

THE PROBLEM WITH WILDERNESS

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I. COMPETING, CONFLICTING DEMANDS FOR WILD LANDS

Prior to the 1970s, America valued land and resources as economic commodities. During the past three decades, however, natural resources and land, especially wild lands, seem more attractive for their recreational and preservationist potential.¹ Traditional economic commodities, such as timber, minerals, and livestock, are increasingly deemed less valuable than the raw land on which, and in which, these resources are located.² Undeveloped, unspoiled, roadless land seems increasingly the prize, not the fir trees, gold, or cattle, that early on drove commodity developers to populate and exploit the American frontier.³ As undeveloped lands and wild places gain more perceived value for their non-commodity, natural attributes, there has been a parallel growth in lands set aside as open space, parklands, and specially designated roadless wilderness lands managed by the United States Bureau of Land Management (“BLM”) and Forest Service. These locations, singled out by government as dominant use preservation areas, have experienced unprecedented popularity. People flock to places where commodity

¹ See Jan G. Laitos & Thomas A. Carr, *The Transformation on Public Lands*, 26 *ECOLOGY L.Q.* 140, 143-44 (1999).

² See JAN LAITOS ET AL., *NATURAL RESOURCES LAW* ch.15 (2006). Surveys by the United States Forest Service reveal that between seventy-five and ninety-five percent of the public value national forests for “clean water,” wildlife “habitat,” “recreation,” and “quiet, natural places for personal renewal,” while only fifty percent of the public value these forests for “grazing” or the “raw materials” needed to support local industries. KEN CORDELL ET AL., *FOREST SERVICE RESEARCH AND DEVELOPMENT, THE MULTIPLE VALUES OF WILDERNESS* 38, (2005) (on file with the Harvard Environmental Law Review).

³ See Steve Lipsher, *Nature Fuels Economy of West*, *DENVER POST*, Sept. 28, 2007, at B4 (indicating that hunting, fishing, hiking, and wildlife viewing are considered more valuable than extraction of natural resources).

One commodity that still has viability in the twenty-first century is obviously the energy resource. Coal, oil, and gas continue to have enormous economic value and attractiveness to developers. See, e.g., Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 594, tit. III-IV. When energy resources are located within wild lands, or Wilderness Study Areas (“WSAs”), an enormous conflict arises between those wishing to develop the energy resources as a much-needed commodity, and those wishing to preserve the wild lands as a much-desired preservation area. This particular conflict is outside the scope of this Article.

development is now not permitted as a matter of law or policy, and where landscape value predominates.⁴

As land becomes less favored for production of a variety of resources and outputs, and more favored for non-consumptive purposes, such as preservation and recreation, disputes arise among those who wish to preserve, or play in, natural resources.⁵ These conflicts are quite different from those that characterized the later part of the twentieth century, when a burgeoning environmental protection movement sought to challenge both commodity users and government decisions permitting extractive use of resources. The current conflicts exist wherever natural places and open space exist, but they are most conspicuous on the nation's public lands, especially designated federal wilderness areas, the focus of this Article. In these wilderness areas, tensions arise among three distinct groups: non-users, users, and would-be users who are prohibited by law from entering these lands. Their interactions, and their effects on wilderness lands, produce three distinct problems: (1) large-group negative externalities, (2) a "true" tragedy of the commons, and (3) resource popularity conflicts.

The first of these problems occurs when the users of the wilderness go to it and use it in a way, or in such numbers, that *negative externalities* are imposed upon a large non-user group.⁶ The second problem affects the wil-

⁴ See ROSS W. GORTE, WILDERNESS: OVERVIEW AND STATISTICS (Cong. Research Service, CRS Report for Congress Order Code RL 31447, June 11, 2002); Eugene Linden, *The Call of the Wild*, PARADE, Apr. 22, 2007, at 6 ("Protecting wildlands is an American value. We identify with the landscape."); David Cole, *Visitor Experiences in Wilderness: Applications to Management of Heavily Used Wildernesses and Day Users*, www.leopold.wilderness.net/research/fprojects/F007.htm (last visited Apr. 25, 2008) (on file with the Harvard Environmental Law Review); Joanne Kelley, *Colorado Open Lands Soar Because of Easement Values*, ROCKY MOUNTAIN NEWS, June 9, 2007, at 4 (noting that conservation easements are increasing because of a "growing push to protect Colorado landscapes from future development"); H. KEN CORDELL, OUTDOOR RECREATION FOR 21ST CENTURY AMERICA 17 (Shela Mou ed., 2004) [hereinafter CORDELL, 21ST CENTURY]; Louisa Willcox, *Budding Bureaucracy Cope with Crowds, Confusion, and Conflicts*, Sept. 19, 1980, reprinted in A PEOPLE'S HISTORY OF WILDERNESS 77, 77-78 (Matt Jenkins ed., 2004); Interview with Ralph Swain, Wilderness Program Manager, United States Forest Service, Rocky Mountain Region (June 1, 2007) ("There are so many people using wilderness as a day use experience that it is, for them, not a wilderness experience anymore."); CORDELL ET AL., *supra* note 2, at 46 (observing that, in one year, 2002, the National Wilderness Preservation System recorded almost 13 million visits, and this level of wilderness use is expected to grow exponentially through the year 2050); Jeremy P. Meyer, *Group Offers Ways to Reduce Overuse of Mount Bierstadt*, DENVER POST, Feb. 21, 2007, at B3 (reporting that Forest Service officials have seen "huge increases in use" of Colorado wilderness areas).

⁵ See generally Jan G. Laitos & Rachael B. Reiss, *Recreation Wars for Our Natural Resources*, 34 ENVTL. L. 1091 (2004).

⁶ An externality is present when the costs or benefits of an activity or transaction are experienced by market actors not responsible for them. When the externality harms third parties who were not participants in the activity, it is a negative externality. When these innocent third parties are numerous, the result is a large-group negative externality. See DANIEL H. COLE & PETER Z. GROSSMAN, PRINCIPLES OF LAW AND ECONOMICS 14 (2005). The 1964 Wilderness Act, 16 U.S.C. §§ 1131 *et seq.* (2000), aims to preserve non-use values in wilderness lands by protecting "undeveloped Federal land" from "expanding settlement [threatening to] occupy and modify all [otherwise wild] areas . . ." *Id.* §§ 1131(c), (a). However, when

derness users themselves. When a resource like a wilderness area is not subject to property rights, users permitted access cannot exclude other similar users, which means that they tend to overexploit it, creating a *tragedy of the commons*.⁷ When wilderness users not only unsustainably exploit the resource, but also impose mutual externalities upon *each other*, the result is a “true” tragedy of the commons.⁸ Finally, *resource popularity conflicts* arise when (1) there is more than one group that wishes to use an area, (2) the groups wish to use it in different and incompatible ways, and (3) applicable law, such as the Wilderness Act, permits one group of users but excludes others.⁹ As a result of resource popularity conflicts in the wilderness context, excluded *would-be users* often oppose the creation of new wilderness areas, since their preferred use will be prohibited there.¹⁰ Designated users and excluded would-be users often continue their battle in court.¹¹

those who use wilderness lands *overuse* the area to the point where its essential wilderness character is impaired, a large-group negative externality occurs which is borne by non-users who value natural lands.

⁷ Garrett Hardin, *The Tragedy of the Commons*, 162 *SCIENCE* 1243 (1968).

⁸ See Shi-Ling Hsu, *What Is a Tragedy of the Commons? Overfishing and the Campaign Spending Problem*, 69 *ALB. L. REV.* 75, 77 (2005). The Wilderness Act creates a true tragedy of the commons by permitting an unlimited number of designated users (primarily hikers) to access wilderness areas, so long as the use consists of a “primitive . . . type of recreation.” 16 U.S.C. § 1131(c). A federal wilderness area thereby becomes a “commons,” or more precisely, a type of common property for the designated users. See S.V. Ciriacy-Wantrup & Richard Bishop, “*Common Property*” as a Concept in Natural Resources Policy, 15 *NAT. RESOURCES J.* 713, 715 (1975).

⁹ Federal wilderness areas create resource popularity conflicts for three reasons. First, there are two groups that wish to use the resource — low-impact, non-motorized recreationists like hikers; and higher-impact recreationists like mountain bikers and off-road vehicles (“ORVs”). Steve Lipsher, *Roadless Debate a Great Divide*, *DENVER POST*, July 10, 2006, at B1 (discussing how the debate on how to manage potential wilderness areas revolves around the conflict between “back country hikers and campers” and “users of all-terrain vehicles”); Brian Metzler, *Moving Toward Park and Ride*, *ROCKY MOUNTAIN NEWS*, July 8, 2006, at B13 (discussing how an attempt to designate 250,000 acres of Rocky Mountain National Park as wilderness requires cooperation from the Boulder-based International Mountain Biking Association, since mountain biking is banned in federally protected wilderness areas). Second, the uses conflict. Laitos & Reiss, *supra* note 5, at 1104. Third, the Wilderness Act and its regulations permit one user while excluding all others. See 16 U.S.C. § 1133(c); see also 36 C.F.R. § 261.18 (2006).

¹⁰ See, e.g., Editorial, *Pass Brown Canyons Bill Now*, *DENVER POST*, Nov. 15, 2006, at B6 (noting that the wilderness designation of Browns Canyon in Colorado was facing an objection by the National Rifle Association, which was concerned “that wilderness designation would close a motorized trail sometimes used by ATVs”).

¹¹ See, e.g., *Izaak Walton League of Am. v. Kimbell*, 516 F. Supp. 2d 982 (D. Minn. 2007) (preservationist challenge to Forest Service decision to construct snowmobile trail adjacent to wilderness); *Fund for Animals v. Norton*, 512 F. Supp. 2d 49 (D.D.C. 2007) (preservationists seeking ban on snowmobiling in all national parks); *Colorado Off-Highway Vehicle Coal. v. United States*, 505 F. Supp. 2d 808 (D. Colo. 2007) (“group favoring motorized vehicles on national forest trails” challenging Forest Service decision restricting motorized vehicle use); Brett French, *You’ve Got to Fight for Your Right to Mountain Bike*, *BILLINGS GAZETTE*, Dec. 27, 2007, at C1 (mountain bikers feel that they need to advocate more strongly to slow the trend preventing bicyclists from using trails in national forests and WSAs); see also Gillian Flaccus, *Environmentalists, Off-Roaders Clash Over Land Rights in Canyon*, *USA TODAY*, Dec. 16, 2006, at A16 (reporting that when preservationists successfully sued to get a protected federal canyon closed to ORVs, the off-road riders purchased pockets of private land at the

This Article examines these problems with wilderness. Although the focus will be on federally designated wilderness areas, the analysis holds true for almost any popular parcel of undeveloped land set aside by any government entity for preservationist purposes in its natural condition.

Part II documents and examines the three groups of non-users, users, and would-be users, who are affected by the user group's exclusive use, and excessive overuse, of the wilderness resource. The interplay of these three groups with respect to wilderness creates three problems associated with these areas: large-group externalities, true tragedy of the commons, and resource popularity conflicts.

Part III analyzes the governmental response to these problems to date. Not surprisingly, the three groups have been unwilling to resolve their issues by negotiation and self-initiated agreement.¹² Instead, each has turned to legal institutions for help, with disappointing results. The United States Congress, the federal land management agencies, and the courts have utterly failed to address the root causes of the problems that flow from wilderness. The result is a current legal policy towards wilderness lands that is incoherent, non-responsive, and ineffective.

Part IV of this Article offers two quite different solutions to the problems that follow from the creation of wilderness areas. The first relies on traditional command-and-control top-down government regulation of users and would-be users of the wilderness resource. This approach relies on rules that (1) limit the demand of the users, (2) increase the supply of the demanded resource, and (3) minimize the degree of the resource popularity conflict that follows when those who desire a resource have been divided into two groups—those who are permitted access, and those who are excluded. While rules and government control have all the advantages of a central authority's oversight over chaotic and often self-defeating individual choices, the Article points out how such government controls themselves produce their own set of problems and inefficiencies.

The second solution relies on a bottom-up property rights approach. It starts with the premise that each of the three central problems of wilderness stems from the fact that the only property interest that arguably now exists is the communal right of one group of users (i.e., hikers) to have access, in unlimited numbers, to a finite, sensitive, and valuable resource. This fact alone creates both the large-group negative externalities experienced by the non-user group, and the true tragedy of the commons experienced by the user group. Conversely, the group of would-be users, those who want to use the land for higher impact recreational purposes, has no such property right; it is denied access and excluded from the land, thereby creating a resource popularity conflict. The creation of individual property rights in the use of

top of the canyon and sued the federal government for access to their property through the canyon).

¹² See *supra* note 11.

the resource itself, for both users and would-be users, would be a preferred way to correct the problems that stem from the absence of property interests in wilderness.

If a property rights approach is preferred to a command-and-control regime, then the issue is how to create a system of property rights in wilderness use. This Article suggests an individual transferable quota program. Such a program has two enormous advantages: (1) it creates individual legal interests in wilderness access and use, which ensures that a property rights system replaces one without property; and (2) it permits exchanges among interest holders, which, in theory at least, allows property rights to wilderness to end up with those parties most willing and likely to engage in a preferred use of the wilderness asset. The presence of transferable property interests is exactly what an efficiently working market (in this case, the market for wilderness use) needs to operate efficiently.¹³ Although there are obvious downsides to an individual transferable quota program (e.g., potentially astronomically high enforcement costs), such a scheme squarely addresses and corrects many fundamental flaws in the current law of wilderness.

II. WILDERNESS AND ECONOMIC THEORY

If one considers a large tract of undeveloped land set aside as wilderness to be an asset or a product demanded and valued by a growing segment of the population, then classic economic theory predicts that the relevant market for this good will maximize allocative efficiency if (1) the market includes many users (buyers), each of whom possesses complete information about product quantities, qualities, and prices; (2) no market participant has sufficient power to control the price; (3) market participants respond rationally to price signals for the product; (4) participants can enter and exit the market at will; (5) the product is owned and priced within the market according to the laws of supply and demand; (6) all costs and benefits fall within, and are borne by, the participants in the market; and (7) transacting in the market is costless.¹⁴

In the case of wilderness, none of these assumptions holds true. First, while there is, in effect, a market where participants demand the benefits of wilderness (i.e., wilderness users, would-be users, and non-users), none would have complete knowledge about the quantities and qualities of the resource. The resource is perceived as a somewhat unlimited commons, available to all who wish to access it in a manner consistent with the conditions of the wilderness designation. Second, since neither active users nor passive non-users typically have to pay for the benefits associated with wil-

¹³ COLE & GROSSMAN, *supra* note 6, at 96.

¹⁴ *Id.* at 13.

derness, there are no prices that signal the real value for the product.¹⁵ When user demand is not deterred by price, they overuse it to their own detriment. Third, would-be users, such as mountain bikers, are excluded from the market under the Wilderness Act, creating resource popularity conflicts. Fourth, no single participant (e.g., a hiker in a wilderness area) has an ownership interest in the product. The absence of property rights means that the normal rules of supply and demand do not apply, leading to allocative inefficiency, overexploitation of the unowned resource, and, for the users, a true tragedy of the commons. Fifth, growing demand for the product by users (e.g., hikers and campers) will likely produce negative externalities (degradation of wilderness lands) borne by a large group of non-users (e.g., those who value undegraded lands). Sixth, negotiation among users, or between users and non-users, or between users, non-users and would-be users, will almost certainly be impossible or difficult because of high transaction and information costs.¹⁶

It should be apparent, then, that the “market” for the wilderness product experiences market failure. All these failures are initially caused by one central fact — the only product in this market, the wilderness resource, is overused by the group that is permitted access to it by law. The astonishing extent of this overuse will be described in more detail below, in Part II.B.¹⁷ The cause of this overuse lies in three facts: (1) Americans increasingly demand the creation of, and the ability to access, wild and undeveloped natural areas;¹⁸ (2) a wilderness area is an open-access “commons,” where no user has a property ownership interest in the resource, and where there are no limits on the numbers who access it, as long as the users meet the statutory

¹⁵ Demand for certain wilderness locations is so great that, as of 2008, at least nineteen wilderness areas have imposed modest limits on access and overnight camping by the imposition of permits and fees. Such limits have been added both by the Forest Service (e.g., for the Indian Peaks Wilderness Area in Colorado) and the BLM (e.g., for the Paria Canyon Wilderness Area in Arizona). Interview with Ralph Swain, Wilderness Manager, Region 2, Forest Service in Denver, Colo. (Feb. 29, 2008).

¹⁶ See generally Harold Demsetz, *Toward a Theory of Property Rights*, 57 AM. ECON. REV. 347, 354-55 (1967).

¹⁷ See, e.g., Daniel Berger, *More Fun, More Fire, Less Money*, DENVER POST, Jan. 21, 2007, at E1 (noting that former Forest Service Chief Dale Bosworth’s 2004 Earth Day Speech acknowledged that two of the “Four Threats” to 193 million acres of national forest land were (1) unmanaged recreation and (2) loss of open space); Frank Bass & Rita Beamish, *National Parks’ Preservation Threatened*, DENVER POST, June 19, 2006, at A6 (emphasizing that “[t]he nature of the nation’s treasures is being altered by a crush of people who want cellphones, shopping and housing next door”).

¹⁸ Laitos & Carr, *supra* note 1, at 193-95; GEORGE CAMERON COGGINS & ROBERT L. GLICKSMAN, 3 PUBLIC NATURAL RESOURCES LAW G-SUM (2nd ed. 2007) (“[P]reservation [is] a dominant federal land use.”); RODERICK NASH, WILDERNESS AND THE AMERICAN MIND (1967); ALSTON CHASE, IN A DARK WOOD: THE FIGHT OVER FORESTS AND THE RISING TYRANNY OF ECOLOGY (1995); CORDELL ET AL., *supra* note 2, at 43 (demonstrating that Forest Service surveys reveal that 70% of respondents favor designating additional wilderness in their own state, while only 12% oppose such designations).

conditions of permitted use;¹⁹ and (3) the users do not have to internalize the externalized costs produced by their overuse.²⁰

The following section describes the three most dramatic problems that result from overuse of wilderness. Each of these problems affects, in different ways, a different group of people.

A. *Non-Users and Large-Group Externalities*

Although the hikers, campers and horseback riders who enter and use wilderness areas directly benefit from their use of this asset, wilderness also produces positive “spillover” consequences for those who never actually enter the land or participate in this particular market. These consequences are externalities, in that the product of this particular market, the advantage of wild lands, affects third parties who do not participate in it. In the case of wilderness, the externalities are positive, in much the same way that the market value of a homeowner’s residence increases if neighbors upgrade and remodel their nearby residences. The property value of the homeowner’s residence benefits without the homeowner participating in the costs of the neighbors’ upgrades.

There are several positive externalities enjoyed by non-users of wilderness. The mere idea of unspoiled wild land in its natural state has value to many individuals, who perceive such lands as a necessary component of human existence on this planet.²¹ It has been argued that people “need wilderness whether or not we ever set foot in it.”²² Wilderness has very real

¹⁹ There is an important distinction between a resource where there are no ownership rights at all (“non-property”) and a common-pool resource which is jointly owned by a group of individuals. Owners of common-pool resources can limit overuse by excluding those outside the group of owners, and by negotiating limits on use within the group of owners; by contrast, open-user resources are subject to unchecked overexploitation. See DANIEL H. COLE, POLLUTION AND PROPERTY: COMPARING OWNERSHIP INSTITUTIONS FOR ENVIRONMENTAL PROTECTION 8-13 (2002)(distinguishing between non-property, or *res nullius*, and common property, or *res communes*); Carol M. Rose, *Romans, Roads, and Romantic Creators: Traditions of Public Property in the Information Age*, 66 LAW & CONTEMP. PROBS. 89, 93, 106-08 (2003); Hsu, *supra* note 8, at 79 n.25. A wilderness area does not fall clearly into either category. It is not a common-pool resource because it is not “owned” by its designated users; it is not an open-access resource because certain groups of would-be users are statutorily excluded. In many ways a wilderness appears to be a common property regime for excluded would-be users yearning to enter it, and an open-access resource for the individuals within the group that is statutorily allowed to use the resource.

²⁰ See *infra* Part II.A; LAITOS ET AL., *supra* note 2, at 26-27 (“[e]xternalities occur when some market activity harms or benefits third parties, who are not participants in that market activity . . .”).

²¹ See Laitos & Carr, *supra* note 1, at 193-95. See generally JOHN MUIR, MY FIRST SUMMER IN THE SIERRA 250 (1911); NASH, *supra* note 18; JAMES M. GLOVER, A WILDERNESS ORIGINAL: THE LIFE OF BOB MARSHALL 94, 145-47, 215 (1986).

²² EDWARD ABBEY, DESERT SOLITAIRE: A SEASON IN THE WILDERNESS 129 (1968) (referring to the “existence” value of wilderness); see also Glen Robinson, *Wilderness: The Last Frontier*, 59 MINN. L. REV. 1 (1975); John V. Krutilla, *Conservation Reconsidered*, 57 AM. ECON. REV. 777, 781 (1967) (“There are many persons who obtain satisfaction from mere knowledge that part of wilderness North America remains.”).

environmental value to the surrounding native ecosystem, promoting biodiversity,²³ clean air and water,²⁴ absorption of greenhouse gases,²⁵ and the sustainability of species.²⁶ Wilderness is seen as a means of protecting diminishing supplies of big game, fish, and waterfowl.²⁷ These ecological, environmental, and spiritual values are viewed by many as more important than direct use values.²⁸ Advocates of wilderness believe that these diffuse benefits should be included in wilderness management decisions and considered in future wilderness designations.²⁹

Non-users also enjoy some very tangible economic benefits that follow from the existence of wilderness: low-impact recreationists who want to access wilderness account for some of the \$300 billion in annual retail sales for gear, food, lodging, entertainment, and transportation associated with recreating in America's outdoors.³⁰ Non-motorized outdoor recreation pumps \$730 billion into the United States economy annually, and supports about 6.5 million jobs.³¹ This economic boom occurs outside of wilderness areas and benefits non-users. This group of non-users also enjoys the "amenity"

²³ See generally Bradley C. Karkkainen, *Biodiversity and Land*, 83 CORNELL L. REV. 1 (1997); Heidi J. McIntosh, *National Forest Management: A New Approach Based on Biodiversity*, 16 J. ENERGY NAT. RESOURCES & ENVTL. L. 257 (1996).

²⁴ See Adell Louise Amos, *The Use of State Instream Flow Laws for Federal Lands: Respecting State Control While Meeting Federal Purposes*, 36 ENVTL. L. 1237, 1253 (2006) (noting a state law classifying wilderness preservation as a beneficial use justifying the existence of a water right).

²⁵ See *Roadless Areas' Economic Benefits Cited*, DENVER POST, Sept. 27, 2006, at B2 (reporting that roadless national forests in New Mexico produce \$42 million annually in water quality benefits and \$22 million in benefits associated with the absorption of carbon dioxide).

²⁶ REED NOSS & ALLEN COOPERRIDER, *SAVING NATURE'S LEGACY: PROTECTING AND RESTORING BIODIVERSITY* 141 (1994); H. Ken Cordell et al., *Is the Public Viewpoint of Wilderness Shifting?*, INT'L J. WILDERNESS, Aug. 2003, at 27, 29 (Table 2) [hereinafter Cordell et al., *Public Viewpoint*] (listing non-use values like the protection of air and water quality and wildlife habitat, the knowledge that such areas exist, and the desire to preserve these areas for future generations); Linden, *supra* note 4, at 8 ("wildlands . . . control floods [and] keep diseases in check"); H. KEN CORDELL ET AL., *AN ANALYSIS OF THE OUTDOOR RECREATION AND WILDERNESS SITUATION IN THE UNITED STATES: 1989-2040* 8 (1990), available at http://www.fsf.ed.us/rm/pubs_rm/ru_gtr189.pdf [hereinafter CORDELL ET AL., *ANALYSIS*] (asserting that educational, scientific, conservational and historical uses are additional nonrecreational use values that are growing in interest).

²⁷ NASH, *supra* note 18, at 183; *McGrath Honored by Hunters, Anglers*, GREAT FALLS TRIBUNE, Sept. 8, 2006, at M5 (noting Montana Attorney General Mike McGrath's support of the 2001 wilderness Roadless Rule has helped provide habitat necessary to sustain the state's general hunting season).

²⁸ See Cordell et al., *Public Viewpoint*, *supra* note 26, at 30; see also John Copeland Nagle, *The Spiritual Values of Wilderness*, 35 ENVTL. L. 955, 958 (2005) (discussing the role of spiritual values in wilderness preservation); John Loomis et al., *Demand for and Supply of Wilderness*, in *OUTDOOR RECREATION IN AMERICAN LIFE: A NATIONAL ASSESSMENT OF DEMAND AND SUPPLY TRENDS* 351, 374 (H. Ken Cordell ed., 1999) (arguing that values derived from passive, nonrecreation uses of wilderness are larger in percentage terms in the aggregate than recreation use benefits).

²⁹ See Loomis et al., *supra* note 28, at 374.

³⁰ Joanne Kelley, *U.S. Impact on Outdoor Recreation: \$730 Billion*, ROCKY MOUNTAIN NEWS, Aug. 26, 2006, at C1.

