THE INVISIBLE FOREST: CONSERVATION EASEMENT DATABASES AND THE END OF THE CLANDESTINE CONSERVATION OF NATURAL LANDS

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I
THE INVISIBLE FOREST

For the purposes of this article, the phrase "invisible forest" refers to forest lands—and, for that matter, any other land types—protected by a perpetual conservation easement, the existence and location of which are concealed from the public, whether deliberately or because of the opaque nature of the easement process. This is not to say that conservation easements can be completely hidden from the public. Because easements, like other forms of deeds, must be recorded at the local land registry or recorder's office, they can never be made undiscoverable. But, despite the efforts of some states and conservation organizations to compile conservation easement data for public consumption, there are few functional systems that comprehensively track and provide easy access to conservation easement data.[1] After addressing the question of whether the existence, location, and other information related to conservation easements should be concealed or disclosed to the public through databases, this article provides updates on recent, ambitious efforts to gather,

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1. DEVELOPING, IMPLEMENTING AND SUSTAINING A NATIONAL CONSERVATION EASEMENT DATABASE, A PROPOSAL TO: U.S. ENDOWMENT FOR FORESTRY AND COMMUNITIES 1, May 2007 (on file with author). For a recently published article addressing public access to information tracking conservation easements on private property, see Amy Wislon Morris & Adena R. Rissman, *Public Access to Information on Private Land Conservation: Tracking Conservation Easements*, 2009 WIS. L. REV. 1237 (2009).

organize, and make available to the public conservation easement data on a state-by-state basis and, ultimately, national basis through the use of databases and datasets.

II
CONSERVATION EASEMENTS AND LAND TRUSTS

A. Conservation Easements

Conservation easements are, in many ways, remarkable legal instruments. They protect land from development; they have solid legal underpinnings; they are voluntary; they generate income or create tax deductions for landowners that grant them; and, most remarkable of all, most are intended to last forever.[2] Functionally, conservation easements resemble privatized and individualized zoning and land use restrictions or, seen in another light, a form of privatized environmental regulation.

In terms of format, conservation easements resemble long and complex contracts. Like contracts, they are legally enforceable agreements between two or more parties (most often between a landowner and a land trust—to be defined later). Also like contracts, they typically have many exhibits and contain a great deal of boilerplate.

In name, conservation easements are easement grants. Like grant deeds, they are recorded in the encumbered property's chain of title and show up on title reports. Also like grant deeds, they contain language in which the owner of the underlying land "grants" to another entity the rights specified in the easement. In this sense, of splitting off certain rights from those the landowner originally possessed, conservation easements fit nicely into the metaphor of land consisting of a bundle of rights that, like a bundle of sticks, may be broken off and transferred to another party. Unlike deeds, however, which generally convey an ownership interest, conservation easements also convey the right of a non-landowner party to enforce restrictions against the landowner granting the conservation easement.

Although conservation easements have deed-like qualities and fit nicely within the bundle-of-sticks metaphor, they do not fit well within the common law of property. For example, conservation easements are granted not to adjoining landowners, like common law easements (referred to as appurtenant easements), but instead to non-landowner parties, whether land trusts or governmental entities. Thus, conservation easements are "in gross," a form of easement disfavored at common law. Also, conservation easements are negative covenants, still another form of easement at odds with the common law of property.

To overcome the legal obstacles of the common law of easements, states have enacted conservation easement enabling laws, a number of which are

2. Some states allow nonperpetual conservation easements; however, most conservation easements are perpetual.

based on the Uniform Conservation Easement Act (UCEA).[3] The UCEA has the express purpose of "sweeping away certain common law impediments which might otherwise undermine the easement's validity"[4] and provides a template of a statutory enabling law which individual states are free to adopt as is or to modify to meet their particular needs, all with the purpose of creating a statutory basis for conservation easements. As of this writing, approximately twenty-seven states and the District of Columbia have adopted the UCEA in essentially its original form whereas most of the remaining states have enacted enabling acts based on the UCEA or containing provisions similar to those in the UCEA.[5]

Conservation easement creation is sometimes referred to as a process of private negotiations between private parties. In truth, however, conservation easement transactions are seldom, if ever, private. One reason for this is that most enabling laws require the holder to be a public entity or a nonprofit section 501(c)(3) corporation whose mission is to create, hold, and monitor conservation easements. Because nonprofits are corporations released from the payment of most taxes because they serve public, charitable purposes, any conservation easement transaction with a nonprofit land trust is to some extent subsidized by the public. An even greater form of public subsidy of easements occurs when landowners take advantage of federal and state tax laws that provide for income tax deductions (and in some states credits) for donating conservation easements that meet specific criteria. Likewise, many federal, state, and local governments directly subsidize conservation easement creation by providing funding for their purchase.[6] Another form of public subsidy occurs when state attorneys general and courts enforce conservation easement restrictions. Although it is beyond the scope of this article, at least some conservation easements are further subsidized at the local level when tax assessors value the subject land at lower levels than otherwise comparable properties.

When one considers conservation easements' public nature and the millions of acres they encumber, purportedly in perpetuity, the lack of a publicly accessible means of locating them and determining their attributes on an easement-by-easement basis prevents their being fully utilized for the public good. There are many powerful arguments for the creation of publicly

3. UNIF. CONSERVATION EASEMENT ACT (amended 2007), *available at* http://www.law.upenn.edu/bll/archives/ulc/ ucea/2007_final.htm (2007).

4. *Id.* comm'rs pref. note.

5. Robert H. Levin, Esq., A Guided Tour of the Conservation Easement Enabling Statutes 7 (Jan. 2010) (unpublished survey supported by the Land Trust Alliance), *available at* http://www.landprotect.com/files/40986307.pdf.

6. For a sophisticated examination of the interplay of public and private subsidies for the creation and management of conservation easements, see A.M. Merenlender et al., *Land Trusts and Conservation Easements: Who Is Conserving What for Whom?*, 18 CONSERVATION BIOLOGY 65 (2004).

accessible conservation easement databases,[7] which in almost every instance prevail over arguments to the contrary. Also, the need for transparency in the creation and maintenance of conservation easements has been recognized by a number of major institutions in the land protection movement—institutions that have already taken bold steps to create a national conservation easement database.

B. Land Trusts

Under most conservation easement enabling acts, and also under federal and state laws providing tax incentives for the donation of conservation easements, the conservation easement holder must meet certain requirements. Under many enabling acts, a governmental entity or a Native American tribe may hold a conservation easement. Perhaps more common as easement holders, and important for the purposes of this article, are land trusts. Land trusts are section 501(c)(3) nonprofit corporations whose stated mission is the preservation of land for natural, ecological, scenic, recreational, or historical purposes. While minor differences may exist in the definition of a land trust in state enabling laws, virtually all states authorize land trusts to hold conservation easements.[8] As of this writing, there are approximately 1,700 land trusts in the United States, of which 1,200 are members of the Land Trust Alliance (a national organization promoting the work of land trusts) with most concentrated on the east and west coasts.[9] Based upon a Land Trust Alliance survey conducted in 2008, and estimates of subsequent increases in the total acreage in 2009, it is estimated that land trusts hold approximately ten million acres of land under conservation easements.[10]

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7. Databases can consolidate and organize many forms of data, from paper documents, to books to photographs—the list is nearly endless. The more current use of the term is to refer to a collection of data that has been digitized and is stored and viewed or retrieved from a computer. Because digital media can hold enormous amounts of information and are easily transportable and stored, they create a near-perfect system for the storage of the tremendous amount of data regarding protected land in the United States and the world.

8. For discussions of conservation easement law and practice, with additional discussions regarding potential reforms, see JEFF PIDOT, REINVENTING CONSERVATION EASEMENTS: A CRITICAL EXAMINATION AND IDEAS FOR REFORM (Lincoln Inst. of Land Policy 2005), http://www.lincolninst.edu/pubs/dl/1051_Cons Easements PFR013.pdf; Nancy A. McLaughlin, *Rethinking the Perpetual Nature of Conservation Easements*, 29 HARV. ENVTL. L. REV. 421 (2005). For a comprehensive overview of land trusts that hold conservation easements, see RICHARD BREWER, CONSERVANCY: THE LAND TRUST MOVEMENT IN AMERICA (2003); SALLY K. FAIRFAX & DARLA GUENZLER, CONSERVATION TRUSTS (2001); PROTECTING THE LAND: CONSERVATION EASEMENTS PAST, PRESENT, AND FUTURE (Julie Ann Gustanski & Roderick H. Squires eds., 2000).

9. Email from Russ Shay, Dir. of Public Policy, Land Trust Alliance, to author (Nov. 4, 2010, 14:21 PST) (on file with author).

10. *Id.*

III

WHY SHOULD WE NOT DISCLOSE MORE?

Some lands under conservation easements are open to the public. Arguably, this is as it should be because the creation of a conservation easement is always, to some extent, subsidized with public funds. Indeed, some conservation easements have as a primary conservation value the creation of recreational opportunities for the public. Nevertheless, though there is no hard data, it appears that most lands encumbered by conservation easements are not open to the public. Reasons for this include protection of the landowner's privacy, protection of fragile species and habitats, and a desire to avoid the management and liability issues associated with public utilization.

