EXPLORING NET BENEFIT MAXIMIZATION: CONSERVATION EASEMENTS AND THE PUBLIC–PRIVATE INTERFACE

JULIE ANN GUSTANSKI*

JOHN B. WRIGHT

I
INTRODUCTION

Across the nation, decision makers have long struggled with the importance of protecting the lands that feed us; provide critical habitats; supply recharge reservoirs; hold unique cultural and historical significance; buffer our urban, suburban, and exurban communities; and offer educational, recreational, and spiritual respite and retreat—and the tradeoffs of economic sustainability. The diversity of associations about land and its numerous supporting roles provide essential links to understanding the breadth of private and social economic, health, and environmental values generated by protected land resources. The robustness of natural- and social-capital values, increasingly referred to as

This article is also available at http://www.law.duke.edu/journals/lcp.

* *Corresponding author.*

Dr. Julie Ann Gustanski LLM, AICP is an economist, planner, and policy analyst. Her work over the past twenty-five years has focused on the interactions between society and institutions, including: economics, policy, and ethics, in relation to conservation, land use, community development, and resource management issues. She began working with conservation easements in 1986. Since this time, she has helped lead the charge on related enabling legislation, networking forums, the founding of the Pennsylvania Land Trust Association, land trusts and county-based farmland preservation programs. Working across the public, private, and non-profit spectrum, her efforts have enabled the protection of more than 2-million acres of land in the United States and beyond. Formerly an associate professor in the Economics Department at Rensselaer Polytechnic Institute (RPI) in New York, she is a principal at Resource Dimensions, a multi-disciplinary land use and natural resources economic consulting firm based in the Pacific Northwest. She is the co-author and editor of one of the preeminent treatises on conservation easements, *Protecting the Land: Conservation Easements Past, Present, and Future,* published by Island Press. Gustanski serves as Chair of the Greater Gig Harbor Foundation, a regional non-profit organization whose work traverses the work of a land trust, a parks foundation, and a community foundation.

Dr. John B. Wright is a Professor of Geography at New Mexico State University. Over the past thirty-four years, he has helped design 122 conservation easements protecting more than 300,000 acres across the American West. Wright serves as Chair of the New Mexico Land Conservancy, a state-wide land trust.

ecosystem services,[1] depends on tactical considerations given to permanent protection efforts by the public agencies and private organizations working to secure and enhance the condition of the land resource.[2]

The ease of application across varied lands coupled with the financial and tax-associated benefits of conservation easements have driven the popularity of their use in conserving private lands across the United States.[3] Conservation easements typically require sizeable public funding resources, which are provided through either direct public expenditures via diverse public programs established to promote the conservation of land or through tax benefits.[4] As a measure of accountability, land preservation organizations should seek to employ maximum net public-benefit criteria that include ecosystem-service values, which are incorporated into the setting of landscape-scale-preservation goals and the selection of lands for the acquisition of conservation easements.

There is a second fundamental arena associated with the valuation of conservation easements that has historically separated the importance of ecosystem services from the market value of land. While conservation easements are a legal statement of land stewardship,[5] the appraised value of conservation easements predominantly reflects development potential.[6] As a

---

1. The term ecosystem service has been used in a variety of circumstances by resource economists to explain the quantifiable services that an ecosystem provides to humans, including consumables and nonconsumables.

Expressed as:

$E_j = r(N)$

$E_j = j^{th}$ *ecosystem service*

N = *natural capital*

r = ecosystem function or process

The U.S. Department of Agriculture, *Urban Tree Canopy Assessment: Glossary*, U.S. FOREST SERVICE NORTHERN RESEARCH STATION, *available at* http://www.nrs.fs.fed.us/urban/utc/about/glossary/ (last visited Nov. 26, 2010), offers a useful context-appropriate definition:

> Ecosystem Services. The benefits that people obtain from ecosystems. These benefits may be environmental, social, or economic. Examples of environmental outcomes include the protection of streams, reduced stormwater runoff, reduced ozone concentrations, and increased carbon sequestration. Social outcomes may include improved human health, buffers for wind and noise, increased recreational opportunities, and neighborhood beautification. Economic outcomes can include reduced heating and cooling costs and increased property values.

2. *See generally* John Loomis et al., *Measuring the Total Economic Value of Restoring Ecosystem Services in an Impaired River Basin: Results From a Contingent Valuation Survey*, 33 ECOLOGICAL ECON. 103 (2000).

3. *See, e.g.*, Adam E. Draper, *Conservation Easements: Now More Than Ever—Overcoming Obstacles to Protect Private Land*, 34 ENVTL. L. 247, 255–56 (2004).

4. Nancy A. McLaughlin, *Condemning Conservation Easements: Protecting the Public Interest and Investment in Conservation*, 41 U.C. DAVIS L. REV. 1897, 1903–04 (2008); *see also* Amy Wilson Morris, *Easing Conservation? Conservation Easements, Public Accountability and Neoliberalism*, 39 GEOFORUM 1215 (2008); Amy Wilson Morris & Adena R. Rissman, *Public Access to Information on Private Land Conservation: Tracking Conservation Easements*, 2009 WIS. L. REV. 1237 (2010).

5. ELIZABETH BYERS & KARIN MARCHETTI PONTE, THE CONSERVATION EASEMENT HANDBOOK 100 (2d ed. 2005).

6. John B. Wright, *Tax Implications of Conservation Easements*, REAL EST. REV., Summer 1994, at 75. *See also* JULIE ANN GUSTANSKI, PROTECTING UNIQUE LAND RESOURCES: TOOLS,

result, the economic value of an easement as a federal or state income-tax deduction or its market value for outright purchase does not always correspond with its ecological, scenic, and cultural importance.[7] This seeming paradox is familiar to easement practitioners. As open land becomes scarce and emotionally vital to landowners and adjacent residents, the total cost of an easement may soar in relation to the land's qualifications under the Internal Revenue Service (IRS) criteria of ecological, open-space, historic, and recreation value.[8]

While conventional appraisal methods, such as market and comparable sales approaches, remain the norm for valuing most conservation easements, the appropriateness of these methods is increasingly debated. Conservation practitioners have long promoted the protection of land and its diverse biophysical resources as providing an array of environmental, social, and ecological benefits to the broader community. Such benefits extend beyond a landowner's tax benefits for a full or partial donation of a conservation easement or the remuneration to a landowner in the instance of the purchase of such rights by a governmental agency or nonprofit organization. However, notwithstanding the fundamental benefits of these services, the public and private sector have been slow to integrate them in any formal way into either conservation easement valuation or decision-making processes. This draws attention to the historically ill-defined delineation of ecosystem-service flows, which could be very helpful to decision makers.[9] Progress, however, has been made over recent years in economics, social sciences, and biophysical sciences to include such service values for the public benefits provided by protected private lands into the strategic conservation planning framework.[10] The incorporation of some unit of measure for ecosystem services will aid in driving toward maximizing the net benefit of dollars expended for land conservation (whether by public agencies or by land trusts). Net benefit is maximized at the point at which marginal benefit equals marginal cost. Thus, in so doing,

---

TECHNIQUES AND TAX ADVANTAGES FOR PENNSYLVANIA LANDOWNERS (1997); LAND TRUST ALLIANCE & NAT'L TRUST FOR HISTORIC PRES., APPRAISING EASEMENTS: GUIDELINES FOR VALUATION OF HISTORIC PRESERVATION AND LAND CONSERVATION EASEMENTS (3d ed. 1999); Roderick H. Squires, *Introduction to Legal Analysis*, *in* PROTECTING THE LAND: CONSERVATION EASEMENTS PAST, PRESENT AND FUTURE 69 (Julie Ann Gustanski & Roderick H. Squires eds., 2000).

7. JULIE ANN GUSTANSKI, CONSERVATION INSTRUMENTS: INTERGENERATIONAL ISSUES, ECONOMICS AND PUBLIC POLICY (2007). *See also* TIMOTHY C. LINDSTROM, A TAX GUIDE TO CONSERVATION EASEMENTS (2008).

8. *See* I.R.C. § 170(h)(4)(a) (2006).

9. *See* GEOFFREY HEAL, NATURE AND THE MARKETPLACE: CAPTURING THE VALUE OF ECOSYSTEM SERVICES (2000); Patricia Balvanera et al., *Conserving Biodiversity And Ecosystem Services*, 291 SCIENCE 2047 (2001).

10. *E.g.*, David M. Olson & Eric Dinerstein, *The Global 200: A Representation Approach To Conserving The Earth's Most Biologically Valuable Ecoregions*, 12 CONSERVATION BIOLOGY 502, 502 (1998). *See also* CRAIG R. GROVES, DRAFTING A CONSERVATION BLUEPRINT: A PRACTITIONER'S GUIDE TO PLANNING FOR BIODIVERSITY (2003).

appropriate signals to local and regional land markets will encourage the provision of optimal levels of desired public amenities.[11]

Conservation easements and other techniques of "land saving" typically occur where there is significant "land losing," and the resulting implementation costs largely reflect market forces for development and not the land's qualitative importance.[12] While rising subdivision values make donated easements more attractive from an income-tax deduction standpoint, this too often tempts landowners into selling the land for development. Escalating values also increase the cost of purchased easements—that is, purchase of development rights (PDRs)—and can make them unattainable for land trusts or public agencies.[13]

Generally, there are two perspectives on identifying the benefits and costs of conservation efforts. The first focuses on the potential biophysical benefits and costs. The second focuses on the socioeconomic benefits and costs.[14] The socioeconomic perspective provides a time dimension to benefit–cost analysis. Associated valuation processes use similar data, but in quite different ways. As shown in Figure 1, the socioeconomic benefits and costs depend on the biophysical benefits and costs, and the biophysical benefits and costs are predicated on socioeconomic behavioral responses. Ultimately, the outcome is dependent on conservation strategies employed on the subject lands.

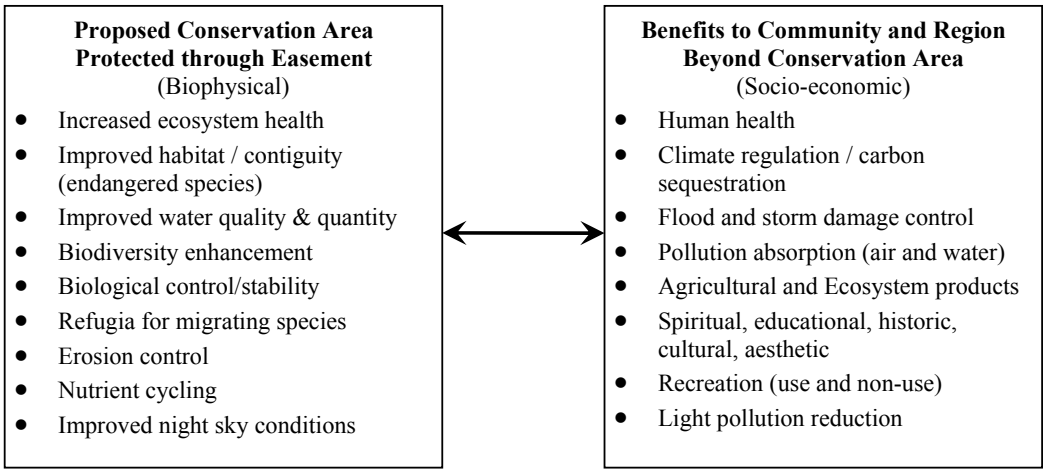
11. Rigoberto A. Lopez et al., *Amenity Benefits and the Optimal Allocation of Land*, 70 LAND ECON. 53 (1994).

