Wilderness: Good for Alaska. Legal and Economic Perspectives on Alaska's Wilderness

E. Barrett Ristroph
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WILDERNESS: GOOD FOR ALASKA
Legal and Economic Perspectives on Alaska’s Wilderness*

E. Barrett Ristroph** and Anwar Hussain***

ABSTRACT: This article addresses the legal framework for Wilderness in Alaska, which has more land within the National Wilderness Preservation System than any other state, as well as the economic impacts and valuation of wildlands. Wilderness management in Alaska is subject to the Alaska National Interest Lands Conservation Act, which aims to ensure that rural Alaskans can use wildlife resources to sustain customary and traditional ways of life. The values of Wilderness range from direct economic benefits and revenue generated from recreation to passive values that are measured by the public’s willingness to pay for preservation. While there are challenges to estimating these values, economists and land management agencies can adopt a number of techniques to improve wilderness valuation and decision-making. Given the benefits of Wilderness to Alaska, and uncertainty about the potential consequences of development for unique natural landscapes, land management agencies should consider opportunities to designate additional Wilderness.

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* “Wilderness: Good for Alaska” is the slogan developed by Deborah Williams for Alaska Wild 50, a coalition of federal agencies, non-governmental organizations, and volunteers sponsoring events to commemorate the 50th anniversary of the Wilderness Act in Alaska.
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The authors appreciate the assistance of Nicole Whittington-Evans, Alaska Regional Director of the Wilderness Society, as well as Tim Lydon of the Wilderness Program, Glacier Ranger District Chugach National Forest.
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Wilderness. The word means something different to everyone, particularly in Alaska, where there are more open, undeveloped lands than in any other state. For some, wilderness is the promise of adventure. For others, wilderness supports a traditional way of life that depends on hunting and fishing. For others still, wilderness harbors natural resources with great development possibilities. Debate over the meaning and purpose of wilderness is likely to increase as more wildlands are slated for development, uncertainty about the future availability of unique sites increases, and advances in technology fail to compensate for the depreciation of natural capital.

This article argues that aside from its inherent value, wilderness has economic value that should be considered by agencies charged with managing public lands. It discusses the unique wilderness management scheme established under the Alaska National Interest Lands Conservation Act (ANILCA), the economic benefits of preserving wildlands, and challenges to estimating these values. Finally, it outlines threats to Alaska’s wilderness and opportunities to preserve this valuable resource.

I. TERMINOLOGY: DEGREES OF WILDERNESS

A. Designated Wilderness Areas

This article uses the term “wildlands” to describe federal public lands that are generally roadless and not being developed for natural resource extraction. “Wilderness” with a capital “W”—the most protected form of wildlands—consists of lands designated by Congress as Wilderness in accordance with the Wilderness Act.1 This Act defines Wilderness as “an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions.”2 It is generally at least 5000

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2. 16 U.S.C. § 1131(c).
acres and has outstanding opportunities for solitude or primitive recreation. Collectively, America’s Wilderness lands make up the National Wilderness Preservation System.

The Wilderness Act requires agencies managing Wilderness areas to preserve their wilderness character. Commercial enterprises and permanent roads through Wilderness areas are generally prohibited, with a number of exceptions. Section 4(c) allows temporary roads, motor vehicles, aircraft landing, and structures only if they are necessary to meet minimum requirements for the administration of the area, or for emergencies involving the health and safety of people within the area. Section 4(c) also recognizes that all restrictions are “subject to existing private rights,” including the right of access to inholdings.

Section 4(d) of the Wilderness Act gives the Forest Service the discretion to allow “the use of aircraft or motorboats, where these uses have already become established,” to take actions to fight “fire, insects, and diseases,” and to allow commercial

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3. Id.


6. Id. § 1133(c).

7. Id.

8. Id.

9. Id. § 1134(a).

10. Id. § 1133(d)(1). The Wilderness Act does not provide this same authority to the agencies within the Interior Department, though some courts appear to have extended the authority. See e.g., Isle Royale Boaters Ass'n v. Norton, 154 F. Supp. 2d. 1098, 1117 (W.D. Mich. 2001) (referring to a National Park Service plan that would leave in place motorboat access to shelters within a Wilderness area), aff'd, 330 F.3d 777 (6th Cir. 2003); Wilderness Watch, Inc. v. Bureau of Land Mgmt., 799 F. Supp. 2d 1172, 1181 (D. Nev. 2011) (holding that BLM was correct in concluding that the established use exception under § 1133(d) allowed for the Wilderness area helicopter training). But see Brown v. Dep’t of the Interior, 679 F.2d 747, 751 (8th Cir. 1982) (holding that a reference in section 4(d)(3) to “national forest lands” applied only to those lands and not National Park Service lands).