A primary concern among landowners and holders of conservation easements that do not allow access to the protected land is that the disclosure of information regarding the existence and location of conservation easements—at least in the absence of additional information explaining that the underlying land is closed to the public—may result in unwanted intrusions by trespassers. There is logic to this concern. The very existence of a conservation easement suggests to many that the land it protects is some sort of public park. If signage on the perimeter of the land indicates that the easement was purchased with public funds, some may believe that the land is (or should be) open to the public. Even signage indicating that the eased land was protected using funds from a charitable foundation may be read as an invitation for public use. In a worst-case scenario, trespassers may damage the property and the conservation values the easement was intended to protect. The following brief discussions describe several potential trespasser scenarios.

A. Recreationists

As many landowners and land trusts fear, one category of individuals that likely has an interest in knowing of the existence and location of conservation easements involves recreationists looking for new places to "play." This group includes low-impact users, such as bird watchers, amateur botanists, hikers, and backpackers. However, some members of this broad group are more likely to cause damage than others—for example, mountain bikers, horseback riders, and collectors of natural objects (for example, rock collectors). Also having potentially substantial impacts on the land are fishermen, hunters, and trappers. Overnight campers, especially those who use campfires, are even more problematic. Among the highest impact users are devotees of all-terrain vehicles and dirt bikes (off-road motorcycles). While some of the recreationists described above might be tolerated, the motorized vehicle users, with few exceptions, are anathema to the values held dear by landowners and land trusts.

B. Scientists

Scientists, let us hope, are a more benign category of those having an interest in the existence and location of conservation easements. For example, conservation biologists wishing to monitor climate change-caused biological events like species migrations, species extinctions, and changes in biodiversity could be expected to be interested in undeveloped and relatively protected natural areas where they could do field work and monitoring. Likewise, paleontologists, archeologists, geologists, biologists, entomologists, and climatologists could be expected to look to lands protected by conservation easements as locations for gathering scientific data.

To the same effect, social and political scientists likely would be interested in distributions of conservation easements across various scales (for example, local, state, regional, and national), the spectrum of purposes of conservation easements, the availability of public access to easement lands, and the degree of public utilization of easement lands. Financial data of interest might include sources and amounts of funding for conservation easement acquisitions and costs of monitoring and stewardship. Whether such financial information could be required to be reported or at least made public—for example under freedom-of-information laws—is unclear. Subject to privacy limitations, opportunities should be considered for assembling all of the above categories of information, making it possible to generate cost–benefit analyses based on the direct and indirect costs of conservation easements compared to their public benefits.

C. Climate Change Refugees

Because the vast majority of climatologists, conservation biologists, and other scientists in related fields have reached consensus that we have entered an age of anthropogenic global warming and climate change,[11] there may be another category of conservation easement trespassers—namely, displaced

11. For a recent institutional report on climate change in the United States, see U.S. GLOBAL CHANGE RESEARCH PROGRAM, GLOBAL CLIMATE CHANGE IMPACTS IN THE UNITED STATES (Thomas R. Karl et al. eds., 2009), *available at* http://www.globalchange.gov/us-impacts (a candid report commissioned by the George W. Bush Administration). For the most comprehensive collection of global warming data and analysis to date, see INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007 (2007), *available at* http://www.ipcc.ch/publications_and_data/publications_and_data_reports.shtml (also known as the "Fourth Assessment Report"); INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: SYNTHESIS REPORT (2007), *available at* http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_synthesis_report.htm (providing a summary of the Fourth Assessment Report). The Fourth Assessment Report is updated in the publication, INT'L ALLIANCE OF RESEARCH UNIVS., SYNTHESIS REPORT: CLIMATE CHANGE: GLOBAL RISKS, CHALLENGES & DECISIONS (2d ed. 2009), *available at* http://climatecongress.ku.dk/pdf/synthesisreport (developed for the United Nations Framework Convention on Climate Change meeting held in Copenhagen in December, 2009). See also Wilfried Thuiller, *Climate Change and the Ecologist: The Evidence for Climate Change Now Seems Overwhelming*, 448 NATURE 550 (2007) for an overview of climate change, its expected effects, and global evidence to date.

persons or, to use a more accurate descriptor, climate change refugees. Perhaps the most likely scenario of this type envisions that climate change will cause sea levels to rise to the point that residential and agricultural lands become permanently flooded, thereby causing human migrations to unoccupied lands, such as those protected by conservation easements, in search of habitation, food, fuel, and other necessities.[12] Indeed, we have already experienced climate change refugees on a small scale in the displacement of thousands of people in the aftermath of Hurricane Katrina.

D. Data Mining Developers

There is one additional type of consumer of conservation easement data that has the potential to greatly undermine land conservation efforts and thus deserves special mention. This category is comprised of land developers seeking to purchase conservation lands at reduced prices with the intent to later "break" the easement restrictions so that they can develop the lands. These developers would evaluate conservation easements on otherwise highly developable lands for legal weaknesses that could be exploited to result in the termination or extinguishment of the easement. These individuals will benefit from indexing or databasing that makes it easier to locate easement lands and to review easement documents.[13] "Mining" for legally vulnerable conservation easements is made more likely because, often, conservation easements protect relatively pristine and beautiful lands—in other words, lands most likely to appeal to developers seeking unique properties attractive for sale at a premium price. Precursors to this species of developer are land speculators currently profiting from the conservation easement process. These easement packagers purchase underpriced lands with high scenic, ecological, or natural values. They then sell or donate conservation easements on these lands, which brings in a high rate of financial return. Finally, they find conservation buyers—typically, wealthy individuals willing to pay top dollar for relatively untouched natural lands to turn into a country estate or ranchette. Such developers thus receive a "double dip" of profits from transacting in easement lands.

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12. Alex de Sherbinin et al., *Casualties of Climate Change*, SCI. AM., Jan. 2011, at 64, 64 ("Shifts in rainfall patterns and shorelines will contribute to mass migrations on a scale never before seen.").

13. *See* James L. Olmsted, *Capturing the Value of Appreciated Development Rights on Conservation Easement Termination*, 30 ENVIRONS ENVTL. L. & POL'Y J. 39, 58–59 (2006–2007) (explaining how a developer might profit from purchasing lands encumbered by a conservation easement, terminating the easement, paying the easement holder its fair share, and still having enough value in the property to develop or sell it at a profit); *see also* McLaughlin, *supra* note 8, at 494–95 (noting that "[e]asements valued in the hundreds of thousands and even multiple millions of dollars are increasingly common, and the prospect of realizing even a modest percentage of that value upon extinguishment would likely induce landowners and speculators alike to try their hand at 'breaking' easements") (footnotes omitted).

E. The Public Is the Enemy: Concerns of the Land Trust Community

That land trusts share a number of the concerns just discussed is evident from an informal survey conducted on the Indiana University LandTrust Listserv.[14] For example, the Utah Open Lands Trust denies requests for information regarding the location of its conservation easements unless the easements allow public access. The stated purpose for protecting such information is that the Utah Open Lands Trust considers such easements "private," presumably out of respect for easement grantors' privacy rights and rights to quiet enjoyment of their land. Likewise, the Land Trust for Santa Barbara County does not publicize the location of its conservation easements out of respect for the privacy of ranch and farm owners who have granted easements. A concern expressed by this land trust is that publicizing the existence and location of a conservation easement would likely result in people believing they can "just show up and hike."[15] Texas-based Valley Land Fund does not publicize the location of its conservation easements absent express permission from the grantor. Among the land trust's reasons for restricting such information is to avoid trespassing by members of the public—who, it is said, would be likely to abuse the conservation values of the property. Another reason is the documented problem of poaching of deer and other wildlife in this land trust's service area. A third concern is that, because its easement holdings are near the Mexican border, they could be exploited by illegal aliens seeking to cross the border. Such concerns are exacerbated by the fact that many of the landowners involved are absentees.

An interesting middle ground is found in the disclosure policies of The Manada Conservancy in Pennsylvania. This land trust participated in a county-level inventory of protected lands. The land trust provided locations of its easement holdings, which were then included in a large map. Although The Manada Conservancy chose to publicize the location of its easements, it also required that, on the map, those easement lands not open to the public be designated as "private" and not available for public use. Another form of middle ground is that followed by the Sycamore Land Trust. Because it holds no conservation easements that allow public access, and is concerned about encouraging trespassers, it publishes newsletters announcing its newly acquired easements but provides only general information about their location.

Among respondents to the informal survey was a landowner who has granted a conservation easement on her property. This landowner explained,

> I can attest that many who like to hike will use any colorable excuse to justify their presence on land to which they are not invited and have no right to be. . . . There are many who prefer not to bother asking permission and who insist they are entitled to be there because it is a preserve or because they were there once before on a hike or

14. All responses to the survey were solicited on the Indiana University LandTrust Listserv in October, 2010, and are in the author's possession. The names of individuals responding to the survey are withheld as confidential.

15. *Id.*

> because it is beautiful or because they heard there was some kind of easement on the land or just because they think they should be allowed to do whatever they please. . . . Trespassers cause harm to land and harm to themselves, and . . . the land trust community should not enable them.[16]

IV
WHY WE SHOULD DISCLOSE MORE

A. Avoiding Stealth Land Use Planning

Nowhere does the invisibility of conservation easements elicit more consternation than in the land use and zoning processes.[17] Most city and county governments are charged with creating land use plans to provide for future land utilization. The failure of planners to adequately accommodate future residential, retail, commercial, industrial, and open space needs can result in social, economic, political, and environmental ills.

