U.C. DAVIS LAW REVIEW

University of California Davis

VOLUME 36 APRIL 2003 NUMBER 4

A Two-Dimensional Framework for Analyzing Property Rights Regimes

Shi-Ling Hsu[*]

TABLE OF CONTENTS

[*] Associate Professor of Law, George Washington University Law School. I am grateful to Dan Inkelas for research assistance, and to Alfreda Robinson, Robert Tuttle, Steven Schooner, Robert Brauneis, Richard Pierce, Gregory Maggs, Tseming Yang, Burlette Carter, Kevin Kordana, as well as participants at the Northeast Persons of Color workshop and the George Washington University Law School Works-in-Progress workshop for their help and thoughtful comments. Any remaining errors are mine alone.

INTRODUCTION

Michael Heller's seminal 1998 paper *Tragedy of the Anticommons*[1] has lent a new perspective on how property rights are analyzed. In documenting a peculiarly inefficient form of a post-Soviet Russian property regime, Heller has identified a conceptual opposite of Garrett Hardin's famous tragedy of the commons.[2] Where a lack of property rights causes Hardin's tragedy of the commons of resource overuse, too fine a delineation of property rights leads to Heller's tragedy of the anticommons, which is a resource underuse.[3] Whereas in the tragedy of the commons, resource overuse results from a lack of any right of exclusion, in the anticommons, resource underuse results from there being too many rights of exclusion.[4] Between the two extremes lies a spectrum of property rights allocations, ranging from under-exclusion to over-exclusion. Thus, it is more useful to classify property rights on a gradient of different property regimes than in discrete categories.[5] The characterization of property in terms of continuums directly challenges the traditional property frameworks, such as the property trilogy of private property, common property, and state property.[6]

---

[1] Michael A. Heller, *The Tragedy of the Anticommons: Property in the Transition from Marx to Markets*, 111 HARV. L. REV. 621 (1998) [hereinafter Heller I].

[2] *See* id. at 637-40; Garrett Hardin, *The Tragedy of the Commons*, 162 SCI. 1243, 1244-45 (1968).

[3] *See* Heller I, *supra* note 1, at 624; Hardin, *supra* note 2, at 1244.

[4] *See* Heller I, *supra* note 1, at 639; Hardin, *supra* note 2, at 1244.

[5] Heller I, *supra* note 1, at 627–33.

[6] Michael A. Heller, *Three Faces of Private Property*, 79 OR. L. REV. 417, 418-22 (2000).

However, property regimes are even more complex than what Heller proposes. The difference between Heller's and Hardin's respective tragedies exists in two dimensions, not just one. The difference between Heller's "anticommons" and Hardin's "commons"[7] is not only in property rights delineation, but also in the size of the party controlling the property, i.e., the number of individuals comprising the party. In other words, the differences between the two extremes can be mapped in two-dimensional space, rather than a one-dimensional gradient.[8] This Article thus proposes an integrative framework wherein all property regimes can be expressed as a function of two fundamental characteristics: the type of dominant right, whether it is a use right or an exclusion right (or some degree thereof), and the size of the party holding the dominant right. This Article illustrates how these two variables can characterize all property regimes. By analyzing property regimes in this framework, property regimes can be related to each other and conditions under which the regimes function best can be identified.

Part I develops and describes this framework, drawing upon distinctions between the tragedies of the commons and anticommons. Four fundamental property regimes form the cornerstones of the framework: the Joint Use, Individual Use, Joint Exclusion, and Individual Exclusion regimes. Part II discusses the differences among these four fundamental regimes and notes each regime's advantages and disadvantages. While it is rare that any of these fundamental regimes in their pure form are efficient or appropriate, each has characteristics that are advantageous in certain situations. Part III applies these regimes to the analysis of more commonly observed, real-life property regimes, and shows that each of these property regimes can be characterized as some mixture of the four fundamental regimes. Thus, regimes can be

---

[7] The term "commons" is now understood to be a misnomer. The correct term for what Hardin describes is "open access." *See infra* text accompanying notes 11-12.

[8] A number of property scholars have recognized that the gradient of property rights delineation is more complex than Heller originally posed. Dagan and Heller have argued for a more creative look at property regimes, advocating a closer look at what they call a "liberal commons" to integrate aspects of both private and group-owned, or "communitarian" property. Hanoch Dagan & Michael A. Heller, *The Liberal Commons*, 110 YALE L.J. 549, 551 (2001). This scheme is integrated into a more general framework in Heller, *supra* note 6, at 426-29. Carol Rose has also recognized the complexities introduced by group-owned property, noting that there are not only different kinds of property, but also different kinds of property owners. Carol M. Rose, *Left Brain, Right Brain, and History in the New Law and Economics of Property*, 79 OR. L. REV. 479, 482 (2000). Henry Smith has written about communal property that retains some private aspects for most uses, calling such property "semicommons." Henry E. Smith, *Semicommon Property Rights and Scattering in the Open Fields*, 29 J. LEGAL STUD. 131, 132 (2000).

developed which mix and match characteristics of each of these fundamental regimes, tailoring a form of property or new regime to fit the specific circumstances of a resource. Moreover, Part III analyzes four real-life regimes that are mixtures of the four fundamental regimes — the Common Property, Private Property, Administrative, and Third-Party Protection regimes. Each of these real-life regimes resembles one of the four fundamental regimes, but all of them are different mixtures of the fundamental regimes. Part IV discusses the special role of the right of alienability and inalienability in the application of the framework. While often a critical aspect of ownership, the extent to which a resource owner possesses the right of alienability (or is burdened by restrictions on alienability) does not define the property regime governing the resource. Rather, alienability and inalienability rules create new ownership forms, create new mixtures of public and private property regimes, and make possible unique forms of ownership by larger groups of people.

This Article is intentionally agnostic as to the role of property in society or legal scholarship. The framework developed in this Article does not depend upon any particular theory of property, such as Margaret Jane Radin's personhood theory of property[9] or some expectations-based theory of property. Rather, this framework takes into account the variety of different views of property expressed both in jurisprudence and the academic literature.[10] In discussing the advantages and disadvantages of property regimes, this Article acknowledges the importance of the various views of property in different situations.

I. THE FRAMEWORK OF PROPERTY REGIMES

A. The Joint Use and Individual Exclusion Regimes

The property regimes that Heller and Hardin identify serve as a starting point for building this framework. Hardin's "commons" is now understood to be more accurately described as open access. However, open access differs from a commons in that a large but finite number of individuals jointly own a commons resource, while an open access

---

[9] Margaret Jane Radin, *Property and Personhood*, 34 STAN. L. REV. 957, 957 (1982).

[10] For a review of the different strains of property scholarship and jurisprudence, see Craig Anthony Arnold, *The Reconstitution of Property: Property as a Web of Interests*, 26 HARV. ENVTL. L. REV. 281, 316-31 (2002).

resource is not owned by any individual or entity.[11] Thus, a resource under commons ownership may appear to those outside the group of joint owners as private property, yet have the dynamics of open access within the group of joint owners.[12]

Complete non-ownership is a distinguishing characteristic of open access. No country has jurisdiction to regulate an open access resource. A high seas fishery is an example of an open access resource.[13] Unlike fisheries that occur within the 200-mile exclusive economic zone of coastal nations, no fisherman can be excluded from a high seas fishery.[14] Most species of whales, for example, spend large portions of their lives migrating on the high seas,[15] where whalers were once free to take as

---

[11] The tragedy of over-exploitation of the commons is that a large number of individuals, each with a use right and none with an exclusion right, will each face symmetrical incentives to consume as much of the resource for themselves as possible before other users have a chance to over-consume. The dynamics of this intra-group interaction are well known and described in Hardin, *supra* note 2, at 1244. The game-theoretic model that illustrates the mutually destructive incentives in such a situation is known as the Prisoner's Dilemma. Carol M. Rose, *Canons of Property Talk, or, Blackstone's Anxiety*, 108 YALE L.J. 601, 620 (1998). For a description of the Prisoner's Dilemma, see ANDREU MAS-COLELL ET AL., MICROECONOMIC THEORY 236-37 (1995). What Hardin overlooked is that in some cases, resource ownership by a large group can give rise to self-regulation that can yield sustainable exploitation of the resource in a way that is impossible in open access. Scholars such as Elinor Ostrom have thus launched a voluminous literature studying such cases of "common property" ownership. *See, e.g.*, ELINOR OSTROM, GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION (1990). These regimes are discussed later in this Article.

[12] Carol M. Rose, *The Several Futures of Property: Of Cyberspace and Folk Tales, Emission Trades and Ecosystems*, 83 MINN. L. REV. 129, 155 (1998) (commenting that common property resources are "commons on the inside, property on the outside," meaning that from internal perspective, it appears to joint users as open access, but from external perspective, resource appears as private property because owning group is entitled to exclude outsiders).

[13] The high seas are those waters under the United Nations Convention on the Law of the Sea of 10 December 1982 ("the Convention") that are not subject to any member nation's jurisdiction. *United Nations Conference on Environment & Development*, Agenda Item 21, U.N. Doc. A/CONF.151.26 (1992); *see infra* note 105. Even this is not a perfect example of open access, because the Convention contains provisions that impose some modest obligations on member states with respect to conservation of living resources on the high seas. *United Nations Convention on the Law of the Sea of 10 December 1982*, at Arts. 116-120, U.N. Doc. A/CONF.62/121 (1992).

[14] The 1982 United Nations Law of the Sea Convention provides for an "Exclusive Economic Zone," a 200-mile-wide strip along the coasts of coastal nations that are essentially the territorial waters of the nation, and are subject to the jurisdiction of the coastal nation. *See infra* note 105.

[15] Most whales generally live and migrate in the deeper high seas. RONALD M. NOWAK, *Minke, Bryde's, Sei, Fin, and Blue Whales*, *in* WALKER'S MAMMALS OF THE WORLD ONLINE, *at* http://www.press.jhu.edu/books/walker/cetacea.balaenopteridae.balaenoptera.html (last visited Feb. 2, 2003).

many whales as they could.[16] The predictable result has been that many whale species have been over-exploited.[17]

Another example of open access is the current state of greenhouse gas emissions regulation. While there is mounting evidence that the emissions of carbon dioxide and other gases contribute to atmospheric warming,[18] there are no regulatory mechanisms in place to limit emissions.[19] Without any regulation, there is no incentive for anyone to limit emissions. If an entity restricts its own emissions, it will self-impose a cost disadvantage and achieve nothing, because billions of

---

[16] Whaling is now subject to the International Convention for the Regulation of Whaling, Dec. 2, 1946, 62 Stat. 1716, T.I.A.S. No. 1849. The treaty established the International Whaling Commission, which bans commercial whaling, but allows limited whaling for scientific research and aboriginal subsistence. Non-whaling signatories to the Convention complain that the exceptions are abused by whaling nations, most notably Japan and Norway. "The general consensus of the nonwhaling nations and environmentalists is that scientific whaling is little more than slaughter thinly veiled as science." Judith Berger-Eforo, *Sanctuary for the Whales: Will This Be the Demise of the International Whaling Commission or a Viable Strategy for the Twenty-First Century?*, 8 PACE INT'L L. REV. 439, 463 (1996).

[17] Alexander Gillespie, *The Ethical Question in the Whaling Debate*, 9 GEO. INT'L ENVTL. L. REV. 355, 355 (1997) ("Whaling is one of the oldest known areas of over-exploitation of Nature. . . . [T]he preamble of the International Convention on the Regulation of Whaling notes, the 'history of whaling has seen the over-fishing of one area after another and of one species of whale after another.'").

[18] The United Nations Intergovernmental Panel on Climate Change issued a report on July 12, 2001, stating that "immediate action" was needed to reduce the emissions of carbon dioxide and other greenhouse gases "to avert dramatic climate change." Patrick Tracey, *Climate Change: IPCC Says Immediate Action Needed to Curb GHG Emissions; U.K. Urges Japan to OK Pact*, DAILY ENV'T REP. (BNA), July 13, 2001, at A-4. The U.S. Environmental Protection Agency issued its own report stating its agreement with the IPCC report. Pamela Najor, *Climate Change: Bush Defends Voluntary Policy to Slow Emissions Rather Than Mandating Cuts*, DAILY ENV'T REP. (BNA), June 5, 2002, at A-13. Interestingly, even with presidential opposition to regulation, some private firms and some states have developed plans to reduce or limit their greenhouse gas emissions. *Climate Change: Companies Developing Management Plans For Greenhouse Gases, Despite U.S. Inaction*, DAILY ENVTL. REP. (BNA), June 28, 2002, at A-7. The California legislature has established a registry for greenhouse gas emissions and recognized the possibility of future legislation on mandatory greenhouse gas emissions reductions. CAL. HEALTH & SAFETY CODE § 42801 (West Supp. 2003).

[19] Several efforts are being undertaken to secure some regulation. The 1997 Kyoto Protocol, an implementation agreement for the 1992 Framework Convention on Global Climate Change, is currently being considered by signatories to the 1992 Convention. The Kyoto Protocol obligates developed nations to limit their annual greenhouse gas emissions to 5-7% below levels emitted in 1990. The Protocol will become binding if fifty-five nations representing 55% of the greenhouse gas emissions ratify it. The Bush Administration of the United States refused to ratify the Protocol, casting doubt on the prospects for its international passage. Eric Lyman, *Climate Change: Kyoto Negotiations Reach 11th-Hour Accord; Pact Ready for Ratification by Governments*, DAILY ENVTL. REP. (BNA), Nov. 14, 2001, at B-1.

other carbon dioxide emitters in the world would continue to emit freely and continue to contribute to global climate change. The result is over-exploitation of the global resource of atmospheric carbon absorption.

Another way of looking at open access is that an unowned resource is a resource that is jointly owned by every person in the world. Joint ownership under the common law forms of ownership — joint tenancy, tenancy by the entirety, and tenancy in common — entitles all the joint owners to an undivided interest to the entire property.[20] Since non-ownership means that any person in the world has an undivided interest in the resource, this regime is referred to as the Joint Use regime. The Joint Use regime is the first of the four fundamental property regimes of the framework.

The anticommons is the opposite of open access. An ill-conceived attempt to privatize property rights in store spaces in the post-Soviet Russian Republic best illustrates this regime. According to Heller, in post-Soviet Moscow, some stores remained empty while merchants operated thriving businesses from kiosks stationed on the sidewalks just outside the stores.[21] These street merchants conducted their business out in the Moscow cold because property rights to the stores were divided up among several different individuals, rendering the store unusable.[22] In the process of privatization, rights formerly held by various Soviet bureaucracies were clumsily redistributed to different individuals. Hence, after the redistribution, one individual held a right to occupy a retail store space (formerly belonging to a workers' cooperative), another individual held a right to sell the store space (formerly belonging to a budgetary bureaucracy), while yet another individual held a right to determine the use of the store space (formerly belonging to a planning bureaucracy).[23] Each individual rights-holder had an effective veto right, or right of exclusion, and no individual held an effective right of use. Unless one individual could somehow "rebundle" the different rights and buy out the various holders of exclusion rights in the property, the property would remain unused. Efforts to rebundle, however, encountered transaction costs and holdout problems, obstacles that were not overcome in the case of the Moscow store spaces.[24]

---

[20] WILLIAM B. STOEBUCK & DALE A. WHITMAN, THE LAW OF PROPERTY § 5.2, at 176-77 (3d ed. 2000).

[21] Heller I, *supra* note 1, at 633.

[22] *Id.* at 634-38.

[23] *Id.* at 637-39.

[24] *Id.* at 640.

Another example of an anticommons that Heller provides involves old Soviet-regime communal apartments, or "komunalkas," in which several families have some private space but share common areas such as a kitchen and bathroom.[25] Post-Soviet privatization vested the different occupant families with ownership of their private space, in addition to joint ownership of the common areas.[26] Unbundled, each of the four shares in a komunalka may have been worth approximately $25,000, but with the different ownership interests bundled, the entire komunalka could yield $500,000.[27] Some of the same obstacles to rebundling store rights were present in the komunalka cases, namely holdouts. However, komunalka rebundling was considerably more successful than store space rebundling because brutal entrepreneurs seeking to rebundle komunalka shares resorted to intimidating and even murdering komunalka holdouts.[28] Undesirable as such behavior is, it solved the underuse problem characteristic of an anticommons. Because the anticommons involves separate exclusion rights held by a number of individuals, this regime is referred to as the Individual Exclusion regime. The Individual Exclusion regime is the second of the four fundamental regimes of this framework, and serves as the conceptual opposite of the Joint Use regime.

The difference between the Joint Use and Individual Exclusion regimes exists in two dimensions, however, not just one. First, in Joint Use, overuse results from too many people having too strong of a use right, with no party having any exclusion right, while in Individual Exclusion, underuse results from too many people having too strong of an exclusion right, and no party having any effective use right.[29] Use rights in a Joint Use regime are "strong" in the sense that they are relatively unfettered and can be exercised freely without requiring permission from anyone. Exclusion rights in an Individual Exclusion regime are "strong" in the sense that they bar uses of the resource, resulting in resource underuse. In effect, the problem with the Joint Use regime is that the use rights are too "bundled," while the problem with the Individual Exclusion regime is that the ownership rights are not bundled enough.[30]

---

[25] *Id.* at 647-50.

[26] *Id.* at 650-51.

[27] *Id.* at 651-52.

[28] *Id.* at 654-55.

[29] *Id.*

[30] *Id.* at 623-24.

Second, Joint Use and Individual Exclusion differ in the size of holders of the dominant rights to the resource, be they use rights or exclusion rights. Joint Use is a strong use right jointly held by the largest group possible: the universe of all persons. Individual Exclusion, by contrast, entails division of many interests among many different individuals. Size here refers to the number of individuals in the entity holding the controlling rights. Joint Use involves the largest group possible, where everybody is included in the owning group. Individual Exclusion involves the smallest group possible: individuals.

B. The Joint Exclusion and Individual Use Regimes

The two dimensions in which the Joint Use and Individual Exclusion regimes differ give rise to the two other cornerstone regimes of this framework. Consider first a regime in which: (1) use rights to a resource are relatively unbundled, in the sense that no person has an effective use right; and (2) an effective exclusion right is held not by many different individuals, but jointly by a very large group. I call this a Joint Exclusion regime.[31] Consider next a regime in which: (1) ownership is vested in only a single individual; and (2) the use right is very bundled, in the sense that the owner has a very effective use right and unbridled freedom in deciding how, if at all, to use the resource. Because no one has an effective exclusion right of any kind, there is no interference with the owner's use right. I call this an Individual Use regime. These are the third and fourth fundamental regimes and complete the cornerstones of the framework.

Examples of the Joint Exclusion and Individual Use regimes are elusive because of their extreme nature. One example of a Joint Exclusion regime might be an area designated as "wilderness" under the Wilderness Act of 1964.[32] The consequence of such a designation is to preclude consumptive land uses such as logging.[33] Only roadless areas

---

[31] The Joint Exclusion regime is similar to the regulatory regime that Frank Michelman describes in *Ethics, Economics and the Law of Property*, 24 NOMOS 3 (1982). Michelman describes the regulatory regime as a world in which "everyone always has rights respecting the objects in the regime, and no one, consequently, is ever privileged to use any of them except as particularly authorized by the others." It is not clear whether Michelman sees "others" as disparate individuals (in which case he is describing an anticommons), the body politic, or universe of all persons (in which case he is describing what this framework calls a Joint Exclusion regime).

[32] 16 U.S.C. § 1131 (2000).

[33] The designation of federal lands as "wilderness" pursuant to the 1964 Wilderness Act, has the effect of precluding timber harvesting and road construction. *Id.* § 1133(c) ("... there shall be no commercial enterprise and no permanent road within any wilderness

may be considered for wilderness designation,[34] and after designation, road construction is prohibited.[35] Thus, a wilderness designation precludes many other consumptive uses, such as mining or grazing.[36] Wilderness areas are imperfect examples of a Joint Exclusion regime because nonconsumptive uses such as recreational uses and scientific uses are allowed, so the exclusion is not complete. But the effect of prohibiting consumptive uses of the land is generally to lock them into nonconsumptive uses for a long time. The Joint Exclusion regime differs from the Individual Exclusion regime in that while each member of the excluding group has an exclusion right, the exclusion right pertains to a shared resource — the wilderness area.

Another example of a Joint Exclusion regime is the application of the public trust doctrine to certain waterways. For public waterways, protected uses such as navigation,[37] recreation,[38] and fishing[39] have been held to preclude conflicting uses or transfers.[40] The violation of a right protected by the public trust doctrine gives rise to a cause of action on the part of any member of the "unorganized public,"[41] which may vindicate the right on behalf of the entire unorganized public. The right to exclude uses and transfers inconsistent with the public trust is thus held jointly by many individual members of the unorganized public, but the exclusion pertains to a right belonging to the *entire* unorganized public. Moreover, the jointly-held exclusion right is one that is shared by all of the joint holders; just as the right to preserve a wilderness area in its entirety is for *everyone*, the right to preserve the public trust pertains to trust uses for *all*. This differs from an Individual Exclusion regime, in which exclusion rights pertain to separate and discrete rights specific to each individual right-holder.

---

areas . . .").

[34] *Id.* § 1131.

[35] *Id.* § 1133.

[36] Wilderness areas are required to be managed for "recreational, scenic, scientific, educational, conservation, and historical use." *Id.* § 1133(b).

[37] Arnold v. Mundy, 6 N.J.L. 1, 9 (N.J. 1821) (allowing use of navigable waterways adjacent to private property).

[38] Marks v. Whitney, 491 P.2d 374, 380 (Cal. 1971) (maintaining that tidelands and navigable waterways are open for public use).

[39] *Id.*

[40] Nat'l Audubon Soc'y v. City of Los Angeles, 658 P.2d 709, 729 (Cal. 1983) (holding that water rights to streams feeding Mono Lake were subject to public trust in Mono Lake).

[41] Carol Rose, *The Comedy of the Commons: Custom, Commerce, and Inherently Public Property*, 53 U. CHI. L. REV. 711, 772 (1986).

The Individual Use regime, by contrast, would give property owners what Blackstone called "sole and despotic dominion which one man claims and exercises over the external things of the world, in total exclusion of the right of any other individual in the universe."[42] In other words, an individual owner has absolute authority over the uses of her land.[43] In this framework, an owner under an Individual Use regime can exclude anyone and can engage in *any* land uses. Thus, trespass laws exist so that the landowner can exclude anyone, but no nuisance laws exist to proscribe any of her land use choices.

Because absolute ownership of real property has never existed in recorded history,[44] examples of an Individual Use regime are necessarily imperfect. One example of an Individual Use regime might be early English feudal society, in which the king granted estates in land to feudal lords.[45] By the thirteenth century, their grants were completely heritable[46] and alienable, and were in effect unconditional. This is the earliest form of the fee simple absolute.[47] Feudal lords had a great degree of freedom over their land,[48] and being a rigidly hierarchical system,[49] feudalism contemplated "ownership" by only one lord.[50] However,

---

[42] 2 WILLIAM BLACKSTONE, COMMENTARIES ON THE LAWS OF ENGLAND 2 (William S. Hein & Co. 1992).

[43] This is not to say that an owner would have absolute control over her land. The landowner is free to attempt to avoid all potential negative externalities inflicted upon her by others, but some externalities are unavoidable. For example, a landowner that wishes to use her property to erect a powerful telescope cannot prevent neighboring landowners from detracting from her use of the telescope by having bright lights on their properties.

[44] A.M. Honore, *Ownership, in* OXFORD ESSAYS IN JURISPRUDENCE 144-45 (A.G. Guest ed., 1961) ("Even in the most individualistic ages of Rome and the United States, [land ownership] has had a social aspect.").

[45] GEORGE HOLMES, THE LATER MIDDLE AGES: 1272-1485 28 (1966).

[46] *Id.*; JOHN G. SPRANKLIN, UNDERSTANDING PROPERTY LAW 83 (2000). However, in the later stages of feudalism, it is believed that feudal estates had come under the control of the aristocracy and had become heritable. J.C. HOLT, COLONIAL ENGLAND, 1066-1215, at 115 (1997); A.W.B. SIMPSON, A HISTORY OF THE LAND LAW 49-51 (1986).

[47] SIMPSON, *supra* note 46, at 56, 89.

[48] Feudalism declined in part because it could not provide a mechanism for internalizing a specific form of externality: environmental injury. Richard J. Lazarus, *Debunking Environmental Feudalism: Promoting the Individual Through the Collective Pursuit of Environmental Quality*, 77 IOWA L. REV. 1739, 1750 (1992). Feudalism incorporated notions of absolute private property rights in natural resources. *Id.* at 1754.

[49] *Id.* at 1743 ("[Feudalism] was an extremely hierarchical society with subject peasantry at the bottom and a specialized military class at the top . . . and fragmentation of political and governmental authority.").

[50] Hope M. Babcock, *Should* Lucas v. South Carolina Coastal Council *Protect Where the Wild Things Are?*, 85 IOWA L. REV. 849, 863 n.49 (2000); Thomas C. Grey, *The Disintegration of Property*, 22 NOMOS 69, 74 (1980).

feudal lords held their land in exchange for various feudal "incidents," such as agreements to help staff the king's army.[51] Feudal lords thus did not have formal sovereignty over their land, but were in reality mere tenants of the king.[52] A more modern example of so-called feudalism can be found in the post-September 11 remaking of Afghanistan, in which warlords wielded a great deal of local power — more than the fledgling government seemingly could control.[53] In such situations, property owned or controlled by a renegade private actor, such as a warlord, cannot be limited in any meaningful sense, and the warlords have very strong use rights of their property.

