2018). For a discussion of the role of governmental land in conservation (along with a comparison of direct governmental acquisition with private conservation and regulation), see Barton H. Thompson, Jr., *Conservation Options: Toward a Greater Private Role*, 21 VA. ENVTL. L.J. 245, 270–74 (2002); Barton H. Thompson, Jr., *Providing Biodiversity Through Policy Diversity*, 38 IDAHO L. REV. 355, 355–56 (2002).

58. "By 1912, [almost] every major city in the United States had a smoke abatement program." Arnold W. Reitze, Jr., *The Legislative History of U.S. Air Pollution Control*, 36 HOUS. L. REV. 679, 685 (1999).

59. See Robert Abrams & Val Washington, *The Misunderstood Law of Public Nuisance: A Comparison with Private Nuisance Twenty Years After Boomer*, 54 ALB. L. REV. 359, 391–92, 392 n.176 (1990); J.B. Ruhl, *The Fitness of Law: Using Complexity Theory to Describe the Evolution of Law and Society and Its Practical Meaning for Democracy*, 49 VAND. L. REV. 1407, 1460 (1996). The boundaries of governmental environmental authority have never been clear. Public environmental conservation efforts traditionally focused on public lands because governments were more confident making rules regarding land they owned. Hesitation over potential takings claims coincided with the growth in retention and acquisition of public lands as a conservation strategy. Leigh Raymond & Sally K. Fairfax, *Fragmentation of Public Domain Law and Policy: An Alternative to the "Shift-to-Retention" Thesis*, 39 NAT. RESOURCES J. 649, 659–60 (1999) (discussing focus on federal land acquisition as an environmental protection strategy).

60. RICHARD J. LAZARUS, *THE MAKING OF ENVIRONMENTAL LAW* 68 (2004).

61. *Environmental Quality* is an annual report on environmental conditions, trends, activities, and funding available for protecting the environment along with a "program for remedying the deficiencies of existing programs and activities." *Annual Environmental Quality Reports*, NEPA.GOV (quoting National Environmental Policy Act, Pub. L. No. 91-190, § 201, 83 Stat. 852, 854 (1970)), https://ceq.doe.gov/ceq-reports/annual_environmental_quality_reports.html (last visited Mar. 8, 2018).

62. COUNCIL ON ENVTL. QUALITY, *ENVIRONMENTAL QUALITY: THE FIRST ANNUAL REPORT OF THE COUNCIL ON ENVIRONMENTAL QUALITY* 16–18 (1970).

63. *Id.* at 16.

do her laundry more often. The farmer's crop yield is reduced or destroyed. Water pollution prevents swimming, boating, fishing, and other recreational and commercial activities"⁶⁴ Finally, under natural systems, the report included general references to the "great Dust Bowl," estuarine pollution, and a prophetic reference to air pollution triggering "large-scale climatic changes."⁶⁵ Subsequent issues of *Environmental Quality* acknowledged increasing environmental concerns, demonstrating a recognition by the federal government of the severity of the problem.⁶⁶

In recent decades, climate change has become a significant issue in the management of public lands. National Environmental Policy Act guidance,⁶⁷ Forest Service planning regulations,⁶⁸ and a variety of other laws and legal directives require the federal government to consider climate change in its land management. Under Forest Service regulations, carbon storage is on the list of "ecosystem services."⁶⁹ Although some state foresters have been slower to respond to climate change, the National Association of State Foresters issued a series of recommendations in 2015 for climate change mitigation and adaptation with a focus on private and state forests.⁷⁰

In 2007, in *Massachusetts v. EPA*,⁷¹ the U.S. Supreme Court effectively ordered the Executive Branch to consider a regulatory strategy for dealing with greenhouse gas emissions under the 1970 Clean Air Act.⁷² A decade later, the elements of that regulatory strategy remain unclear.⁷³ In 2017, the Trump Administration announced the country's withdrawal from the Paris Climate Accord,⁷⁴ appointed an opponent of government recognition of climate change to head the Environmental Protection

64. *Id.* at 17.

65. *Id.* at 18.

66. The Reports, issued from 1970 to 1997, are at *Annual Environmental Quality Reports*, *supra* note 61.

67. *See, e.g.*, COUNCIL ON ENVTL. QUALITY, EXEC. OFFICE OF THE PRESIDENT, MEMORANDUM FOR HEADS OF FEDERAL DEPARTMENTS AND AGENCIES (2016).

68. *See, e.g.*, U.S. FOREST SERV., DEP'T OF AGRIC., FOREST SERVICE STRATEGIC FRAMEWORK FOR RESPONDING TO CLIMATE CHANGE 2 (2008); *see also Regulation Database – Forest Service*, COLUM. L. SCH. SABIN CTR. FOR CLIMATE CHANGE L. (compiling policies, plans, rules, guidelines, and other documents related to the climate change and produced by the U.S. Forest Service), <http://columbiaclimatelaw.com/resources/climate-deregulation-tracker/database/usfs> (last visited Mar. 8, 2018).

69. 36 C.F.R. § 219.19 (2018).

70. NAT'L ASS'N OF STATE FORESTERS, RECOMMENDATIONS FOR ENHANCING THE ROLE OF FORESTS IN CLIMATE CHANGE MITIGATION AND ECOSYSTEM ADAPTATION TO CLIMATE CHANGE (2015).

71. 549 U.S. 497 (2007).

72. *Id.* at 533–35.

73. *See* Coral Davenport & Alissa J. Rubin, *Trump Signs Executive Order Unwinding Obama Climate Policies*, N.Y. TIMES (Mar. 28, 2017), <https://www.nytimes.com/2017/03/28/climate/trump-executive-order-climate-change.html>.

74. Press Release, Office of the Spokesperson, U.S. Dep't of State, Communication Regarding Intent to Withdraw from Paris Agreement (Aug. 4, 2017), <https://www.state.gov/r/pa/prs/ps/2017/08/273050.htm>.

Agency,⁷⁵ and generally expressed plans and policies of inaction in the battle to either mitigate or adapt to climate change. This leaves much uncertainty at the federal level. At the time of this writing, policies remain in place to protect public lands, but they are at risk. Extending federal protection efforts to private lands in this political climate seems highly unlikely. However, federal action is not the only option. The following Section highlights the protection of private land.

2. Private Lands, Private Action

Acknowledging that protecting public lands alone will not meet environmental conservation goals—particularly when combined with loosening protections on public lands—leads conservationists to look to private lands. Trying to figure out the best way to protect private lands is no easier task than trying to figure out the best federal regulations. The first widely used technique was simply purchasing special lands. This impetus serves as the foundation for the land trust movement in the United States.

The desire to own land to keep it in its current state is probably as old as the concept of ownership itself. In *Buying Nature: The Limits of Land Acquisition as a Conservation Strategy*, Sally Fairfax, Lauren Gwin, Mary Ann King, Leigh Raymond, and Laura Watt identify the preservation of Mount Vernon by the Mount Vernon Ladies' Association in 1856 as an early example of a transaction for preservation in the United States.⁷⁶ Most American land trusts recognize as their earliest progenitor the Trustees of Public Reservations, a Massachusetts organization founded in 1891 that protected land through fee simple ownership.⁷⁷

The conservation easement (the favorite tool of land trusts) emerged later. In the 1930s, federal laws authorized the government to purchase scenic easements on the U.S. Capitol grounds, near the Blue Ridge Parkway, and near the Natchez Trace Parkway.⁷⁸ During the Great Depression, the federal Bureau of Biological Survey became the holder of extensive conservation easements to preserve wildlife habitat in North and South Dakota.⁷⁹

The term “conservation easement,” however, did not emerge until the 1950s through the work of journalist William Holly Whyte. Whyte's 1959 *Life* magazine article, *A Plan to Save Vanishing U.S. Countryside*, and his

75. Benjamin D. Santer et al., *Tropospheric Warming over the Past Two Decades*, 7 SCI. REP., No. 2336, at 1 (2017); Doina Chiacu & Valerie Volcovici, *EPA Chief Unconvinced on CO2 Link to Global Warming*, REUTERS, Mar. 9, 2017, <https://www.reuters.com/article/us-usa-epa-pruitt/epa-chief-unconvinced-on-co2-link-to-global-warming-idUSKBN16G1XX>.

76. SALLY K. FAIRFAX ET AL., *BUYING NATURE: THE LIMITS OF LAND ACQUISITION AS A CONSERVATION STRATEGY*, 1780-2004, at 1-3 (2005).

77. See GORDON ABBOTT, JR., *SAVING SPECIAL PLACES* 11-12 (1993).

78. Roger A. Cunningham, *Scenic Easements in the Highway Beautification Program*, 45 DENV. L.J. 167, 181 (1968); Charles C. Goetsch, *Conservation Restrictions: A Survey*, 8 CONN. L. REV. 383, 383 (1976).

79. FAIRFAX ET AL., *supra* note 76, at 113.

1968 book, *The Last Landscape*, centered upon comprehensive planning, land-use control, and private land conservation.⁸⁰ Whyte's key insight was that rights in land were not absolute.⁸¹ The analogy real estate lawyers often used to explain this principle is the so-called "bundle of rights": rights to the mineral substrate, to the land surface, to air space, to easements, and to other servitudes.⁸² To protect open space, Whyte realized, conservationists did not necessarily need to purchase the whole bundle (or, rather, its closest practical equivalent—fee simple title). Instead, they could purchase enough rights to protect the values they wished to preserve, whether that was a wilderness, a historic façade, a working ranch, or an unobstructed view. Whyte identified a tool for the purchase of less-than-fee-simple rights in land and called it "the conservation easement."⁸³

As this perpetual partial right differed from traditional easements, many states did not recognize it, and statutes were needed to confirm its enforceability.⁸⁴ The oldest identifiable state conservation-easement statutes were adopted in 1954 and 1956 in Massachusetts⁸⁵ and 1959 in California.⁸⁶ Originally, the California and Massachusetts statutes only authorized government entities to hold conservation easements, but in 1969, Massachusetts became the first state to recognize nonprofit organizations as legal recipients of conservation easements.⁸⁷ More of these conservation easement-holding nonprofit organizations, which we now call land trusts, came into being shortly thereafter.⁸⁸

Changing attitudes towards environmental regulation may help explain the emergence of public-private land conservation and the rise of conservation easements. Environmental regulation led to restrictions on privately owned land.⁸⁹ Regulation inspired an eventual backlash by the

80. Goetsch, *supra* note 78, at 384 (citing William H. Whyte, *A Plan to Save Vanishing U.S. Countryside*, LIFE (Aug. 17, 1959)); WILLIAM H. WHYTE, JR., SECURING OPEN SPACE FOR URBAN AMERICA: CONSERVATION EASEMENTS 7 (1959); WILLIAM H. WHYTE, THE LAST LANDSCAPE 11–13 (1968) [hereinafter WHYTE, LAST LANDSCAPE].

81. WHYTE, LAST LANDSCAPE, *supra* note 80, at 78–79.

82. See Julie Ann Gustanski, *Conservation Easements, Voluntary Actions, and Private Lands*, in 9 PROTECTING THE LAND: CONSERVATION EASEMENTS PAST, PRESENT, AND FUTURE 14–15 (Julie Ann Gustanski & Roderick H. Squires eds., 2000).

83. WHYTE, LAST LANDSCAPE, *supra* note 80, at 79.

84. See Federico Cheever, *Public Good and Private Magic in the Law of Land Trusts and Conservation Easements: A Happy Present and a Troubled Future*, 73 DENV. U. L. REV. 1077, 1080 (1995); Mary Ann King & Sally K. Fairfax, *Public Accountability and Conservation Easements: Learning from the Uniform Conservation Easement Act Debates*, 46 NAT. RESOURCES J. 65, 71–72 (2006).

85. Zachary Bray, *Reconciling Development and Natural Beauty: The Promise and Dilemma of Conservation Easements*, 34 HARV. ENVTL. L. REV. 119, 128 (2010); Jessica Owley, *Exacted Conservation Easements: The Hard Case of Endangered Species Protection*, 19 J. ENVTL. L. & LITIG. 293, 305 & n.55 (2004).

86. CAL GOV'T CODE §§ 6950–54 (West 1959).

87. King & Fairfax, *supra* note 84.

88. Bray, *supra* note 85.

89. Jessica Owley, *The Emergence of Exacted Conservation Easements*, 84 NEB. L. REV. 1043, 1046–47 (2006).

Reagan Administration in the 1980s. At the same time however, Americans still placed a high premium on environmental amenities.⁹⁰ This drove lawmakers and activists to seek out different methods for conservation. The number of land trusts and the amount of land encumbered with conservation easements began to multiply.

