University at Buffalo School of Law

Digital Commons @ University at Buffalo School of Law

Contributions to Books

Faculty Scholarship

2014

Property Constructs and Nature's Challenge to Perpetuity

Jessica Owley

University of Miami School of Law, jowley@law.miami.edu

Follow this and additional works at: https://digitalcommons.law.buffalo.edu/book_sections

Part of the [Environmental Law Commons](#), and the [Land Use Law Commons](#)

Recommended Citation

Jessica Owley, Property Constructs and Nature's Challenge to Perpetuity in *Environmental Law and Contrasting Ideas of Nature: a Constructivist Approach* 64 (Keith H. Hirokawa, ed., Cambridge University Press 2014)

This material has been published in *Environmental Law and Contrasting Ideas of Nature: a Constructivist Approach* edited by Keith H. Hirokawa. This version is free to view and download for personal use only. Not for re-distribution, re-sale or use in derivative works. © Keith H. Hirokawa 2014.

This Book is brought to you for free and open access by the Faculty Scholarship at Digital Commons @ University at Buffalo School of Law. It has been accepted for inclusion in Contributions to Books by an authorized administrator of Digital Commons @ University at Buffalo School of Law. For more information, please contact lawscholar@buffalo.edu.

4

Property Constructs and Nature's Challenge to Perpetuity

*Jessica Owley*¹

INTRODUCTION

Healthy ecosystems are important to a functioning society. Unfortunately, our world is not dominated by healthy ecosystems. Instead, human impacts on the natural world have thrown things into disarray. Ecologists and conservation biologists offer guidance on how to attain some level of stability, ensuring a flourishing future for humanity. They suggest that conservation efforts should focus on creating resilient, adaptable landscapes with long term protection. This presents us with the difficult challenge of merging flexibility and permanence.

This chapter explores the inherent conflict between the changing natural world and rigid legal structures. Specifically, this chapter examines the use of property law tools for land conservation, discussing how property law tools can result in meaningful land protection while also illustrating some of their shortcomings. The first section discusses the importance of land conservation and briefly introduces conservation biology concepts, providing general guidelines that ecologists and others recommend for land conservation. This section illustrates the importance of acknowledging change in natural systems and making space for resilience, particularly in light of climate change. With these principles of conservation biology as a backdrop, the second section details the development and structure of property tools for land conservation. The third section then brings these two topics together, examining whether and how property tools work to promote healthy ecosystems. This necessarily involves delving into the conflict between these private legal mechanisms and the natural world. Examining perpetual land restrictions and the mechanisms

¹ Many thanks to Dan Farber, Chuck Ewing, Guyora Binder, Meredith Lewis, and of course the inimitable Keith Hirokawa for their many comments and suggestions on this chapter. A special thanks is due to Dave Owen, whose thoughtful comments on this piece not only improved this work but have already helped shape future projects.

for change associated with them illuminates a disconnect between the world around us and the legal mechanisms we use to govern that world. Perpetual static tools don't just ignore change. In some cases they resist it—complicating efforts at land protection.

Why does this conflict between law and nature exist? Part of the answer might be a lack of information about the type and level of change occurring combined with a failure of law to keep pace with ecological systems. Another part of the answer might be psychological. From garden variety denial to optimism and status quo bias, our minds have trouble grasping both global climate change and perpetuity. Thus, we simplify and ignore them. The fourth part of this chapter begins a dialogue into these ideas to start thinking about what direction property law should take. In the end, it is hard to figure out the right approach. We know what we have now doesn't make sense, but the alternatives either seem less attractive or are so fraught with uncertainty that we are paralyzed into inaction. Hopefully, acknowledging this struggle is the first step in a way of legal thinking more in tune with the natural world.

WHY PROTECT LAND

At heart, this chapter is about what land we choose to protect and how we go about protecting it. A threshold question, however, is why we are even involved in this inquiry. Why bother protecting land? The world is a changing place: ecosystems change; societal needs and desires alter course; people, plants, and even cities evolve. Why not just let things be? We could cease efforts at land conservation or ecosystem protection and let things run their course. Yet few people (and even fewer members of other species) would be happy with the result. Functioning ecosystems sustain human life on a physical and spiritual level. Ecosystem services provide water and food. Wild places provide spiritual respite. Without healthy ecosystems, the quality and variety of life will decline.

Land conservation is an important element in a plan to protect ecosystems and deter environmental degradation. The impacts of climate change demonstrate why a focus on land conservation is necessary. The warming of the climate system is unequivocal and destructive.² The Intergovernmental Panel on Climate Change (IPCC) 2008 report noted that the “resilience of many ecosystems is likely to be exceeded this century by an unprecedented combination of climate change, associated disturbances (e.g., flooding, drought,

² Intergovernmental Panel on Climate Change, *FOURTH ASSESSMENT REPORT: CLIMATE CHANGE 2007 SYNTHESIS REPORT 7* (2008), available at http://www.ipcc.ch/publications_and_data/ar4/syr/en/contents.html.

wildfire, insects, ocean acidification) and other global climate change drivers (e.g., land use change, pollution, fragmentation of natural systems, overexploitation of resources).³ Human activity is undeniably linked to climate change.⁴ Even with mitigation and implementation of sustainable development practices, global emissions of greenhouse gases will grow.⁵ Changes in weather and climate can change vegetation structure, microclimates, ground cover, soil nutrients, and other ecosystem elements.⁶ It can lead to reduced populations of various species and local extinctions.⁷ Thus, as the climate changes, the landscape changes as ranges for ecosystems and viable species habitats shift.

Climate change does not bring good tidings for many of the world's species. Habitat loss and degradation are the leading causes for imperilment for most species.⁸ Twenty to 30 percent of species will face increased risk of extinction as the climate changes. Climate change is also expected to cause major alterations in ecosystem structure and function, yielding shifts in species interactions and ranges.⁹ This will have negative consequences for biodiversity.

Current land use patterns exacerbate the impacts of climate change. The population of the United States is increasing, but as the majority of jobs shift away from factory work, people have more flexibility and move out of urban centers to areas where land is cheaper. People are also increasingly mobile. Cars go farther faster; commuting is a more accepted part of life; and governments invest in roads. These forces combine to create a more suburban and exurban lifestyle. As open space decreases and nature rich landscapes are converted to built landscapes, we lose carbon sinks and increase ambient air temperatures. Furthermore, suburban lifestyles are marked by increased resource use. People who live in sprawling areas "drive more, have to own more cars, breathe more polluted air, face a greater risk of traffic fatalities, and walk and use transit less" than people in other regions.¹⁰ An American Farmland Trust report found that between 1992 and 1997, the United States paved over more than 6 million acres of farmland, an area approximately the

³ IPCC at 48.