12. STEPHEN SMALL, PRESERVING FAMILY LANDS BOOK III: NEW TAX RULES AND STRATEGIES AND CHECK LIST 29–39, (2002).

13. Thomas L. Daniels, *The Purchase of Development Rights: Preserving Agricultural Land and Open Space*, 57 J. AM. PLAN. ASS'N 421 (1991).

14. See Figure 1.

Figure 1: Potential Ecosystem Services Associated with Protected Lands



Maximizing the net value of conservation easements as a strategic tool within a multilayered framework designed to assure protected landscapes—whether at the local, regional, or eco-regional plane—requires examination of a multiplicity of interactions across the public–private interface. Actively cultivating the movement from mere discussion to the widespread use of conservation easements aimed at net value maximization requires a general shift in public and private program operations. Most crucially, land preservation goal setting must move toward landscape-scale targets that require coordinated planning, concerted effort to identify and bridge gaps, and the willingness to build strategic alliances. This includes working closely with landowners whose private interests are often closely aligned with society's interest in protecting productive lands, open space, habitat, and species.[15] To this point, there are numerous instances across the nation where private landowners have driven various land-saving actions. From leading state farmland conservation programs in Pennsylvania, to initiatives to protect and manage forest lands in Massachusetts, to efforts such as the Chama Peak Landowner Alliance addressing land-management and conservation issues across more than one million acres of the San Juan to Rio Grande landscape, private landowners have taken strides to maintain and manage their lands in ways that provide significant public benefit.[16]

15. *See* Ray Vaughn, *Environmentalists and Forest Landowners: Why We Must Work Together*, 3 VT. J. ENVTL. L. 77 (2001–02). *See also* WILDLIFE HABITAT POLICY RESEARCH PROGRAM, OUR NATION'S WILDLIFE HABITATS: COMPLETING AN INTEGRATED SYSTEM FOR CONSERVING THEIR VALUES AND BENEFITS IN A CHANGING WORLD (2010).

16. Hal Marcovitz, *Hallowell Favors Bill To Keep Development Off Farmland*, THE MORNING CALL, June 15, 1985, at B3; *Keystone Cooperator Profile: Forest Land Owners United*, THE MASS. KEYSTONE PROJECT (2009), *available at* http://masskeystone.net/stories/eve/index.html; Press Release, W. Envtl. Law Ctr., Landowners Partner Together to Protect the San Juan to Rio Grande Landscape: New "Chama Peak Landowner Alliance" Launched Oct. 18, 2010, *available at* http://www.westernlaw.org/article/landowners-partner-together-protect-san-juan-rio-grande-landscape.

Part III of this article sets forth possibilities by which certain market-based incentives—aligned with conservation easements—may act to facilitate efficient regional investments in conservation. In Part IV, attention is turned to the question of "what to protect?" This question leads to the presentation of a simple model that enables alternative market-based solutions that may be developed for coupling with the use of conservation easements to provide appropriate market signals to landowners within identified specific conservation planning areas, thereby optimizing net value. Part V sets forth models under which the issue of information asymmetry is examined in the context of maximizing net efficiency of public and private conservation easement program investments. Resolving the matter of asymmetric information flow is fundamental to maximizing the net value of land conservation-easement programs. In Part VI, subparts A–C, case studies are used to explore the arguments of preceding sections and the efficacy of conservation easements at different landscape scales and in the direction of net value maximization. These case studies explore how conservation easements are being created along a gradient of development pressures in the changing American West.[17]

II

THE POTENTIAL FOR MARKET-BASED SOLUTIONS IN THE INCENTIVE-BASED CONSERVATION EASEMENT MARKETPLACE

It is well established that markets allocate pure private goods and services most efficiently.[18] The parallel circumstance for effective public management of resources is also clear: governments distribute pure public goods and services most efficiently. But what of the quasi-public goods—private goods with public-good aspects—that are provided by conservation easements? From an economist's perspective, inefficiencies created under such conditions should provide an opportunity to create better institutional market-like arrangements.[19] As an incentive-based mechanism, conservation easements themselves seek to address market failings.[20] Yet, despite much success, substantial issues surrounding the implementation of land preservation remain. Central to this is

17. *See generally* STEPHEN TRIMBLE, BARGAINING FOR EDEN: THE FIGHT FOR THE LAST OPEN SPACES IN AMERICA, (2008); JOHN B. WRIGHT, ROCKY MOUNTAIN DIVIDE: SELLING AND SAVING THE WEST (1993).

18. Elinor Ostrom, *Challenges and Growth: The Development of the Interdisciplinary Field of Institutional Analysis*, 3 J. INSTITUTIONAL ECON. 239, 256 (2007).

19. Kenneth Arrow, *Gifts and Exchanges*, 1 PHIL. & PUB. AFF. 345 (Summer 1972). *See also* BURTON A. WEISBROD, THE NONPROFIT ECONOMY 41 (1988).

20. Market failure, in context, means that market forces in the land market do not work to fully reflect social values and thus fail to secure the desired balance between land conversion and land conservation. *See, e.g.*, RALPH E. HEIMLICH & WILLIAM D. ANDERSON, U.S. DEP'T AGRIC., AGRIC. ECON. REPORT NO. 803, DEVELOPMENT AT THE URBAN FRINGE AND BEYOND: IMPACTS ON AGRICULTURAL AND RURAL LAND 3–4 (2001) (explaining that "[c]ontinued demand for low-density development despite negative consequences for residents can be understood as a market failure" and "[b]ecause there are no markets for some characteristics of land, such as scenic amenity, there are no observable prices apart from the land's value for development").

the fact that most public and private conservation-easement programs have been, and remain, persistently underfunded. Further complicating the conservation-easement market, recent years have brought several notable IRS challenges to appraisal practices.[21]

Despite these challenges, and the ever widening wealth divide in the United States, recent expansions of the federal tax code that allow easement write offs for up to sixteen years allow many private landowners to use all or most of the potential tax benefits associated with the donation or partial donation of a conservation easement on their land.[22] If optimal conservation remains society's objective, it is vital to build upon the existing body of mechanisms to bridge the compensation gap, thereby removing the full burden of social responsibility and personal financial loss associated with the positive externality borne by private landowners whose lands provide essential public benefits.

Typically, the greatest driver in conservation is the cost of the "no action alternative," or "the cost of doing nothing." Associated benefits including those produced through the conservation of historically and culturally important, open space, recreational, wildlife habitat, and working lands are also drivers. Economists have long exalted the merits of market-based or incentive-centered approaches to safeguarding the environment. About ninety years ago, A. C. Pigou suggested corrective taxes to discourage actions that produce externalities.[23] And, some forty years ago, John Dales first proposed transferable property rights as a policy instrument to promote environmental protection at substantially lower total cost than conventional methods.[24] Within the context of land conservation, market-based tools on their own may be marginally effective, but, in recent years, they have been gaining popularity as important additions to comprehensive conservation strategies.[25] Market-based

21. COLORADO COALITION OF LAND TRUSTS, FACT SHEET: IRS AUDITS OF CONSERVATION EASEMENTS IN COLORADO (2008), *available at* http://www.cclt.org/Downloads/policy/irs/IRSfactsheetmay08.pdf (last visited Mar. 21, 2010). These issues were covered in a series of stories in *The Washington Post*. The worst abuser was the "conservation buyer" program run by TNC. The organization would purchase land, place a conservation easement, and then re-sell it at substantially reduced prices, and often to supporters and trustees. Joe Stephens & David Ottaway, *Nature Conservancy Suspends Land Sales*, WASH. POST, May 13, 2003, at A3.

22. This enhanced incentive, created in the 2006 Pension Protection Act, § 1206, I.R.C. § 170(b) (amended 2010), was extended through 2009 through the Food, Conservation, and Energy Act of 2008, Pub. L. No. 110-234, § 15302, 122 Stat. 1501, 2263 (codified as amended at I.R.C. § 170(b) (LexisNexis 2011)). Extension of the enhanced incentive was again granted through 2011 in the Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010. Pub. L No.111-312, § 723, 124 Stat. 3296, 3316 (codified at I.R.C. § 170(b) (LexisNexis 2011)).

23. *See* ARTHUR C. PIGOU, THE ECONOMICS OF WELFARE (1st ed. 1920).

24. JOHN H. DALES, POLLUTION, PROPERTY & PRICES: AN ESSAY IN POLICY-MAKING AND ECONOMICS (1968).

25. *See, e.g.*, STEFANO PAGIOLA ET AL., SELLING FOREST ENVIRONMENTAL SERVICES: MARKET-BASED MECHANISMS FOR CONSERVATION AND DEVELOPMENT (2002). *See also* BARTHOLOMEW MCGUIRE MARTIN, DEFENDERS OF WILDLIFE, BUYING, SELLING, AND TRADING BIODIVERSITY IN WASHINGTON: A BAZAAR FOR BIODIVERSITY (2007), *available at* http://www.defenders.org/resources/publications/programs_and_policy/biodiversity_partners/buying,_

strategies make it possible to both identify and allocate economic value to the ecosystem services produced from the protection of lands and their innate resources at the appropriate scale.[26]

Development of an ecosystem-services marketplace linked to conservation easements and integrated conservation strategies will require the creation and advancement of tools that will ensure measurable benefits, protocols for assigning and tracking units,[27] and broad accessibility to public and private agencies. The marketplace must be (1) credible and transparent, (2) systematically effective, (3) low in transaction costs, (4) able to deal with multiple values, and (5) able to involve strategic investment at the landscape scale.

There are numerous possible opportunities for the development of new, or the extension of existing, market-based initiatives that may lead to better alignment of public and private land-conservation initiatives and move toward an optimal provision of public benefits. While not intended to be exhaustive, Table 1 identifies several market-based incentives, some of which are in practice today. All of these incentives have room for evaluation, expansion, and adaptation. Broadly, these incentive structures include financial assistance, regulatory aid or relief, technical and educational support, recognition, and other market-based incentives.

selling_and_trading_biodiversity_in_washington.pdf; Kenneth Iain MacDonald, New Partners: Institutional Dynamics, Ideological Shifts and Market Logics in the Organization of Biodiversity Conservation, Presentation at the 24th Annual Meeting of the Society for Conservation Biology, Conservation for a Changing Planet (July 4, 2010).

26. Rodrigo Arriagada & Charles Perrings, *Making Payments for Ecosystem Services Work* 21–23 (U.N. Envtl. Programme, ecoSERVICES Grp., Working Paper 2009), *available at* http://www.ecoservices.asu.edu/pdf/UNEP%20Working%20Paper%201.pdf.

27. Here, the term "unit" refers to a standard accepted unit of measure for diverse ecosystem service contributions of protected lands to human welfare. Such units provide a universal framework for use by public agencies, land trusts, and ecosystem-service markets.