Perhaps the best example of an Individual Use regime pertains to the ownership and use of most chattels. Use of most items of personal property, except for products that can be used dangerously (e.g., guns or cars), is not limited in any meaningful sense by law because use is unlikely to lead to externalities.[54] That ownership of a book does not entitle the owner to throw the book at someone's head is not a structural limit on use of a book — such a limitation pertains more to the nature of the act than ownership.[55] There is a very broad range of permitted uses for a book, such as reading and re-reading, using it to start a fire, or simply keeping it on the bookshelf to convey the image that the owner is a learned person. Such vast freedom of use is indicative of an Individual Use regime.

An Individual Use regime is thus characterized by the absence of governmental or other authority and by unfettered property owner authority to use a resource, while a Joint Exclusion regime is

---

[51] JOSEPH W. SINGER, PROPERTY LAW: RULES, POLICIES, AND PRACTICES 560 (3d ed. 2002). Richard Lazarus has noted that some commentators even consider feudalism to be a form of government whereby governmental authority is a commodity. Lazarus, *supra* note 48, at 1742.

[52] SINGER, *supra* note 51, at 560.

[53] While the term "feudalism" may have been imprecisely applied to the warlords of Afghanistan, their power may be the most apt modern example of feudalism. Post-September 11 Afghanistan built upon a tribal society, in which tribal elders were in effect kings of their territory, whether a central government recognized them or not. Scott Baldauf, *Feudal Lords Key to Afghan Peace*, CHRISTIAN SCI. MONITOR, Dec. 21, 2001, at 6 ("Like his father and grandfather before him, he is a tribal elder . . . a 21st century feudal lord, the king of this district."); Brian Murphy, *Fragile Peace in Afghanistan*, AP ONLINE, Feb. 1, 2002, *available at* 2002 WL 11686468 ("Various warlords hold sway over large portions of Afghanistan."); Brian Murphy, *Western Afghan Warlord Feels Change*, AP ONLINE, Apr. 26, 2002, *available at* 2002 WL 19260930 ("He calls himself the emir of western Afghanistan and takes credit for helping to win the Cold War. His minions call Khan 'his excellency.' His picture alone adorns provincial offices . . . and the bases of his 30,000-man private army.").

[54] UGO MATTEI, BASIC PRINCIPLES OF PROPERTY LAW 124-25 (2000).

[55] *Id.*

characterized by a mechanism such as a trust that creates a joint right to prohibit use of a resource. In the parlance of this framework, an Individual Use regime is a property regime in which ownership of a resource is very "bundled," and no party has any effective exclusion right; and a Joint Exclusion regime is one in which ownership of a resource is very unbundled and the dominant right is a broadly-held exclusion right. In an Individual Use regime, the individual resource owner's use rights are dominant, while in a Joint Exclusion regime, the rights of exclusion held by a large group are dominant.

The Individual Use and Joint Exclusion regimes are opposing regimes and differ in ways that are parallel to the differences between the Joint Use and Individual Exclusion regimes. Both regime contrasts involve an inefficient overuse and an inefficient underuse. Both juxtapose the implications of exclusionary prohibitions against free-market states with little governmental intervention. And both of the contrasts illustrate the advantages and disadvantages of institutions established to deal with externalities. These four property regimes form the fundamental building blocks of the framework, as illustrated in Figure 1.

C. *The Two-Dimensional Framework*

Figure 1

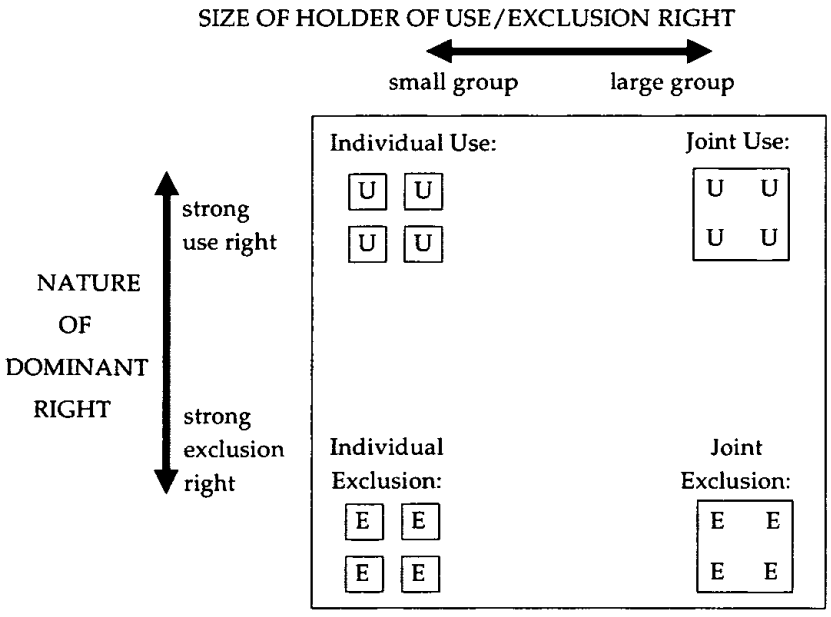


Figure 1 illustrates the four property regimes previously discussed. Regimes that lie along the top of the spatial diagram are those in which

ownership rights are bundled and owners have a strong use right. Regimes that lie along the bottom are those in which ownership rights are unbundled and owners have a weak use right, with other parties holding a strong exclusion right. Regimes on the left side of Figure 1 are those in which the holder of the dominant right — either the use right or the exclusion right — is an individual or a small group, while regimes on the right side of Figure 1 are those with dominant rights held by a large group.

The Individual Use and Joint Use regimes are regimes in which there is overuse of a resource resulting from the lack of any controls or limitations on use exist. Thus, they are at the top of Figure 1. In a Joint Use regime, overuse results from the lack of incentive for any individual user to refrain from wastefully over-exploiting the resource because ultimately some user will do so. In an Individual Use regime, overuse results from the lack of control over land use. The nature of a bundled ownership interest is that no person may interfere with an owner's use of property. A landowner, for example, will act without regard to negative externalities imposed upon others. That is, in an Individual Use regime, there is no nuisance law, only trespass law, and what a landowner does within the boundaries of her property is literally nobody's business but her own.[56] For both of these regimes, inefficient overuse of the resource results from owners having strong use rights and no one having any rights of exclusion or prohibition. The difference is in the scale of ownership of the resource. The Individual Use regime involves ownership by an individual, while Joint Use is effectively joint ownership by all of the persons in the world.[57]

The other two regimes in the framework, Individual Exclusion and Joint Exclusion, are those in which there is underuse of a resource due to the unbundled nature of use rights and the existence of strong exclusion

---

[56] In Heller I, Heller posits two types of anticommons: spatial and legal. Heller I, *supra* note 1, at 651. The legal anticommons is illustrated by the dispersion of legal rights to the Moscow storefronts. *See id.* at 642-45. The spatial anticommons is illustrated by old Soviet-regime "komunalkas." *Id.* at 650-53. In a sense, the difference between the anticommons and the Individual Use regime in this framework is simply the difference between a spatial and legal anticommons. Viewed from a macro perspective, the Individual Use regime is the over-dispersion of small discrete spaces within a larger context, giving rise to inefficiencies caused by the failure of one feudal owner to consider impacts upon another feudal owner. The essence of the Individual Use regime is inefficiency viewed from a perspective broader than that of an individual owner.

[57] It is not necessary to take the description "universe of all persons" literally. Property can be open access within a country, and even if the persons having effective use rights of the resource are all of the residents of that country, the resource can still be considered open access for purposes of this framework.

rights. As regimes in which exclusion rights are dominant, they are positioned at the bottom of Figure 1. The strong rights of exclusion and the weak rights of use result in chronic underuse of a resource. In the Individual Exclusion regime, the exclusion rights are vested in multiple individuals (as in Heller's examples of empty storefronts), while in the Joint Exclusion regime the exclusion rights are vested in large groups. Because an Individual Exclusion regime contemplates that many effective exclusion rights are vested in different individuals, it is on the left side of Figure 1, indicating that the scale of ownership of the exclusion right is on the individual level. By contrast, a Joint Exclusion regime contemplates that the exclusion rights are vested in a large group, and is thus on the right side of Figure 1.

The horizontal axis is not easily labeled. When the effective right is a use right, the horizontal axis pertains to the scale of ownership (this occurs at the top of Figure 1). When the effective right is an exclusion right, the horizontal axis pertains to the scale of the party holding the exclusion right or rights (this occurs at the bottom of Figure 1). The emphasis shifts from the holder of the use right to the holder of the exclusion right as one moves down Figure 1 because the use right becomes less effectual. As the exclusion right becomes more dominant, it is more important to consider the party holding the exclusion right than the party holding the ownership interest. As the exclusion right becomes more dominant, it is the holder of the exclusion right who effectively controls the resource.

A second point of note is that the decreasing bundledness of the use rights represented by downward movement on the vertical axis does not necessarily translate into a transfer of an ownership right from the owner to another. That is, the fact that an owner does not possess an ownership right does not mean that the ownership right is usable by another party. Rather, the unbundledness of use rights means that others can preclude the owner from exercising the right, but cannot themselves exercise the right. Hence the fact that the ownership is "unbundled" does not necessarily mean that others have some of the "sticks" from the bundle for their own exercise — it may mean that they have an exclusion right. This is one reason that criticism is mounting of the Hohfeldian concept of property rights as a "bundle" of sticks.[58] The "stick" metaphor fails to

[58] Heller has argued that the Hohfeldian conceptualization of property ownership as a bundle of "sticks" is flawed but was adopted by the Supreme Court in regulatory takings cases. Michael A. Heller, *The Boundaries of Private Property*, 108 YALE L.J. 1163, 1191-94 (1999) [hereinafter Heller II].

capture the difference between the holder of a right who can exercise it, and the holder of a right who can only preclude another from exercising it.[59] The stick metaphor also fails to model the reality that some sticks are inextricably bound up with other sticks. For example, the right to possess a resource is usually a condition precedent to the exercise of other rights, such as the right to use. The "stick" metaphor's shortcomings prompted an examination of other characterizations of property regimes.

In *The Boundaries of Private Property*, Heller further develops the idea of a gradient of property rights regimes, with the tragedies of the anticommons and the commons representing extreme regimes in which resource utilization is inefficient.[60] Between these extremes is the realm of private property, in which property is "well-scaled," and an appropriate amount of both use and exclusion exists.[61] In the center of the gradient is sole ownership, in which a sole owner owns rights to a "productively scaled resource."[62] Not quite in the middle of the gradient but still within the realm of private property lie modified private property regimes, such as limited access and limited exclusion. Heller argues that the boundary principle he identifies has historically kept property within the realm of private property, and prevented it from becoming too bundled (resulting in a tragedy of the commons) and from becoming too fragmented (resulting in a tragedy of the anticommons).[63] Heller further argues that while property theory has paid a mindful eye on the boundary between private property and the tragedy of the commons, it has often overlooked the perils of property becoming too

---

[59] To be fair, Hohfeld was not ignorant of these conceptual problems. Hohfeld's development of jural opposites and jural correlatives take into account the differences between "rights" and "no-rights." *See, e.g.*, Wesley Newcomb Hohfeld, *Some Fundamental Legal Conceptions as Applied in Judicial Reasoning*, 23 YALE L.J. 16, 30-32 (1913) ("[A] privilege is the opposite of a duty, and the correlative of a 'no-right.' In the example last put, whereas X has a right or claim that Y, the other man, should stay off the land, he himself has the privilege of entering on the land; or, in equivalent words, X does not have a duty to stay off. The privilege of entering is the negation of a duty to stay off."); *see also id.* at 28 ("One of the greatest hindrances to the clear understanding, the incisive statement, and the true solution of legal problems frequently arises from the express or tacit assumption that all legal relations may be reduced to 'rights' and 'duties,' and that these latter categories are therefore adequate for the purpose of analyzing even the most complex legal interests, such as trusts, options, escrows, 'future' interests, corporate interests, etc.").

[60] Heller II, *supra* note 58, at 1195-1202.

[61] *Id.* at 1166.

[62] *Id.*

[63] *Id.* at 1166-67.

fragmented.[64] Supreme Court regulatory takings jurisprudence, in particular, has become so obsessed with staying clear of the commons/private property boundary that it has failed to recognize that it is fragmenting property too much.[65]

Despite its usefulness, Heller's insight again misses the second dimension to property rights analysis. Instead of a one-dimensional gradient, a two-dimensional area delineates the difference between an anticommons and open access. Heller's gradient is incomplete because there is no unique locus on the gradient for some common property rights regimes. For example, Heller's gradient does not allow for a Joint Exclusion regime. In the framework, the Joint Use and Individual Exclusion regimes represent polar opposites in the bundledness of property rights. It is one thing for a resource to be overused by a large group of persons; it is wholly another thing for a resource to be owned by a large group but for which they exercise an exclusion right over the resource, say, through a trust mechanism. This difference is not a fleeting one, since the history of bureaucratic inertia[66] and the intransigence of open access problems[67] have taught us that both of these regimes are difficult to change.

These four fundamental property rights regimes — Joint Use, Individual Use, Joint Exclusion, and Individual Exclusion — are extreme versions of actual property rights arrangements. While very few de facto or de jure examples of these regimes occur in the world, these regimes serve an illustrative purpose. They reflect the strengths and weaknesses of real-world property regimes, which may resemble one or more of the fundamental regimes but are more typically mixtures of the fundamental regimes. I submit that any property regime we recognize can be expressed as some mixture of these four regimes.

While these extreme regimes are characterized by extreme resource overuse or underuse, they may be appropriate in certain situations. For example, the extreme depletion of some fisheries calls for the closure of some of the fisheries to allow the fish stocks to recover. Under such

---

[64] *Id.* at 1202.

[65] *Id.* at 1202-07.

[66] *See, e.g.*, JAMES Q. WILSON, BUREAUCRACY 221 (1989) ("We ought not to be surprised that organizations resist innovation. They are supposed to resist it. The reason an organization is created is in large part to replace the uncertain expectations and haphazard activities of the voluntary endeavors with the stability and routine of organized relationships.").

[67] Barton H. Thompson, Jr., *Tragically Difficult: The Obstacles to Governing the Commons*, 30 ENVTL. L. 241, 255-65 (2000).

situations of acute resource fragility, a Joint Exclusion regime may be the most efficient regime. On the other hand, unowned resources that are under little pressure from exploitation may be best left in a Joint Use regime, to save on the costs of organizing institutions to develop, implement, and police use restrictions. Because each of the four fundamental regimes have various advantages and disadvantages, in utilitarian and non-utilitarian senses, it should not be surprising that different resource situations call for different regimes.

II. THE ADVANTAGES AND DISADVANTAGES OF THE FUNDAMENTAL PROPERTY REGIMES

Each of the four fundamental property regimes serves some function that is recognized as important under any theory of property. Each of the four extreme regimes also suffers from characteristics that would be considered flaws under at least some theories of property. The framework is useful in that it illuminates certain characteristics of hybrid regimes that are commonly observed. In particular, what may be most important about a property regime is the ease with which the regime can be modified or discarded to create a more efficient or fair system of resource ownership or use. A change in the condition of the resource may occur, or it may come to pass that what was believed to be efficient or fair at one time is discovered to be grossly inefficient or unfair. When the time comes for a change in the way a resource is used, it will be important to have a regime that can be readily morphed into a more appropriate regime. This section examines the advantages and disadvantage of each regime in specific resource contexts.

A. Individual Exclusion

As starkly illustrated by the Moscow store space puzzle,[68] the most serious problem with an anticommons, or Individual Exclusion regime, is the propensity for a resource to be inefficiently underused or not used at all. Moreover, moving away from an Individual Exclusion regime is extremely difficult, because it requires the "rebundling" of the different exclusionary rights. Identifying, locating, bargaining with, and reaching an agreement with multiple holders of exclusion rights pose daunting transaction costs and holdout problems. The number of holders of exclusion rights need not be very high — the division of exclusion rights among a handful of individuals was enough to defeat most attempts to

[68] Heller I, *supra* note 1, at 633-38.

rebundle the rights to Moscow store spaces.[69] This problem can be so debilitating that Heller fears that dispersing exclusionary property rights can act as a "one-way ratchet," condemning certain resources to perpetual underuse or non-use due to the impossibility of assembling all of the required rights.[70]

The Individual Exclusion regime, however, also has advantages. While an Individual Exclusion regime can occur by historical accident (as it did in the Moscow store space example), some Individual Exclusion-like regimes are established intentionally, vesting individuals with exclusionary rights for the purpose of protecting them. Granting disparate parties exclusion rights protects them against the imposition of negative externalities. For example, under the traditional common law nuisance doctrine, the finding of an unreasonable interference with the use and enjoyment of property warranted the imposition of an injunction abating the nuisance.[71] Were a polluting factory to seek the waiver from an adjoining neighborhood's residents of their right to sue for abatement of nuisance, the factory would have to obtain the consent of each individual in that neighborhood. If an individual placed an unusually high subjective value on being free from pollution, the only guarantee of protecting an entitlement to be free from pollution would be to vest each individual with an exclusion right. Thus, an Individual Exclusion regime best protects an individual with a strong personal association with her home because it allows her to hold out. Viewed in this light, one person's holdout problem may be another's bulwark against majoritarian oppression.[72]

Another advantage of an Individual Exclusion regime is that if the dispersed rights can be rebundled somehow, the resource can flow to its highest and best use because the most efficient user is apt to outbid all others. Consider the example of the Moscow storefront.[73] If rebundling different exclusionary rights can be accomplished, it is likely to be achieved by an entrepreneur with the most productive and profitable idea regarding use of the space. In other settings, advances in information technology render the rebundling of dispersed interests easier than has previously been the case.

---

[69] *Id.* at 637-40.

[70] Heller II, *supra* note 58, at 1165-66.

[71] Georgia v. Tenn. Copper Co., 206 U.S. 230 (1907); Susquehanna Fertilizer Co. v. Malone, 20 A. 900 (Md. 1890); Boomer v. Atlantic Cement, 257 N.E.2d 870 (N.Y. 1970).

[72] Radin discusses the balance struck between holdout problems and the protection of individual rights to property. Radin, *supra* note 9, at 991-92.

[73] Heller I, *supra* note 1, at 633-38.

In this framework, if an entrepreneur can rebundle dispersed exclusion rights, she would effect a regime change. As exclusion rights are collected, the number of rights-holders begins to dwindle. Eventually, all that remains is a bilateral monopoly. At that point, the worst of the transaction cost problems will have been overcome, and it becomes likely that the dispersed rights will become consolidated into a useful bundle of rights. In fact, in the extreme case, a successful rebundling effort that buys out all excluders would result in an Individual Use regime. Thus, as one rebundles, one moves up the right side of Figure 1.

B. Individual Use

The Individual Use regime is generally an inefficient property regime because the absence of any use prohibitions whatsoever is likely to lead to over-intensive use of the resource and the imposition of negative externalities upon parties other than the resource owner. In this framework, this constitutes overuse of a resource. Although a resource owner under an Individual Use regime will make use of her land that is optimal from a private point of view, it may not be optimal from a broader societal perspective. There is good reason to believe that for the most part, negative externalities occur because of a divergence of private optimality from social optimality resulting from an over-intensive use of a resource. A classic example of this is Coase's allegorical problem of a polluting factory next to a residential neighborhood.[74] In that situation, it is the over-intensification of the industrial land use that gives rise to a negative externality.[75] While it is not always the case that private optimality involves an over-intensive resource use, the history of land use conflicts and zoning laws suggests that it is much more often the case than not.[76]

---

[74] Ronald H. Coase, *The Problem of Social Cost*, 3 J. L. & ECON. 1, 1 (1960).

[75] While Coase asserts that it is wrong to think of the problem in terms of injurer and victim, it is still pertinent to observe that the externality in each case derives from an inefficient over-intensification of land use. Land uses may also generate positive externalities, such as the example of the flower bed that beautifies an entire neighborhood.

[76] The history of land use conflicts gave rise first to private land use controls such as covenants and equitable servitudes, and then to zoning laws, both of which aim to avoid conflicting land uses. Land use conflicts typically involve, in some form, an over-intensification of use, resulting in the imposition of an externality. Consider the United States' farming operations, which cover 930 million acres, more than forty percent of the land in the United States. The negative externalities generated by farming operations are well documented. They include habitat loss and degradation, soil erosion and sedimentation of water bodies, water resource depletion, soil and water salinization,

Moving from an Individual Use regime to a less extreme regime requires that some prohibitions be imposed upon resource owners. The common law tort of nuisance imposes one such limitation, providing a cause of action against an offending land use activity that unreasonably and substantially interferes with the use and enjoyment of another's land.[77] Zoning laws, as well, impose restrictions but coordinate land uses so that industrial land uses are not situated near residential areas. A variety of environmental laws further limit land uses so as to avoid the imposition of less obvious negative externalities.[78]

The Individual Use regime has its advantages as well. If externalities can be internalized, individual ownership with strong use rights is the best regime for making productive use of the resource.[79] Monitoring for waste or misuse is much easier in Individual Use regimes.[80] Also, a strain of legal scholarship that espouses a Libertarian view posits that government has no legitimacy to impose use restrictions that substantially deprive citizens of any existing property rights.[81] A related

---

agrochemical releases, pollution from animal waste and other non-point sources of air, and water pollution. *See* J.B. Ruhl, *Farms, Their Environmental Harms, and Environmental Law*, 27 ECOLOGY L.Q. 263, 274-92 (2000) (discussing various harms caused by farms including, habitat loss and degregation, soil erosion, and sedimentation); *see also* J.B. Ruhl, *The Environmental Law of Farms: 30 Years of Making a Mole Hill out of a Mountain*, 31 ENVTL. L. REP. 10203, 10203-05 (2001) (noting consequences to the environment that farming has caused). Consider also the examples from Ronald Coase's original paper, *supra* note 74, in which he posits various negative externalities created by the intensification of land uses — the cattle rancher whose cattle destroy neighboring crops, the confectioner next door to the doctor, as well as the polluting factory next to a residential neighborhood. Coase, *supra* note 74, at 1-10. In turn, agricultural landowners have been victim to negative externalities imposed by land intensification by industrial landowners. *See, e.g.*, Eric T. Freyfogle, *Property Rights, the Market, and Environmental Change in Twentieth-Century America*, 32 ENVTL. L. REP. 10254, 10255-60 (2002) (arguing that property rights have been redefined to accommodate increasing intensification of land uses in 19th and earlier part of 20th century, but that appreciation of disamenities produced by industrialism have been highlighted by movement to assert communitarian values in land uses).

[77] WILLIAM L. PROSSER, LAW OF TORTS § 87, at 577-82 (4th ed. 1983).

[78] *E.g.*, Endangered Species Act of 1973, 16 U.S.C. §1531-44 (2000) (prohibiting activities on private property that harm endangered species); Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§ 9601-75 (2000) (imposing liability upon landowners for hazardous materials on their property, even if they are not responsible for their disposal).

[79] Robert C. Ellickson, *Property In Land*, 102 YALE L.J. 1315, 1327 (1993).

[80] *Id.*

[81] The leading advocate of this view is Richard A. Epstein. His book, TAKINGS: PRIVATE PROPERTY AND THE POWER OF EMINENT DOMAIN (1985), is considered the intellectual foundation of the property rights movement in the United States, which advocates for the payment of compensation for regulations that impinge upon private property owners. Even Epstein, however, concedes the need to exercise the state's police power to curb nuisance activity that imposes negative externalities upon others.

school of thought holds that, left to their own devices, individuals can negotiate efficiency-enhancing arrangements to internalize externalities, negating the need for governmental prohibitions.[82] This view holds that Coasian bargaining will lead to the spontaneous development of private agreements that will limit resource use so as to internalize negative externalities.[83] Alternatively, Coasian bargaining could lead to consolidation of different parcels, each of which imposes negative externalities upon the others. This "bundling" of spatially differentiated parcels is analogous to the rebundling of dispersed exclusion rights in the Individual Exclusion regime. Such a consolidation results in a regime change. By consolidating different parcels and internalizing externalities, a larger resource is created, but the owner of the larger resource *self-imposes* use restrictions in order to make optimal use of the new, consolidated resource.