⁴ IPCC at 37.

⁵ IPCC at 44.

⁶ C. R. Margules & R. L. Pressey, *Systematic Conservation Planning*, 405 NATURE 243, 248 (2000).

⁷ *Id.*

⁸ Craig Groves et al., *Planning for Biodiversity Conservation: Putting Conservation Science into Practice*, 52 BIOSCIENCE 499 (2002).

⁹ IPCC at 48.

¹⁰ Reid Ewing, Rolf Pendall, & Don Chen, *Measuring Sprawl and Its Impacts*, *Smart Growth America: Better Choices for Our Communities* 22, available at <http://www.smartgrowthamerica.org/documents/MeasuringSprawl.PDF>.

size of Maryland.¹¹ Perhaps the most disturbing finding of the study is that over the past twenty years, the acreage per person for new housing almost doubled.¹² Suburban and exurban dwellers have larger carbon footprints not only because they drive more than urban dwellers but also because they are (1) more likely to have newer homes, with added energy use from construction; (2) more likely to have larger homes, needing more energy for heating and cooling; and (3) more likely to have higher water use from gardening and lawn maintenance.¹³

Land conservation is necessary to combat the ills of climate change and environmental degradation. As we develop open space, we not only lose possible spiritual and recreation benefits associated with that open space, but we also convert lands that had been providing ecosystem services and biodiversity. Such land also protects watersheds and resiliency within ecosystems. But determining which exact lands to protect and how to go about it is not an easy task.

UNDERSTANDING HOW TO PROTECT THE NATURAL WORLD

To say that the world is a changing place may seem trite, but the reality of that statement is ill understood. We can see change simply by sitting still and watching things around us. We can understand change by comparing photographs from childhood vacations to photographs of those same places today. We can intellectualize change by reading environmental studies about our world. Yet change can be hard to perceive. Small changes occur slowly or subtly enough to escape notice, and large changes can be so hard to fathom that we ignore them.

To understand ecological change, we need to consider the issue along two axes: the changing world and changing information about the world. To begin with, the natural world is a changing place. The change has only become more accelerated (and more alarming) as we begin to experience the effects of global climate change. A changing world has several implications for land conservation. Principles of succession explain how young forests become old growth forests and how today's wetland becomes tomorrow's meadow. Evolution and theories of competition explain changes in species composition,

¹¹ American Farm Land Trust, *FARMING ON THE EDGE: SPRAWLING DEVELOPMENT THREATENS AMERICA'S BEST FARMLAND* (2002) (also finding that agricultural land is the land use most often converted with the amount of farmland developed into other uses doubling between the 1980s and 1990s).

¹² *Id.*

¹³ Elizabeth Shogren, *Life in the 'Burbs: Heavy Costs for Families, Climate*, Nat'l Public Radio March 31, 2008 (audio and text), available at <http://www.npr.org/templates/story/story.php?storyId=89231809>.

and the fossil record tells of a far different seeming planet. Adding to these classic ecological and biological principles is the complexity of climate change. Climate change has the ability to accelerate the pace of change and make the change more significant. In deciding which parcels to protect and what rules to set regarding those parcels, we have to account for potential ecosystem changes or shifts.

Alongside these changes to the world around us are the changes to our understanding of the world around us. Scientists continuously learn more about the world around us, building greater understandings of topics like hydrology, ecology, and geology. We are also continuously learning that we have significant gaps in our understanding of the natural world. The rise of adaptive management in the field of conservation biology (and arguably the field of conservation biology itself) is built on an acknowledgment that we cannot know everything we need to know to manage ecosystem health. Successful conservation strategies are ones that can change with the times and ones that incorporate new information and learning.

Conservation biology first emerged as a recognized discipline in 1978.¹⁴ The field uses biological principles to further conservation while incorporating principles and concepts from many other fields including economics, sociology, natural resource management, and the law. This applied science is, thus, a truly interdisciplinary field and perhaps unusual because of its scholars' clear mission to improve conservation outcomes. Over the years, conservation biologists and like minded souls have investigated how to decide what we should protect if biodiversity and ecosystem health are our goals as well as provided guidelines for how to approach on the ground protection. With climate change, the work of conservationists has become both more complicated and more important. Two principles have emerged as particularly salient when seeking long term land conservation: resiliency theory and adaptive management.

Resiliency

Resilient ecosystems, like resilient people, have both tolerance for change and the ability to recover from disturbance. Resilience can be thought of along two spectrums.¹⁵ First, high levels of resilience are present when a system

¹⁴ Malcolm L. Hunter, Jr. & James Gibbs, *FUNDAMENTALS OF CONSERVATION BIOLOGY* 15 (3rd ed., 2007).

¹⁵ See, e.g., J. B. Ruhl, *General Design Principles for Resilience and Adaptive Capacity in Legal Systems with Applications to Climate Change Adaptation*, 89 N. CAROLINA L. REV. 1373, 1376 (2011) (describing the two types of resilience and using the labels "engineering resilience" and "ecological resilience").

can absorb changes without requiring a redesign of the system's fundamental structure. Imagine a landscape that can literally weather the storm without shifting ecosystem type (the wetland remains a wetland even if it doesn't quite look the same). Second, systems that can return quickly and easily to their former state after a disturbance are resilient. Here, the landscape not only retains the same fundamental characteristics but soon looks as it did before. Systems may demonstrate one or both types of resiliency. Resiliency is easy to envision by thinking of responses to extreme weather events, but is also important for assessing how landscapes will respond to gradual environmental impacts.

Many conservation biologists urge policymakers to consider resilience theory in making conservation policies.¹⁶ Resilience thinking acknowledges that ecological (and social) systems are subject to both gradual changes and sudden disturbances.¹⁷ By recognizing system complexity along with the interdependence of social and ecological systems, resilience thinking encourages consideration of different reactions and interactions that may take place.¹⁸ This approach can work well in a changing world. Instead of trying to force the landscape into a fixed state, resilience thinking considers a shifting world within a set of parameters. It also recognizes differences among ecosystems. Some accommodate change more easily and others may flip to different systems with small disturbances. One of the most helpful lessons from resilience thinking is to consider each landscape on its own terms, building an understanding of what changes are likely to occur and assessing the level of long term impacts that could be triggered.