Because the land use planning process cannot reasonably involve title searches of every land parcel, planning efforts can be frustrated or contradicted by the presence of land under a conservation easement that cannot be developed at all, let alone in the fashion the planners may designate. For example, planners may establish a seemingly suitable area for residential use, only to discover that the area is subject to a perpetual prohibition of such use under a conservation easement. An associated problem stemming from lack of knowledge about the location of easement lands is that land use planners may designate open space and recreational areas when these uses are already provided for in nearby areas as the result of conservation easements. In such a case, land that could otherwise have been designated for needed low-income housing, for example, is instead needlessly designated for uses made redundant by pre-existing conservation easements. In sum, the encumbrance of large areas and strategic locations under conservation easements can make planning difficult, particularly where these areas are unknown to planners. In such cases, it is fair to think of easement deployment as a form of stealth land use planning in which private parties make decisions about land use that will literally last into perpetuity.[18]

That conservation easements, and the invisible forests they create, can and do undermine public planning processes strongly suggests the need for a conservation easement registry or other method of making conservation easements known to, at least, land use planners. In addition to providing information about the existence and location of conservation easements

16. *Id.*

17. Wilson Morris & Rissman, *supra* note 1, at 1244–48.

18. *See* Julia D. Mahoney, *Land Preservation and Institutional Design*, 23 J. ENVTL. L. & LITIG. 433, 436 (2008); Julia D. Mahoney, *Perpetual Restrictions on Land and the Problem of the Future,* 88 VA. L. REV. 739, 750–52 (2002) (discussing perpetual conservation easements and their long-term impacts on land use).

(making the invisible forest visible), land trusts also frequently possess information unavailable from any other sources, such as flora and fauna existing on a particular site, wildlife migration routes, or the presence of historical and archaeological assets. The best way of thinking about the information exchange between land use planners and land trusts is that it is a two-way street: Each has the means of assisting the other. Indeed, the information-feedback loop is even more mutually beneficial given the new impetus of both the land trust community and land use planners to involve science in the land use planning process—in particular, climate change science and conservation biology[19]—as well as the increased focus of land trusts on landscape-level conservation. Land trusts have a potentially enormous role to play by infusing site-specific information into the land use planning process, while land use planners can play an invaluable role in assisting land trusts in strategic planning for landscape conservation.[20]

There is also at least an academic movement to place conservation easement practice within the context of land use planning by requiring proposed easements to be subject to a public approval process.[21] While the possibility exists that a public hearing process may draw out opponents to a given conservation easement, such negative outcomes remain conjecture; indeed, there is evidence to the contrary—namely, that many individuals are delighted to see the land around them protected in perpetuity by a well-planned conservation easement.[22] Moreover, apparently one state, Massachusetts, currently requires a public approval process, and the review process is reported as helpful to the creation of quality easements.[23]

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19. For one of the most well-reasoned collections of arguments for integrating conservation science into the land use planning process, see ENVTL. LAW INST., LASTING LANDSCAPES: REFLECTIONS ON THE ROLE OF CONSERVATION SCIENCE IN LAND USE PLANNING (2007), *available at* http://www.elistore.org/reports_detail.asp?ID=11212 (featuring an important, substantive introduction by Dr. Reed Noss, Davis Shine Professor of Conservation Biology at the University of Central Florida).

20. For a detailed description of the realities of the land use planning process, see James Olmsted, *Handling the Land Use Case: A User's Manual for the Public Interest Attorney*, 19 J. ENVTL. L. & LITIG. 23 (2004).

21. *See* John Echeverria & Jeff Pidot, *Drawing the Line: Striking a Principled Balance Between Regulating and Paying to Protect the Land,* 39 ENVTL. L. REP. 10868 (2009) (discussing the benefit of political accountability afforded by a formal approval process); Pidot, *supra* note 8 at 12 (discussing the benefits provided to Massachusetts from the state's adoption of an approval process).

22. *See* MARC A. WEISS, THE RISE OF THE COMMUNITY BUILDERS: THE AMERICAN REAL ESTATE INDUSTRY AND URBAN PLANNING 60 (Beard Books 2002) (1987) ("It has been fully established that a well-located school and playground, or even a site for the same, . . . adds to the value of all the remaining land in the territory to be served by the school . . . just as a local park . . . adds more to the value of the remaining land in the residential area which it serves than the value of the land withdrawn to create it.") (quoting landscape architect Frederick Law Olmsted, Jr.) (internal quotation marks omitted).

23. PIDOT, *supra* note 8, at 11.

B. Saving Orphan Easements

As previously discussed, most conservation easements are expressly perpetual. Under some state enabling statutes, perpetuity is a condition of conservation easement validity. Perpetuity is also a requirement of federal tax law that grants income tax deductions for donated easements. Although we may reasonably expect social, political, and legal systems that allow for the existence and enforcement of conservation easements to persist for a good long while, the same does not apply to their holders.

It is widely understood in the land trust community that land trust holders of conservation easements may be dissolved or simply go out of business for financial or other reasons. Accordingly, most conservation easements contain provisions by which the current easement holder may assign its rights to future easement holders (by reference to either specific entities or categories of appropriate holders) in the event that the current holder is, for any reason, no longer functional.[24] Although such provisions are certainly prudent, as a practical matter they cannot insure that a distressed holder will survive long enough to navigate the administrative requirements of transferring its portfolio of easements or that there will even exist new, ready, and willing holders who meet the requirements of state enabling statutes and, where appropriate, federal tax law. Thus, realistically, we must assume that some holders will disappear, leaving "orphan" conservation easements, perhaps lost forever in the invisible forest.

Fortunately, the problem of orphan easements could be substantially solved, as could many other conservation easement problems, by making the invisible forest visible. The most promising way to do this comprehensively is to create a national digital conservation easement database[25] and in some way to mandate that all conservation easement holders "check in" with the database manager at regular intervals. With today's interactive and user-friendly websites, it would be easy to set up a system through which land trusts can regularly enter their current institutional status and the status of the easements they hold, including assignments, amendments, monitoring, and similar information. Such an interactive website could be linked to a computer program that alerts the program overseer that a nonresponsive land trust (and likewise its portfolio of properties and easements) may be in jeopardy. Upon such a warning,

24. ELIZABETH BYERS & KARIN MARCHETTI PONTE, THE CONSERVATION EASEMENT HANDBOOK 380–81 (2d ed. 2005) (providing sample provisions).

25. As noted previously, digitizing data greatly reduces the amount of space needed to store it (for example, compared to paper files) so that it is possible all such data could be available online. It is the gathering and digitizing of conservation easement data that represents the highest costs and that will require the most challenging logistics. One challenge in particular that must be met early and resolved creatively is how data will be standardized and organized from multiple sources around the country. Indeed, much progress has already been made in this endeavor. *See* discussion *infra* Part VII.

appropriate actions could be taken to either aid the land trust or to assist in the transfer of its conservation easement holdings to a stable qualified entity.[26]

C. Mitigating Global Warming

Anthropogenic global warming and climate change are well upon us. Most climate scientists are predicting nonlinear accelerations (the rates of acceleration will themselves accelerate) of dangerous climate change phenomena and of their catastrophic effects on life on the planet. As of this writing, there is some meager hope that the current concentration of CO_2 in the atmosphere of 390 parts per million (ppm) can, through herculean effort, be reduced to a more manageable 350 ppm. This is not to say that all catastrophes will be avoided at 350 ppm, but only that some effects might be averted and others mitigated.[27]

Because forests (and even some rangelands) can sequester atmospheric carbon as part of the photosynthesis process, the earth's forests have taken on a new and more critical role among the earth's natural systems. It has long been known that forests are necessary for prevention of erosion, cooling shade, and species habitat. Today, we must add to these intrinsic values those of carbon sequestration. In the era of global warming, climate change, and massive species extinctions, forests will play an enormous role as carbon sinks, contributing greatly to global warming mitigation by removing and sequestering atmospheric carbon.

The science that first made us aware of global warming becomes ever more important to humanity's attempts to mitigate and adapt to a climate-changed world. Enormous amounts of data are required for the computer models necessary for predicting climate behavior. This data is incomplete without conservation easement information—including (among other things) holder, location, easement restrictions, baseline data, and changes in species, ecosystems, and climate of easement lands. Paramount among such data is the acreage of forested and other vegetated land and the composition, distribution, age, and condition of trees and other plant life. Fortunately, studies of lands protected by land preservation organizations indicate that collectively they preserve forested lands more than any other type.[28] Given that forests have a

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26. Certainly, knowing that an easement has become orphaned is important, but equally necessary is the development of some form of legal system to reintegrate such easements into the larger body of protected lands as a whole.

27. *See, e.g.*, DAVID SPRATT & PHILIP SUTTON, CLIMATE CODE RED: THE CASE FOR EMERGENCY ACTION 100–02, 117–18, 122–32 (2008) (providing discussion regarding the determination of the level of atmospheric carbon and its potential effects and drawing a comparison to the Pliocene Era); Jim Hansen, *The Threat to the Planet*, THE N.Y. REV. OF BOOKS 12 (Jul. 13, 2006), *available at* http://www.nybooks.com/articles/archives/2006/jul/13/the-threat-to-the-planet/ (book review).

28. Virginia Farley, Land Connections Consulting, & Andy Pitz, Natural Lands Trust, Power Point presentation entitled "Leadership on Global Warming and Climate Change: A Land Trust Response" shown at the 2007 Land Trust Alliance Rally (Oct. 3, 2007) (graph showing types of resources upon which land trusts primarily focus).

profound role to play in mediating the effects of global warming and climate change, it is clear that land trusts bear an ethical responsibility to provide climate scientists with as much information as possible about the forests and other lands protected by conservation easements.[29] For this to occur, the invisible forest must be made visible by the compilation and dissemination of as many relevant attributes as possible. To the degree that land trusts allow easement-protected forests to remain invisible and off the scientific radar, they are contributing to inaccuracy in climate science.