B. Introduction to Conservation Easements

As the utility of conservation easements became increasingly clear across the country, more states began to recognize and codify their use. Legislation was required because conservation easements can be inconsistent with common law property rules. For example, in common law, an “easement in gross” is often unenforceable.⁹¹ Conservation easements are most straightforwardly structured as easements in gross; the “easement” is not attached to property that is adjacent to the parcel subject to the easement. State conservation-easement legislation usually permits the holder of a conservation easement to enforce its terms whether or not the holder owns adjacent property.⁹²

The Uniform Conservation Easement Act (UCEA), developed in 1981, provided states with an elegant template for recognizing this used and useful tool for conservation. More than twenty-five American jurisdictions have statutes based on the UCEA, and nearly all states have enacted laws that authorize conservation easements.⁹³ North Dakota appears to be alone in prohibiting perpetual conservation easements⁹⁴ (thus rendering North Dakota conservation-easement donations to a holder other than a federal agency nondeductible).⁹⁵ Even North Dakota has not been able to avoid permanence in federally held conservation easements.⁹⁶

By 2005, all fifty states had statutes specifically authorizing conservation easements in some form.⁹⁷ By that time, the federal government had

90. Ian Bowles et al., *Economic Incentives and Legal Tools for Private Sector Conservation*, 8 DUKE ENVTL. L. & POL'Y F. 209, 209 (1998).

91. See UNIF. CONSERVATION EASEMENT ACT § 2 (UNIF. LAW COMM'N 2007).

92. See, e.g., *id.* § 3.

93. The National Conference of Commissioners on Uniform State Laws (NCCUSL) reports that twenty-two states, the District of Columbia, and the U.S. Virgin Islands have enacted UCEA. They are Alabama, Alaska, Arizona, Arkansas, Delaware, Idaho, Indiana, Kansas, Kentucky, Maine, Minnesota, Mississippi, Nevada, New Mexico, Oregon, South Carolina, South Dakota, Texas, Virginia, Wisconsin, and Wyoming. Several other states have made relatively minor modifications of the Act. On the other hand, Maine, listed by the NCCUSL as a UCEA state, has actually done substantive customization of its conservation-easement enabling act. The laws in states that have not adopted the UCEA vary substantially; Illinois, for example, gives neighbors certain limited enforcement rights. 765 ILL. COMP. STAT. 120/4(c) (2018).

94. N.D. CENT. CODE § 47-05-02.1(2) (2017).

95. *Wachter v. Comm'r*, 142 T.C. 140, 151 (2014).

96. *North Dakota v. United States*, 460 U.S. 300, 309–10 (1983), *aff'g* 650 F.2d 911 (8th Cir. 1981).

97. See ROBERT H. LEVIN, A GUIDED TOUR OF THE CONSERVATION EASEMENT ENABLING STATUTES app. A (2014).

already allowed charitable deductions based on the donation of conservation easements.⁹⁸ Specific Tax Code recognition of conservation easements as qualified conservation contributions dates to 1980.⁹⁹

A landowner that enters into a conservation easement conveys conservation-related restrictions on the use of real property to a government or nonprofit entity.¹⁰⁰ The Uniform Conservation Easement Act defines a conservation easement as follows:

[A] nonpossessory interest of a holder in a real property imposing limitations or affirmative obligations the purposes of which include retaining or protecting natural, scenic, or open-space values of real property, assuring its availability for agriculture, forest, recreational, or open-space use, protecting natural resources, maintaining or enhancing air or water quality, or preserving the historical, architectural, archaeological, or cultural aspects of real property.¹⁰¹

When an owner places a conservation easement on her land—whether by donating the conservation easement, selling it, or creating it to meet legal requirements—she is agreeing to refrain from exercising certain rights. The conservation-easement agreement, though, is more than a contract. It is a deed of conveyance by which a property owner transfers away what otherwise would be her right to undertake specified development activities or land uses. These rights or uses can include, for example, the right to build houses, the right to cut trees, and the right to introduce non-native species. The conservation easement does not transfer affirmative rights to engage in those uses. Rather, the conservation-easement holder has, in effect, been granted the right to enforce the grantor's promise not to engage in those uses. Any right to do so associated with the underlying fee title has been terminated by the provisions of the conservation easement the owner has conveyed. Thus, when an owner, by deed of conservation easement, conveys away the right to harvest timber on a property, the holder cannot itself harvest trees. But the holder can bring an action for injunction if the landowner threatens a harvest.¹⁰²

The use of conservation easements has increased at stunning rates in the past thirty years. The National Conservation Easement Database, admittedly an incomplete census of conservation easements in the United

98. REV. RUL. 64-205, 1964-2 C.B. 62.

99. Federico Cheever & Nancy A. McLaughlin, *An Introduction to Conservation Easements in the United States: A Simple Concept and a Complicated Mosaic of Law*, 1 J.L. PROP. & SOC'Y 107, 117 (2015).

100. Several states do not explicitly restrict ownership of conservation easements to government or nonprofit organizations. New Hampshire appears to be one example. But New Hampshire law only exempts nonprofit and government easement holders from the operation of the common law doctrines that limit the utility and permanence of conservation easements. N.H. REV. STAT. ANN. § 477:46 (2017).

101. UNIF. CONSERVATION EASEMENT ACT § 1 (UNIF. LAW COMM'N 2007).

102. *Id.* § 3.

States,¹⁰³ has catalogued over 146,236 conservation easements encumbering more than 25,692,063 acres¹⁰⁴ and estimates that conservation easements encumber more than 40 million acres of land.¹⁰⁵ The database also reveals an increase in the rate of growth in conservation-easement-encumbered acreage in the United States. The acreage encumbered annually from the mid-1970s to the mid-1980s hovered below 140,000, while acreage annually placed under conservation easement from 2002 to 2012 often exceeded 1,000,000.¹⁰⁶ Conservation easements are now employed internationally as well.¹⁰⁷

As we have indicated above, many conservation easements are held by nonprofit organizations called land trusts. The Land Trust Alliance's 2015 census showed 1,363 land trusts in the United States, an increase of nearly a thousand over the total number of land trusts in 1980.¹⁰⁸ Other sources estimate that an even greater number of land trusts are operating in the United States.¹⁰⁹

Land trusts probably hold about half as many acres in fee as acres protected through conservation easements.¹¹⁰ According to the Land Trust Alliance 2015 National Land Trust Census Report, state, local, and national land trusts have protected 56 million acres in the United States¹¹¹—an area larger than the state of Utah.¹¹² Of that acreage, more than 16 million acres were encumbered by conservation easements held by private land trusts; more than 8 million acres were owned outright by land trusts; and more than 12 million acres had been acquired by land trusts and re-conveyed for conservation to “government agencies and other entities.”¹¹³

Conservation-easement-encumbered land merits special attention because the partial property interest complicates monitoring, enforcement, and climate adaptation. Stakeholders with different interests and potentially different opinions on management may include the state (in defense

103. *Completeness*, NAT'L CONSERVATION EASEMENT DATABASE, <http://conservationeasement.us/about/completeness> (last visited May 29, 2018).

104. NAT'L CONSERVATION EASEMENT DATABASE, <http://conservationeasement.us> (last visited May 29, 2018).

105. *Conservation Easements and the National Conservation Easement Database: What Is NCED?*, *supra* note 10.

106. *Id.*

107. See Korngold, *supra* note 11, at 633–37.

108. Nancy A. McLaughlin, *Conservation Easements—A Troubled Adolescence*, 26 J. LAND RESOURCES & ENVTL. L. 47, 49, 50 graph 1 (2005); *Land Trusts and the Land Trust Movement*, RICHARD BREWER (last updated Apr. 17, 2010), <http://richardbrewer.org/land-trusts-and-the-land-trust-movement>.

109. See McLaughlin, *supra* note 108, at 51.

110. KATIE CHANG, LAND TRUST ALLIANCE, 2015 NATIONAL LAND TRUST CENSUS REPORT: OUR COMMON GROUND AND COLLECTIVE IMPACT 5 (2016).

111. *Id.*

112. See *Geography Statistics*, STATEMASTER.COM, http://www.statemaster.com/graph/geo_lan_acr_tot-geography-land-acreage-total (last visited Mar. 8, 2017).

113. CHANG, *supra* note 110.

of its public charitable interest in a nonprofit asset); the federal government (in defense of its tax investment in a deductible gift conservation easement, its oversight of the conservation-easement holder as a federally recognized nonprofit organization, or as a funder or facilitator of conservation easements through programs under the federal programs managed by the Department of the Interior or the Department of Agriculture); the conservation-easement donor; the current property owner; the neighbors; and the holder.

C. The Effect of Climate Change on Conservation Easements and Conservation-Easement Holders

Climate change will affect virtually all conservation organizations, whether nonprofit land trusts or governmental agencies, big or small, local or international. While conservation organizations have many similarities and use like tools, the essence of their missions vary. For example, some organizations seek to protect open space and special iconic landscapes within a community.¹¹⁴ Others have wildlife conservation as their goal.¹¹⁵ Some set about protecting working landscapes like farms and forestland.¹¹⁶ The degree of climate change impact on land conservation efforts will vary depending on the organization's particular mission and geographic focus.

Climate change may have its greatest impact on organizations seeking to protect biodiversity or habitat. As we indicated in Part II above, scientists predict that climate change will reduce or eliminate important habitat, shift the distribution of species that comprise that habitat at different rates, and present both new threats (such as the spread of invasive species) and new stresses (such as increased temperature or reduced precipitation).¹¹⁷ According to the Land Trust Alliance's 2015 Land Trust Census, the preservation of important natural areas and wildlife habitat is a

114. *Id.* at 19; see, e.g., *Land Matters*, CONTINENTAL DIVIDE LAND TR., <http://www.cdlt.org/land-matters> (last visited Mar. 8, 2018); Alyssa S. Navares Myers, *Let It Be: The North Shore Community Land Trust Balances Development and Conservation in the Kawela-Kahuku Region of O'ahu's North Shore*, GREEN (Oct. 12, 2015), <https://greenmagazinehawaii.com/let-it-be>; Jason Taylor, *Scenic Hudson Honors Land Conservation Groups*, SCENIC HUDSON (June 18, 2008), <http://www.scenicudson.org/aboutus/pressroom/061808>.

115. See, e.g., *About the Wildlife Land Trust*, WILDLIFE LAND TR., <https://www.wildlifeland-trust.org.au/index.php/about> (last visited Mar. 28, 2018); *About World Land Trust*, WORLD LAND TR., <http://www.worldlandtrust.org/about/index> (last visited Mar. 8, 2018); *Land Protection*, DUCKS UNLIMITED, <http://www.ducks.org/conservation/land-protection> (last visited Mar. 8, 2018); *Places We Protect*, NE. WILDERNESS LAND TR., <http://www.newildernesstrust.org/places-we-protect> (last visited Mar. 8, 2018).

116. See, e.g., *Land Conservation*, CONN. FOREST & PARK ASS'N, <https://www.ctwoodlands.org/land-conservation> (last visited Mar. 8, 2018); *No Farms No Food*, AM. FARMLAND TR., <https://www.farmland.org> (last visited Mar. 8, 2018); *Protected Forever: Forests, Wetlands, Prairies, Family Farms*, SYCAMORE LAND TR., <https://sycamorelandtrust.org/protected-land-conservation-forest-wetland> (last visited Mar. 8, 2018).

117. See *supra* Part II.

high priority for eighty-eight percent of local and regional land trusts in the United States.¹¹⁸

Many species are at risk of extinction as a result of climate change-related impacts, including ecosystem shifts, habitat modifications, and introductions of invasive species and diseases.¹¹⁹ Researchers still struggle to predict patterns of species dispersal and migration along with rates of coastal loss.¹²⁰ In the future, programs to protect species and species habitat will need to be flexible to account for multiple future scenarios.¹²¹ In a 2004 *Nature* article, a group of prominent scientists predicted, based on then-midrange climate warming scenarios for 2050, that fifteen to thirty-seven percent of species on Earth would be “committed to extinction.”¹²² While only a couple recent extinctions are directly attributed to climate change,¹²³ climate change is an obstacle to slowing the already accelerated extinction rate caused by other human activities such as habitat conversion.¹²⁴ *Climate Change 2014: Impacts, Adaptation, and Vulnerability*, prepared by the Intergovernmental Panel on Climate Change (IPCC) Working Group II,¹²⁵ reports with “high confidence” that many species have already “shifted their geographic ranges, seasonal activities, migration patterns, abundances, and species interactions in response to ongoing climate change.”¹²⁶ Many studies support and enrich these findings. For

118. CHANG, *supra* note 110, at 19.

119. CHRISTOPHER B. FIELD ET AL., INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC), CLIMATE CHANGE 2014: IMPACTS, ADAPTATION, AND VULNERABILITY 14–15 (2014).