Resilience thinking can also be limiting, however. While it accommodates and addresses ideas of flux, resilience thinking still seems to have a particular ecosystem state or identity as a goal.¹⁹ Efforts are taken to maintain ecosystem types and to prevent "flipping the system." Additionally, while it presumes change, it also assumes researchers understand socio ecological systems well enough to set parameters that will foster resilient systems. Understanding

¹⁶ See, e.g., J. A. Maynard, P. A. Marshall, & J. E. Johnson, *Building Resilience into Practical Conservation: Identifying Local Management Responses to Global Climate Change in the Southern Great Barrier Reef*, 29 CORAL REEFS 381(2010); Joern Fischer et al., *Integrating Resilience Thinking and Optimism for Conservation*, 24 TRENDS IN ECOLOGY & EVOLUTION 549 (2009).

¹⁷ B. Walker & D. Salt, RESILIENCE THINKING (2006).

¹⁸ Carl Folke, *Resilience: The Emergence of a Perspective for Social-Ecological Systems Analyses*, 16 GLOBAL ENVTL. CHANGE 253 (2006).

¹⁹ See, e.g., Craig R. Allen, Graeme S. Cumming, Ahjond S. Garmestani, Philip D. Taylor, & Brian H. Walker, *Managing for Resilience*, 17 WILDLIFE BIOLOGY 337, 341 (2011) (describing managing wildlife for resilience as seeking to maintain system identity even when subject to a wide range of conditions and increasing the ability of the system to cope with change).

resilience thinking does not necessarily help policy makers and conservationists determine the best route of action. Should we take a triage approach and focus our energy on resilient systems as the ones most likely to survive large changes intact? Should we focus our energies on the least resilient systems as the areas needing most attention? How many inputs and how much management should go into improving resiliency and does such a goal make sense either ecologically or socially?²⁰ What land we choose to protect and how we protect it differs with our land protection goals. Ecosystems can serve many functions and goals. Wild spaces may be important for protecting particularly sensitive species, for providing psychological escapes, and for providing room for flexibility and resiliency as climate change causes shifts in viable habitats and crops. These uncertainties demonstrate that resilience thinking must be accompanied by a clear setting of goals, an assessment of the system at hand, and a mechanism for accommodating changing systems and increasing information. Combining resilience thinking with adaptive management approaches can address some of these obstacles.

Adaptive Management

To respond to changes in the landscape and new knowledge about species and their habitat, preservation strategies should be flexible programs that are continually reexamined, reevaluated, and potentially restructured. Many scientists agree that because of the evolving nature of ecosystems, the state of conservation biology information, and political structures, adaptive management principles are the most appropriate for conservation.²¹ Sometimes given the shorthand definition of “learning by doing,” adaptive management involves iterative decision making.²² In the field of land conservation, for example, an adaptive management approach would begin with making management decisions and rules governing the land much like any other approach. The difference is that adaptive management involves continual study of the land conservation efforts and periodic revisitation of the plan to ensure its goals are still being met (or progress is being made). Thus, the rules

²⁰ See Muriel Cote & Andrea J. Nightingale, *Resilience Thinking Meets Social Theory: Situating Social Change in Socio-Ecological Systems (SES) Research*, 36 PROGRESS HUM. GEOGRAPHY 475 (2012) (arguing that resilience thinking fails to address normative questions about what we should be preserving and for whom).

²¹ C. S. Holling & Gary K. Meffe, *Command and Control and the Pathology of Natural Resource Management*, 10 CONSERVATION BIOLOGY 328, 332 (1996).

²² Carl J. Walters & C. S. Holling, *Large-Scale Management Experiments and Learning by Doing*, 71 ECOLOGY 2060 (1990); ADAPTIVE ENVIRONMENTAL ASSESSMENT AND MANAGEMENT (C. S. Holling ed., 1978).

regarding the land may change over time. A truly adaptive approach would even revisit the goals of the plan to see if they still make sense as the world changes. Hence, adaptive management assumes change in the system will occur and information about the system will continually improve.²³ It is a dynamic process.

The two major challenges for adaptive management are the ability to continually study and reassess the system and the obstacles to updating management strategies and goals. Ergo, adaptive management suffers from the problems of lack of information and difficult implementation. Agencies often embrace the idea of adaptive management but fail to follow through on the required assessments of management plans due to lack of money or staff, or sometimes just because projects fall through the cracks.²⁴ Holly Doremus argues that even when the studies and reevaluations are done properly, the additional costs of an adaptive management approach may not be worthwhile. There are some systems, she argues, in which it will be costly and difficult to obtain data that may not even produce useful information.²⁵ The structure of adaptive management also enables decision makers to punt. That is, they can delay making hard decisions based on the argument that they can just revalue the project in the future. At the same time, however, this can also help move projects forward when lack of information or conflicting information has caused a paralysis. Even when the gathering and assessment of new information is straightforward and affordable, adaptive management will be meaningless without revisitation of the policies and goals at play. Goals in particular are rarely questioned. Thus, the concept of adaptive management is a good one, but it will provide few benefits without adequate information and a commitment to changing policy rules and goals where necessary.

PROPERTY-BASED LAND CONSERVATION EFFORTS

Land conservation is an important part of the campaign to fight environmental degradation. It can also assist with both mitigating climate change and adapting to its impacts. However, an examination of land conservation efforts illustrates the conflicts arising from property based land management strategies and the conservation biology concepts outlined above.

²³ See James D. Nichols et al., *Adaptive Harvest Management of North American Waterfowl Populations: A Brief History and Future Prospects*, 148 J. ORNITHOLOGY S343 (2007).

²⁴ Holly Doremus, *Adaptive Management as an Information Problem*, 89 N.C. L. REV. 1455 (2011).

²⁵ *Id.* at 1459.

Early land conservation efforts focused on actions by government. This largely took two forms: public landownership and public regulation of private land. Although these measures achieved greater protection of land than would have likely occurred without government intervention, many conservationists felt more could be done. Wealthy conservationists and committed individuals sought strategies to protect even more acres of land, preserving ecosystem services while promoting other goals associated with land protection (like preserving community traditions and scenic values). Private land conservation efforts learned many lessons from public land conservation. Accordingly, private land conservation followed a similar trend with first seeking ownership (and thus complete control over land) and then developing a form of private regulation (through servitudes and conservation easements).

The law offers multiple tools for environmental protection. Environmental regulation is a clear example, but we also see environmentalists and others turning to tools and concepts from tort law and contracts. This section examines the property law mechanisms that provide avenues for land conservation. None of the mechanisms discussed here explicitly incorporate the principles from conservation mentioned previously, and several of them create obstacles. The fourth section then examines how property law and conservation biology come together (or fail to do so).