V

CONCEPTUALIZING DATA TRANSPARENCY

A. Protected Areas, Databases, Datasets, Spatial Data, Core Attributes, and Portals

The concept of compiling databases from data relevant to "protected areas," such as state parks and other lands protected by law or by enlightened landowners, has long been around; and many such databases have been compiled. This article, on the other hand, addresses whether conservation easement data should be collected and put in databases just as other protected area data is. This article answers the question in the affirmative, but notes that just making the data available in name only is inadequate if acquiring the data requires many procedural hurdles or if the data is not in a form that is easily transferable. The following sections of this article explore various groups' ongoing efforts not only to gather and aggregate conservation easement data, but to facilitate its distribution to individuals and institutions for whom such data would be valuable as well.

By way of a brief explanation of the terminology used in the following sections, the term "dataset" is often used interchangeably with the term "database." Regarding the relationship between the two terms, in many instances a dataset may be thought of as a subset of a database. Regarding the use of the term dataset in this article, unless the context indicates otherwise, the term dataset refers to a subset of a database containing two combinable types of data—namely, "spatial" data and "core attributes." Spatial data, as the name implies, describes the spatial relationships among geographic features. For example, spatial data could be used to create a map showing topographical characteristics of natural areas in an area of interest to a land trust. Core attributes, on the other hand, are categories of data that can be combined with and supplement spatial data in various ways. For example, core attributes can be used to create data "layers" that can be added to spatial information in the form of a map. Among the core attributes currently being used in dataset

29. *Id.* (graphing data collected by the U.S. Department of Energy demonstrating that, in terms of carbon sequestration by land use, sequestration by forests exceeds that of all other land uses by orders of magnitude).

compilation projects are comments of the data compiler, easement duration, easement holder, easement co-holder, easement-holder type, landowner type, conservation intent, conservation purpose, and public access. In some instances, spatial data can be used to create maps on a website while, in other instances, spatial data can be downloaded and used with specialized software to create maps on the user's computer. All of the different types of data just discussed will eventually be "published" on websites. Often, the term "portal" will be used in conjunction with a specific type of data or specific dataset. A portal is simply a webpage dedicated to a particular subject matter (for example, region, jurisdiction, or species distribution) that exists within a website.

B. Existence and Location

Compiling and publicly disseminating conservation easement data are not lacking in controversy. Disclosure of conservation easement data means revealing information that landowners or easement holders may wish to keep secret—including spatial data, such as easement locations, and core attributes, such as parties to a conservation easement—because they fear that any kind of publication will encourage undesirable public knowledge and use of easement lands. In this author's opinion, however, and in the collective opinions of many of the scientists, conservationists, consultants, surveyors, attorneys, and land trusts working with conservation easements, the benefits of collecting, aggregating, maintaining, and disseminating conservation easement data far outweigh those of ignoring or concealing them. Transparency in the practice of creating and maintaining conservation easements will aid in scientific study such as conservation biology, will enable the collection of data required by climate change scientists, and will prevent the inadvertent demobilization of easements through loss of their documents. One additional, and socially weighty, justification for revealing more conservation easement information will be to open up areas where visitors are allowed while, at the same time, sending powerful messages regarding the effectiveness of publicly subsidized land conservation. As will be discussed in following sections, movements are afoot to make existence and location data available to either the public or to those who can demonstrate that they need such data for scientific and other beneficial purposes.

C. Conservation Easements and Exhibits

Next in the hierarchy of conservation easement data that should be made public is the conservation easement document, particularly its restrictions on use and its full range of exhibits. Because conservation easements contain permanent restrictions on their encumbered lands, these key documents governing how these lands are to be used and protected in perpetuity must be kept in a permanent repository accessible to researchers, planners, and the public. The same goes for conservation easement exhibits. Often, much of the most important information in a conservation easement is contained in the

exhibits: lists of permitted and prohibited activities, lists of prohibited nonnative species, lists of native species currently found on the property, provisions for creating rangeland and forest management plans, prohibitions on hazardous substances, guidelines for future structures, and maps showing zones for various prohibited and permitted activities. Although conservation easements and their exhibits can be lengthy documents, this poses no problem to today's digital databases that can hold enormous amounts of information. Because digitized data can be readily stored, reproduced, updated, and made accessible, digital databases represent the ultimate level of protection for documents in perpetuity.

At the present time, however, conservation easement datasets being developed for the land trust community and other users are far less ambitious regarding the different types of information they contain. For example, the core attributes being captured in these datasets do not include entire conservation easements or even most of the data that would be found in a conservation easement. Nevertheless, such datasets may provide some types of information that could be used in locating a conservation easement in a recorder's office. For example, the core attributes of a proposed national conservation easement dataset, to be discussed later, include comments of the data compiler, easement duration, easement holder, easement co-holder, easement-holder type, landowner type, conservation intent, conservation purpose, and public access. By way of comparison, a list of core attributes for a related dataset based upon lands preserved by fee ownership, also discussed later, includes comments of the data compiler, primary land-management description, measure of long-term biodiversity protection, easement shape, and the primary agency or entity that owns the parcel.[30] Again, while these lists of core attributes may represent substantial abridgements of the amounts and types of desirable conservation easement data, they may nevertheless make possible the retrieval of highly informative conservation easement documents preserved by recorder's offices in various jurisdictions.

D. Baseline Documentation

Once one has accepted the general rationale for placing conservation easements in publicly accessible digital databases, it is difficult to argue for the exclusion of specific categories of closely related data. Thus, if the existence and location of conservation easements should be included in a digital database and made publicly available, it is a short step to keep the conservation easement document itself at the same digital location. The logical next step is to digitize the baseline documentation[31]—including digitizing on an ongoing basis all

30. NCED and PAD-US (CBI edition) information provided by James R. Strittholt, President and Exec. Dir., Conservation Biology Inst., on Jan. 7, 2011 (related documents on file with author).

31. Baseline documentation reports are required by federal income tax law for a deduction to be taken for donation of a conservation easement. Treas. Reg. § 1.170A-14(g)(5)(i) (2011). As a matter of standard land trust practice, baseline documentation reports are created for all conservation easement

updates to the baseline documentation and all monitoring reports—as part of the database "digital folder" for each conservation easement. The rationale for recording the baseline documentation and monitoring reports is similar to the rationale for recording conservation easements: The data contained in these documents is essential for the ongoing maintenance and stewardship of easement lands, including the enforcement of easement restrictions. Also, this ongoing stream of data can be used to document historical changes in the easement property for such purposes as local and regional scientific study. Further, given the prospect that, over time, the conservation easement document itself will become lost in the oceans of other data in land trust records and registries of deeds, there is an even greater probability that the baseline documentation and monitoring reports will be lost because they are not typically recorded in any governmental or other standardized location. As explained above in the discussion of conservation easement datasets, there are as yet no plans to include baseline and monitoring data as core attributes in the conservation easement datasets currently under development.

E. Spatial Data

The most often used means of describing the location of a conservation easement for recording purposes is a legal description of the underlying property that is attached as an exhibit to the recorded conservation easement. Unfortunately, most legal descriptions exist in a metes and bounds format. This format, typically created by a surveyor, is virtually impossible to interpret or apply for those not versed in surveying.

On the other hand, available technology can now depict the location of conservation easements in many easy-to-use spatial formats. For example, if the property line for an easement has been walked with a GPS device, metal posts can be driven into the ground at intervals around the easement boundary (the easement "polygon") and the precise location of metal posts, including longitudinal and latitudinal coordinates, can be readily and accurately mapped. Once this geographic data has been acquired and incorporated into a dataset, it becomes an easy matter to again locate the easement boundaries on the ground using either a handheld GPS device or a metal detector to find the sunken posts. If GPS information is augmented with additional spatial data such as maps or aerial photographs showing the outlines of the property, the task of locating the easement land becomes even easier.

Moreover, depending upon the availability of core attributes that can be merged with spatial data, custom maps can be generated that include multiple information layers such as city, county, and state lines, property lines, zoning and land use designations, and so on. It is perhaps possible now, or will be in the

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acquisitions, so that future conditions on the land can be measured against the conditions reported at the time of conservation easement inception to determine if violations of the conservation easement have occurred. LAND TRUST ALLIANCE, STANDARDS AND PRACTICES GUIDEBOOK: AN OPERATING MANUAL FOR LAND TRUSTS 10-10 (2d ed. 1997); BYERS & MARCHETTI PONTE, *supra* note 24, at 100.

near future, to likewise spatially display core attributes such as land forms, elevation, precipitation, climate, vegetation, habitat types, species migration corridors, and multiple forms of scientific data as well. In addition, most datasets—or their viewing software—provide spatial functions such as zoom-in and zoom-out, allowing the manipulation of spatial data to leverage its value in decision-making.

One critically important category of scientific data that is rarely collected and disseminated involves the spatial relationships of protected areas (including conservation easements) and the uses and natural features of lands *between* these protected areas—that is, those lands known scientifically as the "matrix." This data could be used by scientists, especially conservation biologists, to manage easement lands to prevent species loss by creating migration corridors through matrices, among other things.[32]

F. Scientific Data

Although baseline documentation may contain some modicum of scientific information, easement holders should pursue and document ever more scientific data. Because scientists predict that wildlife of virtually every form will face the brunt of anthropogenic climate change, every piece of biological and behavioral information that can be obtained about species and their habitats on easement lands should be collected, cataloged, and preserved. For species that will suffer extinction on our watch, such information will be all that remains to document how these species interacted with their environments or even, aside from fossil remains, that these species ever existed. Accordingly, to the greatest extent feasible, conservation easement holders should collect and record for posterity information about the species[33] resident on easement lands—in particular, species numbers, species in-migrations (including invasive species harmful to the ecosystem), species out-migrations, and species verging on extinction.