Table 1: Market-based Conservation Incentives Summary

Incentive Structure	Example	Operation
Financial Instruments		
	• Real estate transfer taxes	• Taxes from sales funds conservation
	• Investment fund for financing stewardship projects	• Competitive grants or low interest loans
	• Land conservation trust fund	• Public and private funds pooled and privately managed for conservation easement acquisitions or ecosystem service gap funding
	• Voluntary tax-deferred account established at time conservation easement is placed	• Account stays with the land from one generation/owner to the next; funds only available for approved stewardship purposes.
	• Ecosystem services investment fund	• Direct private sector payments for ecosystem services, in which the private sector defines and purchases benefits (e.g. private social investment pooled fund, competitive grants, etc.)
	• Property tax credits for managing lands under Endangered Species Act	• Federal tax credit (to help offset local property taxes) if land is managed for species conservation
	• Impact Fees / Tax penalties for habitat conversion	• Per acre tax or development impact fee charged for habitat conversion in priority areas
Technical and Educational Support		
	• Technical assistance shop / one-stop shop	• Could be NGO, quasi-public or public multidisciplinary team to assist land owners
	• Create commodity commissions	• Provide scientific, economic, technical assistance to landowners to aid in implementation of sustainability practices.
	• Stewardship Exchange Programs	• Protect riparian areas on private land in exchange for forage on public land.
	• Working Lands Legacy Programs	• Match owners of working lands with next generation, provide training and transition planning, etc. with tax credits to participants in line with certain requirements
Norm-based (Motivational)		
	• Recognition /Award Programs	• Provide plaques, certificate or other recognition. Emphasize positive, build relationships between government and landowners.
	• Green Certification Programs / Market-based environmental standards and certifications	• Certify products raised under Best Managemetn Practices (BMPs); value added for products and services (e.g. Smart Wood, Salmon-safe food, etc.)
	• Heritage Stocks designation	• Signage, recognition events to recognize landowners who manage lands for healthy stocks (e.g., salmon)
Regulatory Aid / Relief		
	• Conservation tax credits	• State income tax credit for easements
	• Eliminate regulatory disincentives for voluntary exotic removal and habitat	• Expedited permit or waiver process
	• Pre-listing conservation agreement	• Conservation real estate brokerage

As with any new land initiative, there will be complexities to resolve in developing the most pragmatic tools to aid in the alignment of incentives to induce optimal land-saving actions. Yet, with all the work to protect lands, organizations and government agencies must work together to rethink and realign with the goal of net benefit maximization across the gradient—from the urban–suburban fringe to exurban, rural, and remote lands. With primary criticisms of reform squarely centered on issues linked to costs to the public coffers and related inefficiencies,[28] exploration of the marketplace appears appropriate. Advancing markets is about taking risks. With the vast demands on governments to address fundamental social policy issues such as health care, education, and unemployment, improvements in the use of markets to devise sustainable and self-sufficient programs are necessary. Creating market-like arrangements that will aid in moving public and private efforts to sharing—and executing—a vision aimed at the landscape scale will require much work and the maintenance of an entrepreneurial spirit.

III

WHAT TO PROTECT?

A new approach to developing market-based mechanisms can more fully articulate the value of those lands protected by conservation easements. The age-old question of "what to protect" will, however, assuredly remain. Efforts to protect farm, forest, wild, and open-space lands have often been played out as win–lose scenarios, in which conservation is pitted against economic opportunity. Even in the face of a retracting economy, our nation's lands continue to face development pressure.[29] The challenge to public and private resource managers and decision makers is deciding what lands are valuable and how best to protect them. A 2001 survey of state farmland preservation programs made broad assumptions about nation-wide efforts.[30] In general, programs protect both productive lands and ecosystem services. All things being equal, the level of agency-based land protection is correlated with population density; more protection for a state like New Jersey and less protection for a state like Wyoming. Productive lands with high values tend to

28. Zachary Bray, *Reconciling Development And Natural Beauty: The Promise and Dilemma of Conservation Easements*, 34 HARV. ENVTL. L. REV. 119, 135 (2010).

29. *See, e.g.*, SUSAN M. STEIN ET AL., U.S. DEP'T AGRIC. FOREST SERV., PAC. NW. RESEARCH STATION, GEN. TECHNICAL REPORT PNW-GTR-795, PRIVATE FORESTS, PUBLIC BENEFITS: INCREASED HOUSING DENSITY AND OTHER PRESSURES ON PRIVATE FOREST CONTRIBUTIONS (2009). *See also New Jersey Gains Farms Despite Losing Farmland, Farm and Food News Update 11/19/10*, AMERICAN FARMLAND TRUST (Nov. 19, 2010), *available at* http://blog.farmland.org/2010/11/farm-and-food-news-update-111910; April Rees, *USFS Report: 'Ecosystem Services' at Risk From Suburban Development*, N.Y. TIMES, Aug. 19, 2010, *available at* http://www.nytimes.com/gwire/2010/08/19/19greenwire-usfs-report-ecosystem-services-at-risk-from-sub-6173.html.

30. Daniel Hellerstein & Cynthia Nickerson, *Farmland Protection Programs: What Does the Public Want?*, AGRIC. OUTLOOK, May 2002, at 27.

be given more protection with an emphasis on viable operations. However, farmland-preservation programs alone may not fulfill the range of amenity-conservation preferences of the general public.

The results of a national survey concerning open space and land-conservation attitudes indicate preferences for protecting the habitat of threatened species, public access to recreation, and greater safeguards for open space.[31] Another study that assessed preferences for a different bundle of features connected with lands protected through farmland and open-space preservation programs found that respondents most interested in the environmental attributes associated with preserving farmland were primarily concerned with protecting groundwater quality, wildlife habitat, and natural places.[32] Respondents who indicated that land preservation actions should be aesthetically guided had a stronger than average preference for public access.[33] These results reveal varied preferences for the conservation of lands and open-space amenities across the nation. In turn, the variety of preferences can be translated into different levels of willingness to pay (WTP) or valuation of ecosystem services. In other words, maximizing public benefits from land preservation will mean different strategies in different parts of the nation.

In the following section a conceptual model that integrates a traditional conservation–easement-appraisal framework with ecosystem-service values is developed to evaluate one possibility for an incentive-based framework to signal net value maximization for public and private conservation-easement programs and optimal conservation of key lands.

IV

A POTENTIAL PLATFORM TO ENHANCE THE EFFICIENCY OF CONSERVATION-EASEMENT PROGRAM INVESTMENTS AT THE REGIONAL SCALE

The model outlined presents a way to encourage efficient regional investments in conservation easements and strategic landscape-scale conservation efforts by incorporating ecosystem-service values.[34] It examines the situation in which asymmetric information exists between the public agencies and private organizations and landowners in the conservation-easement

31. Julie Ann Gustanski et al., *The Ethics-Economics-Policy Paradigm: The Foundation for An Integrated Land Trust Conservation Decision-Support Model*, 3 URB. ECOSYSTEMS 83 (1999).

32. Jeffrey Kline & Dennis Wichelns, *Measuring Heterogeneous Preferences For Preserving Farmland And Open Space*, 26 ECOLOGICAL ECON. 211 (1998).

33. *Id.* at 214–15.

34. *See* Julie A. Gustanski, *Land Trusts and Conservation Decision-Making: The Integrated Land Conservation Decision-Support Model*, *in* PROTECTING THE LAND: CONSERVATION EASEMENTS PAST, PRESENT AND FUTURE 453 (Julie Ann Gustanski & Roderick H. Squires eds., 2000); JULIE ANN GUSTANSKI & THOMAS L. DANIELS, UGA DECISION-SUPPORT MODEL & ECONOMIC IMPACT ANALYSIS FOR THE NORTHERN LIMITS OF THE ALDERTON-MCMILLIN COMMUNITY PLANNING AREA (2006).

marketplace.[35] When either side of the market lacks information required to make decisions or to take specific actions (such as price, risk, site specific amenities, et cetera), efficiency is sacrificed.[36] Findings from work on water rights, carbon offsets, and similar ecosystem-services markets indicate that information asymmetry thwarts optimum market success.[37] Conservation-easement practitioners and public-program administrators know well the problems of asymmetric information in the subject marketplace.[38] While land trust program managers, for example, may have greater familiarity and information pertaining to conservation-easement values, landowners have superior information about the unique features of their land. Even where collective conservation strategies exist to protect multiple parcel blocks of land, each conservation-easement transaction is unique—negotiated on a case-by-case basis in a market that provides parties only modest help.

A. Framework

Suppose development choice is not dichotomous: a landowner can choose to develop no land, all of her land, or some amount in between. Also, assume there are two landowners with identical size and quality of acres represented by â. Each acre can be developed or protected, and the total number of acres protected is a_i, $i = 1, 2$. If a landowner chooses to develop land, she will receive a payment equal to b per acre, which is the same for both landowners. Social benefit is also derived for those lands that remain in their agricultural, cultural, or natural state. Marginal benefit MB (a) represents the social benefit per acre of protected land, a_i. The per-acre MB of conserved land is assumed to negatively slope to reflect the belief that while each acre of preserved land yields positive benefits to society, each additional acre beyond the optimal of protected acres provides less incremental benefit than the previous acre. If the

35. *See generally* Christopher S. Elmendorf, *Securing Ecological Investments on Other People's Land: A Transaction-Costs Perspective*, 44 NAT. RESOURCES J. 529 (2004).

36. *See generally* Stephen Polasky, *Investment, Information, Collection, and Endangered Species Conservation on Private Land*, *in* PROTECTING ENDANGERED SPECIES IN THE UNITED STATES: BIOLOGICAL NEEDS, POLITICAL REALITIES, ECONOMIC CHOICES, 317–20 (Jason F. Shogren & John Tschirhart eds., 2001); Tracy R. Lewis, *Protecting the Environment When Costs and Benefits are Privately Known*, 27 RAND. J. ECON. 819 (1996).

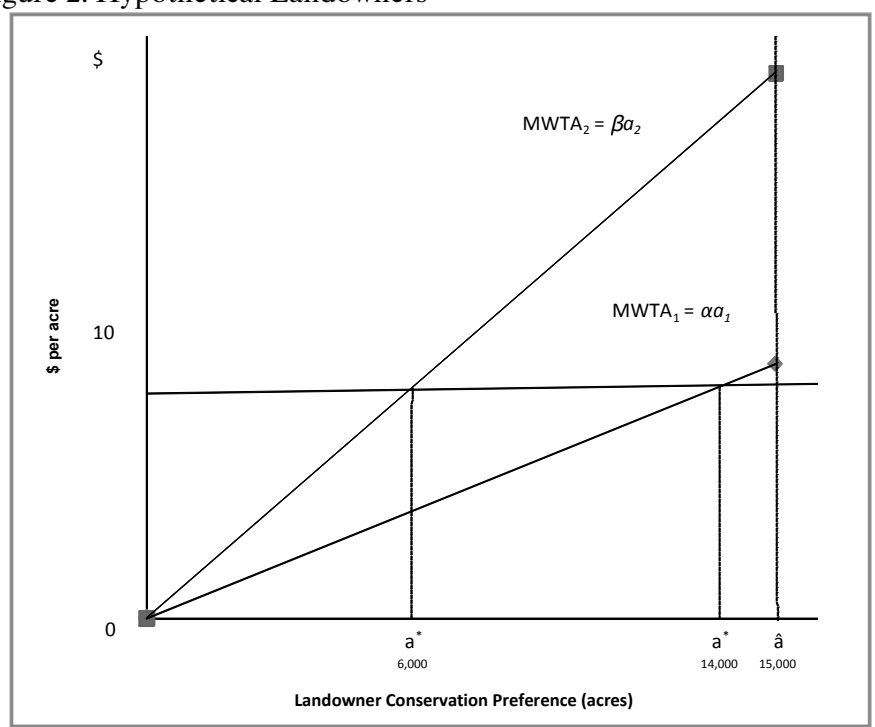
37. Stuart Whitten et al., *Putting Theory into Practice: Market Failure and Market Based Instrument* (CSIRO Sustainable Ecosystems, Socio-Econ. & Env't in Discussion Working Paper Series 2007-02, 2007), *available at* http://www.csiro.au/files/files/pf3h.pdf. *See also* Antony Dnes & Dean Lueck, *Asymmetric Information and the Law of Servitudes Governing Land*, 38 J. LEGAL STUD. 89 (2009); Gary Stoneham, *Creating Markets for Environmental Goods and Services: A Mechanism Design Approach* (Land & Water Austl., Soc. & Institutional Research Program, Research Project No. DSE3, 2007).