120. See, e.g., Terence P. Dawson et al., *Beyond Predictions: Biodiversity Conservation in a Changing Climate*, 332 SCIENCE 53, 54 (2011); Damien A. Fordham et al., *Plant Extinction Risk Under Climate Change: Are Forecast Range Shifts Alone a Good Indicator of Species Vulnerability to Global Warming?*, 18 GLOBAL CHANGE BIOLOGY 1357, 1357–58 (2012).

121. See, e.g., Robert J. Nicholls & Anny Cazenave, *Sea-Level Rise and Its Impact on Coastal Zones*, 328 SCIENCE 1517, 1517–19 (2010); Rebecca K. Runting et al., *Does More Mean Less? The Value of Information for Conservation Planning Under Sea Level Rise*, 19 GLOBAL CHANGE BIOLOGY 352, 352–54 (2013); Sgrò et al., *supra* note 8, at 332–33 (suggesting protecting areas with a range of habitats, gradients, and refugia, and not focusing solely on connectedness); see also Hannah et al., *supra* note 40, at 137 (objecting to the current mode of fixed protected areas).

122. Chris D. Thomas et al., *Extinction Risk from Climate Change*, 427 NATURE 145, 145 (2004).

123. See *id.*; Christine Dell’Amore, 7 *Species Hit Hard by Climate Change—Including One That’s Already Extinct*, NAT’L GEOGRAPHIC (Apr. 2, 2014), <https://news.nationalgeographic.com/news/2014/03/140331-global-warming-climate-change-ipcc-animals-science-environment> (listing the golden toad as extinct due to climate change); Brian Clark Howard, *First Mammal Species Goes Extinct Due to Climate Change*, NAT’L GEOGRAPHIC (June 14, 2016), <https://news.nationalgeographic.com/2016/06/first-mammal-extinct-climate-change-bramble-cay-melomys> (describing the Bramble Cay melomys, or mosaic-tailed rat, as extinct due to climate change).

124. See, e.g., Jessica C. Stanton et al., *Warning Times for Species Extinctions Due to Climate Change*, 21 GLOBAL CHANGE BIOLOGY 1066, 1066 (2015); see also, e.g., Michaela Pacifici et al., *Assessing Species Vulnerability to Climate Change*, 5 NATURE CLIMATE CHANGE 215, 215 (2015).

125. FIELD ET AL., *supra* note 119. The full report of the working group is nearly 2,000 pages but the thirty-two-page Summary of Policymakers is more approachable. The IPCC’s website has detailed outlines and links to sections by topics making even this cumbersome document relatively easy to navigate. *Climate Change 2014: Impacts, Adaptation, and Vulnerability*, IPCC, <http://www.ipcc.ch/report/ar5/wg2> (last visited Mar. 8, 2018).

126. FIELD ET AL., *supra* note 119, at 4.

example, scientists have already found species that are shifting to higher latitudes and elevations.¹²⁷

Climate change also is likely to impact organizations seeking to protect coastal regions or working lands in agriculture, grazing, or forestry. Other organizations may fare better. For example, climate change is less likely to affect organizations seeking to protect open space or structural or cultural properties in areas that are at low risk of threats from shifting weather-related conditions.

Despite the differing effects on mission and methods, the large majority of conservation organizations will need to adapt to climate change. Successful climate change adaptation is “any adjustment that reduces the risks associated with climate change, or vulnerability to climate change impacts, to a predetermined level, without compromising economic, social, and environmental sustainability.”¹²⁸ Adaptation of conservation strategies seek to make both organizations and the lands they protect more effective and less vulnerable to change over time. Even more than we knew, we live in a natural world in motion. It is time for the acquisition and management priorities of land conservation organizations to adapt to the new and changing natural world.

III. THE SIX-STATE STUDY

Few prior studies have examined the landscape context and legal terms of a diverse selection of conservation easements. To reflect a wide range of conservation easements in the United States, we examined 269 conservation easements from six states: California, Colorado, Indiana, New York, South Carolina, and Wisconsin (*see* Figure 1). We compared conservation-easement terms and conducted interviews with conservation employees through a distributed graduate seminar conducted among six universities in spring 2011.¹²⁹

127. I-Ching Chen et al., *Rapid Range Shifts of Species Associated with High Levels of Climate Warming*, 333 SCIENCE 1024, 1024 (2011).

128. Miguel de França Doria et al., *Using Expert Elicitation to Define Successful Adaptation to Climate Change*, 12 ENVTL. SCI. & POL'Y 810, 810 (2009).

129. Owley & Rissman, *supra* note 16; Owley & Rissman, *supra* note 17; Rissman et al., *supra* note 17, at 68–69. Interview notes, conservation easement documents, and other materials are on file with the authors. Researchers complied with all human subjects and IRB requirements for the universities involved.

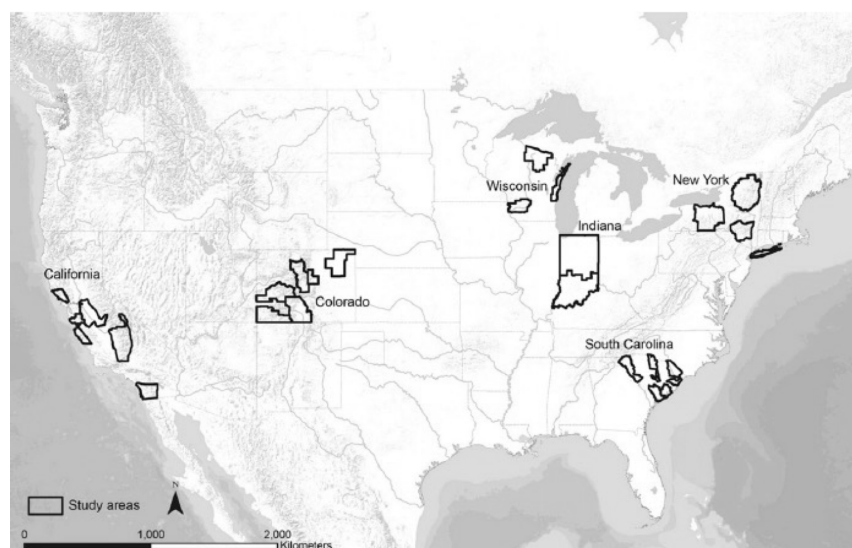


Figure 1: *Map of Study Regions in the Six-State Study*¹³⁰

Types of Organizations	Number of Organizations or State Offices	Number of Conservation Easements	Number of Interviews
Land Trusts	44	160	44
The Nature Conservancy (TNC)	6	49	14
State Agencies	9	40	10
Federal Agencies	4	20	5
Total	63	269	73

Table 1: *Organizations and Conservation Easements Included in the Six-State Study*¹³¹

To include diverse land-conservation organizations and conservation easements, we selected sixty-three land trusts and governmental holders from twenty-eight regions across six states. We selected regions within these states for diversity including forest, rangeland, wetland, and coastal regions. We then selected three primary conservation-easement holders from each region, including at least one state or federal government agency and one nonprofit land trust (*see* Table 1). We acquired four conservation easements from each organization: the oldest and newest conservation easements, a conservation easement from the middle year between the oldest and newest conservation easements, and the largest conservation easement (by area) held by the organization in the study region. If the largest conservation easement was also the oldest, middle, or newest easement, we examined the second largest conservation easement as well.

130. Rissman et al., *supra* note 17, at 69 fig.1.

131. *Id.* (Online Supp.), <https://onlinelibrary.wiley.com/action/downloadSupplement?doi=10.1111%2Fconl.12099&attachmentId=21895528>.

We selected these conservation easements to maximize the variation in conservation-easement terms within each organization.

Our Six-State Study found that most conservation organizations are already aware of the risks of climate change. Over half of the organizations reported that they thought it likely that climate change will negatively impact the conservation goals of their conservation easements.¹³² The vast majority, or eighty-eight percent, were concerned that climate change will influence the region in which they operate.¹³³ Twenty-two percent of the organizations stated that climate change is already affecting their conservation easements (*see* Figure 2). In contrast, only two percent of conservation easements mentioned climate change.¹³⁴

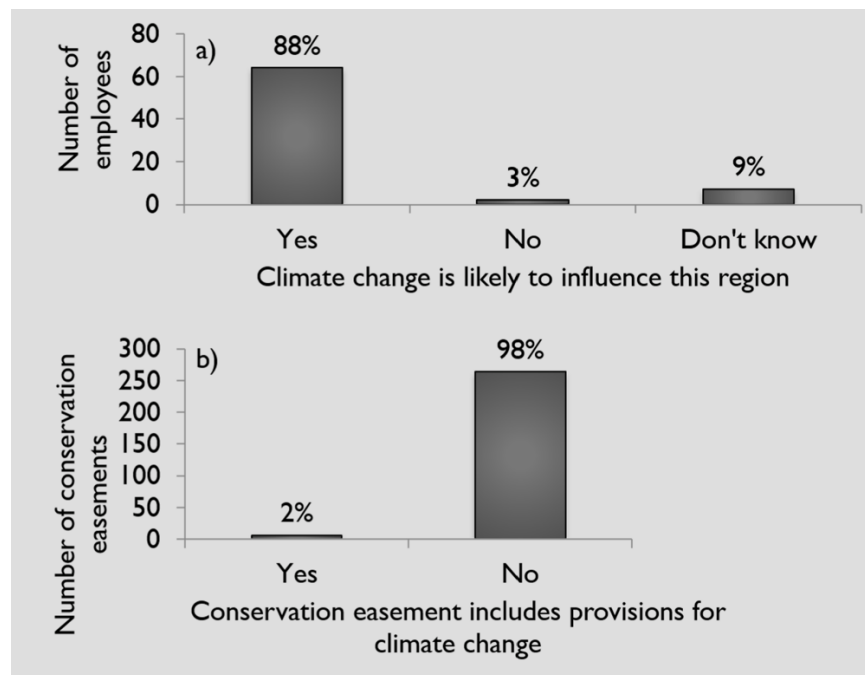


Figure 2: *Survey Responses Regarding Importance of Climate Change Contrasted with Conservation Easements Containing Climate Change Provisions*¹³⁵

In interviews, organizations reported a variety of potential adverse impacts. The most frequently mentioned concern was that climate change would undermine the capacity of current habitat to continue to support native species. The respondents also reported six other major impacts: the risk of more frequent, extreme, and lengthier droughts and flood periods;

132. *Id.* at 70.

133. *Id.*

134. *Id.*

135. *See id.*

the long-term viability of agricultural land; sea level rise; species movement; increases in wildfires; and the spread of invasive species.

Not all conservation organizations thought climate change posed a substantial concern in their regions. A quarter of the employees interviewed thought negative effects of climate change were somewhat to very unlikely, and another one in five reported they were unsure of the risk to their conservation efforts.

Awareness of the risks of climate change, moreover, did not appear to be leading to deep rethinking of how conservation organizations should approach their missions or write their conservation easements in the face of new climate threats. Although seventy percent of employees said their organization prepared (or plans to prepare) for climate change, the changes put into place as of 2011 were not extensive. Thus, awareness has not yet led to extensive change. Some conservation organizations, while recognizing the risk, may believe that the risk is too small or too far in the future to justify significant changes today. Other organizations may feel that there are more serious issues to address (*see* Figure 3). While twenty-two percent of the interviewed organizations reported that climate change was already affecting their conservation easements, even higher percentages reported immediate concerns about other threats. For example, fifty-three percent reported current threats from neighboring land uses; forty-five percent noted that the actions of the underlying landowners are affecting their conservation easements; and forty-two percent were concerned with local development pressure. While these other concerns are serious and conservation organizations must prioritize, failure to account for climate change may have significant long-term consequences.

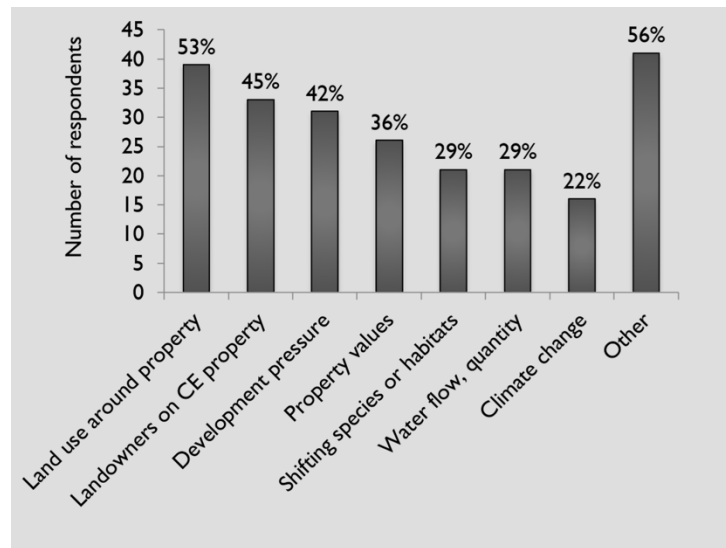


Figure 3: *Perceived Threats to Conservation Easements*¹³⁶

Ideally, conservation easements should include mechanisms for adapting to change. Many existing easements, however, do not facilitate principled adaptation. In the conservation easements we reviewed, we identified four primary options used for altering land-use restrictions (*see* Figure 4): (1) modification through conservation-easement amendment, (2) management plan revision, (3) approval of changes through discretionary consent, and (4) changes through updating laws and policies referenced in the conservation easement such as forest certification. These options for future land-use change include terms that could hypothetically increase development, harvest, or other land uses as well as terms that could further protect conservation purposes in the face of climate change.