Although keeping track of individual species is essential, it is also necessary to collect data about the existence and health of various ecosystems that are present within easement lands. Such ecosystem data can be added to species data to ascertain the degree of biodiversity within easement lands and protected

32. SHARON K. COLLINGE, ECOLOGY OF FRAGMENTED LANDSCAPES 212 (2009). *See also* DAVID B. LINDENMAYER & JOERN FISCHER, HABITAT FRAGMENTATION AND LANDSCAPE CHANGE: AN ECOLOGICAL AND CONSERVATION SYNTHESIS 143–44, 200–02 (2006) (describing studies as to the importance of the matrix on species and providing examples of beneficial matrix management).

33. Species that should be monitored include microscopic life, fungi, lichens, plants, insects, amphibians, reptiles, aquatic species, avian species, and all other species. This goal is admittedly wishful thinking as scientific data gathering at such a fine gradation would be prohibitively expensive; nevertheless, to the extent possible, proxies of various species may be studied instead, including indicator and keystone species.

areas in general.[34] Biodiversity data collected and cataloged over time can be useful in predicting the extinction of species, as well as in measuring the effectiveness of the biological goals of a conservation easement. Current core attribute lists appear to contain few references to this scientific data, but at least one list includes "long-term biodiversity"[35] and, thus, may address ecosystem-level data.

VI

CURRENT SOURCES OF DISCLOSURE[36]

A. Local Deed Recorders' Offices

Virtually all conservation easements are public documents recorded in the local deed recorder's office of the county or other locale where the easement is located. However, the usefulness of this recordation is limited to doing a title search on a particular parcel. These deed registries are useless for finding conservation easements unless the easements are associated with a particular tract of land, with a particular grantor or grantee, or with other commonly indexed information categories. Despite the widespread use of conservation easements as a land preservation tool, very few local recorders' offices or title companies selectively index or otherwise track conservation easements independently of deeds and other documents affecting real property. On the other hand, a small minority of jurisdictions has created conservation easement tracking systems at local and state levels, a trend that will hopefully continue.

B. Land Trusts

Currently, by far the most frequent sources of disclosures regarding the existence and location of conservation easements are the land trusts that hold them. A primary reason for a land trust to disclose information about its easements is that doing so demonstrates to its supporters and funders that the land trust is accomplishing its goals of land protection. One group of related methods of broadcasting the acquisition of a new conservation easement includes publishing details of the acquisition in a press release, in a land trust's newsletter, or on its website. Depending on the circumstances of the acquisition

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34. Like monitoring species, monitoring complex scientific data at the ecosystem level is likely merely a hopeful expectation at this time. *See, e.g.*, Adena R. Rissman, *Designing Perpetual Conservation Agreements for Land Management*, 63 RANGELAND ECOLOGY & MGMT. 167, 173 (2010) ("Quantitative biodiversity indicators are arguably more objective, reliable, replicable, and communicable than subjective measures. Yet no proxies for biodiversity served as compliance terms in conservation easements because biodiversity goals are difficult to define and operationalize and landowners generally cannot be held responsible for maintaining native plant diversity or animal populations.").

35. PAD-US (CBI edition) information provided by James R. Strittholt, President and Exec. Dir., Conservation Biology Inst., on Jan. 7, 2011 (related documents on file with author).

36. *See generally* Wilson Morris & Rissman, *supra* note 1.

(for example, the sensitivity of the grantor to publicity or potential for public use of its property), a land trust may disseminate (or withhold) the location of the new acquisition by maps, photographs, and verbal descriptions. In similar fashion, some land trusts publicize their entire conservation easement portfolios to demonstrate their institutional effectiveness. On a much more down-to-earth level, land trusts may publicize an acquisition simply by posting signs on the perimeter of a conservation easement.

C. Natural Heritage Programs

Among current efforts holding promise for collecting and aggregating conservation easement data and making it public are Natural Heritage Programs. The overall concept of these programs was putatively developed by NatureServe, a nonprofit organization that has member Natural Heritage Programs in every state as well as in Canada, Latin America, and the Caribbean.[37] NatureServe and its network of state programs are the leading sources for information about rare, threatened, or endangered species and their ecosystems in this country.

In addition to tracking species and ecosystem data through its Natural Heritage Programs, NatureServe has also been collecting and maintaining data on "managed areas," including conservation easements. Conservation easement data is of critical importance to the state Natural Heritage Programs because it allows state member programs to assess how well lands encompassing imperiled species of interest and their habitat are being managed. To date, several states, including Florida, Montana, and Virginia, are developing a standardized methodology to track conservation easement data that all Natural Heritage Programs can eventually use. Significantly, reports from those states indicate that of all NatureServe's datasets the protected area datasets are the most requested.[38] NatureServe is also an important collaborator in an effort to track conservation easements on a national scale.[39]

D. Selected State Databases

Currently, most states, acting through governmental agencies or nongovernmental organizations (NGOs) such as NatureServe's Natural

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37. Information about NatureServe's Natural Heritage Programs can be found online at http://www.natureserve.org/visitLocal/index.jsp (last visited May 18, 2011). By scrolling to the bottom of this website, one can find Natural Heritage Programs listed by state. Whether NatureServe can be credited with having conceptualized and created the Natural Heritage Programs is unclear as it is well documented that the first Natural Heritage Programs were established by The Nature Conservancy in 1974. REED F. NOSS & ALLEN Y. COOPERRIDER, SAVING NATURE'S LEGACY: PROTECTING AND RESTORING BIODIVERSITY 111 (1994) (an insightful and prescient treatise on biodiversity conservation).

38. Email from Shara L. Howie, Sector Relations Manager, NatureServe, to author (Oct. 25, 2010, 16:01 PST) (on file with author).

39. *National Conservation Easement Database*, NATURESERVE, http://www.natureserve.org/projects/nced.jsp (last visited May 18, 2011).

Heritage Programs, are assembling digital databases of protected areas, including areas protected by private conservation easements. Indeed, some states, such as Florida, may even be working on more than one such program. Although these endeavors are promising, states have thus far approached the task in various ways and with different levels of effort. Nevertheless, and by way of establishing a starting point for future efforts at collecting such data, a list of states currently known to be collecting conservation easement data is discussed below, but with the proviso that much of the information is anecdotal and not all of the types of data just described are included for each state. The states apparently leading the way in the collection of conservation easement data are Maine, Florida, New Hampshire, California, Virginia, Montana, and Massachusetts.

Maine. For the reasons given above, collecting conservation easement data has typically lagged behind collecting data associated with other types of protected areas. However, a few states are now leading the way to gathering such data, most notably Maine. In Maine, a conservation easement database resulted from substantial reform of Maine's conservation easement statute in 2007. These statutory reforms created a registry that requires all conservation easement holders to provide and annually update data concerning recordation, amendment, assignment, monitoring, and other conservation easement-related issues.[40] The registry requires this information not only prospectively, but for all easements previously created in the state.[41] While Maine's registry is based on data entered online by holders, all of which is therefore in the public domain, it has not yet been placed on a searchable website available to the public. In other words, while Maine's database is completely searchable, no effort has yet been made to make it readily available to the public absent a specific request to the database manager.

Florida. Because Florida's conservation easement enabling act only requires that conservation easements be "recorded and indexed in the same manner as any other instrument affecting title to real property,"[42] a nonprofit organization administered by Florida State University, the Florida Natural Areas Inventory (FNAI), has been tasked with tracking conservation easements on a statewide basis. FNAI houses a protected areas database that includes conservation easements as well as extensive data on species, habitats, ecosystems, and biodiversity. The database is fundamental to meeting FNAI's conservation mission to gather, interpret, and disseminate information critical to the conservation of Florida's biological diversity. FNAI's protected areas database includes a scalable map with a conservation easement overlay that can be used on the FNAI website without any special software.[43] However, as with virtually

40. ME. REV. STAT. tit. 33, § 479-C (2009).

41. *Id.*

42. FL. STAT. § 704.06 (2011).

43. Florida's Natural Areas Inventory may be found online at http://data.labins.org/imf2/FREAC/FNAI.jsp (last visited May 18, 2011).

all these programs (other than Maine's), the Florida system suffers from being voluntary as to conservation easement information disclosed by land trusts. As noted earlier, FNAI collaborates with the NatureServe Natural Heritage Programs and is listed as a NatureServe member on its website.

New Hampshire. Like Florida, New Hampshire provides conservation easement information to the public through a web-based geographic-information system. The database system, developed by the University of New Hampshire and known as NH GRANIT, allows land trusts and easement holders to submit their own conservation easement data in either analog or digital form, download data, and create maps using custom data. As information is added to the website, it is aggregated into a "conservation-lands layer"[44] that can be downloaded free of charge.[45]

California. California has two conservation easement tracking laws.[46] The first, passed in 2001, requires that county recorders index conservation easements.[47] Unfortunately, under this law, county recorders index conservation easements only if an instrument is properly labeled as a conservation easement or a separate "Notice of Conservation Easement" is recorded. Although this makes easement-document recovery easier, it does not result in a readily available, electronic database and does not apply to easements recorded before the date the law took effect. In 2006, California passed a second easement-tracking law that created a statewide conservation easement registry; however, this registry is limited to conservation easements held, funded, or required by the state and captures only a very limited dataset.[48] Additionally, the second law was amended to exclude recording of the conservation easement, any monitoring reports, any enforcement actions taken, and specific location data. Though the absence of such key data in California's statewide tracking system is disappointing, the law does require recording of the conservation easement's purpose, the easement holder's identity, the recordation number assigned to the conservation easement, the dollar amount of the state's contribution, the easement size in acres, and the date the easement transaction was completed.[49] Presumably, the data in California's conservation easement registry is publicly available; however, accessing this data for particular easement lands may be difficult because of the apparently complete lack of any spatial data with which to identify or reference specific conservation easements, leaving the user to

44. Email from Emily Hague, Stewardship Manager, Monadnock Conservancy, to author (Nov. 8, 2010, 11:00 PST) (on file with author).