services related to recreational or other wilderness purposes. Section 4(d) also allows location of minerals and oil and gas within Wilderness areas in National Forests if “carried on in a manner compatible with the preservation of the wilderness environment.” It specifically allows mineral location and development as well as exploration, drilling, and production on these lands if patented prior to 1984. Finally, section 4(d) gives the President the power to locate potential water development projects (including accompanying roads) within Wilderness areas; and it allows grazing established before the Act to continue. The Wilderness Act does not prohibit hunting, though it may be prohibited in National Parks and other conservation units.

B. Wilderness-in-Waiting

Here, “Wilderness-in-waiting” refers to lands that are proposed to be Wilderness or identified for further studies on wilderness characteristics, but have not been designated as Wilderness by Congress. These lands must generally be managed so as not to impair their suitability for wilderness designation. Lands have been placed into this management category as a result of wilderness reviews mandated by the Wilderness Act and other wilderness-related laws, as well as laws directing land use planning.

1. Bureau of Land Management

Section 603 of the Federal Land Policy and Management Act of 1976 (FLPMA) required the Bureau of Land Management (BLM) to inventory roadless areas of 5000 acres or more and

12. *Id*. § 1133(d)(5).
13. *Id*. § 1133(d)(2).
15. *Id*. § 1133(d)(4).
17. See *id*. § 1.2 (discussing the land managed under the National Park Service); Getty Oil Co. v. Clark, 614 F. Supp. 904, 919 (D. Wyo. 1985) (since the enactment of National Environmental Policy Act the Secretary of the Interior “is required to manage lands under Wilderness Act review so as not to impair suitability of such areas for preservation as wilderness”).
18. 16 U.S.C. § 1132(b)–(c).
make recommendations within fifteen years regarding the suitability of these areas for Wilderness designation. After this inventory, other BLM-managed wilderness study areas (WSAs) were established by Congress or by BLM through its land use planning process under Section 202 of FLPMA. BLM is directed to manage WSAs without impairing suitability of these areas for wilderness designation, but WSAs are open to new mining claims.

2. Fish and Wildlife Service

The U.S. Fish and Wildlife Service (FWS) conducts wilderness reviews in preparation of comprehensive conservation plans (CCPs) for its refuges. The review process identifies WSAs that meet the definition of wilderness in section 2(c) of the Wilderness Act. A CCP outlines specific management direction to maintain an area’s wilderness character until Congress makes a decision on the area or the

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21. 43 U.S.C. § 1782(c); BLM MANUAL 6330, supra note 20, at 1.2.
CCP is amended to modify or remove the suitable wilderness determination.25

3. National Park Service

All lands administered by the National Park Service (NPS) are supposed to be inventoried for wilderness suitability.26 Suitable lands are formally studied to develop a recommendation to Congress for wilderness designation.27 NPS is not supposed to take any action that would diminish the wilderness suitability of an area possessing wilderness characteristics until the legislative process of wilderness designation has been completed.28

4. Forest Service

The U.S. Forest Service conducts wilderness reviews in preparation of its Forest Plans.29 These identify Potential Wilderness Areas, which do not require a particular management scheme.30 Recommended Wilderness Areas are those areas that the Forest Service recommends to Congress as candidates for designation as Wilderness.31 Primitive Areas, many of which were designated by the Forest Service before the Wilderness Act, are administered in a similar manner as Wilderness areas, pending studies to determine suitability for

27. Id. § 6.2.2.
28. Id. § 6.3.1; 43 C.F.R. § 19.6 (2014) (“Regulations respecting administration and use of areas under the jurisdiction of the Secretary which may be designated as wilderness areas by statute shall be developed with a view to protecting such areas and preserving their wilderness character for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness, with inconsistent uses held to a minimum.”).
wilderness designation. The Forest Service’s Roadless Area Review and Evaluation process and subsequent assessments have identified many undeveloped roadless areas meeting the minimum criteria for wilderness consideration under the Wilderness Act. These areas share many of the same ecological and economic values as legislatively designated Wilderness and other wildlands.