³¹ *Id.*; David Stuckey & Alejandro Gonzalez, *Working Outdoors (Chart)*, USA TODAY, Aug. 25, 2006, at A1.

and “landscape” values that come from homes and businesses located near designated federal preservation lands.³²

Additionally, so-called “pure preservationists” assert non-use values when they confront those who are more interested in utilizing wilderness for its non-motorized recreation worth.³³ Although wilderness areas permit only low-impact forms of recreation,³⁴ such as hiking, horse riding, and camping, even these uses may conflict with the ideals of pure preservationists, who desire preservation for preservation’s sake.³⁵ Pure preservationists support the view that nature has intrinsic value apart from its direct value to humans.³⁶

When the designated users of wilderness overuse or overexploit an area, they impose negative externalities upon the much larger group of non-users by interfering with the positive externalities described above that

³² Raymond Rasker, *A New Look at Old Vistas: The Economic Role of Environmental Quality in Western Public Lands*, 65 U. COLO. L. REV. 369, 380 (1994); see also THOMAS MICHAEL POWER, *LOST LANDSCAPES AND FAILED ECONOMIES: THE SEARCH FOR A VALUE OF PLACE* 236-37 (1996). See generally Gundars Rudzitis & Harley E. Johansen, *How Important is Wilderness? Results from a United States Survey*, 15 ENVTL. MGMT. 227, 227-35 (1991).

³³ J. DOUGLAS WELLMAN & DENNIS B. PROBST, *WILDLAND RECREATION POLICY: AN INTRODUCTION* 16 (2d ed. 2004) (explaining that there is a conflict between those who want to promote mass recreation and those who seek personal contact with undisturbed nature); CORDELL ET AL., *ANALYSIS*, *supra* note 26, at 38 (these passive and less consumptive, non-recreational activities may not only conflict with wilderness uses); see also Jodi Peterson, *A Problem Any City Would Love to Have*, HIGH COUNTRY NEWS, Dec. 6, 2004, at 4 (reporting that overuse of wilderness often pits groups that were once allies against each other, and that whereas recreationists and environmentalists would at one time have worked together to defeat development on public lands, more recreation-oriented people find themselves in disagreement with more extreme environmentalists now that the problematic use is recreation). *But see* Tom Kenworthy, *Sportsmen Fight for Wyo. Habitats*, USA TODAY, Apr. 20, 2006, at 3 (describing how hunters and fishers are beginning to ally themselves with environmentalists to become a driving force behind the push to set aside wilderness areas for pure preservation purposes because of their interest in preserving the habitats of their game).

³⁴ See Laitos & Reiss, *supra* note 5, at 1098-1100 (discussing the difference between recreational groups based on the level of impact their form of recreation has on the land: Group I users include low-impact, non-motorized recreationists such as hikers, backpackers, and snowshoers; Group II includes high-impact, non-motorized recreationists, such as mountain bikers, hang gliders, and canoe enthusiasts; Group III is made up of motorized recreationists).

³⁵ *Id.* at 1099.

³⁶ Sarah Krakoff, *Mountains Without Handrails . . . Wilderness Without Cellphones*, 27 HARV. ENVTL. L. REV. 417, 418 (2003); see CORDELL ET AL., *ANALYSIS*, *supra* note 26, at 38 (explaining both that wilderness implies an absence of permanent human influence, which may exclude recreation; and that pure preservationists recognize that some wilderness areas may be so fragile that even low-impact forms of recreation can cause permanent impairment); Cordell et al., *Public Viewpoint*, *supra* note 26, at 27 (claiming one non-use value as preserving natural lands for future generations of nonhuman species); *Wyoming v. USDA*, 277 F. Supp. 2d 1197, 1234 (D. Wyo. 2003) (“The ultimate test for whether an area is ‘wilderness’ is the absence of human disturbance or activity.”); James R. Rasband, *The Rise of Urban Archipelagos in the American West: A New Reservation Policy?*, 31 ENVTL. L. 1, 40 (2001) (arguing that the public preference for preservation is not a consequence of the public’s concern for ecosystem integrity, but rather a result of the public’s desire to recreate on such lands, because if the public were really interested in preservation, recreational use would decrease).

would otherwise flow from wilderness.³⁷ In other words, if non-use or limited use of a wild land produces the positive externalities associated with, for example, “amenity” and “landscape” values, then overuse of that wild land will degrade or obliterate those values. Similarly, the atmosphere provides positive externalities to the general public (in the form of breathable air), but a polluter who uses this resource as a garbage dump imposes a negative externality on the larger group by interfering with the resource’s positive externality. Both polluters and wilderness users act in their own self-interest, and in doing so generate negative externalities that ruin the collective wealth of those who have an enormous stake in the exploited resource.³⁸ Furthermore, their overuse also spoils the resource in a different way for themselves.³⁹

These negative externalities have two fundamental causes. First, the costs of overuse are not borne by those responsible for the overuse, the users. Instead, the costs are placed upon the non-users.⁴⁰ If these negative externalities were internalized so that their costs were borne by those who caused them, then they might abate. As long as they continue to be externalized, however, there is no incentive for the users to alter the behavior that produces the costs in the first place. A second underlying reason for overuse lies in the nature of the product or resource that is being overexploited. One may perceive a wilderness area as being jointly “owned” by the users, in that their designated use excludes would-be users. Conversely, when viewed from the perspective of the users it appears to be an unowned resource.⁴¹ Such ill-defined property regimes serve as a fundamental cause of overexploitation.⁴² In the absence of well-defined and enforceable property rights, the wilderness market fails.⁴³

Figure 1 shows how a combination of externalized costs and the absence of property rights encourages excessive demand of the resource. In this figure, the vertical axis represents the theoretical price (P) of using a desired product—in this case, the wilderness resource. The horizontal axis is the quantity of people (Q) that will want or demand to use the product at a given price. The demand curve for the product is the downward sloping line

³⁷ Excessive numbers of wilderness users are inconsistent with the idea of a place where, in the language of the Act, “the imprint of man’s work [is] substantially unnoticeable [and there are] outstanding opportunities for solitude or a primitive and unconfined type of recreation.” 16 U.S.C. § 1131(c) (2000). Too many people interfere with the wilderness area’s ecosystem, and they devalue the landscape and amenity values that wilderness would otherwise have provided neighboring communities.

³⁸ Hardin, *supra* note 7, at 1244-45.

³⁹ *See id.* at 1245 (describing the overcrowding of national parks); Hsu, *supra* note 8, at 81-82 (suggesting that when an open-access resource is used by a group so that this excessive use harms not just non-users, but also the resource users, a “true” tragedy of the commons occurs).

⁴⁰ As will be seen in Part II.B *infra*, users bear a cost from the overuse, but it is a different kind of cost than the one experienced by non-users.

⁴¹ *See supra* note 19.

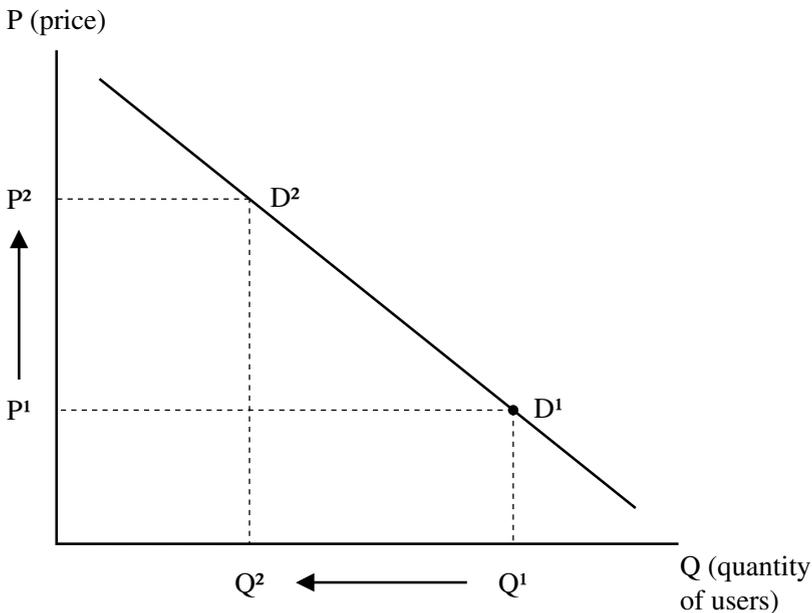
⁴² Hsu, *supra* note 8, at 81; COLE, *supra* note 19, at 5-6.

⁴³ *See* LAITOS ET AL., *supra* note 2, at 24 (“Markets fail for several reasons, including the absence of well-defined and enforceable property rights . . .”).

on the graph (D). The resource demanded is in a market where there is one property interest provided by the Wilderness Act: access to the resource excludes certain would-be users (e.g., mountain bikers), while including an unlimited number of specified users (e.g., hikers).

In this market, the costs of overuse are largely externalized, in that they are not borne by the users. As a result, for the users, the price of using the wilderness is very low (P^1). It is made up of the costs of transportation to the wilderness area, along with the costs of adequate hiking gear. At this relatively low price, the demand for wilderness is at point D^1 on the demand curve, yielding a Q^1 quantity of hikers. If there were a property regime where all costs at this level of use were internalized and reflected in the true price of overuse, the price for using the resource would rise (to P^2), there would be a shift along the demand curve (to D^2), and the quantity of users (Q^2) would fall.

Figure 1



There are three possible ways to correct the problem of large-group negative externalities associated with overexploitation of the wilderness resource. As market participants, users and non-users could theoretically negotiate a win-win solution among themselves. Such a solution would require users to reduce their use so that there is a reduction in the negative externalities that is acceptable to non-users. For example, non-users could bribe or pay users to stay at home, instead of freely accessing the wilderness. Of course, and as discussed further in Part III.A *infra*, such an outcome is

impossible due to astronomically high information,⁴⁴ transaction,⁴⁵ negotiating, and enforcement costs.⁴⁶

A second response relies on government intervention, which is the traditional way that this country tries to internalize externalities.⁴⁷ As will be discussed more fully in Part III below, the federal government's intervention to date has been both chaotic and unsuccessful. This Article suggests in Part IV.A a number of ways for traditional government command-and-control intervention to be more responsive and effective to the problem of negative externalities generated by overuse of wilderness. The federal government might restrict access (and thereby reduce demand) by instituting a permit, fee, or even an auction system.⁴⁸ Overcrowding could also be alleviated by increasing the supply of wilderness.⁴⁹

There is, however, a third approach which might better address the fundamental cause of negative externalities. Such spillover effects of overuse find their source in the absence of some property system that allocates rights of access and use.⁵⁰ As we discuss below in Part IV.B, the obverse of command-and-control government intervention, and perhaps the preferred approach, is for government to consider the formulation of private property rights in wilderness use.

B. *Too Many Users of the Wrong Kind of Resource*

More and more people are accessing, entering, and using the wilderness resource.⁵¹ In many cases, demand for designated wilderness lands exceeds public interest in any other type of government land.⁵² Unfortunately, the wilderness resource is particularly unsuited for this kind of popularity.

⁴⁴ For example, how would the parties be able to calculate the point at which the number of user-visits would begin creating negative externalities? One hiker in the wilderness does not spoil existence values, biodiversity, or amenity values, but 10,000 hikers might.

⁴⁵ For example, how would the users be able to discover which non-users had been adversely affected by the user's overuse?

⁴⁶ For example, how would any agreement between users and non-users be monitored? By whom? At what cost?

⁴⁷ See, for example, The Federal Clean Air Act, 42 U.S.C. §§ 7401 *et seq.* (2000), which, despite the innovative 1990 SO₂ emissions trading program, continues to be dominated by command-and-control regulations designed to internalize the negative externalities of air pollution. See COLE, *supra* note 19, at 72.

⁴⁸ See Meyer, *supra* note 4, at B3 (noting that because of "huge increases in [wilderness] use," a group urged the Forest Service to consider requiring permits for "overused areas"); John Krist, *So What if Park Fees Rise?*, DENVER POST, May 27, 2007, at E6 (discussing effect of entrance fees as a means to curb overuse of national parks).

⁴⁹ For example, in October 2006 Congress passed the Northern California Coastal Wild Heritage Wilderness Act, creating 264,000 acres of wilderness in Northern California. Pub. L. No. 109-362, 120 Stat. 2064 (2006) (codified at 16 U.S.C. § 1132 note).

⁵⁰ LAITOS ET AL., *supra* note 2, at 26.

⁵¹ See JOHN C. HENDEE & CHAD P. DAWSON, WILDERNESS MANAGEMENT: STEWARDSHIP AND PROTECTION OF RESOURCES AND VALUES 4 (3d ed. 2002); CORDELL ET AL., *supra* note 2, at 70 ("recreation use in [w]ilderness will grow"); Interview with Ralph Swain, *supra* note 4 ("there are consistent overflows in the parking lots of magnet wilderness areas").

⁵² See CORDELL ET AL., ANALYSIS, *supra* note 26, at 39.

Within open federal wilderness areas, too many users of this commons, acting consistently with the law and with rational self-interest, will inevitably produce a special kind of problem for this group. Moreover, the wilderness resource is also a congestible good, which means that when use reaches a certain level of crowding, these users will impose substantial external costs on one another. This consequence is exacerbated by the fact that the supply of the resource is not increasing commensurate with demand.

1. *What is the Wilderness Resource?*

a. *Wilderness as a True Tragedy of the Commons*

A federal wilderness area is a parcel of land owned by the federal government, managed by various federal agencies,⁵³ for two purposes: to advance on-the-ground benefits for a specific class of users,⁵⁴ and to protect the indirect benefits enjoyed by a group of non-users.⁵⁵ As such, federal wilderness lands are not really the “commons” that Hardin describes in his famous article on “the Tragedy of the Commons.” What he labels as a commons is really an “open-access” or non-ownership situation where the overexploited resource is not owned at all, such that no one has the right to exclude anyone.⁵⁶ Federal wilderness lands are, of course, “owned” by the United States, technically making them public or government property. However, the 1964 Wilderness Act creating this resource produced a *de facto* commons: the Act gave a group of users (those engaged in a “primitive . . . type of recreation”)⁵⁷ exclusive but unlimited access to the resource, while excluding all other would-be users (mountain bikers, all motorized vehicles, and commodity developers).⁵⁸ For designated users, wilderness lands appear to be a classic commons, where one group controls the resource and its use and another group is excluded.⁵⁹

What kind of resource is wilderness, then? It does not fit easily within the traditional categories used to describe property.⁶⁰ It has some features of

⁵³ Since wilderness lands are statutorily carved out of existing federal lands, the relevant management agency is the same agency that managed the lands before it was designated wilderness. So, for example, if a wilderness area came from a national forest, the Forest Service would manage it and the surrounding national forest.

⁵⁴ See 16 U.S.C. § 1131(c) (2000) (defining wilderness in part as an area that has “outstanding opportunities for solitude or a primitive and unconfined type of recreation”).

⁵⁵ See *supra* notes 21-36 and accompanying text.

⁵⁶ Hardin uses many examples to describe his tragedy of the commons, but among the most famous is overgrazing of an unowned pasture. Hardin, *supra* note 7, at 1244.

⁵⁷ 16 U.S.C. § 1131(c); see LAITOS ET AL., *supra* note 2, at 26 (citing Hardin, *supra* note 7).

⁵⁸ See 16 U.S.C. § 1133(c) (prohibiting temporary roads, motorized transport, structures, and installations); see also 36 C.F.R. § 261.18 (2007).

⁵⁹ See *supra* note 8 and accompanying text.

⁶⁰ The conventional typology of property regimes divides the universe of property into four categories: private, common, state, and non-property (i.e., an “open-access” resource with no defined group of users or owners, where no one has the right to exclude anyone else). DANIEL BROMLEY, ENVIRONMENT AND ECONOMY: PROPERTY RIGHTS AND PUBLIC POLICY 31

non-property and a commonly-owned good, and produces what has been termed a true tragedy of the commons.⁶¹ Garrett Hardin's tragedy of the commons involves resource users overexploiting a particular kind of resource where no one has the right to exclude anyone else. An example is overfishing the oceans.⁶² But wilderness creates a unique tragedy of the commons, in which users (1) overexploit a resource that has some features of open access non-property and a commons, and (2) act with rational self interest to impose mutual externalities upon one another.⁶³ Overuse of a resource characterizes a large-group negative externality; with a commons, there is often a true group tragedy, where the resource users detract from their own ability to exploit the resource.⁶⁴ Hardin's commons was a simple pasture open to unlimited grazing by all cattle ranchers, resulting in overgrazing of the pasture's forage. A wilderness commons suffering from overexploitation generates large-group negative externalities on non-user interests who value the wilderness in its pristine state, creates a resource popularity conflict borne by would-be users who by statute are excluded there, and causes designated users to inflict harm on other users when their numbers grow too high.

The true tragedy of wilderness thus involves more than just too many users engaged in an overexploitation of land now deemed to be wilderness. The wilderness tragedy has several elements. First, the users are in a mirroring situation where they impose mutual, uninternalized externalities upon each other.⁶⁵ If two hikers encounter each other deep within a wilderness area, where each is expecting solitude, each hiker's rightful use damages the other hiker's enjoyment of the resource. Second, if these two hikers are joined by hundreds, if not thousands, of additional hikers, then the resource itself becomes so degraded that the legally acceptable use itself has detracted from each user's own ability to continue to benefit from the resource.⁶⁶

Although the obvious solution to these two problems is for users to curtail their own use, the nature of the resource itself prevents this outcome. When law (the Wilderness Act) and context (an American boom in recreation)⁶⁷ create a free, unlimited market for a previously unvalued piece of nature (i.e., an undeveloped wild land), what follows is what some commen-

(1991). Some of the best minds who consider environmental goods, however, believe that the four traditional categories of property do not, and often cannot, accurately describe different ownership institutions. See COLE, *supra* note 19, at 9-11.

⁶¹ See Hsu, *supra* note 8.

⁶² See Dale D. Goble, *Three Cases/Four Tales: Commons, Capture, the Public Trust, and Property in Land*, 35 ENVTL. L. 807, 819 (2005) ("the problem arises from the conjunction of the market-driven goal of capturing a saleable surplus, and an open-access or common-pool regime in which anyone can capture.").

⁶³ Hsu, *supra* note 8, at 77.

⁶⁴ See generally Michael Taylor, *The Economics and Politics of Property Rights and Common Pool Resources*, 32 NAT. RESOURCES J. 633 (1992).

⁶⁵ Hsu, *supra* note 8, at 81.

⁶⁶ This feature of wilderness is in part due to the fact that it is a "congestible" good, discussed *infra* in Part II.B.1.b.

⁶⁷ See generally Laitos & Reiss, *supra* note 5.

tators have called a “rush” to exploit⁶⁸ a resource which is “rivalrous in consumption.”⁶⁹ For most resources in short supply, users of that resource have an interest in possessing it, or controlling it, or owning it, to the exclusion of others wishing to use it. A hiker in wilderness, by contrast, acquires an exclusive right to use, or consume, that resource not by owning an interest in it but by reducing it to the hiker’s control through the use itself. This means that there is every incentive to use the resource, irrespective of the fact that it is that use which generates mutual, uninternalized externalities. Conversely, even if a user recognizes these mutual, uninternalized externalities that users impose on each other, the user will not stop its use, because other rivalrous users will simply replace that user. The users therefore cannot keep from spoiling the wilderness resource for themselves.

As with large-group negative externalities, the root cause of a true tragedy of the commons lies in ill-defined, or missing, property regimes.⁷⁰ For the wilderness commons, for example, designated users do not have a property interest in the commons which might enable them to exclude other users in order to reduce the extent of the tragedy of overuse. In the absence of some property system, one solution to a true tragedy of the commons is user cooperation.⁷¹ However, cooperation can occur only if the users can afford, and can overcome, the attendant transaction costs.⁷² Such costs can be enormous, and they tend to rise exponentially with the number of resource users.⁷³ In addition to transaction costs, another obstacle to cooperation lies in the internal psychological make-up of users of a commons. Behavioral studies suggest that such users will not willingly surrender a current right (in the case of wilderness, the right of access) in exchange for future benefit, even if that future benefit (e.g., a less-crowded wilderness experience) yields a high potential benefit.⁷⁴ It seems that users and exploiters of a commons discount future gains compared to current losses.⁷⁵

It is obvious that something more than user cooperation needs to be done to protect wilderness users from themselves, and to protect their long-term access to this resource. Without such intervention, which must in some way limit their short-term access, users will persist in making choices that

⁶⁸ Goble, *supra* note 62, at 814-17 (describing the nineteenth-century rush to kill buffalo, sea mink, and passenger pigeons); Hsu, *supra* note 8, at 94 (describing the “race to exploit” when there is a true tragedy of the commons); JAMES WILLARD HURST, *LAW AND THE CONDITIONS OF FREEDOM IN THE NINETEENTH-CENTURY UNITED STATES* 7 (1956).

⁶⁹ Hsu, *supra* note 8, at 82.

⁷⁰ *See id.* at 81; COLE, *supra* note 19, at 6. Garrett Hardin’s main point was that in the absence of some ownership control over access to a common resource, rational self-interest would inexorably lead users to unsustainably overexploit the resource. Hardin, *supra* note 7, at 1244.

⁷¹ *See* ELINOR OSTROM, *GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION* 15-17 (1990).

⁷² *See* Hsu, *supra* note 8, at 87.

⁷³ *See, e.g.,* Demsetz, *supra* note 16, at 354; OSTROM, *supra* note 71, at 88-90, 198-206.

⁷⁴ *See* Barton H. Thompson, Jr., *Tragically Difficult: The Obstacles to Governing the Commons*, 30 ENVTL. L. 241, 256 (2000) (discussing environmental tragedies involving over-fishing and over-drafting of groundwater).

⁷⁵ *See id.* at 257; Hsu, *supra* note 8, at 126.

harm both the larger group of non-users and themselves.⁷⁶ Any successful intervention will have to confer different benefits upon the large group of non-users than upon the users. Non-users will want the positive externalities associated with wilderness restored,⁷⁷ and users will want a reduction or elimination of the negative externalities imposed on each other.

b. Wilderness as a Congestible Good

While a wilderness area in some ways is a free and propertyless commons, it is also a special kind of resource called a “congestible good.” Such goods are capable of being shared by users of the good at low marginal cost until a certain congestion point is reached. When that happens, continued joint consumption (or use) of the good begins to produce substantial external costs on the users.⁷⁸ Beyond the congestion point the users experience marginal social costs that are quite different than the marginal private costs incurred before the point. Such social costs, in theory, have a dampening effect on the demand for the resource.⁷⁹

In the case of a wilderness visited by ten hikers per day, the resource can accommodate this level of use at low marginal private cost—the cost of providing a wilderness experience to the first hiker where there is “outstanding opportunity for solitude or a primitive . . . type of recreation”⁸⁰ is approximately the same as the cost of providing that same experience to the tenth hiker. But when wilderness visitation reaches the congestion point, for example when there are hundreds of hikers simultaneously sharing a trail or a mountain summit, the slope of the marginal *social* cost curve suddenly deviates from the marginal *private* cost curve, becoming much steeper. At the congestion point, individual hikers start to impose substantial external costs on one another.⁸¹

Eventually, escalating social costs post-congestion point should reduce demand for wilderness. However, as noted above, two features of the wilderness resource tend to stimulate demand even beyond the congestion point: (1) the resource itself is rivalrous in consumption;⁸² and (2) its users may be unwilling to forego the wilderness experience knowing that others will still be able to visit.⁸³

⁷⁶ See Hardin, *supra* note 7, at 1244.

⁷⁷ See *supra* notes 21-35 and accompanying text.

⁷⁸ See David W. Barnes, *Enforcing Property Rights: Extending Property Rights Theory to Congestible and Environmental Goods*, 10 B.C. ENVTL. AFF. L. REV. 583, 588 (1982-83).

⁷⁹ LAITOS ET AL., *supra* note 2, at 30-31.

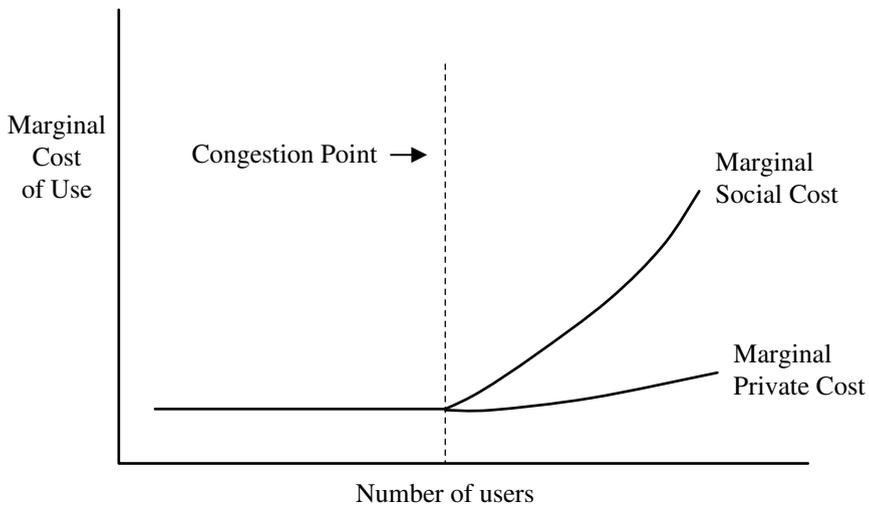
⁸⁰ 16 U.S.C. § 1131(c) (2000).