45. NH GRANIT, billed as "New Hampshire's Statewide GIS Clearinghouse," can be visited at http://www.granit.unh.edu (last visited May 18, 2011).

46. Wilson Morris & Rissman, *supra* note 1, at 1257–60. *See also* CAL. GOV'T. CODE § 27255 (2011); CAL. PUB. RES. CODE § 5096.520 (2011).

47. CAL. GOV'T. CODE § 27255.

48. CAL. PUB. RES. CODE § 5096.520.

49. *Id.*

employ what limited data is provided to locate the relevant conservation easement at a recorder's office.[50]

Virginia. Virginia's conservation easement enabling statute mandates that any holder *conveying* a conservation easement recorded after July 1, 1988, must send certified copies of the easement by certified mail to "the local jurisdiction," the "Attorney General of the Commonwealth," the "Virginia Outdoors Foundation," and "to any public body" named in the conservation easement itself.[51] The same procedure must be followed for instruments *creating* a conservation easement.[52] Although Virginia's laws apply to a holder conveying or creating a conservation easement, they do not apply to amendment, monitoring, or any other category of relevant action taken regarding a conservation easement. These laws do not themselves create a conservation easement registry, but they may help facilitate that function. The Virginia Department of Conservation and Recreation (VDCR) maintains a state-level conservation lands database, which apparently includes conservation easement data provided by land trusts.[53] VDCR is rumored to be developing an online tool that will make this conservation lands data publicly available. As mentioned earlier, VDCR collaborates with NatureServe's Natural Heritage Program.[54]

Montana. Although Montana law requires county-level recording of conservation easements, additional reporting of conservation easement data is not required.[55] Nevertheless, conservation easement holders, and presumably landowners as well, can voluntarily report conservation easement data to the Montana Natural Heritage Program, which has tracked conservation easements

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50. Wilson Morris & Rissman, *supra* note 1, at 1270 (noting that the absence of spatial data in California's conservation easement registry "seriously limits the usefulness of the data for land use planning").

51. VA. CODE § 10.1-1012 (2011). Recently approved legislation has changed this requirement slightly to require that notice of conservation easements now be given to the Commissioner of Revenue for the local jurisdiction and the Director of the Department of Conservation and Recreation instead of the Attorney General of the Commonwealth. H.B. 1715, 2011 Gen. Assemb., Reg. Sess. (Va. 2011).

52. *Id*.

53. Virginia's conservation easement database may be found at http://www.dcr.virginia.gov/natural_heritage/clinfo.shtml (last visited May 19, 2011). An email to the author from Heather Richards, Director of Land Conservation of the Piedmont Environmental Council, also notes that "[t]he Virginia Department of Conservation and Recreation annually (and on a rolling basis) compiles data on all easements in Virginia. They are most interested in boundaries (so the properties can be mapped) and acreage (so our Governor's 400,000 acre land protection goal can be tracked). The data layer is available by request from [V]DCR's program manager." Email from Heather Richards, Dir. of Land Conservation, Piedmont Envtl. Council, to author (Nov. 9, 2010, 12:38 PST) (on file with author).

54. *Natural Heritage*, VA. DEP'T OF CONSERVATION & RECREATION, http://www.dcr.virginia.gov/natural_heritage/index.shtml (last visited May 19, 2011).

55. MONT. CODE § 76-6-207 (2009). The office of the county clerk and recorder maintains a separate file for recorded conservation easements. *Id.* Montana state law makes only one exception to this recording requirement: Compliance with this statute is not required if the conservation easement was acquired or created by federal agencies pursuant to federal law. 54 Op. Att'y Gen. 2, 2011 WL 1129403 (Mont. 2011).

in that state since 1997. Like Florida and Virginia, the Montana Natural Heritage Program (MNHP) exists in partnership with NatureServe's other Natural Heritage Programs. In 2007, the Montana Legislative Audit Division conducted a preliminary audit of the MNHP database's accuracy. To accomplish this audit, the Audit Division worked with land trusts to gather information across variables such as conservation easement locations and acreages. When the collected data was compared to the data in the MNHP conservation easement database, MNHP's rate of accuracy was purportedly over ninety percent. The legislative audit report further concluded that "[t]he land stewardship data maintained by the MNHP is probably one of the most complete and accurate records of conservation easement locations in the country."[56] It also noted that "[t]he decision by MNHP to collect and maintain data relating to conservation easements has been a considerable benefit to the state of Montana."[57] Despite these glowing conclusions, the legislative audit report also announced a need for improvements, including a means of assuring the transfer of county-level data to the state level.[58]

Massachusetts. Massachusetts holds the distinction of requiring that municipal- and county-held conservation easements be approved by the Massachusetts secretary of environmental affairs, while nonprofit-held conservation easements must be approved by both the secretary of environmental affairs and the local governing body.[59] As progressive and farsighted as Massachusetts's conservation easement laws may be, they stop short of mandating the recording or registration of all conservation easements. Nevertheless, it may be possible to recover conservation easement data through the paper trail generated by the approval process.[60] Also, although Massachusetts does not have a mandatory conservation easement registry, the state does apparently have a voluntary one, but it is likely limited to easements held by governmental entities. This voluntary registry of governmentally-held conservation easements includes such information as (1) the land subject to the conservation easement, (2) the name of the conservation easement holder, and (3) the place of record in the public records of the entity imposing the conservation easement. The conservation easement maps generated by governmental entities and submitted to the registry are available to the public.[61]

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56. LEGISLATIVE AUDIT DIV., STATE OF MONT., *Performance Audit: Conservation Easements* 33 (Jan. 2007), *available at* http://leg.mt.gov/content/Publications/Audit/Report/06P-01.pdf.

57. *Id.* at 32.

58. *Id.* at 34.

59. MASS. GEN. LAWS ch. 184, § 32 (2010).

60. For example, an approval process could potentially make available a description of the conservation easement sought, the extent to which public investment or benefits were received, and data regarding the purposes of the easement. *Cf.* Wilson Morris & Rissman, *supra* note 1, at 1274–77 (describing the importance of such information).

61. MASS. GEN. LAWS ch. 184, § 33 (2010). *See also MassGIS*, OFFICE OF GEOGRAPHIC INFO., COMMONWEALTH OF MASS., http://www.mass.gov/mgis/ (last accessed May 18, 2011). This website maintains extensive GIS shapefiles and metadata for the entire state. Email from Shara L. Howie, Sector Relations Manager, NatureServe, to author (Dec. 14, 2010, 14:16 PST) (on file with author).

In view of the apparent lack of negative fallout from the above examples of conservation easement tracking, it is possible that other local and state governments will follow suit and establish mandatory recording, registration, indexing, or mapping systems for conservation easements or, at the very least, require that the existence and location of conservation easements be publicly accessible in some reasonable fashion. Ideally, each state registry would include at least all of the data categories set forth in this article.

E. Proposed Criteria for Database Evaluation

Although this brief survey of states collecting, managing, and publishing conservation easement data far from covers the field, which would be beyond the scope of this article, it does provide a "snapshot" of the current progress of such endeavors at the state level. This snapshot suggests criteria for future studies of conservation easement tracking. These criteria include (1) whether conservation easement reporting is voluntary or mandatory; (2) whether conservation easement reporting requires retroactive reporting of data; (3) what forms of conservation easement data are required (for example, the parties to an easement, the easement document itself, baseline documentation, and so on); (4) the timing of and details relating to conservation easement monitoring; (5) the existence of partnerships with other institutions collecting conservation easement data; and (6) the precise means by which the data is available to the public (for example, may it be viewed on a website, downloaded, or both). Though setting such standards is relatively easy, achieving them for all local and state jurisdictions, or even a substantial number of them, promises to be difficult. This difficulty arises from a number of sources, including the current lack of conservation easement indexing by recorders' offices, the logistics involved in obtaining conservation easement data by polling land trusts and, perhaps most importantly, the political will, or lack thereof, of any given state's lawmakers.

VII

THE NATIONAL CONSERVATION EASEMENT DATABASE AND THE END OF THE INVISIBLE FOREST

A. NCED Data Collection and Aggregation

For a variety of reasons, conservation easement spatial data has been difficult to collect. For example, the decentralized and inaccessible distribution of conservation easement data requires a broad network of data collectors. Also, privacy concerns among landowners and land trusts require conservation easement data collectors to provide assurances and accommodations.[62] To confront these challenges, in June, 2009, the U.S. Endowment for Forestry and

62. Email from Greg Schildwachter, Conservation Consultant, Watershed Results, L.L.C., to author (Dec. 7, 2010, 09:29 PST) (on file with author).