Fee Simple Landownership

Early efforts to preserve land focused on obtaining as much control over the land as possible. Thus, full ownership of land (also called fee simple ownership) appeared the most attractive method to ensure land protection. By owning the property, one could determine the rules on that property and ensure that it remained protected. Land conservation in this mode focuses on park like preservation and setting aside lands for “nature.” This approach separates humans from nature with the following logic. Humans cause environmental degradation. Without humans, nature will develop and flourish. Following ideas associated with the Wilderness Movement, this approach leaves nature untrammelled by man, but also without the active management and interactions with humans that may have actually shaped the ecosystems.²⁶ This approach ignores the realities of the planet’s inhabitants and fails to

²⁶ Frankly, there are no pristine landscapes (if by pristine we mean nature that was not shaped or changed by humans). While the Wilderness Movement and indeed the 1964 Wilderness Act purport to preserve wild spaces where humans are visitors and not residents, even areas we label wilderness were often formerly (and sometimes currently) marked by agriculture, mining, range management, and other land uses.

acknowledge humans as part of the ecosystems they inhabit. Furthermore, conservation solely by ecological reserves leaves out the possibility that nonpristine landscapes—such as agricultural lands, working forests, and suburban areas—could also provide opportunities for preserving biodiversity and promoting other land conservation goals.²⁷

Private landownership is a limited environmental protection strategy for more practical reasons as well. Notably, it is limited by available funds and properties. Costs are not restricted to land purchase price but also include costs from managing the land and paying taxes on it. Landowners of desirable parcels may be unwilling to sell. Efforts to remove people from the land (or even just ownership by private organizations) could lead to significant local opposition.²⁸ When the land is owned by tax exempt nonprofit organizations, it can change the community composition and funding available for local services. When property is owned by absent individuals, resentment can build against a nonresident landowner who is seen as not participating in the community.

These reactions to and limitations on private land conservation efforts through fee simple ownership led conservationists to seek other methods of protecting environmental amenities. Similar to government agencies turning from fee simple ownership to regulation, private conservationists looked for regulation like alternatives. Again, property law provided an avenue for increased protection. With a realization that they may be able to secure ecological protection without full property control, conservationists turned to tools like servitudes and conservation easements.

Servitudes Old and New

Servitude law first developed in Rome and came to the United States via England. With servitudes, conservationists shifted their approach. Instead of obtaining as much control over the land as possible, they sought to obtain only such control as they needed. In a mode that looks like private regulation, servitudes enable binding land with environmental restrictions. Servitudes provide an opportunity for private land use restrictions without transferring fee

²⁷ See generally Emma Marris, *RAMBUNCTIOUS GARDEN* (2011).

²⁸ See, e.g., Patrice Franko, *THE PUZZLE OF LATIN AMERICAN ECONOMIC DEVELOPMENT* 565 (3d ed., 2007) (recounting the struggle in Chile when the Conservation Land Trust established the Pumalin Park nature preserve); Jeff Langholz, *Economics, Objectives, and Success of Private Nature Reserves in Sub-Saharan Africa and Latin America*, 10 *CONSERVATION BIOLOGY* 271, 275 (1996) (identifying community opposition as one of the challenges for private nature reserves).

title. Thus, servitudes enable private agreements restricting land use, often creating arrangements that last far into the future.

Easements

The common law of servitudes offers three basic tools for restricting land for conservation purposes: easements, real covenants, and equitable servitudes. Traditionally, an easement is an agreement between two landowners (usually immediate neighbors). Through the easement deed, the easement holder either obtains the right to engage in an action from which the landowner would otherwise be able to bar him (an affirmative easement) or obtains the right to prevent the landowner from engaging in an act she would otherwise be able to legally engage in (a negative easement). Easements differ from contracts because the agreement is between landowners acting as landowners (not as individuals), meaning that the obligations and benefits are associated with the parcel.²⁹ Thus, when the landowner sells her property, the restriction remains in place and binds the new landowner.

Easements can provide an avenue for land protection. With a negative easement, the holder can limit the landowner's ability to degrade her parcel. In theory, a negative easement could prohibit filling in wetlands, planting invasive species, or building new structures on the land. Unfortunately, in many jurisdictions only a few specific purposes are allowed for negative easements, and these usually center on blocking views, light, and running water.³⁰ Affirmative easements have not been limited in the same way as negative easements and may provide a venue for conservation. For example, an affirmative easement could give the holder the right to remove invasive species of plants. However, where the easement holder has no ability to restrict land owner action (unless the action impairs the affirmative right held by the easement holder), it is hard to design an arrangement that yields much environmental protection. Assuming that we can design either an affirmative easement that delivers some level of environmental protection or a negative

²⁹ There are some exceptions to this for cases in which the easement holder is not an adjoining landowner. In such cases, the easement is designated as an "in gross" instead of "appurtenant" easement. In gross easements were prohibited or severely limited at common law. State statutes codifying the common law of easements have retained this dislike of in gross easements and only allow them in a few circumstances. The most common in gross easement is a utility line. With utility lines, the public gas company (for example) owns easements for its pipelines throughout the community even though its actually fee-simple property is not adjoining all those parcels. In gross easements are not always assignable.

³⁰ Given this limitation, it could still be possible to use negative easements to protect environmental values, but only if they can fit under that rubric. Protecting views could serve as a proxy for protecting certain open-space and biological goals but might not help with the prevention of invasive species, for example.

easement that adheres to the jurisdiction's limitations while still providing conservation value, easements can create long term (if not perpetual) conservation restrictions on land.

Easements vary in length. They can last for a term of years, until the fulfillment of an event or task, or even be perpetual. Easements are also terminable—that is, parties to the easement have the ability to change or terminate easements in a variety of ways. While modification through agreement of the parties is common, other events or obstacles tend to result in easement termination rather than modification.³¹

Environmental changes to the landscape on their own may terminate an easement even without agreement of the parties. Under the doctrine of impossibility, an easement terminates when it becomes impossible to fulfill its purposes. It is easy to envision how landscape changes could trigger the impossibility doctrine. Where an easement requires maintenance of a wetland, for example, one could argue that climate changes no longer make a wetland viable on the parcel.³² More subtle cases could also emerge. For example, in an easement prohibiting the planting of nonnative species, what could be done if changes to the landscape altered the plant species that were viable on the parcel? Perhaps the landowner could argue that compliance has become impossible. Thus, where habitat types or land uses change, easement purposes can conflict with the reality of the landscape.