The conduciveness of the Individual Use regime to facilitate Coasian bargaining is an advantage of this regime over group-ownership forms. Due to transaction costs and holdout problems, it is easier to strike Coasian bargains with an individual than with group property owners.[84] However, Robert Cooter establishes a contrasting perspective to the sanguine view of Coasian bargaining.[85] Cooter's view, the Hobbes Theorem, asserts that transaction costs and strategic behavior will frustrate the development of efficiency-enhancing private agreements.[86] What is needed in situations where bargaining is likely to break down is a leviathan to impose efficiency-enhancing arrangements upon bickering parties that fail, for various reasons, to engage in mutually beneficial transactions.[87] Cooter's Hobbes Theorem is thus the conceptual opposite

---

[82] A pioneer of this movement was Friedrich A. Hayek. His Individual Use manifesto THE ROAD TO SERFDOM (1944) was followed by essays such as *The Use of Knowledge in Society*, 35 AMER. ECON. REV. 519 (1945), in which Hayek argued for decentralized planning because the circumstances of most transactions are governed by "uncommon knowledge," or that knowledge specific to a particular time, place, and resource, and that such knowledge was thus inevitably "local" in nature, and not susceptible of timely collection and aggregation by a centralized planning agency. *See also* FRIEDRICH A. HAYEK, *"Free" Enterprise and Competitive Order*, *in* INDIVIDUALISM AND ECONOMIC ORDER 107-18 (1948) (comparing and contrasting notion of free enterprise and competitive order); Richard A. Epstein, *Property as a Fundamental Civil Right*, 29 CAL. W. L. REV. 187, 193-94 (1992) (analyzing Coase Theorem within "Frictionless" and "Friction-Filled" world).

[83] Harold Demsetz, *Toward a Theory of Property Rights*, 57 AM. ECON. REV. 347, 354-58 (1967); Epstein, *supra* note 82, at 193-94.

[84] Demsetz, *supra* note 83, at 354-58.

[85] Robert Cooter, *The Cost of Coase*, 11 J. LEGAL STUD. 1, 18 (1982).

[86] *Id.*

[87] *Id.* at 18-19. Cooter's example stems from *Austin Instrument v. Loral*, 272 N.E.2d 533

of the Coase Theorem in that while the Coase Theorem focuses upon the capacity of individuals to make efficiency-enhancing arrangements, the Hobbes Theorem focuses upon the reasons that individuals fail to do so.[88] The generality of both theorems is clearly a matter of degree and dependent upon a wide variety of circumstances. The severity of the externality problem generated by an Individual Use regime would likely depend upon the applicability of one of these competing theorems.[89]

C. Joint Use

The Joint Use regime is generally inefficient because the absence of any exclusionary rights means that no resource user has any reason to constrain use. The resulting overuse will invariably lead not only to the wasteful and premature depletion of a resource, but also to lower rents from exploitation.[90] Even though many Joint Use resources are limited in

---

(N.Y. 1971), an economic duress case. *Id.* at 24-27 (discussing *Austin Instrument*). Austin, a subcontractor to Loral, submitted a bid to Loral for a second subcontract, but insisted on several favorable terms on the second subcontract, as well as retroactive price increases on the first subcontract. *Austin Instrument*, 272 N.E.2d at 534. Austin threatened non-performance on the first subcontract, saddling Loral with a large penalty on its general contract, if Loral did not accede to Austin's demands. *Id.* Loral acceded, but after performance by Austin on both contracts Loral withheld payment and sued. *Id.* at 535. The Court of Appeals of New York held that Loral was entitled to withhold payment and damages from Austin for the excess costs extorted by Austin. *See id.* at 537. Cooter offers this as an illustration of the Hobbes Theorem because had Loral not acceded and had Austin carried through with this threat, both Austin and Loral would have suffered losses. Cooter, *supra* note 85, at 25. Such an outcome would clearly violate a basic tenet of the Coase Theorem – that parties will order their private affairs efficiently in the absence of governmental intervention. *Id.* at 27.

[88] *Id.* at 18-19.

[89] For one of the few empirical studies of the Coase Theorem, see Stewart Schwab, *A Coasean Experiment on Contract Presumptions*, 17 J. LEGAL STUD. 237 (1988), reporting an experiment in which law students were paired off and asked to negotiate a labor contract in which efficiency would have called for one side or the other to win a concession point. No pair of students negotiated a contract that was fully efficient, i.e., in which the correct side won each concession point, and students fell far short of the maximum number of combined points that could have been achieved had the concessions been allocated to the party valuing it the most. *Id.* at 246-52, 264-65. Strictly speaking, this result violates the Coase Theorem, although Coase himself has never claimed that his seminal paper amounted to a "theorem," and was to be taken literally.

[90] H. Scott Gordon, *The Economic Theory of a Common-Property Resource: The Fishery*, 62 J. POL. ECON. 124, 135, 141 (1954). Even short-term maximization is not likely. The logic of the Prisoner's Dilemma will ensure that the resource will be overexploited by competing users who know that whatever they don't take, others will. Thus as long as profits are more than zero, someone will be using the resource. A common property resource will thus result in zero profit (a condition known as rent dissipation), as opposed to the profit-maximization that could be expected to occur in the case of one individual owning the entire resource. *Id.* The tragedy is particularly acute in the case of price-sensitive

accessibility,[91] they are still available to very large numbers of individuals. For example, fisheries within a country's Exclusive Economic Zone[92] may be limited in accessibility to ships of that nation, yet may still suffer from over-exploitation and wasteful depletion.

As a general matter, resource overuse is apt to be more severe in a Joint Use regime than in an Individual Use regime. In an Individual Use regime, at least the owner will have an incentive to preserve the resource itself, since the owner's heirs will presumably inherit ownership of the resource. In contrast, a resource in Joint Use may be entirely depleted since the governing dynamic in a Joint Use situation is that any share of the resource not captured by one individual will be captured by another.[93] Finally, an Individual Use regime will typically accomplish at least a privately optimal level of resource use, while a Joint Use regime will be inefficient from any perspective.

There is no shortage of proposed solutions to Joint Use problems. Scholars have proposed privatization[94] and top-down control by a

---

perishable goods. The production of additional goods may result in a substantially lower profit for all users involved, because the introduction of additional goods will depress the market price of the good. Yet, with many users exploiting the resource to produce the good, the logic of the Prisoner's Dilemma will still ensure that the resource will be overexploited by the group. It is thus a fait accompli that the resource will be overexploited and the market price depressed, so there is no incentive for any individual user to remain on the sidelines while others overexploit the resource and depress the market price for *all users*. *Id.*

[91] Some fisheries regulators have limited the number of licenses issued to fish for a particular species. SUZANNE IUDICELLO ET AL., FISH, MARKETS, AND FISHERMEN: THE ECONOMICS OF OVERFISHING 75-77 (1999). Also, the 1982 Law of the Sea Convention created an expanded 200-mile "exclusive economic zone" extending out from a nation's shore and into the open sea. Nations may exclude the fleets of other nations from these waters. *See infra* note 105.

[92] *See infra* note 105.

[93] It is not literally true that the resource would be completely depleted. Individual resource users would still exploit the resource to the point at which their marginal private costs of exploitation are still covered by their marginal private benefits of exploitation. What causes the extreme depletion to occur is that individual resource users will ignore the marginal social costs of exploitation. Thus, to take the example of a fishery, the individual fishermen will fish as long as the value of the fish caught exceeds or equals the variable costs of fishing, namely the cost of the crew and gasoline expenses. At this point, however, over fishing is occurring since the fishermen have exceeded the level of fishing at which the marginal private benefit would equal the marginal private cost *plus* the marginal social cost.

[94] Demsetz, *supra* note 83, at 355-56. Proposals for vesting private ownership of fishing rights in individual fishermen are known as Individual Transferable Quota programs. Such programs typically create rights of a quota-holder to catch a quantity of fish. Given the limited number of quotas issued in any given year, such programs ensure that the total catch does not exceed that which is ecologically sustainable. *See, e.g.*, Shi-Ling Hsu & James E. Wilen, *Ecosystem Management and the 1996 Sustainable Fisheries Act*, 24 ECOLOGY L.Q. 799,

governmental authority.[95] In addition, some scholars have noted that large groups of individuals have, in some instances, been spontaneously able to agree on mutual use restrictions and avoid resource overuse.[96] These possibilities involve moving away from the upper-right-hand corner of the diagram shown in Figure 1, albeit in different directions. Privatization solutions involve a movement to the left on the spatial diagram, reducing the number of people involved in ownership of a resource. Governmental coercion solutions involve a downward movement on the spatial diagram, representing a move towards a Joint Exclusion regime. The types of changes proposed do not seem difficult to accomplish, but have been rare in practice, meeting with much resistance from Joint Use resource users. The reasons for the stubbornness of Joint Use resource users, especially in the face of overwhelming evidence that they would benefit from a change in regime, are complex and varied. So persistent are obviously inefficient and wasteful Joint Use resource situations that a blithe attribution of the problem to transaction costs no longer suffices.[97] More nuanced answers involve the behavioral psychology of groups, the human propensity to discount the future, and human perceptions of gain and loss in the face of uncertainty that confound standard microeconomic theory.[98]

Nevertheless, Joint Use has its advantages in certain situations. A Joint Use regime requires no governance, enforcement, or transaction costs. Thus, a resource that is not scarce, or is under little pressure for exploitation, need not be limited in consumption and should be left in a Joint Use regime. An even stronger case for Joint Use can be made for resources that become more valuable with greater consumption. For example, dance halls and other public gathering places derive their value from their inherent "publicness," making private ownership inimical to

---

807-09 (1997) (discussing quotas placed on individual fishermen).

[95] WILLIAM OPHULS, ECOLOGY AND THE POLITICS OF SCARCITY 147-52, 155-56 (1977) (stating that "democracy as we know it cannot conceivably survive"); Hardin, *supra* note 2, at 1247-48 (arguing that mutual coercion that majority of those affected agree will result in responsibility); *How to Fish*, ECONOMIST, Dec. 10, 1998, at 93 (arguing that "[l]eft to their own devices, fishermen will over-exploit stocks . . . [and] [t]o avoid disaster, managers must have effective hegemony over them").

[96] JAMES M. ACHESON, THE LOBSTER GANGS OF MAINE 142-44 (1988); OSTROM, *supra* note 11, at 58-88 (analyzing several "long enduring" common-pool resource situations).

[97] Thompson, for example, discusses obstacles to the solution of common pool resource problems that have nothing to do with transaction costs. Thompson, *supra* note 67, at 256-67. Rather, the more troublesome obstacle may have to do with various cognitive biases. *Id.*

[98] *Id.* at 241.

the nature of the resource.[99] As well, private ownership of such public resources could create a holdout or monopoly problem, which might result in undersupply of the resource.[100]

Finally, the Joint Use regime is fundamentally the most egalitarian regime. It is perhaps for this reason that roads are publicly financed and open to the public. State financing of such projects are necessary because of the public good nature of roads. Roads are an imperfect example of Joint Use because obeying traffic laws is a condition to their use. But for the most part, we have decided that transportation is important enough that there should be no exclusions, which would not be the case if, for example, tolls were imposed to alleviate congestion. There are also commerce-related justifications for maintaining free access to roads. Waterways are inalienably the property of the "unorganized public"[101] because use of waterways in commerce was once subject to increasing returns to scale.[102] Insofar as they promoted commerce, free access of waterways was deemed to increase in value as their use increased.[103]

However, Joint Use has an important drawback: the regime only works for plentiful resources. Without scarcity, there is no reason to undertake the costs of organizing and limiting use.[104] Once a resource becomes scarce, however, the value of the resource ceases to be zero, and consumption of the resource should increase accordingly to reflect the cost of resource depletion. A pure Joint Use regime, by definition, does not allow for pricing mechanisms to limit use to those who value it most. Thus, when highways become congested, Joint Use fails in that allocations of use are not necessarily made in an economically efficient manner.

Despite the inefficiencies in the Joint Use regime, some examples continue to persist. Many of the world's fisheries remain under a de facto Joint Use, or open access, regime because the costs of imposing any

---

[99] Rose, *supra* note 41, at 769, 772.

[100] *Id.* at 771-72. Monopoly is the opposite of open access. The anticommons is essentially many monopolies. The example of the Moscow store spaces, Heller I, *supra* note 1, at 633-38, illustrates that the anticommons consists of not just one, but many monopolies, in that each rights-holder is the sole supplier of a good — the right to lease, the right to receive lease proceeds, the right to determine use. The anticommons is thus the problem of overcoming not just a bilateral monopoly, but a multilateral one.

[101] Rose, *supra* note 41, at 721.

[102] *Id.* at 723.

[103] Not only does commerce beget more commerce, but commerce also "has been thought to enhance the sociability of the members of an otherwise atomized society." *Id.*

[104] Demsetz, *supra* note 83, at 348.

kind of regime outweigh the benefits.[105] As well, inefficient regimes may persist for reasons having nothing to do with utility. For instance, the introduction of Individual Transferable Quota (ITQ) programs[106] to govern specific fisheries was considerably slower for the Alaska halibut fishery than for the neighboring British Columbia halibut fishery.[107] The situation arose despite the fact that British Columbia's ITQ program, by encouraging more efficient methods of fishing, allowed British Columbian fishermen to garner nearly triple the prices for halibut caught by Alaskans.[108] Alaskan fishermen failed to agree to adopt a similar ITQ program because of concerns over the fairness of the initial allocation of quota shares.[109] They also feared that shares would become concentrated in the hands of a few large, wealthy operations.[110] Thus, even though the evidence of efficiency was only too apparent to the Alaskan fishermen, considerations of fairness perpetuated the previously existing regime. In 1995, four years after the British Columbians adopted their ITQ program, an ITQ program was finally adopted for the Alaskan halibut fishery,[111] but the loss of efficiency caused by delay in this case is noteworthy.

D. Joint Exclusion

A Joint Exclusion regime in this framework contemplates that a resource is owned by the universe of all persons, but only in the sense

---

[105] The United Nations Convention on the Law of the Sea of 10 December 1982 ("the Convention") effectively expanded the territorial waters of nations by establishing an "exclusive economic zone" extending out 200 nautical miles from a nation's shores in which nations have "sovereign rights for the purposes of exploring, and exploiting, conserving and managing the natural resources." *United Nations Convention on the Law of the Sea of 10 December 1982*, *supra*, note 13, at Arts. 55, 56.1(a), 57. However, the Convention reaffirmed the traditional notion of the freedom of fishing on the high seas, although with "due regard for the interests of other States." *Id.* at Art. 87. Since 1982, falling fish stocks have induced nations to pursue other agreements to regulate fishing on the high seas, such as the 1992 United Nations Conference on Environment and Development, *supra* note 13. For a discussion of this and other international efforts to control fishing on the high seas, see Christopher J. Carr & Harry N. Scheiber, *Dealing with a Resource Crisis: Regulatory Regimes for Managing the World's Marine Fisheries*, 21 STAN. ENVTL. L.J. 45, 47-49 (2002), and Robin Kundis Craig, *Sustaining the Unknown Seas: Changes in U.S. Ocean Policy and Regulation Since Rio 92*, 32 ENVTL. L. REP. 10190 (2002). However, these attempts to regulate fishing on the high seas occur against the backdrop of the tradition of the freedom to fish on the high seas.

[106] *See infra* notes 296-325 and accompanying text (describing details of ITQ programs).

[107] IUDICELLO, *supra* note 91, at 152.

[108] *Id.*

[109] *Id.* at 140-41.

[110] *Id.*

[111] *Id.* at 136.

that collectively, they all have a joint right of exclusion. This right may be manifested by a trust doctrine (such as the public trust doctrine) or trust instrument, or exercised through an overbearing governmental entity charged with protecting the resource. What is considered "state property" in the traditional property trilogy may resemble a Joint Exclusion regime, although a Joint Exclusion regime contemplates that most uses be prohibited. State property in the context of this framework could be a Joint Exclusion regime, or for that matter any regime on the right side of Figure 1.

With the dissolution of the Soviet Union and the disappearance of strongly centralized government regimes, it has become more difficult to imagine an example of a Joint Exclusion regime in real life. In the United States, users of regulated resources have sometimes had great success in manipulating regulatory agencies and other governmental authorities to open up resource use for their private benefit and to the detriment of the public, whom the regulatory agencies are supposed to represent. These and other instances of quasi-influence peddling have spawned voluminous academic literature on public choice theory.[112]

However, stringent governmental regulation still exists. In some instances, regulations prohibit nearly all uses of publicly-owned resources. Again, this is not to say that this is an inefficient outcome. Robert Ellickson's example of a wilderness area would resonate with Western United States resource users still smarting from President Bill Clinton's eleventh-hour designations of large tracts of federal land as "wilderness" areas,[113] precluding their exploitation for consumptive resource uses such as logging and road construction.[114] The interests of

---

[112] *See generally* Michael E. DeBow & Dwight R. Lee, *Understanding (and Misunderstanding) Public Choice: A Response to Farber and Frickey*, 66 TEX. L. REV. 993 (1988); William N. Eskridge, Jr., *Politics Without Romance: Implications of Public Choice Theory for Statutory Interpretation*, 74 VA. L. REV. 275 (1988); Daniel A. Farber & Philip P. Frickey, *Integrating Public Choice and Public Law: A Reply to DeBow and Lee*, 66 TEX. L. REV. 1013 (1988); Daniel A. Farber & Philip P. Frickey, *The Jurisprudence of Public Choice*, 65 TEX. L. REV. 873 (1987); Jonathan R. Macey, *Federal Deferemce to Local Regulators and the Economic Theory of Regulation: Toward a Public-Choice Explanation of Federalism*, 76 VA. L. REV. 265 (1990); Glen O. Robinson, *Public Choice Speculations on the Item Veto*, 74 VA. L. REV. 403 (1988); Maxwell L. Stearns, *The Public Choice Case Against the Item Veto*, 49 WASH. & LEE L. REV. 385 (1992); George J. Stigler, *The Theory of Economic Regulation*, 2 BELL J. ECON. & MGMT. SCI. 3 (1971).

[113] Special Areas: Roadless Area Conservation, 66 Fed. Reg. 3,244 (Jan. 12, 2001) (to be codified at 36 C.F.R. pt. 294). Areas may be designated as "wilderness" if they are "underdeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation . . . ." 16 U.S.C. § 1131(c) (2000).

[114] As noted in *supra* note 113, the designation of an area as "wilderness" greatly limits the uses to which the land can be put.

these resource users, however, do not necessarily coincide with those of the American public; and there is nothing to say that the designations have been contrary to the public interest of the United States.

At any rate, the generality of this regime aside, it is still worth imagining for heuristic purposes the potential for inefficiency created by a completely centralized governmental authority making resource allocation decisions. Moreover, moving away from a Joint Exclusion regime to a less extreme regime can be difficult, as it would require divesting a governmental body of exclusionary power. This could be even more difficult than rebundling ownership rights from an Individual Exclusion regime because in the latter case, individual self-interest will facilitate the rebundling, whereas in a Joint Exclusion regime the self-interest of governmental officials may cause them to jealously guard their exclusionary rights.[115]

In addition to the potential costs of regulatory failure imposed upon citizens, even a successful and necessary Joint Exclusion regime entails significant organization costs. These costs include the development and maintenance of institutions for regulating the resource and of policing use prohibitions. Libertarian scholars argue that the costs of governing often outstrip the gains achieved by use prohibition.[116] On the other hand, it is worth remembering that public policing costs associated with a Joint Exclusion regime do not occur in a vacuum and may replace private policing and transaction costs.

On the positive side, the Joint Exclusion regime can be used to protect against the occurrence of externalities, especially those occurring over time. In other words, with extremely fragile resources, a Joint Exclusion

---

[115] *See, e.g.*, GARY D. LIBECAP, LOCKING UP THE RANGE (1981) (arguing that federal land management agencies have historically competed with ranching lessees over control of grazing lands under federal ownership); Epstein, *supra* note 82, at 306-07 (lamenting that wealth transfer programs, even if unconstitutional under Epstein's vision, could never be repealed "because of the social institutions and individual claims that have grown up around long-standing social programs"); JONATHAN KLICK, AUTOCRATS AND THE ENVIRONMENT OR IT'S EASY BEING GREEN 2-3, (George Mason Univ. School of Law, Law and Economics Working Paper Series No. 02-16 2002), *available at* http://ssrn.com/abstract_id=311063 (last visited Feb. 4, 2003) (proposing model in which it is rational economic behavior for environmental bureaucrat to set stringent environmental standards). More generally, a common hypothesis posits that bureaucracies seek to maximize the size and jurisdiction of their agencies. WILLIAM A. NISKANEN, JR., BUREAUCRACY AND REPRESENTATIVE GOVERNMENT 42 (1971); GORDON TULLOCK, THE POLITICS OF BUREAUCRACY 134-36 (1965).

[116] *See, e.g.*, Richard A. Epstein, *Rent Control and the Theory of Efficient Regulation*, 54 BROOK. L. REV. 741, 769-70 (1988); James L. Huffman, *Marketing Biodiversity*, 38 IDAHO L. REV. 421, 426-27 (2002); David G. Post, *What Larry Doesn't Get: Code, Law, and Liberty in Cyberspace*, 52 STAN. L. REV. 1439, 1440 (2000).

regime may protect the rights of future generations that would otherwise have no means of representation. Complete closures of overfished fisheries, to allow fish stocks to recover, are examples of appropriate exercises of Joint Exclusion authority. For example, Russia has issued a total ban on fishing for beluga sturgeon, which produce the sought-after beluga caviar.[117] Since the fall of the Soviet Union, the proliferation of independent former Soviet republics with access to the Caspian Sea, combined with the abject poverty of some of these republics, has placed the beluga fishery under tremendous pressure. In what is essentially a Joint Use (open access) regime, Caspian Sea beluga populations have dropped from about 200 million in the late 1980s[118] to an estimated 300,000 in 2001.[119] Russia and three other post-Soviet republics now intend to redouble enforcement efforts while prohibiting beluga fishing, hoping for a recovery of the beluga sturgeon.[120] It is clear that the beluga caviar industry sorely misses the old Soviet Union.[121]

Resource non-use is nevertheless rarely an appropriate outcome. The instances in which Joint Exclusion regimes have been appropriate have involved highly fragile resources with long-term value, further exploitation of which could have significant irreversible costs. Resources such as fisheries, for example, are sometimes irreplaceable as a source of food and as a link in an ecosystem, and may thus warrant the extreme regulation under a Joint Exclusion regime.

---

[117] John Mceachran, *Ban Will Send Price of Caviar Soaring; Russian Authorities Take Drastic Measures to Save Sturgeon from the Poachers and Threat of Extinction*, HERALD (GLASGOW), July 21, 2001, at 26, *available at* http://www.worldlakes.org/news/caspian_sea%2008012001.htm (last visited Feb. 4, 2003) (explaining ban and inferring that beluga sturgeon produce sought-after beluga caviar); *Sturgeon Fishing Banned Until 2002*, MOSCOW TIMES.COM, June 22, 2001, *at* http://www.moscowtimes.ru/stories/2001/06/22/002-print.html (last visited Feb. 4, 2003).

[118] Fred Weir, *Caveat On Caspian Caviar*, CHRISTIAN SCI. MONITOR, July 20, 2001, at 6, *available at* http://www.worldlakes.org/News/caspian_sea%2008012001.htm (last visited Feb. 4, 2003).

[119] John Tidwell, *Sturgeon Fishes and Caviar Dreams*, ZOOGOER, May/June 2001, *available at* http://www.fonz.org/zoogoer/zg2001/30(3)sturgeon.htm (last visited Feb. 4, 2003).

[120] Weak efforts to regulate the beluga fishery have been easily defeated by poachers and the criminal organizations that profit from beluga poaching. In Russia, legal trade of beluga caviar accounts for $40 million per year, while trade in illegally obtained caviar nets $500 million. *Sturgeon Fishing Banned Until 2002*, *supra* note 117.

[121] It would also be fair to say that caviar consumers do not miss paying monopoly prices for caviar.

III. FOUR LESS EXTREME PROPERTY RIGHTS REGIMES

The vast majority of property regimes in existence are not one of the four fundamental regimes, but are some mixture of them. Most real-life regimes feature use rights that are limited in some way by exclusion rights, creating a mixture of use and exclusion. Also, most regimes involve ownership by parties of more than one and less than the entire universe. This section analyzes four such regimes: Common Property, Private Property, Administrative, and Third-Party Protection.

A. Common Property

Economic theory predicts that the overuse characteristic of a Joint Use regime extends to situations involving any resource that is owned by a sufficiently large number of individuals.[122] In order for the tragedy of overexploitation to occur, there need not be complete lack of ownership. Ownership by an unwieldy number of individuals will suffice to doom the resource to tragic overexploitation. However, scholars have identified cooperative arrangements involving large-group ownership of a resource, in which the group has been able to impose effective use limitations on individual members and preserve the resource for sustainable long-term use.[123] These groups managed to overcome the transaction costs of organizing and allocating use, and developed governing institutions to implement and police its members for adherence to use restrictions. This regime is known as Common Property.