Communities rallied a handful of conservation organizations to create a conservation easement database on a national scale.[63] The project, dubbed the National Conservation Easement Database (NCED), has enlisted the following five major conservation organizations: the Conservation Biology Institute (CBI), the Trust for Public Land (TPL), the Defenders of Wildlife, Ducks Unlimited, and NatureServe.[64] Among other supporting groups are the Land Trust Alliance, The Nature Conservancy, the U.S. Fish and Wildlife Service, the Natural Resources Conservation Service, and the U.S. Forest Service.[65] Although the NCED database is not yet functional, it should be brought online in 2011 or early 2012.

The website for the NCED is already online and proclaims that "[t]he NCED will provide a comprehensive picture of the estimated sixteen million acres of privately-owned conservation easement lands, recognizing their contribution to America's natural heritage, a vibrant economy, and healthy communities."[66] Although the creation of a publicly accessible conservation easement database holds great promise for making available information critical to many endeavors from environmental protection to climate change mitigation, the website carries an almost unnoticeable caveat that it will limit itself to "non-sensitive conservation easement information."[67] Sensitive conservation easement information is data that the landowner has requested not be made public—for example, the landowner's name and the exact location of an easement on the landowner's property. Hopefully, even if this so-called "sensitive" information is withheld from the general public, it will be made available to the land use planners, land trusts, and scientists for whom such data can mean the difference between success and failure in their respective endeavors. Even with some relatively small percentage of data withheld, the NCED website will publish vastly more information than has ever before been publicly available in one place.[68]

The largest component of the NCED project remains data collection and aggregation. At the present time, TPL, Ducks Unlimited, and NatureServe are tasked with this work (although CBI may also be contributing to this effort). They are already well along in a number of states, using a process that combines using existing state and local databases with reaching out to land trusts and

63. U.S. ENDOWMENT FOR FORESTRY AND CMTYS., NAT'L CONSERVATION EASEMENT DATABASE (Sept. 2010), *available at* http://www.conservationeasement.us/NCED_Flyer_Public_9_8_2010.pdf (last visited May 24, 2011).

64. *National Conservation Easement Database*, U.S. ENDOWMENT FOR FORESTRY AND CMTYS., http://www.conservationeasement.us/ (last visited May 18, 2011).

65. *Id.*

66. *Id.*

67. *Id.*

68. Although only non-sensitive data will be published on the NCED website, this does not mean that all data gathered—that is, both non-sensitive and sensitive—will not be maintained. CBI will host a database that contains all of the easement data collected, regardless of its status as non-sensitive or sensitive. Email from Gina LaRocco, Conservation Program Assoc., Defenders of Wildlife, to author (Feb. 14, 2011, 11:09 PST) (on file with author).

other private entities involved in conservation easements. The NCED has already amassed nearly thirty-six-thousand digitized easements covering 8.6 million acres in thirty-seven states. The NCED team has located but not yet acquired another fifty-four-thousand digitized easements.

These initial successes do not mean that collecting conservation easement data has become any easier. Indeed, collecting conservation easement data remains labor intensive because there are typically no high-tech means of gathering this data. Thus, even though the various data gatherers strive to obtain spatial data and other forms of data from which to build mapping layers, they are sometimes able to obtain only basic data—for example, the number of conservation easements held in a given geographic unit and the total number of acres covered by each easement. Consequently, such key documents as conservation easements and their exhibits, baseline reports, monitoring reports, and number of violations are often absent in conservation easement databases and datasets. Similarly, documentation of biotic and abiotic change, climate change, and other scientific data for a given easement property are difficult or impossible to find.

B. NCED Collaborators: PAD-US

Despite the limitations on data collection just noted, an important component of the NCED will be the ability to graphically delineate and compare the spatial relationships between lands protected by conservation easements and existing national fee-owned "protected areas."[69] This critical NCED feature is being developed through collaboration with another database, namely PAD-US (CBI Edition).[70] In addition to providing the NCED with spatial data regarding fee-owned protected areas, the PAD-US (CBI Edition) also provides the "geographic foundation" that serves as the basis for spatial-data registration in the NCED.[71] As a practical matter, when using websites that host both the NCED and PAD-US (CBI Edition), it should be kept in mind

69. So-called "protected areas" are "lands dedicated to the preservation of biological diversity and to other natural, recreation and cultural uses, and managed for these purposes through legal or other effective means." *Protected Areas Database of the United States*, GREENINFO NETWORK, http://www.protectedlands.net/padus/faqs.php (follow "1. What Do We Mean by 'Protected Lands'?") (last visited May 18, 2011).

70. By way of background, there are two large and comprehensive database-management efforts of fee-owned "protected areas." Confusingly, these efforts share the same name: "PAD" or "PAD-US." However, one PAD-US database is maintained by CBI and the other by the U.S. Geological Survey Gap Analysis Program (USGS GAP). The CBI version is usually distinguished by reference to "PAD-US (CBI Edition)." To further explain the odd coincidence of two identically named databases, the following brief history is helpful. The first national PAD was published by CBI in 1999. It was only later that the USGS GAP program published their first national database, in 2009. From 2009 to 2010, the two PADs formed a partnership named PAD-US in an attempt to pool resources to achieve a single national dataset. This partnership dissolved in 2010. As noted above, there are now two PAD-US databases available to the public, and though they are similar in content they are not identical.

71. Email from James R. Strittholt, President and Exec. Dir., Conservation Biology Inst., to author (Jan. 4, 2011, 13:37 PST) (on file with author).

that while the NCED and PAD-US (CBI Edition) will have identical geometries, they have different core attributes.[72]

C. NCED Conservation Easement Data Publication

Ultimately, the NCED data will be available to the public through conservation easement portals on a number of websites. Presumably, the first "conservation easement portal" will be on the NCED website discussed above. The next website conservation easement portal to go "live" will probably be on the Conservation Registry website hosted by the Defenders of Wildlife. As the NCED's conservation easement database becomes complete, non-sensitive data will then be distributed to the following entities to be made available on their respective websites, shown here in parentheses: CBI (Data Basin), NatureServe (LandScope America), TPL (Conservation Almanac), and Ducks Unlimited (CARL) (these websites and their relationships to the entire data-gathering and publication processes are graphically described in Diagram A, at the end of this section). Importantly, even though the conservation easement data provided to each of these entities will be at least roughly the same, the method of accessing and manipulating that data will vary for each of the five websites.[73]

Among the potential differences between the websites, three stand out as a basis for evaluation at present. The first potential difference is whether conservation easement data can be uploaded at the website. This is important for several reasons. For one, it allows the website users to contribute to the overarching NCED database. For another, the ability to upload data at a website may make it possible to create a custom dataset, to be added to pre-existing datasets, for the purposes of the particular user uploading the data.

A second potential difference is whether multiple datasets can be combined to create spatial tools, such as maps, with multiple data "layers." For example, some websites—most notably the NCED conservation easement portal and CBI's Data Basin—will allow NCED conservation easement data to be combined with layers of other types of data. Thus, it will presumably be possible to combine conservation easement data with data such as species migration routes, endangered species habitat, land ownerships, and political boundaries.

The third potential difference is how the website delivers its conservation easement data to the user. Three possibilities exist: the data is visible only on the website, the data may be downloaded, or both. At the present time, CBI's Data Basin allows users to download the entire existing conservation easement dataset and disseminate it, while other websites, like the Conservation Registry, will allow only a subset of the conservation easement data to be downloaded.

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72. Among the attributes of PAD-US (CBI Edition) are owner type, owner name, manager name, primary designation type, status, IUCN category, source, source date, and area. *Proposed PAD-US Geometric Structure*, PROTECTED AREAS DATABASE OF THE UNITED STATES, http://www.protectedlands.net/images/PADUS_FinalJuly2009StructGr.jpg (last visited May 18, 2011).

73. Telephone interview with Allison Anderson, Conservation Data Manager, Conservation Biology Inst. (Dec. 31, 2010).

Again, for the present, just how the various websites, and the portals embedded in them, will work and what their similarities and differences will be is open to question. Under the most optimistic scenario, the collective websites will provide a user the opportunity to discover the tool that works best and is the most amenable for that particular user. Accordingly, the discussion below begins the process of explaining the different contents and formats of the proposed family of websites where the NCED data will reside but leaves for future determination which websites are the best for individual users.

The Conservation Registry. The Conservation Registry is hosted by the Defenders of Wildlife. As noted on its website, the "Registry is an online, centralized database that records, tracks and maps on-the-ground conservation projects. The purpose of the Registry is to help users understand the context, distribution, and effectiveness of our collective efforts to protect and restore ecosystems."[74] The Registry currently displays over thirteen-thousand projects nationwide, most of them in the Pacific Northwest. It captures local, state, and federal agency projects, as well as projects managed by nonprofits, private landowners, and businesses.

Three project types are captured by the Registry. The first type is a project designed to protect or restore habitat, fish and wildlife, or an ecological process. These projects can be as ambitious as replanting thousands of acres of land with native plants, reintroducing an endangered species, and restoring the hydrology of a wetland, or as simple as placing bluebird boxes along a trail.[75] A second project type involves altering a land designation to change or enhance the focus on conservation management.[76] Projects such as acquiring land for conservation purposes, designating a refuge, or recording a conservation easement would fit in this category. The third project category includes monitoring, research, and education projects tied to a location.[77]

The Registry is also a "synthesis tool" that gathers project information from multiple sources[78] and acts as a project-management tool for agencies and organizations lacking resources to build their own project-management tools. It will use a Google Maps platform that requires no specialized geographic-information system (GIS) or database knowledge. The Google Maps platform will allow users to overlay different map attributes to provide landscape context such as the other types of preservation and conservation projects in an area of interest, the identified priority areas, and land ownerships.