Management of the Forest Service’s Roadless Areas under President Bill Clinton’s 2001 Roadless Rule has been the subject of litigation for many years. The rule generally prohibited roads in these areas (with some exceptions) and limited timber. President George W. Bush’s administration replaced the rule with the less protective State Petition Rule, but this also gave rise to litigation. As of 2014, the 2001 Roadless Rule appears to have been reinstated in the Lower 48, but may not apply to Alaska.
C. National Conservation Area

A National Conservation Area (NCA) is a permanent public land designation established by Congress to conserve land. There is no “organic act” for these areas, and the degree of protection depends on the authorizing legislation. NCAs are typically established on BLM-managed land, although some have been proposed on lands managed by other agencies. Unless prohibited by the authorizing agency, roads, logging, grazing, and motorized vehicles may occur within NCAs.

D. Monuments

A National Monument is a permanent public land designation established by the President under the Antiquities Act or by the President with Congressional approval. Once the President has designated a monument, only Congress may “undesignate” it. The cases in which Congress has undesignated Monuments are relatively rare; and many of the acts undesignating Monuments have established some type of conservation unit (such as a National Park) in the same area. The degree of protection depends on the language in the designating act or presidential proclamation, as well as the laws governing the managing agency. Unless prohibited by the authorizing agency or the proclamation, roads, logging, grazing, and motorized vehicles may occur within Monuments.


E. Other Wildlands

Wildlands without the above designations may be found on lands within National Forests, Parks, Refuges, and Preserves, as well as BLM-managed lands. Wildlands have different levels of protection depending on their designation, the land manager, and the applicable management plan. The unifying characteristic of all these wildlands is that they support healthy ecosystems and wildlife habitat, as well as opportunities for recreation, subsistence, cultural practices, scientific research, and education.

II. LEGAL FRAMEWORK FOR WILDERNESS IN ALASKA

A. Introducing ANILCA

The Alaska National Interest Lands Conservation Act (ANILCA) is an outgrowth of efforts to settle Native land claims. The Alaska Native Claims Settlement Act (ANCSA), passed in 1971, purported to extinguish all Alaska Native land claims and aboriginal title-based hunting and fishing rights. In place of the lower forty-eight’s system of Indian reservations and treaties, ANCSA established regional and village Native corporations endowed with almost one billion dollars and the right to select forty-four million acres of land.

One subsection of ANCSA focused on conservation: Section 17(d)(2) authorized the Department of Interior (DOI) to withdraw up to eighty million acres suitable for national parks, refuges, and wild and scenic rivers, and to recommend that Congress designate these lands as such. The section required Congress to act on DOI’s recommendations by

43. See, e.g., 16 U.S.C. § 668dd(a)(3)(C) (governing National Wildlife Refuges managed by FWS, this regulation provides that “compatible wildlife-dependent recreational uses are the priority general public uses of the System and shall receive consideration in refuge planning and management”). A road across Refuge land could only be granted if compatible with the purposes of the Refuge. Id. § 668dd(d)(1)(B). NPS may approve a road through a National Park only if it finds that the right-of-way “is not incompatible with the public interest.” Id. § 79.

44. 43 U.S.C. §§ 1601–1629.

45. Id. § 1603.

46. Id. §§ 1605–1607, 1611.

47. Id. § 1616(d)(2).
December 1978 or the withdrawal status would be terminated.48

Sixteen days before the withdrawals expired, Interior Secretary Cecil Andrus used his authority under FLPMA49 to withdraw 105 million acres of Alaska lands managed by the Interior Department and 11.2 million acres of National Forest lands.50 Pursuant to the 1906 Antiquities Act, President Jimmy Carter created seventeen National Monuments, totaling fifty-six million acres.51

Congress responded by passing ANILCA52 in 1980. The act revoked Carter’s Monument designations53 but turned out to be one of the most significant land conservation measures ever enacted. ANILCA established over 104 million acres54 of conservation system units55 in Alaska, doubling the size of the National Park and National Wildlife Refuge Systems and tripling the size of the National Wilderness Preservation System.56 In total, it added 56.5 million acres of designated

48. Id.
53. 16 U.S.C. § 3209(a) (Rescission of prior reservations and withdrawals). Twelve monuments were incorporated into the National Park System (including nine with Wilderness designations). See ANILCA §§ 201–203, 701. The Becharof Monument was established as a National Wildlife Refuge with Wilderness. Id. §§ 201, 302, 702. The Admiralty Island and Misty Fjords Monuments were re-established as Monuments with Wilderness designations. Id. §§ 503, 703.
55. ANILCA section 102(4) defines “conservation system unit” as “any unit in Alaska of the National Park System, National Wildlife Refuge System, National Wild and Scenic Rivers System, National Trails System, National Wilderness Preservation System, or a National Forest Monument including existing units, units established, designated, or expanded by or under the provisions of this Act, additions to such units, and any such unit established, designated, or expanded hereafter.” 16 U.S.C. § 3102(4).
Wilderness. Alaska now has more designated Wilderness than any other state.  