Common Property is less extreme than Joint Use in that: (1) ownership is vested in some large number of people constituting less than the entire universe of people; and (2) group-implemented and -enforced use restrictions represent less bundled ownership.[124] In the spatial diagram shown in Figure 2, Common Property is slightly lower than Joint Use, indicating less bundled rights, and concomitantly a lower

---

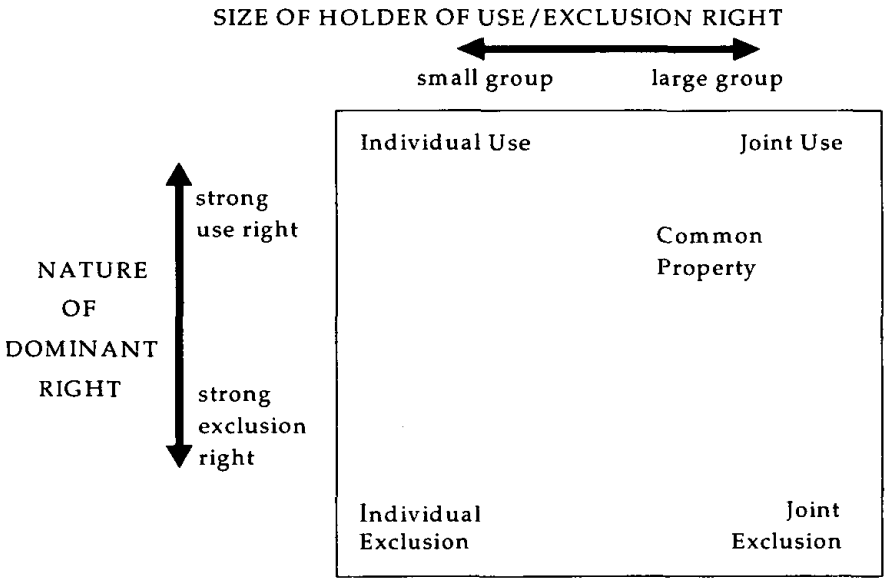
[122] The Prisoner's Dilemma serves as the conceptual link between open access and the Common Property regime. Ostrom discusses the Prisoner's Dilemma model in illustrating the applicability of Hardin's open access problem to "common-pool" resources, which are not open access but are accessible to a large number of individuals, and shows that the prediction of over-exploitation applies to both. OSTROM, *supra* note 11, at 2-8.

[123] ACHESON, *supra* note 96, at 142-44; OSTROM, *supra* note 11, at 58-88.

[124] *See, e.g.*, Rose, *supra* note 12, at 155 ("commons on the inside, property on the outside"). Ellickson also recognizes the distinction between open access and group property. According to Ellickson, group property is ownership by a group "larger than a [household] but small enough to permit intermittent face-to-face interaction." Ellickson, *supra* note 79, at 1322.

level of resource use. That is, the group-implemented and -enforced use restrictions represent an incremental movement toward the Joint Exclusion regime, where use is completely prohibited. Common Property is also slightly to the left of Joint Use in Figure 2, indicating that ownership is vested in some large group of people constituting less than the entire universe. Because the size of membership and the extent of use restrictions may vary, the placement of Common Property in Figure 2 is illustrative only. Nevertheless, Figure 2 illustrates that Common Property is a mixture of the Joint Use, Individual Use, and Joint Exclusion regimes.

Figure 2



Perhaps the most prominent advantage of Common Property is that if group cooperation can be accomplished, Common Property ownership can achieve economies of scale. Ellickson notes that larger parcels may yield larger returns, allowing as it does for specialization and the avoidance of fencing costs, as it did in early settler societies.[125] In the example of pioneer settlements such as Jamestown and Salt Lake City, groups took advantage of increasing returns to scale of group ownership of agricultural enterprises.[126] As an added side benefit, group ownership

[125] Ellickson, *supra* note 79, at 1329-30.

[126] *Id.* at 1332-41.

also allows for the pooling of risks.[127] In some of Ostrom's examples, as well, the risk environment and the labor-intensive efforts required to construct and maintain a group-owned irrigation system necessitated group cooperation.[128]

Another advantage of Common Property is that the resource is managed by a group that is more familiar with the resource than a regulatory entity.[129] Local resource users would therefore be able to establish resource use limits based on more intimate "local knowledge"[130] of the resource. For renewable resources such as fish and wildlife harvested by a discrete local population, local harvesters are apt to have better information than a distant regulatory entity on the appropriate population and level of harvest. Furthermore, if a violation occurs, compared with a distant governmental bureaucrat, a group is more likely to succeed in punishing one of its own. The group can also better discern the degree of punishment necessary to prevent cheating.[131]

The latter advantage of the Common Property regime is of critical importance. Absent an arrangement to implement use restrictions, Common Property ownership by any significant number of individuals will descend into overuse.[132] However, if time and space restrictions on individual use of the group-owned resource can be developed, they can effectively create the needed rights of exclusion lacking in Joint Use regime. Moreover, such use limitations, because they have been developed by local resource users, are apt to be efficient at least from a local standpoint. Effective use limitations can thus provide the limitations necessary to ensure that a resource is sustainable over the

---

[127] *Id.* at 1341-44.

[128] Some farming communities in the Philippines have pooled labor and technological knowledge to construct and maintain *zanjeras*, irrigation districts with a formal governmental structure but no official governmental sanction. Membership in some zanjeras is similar to membership in a condominium association, in that shares may now be bought or sold, subject to the prior approval of the governing body of the zanjera. OSTROM, *supra* note 11, at 82-88.

[129] *Id.* at 17-18.

[130] *See* HAYEK, *supra* note 82, at 521.

[131] OSTROM, *supra* note 11, at 19-20 (providing example of a locally developed and managed fishery in Alanya, Turkey, in which "[t]he few infractions that have occurred have been handled easily by the fishers at the local coffeehouse").

[132] PARTHA S. DASGUPTA & GEOFFREY M. HEAL, ECONOMIC THEORY AND EXHAUSTIBLE RESOURCES 73-78 (1979). *But see* Elinor Ostrom, *A Behavioral Approach to the Rational Choice Theory of Collective Action, Presidential Address: American Political Science Association*, 92 AM. POL. SCI. REV. 1, 5 (1997) (noting that many experimental studies of cooperation have found unexpected levels of cooperation that are less than group-optimal but greater than predicted level of zero).

long term, while allowing the group to take advantage of economies of scale that may be necessary to exploit some resources, and allowing for local expertise in managing the resource. In fact, the specific details of the use limitations, enforcement mechanisms, and membership conditions may represent an optimum in property rights bundledness. That is, given a resource under certain conditions, if it is governed by a group-created and implemented use limitation agreement, it is likely to be the most efficient arrangement for the local population exploiting the resource. This is especially true when the group of resource users is familiar with the advantages of private property ownership and have consciously chosen to retain a Common Property regime, as Swiss alpine meadow grazing and Japanese mountainside logging communities have done.[133]

A long-enduring Common Property regime, however, is not necessarily optimal from a global standpoint. A resource may have global as well as local values, and governance or ownership by a group of local resource users may or may not serve global values. Where there is divergence between what would be a local optimum and a global optimum, Common Property may not be as efficient from a global point of view as other regimes. For example, there is great controversy over whether or not logging should be allowed in the Tongass National Forest of Alaska.[134] While local resource users claim to have superior knowledge of the forest resources of the area, the Tongass is one of the last remaining temperate rainforests in the world, and local loggers might not take sufficiently into account the value of the Tongass National Forest as a biological resource.[135] What the Alaskans would thus consider an optimal level of harvest of timber resources in the Tongass is likely to differ from what the rest of the world would consider optimal.

What conditions are necessary for a Common Property regime to represent an optimum? That is, under what conditions is the Common Property regime the most efficient, as compared with other possible property regimes? And what conditions are necessary for a Common Property regime to endure? The transaction costs of establishing a set of governing rules and implementing them are high enough to lead one to believe that for every successful example of a Common Property

---

[133] OSTROM, *supra* note 11, at 61-69.

[134] Katharine Q. Seelye, *Forest Service to Recommend Opening Alaska Forest Area*, N.Y. TIMES, May 17, 2002, at A12.

[135] *Id.*

resource there are many failures. As one considers Ellickson's and Ostrom's examples of "long-enduring" Common Property regimes and Acheson's example of the Maine Lobster gangs,[136] several factors appear to be critical to the longevity of a Common Property regime.

First, Common Property resources must be owned or governed by a local resource user group that is fairly stable in its composition. As Ostrom and Acheson have noted, one important characteristic of successful common property regimes is that the members of the owning group have frequent and continuing interactions.[137] This is most common when group owners are also community members and neighbors, and members expect that their children will inherit the benefits and burdens of group ownership.[138] Inability to control entry into the group of resource users will destroy stability in two ways: (1) by allowing too many users to exploit the resource;[139] and (2) by making it more difficult for the group to monitor itself, since the members of the group will not interact with each other frequently enough or long enough to induce compliance.[140] Additional stability might be achieved if the group of resource users is homogenous because differences in ethnicity, religion, knowledge, and skill can divide groups.[141] Divisions among members of groups would undermine the effectiveness of group solutions and Common Property ownership and may require a regime more like a Joint Exclusion regime or an Individual Use regime.

Second, resources that typically experience fluctuations in abundance or health may be better managed under Common Property ownership. Uncertainty of resource abundance gives rise to a substantial amount of risk at the individual level. Common property ownership can act as a

---

[136] ACHESON, *supra* note 96, at 48-70; OSTROM, *supra* note 11, at 90. Ostrom identifies seven "design principles" that are characteristic of long-enduring Common Property regimes: (1) clearly-defined boundaries; (2) congruence of rules with local conditions; (3) collective-choice arrangements; (4) monitoring; (5) graduated sanctions; (6) conflict-resolution mechanisms; and (7) some governmental recognition of the group to self-govern. OSTROM, *supra* note 11, at 90.

[137] ACHESON, *supra* note 96 at 64-65; OSTROM, *supra* note 11, at 88.

[138] ACHESON, *supra* note 96 at 64-65; OSTROM, *supra* note 11, at 88.

[139] A similar Turkish fishery 400 kilometers away from the one in Alanya was unable to control the entry of larger, faster boats. Therefore, the fishery was unable to achieve any limitations on use, resulting in rent dissipation and overexploitation of the fishery. OSTROM, *supra* note 11, at 144-46.

[140] It has been shown that the Prisoner's Dilemma is alleviated in repeat-play versions of the game, where cooperation might be established. ROBERT AXELROD, THE EVOLUTION OF COOPERATION 10-12, 206-15 (1984); Frederick Tung, *Is International Bankruptcy Possible?*, 23 MICH. J. INT'L L. 31, 100-01 (2001).

[141] OSTROM, *supra* note 11, at 89.

form of risk-pooling.[142] For example, in the absence of collaboration, rainfall can be abundant for some users but not for others, and this can change from year to year. This uncertainty can be alleviated for individuals if they belong to and contribute to a large-scale group-owned irrigation system, governed by a Common Property regime.[143] In the absence of such uncertainty, resources may be owned by smaller groups of people, or under regimes more resembling the Individual Use regime.

Third, resources that are exploited advantageously under economies of scale conditions are appropriate for Common Property ownership. As noted above, the irrigation construction projects that Ostrom studied are examples of how group cooperation may be necessary for large-scale labor-intensive projects to exploit scarce resources such as water.[144] There are also other ways in which Common Property ownership provides strength in numbers. For example, the lobster gangs of the Maine coast have been fairly effective as a political unit in lobbying for lobster fishing regulations that they viewed as being most effective.[145] It is unlikely that these same lobster fishermen could have wielded the same political clout as individuals. As well, lobster gangs are defined by territories in which only members of that gang are permitted to fish. Intruders — persons other than members of the harbor gang claiming the fishing grounds as territory — will face sabotage in the form of destruction of lobster traps. The defense of territories, while often undertaken by individuals, is also sometimes undertaken by an entire harbor gang, as only by marshalling the vengeance of the entire gang can some intruders be repelled.[146] In the absence of economies of scale benefits from group ownership, a regime with more individual ownership, more like an Individual Use regime, could be more efficient.

Fourth, Common Property is appropriate when resources are idiosyncratic enough so that superior knowledge of the resource is obtained at the local level. Resources that have been successfully owned as Common Property including fisheries, irrigation systems, and forestries, are such that successful exploitation is better accomplished by users who have a greater exposure to the resource. In the case of fisheries, local fishermen who have exploited a fishery for years may

---

[142] ACHESON, *supra* note 96, at 1, 151-52; Ellickson, *supra note* 79, at 1341-44.

[143] *See* OSTROM, *supra* note 11, at 69-86 (discussing examples of Philippine *zanjeras* and network of Spanish *huerta* irrigation districts).

[144] *Id.*

[145] ACHESON, *supra* note 96, at 138 (noting conservation proposal put forth by Maine Lobsterman's Association that Maine legislature enacted).

[146] *See id.* at 73-76 (discussing general practice of defending territories).

indeed have a superior understanding of the fish stocks, and the level at which harvesting may be sustained, than would a central bureaucrat with access to more generalized scientific knowledge.[147] If the resource is not idiosyncratic, however, then local knowledge is less important and a more centralized regime, perhaps resembling more of a Joint Exclusion regime, may be better able to assemble knowledge and implement an effective use plan.

Fifth, the optimal level of exploitation of a Common Property resource should be the same for the owning group as it is for society generally. If a local group of users would exploit a resource differently than would society generally, then the local group of users will impose an externality upon the rest of society. For example, if an old-growth forest were owned as Common Property by a small nearby community, the community may only appreciate the value of the forest for its timber resources and not for its value as an ecological resource. If that is the case, then Common Property ownership of the resource may be less efficient than a Joint Exclusion regime, which protects public values, or an Individual Exclusion regime, which protects certain private values.

Finally, Common Property is an appropriate regime only if resources are scarce and depletable; otherwise, there is no need for use limitations.[148] Without any negative consequences of consumption, there is no need to limit any individual's use. Plentiful or non-depletable resources may be better left in a Joint Use regime,[149] as there is no need to limit consumption and no need to undergo the costly process of developing use limitations and governing rules.

---

[147] *See id.* at 149-51.

[148] Resources that are non-depletable can be consumed by one individual without affecting another's ability to consume the same resource. For example, a scenic view can be enjoyed equally by many individuals without any deterioration in quality of the experience. In fact, unless there is congestion in access to the view, there is no relationship at all between the number of people enjoying the view and the quality of the experience. The benefits of biological diversity are nondepletable. To an extent, clean air is also a nondepletable resource. Consumption by individuals who breathe clean air does not deplete the resource but large amounts of air pollution does. TOM TIETENBERG, ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS 56-57 (1992).

[149] This is not to say that a resource that has been costly to develop or cultivate, but can thereafter be nonrival in consumption, should be an open access resource. If the party developing or cultivating a valuable resource that is nonrival in consumption cannot recoup the costs of development or cultivation, there will never exist any incentive to develop or cultivate the resource. This issue can be most clearly seen in the area of intellectual property, where the knowledge created by patentable ideas and the value of copyrighted works are nonrival in consumption, but nevertheless the subject of protection from appropriation.

The resources and situations in the world in which Common Property is the most efficient regime are narrow. There is a reason that Ostrom's case studies seem quaint — they are rare. However, there is also a good reason that Ostrom's analysis warrants so much attention. Understanding the circumstances under which Common Property can exist as a stable regime informs our continuing analyses of other forms of property and property regimes.

B. Private Property

The phrase "private property" has clearly taken on a broad spectrum of meanings. When the courts have spoken on what is meant by "private property," it is typically couched in terms of "expectations" or "existing rules or understandings."[150] When academics have tried to identify what is meant by "private property," it is usually couched in terms of the most efficient or beneficial use of the property. At least in the American legal literature, the phrase "private property" seems to describe regimes that are considered the most functional and efficient, and therefore somewhat exalted among other known regimes.[151]

In this Article, "private property" describes a regime that most resembles an Individual Use regime, but in a less extreme manner. In the context of this framework, a Private Property regime has two

---

[150] *See, e.g.*, Lucas v. S.C. Coastal Council, 505 U.S. 1003, 1069 (1992) ("The human condition is one of constant learning and evolution — both moral and practical. Legislatures implement that new learning; in doing so they must often revise the definition of property and the rights of property owners."); Penn Cent. Transp. Co. v. City of New York, 438 U.S. 104, 124 (1978) (holding that New York City Landmark designation that prohibited by regulation addition of office tower on top of historical landmark was *not* taking of private property under Fifth Amendment requiring payment of just compensation, stating that "[t]he economic impact of the regulation on the claimant and, particularly, the extent to which the regulation has interfered with distinct investment-backed expectations are, of course, relevant considerations."); Bd. of Regents of State Colls. v. Roth, 408 U.S. 564, 577 (1972) ("Property interests, of course, are not created by the Constitution. Rather they are created and their dimensions are defined by existing rules or understandings that stem from an independent source such as state law–rules or understandings that secure certain benefits and that support claims of entitlement to those benefits.").

[151] For example, in Heller II, the term "private property" represents the efficient middle of the dispersion gradient, in which rights to a resource are neither too bundled nor too dispersed, and are therefore "well-scaled." Heller II, *supra* note 58, at 1165-66; *see also* Richard J. Agnello & Lawrence P. Donnelley, *Property Rights and Efficiency in the Oyster Industry*, 18 J.L. & ECON. 521, 525-32 (1975) (presenting model and empirical findings that show private property as more efficient type of ownership in oyster industry); Demsetz, *supra* note 83, at 354-57; Ellickson, *supra* note 79, at 1330 (discussing how technological change allowed parcelization and privatization of land).

characteristics: (1) there is some unbundling of rights, in the form of some legal restrictions on the use of the resource; and (2) a small number of individuals may share ownership. In an Individual Use regime, there are not even nuisance laws that proscribe the ability of property owners to engage in land uses that interfere with the use and enjoyment of another's property. In more recognizable regimes such as Private Property, individual owners have a great deal of discretion over use of their resource but are subject to some constraints. In the case of land, a landowner is constrained in their land uses by nuisance law. For example, neighboring landowners may block land uses if they unreasonably interfere with the use and enjoyment of land.[152] More onerous constraints, which may move ownership out of the Private Property regime, may include zoning laws and environmental laws. In the United States, firearms may be owned, but a variety of laws limit the ways in which they may be discharged, possessed, stored, transferred, and transported.[153]

Also, an Individual Use regime contemplates that there is only one individual owner of a resource.[154] In the context of the framework, Private Property regime may involve a small enough number of owners to be manageable without formal governance mechanisms. The common law of property contemplates joint ownership of property by multiple individuals and has devised a number of forms of joint ownership: joint tenancy, tenancy by the entirety, and tenancies in common.[155] Ownership in Private Property may thus be had by a small number of people (e.g., a married couple) or by a large number of people (e.g., many forms of cooperatives). In Figure 3, Private Property lies slightly below an Individual Use regime (indicating that there is some unbundling of ownership interest or some use rights that are separated from the owner) and slightly to the right (indicating that ownership may be by more than one individual).

---

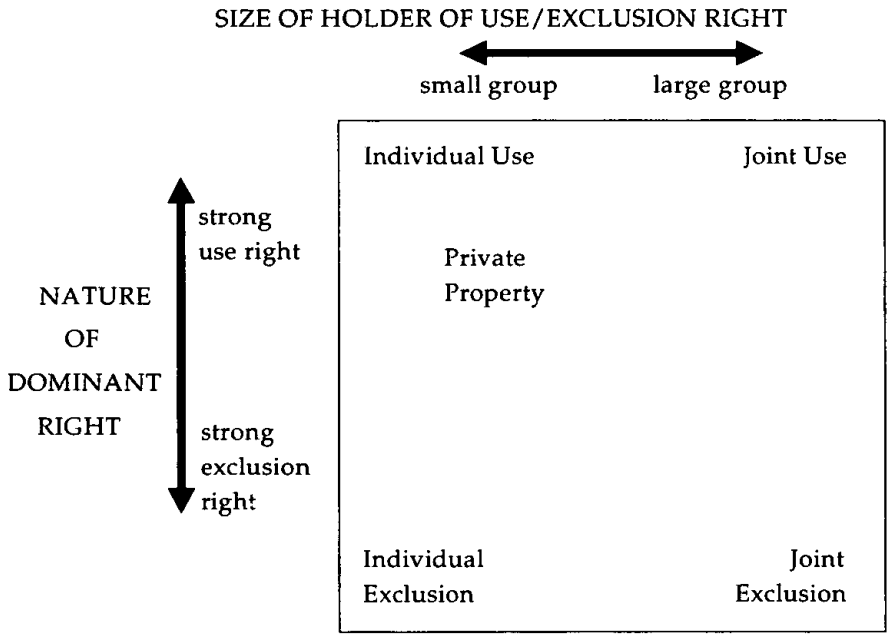
[152] PROSSER, *supra* note 77, § 87, at 577-82.

[153] ALASKA STAT. § 41.21.022 (Michie 2002) (discharge of firearms); CAL. PENAL CODE § 12035 (West 1992 & Supp. 2003) (storage of firearms accessible to children; offense; punishment; legislative intent; notice); MICH. COMP. LAWS ANN. § 324.40111 (West 1999) (taking animals from, in or upon vehicle; transport or possession of bow or firearm; discharge of firearms near dwellings).

[154] Feudalism involved a hierarchical structure, where the feudal lord was subservient only to the king. But feudalism contemplated only one feudal lord, or tenant-in-chief, for a piece of land, though many made arrangements for delegating to subtenants some obligations owing to the king. SINGER, *supra* note 51, at 559.

[155] STOEBUCK & WHITMAN, *supra* note 20, § 5.1, at 176.

Figure 3



The advantages and disadvantages of an Individual Use regime are also those of a Private Property regime, but apply less extremely. Private Property will at least ensure that a resource is optimally exploited in a private sense, if not from a societal perspective. Externalities may result, but the tight control over decision making inherent in Private Property facilitates Coasian bargaining.[156] As in the case of an Individual Use regime, the externality problem posed by Private Property may or may not be resolved by Coasian bargaining and may or may not be frustrated by the Hobbesian obstacles of strategic behavior and transaction costs.

Also, an Individual Use regime contemplates that there is only one individual owner of a resource.[157] In the context of the framework, Private Property regime may involve a small enough number of owners to be manageable without formal governance mechanisms. The common law of property contemplates joint ownership of property by multiple individuals and has devised a number of forms of joint ownership: joint

---

[156] Demsetz, *supra* note 83, at 354-58.

[157] Feudalism involved a hierarchical structure, where the feudal lord was subservient only to the king. But feudalism contemplated only one feudal lord, or tenant-in-chief, for a piece of land, though many made arrangements for delegating to subtenants some obligations owing to the king. SINGER, *supra* note 51, at 559.

tenancy, tenancy by the entirety, and tenancies in common.[158] Ownership in Private Property may thus be had by a small number of people (e.g., a married couple) or by a large number of people (e.g., many forms of cooperatives). In Figure 3, Private Property lies slightly below an Individual Use regime (indicating that there is some unbundling of ownership interest or some use rights that are separated from the owner) and slightly to the right (indicating that ownership may be by more than one individual).

The advantages and disadvantages of an Individual Use regime are also those of a Private Property regime, but apply less extremely. Private Property will at least ensure that a resource is optimally exploited in a private sense, if not from a societal perspective. Externalities may result, but the tight control over decision making inherent in Private Property facilitates Coasian bargaining.[159] As in the case of an Individual Use regime, the externality problem posed by Private Property may or may not be resolved by Coasian bargaining and may or may not be frustrated by the Hobbesian obstacles of strategic behavior and transaction costs.

Thus, where over-intensification of land held in Private Property imposes a negative externality on many parties, transaction costs are apt to frustrate attempts to reach a Coasian bargaining solution. One solution in such a situation would be a regime more like a Joint Exclusion regime, as a centralized governing authority which would have the ability to impose use restrictions on property owners to internalize externalities. For example, air and water pollution control laws in the United States are reflections of the need for centralized regulatory controls on polluters because of the impossibility of reaching privately-negotiated solutions to pollution externality problems. Because of the transaction costs of organizing the large group of parties injured by pollution, and because of the free-rider problems[160] inherent in the organization effort, there will never occur any Coasian bargaining between polluters and any large group of aggrieved parties.

On the other hand, where there are small transaction costs in a pollution context, such as when there is a single upstream polluter and a single downstream party suffering a negative externality as a result, the

---

[158] STOEBUCK & WHITMAN, *supra* note 20, § 5.1, at 176.

[159] Demsetz, *supra* note 83, at 354-58.

[160] The "free-rider" problem occurs when the efforts or contributions of one organizing individual inure to the benefit of others. Those people have no incentive to make efforts or contributions themselves, knowing that they will reap the benefits of the efforts and contributions of the organizing individual. This strategy is known as "free-riding." *See* ROBERT COOTER & THOMAS ULEN, LAW AND ECONOMICS 101 (2d ed. 1997).

law of nuisance is generally sufficient to create a situation in which Coasian bargaining can occur. In such a situation, a Private Property regime would contemplate precisely that — that there be some law of nuisance that would have the effect of assigning entitlements between two parties, but that governmental intervention otherwise be avoided. The law of nuisance, which can readily resolve conflicts between two parties,[161] is one of the few land use limitations in a Private Property regime.

Thus, a Private Property regime is the most efficient property regime when the nature of the resource use is such that over-intensive use would not result in an externality that would be imposed upon other parties. Private Property is also efficient when the number of affected parties is so small that Coasian bargaining can take place. Where the nature of the externality is widespread, a regime more like a Joint Exclusion regime or an Individual Exclusion regime is called for. Centralized regulatory agencies or other parties affected by externalities should have the authority to impose use limitations upon the resource owner.