There have not yet been any easement impossibility cases regarding climate change, but two older cases hint at how such legal disputes might emerge and resolve. In the 1891 case of *Weis v. Meyer*,³³ the easement holders sought use of the Mississippi River based on an easement originally associated with their lot (the dominant estate) that was a quarter mile from the water. The defendant's property (the servient estate) was located between the dominant estate and the river. When environmental changes washed away both the dominant and servient estates, the easement holder still sought rights to use the water. In deciding against the easement holder, the court explained that once the dominant estate washed away, the easement went with it. This case indicates

³¹ Generally, easements can be terminated by agreement of the parties, release, abandonment, merger, estoppel, prescription, transfer to a bona fide purchaser without notice, foreclosure, condemnation, fulfillment of purpose, or impossibility. 4 Powell on Property is even one of the listed examples. No idea why they do it this way though] Richard R. Powell, POWELL ON REAL PROPERTY § 34.18 (M. Wolf gen. ed., Matthew Bender, 2010).

³² Depending on the wording of the easement, one might argue that the requirement to maintain the wetland remains despite climatic changes, and now the parties must take on the burden of adding artificial inputs to the land to maintain the previous ecosystem.

³³ 17 S.W. 339 (1891).

that sea level rise (and possibly other environmental changes to the land) may be grounds for terminating easements.

The North Carolina Supreme Court later dealt with the opposite problem. In *Atlantic & North Carolina Railroad Co. v. Way*,³⁴ submerged land became dry land. Because the court found the property right at issue to be an easement in submerged land, it held that the easement extinguished when that land became dry. The easement's purposes—having to do with building wharves—were specific to submerged lands. The court considered the landscape changes to be permanent and held that “[a]n easement may be lost by a permanent change in the condition of the estate so as to render its enjoyment impossible as in this case.”³⁵ The court's opinion reflects a judicial willingness to hold that landscape changes trigger the doctrine of impossibility. As the court reflected, “Where the change in the land or tenement is of such decisive and conclusive a nature that the easement can no longer be enjoyed, it is extinguished. . . .”³⁶ This case indicates that landscape changes can terminate easements, but the permanence of those changes will be an important factor.

Real Covenants and Equitable Servitudes

Easements are not the only servitudes with possibilities for land protection. Real covenants and equitable servitudes could also play a role. Real covenants are promises regarding the land that run with the land and are enforceable at law. A burden or benefit runs with the land when it remains in place even if ownership changes. As with easements, these agreements burden a particular parcel and traditionally benefit another parcel (although not necessarily an adjoining parcel). Equitable servitudes are covenants running with the land that are enforced in equity. That is, equitable servitudes are enforced with equitable remedies (such as injunctions), while courts have traditionally enforced real covenants with damages.

Two related common law doctrines that courts have applied to real covenants and equitable servitudes are the doctrine of changed conditions and the change of neighborhood doctrine. Both are similar to the impossibility doctrine discussed above for easements. The doctrine of changed conditions is triggered when a change “makes it impossible as a practical matter to accomplish the purpose for which the [real covenant] was created.”³⁷ The most common application arises in an economic context when certain land uses or business restrictions no longer make sense in a changed real estate market or

³⁴ 90 S.E. 937, 939 (N.C. 1916).

³⁵ *Id.*

³⁶ *Id.*

³⁷ RESTATEMENT (THIRD) OF PROPERTY (SERVITUDES) § 7.10 (2000).

zoning context. The doctrine of changed conditions generally results in termination of real covenants, not modification to meet changing landscapes or situations.³⁸

When determining whether to apply the doctrine of changed conditions, courts consider, among other things, the original intent of the parties and the foreseeability of the change. Whether landscape changes are foreseeable is not clear. For example, climate change is foreseeable. Although there is debate regarding the degree and exact nature of its impact, studies on climate change are becoming increasingly sophisticated—the availability of information regarding likely effects on the landscape is growing. When a covenant filed today covers land that several studies say will be significantly drier (more arid) in ten years, the conditions have arguably not changed when such changes occur. They have simply continued on their predicted trajectory, and the parties entering into the agreement should have expected such changes to occur.

Courts may choose to terminate equitable servitudes whose purposes have been thwarted by climate change under the change of neighborhood doctrine. Based on changes in the neighborhood (or surroundings), courts determine whether it is equitable to enforce equitable servitudes.³⁹ Equitable servitudes lapse when the restrictions applied to the general vicinity (not just a few parcels) become outmoded or lose their usefulness.⁴⁰ The change must be radical and permanent in nature.⁴¹

New Servitudes: Conservation Easements

Traditional servitudes can protect land, but common law impediments made conservationists hesitant to use them. First, as discussed above, servitudes delineating negative rights (preventing a landowner from acting) are limited to only a few categories. Second, the law generally requires the benefit of a servitude to run with the land as well as the burden. That is, the servitude holder must be a landowner whose land is benefited. This restricts land conservation efforts to situations in which a neighbor is available to argue that the land conservation benefits her property (due to protected views, ecosystem services, etc.). Where servitudes were negative or when a benefit did not run with the land, courts were reluctant to enforce them beyond the

³⁸ However, the Restatement (Third) of Property explains that some courts will first examine whether modification will bring a servitude in line with current conditions while meeting its purposes. *Id.* When modification is not possible, the courts terminate the servitude. *Id.*

³⁹ *Lincoln Sav. & Loan Ass'n v. Riviera Estates Ass'n*, 7 Cal. App.3d 449, 460 (Cal.Ct.App. 1970).

⁴⁰ *Brendale v. Confederated Tribes & Bands of the Yakima Indian Nation*, 492 U.S. 408, 447 (1989).

⁴¹ *Keller v. Branton*, 667 P.2d 650 (Wyo. 1983) (citing 7 THOMPSON ON REAL PROPERTY § 3174 (1962)).

original parties to the agreements. Conservationists wanted something that would last forever, but these rules made servitudes ill suited to that goal.

Many of these onerous seeming rules stemmed from the common law's dislike of restraints on alienability. Common law courts sought to limit restraints on alienability, largely because of fear of locking up land and making it hard to learn about and remove encumbrances that were not obvious or were not held by neighbors. To get around these problems, states passed conservation easement statutes that enabled government agencies and nonprofit organizations to hold perpetual restrictions on land that prevented landowners from acting in otherwise permissible ways with the goal of yielding a conservation benefit. For example, many conservation easements prohibit development. The landowner agrees to limit development on her land, and the conservation easement holder is the entity that can enforce the agreement. In exchange for agreeing to this limitation, the landowner usually receives tax breaks, cash payments, or development permits.