B. A Different Kind of Wilderness

Through ANILCA, Congress modified the Wilderness Act for Alaska to ensure that rural Alaskans could use wildlife resources to sustain customary and traditional ways of life. ANILCA grants subsistence by rural Alaskans a priority over the taking of fish and wildlife for other purposes.

1. Hunting and Fishing

Unlike National Parks in the Lower 48, most of the land managed by NPS in Alaska is open to hunting. ANILCA created approximately 9.4 million acres of a distinct type of park unit known as a National Preserve, where both sport and subsistence hunting are allowed. Additionally, fishing and subsistence hunting activities that are considered “customary and traditional” are allowed on a large portion of Alaska’s National Park lands that are not considered Preserves.

57. Smith et al., supra note 54, at 26.
59. See 16 U.S.C. § 3101(c) (“Subsistence way of life for rural residents. It is further the intent and purpose of this Act consistent with management of fish and wildlife in accordance with recognized scientific principles and the purposes for which each conservation system unit is established, designated, or expanded by or pursuant to this Act, to provide the opportunity for rural residents engaged in a subsistence way of life to continue to do so.”).
60. 16 U.S.C. § 3114. ANILCA defines subsistence uses as “the customary and traditional uses by rural Alaska residents of wild, renewable resources for direct personal or family consumption as food, shelter, fuel, clothing, tools, or transportation; for the making and selling of handicraft articles out of nonedible byproducts of fish and wildlife resources taken for personal or family consumption; for barter, or sharing for personal or family consumption; and for customary trade.” Id. § 3113.
61. Id. § 410hh-2.
63. See 16 U.S.C. § 3201. Hunting limitations within certain lands administered by NPS are noted at ANILCA §§ 201, 202, 203, 16 U.S.C. §§ 410hh, 410hh-1 (subsistence hunting is not authorized in Kenai Fjords, Glacier Bay, Katmai, a portion of Denali, and the Klondike Gold Rush and Sitka Historical National Parks). Where subsistence is allowed, the Secretary retains the authority to restrict it for several reasons,
More so than National Parks, Alaska’s National Wildlife Refuge lands have supported a long history of cultural and traditional hunting and fishing. In each of the nine ANILCA-created Alaska Refuges and some Refuges expanded by ANILCA, Congress explicitly identified subsistence as a purpose. Most of the refuges have Native villages adjacent to them, and only two, the Kenai and Tetlin Refuges, are directly accessible to the outside from the public road system.

The Interior Secretary retains the authority to “designate zones [within National Preserves] where and periods when no hunting, fishing, trapping, or entry may be permitted for reasons of public safety, administration, floral and faunal protection, or public use and enjoyment.” The Secretary also has the right to temporarily close any public lands to subsistence uses if justified for reasons of public safety, administration, or to assure the continued viability of a population. Such closure generally requires notice, consultation with the State, and a public hearing. Additionally, prior to making decisions regarding land use that would significantly restrict subsistence uses, an agency must hold public hearings in affected communities and determine that such a restriction is necessary and consistent with sound management principles for the utilization of public lands.

including to ensure the continued viability of a fish or wildlife population. 16 U.S.C. § 3126(b).

64. SMITH ET AL., supra note 54, at 23.

65. See, e.g., ANILCA § 302(1) (“The purposes for which the Alaska Peninsula National Wildlife Refuge is established and shall be managed include . . . to provide . . . the opportunity for continued subsistence uses by local residents”). The Kenai Refuge does not include subsistence as a purpose. ANILCA § 303(4).

66. SMITH ET AL., supra note 54, at 23.


68. Id. § 3126.

69. Id.

70. ANILCA § 810. Courts have limited the effect of this provision, making it largely a procedural step. See Hoonah Indian Ass’n v. Morrison, 170 F.3d 1223, 1230 (9th Cir. 1999) (agency “not only had to consider rural residents’ subsistence interests” but a multitude of other issues as well); Akiak Native Cmty. v. Envtl. Protection Agency, 625 F.3d 1162, 1172 (9th Cir. 2010) (finding that Section 810 of ANILCA establishes a procedure for federal agencies to evaluate the effects of federal land use on subsistence resources but that the Environmental Protection Agency is not required to consider section 810 of ANILCA when acting under the Clean Water Act).
2. **Cabins**