Private Property is thus similar to Common Property in that the optimal use of the resource from the standpoint of the private owner may not be optimal from a wider societal standpoint. This should not be surprising, since Private Property and Common Property differ only in degree. Both are mixtures of an Individual Use regime and Joint Use, and to a lesser extent, the Joint Exclusion and Individual Exclusion regimes. If Coasian bargaining can take place, then the divergence between a private optimum and a societal optimum is not fatal. However, if Coasian bargaining is not likely to occur, then again, a regime more like a Joint Exclusion regime may be called for to protect public values, or an Individual Exclusion regime to protect individual private values.

---

[161] Nuisances may be private or public. Nuisance is generally defined as a land use activity or condition that "unreasonably" and "substantially" interferes with the use and enjoyment of another's land. STOEBUCK & WHITMAN, *supra* note 20, § 7.2, at 414. A public nuisance is an unreasonable and substantial interference with the use and enjoyment of land of a large number of parties, as opposed to a private nuisance, which involve a relatively small number of plaintiffs. *Id.* at 417-18. However, the traditional rule is that a plaintiff bringing a public nuisance action must show special damages distinguishable from the group of aggrieved parties in order to recover. *Id.* at 418. The Restatement of Torts dispenses with this rule. RESTATEMENT (SECOND) OF TORTS § 821C(1) (1979). The traditional rule gives a plaintiff no special incentive to file a claim on behalf of a larger public, and thus the public nuisance cause of action is apt to suffer from the same transaction costs problems as the pollution externality problem.

The Private Property regime is of interest because of the variations of Private Property that have been created. Corporations are an interesting example. Ownership of corporations must be considered Private Property under any reasonable typology, since there is generally no pretense of any public interest or group interest involved, even though thousands or millions of shareholders own many publicly-traded corporations. The uniqueness of corporation ownership is that ownership is not joint, as it is in partnerships and in common law forms of joint ownership of land, but rather is accomplished through shares of stock. Ownership of the shares is subject to the corporation's bylaws and articles of incorporation, as well as the state laws of corporations.[162] Since immediate control of the corporation is delegated to the corporation's directors and officers, buying into share ownership of a corporation is a highly contingent form of ownership, very different from owning real property, in which an owner has a broad array of rights. However, it does allow for a large number of owners, harnessing economies of scale, in an essentially private regime.

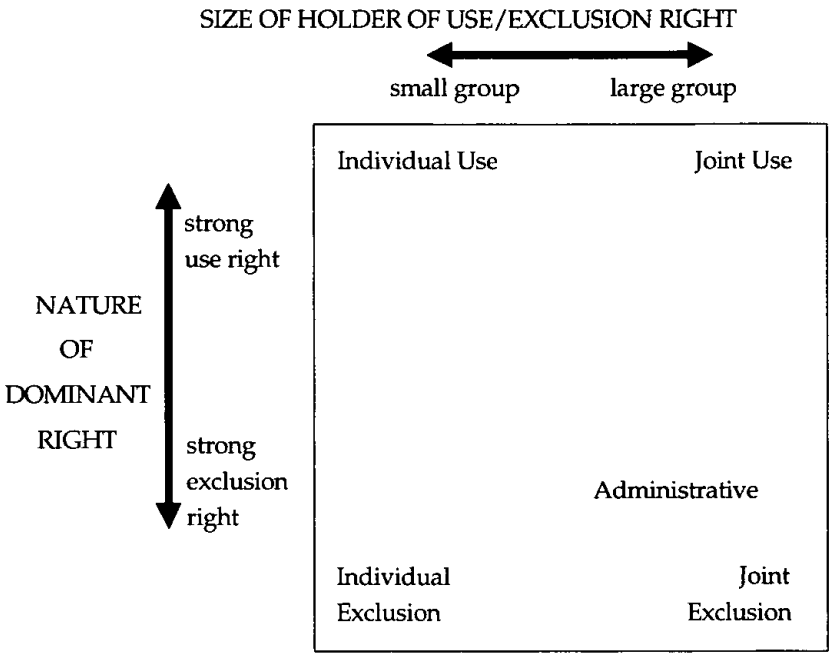
C. Administrative

A less extreme version of a Joint Exclusion regime is one in which a joint exclusion right prohibits many, but not all uses, or prohibits uses less than completely. This may be realized through a centralized governmental agency or a trustee that exercises strong, but not complete exclusionary authority over the use of a resource. I refer to this regime as an Administrative regime. In the framework, an Administrative regime is one in which: (1) a central regulatory authority exercises a strong exclusionary right over a resource, allowing some limited uses of the resource; and (2) the exclusionary right is wielded on behalf of a supermajority, but not the universe of all. An Administrative regime contemplates that a strong centralized governmental authority will necessarily make some tradeoffs in its governance, acting for the benefit of a majority or supermajority but possibly to the disadvantage of some. As in the case of Joint Exclusion, the protected resource is one that is protected jointly. While some uses of property will be allowed, even if a negative externality is involved, most are prohibited. As shown in Figure 4, the Administrative regime is located above and to the left of a Joint Exclusion regime.

---

[162] STEPHEN M. BAINBRIDGE, CORPORATION LAW AND ECONOMICS 14-16, 41-48 (2002).

Figure 4



The advantages of an Administrative regime have already been introduced by way of discussion of the shortcomings of Common Property and Private Property regimes. When Common Property is not an optimal regime for the ownership of a resource (e.g., when the resource user group is not stable, when local knowledge of the resource is not superior to centralized knowledge, or when an optimal level of use from a local standpoint is different from an optimal level of use from a global standpoint), a regime more like a Joint Exclusion regime may be called for to enforce use limitations. Also, when Private Property is not an optimal regime for the ownership of a resource (e.g., when a negative externality results from over-intensive use of the resource and imposes externalities upon many parties), some more centralized regulatory control may be called for. The regime called for under such circumstances is the Administrative regime.

Fundamentally, the most important advantage of the Administrative regime is that a central regulatory authority can internalize externalities generated by activities by individuals or groups, and impose use limitations on parties otherwise disposed towards over-exploitation. More generally, in an Administrative regime, centralized regulatory agencies promote social well being by correcting market failures, among

other things.[163] This favorable view of the administrative agency as a social welfare-enhancing entity is dated, but still enjoys its advocates.[164]

There are many examples of Administrative regimes in the United States regulatory state. For example, the Endangered Species Act of 1973 ("Act") displays some characteristics of an Administrative regime. The U.S. Fish and Wildlife Service, which is responsible for administering the Act, may impose fairly stringent use limitations on private parties.[165] Certain activities on private property, even if otherwise lawful, can be regulated under the Act if the activity is likely to result in the prohibited "tak[ing]" of species listed pursuant to the Act as "endangered" or "threatened."[166] Thus, widespread land uses such as logging, agriculture, and development may be prohibited if they threaten a listed species.[167]

In some circumstances land uses could be legally limited to only a few. For example, land that is forested by "old-growth" or virgin, uncut trees may be the habitat of the Northern Spotted Owl, a species protected by the Act.[168] Protecting the species may require that logging activities be prohibited. Yet, if logging cannot take place, then little else can take place — agriculture, large-scale development, and even some recreational activities would potentially disturb the habitat of the Spotted Owl and therefore be forbidden under the Act. Consequently, only nonconsumptive uses can take place, and these will not necessarily

---

[163] STEPHEN G. BREYER ET AL., ADMINISTRATIVE LAW AND REGULATORY POLICY 4-9 (4th ed. 1999).

[164] The public interest view of the administrative state is most often attributed to JAMES M. LANDIS, THE ADMINISTRATIVE PROCESS (1938); *see also* JAMES C. BONBRIGHT, PRINCIPLES OF PUBLIC UTILITY RATES (1961); KENNETH C. DAVIS, ADMINISTRATIVE LAW TREATISE (1958); HENRY J. FRIENDLY, THE FEDERAL ADMINISTRATIVE AGENCIES: THE NEED FOR BETTER DEFINITION OF STANDARDS (1962). For a more recent defense of this view, see Abner J. Mikva, *Foreword, Symposium on the Theory of Public Choice*, 74 VA. L. REV. 167 (1988).

[165] The U.S. Fish and Wildlife Service actually shares regulatory authority under the Endangered Species Act with the National Marine Fisheries Administration, which is responsible for marine species. 16 U.S.C. § 1532(15) (2000) (citing Reorganization Plan Numbered 4 of 1970, 35 Fed. Reg. 15,627 (Oct. 3, 1970)).

[166] Species may be listed under the Endangered Species Act as "threatened" or "endangered," triggering the operative provisions of the Act. *Id.* § 1533. Section 9(a)(1) of the Act provides that "it is unlawful for any person . . . to . . . (C) take any such species within the United States." *Id.* § 1538(a)(1).

[167] Shi-Ling Hsu, *A Game-Theoretic Approach to Regulatory Negotiation and a Framework for Empirical Analysis*, 26 HARV. ENVTL. L. REV. 33, 49-50 (2002).

[168] Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the Northern Spotted Owl, 55 Fed. Reg. 26,114 (June 26, 1990) (to be codified at 50 C.F.R. pt. 17).

inure to the benefit of the landowner.[169] Yet, this is not necessarily a sub-optimal result; were ownership of the property held in Private Property or Common Property, the owner of the property may choose to ignore the value of the land as Spotted Owl habitat and consider only the timber value of the land, or the value of other consumptive uses. The Administrative regime can thus be an efficient one, internalizing the externality that would be imposed were the owner to log trees on the property without regard to the habitat value. Similarly, air and water pollution regulation vests regulatory authority in the U.S. Environmental Protection Agency, which may require private entities to install pollution control equipment and internalize pollution externalities imposed upon an air-breathing and water-consuming public. While such regulations may impose considerable costs upon the operation of some polluting facility, this is not necessarily an inefficient outcome if the costs merely reflect the internalization of externalities.

Criticism of the United States administrative state, however, is commonplace. Among the leading critics of the United States regulatory systems are public choice theorists, who, as noted above, posit that favorable policies of regulatory agencies and legislators are too easily purchased by regulated entities and other stakeholders.[170] Regulatory agencies in particular are sometimes said to be "captured" by the entities they regulate.[171] This may occur because agency officials and regulated

---

[169] Endangered Species Act regulations prohibit logging within a circle drawn around the nest of a Northern Spotted Owl. CAL. FOREST PRACTICE R. § 919.9(g)(1)-(4); OREGON ADMINISTRATIVE RULES § 629-24-8-9; WASH. ADMIN. CODE, § 222-10-041(1)-(4) (2003). It is worth noting, however, that such extreme prohibitions are rare. The Fish and Wildlife Service has made it a practice to allow landowners to enter into Habitat Conservation Plans, regulatory compromises that allow landowners to use part of their land for some financially remunerative activity while preserving the rest. *See* Hsu, *supra* note 167, at 56-63.

[170] *See, e.g.*, Farber & Frickey, *supra* note 112, at 879-80; Jonathan R. Macey, *Promoting Public-Regarding Legislation Through Statutory Interpretation: An Interest Group Model*, 86 COLUM. L. REV. 223, 232 (1986); Cass R. Sunstein, *Interest Groups in American Public Law*, 38 STAN. L. REV. 29, 29 (1985); John Shepard Wiley, Jr., *A Capture Theory of Antitrust Federalism*, 99 HARV. L. REV. 713, 715-28 (1986).

[171] Regulatory capture is generally understood to refer to the undue influence of a regulated party over the regulator. IAN AYRES & JOHN BRAITHWAITE, RESPONSIVE REGULATION: TRANSCENDING THE DEREGULATION DEBATE ch.3 (1992); Michael E. Levine & Jennifer L. Forrence, *Regulatory Capture, Public Interest, and the Public Agenda: Toward a Synthesis*, 6 J.L. ECON. & ORG. 167, 167 (1990); *see also* PHILLIP O. FOSS, POLITICS AND GRASS 171-93 (1960) (chronicling controversy over grazing fees and how cattlemen succeeded in suppressing grazing fees); Andrew P. Morriss, *Lessons From the Development of Western Water Law for Emerging Water Markets: Common Law vs. Central Planning*, 80 OR. L. REV. 861, 863 (2001) (commenting that centralization of water rights adjudications created agency that certain water users could control); George J. Stigler, *supra* note 112, at 3-6 (arguing that

entities depend upon each other for information,[172] or because agency officials later become industry officials and vice versa.[173] Another source of criticism stems from a Libertarian view that would advocate regimes much more like Private Property.[174] Under the Libertarian theory, private entities are better able to engage in Coasian bargaining than regulatory agencies are able to internalize externalities without doing more harm than good.[175] Finally, some critics of the administrative state have pointed out the sometimes anti-democratic implications of agency regulation. Because of the high level and sophistication of knowledge required to participate in agency decisions involving fairly complex subjects, public input into the agency decision making process is too often dominated by regulated entities.[176]

Of course, resolution of this ongoing, decades-old debate is beyond the scope of this Article. However, this Article seeks to further the debate by highlighting those circumstances under which even advocates of the current United States administrative state would agree that a Private Property or Common Property regime is called for, and circumstances under which even critics of the administrative state would agree that some governmental intervention is called for. Suffice it to say, empirical analyses of the functioning of regulatory agencies is sparse, but it is clear that both critics and supporters of the United States administrative state have a point.

---

industries often lobby for regulation when it serves to insulate them from competition). The extent of regulatory capture is a matter of considerable debate, however. *See, e.g.*, David B. Spence, *The Shadow of the Rational Polluter: Rethinking the Role of Rational Actor Models in Environmental Law*, 89 CAL. L. REV. 917, 961 (2001) (noting that capture theory's influence has diminished recently and explaining the theory's shortcoming).

[172] Cary Coglianese, *Litigating Within Relationships: Disputes and Disturbance in the Regulatory Process*, 30 L. & SOC'Y REV. 735, 749-50 (1996).

[173] *Id.*

[174] *See* GOVERNMENT VS. ENVIRONMENT (Donald R. Leal & Roger E. Meiners eds., 2002) (chronicling environmental law movement from government decentralization to internalization); Huffman, *supra* note 116, at 423-26, 428-29 (noting private markets' benefits to ecosystems and biodiversity but cautioning existence of market failures); James L. Huffman, *The Past and Future of Environmental Law*, 30 ENVTL. L. 23, 31 (2000) (arguing that one aspect of the future of environmental regulations involves increased market mechanisms). The criticism of some agency fecklessness is not limited to those espousing an Individual Use view. *See, e.g.*, Freyfogle, *supra* note 76, at 10258 (noting that failure of federal governmental land management agencies to police grazing restrictions led to what amounted to true open access regime).

[175] *See* GOVERNMENT VS. ENVIRONMENT, *supra* note 174, at ix-x; Huffman, *supra* note 116, at 422-30; Huffman, *supra* note 174, at 27.

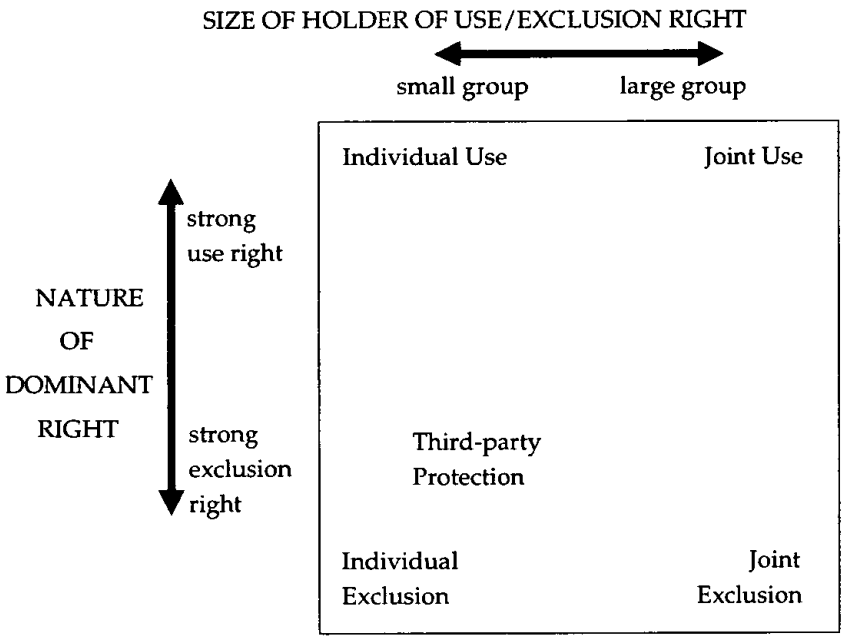
[176] CASS R. SUNSTEIN, FREE MARKETS AND SOCIAL JUSTICE 325 (1997).

D. Third-Party Protection

The Individual Exclusion regime is tragic in its resource underuse and is extreme in the strength of the exclusion rights. A less extreme regime might still allow some uses of a resource, while vesting individuals with some nonpossessory exclusion or veto rights. I refer to this regime as a Third-Party Protection regime. In the context of this framework, a Third-Party Protection regime is one in which: (1) exclusionary rights are held by individuals or a small number of individuals; and (2) exclusionary rights are strong but not absolute — some uses are permitted.

In not completely blocking use of a resource, a Third-Party Protection regime represents a regime in which ownership is more bundled than in an Individual Exclusion regime, and some uses are allowed. A Third-Party Protection regime also contemplates that the exclusion rights may be held by individuals or groups of aggrieved individuals, such as environmental organizations. Because exclusionary rights held under a Third-Party Protection regime must be formally vindicated, the transaction costs of locating and bargaining with such rights holders are lower. Thus, Figure 5 illustrates that the Third-Party Protection regime is located above and to the right of the Individual Exclusion regime.

Figure 5



While such situations can occur by historical accident, as in the Moscow store space case, the milder Third-Party Protection regimes are sometimes developed intentionally to protect third parties from negative externalities. One example of this is the third-party right to protest the transfer of a water right available in Western states. A transfer of water rights requires the filing of an application, which can only be approved after some form of public notice of the proposed transfer, to allow interested parties to protest the transfer.[177] States vary in the allowable grounds for lodging a protest and the parties that may lodge a protest. For example, Montana only allows protests to be lodged by downstream water users affected by the proposed transfer,[178] while most other states do not even require that the protestant have water rights.[179] In six of the eight arid Western states,[180] protests may be filed on the grounds that the transfer is contrary to the public interest,[181] which may include environmental considerations.

In addition to those personally injured by a water transfer, some states allow protests to be filed on the basis of economic injury to the area of origin. That is, proposed water transfers can be opposed if they may result in regional economic dislocation due to a loss in property tax revenue, or other adverse effects on local communities.[182] The effect of a protest may be the denial of the transfer application, or at least a delay in the approval process and added transaction costs for the parties to the transfer.[183] This is not necessarily an inefficient or inappropriate result — the point of the third-party protest scheme is to force the parties to a transfer to take into account externalities that may be imposed upon others. The third-party protest scheme vests a large number of potentially injured parties with at least a means of presenting the externality to an adjudicatory body. Internalizing such externalities is

---

[177] Bonnie G. Colby et al., *Procedural Aspects of State Water Law: Transferring Water Rights in the Western States*, 31 ARIZ. L. REV. 697, 701 (1989).

[178] MONT. CODE ANN. § 85-2-308 (1987); Colby et al., *supra* note 177, at 702.

[179] Colby et al., *supra* note 177, at 702.

[180] The six states are: Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming. *Id.* at 698-714.

[181] IDAHO CODE § 42-222 (Michie Supp. 1988); MONT. CODE ANN. § 85-2-311 (Michie 2002); NEV. REV. STAT. ANN. § 533.370(3) (Michie 1987); N.M. STAT. ANN. §§ 72-12-3(D), 72-12-7(A) (Michie 1985); UTAH CODE ANN. § 73-3-8 (1953); *see* Game & Fish Dep't v. State Land Dep't, 535 P.2d 621, 622 (Ariz. Ct. App. 1975); Colby et al., *supra* note 177, at 720 tbl.5.

[182] Colby et al., *supra* note 177, at 710-14.

[183] *See* Bonnie G. Colby, *Transactions Costs and Efficiency in Western Water Allocation*, 72 AM. J. AGRIC. ECON. 1184, 1186 (1990) (discussing procedural process that occurs after protestants file protests against transfer proposals). Attorneys are typically present at protest hearings. Colby et al., *supra* note 177, at 717 tbl.2.

the goal of this scheme.

Another example of a Third-Party Protection regime is the common inclusion of citizen suit provisions in federal environmental statutes.[184] Citizen suit provisions typically allow suits to be brought by any person, and against any person, who is alleged to be violating a provision in an environmental statute,[185] or to compel governmental agencies or officials to carry out certain nondiscretionary statutory duties.[186] Thus, citizen suit provisions vest some exclusionary rights in every individual citizen. Even when a governmental agency chooses not to impose a use limitation, a private citizen or organization can sue to compel imposition of the use limitation, among other things.[187] To use the Endangered Species Act again as an example, even if the U.S. Fish and Wildlife Service were to decline to regulate the use of private property in a specific instance involving a threat to an endangered species, the successful prosecution of a citizen suit to obtain injunctive relief against the private property owner could take the place of governmental

---

[184] Interestingly, while most of the pollution control statutes contain citizen suit provisions, many of the natural resource statutes do not. For example, the Wilderness Act of 1964 does not contain a citizen suit provision. *See* 16 U.S.C. §§ 1131-36 (2000). Persons who wish to challenge agency decisions to designate or not designate lands within their jurisdiction as "wilderness" must use judicial review provisions of the Administrative Procedure Act, 5 U.S.C. §§ 701-06 (2000).

[185] *E.g.*, 16 U.S.C. § 1540(g)(1) (2000) (Endangered Species Act provision stating that ". . . any person may commence a civil suit on his own behalf . . . to enjoin any person . . . who is alleged to be in violation of any provision of this chapter or regulation . . . ."). Thus, under the statute, a private citizen may sue for injunctive relief against another private citizen who may have violated the Act by destroying the habitat of a listed species. Numerous other environmental statutes contain a citizen suit provision similar to that of the Endangered Species Act. *E.g.*, 33 U.S.C. § 1365 (2000) (Clean Water Act); 42 U.S.C. § 6972 (2000) (Solid Waste Disposal Act); 42 U.S.C. § 7604 (2000) (Clean Air Act); 42 U.S.C. § 9659 (2000) (Comprehensive Environmental Response, Compensation, and Liability Act).

[186] *E.g.*, 16 U.S.C. § 1540(g)(1)(B) (providing that any person may commence a civil suit "to compel the Secretary [of the Interior] to apply . . . prohibitions . . . with respect to the taking of any [listed] species . . ."). A person may also commence a civil suit "against the Secretary where there is alleged a failure of the Secretary to perform any act or duty . . . which is not discretionary . . . ." *Id.* § 1540(g)(1)(C); *see also* 33 U.S.C. § 1365(a)(2); 42 U.S.C. § 6972(a)(2); 42 U.S.C. § 7604; 42 U.S.C. § 9659(a)(2).

[187] *Friends of the Earth v. Laidlaw Envtl. Servs.*, 528 U.S. 167 (2000), provides a rather striking example of a citizen suit that drove compliance when law enforcement did not. After the plaintiff filed the requisite sixty-day notice of an impending suit, defendant Laidlaw begged the South Carolina Attorney General's Office to sue them for violating their water pollution permits. The reason was that if the attorney general is "diligently" prosecuting a suit, a citizen suit based upon the same violations cannot be simultaneously prosecuted. Laidlaw even had its own lawyers draft the complaint against itself and delivered the complaint to the attorney general's office along with a check for the filing fee. The day before the sixty days were up, the attorney general settled with Laidlaw for the modest sum of $100,000. *Friends of the Earth*, 528 U.S. at 177.

regulation.

Importantly, a citizen or citizen group filing suit must have standing to sue, independent of any statutory grant of right of action. The plaintiff must meet the Constitution's Article III case or controversy requirement that the plaintiff has suffered an injury in fact, and must allege an interest that is within the "zone of interests" that the statute seeks to protect.[188] "Injury in fact" requires that the plaintiff show an injury that is "concrete and particularized," "actual or imminent," and "redressable." [189] A particularized injury means that the injury must affect the plaintiff in a "personal and individual way."[190] Such individually-focused requirements distinguish a Third-Party Protection regime from an Administrative regime; the right vindicated here is an individual one, not a group or societal right.

As examples of a Third-Party Protection regime, citizen suit provisions in environmental statutes differ from an Individual Exclusion regime. First, citizen suit provisions vest exclusionary rights in not only individuals, but also environmental organizations consisting of, in some cases, hundreds of thousands of individuals. Environmental organizations have, in fact, become critical policy actors in the ongoing battle to shape environmental law. In so doing, they clearly do not and cannot purport to represent the interests of every single member in their ranks, illustrating that a Third-Party Protection regime differs from an Administrative regime only in degree.

Second, the exclusionary rights created by citizen suit provisions are far from the all-powerful exclusionary rights held by individuals in an Individual Exclusion regime. Citizen suit provisions typically impose a number of conditions on the right to sue. Some citizen suit provisions limit the private right of action to violations of regulations rather than of the underlying statute.[191] The statutory duties must generally be

---

[188] Bennett v. Spear, 520 U.S. 154, 162 (1997) ("Numbered among these prudential requirements is the doctrine of particular concern in this case: that a plaintiff's grievance must arguably fall within the zone of interests protected or regulated by the statutory provision or constitutional guarantee invoked in the suit.").

[189] Lujan v. Defenders of Wildlife, 504 U.S. 555, 560-61 (1992).