38. *E.g.*, Paul J. Ferraro, *Asymmetric Information and Contract Design for Payments for Environmental Services*, 65 ECOLOGICAL ECON. 810 (2008); JULIE ANN GUSTANSKI, WASH. WATER TRUST, CONJOINING VALUATION METHODS: MODELING THE RIGHT PRICE FOR WATER RIGHTS (2003); Dnes & Lueck, *supra* note 37. *See generally* Paul J. Ferraro, *Asymmetric Information and Contract Design for Payments for Environmental Services*, 65 ECOLOGICAL ECON. 810 (2008) (discussing the asymmetric information between landowners and conservation agents that limits the economic efficiency, and thus the effectiveness of conservation programs).

social benefit of protected land per acre exceeds the private per-acre value of developed land, then the public or private entity seeking to maximize the net welfare may choose to offer payment of p_i, $i = 1, 2$ dollar per acre to protect the land. The landowner will request the value of land in its developed state, b. Yet, the landowner receives benefit by retaining ownership and remaining on the land; therefore, there is a level of compensation for conservation less than b in which the landowner receives the same benefit as with the development option and zero compensation for protecting the land.

All landowners are not homogeneous; therefore, their varying preferences must be addressed. For example, some will attain a higher level of satisfaction from protecting their land than others. Those with strong land-conservation preferences are likely to make different choices than landowners with weak preferences for preservation, even when the two may face equal development opportunities and constraints. Therefore, a landowner's preferences for development must be considered to determine the landowner's choice. Let MWTAi, i=1, 2, represent the minimum per-acre payment a landowner is willing to accept (MWTA) to conserve land. Normally, the condition price increases with each acre conserved. While both landowners prefer more protection to less protection, each additional acre of protected land provides less satisfaction; thus, the compensation required increases as the level of protection increases. The range of landowner preferences will be reflected in the condition prices of the owners. Assuming that landowner one strongly prefers conservation while landowner two weakly prefers conservation, landowner two will require greater payments for each acre conserved than landowner one, $MWTA_2(a) > MWTA_1(a)$.

Figure 2: Hypothetical Landowners



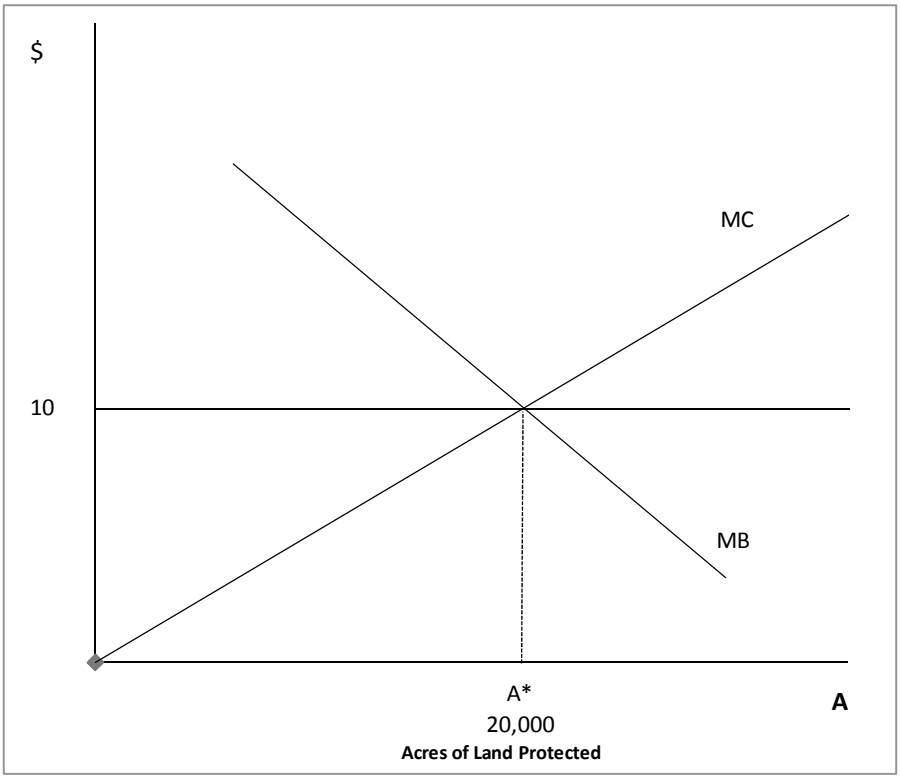
While protected lands provide a broad range of benefits, there are also associated opportunity costs. The opportunity cost of encumbering land with a conservation easement is the difference between the value of land in its highest private use and its restricted conservation value. If public funds are used to finance land conservation, society must consider other forgone publicly provided services in addition to the private goods and services foregone. If the costs of conservation-easement acquisitions are borne by a government program, public costs will extend beyond compensation to include program administration, income, capital, and sales taxes. MC is the summation of the condition prices, MWTA, across the $i = 1. . .n$ landowners in the region in which land conservation is to take place, $MC = \Sigma_i \, MWTA_i$. MC represents the opportunity cost of conserving an additional acre of land. The positively sloped MC curve reflects the increasing opportunity cost to society for land preservation. As the level of protected land grows, an ever-increasing amount of goods and services derived from developing land must be relinquished. This essential outline enables the investigation of results for different pricing strategies with a straightforward numerical and graphical approach.

B. Single-Price Strategy

Assume that both landowners in our example own 15,000 acres of land. Let $mc_1 = \alpha a_1$ represent the marginal cost (MC) for the landowner with strong conservation preferences while $mc_2 = \beta a_2$ represents the landowner with weak conservation preferences, where $\beta > \alpha$. Society benefits from land preservation, but must also recognize the opportunity costs of such actions. By bringing together MB and MC discussed above, the optimal level of protection, A*, can be determined. To maximize welfare, land should be protected until the social benefit of conserving an additional acre of land is equal to the social cost of conserving an additional acre of land, MB = MC. The result is the socially efficient level of conservation A* = 20,000 acres.[39] For any level of preservation less than 20,000 acres, the MB to society for preserving an additional acre of land exceeds the incremental cost of preserving an additional acre of land. As long as the net benefit of protecting an acre is positive, society can improve its welfare by increasing the level of conservation. Similarly, for any level of protection greater than 20,000 acres the cost of conserving an additional acre exceeds the incremental benefit of conserving an additional acre of land.

39. *See* Figure 3.

Figure 3: Socially Efficient Level of Conserved Lands



Minimizing the cost of protecting the optimal 20,000 acres requires the equalization of MWTA across landowners, or MB(A*) = MC(A*) = mwt(a2*) = mwt(a1*). As long as the MWTA across the landowners differ from one another, a society can reallocate conservation from the high MWTA individual to the low MWTA individual and receive a reduction in conserving the 20,000 acres of land.

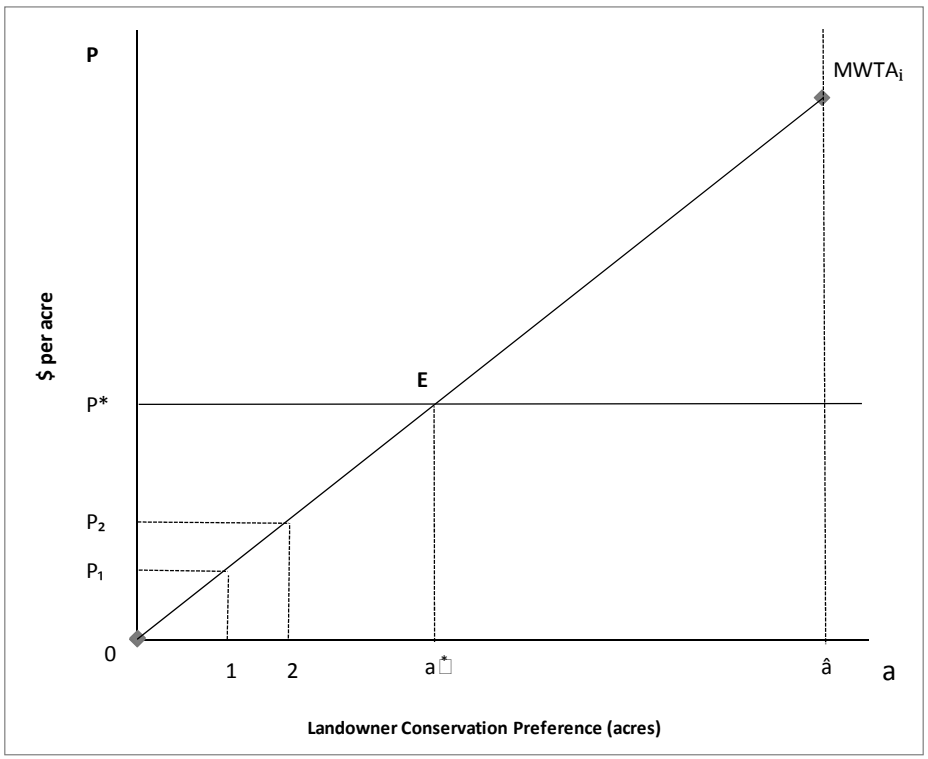
Figure 4 shows that by restricting the program to a one-price strategy, costs will be minimized and 20,000 acres of land will be conserved by offering P* = ten dollars for every acre conserved. Each landowner conserves additional acreage as long as the compensation offered exceeds the condition price of protecting an additional acre of land. Landowner one develops 1,000 acres, protects 14,000 acres at ten dollars per acre, and receives $140,000 in compensation. Landowner two develops 9,000 acres, protects 6,000 acres at ten dollars per acre, and receives a $60,000 payment. The total cost of conserving the optimal level of land, 20,000 acres, is $200,000 under a one-price strategy.

C. Perfect Information with Price Bias

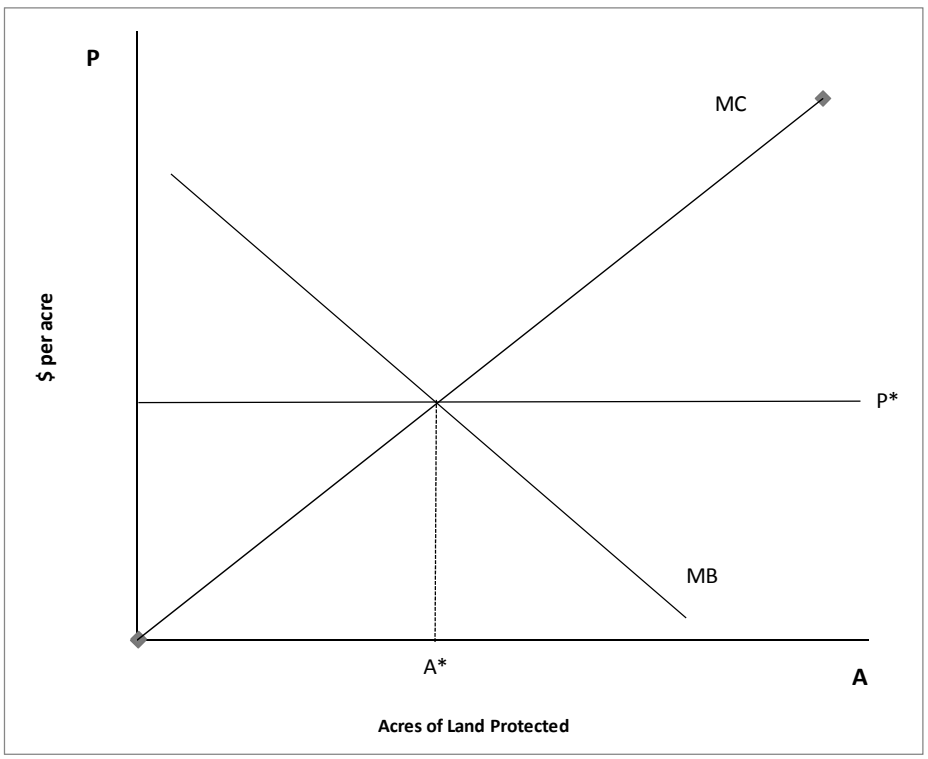
However, a one price per acre strategy may not result in optimal efficiency or acres conserved. Suppose the conservation agency or land trust can identify the landowners by their MWTA for each acre protected. If perfect information

about the landowner's preferences for conservation exists, then the cost of conserving the optimal acreage could be reduced by offering a different price for each acre of land conserved in such a way that the price offered for each acre is equal to the MWTA for that unit. Figure 4 depicts the MWTA for landowner *i*. Landowner *i* is willing to accept as little as P_1 for the first acre conserved, the fact that she is compensated P* per acre is a bonus or surplus of P^*-P_1.