136. *Id.* at 70 fig.2. The Figure shows the number (and percent) of employees who perceived each type of social or ecological change as having affected their conservation easements (n=73).

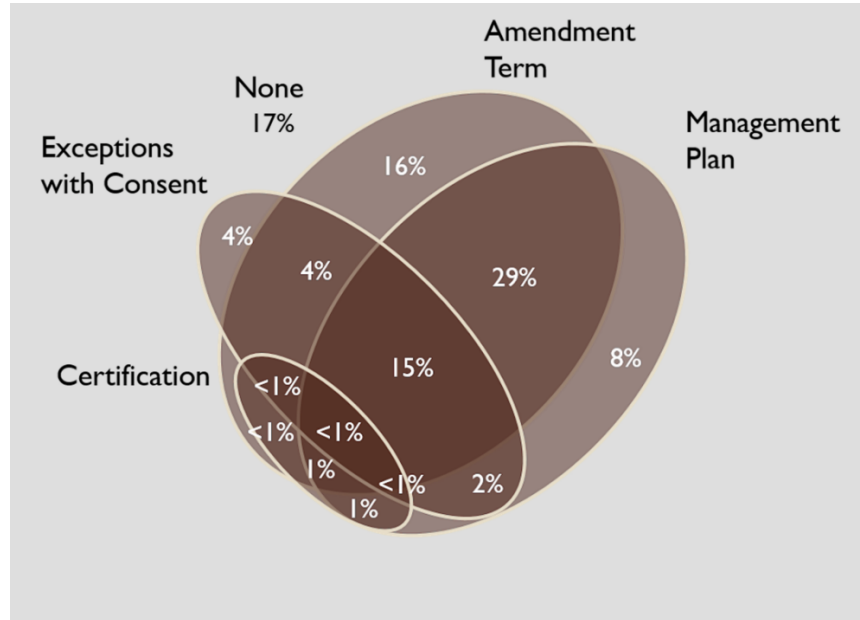


Figure 4: *Venn Diagram of Provisions Included for Changing Land Uses*¹³⁷

IV. WHAT CONSERVATION ORGANIZATIONS CAN DO

Climate change poses many challenges for conservation easements. The vast majority of conservation easements are, by their terms, permanent. The permanence of conservation easements appeals to conservation organizations for a broad range of reasons. In particular, securing long-term land protection is the main goal (and strength) of conservation easements. Creating present-day land restrictions through conservation easements, however, is challenging in a world in which change is a given. The conservation community owes an obligation to its members and its land-owner partners to do what it can to enhance the effectiveness of land-conservation tools in the face of climate change. This Section details approaches that conservation organizations (both public agencies and entities as well as private nonprofit land trusts) can take to be more responsive to climate change. The suggestions vary in their ease of establishment. Furthermore, some are clearly available under current legal regimes and others might require more radical system or statutory adjustments. All of them represent ways to think more critically about permanent land protection and explore alternative approaches.

A. Education and Research

Climate change resources for conservation were fairly limited at the time of our study in 2011, but have since expanded. For instance, the Land

137. Figure 4 is modified from Rissman et al., *supra* note 17, at 71 fig.5. The numbers in the Venn diagram show the percent of conservation easements with each type of provision.

Trust Alliance has now created a site with intermediate-level guidance on climate change, including an analysis of climate impacts on different ecosystem types across diverse regions, case studies of pioneering approaches, and a self-assessment.¹³⁸

Many conservation organizations mention their work on climate change adaptation in their annual reports, websites, strategic plans, and other available documents.¹³⁹ Several land trusts from our Six-State Study were early pioneers of climate adaptation, and their documents addressed climate change in 2011. For example, Big Sur Land Trust (California) specifically mentioned the desire to “safeguard [its communities] against flood, fire, and the potential effects of climate change.”¹⁴⁰ Elkhorn Slough Foundation (California) noted the role that wetlands can play in mitigating climate change in explaining that one of the reasons that the foundation targeted the slough for protection is because “[w]etlands also have been proven to be carbon sequesters—removing and storing greenhouse gases from the Earth’s atmosphere, slowing the onset of global warming.”¹⁴¹ The Sempervirens Fund (California), which works to protect redwoods and other areas, noted that “redwood forests’ natural ability to capture carbon helps fight climate change.”¹⁴² The Nature Conservancy’s Colorado chapter mentioned the need to protect important places resilient enough to withstand climate change.¹⁴³ In another example from our sample, Peconic Land Trust (New York) had a strategic goal to “[e]ducate ourselves about the impact of climate change on the work we do and adapt accordingly.”¹⁴⁴

Responding to landscape change in response to climate change was not at the top of any land trust’s list of goals (although it may indeed be a motivating factor for formation or support of the organization). None of

138. *About Conservation in a Changing Climate*, CONSERVATION IN A CHANGING CLIMATE, <https://climatechange.lta.org> (last visited Mar. 8, 2018).

139. The information in this paragraph is based on information we gleaned from websites and other materials. The availability of such materials differed by organization. Some organizations had a well-developed website along with links to strategic plans, annual reports, and other documents. We read all documents made publicly available in this way to assess each conservation organization’s purpose, goal, and geographical scope before we interviewed a representative from the organization. It is therefore possible that some organizations had robust climate change policies or programs, but simply did not publish them. However, our later interviews did not suggest this to be the case.

140. This was on their website in 2011. They also incorporated climate change planning to anticipate changes in sea-level rise, stream flow, fire intensity, and floodplain restoration, and cite to this for Big Sur. Kirsten Feifel, *Adding the Impacts of Climate Change to a Strategic Plan: Big Sur Land Trust*, CLIMATE ADAPTATION KNOWLEDGE EXCHANGE (Dec. 19, 2010), <http://www.cakex.org/case-studies/adding-impacts-climate-change-strategic-plan-big-sur-land-trust>.

141. *The Elkhorn Slough Foundation – Clearing the Floodplain, Adapting to Change*, CONSERVATION CHANGING CLIMATE, https://climatechange.lta.org/case-study/esf_ca (last visited Mar. 8, 2017).

142. *Redwoods & Climate*, SEMPERVIRENS FUND, <https://sempervirens.org/discover-redwoods/redwoods-climate> (last visited Mar. 8, 2018).

143. *Colorado: Conserving the Most Important Lands*, NATURE CONSERVANCY, <https://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/colorado/howwework/colorado-conserving-the-most-important-lands.xml> (last visited Mar. 8, 2018).

144. *About Us*, PECONIC LAND TR., <https://peconiclandtrust.org/about-us> (last visited Mar. 8, 2018).

the sixty-five conservation organizations' mission statements that we studied in 2011 contained any mention of climate or landscape change. Two of the land trusts in California had scientific research and science-based stewardship as part of their missions. Three land trusts (two in California and one in Colorado) mentioned long-term planning or management plans in their mission statements. In contrast, longevity was common. Eighteen land trusts used the term forever, perpetual, permanent, or future generations in their mission statements. Most mission statements simply stated a desire to protect a certain type of habitat, location, or working landscape type (e.g., farms, forests).

Our study revealed that land conservation organizations did not always have good access to information about climate change. This was noticeable in a few ways. First, nineteen percent of interviewees said they "didn't know" how likely climate change is to negatively impact the conservation goals of their conservation easements. This answer was given even in areas where climate change effects are well-studied or already occurring. Other respondents stated they were unsure where to find information and particularly interested in learning about local conditions as opposed to broad statements about increasing temperatures and rising sea levels.

Conservation organizations must start by understanding the potential implications of climate change for their goals and then make the best decisions they can in light of current information and the uncertainties that inevitably will accompany that knowledge. There is a growing amount of climate change information on which the conservation community can rely.¹⁴⁵ The trick is conveying the information to land-conservation organizations and delivering it in a way the organizations find useful. Scientists in universities, government agencies, and nonprofit organizations around the world are generating and sharing information about the projected effects of climate change. Good information about climate change exists now, and that information will get better in the future.

While we hope that those with climate change data will reach out to those making on-the-ground decisions through outreach and extension services, land-conservation organizations have an obligation to seek out information about this important issue. Land trusts and other conservation organizations not currently knowledgeable about climate change science can approach local universities, government agencies, or large land trusts to help inform themselves. One place to start for basic information about climate impacts is The Nature Conservancy's Climate Wizard, which offers information about climate impacts at large spatial scales.¹⁴⁶ Scientific

145. See, e.g., *Meet the Challenges of a Changing Climate*, U.S. CLIMATE RESILIENCE TOOLKIT, <https://toolkit.climate.gov> (last visited Mar. 8, 2018).

146. *About Us*, NATURE CONSERVANCY, <http://climatewizard.org/AboutUs.html> (last visited Mar. 8, 2018).

organizations working on specific landscapes may have more detailed information about the effects of climate change on a conservation organization's particular terrain, including impacts on particular species and ecosystems. A number of the conservation organizations interviewed in the Six-State Study, for instance, work directly with local universities to obtain information tailored to their region and to enable them to better understand the potential impact of climate change on their goals. Other conservation organizations have turned to regional organizations as local Landscape Conservation Cooperatives¹⁴⁷ to develop information on the likely local nature and impact of climate change. Scientists are continually advancing the scientific data on climate change impacts and the methodologies that land managers can use to apply that data.

This kind of information will help land conservation organizations to make informed choices about the best strategies to employ in the future. Already, place-specific data about the range of effects of climate change can offer helpful information about likely changes in vegetation, animal migration, and the availability of water. Projected changes in temperature and weather extremes can provide key information about what species will be able to persist and what species will not.

After obtaining the best available information about the impacts of climate change, conservation organizations must incorporate that information into their decision-making processes. Both staff and board members, along with the owners of land on which conservation easements are held, need to understand likely trends in changes to climate and landscapes. When information regarding specific lands is available, that information should be factored into conservation organizations' decisions about what lands to acquire and what instrument to use in protecting conservation values. For example, when the California chapter of The Nature Conservancy considers the acquisition of a new conservation easement or fee, it provides its trustees with information regarding the likely impact of climate change and how acquisition might help adapt to climate change. Ideally, land-conservation organizations should make every decision to purchase property rights with knowledge of the projected climate change impacts for the property. This includes changes in rainfall, temperature, species, vegetation, available water, and resident wildlife for the lands they seek to conserve. Those responsible for drafting conservation easements need the same information and analyses.

Land conservation organizations should not only avail themselves of the information produced by others but should help in the efforts to understand climate change and its impacts on the land. To adapt to climate

147. *About Landscape Conservation Cooperatives*, LANDSCAPE CONSERVATION COOPERATIVE NETWORK, <http://www.fws.gov/landscape-conservation/lcc.html> (last visited Mar. 8, 2018). Landscape Scale Cooperatives seek to provide information and technical expertise to support conservation planning at landscape scales and promote collaboration on conservation goals. *Id.*

change, conservation-easement holders will need to be aware of changes in the biophysical properties of the land.¹⁴⁸ Property-specific responses to climate change may vary from regional averages.¹⁴⁹ Conservation organizations, therefore, should reassess monitoring provisions. Conservation-easement holders ought to secure the right to gather information regarding the biophysical aspects of the land to give them a full picture of how the landscape and the conservation values are changing. This information will allow conservation organizations, in cooperation with the landowner, to manage the property more effectively. In the Six-State Study, ninety-six percent of the conservation easements specifically grant the holder the right to monitor for compliance with conservation-easement terms, but only thirty-five percent specifically allow either ecological monitoring or scientific research on the property.¹⁵⁰ Terms for ecological monitoring, even if limited to several days per year, are likely to be necessary for detecting change and managing adaptively in response to climate change impacts.