⁸¹ Cf. Robert P. Inman, *A Generalized Congestion Function For Highway Travel*, 5 J. URBAN ECON. 21 (1978).

⁸² See Hsu, *supra* note 8, at 82.

⁸³ See Thompson, *supra* note 74, at 256; cf. Hsu, *supra* note 8, at 127. *But see* Krist, *supra* note 48, at E6 (stating that a contributing factor in the decrease of use of NPS lands may be overcrowding at a popular site). Users of wilderness may respond differently to overcrowding than users of national parks. Typically, there is no fee associated with accessing a designated wilderness, while many if not most national parks condition access on fee payment. National parks are available to the public by automobile, while wilderness areas are reached only on

Figure 2



The supply of wilderness also affects its congestibility. For example, ten hikers may simultaneously use a 10,000 acre wilderness without ever encountering one another or diminishing the benefit of each hiker's experience. This is because the wilderness still has "jointness," which means that a given number of consumers may use a given number of units at the same time, without diminishing the pleasure of each other's experience. Conversely, jointness would disappear and congestibility would appear if 1,000 hikers were to use this 10,000 acre wilderness parcel at the same time. When such a congestion point is reached, the only way for the public good to regain jointness, and to maintain the benefits received by each consumer, is to increase the supply of the public good being consumed.⁸⁴ In the case of the thousand simultaneous wilderness hikers, congestion could be avoided, and the average benefits from their use of the wilderness retained, if there were an increase in the size of the wilderness area (say, from 10,000 to 1,000,000 acres).⁸⁵

A resource cost curve (Figure 3) can demonstrate the number of acres of wilderness required to provide a given level of wilderness-benefits experience per hiker for a varying number of simultaneous hikers. The curve is considered a "cost" curve because it demonstrates that, in order to maintain an acceptable wilderness experience per hiker, the supply of wilderness land

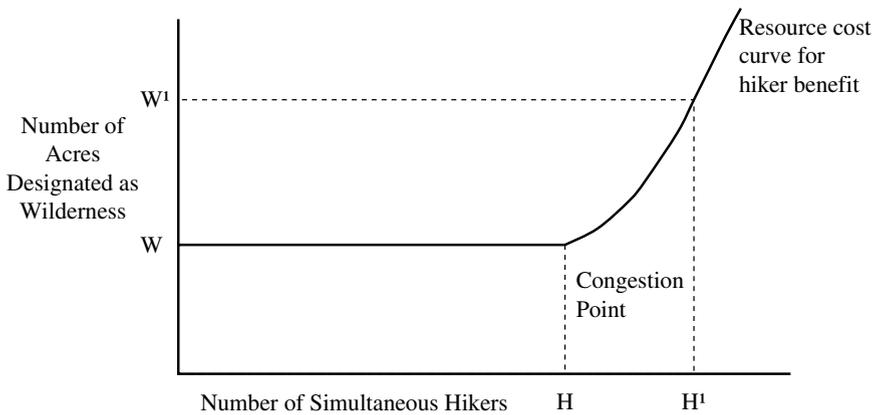
foot or horseback. The would-be users of a national park may be deterred from driving into a national park where there are too many visitors in automobiles there already, especially if a fee is required for this unpleasant experience. By contrast, a wilderness hiker may be unwilling to abandon the free wilderness experience, knowing that one hiker's absence would only enhance the experience of those hikers that did walk into the wilderness.

⁸⁴ See generally Laitos & Carr, *supra* note 1, at 186-88.

⁸⁵ See J. G. Head, *Public Goods and Public Policy*, 17 PUB. FIN. 197, 201-02 (1962). The increase would depend on the jointness characteristics of the wilderness resource.

must increase. The horizontal axis shows the number of hikers simultaneously using a wilderness area. The vertical axis represents the number of acres of wilderness needed to maintain a level of recreational benefit per hiker within the wilderness. A fixed supply of wilderness can supply that level of benefit until the congestion point.⁸⁶ At that point, the wilderness resource no longer has jointness, and the only way for jointness to reappear is if the supply of the resource increases. The quantity of new wilderness necessary to achieve this result (the shape of the resource cost curve after the congestion point) depends upon the jointness characteristics of the public good. In other words, with increasing demand, how many acres of roadless, undeveloped, wilderness lands are necessary to provide a user with an acceptable wilderness experience?⁸⁷

Figure 3



2. *The Problem of Increasing Demand and Fixed Supply*

A combination of true commons tragedies and congestibility create a condition where the very act of using (but not necessarily experiencing) wilderness consistent with the law produces harm to the users themselves. The

⁸⁶ See *supra* note 81 and accompanying text.

⁸⁷ See Barnes, *supra* note 78, at 591-94. Although an evaluation of the jointness characteristics of a wilderness area is outside the scope of this Article, it is interesting to note a psychological phenomenon that might affect wilderness jointness. Apparently, wilderness areas are becoming so crowded that visitors are beginning to “adjust to suboptimal conditions.” Interview with Ralph Swain, *supra* note 4. Even though these areas “feel less like wilderness than in the past” to users, many still visit because “the area is so beautiful [they] come in spite of large numbers of people.” COLE, *supra* note 19, at 28. On the other hand, recreational visits to national parks have steadily fallen since 1997, perhaps suggesting that park visitors have not adapted to overcrowding, and instead are staying away. Mary Cadden & Marcy W. Mullins, *Chart*, USA TODAY, July 10, 2007, at D1 (showing visitation decreasing from a high of 69 million visits in 1997 to 60 million in 2006).

relevant market for wilderness could help to correct this condition if demand were diminishing (to ameliorate congestion), or supply were increasing (to further jointness). Unfortunately neither is occurring.

a. An Unchecked Demand

The wilderness resource is depleted by users who flock to these areas to find solitude and primitive or low-impact forms of recreation. However, the number of people gravitating towards wilderness lands is ever increasing,⁸⁸ diminishing the contemplative qualities sought when the land was designated as wilderness and causing a true tragedy of the commons.⁸⁹ Increasing visitor use results in “crowding, visitor conflicts, loss of solitude . . . loss of vegetative ground cover at campsites, and soil erosion on trails.”⁹⁰ Wilderness areas must cope with the pressures caused by the widening scope of human activities that utilize this resource.⁹¹

There are many factors that contribute to the popularity, consumption, and congestibility of wilderness. Increasing population, technology that makes wilderness adventure easier and more comfortable, and home-building closer to protected areas help to encourage wilderness use.⁹² Additionally, different ethnic groups are discovering the outdoors, which puts further demand on wilderness consumption.⁹³ But by far the greatest single contributing factor to wilderness popularity lies in unprecedented interest and growth in outdoor recreation.

Recreation participation has increased more in the last century than what any model predicted.⁹⁴ Forest Service lands designated as wilderness

⁸⁸ Nagle, *supra* note 28, at 996 (citing Wilderness.net, The National Wilderness Preservation System: Threats to Wilderness, <http://www.wilderness.net/index.cfm?fuse=NWPS&sec=Threats> (last visited Apr. 25, 2008) (on file with the Harvard Environmental Law Review) (in 2004, 12 million people visited wilderness areas)); Berger, *supra* note 17, at E1 (arguing that, with more people visiting national forests to participate in a larger variety of activities, the Forest Service must come to grips with a new and growing demand for recreation); Larry Copeland, *More Hikers Wind Up Lost*, USA TODAY, Sept. 4, 2007, at A3.

⁸⁹ Linden, *supra* note 4, at 8 (explaining the irony surrounding the fact that it is the beauty of wild lands which attracts investment, but the surging public interest leaves some areas in danger of being “loved to death”).

⁹⁰ John C. Hendee & Chad P. Dawson, *Stewardship to Address the Threats to Wilderness Resources and Values*, INT’L J. WILDERNESS, Dec. 2001, at 4, 4 [hereinafter Hendee & Dawson, *Stewardship*]; John C. Hendee & Chad P. Dawson, *America’s Wilderness Must Be Carefully Managed*, in HOW SHOULD AMERICA’S WILDERNESS BE MANAGED? 12-13 (Stuart A. Kallen ed., 2005) [hereinafter Hendee & Dawson, *America’s Wilderness*]; Scott Willoughby, *A Quest for Quiet*, DENVER POST, May 9, 2007, at D10 (reporting that outdoor enthusiasts in Colorado seeking solitude and quiet are increasingly being forced to the state’s highest elevation, since there are so many people everywhere else).

⁹¹ See Nagle, *supra* note 28, at 995.

⁹² Hendee & Dawson, *America’s Wilderness*, *supra* note 90, at 16-17 (discussing the impact of advanced technology on wilderness use and the effect that encroaching roads from urban sprawl is having on access to wilderness).

⁹³ See Cordell et al., *Public Viewpoint*, *supra* note 26, at 29 (discussing the impact of various demographic groups on wilderness demand).

⁹⁴ CORDELL, 21ST CENTURY, *supra* note 4, at 17; see Ira Spring, “If We Lock People Out, Who Will Fight to Save Wilderness?,” in *The New Forest Service Wilderness Recreation Strat-*

are the most popular wilderness lands on which to recreate.⁹⁵ Recreational growth in areas designated as wilderness by the Forest Service has far exceeded even recreation taking place on non-wilderness lands within the National Forest System.⁹⁶ In 2004, 82% of recreation use occurring on wilderness lands was taking place on lands controlled by the Forest Service,⁹⁷ up from about 75% in the 1990s.⁹⁸

There are several reasons for the spike in recreational wilderness use. New outdoor recreation amenities⁹⁹ invite less-experienced outdoor users to wilderness by making it easier for them to enjoy wild lands¹⁰⁰ and encourage experienced recreationists to explore extreme places during more days of the year.¹⁰¹ Activities like remote back-country camping and hiking are no longer just reserved for an extreme, elite group of outdoor enthusiasts.¹⁰² People increasingly wish to flee urban settings and traffic gridlock, seeking the solitude that a wilderness experience promises.¹⁰³ Adding to the demand problem is the fact that low-impact forms of recreation, like group hiking, have become commercialized, encouraging mass participation in wilderness areas.¹⁰⁴

The growth of resorts and second-home communities that place people in close proximity to wilderness areas is another contributing factor.¹⁰⁵ Such developments provide easier access to areas that used to be nearly inaccessible, causing wilderness to include backyards and not just backcountry.¹⁰⁶ However, while making wilderness more accessible, encroaching urban de-

egy, INT'L J. WILDERNESS, April 2001, at 17, 18 (describing the increase in hikers on the Snow Lake trail in Washington State from 800 per year in the 1950s to 20,000 per year in 2001 and the increase in climbers of Mount Rainier (which is protected by the Washington Wilderness Act) from 300 per year in the 1960s to often 300 per day after 2000).

⁹⁵ CORDELL ET AL., ANALYSIS, *supra* note 26, at 39.

⁹⁶ *Id.*

⁹⁷ Liz Close, *Wilderness Recreation: Use or Abuse of an Enduring Resource?*, 25 J. LAND RESOURCES & ENVTL. L. 41, 41 (2005).

⁹⁸ See CORDELL ET AL., ANALYSIS, *supra* note 26, at 39.

⁹⁹ CORDELL, 21ST CENTURY, *supra* note 4, at 17-19 (describing the Internet, global positioning satellite ("GPS") receivers, portable water filtrations systems, all-weather gear, and amenity based-campers as developments that aid recreationists in today's world).

¹⁰⁰ Hendee & Dawson, *America's Wilderness*, *supra* note 90, at 16 (explaining that these technological innovations also provide their users with a false sense of security and contribute to irresponsible behavior because people think that help in an emergency is just a cell phone call away).

¹⁰¹ *Id.*

¹⁰² Jack Cox, *Taking the Wild Out of Wilderness*, DENVER POST, July 12, 2004, at F5.

¹⁰³ *Id.* For a study on solitude and wilderness, see Troy E. Hall, *Hikers' Perspectives on Solitude and Wilderness*, INT'L J. WILDERNESS, Aug. 2001, at 20.

¹⁰⁴ WELLMAN & PROBST, *supra* note 33, at 16 (stating that advocates of mass recreation "call[] for the development of roads, lodging, campgrounds, picnic areas, sports facilities, and other developments that will reduce the inconvenience of 'roughing it' and entice people from all walks of life to visit natural areas").

¹⁰⁵ Cox, *supra* note 102, at F5.

¹⁰⁶ Garry Oye, "A New Wilderness Recreation Strategy for National Forest Wilderness," *In The New Forest Service Wilderness Recreation Strategy*, INT'L J. WILDERNESS, April 2001, at 13, 14.

velopment on these areas dilutes the wilderness experience.¹⁰⁷ The sights and sounds that go along with urbanization detract from the remoteness people seek in entering wild lands. Additionally, some fear that as more urbanized users enter wilderness they may be satisfied with an overcrowded environment because they have not experienced pristine wilderness areas, and as a result, they will develop a tolerance for overuse and become oblivious to its detriments.¹⁰⁸ Indeed, some fear that wilderness areas may eventually be divided into two categories—urban wilderness and remote wilderness, each serving its own purpose.¹⁰⁹

Of course, population growth is the biggest driver of increased recreation participation in the United States.¹¹⁰ As the country's population inexorably rises, so too will wilderness use. Demographic make-up greatly influences an individual's interest in wilderness. Specifically, who is recreating, as well as the increase in recreation participation, is tied to age,¹¹¹ income,¹¹² race,¹¹³ gender,¹¹⁴ and disability.¹¹⁵

¹⁰⁷ Hendee & Dawson, *Stewardship*, *supra* note 90, at 8-9; see Bass & Beamish, *supra* note 17, at A6 (reporting that since 1990, more than 1.3 million people have moved into counties surrounding six major parks including Yellowstone, Glacier and others diminishing the parks' natural qualities).

¹⁰⁸ Hendee & Dawson, *America's Wilderness*, *supra* note 90, at 17.

¹⁰⁹ E-mail from Vera Smith, Conservation Director, Colorado Mountain Club (July 14, 2004) (on file with the Harvard Environmental Law Review).

¹¹⁰ CORDELL, 21ST CENTURY, *supra* note 4, at 25-26 (noting that projections based on the 1990 U.S. census report indicate that by 2020 the population will be at 325 million, by 2050 almost 404 million, by 2075 nearly 481 million, and by 2100, 571 million).

¹¹¹ CORDELL ET AL., ANALYSIS, *supra* note 26, at 29-30. In the past, the older people became, the less they participated in more demanding forms of outdoor recreation. But as the importance of health and fitness continues to grow, the population may remain active in hiking, camping and other forms of recreation permitted in wilderness for a longer period of time. *See id.*

¹¹² *Id.* at 30. Typically middle-income groups utilize public lands for recreation opportunities. This is because higher income individuals can afford more expensive types of recreation, and the economically disadvantaged lack certain recreation opportunities. As such, a fluctuating economy has a direct impact on the number of recreationists in wilderness. The number correlates with the change in the numbers of people in low, middle, and upper classes of income. *See id.*

¹¹³ *Id.* African Americans utilize the wilderness resource and the non-urban activities it invites less than other groups as participation in camping, day-hiking, and wildlife observation is mainly enjoyed by white people. Additionally, non-whites tend to recreate closer to home and stay for shorter visits than whites. It is undetermined whether it is cultural norms or other influences such as income, education, and transportation that affect the racial difference in outdoor recreation participation. If it is cultural norms, then as minorities grow in numbers, different types of recreation may gain popularity, but forms typically enjoyed in the wilderness will still be dominated by whites. If it is these other influences, then attempts to promote racially equal outdoor recreation opportunities, by, for example, raising awareness of such activities, may change the status quo with regard to whites dominating wilderness use. *See id.*

¹¹⁴ *Id.* Women tend both to participate in less strenuous activities and to stop participating in outdoor recreation earlier in life than men. As a result, men probably venture to the most extreme and remote wilderness areas in greater numbers than women, and also have a longer lasting impact on wilderness areas because they spend more years of their lives recreating in these places. *See id.*

¹¹⁵ *Id.* at 31. In the past, disabled individuals participated less in public lands recreation, not only because of physical barriers, but as a result of lack of information about recreation opportunities and fear of the unknown. Now, however, with changing attitudes about the ca-

Ironically, even though the general public is in favor of designating more wilderness to satisfy growing demand,¹¹⁶ increasing wilderness designation actually seems to fuel more demand. There appears to be a direct correlation between the supply of wilderness and the amount of wilderness use. The increasing trend in recreation visits to Forest Service wilderness areas parallels wilderness designation,¹¹⁷ and additional wilderness generally shifts the amount of use upward.¹¹⁸ This increase may occur for two reasons: (1) newly designated areas are closer to population centers, encouraging previous non-users to visit wilderness areas for the first time, and (2) newly designated areas result in existing users making additional trips to visit wilderness.¹¹⁹ In other words, wilderness designation may create a “‘neon sign’ effect, drawing attention and thousands of new users to newly designated areas.”¹²⁰ If not a neon sign, wilderness designation serves as a “trade-

pabilities of disabled people and technology that allows them greater mobility, more disabled people will probably be able to recreate on public lands, including in wilderness. *See id*; *see also* THE WILDERNESS SOCIETY, *THE WILDERNESS ACT HANDBOOK, 40TH ANNIVERSARY ED.* 63 (2004) (noting that a 1992 report required by the Americans with Disabilities Act determined that disabled people visit wilderness for the same reasons as people without disabilities and 76% of disabled people surveyed do not believe that the constraint on mechanized use in wilderness diminishes their ability to enjoy these areas).

¹¹⁶ CAMPAIGN FOR AMERICA’S WILDERNESS, *PEOPLE PROTECTING WILDERNESS FOR PEOPLE* 12, 13 (2003) (finding that (1) 69.8% of people are in favor of protecting wilderness in their own state, while only 12.4% are opposed; (2) among non-metropolitan residents, 43.5% are in favor of protecting more wilderness, while only 7.4% think that too much has already been protected and 34% stating that the amount is about right; and (3) 54% of Republicans are in favor of more wilderness designation, 66% of independents, and 75% of Democrats); *see also* CAMPAIGN FOR AMERICA’S WILDERNESS, *A MANDATE TO PROTECT AMERICA’S WILDERNESS* 1, fig. 1 (2003) (reporting on a Los Angeles Times poll showing that 91% of Americans view preserving wilderness as personally important, with 51% viewing it as extremely important); *id.* at 8, fig. 10 (48% of Americans feel that not enough wilderness has been protected); Jon Margolis, Editorial, *Do You Want More Wilderness? Good Luck* HIGH COUNTRY NEWS, Sept. 27, 1999, *reprinted in* A PEOPLE’S HISTORY OF WILDERNESS, *supra* note 4, at 378, 380-81 (“As several polls show, most people . . . favor putting more land into wilderness.”).

¹¹⁷ Loomis et al., *supra* note 28, at 365. Wilderness use increased by more than 9.4% annually between 1965 and 1974, and about 10% per year between 1975 and 1985. In 1985, when the supply of wilderness leveled off, growth in wilderness use began to decline, rising at a rate of roughly 8.4% annually by 1993. Similarly on NPS lands, although designations in 1978 did not seem to impact use, after 1983, use increased with each new NPS wilderness designation. Use would then decrease slightly and level off or grow slowly until the next designation. However, wilderness use trends are difficult to measure accurately because methods for collecting data in non-permit areas change over the years and the quality of the data-collection effort is dependent upon funding and staffing devoted to the task, among other reasons. *Id.*

¹¹⁸ *Id.* at 373. In Forest Service wilderness areas, when the amount of acreage is held constant at current levels, the increase in use is projected to be 0.5% per year during the next half century in the Northeast and Rocky Mountain regions, for a cumulative increase of 24% and 27% respectively. In the Southeast and Pacific Coast regions the increase is projected to be just slightly less than 1% per year, a cumulative increase of 40% and 45% respectively.

¹¹⁹ John B. Loomis, *Do Additional Designations of Wilderness Result in Increases in Recreation Use?*, 12 SOC’Y & NAT. RESOURCES 481, 490 (1999).

¹²⁰ *Id.* at 481.

mark,” promising a certain level of quality for those who choose to visit and use these places.¹²¹

b. A Limited Supply

Wilderness is a resource, and as with any resource experiencing high demand, one way to alleviate the strain on the resource is to increase supply. However, constraints on increasing the supply of wilderness are much greater than with other resources. The amount of land that may be considered wilderness is basically a fixed constant, and not all of these wild lands are subject to existing or even future wilderness designation.¹²² This fact, coupled with heightened demand on existing wilderness, causes some commentators to conclude that “wilderness lands are disappearing.”¹²³

Wild lands make up only 0.9% of the land in the contiguous forty-eight states.¹²⁴ As officially designated wilderness becomes over-consumed, those who have the ability to create more supply to accommodate the demand (Congress and the President) are not actively engaging in this responsibility.¹²⁵ There has been major slowdown of wilderness designation in the last several decades;¹²⁶ moreover, in the past, designations were on a much larger scale.¹²⁷ Also, America’s energy needs serve as a competing use of potential

¹²¹ *Id.* at 490. According to Loomis, such a designation conveys at least three pieces of information to recreation users: “First, that the area is relatively pristine and provides outstanding opportunities for primitive recreation. Second . . . user[s] will encounter few incompatible uses such as off-road vehicles, mountain bikes” or commodity developers such as clear-cutting loggers. “Third, the areas will be managed to provide solitude.” *Id.*

¹²² See Bill Marsh, *Where the Human Footprint is Lightest*, N.Y. TIMES, July 31, 2005, § 4, at 14.

¹²³ Nagle, *supra* note 28, at 994.

¹²⁴ Marsh, *supra* note 122, at 14; see also Linden, *supra* note 4, at 6 (discussing the growing scarcity of wilderness and the fact that the lower 48 states have less than 1% of their original ancient forests intact).

¹²⁵ See Nagle, *supra* note 28, at 962 (stating that “[t]he creation of new wilderness is dependent upon further congressional legislation” and providing examples of notable wilderness designations, but also noting that “many observers object to the slow pace of wilderness designations”).

¹²⁶ John D. Leshy, *Contemporary Politics of Wilderness Preservation*, 25 J. LAND RESOURCES & ENVTL. L. 1, 5 (2005) (noting that, with respect to the BLM, between 1968 and 1980, Congress designated wilderness in nine of the eleven western states; in 1983 and 1984, Congress again designated wilderness in nine states; in only five states between 1987 and 1992; and in 1993 and 1994, only three states contained newly designated areas).

¹²⁷ In the Eastern Wilderness Act of 1975 Congress designated over 200 million acres in the eastern United States. 16 U.S.C. § 1132 (2000). In 1994, Congress designated 7.5 million acres of wilderness pursuant to the California Desert Protection Act of 1994, Pub. L. No. 103-433, 108 Stat. 4471 (codified at 16 U.S.C. § 1132 note). Nagle, *supra* note 28, at 962. In 2002, Congress only added approximately 500,000 acres to the wilderness system. See AMERICAN WILDERNESS COALITION, WILD CARD: WILDERNESS REPORT CARD 37 (2004), available at <http://www.americanwilderness.org/wildcard/2004/index.html> (describing the four statutes enacted by the 107th Congress establishing new wilderness areas). In designations that occurred in 2005, the 109th Congress added a mere 11,183 acres in New Mexico, Ojito Wilderness Act of 2005, Pub. L. No. 108-94, 119 Stat. 2106 (codified at 16 U.S.C.A. § 1132 note (2008)), and 10,000 acres in Puerto Rico, Caribbean National Forest Act of 2005, Pub. L. No. 109-118, 119 Stat. 2527 (codified at 16 U.S.C.A. § 1132 note (2008)).

wilderness areas.¹²⁸ When energy commodities are deemed more politically valuable than wilderness, the wild lands containing the energy supplies will not be protected by a wilderness designation.¹²⁹ Environmental groups have attempted to use the court system and their own political leverage to stop energy development from encroaching on potential wilderness sites.¹³⁰

C. *Would-Be Users and Resource Popularity Conflicts*

In addition to the struggle between a growing demand for recreation use and a nearly fixed supply of the wilderness resource, another conflict exists: What uses should Congress and administrative agencies permit in wilderness areas to protect this resource from increased recreational demand? There are at least three competing groups who make conflicting claims to wild lands. First, “pure preservationists” believe that some wilderness should remain completely untouched, even by low-impact recreationists.¹³¹ Second, the Wilderness Act itself legitimates wilderness use by low-impact, non-motorized recreationists like hikers.¹³² Third, would-be users want the Act to allow higher impact forms of recreation, such as mountain biking, which traditionally are not permitted and are thereby excluded.¹³³

Where varying incompatible groups want to use an area in different ways, and the law allows one group and excludes another, a resource popularity conflict arises. This phenomenon occurs because the Wilderness Act allows some forms of recreation, such as hiking, while prohibiting other forms, such as mountain biking or off-road vehicle (“ORV”) use. Nor does

¹²⁸ Ann Morgan, *BLM Balance Needed*, DENVER POST, May 20, 2007, at E1 (discussing how oil and gas development is overshadowing other uses of public lands, such as recreation, and land managers have less flexibility to avoid issuing oil and gas leases in sensitive areas with wilderness qualities).