Most conservation easements are perpetual with few mechanisms for change. This means that the present day landowner and conservation easement holder determine the contours of the agreement temporally (by establishing the length of the conservation easement's term), geographically (by establishing the conservation easement boundaries), and ecologically (by establishing the exact restrictions on the land). While some conservation easements incorporate ideas of change or adaptive management through the use of management plans or references to external standards, most assert that the property is to be preserved in its natural state. A reference to a baseline document (required by the IRS for donated conservation easements)⁴² makes it likely that the natural state is assessed by comparison to the state of the property on the day the conservation easement was recorded.⁴³

As illustrated above, servitudes offer some options for protecting private land. These agreements regarding the land resemble contracts and have something in common with land use regulation. Instead of taking ownership of the land, the conservationists restrict land uses. Landowners are compensated for the imposition. Unfortunately, various servitude limitations make them hard to fit to land conservation goals. Servitudes have the ability to last forever and appear to have multiple mechanisms for change. Notably,

⁴² Elizabeth Byers & Karin Marchetti Ponte, *THE CONSERVATION EASEMENT HANDBOOK* 100–115 (2005) (describing conservation easement baseline requirements and offering guidelines for completing a baseline report).

⁴³ For a discussion and critique of baselines, see J. B. Ruhl & James Salzman, *Gaming the Past: The Theory and Practice of Historic Baselines in the Administrative State*, 64 *VANDERBILT L. REV.* 1 (2011).

however, servitudes (perhaps particularly those for land conservation) are more likely to be terminated than modified. That is, the servitude becomes a zero sum game. It is either in place in its present terms or not. Servitudes *appear* flexible and responsive to societal or ecological changes because of the options for modification and termination. In fact, servitudes seem to have a hard time coping with change. When faced with change, the servitude mechanism often lacks flexibility. It simply ends.

THE CONFLICT BETWEEN LAND CONSERVATION EFFORTS AND THE NATURAL WORLD

Our ideas and understanding of nature influence the contours of our law. Property law offers clear examples of this. As our understanding of land and other natural resources has evolved, our laws have changed—sometimes at a slower pace, but law eventually catches up to the changing understanding of the world. Some examples from environmental law and resource management illustrate laws adapting to changes to our understanding of the natural world. For example, in early America, hydrology was an underdeveloped science. People, including judges, did not understand how groundwater worked.⁴⁴ They could not predict where it might be found, how it would flow, or how it might be connected to surface water. Indeed, the 1850 Connecticut Supreme Court explained that the state could not regulate groundwater because “It rises to great heights and moves collaterally, by influences beyond our apprehension. These influences are so secret, changeable, and uncontrollable, we cannot subject them to regulations of law, nor build upon them a system of rules.”⁴⁵ The law of groundwater reflected this. Groundwater was treated like a fugitive resource—like a wild animal. Whosoever could capture the water could use it. There was not a concept that the groundwater below your land might be connected to the creek on your neighbor’s land. As understandings of hydrology increased, law evolved. Now, nuisance law and water law prevent pollution and overdrawing of groundwater because of the acknowledgment that the groundwater is connected to other water.

Wetlands serve as another example. Connected with our lack of understanding of hydrology, we also didn’t understand the value and function of wetlands. We called them swamps, and law supported removing them. We

⁴⁴ See Robert Glennon, *WATER FOLLIES: GROUNDWATER PUMPING AND THE FATE OF AMERICA’S FRESH WATERS* 24–31 (2002) (citing an 1850 Connecticut Supreme Court case explaining that the laws governing the “existence and progress” of groundwater could not be known or regulated).

⁴⁵ See *id.*

viewed it as an improvement in land to actually drain wetlands and convert them to dry land. Coming from a European agrarian tradition, the highest value of the land was to make it arable. The same features previously vilified are today embraced. Now we call them wetlands and have state and federal laws that strive to protect them, not convert them to other uses.⁴⁶

We see changing understandings of the natural world in land management practices as well. For example, the U.S. Forest Service and National Park Service go to great efforts to conduct controlled burns on federal lands. This seems surprising in light of previous policy suppressing fire. The agencies' views changed as they learned more about the importance of fire ecology. Understandings of invasive species have changed over time as well. There are many stories in which introduced nonnative invasive species led to unintended consequences. Zebra mussels clog the Great Lakes,⁴⁷ kudzu covers the South,⁴⁸ rabbits overpopulate Australia,⁴⁹ and water hyacinths wreak havoc on Lake Victoria.⁵⁰ Learning from these ill advised introductions has increased the caution land managers use when bringing in nonnatives and the diligence used to remove nonnatives and invasive species. Attitudes toward invasives may begin to shift again. With climate change we now see that some "invasives" or nonnatives may be the plants best suited to the habitat. All in all, one thing we have learned for certain is that we are relatively poor predictors of likely ecological consequences of our laws and actions.⁵¹

These examples from different ecosystems illustrate a pervasive underlying mismatch between our idea of the natural world and how that world actually works. We believe nature is something we can confine and control. We do this spatially in obvious ways, but we also do it temporally. We believe that we can decide today what the land should look like—establish rules to govern it today and then leave them in place in perpetuity. Even when hubris leads us astray

⁴⁶ See, e.g., Clean Water Act § 404, 33 U.S.C. 1344 (prohibiting discharges of fill material into wetlands), Swampbusters Provision of the Food Security Act of 1985 (P.L. 99-198) (discouraging the conversion of wetlands to cropland).

⁴⁷ Liba Pejchar & Harold A. Mooney, *Invasive Species, Ecosystem Services and Human Well-Being*, 24 TRENDS ECOLOGY & EVOLUTION 497, 500 (2009).

⁴⁸ *Id.* at 501.

⁴⁹ Piran C. L. White & Geraldine Newton-Cross, *An Introduced Disease in an Invasive Host: The Ecology and Economics of Rabbit Calicivirus Disease (RCD) in Rabbits in Australia*, in THE ECONOMICS OF BIOLOGICAL INVASIONS 117 (Charles Perrings, Mark Herbert Williamson, & Silvana Dalmazzone eds., 2000).

⁵⁰ Pejchar & Mooney, *supra* note 47 at 498. ("For example, the introduction of water hyacinth (*Eichhornia crassipes*) into Lake Victoria has reduced the production and quality of fish, obstructed waterways and boat movement, damaged water supply intakes, contributed to the spread of water-borne diseases and increased water loss through evapotranspiration.")