Effective comparisons of changes over time require development of baseline documentation and detailed characterizations of the land at the time of the original transaction. Detailed baseline analyses will allow conservation organizations to track landscape changes as they emerge and to show even a skeptical landowner that these changes are taking place. Careful baseline documentation and subsequent monitoring—if shared with other public and private conservation entities—will also improve general knowledge about landscape responses to climate change. Land-conservation organizations should use this baseline information to best understand their landholdings while acknowledging that in a changing world strict adherence to a baseline may not make ecological sense.¹⁵¹

B. Choosing What Land to Protect

Understanding the projected impacts of climate change ought to shift acquisition priorities if the likely impacts will affect the ability of a particular parcel of land to durably meet an institution's conservation goals. In some cases, organizations may choose different portfolios of land to conserve. A conservation organization may decide to avoid working with lands that are highly susceptible to climate-induced change where it appears impracticable to sustain conservation targets in the future. Alternatively, a conservation organization may instead seek out lands that will support the achievement of its goals as climate changes.

148. Environmental monitoring is a cornerstone of climate adaptation. *See, e.g.*, Mawdsley et al., *supra* note 2, at 1085–86.

149. Anhalt-Depies et al., *supra* note 43, at 995.

150. Rissman et al., *supra* note 17, at 73.

151. EMMA MARRIS, *RAMBUNCTIOUS GARDEN: SAVING NATURE IN A POST-WILD WORLD* 14–15 (2011).

A number of the biodiversity-focused organizations interviewed in the Six-State Study reported that the risk of climate change is leading them to consider acquiring interests in lands as follows:

- Provide migration corridors, including riparian pathways and elevational gradients, that species can use to move from current to future locations in response to climate change;
- Are more likely to prove resilient in the face of climate change and thus serve as important refugia for species;
- Represent habitat types and/or geographic conditions that are underrepresented in current reserve systems; or
- Reflect a representative sample of major ecosystem types.

This does not mean that land trusts and other conservation organizations should avoid protecting lands subject to potentially significant transformation. Highly vulnerable lands may still be the most important lands to protect in achieving the conservation goals of the organization and improving the resilience of the landscape. For instance, streambank conservation easements that provide public fishing access and restoration along trout streams may be important even if there is a possibility of loss of trout fisheries because warm water fish are likely to persist there.¹⁵² And lands among the few places that support a highly endangered species may need protection immediately even if they will be marginal or poor habitat in fifty years. When land trusts and other conservation organizations consider protecting lands likely to be transformed by climate change, they should consider how such places fit into a landscape of change and think critically about how best to protect the values that initially led them to consider protecting the land.

Conservation organizations should focus on strategic spatial planning, both to achieve existing conservation goals and to assist with climate adaptation, such as migration corridors and species refugia, as well as climate mitigation. They should think carefully about acquiring lands that are highly susceptible to climate-induced changes that could undermine the land's future conservation value. The prospect of climate change diminishes the value of most real estate tools currently used by proponents of land-conservation transactions. A conservation easement, for example, binds only the parcel of land described. What scientists know of climate change suggests a natural world in motion; there is no guarantee that the things people value on specific parcels will continue to be there in future decades.

Table 2 includes design considerations for selecting properties. Spatial boundaries that are movable, rather than fixed, may be adaptable under

152. J. Lyons et al., *Predicted Effects of Climate Warming on the Distribution of 50 Stream Fishes in Wisconsin, U.S.A.*, 77 J. FISH BIOLOGY 1867, 1868–69 (2010).

climate change, although this may be difficult to achieve in practice. Strategic targeting of lands could optimize the conservation value gained in land transactions by considering development and other threats. This generally means selecting moderately threatened, moderately expensive properties, rather than low-threat inexpensive properties, or high-threat, very costly properties.¹⁵³ Integrating climate change into strategic conservation involves an expansion of threat assessments and conservation goals. Climate-adaptation planning integrates threats posed by climate change to ensure that conservation properties can serve conservation goals despite sea level rise and changes in temperature, precipitation, land cover, species ranges, and economic productivity. Conservation organizations may consider expanding their goals to include carbon sequestration and renewable energy production, which mitigates climate change by reducing greenhouse gas emissions. However, these goals may not be consistent with other land-conservation goals, so organizations will have to carefully consider the tradeoffs.

Design element	Design approach for balancing durability and adaptability	Examples for conservation practice
Spatial boundaries	Narrowly constrained options for movability to enhance conservation purposes	Rolling conservation easements; tradeable conservation easements
Strategic targeting in general	Strategically targeted to reduce probability of resource loss (benefit-loss-cost optimization)	Strategic conservation planning; avoiding opportunism
Strategic targeting for climate adaptation	Locations are selected for: Migratory species corridors, Managed retreat from sea level rise, Climate refugia	Connectivity planning, sea level rise planning
Strategic targeting for climate mitigation	Locations are selected for: Carbon sequestration and storage; Renewable energy production	Participation in carbon offset markets

Table 2: *Design Considerations for Choosing Where and What to Protect*

153. David Newburn et al., *Economics and Land-Use Change in Prioritizing Private Land Conservation*, 19 CONSERVATION BIOLOGY 1411, 1415–18 (2005).

When the current or anticipated holdings of a land conservation organization are not adequately climate change resilient, the organization may be able to work in collaboration with other land trusts, public land agencies, watershed protection authorities, and even land developers to create larger, regional landscape protection schemes to better advance their goals. Ninety-two percent of the staff interviewed in the Six-State Study reported that their organization already coordinates with others, at least to some degree, to attempt to achieve landscape-scale conservation.

States and the federal government and large private entities, including land trusts, are working to create even greater opportunities for land-trust-to-land-trust and public-private partnerships to coordinate landscape protection in the face of climate change. For example, the United States Department of the Interior has established Landscape Conservation Cooperatives, designed to provide the science and technical expertise needed to support conservation planning at landscape scales and to promote collaboration among their members in defining shared conservation goals.¹⁵⁴ Other entities such as the Southern Sierra Partnership—an alliance of Audubon California, the Sequoia Riverlands Trust, the Sierra Business Council, The Nature Conservancy, and the Conservation Biology Institute—provide lessons in and inspiration for the use of shared information.¹⁵⁵

Cooperation and information come together in the numerous and diverse land-conservation inventory and mapping projects around the country, now possible thanks to the extraordinary and widely available tools provided by the Geographic Information System (GIS) revolution.¹⁵⁶ The more members of the land-conservation community know about what lands are already protected, the better the community can work together to purchase connecting areas and develop methods for overall landscape management. In this regard, the National Conservation Easement Database¹⁵⁷ and the U.S. Protected Areas Database¹⁵⁸ are important resources on which land trusts and governments can rely and that they should support.¹⁵⁹ Additionally, some state governments are now compiling spatial

154. *About Landscape Conservation Cooperatives*, *supra* note 147.

155. *The Southern Sierra Partnership*, S. SIERRA PARTNERSHIP, <http://www.southernsierrapartnership.org> (last visited Mar. 8, 2018).

156. See Richard G. Lathrop, Jr. & John A. Bognar, *Applying GIS and Landscape Ecological Principles to Evaluate Land Conservation Alternatives*, 41 *LANDSCAPE & URB. PLAN.* 27, 27 (1998); Ted Weber et al., *Maryland's Green Infrastructure Assessment: Development of a Comprehensive Approach to Land Conservation*, 77 *LANDSCAPE & URB. PLAN.* 94, 96 (2006) (describing use of GIS to coordinate land conservation efforts in Maryland, fostering cooperation with land trusts, public agencies, and others).

157. *About Us*, NAT'L CONSERVATION EASEMENT DATABASE, <https://www.conservationeasement.us/about> (last visited Mar. 8, 2018).

158. *National Gap Analysis Project (GAP): Protected Areas Data Portal*, USGS, <https://gap-analysis.usgs.gov/padus> (last visited Mar. 8, 2018).

159. Adena R. Rissman et al., *Public Access to Spatial Data on Private-Land Conservation*, 22 *ECOLOGY & SOC'Y*, no. 2, art. 24 (2017).

information on conservation holdings.¹⁶⁰ When these tools provide accurate information—and this will be possible if conservation entities willingly share information about their holdings—they can show the way to large landscape strategies that would otherwise be unimaginable.

C. Choosing the Right Conservation Tool

In the face of climate change, conservation organizations must think carefully about what conservation tools to use in protecting valued lands. Conservation organizations have been enamored with conservation easements, so much so that it is often the first tool they reach for when putting together a land conservation plan. As the organizations become increasingly comfortable with the workings of conservation easements, their deployment of the tool is as much a work pattern as it is a careful choice. Yet not every conservation scenario presents an ideal situation for conservation easements. We counsel land-conservation organizations to consider expanding their conservation tools beyond perpetual conservation easements. It is particularly important that the conservation movement develop and use tools that provide greater flexibility in either the powers that the organizations enjoy over their lands or in the duration of the protection. Examples of other tools include fee ownership, option agreements, contractual payments, term conservation easements, moving conservation easements, tradeable conservation easements, and flexible reserves.

While perpetual conservation easements may still be the tool of choice in many cases, conservation organizations may wish to consider using more flexible tools, where available. If the conservation value of land might change over time, the argument for perpetual conservation easements is weaker. Operative terms of perpetual conservation easements, moreover, can be difficult to amend. In light of climate change, conservation organizations therefore might want to reconsider fee purchase and explore novel approaches to land protection, including those described below.

1. Fee Ownership

Owning fee simple title to land may provide more flexibility in how a conservation organization adapts to climate change. As mentioned above, federal and state governments own more than a third of the United States outright. In addition, the 2015 Land Trust Alliance Census indicates that private land trusts own more than 8 million acres of land in fee simple absolute.¹⁶¹ These extensive conservation holdings can provide flexibility. They allow the holder to structure conservation ownership of the land in

160. Only Montana and Massachusetts require GIS data. Amy Wilson Morris, *The Changing Landscape of Conservation Easements: Public Accountability & Evolving Oversight* 135–36 (June 2009) (unpublished Ph.D. dissertation, University of California Santa Cruz), <https://search.proquest.com/openview/68648cf48e089111f2e6dfa8c2391954>.

161. CHANG, *supra* note 110.

the way the organization believes best in the face of the uncertainty generated by climate change. For example, fee simple owners can grant perpetual and term conservation easements, or enter into conservation leases to create partnerships regarding specific pieces of land. They may reserve conservation easements—perpetual or temporary—while transferring the possessory estate to an owner willing to manage the land subject to conservation restrictions. Subject to the limitations imposed by nonprofit status, restrictions on charitable gifts they have received, and their own governance documents, private conservation organizations may sell land they hold for conservation purposes and reinvest the proceeds of sale in other endeavors consistent with their organizational goals.

2. Options

Options to purchase conservation easements have long played a modest but important role in land conservation practice.¹⁶² In real estate transactions, an option is the contractual right to purchase or lease something without the obligation to do so.¹⁶³ With an option to purchase a conservation easement, the option holder gains the right to purchase a conservation easement encumbering a specific parcel of land. Such rights can be purchased (or “donated” with nominal consideration), and they give the holder of the option flexibility in deciding when and whether to enter into a conservation-easement agreement while preventing destruction of a parcel’s conservation value during the option period. Currently, many land trusts use options to gain additional time to generate financing for important transactions or to assemble the series of parcels needed to achieve a conservation goal.¹⁶⁴ These options to purchase conservation easements currently rarely seem to last more than two years.¹⁶⁵

In a world of substantial uncertainties stemming from climate change, options can serve strategic purposes.¹⁶⁶ For example, if a potential conservation-easement holder knows valuable species habitat will migrate over time, but does not know exactly where or when it will migrate, the

162. Federico Cheever & Jessica Owley, *Enhancing Conservation Options: An Argument for Statutory Recognition of Options to Purchase Conservation Easements (OPCES)*, 40 HARV. ENVTL. L. REV. 1, 5 (2016).

163. See *Option*, BLACK’S LAW DICTIONARY (10th ed. 2014).

164. Telephone Interview with Vanessa Johnson-Hall, Assistant Director of Land Conservation, Essex Cty. Greenbelt Ass’n. (Dec. 3, 2014); Confidential Telephone Interview with a Land Trust Conservation Project Manager (Dec. 12, 2014); Telephone Interview with Karin Marchetti-Ponte, Me. Coast Heritage Tr. (Dec. 12, 2014). *But see* E-mail from Ann Taylor Schwing, Of Counsel, Best Best & Krieger LLP, Board Member, Past President, Land Tr. of Napa Cty. (Dec. 2, 2014) (“There was one option, extended several times, that lasted over 30 years because there were so many separate parcels to assemble.”).

165. Telephone Interview with Vanessa Johnson-Hall, Assistant Director of Land Conservation, Essex Cty. Greenbelt Ass’n. (Dec. 3, 2014); Confidential Telephone Interview with a Land Trust Conservation Project Manager (Dec. 12, 2014); Telephone Interview with Karin Marchetti-Ponte, Me. Coast Heritage Tr. (Dec. 12, 2014). *But see* E-mail from Ann Taylor Schwing, Of Counsel, Best Best & Krieger LLP, Board Member, Past President, Land Tr. of Napa Cty. (Dec. 2, 2014).