74. *About the Conservation Registry*, THE CONSERVATION REGISTRY, http://www.conservationregistry.org/about (last visited May 18, 2011) (emphasis added).

75. *Id.*

76. *Id.*

77. *Id.*

78. *Id.*

When the conservation easement database goes live, users will be able to view the easements in relation to the types of projects described above.[79] Users will also be able to zoom into an area on the map and click on a specific easement to view information about the easement.

Data Basin. Data Basin is a website developed and hosted by CBI. Its purpose is to provide mapping and social-networking functionality to link conservation science and practice.[80] Currently, Data Basin lists over four-thousand datasets,[81] each of which is a spatially explicit file. Conservation easement datasets from the NCED partnership are already being provided to Data Basin on an ongoing basis. These conservation easement datasets will be hosted by Data Basin in such a fashion that they can be merged with any other spatial dataset hosted or linked to the system. Thus, Data Basin users will be able to access a large conservation-dataset library; upload their own spatial data to the system; create, share, and save customized maps on the web; form working groups; and publish galleries.

LandScope America. LandScope America (LSA) is a collaboration between NatureServe and National Geographic that has also engaged more than 150 partners nationwide. Launched as a beta release in December, 2008, this guide to America's natural places assembles maps, case studies, success stories, photos, and multimedia presentations of efforts to conserve open space as a means of inspiring and informing conservation action across the United States. The map viewer at the center of the site provides a means of visualizing conservation priorities, species, habitats, threats, and other conservation-related data. Ultimately, the NCED will share its data with LSA to enable the display of conservation easements. The integration of articles, photographs, and multimedia presentations within the map viewer will enable users of the site to learn more about easements identified on the NCED map.[82]

The Conservation Almanac. One NCED website portal of special importance is TPL's Conservation Almanac.[83] TPL has been acquiring conservation easement and fee information on lands acquired or protected by *public* agencies in all fifty states since 1998.[84] The NCED will allow the Conservation Almanac to expand to include *privately* held easements. The Conservation Almanac will be a powerful online resource for discovering, analyzing, and mapping the results of local, state, and federal funding for land

79. Email from Gina LaRocco, Conservation Program Assoc., Defenders of Wildlife, to author (Oct. 29, 2010, 14:40 PST) (on file with author).

80. *Data Basin*, CONSERVATION BIOLOGY INST., http://www.databasin.org (last visited May 18, 2011).

81. *Datasets in Data Basin*, CONSERVATION BIOLOGY INST., http://app.databasin.org/app/pages/datasetsHomePage.jsp#sortField=createDate&ascending=false (last visited May 18, 2011).

82. Email from Shara L. Howie, Sector Relations Manager, NatureServe, to author (Dec. 9, 2010, 13:24 PST) (on file with author).

83. *Conservation Almanac*, TRUST FOR PUB. LAND, INC., http://www.conservationalmanac.org/secure (last visited May 18, 2011).

84. *Id.*

conservation. The Conservation Almanac documents conservation spending, statistics, and policies from local, state, and federal governments gathered over the past decade. Policymakers working to strengthen conservation practices are expected to rely heavily on the Conservation Almanac's overviews of states' policy frameworks for land-conservation funding.

CARL. Ducks Unlimited hosts a database website called the Conservation and Recreation Lands system (CARL).[85] This website was put online to fill a void in land-based data in the general Great Lakes area. At present, the website has limited functionality; however, Ducks Unlimited's long-term goal is to merge this database and website with one of the PAD-US sites and with the NCED.[86]

The following diagram explains the relationships of the websites described above and provides a visual representation of the NCED data gathering, aggregation, and dissemination processes.

Diagram A

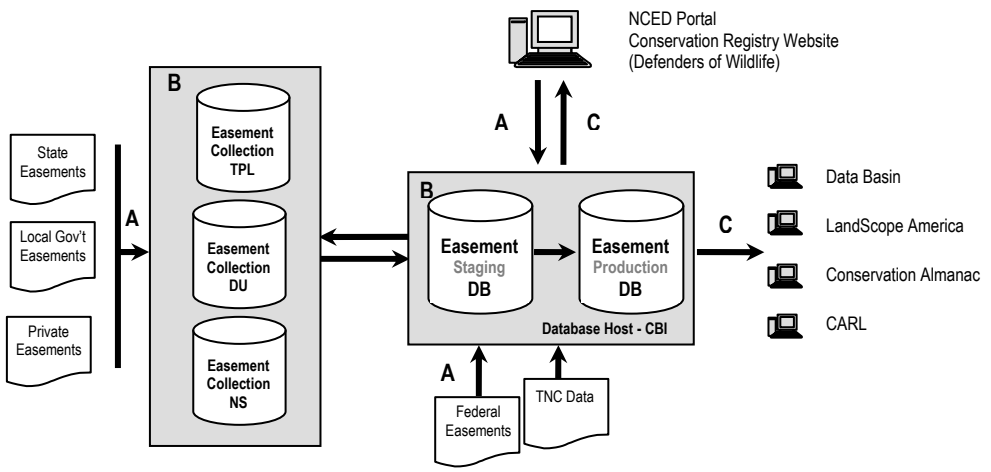

Diagram A.[87] In the diagram above, data inputs are indicated by the letter *A*. As can be seen, there are three "*A*" data inputs. The first, on the left of the diagram, includes information provided by state governments, local governments, and land trusts. Presumably, these entities will provide this data

85. CARL, DUCKS UNLIMITED, http://glaromaps.ducks.org/carl (last visited May 18, 2011). Note, however, that the site is not yet fully functional.

86. Comment in review of earlier draft provided by Robb Macleod, GIS Manager, Ducks Unlimited, on Nov. 16, 2010 (on file with author).

87. Diagram provided by and used with permission of James R. Strittholt, President and Exec. Dir., Conservation Biology Inst. Any errors in modifications to the diagram are the responsibility of the author.

in conventional non-digital form such as documents and maps. The second *A* input, next to the left arrow under the NCED Portal and Conservation Registry website, indicates data that will be input online, presumably at both of these websites. The third *A* input on the bottom of the diagram indicates federal easement information and easement information submitted by The Nature Conservancy. As indicated by the three cylinders on the left side of the diagram, collectively referenced as *B*, collection and aggregation of easement data will be managed by TPL, Ducks Unlimited, and NatureServe. The other two cylinders collectively referenced as *B* indicate that easement data staging and production will be managed by CBI. The two *C* icons on the diagram indicate the data outputs that, as explained above, will be websites hosting NCED portals. The first *C* next to the right arrow under the NCED Portal and Conservation Registry website indicates that these portals will both contain NCED conservation easement datasets. The icons to the far right of the second *C* indicate other websites hosting NCED portals: Data Basin, LandScope America, the Conservation Almanac, and CARL.[88] Also, despite its critical importance as a protected areas database that is constantly exchanging data with the NCED as part of the NCED process, the PAD-US (CBI Edition) database has yet to be added to the diagram. Despite its conspicuous absence on the diagram, PAD-US (CBI Edition) is nevertheless operational and available to the public; it may be visited on the CBI maintained Data Basin and will be available on the NCED easement portal.[89]

VIII

CONCLUSION

The land trust community in the United States has a short history but a long list of conservation accomplishments. Millions of acres of scenic, natural, and historic lands have been protected against development by conservation easements. In some cases, conservation easements have also protected rare and vulnerable species and ecosystems. Although easement lands typically are not open to the public, in many cases public access is provided for nonintensive, recreational purposes such as hiking, backpacking, mountain biking, and rock climbing.

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88. It was suggested that this article describe in detail the advantages and disadvantages of each of the websites and portals just discussed. While this appears reasonable, this author's experience has proven otherwise. The obvious methodology was to log on to each website and to take it through its paces. It quickly became apparent that some of these websites and their databases are essentially scientific tools. They require not only hands-on use, but also some study and background information. Accordingly, assessing their relative strengths and weaknesses proved to be beyond the scope of this article. Moreover, all of these sites will increase in complexity as data is added by the NCED and other institutions and users. While learning to use these websites and portals may be increasingly challenging, this is a fair price to pay for the invaluable data and resources that they are poised to provide to the land conservation, land use planning, and scientific communities.

89. *Search Data Basin*, CONSERVATION BIOLOGY INST., http://app.databasin.org/app/pages/search.jsp#type=dataset&query=PAD-US&sortField=relevance (last visited May 18, 2011).

Despite the inclusion of recreational lands in some of the nation's inventory of lands protected by conservation easements, the longstanding tradition of secrecy regarding the existence, location, and details of easement lands has proven a difficult habit to break. Through the purposeful secrecy of conservation easements, our forests (which stand as a proxy for all landscape types) have been rendered invisible. We are, however, at a turning point regarding what has been the clandestine conservation of natural lands.

Although the majority of members of the land trust community may be unaware of this, substantial efforts have already been turned to this task. Some states are creating databases of easement lands and making this data available on websites accessible to all who might make responsible use of this information. In similar fashion, a small cadre of conservation and environmental organizations are also making conservation easement data available on their websites. Even more critical to this mission is the creation and management of the National Conservation Easement Database.

Of course, not all conservation easement information can be made public. In unusual cases, protected areas are simply too vulnerable to risk exposing them to the presence of humankind. But for the vast majority of easement lands, now is the time to systematically gather, aggregate, and make publicly available all conservation easement data useful to knitting together our fragmented natural landscapes to create interconnected islands of survival. For the sake of our natural lands, and for the individuals and institutions that seek to use them responsibly and ultimately to preserve them, now is the time to make the invisible forest visible.