⁵¹ Dave Owen, *Probabilities, Planning Failures, and Environmental Law*, 84 TULANE L. REV. 265 (2009).

and we get into trouble because nature wasn't as fixed as we thought, we still tend to take up a new stable position. In the past, planners assumed stable conditions or at least stable enough that we could use current records for planning purposes. That assumption has proven false.⁵² Government programs failed to consider potential impacts of climatic changes or increased frequency of weather events.⁵³

This attitude may, in fact, align with developments in ecology. Early writers on ecological dynamics, recognizing the importance of change, described a succession regime in which ecosystems shifted until they reached a stable climax state.⁵⁴ Later researchers argued that multiple stable states exist.⁵⁵ Indeed, some resiliency theorists suggest that healthy ecosystems have the ability to respond to changes by reaching alternative stable states. More recent articles suggest that this search for stability is futile in a dynamic world.⁵⁶ Lawmakers seem to follow a similar approach. Early efforts identified a goal of protecting particular features or ecosystems without a notion that the landscape could be suited to multiple features or ecosystems. More recent efforts are approaching a "save the stage" approach in which we set aside areas with few rules with hopes that the protected area will serve whatever evolving ecosystems develop on the parcel.

There have been calls to make our environmental laws and regulations more responsive to change. Alejandro Camacho and others have called on the federal government to incorporate ideas of adaptive management into our environmental laws.⁵⁷ This is challenging to do because it requires us to rethink our laws. We can no longer just write a law and then move on to the next task. An adaptive management approach requires continual engagement with the natural world. It also means we cannot be too attached to the laws and regulations we establish. We must be willing to change them. This is hard to accept because revisiting a law is another chance to weaken environmental protection. Adaptive management is not an approach well aligned with either

⁵² Daniel A. Farber, *Uncertainty*, 99 GEO. L. J. 901, 944 (2011).

⁵³ *Id.* (specifically naming FEMA's flood-control program and the Federal Crop Insurance Corporation).

⁵⁴ See generally Frederic Clements, *PLANT SUCCESSION* (1916).

⁵⁵ See, e.g., Robert H. Whittaker, *COMMUNITIES AND ECOSYSTEMS* (1975).

⁵⁶ See Kaye Booker, Lynn Huntsinger, James W. Bartolome, Nathan F. Sayre, & William Stewart, *What Can Ecological Science Tell Us About Opportunities for Carbon Sequestration on Arid Rangelands in the United States?* 23 GLOBAL ENVTL. CHANGE 240, 241 (2012).

⁵⁷ Alejandro E. Camacho, *Adapting Governance to Climate Change: Managing Uncertainty Through a Learning Infrastructure*, 59 EMORY L. J. 1 (2009); Alejandro E. Camacho, *Assisted Migration: Redefining Nature and Natural Resource Law Under Climate Change*, 27 YALE J. ON REG. 171 (2010).

our environmental or property laws. There is an ease and attraction to setting rules today that we need not think about again.

Beyond considering how environmental laws can be reflexive and adaptive, we must see what lessons we can learn for property law. The above examples demonstrate changes to law or policy where our understanding of nature changed, and then our laws and policies followed suit. This is particularly easy to track with environmental laws and public land management techniques; it is less evident in property law. Let's go back to the servitudes and conservation easements described previously. With all three of these land conservation approaches, conservationists seek perpetual restrictions. They all involve establishing rules today that will persist. The tools are accompanied by different methods of change. As detailed above, the rules regarding servitudes anticipate possible changes to the land but are more likely to terminate the land protection than to shift with the changing landscape or social circumstances. Conservation easements are more likely to come at the problem from the opposite direction. Both traditional servitudes and conservation easements involve perpetual restrictions usually guided by efforts to protect the land as it appears today and serving today's ecosystem functions. The restrictions do not bend or break. They remain on the land even when conservationists and courts may not view that as the best strategy. The tools focus on perpetual land restrictions, and the proponents of the tool praise "perpetuity" as the saving grace of conservation easements.⁵⁸ It becomes hard to reconcile this focus on perpetual rules as the best method of land protection when the natural world is ill suited to such a regime.

In the permanence versus flexibility dance, conservation easement proponents have valued permanence over flexibility. There are likely many reasons we cling to this idea that perpetuity is the best way to achieve long term land protection. This chapter considers four principal justifications. First, there is an ease in establishing rules today and then shelving the problem. Second, we are ill equipped to predict change. Third, our current legal tools are bad at change. Fourth, change is hard to face psychologically. I consider each in turn.

Humans are not good predictors of change, simply because it is hard to know what the future holds. Combined with this lack of information is an optimism bias. We have proven to be bad at valuing the future because we tend to think things are going to work out better than they are likely to work out. We see this manifest in how we value the future. Under discounting theory, as problems get farther away either geographically or temporally, we

⁵⁸ At the annual meeting of the Land Trust Alliance, it is common to see t-shirts, buttons, and posters extolling the virtues of perpetuity. At the 2012 meeting, well-known conservation easement attorney Stephen Small handed out buttons with the slogan "Perpetuity Dammit!"

perceive the problem as less important.⁵⁹ Temporal biases seem particularly important when considering land conservation because “ecological problems characteristically occur slowly and have long lasting consequences.”⁶⁰ Such characteristics are hard to conceive of and deal with. We discount the future partially because it isn’t concrete enough for us.⁶¹

Our current legal tools struggle when responding to change. For example, the mechanisms for changing servitudes tend to result in termination of servitudes. That is, our property tools are so brittle, when faced with change they tend to break more than they bend. Consider the public trust doctrine. Most states acknowledge a public property right in the beach up to the ordinary high water mark.⁶² As that high water mark moves with sea level rise, the public trust doctrine should shift to encompass new areas. This rolling easement concept is part of a longstanding doctrine, yet courts are reluctant to use it to justify changing boundary lines.⁶³ Our legal mechanisms don’t like change because the rules are too hard to amend and accommodate. This appears particularly true with property law because of our associations with property and our hesitation about diminishing any individual’s right to real property.

Change is also hard to face emotionally and psychologically. There is apathy (and at times actual paralysis) when problems seem too big.⁶⁴ The level of change scientists are predicting to result from climate disruption is

⁵⁹ See Nira Liberman & Yaacov Trope, *The Role of Feasibility and Desirability Considerations in Near and Distant Future Decisions: A Test of Temporal Construal Theory*, 75 J. PERSONALITY & SOC. PSYCHOL. 5 (1998) (also describing a tendency to focus on future desired states without consideration of the feasibility of reaching those states). But see Marc Scholten & Daniel Read, *The Psychology of Intertemporal Tradeoffs*, 117 PSYCHOL. REV. 925 (2010) (arguing that a tradeoff model is better at describing the psychological decision making than the traditional discounting model).

⁶⁰ Robert Gifford et al., *Temporal Pessimism and Spatial Optimism in Environmental Assessments: An 18-Nation Study*, 29 J. ENVTL. PSYCHOL. 1, 2 (2008).