[190] *Id.* at 560 n.1. *Lujan* illustrates the Supreme Court's occasional hostility toward claims that violations under the Endangered Species Act can constitute an injury in fact. In *Lujan*, the plaintiff environmental organization challenged a federal regulation by alleging that two of its members suffered harm because under the regulation, they would be unable to travel abroad in the future to observe an endangered species. *Id.* at 559, 563. The Court held that the plaintiff did not suffer an injury in fact when an agency action that threatened the habitat of the species would deprive them of that opportunity. *Id.* at 562.

[191] RICHARD J. PIERCE, JR., ADMINISTRATIVE LAW TREATISE § 18.5, at 1358 (4th ed. 2002) (citing section 6972(a)(1)(A) of the Solid Waste Disposal Act, as amended by the Resource

nondiscretionary to be enforceable under a citizen suit provision,[192] and a plaintiff must typically give an agency sixty days notice before filing suit.[193] Additionally, plaintiffs invoking a citizen suit provision must still have standing to sue[194] (a more difficult hurdle for individual plaintiffs[195]), and must survive defendants' mootness claims when it is "absolutely clear that the allegedly wrongful behavior could not be reasonably expected to recur."[196] Mootness problems, in particular, have allowed violators to cure their violations within the sixty-day notice period to avoid any liability,[197] frustrating private attempts by environmental organizations to use citizen suit provisions to act as private attorneys general.

While Individual Exclusion is usually inefficient because of the propensity for underuse, there are advantages to having a similar but less extreme Third-Party Protection regime. Citizen suit provisions illustrate some of the advantages. Implicit in the most generous views of the administrative state is the assumption that centralized regulatory agencies are efficiency-enhancing institutions.[198] In addition to the criticisms of the United States administrative state noted above, however, there is ample reason to suspect that regulatory agencies have frequently failed to strike the correct balances in their regulatory policies.[199] A Third-Party Protection regime can act as a check on

---

Conservation and Recovery Act, 42 U.S.C. § 6972(a)(1)(A) (2000)).

[192] See 16 U.S.C. § 1540(g) (2000) (citing Endangered Species Act § 11(g)).

[193] *See id.* § 1540(g)(2); 33 U.S.C. § 1365(b)(1)(A) (2000); 42 U.S.C. § 6971(b)(1)(A) (2000); 42 U.S.C. § 7604(b)(1)(A) (2000); 42 U.S.C. § 9659(d)(1) (2000).

[194] Sierra Club v. Morton, 405 U.S. 727, 731-40 (1972).

[195] Generally, an individual plaintiff would have greater difficulty showing injury in fact than an organization, which could compel members to come forward and allege an injury in fact resulting from an agency decision.

[196] Friends of the Earth v. Laidlaw Envtl. Servs., 528 U.S. 167, 190 (2000); *Sierra Club*, 405 U.S. at 738-40. Standing could be a more difficult hurdle for inidividual plaintiffs because, generally, an individual plaintiff would have greater difficulty showing injury in fact than an organization, which could compel members to come forward and allege an injury in fact resulting from an agency decision.

[197] *See, e.g.*, Steel Co. v. Citizens for a Better Env't, 523 U.S. 83, 106-10 (1998) (holding that plaintiff's suit was not redressable given defendant's post-sixty-day notice and pre-complaint cure of reporting violation under Emergency Planning and Community Right-to-Know Act); Gwaltney of Smithfield, Ltd. v. Chesapeake Bay Found., Inc., 484 U.S. 49, 56-59 (1987) (holding that plaintiff's claim for injunctive relief and civil damages under § 505 of Federal Water Pollution Control Act was mooted by plaintiff's failure to allege that defendant was in current violation of statute). *But see Friends of the Earth*, 528 U.S. at 191 (holding that post-complaint cures would not moot claim).

[198] BREYER ET AL., *supra* note 163, at 4-9.

[199] SUNSTEIN, *supra* note 176, at 322-25 (1997).

administrative failures by vesting exclusionary rights in those who might be particularly disadvantaged by a regulatory policy. Inherent in an Administrative regime is some discretion that must be vested in the agency in order for it to set regulatory policy.

Unfortunately, it has become almost a truism in American administrative law that broad administrative discretion is subject to abuse. Political favoritism or antagonism seems to have crept into agency decisions often, casting doubt on the ability of the administrative state to maximize societal well-being and promote democratic values.[200] Citizen suit provisions provide some protection for those harmed by such agency misbehavior. The goal in a Third-Party Protection regime is not to bring agency activity to a halt except for Pareto Superior policies,[201] but to ensure that agency discretion is bounded in some manner.

There are two compelling justifications for a Third-Party Protection regime in the academic literature. One justification stems from Radin's personhood theory of property, which argues for heightened property protection for items of property related to one's persona or identity.[202] For instance, one has a particularly strong attachment to one's home. In this situation, a Calabresian "property right,"[203] which must be obtained from the owner in a voluntary transaction, may be an appropriate form of protection to protect the highly personal values of one's home.[204] A second justification stems from a clash of paradigms between what Tseming Yang calls the "environmental regulatory paradigm" (which is characterized by analyses derived from Hardin's tragedy of the commons) and the "environmental justice paradigm," which focuses on

---

[200] PIERCE, *supra* note 191, § 17.1, at 1231-33.

[201] Pareto Superior policies are those in which at least one party is made better off while no party is made worse off. COOTER & ULEN, *supra* note 160, at 12. Most administrative agencies strive for the more attainable Kaldor-Hicks efficiency. *See generally id.* at 41-42 (explaining Kaldor-Hicks efficiency). A policy *could* be made Pareto Superior if the winners in a policy can compensate the losers in a policy so that the losers are not made worse off, and the winners made better off. *See id.* at 12.

[202] Radin, *supra* note 9, at 978-80.

[203] Calabresi and Melamed introduced the concept that property may be protected by "liability rules," which allow the forced transfer of the property upon payment of damages, by "property rules," which allow only consensual transfers, and "inalienability rules," which limit consensual transfers. Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089, 1092-93 (1972).

[204] Radin notes that if this were truly the case, we would expect to see a limitation to the exercise of the power of eminent domain, which has not occurred. This is probably because of the crippling holdout problems that would occur. Radin, *supra* note 9, at 1005-06.

the inequities of environmental regulation.[205] Implicit in a Hardin-influenced environmentalism is the notion that social well being is of paramount importance, since individuals act in their self-interest and harm overall social well being.[206] This stands in contrast to a civil rights paradigm, in which the focus is on the injustices visited upon the individual, as a victim of a majoritarian oppression.[207] Thus, the NIMBY phenomenon ("Not in My Backyard") can be seen either as an obstacle to holistic environmental planning or as a vital protection for oppressed individuals, depending on the paradigm. The persistence of Individual Exclusion or Third-Party Protection regimes thus may be rooted, not in notions of utility or efficiency, but in notions of individual rights. To the extent that governmental agencies fail to sufficiently protect individual rights, citizen suit provisions and other third-party protections vest individuals with rights to protect themselves from majoritarian oppression.

Equity notions aside, if we begin with the premise that externalities must be internalized and use limitations imposed, under what circumstances do we prefer a Third-Party Protection regime over an Administrative regime? Where the subject matter is technical and effective regulation requires the collection of large amounts of information from diverse sources, the advantages of an Administrative regime are more important. Regulatory agencies have the resources and the authority to collect information more efficiently than most private organizations. Large-scale problems, in particular, require the wide-ranging authority of a regulatory agency. When an agency is vulnerable to capture or other forms of mismanagement, or when particularly important individual rights may be implicated, the advantages of a Third-Party Protection regime are more important. Where agencies are prone to error, regulation by private attorneys general are apt to better represent the interests of the body politic.

Most environmental statutes in the United States utilize both regimes. The statutes themselves and the general prohibitions are examples of Administrative regimes, while the citizen suit provisions are examples of Third-Party Protection regimes. This makes sense because of the nature of environmental problems. Problems such as air pollution, water pollution, and species protection are complex and occur on a very large

---

[205] Tseming Yang, *Melding Civil Rights and Environmentalism: Finding Environmental Justice's Place in Environmental Regulation*, 26 HARV. ENVTL. L. REV. 1, 1-13 (2002) (discussing clash between environmental regulatory paradigm and environmental justice paradigm).

[206] *Id.* at 14-17.

[207] *Id.*

scale. National agencies are needed to develop programs that are consistent nationally, and to marshal the resources necessary to move scientific research forward.[208] At the same time, continuing concern over regulated parties capturing environmental regulatory agencies[209] has prompted calls for increased scrutiny of environmental regulatory agencies, including, among other things, citizen suit provisions.[210] Environmental regulation thus displays some aspects of both Third-Party Protection regimes and Administrative regimes. Given the weakness of the citizen suit provisions,[211] environmental regulation as a whole bears more of a resemblance to an Administrative regime than a Third-Party Protection regime.

The advantages and disadvantages of Third-Party Protection regimes thus mirror those of the Administrative regime. Where Administrative regimes fail, Third-Party Protection regimes can serve better; where Third-Party Protection regimes are too stringent, Administrative regimes may serve better. Both regimes, however, serve to impose use limitations on resources to prevent the occurrence of negative externalities stemming from overuse that would occur in a Private Property or Common Property regime.

---

[208] *See, e.g.*, Louis L. Jaffe, *Ecological Goals and the Ways and Means of Achieving Them*, 75 W. VA. L. REV. 1, 16-19 (1972) (referencing Environmental Protection Agency's ban of DDT); Louis L. Jaffe, *The Administrative Agency and Environmental Control*, 20 BUFF. L. REV. 231, 233-35 (1970) (referencing Delaware River Basin Commission's promulgation of standards on regulating pollution of water systems).

[209] Sierra Club v. Morton, 405 U.S. 727, 748 (1972) (Douglas, J., dissenting) ("The Forest Service . . . has been notorious for its alignment with lumber companies, although its mandate from Congress directs it to consider the various aspects of multiple use in its supervision of the national forests."); Michael C. Blumm, *Public Choice Theory and the Public Lands: Why "Multiple Use" Failed*, 18 HARV. ENVTL. L. REV. 405, 407 (1994); Bradley C. Karkkainen, *Biodiversity and Land*, 83 CORNELL L. REV. 1, 24-25 (1997); Richard B. Stewart, *The Reformation of American Administrative Law*, 88 HARV. L. REV. 1667, 1684-85 (1975); Matthew D. Zinn, *Policing Environmental Regulatory Enforcement: Cooperation, Capture, and Citizen Suits*, 21 STAN. ENVTL. L.J. 81, 83-85 (2002). *But see* Richard J. Lazarus, *The Tragedy of Distrust in the Implementation of Federal Environmental Law*, 54 LAW & CONTEMP. PROBS. 311, 364-66 (1991); Bradford C. Mank, *Superfund Contractors and Agency Capture*, 2 N.Y.U. ENVTL. L.J. 34, 50-52 (1993) (arguing that EPA is less vulnerable to agency capture because it regulates multiple industries).

[210] Zinn, *supra* note 209, at 83. Another interesting proposal would be to vest greater oversight in the Office of Management and Budget, which does not have the close relationships with regulated entities that have at least led to the perception of agency capture. *See* Harold J. Krent & Nicholas S. Zeppos, *Monitoring Governmental Disposition of Assets: Fashioning Regulatory Substitutes for Market Controls*, 52 VAND. L. REV. 1705, 1712 (1999).

[211] Justice Scalia's discomfort with environmental citizen suits has become a well-established part of Supreme Court jurisprudence. *See* Lujan v. Defenders of Wildlife, 504 U.S. 555, 571-78 (1992); Lujan v. Nat'l Wildlife Fed., 497 U.S. 871, 883-98 (1990).

IV. THE ROLE OF ALIENABILITY AND INALIENABILITY RULES

Alienability, or disposition, must be considered a crucial property right. Blackstone considered the core rights to property to be the rights of "free use, enjoyment and disposal."[212] The liberal conception of property considers property ownership to consist of three core exclusive rights: possession, use, and disposition.[213] Alienability often accounts for a large fraction of the value of an asset. Homes are now purchased with less of an intent of occupying and keeping the home for life, but rather as a liquid investment.[214] Often, the value of exploiting or using an asset in a particular way is greater in the hands of a party other than the owner. For example, the owner of a forested property may not be best situated to exploit the forest as a timber harvesting enterprise, and the owner of a property rich with mineral deposits may not be best situated to extract the deposits. In such a situation, it is important for the property owner to be able to sell the right to exploit or use the resource; for the owner, so that she may be compensated for that aspect of ownership which she cannot herself use, and for society so that the resource flows to the party that can most efficiently and usefully exploit it.

However, alienability is a derivative right in that it only exists with respect to some physical aspect of an asset or some right associated with the asset. For example, one can alienate land, or alienate some right associated with the land, such as the right to log or mine and receive profits a prendre. Thus, for purposes of this framework, in evaluating

---

[212] 1 WILLIAM BLACKSTONE, COMMENTARIES ON THE LAWS OF ENGLAND 134 (William S. Hein & Co. 1992) ("The third absolute right, inherent in every Englishman, is that of property: which consists in the free use, enjoyment, and disposal of all his acquisitions, without any control or diminution, save only by the laws of the land.").

[213] Margaret Jane Radin, *The Liberal Conception of Property: Cross Currents in the Jurisprudence of Takings*, 88 COLUM. L. REV. 1667, 1667 (1988).

[214] Andrew Nieland, *Unwise Wisdom: Buying a House is Better Than Renting*, WALL ST. J., Jan. 29, 2001, at R12 ("Buying a house is the biggest investment most people will ever make."); Mike Sorohan, *Secondary Market to See "Robust" Future Growth*, REAL EST. FIN. TODAY, Apr. 15, 2002, at 6, *available at* 2002 WL 10349890 ("'The home has emerged as the biggest financial investment for families, said Ronald Rosenfeld, chairman of Ginnie Mae. 'I grew up in the Depression, where the thinking was that you never have a mortgage. So, it's a mindset change.'"); Penelope Wang, *How Are You Doing? A Look at the Key Drivers of Wealth, What's Likely to Work in Years Ahead, and How to Measure Your Progress*, MONEY, July 1, 2002, at 68 ("[S]ince 1995, housing values in the U.S. have grown from $8.4 trillion to $13.4 trillion. From 1998 to 2001, single-family home prices rose an average of 8.2% a year nationally, with houses in some markets doing even better .... Little wonder, then, that many Americans have come to view real estate as a more secure path to wealth than the stock market, taking out ever-bigger mortgages and trading up as quickly as possible.").

the extent to which ownership of a resource is bundled, it would be a mistake to consider alienability as simply one of many rights that can be separated from the owner and create an unbundled ownership. In other words, rights of alienability or impositions of inalienability do not help define which property regime is in effect.

To see this more clearly, analysis of an example of one particular Individual Exclusion regime may be helpful. In his article, Heller chronicled the Quaker Oats "Big Inch Land Giveaway," a 1955 radio promotion which granted to every purchaser of a box of cereal a square inch of land in the Yukon Territories.[215] Quaker Oats never paid taxes on the land that it bought for this promotion, however, and the property eventually escheated to the Canadian government.[216] Thus, an efficient outcome was obtained, thanks to the alienability of the square inches. Contrast this anticommons with that created by the General Allotment Act[217] to place private land in the hands of Native Americans. Lots of 160 or 320 acres of Native American reservation land were conveyed to Native American individuals and families, but the lots were made inalienable to protect them from "improvident disposition of their lands to white settlers."[218] Unlike the Quaker Oats property, the land could not escheat.[219] The result was that after several intestate successions, the granted lots were divided up among hundreds of successors to the original grantees, giving rise to lots not much more useful than the square inch lots in the Yukon.[220] Both the Quaker Oats case and the Native American land cases were examples of spatial anticommons. Alienability or lack thereof determined whether the property regime

---

[215] Heller I, *supra* note 1, at 682-84.

[216] *Id.*

[217] General Allotment Act, ch. 119, 24 Stat. 388 (1887) (codified as amended at 25 U.S.C. §§ 331 et seq. (2000)), *repealed by* Indian Land Consolidation Act Amendments of 2000, Pub. L. No. 106-462, 114 Stat. 2007.

[218] Hodel v. Irving, 481 U.S. 704, 707 (1987). *But see* Donald J. Berthrong, *Legacies of the Dawes Act: Bureaucrats and Land Thieves at the Cheyenne-Arapaho Agencies of Oklahoma, in* THE PLAINS INDIANS OF THE TWENTIETH CENTURY 31, 37 (Peter Iverson ed., 1986) ("Thus, two decades after the passage of the Dawes Act every square inch of land used and occupied by Indians was subject to alienation."); Kenneth H. Bobroff, *Retelling Allotment: Indian Property Rights and the Myth of Common Ownership*, 54 VAND. L. REV. 1559, 1609-11 (2001) (arguing that by mid-1930s Indians lost most of their land under federal legislation).

[219] *See Hodel*, 481 U.S. at 706-10 (discussing history of allotment of Indian land, which United States government held in trust and had testamentary disposition).

[220] For a general discussion of the General Allotment Act and the Indian Lands Consolidation Act that attempted to remedy this anticommons, see Kathleen R. Guzman, *Give or Take an Acre: Property Norms and the Indian Land Consolidation Act*, 85 IOWA L. REV. 595 (2000).

could change, but did not make one case any more or less of an Individual Exclusion regime than the other.

What role, then, do rights of alienability and impositions of inalienability play in this framework of property regimes? Alienability and inalienability rules further goals that fall into three categories: (1) protecting or furthering public policy goals; (2) facilitating private arrangements; and (3) facilitating public regulation. The first category serves to generally retard regime change and prevent certain things from becoming property. The latter two serve to facilitate regime change and create new forms of property.

A. Protecting or Furthering Public Policy Goals

Inalienability is often imposed upon resources to protect or further widely agreed-upon political goals. Because of the great value of alienability, inalienability can be imposed to protect over-consumed resources by rendering them valueless. If such resources cannot be traded, they have no market value, and without market value, the pressure for exploiting such resources dissipates. The Endangered Species Act prohibits interstate commerce in endangered species to help protect endangered species by preventing profit from their illegal capture.[221] Similarly, the import and export of endangered species is prohibited.[222] For example, the plight of African elephants has brought about the inclusion of special provisions in the Endangered Species Act, foreclosing the lucrative United States market to ivory traders.[223]

Another strain of inalienability rules seeks to prevent trade in things for which society finds commodification morally objectionable.[224] Babies cannot be bought or sold because of our distaste for the commodification of human life.[225] Margaret Jane Radin notes that commodification of babies would be tantamount to the commodification of various attributes of babies: sex, eye color, predicted I.Q., and predicted height, a clearly horrific outcome.[226] In a slightly different vein, sexual services are

---

[221] 16 U.S.C. § 1538(a)(1)(D)-(F) (2000); *see* Andrus v. Allard, 444 U.S. 51, 62 (1979).

[222] 16 U.S.C. § 1538(a)(1)(A), (E)-(F). The Endangered Species Act also contains several provisions that implement U.S. ratification of the Convention on International Trade in Endangered Species of Wild Fauna and Flora, Mar. 3, 1973, 27 U.S.T. 1087.

[223] 16 U.S.C. § 1538(d)(1)(B).

[224] Margaret Jane Radin, *Market Inalienability*, 100 HARV. L. REV. 1849, 1855 (1987).

[225] *Id.* at 1925-26. *But see* Elisabeth M. Landes & Richard A. Posner, *The Economics of the Baby Shortage*, 7 J. LEGAL STUD. 323, 339, 347-48 (1987) (arguing for elimination of legal restrictions on baby selling to deal with baby shortage and black market).

[226] Radin, *supra* note 224, at 1925-26.

generally inalienable outside of the State of Nevada.[227] Traditional arguments for prohibiting prostitution include: (1) controlling crimes incident to prostitution, such as drug use, theft, and assault; (2) controlling the spread of venereal disease; (3) delegitimizing the nature of commercial sex; and (4) eradicating the self-destructive pathology of prostitutes.[228] Again, commodification of sex closely implicates the value of human life, although Radin points out that the robust black market in sex may exacerbate the commodification of sex and magnify inequalities among women.[229]

One important class of public policy goals pertains to distributional goals.[230] Protecting classes of persons is sometimes accomplished by regulating transactions which might otherwise be used to exploit them. In landlord-tenant law, tenants in most states enjoy an implied warranty of habitability, warranting that leased premises are suitable for habitation.[231] The implied warranty of habitability is generally inalienable, so any purported waivers are ineffective.[232] The purpose of making the implied warranty inalienable is to protect tenants from adhesion contracts that provide for waiver of the warranty and subjecting tenants to poor living conditions.[233] Votes in political elections are made inalienable to protect poor voters from purchased election results that would favor the rich.[234] It would be too much to expect individuals to resist the temptation to sell out their votes, since the large number of voters makes it unlikely that any individual vote would make a critical difference in an election. Thus, vote selling would exacerbate

---

[227] *See* Kiara M. Bridges, Note, *On the Commodification of the Black Female Body: The Critical Implications of the Alienability of Fetal Tissue*, 102 COLUM. L. REV. 123, 151 (2002).

[228] David A.J. Richards, *Commercial Sex and the Rights of the Person: A Moral Argument for the Decriminalization of Prostitution*, 127 U. PA. L. REV. 1195, 1215 (1979); *see also* Radin, *supra* note 224, at 1922 (adding that women who turn to prostitution are subject to moral opprobrium, disease, violence, and inability to develop and maintain relationships).

[229] Radin, *supra* note 224, at 1924.

[230] Calabresi & Melamed, *supra* note 203, at 1114.

[231] *See, e.g.*, ALA. CODE § 11-53-2 (1975); CAL. CIVIL CODE § 1941 (West 1985); Johnson v. Fuller, 461 A.2d 988, 990-1001 (Conn. 1983).

[232] Knight v. Hallsthammar, 623 P.2d 268, 272 (Cal. 1981); Teller v. McCoy, 253 S.E. 2d 114, 130-31 (W. Va. 1978).

[233] George Washington Univ. v. Weintraub, 458 A.2d 43, 47 (D.C. 1983) (quoting Fair v. Negley, 390 A.2d 240, 245 (Pa. Super. Ct. 1978) ("Were we to permit waiver of the implied warranty by an express provision in the lease, it would be a rare lease in which the waiver would not appear. As with the exculpatory clause, few, if any, tenants would be able to find housing on which the warranty had not been waived. To allow such wholesale, unbargained for waiver would make the implied warranty of habitability meaningless.")).

[234] Richard L. Hasen, *Vote Buying*, 88 CAL. L. REV. 1323, 1325 (2000).

the negative consequences of voter apathy.[235]

Inalienability rules serve public policies in market and non-market realms. Some inalienability rules may seek to protect resources by destroying their market value, while others protect societal mores and further distributional goals by seeking to prevent market commodification altogether. As such, inalienability rules typically serve to prevent significant changes in ownership of certain things, and to prevent these things from being considered property in the legal sense.

B. Facilitating Private Arrangements

Dagan and Heller posit alienability as the central feature of a property regime that they call the liberal commons.[236] The liberal commons is an ownership form combining some aspects of Private Property and Common Property that preserves a right of exit for group members.[237] It achieves the economies of scale that many Common Property regimes achieve, while preserving some of the autonomy that characterizes Private Property.[238] But unlike the successful Common Property resources described by Ostrom and others, liberal commons regimes allow members to exit without sacrificing their investment in the enterprise or resource.[239] Dagan and Heller argue that exit is important not only for protecting liberal values but also for imposing discipline upon the governing organization.[240] On a larger scale, Charles Tiebout asserted almost a half century ago that local jurisdictions will compete for residents by implementing a desirable package of public policies.[241] A local jurisdiction that takes advantage of its citizens can expect its residents to "vote with their feet" and exit the jurisdiction. The alienability of land in that context is the citizen's protection from unreasonableness in local government.[242] In that sense, alienability can serve protective functions for parties in a long-term transaction.

---

[235] *But see* Saul Levmore, *Voting With Intensity*, 53 STAN. L. REV. 111, 134 (2000) (arguing that vote selling can be way of measuring intensity with which voters support candidates).

[236] Dagan & Heller, *supra* note 8, at 567-70.

[237] *Id.* at 553.

[238] *Id.* at 566.

[239] *Id.*

[240] *Id.* at 568.

[241] *See* Charles Tiebout, *A Pure Theory of Local Expenditures*, 64 J. POL. ECON. 416, 418, 424 (1956).

[242] *See id.* at 418, 420 (explaining that consumer-voters will pick community that best satisfies their preferences). For a discussion of the voluminous literature that the Tiebout hypothesis generated, see Vicki Been, *'Exit' as a Constraint on Land Use Exactions: Rethinking the Unconstitutional Conditions Doctrine*, 91 COLUM. L. REV. 473, 506-28 (1991).