166. Cheever & Owley, *supra* note 162.

prospective holder could purchase options along a number of potential migration pathways intending only to purchase conservation easements along one pathway as the actual migration pattern emerges. Similarly, a land trust committed to preserving coastal habitats, aware that sea level will rise (but unable to determine how far and how storm surge will affect the coast) might purchase options across a broad zone of potential future shoreline habitat with the intent to eventually purchase conservation easements to create new shoreline habitat preserves and storm buffers once she has learned enough to know where that shoreline will be.

Real estate options generally allow investing parties to mitigate risks associated with a lack of knowledge about the future by granting the right to purchase without the requirement to purchase now. In the face of climate change, options to purchase conservation easements can provide a variety of potential benefits.

First, options provide conservation organizations time to marshal funding or arrange government acquisition. If conservation organizations acquire options in areas where conservation easements might mitigate extreme weather events, land trusts could use post-disaster funding to exercise the options. This would put in place property-based protections to preserve natural resources and protect against future extreme weather events. Land subject to predictable flooding or fire could be preserved undeveloped subject to conservation easements purchased with disaster-relief money. In particularly disaster-prone areas, funds released after the first flood or fire could be used to purchase conservation-easement options.

Second, land trusts sometimes purchase conservation easements preemptively, even when there is no obvious threat of development, but their ability to control actual development is limited to terms negotiated before the threat materialized. Options can protect against future threats of development without these complications. Once the threat emerges, the option can be exercised with terms that better anticipate the actual development threat. Should the land no longer be valuable for conservation, the organization has no obligation to exercise the option.

Third, land-conservation organizations might use options in conjunction with conservation leases or fixed-term conservation easements, allowing organizations to determine whether perpetual protection of the land is warranted during or after the option term. For example, a conservation organization might lease a parcel of land for fifty years to preserve its habitat values. In conjunction with the lease, the landowner could grant the organization an option to purchase a perpetual conservation easement on the parcel with an option period coterminous with the lease, thus ensuring that the land is protected for fifty years while reserving the right to determine whether the land should continue to be protected in perpetuity.

Fourth, options may tip the balance of power in favor of the option holder and, therefore, can be used to counter misconduct by ostensible

conservation partners who fail to fulfill their conservation obligations.¹⁶⁷ For example, a county might grant an option to purchase a conservation easement to a private conservation organization to serve as a deterrent for government conduct inconsistent with the original conservation purpose.¹⁶⁸ Rather than sue a public agency for its conduct, the private conservation organization could exercise the preexisting option to constrain the conservation land at a below-market price.

3. Contractual Payments

Rather than acquiring fee title or a conservation easement, conservation organizations might consider paying landowners for proconservation management practices such as habitat restoration or practices to reduce soil runoff. The central idea behind such contracts is the concept of payment for ecosystem services. “[E]cosystem services are components of nature, directly enjoyed, consumed, or used to yield human well-being.”¹⁶⁹ The environment provides goods (e.g., timber) and services (e.g., water filtration), and payments can help ensure the continued delivery of those good and services.

Land-conservation organizations could pay landowners to undertake proconservation management practices such as removing invasive species, engaging in techniques to reduce erosion, or protecting a scenic view.¹⁷⁰ A glance at the text of a standard conservation easement generally shows a list of ecosystem services that the land is providing—wildlife habitat, scenic view, water filtration, flood management, etc. While the exact dollar figures are often subject to debate, these services are quantifiable and conservation organizations could compensate landowners for providing them. Such payment plans can enable conservation organization to influence landowner behavior without acquiring a formal interest in the land. Indeed, the IPCC specifically identifies payments for ecosystem services as a potential climate change adaptation tool.¹⁷¹

167. PATRICIA L. PREGMON & ANDY LOZA, PURCHASE OPTIONS: GAINING THE RIGHT WITHOUT THE OBLIGATION TO ACQUIRE PROPERTY INTERESTS 14 (2013), http://conservationtools-production.s3.amazonaws.com/library_item_files/1213/1110/CT_PurchaseOption130429.pdf.

168. Cheever & Owley, *supra* note 162, at 24–25.

169. James Boyd & Spencer Banzhaf, *What Are Ecosystem Services? The Need for Standardized Environmental Accounting Units*, 63 *ECOLOGICAL ECON.* 616, 619 (2007).

170. D. EVAN MERCER ET AL., TAKING STOCK: PAYMENTS FOR FOREST ECOSYSTEM SERVICES IN THE UNITED STATES 1 (2011); Takacs & Owley, *supra* note 39, at 78–80; Barton H. Thompson Jr., *EcoFarming: A Realistic Vision for the Future of Agriculture?*, 1 *U.C. IRVINE L. REV.* 1167, 1184–85 (2011).

171. FIELD ET AL., *supra* note 119, at 26.

The U.S. Department of Agriculture employs this strategy on a large scale. Its Conservation Reserve Program pays farmers to undertake conservation efforts on their land.¹⁷² More specifically, farmers receive payments in exchange for maintaining certain vegetative cover.¹⁷³ This program focuses on soil conservation and encourages native grasses and other plantings that reduce soil erosion while supporting healthy ecosystems.¹⁷⁴

These types of payment plans can enable conservation organizations to influence landowner behavior without acquiring a formal property interest in the land. The conservation organizations, moreover, can modify the nature of the requirements or the payments over time to adapt to climate change. Contracts are more easily changeable than property interests or even regulations. Thus, conservation organizations might pay landowners to engage in specific management practices that increase the resilience of their land in the face of climate change or even pay landowners to allow the conservation organizations to undertake those management practices.

This tool might be particularly helpful in areas where conservation easements are hard—perhaps where landowners are resistant to encumbering their land or where multiple landowners make a conservation easement difficult. Unsurprisingly, it is a key conservation tool in countries where conservation easements are not legally an option.¹⁷⁵ It could also be useful in an area with changing laws or regulations. For example, where a state law to protect wetlands is pending but not yet in force, land trusts might choose to pay landowners to protect wetlands for a short period while the law is put in place. Organizations must remember, however, that such contracts come with similar burdens to conservation easements as the parties to the contract must be vigilant to ensure compliance with the contract's terms.

4. Term Conservation Easements

Where a conservation easement is still the tool of choice, a nonperpetual conservation easement may fit conservation needs better than a permanent one. Without a change in the federal tax code, a donation of a term conservation easement will not qualify for deduction as a charitable contribution.¹⁷⁶ State laws, however, generally authorize term conservation

172. *Conservation Research Program*, NAT. RESOURCES CONSERVATION SERV., <https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/?cid=stelprdb1041269> (last visited Mar. 8, 2018). For a general description of governmental programs that encourage the protection of ecosystem services on private agricultural lands, see Thompson, *supra* note 170, at 1187–92.

173. Thompson, *supra* note 170, at 1187–89.

174. *Conservation Research Program*, *supra* note 172. The Conservation Reserve Program has also made extensive use of conservation easements.

175. See, e.g., DAVID TAKACS, CONSERVATION INTERNATIONAL, *FOREST CARBON: LAW + PROPERTY RIGHTS* 7 (2009) (discussing Costa Rica as an early adopter of this approach); James Salzman et al., *Protecting Ecosystem Services: Science, Economics, and Law*, 20 STAN. ENVTL. L.J. 309, 323–24 (2001).

176. 26 U.S.C. § 170(h)(2)(C) (2012).

easements.¹⁷⁷ Among the advantages of shorter duration conservation easement is the opportunity for the holder to be clear at the outset of a transaction about specific goals without needing to plan for long-term environmental fluctuations. It also limits the holder's commitment to a piece of property. A short-term conservation easement may also be available at a lower price.

Perhaps the ideal situation for the use of a defined-term conservation easement is a property understood to be important as a transitional habitat, but not likely to be important after a known term. The longer the term is, of course, the closer to the cost of a perpetual conservation easement the price is likely to be.¹⁷⁸ A twenty-year term conservation easement, depending on the discount rate, may cost as much as a permanent conservation easement. Therefore, cost advantages for defined-term conservation easements will exist only in specialized situations. But, as stated above, they nonetheless have the benefit of clearly defining the purposes of the conservation easement and the long-term intentions of the holder.¹⁷⁹ Additionally, term conservation easements can provide a holder with desirable flexibility to change the restrictions after a certain term of years or to manage stewardship obligations. Holders can modify their stewardship rights and responsibilities by negotiating a new term conservation easement, or terminate them by letting the conservation easement expire.

Given the limitations of climate modeling, a defined-term conservation easement with an option to renew may be a more broadly applicable variation. If the option to renew can be exercised simply by paying a sum of money, a defined-term conservation easement with an option to renew can allow a conservation organization full power to renew or not depending on ecological need. Landowners may be willing to enter into such conservation easements more because they acknowledge that in the face of changing conditions conservation use of a particular parcel may make sense for a time, but may eventually not be the best use of the land.¹⁸⁰ Landowners will be even more likely to respond favorably to an option that both the owner and the holder must affirmatively exercise. But if the land is likely to be under any sort of pressure for development, the land

177. See, e.g., UNIF. CONSERVATION EASEMENT ACT § 2(c) (UNIF. LAW COMM'N 2007) (providing that a conservation easement is unlimited in duration "unless the instrument creating it provides otherwise").

178. Nancy A. McLaughlin, Symposium, *Conservation Easements: Perpetuity and Beyond*, 34 *ECOLOGY L.Q.* 673, 708–09 (2007).

179. See Jessica Owley, *Changing Property in a Changing World: A Call for the End of Perpetual Conservation Easements*, 30 *STAN. ENVTL. L.J.* 121, 163–70 (2011) (describing advantages and drawbacks of renewable term conservation easements).

180. Ashley D. Miller et al., *Factors Impacting Agricultural Landowners' Willingness to Enter into Conservation Easements: A Case Study*, 24 *SOC'Y & NAT. RESOURCES* 65, 69–70 (2010). But see Barton H. Thompson, Jr., *The Trouble with Time: Influencing the Conservation Choices of Future Generations*, 44 *NAT. RESOURCES J.* 601, 617–18 (2004) (explaining why landowners who are interested in placing their lands under a conservation restriction are often likely to prefer perpetual easements).

trust must consider the possibility that the agreement will prove no more protective than the length of the existing term.

5. Moving Conservation Easements

Recognizing that the most important land for conservation can change in response to changes in sea level, habitat, and the like, conservation organizations might evaluate the possibility of designing conservation easements that move in response to climate conditions. An example is a rolling easement along a shoreline that shifts as the high water mark shifts.

A “moving” conservation easement may be possible without changing state conservation-easement law, and may even preserve federal deductibility. With the agreement of a willing landowner (or owners), all of the potentially relevant land could be put under conservation easement, with specific restrictions applicable to the land that presently require such restrictions to meet specific environmental goals, and broader restrictions on the rest of the acreage. These broader restrictions would be akin to the restrictions in an open space agriculture easement (“maintain the land’s suitability for agricultural use” becomes “maintain the land’s suitability to accommodate the ecological purposes now being served by the more specifically restricted land”). As in other conservation easements, the landowner could reserve uses and building envelopes in appropriate locations as needed on the property so long as such reservations do not interfere with the suitability of the entire conserved area for the designated federally qualifying conservation purpose.

With those baseline provisions, the conservation easement could include a “moving target” provision that allows the holder to apply the specific restrictions to land subject to the broader restrictions described above (and revert previously specifically restricted land to the more general restriction regime) if ecologically indicated.

The Treasury Department is, for defensible reasons, not enthusiastic about terms that allow such flexibility. The argument for allowing it is that the conservation gain—and conservation is the reason that despite the “partial interest rule” deductions are allowed for conservation easements—outweighs the administrative burden of allowing such provisions. Any conservation easement drafted to permit this kind of modification should address, in its terms, the likely need for an appraisal to document that no private benefit is conferred when the moving easement provision is invoked.

As to existing precedent, the Fifth Circuit Court of Appeals decision in *BC Ranch II, L.P. v Commissioner*¹⁸¹ found that a less exacting provision than the moving conservation easements described here did not render

181. 867 F.3d 547 (5th Cir. 2017).

a conservation easement nondeductible.¹⁸² On the other hand, the Fourth Circuit disqualified a conservation easement with an only slightly more flexible provision in *Belk v. Commissioner*.¹⁸³ A key difference in the two cases is that the *Belk* conservation easement allowed the modification to extend beyond the originally protected area, and allowed removal of restrictions from land that was originally protected.¹⁸⁴ The moving conservation easement we describe above has neither of those problems. All lands originally restricted remain under restriction. The only change permissible is to make some areas that are originally under strict ecologically based restrictions move into a general restriction status, while generally restricted lands replace them as more ecologically restricted.