¹²⁹ Bobby Magill, *Been Down that Road Before*, DAILY SENTINEL (Grand Junction, Colo.), Mar. 18, 2007, at A1 (discussing how oil and gas development is one cause of the deteriorating air quality in Canyonlands and Arches National Parks); see also Dave Curtin, *Protest Filed over BLM Oil, Gas Lease Auction*, DENVER POST, July 27, 2006, at B3 (regarding a protest over a 180,000 acre oil and gas lease auction by the BLM that included 20,000 roadless acres proposed for wilderness protection, a sale that threatens watersheds, unspoiled scenic areas, and wildlife habitat). See generally Nancy Lofholm & Kim McGuire, *Boom Life*, DENVER POST, July 2, 2006, at A1 (discussing the impacts of the energy boom in the west).

¹³⁰ See, e.g., Bobby Magill, *Potential Tar Sands Project Sparks Suit*, DAILY SENTINEL (Grand Junction, Colo.), Mar. 15, 2007, at A1 (discussing a lawsuit initiated by environmental groups accusing the BLM of violating federal laws in order to allow tar sands development in Utah national parks and recreation areas); Nancy Lofholm, *Last-Ditch Bid to Halt Roan Drilling*, DENVER POST, Feb. 23, 2007, at B3 (discussing an eleventh hour appeal to Congress by environmental groups who want to prevent drilling at the Roan Plateau in Colorado which has important wilderness and wildlife and recreational purposes).

¹³¹ Laitos & Reiss, *supra* note 5, at 1099.

¹³² 16 U.S.C. § 1131(c) (2000).

¹³³ Theodore J. Stroll, *Congress's Intent in Banning Mechanical Transport in the Wilderness Act of 1964*, 12 PENN ST. ENVTL. L. REV. 459, 461 (2004). Consider also the growing popularity of helicopter skiing on public lands. The skiing is consistent with the Wilderness Act, but the helicopter, even if it never lands, may be inconsistent with the Act. Cf. Citizens' Comm. to Save Our Canyons v. Krueger, 513 F.3d 1169 (10th Cir. 2008).

the Act protect the lands under its jurisdiction from all human access, which would have been necessary to preserve pure non-use values. The Act's clear demarcation between what is allowed, disallowed, and not prohibited should mean that most on-the-ground conflicts disappear; however, the resulting animosity felt by excluded groups sometimes results in two unfortunate realities. First, excluded groups do not offer political support for additional wilderness designations and protections. Outspoken opposition to new wilderness by political lobbies of would-be users, such as mountain bikers or ORV users, contributes to the problem of non-expanding supply. Second, excluded groups may refuse to be excluded, despite the Act's many prohibitions against their presence.

The central resource popularity conflict is between designated uses (e.g., hiking), and prohibited would-be uses (e.g., mountain bikes and motorized vehicles). There are three reasons why this particular conflict endures.

1. *On-the-Ground Conflicts*

Despite the Wilderness Act's exclusion of would-be users, on-the-ground conflicts between users and would-be users still occur when recreationists who are not permitted in wilderness nonetheless enter into areas where their use is prohibited. ORV users and operators of snowmobiles, for example, may either inadvertently or purposefully trespass into the wilderness when they are traversing cross-country.¹³⁴ In the most remote areas, such unauthorized motorized use goes unnoticed by land managers, and has a detrimental effect on users like hikers seeking solitude and the non-users who benefit from non-degraded wilderness values.¹³⁵ These effects are magnified when federal land managers legally use motorized vehicles in wilderness for special projects, such as patrols or wildlife management activities; such invasions affect how visitors view the wilderness context, giving them the impression that motorized use is acceptable.¹³⁶

¹³⁴ Hendee & Dawson, *Stewardship*, *supra* note 90, at 8; Margolis, *supra* note 116, at 379 (“[I]ndividual riders increasingly ignore wilderness boundaries.”); see *Wilderness Soc’y v. Norton*, 434 F.3d 584, 591-92 (D.C. Cir. 2006) (challenging the NPS’s failure to comply with its wilderness responsibilities and create maps and clear boundaries marking wilderness areas that are off limits to ORVs).

¹³⁵ See generally Keith Easthouse, *Off-Road Vehicles Are Degrading the Wilderness, in HOW SHOULD AMERICA’S WILDERNESS BE MANAGED?*, *supra* note 90, at 85 (discussing the increase in motorized recreational vehicle use and its damaging effect on wilderness). See also Berger, *supra* note 17, at E2 (“The incredible proliferation of illegal and social [off highway vehicle trails], accidentally or purposefully cut into national forest lands, is creating intense soil erosion, invasive species and wildlife harassment.”); Associated Press, *Locals Claim ATVs Tear Up Private, Federal Land*, DENVER POST, Apr. 2, 2007, at B3 (discussing issue of ORVs traveling off of designated trails and onto areas of national forest service lands where they are banned).

¹³⁶ Hendee & Dawson, *Stewardship*, *supra* note 90, at 8 (explaining that land managers are allowed under the Wilderness Act to use motorized vehicles and mechanized equipment when it is the minimum method for accomplishing a legitimate wilderness purpose, and encouraging wilderness managers and researchers to use primitive tools to achieve their tasks in order to send a message that the use of such tools is feasible). Sometimes wilderness manage-

2. Interpretive Problems with the Act

Although it appears to be specific on its face, the Wilderness Act tends to invite various interpretations with regards to what uses are protected and prohibited.¹³⁷ This ambiguity helps create resource popularity conflicts because it allows higher impact recreationists to argue their way into the wilderness, claiming that their forms of recreation are permitted under the Act.

In passing the Wilderness Act, Congress wanted to preserve some land areas from human occupation, ensuring that some areas would forever remain in their natural condition.¹³⁸ An additional purpose was to provide a place to enjoy “primitive” forms of recreation.¹³⁹ To achieve this double objective, the Act mandates recreation opportunities in wilderness areas, but prohibits “temporary road[s], use of motor vehicles, motorized equipment or motorboats, . . . landing of aircraft, . . . other form[s] of mechanical transport, and . . . structure[s] or installation[s].”¹⁴⁰ The Act thus allows low-impact forms of recreation such as hiking, horseback riding, camping, and wildlife watching.

Despite this seemingly straightforward dichotomy of permitted and prohibited uses, there are differing views about what the Wilderness Act should be protecting, or what Congress really sought to prohibit with its passage. Cases such as *Wilderness Society v. U.S. Fish & Wildlife Service*,¹⁴¹ where the Ninth Circuit held that the Wilderness Act prohibited the artificial addition of sockeye salmon to a lake within the Kenai Wilderness area, “raise[] questions of what is wilderness, which lands should be designated as wilderness areas, what kinds of human activities are compatible with wilderness, and ultimately why we preserve land as wilderness subject to the restrictions of the Wilderness Act.”¹⁴² The Act can be read as prioritizing different agendas. While some argue that in managing wilderness, agencies should

ment agencies give permission to users who would otherwise be excluded from the area, giving the impression of favoritism and special treatment. See Katie McCrimmon, *Rich Horsemen Get Special Ticket to Ride*, ROCKY MOUNTAIN NEWS, July 21, 2007, at 14.

¹³⁷ See, e.g., Nagle, *supra* note 28, at 956-57 (explaining that since the creation of the Kenai National Wilderness Area in Alaska, its managers “have faced numerous questions concerning which activities are appropriate in a wilderness area, including snowmobiling and other recreational uses, oil and gas development, wildlife protection, hunting and fishing, and subsistence use by Alaska Natives.”); see also *Friends of the Earth v. U.S. Dep’t of the Interior*, 478 F. Supp. 2d 11 (D.D.C. 2007) (dealing with a petition filed by environmental groups seeking NPS adoption of a rulemaking prohibiting ORV use in all off-road areas of the National Park system and other relief aimed at curtailing ORV use because of its substantial environmental damage to national parks).

¹³⁸ 16 U.S.C. § 1131(a) (2000).

¹³⁹ *Id.* §§ 1131(c), (b).

¹⁴⁰ *Id.* § 1133(c).

¹⁴¹ 353 F.3d 1051 (9th Cir. 2003) (en banc), *amended by* 360 F.3d 1374 (9th Cir. 2004) (en banc).

¹⁴² Nagle, *supra* note 28, at 957.

favor ecosystem protection over recreation, others believe that Congress did not intend to prohibit as much recreation as is typically read into the Act.¹⁴³

On one side of the spectrum are those who argue that, because of its recreational objectives, the Act inadvertently fails to protect the ecology of wilderness—a centrally important purpose of the Wilderness Act. Congress passed the Act to allow lands to be protected as areas “where the earth and its community of life are untrammelled by man.”¹⁴⁴ This means offering lands protection primarily for their ecological functions. The true “multiple uses” of wilderness should include “the protection of watersheds that are essential for clean and abundant water, the maintenance of soil and water quality, ecological diversity, plant and animal gene pools, and habitat for wildlife, including rare and endangered species.”¹⁴⁵ Some argue that this key purpose is overlooked because the criteria used to determine whether an area qualifies as wilderness fail to ensure that lands with the most biological potential are protected.¹⁴⁶ Ecological values are virtually ignored in making wilderness designations in order to ensure that recreational and even aesthetic interests are first satisfied.¹⁴⁷ In effect, the Act protects recreationally valuable areas, as opposed to “wetlands, grasslands and other more biologically productive but less visually spectacular areas.”¹⁴⁸ These ecologically crucial areas are those that should remain untouched by the impact and influence of humans, but since recreationists are not attracted to them, they fail to become designated wilderness.

On the other side of the spectrum are those who emphasize the recreational side of the Act. They argue that land management agencies are acting contrary to congressional intent by not allowing enough recreation opportunity in wilderness.¹⁴⁹ Would-be users like mountain bikers claim that in

¹⁴³ Timothy Dolan, *Fixed Anchors and the Wilderness Act: Is the Adventure Over?*, 34 U.S.F. L. REV. 355, 368 (2000) (arguing that limiting recreation in wilderness dampens public support of wilderness protection).

¹⁴⁴ 16 U.S.C. § 1133(c).

¹⁴⁵ THE WILDERNESS SOCIETY, *supra* note 115, at 71.

¹⁴⁶ Sandra Zellmer, *A Preservation Paradox: Political Prestidigitation and an Enduring Resource of Wilderness*, 34 ENVTL. L. 1015, 1041 (2004). The criteria used to determine whether an area qualifies as wilderness include an area that “(1) generally appears to have been affected primarily by the forces of nature, with the imprint of man’s work substantially unnoticeable; (2) has outstanding opportunity for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.” 16 U.S.C. § 1131(c).

¹⁴⁷ Zellmer, *supra* note 146, at 1041. The recreational goal behind designating wilderness lands causes remote areas with rugged terrain and spectacular scenery to be included in the National Wilderness Preservation System — areas that tend to invite recreationists. *Id.* at 1041-42.

¹⁴⁸ *Id.* at 1042.

¹⁴⁹ See 151 CONG. REC. E864 (daily ed. May 4, 2005) (statement of Rep. Boucher) (stating that “[R]ecreational activities such as hunting, fishing, camping, canoeing, kayaking, swimming, picnicking, backpacking, bird watching, horseback riding, cross-country skiing, snowshoeing, spelunking, rock-climbing and many other outdoor activities would be continued and encouraged in the new Wilderness Areas” proposed by the Virginia Ridge and Valley Act of

prohibiting mechanical transport,¹⁵⁰ Congress did not intend to prohibit the use of bicycles and other forms of *non-motorized* mechanized transport that leave no permanent trace.¹⁵¹ Those who take this view believe that Congress did not intend to prohibit all human-powered transport.¹⁵² They argue that Congress only intended to prohibit permanent installations or structures that might facilitate human-powered activities, but not the activity itself.¹⁵³ For example, the Wilderness Act would permit rock climbing but not the installation of fixed anchors to facilitate this activity. Indeed, to the dismay of many, Congress has statutorily permitted mechanized transport in some of its site-specific wilderness designations.¹⁵⁴

3. *Psychological Behavior and Resource Popularity Conflicts*

Included users and excluded would-be users are also unable to negotiate a solution that would resolve their conflict in part because of certain psychological barriers. Included low-impact, non-mechanized users view their current, exclusive right to access wilderness with a sense of entitlement.¹⁵⁵ In response, excluded would-be users, who view mechanized recreation as an equally valid or even superior perceived right, apply political pressure to fight additional wilderness designation.¹⁵⁶ Such a response is

2005; 150 CONG. REC. S11794 (daily ed. Nov. 20, 2004) (statement of Sen. Feinstein) (with respect to the approval of wilderness area in California, stating that "horsepacking is an important use of wilderness" and that the state could still authorize hunting and fishing licenses).

¹⁵⁰ 16 U.S.C. § 1133(c).

¹⁵¹ Stroll, *supra* note 133, at 461; Jim Hasenauer, *Let Bikers in and We'll Stand Behind Wilderness*, HIGH COUNTRY NEWS, Mar. 3, 2004 reprinted in A PEOPLE'S HISTORY OF WILDERNESS, *supra* note 4, at 461, 462 (supporting the view that the Wilderness Act does not ban bicycles, but rather "mechanized transport" which the Forest Service has defined as "powered by a nonliving source").

¹⁵² Stroll, *supra* note 133, at 468; Hasenauer, *supra* note 151, at 462 (stating that the ban on bicycles did not occur until twenty years after the Act was enacted and was imposed by people who mistook motorcycles for bicycles).

¹⁵³ Stroll, *supra* note 133, at 468.

¹⁵⁴ *Id.* at 478 (pointing out that when Congress created the Rattlesnake Wilderness pursuant to the passage of the Rattlesnake National Recreation Area and Wilderness Act of 1980, Congress expressly authorized bicycle use). The 1980 Act describes "bicycling" as a form of "primitive recreation" suitable for wilderness, 16 U.S.C. § 460ll(a)(1); see also Deanna Belch, *Freewheeling Wilderness Proposal Irks Purists*, HIGH COUNTRY NEWS, Nov. 22, 2004, at 6 (expressing frustration that the Lewis and Clark Mount Hood Wilderness Act of 2004 introduced to Congress in 2005 included provisions for mountain biking and lift-served skiing — two activities traditionally prohibited in wilderness); see also Mike Medberry, *Idaho's River of No Return Wilderness: Jetboats, Planes Are the Rule Here*, HIGH COUNTRY NEWS, May 27, 1985, reprinted in A PEOPLE'S HISTORY OF WILDERNESS, *supra* note 4, at 129, 130 (describing the Frank Church-River of No Return Wilderness where there are 28 aircraft landing strips and rivers open to jet-boats, both of which are heavily used, as well as "active gold mines; valid but still undeveloped claims to mineral deposits; a 40,000-acre 'Special Management Zone' with relaxed mining constraints to assure access to ores rich in cobalt; [and] 2,500 acres of private land").

¹⁵⁵ Hsu, *supra* note 8, at 126.

¹⁵⁶ Studies of persons who have been excluded from a benefit suggest that those excluded harbor deep resentment for the seeming special treatment afforded the included class. As a result, the excluded class tends to resist the creation of more systems that might further exclude them. Cf. Lior Jacob Strahlevitz, *How Changes in Property Regimes Influence Social*

certainly reasonable, since any wilderness designations only reduce the supply of land available to would-be users, who will be foreclosed from access the lands deemed wilderness.

Users and would-be users harden their positions further because, in addition to believing that their differing uses are superior to the other group's use, each user group has identical, but opposing, views about the merits of its use, and the culpability of the other group's use. First, each user group likely has an elevated perception of the intrinsic value and worthiness of its use.¹⁵⁷ For example, users may see hiking in the quiet of a wild land as a non-environmentally degrading, even neo-religious experience, while excluded would-be users see mountain biking or riding an ORV as an exhilarating connection between a person and a challenging mechanical means of transportation in a beautiful setting. Second, each user group is likely convinced that the other group is the cause of the problem¹⁵⁸ — hikers look at mountain bikers and ORV users as the primary threat to the true wilderness experience, while mountain bikers and ORV users see hikers as the reason why they cannot use these lands in conjunction with their mountain bikes and ORVs. These very human reactions perpetuate the wilderness resource popularity conflict, and make it virtually impossible for the competing groups to resolve the conflict themselves. Instead, they must turn to some solution provided by law or government.¹⁵⁹

III. RESPONSES TO THE WILDERNESS PROBLEM

The differing but interrelated problems experienced by non-users, users and would-be users need some resolution. The questions become, then, how should these problems be resolved and who should resolve them? Initially, two general responses are possible: (1) do nothing, and let the wilderness marketplace work to arrive at an acceptable solution or (2) do something, which typically relies on traditional law-driven actions by non-market government actors. The former response is based on the assumption that “[t]he very idea that wilderness can be stewarded may be flawed because it calls for a *management ethic* where management becomes anathema to wilder-

Norms: Commodifying California's Carpool Lanes, 75 IND. L. J. 1231, 1239 (2000) (explaining that if an individual driver views solo driving as a superior right, that driver might oppose carpool lanes simply because the driver would be excluded there).

¹⁵⁷ Thompson, *supra* note 74, at 256-57.

¹⁵⁸ *Id.* at 261. See also Willoughby, *supra* note 90 (observing that when the Southern Rockies Conservation Alliance met to discuss quiet recreational opportunities “an all-but-unspoken enemy was found in motorized recreation, primarily the increased use of all-terrain vehicles”).

¹⁵⁹ See, e.g., SUZANNE IUDICELLO ET AL., FISH, MARKETS, AND FISHERMEN: THE ECONOMICS OF OVERFISHING 148-49 (1999) (describing overfishing a commons as caused in large part by competing users being unable to impose limits on themselves, ultimately requiring a government ultimatum to bring about an agreement).

ness.”¹⁶⁰ Indeed, it follows that if one seeks to control wilderness, it is not wilderness.¹⁶¹ The latter position is premised on the belief that any “hands-off approach” will come at great environmental cost,¹⁶² especially because the pressure of humans to invade wild places is “intense and never ending.”¹⁶³ Therefore, some kind of management of wilderness use is required. This section will analyze these two responses.

A. *Do Nothing: Reliance on the Wilderness Market*

The outcome would likely be disappointing if one were to leave the market for wilderness alone, in the hope that negative externalities, true commons tragedies, and resource popularity conflicts would either go away on their own, or somehow be solved by the various user and non-user groups. This bleak outlook is largely due to the fact that demand for the relatively fixed supply of wilderness seems both relentless and growing. There is evidence that we are consuming wilderness faster than it is consuming our leisure time.¹⁶⁴ The fact that the wilderness resource is viewed as non-property by designated users, and a commonly owned good from the perspective of excluded would-be users, makes it a commodity that is too easily accessible¹⁶⁵ and consumed at a level that exceeds the carrying capacity of the land.¹⁶⁶ If the wilderness resource is viewed as a commodity, which has the simultaneous characteristics of being both non-property and a commonly owned good, then the wilderness resource will almost certainly be overexploited, and the market for wilderness will not function at all.¹⁶⁷ Since the prospects seem dim for a critical expansion of wilderness supply,¹⁶⁸ it appears that a do-nothing approach will likely only exacerbate the growing problem of wilderness use.

¹⁶⁰ Kathleen Braden, *On Saving the Wilderness: Why Christian Stewardship is Not Sufficient*, 28 CHRISTIAN SCHOLAR'S REV. 254, 262 (1998).

¹⁶¹ Nagle, *supra* note 28, at 1001 (“Human management is problematic because it eliminates wilderness.”).

¹⁶² *Id.*

¹⁶³ DOUG SCOTT, CAMPAIGN FOR AMERICA'S WILDERNESS, THE ENDURING WILDERNESS 14 (2004).

¹⁶⁴ Krakoff, *supra* note 36, at 419, 421; CAMPAIGN FOR AMERICA'S WILDERNESS, *supra* note 116, at 6 (noting that in a study conducted in 1999 by Luntz Research, “[n]early four in ten (38%) said both the number and quality of places in nature for Americans to enjoy would be worse in the next twenty years”).

¹⁶⁵ See Krakoff, *supra* note 36, at 417.

¹⁶⁶ Nagle, *supra* note 28, at 1001 (explaining that human use is “problematic” at current levels because “too many visitors to the land threaten to compromise the very wilderness values that they come to experience”).

¹⁶⁷ See COLE, *supra* note 19, at 4-6.

¹⁶⁸ See SCOTT, *supra* note 163, at 107 (arguing that most wilderness has already been protected by Congress, and new wilderness will only be protected when local groups who love a particular wild place come together and develop their own wilderness proposal); see also James Morton Turner, *A Crowded Washington Wilderness Gets Ugly*, HIGH COUNTRY NEWS, Dec. 17, 2001, reprinted in A PEOPLE'S HISTORY OF WILDERNESS, *supra* note 4, at 86, 88-89 (stating that since the passage of the Wilderness Act, many environmental groups have focused

B. Do Something: Reliance on Government Action

1. Congressional Action

Congress is responsible for statutory wilderness designation, which means it could simply designate more wilderness in order to resolve over-demand by expanding supply. However, because Congress faces political, economic and internal barriers,¹⁶⁹ it no longer designates vast wilderness areas as wilderness. Congress has been deterred by: (1) the impact of the ORV and mountain biking industries, which do not want to be fenced out of newly designated wilderness areas; (2) competition for the wild lands from traditional commodity users; and (3) lack of wilderness experience among this generation of congressional members.¹⁷⁰ Instead, Congress is doing little to resolve wilderness conflicts and is unresponsive to problems that underlie the market for wilderness.

Political barriers to wilderness designation stem from the mechanized and motorized recreation lobbies representing would-be users opposed to setting aside lands where their activities are prohibited.¹⁷¹ They believe that “the Wilderness Act is a straightjacket,”¹⁷² and instead advocate for their own type of legislation in order to compete with the Wilderness Act on a national level.¹⁷³ For example, the BlueRibbon Coalition (an ORV advocacy group) and other motorized recreation groups have been promoting a “backcountry” designation that would “allow traditional multiple-use activities with the emphasis on promoting and protecting recreation, not systematically eliminating it as in Wilderness.”¹⁷⁴ One strategy used by off-road lobbyists is to try to convince Congress that current wilderness law permits just one type of outdoor recreation, hiking, which is an activity only

on adding to such designations, but suggesting that they should focus their efforts on wilderness management).

¹⁶⁹ Leshy, *supra* note 126, at 5-7 (discussing the increase and impact of the ORV and mountain biking industries on WSAs, describing competition from commodity users, and discussing the lack of wilderness experience among today’s congressional members).

¹⁷⁰ *Id.*

¹⁷¹ While mechanized and motorized recreation lobbies now oppose new wilderness because they will be excluded there, they obviously support the idea of wilderness designation where they would be included. See Margolis, *supra* note 116, at 379 (“Organized and well-financed lobbies of motorized recreationists are mobilizing to get permission to zoom their vehicles along wilderness trails.”); Hasenauer, *supra* note 151, at 463 (stating that “if mountain bikers were allowed on some wilderness trails, cyclists would overwhelmingly endorse new wilderness”).

¹⁷² SCOTT, *supra* note 163, at 101.

¹⁷³ *Id.* at 101-02.

¹⁷⁴ *Id.* at 102; see Clark L. Collins, *Wilderness: Preserving Nature in a Political World*, 25 J. LAND RESOURCES & ENVTL. L. 37, 37-38 (2005) (explaining specific aspects of the proposed Back Country designations). See generally Jeff Henson, *Off-Road Vehicles Should be Allowed to Sue Wilderness Areas* (2002), reprinted in HOW SHOULD AMERICA’S WILDERNESS BE MANAGED?, *supra* note 90, at 95.

for the young and fit, while motorized vehicle use is an activity that all family members can enjoy.¹⁷⁵

The opposition from such groups to an increased supply of wilderness is strong, and some, especially motorized recreation users, will even take extreme and illegal measures to prevent Wilderness Study Areas (“WSAs”) from achieving permanent designation.¹⁷⁶ WSAs are federal lands possessing “wilderness characteristics” that are subject to interim protections while Congress studies them to decide whether they qualify for permanent designation as wilderness.¹⁷⁷ If the wilderness values of WSAs become impaired (e.g., by ORV use), they lose one of their biggest opportunities for permanent designation.¹⁷⁸ Federal land managers target ORV users as their biggest concern and highest priority when it comes to managing public lands destined for wilderness designation,¹⁷⁹ since unauthorized use of such vehicles creates roads and other impacts that cause affected areas to lose their wilderness characteristics.¹⁸⁰

Economic barriers stem from commodity users, another strong would-be user lobby, who desire to use lands with wilderness characteristics for timber harvesting, grazing, and oil and gas development.¹⁸¹ In the past, this was not an issue because Congress was more interested in designating high country “rocks and ice” wilderness with few competing uses.¹⁸² Commodity developers were potential opponents to wilderness, but Congress typically

¹⁷⁵ SCOTT, *supra* note 163, at 109 (also explaining that ORV lobbyists focus on access to imply that “wilderness areas are uninviting and unavailable to most people without vehicles and more roads”). *But see Pass Brown Canyon Bill Now*, *supra* note 10, at B6 (arguing that the National Rifle Association’s opposition to a wilderness designation has no merit given the “considerable body of research . . . showing that roads . . . decrease hunter harvest”).

¹⁷⁶ See claims made by the Southern Utah Wilderness Alliance with respect to illegal ORV use in WSAs in *Norton v. S. Utah Wilderness Alliance*, 542 U.S. 55 (2004).

¹⁷⁷ Maria E. Heckel, *Finding the Line Between Action and Inaction: SUWA v. Norton and Judicial Review of Statutory Land Management Standards*, 2004 UTAH L. REV. 789, 793 (2004); 43 U.S.C. § 1782 (2000).