Figure 4: Minimum Willingness to Accept for Landowner



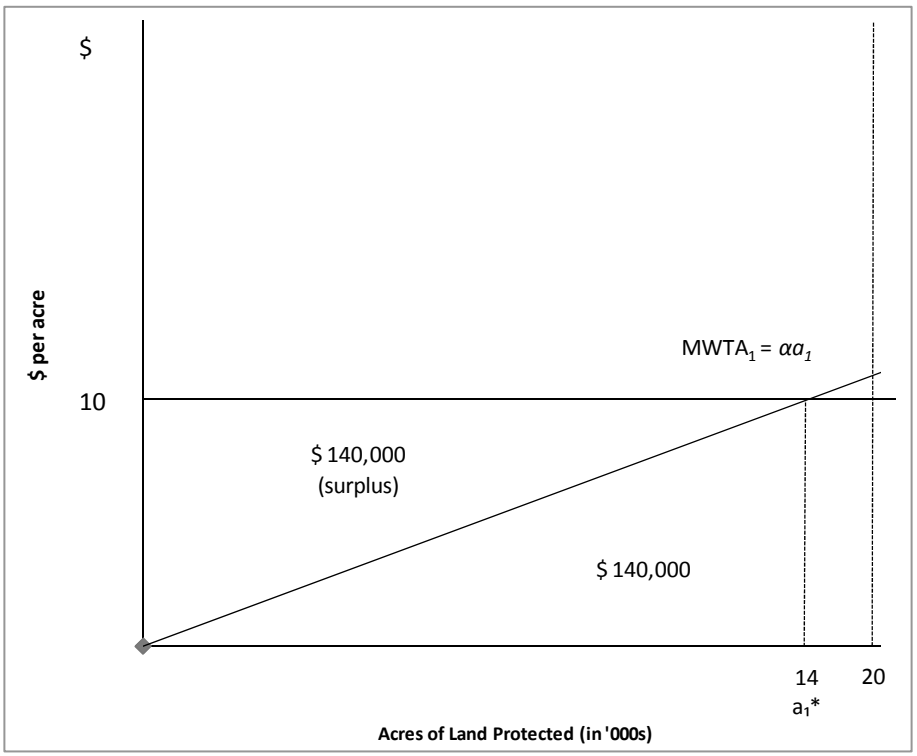
Lands Protected



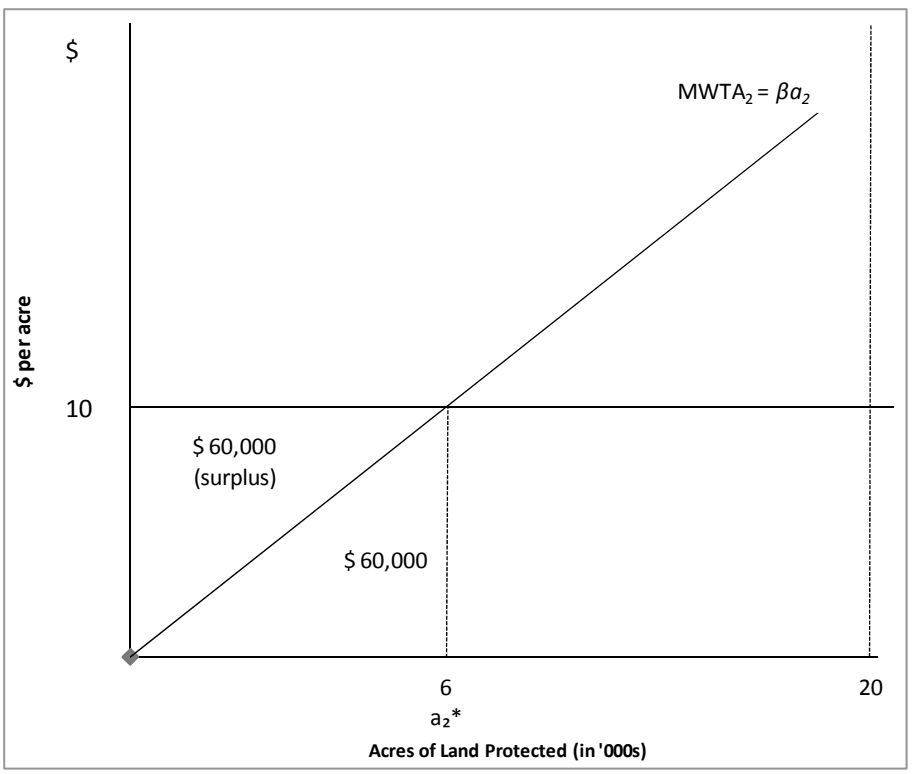
Expand the argument to successive acres of protected land. The surplus of conserving a* acres of land is the surplus equal to the area below the optimal price, P*, and the area above the MWTA curve. This is the difference between the total MWTA for a* acres of land conserved in the trapezoid region of 0Ea*, the amount of compensation actually paid, 0P*Ea*. Figure 5 illustrates the surplus for both landowners. Note that the landowner with strong conservation preferences receives greater surplus for the transaction. Thirty-thousand dollars of the $60,000 that landowner two receives for conserving 6,000 acres is surplus, while landowner one benefits from $140,000 of surplus for conserving 14,000 acres. Thus, if an agency or land trust is perfectly informed of the preferences of the landowners then it can reduce the cost of preservation by extracting the entire surplus from each landowner.

Figure 5: Conservation Landowner Surplus

Landowner One



Landowner Two



Remember that the condition for optimal conservation requires that payments for each additional acre of land protected must be compared across landowners due to the existence of differing preferences for protected lands. Without being restricted to a one-price compensation strategy, the conservation program can benefit from the fact that landowners receiving a higher marginal benefit for conservation for the same level of conservation than those with a lower preference, and the compensation required for landowner one (type-one landowners) is lower than the compensation required for landowner two (type-two landowners), $MWTA_2(a) > MWTA_1(a)$. The conservation program will, at first, elect to acquire conservation easements from the landowner with the lowest WTA price, or type-one landowners. With the incremental price increase for each additional acre placed under conservation easement, payments required by type-one landowners may exceed the compensation needed by those landowners with a stronger preference for development, or type-two landowners. Strategically, the program should opt to place conservation easements on lands in designated areas owned by those with the lowest WTA until the compensation for conservation is equated across landowners and (A*) welfare-maximizing conservation is achieved. If payments are not equalized to achieve the optimum level of protected lands, then greater efficiency will occur by acquiring easements from landowners with lower WTA price, which, in practice, is frequently below the appraised fair market value (FMV) than from those landowners with a higher WTA price. As type-one landowners require less compensation for the same quantity of conservation than type-two landowners, type one will protect more land, $a_1^* > a_2^*$. Similarly, type-two landowners will develop more land relative to type-one landowners, $\hat{a}\text{-}a_2^* > \hat{a}\text{-}a_1^*$. If programs function with perfect information and can price discriminate absolutely, each landowner will receive the minimum aggregate WTA for their conservation contributions: landowner two receives payment of $30,000 for 6,000 acres placed under conservation easement, landowner one receives payment of $70,000 for 14,000 acres of conservation, neither receives any surplus, and maximum allocative efficiency is achieved. In this scenario, the cost of protecting the optimal acreage is reduced to $100,000 due to the fact that each individual is offered the minimum payment required to participate in the conservation-easement program.

D. Asymmetric Preferences and Imperfect Information

Finally, assume that the conservation program has accounted for different landowner preferences for conservation, but cannot differentiate between them. Again, using landowners one and two, the program offers the following options:

Plan A: $30,000 for 6,000 acres.

Plan B: $70,000 for 14,000 acres.

The outcome is that both types of landowners would elect Plan A, which protects 12,000 net acres, or 8,000 fewer net acres than the optimal level. Landowner two will choose Plan A, as in the case of a perfectly informed

program agency, because the per-acre payment under Plan B is below the minimum WTA per acre for landowner two. Landowner two requires at least $140,000 to preserve 14,000 acres. Although landowner one has a stronger preference for conservation, landowner one would also choose Plan A, which provides less total compensation and protects fewer acres, because Plan B yields zero surplus while Plan A yields a surplus of $15,000, shown by the shaded area of Figure 6.

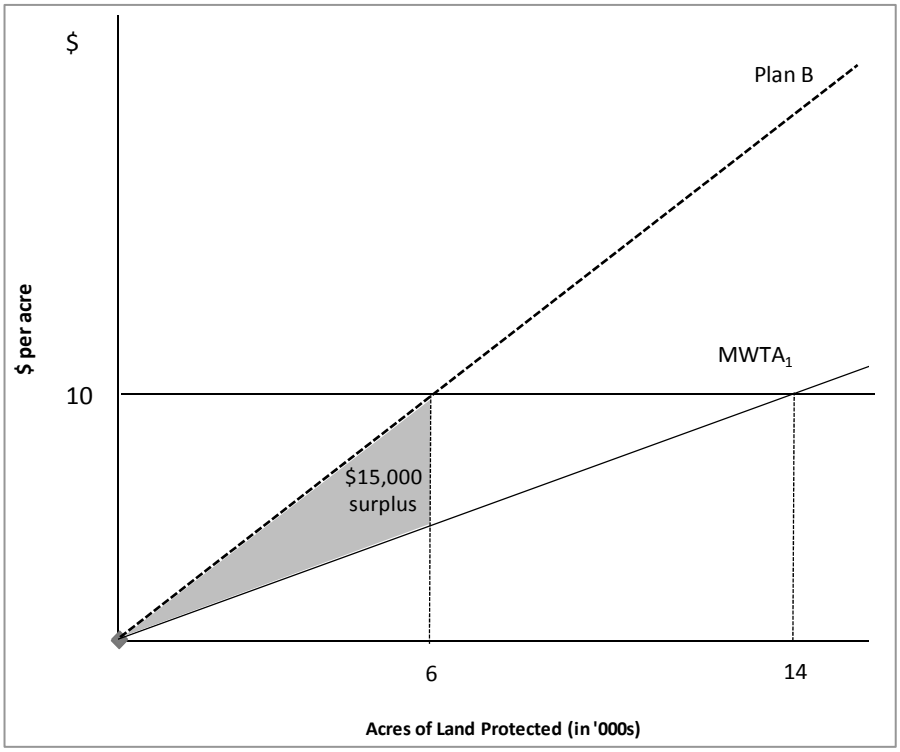
To encourage landowner one to protect the optimal 14,000 acres, the agency will have to forfeit efficiency and tender an incentive-compatible plan that yields at least $15,000 of surplus to landowner one. The new options with compatible participation and incentive constraints are:

Plan A: $30,000 for 6,000 acres.