Among the arguments for allowing deductibility of moving conservation easements is that the base restrictions alone meet the federal requirements for a “qualified conservation contribution.” One could judge the moving target provisions just as reserved rights are judged: if the right can exist consistent with the conservation purpose, and is appropriately governed, it will not destroy deductibility. In the case of moving target provisions, governance comprises administration solely by the entity charged with maintaining the conservation values, an even stricter standard than the one upheld in *BC Ranch II*.

6. Tradable Conservation Easements

A related idea is the “tradable conservation easement”: conservation easements that, by agreement from the outset between a landowner and conservation-easement holder, can be terminated at any point so long as the assets generated in the process of removing the restrictions are reinvested within a defined period in another conservation easement that meets the same conservation values.¹⁸⁵ Tradable conservation easements could provide greater flexibility when, in the face of climate change, a restricted parcel ceases to effectively serve the conservation purposes to which the restrictions were devoted. It may be good policy to make it easier for parties to such a conservation easement to provide in advance for the possibility, in carefully defined circumstances, of recovering the conservation investment represented by the conservation easement and re-deploying it a new location that better serves underlying conservation purposes.¹⁸⁶

182. *Id.* at 554.

183. 774 F.3d 221 (4th Cir. 2014); *id.* at 226.

184. *Id.* at 223–24.

185. W. William Weeks, *A Tradable Conservation Easement for Vulnerable Conservation Objectives*, 74 L. & CONTEMP. PROBS. 229, 235–36 (2011).

186. *Id.* at 233–35. An argument can be made for encouraging freely tradable conservation easements upon advance agreement of the parties in cases in which a tax deduction has not been claimed. Policing such trading to protect the conservation investment inherent in a federally-deductible conservation investment may be asking too much of an already overburdened IRS.

Organizations that purchase conservation easements (rather than accepting them as a gift) may wish negotiate broad flexibility to amend, extinguish, or trade the conservation easement to respond to climate change or other changed conditions. A purchaser taking such a negotiating position is only limited by (1) what the seller will agree to and (2) any restrictions on gifts or appropriations solicited to fund the easement purchase.¹⁸⁷

Tradable conservation easements are not a good bet under present law if a tax deduction is at stake. Indeed, for any drafter of conservation easements not looking to test the Fourth Circuit's *Belk* conclusion in a different circuit, tradable conservation easements are a nonstarter because protecting different land is inherent in the idea of trading. On the other hand, the current tax regulations make it clear that "the conservation purpose can nonetheless be treated as protected in perpetuity" if it is "impossible or impractical" to achieve the conservation purposes of the conservation easement, the restrictions are "extinguished by judicial proceeding," and the proceeds of a subsequent sale of the unrestricted property are used "in a manner consistent with the conservation purposes of the original contribution."¹⁸⁸ This *cy pres* of the tax regulations therefore recognizes that there are circumstances that fully justify abandoning a site that was once protected by restrictions "granted in perpetuity."¹⁸⁹ The Internal Revenue Code itself is even friendlier to the concept of tradability. While only "a restriction (granted in perpetuity) on the use which may be made of the real property" is a "qualified real property interest," the purpose of the conservation-easement deduction is not to protect real property, but to promote conservation.¹⁹⁰ It isn't surprising, therefore, that a characteristic of a qualified conservation contribution is that it is "exclusively for conservation purposes."¹⁹¹ And while the Code specifies (whatever the circuit court in *Belk* perceived) that the real property subject to the conservation restriction be protected in perpetuity, it also specifies that a restriction will be treated as perpetual if the conservation purpose is protected in perpetuity.¹⁹²

7. Flexible Reserves

Another option might be the creation of large flexible reserves for the protection of biodiversity.¹⁹³ One or more conservation organizations

187. Some sellers will argue that the holder of the tradable conservation easement must agree to protect the specific land originally under conservation easement, despite receiving a fair-market-value payment for the easement.

188. Treas. Reg. § 1.170A-14(g)(6)(i) (2009).

189. *Id.* § 1.170A-14(b)(2).

190. S. REP. NO. 96-1007, at 8-10 (1980).

191. 26 U.S.C. § 170(h)(1)(c) (2018).

192. 26 U.S.C. § 170(h)(5)(a).

193. Lee Hannah & Lara Hansen, *Designing Landscapes and Seascapes for Change*, in CLIMATE CHANGE AND BIODIVERSITY 329, 338-39 (Thomas E. Lovejoy & Lee Hannah eds., 2005).

might create a landscape-scale reserve in which the protections afforded to any particular area is dynamic over time. As conditions change, and species and habitats move, the level and type of protection applicable to any portion of the reserve also would change. For example, one area of the reserve might initially be open to agriculture but then restored to native habitat in a shifting mosaic of habitat.

New conservation tools such as the habitat credit trading¹⁹⁴ or reverse auctions for ecological outcomes¹⁹⁵ are designed to achieve adaptive spatially and temporally significant landscape-scale conservation through participation from private landowners. Specifically, the Environmental Defense Fund's (EDF's) Habitat Exchange program allows developers to offset their impacts on habitat and species by purchasing credits generated through conservation actions of private landowners.¹⁹⁶ The Habitat Exchange is performance-based and allows transfer of the habitat credits in time and space to flexibly meet the ecological outcomes specified at the onset of the program.¹⁹⁷ Similarly, reverse auctions allow for conservation outcomes to be achieved by private landowners in space and time as needed.¹⁹⁸ For example, the BirdReturns program¹⁹⁹ uses predictive models of bird abundances and water availability to pinpoint habitat needs for migratory birds over the migration season, and uses a reverse auction to make habitat investments based on the availability, quality, and cost of habitat offered by farmers through a competitive bidding process on an annual basis.²⁰⁰ The BirdReturns program pays farmers to flood their fields at certain times of the year to provide habitat for migratory birds.²⁰¹ Both of these programs are temporally and spatially dynamic, incentive-based approaches that provide economic opportunity for private landowners while delivering scientifically robust outcomes for conservation.

194. See generally Todd Gartner, *Habitat Credit Trading*, PERC REP., Spring 2010, at 24, 24–25.

195. See generally Gary Stoneham et al., *Auctions for Conservation Contracts: An Empirical Examination of Victoria's Bush Tender Trial 5* (June 2002) (unpublished paper) (presented at the 46th Annual Conference of the Australian Agricultural and Resource Economics Society, Canberra, Australia), <http://ageconsearch.umn.edu/bitstream/174043/2/Stoneham.pdf>.

196. *Habitat Exchanges: How Do They Work?*, ENVTL. DEF. FUND, <https://www.edf.org/ecosystems/habitat-exchanges-how-do-they-work> (last visited Mar. 8, 2018).

197. See *id.*; *State of Nevada Conservation Credit System*, ENVTL. INCENTIVES PERFORMANCE PLATFORM, <https://www.enviroaccounting.com/NVCreditSystem/Program/Home> (last visited Mar. 8, 2018).

198. See Stoneham et al., *supra* note 195.

199. See *California: Migratory Birds*, NATURE CONSERVANCY, <https://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/california/howwework/california-migratory-birds.xml> (last visited Mar. 8, 2018). BirdReturns is a partnership between California Rice Commission, Cornell Lab of Ornithology, Point Blue Conservation Science, and The Nature Conservancy.

200. *Id.*; Seema Jayachandran, *Using the Airbnb Model to Protect the Environment*, N.Y. TIMES (Dec. 29, 2017), <https://www.nytimes.com/2017/12/29/business/economy/airbnb-protect-environment.html> (discussing the BirdReturns program).

201. Jim Robbins, *Paying Farmers to Welcome Birds*, N.Y. TIMES (Apr. 14, 2014), <https://www.nytimes.com/2014/04/15/science/paying-farmers-to-welcome-birds.html>.

D. Enhancing Conservation Easement Terms

While the previous Section highlighted alternatives to conservation easements, in many situations conservation easements will still be the tool of choice. Conservation organizations can more thoughtfully draft their conservation easements though, and this Section outlines some considerations for conservation easement terms.

The specificity of conservation easements has evolved over time. Thirty years ago, many conservation easements were brief and vague. Over time, conservation easements have become longer, more detailed, and more specific about resources protected, remedies in the event of violation, and dozens of other eventualities.²⁰² Conservation easements have also become better tailored to the particular land being protected. In our interviews, a number of conservation organizations reported that the guidelines of the Land Trust Alliance have encouraged these trends.

Conservation organizations should ensure that the terms of conservation easements enable the holder to adapt to climate change successfully. In particular, conservation organizations should incorporate climate change into their conservation easement purposes; provide for biophysical monitoring; address the issue of authority to manage for climate risks and stresses; anticipate and address responses to changed conditions; and authorize appropriate amendments. A provision requiring the preparation of a management plan with a limited term and a defined protocol for updates may provide an especially useful means of providing for flexibility over time.

In the Six-State Study, conservation organizations expressed strong faith in their existing conservation easements. Over seventy percent of the interviewees reported that their existing conservation easements have “enough flexibility to adapt to changing environmental and climatic conditions,” while only fourteen percent expressed concern about the flexibility of their existing conservation easements.²⁰³ Our review of the specific terms of conservation easements, however, suggests that conservation organizations might be overly optimistic and that they could take steps to provide conservation-oriented options for adaptation.

Over eighty percent of the organizations we interviewed in the Six-State Study reported that their organization’s approach to drafting conservation easements had changed over time. Climate change will require further evolution in the development of conservation easements. Table 3 lists design considerations for conservation easement terms under climate change.

202. Owley & Rissman, *supra* note 17, at 83.

203. Rissman et al., *supra* note 17, at 72.

Conservation easement terms	Design approach for balancing durability and adaptability
Purposes	Broad purposes to ensure permanence, paired with specific targets to improve fit with goals and the property
Land use restrictions	Specific restrictions with narrow options for change that enhance conservation purposes
Biophysical monitoring terms and baseline documentation	Conservation easement holder has the right to monitor biophysical conditions Baseline documentation includes biophysical assessment
Affirmative management terms	Conservation easement holder has the right to conduct limited active management such as invasive species removal
Mechanisms for change in general	Amendment term, management plan, exceptions with consent, third-party certification, termination and condemnation clauses
Mechanisms for change: management plans	Management plans are written before landowner is paid for the conservation easement Management plan terms are written to be enforceable
Mechanisms for change: amendment	Include an amendment clause that identifies narrow circumstances in which an amendment will be considered, preserves conservation purposes, limits scope of permissible amendments in cases in which a tax deduction is sought, and gives holders the right to decline to agree for any reason or for no stated reason

Table 3: *Design Considerations for Conservation-Easement Terms Under Changing Conditions*

1. Purposes

To start, drafters of new conservation easements should incorporate climate change considerations into the purpose section. Several of the conservation easements we studied did so explicitly. One conservation easement, for example, specifically recognizes that climate change “may significantly alter the ecosystems” on the land, and the conservation-easement documents the intent of the parties “to adapt to changes to the ecosystems and its associated species over time.”²⁰⁴ The purposes of another

204. Conservation easement documents and survey results on file with authors.

conservation easement in the Study refer to “adjacent public and private lands” and the role the conserved land is to play in helping those lands “remain healthy and viable in the face of future changes to the climate or ecology of the area.”²⁰⁵

In many cases, parties to the conservation easement will wish to declare that they intend the encumbrance to remain in place even if the landscape changes. Such a provision would be useful if the parties later need to persuade a court not to extinguish a conservation easement in which the natural features of the land have been significantly altered or compromised by climate-related effects.

Purpose-clause drafting could also serve as a forcing mechanism for a more probing inquiry by the parties into the effect climate change may have on the conservation-easement’s objectives and the parties’ consequent intentions. For example, the parties could declare that, whatever the specific effect of climate change, the terms of the conservation easement should be interpreted in a way that will most effectively preserve the values they designed the conservation easement to protect. Conversely, the parties could specify that if the described conservation values of the conservation easement are seriously compromised by changing climate conditions, other named or general conservation objectives will (or will not) replace the original purposes of the conservation easement.