¹⁷⁸ 43 U.S.C. § 1782(c).

¹⁷⁹ *Leshy*, *supra* note 126, at 7. ORVs and WSAs also engender litigation; see *S. Utah Wilderness Alliance v. Nat’l Park Serv.*, 387 F. Supp. 2d 1178, 1196-97 (D. Utah 2005) (upholding the NPS’s prohibition of motor vehicles in a no-impairment area as opposed to implementing a limited use permit system).

¹⁸⁰ *Leshy*, *supra* note 126, at 7; see also *National Wilderness Preservation Act: Hearing Before the Senate Interior and Insular Affairs Comm.*, 85th Cong. 167 (1957) (statement of the Wilderness Society) (explaining that while motorists are entitled to the scenery of wilderness areas, “motorway and solitude together constitute a contradiction”); Greg Hanscom, *Wilderness Has a New Foe: Snowmobiles*, HIGH COUNTRY NEWS, Mar. 3, 1997, reprinted in A PEOPLE’S HISTORY OF WILDERNESS, *supra* note 4, at 414, 415 (noting that during the 1995-96 season in the Absaroka-Beartooth Wilderness, one Forest Service report cited 472 confirmed violations by snowmobilers trespassing into the wilderness).

¹⁸¹ SCOTT, *supra* note 163, at 15 (discussing how timber companies and oil and gas developers “wield their clout to press for yet another timber sale [or] oil and gas lease . . . each probing even farther into undeveloped wild lands”); see *Greater Yellowstone Coal. v. Reese*, 392 F. Supp. 2d 1234 (D. Idaho 2005) (rejecting environmental groups’ challenge to a proposal to build roads and drill exploratory wells in roadless areas of national forest).

¹⁸² *Leshy*, *supra* note 126, at 6.

designated areas which had little value to these groups.¹⁸³ Now, however, timber harvesters and mineral developers have technology enabling them to reach the rough terrains and isolated places that possess wilderness characteristics.¹⁸⁴ Certain remote areas suitable for wilderness designation are also areas which show promise for oil and gas leasing.¹⁸⁵ Commodity developers argue to Congress that enlarging the wilderness system is inconsistent with economic growth.¹⁸⁶ On the other hand, designating new wilderness areas usually causes an increase in an area's visitation and tourism, thereby boosting the often impoverished local economies that are located closest to wilderness areas.¹⁸⁷

Internal factors currently prevent Congress from designating as much wilderness as it has in the past. Many congressional members used to be "champions of wilderness designation, including members from affected western states."¹⁸⁸ Throughout the beginning of the twenty-first century, however, Congress has seemed more conservative, more adverse to regulations, and more concerned about property rights.¹⁸⁹ It also is less experienced when it comes to wilderness designation.¹⁹⁰

¹⁸³ See *Parker v. United States*, 448 F.2d 793, 795-96 (10th Cir. 1971) (defining areas as suitable for wilderness if past human activities have not resulted in "permanent improvements or human habitation").

¹⁸⁴ See Sci-Tech Dictionary: Directional Drilling, www.answers.com/topic/directional-drilling (last visited Apr. 25, 2008) (on file with the Harvard Environmental Law Review) (explaining how the technique of directional drilling allows oil and gas operators to reach reservoirs where vertical access is difficult or impossible). Such new technology will, however, eventually confront judicial rulings declaring that wilderness and mining are incompatible. See *Izaak Walton League v. St. Clair*, 353 F. Supp. 698 (D. Minn. 1973).

¹⁸⁵ Leshy, *supra* note 126, at 7. See generally Susan McGrath, *Oil Drilling Will Ruin the Wilderness Character of the Arctic National Wildlife Refuge*, *AUDUBON MAGAZINE*, Oct. 2001, reprinted in *HOW SHOULD AMERICA'S WILDERNESS BE MANAGED?*, *supra* note 90, at 49; Matt Jenkins, *Two Decades of Hard Work, Plowed Under: The Bush Administration Gives Oil and Gas Drillers First Crack at the West's Last Wild Lands*, *HIGH COUNTRY NEWS*, Jan. 19, 2004, reprinted in *A PEOPLE'S HISTORY OF WILDERNESS*, *supra* note 4, at 393; Stephen H.M. Bloch & Heidi J. McIntosh, *A View From the Front Lines: The Fate of Utah's Redrock Wilderness Under the George W. Bush Administration*, 33 *GOLDEN GATE U. L. REV.* 473 (2003).

¹⁸⁶ CORDELL ET AL., *ANALYSIS*, *supra* note 26, at 6. But see THE WILDERNESS SOCIETY, *supra* note 115, at 72 (arguing that wilderness "provides numerous economic benefits and helps to maintain the natural capital that can help communities diversify economies by attracting and retaining new businesses, residents, and a local workforce," and protecting the "scenic backdrops that improve property values, thereby increasing county revenues").

¹⁸⁷ Ray Rasker, *Wilderness for Its Own Sake or as Economic Asset?*, 25 *J. LAND RESOURCES & ENVTL. L.* 15, 17 (2005).

¹⁸⁸ Leshy, *supra* note 126, at 5.

¹⁸⁹ *Id.*; see Margolis, *supra* note 116, at 379 ("From their rhetoric, it seems that some leaders of the Republican majority in Congress would like to repeal the 1964 law."); see also Jim DiPeso & Tom Pelikan, *The Republican Divide on Wilderness Policy*, 33 *GOLDEN GATE U. L. REV.* 339 (2003) (noting that some Republican leaders "have fought wilderness protection on the grounds that preservation is an inappropriate government constraint on free markets and is harmful to the economy by limiting commodity production of timber, forage, and minerals").

¹⁹⁰ Leshy, *supra* note 126, at 5.

As a result of these barriers, some commentators believe that wilderness designation by Congress has largely come to an end.¹⁹¹ In the future, the burden will fall on wilderness proponents to convince Congress to pass laws designating new wilderness, while opponents will have the easier task of blocking such designations.¹⁹² If these designations continue to fail, then lands suitable for protection as wilderness will be captured by either mechanized-motorized recreationists or commodity developers, and the supply of the wilderness resource will remain constant.¹⁹³

2. *Presidential Response: The Antiquities Act*

The Antiquities Act of 1906 provides a means for the Executive Branch to protect certain public landmarks with wilderness characteristics.¹⁹⁴ The Act allows the President of the United States “in his discretion, to declare . . . historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest . . . to be national monuments.”¹⁹⁵ The Court of Appeals for the D.C. Circuit has noted that the Act provides a way to withdraw public lands from activities that impair the natural state of wild lands, and that requires only the unilateral decision of the President, without the consent of Congress or administrative agencies.¹⁹⁶

Pursuant to the Antiquities Act, the President has authority to create national monuments which often end up being classified as WSAs for potential inclusion in the wilderness preservation system. Since its enactment, the Antiquities Act has shown much promise as a wilderness protection alternative to the Wilderness Act. Presidents have used this Act to side-step congressional deadlock over lands eligible for wilderness designation simply by identifying them as national monuments.¹⁹⁷ For example, before 1996, when the Grand Staircase-Escalante National Monument was designated, nearly half of its acreage was classified as WSAs.¹⁹⁸ While Congress sat at an impasse pondering whether to formally protect this area as wilderness, President Clinton turned to the Antiquities Act to afford this area the same protection as if Congress had given it wilderness status.¹⁹⁹ The George W. Bush administration has been reluctant to designate areas as national monu-

¹⁹¹ Sarah Krakoff, *Settling the Wilderness*, 75 U. COLO. L. REV. 1159, 1169-70 (2004); Willcox, *supra* note 4, at 78 (stating that “pressure from timber and mining interests could make large increases in the system politically impossible in years to come.”).

¹⁹² SCOTT, *supra* note 163, at 110.

¹⁹³ See Nagle, *supra* note 28, at 962 (stressing the importance of congressional designations of wilderness).

¹⁹⁴ 16 U.S.C. §§ 431 *et seq.* (2000).

¹⁹⁵ 16 U.S.C. § 431.

¹⁹⁶ *Mountain States Legal Found. v. Bush*, 306 F.3d 1132, 1138 (D.C. Cir. 2002).

¹⁹⁷ Zellmer, *supra* note 146, at 1052 (noting that as of 2004, both Democratic and Republican Presidents had set aside nearly 70 million acres of land of various sizes and ecosystem types to create 123 national monuments).

¹⁹⁸ *Id.* at 1053-54.

¹⁹⁹ *Id.*

ments,²⁰⁰ perhaps because would-be users of these lands have been influential in setting public lands policies throughout the twenty-first century.

Not only do such presidential proclamations avoid congressional deadlock, but they also avoid probing judicial review. The Administrative Procedure Act (“APA”),²⁰¹ which is used to challenge administrative agency decision-making, only provides for review of “final agency action,” and therefore, does not apply to presidential decisions.²⁰² Additionally, although courts may review monument designations to determine whether they comport with the Antiquities Act, this review is likewise limited.²⁰³ Courts are reluctant to find that the President has acted *ultra vires* with respect to executive decision-making pursuant to this statute.²⁰⁴ Virtually all material monument designations have been upheld when challenged.²⁰⁵ One complaint with respect to the Antiquities Act is the lack of public involvement, which some argue may lead to presidential abuse of the statute.²⁰⁶ On the other hand, after designation, affected interests may participate in shaping the management policies that govern each monument’s general management plan, so that there is some form of public participation.²⁰⁷ A second complaint is that, unlike with the National Environmental Policy Act, neither the environmental effects of the President’s decision, nor any alternatives, need to be considered when a monument is designated.²⁰⁸

3. *Administrative Agency Initiatives*

Federal administrative agencies (such as the Forest Service and BLM) charged with managing designated wilderness areas and WSAs are often at the front lines confronting wilderness conflicts. Unfortunately, they too often lack the political and financial support necessary for effective wilderness management.²⁰⁹ These agencies find it difficult to develop a viable management plan as the population grows and demand for the popular but fixed supply wilderness resource increases.²¹⁰ To compound matters, agen-

²⁰⁰ *Id.* at 1017.

²⁰¹ 5 U.S.C. §§ 551 *et seq.* (2000).

²⁰² Zellmer, *supra* note 146, at 1086.

²⁰³ See generally Christine Klein, *Preserving Monumental Landscapes Under the Antiquities Act*, 87 CORNELL L. REV. 1333, 1344-55 (2002).

²⁰⁴ See *Mountain States Legal Found. v. Bush*, 306 F.3d 1132 (D.C. Cir. 2002); *Tulare County v. Bush*, 306 F.3d 1138 (D.C. Cir. 2002).

²⁰⁵ See, e.g., *Cameron v. United States*, 252 U.S. 450, 455-56 (1920); *Mountain States Legal Found.*, 306 F.3d 1132.

²⁰⁶ But see Albert C. Lin, *Clinton’s National Monuments: A Democrat’s Undemocratic Acts?*, 29 *ECOLOGY L.Q.* 707 (2002) (arguing that the limited opportunity for public comment provided by the Antiquities Act does not make it undemocratic).

²⁰⁷ Zellmer, *supra* note 146, at 1086.

²⁰⁸ *Id.* at 1085.

²⁰⁹ Hendee & Dawson, *America’s Wilderness*, *supra* note 90, at 18 (discussing how the reduction in resources for wilderness management is evidenced by long overdue wilderness plans that have not been started and others which need updating).

²¹⁰ Interview with Ken Cordell, Pioneering Scientist and Project Leader, U.S. Forest Service (Nov. 23, 2004).

cies do not have the number of staff necessary to properly manage and police wilderness areas where excluded would-be recreationists utilize these lands knowing that the chances of getting caught are low.²¹¹ But perhaps the most fundamental challenge facing these agencies is that congressional budget appropriations calculations,²¹² professional norms, and internal bureaucratic organization assume that agencies are to work towards creating, but not necessarily managing, more wilderness.²¹³ The reality is that management of unprecedented demand, and resource popularity conflicts, for *existing* wilderness, is the central job of these agencies.²¹⁴

a. *What About Excessive Demand?*

The twin problems of large-group negative externalities and true commons tragedies both are brought about by growing and unchecked numbers of users visiting a fixed supply resource. Although agencies cannot easily expand supply,²¹⁵ they have taken halting steps to regulate demand. One simple technique is to restrict access to car parking areas; another is a quota plan that restricts the number of daily users in a specific wilderness area by only allowing those people who have the proper permitting to utilize these lands. Fee programs are another option to discourage users, but while charging a fee may deter some people from visiting wilderness areas, thereby decreasing demand, this agency response has spawned much criticism.²¹⁶ Environmental groups fear that such fees will actually encourage more use in already over-consumed backcountry areas, since the fee money may be used to further commercialize protected areas to compensate for the decrease in funds that the agency might have received if the lands had been open to extractive resource industries.²¹⁷ And, while fees may deter users, the people

²¹¹ *Id.*; see also Meyer, *supra* note 4 (noting that, in 2002, two to three rangers were assigned to each of the 46 wilderness areas in the Rocky Mountain Region, whereas in 2007, there were only one or two rangers per region, with some wilderness areas having no rangers at all).

²¹² Berger, *supra* note 17, at E1 (“The [Forest Service’s] budget has been cut by 2.5 percent to 4.9 billion — pennies compared to the overall federal budget. The recreation, wilderness and heritage line item has been cut by 4 percent from 2006.”).

²¹³ E-mail from Ann Brower, Lecturer, Lincoln University, Christchurch, New Zealand (July 17, 2004) (on file with the Harvard Environmental Law Review).

²¹⁴ Interview with Ralph Swain, Wilderness Manager, Region 2, United States Forest Service, Denver, Colo. (Feb. 29, 2008).

²¹⁵ Federal land management agencies have *reduced* supply in the past. See Robert Gehrke, *BLM Lifts Wilderness Protections*, DENVER POST, Sept. 30, 2003, at A15 (BLM court settlement where Utah rescinded protection of 3 million acres of wild lands in Utah and millions of additional acres in the West).

²¹⁶ Interview with Ken Cordell, *supra* note 210; Schneider, Editorial, *Let Freedom Ring*, DAILY SENTINEL (Grand Junction, Colo.), May 20, 2007, at D8 (arguing that since the NPS does not really use fees to deter people from using national parks, and since park entrance fees only constitute 6% of the NPS’s annual budget, parks should be free to the public).

²¹⁷ Brandon C. Marx, *Why Not Make It Voluntary? Controversy over the Recreation Fee Demonstration Program and Liability Implications for Federal Land Managers*, 17 J. ENVTL. L. & LITIG. 423, 425 (2002); see also Ted Williams, *Public-lands Shakedown*, DENVER POST, June 10, 2007, at E6 (explaining that the Forest Service is abusing its power to assess user fees under the Recreation Enhancement Tax by assessing recreational facilities for profitability).

that a fee will most impact will be low-income users.²¹⁸ Additionally, users are opposed to paying if they will receive limited benefit in return. For example, a day visitor to a wilderness area will not want to pay for a parking spot in order to enjoy a scenic view for a small amount of time.²¹⁹

The intense visitor management that occurs in some popular wilderness areas during certain high seasons, while aiming to protect the wilderness resource, may actually diminish the wilderness experience.²²⁰ Additionally, restrictions on certain wilderness areas often push users to other wilderness areas, creating more problems there.²²¹ Although these methods to deal with demand may help to reduce wilderness use, they impose on the freedom and spontaneity of user experiences, and they actually result in lost wilderness opportunities for those who are turned away.²²² There is evidence that users experiencing a true tragedy of the commons nonetheless oppose removal of freedoms in order to experience a moderate gain in solitude.²²³

b. The Continued Problem of Resource Popularity Conflicts

Administrative agencies do not have authority to decide the use that should be permitted in wilderness areas; that is the job of Congress. Therefore, agencies are unable to accommodate the demands of excluded would-be users; indeed, their primary role with respect to would-be users is to enforce access restrictions. Even if agencies were given power to allocate wilderness between users and would-be users, they likely would be ill-equipped to exercise this power. Federal land management agencies like the Forest Service and the BLM have experience with traditional commodity industries, like timber, mining, and grazing. These agencies, which now also manage wilderness areas, have expertise in using public land resources to

“The ones that generate the least revenue—remote campgrounds and trailheads, places to which lovers of wilderness and quiet would naturally gravitate — are now first to disappear.” Additionally, these fees are an excuse to allow the White House to slash appropriations for public lands management.); *United States v. Wallace*, 476 F. Supp. 2d 1129 (D. Ariz. 2007) (dealing with interpretive problems with the Federal Lands Recreation Enhancement Act, which gives the United States Forest Service discretion to determine which lands are “areas” subject to a use fee).

²¹⁸ *But see* Krist, *supra* note 48, at E6 (discussing how the argument that user fees will deter families of limited income from enjoying public lands fails to consider the broader context in which the fees are imposed. Given the high cost of gasoline prices, the minimal park entrance fee will not be the deciding factors for low-income families when it comes to utilizing public lands.).

²¹⁹ *See, e.g.*, Marx, *supra* note 217, at 427. It costs ten dollars to park at the summit of 14,000 foot high Mt. Evans in Colorado, but it costs nothing to drive to the summit and turn around and go down again. As a result of the fee, a large number of visitors to the Mt. Evans summit never stop and park at the summit.

²²⁰ Hendee & Dawson, *America’s Wilderness*, *supra* note 90, at 13.

²²¹ Meyer, *supra* note 4, at B3.

²²² Hendee & Dawson, *Stewardship*, *supra* note 90, at 5.

²²³ Hall, *supra* note 103, at 20.

sustain these extractive practices, but virtually no background in allocating competing and conflicting recreational activities.²²⁴

4. *Review by the Judicial Branch*

When there is disagreement with the way land management agencies regulate the wilderness resource, aggrieved parties may turn to the courts to review if these agencies have followed the letter and intent of the Wilderness Act or site-specific wilderness designation. If these parties have standing,²²⁵ reviewing courts test the adequacy and appropriateness of agency action against applicable statutes. Specifically, courts review whether agencies have correctly regulated demand or improperly limited supply, and whether agencies have exceeded the scope of their authority in resolving resource popularity conflicts. These statutes typically lack guidance on how agencies may, or should, attempt to control demand; nor do these laws provide courts with any help in determining whether agencies should better reconcile competing user groups, or whether any attempt to resolve such disputes is statutorily authorized.²²⁶ Instead, courts simply defer to agency decisions, whether those decisions are to act, or not to act.²²⁷

a. Judicial Review of Agency Regulation of Demand and Supply

Demand. When federal land agencies use a permit or quota system to limit the number of recreationists in wilderness areas, courts tend to approve these restrictions as long as the number of permits issued is strictly necessary to achieve the Act's recreation purposes. Courts take the position that since recreation is part of the statutory purpose of a wilderness area, regulatory restrictions can be imposed to ensure that the public overuse will not impair the area's future as wilderness. For example, in the context of reviewing the Forest Service's permitting system for commercial operations within wilderness areas, the Ninth Circuit in *High Sierra Hikers Ass'n v. Blackwell* commanded that "wilderness values will be dominant to the extent not limited by the Wilderness Act."²²⁸ The Eighth Circuit concurred in

²²⁴ SCOTT, *supra* note 163, at 7 (noting that many personnel of public land management agencies were trained in forestry or in other land-management specialties, but wilderness management requires a different mindset).

²²⁵ See *Rock Creek Pack Station, Inc. v. Blackwell*, 344 F. Supp. 2d 192 (D.D.C. 2004) (finding that commercial packstock enterprise lacked standing to bring a claim against the Forest Service alleging that the agency's plan to change commercial access to wilderness detrimentally affected its recreational use and aesthetic enjoyment of the environment. Since the commercial entity itself could not enjoy recreational use, it could not establish standing under this theory.); *Wilderness Soc'y v. Norton*, 434 F.3d 584 (D.C. Cir. 2006) (finding that the Wilderness Society lacked standing to bring statutory claims against the NPS challenging the agency's failure to undertake various obligations with respect to identifying and managing wilderness areas in the National Park System).

²²⁶ Laitos & Reiss, *supra* note 5, at 1105.

²²⁷ Kevin Hayes, *History and Future of the Conflict Over Wilderness Designations of BLM Land in Utah*, 16 J. ENVTL. L. & LITIG. 203, 212 (2001).

²²⁸ *High Sierra Hikers Ass'n v. Blackwell*, 390 F.3d 630, 646 (9th Cir. 2004).

Friends of Boundary Waters Wilderness v. Bosworth that activities generally prohibited in wilderness areas, such as commercial enterprises or motorboat use, may be permitted if they are necessary to assist the public in realizing the recreational purpose of a wilderness area,²²⁹ but only to the extent necessary to achieve such purpose.²³⁰ These cases suggest that imposition of a permit system to affect demand is acceptable so long as the number of permits issued is no more than necessary to achieve the goals of the Wilderness Act.²³¹ In other words, in managing wilderness areas, administrative agencies seem to be given a judicial green light if they choose to restrict public demand in order to ensure visitor numbers that are healthy for the fixed supply of the wilderness resource.

Supply. Although lower courts seem inclined to ensure that WSAs at least have the opportunity for designation under the Wilderness Act, thereby increasing supply of the wilderness resource, the United States Supreme Court appears to take a less protectionist stance. In two separate cases, both the Ninth and Tenth Circuits held that inaction by the BLM to protect Federal Land Policy and Management Act (“FLPMA”)-designated WSAs from would-be users (ORV users) constituted final agency action subject to the APA.²³² In the Tenth Circuit case, the court concluded that because FLPMA imposed a “mandatory, nondiscretionary duty on the BLM to manage wilderness study areas in a way that their wilderness values are not impaired,” the agency had to prevent impairment caused by recreationists involved in ORV use.²³³ The Ninth Circuit similarly held that the Forest Service had failed to show conclusively that it had met its mandatory nondiscretionary duty to maintain the wilderness character of a WSA when it encouraged motorized vehicle use there.²³⁴ In reversing both these decisions, and holding that agency failure to act was *not* a final reviewable agency action, the Supreme Court made it even more unlikely that courts and litigants might be able to prevent agencies from diminishing the supply of potential wilderness land.²³⁵

Although the Supreme Court’s view of the APA may discourage lower courts from reining in land agencies who fail to manage WSAs as wilderness

²²⁹ See 437 F.3d 815, 819 (8th Cir. 2006) (allowing motorboat use in the Boundary Waters Canoe Area Wilderness but with strict quotas that restrict use to less than or equal to the “average actual motorboat use of the calendar years 1976, 1977 and 1978.” Here, the Eighth Circuit remanded the Forest Service’s calculation of the quota for motorboat use in order to ensure that such quotas are consistent with the act establishing this wilderness area).

²³⁰ See *Alaska Wildlife Alliance v. Jensen*, 108 F.3d 1065 (9th Cir. 1997) (commercial fishing not allowed); *Clouser v. Epsy*, 42 F.3d 1522 (9th Cir. 1994) (prohibiting motorized access to mining claims to ensure preservation of wilderness character); *S. Utah Wilderness Alliance v. Norton (SUWA)*, 302 F.3d 1217, 1229-30 (10th Cir. 2002), *rev’d*, 542 U.S. 55 (2004); *Mont. Wilderness Ass’n v. U.S. Forest Service*, 314 F.3d 1146 (9th Cir. 2003), *vacated*, 542 U.S. 917 (2004).

²³¹ *High Sierra Hikers*, 390 F.3d at 647.

²³² *SUWA*, 302 F.3d 1217 at 1229-30; *Mont. Wilderness Ass’n*, 314 F.3d 1146.

²³³ *SUWA*, 301 F.3d at 1227-28.

²³⁴ *Mont. Wilderness Ass’n*, 314 F.3d at 1151-52.

²³⁵ *SUWA*, 542 U.S. at 64.

pursuant to FLPMA's non-impairment standard, courts continue to rely on the blunt power of the Wilderness Act to prevent agencies from further eroding the wilderness land base. For example, where the National Park Service ("NPS") had a statutory duty to preserve historic structures under the National Historic Preservation Act,²³⁶ the Eleventh Circuit held that this obligation had to be carried out so as to preserve the wilderness characteristics of the area.²³⁷ The court concluded that NPS use of a fifteen-passenger van to transport visitors to the historical areas violated two Wilderness Act standards: (1) the bar on motor vehicles "except as necessary to meet requirements for the administration of the area for the purpose of the [Wilderness Act]" and (2) the bar on mechanical transport beyond that necessary to administer the Act.²³⁸

Additionally, courts believe that the potential of congressional wilderness designation to increase supply is of such significance that even when the President has recommended that an area is not suitable for designation, where Congress has not yet made a final suitability determination under the Wilderness Act, the President's determination has been deemed irrelevant.²³⁹

b. Judicial Review of Agency Authority to Resolve Resource Popularity Conflicts

Courts sometimes must review decisions by land agencies that affect whether low-impact traditional users, or mechanized (and otherwise excluded) would-be users, are permitted to access wild lands. With respect to WSAs, courts have agreed that Congress, not federal land agencies, must play the lead role in determining the status of, and the recreation that may occur in, these areas.²⁴⁰ Agencies may not usurp Congress's authority to designate wilderness by creating "*de facto* wilderness" areas afforded wilderness protection, even though they have not been formally designated as such by Congress.²⁴¹ For example, the District Court of Wyoming determined that the Forest Service violated the Wilderness Act when it promulgated the Roadless Rule, which prohibited the construction of roads on, and the use of motorized vehicles within, 58.8 million acres of national forest—a protection also given to wilderness areas.²⁴² The court concluded that the Roadless

²³⁶ 16 U.S.C. §§ 470 et seq. (2000).