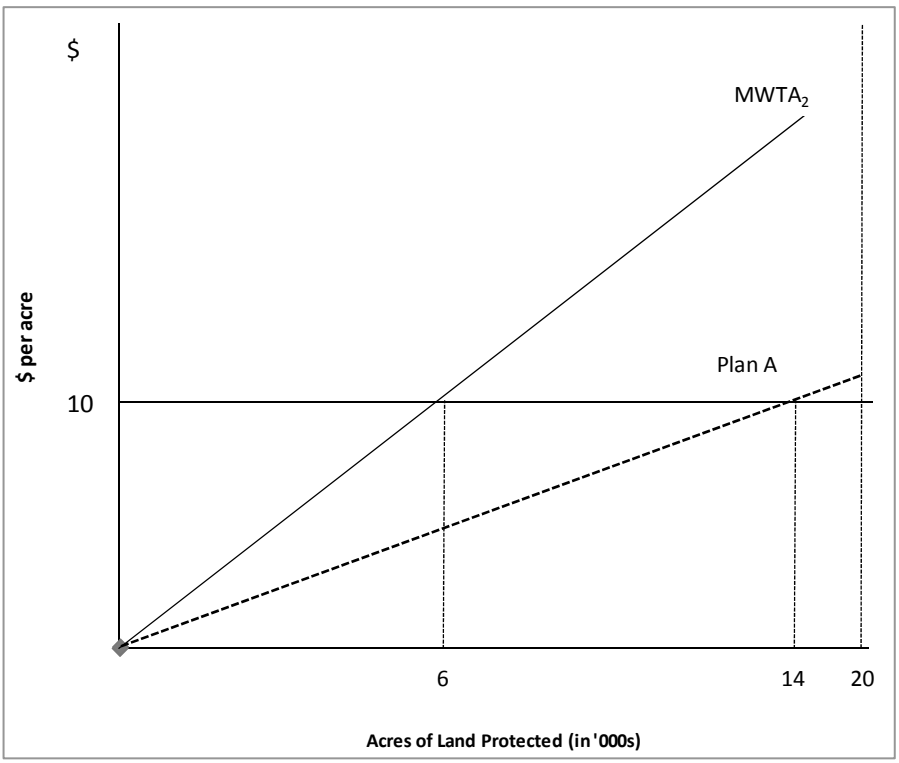
Plan B: $85,001 for 16,000 acres.

With the program incentives modified, type-two landowners will again select Plan A as the price per acre because Plan B is below the minimum WTA per acre. However, type-one landowners will now select Plan B. Landowner one is willing to protect 14,000 acres for as little as $70,000, but Plan B offers a surplus of $15,001, which is greater than the surplus generated by Plan A. Thus, the optimal 20,000 acres is protected through the conservation-easement program for a total of $115,001.

Figure 6: Compensation Price Per Acre
Landowner One



Landowner Two



E. Summary

Knowing that landowners can be generally categorized by either having strong- or weak- preferences for conservation is important. Given that the social benefit of conservation exceeds the private benefit of development for each individual landowner, it is preferable to have both types of landowners participate in the land-conservation market. Numerous pricing options exist for conservation agencies to realize the goal of optimal protected acres. However, the preference is to offer lower compensation to individuals that obtain greater satisfaction for remaining on the land in its protected state.

With full information, payments can be scaled so that landowners with comparatively strong preferences for land saving protect more and are paid less per acre protected than those landowners who receive less satisfaction for conservation. Because both categories of landowners receive benefits from protecting the land, below-market-value payments can be offered to each. Proper functioning of these principles requires an understanding, by the land trust or agency, as to where the preferences of landowners interested in participating in the conservation-easement marketplace lay. Without this knowledge, all participants will seek to collect maximum compensation, as evidenced by numerous program payments made by many public and private programs over the past several decades. To influence landowners to freely elect the payment and land-conservation blend that will provide both net benefit to the landowner and maximum net public benefit, payment for land-saving actions to those landowners with stronger preference for conserving the land (landowner type one) must be made more attractive relative to the compensation offered with full information. Fundamentally, the more perfect information land trusts and agency programs have regarding the pool of interested landowners, the greater the success of their respective efforts will be in strategically protecting the optimal amount of desired lands with the greatest economic efficiency.

V

CASE STUDIES

The theoretical arguments in the preceding sections are explored through an examination of the following case studies. Each highlights the array of social, environmental, and economic values within landscape-scale conservation along a gradient of development pressure. These case studies reveal that conservation decision-making may be analyzed as dichotomous—with type-one landowners willing to accept relatively low MWTA (low condition price per acre) for conservation, and with type-two landowners who demand relatively high MWTA compensation. However, conservation-easement deals also occur within vernacular cultural settings where emotional bonds act as a driver of decision-making in ways that remain beyond our current ability to quantify and predict.

A. Malpai Borderlands, New Mexico, and Arizona

The "Bootheel" region of southwest New Mexico and adjacent Arizona is a remote and biologically diverse ranching landscape that is only beginning to experience subdivision activity. Despite this, it is the location of one of the most innovative and effective conservation easement and land-stewardship efforts in the country.[40]

The Malpai—"badlands" in Spanish—is a broad expanse of desert basins and rugged mountain ranges of the Bootheel region bordering Mexico that is famed for its extraordinary biodiversity.[41] Flora and fauna from the Sierra Madre, Chihuahuan, and Sonoran Basin and Range ecoregions merge across a complex mosaic of privately owned ranches and government lands. Twenty species are federally threatened or endangered including the jaguar, ocelot, Mexican wolf, jaguaramundi, coatimundi, thick-billed parrot, Mexican spotted owl, aplomado and peregrine falcon, bald eagle, long-nosed bat, Yaqui chub, Yaqui topminnow, and Beautiful shiner.[42] The Malpai has the greatest reptile and amphibian diversity in North America. The desert tortoise reaches its extreme eastern distribution in the region. The endangered Chiricahua leopard frog resides in wetlands. The New Mexico ridge-nosed rattlesnake is found only in the wooded mountain canyons of the Malpai.

Development pressure is slight on the forty-one percent of the region that is privately held. Hidalgo County, New Mexico is larger than Delaware, but with only 5,932 residents it has a low population density with less than two people per square mile.[43] Adjacent Cochise County, Arizona is larger than Connecticut with less than 5,000 of its 129,000 residents living in the Malpai area. The average ranch in the region contains 8,000 acres of fee simple land with 40,000 acres leased from a state, the Bureau of Land Management (BLM), or U.S. Forest Service (USFS). Land values average $100 per acre for large working ranches.[44]

In 1990, The Nature Conservancy (TNC) purchased the 321,000 acre (502 square miles) Gray Ranch for $18 million (fifty-six dollars per acre).[45] The seller, a type-one landowner, wished to see the property conserved and accepted a relatively low per acre appraised value relative to what a more

---

40. *See generally* NATHAN F. SAYRE, WORKING WILDERNESS: THE MALPAI BORDERLANDS GROUP AND THE FUTURE OF THE WESTERN RANGE (2005).

41. *See* U.S. DEP'T AGRIC., FOREST SERVICE, GENERAL TECHNICAL REPORT RM-GTR-264, BIODIVERSITY AND MANAGEMENT OF THE MADREAN ARCHIPELAGO: THE SKY ISLANDS OF SOUTHWESTERN UNITED STATES AND NORTHWESTERN MEXICO (1995).

42. James H. Brown & Astrid Kodric-Brown, *Biodiversity on the Borderlands*, NAT. HIST., Apr. 1996, at 58.

43. U.S. CENSUS BUREAU, NEW MEXICO: 2000 (2002), *available at* http://www.census.gov/prod/2002pubs/c2kprof00-nm.pdf.

44. Thomas L. Daniels & John B. Wright, *Internal Report to the National Fish and Wildlife Foundation Evaluating the Organization's Land Conservation Projects from 1980–2008* (Nat'l Fish & Wildlife Found., Internal Report 2008).

45. SAYRE, *supra* note 40, at 51.

development-oriented landowner would have demanded. Yet, TNC had no plans to keep the biotically vital ranch and wished to transfer it to the federal government to become a vast national wildlife refuge where cattle would be removed. The Gray Ranch acquisition stirred concern among working ranchers. In 1994, they created the Malpai Borderlands Group (MBG), which has a mission "to restore and maintain the natural processes that create and protect a healthy, unfragmented landscape to support a diverse, flourishing community of human, plant, and animal life in our borderlands region."[46] Drum Hadley and other ranchers saw cattle as fully compatible with wildlife, and private land as superior to public. Their vision was a working wilderness.[47]

In 1994, after years of negotiations, the newly created Animas Foundation and Drum Hadley bought the Gray Ranch for $13.2 million with the property placed under a conservation easement held by TNC.[48] The easement capture was $4.8 million or twenty-seven percent of the $18 million appraised value of the unrestricted property. The easement barred development for nonagricultural purposes across the entire 502 square miles. Sensitive, high-elevation ranges were made off limits to grazing, but valley grasslands remained open to ranching. The easement was designed as two tiers that reflected two philosophies of conservation: biodiversity preservation in the mountains and working ranch land in the valley. In reality, species migration renders the entire property a functional ecosystem. However, this two-tiered approach proved to be the tipping point for local acceptance of easements since the best ranch land would remain in cattle production.

Since 1994, the MBG has embraced conservation easements as a technique to keep working lands intact. The organization has been involved in twelve conservation easements protecting over 75,000 acres.[49] Eight of the easements were purchased using funds from the National Fish and Wildlife Foundation (NFWF) and other donors. Four were obtained by trading ranchers' access to grazing on the Gray Ranch (currently the Diamond A Ranch) in exchange for placing conservation easements on their property. This innovative "grassbanking" program not only prevents development, but it allows ranchers to rest their home places during droughts or following fires to control shrub encroachment.[50] The amount of a ranch placed under easement is calculated using the appraised value of the grazing rights provided under the grassbank

46. MALPAI BORDERLANDS GRP., http://www.malpaiborderlandsgroup.org (last visited Mar. 20, 2011).

47. *See* Drummond Hadley, *The Origin and Future of the Grassbank*, *in* WRITERS ON THE RANGE 183 (Karl Hess, Jr. & John A. Baden eds., 1998). *See also* Arriagada & Perrings, *supra* note 26; Gustanski et al., *supra* note 31.

48. SAYRE, *supra* note 40, at 64.

49. Bill McDonald, *Conservation Easements and the Malpai Borderlands Group*, MALPAI BORDERLANDS GRP., http://malpaiborderlandsgroup.org/ce.asp (last visited Mar. 20, 2011); *About*, MALPAI BORDERLANDS GRP., http://malpaiborderlandsgroup.org/about.asp (last visited Mar. 20, 2011).

50. *See generally* Hadley, *supra* note 47.

contract and the appraised value of the ranch per acre. Grass is used as payment for easements instead of cash.

All MBG easements prohibit subdivision and development in perpetuity. All ranching uses are permitted and the MBG has no input into management. Instead, the MBG works collaboratively with ranchers who voluntarily choose to restore native grasslands and savannas, conduct prescribed burns, replace old barb fences with wildlife-friendly fences, and build ecologically compatible water-catchment structures.[51] The MBG raises funds to help pay for this work.