In addition to specifying their intentions with respect to the principal conservation objectives, the parties might expand the purpose statement’s recitation of objectives to include a hierarchy of purposes—naming anticipated secondary and tertiary objectives that the conservation easement should be interpreted to protect if it is impracticable to maintain the principal purposes. If it is indeed the parties’ view that the land should be devoted to conservation generally, whatever ecological changes occur, the conservation-easement purpose statement should include language that states that in the event that none of the stated conservation objectives can be met, the conservation easement should be interpreted to protect any viable conservation purpose, from outdoor recreation and education to open space. Doing so would be consistent with most or all state laws. The UCEA, for example, authorizes conservation purposes that are even more general than those recited in the tax code. UCEA conservation easements can seek to maintain or enhance air or water quality, or protect “cultural aspects of real property.”²⁰⁶

Sound judgment regarding any broadening of purposes requires awareness of the implications. Given the expense of monitoring, maintenance, and conservation-easement defense, land trusts with purposes narrower than general conservation may wish to draft purpose clauses that narrow their monitoring, maintenance, and defense obligations. The

205. Conservation easement documents and survey results on file with authors.

206. UNIF. CONSERVATION EASEMENT ACT § 1(1) (UNIF. LAW COMM’N 2007).

drafter of such terms should consider the deductibility risk of too aggressively sidestepping the conservation-easement stewardship implications of the broad “any conservation purpose” standard for extinguishment in the federal tax regulations.²⁰⁷

2. Land-Use Restrictions

Well-drafted conservation easements often include specific terms relating to land use and alteration, water management, response to invasive species, introduction of exotic species, and amendments of the terms of the conservation easement. In an age of changing climate, good drafting of conservation easements requires addressing each of those subjects, and others, with climate change in mind. For example, does a full prohibition on altering the natural flow of water on the property continue to make sense when the future may hold fewer but more intense precipitation events? As species ranges move, what constitutes an exotic species? What should management terms prescribe when managing new invasive species may become a concern in an altered climate?

In a world of climate change, tension between the desire to protect the values of the land and the desire to protect the enforceability of conservation easements is leading conservation organizations to two schools of thought about how specific new conservation easements’ land-use restrictions should be. Some conservation organizations asserted that simple conservation easements with few specific provisions will be sturdier and more likely enforceable in the face of unpredictable change.²⁰⁸ Others argue that detailed conservation easements, which allow the land to be managed to prevent threats from change, are, to the extent of the drafter’s foresight, wiser.²⁰⁹

3. Affirmative Management Terms

Climate change adaptation often demands active, affirmative management by conservation organizations.²¹⁰ While conservation easements are generally characterized as negative easements (giving holders the right to prevent possessory landowners from engaging in certain activities), state conservation-easement statutes typically do not bar conservation-easement terms that convey to the conservation-easement holder the right to actively manage protected land. Among the likely effects of climate change are increases in disturbances such as new and sometimes invasive species, plant and animal diseases, insect infestations, extended droughts, catastrophic weather, windthrow, and fire. Conservation organizations will often find it valuable to obtain the affirmative right to enter the lands

207. Treas. Reg. § 1.170A-14(g)(6) (2009).

208. We conducted seventy-three interviews with land conservation professionals from sixty-three different land conservation organizations. Interview notes are on file with the authors.

209. Interview notes are on file with the authors.

210. Mawdsley et al., *supra* note 2, at 1081; Heller & Zavaleta, *supra* note 8, at 29.

to remove native and non-native invasive species, to treat plant communities for disease or insect infestation, and/or to mitigate the effects of extreme weather and disturbance events. Seventy percent of interviewees said active land management was important for meeting their organization's goals. Yet, only fifty percent of the conservation easements reviewed in the Six-State Study give the conservation organization the right to conduct any type of active land management. Furthermore, many of these were narrowly construed rights, for instance to conduct trail maintenance. With landowner agreement, of course, conservation organizations could conduct active management even without affirmative rights specified in the conservation easement itself.

4. Mechanisms for Change in Conservation-Easement Terms

The Six-State study revealed four primary mechanisms for changing land management in conservation easements: (a) management plans, (b) amendment terms, (c) exceptions with consent, and (d) third-party certification.

a. Management Plans

Conservation easements with enforceable rules to restrict development, property subdivision, and other incompatible land uses in a range of future conditions can be coupled with detailed adaptive resource-management plans that authorize land management and can be updated as conditions change.

Resource-management plans with regular updates are the most common approach to land management on public lands and through private land-incentive programs. The implementation of land-management plans varies widely, so they can be informational, regulatory, incentivizing, or encouraging (as policy carrots, sticks, or sermons).²¹¹ Provisions of resource-management plans are easier to amend than the provisions of conservation easements; indeed such plans can incorporate agreements for periodic revision. Management plans also can more easily incorporate specific resource-management regimes responsive to landscape changes. Close to half (forty-six percent) of the conservation easements examined in the Six-State Study provide for some sort of resource-management plan.²¹² Only a handful of these conservation easements, however, provide for management plans that address land use broadly; most focus on a particular use such as forestry, farming, or grazing.²¹³ Conservation organizations should consider providing for broad management plans in future conservation easements. Conservation organizations also should consider

211. Vilis Brukas & Ola Sallnäs, *Forest Management Plan as a Policy Instrument: Stick, Carrot or Sermon?*, 29 LAND USE POL'Y 605, 607-08 (2012).

212. Rissman et al., *supra* note 17, at 72 fig.6.

213. *Id.*

working with landowners to develop resource-management plans even for conservation easements that currently do not explicitly require such plans.

While management plans can provide valuable flexibility and direction in the face of climate change, the process for writing, updating, and enforcing these plans matters. Where appropriate, conservation easements should incorporate management plans by reference so that everyone (including courts, subsequent landowners, and other interested organizations) is aware of the existence of the plans and the need for periodic revision. Resource-management plans can sometimes be difficult to finalize,²¹⁴ so parties should finalize management plans when drafting conservation easements or before releasing all funds to the landowner.

However, conservation organizations must avoid using management plans to delay decision making where parties struggle to agree on conservation-easement terms. In addition, the obvious risk that the parties will never come to agreement on key points, deferring key conservation-easement decisions in favor of agreeing to later develop a management plan can make it hard for members of the public or government entities to understand the conservation lands in their jurisdiction fully, potentially hampering enforcement or coordinated land-conservation efforts. Even updating management plans may be challenging in the face of disagreement between the landowner and the conservation-easement holder. Making a land-management plan work requires clear guidance on how to resolve disputes between the landowner and conservation-easement holder, and it may benefit from ongoing incentives or consequences. Many management plans do not explicitly say how disagreements will be resolved in the development of a plan, so these processes need to be well-explained. In all cases, the conservation-easement holder should have the right to approve the management plan, preferably in its sole discretion. Though there seems to be little reason to doubt the enforceability of a management plan properly entered into and incorporated by reference in the conservation easement, the enforceability of an incorporated-by-reference management plan has not, it appears, been tested yet in court.

b. Amendments

Two-thirds of the conservation easements in the Six-State Study include an amendment provision, meaning that approximately one-third do not. On balance, we think conservation easements intended to encumber property for more than twenty years—and perhaps all conservation easements—should include well-drafted amendment clauses.²¹⁵ Such clauses

214. Adena R. Rissman, *Designing Perpetual Conservation Agreements for Land Management*, 63 RANGELAND ECOLOGY & MGMT. 167, 172 (2010).

215. See Rissman et al., *supra* note 17, at 72. Some drafters have decided not to include amendment clauses on the theory that including them suggests to the owner of the underlying fee that the restrictions in the conservation easement are perpetually negotiable. The better response to that problem is to draft an amendment clause that identifies the circumstances in which an amendment will be

should provide that amendment requires the agreement of both the conservation-easement holder and the landowner. They should also require the protection of the conservation values, and they should prohibit private benefit. To discourage the owner of the underlying fee—and especially successor owners who did not participate in the original transfer and thus are often less committed to it—from seeking leave to loosen conservation restrictions, many drafters make it clear that the conservation-easement holder may decline a proposed amendment for any reason or no stated reason.

Amendment clauses are essential in real estate instruments designed to burden property for long periods. The IRS, however, conscious of the imminent closing of a window of opportunity for protecting the public's investment in conservation easements (the three-year statute of limitations for challenging income-tax returns) is paying close attention to amendment provisions in conservation easements. An amendment clause that would permit abandonment of the conservation commitment to an identifiable parcel of property is likely to result in an IRS declaration that the donation of the conservation easement does not qualify for deduction as a charitable contribution.²¹⁶

Amendment clauses in donated conservation easements, and especially those intended to qualify for tax deduction, ought to prohibit the removal of property from the protection of the conservation easement unless the achievement of conservation objectives is impossible or impracticable.²¹⁷ Assuming that the IRS can be persuaded to make it clear that a well-drafted amendment clause does not automatically disqualify a donated conservation easement from eligibility for deduction,²¹⁸ amendments can be an important tool for providing the flexibility required for protecting the conservation values a conservation easement is intended to protect in the face of climate change. An amendment provision, for example, could clarify that changes to administrative or management provisions are allowable where the changes so would enhance protection of the conservation values.

considered, and as stated in the body of this Article, gives the holder the clear right to decline to agree to an amendment for any reason or for no stated reason.

216. See *Belk v. Comm'r*, 774 F.3d 221, 227–28 (4th Cir. 2014).

217. Treas. Reg. § 1.170A-14(g)(6) (2009); see also *Carpenter v. Comm'r*, 103 T.C.M. (CCH) 1001 (2012), *aff'd*, 106 T.C.M. (CCH) 62 (2013) (deciding on donated easements as restricted gifts); RESTATEMENT (THIRD) OF PROP.: SERVITUDES § 7.11 (AM. LAW INST. 2000); UNIF. TRUST CODE § 414(d) (UNIF. LAW COMM'N 2000); *Belk*, 744 F.3d at 225–27.

218. See Treas. Reg. § 170(h)(1)–(2); *id.* § 1.170A-14. Neither the tax code nor the regulations specifically address amendment clauses in conservation easements. Hard-line opponents of amendments in tax-deductible conservation easements find support in the previously cited requirement that restrictions in a qualified conservation contribution must be “granted in perpetuity.”

c. Third-Party Certification and References to External Laws and Policies

One way that conservation organizations can incorporate change into their conservation easements is to require compliance with external laws, regulations, or certification programs. Requiring compliance with certain laws or policies automatically updates conservation-easement requirements when legislatures amend those policies.

For example, some of the conservation easements in our Wisconsin sample required that the landowner have a management plan meeting the requirements of the state Department of Natural Resources Managed Forest Law or Forest Crop Law program. Thus, as the state program changes, the requirements of those conservation easements will be updated. In fact, the Wisconsin legislature did change the law in 2016 to lessen the requirements for public access.²¹⁹ Duncan Greene encourages the use of similar terms for agricultural lands, linking conservation-easements terms to regularly updated external standards instead of prescribing specific agricultural practices.²²⁰

A similar approach works for linking conservation-easement terms to third-party certification programs. This likely works best in the context of working landscapes where one can require things like organic agricultural practices or sustainable forestry operations. For example, if a forest landowner is required to comply with Forest Stewardship Council (FSC) certification²²¹ under the terms of the conservation easement, rules governing the use of the conservation easement will vary if FSC alters its certification rules. Indeed, some land trusts might be interested in requiring third-party certification because it may generate another potential monitor of the conservation easement. That is, if FSC has to monitor the landscape to ensure that a working forest is meeting sustainability standards, it may ease the pressure on land trust staff to make such findings and enable them to forgo such frequent monitoring.

Tracking a conservation easement to external standards like this has its benefits in allowing updating of the agreement but also puts terms of the agreement outside of the control of the conservation-easement holder.²²² What happens if an external source lessens its restrictions when

219. Lee Bergquist, *Scott Walker Signs Law Changing Managed Forest Program*, MILWAUKEE-WIS. J. SENTINEL (Apr. 14, 2016), <http://archive.jsonline.com/news/statepolitics/scott-walker-signs-law-changing-managed-forest-program-b99707014z1-375758221.html>.

220. Greene, *supra* note 12, at 915–16 (also suggesting that a “periodically updated management or conservation plan—prepared by a qualified agricultural consultant and approved by a conservation district or advisory board” could meet the needs of dynamic land conservation).

221. *Certification*, FSC, <https://us.fsc.org/en-us/certification> (last visited Mar. 8, 2018).

222. Adena Rissman et al., *Land Management Restrictions and Options for Change in Perpetual Conservation Easements*, 52 ENVTL. MGMT. 277, 278 (2013).

a conservation easement holder would hope to strengthen them? Conservation organizations must clearly detail what will occur should a conflict between an external source and internal requirements arise.

CONCLUSION

Climate change poses significant challenges to the conservation community. To address them successfully, conservation organizations must begin by understanding the climate change risks to their goals and properties. Organizations then must use that knowledge to decide which properties to protect; to build partnerships with other conservation groups; to choose more effective tools; to write flexible and sustainable conservation easements; and to conduct active, long-term stewardship of their lands. With diligence and creativity, the conservation community can successfully meet the challenges of climate change.