²³⁷ *Wilderness Watch v. Mainella*, 375 F.3d 1085 (11th Cir. 2004).

²³⁸ *Id.* at 1092-93.

²³⁹ *Reeves v. United States*, 54 Fed. Cl. 652, 673-74 (2002). *But see* *Utah Ass'n of Counties v. Bush*, 316 F. Supp. 2d 1172, 1193 (D. Utah 2004) (finding that the President has authority under the Antiquities Act to proclaim land as a national monument even if Congress previously denied designating the same land as wilderness).

²⁴⁰ *See SUWA*, 542 U.S. 55; *Reeves*, 54 Fed. Cl. 652; *Utah v. Andres*, 486 F. Supp. 995 (D. Utah 1979).

²⁴¹ *See SUWA*, 542 U.S. 55; *Reeves*, 54 Fed. Cl. 652; *Andres*, 486 F. Supp. 995.

²⁴² *See Wyoming v. U.S. Dep't of Agric.*, 277 F. Supp. 2d 1197 (D. Wyo. 2003), *vacated*, 414 F.3d 1027 (10th Cir. 2005); *see also Utah Ass'n of Counties v. Bush*, 316 F. Supp. 2d 1172 (D. Utah 2004) (stating that if land designated as a national monument pursuant to the Antiquities Act is a WSA, this does not create *de facto* wilderness).

Rule had created *de facto* wilderness, usurping Congress's authority to designate wilderness under the Wilderness Act.²⁴³ Moreover, the agency's action would have prevented mechanized and motorized would-be users from accessing the lands subject to the Roadless Rule.²⁴⁴

Just as courts will step in to prevent agencies from interfering with Congress's role in designating wilderness areas, they similarly agree that after land is designated as wilderness, agencies cannot make findings that are inconsistent with recreational uses approved within such designations. In one case, the Interior Board of Land Appeals ("IBLA") approved motorized recreation in the Arrastra Mountain Wilderness because the IBLA believed the area failed to meet the definition of "wilderness"; it had concluded that the land there was "not a homogenous area 'where the earth and its community of life are untrammled by man,' . . . but an area interlaced with the imprint of man."²⁴⁵ The District Court of Arizona reversed this approval, stating simply that once the area was designated as wilderness by Congress, the IBLA then had no authority to make a contrary determination.²⁴⁶

IV. SOLUTIONS

Current law and government responses to the wilderness problem have been disappointing. Large-group negative externalities experienced by non-users continue unabated because the numbers of wilderness visitors relentlessly increase. Those visitors experience a true tragedy of the commons because the wilderness resource remains a non-property, open-access commons to designated users, who have no way to exclude other similar users. Resource popularity conflicts are only enhanced by the Wilderness Act's resolute decision to divide the wilderness world into designated users, and excluded would-be users. As a result of the political clout of would-be users and their lobbying arms, the supply of wilderness stays largely the same.

New approaches and new solutions to these wilderness problems are needed. This Article offers two suggestions. The first relies on traditional top-down command-and-control systems that regulate and restrict wilderness usage. The second is premised on the fact that virtually all of the wilderness problems outlined in this Article find their source in one omission — the absence of a property rights regime for the wilderness resource. If one builds from the bottom up, with property rights to wilderness as that foundation, the market for wilderness could correct the dysfunctions that that propertyless market now encounters.

²⁴³ *Wyoming*, 277 F. Supp. 2d at 1236.

²⁴⁴ *Id.*

²⁴⁵ *Barnes v. Babbitt*, 329 F. Supp. 2d 1141, 1154 (D. Ariz. 2004).

²⁴⁶ *Id.* at 1155; *see also* *Clouser v. Espy*, 42 F.3d 1522 (9th Cir. 1994); *High Sierra Hikers Ass'n v. Weingardt*, 521 F. Supp. 2d 1065 (N.D. Cal. 2007).

A. *Command-and-Control: Regulatory Response*

The impact of negative externalities on non-user groups, as well as the consequences of a true tragedy of the commons for users, can both be alleviated by government regulations designed to decrease use and increase supply. Government actions can also help resolve resource popularity conflicts by better allocating uses that may be appropriate in various wilderness areas. To achieve these ends, public land management agencies need both to improve management systems that are already in place, such as permit and quota systems, and to develop new methods for wilderness management. And, although difficult, attempts to increase the supply of wilderness must be considered.

First, however, government decision-makers need to decide the goals that should be achieved by their efforts. One objective should be to satisfy escalating recreation demands without causing a substantial loss of our current wilderness supply.²⁴⁷ Another goal should be to balance competing demands for wilderness; at one end of the spectrum are the pure preservationists who want to keep wilderness lands as natural and untouched as they were at the time of their designation, and on the other end are those who want no limits on their access to or use of wilderness areas.²⁴⁸

1. *Regulations Affecting Demand and Supply*

Problems associated with large-group negative externalities and true tragedies of the commons can be alleviated by limiting the number of wilderness recreationists or redistributing users in order to allow wilderness areas to maintain their natural qualities and heal from overuse. Reducing demand benefits non-users by preventing overexploitation of wilderness lands and protecting their ecological and economic worth. Regulations that affect demand also address the true tragedy of the commons experienced by users by ensuring that wilderness lands are not over-consumed to the point that they lose the qualities that attract users to them in the first place. Conversely, regulatory steps that increase supply spread out use over a greater area, thereby reducing the likelihood of the overuse that causes either negative externalities or commons tragedies.

a. *Managing Demand*

Federal land agencies have many ways to manage and check the growing demand of users within a nearly fixed supply of wilderness. Among the most common demand regulation techniques are imposing permit and quota systems, calendaring use and non-use days, promoting high-use areas in or-

²⁴⁷ WILLIAM E. HAMMITT & DAVID N. COLE, *WILDLAND RECREATION* 18 (1987).

²⁴⁸ Interview with David Cole, co-author of *WILDLAND RECREATION*, *supra* note 247 (Dec. 8, 2004).

der to protect remaining low-use areas, limiting recreational devices allowed in wilderness, and reversing the normal presumption of permitted access.

Permits and Quotas. Permits and quotas help limit use to keep wilderness lands as pristine as possible,²⁴⁹ especially if the issuing agency is able to enforce them vigorously.²⁵⁰ The Ninth Circuit in *High Sierra Hikers* suggested how land agencies should make decisions about (1) who should be issued a permit, and (2) how many users should be permitted to access wilderness.²⁵¹ The Court stated that the single most important factor to consider in a permit or quota system is the amount of use the wilderness resource can tolerate.²⁵² The Court decided that the Forest Service's permitting decisions in wilderness areas had been premised on the notion that recreation there was the most important value, despite the fact that the Wilderness Act twice states that recreation should be restricted where it might impair use for future generations.²⁵³ The message is simple: the number of permits issued and the quota imposed should protect the current supply of wilderness for future generations.

Use and Non-Use Days. Instead of deciding how many users will be permitted in wilderness areas, agencies can decide when users can access the resource. Under such a system, wilderness areas would be open on certain days and closed on others. Of course, there could be exceptions made for overnight backpackers who may go into the wilderness on an open day and continue their stay into the closed days. The few who would remain on the "closed days" would not be significant, because recreationists who backpack into the wilderness for multiple days are far fewer than those who enter these areas for a day hike.²⁵⁴

High-Use and Low-Use Areas. Agencies could, in effect, sacrifice certain high-use areas by steering users there, in order to preserve the remaining low-use areas.²⁵⁵ In order to encourage visitors to stay in these high-use areas, and away from low-use areas, agencies might be forced to take mea-

²⁴⁹ David Cole, "Balancing Freedom and Protection in Wilderness Recreation Use," in *The New Forest Service Wilderness Recreation Strategy*, INT'L J. WILDERNESS, April 2001, at 12, 13; see also Meyer, *supra* note 4 (suggesting that the Forest Service should examine requiring permits for overused wilderness areas); Schneider, *supra* note 216, at D8 (arguing that to decrease the number of users, national parks should restrict vehicular access and reduce hiking and outfitting permits); Steve Lipsher, *Trying to Protect the Longs Peak Experience*, DENVER POST, July 22, 2007, at C3 (reporting that Rocky Mountain National Park officials are considering charging fees and requiring permits in order to regulate and limit the overwhelming number of hikers on Longs Peak, Colorado).

²⁵⁰ Jason Blevins, *Risking a Ticket to Ride*, DENVER POST, June 12, 2007, at D1 (discussing BLM's issuance of a \$275 ticket to a recreationist who failed to receive a permit prior to beginning the Kokopelli Trail Ride in Colorado and Utah). In a non-wilderness context, see also Dennis Webb, *Forest Service Caps Commercial Boating in Glenwood Canyon*, ROCKY MOUNTAIN NEWS, March 29, 2008, at 13.

²⁵¹ *High Sierra Hikers Ass'n v. Blackwell*, 390 F.3d 630 (9th Cir. 2004).

²⁵² *Id.* at 647.

²⁵³ *Id.*

²⁵⁴ Interview with Ralph Swain, *supra* note 4.

²⁵⁵ Cole, *supra* note 249, at 13.

tures that will keep users of popular areas content.²⁵⁶ For example, wilderness managers might have to install permanent facilities such as toilets and tent pads, which would mean that high-use areas would no longer comport with the “untouched by man” mandate imposed by the Wilderness Act. An alternative might be to reallocate demand for wilderness by “diverting use from high-use locations to low-use wilderness, creating a relatively homogeneous system of moderately used” wilderness areas throughout the system.²⁵⁷

Prohibition of High-Tech Equipment. Wilderness users are not permitted to engage in mechanized or motorized recreation; perhaps agencies might also limit the types of technological devices allowed in wilderness.²⁵⁸ If users were prohibited from using global positioning satellite (“GPS”) devices, electronic communication devices, and high-tech outerwear and backpacking gear, that regulation might deter people from flocking into the wilderness backcountry because they would lose the sense of security that goes along with these technological innovations. In theory, a ban on high-tech equipment might not only decrease demand for the wilderness, but would also enhance the experience one would have while in the wilderness by ensuring a more back-to-nature context. Of course, as a practical matter, such a ban would be unlikely for several reasons. It would be virtually impossible to enforce; it would be unsafe (GPS devices prevent hikers from becoming lost, and high-tech gear keeps wilderness users from succumbing to exposure); it would be so laughably unpopular that no agency would ever seriously propose it. On the other hand, agencies could impose a limited ban on only those technological improvements that do *not* further safety or ecological benefit, but instead facilitate a non-wilderness experience (e.g., Blackberries and solar-powered laptop computers).

Reversing the Presumption of Access. In all wilderness areas, the normal rule is that designated users are allowed in any area not marked closed. This rule has contributed to overuse, the negative externalities that follow from overuse, and the true tragedy of the commons experienced by the users when they confront so many other users. In non-wilderness contexts, some land agencies are experimenting with a reversal of the presumption of open access, whereby use is prohibited unless there is a designation permitting access.²⁵⁹ Such a change in the usual presumption of access would allow

²⁵⁶ Bill Worf, *The New Forest Service Wilderness Recreation Strategy Spells Doom for the National Wilderness Preservation System*, INT’L J. WILDERNESS, April 2001, at 15, 17.

²⁵⁷ Cole, *supra* note 249, at 13.

²⁵⁸ Hendee & Dawson, *Stewardship*, *supra* note 90, at 8; Hendee & Dawson, *America’s Wilderness*, *supra* note 90, at 16.

²⁵⁹ Simona Gallegos, *BLM Proposes Vehicle Limits in Arkansas Basin*, DENVER POST, June 21, 2007, at B1; Steve Lipsher, *Forest Officials Curb ATVs*, DENVER POST, Aug. 27, 2007, at A1 (reporting that ATVs no longer have blanket permission to go anywhere in National Forests); Steve Lipsher, *Officials Say Forest Plan Blazes Trail to Fewer Conflicts*, DENVER POST, July 28, 2006, at B3 (reporting that the Forest Service is abandoning the previous “open unless designated closed” policy, and replacing it with a “all routes are closed unless designated open” rule).

land management agencies to keep users away from overused areas, and to direct users to under-used portions of the wilderness.²⁶⁰

A presumption of non-access certainly has the advantage of deterring recreational overuse. However, it has several disadvantages as well. First, it is inconsistent with one of the driving forces behind the Wilderness Act's passage — the preservation of certain lands for recreational demands.²⁶¹ Second, it requires some centralized authority to decide, trail-by-trail, wilderness-by-wilderness, what should be open, and what should be closed. Such an effort is time-consuming, costly, and fraught with all the informational risks and dangers inherent in having some authority divide what areas are worthy of use and which are not. Third, a presumption of non-access may be quite unpopular with potential wilderness users, making the creation of new wilderness areas less likely without their support.

b. Increasing Supply

The addition of more supply helps to spread out demand and its impacts. When more acres are designated as wilderness,²⁶² people have more choices as to where to have their wilderness experience, thereby reducing the opportunity for a tragedy of the commons. Diffuse usage also permits overused areas an opportunity to heal, which reduces large-group negative externalities.

There is a sufficiently large land base to add wilderness supply in order to cope more readily with increasing demand. One study found that some 319 million acres of the federal lands administered by the Forest Service and BLM are unroaded, but as yet none of this acreage has a federal designation protecting its future as wild lands.²⁶³ Although Congress would have to act to add significantly to the wilderness system, land agencies can also affect the supply side. An agency can require the BLM to evaluate the lands under its jurisdiction for wilderness potential,²⁶⁴ and FLMPA requires that BLM manage lands deemed by the agency to be suitable for further consideration as WSAs "so as not to impair [their suitability] as wilderness"²⁶⁵ If the BLM follows this statutory mandate and both sets aside and manages more lands as WSAs, it can thereby establish *de facto* wilderness areas. Congress could develop wilderness legislation that reflects and perhaps even acknowledges the economic and other passive benefits experienced by those who

²⁶⁰ Meyer, *supra* note 4, at B3 (arguing that the Forest Service should consider moving trailheads so that access to popular trails becomes more difficult).

²⁶¹ Zellmer, *supra* note 146, at 1040.

²⁶² For example, in 2006, President Bush signed the Northern California Coastal Wild Heritage Wilderness Act designating approximately 264,000 acres of lands in Mendocino and Six Rivers National Forest and certain BLM lands in Humboldt, Lake, Mendocino and Napa Counties in California as wilderness areas. Pub. L. No. 109-362, 120 Stat. 2064 (2006) (codified at 16 U.S.C. § 460).

²⁶³ SCOTT, *supra* note 163, at 96.

²⁶⁴ 43 U.S.C. § 1782(a) (2000).

²⁶⁵ *Id.* § 1782(c).

live near areas with wilderness potential, thereby building greater public and local government support for further wilderness designations.

De Facto Wilderness. Administrative agencies need to be given more authority to create and protect *de facto* wilderness.²⁶⁶ Since land management agencies have individuals living and working within lands with wilderness potential, they would likely be more knowledgeable when it comes to realizing which areas should be afforded wilderness-like protection. Agencies could certainly act more quickly than Congress. Providing agencies with authority to create *de facto* wilderness would allow them to protect more areas from motorized and mechanized use, and spread out the demand load to allow more people to have a true primitive experience.²⁶⁷

Such agency-related *de facto* wilderness areas would likely be managed similarly to WSAs on BLM lands, or lands subject to the Forest Service's "Roadless Rule."²⁶⁸ These are federal lands where roads are typically disallowed and resource extractive activities are prohibited.²⁶⁹ To provide agencies with effective authority to establish *de facto* wilderness areas that are not subject to the legal difficulties and on-the-ground challenges facing WSAs and roadless areas, three developments would have to occur: (1) agencies such as BLM and the Forest Service would need explicit statutory authority to create such *de facto* wilderness areas; (2) this authority would need to provide useful guidance on how such areas should be managed; and (3) if such areas were designated by agencies, agency failure to protect the wilderness potential of these areas should be judicially enforceable.²⁷⁰

Different Types of Wilderness. Most WSAs are originally set aside because of their popular recreational potential. An alternative model would be to create WSAs which are not necessarily enticing for recreationists, but instead are ecologically essential areas for biodiversity protection.²⁷¹ This approach would target the negative externalities suffered by non-users. It would allow more areas to receive wilderness protection, and these areas would be less likely to be threatened by user over-demand since their attraction is not for recreation but ecological preservation. Aside from increasing supply, these kinds of WSAs would reduce resource popularity conflicts. High-impact recreationists would not want to go to these areas, and if the WSAs were without value to commodity users, that lobby would not oppose the designation. Unfortunately, most land managers currently tend to favor

²⁶⁶ FLPMA, 43 U.S.C. § 1782, provides BLM with the authority to create WSAs, which are *de facto* wilderness areas within BLM lands. See *Wind River Mining Corp. v. United States*, 946 F.2d 710 (9th Cir. 1991).

²⁶⁷ E-mail from Vera Smith, *supra* note 109.

²⁶⁸ See 43 U.S.C. § 1782.

²⁶⁹ H. Michael Anderson & Alike Moncrief, *America's Unprotected Wilderness*, 76 DENVER U. L. REV. 413 (1999).

²⁷⁰ Judicial overview of agency action is now problematic after *Norton v. S. Utah Wilderness Alliance*, 542 U.S. 55 (2004).

²⁷¹ *Id.* See generally Susan Harrison, *Biodiversity and Wilderness: The Need for Systematic Protection of Biological Diversity*, 25 J. LAND RESOURCES & ENVTL. L. 53, 60-61 (2005) (discussing the relationship between biodiversity and wilderness).

wilderness locations that offer the most quantity of people the highest likelihood of on-the-ground use. The thinking is that people value what they understand, and what they understand is recreation.²⁷² If agencies chose areas with little recreational value, then the public would not appreciate them and desire their protection.²⁷³

Agencies could also reallocate user demand by designating more low elevation and high desert WSAs. These locations protect the biodiversity of varying ecoregions, reducing non-user negative externalities by preserving passive preservationist values. They would add differing seasons for recreation, alleviating the tragedy of the commons problem. While most wilderness recreation on Forest Service lands presently occurs in the summer, designating low elevation and high desert wilderness areas would add a winter, spring, and fall recreation season, hopefully lessening some of the summer demand.²⁷⁴

A New Type of Wilderness Legislation. In light of the rural poverty that often exists near wilderness areas, some have argued that economic development should be an explicit component of wilderness bills.²⁷⁵ Adding economic benefits to wilderness plans may encourage more public and local government support for the designation of new wilderness areas, since people who live in communities adjacent to wild lands often have the mindset that the “role of public lands is to provide a steady stream of raw materials to the mines and mill.”²⁷⁶ One such bill, the Central Idaho Economic Development and Recreation Act, was proposed for a 300,000 acre area in Idaho known as the Boulder White Clouds.²⁷⁷ This area is close to impoverished rural communities that believe they could benefit from increased visitation to their towns.²⁷⁸ The bill proposed giving approximately ten million dollars to economically deprived Custer County, and permitting the County to sell 16,000 acres of federal land as summer home sites or rangeland.²⁷⁹ The sale

²⁷² Interview with Ken Cordell, *supra* note 210.

²⁷³ *Id.*

²⁷⁴ Loomis et al., *supra* note 28, at 374.

²⁷⁵ Central Idaho Economic Development and Recreation Act of 2004, H.R. 5343, 108th Cong. (2004), revised and reintroduced as H.R. 3603, 109th Cong. (2005), reintroduced as H.R. 222, 110th Cong. (2007); see Rasker, *supra* note 187, at 15.

²⁷⁶ Rasker, *supra* note 187, at 17; see Nagle, *supra* note 28, at 961 (stating that when the Wilderness Act was first considered in the 1950s, “the principal fear was that the prohibition upon economic activities in lands designated by federal agency officials as wilderness would deprive local interests of the ability to provide for their economic well-being”).

²⁷⁷ Rasker, *supra* note 187, at 15.

²⁷⁸ *Id.* at 17. The bill also supports economic development because the proposed wilderness area is located close to Ketchum and Sun Valley — two thriving cities. The executive director of Sun Valley’s Chamber of Commerce and Visitor’s Bureau believes that having a wilderness area in this location will attract not only visitors, but also residents and businesses to the area who want to enjoy a quality of life that is enhanced by having a nearby wilderness area. *Id.* at 15-16.

²⁷⁹ *Id.* at 16. In July of 2006, H.R. 3603 passed in the House of Representatives, but not in the Senate. Rep. Mike Simpson reintroduced the bill in 2007 as H.R. 222. Congressional hearings are expected to occur on the bill this year. See Boulder White Clouds Council, The Issues, http://www.wildwhiteclouds.org/news_wilderness.html (last visited Apr. 25, 2008) (on file with the Harvard Environmental Law Review).

proceeds, along with additional funding from the federal government, would go to create a new Central Idaho Educational Center, which would stimulate the local economy by offering higher education services.²⁸⁰

2. *Regulations Affecting Use Conflict*

The problem of resource popularity conflict can be addressed by regulating recreation uses that may occur in a given wilderness area, or in some instances, preventing recreation altogether in order to protect the wilderness resource. For example, in the National Wildlife Refuge System Improvement Act of 1997 (“Refuge Act”),²⁸¹ Congress addressed use conflict by creating a hierarchy of uses based on the Act’s purpose. This approach might be applicable to a wilderness context. Agencies might also consider zoning areas within wilderness to accommodate various recreational values, and designating “no-human-use” areas in line with the ideals of pure preservationists.

Hierarchy of Uses. Those who enjoy wilderness often value it for different reasons, some much more consumptive than others. The spectrum ranges from non-use pure preservationists and low-impact hikers, to mechanized bikers and motorized ORV users. The resource popularity conflicts between these groups could be resolved in a fashion similar to that employed by the Refuge Act. Like the FLPMA²⁸² and the National Forest Management Act (“NFMA”),²⁸³ the Refuge Act provides for multiple uses, but unlike these statutes, it creates a *hierarchy* of uses. This hierarchy is based upon the statutory mandate to ensure the system’s “biological integrity, diversity, and environmental health.”²⁸⁴ By elevating conservation over all other uses, but still prioritizing wildlife-dependent recreation, the Refuge Act provides an example of a statute that accommodates both long-term ecological goals and sustainable human needs. A similar approach could be taken by administrative agencies in their management of the wilderness resource.

In passing the Refuge Act, Congress focused on the true purpose of the Act — protecting wildlife refuge lands for the purpose of wildlife conservation²⁸⁵ — and created a hierarchy of uses in these lands where each permitted use must be compatible with the Refuge Act’s primary goal of preserving animals, plants, and their habitats. No human use is permitted until its compatibility with this goal is formally determined.²⁸⁶ Compatible uses include

²⁸⁰ Rocky Barker, *In Boulder White-Cloud Mountains, Another Wilderness Compromise*, Dec. 8, 2003, reprinted in *A People’s History of Wilderness*, *supra* note 4, at 449.

²⁸¹ 16 U.S.C. §§ 668dd, 668ee (2000).

²⁸² 43 U.S.C. § 1701, *et seq.* (2000).

²⁸³ 16 U.S.C. § 1600, *et seq.*

²⁸⁴ *Id.* § 668dd(a)(4)(B); see Sandra B. Zellmer, *A New Corps of Discovery for Missouri River Management*, 83 NEB. L. REV. 305, 341-42 (2004).

²⁸⁵ 16 U.S.C. § 668dd(2) (the conservation mandate requires the Fish and Wildlife Service “to sustain and, where appropriate, restore and enhance, healthy populations of fish, wildlife, and plant resources and their habitats . . .”).

²⁸⁶ *Id.* § 668dd(d)(3)(A)(i).

those that do not “materially interfere with or detract from the fulfillment of the mission of the System or the purpose of the refuge.”²⁸⁷ After conservation, which is the highest tier,²⁸⁸ comes “wildlife-dependent recreational uses,” such as hunting, fishing, wildlife observation, and photography.²⁸⁹ Non-wildlife-dependent types of recreation occupy the next tier.²⁹⁰ The lowest priority tier is comprised of economic-focused activities, such as grazing, mineral development, and timber harvesting.²⁹¹ All lower-priority uses are effectively outlawed where they conflict with the overall mission of the Refuge Act.²⁹²

While recreation is an important purpose of the Wilderness Act, what used to be a few people hiking in the wilderness has become a flood of backpackers combined with a commercialized recreation industry, thus creating resource over-consumption. Even low-impact forms of recreation are leaving noticeable traces of man’s imprint. A hierarchy of uses, like in the Refuge Act, which would disallow the impact of large numbers of low-impact recreationists as being antithetical to the wilderness goal, may be an alternative way to approach wilderness management.

Pursuant to this approach, all uses that do not comport with the notion of preserving areas in their natural condition, untrammelled by humans, would have lower priority. For example, in 1964, when a six-person task force of the Forest Service met to draft regulations and policies for implementing the Wilderness Act, the task force took seriously the phrase “each agency administering any area designated as wilderness shall be responsible for preserving the wilderness character of the area and shall so administer such area for such other purposes for which it may have been established as also to preserve its wilderness character.”²⁹³ This task force believed that maintaining wilderness character took precedence *over all other uses* and activities, including recreational uses.²⁹⁴

The Ninth Circuit has stated that the overarching goal of the Wilderness Act is not to promote recreation, but to restrict recreation where it would

²⁸⁷ *Id.* § 668ee(1).