However, unlike tax-deductible donated easements, MBG deeds contain language which allows termination of the easement should a government agency rescind or severely restrict existing grazing permits on public land, which are necessary for ranches to remain economically viable. Malpai easements also allow landowners to terminate the easement if the MBG ceases to exist. This is to assure landowners that the MBG was not a mechanism for the eventual transfer of easements to a public agency. While these culturally based arrangements may be seen as "loopholes," the NFWF and other donors who paid for the easements remain strongly supportive of the program. MBG easements typically cost about thirty dollars per acre—a spectacular deal given the immense biodiversity present.[52] In this case study, easement sellers would be classified as type-one landowners under our model since they accepted a relatively low condition price. Emotional connection to the land acted as a supplementary compensation. Since federal tax deductions were not used, termination can legally occur without the involvement of courts or the Treasury Department. This reveals the essential difference between MBG easements that are primarily designed to support ranching, and typical donated easements that emphasize ecological and open-space resources. The low cost, simplicity, and massive net conservation benefits of these easements overshadow the low risk of termination. In essence, the ranchers of the Malpai region are held in good faith by conservation funders. These basic easements might also be seen as a first step toward more restrictive amendments in future decades as the properties change hands.

The MBG, Diamond A Ranch (formerly Gray Ranch), and New Mexico Land Conservancy (NMLC) (a statewide land trust) easements together protect some 400,000 acres (625 square miles) of ecologically diverse and beautiful working lands. While nearly all easement properties emphasize grazing, one project does not. The 1,760 acre Bioresearch Ranch, just south of the Diamond A Ranch, is under an easement held by the NMLC using funds from the NFWF.[53] Cattle have not been grazed on the property since 1973. Desert bighorn, jaguar, rare Coues whitetail deer, collared peccary, and dozens of

51. *See generally* Charles G. Curtin, *Integration of Science and Community-Based Conservation in the Mexico/U.S. Borderlands*, 16 CONSERVATION BIOLOGY 880 (2002).

52. Daniels & Wright, *supra* note 44.

53. *Bioresearch Ranch*, N.M. LAND CONSERVANCY, http://www.nmlandconservancy.org/Projects/ProjectsBioResearchRanch_P1_19.html (last visited Mar. 20, 2011).

other species of concern are found on the site. Although this project does not meet the mission of the MBG, it supports the project; a testament to the local tradition of private-property rights and mutual respect.

The ongoing success of conservation efforts in the Malpai region is driven by a confluence of nature, creative finance, and the landowners' topophilia—love of place. Conservation easement costs remain low and the benefits continue to increase as adjacent landscapes in Arizona and New Mexico are consumed by development. In our model, the marginal benefit (MB) of conserving additional acres does not raise per-acre acquisition costs because landowners are willing to sell easements for relatively low prices across their entire properties. Easement sellers in the Malpai region are classic type-one landowners with a strong conservation ethic. This case study reminds us that easements can be effectively used long before development pressure raises their purchase price or tax cost. Conservation easements are best seen as de jure–vernacular statements of stewardship that are rewarded with some level of financial compensation. These contracts are as much about personal ethics as economics.

B. Blackfoot River Valley, Montana

The Blackfoot River is best known as the setting for Norman MacLean's novella *A River Runs Through It* and the film by that same name. It is more praiseworthy for the 110,000 acres of conservation easements and collaborative land-stewardship efforts anchored by a coalition of landowners, agencies, and nonprofits known as the Blackfoot Challenge.[54]

The 1.5 million acre Blackfoot River watershed is the scene of moderate subdivision pressure and a long history of conflicts over logging and mining.[55] The drainage provides habitat for 236 species of birds, fifty species of mammals, five species of amphibians, and four species of reptiles. The federally endangered gray wolf lives in packs across the drainage. Threatened bald eagles, grizzly bears, and Canada lynx are well represented; elk herds are immense and wolverines hunt in high mountain forests. The 132 mile, free-flowing Blackfoot River supports twenty-five species of fish with twelve natives such as the rainbow trout, brown trout, federally threatened bull trout, and rare Westslope cutthroat trout. The high biodiversity of the watershed makes it a vital part of the "Crown of the Continent Ecosystem" linking the Blackfoot Valley with the Scapegoat, Bob Marshall, and Great Bear wilderness areas; Glacier National Park; and the vast, wild Canadian landscapes of Banff, Jasper, and the Yukon.[56]

---

54. BLACKFOOT CHALLENGE, http://www.blackfootchallenge.org (last visited Mar. 21, 2011).

55. *See generally* JOHN B. WRIGHT, MONTANA GHOST DANCE: ESSAYS ON LAND AND LIFE (1998).

56. *See generally Welcome to the Crown of the Continent Ecosystem*, THE CROWN OF THE CONTINENT ECOSYSTEM EDUC. CONSORTIUM, http://www.crownofthecontinent.org/coceec.htm (last visited Mar. 20, 2011).

In the late 1960s, the first recreational subdivisions were platted in the Blackfoot River Valley with little land-use planning oversight except permits for septic-tank systems. The specter of increasing, uncontrolled development aroused concern among residents of the valley. The landscape was already impacted by the clear cutting of fir and pine forests on U.S. Forest Service and Champion International land, leakage of toxins from mines, weed encroachment, and rising recreational demand by hunters and river floaters.[57] Landowners who were considering "Wild and Scenic River" status for the Blackfoot balked at the idea of federal land-use regulations in the valley. County zoning and other restrictions were viewed as bureaucratic and ineffective. In the end, conservation easements were seen as the most practical way of protecting the land while respecting private-property rights.

In the 1970s, subdivisions were platted at an increasing pace across the watershed. Most divisions were created using exemptions in the Montana Subdivision and Platting Act that allowed twenty-acre parcels "occasional sales"[58]—one parcel per year, and family transfers to be surveyed and sold with no planning board review.[59] In response, the first conservation easement was completed by TNC in 1976 on a small ranch beside the Blackfoot River.[60] The 320 acre 5 Star Double R Ranch came next—a lightly grazed place full of osprey and great blue herons. Local skepticism about easements diminished when the 3,656 acre Monture Hereford Ranch was protected. This project demonstrated that conservation easements were fully compatible with traditional cattle ranching *and* the protection of rare species; in this case, a plant called Howell's gumweed. Land Lindbergh then donated easements protecting 763 acres on both sides of the Blackfoot River. He said simply, "We were just trying to adjust to the changes that were coming. The whole valley is worth saving, so that's what we decided to try."[61] Valuation questions and financial benefits were seldom the primary reasons landowners chose to conserve their property.[62] Federal tax incentives for easement donations were modest at that time compared with the market value of land for development. Land ethics and a profound sense of place were the principal reasons for conservation-easement conveyances. Easement donors in this case study were classic type-one landowners where emotional conservation benefits trumped high economic compensation.

In 1993, landowners in the Blackfoot River Valley founded the Blackfoot Challenge to coordinate not just conservation easements, but a full range of

57. John B. Wright, *The Real River That Runs Through It: Montana's Imperiled Blackfoot*, FOCUS ON GEOGRAPHY, Spring 1993, at 18.

58. MONT. CODE ANN. § 76-3-207 (2010).

59. WRIGHT, *supra* note 17, at 39.

60. WRIGHT, *supra* note 55, at 115.

61. *Id.* at 116.

62. John B. Wright, *Conservation Easements: An Analysis of Donated Development Rights*, 59 J. AM. PLANNING ASS'N. 487, 491 (1993).

issues including cattle grazing, timber management, stream restoration, weed control, hunting, road building, and snowmobiles.

In 2001, the Blackfoot Challenge rallied support for a plan to buy 88,000 acres of Plum Creek corporate timber land to keep it from being subdivided for recreational home sites. TNC agreed to purchase the property and resell it, subject to conservation easements, to local ranchers and public agencies who would manage the land for sustainable timber harvest, grazing, recreation, and wildlife. To date, some 47,000 acres have been acquired by TNC with the remainder in progress. The grand scale of this project reveals the power of the strategic and sequential use of fee-simple acquisitions, conservation easements, and conservation-buyer transactions.

However, the Blackfoot Challenge also wished to acquire a portion of the former Plum Creek property as a community resource. In 2005, the U.S. Fish and Wildlife Service bought a conservation easement from TNC on 5,609 acres that were the focus of local interest. This property was then transferred by TNC to the Blackfoot Challenge as the core of a 41,000 acre multiple-use demonstration area. This pilot initiative was a "proof of concept" exercise in cross-boundary ecosystem management. Other landowners in this 41,000 acre unit include the Lolo National Forest; Montana Department of Fish, Wildlife, and Parks; Montana Department of Natural Resources; and private ranchers. The 5,609 acre property is now called the Blackfoot Community Conservation Area (BCCA), which is managed by a committee of the Blackfoot Challenge under a 2009 plan. The fifteen-member committee consists of agency representatives, private landowners, recreational user groups, and local business people or outfitters. The conservation easement prevents subdivision, commercial and industrial uses, excessive timber harvest, and mining. The actual stewardship of the land—its restoration and sustainable use—depends on the collaboration spearheaded by the Blackfoot Challenge.

Today, some 110,000 acres and forty-seven miles of the Blackfoot River are under perpetual conservation easements.[63] Easements are held by federal and state agencies and land trusts. The Montana Land Reliance (MLR) is a statewide land trust that holds donated conservation easements on nearly 821,000 acres of prime ranchlands and wildlife habitats across Montana—the most of any local or statewide trust in the country.[64] Some 42,000 of those acres are in the Blackfoot watershed.

The cultural geography of the Blackfoot River Valley is shifting from "native Montanans" and long-term residents to amenity migrants seeking a fresh start in a conserved landscape. The existence of the conservation-easement corridor along the Blackfoot River is having an array of effects. Land values for properties not under easement are rising despite a national recession.

63. Daniels & Wright, *supra* note 44.

64. *Achievements*, MONTANA LAND RELIANCE, http://www.mtlandreliance.org/achieve.htm (last visited Mar. 20, 2011).

The certainty of having perpetual open space next to a home site increases both demand and price. However, these market forces also raise the potential value of donated conservation easements on remaining unrestricted properties. The entrenched conservation tradition in the valley also exerts a strong pressure toward easement use. The Blackfoot River Valley is becoming an "intentional community" of people seeking a landscape to match their conservation ideology. The resale value of ranches under easement is not accurately known since most original owners are still in place. It seems probable that "eased" ranches will bring high prices that may not significantly reflect easement diminution, especially where surrounding properties are similarly protected. If this proves true, conserved corridors like the Blackfoot may bring even stronger IRS scrutiny of easement appraisals across the country.[65] Appraisals are often faulty in appraising the "after" or conserved value of the property. If easements are shown not to significantly reduce short-term market prices for ranches, for example, additional incentives must be found to encourage easement donations or funds must be available to buy them outright.

Conservation easements have a thirty-four-year history in the Blackfoot River Valley. The tool began as a novelty, grew opportunistically, and is now the centerpiece of a broad-based, collaborative conservation strategy. Prices accepted for conservation easements remain modest in most cases. The appraised value of an easement claimed as a federal and state tax deduction averages under fifty percent of fee-simple value. Until the expanded federal tax deduction rules took effect, incomes of most donors were not sufficient to take full advantage of charitable gifts.[66] That has now changed and easement use in the Blackfoot Valley consists of both type-one and type-two landowners.