The condominium is an example of a liberal commons.[243] A condominium takes advantage of group ownership to aggregate resources to supply group goods, such as security, grounds maintenance, and infrastructure maintenance. A condominium association will also impose restrictions upon the uses of property, police these restrictions, and collect condominium fees from member residents in order to fund group activities. A condominium thus has some of the advantages of Common Property. The beauty of condominium associations is that unlike Ostrom's examples of Common Property, members can opt out by selling their individual units. Moreover, the right of exit also helps to ensure that the condominium association restrictions are generally reasonable. Unreasonable restrictions would harm all members of the condominium by lowering property values. Participation in condominium governance is possible, as most condominium associations have procedures for members seeking elective positions and determining the composition of boards of directors and officers, much like corporations do. For many resources, the liberal commons provides a way to achieve economies of scale while protecting individualist liberal values.[244]

However, the way that alienability serves a protective function for individuals tells only half the story. Inalienability also serves protective functions. Condominium unit owners are subject to reasonable restraints on alienation, such as a right of first refusal on the terms and conditions as that offered by a bona fide outside purchaser.[245] Such restraints on alienation are a form of protection for the condominium association, enabling it to control the entry of new members, provided they are exercised reasonably and in a nondiscriminatory fashion.[246]

Consider also the example of the publicly-traded corporation. For publicly-traded corporations, the liberal commons represents the ability of the corporation to assemble huge amounts of capital while preserving the right of exit. The cost of exit is the cost of buying and selling shares in the corporation, which can be accomplished online for as little as a few

---

[243] Dagan & Heller, *supra* note 8, at 552. Examples of liberal commons noted by Dagan and Heller include marital property, partnerships, condominium associations, and close corporations. *Id.*

[244] *Id.* at 567.

[245] *See* Chianese v. Culley, 397 F. Supp. 1344, 1346 (S.D. Fla. 1975); Ritchey v. Villa Nueva Condo. Ass'n, 146 Cal. Rptr. 695, 700 (Ct. App. 1978); Anderson v. 50 E. 72nd St. Condo., 505 N.Y.S.2d 101, 105 (App. Div. 1986).

[246] Wolinsky v. Kadison, 449 N.E.2d 151, 155 (Ill. App. Ct. 1983).

dollars. Recent accounting scandals aside,[247] the power to exit by selling shares protects shareholders from corporate incompetence and malfeasance. But shares in closely-held corporations are generally inalienable.[248] Such inalienability also protects investors, but in a different sense — investors in the early stage need each other to stay in for the venture to be viable. In the early stages of a corporation's life, capital is vital because a fledgling corporation cannot afford to have shareholders pull out. The compensation that early shareholders receive for buying inalienable shares is preferred stock, which enjoys priority over common stock in terms of payouts in case of liquidation. In that sense, inalienability protects investors' mutual investment expectations.

So inalienability as well as alienability can serve protective functions. What gives rise to a need for such protection? What condominium owners and corporate shareholders both face is an information symmetry problem. Condominium owners and corporate shareholders alike do not know if management of the enterprise will be reasonable, fair, or efficient. The right of exit helps ensure reasonableness, fairness, and efficiency. But the condominium association and the corporate management in a close corporation also face an information asymmetry problem. Condominium boards that represent the collective have only limited information about the suitability of the potential individual entrant and must exercise some control over who is allowed in. Hence, inalienability of existing memberships is a means of attempting to ensure that potential entrants will be suitable for the condominium. In a similar vein, shareholders of close corporations must know whether their fellow shareholders will stay in the venture long enough for the corporation to gain some viability. What the individuals (condominium owners and shareholders) and the collectives (condominium association and the corporation) face is a dual information asymmetry problem — both sides lack critical information about the other side, and both sides must take precautions. Thus, employee stock options are often made inalienable for a period of time in order to retain employee loyalty.

---

[247] Enron, Worldcom, Tyco, and Global Crossing are all examples of corporate malfeasance that was concealed from investors. Investors thus never had a chance to exercise their ability to protect themselves, as many of these companies are now bankrupt or teeter on the edge of bankruptcy. Richard A. Oppell, Jr., *House Panel's Investigation of Global Crossing is Started*, N.Y. TIMES, Mar. 13, 2002, at C2; Simon Romero & Alex Berenson, *WorldCom Says It Hid Expenses, Inflating Cash Flow $3.8 Billion*, N.Y. TIMES, June 26, 2002, at A1; Allan Sloan, *Tangle of Transactions Fueled Enron's Crisis*, WASH. POST, Dec. 11, 2001, at E3.

[248] *See* F. Hodge O'Neal, *Restrictions on Transfer of Stock in Closely Held Corporations: Planning and Drafting*, 65 HARV. L. REV. 773, 773-74 (1952).

What the dual information asymmetry problem highlights is the tradeoff between the costs of preserving exit and the costs of stabilizing group participation. If the costs of exit are too low, then it becomes difficult to police individual behavior and ensure that resource use does not descend into a noncooperative outcome.[249] If the costs of exit are too high, then the liberal commons becomes an Ostrom-styled Common Property regime, with group members locked into the group.[250] Yet any attempt to stabilize group membership necessarily requires the imposition of costs for would-be exiting members, again compromising the right of exit. A group could impose costs on entry, thereby obtaining some guarantee of contribution to the group enterprise; but in forcing would-be members to incur entry costs, a group is in effect imposing costs on exit.

Another answer would be to limit entry, so as to ensure that would-be members are of the sort that would remain in the group for a reasonable period of time and contribute dutifully. Ostrom's stylized examples of successful Common Property enterprises typically involved homogeneous groups of individuals. While Dagan and Heller recognize that this is neither a necessary nor sufficient condition for achieving efficient group exploitation of a resource,[251] the ability to choose appropriate group members is certainly an important factor in the success of a group venture. However, efforts to screen candidates for entrance into a group ultimately again raise dual asymmetric information problems — the group will have a limited ability to judge the appropriateness of a would-be member, and the member will have a limited ability to judge the fairness of the group. Improving the capacity to assess each other imposes costs on both the group and the entrant.[252]

Alienability and inalienability rules thus do not function perfectly. While alienability and inalienability rules do not solve information

---

[249] As Dagan and Heller explain, exit and cooperation could conflict in the sense that too strong of an exit right would jeopardize those who wish to remain in the group, since loss of too many members would jeopardize the venture, which depends upon the economies of scale achieved by large numbers. Dagan & Heller, *supra* note 8, at 574-77.

[250] *Id.* at 565-66.

[251] *Id.* at 571.

[252] The law firm interviewing process provides a compelling example of this. Law firms spend substantial amounts of time and money recruiting young lawyers and would-be lawyers, traveling to law schools throughout the country. Committees are formed to help in evaluating candidates, and "call-back" on-site interviews at the firm typically involve the better part of a day, with firm members taking turns meeting with candidates. All of this is intended to help the law firm and the candidate both evaluate if the candidate will be a successful lawyer at the firm.

asymmetry problems, they nevertheless facilitate the making of private arrangements by providing for mechanisms to alleviate information symmetry problems. Without alienability and inalienability rules, innovative property arrangements such as condominiums, cooperatives, and corporations would be impossible. In fact, alienability and inalienability rules are only one of a number of innovative mechanisms that give rise to new forms of property such as condominiums and corporations. Options and disclosure requirements are other mechanisms that have helped create new property forms.[253] These innovations expand the realm of property regimes so that more owners can be included in more innovative ways. Because of highly-developed corporations laws, the number of shareholders of large corporations may be larger than the populations of some states in the United States. What makes such vast ownership possible are the highly-developed rules for share ownership, including rules on alienability and inalienability. The point of alienability is thus not so much to protect liberal values but to make possible new forms of ownership, and for a given regime, to provide a higher-utility outcome than otherwise possible.

Thus, for some resources, a regime that combines aspects of Private Property and of Common Property, such as a liberal commons, can achieve the most important advantages of both regimes.[254] But anytime there is a group venture, costs must be absorbed in order to overcome information asymmetry and cooperation problems — this is a necessary consequence of having imperfect information about other members of the group. Common Property regimes function because of the group's cohesiveness and homogeneity. Similarly, to some extent, group homogeneity also helps liberal commons regimes work. However, alienability rules (such as the right to sell) and inalienability rules (the

---

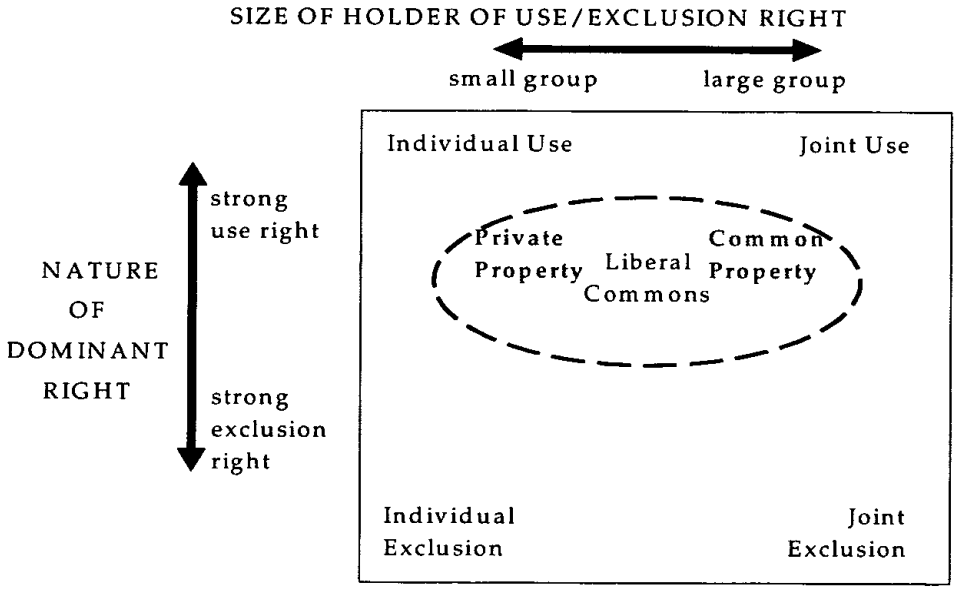
[253] These might be considered "technological" changes in property rights. Bruce Yandle & Andrew P. Morriss, *The Technologies of Property Rights: Choice Among Alternative Solutions to Tragedies of the Commons*, 28 ECOLOGY L.Q. 123, 139-41 (2001).

[254] Actually the liberal commons is a mixture of all four fundamental regimes. Condominium owners own their individual units as private property, so there is an Individual Use aspect. Condominium ownership also includes ownership as tenants in common with other owners of the common areas — stairwells, elevators, hallways, recreation rooms, etc., so there is an element of open access. There is an element of the anticommons in condominium agreements, in that important condominium regulations often cannot be changed except by the consent of a majority or supermajority. Worthinglen Condo. Unit Owner's Ass'n v. Brown, 566 N.E.2d 1275, 1276 (Ohio Ct. App. 1989). There is also an element of the Joint Exclusion regime in that condominium agreements regulate uses of individual units for the benefit of all owners — prohibitions on loud music, cleanliness requirements, and limitations on commercial activities are implemented by the association to serve the population of the condominium as a whole.

conditions on the right to sell, such as restraints on alienation) more often protect both individual rights and group function. The liberal commons is thus a new form of property, and indeed a new property regime, that is made possible by the evolution of alienability and inalienability rules.

The liberal commons presents a challenge in terms of mapping onto this framework. The liberal commons has at least the potential to encompass many sizes of parties — from a few shareholders to many millions, from two condominium owners to many hundreds. The use rights of owners of a liberal commons are similarly varied. Whereas shareholders may have virtually no use rights associated with their share ownership, condominium owners have substantial use rights associated with their condominium ownership. It is clear that if a liberal commons is feasible for a resource, it may overlap the Private Property and Common Property regimes. Therefore, a liberal commons is located as shown in Figure 6. The larger domain reflects the great flexibility of the liberal commons in accommodating varying numbers of owners.

Figure 6



C. Facilitating Public Regulation

For decades, economists have argued for greater use of transferable permits for a variety of environmental problems.[255] Such schemes contemplate the issuance of permits to pollute a certain quantity (tons of a certain pollutant) or extract a certain quantity of a resource (pounds of fish caught), which permits are transferable among polluters or resource users. When permits are traded, the permits will flow to polluters that have the highest marginal costs of pollution avoidance, or to resource users that have the highest marginal values of resource exploitation. Such trading produces economic gains because permits flow to those parties that need it the most — those for which pollution reduction is the most expensive, or those that can make the greatest use of resource exploitation.[256] Pollution reduction and resource exploitation is thus carried out by those who can accomplish it most cheaply and efficiently.[257] Moreover, transferable permits introduce a market price on pollution reduction, resource savings and conservation, and economic efficiency. This introduces an incentive to find more efficient methods of reducing pollution or harvesting resources.[258]

Transferable permits systems facilitate public regulation because they allow some polluters and resource users to reap financial rewards. Those that can reduce pollution most cheaply can sell their permits to those that cannot. As a result, while an industry might unanimously oppose a traditional method of regulation — for example, by limiting

---

[255] *See* Daniel J. Dudek & John Palmisano, *Emissions Trading: Why is This Thoroughbred Hobbled?*, 13 COLUM. J. ENVTL. L. 217 (1988); Robert W. Hahn, *Economic Prescriptions for Environmental Problems: How the Patient Followed the Doctor's Orders*, 3 J. ECON. PERSP. 95 (1989); Hsu & Wilen, *supra* note 94; Arik Levinson, *Why Oppose TDRs?: Transferable Development Rights Can Increase Overall Development*, 27 REGIONAL SCI. & URB. ECON. 283 (1997); James T.B. Tripp & Daniel J. Dudek, *Institutional Guidelines for Designing Successful Transferable Rights Programs*, 6 YALE J. ON REG. 369, 378-82 (1989). *But see* WILLIAM J. BAUMOL & WALLACE E. OATES, THE THEORY OF ENVIRONMENTAL POLICY 57-78 (2d ed. 1988) (discussing three cases of resource depletion: pure depletion, autonomous regeneration, and increasing costs); Martin L. Weitzman, *Prices vs. Quantities*, 41 REV. ECON. STUD. 477, 477-79 (1974) (comparing transferable permits with Pigouvian taxes as means of controlling environmental degradation).

[256] TIETENBERG, *supra* note 148, at 375-76; Maureen L. Cropper & Wallace E. Oates, *Environmental Economics: A Survey*, 30 J. ECON. LIT. 675, 686 (1992).

[257] Bruce A. Ackerman & Richard B. Stewart, *Reforming Environmental Law: The Democratic Case for Market Incentives*, 13 COLUM. J. ENVTL. L. 171, 179 (1988); Dudek & Palmisano, *supra* note 255, at 222-23; Shi-Ling Hsu, *Reducing Emissions from the Electricity Generation Industry: Can We Finally Do It?*, 14 TUL. ENVTL. L.J. 427, 448-49 (2001).

[258] Ackerman & Stewart, *supra* note 257, at 179; Dudek & Palmisano, *supra* note 255, at 222-23; Hsu, *supra* note 257, at 448-49.

emissions rates[259]— a transferable permit scheme may split an industry into prospective winners and losers, thereby dividing the opposition to regulation. For some of the members of an affected industry, a transferable permit scheme may result in lower profits, but not compared to other forms of contemplated regulation. By finding ways to reduce pollution, an innovative firm can recoup some regulation-induced losses. Thus, if it is believed that some form of regulation is inevitable, firms may find themselves publicly supporting a transferable permit scheme.

The key to transferable permit schemes is thus the alienability of permits. Without alienability, there would be no way to exploit the savings from one's efficiency or innovation. If one cannot sell the surplus permits created by efficiency gains or innovation, there will be no incentive to find efficiency gains or to innovate. Just as alienability allows private parties to create new forms of property, it also allows public regulatory authorities to create new forms of property in furtherance of regulation. The property created is the right to engage in a regulated activity — to emit a specific pollutant, catch a quantity of fish, or to develop a parcel of land — where otherwise the activity would be prohibited. This is a new form of property: what Yandle and Morriss call "regulatory property."[260] Regulatory property is that property which is governmentally-created by unbundling an asset from a regulated right and simultaneously imposing some restrictions on the regulated right and assigning some sovereignty over that right, such as the right to alienate. Three settings help illustrate this concept: land development, air pollution, and fishing.

1. Transferable Development Rights

To control growth in land development, development restrictions are often imposed upon private properties. Some local jurisdictions have resorted to the issuance of transferable development rights (TDRs) to the owners of restricted parcels.[261] TDRs separate out a property right from

---

[259] Traditional air pollution regulation, for example, involves regulation of the *rate* at which pollutants are emitted. Shi-Ling Hsu, *supra* note 257, at 447; Byron Swift, *The Acid Rain Test*, 17 ENVTL. F. 16, 18 (May/June 1997). Such "command-and-control" regulations do not provide any incentive for polluters to reduce emissions beyond that which would comply with the regulation.

[260] Yandle & Morriss, *supra* note 253, at 129.

[261] A nationwide review of transferable development programs is contained in AMERICAN LAW INSTITUTE, A REVIEW OF TRANSFERABLE DEVELOPMENT RIGHTS (TDR) PROGRAMS IN THE UNITED STATES (PRESERVATION LAW REPORTER 1997) (2001).

the property — the development right from the land.[262] The imposition of development restrictions is thus not a complete loss of both the land and the development right — the TDR can be sold, and in some cases can be extremely valuable. The issuance of TDRs creates market opportunities and allows landowners of restricted parcels to recoup some losses resulting from the land development restrictions. Because land use regulation invariably imposes disproportionate impacts upon some parcels, a TDR scheme mitigates some of the unavoidable inequities of land use regulation.[263] In so doing, TDRs help insulate local jurisdictions from regulatory takings challenges from aggrieved landowners, by offering landowners some compensation for their financial hardships.[264] As well, TDRs produce economic gains from trade. Through trading, the TDRs should flow to those landowners who most value development of their property. Furthermore, TDRs help internalize externalities associated with land development. Because a developed parcel imposes environmental costs that an undeveloped parcel does not, the requirement of obtaining sufficient TDRs effectively imposes a cost at the margins on development, a cost that is not realized if the right to develop comes fully attached to land ownership.

A TDR program that the Tahoe Regional Planning Agency (TRPA) adopted provides an interesting example.[265] To protect the extraordinary water clarity of the lake,[266] the TRPA has adopted a particularly

---

[262] Julian Conrad Juergensmeyer et al., *Transferable Development Rights and Alternatives After* Suitum, 30 URB. LAW. 441, 446 (1998).

[263] *Id.* at 444.

[264] *Id.* at 445. Landowners subjected to onerous land use regulations may challenge the regulations on the grounds that they amount to a "taking" of private property for public use without just compensation. U.S. CONST. amend. V; *see* Pa. Coal Co. v. Mahon, 260 U.S. 393, 415-16 (1922). A land use regulation amounts to such a compensable taking when it requires the landowner to "sacrifice all economically beneficial uses" of the land. Lucas v. S.C. Coastal Council, 505 U.S. 1003, 1019 (1992); *see also* Penn Cent. Transp. Co. v. City of New York, 438 U.S. 104, 137 (1978) (holding that landowner was not denied all value of its development rights because its TDRs were transferable and potentially applicable to other buildings owned by landowner).

[265] The TRPA is a regional authority created by a bi-state compact in 1968. *See* CAL. GOV'T. CODE. §§ 66800-66801 (West 1997 & Supp. 2003); NEV. REV. STAT. § 277.200 (2001). The compact was approved by Congress, Tahoe Regional Planning Compact, Pub. L. No. 91-148, 83 Stat. 360 (1969), *amended by* Pub. L. No. 96-551, 54 Stat. 3233 (1980). The TRPA has jurisdiction over an area in five counties in California and Nevada.

[266] In 1970, it was possible to see ninety feet below the lake's surface. By 1982, that figure had declined to seventy-five feet. Increasing development in the Tahoe watershed reduces water quality by allowing more nutrients and sediment to run into the lake rather than be trapped in the granitic soils around the lake. PAUL A. SABATIER & NEIL W. PELKEY, LAND DEVELOPMENT AT LAKE TAHOE, 1960-84: THE EFFECTS OF ENVIRONMENTAL CONTROLS AND ECONOMIC CONDITIONS ON HOUSING CONSTRUCTION 23 (Inst. of Ecology, U.C. Davis,

complicated and extensive TDR program governing the residential development of land parcels in the Lake Tahoe watershed. Under this program, a landowner must possess at least three types of TDRs to construct a residence on an undeveloped lot in an area under TRPA jurisdiction. First, the landowner must possess a Residential Development right, the right to build on the lot, which attaches automatically to the owner of an undeveloped lot.[267] Second, the landowner must possess a Residential Allocation, three hundred of which are allocated by the TRPA each year.[268] Third, the landowner must have Land Coverage rights, permits to lay an impervious surface over property for foundations and driveways.[269] All of these rights are transferable[270] and can be obtained in an active market.[271]

Such a division of rights in property under the TRPA program is reminiscent of the Moscow store spaces noted by Heller.[272] One would guess that TDRs in general create a less bundled ownership, and result in a lower level of use. However, the crucial difference is in the ability of TDR holders to transfer their rights. Transfer of TDRs is valuable because unlike the Moscow case, holding a TDR is not merely holding an exclusionary right: a TDR represents an affirmative right to develop (or, in the Tahoe instance, an aspect thereof). Except for restrictions on where the TDR can come from and go to, TDRs are not parcel-specific, thus creating the potential for a market.[273] If many TDRs are eligible for

---

Monograph No. 90-2, 1990).

[267] TAHOE REGIONAL PLANNING AGENCY CODE § 21.6.A (2001); Suitum v. Tahoe Reg'l Planning Agency, 520 U.S. 725, 731 (1997).

[268] TAHOE REGIONAL PLANNING AGENCY CODE § 33.2.A(3).

[269] *Id.* § 37.11.

[270] *Id.* §§ 20.3.C, 34.0-34.3. However, the amount of land coverage allowed for any given parcel depends upon a score calculated under the TRPA's Individual Parcel Evaluation System, which is meant to reflect the suitability of development of that parcel, in terms of the environmental impact. *Id.* § 37.0. Moreover, parcels in ecologically sensitive areas, such as streamside parcels may be ineligible for development. *Id.* § 20.4, 37.2.D. In *Suitum v. Tahoe Regional Planning Agency*, 520 U.S. 725 (1997), the petitioner-landowner Suitum had purchased her undeveloped lot in the Tahoe area in 1972 before the TDR scheme had been implemented. Evidence was taken at trial that suggested that even though Suitum was prohibited from developing her streamside lot, she could sell her TDRs for $30,000 to $35,000. *Suitum*, 520 U.S. at 732.

[271] Telephone interview with Jerry Wilmette, California Tahoe Conservancy (July 14, 2002).

[272] *See* Heller I, *supra* note 1, at 633-38.

[273] Regulatory agencies may target certain areas for more or less development. To increase or reduce development in such areas, restrictions may be imposed designating the areas from which a TDR may come from, or where it may be utilized to develop land. Juergensmeyer et al., *supra* note 262, at 446.

sale, market opportunities are enhanced. The transfer of TDRs is more of a market transaction than a bilateral or multilateral monopoly negotiation, where holdout problems are apt to frustrate the transaction, or where transaction costs are apt to discourage even the effort to bargain. Thus, under a well-functioning TDR system, valuable resources are not relegated to non-use by transaction costs and holdout problems, as they are in an Individual Exclusion regime. Rebundling property rights becomes a market exercise.

The key to the effectiveness of TDRs is alienability. A TDR's value derives from the land use restriction but is dependent upon free alienability. The value is preserved by creating as robust a market as possible. Without alienability in a robust market, only the regulatory restriction remains; and we are left with the traditional methods of land use regulation.

2. Individual Transferable Quotas

Fisheries may be the most consistently over-exploited resource in the world. World-wide and across every fishing culture, fish have been over-exploited. Of the 441 known fisheries in the world in 2000 for which there is information regarding the health of the stock, 47% were "fully exploited," meaning that fish production has reached a maximum; 18% were "overexploited" and 9% were "depleted" (both mean that the annual catch is above a sustainable level and is need of fishing restrictions); and 1% was "recovering," meaning that the stock was very low by historical standards.[274] The percentage of fisheries falling into the latter three categories (those for which fish stocks are lower than would be optimal) has increased steadily since 1974.[275] Overfishing has caused not only the depletion of stocks of fish with attendant ecological problems, but also led to sharply declining catch rates, indicating the increased difficulty and cost of fishing.[276]

Most of the world's commercially exploitable fisheries are within the 200-mile Exclusive Economic Zones (EEZs) of the nations of the world.[277] While limiting somewhat the number of potential fishermen with access

---

[274] UNITED NATIONS FOOD AND AGRIC. ORG., THE STATE OF WORLD FISHERIES AND AQUACULTURE (pt.3), at 20 & fig.37 (2000), *available at* http://www.fao.org/DOCREP/003/X8002E/x8002e06.htm (last visited Jan. 20, 2003).

[275] *Id.* at 23 & fig. 40.

[276] Harry N. Scheiber, *Ocean Governance and the Marine Fisheries Crisis: Two Decades of Innovation — and Frustration*, 20 VA. ENVTL. L.J. 119, 127-28 (2001).