⁶¹ Janet Swim et al., PSYCHOLOGY & GLOBAL CLIMATE CHANGE: ADDRESSING A MULTIFACTOR PHENOMENON AND SET OF CHALLENGES, 42, available at APA <https://www.apa.org/science/about/publications/climate-change-booklet.pdf> (A Report of the American Psychological Association Task Force on the Interface Between Psychology and Global Climate Change [hereinafter “APA Report”]); see also Lisa G. Aspinwall, *The Psychology of Future-Oriented Thinking: From Achievement to Proactive Coping, Adaptation, and Aging*, 29 MOTIVATION & EMOTION 203 (2006) (introducing and describing the journal’s special issue on future-thinking).

⁶² The contours of the doctrine vary by state. Robin Kundis Craig, *A Comparative Guide to the Eastern Public Trust Doctrine: Classifications of States, Property Rights, and State Summaries*, 16 PENN. STATE ENVTL. L. REV. 1 (2007); Robin Kundis Craig, *A Comparative Guide to the Western States’ Public Trust Doctrines: Public Values, Private Rights, and the Evolution Toward an Ecological Public Trust*, 37 ECOLOGY L. Q. 53 (2010).

⁶³ See *Severance v. Patterson*, 370 S.W.3d 705 (Tex. 2012).

⁶⁴ APA Report, *supra* note 61, at 85.

so significant that some argue it is too big to get our heads around. The global environment simply encompasses more than humans can understand.⁶⁵ When problems are too big for us to grasp, we create legal (and natural world) fictions that make the world workable.⁶⁶ On some level this denial is helpful.⁶⁷ It is what helps us create models and decide on strategy in a society in which information is always necessarily incomplete.⁶⁸

Consider two fictions that have propelled property tools for land conservation: (1) we have the ability to make perpetual enforceable restrictions and (2) ecosystems are relatively static. When these assumptions are examined, one sees quickly that they are not true. However, such assumptions have facilitated land conservation. The likelihood of conservation easements lasting forever is nil, but planning for them to last forever may be good policy. Indeed, the IRS even acknowledges that perpetual conservation easements may end, and most state conservation easement statutes (even in those states requiring perpetuity) have mechanisms for amending and/or terminating conservation easements. And, although the case law in this area is still developing, most conservationists operate with the understanding that a future court (or even a local government exercising eminent domain) could bring an end to the conservation easement or other servitude with a stroke of a pen.

Alongside the assumption that perpetuity is a meaningful (and worthwhile) concept is an assumption that restricting land today results in preservation of today's ecosystem. Conservation easements and other servitudes often go to great lengths to describe the state of the property and establish rules regarding use of the property. Where the greatest likely harm to the ecosystem is development of the parcel, restrictions prohibiting building permanent structures on the land (the most common type of conservation easement) are likely to yield environmental and social benefits.⁶⁹ Yet conservation easements also

⁶⁵ Gifford et al., *supra* note 60, at 2.

⁶⁶ See generally Stanley Cohen, *STATES OF DENIAL: KNOWING ABOUT ATROCITIES AND SUFFERING* (2000).

⁶⁷ Richard S. Lazarus, *The Costs and Benefits of Denial*, in R. S. Lazarus, *FIFTY YEARS OF THE RESEARCH AND THEORY OF R. S. LAZARUS: AN ANALYSIS OF HISTORICAL AND PERENNIAL ISSUES* 227 (1998) (asserting that sometimes "illusion is necessary to positive mental health"); Peter J. Smith, *New Legal Fictions*, 95 GEO. L. J. 1435 (2007).

⁶⁸ See Martin Weber, *Decision Making with Incomplete Information*, 28 EUR. J. OPERATIONAL RES. 44 (1987).

⁶⁹ Although not necessarily, where conservation easements trump local land use decision making, these restrictions can prevent development and other worthwhile land uses. For example, conservation easements in Jackson Hole, Wyoming, are an obstacle to development of affordable housing while providing questionable environmental benefit. See Ray Ring, *Paradise at a Price*, HIGH COUNTRY NEWS 12, 14 (June 10, 2013) (describing the small amount of land available for affordable housing and the restriction of over a fourth of that land with conservation easements).

commonly contain provisions regarding acceptable plants, rules about water courses, and prohibitions on land alteration of any kind.⁷⁰ Such restrictions may be hard to comply with (or compliance with them may not be the right choice ecologically) in the future, but their presence in the servitude at least gets the landowner and conservation easement holder to discuss and assess future actions on the land.

While the disconnect between property law tools and nature is understandable (and in some cases enables land protection where none would have previously occurred), the very structure of these tools hampers application of principles of resilience thinking and adaptive management. The restrictions are supposed to be perpetual and they lack mechanisms for changing goals or even updating strategies based on new information. While some academics have proposed mechanisms for more responsive conservation easements,⁷¹ there is still little indication of how legislatures or courts will address such proposals.

CONCLUSION

Conservation biology and ecology (as well as our eyes and ears) tell us that nature is in a constant state of flux. To address this, land conservation efforts must confront the tension between permanence and flexibility. Just as increasing information about the world helps us develop improved land protection strategies, improved understanding of the perpetuity problem may help us develop more responsive property law protections. Land protections and conservation strategies must have staying power to be meaningful. A conservation approach that does not protect the ecosystem for long has little to offer. For example, if land conservationists paid a developer to protect forestland on its property, the agreement might have minimal impact if two years later a new landowner was able to clearcut the forest and degrade the habitat. Long term land protection, however, must also retain some degree of flexibility. Land use restrictions that ignore the potential of a changing ecosystem (or even increasing information about an ecosystem) will also fail to yield hoped for environmental benefits.

⁷⁰ Jessica Owley, *Conservation Easements at the Climate Change Crossroads*, 74 LAW & CONTEMP. PROBS. 199 (2011).

⁷¹ See, e.g., Nancy A. McLaughlin, *Conservation Easements: Perpetuity and Beyond*, 34 ECOLOGY L. Q. 673, 707 (2008) (proposing terminable conservation easements); W. William Weeks, *A Tradable Conservation Easement for Vulnerable Conservation Objectives*, 74 LAW & CONTEMP. PROBS. 229 (2011).

Yet models of land conservation focus on preserving the present state of land in perpetuity. Conservationists want long term land protection, but for it to be meaningful land protection, there must be some flexibility in the management and rules governing the land. While we have developed legal mechanisms with long term (asserted to be perpetual) protections, we struggle with facilitating the needed flexibility. In fact, in the realm of private land protection, the legal tools are relatively inflexible static mechanisms. Legal concepts that center on the status quo turn a blind eye to the fact that nature is ever changing.