Today, few people in the watershed are unaware of conservation easements, as most live within sight of one. Vocal opposition to easements is now the shrinking realm of the private-property-rights activists who fail to grasp that conservation easements are in fact a powerful expression of precisely that. Predicting future easement use remains difficult, but the confluence of widespread information, local experience, and an evolving culture of stewardship suggests even broader use of the tool in coming years. Conservation in the watershed is no longer an externality—the marketplace has internalized and monetized easements.

C. New Mexico Land Conservancy Easements

The preceding case studies explore easement valuation and use where land development pressure is low (Malpai Borderlands) and moderate (Blackfoot Valley). Several projects of the NMLC illustrate the financial and cultural

65. CATHERINE KESKE, THE EMERGING MARKET FOR PRIVATE LAND PRESERVATION AND CONSERVATION EASEMENTS (2008). *See also* Victoria L. McCollum & Bennett Thrasher, *IRS Scrutiny of Charitable Conservation Easements,* 35 TAX ADVISOR 603, 603–607 (2004).

66. The enhanced incentive is still in effect. *Supra* note 22.

complexities of completing easements where land development pressure is severe.[67]

The Village of Corrales lies just northwest of Albuquerque, New Mexico. In 1710, the King of Spain gave Francisco Montes Vigil the 100,000 acre Alameda Land Grant where Corrales emerged as a quiet farming community. By 2010, the Village of 7,300 residents became surrounded by residential development with land values exceeding $115,000 per acre for one- or two-acre tracts.[68] Corrales is an island of irrigated farmland and cottonwood *bosques* (riparian forests) in a booming metropolitan region of more than 700,000 people in the Rio Grande Valley. Land development pressure is among the highest in New Mexico with the Albuquerque Metro region averaging nearly two percent annual population gain—a doubling time of thirty-five years.[69]

In 2003, the village passed a $5 million general obligation open-space bond to establish a PDR program to protect farmland. The NMLC was selected to hold the first four purchased conservation easements. Appraisals revealed easement values averaging $82,000 per acre—a staggering contrast to the thirty dollars per acre in the Malpai Borderlands. The properties contained scenic, open-space, agricultural, and historic values, but ecological importance was modest. About half the funds for easement purchases came from the Corrales open-space bond and half from the U.S. Department of Agriculture Farm and Ranchland Protection Program (FRPP).

Conservation easements were purchased on twenty-eight acres at a cost of $2.3 million.[70] That sum would protect more than 9,000 acres in the Malpai and 3,400 acres in the Blackfoot Valley. The eighteen-acre Corrales Gateway easement is the largest in the village, part of an eighty-one-acre property known as the "Trees of Corrales." The Gonzales farm easement protects six acres of pastures that have been owned by that family since 1712. The six-acre Ventana Grande property is used for alfalfa and hay production. Its ninety-one-year-old owner Dorothy Smith says of the project, "There's no turning back when you turn farms into subdivisions."[71] The two-acre Kendall easement is used for viticulture as part of New Mexico's rising wine industry. The Minge easement is a two-acre chili field adjacent to the historic Casa San Ysidro Museum and across the street from the San Ysidro Church.

Corrales is both a positive story and cautionary tale. The village's open-space bond and farmland protection program are the first in New Mexico.

67. *See, e.g.*, Corrales Gateway, N.M. LAND CONSERVANCY, http://www.nmlandconservancy.org/Projects/ProjectsCorralesGateway_P1_4.html (last visited Mar. 20, 2011).

68. Material on land values retrieved from the website of Corrales Realty, http://www.corralesrealty.com (last visited Nov. 18, 2010).

69. Michaela Buenemann & John B. Wright, *Southwest Transformation: Eras of Land Change and Growth in Las Cruces, New Mexico*, 14 SW. GEOGRAPHER (2010).

70. *Our Conservation Easements*, N.M. LAND CONSERVANCY, http://www.nmlandconservancy.org/Projects/ConservationEasements_P01.html (last visited Nov. 22, 2010).

71. *Ventana Grande*, N.M. LAND CONSERVANCY, http://www.nmlandconservancy.org/Projects/ProjectsVentanaGrande_P1_15.html (last visited Mar. 21, 2011).

However, since they came so late, the per-acre costs are extreme and the results are limited. Although high land values in other settings such as Jackson, Wyoming and the Madison Valley of Montana have stimulated scores of easement donations, this is not yet the case in Corrales.[72] The difference appears to be income levels. Amenity ranches in the places mentioned are typically owned by extremely wealthy business and entertainment figures. Even multimillion-dollar easement tax deductions can be written off. In Corrales, the median household income is $67,217—wealthy by New Mexico standards—but many landowners fit the classic description of "land rich, cash poor." Most landowners cannot afford to donate an easement or cover appraisal, baseline, land trust, or legal expenses. They are classic type-two landowners in our model—those who, for reasons of economic practicality, demand high condition prices to agree to an easement sale. The minimum payment per acre in Corrales is simply the appraised value of a land tract's development rights—often more than seventy percent of its fee-simple price. Landowners were not willing to complete "bargain sale" easements at a below-appraised-value price: they wanted top dollar. As a result, easement purchase dollars do not go nearly far enough to achieve the community's farmland-protection goals. Corrales illustrates the penalty of waiting to pursue easements until costs grow exorbitant.

A solution might be found in "conservation development" designs.[73] The NMLC holds easements of this type on over 35,000 acres in fast-growing regions of the state. The 8,500 acre Cougar Mountain Ranch project illustrates the design process.[74] The property is about one hour southeast of Albuquerque in an area experiencing rapid and extensive subdivision activity targeted at both commuters and retirees. In 2005, the landowner, a conservation development company, sought to subdivide a portion of the ranch and donate a conservation easement over the areas of highest ecological, scenic, and agricultural importance. The baseline analysis showed (1) high scenic values adjacent to the Cibola National Forest; (2) agricultural and open-space importance in the grasslands and pinyon-juniper savannas; and (3) extensive wildlife use by elk, mule deer, black bear, mountain lion, pronghorn antelope, and golden eagle. The goals of the project were threefold: to maintain ranching use, to conserve the natural and scenic resources, and to generate income from the sale of lots to conservation buyers. The art of conservation development designs is in finding the right balance between conservation and monetary goals.[75]

72. STORY CLARK, A FIELD GUIDE TO CONSERVATION FINANCE (2007).

73. *See generally* ANTHONY ANELLA & JOHN B. WRIGHT, SAVING THE RANCH: CONSERVATION EASEMENT DESIGN IN THE AMERICAN WEST (2004); RANDALL G. ARENDT, CONSERVATION DESIGN FOR SUBDIVISIONS: A PRACTICAL GUIDE TO CREATING OPEN SPACE NETWORKS (1996).

74. *Cougar Mountain Ranch*, N.M. LAND CONSERVANCY, http://www.nmlandconservancy.org/Projects/ProjectsCougarMtnRanch_P1_3.html (last visited Nov. 18, 2010).

75. John B. Wright, *Designing and Applying Conservation Easements*, 60 J. AM. PLANNING ASS'N 380 (1994).

The master planning process identified 6,200 acres for conservation—placed under an easement donated to the NMLC—and 2,300 acres for development, subdivided into fifty forty-acre residential lots with deed restrictions prohibiting future splits. Lots were clustered around the margins of the easement to avoid fragmentation. The easement appraisal determined the "enhancement" of lot values adjacent to perpetual open space, which is a critical consideration in conservation-development calculations. Failure to do so may result in an IRS audit and substantial penalties for not considering private inurement, compensation of private interests over public benefit, which would reduce the value of a conservation-easement donation. Lot buyers are granted recreational access to the conservation area for hiking, biking, and horseback riding—a core element of the marketing strategy. General public access remains on a permission basis. An eleven-acre "building envelope" was retained at the ranch headquarters where agricultural buildings and a small dude-ranch lodge can be built. A nine-acre building envelope was created near a road where one new residence is allowed. These hold backs were also factored into the easement appraisal.

The Cougar Mountain Ranch project is now complete. All lots are sold and the easement has been in force for five years with no violations. The same conservation real-estate company has completed similar projects at the Deer Canyon Preserve, Lake Valley Ranch, and Berrenda Creek Ranch in other rapidly growing areas of New Mexico. Conservation real-estate companies are classic type-two landowners in our model. For them, easements may support their personal ethics to some degree, but the tool is essentially a part of doing business in a more competitive manner. Although a quality easement design can make a development more marketable, realtors typically require relatively high compensation for conservation easements.

D. Summary

The preceding case studies illustrate conservation easement use along a gradient of development pressure in the West. Easements can be successfully applied wherever and whenever attempted, provided landowners feel at least some sense of stewardship. However, the tool is least expensive in places that are just beginning to experience growth and development. The Malpai Borderlands demonstrate that it is possible to conserve an entire landscape if stakeholders anticipate future development and work collaboratively to attract needed financial resources. The Blackfoot River Valley shows that easements can keep a land base intact in the face of moderate development pressure and serve as the foundation for a collaborative effort to restore and live sensibly on what locals call "good ground." The NMLC case studies reveal the high costs and greater intricacies of completing conservation easements in fast-growing places.

In all settings, easement success depends on the presence of people who care deeply about the land.[76] Despite the complexities of negotiations, arcane tax and finance issues, theory, and a shifting political stage, land saving remains a cultural matter.[77] The land-stewardship values of ranchers, ecologists, and certain developers are often the essential drivers of conservation-easement use in the American West.

VI

CONCLUSION

While it is difficult to account for all ecosystem-service values in our market-based economy, conservation easements present a dynamic and flexible approach to guarding these important assets for the future. Today, there are several widely accepted economic-valuation methodologies to enable the integration of ecosystem-service values (natural capital) into the current conservation-easement-appraisal process. Doing so would, in part, help to resolve some of the long-standing issues presented here. If, however, there is political reluctance to evaluate and prescribe modifications to the existing appraisal system, other incentive-based possibilities, such as ecosystem-service markets,[78] may be necessary to help assure that the net value of conservation easements are maximized at the public–private interface. Incentive programs designed to provide financial and technical assistance to landowners who employ specified management practices or pay landowners for the environmental benefits they produce, are two examples. Development of such programs in cooperation with coordinated strategic public and private conservation-easement programs will both require markets to recognize the true value of the array of public benefits provided by conserved lands and foster net value maximization at the landscape scale.

The question remains: Will the conservation-easement market, without intercession to better quantify and align economic values associated with the social benefits provided by protected lands, ever ascend to the rank of a complete market? The conclusion drawn from both theory and praxis is that different forms of public and private intervention in coordination will make it more likely. Generally, efforts to intercede should target maximizing the net value of conservation easements by facilitating more transactions in strategic areas, reducing transaction costs, and attuning price signals for greater consistency. Several indications from the field point toward advances in the market for private-land conservation, so the opportunity costs of waiting out potential self correction are high. Economic factors play a role in the valuing of

76. *See generally* RICHARD BREWER, CONSERVANCY: THE LAND TRUST MOVEMENT IN AMERICA (2003).

77. WRIGHT, *supra* note, at 17.

78. *See generally* Jeffrey D. Kline et al., *Toward a Rational Exuberance for Ecosystem Services Markets*, 107 J. FORESTRY 204 (2009).

conservation as do unique land factors, people, conservation organizations, communities, land managers, and policy makers. Yet, a push is needed to move the market to greater efficiency, by expansion of breadth and reach, most likely from cultural geography—the people—of the landscapes in question. Ethical and economic values are now coalescing in myriad ways within the emerging conservation-easement marketplace.