[277] *Id.* at 126.

to such fisheries, management of these diverse fisheries has more often served as a means of protecting domestic fishermen from foreign competition than an opportunity for meaningful fisheries conservation.[278] The predictable result is that fisheries in EEZs have continued to decline,[279] despite the removal of these fisheries from a Joint Use, or open access regime. The signatories to the Law of the Sea Convention have thus by and large failed to use the Convention to establish sustainable fisheries management programs. Nor are the governments of signatory states the only ones to have failed at fisheries management. The International Whaling Commission has presided over the devastation of several global whale stocks.[280] The near-universality of such failures speaks ill of the Administrative regime for fisheries management.[281]

Various methods of limiting fishing have been tried throughout the world. One method utilizes "input controls," which include restrictions on the vessels and gear used for fishing, and limitations on the time and place of fishing and on the number of fishermen.[282] Gear and vessel restrictions have been used widely in fisheries management.[283] From a regulator's point of view, they are easy to understand and implement.[284] However, gear and vessel restrictions have invariably led to equipment substitutions that make regulatory efforts seem comically futile.[285] Restrictions on the number of boats have been met with the entry of larger and more powerful boats.[286] Restrictions on the length of boats have been met with the entry of rounder and more powerful boats.[287] Similarly, gear restrictions have not been much more successful. Regulations for a minimum mesh size for fishing nets (to allow small fish to escape) have been met with methods of twisting net lines to reduce the mesh size while fishing.[288] Restrictions on line lengths have been met

---

[278] *Id.* at 126-27.

[279] *Id.* at 127.

[280] *Id.* at 122-23.

[281] *Id.* at 122-29. Although, as noted above, the beluga sturgeon did relatively well under the former Soviet Union, it is now suffering under a more divided governance. *See supra* text accompanying notes 117-21.

[282] NATIONAL RESEARCH COUNCIL, SHARING THE FISH: TOWARD A NATIONAL POLICY ON INDIVIDUAL FISHING QUOTAS 115 (1999).

[283] IUDICELLO ET AL., *supra* note 91, at 78-79.

[284] *Id.* at 79.

[285] NATIONAL RESEARCH COUNCIL, *supra* note 282, at 116.

[286] *Id.* at 116-17.

[287] *Id.* at 117.

[288] IUDICELLO ET AL., *supra* note 91, at 81.

with lines with more hooks.[289] Restrictions imposing fishing seasons have resulted in intense periods of "derby" fishing. In the case of the Alaska halibut fishery, the fishing season was as low as two days.[290] Derby fishing for two days proved to be dangerous for fishermen, caused fishermen to lose substantial amounts of gear, and led to rates of high "bycatch," the unutilized (and thus wasted) catch of nontargeted fish species.[291] Moreover, a forty-eight hour halibut fishing season resulted in a market glut of fresh halibut for only a few weeks every year, with considerably less valuable frozen halibut being sold the rest of the year.[292]

In sum, input restrictions have resulted in two primary failures. First, fishermen have stayed a step ahead of regulators, substituting restricted gear with unrestricted gear and succeeded in negating any regulatory efforts to control overfishing and allow stocks to recover to healthy levels.[293] Second, input restrictions have encouraged the entry of new capital into those fisheries that are already overcapitalized. Excess fishing capital has led directly to overfishing, as fishermen have fished more aggressively to try and recoup their capital investments.[294] In the meantime, the over-intensive fishing not only depletes fish stocks but also drives market prices of fish downward by flooding the market.[295]

In the face of such persistent regulatory failure, proposals for individual transferable quotas (ITQs) continue to surface. ITQs permit their holders to catch a certain quantity of fish of a particular species.[296] ITQ quantities are typically a stated percentage of a year's "Total Allowable Catch," a quantity which fishery regulators set annually.[297] Although some ITQ programs are supplemented by time or area restrictions or equipment restrictions, the focus of ITQ programs is regulating the quantity of fish taken. ITQ programs have the benefit of allowing fishermen to coordinate amongst themselves as to when fishing will take place, avoiding the ecologically harmful and dangerously intensive derby fishing that takes place under pure seasonal

---

[289] *See id.*

[290] *Id.* at 137-38.

[291] NATIONAL RESEARCH COUNCIL, *supra* note 282, at 304-07.

[292] IUDICELLO ET AL., *supra* note 91, at 138.

[293] NATIONAL RESEARCH COUNCIL, *supra* note 282, at 116-17.

[294] Hsu & Wilen, *supra* note 94, at 806-07.

[295] IUDICELLO ET AL., *supra* note 91, at 152; Hsu & Wilen, *supra* note 94, at 807-08.

[296] NATIONAL RESEARCH COUNCIL, *supra* note 282, at 20.

[297] *Id.* at 347.

restrictions.[298]

The most important advantage of ITQ programs is that they alleviate the over-capitalization problem that plagues many fisheries. By directly regulating the quantity of fish caught, ITQ programs relieve the pressure on individual fishermen to load up on fishing gear and vessel power to try and outcompete other fishermen in a Joint Use setting.[299] Rather, ITQs encourage only the most efficient fishermen to continue fishing. ITQ programs contemplate that those who are most efficient at fishing will ultimately obtain the ITQs because those that are less efficient would be apt to accept a buy-out price from those who are more efficient.[300] Thus, "capital stuffing"[301] becomes a waste of money in an ITQ-governed fishery, as it is efficiency, not intensity, that yields financial rewards.[302] The focus of the fishermen holding ITQs becomes the fish, rather than servicing their capital by catching as much fish as possible.

ITQs, however, are often not always the ideal or even a workable solution to overfishing. Adequate monitoring is essential to the success of an ITQ program, as without it the ITQs mean nothing and the fishery remains a Joint Use resource.[303] Thorny issues of who is initially allocated ITQs confound many ITQ proposals.[304] ITQ programs can have the perverse effect of exacerbating waste by encouraging "highgrading," the practice of discarding lower-quality fish and keeping only high-quality fish for the sake of making the most of one's ITQ allotment.[305] Moreover, if fisheries management is to be considered in light of broader marine ecosystem concerns, it may be more appropriate to adopt a more communal ownership form, allowing more values to be considered.[306]

Nevertheless, the experiments with ITQs have generally yielded positive economic and conservation results. Evidence of better fishing conditions reflecting healthier fish stocks, longer and spread-out fishing

---

[298] In a derby fishery, fishermen will engage in a pure race to catch as much fish during the season. Because time is at such a premium, lost gear is abandoned to inflict incidental mortality upon fish. The rush to save fish also exposes fishermen to substantial risk. IUDICELLO ET AL., *supra* note 91, at 77-78.

[299] Hsu & Wilen, *supra* note 94, at 807.

[300] IUDICELLO ET AL., *supra* note 91, at 110.

[301] *Id.* at 76.

[302] *Id.*

[303] Alison Rieser, *Prescriptions for the Commons: Environmental Scholarship and the Fishing Quotas Debate*, 23 HARV. ENVTL. L. REV. 393, 415 (1999).

[304] *Id.* at 417.

[305] IUDICELLO ET AL., *supra* note 91, at 105.

[306] *Id.* at 107-08; Alison Rieser, *Property Rights and Ecosystem Management in U.S. Fisheries: Contracting for the Commons?*, 24 ECOLOGY L.Q. 813, 824-29 (1997).

seasons, reduced bycatch, reduced capitalization.[307] Moreover, stronger revenues have been reported for ITQ programs for the Canadian Pacific halibut fishery, the Alaskan halibut and sablefish fisheries, the Mid-Atlantic surf clam and ocean quahog fishery, and the South Atlantic wreckfish fishery.[308] Internationally, the benefits of large-scale national ITQ programs in Iceland and New Zealand have been more ambiguous. In Iceland, the ITQ program has stabilized stocks of the previously over-fished herring, but has been less successful in helping cod stocks recover.[309] In New Zealand, there is at least a perception that the biological conditions of these species have improved[310] and that over-capitalization of fisheries has abated,[311] while export revenues have grown substantially.[312]

In all of these cases, alienability has been the key to ecological and economic success. Alienability of quota shares has resulted in marginal fishermen being bought out and more efficient fishermen consolidating their quota shares to continue fishing. This increases the efficiency of the industry overall, and reduces the over-capitalization that has plagued fisheries. Fishermen have, as theorists predicted, coordinated themselves to spread out their fishing trips so that their trips are more relaxed.[313] Also, because there is no glut of fish at the end of some artificially short season, when ITQ fishermen offload, they enjoy considerably greater economic power when bargaining with wholesalers, garnering higher prices.[314] Such coordination might not be possible without alienability because fishermen need to be able to hold the right number of shares in order to plan their trips in advance. Some ITQ programs, however, make fishing even more flexible by allowing fishermen to buy or lease extra ITQs if they exceed their ITQ holdings by catching too many fish.[315] In New Zealand, fishermen can even deduct the overcatch by deducting the excess amount against next year's allocation, or crediting an undercatch towards the next year's

---

[307] IUDICELLO ET AL., *supra* note 91, at 121-25.

[308] *Id.* at 121-25, 130-35, 145-56; NATIONAL RESEARCH COUNCIL, *supra* note 282, at 291-95, 313-15.

[309] NATIONAL RESEARCH COUNCIL, *supra* note 282, at 328-32.

[310] *Id.* at 358-59.

[311] *Id.* at 361.

[312] IUDICELLO ET AL., *supra* note 91, at 98-99; NATIONAL RESEARCH COUNCIL, *supra* note 282, at 361.

[313] IUDICELLO ET AL., *supra* note 91, at 105, 125, 146, 152.

[314] *Id.* at 124-25, 146, 153-54.

[315] *Id.* at 102.

allocation.[316] This, too, serves to alleviate pressure to fish and helps fishermen maximize profits instead of catch.

ITQs shares can be sold or leased in most ITQ programs.[317] Leasing allows a quota holder to pursue other fishing options, while allowing another vessel, perhaps one more suited to the ITQ-targeted fishery, to utilize the ITQs. The leasing option has also led to the creation of long-term contracts for the utilization of ITQs. ITQ holders have entered into long-term leases of ITQs in exchange for a portion of the fishing proceeds.[318] Detractors may object to the absentee lessor nature of such a transaction, but such arrangements help alleviate the pressure to overcapitalize. Leasing allows those vessels better suited to the ITQ-targeted fishing to be more fully utilized, while freeing up other vessels to pursue other fisheries, thereby reducing the need for capital in these other fisheries.

Proposals for ITQ programs have generally been controversial. One of the most common objections to ITQ programs is the fear that ITQs will become monopolized or concentrated in the hands of the few.[319] To alleviate these concerns, ITQ programs have always imposed some restrictions on alienability. For instance, the New Zealand ITQ program now prohibits leasing.[320] Transfer of ITQs are sometimes only allowed within a vessel class, area, or mode of operation.[321] In addition, almost all ITQ programs impose a cap on ownership by a single owner.[322] Despite such measures, there has been some consolidation of ITQs in every fishery subjected to an ITQ.[323] However, because an important goal of every ITQ program is to reduce overcapitalization, the limited amount of consolidation should not be an unwelcome surprise.

The various forms of alienability are thus critical to the success of ITQ programs, both in terms of ecological and economic goals. By all accounts, trade in ITQs has been robust enough to reinforce value in ITQs. In the Alaskan ITQ program, for example, 3,800 trades of halibut

---

[316] *Id.*

[317] *Id.* at 102, 140; NATIONAL RESEARCH COUNCIL, *supra* note 282, at 293, 327.

[318] NATIONAL RESEARCH COUNCIL, *supra* note 282, at 336.

[319] *Id.* at 167-68.

[320] IUDICELLO ET AL., *supra* note 91, at 109.

[321] The Alaskan halibut program segregates all ITQs by vessel, area, and mode of operation. No transfers may be made if any of the three criteria differ. NATIONAL RESEARCH COUNCIL, *supra* note 282, at 209.

[322] Such ownership caps vary greatly. New Zealand imposes caps ranging from 10% to 35% of the quota shares for any single owner. IUDICELLO ET AL., *supra* note 91, at 104. In comparison, the Alaskan halibut ITQ imposes caps of between 0.5% to 1.5%.. *Id.* at 140.

[323] *Id.* at 105, 123, 142; NATIONAL RESEARCH COUNCIL, *supra* note 282, at 315, 335.

ITQs and 1,100 trades of sablefish ITQs have been made.[324] Well-behaved regulators have provided ITQ holders with some security, stabilizing the prices of ITQs.[325] Under a Joint Use regime or one of the failed Administrative regimes previously governing failed fisheries, the pressure to catch as much fish as possible to recoup capital costs caused fishermen to fish with abandon and waste. The alienability of ITQs allow fishermen a means of profitably exiting the industry, alleviating the pressure to fish as much as possible before exiting. Thus, alienability in the ITQ setting protects fishermen from not only each other but also their own destructive behavior.

3. Transferable Emissions Permits

Transferable emissions permit (TEP) schemes contemplate the creation of a property right[326] to emit some regulated pollutant. Like TDRs and ITQs, these rights can be traded among various members of a regulated industry holding such permits, while the regulator controls the total amount of pollution rights that are available. Like TDR and ITQ programs, it is believed that the TEPs will flow to those facilities for which it would be most expensive to reduce pollution.[327] Those that can more easily reduce pollution would be willing to sell their rights to those for which pollution reduction is expensive, resulting in cost-minimizing industry compliance. The scope for trade of TEPs is thus created by the heterogeneity of marginal pollution abatement costs among different members of a regulated industry.[328] It is worth noting that effective monitoring is crucial to a TEP program, as it is in an ITQ program; without it, there is no value to a TEP and no reason for firms to invest in them.

The largest TEP program to date is the sulfur dioxide (SO_2) emissions trading program created by Title IV of the 1990 Clean Air Act Amendments.[329] In lieu of traditional regulations specifying limits on the rate at which SO_2 may be emitted, the SO_2 emissions trading program specifies a nationwide cap on SO_2 emissions from electricity generating

---

[324] NATIONAL RESEARCH COUNCIL, *supra* note 282, at 315.

[325] *Id.* at 327, 360.

[326] Formally speaking, SO_2 TEPs are not property rights. 42 U.S.C. § 7651b(f) (2000) ("Such allowance does not constitute a property right."). However, their security as a political matter is strong enough.

[327] Cropper & Oates, *supra* note 256, at 686.

[328] *Id.*

[329] 42 U.S.C. § 7651a-7651o.

plants.[330] The SO_2 emissions trading program also details a complicated set of rules for allocating SO_2 TEPs among plants subject to the program and minimal rules for transfer.[331] Electricity generating plants must have a TEP for every ton of SO_2 emitted. For most electricity generation plants subject to the first phase of the program, TEPs entitling them to emit roughly half of their historical emissions were allotted each year, which means that they must reduce their annual emissions by half.[332]

Conspicuously absent from the SO_2 emissions trading program are any requirements of certain technologies, limits on which plants may trade TEPs, or limits on how many TEPs a plant may hold (and concomitantly the amount of SO_2 emissions for a plant in a given year). In terms of alienability, the SO_2 emissions trading program made TEPs far more alienable than TDRs or ITQs. Unlike TDRs and ITQs, there are no limitations on which plants may sell or buy TEPs.[333] While ownership of ITQs is often limited to those with access to a vessel[334] or those who actually use them to fish,[335] (as opposed to leasing them), there are no limitations on who may participate in the market for SO_2 TEPs.[336] Furthermore, the SO_2 emissions trading program has allowed TEPs to be "banked" for use in a future year,[337] something not allowed under ITQ programs. Finally, the market for trading SO_2 TEPs has been considerably larger than for any TDR or ITQ programs. Whereas 3,800 trades were made for Alaskan halibut ITQs between 1995 and 1999 (including 1,911 in 1997), over 99,502 trades of SO_2 TEPs were made during the same time period.[338]

---

[330] *Id.* § 7651d.

[331] A. DENNY ELLERMAN ET AL., MARKETS FOR CLEAN AIR 7 (2000).

[332] Byron Swift, *How Environmental Laws Work: An Analysis of the Utility Sector's Response to Regulation of Nitrogen Oxides and Sulfur Dioxide Under the Clean Air Act*, 14 TUL. ENVTL. L.J. 309, 315 (2001).

[333] ELLERMAN ET AL., *supra* note 331, at 7.

[334] NATIONAL RESEARCH COUNCIL, *supra* note 282, at 327.

[335] *Id.* at 327; *cf.* IUDICELLO ET AL., *supra* note 91, at 109.

[336] ELLERMAN ET AL., *supra* note 331, at 7 ("Brokers have acquired some in hopes of future price increases, for instance, and environmentalists have acquired some in order to reduce emissions . . . ."). Indeed, arbitrage became a common practice and a key to reducing industry-wide compliance costs. Swift, *supra* note 332, at 347. Such arbitrage is notably *not* generally allowed under ITQ programs, which have limits on ownership and prohibit "quota stacking." IUDICELLO ET AL., *supra* note 91, at 150.

[337] 42 U.S.C. § 7651b (2000) ("Such regulations . . . shall provide, . . . for the identification of unused allowances, and for such unused allowances to be carried forward and added to allowances allocated in subsequent years . . . .").

[338] A complete transaction database is *available at* http://oaspub.epa.gov/acidrain/ats/rptctrl (last visited July 11, 2002). The author submitted a query for all trades between January 1, 1995 and January 1, 2000.

The increased alienability of TEPs have given rise to a wealth of compliance options for electricity generating plants regulated by the SO_2 emissions trading program. Whereas a traditional regulatory scheme might have effectively mandated a specific emissions control technology, under the emissions trading program electric generating plants found themselves with many compliance strategies.[339] The anticipated high cost of compliance with the program caused many firms early on to order "scrubbers," an expensive end-of-pipe emissions control technology that removes the sulfur from the emitted flue gas. However, as it became apparent that cheaper compliance options were available, firms canceled scrubber contracts.[340] One option that presented itself was a switch to low-sulfur coal as a fuel source. Such a switch would involve no capital outlays, and coal mined in the Powder River Basin of Wyoming was cost-effective to transport as far east as Georgia,[341] especially in light of lower freight charges due to railroad deregulation.[342] Better still, to reduce rail shipping costs, managers at electricity generating plants learned to blend low- and high-sulfur coals, something that was not believed feasible before the incentive to learn was present.[343] It is important to note that such experimentation would not have been possible without the ready market provided by the program; without free alienability of SO_2 TEPs, the consequence of failure of the experiment would have been heavy fines.[344]

Other cost savings were discovered. Because the scrubber industry suddenly faced competition in the business of reducing emissions, new ways of building and installing scrubbers were miraculously discovered.[345] Among the cost-saving innovations realized under the program was the elimination of the need for scrubber redundancy. In the pre-emissions trading era, back-up scrubbers were always needed in case the primary one needed to be shut down for maintenance, lest even a momentary violation of an emissions rate standard occur. Under the emissions trading program, the extra emissions resulting from scrubber maintenance could be easily cured by the purchase of a few extra SO_2 TEPs.[346]

---

[339] Swift, *supra* note 332, at 327-28.

[340] *Id.* at 322-23.

[341] *See* ELLERMAN ET AL., *supra* note 331, at 87 & fig. 4.2.

[342] *Id.* at 104-05.

[343] Swift, *supra* note 332, at 336-37.

[344] 42 U.S.C. § 7651j(a) (2000).

[345] Swift, *supra* note 332, at 332-34.

[346] *Id.*

Firms owning multiple electricity generating plants also found operational savings. Those that owned plants with scrubbers as well as plants without scrubbers found that they could switch loads to scrubbed units, so as to make the most of their scrubber and minimize the need to buy SO_2 TEPs for the unscrubbed units.[347] The results have been surprising, but should not have been. Early estimates by the Environmental Protection Agency placed compliance costs of the emissions trading program at $4.6 billion nationwide, while the industry trade group Edison Electric Institute estimated them at $7.4 billion.[348] A recent Resources for the Future study estimated the actual compliance costs to have been closer to $800-900 million.[349]

On the environmental side, it is difficult to argue with the results of the SO_2 emissions trading program. Substantial SO_2 emissions have been directly attributable to the SO_2 emissions trading program.[350] In fact, in contrast to concerns that emissions trading would lead to SO_2 emissions "hot spots," the greatest emissions reductions seem to have occurred where it was most environmentally desirable.[351] However, the most profound environmental consequence has been the shift within the electricity generating firm of responsibility for emissions reduction. Whereas emissions reductions was once thought of as the charge of a group of environmental engineers (and a nuisance as far as corporate operations was concerned), the emissions trading program induced the top corporate brass to consider for the first time how to make money by reducing emissions.[352] The emissions trading program thus harnessed not just the technical skills of firms, but also the entrepreneurial sectors.[353] Like TDRs and ITQs, the free alienability of TEPs under the SO_2 emissions trading program have been responsible for their success. While alienability has done much more to reduce compliance costs than to reduce SO_2 emissions, as a matter of political economy, SO_2 emissions reductions might never have come about without the emissions trading concept.

---

[347] *Id.* at 333.

[348] ENVIRONMENTAL PROTECTION AGENCY, PROGRESS REPORT ON THE EPA ACID RAIN PROGRAM 4 (1999), *available at* http://www.epa.gov/airmarkets/progress/arpreport/acidrainprogress.pdf (last visited Mar. 9, 2003).

[349] Curtis Carlson et al., *Sulfur Dioxide Controls by Electric Utilities: What are the Gains from Trade?*, 109 J. POL. ECON. 1291, 1318 (2000).

[350] ELLERMAN ET AL., *supra* note 331, at 118-23.

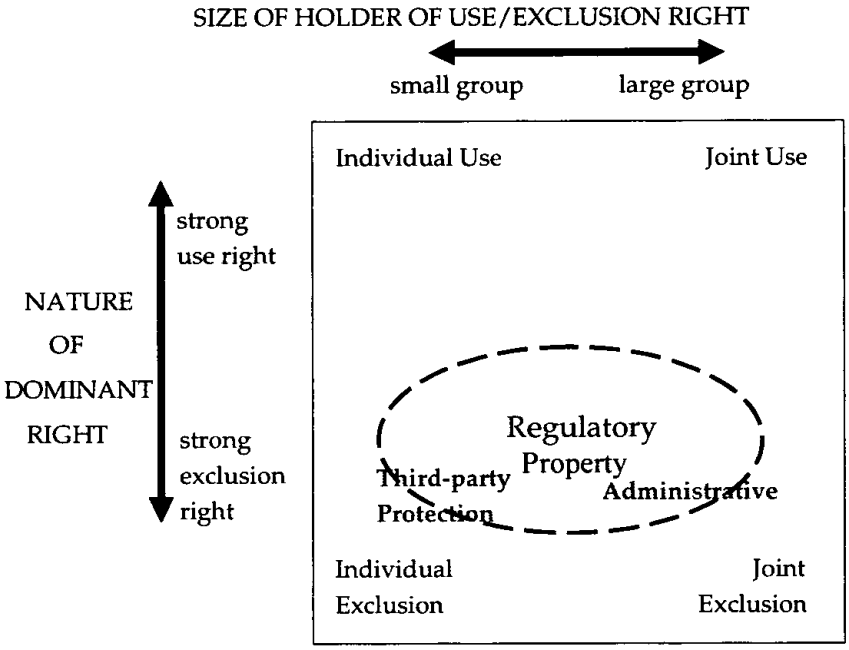
[351] *Id.* at 132.

[352] Swift, *supra* note 332, at 347-48.

[353] *Id.* at 391 n.381.

Alienability has thus played a critical role in facilitating public regulation. By fostering the success of transferable permit programs (TDRs, ITQs, and TEPs), alienability has helped bring about a new form of property: regulatory property. Regulatory property is valuable only because of a credible regulatory prohibition. The transferable permit thus becomes a compromise. The regulator can largely achieve its regulatory goals, including land development restrictions, prevention of overfishing, emissions reductions, and allow the regulated parties substantial flexibility and freedom in deciding how to accomplish them. Like the liberal commons, regulatory property is borne of the shortcomings of another regime (in the case of the liberal commons, Common Property, and in this case the Administrative regime). Figure 7 shows the regulatory property's location on the framework.

Figure 7



So alienability in general is not a right like other property rights. Alienability plays critical policy roles and can facilitate private arrangements and public regulation. Alienability can account for a very large fraction of asset value, yet alienability or inalienability are not defining features of a property regime. Rather, alienability or inalienability can produce new forms of property and create new property regimes that are different mixtures of the four fundamental property regimes. These new hybrid regimes are likely to be more efficient and allow ownership on a larger scale than before. On the other hand, inalienability rules can be used to prevent certain things from being considered property in any legal sense. But alienability, rather than being one of the fundamental characteristics of property, is really one of many forms of innovation that have given rise to more complicated and tailored forms of property.

V. CONCLUSION

The framework presented in this Article breaks new ground by presenting a novel way of analyzing the advantages and disadvantages of property rights regimes, as well as their origins. The spatial framework provides a method of classifying four fundamental property regimes: the Joint Use, Individual Use, Joint Exclusion, and Individual Exclusion regimes. While there are scattered examples of working regimes that resemble these extremes, this classification is more useful for characterizing many existing property regimes in terms of the characteristics of the four fundamental regimes. Thus, any existing property regime can be characterized as a mixture of all four of the regimes. More importantly, this framework provides a way of drawing upon the advantages of the fundamental regimes to create a mixture of property regimes and an appropriate regime for a particular resource. In so doing, our past experience indicates that paying heed to alienability and inalienability rules may help create new forms of property and solve thorny resource problems.

***