²⁸⁸ See Robert L. Fischman, *National Wildlife Refuge Management Issues—The Legal Context: The 1997 Refuge Improvement Act and Associated Rules/Policies* (ALI-ABA Course of Study, Sept 18-19, 2003), WL SJ023 ALI-ABA 281, 292 (identifying primary uses as those that further the individual refuges’ goals, and activities that achieve conservation such as water management control and invasive species control).

²⁸⁹ 16 U.S.C. § 668ee(2).

²⁹⁰ These recreational uses include “hunting, fishing, wildlife photography, and education.” Zellmer, *supra* note 284, at 284; See *Niobrara River Ranch, LLC v. Huber*, 277 F. Supp. 2d 1020, 1039 (D. Neb. 2003), *affirmed*, 373 F.3d 881 (8th Cir. 2004) (stating that Fish and Wildlife Service did not arbitrarily and capriciously deny a commercial canoeing license where, although the Refuge Act requires the agency to allow recreational uses compatible with wildlife refuges, the Act also gives the agency authority to restrict these uses to the extent “necessary, reasonable and appropriate”).

²⁹¹ Zellmer, *supra* note 284, at 342. This lowest tier also includes timber thinning, trapping, hay cropping, and electricity transmission. Fischman, *supra* note 288, at 292.

²⁹² 16 U.S.C. § 668dd(a)(4)(J).

²⁹³ 16 U.S.C. § 1131(4)(b).

²⁹⁴ Worf, *supra* note 256, at 16.

impair use for future generations, where relevant land management agencies are responsible for ensuring such preservation.²⁹⁵ If preserving wilderness is the main purpose of the Act, then in managing wilderness, administrative agencies should be given the authority to approve a hierarchical set of uses such that the wilderness resource is used for recreation only where it would not be incompatible with the Act's overarching goal of maintaining an area's wilderness character. In determining compatibility, agencies would need to consider that even low-impact forms of recreation can be inconsistent with wilderness character where a certain area experiences high user numbers. For areas in great demand, the agency would have to regulate the amount of use allowed to ensure it was sufficiently low to achieve the overall goal of reducing impairment for future generations.

Zoning. Management agencies might also consider a zoning approach, where a wilderness area would accommodate several categories of wilderness uses.²⁹⁶ Such a plan was set forth in the Kenai wilderness management proposal.²⁹⁷ This proposal divided the Alaskan wildlands into zones, where each zone would be managed consistent with the zone's primary purpose. Some zones were set aside for wildlife habitat, some were designated as human campsites, and some were deemed valuable as wildlife breeding grounds. Human activities contrary to the primary purpose of the zone were discouraged.

The premise of this plan was that the language of the Wilderness Act did not suggest that all wilderness "need be managed identically nor managed for each and every possible use."²⁹⁸ Rather, the Wilderness Act accepts the existence of non-conforming uses and variances as management tools.²⁹⁹ A zoning approach would not only segregate incompatible uses, it would also exclude some uses altogether, such as roads, motorized vehicle operations and commercial enterprises.³⁰⁰

No Human Access. To the extent that human presence conflicts with a wild ecosystem, some wilderness areas could be made off limits to all humans. This pure preservationist non-use goal — protecting wilderness for its own sake — might in the long run benefit recreationists. After being set aside for a lengthy period of time, such areas would naturally repair themselves and be ready to support future recreationists' demands. Setting aside some areas for no use by humans is in line with the purpose of the Wilderness Act. Overuse and over-recreating means that the resource is likely no longer in its "natural condition[] . . . with the imprint of man's work substantially unnoticeable."³⁰¹ These areas have lost wilderness qualities. Set-

²⁹⁵ *High Sierra Hikers Ass'n v. Blackwell*, 390 F.3d 630, 648 (9th Cir. 2004).

²⁹⁶ Nagle, *supra* note 28, at 1000.

²⁹⁷ *Id.*

²⁹⁸ *Id.*

²⁹⁹ Michael McCloskey, *The Wilderness Act of 1964: Its Background and Meaning*, 45 OR. L. REV. 288, 303 (1966).

³⁰⁰ Nagle, *supra* note 28, at 1000.

³⁰¹ 16 U.S.C. § 1131(c) (2000).

ting aside “no human use areas” would allow these lands to regain their wildness and naturalness, and return the ecological benefits produced by truly untouched areas that inspired the passage of the Wilderness Act.³⁰² A “no human access” rule would, however, create difficulties. First, such an approach would be inconsistent with both the legislative language and intent of the Wilderness Act. The Act explicitly permits an unlimited number of human visitors to enjoy a wilderness area’s free “outstanding opportunit[y] for solitude . . . [and] . . . primitive . . . type[s] of recreation.”³⁰³ One important purpose of the Act was to set aside some lands for human recreation.³⁰⁴ Second, it would be impossible to enforce such a rule, especially when the violators would most probably be hikers who are far more difficult to detect than invaders with motorized vehicles. Moreover, agency enforcement personnel monitoring no-human access locations might themselves, by their presence, violate the rule. Third, public enthusiasm for the creation of additional wilderness areas might be dampened if the public realized that they might be “fenced out” of parts of these lands.

B. Individual Transferable Use Quotas: Private Property Response

The history of America’s wild lands is really a history of government decisions to own, enclose, and control uses of those lands. On a federal level, the focus of this Article, these decisions have progressed in a series of three waves, where each wave entailed increasing restrictions on human use of wild lands. In the first wave, the vast wild lands owned by the United States were placed under the jurisdiction of federal agencies whose job it was to regulate these open spaces consistent with various statutory mandates.³⁰⁵

In the second wave, smaller-scale classes of specially protected wilderness areas were created within these federal lands by the passage of the Wilderness Act of 1964³⁰⁶ and the Wild and Scenic Rivers Act of 1968.³⁰⁷ Additional federal wild lands were afforded protection as WSAs pursuant to

³⁰² See Sigurd F. Olson, *The Spiritual Need*, in WILDERNESS IN A CHANGING WORLD 215 (Bruce M. Kilgore ed., 1965) (discussing how those who are interested in preserving wilderness must “build a broader base of values than physical recreation, a base of sufficient depth and solidity to counter the charge that it exists for only a privileged and hardy few”).

³⁰³ 16 U.S.C. § 1131(c).

³⁰⁴ Zellmer, *supra* note 146, at 1040.

³⁰⁵ If one excludes the impact of the Wilderness Act, federal agencies have managed wild lands under various statutes. The Forest Service has regulated wild lands within national forests pursuant to the Organic Act of 1897, 15 U.S.C. § 473 (2000); the Multiple Use Sustained Yield Act of 1960, 16 U.S.C. §§ 528-531; and the NFMA, *Id.* §§ 1600-1614. The BLM has regulated wild lands within its jurisdiction (primarily arid lands and range lands) according to the Taylor Grazing Act, 43 U.S.C. §§ 315-315r (2000), and the Federal Land Management and Policy Act, *Id.* U.S.C. §§ 1701 *et seq.* The NPS has managed its wild lands pursuant to the National Park Service Organic Act, 16 U.S.C. § 1, and the Antiquities Act of 1906, *Id.* § 431. The Fish and Wildlife Service has addressed its wild lands under the Refuge Administration Act, *Id.* §§ 668 *dd*.

³⁰⁶ 16 U.S.C. §§ 1131-36.

³⁰⁷ 16 U.S.C. §§ 1271-87.

FLPMA,³⁰⁸ and as roadless areas under the NFMA.³⁰⁹ Wilderness-use rules during this second wave divided the universe of potential users into two categories — those who may access wilderness (e.g., hikers), and those who are prohibited from such access (e.g., ORV users). These rules created a *de facto* commons in wilderness, where would-be users viewed the resource as a place where one group controlled it and another group was excluded.³¹⁰ For the designated users, these same rules also created an open-access situation, where no user had the right to exclude another designated user.³¹¹ Second wave rules that prohibited non-designated would-be users, and granted unlimited access to designated users, caused (1) resource overuse, producing large-group negative externalities for non-users and true commons tragedies for users, and (2) resource popularity conflicts, resulting in would-be users thwarting efforts to increase resource supply.³¹²

These problems associated with excessive demand and unexpanding supply are generating a third wave of wilderness rules. These rules rely on traditional command-and-control regulations which seek to curb use and protect supply. As noted above in Part IV.A, these third wave rules try to (1) limit access (by permit, license, or quota), (2) limit acreage available for use, (3) limit what one does when using wilderness areas, and (4) limit where use can take place. Unfortunately, this third wave response to the problem of wilderness carries with it two disabilities. First, as has been evident in so many other environmental protection schemes, “command-and-control often fails to achieve the environmental results hoped for.”³¹³ Second, command-and-control regulation does not address the underlying reason for the problem, which is the presence of market failures usually brought about by the absence of private property rights.³¹⁴

Resource economists have long recognized that when there is an unowned “commons” or “open access” asset like wilderness, users of the asset will tend to overuse it.³¹⁵ There are two alternative mechanisms for avoiding this tragedy of overuse: (1) the resource can be subjected to government command-and-control regulation, or (2) the overexploited resource can be changed from an asset where there are no property interests, to one where it becomes subject to private ownership.³¹⁶ Although a regulatory response to an overused resource is certainly preferable to no action at all, and although traditional command-and-control schemes have certain inherent ef-

³⁰⁸ 43 U.S.C. § 1782(a), (c). The National Landscape Conservation System was also created in the Clinton Administration in 2000 to manage BLM lands deemed suitable as wilderness. See John D. Leshy, *The Babbitt Legacy and the Department of the Interior: A Preliminary View*, 31 ENVTL. L. 199 (2001).

³⁰⁹ See generally 16 U.S.C. § 1131(c); Zellmer, *supra* note 146.

³¹⁰ See *supra* notes 57-59 and accompanying text.

³¹¹ See *supra* note 56 and accompanying text.

³¹² See *supra* Part II.

³¹³ Eric Orts, *Reflexive Environmental Law*, 89 Nw. U. L. REV. 1227, 1236 (1995).

³¹⁴ See *supra* notes 14-20 and accompanying text.

³¹⁵ Hardin, *supra* note 7, at 1244-45; COLE & GROSSMAN, *supra* note 6, at 97.

³¹⁶ LAITOS ET AL., *supra* note 2, at 35; Hardin, *supra* note 7, at 1247.

ficiencies,³¹⁷ a government response does not resolve the critical problem — the absence of property rights — that prevented the market from operating efficiently in the first place. What government regulation does is *displace* the market as a resource allocative mechanism. If users can acquire ownership interest in the resource, the relevant market in that resource would be established, and that market should, in theory, produce allocative efficiencies which would dampen overuse.³¹⁸

Instead of relying on third wave, top-down, command-and-control permits, quotas, use restrictions, and zoning rules, wilderness decision-makers should consider a fourth wave that relies on a bottom-up property rights approach to the wilderness problem. Such an approach is consistent with what economists and commentators have advocated for addressing overuse problems associated with common-pool resources like wilderness.³¹⁹ Moreover, a fourth wave property rights response has already been implemented or proposed for a number of other commons problems, ranging from pollution of the atmosphere,³²⁰ pollution of water reservoirs,³²¹ exploitation of fisheries,³²² overgrazing of rangeland,³²³ destruction of wetlands,³²⁴ to protec-

³¹⁷ See generally Daniel Cole & Peter Grossman, *When Is Command-and-Control Efficient? Institutions, Technology, and the Comparative Efficiencies of Alternative Regulatory Regimes for Environmental Protection*, 1999 WIS. L. REV. 887.

³¹⁸ See TERRY L. ANDERSON & DONALD R. LEAL, *FREE-MARKET ENVIRONMENTALISM* 27-34 (1991).

³¹⁹ See, e.g., Thomas Dietz et al., *The Drama of the Commons*, in *THE DRAMA OF THE COMMONS* 3 (Elinor Ostrom et al. eds., 2002); Carol M. Rose, *Rethinking Environmental Controls: Management Strategies for Common Resources*, 1991 DUKE L.J. 1 (1991); William W. Buzbee, *Recognizing the Regulatory Commons: A Theory of Regulatory Gaps*, 89 IOWA L. REV. 1 (2003); COLE, *supra* note 19, at 14-18. Two caveats should be made at this point. First, not all commentators agree that a market and private rights-based approach is the best response to a commons-type problem. See, e.g., Amy Sinden, *The Tragedy of the Commons and the Myth of a Private Property Solution*, 78 UNIV. COLO. L. REV. 533 (2007); COLE, *supra* note 19, at 48-59. Second, the wilderness resource is not a true common pool resource, but more of a hybrid. It is a government-owned resource where, because government rules have created two groups of potential users, the resource appears to be a *commons* for the excluded would-be users viewing the designated users. However, to the designated users it is an *open-access* resource since no designated user can exclude another. For purposes of Part IV.B, we will consider wilderness to be a special kind of “commons,” where the absence of property ownership interests in the commons asset causes the asset to be overused by the asset’s many users.

³²⁰ See, e.g., Clean Air Act Amendments of 1990 tit. IV, 42 U.S.C. §§ 7651-7651(o) (2000); Henry Mazurek, *The Future of Clean Air: The Applications of Futures Markets to Title IV of the 1990 Amendments to the Clean Air Act*, 13 TEMP. ENVTL. L. & TECH. J. 1 (1994) (discussing the creation of a national market for trading pollution rights under the Clean Air Act Amendments of 1990); COLE, *supra* note 19, at 51-57.

³²¹ Robert W. Hahn & Gordon L. Hester, *Marketable Permits: Lessons for Theory and Practice*, 16 ECOLOGY L.Q. 361, 391-96 (1989).

³²² See, e.g., Katrina Miriam Wyman, *From Fur to Fish: Reconsidering the Evolution of Private Property*, 80 N.Y.U. L. REV. 117 (2005); Carrie A. Tipton, *Protecting Tomorrow’s Harvest: Developing a National System of Individual Transferable Quotas to Conserve Ocean Resources*, 14 VA. ENVTL. L.J. 381 (1995); Peter Pearse, *From Open Access to Private Property: Recent Innovations in Fishing Rights as Instruments of Fisheries Policy*, 23 OCEAN DEV. & INT’L L. 71 (1992).

³²³ See Robert H. Nelson, *How to Reform Grazing Policy: Creating Forage Rights on Federal Rangelands*, 8 FORDHAM ENVTL. L. REV. 645 (1997).

tion of endangered species habitat.³²⁵ Although these fourth wave efforts have met with mixed success,³²⁶ they all share an important attribute — they correct the fundamental market failure associated with a commons, which is the absence of private property rights to, or in, the commons.³²⁷

In the case of the wilderness resource, the needed property right would be individual privately-owned transferable use quotas, analogous to marketable pollution permits now used in the Clean Air Act.³²⁸ Such quotas would provide the holder with a right to some percentage of the wilderness commons; the right could be to a time period within the resource, to a certain part of the resource, or to a particular kind of use while there. The right would be fully transferable among qualified users, so that under standard market predictions, it would eventually (and theoretically) wind up close to Pareto optimality.³²⁹ Some cap on these quotas would have to be set by a regulatory authority in order to accomplish two wilderness goals that are now in jeopardy: (1) to keep the wilderness wild and thereby restore the positive externalities once enjoyed by non-users before the resource was overexploited;³³⁰ and (2) to return wilderness to a condition where users can again experience “outstanding opportunity for solitude.”³³¹

Since some mechanized and virtually all motorized recreationists are usually incompatible with the positive externalities and opportunities for solitude that truly wild lands provide,³³² and since any human presence prevents the benefits of pure preservation,³³³ all federally designated wilderness ar-

³²⁴ EPA Announces Rules Aimed at Protecting Children, Wetlands, USA TODAY, Apr. 8, 2008, at A5 (describing regulations encouraging “mitigation banking” for developers needing to affect wetlands).

³²⁵ David Sohn & Madeline Cohen, *From Smokestacks to Species: Extending the Tradable Permit Approach for Air Pollution to Habitat Conservation*, 15 STAN. ENVTL. L.J. 405 (1996).

³²⁶ James T. B. Tripp & Daniel J. Dudek, *Institutional Guidelines for Designing Successful Transferable Rights Programs*, 6 YALE J. ON REG. 369 (1989); Hahn & Hester, *supra* note 321, at 149-50; Kathleen A. Miller, *Water Banking to Manage Supply Variability*, in 1 ADVANCES ECON. ENVTL. RESOURCES 185 (1996); Barton H. Thompson, Jr., *Institutional Perspectives on Water Policy and Markets*, 81 CAL. L. REV. 671 (1993); Thompson, *supra* note 74.

³²⁷ Resource economists have systematically studied the relationship between the absence of property rights and resource depletion and overuse. Many have concluded that lack of ownership inevitably produces a condition of overexploitation. Open-access, unowned environmental resources, whether they are fisheries, rangeland, the atmosphere, or wild lands, tend to be both depleted and polluted by their users. The central fact of an open-access resource of a commons is this: the inability of any user or group of users to enforce their management decisions against any other user or group of users will eventually obstruct conservation of the resource. The market for that resource therefore fails, due in large part to the absence of a meaningful property regime for resource users. See Anthony C. Scott, *The Fishery: The Objectives of Sole Ownership*, 63 J. POL. ECON. 116 (1955); Hardin, *supra* note 7; COLE & GROSSMAN, *supra* note 6, at 4-6.

³²⁸ 42 U.S.C. § 7651(b) (2000); James E. Wilen, *Renewable Resource Economists and Policy: What Differences Have We Made?*, 39 J. ENVTL. ECON. & MGMT. 306, 316 (2000).

³²⁹ A situation among competing uses is said to be Pareto optimal if no one can be made better off without making at least one person worse off. COLE & GROSSMAN, *supra* note 6, at 10-11.

³³⁰ See *supra* notes 21-32 and accompanying text.

³³¹ See *supra* notes 53-75 and accompanying text.

³³² See *supra* Part II.C.

³³³ See *supra* notes 33-36 and accompanying text.

eas³³⁴ and *de facto* wilderness³³⁵ must first be classified according to whether they should be subject to (1) no human use, (2) low-impact, non-mechanized use, or (3) high-impact recreational use. Such a segregation of federal wild lands would be an important first step towards moderating wilderness resource popularity conflicts. Then several necessary steps must take place: (1) the creation of a “market” in the wilderness resource for both users and would-be users; (2) the establishment and distribution among potential users of property interests in such markets; and (3) the initiation of a transferable use quota system among new owners. As will be discussed below in Part IV.B.2, this second set of steps helps to correct the fundamental market failure that has precipitated the problem with wilderness.

1. *Segregate Different Classes of Wild Lands*

Unlike many commons, where one type of user overexploits a commons resource such as fish³³⁶ or range grass,³³⁷ the wilderness commons is valued by at least three different classes of persons. First, pure preservationists believe wild lands have important non-use ecological and biological value, and therefore should remain largely untouched by any human presence.³³⁸ Second, the drafters of the original Wilderness Act, and, one can presume, many current users of wilderness, believe wild lands are best suited to low-impact recreational access, like hiking and horse riding.³³⁹ Third, owners of mountain bikes and ORVs believe these lands should not be closed to high-impact forms of recreation,³⁴⁰ and instead should support responsible mechanized and motorized uses.³⁴¹ The inevitable clash between these three incompatible groups results in a wilderness resource popularity conflict, which should be the initial wilderness problem addressed by a fourth wave government response.

Before a wilderness market failure can be corrected by a property rights solution, one needs to define (or create) the relevant market in which these new property rights are to operate. For wild lands commons, there are, in theory, three separate markets: wild lands suitable for (1) no human presence (the *non-use market*); (2) low-impact recreational use (the *hiker-horse rider market*); and (3) high-impact recreational use (the *biker-ORV market*). Once these three markets have been identified on the ground, and classified according to use suitability, the next step is to decide if individual property

³³⁴ For example, those areas that have become part of the federal wilderness system under the Wilderness Act of 1964, 16 U.S.C. §§ 1131 *et seq.* (2000).

³³⁵ For example, those roadless Forest Service lands and BLM WSAs that might be suitable for eventual wilderness designation. *See supra* notes 306-07.

³³⁶ Jonathan H. Adler, *Conservation Through Collusion: Antitrust as an Obstacle to Marine Resource Conservation*, 61 WASH. & LEE L. REV. 3, 9-10 (2004).

³³⁷ Hardin, *supra* note 7, at 1245.

³³⁸ *See, e.g.*, Laitos & Reiss, *supra* note 5, at 1099.

³³⁹ 16 U.S.C. § 1133(b) (2000).

³⁴⁰ Stroll, *supra* note 133.

³⁴¹ *See supra* notes 9-10 and accompanying text.

rights should be assigned to persons wishing to access or use the resources within the markets.³⁴²

How then should one decide whether federal wild lands fall within the non-use market category, where there will be no property rights, or the hiker-horse rider or biker-ORV markets, where there will be a property system to allocate rights of access and use? Three decisional guidelines are in order. First, the identification and classification of wild lands should be made by some objective regulatory body, and not by the various wilderness constituencies. In other words, pure preservationists and low- and high-impact recreationists should not be able to bid on which lands become non-use, hiker-horse rider lands, or biker-ORV lands, where the highest bid controls. Such a “pure” market system would mean that relative wealth and organization would determine land use, instead of the intrinsic qualities and nature of the land itself.³⁴³ The implementation of a bottom-up property rights approach does not obviate the need for resource managers to define, classify, and segregate the relevant markets.³⁴⁴

Second, the three wild lands markets are mutually incompatible. Lands set aside for non-use cannot, by definition, tolerate either low-impact or high-impact recreational use. Hikers and horse riders interfere with non-use lands, and high-impact mechanized and motorized recreationists interfere with both non-use values and the traditional “opportunities for solitude” enjoyed by hikers and horse riders.³⁴⁵ Therefore, the three wilderness markets cannot share wild lands — they must be segregated from one another.

Third, the classification of federal wild lands should be made according to objective, empirically derived criteria, which would be applied to all inventoried wilderness areas. For example, areas would have high non-use value if they were biologically fragile, so overused that humans should be barred, uniquely valuable for their ecology, biodiversity, and wildlife

³⁴² Although the administration of individual transferable use quotas will be discussed in Part IV.B.2 below, the non-use market would not require the creation of any property rights of access or use. For these lands there really is no traditional market and there is no use allowed there; these pure preservation lands need to be segregated from the lands encompassing the remaining two use markets.

³⁴³ When users of a commons have sought to curb their tendency to overuse and thereby deplete the asset within the commons, the first issue is determining who is eligible to compete for the asset. Some of the most successful common property solutions make all potential users eligible, regardless of wealth, ensuring that there is an equal opportunity for a slice of the commons' pie. Cf. COLE, *supra* note 19, at 97. However, one difficulty with this “every-user-is-eligible” approach is that individual users often have high private discount rates, which means they are short-sighted and they discount future costs in favor of immediate gain. Colin W. Clark, *Profit Maximization and the Extinction of Animal Species*, 81 J. POL. ECON. 950, 951 (1973).

³⁴⁴ See, e.g., Bruce A. Ackerman & Richard B. Stewart, *Reforming Environmental Law: The Democratic Case for Market Incentives*, 13 COLUM. J. ENVTL. L. 171, 179 (1988); Daniel J. Dudek et al., *Environmental Policy for Eastern Europe: Technology-Based Versus Market-Based Approaches*, 17 COLUM. J. ENVTL. L. 1, 8 (1992).

³⁴⁵ Note, however, that pure preservation non-use lands and hikers and horse riders do *not* interfere with mountain bikers and ORVs. High-impact mechanized/motorized recreationists conflict with all other wilderness land designations, but not vice versa. See Laitos & Reiss, *supra* note 5, at 1098-1103.

habitat, or capable in a totally natural state of yielding positive externalities enjoyed by non-users. Roadless lands that are accessible to urban populations, are especially suitable for human or horse powered recreation, or have multiple opportunities for mountaineering, climbing, camping, or wildlife watching, would be candidates as hiker-horse rider markets. Lands with old or new roads which do not have high natural ecological value, or whose terrain is ideal for mechanized or motorized forms of recreation could qualify as biker-ORV markets. The precise mechanism for deciding which federal wild lands would fall within which category could use some formula which assigned "suitability points" to land based on its value (1) preserved in its natural state, (2) used by hikers and horse riders, or (3) used by mechanized/motorized recreationists.³⁴⁶

Once all federal wild lands have been so designated, some would be set aside for non-use, and the other two markets would emerge — one for hikers and horse riders, and one for bikers and ORVs. Although the participants in these two markets might disagree over the quantity and location of the land assigned to each, the fact that there are two markets, not one, should eliminate (or reduce) the resource popularity conflicts that follow when one group of potential users is included and the other is excluded.³⁴⁷ The final step is to ensure private ownership interest in these two markets to prevent a true tragedy of the wilderness commons caused by unrestricted resource overuse³⁴⁸ experienced by the users themselves.³⁴⁹

2. *Property Rights to the Wilderness Resource*

Markets will not function at all, and they will certainly not function efficiently, if property rights to the market's goods are either non-existent or uncertain.³⁵⁰ The absence of property rights leads to allocative inefficiencies and overexploitation of unowned market resources.³⁵¹ This is exactly what has happened to the current propertyless wilderness market, where assets have been overused by designated market participants — low-impact recreationists.³⁵² Moreover, the lack of property rights has produced, for these users, a true tragedy of the commons.³⁵³ If a newly created hiker-horse rider market in federal wild lands is to avoid these problems, some property rights system must be put in place which allocates rights of access and use. To

³⁴⁶ See Sohn & Cohen, *supra* note 325, at 411-12 (proposing that a habitat trading program begins with some regulatory authority assigning "quality points" to land based on its value as biological habitat).

³⁴⁷ See *supra* note 9 and accompanying text.

³⁴⁸ See *supra* Part II.B.1.a.

³⁴⁹ Reducing overexploitation of the resource should also reduce the large-group negative externalities experienced by non-users affected by excessive use of a neighboring commons. See *supra* notes 37-38 and accompanying text.

³⁵⁰ COLE & GROSSMAN, *supra* note 6, at 13-14; LAITOS ET AL., *supra* note 2, at 25.

³⁵¹ See Hardin, *supra* note 7.

³⁵² See *supra* notes 51-52 and accompanying text.

³⁵³ See *supra* Part II.B.1.a.

ensure that a newly created biker-ORV market will not suffer a similar fate as the current wilderness market, property rights must also be deployed for the high-impact recreationists in that market.

Any such scheme would likely be modeled on other tradable environmental property rights that have been proposed or implemented for fisheries,³⁵⁴ the atmosphere,³⁵⁵ and other natural resource commons.³⁵⁶ Economists and other commentators have long argued that these fourth wave tradable, or transferable, individual right systems are far more efficient than command-and-control regimes.³⁵⁷ They almost always have three key components. First, some regulatory authority puts a cap on the amount of private use or exploitation that the resource can sustain without being depleted or degraded. Second, this same authority sells, auctions, or assigns individual property rights to those who wish to use, access, or remove resource goods consistent with the earlier established cap. Finally, individual right holders then enjoy the advantages of having a property interest in a market, not a commons, which they may transfer or sell to other potential market participants (which should result in lower compliance costs).³⁵⁸

Setting Use Caps. Once the hiker-horse rider and biker-ORV markets have been carved out of federal wild lands, some regulatory entity must set a cap on the amount of private use that is to be permitted within these two markets.³⁵⁹ Such a cap would be determined in light of several goals. For the hiker-horse rider market, the number of participants would need to be reduced to a point where users do not experience a true tragedy of the commons,³⁶⁰ and non-users do not experience the large-group negative externalities brought about by resource overuse.³⁶¹ For participants in the biker-ORV market, their numbers also would have to be regulated so they would not

³⁵⁴ Anthony D. Scott, *Conceptual Origins of Rights Base Fishing*, in RIGHTS BASED FISHING 11, 26 (Philip A. Neher et al. eds., 1989).

³⁵⁵ See T.H. Tietenberg, *Economic Instruments for Environmental Protection*, in ECONOMIC POLICY TOWARDS THE ENVIRONMENT 86 (Dieter Helm ed., 1991).

³⁵⁶ See Bruce A. Ackerman & Richard B. Stewart, *Reforming Environmental Law*, 37 STAN. L. REV. 1333 (1985).

³⁵⁷ Richard B. Stewart, *United States Environmental Regulation: A Failing Paradigm*, 15 J.L. & COM. 585, 587 (1996). None of these commentators argue that these tradable rights programs should rest on a "pure" market system; some regulatory authority must set up and then provide oversight of the market's operations. See Dudek et al., *supra* note 344, at 8.

³⁵⁸ See generally J. H. DALES, POLLUTION, PROPERTY AND PRICES (1968); James L. Huffman, *The Inevitability of Private Rights in Public Lands*, 65 U. COLO. L. REV. 241 (1994).

³⁵⁹ Such caps are the norm for the fisheries commons. See Larry Wheeler, *Fishing Communities Wait for the Hammer to Fall: Debate Heats Over Catch Limit for Red Snapper*, USA TODAY, Aug. 29, 2006, at 7B.

³⁶⁰ A reduction in the number of users of the hiker-horse rider market would also move wilderness visitation numbers to before the congestion point. See *supra* notes 78-81 and accompanying text.

³⁶¹ See *supra* note 37 and accompanying text.

encounter their own tragedy of the commons,³⁶² and their particular form of high-impact recreation would not produce irreversible ecological damage.³⁶³

Use caps seem like a logical first step towards the goal of curbing overuse of the wilderness commons. Unfortunately, when such caps have been contemplated or implemented for other open-access or common property situations, two challenges immediately surface. First, someone or some entity must set the use limit. For open access locations like the atmosphere, or the oceans, the government continues to play the key role in setting overall caps or limits on air pollution or ocean fish catch.³⁶⁴ For smaller, land-based commons, such as grazing meadows and rivers, users have decided among themselves the appropriate use limit.³⁶⁵ In the case of wilderness, the class of users and would-be users is so large, it would be foolish and impossible to turn the task of setting use limits over to the potential users themselves. Some regulatory authority would have to make that decision, with input from the affected class of users.

Second, such a regulatory authority would have to determine by what criteria the use cap would be set. It would seem that the level of use deemed acceptable would have to be at a point where the protected resource — the wilderness — would not be degraded by excessive use. For the users, any maximum use level should be before the congestion point is reached.³⁶⁶ For non-users, the appropriate use level would need to be set prior to the creation of large-group negative externalities brought about by overuse.³⁶⁷

Allocation of Individual Property Use Rights. Once these two caps have established total allowable use limits within each market, some government authority then allocates individual use “quotas” to individuals and entities wishing to access these markets and enjoy their recreational goods. The sum of these quotas must be within the use cap for each market in order to ensure that the goals for each market are achieved.³⁶⁸ The quotas can, in theory, be distributed either freely, by some lottery or a first-come, first-serve basis, or through purchase, by sale or highest-bid auction. The former means of distribution has the advantage of avoiding equitable concerns that might emerge under an ability-to-pay system; the latter has the advantage inherent in a market pricing systems, where costs of use are internalized and reflected in the price paid for the quota.

³⁶² In other words, mechanized recreationists seem to accept other mechanized recreationists near them, while hikers and bikers generally enjoy recreating alone or with only a few hikers or bikers nearby. See Laitos & Reiss, *supra* note 5, at 1101-03.

³⁶³ The environmental damage caused by ORVs has even been noted by the United States Supreme Court: “The use of ORVs on federal land has negative environmental consequences, including soil disruption and compaction, harassment of animals, and annoyance of wilderness lovers.” Norton v. S. Utah Wilderness Alliance, 542 U.S. 55, 60 (2004).

³⁶⁴ See Sinden, *supra* note 319, at 538; COLE, *supra* note 19, at 51-57.

³⁶⁵ OSTROM, *supra* note 71, at 61-64, 71-74.

³⁶⁶ See *supra* Part II.B.1.a.

³⁶⁷ See *supra* Part II.A.

³⁶⁸ See Larry Rohter, *Brazil Bets on Forest Plan*, DENVER POST, Jan. 14, 2007, at A2 (discussing how to address overexploitation of Brazil’s timber commons, the government’s limit on harvesting, and auctions of timber rights to rainforests).

An individual quota is a property interest entitling the owner to a guaranteed share of the market — in the case of the two wilderness markets, this could translate into some fixed percentage of allotted use of the resource, number of visits, duration of visits, dates or seasons of visits, acreage accessed or some combination of all of these variables. The theory behind individually owned quotas for “shares” in an open-access/commons situation can be traced to Harold Demsetz’s seminal article, *Toward a Theory of Property Rights*.³⁶⁹ Demsetz argued that when resource scarcity or overuse rises to a level where there is a threat to the continued existence of the resource, private property rights in that resource will emerge out of necessity. Such privatization is intended to reduce negative externalities on non-users, and transaction costs among users, that otherwise impede efficient resource conservation.

This embrace of free-market, private property driven solutions to environmental ills has been fueled by two assumptions. First, private owners of a resource, or holders of individual quotas, within the marketplace will make better resource management decisions than users who do not have an ownership stake in the resource.³⁷⁰ Second, resource decisions made pursuant to a private property market-based system are preferable to resource management decisions by some central regulatory authority.³⁷¹ Those who agree with these twin assumptions have touted the many theoretical benefits that should follow from having private owners operate within a resource market place. These benefits range from private resource owners taking a longer-term perspective in resource management decision-making,³⁷² to privatization bringing about efficient solutions to pollution and resource depletion problems associated with open-access/commons situations.³⁷³ Free-market economists and environmentalists have also advocated for, and in some cases have influenced the adoption of, individual transferable quota systems for a variety of resource pollution-depletion issues, from fishery management to air pollution, and from habitat conservation to rangeland preservation.³⁷⁴

³⁶⁹ Demsetz, *supra* note 16.

³⁷⁰ Hardin, *supra* note 7, at 1244-45.

³⁷¹ CLIFFORD S. RUSSELL, *APPLYING ECONOMICS TO THE ENVIRONMENT* 191 (2002).

³⁷² Richard Stroup and Sandra Goodman, *Property Rights, Environmental Resources, and the Future*, 15 HARV. J. L. & PUB. POL’Y 427, 431-32 (1992).

³⁷³ See ANDERSON & LEAL, *supra* note 318, at 27-34.

³⁷⁴ See LAITOS ET AL., *supra* note 2, at 40 (arguing that individual transferable quotas are a promising means of correcting market failure with ocean fisheries) (citing Richard G. Newell, James N. Sanchirico, & Suzi Kerr, *Fishing Quota Markets* (Resources for the Future Discussion Paper 02-20, 2002)); COLE, *supra* note 19, at 51-57 (the Clean Air Act’s transferable emissions allowance program for sulfur dioxide); Sohn & Cohen, *supra* note 325 (habitat); Nelson, *supra* note 323 (rangeland); see also Carol M. Rose, *The Several Futures of Property: Of Cyberspace and Folk Tales, Emission Trades and Ecosystems*, 83 MINN. L. REV. 129, 130 (1998).

Individual transferable quota systems may be appealing in theory, but have enjoyed mixed success in practice.³⁷⁵ Much of the difficulty centers around the initial allocation of individual transferable quotas. Disputes arise when such systems try to determine (1) who is eligible for a quota,³⁷⁶ and (2) the nature, extent, and rights associated with each quota.³⁷⁷ For example, in the case of Alaskan fisheries adopting individual transferable quotas, fishers who did not receive quota shares in the initial allocation (for failure to satisfy eligibility criteria) pursued litigation challenges against the initial allocation.³⁷⁸ Other systems of individual tradable rights have been delayed by fierce competition for quotas.³⁷⁹ Of course, if the initial allocation is based on any method other than lottery or free distribution, issues of equity also inevitably arise. In the case of wilderness, one would obviously not want to propose a wealth-based allocative mechanism (e.g., highest bid at an auction) for the distribution of use shares.

Transferability. Once persons or entities have acquired ownership in the individual use quotas, they may trade these rights to others. There are three primary purposes served in allowing trading. First, it ensures that the use right will eventually wind up with the user that most wants to use the resource. Assume for example, that a hiker owns an individual transferable quota allotting this user ten days per year in a specific wilderness. If the hiker discovers that five days of visits annually is sufficient, he can trade or sell the unneeded five days to another hiker whose use levels require an additional five days. Second, the resource itself may be better protected if owners with unused quotas decide not to sell them to others, but instead bank them to promote conservation. Finally, these two benign results occur (in theory) costlessly, because the trade transactions take place in a market where exchanges do not require government oversight or regulation.³⁸⁰

³⁷⁵ See, e.g., Robert W. Hahn & Gordon L. Hester, *Marketable Permits: Lessons for Theory and Practice*, 16 *ECOLOGY L.Q.* 361, 391-93 (1989) (reviewing the less-than-successful transferable pollution rights program on Wisconsin's Fox River).

³⁷⁶ COLE, *supra* note 19, at 119-20 (comparing successful common property regimes where eligibility was determined by potential users drawing lots and limiting use according to operational rules formulated by the users, with unsuccessful systems which collapsed because the users (quota holders) failed to develop effective rules for limiting entry and use).

³⁷⁷ OSTROM, *supra* note 71, at 64, 73 (1990) (reviewing varying degrees of success with quota limits based a "proportional-allocation" rule and an "as-needed" rule).

³⁷⁸ *Alliance Against IFQs v. Brown*, 84 F.3d 345 (9th Cir. 1996).

³⁷⁹ See, e.g., *Sea Watch Int'l v. Mosbacher*, 762 F. Supp. 370 (D.D.C. 1991).

³⁸⁰ DALES, *supra* note 358, at 107. Of course, without some clearinghouse of individual transferable use quotas, transaction costs might frustrate these trades and make negotiations among users difficult. If such a clearinghouse is operated by the government, then one can seriously challenge the assumption that the transferable individual use quota system can be accurately characterized as a privatization solution. See Sinden, *supra* note 319 (criticizing existing environmental trading markets using transferable quotas as being *de facto* government regimes). Moreover, experience with some markets permitting trades of use rights has been disappointing. In the case of privately owned water rights, for example, rules surrounding transfer among users can make trading so cumbersome that transfers may rarely occur. See Joseph L. Sax, *Understanding Transfers: Community Rights and the Privatization of Water*, 1 *HASTINGS W.-N.W. J. ENVTL. L. & POL'Y* 13, 16 (1994).

Such a system of individual transferable quotas for wilderness use has several advantages. The creation of two separate, segregated wild lands markets should eliminate resource popularity conflicts, and obliterate the class of excluded would-be users. An externally-imposed cap on the number of users permitted in these markets should remove the large-group negative externalities (experienced by non-users) and the true tragedy of the commons (experienced by designated users). Participants in two markets where there are fewer users should have less resentment of other market users and a better experience with the market resource. Opposition to additional wilderness designation should then drop (except, of course by would-be commodity users), and supply of the resource might increase, thereby permitting the distribution of even more individual transferable use quotas. The creation of individual property rights to the resource could also instill in the owners a sense of land stewardship, consistent with eco-management goals, which would otherwise be absent in open-access propertyless commons.³⁸¹ And, of course, markets in wild lands with secure and fully alienable property rights will tend to function efficiently.³⁸²

Individual transferable use quotas for wilderness would be consistent with other privatization solutions to problems associated with common pool or open access resources.³⁸³ These contemplate the creation of environmental trading markets which have, like the use quotas for the wilderness markets proposed here, the following similar characteristics: (1) there is some cap established (by some government entity) for the level of resource exploitation allowed by all resource users; (2) permits, or quotas, are then distributed to all eligible resource users. The total number of these "shares" to the resource equals the overall cap; (3) the owners of the quotas may trade, or transfer, them to other users.³⁸⁴ Transferability means that a market is created in tradable property interests (e.g., use quotas for wilderness), where those interests should ultimately end up, after transactions among interest-

³⁸¹ Without property rights, no user or group of users can enforce their management decisions against any other user or group of users, leading to free-rider problems and resource overexploitation. COLE, *supra* note 19, at 6; OSTROM, *supra* note 71, at 6-7. When the cap is established taking into account the needs of the ecosystem, the imposition of a market-based system is consistent with ecosystem-based management.

³⁸² See Lisa Heinzerling, *Selling Pollution, Forcing Democracy*, 14 STAN. ENVTL. L.J. 300 (1995).

³⁸³ See James Salzman & J.B. Ruhl, *Currencies and the Commodification of Environmental Law*, 53 STAN. L. REV. 607, 609 (2000); Alison Rieser, *Prescriptions for the Commons: Environmental Scholarship and the Fishing Quotas Debate*, 23 HARV. ENVTL. L. REV. 393, 397 (1999); Rose, *supra* note 319, at 9-10.

³⁸⁴ See, e.g., R. Quentin Grafton, Dale Squires & Kevin J. Fox, *Private Property and Economic Efficiency: A Study of a Common-Pool Resource*, 43 J.L. & ECON. 679 (2000) (fisheries); 42 U.S.C. §§ 7401-7671(q) (2000) (acid rain emissions trading program under the 1990 Clean Air Act); J.B. Ruhl, Alan Glen & David Hartman, *A Practical Guide to Habitat Conservation Banking Law and Policy*, 20 NAT. RESOURCES & ENV'T 26 (2005) (habitat conservation).

holders, in the hands of those who can make most efficient use of them.³⁸⁵ In theory, then, the implementation of individual transferable quotas among users of wilderness should not only reduce resource overuse, but also ensure that those who use the resource pursuant to the quota will be those who most value the wilderness experience.

Despite these advantages, a market and property rights response to the problem of wilderness is not without some legitimate drawbacks. First, individual transferable use quotas may favor efficiency over equity. If use quotas are acquired through auction or purchase, some potential users without sufficient capital may not receive enough quota shares in the initial allocation to be able to access wild land; nor may they be able to buy additional shares in the secondary market.³⁸⁶ They are then excluded. Second, where transferable quota shares are introduced into a market, there is tendency toward transactions that result in consolidation.³⁸⁷ Such a consequence diminishes further the number of users who might otherwise wish to access the market. Finally, enforcement and monitoring costs must be incurred to ensure that quota owners do not “take” more of the resource than they have quota shares.³⁸⁸ The two new wild lands markets will not operate cost-free.

Each of these three issues — equity, exclusion, and enforcement — must be addressed and solved before any property rights system for wilderness use can be successful. Problems of equity can be alleviated by ensuring that use quotas are not distributed through auction or purchase, but instead are freely distributed among eligible users of the two markets.³⁸⁹ The tendency towards consolidation could be corrected by the imposition of limits on subsequent transferability when too many trades wind up in the hands of one user, or association of users.³⁹⁰ Enforcement costs could be defrayed by users themselves whose interest in the long-term viability of the wilderness

³⁸⁵ Richard B. Stewart, *Economics, Environment, and the Limits of Legal Control*, 9 HARV. ENVTL. L. REV. 1 (1985); Ackerman & Stewart, *supra* note 356; DALES, *supra* note 358, at 93-98.

³⁸⁶ See, e.g., Richard J. Lazarus, *Pursuing “Environmental Justice”: The Distributional Effects of Environmental Protection*, 87 NW. U. L. REV. 787, 848-49 (1993) (observing that a market system of transferable rights will tend to replicate existing income and property distributions that, to the extent such distributions are themselves the product of income disparity and racial discrimination will only continue to exacerbate inequitable results); BROMLEY, *supra* note 60, at 18, 37, 44, 49 (1991) (commenting that the initial distribution of quota/permit shares has a large “wealth” effect that influences whether a privatization solution produces an optimal outcome).

³⁸⁷ See Wyman, *supra* note 322, at 161.

³⁸⁸ See Hsu, *supra* note 8, at 132.

³⁸⁹ In the case of certain depleted Alaskan fisheries, for example, when an individual transferable quota system was instituted in 1995, the initial allocation of quotas was free to all who had fished (or who had the potential to fish) the fishery commons. See Tom Tietenberg, *The Tradable Permits Approach to Protecting the Commons: What Have We Learned?*, in THE DRAMA OF THE COMMONS, *supra* note 319, at 197, 208. Eligibility requirements for wilderness users should be liberally set, too, in order to ensure that a quota system does not exclude a class that might at some time wish to access wilderness areas. See, e.g., Alliance Against IFQs v. Brown, 84 F.3d 343, 346, 348 (9th Cir. 1996).

³⁹⁰ Wyman, *supra* note 322, at 161.

resource should prevent the kinds of actions that tend to deplete and degrade the resource over time.³⁹¹

The above three problems, and their possible resolution, suggest that a private property rights response to the wilderness problem cannot rely on a true privatization of the market for wilderness. As other commentators have pointed out, it is only in an idealized world that the creation of property rights and markets can alone solve the problem of resource overexploitation.³⁹² In the real world, it is necessary for a certain amount of government participation or intervention in a market for wilderness.³⁹³ And, in this real world, there are costs associated with market-based solutions that cannot simply be assumed away.³⁹⁴

For example, a use cap limit on wilderness access is a necessary precondition to the creation of a market for wilderness enjoyed by holders of individual transferable use quotas. Due to insurmountable transaction and information costs among potential users, such a cap must be set by government, not the market.³⁹⁵ Moreover, once a market in wilderness use is created, the individual use quotas that become the property interest within this market will not behave as property in a traditional market. First, the demand for a quota share will not track how much potential users derive satisfaction from having a quota in the abstract; instead, user demand will vary depending on where government has set the overall cap. If the cap is set low, there will be much use demand, and if it is set high, there will be less demand. Demand is determined not by individual preferences for a quota share, but by the government-established cap.³⁹⁶ This prominent role of government makes an individual use quota system less than a pure privatization solution.

Second, a use quota in the wilderness resource produces costs not seen in an idealized market. A quota does not constitute an ownership interest in a particular parcel of wilderness lands. Ownership of the land itself would act as an incentive for the user-owner to invest further in the resource itself

³⁹¹ Private users selfishly invested in the future of the resource may have a strong incentive to voluntarily alter their own conduct in order to protect the resource. See James Salzman, *Creating Markets for Ecosystem Services: Notes from the Field*, 80 N.Y.U. L. REV. 870, 885 (2005). However, users would likely engage in this conduct only after a cap had been imposed and quotas distributed. Prior to that point, users tend to view caps as current losses rather than long-term gains. Thompson, *supra* note 74, at 256.

³⁹² Sinden, *supra* note 319, at 538; COLE, *supra* note 19, at 93-96.

³⁹³ Any privatization response must take into account that at some point, the costs of government monitoring and enforcement of private actions within a common pool market may be so high as to offset the benefits of a private property/market regime. Cole, *supra* note 19, at 83 (arguing that "in some cases, it makes sense for the state to retain full control over resources, rather than allocating limited property 'rights' in environmental goods to private owners").

³⁹⁴ See, e.g., *id.* at 96 ("Once we move to the real world and bring transaction costs into play, it becomes apparent that the free market environmentalists have assumed a tremendous . . . burden of persuasion").

³⁹⁵ Sinden, *supra* note 319, at 570; Wendy E. Wagner, *Commons Ignorance: The Failure of Environmental Law to Produce Needed Information on Health and the Environment*, 53 DUKE L.J. 1619 (2004).

³⁹⁶ Sinden, *supra* note 319, at 571.

in order to maximize its value.³⁹⁷ But a wilderness use quota would likely be a right to access the entire wilderness for a fixed number of visits, or a right to visit a certain amount of wilderness acreage. Since the owner of a quota would reap no direct benefit from not exercising that quota right, even though the long-term health of the resource might benefit from the non-use, there would be no reason for the quota owner not to exercise the use right. Even more alarming, a quota owner who does not choose to exercise that right would create a benefit (one less user to spoil the wilderness experience) enjoyed only by the other quota owners.³⁹⁸

Besides the cost of deterring owner investment in the common pool resource, a system relying on individual transferable quotas can function efficiently only if there are low transaction costs associated with trading quotas.³⁹⁹ Unfortunately, with a potentially large diffuse group of wilderness users for both wilderness markets, transaction costs between them will certainly be positive and significant. Some government maintained registry or clearinghouse would therefore be needed, in order to facilitate quota trading and exchanges. While such a center would lower the transaction costs of trading, its presence would serve as another reminder of the continued role government would play, even with an individual transferable use quota system for wilderness.

V. CONCLUSION

A diminishing supply of federal and state wildlands is being overused by urban dwellers seeking solitude and recreational opportunities.⁴⁰⁰ To simply designate these lands as “wilderness,” where one class of users is included and another class is excluded, is to create an open-access commons problem fraught with resource overexploitation by users, large scale negative externalities borne by non-users, and resource popularity conflicts experienced by would-be users. This Article has suggested that traditional command-and-control responses to these problems do not address the core reason for wilderness failures — the absence of well-defined and enforceable property rights to the wilderness “market.”

A division of currently designated federal wild lands into three categories — non-use, hiker-horse rider, biker-ORV — should reduce resource popularity conflicts. The creation of two segregated use markets for wild

³⁹⁷ Private investment in owned property is a critical component of private property market-based systems. ANDERSON & LEAL, *supra* note 318, at 4; Sinden, *supra* note 319, at 575.

³⁹⁸ Sinden, *supra* note 319, at 575.

³⁹⁹ Even Ronald Coase recognized in his famous 1960 essay that markets function perfectly only when there are no transaction costs; conversely, very real transaction costs among market participants prevent an efficient and optimal outcome. R. H. Coase, *The Problem of Social Cost*, 3 J. L. & ECON. 1, 15 (1960).

⁴⁰⁰ See *supra* Part II.B.2.a (“An Unchecked Demand”); Jerod Smith, *Endangered State Parks*, ROCKY MOUNTAIN NEWS, Aug. 4, 2007, at 4 (observing that Colorado’s 41 state parks are being “overused” and “loved to death”).

lands acknowledges that wild lands are, in fact, a market containing goods (e.g., solitude, recreation) that market participants desire. The implementation of a use ownership regime for these markets could prevent the spillover effects and true commons tragedies that now plague federal wilderness areas. Such a market solution should minimize transaction costs, because after the initial allocation of use rights, bargaining over who can access the resource would be undertaken by private owners, not the government. Moreover, a privatization approach should lower regulatory costs since the two primary government roles are only the up-front need to (1) inventory and classify federal wild lands, and (2) make the initial distribution of use rights. Although this unprecedented market-and-property based scheme is not without risk, it does finally respond to the core reasons for wilderness commons failure brought about by our relentless march back to nature.