Cabins in Alaska’s Wilderness areas and conservation units in existence when ANILCA passed were allowed to remain and be maintained or replaced, subject to periodic review and permits.\(^{71}\) New cabins may be constructed in Wilderness areas only as necessary for the protection of the public health and safety.\(^{72}\) Outside of National Parks and Wilderness, new cabins may be built in conservation units if they are compatible with the purposes of the area or necessary to provide for the continuation of an ongoing use other than private recreation.\(^{73}\) New cabins may be constructed in National Parks (non-Wilderness areas) only to accommodate subsistence or as otherwise authorized by law.\(^{74}\)

3. **Transportation and Access**

ANILCA section 1110 provides for two different types of access within Alaska’s conservation units: one for subsistence, traditional activities, and inter-village travel, and the other for inholdings (privately owned land surrounded by conservation units). The first category allows for the use of snowmachines, motorboats, airplanes, and non-motorized surface transportation methods.\(^{75}\) The Interior Secretary can limit this access (after notice and hearing in the vicinity of the affected unit or area) based on a finding that the use would be detrimental to the resource values of the unit or area.\(^{76}\) Regulations allow off-road vehicle use only by permit or after a general opening of an area to off-road vehicle use.\(^{77}\)

The second category of access requires the Secretary to “assure adequate and feasible access for economic and other purposes” to inholdings, subject to reasonable regulations.\(^{78}\)

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71. ANILCA § 1303(a)(1)–(2), (b)(2), 16 U.S.C. § 3193(a)(1)–(2), (b)(2); ANILCA § 1315 (c), 16 U.S.C. § 3203(c).
72. ANILCA § 1315(d), 16 U.S.C. § 3203(d).
73. ANILCA § 1303(b), 16 U.S.C. § 3193(b).
75. ANILCA §§ 811(b), 1110(a), 16 U.S.C. §§ 3121(b), 3170(a).
76. ANILCA § 1110(a), 16 U.S.C. § 3170(a).
78. ANILCA § 1110(b), 16 U.S.C. § 3170(b); see also 16 U.S.C. § 3210 (requiring the Secretaries of Agriculture and the Interior to provide “access to nonfederally owned land adequate to secure to the owner the reasonable use and enjoyment thereof,”
Section 1323 of ANILCA refers specifically to inholder access provided by the Forest Service (through the Secretary of Agriculture) and BLM. This section instructs the Forest Service and BLM to provide access that is “adequate to secure to the owner the reasonable use and enjoyment” of inholdings, subject to the agency’s rules and regulations applicable to access across public lands.

ANILCA Title XI established a unique system for determining whether a transportation or utility system (including roads, pipelines, and other rights-of-way) should be allowed through conservation system units created by the Act. Congressional approval is required for systems that traverse Wilderness, but not for other wildlands. Thus far, the only transportation system constructed through ANILCA lands is the road and port built in Cape Krusenstern National Monument to facilitate production and transport of lead and zinc ore at Red Dog mine. Congress established the road and port through a special act that superseded the review requirements under ANILCA Title XI.

4. Aquaculture

Section 1315 of ANILCA allows fish enhancement and aquaculture that may be supported by motorized vehicles within Wilderness in National Forests. This provision was tested in *The Wilderness Society v. Fish & Wildlife Service*, which concerned a fish stocking program predating ANILCA in
a Wilderness area of the Kenai National Wildlife Refuge. The program involved establishing a temporary camp in the Wilderness area and gathering salmon eggs, bringing them to a hatchery and rearing them, and then releasing the fish back into the Wilderness area. One of its purposes was to support commercial fisheries outside of the Wilderness area, though it likely helped maintain the salmon run as a whole.\footnote{Peter A. Appel, \textit{Wilderness and the Courts}, 29 STAN. ENVTL. L.J. 62, 108 (2010).} A panel of the Ninth Circuit upheld the district court’s finding that the program comported with the Wilderness Act, relying on a provision in the act for Wilderness to be “protected and managed.”\footnote{The Wilderness Soc’y, 316 F.3d at 923–24 (citing 16 U.S.C. § 1131(c)).} This finding was overturned after a hearing \textit{en banc}, in which the full court determined that the program at issue was a “commercial enterprise” barred by section 4(c) of the Wilderness Act.\footnote{353 F.3d 1051, 1061–62 (9th Cir. 2003).} Apart from these exceptions, Wilderness designated pursuant to ANILCA is administered in accordance with the Wilderness Act.\footnote{ANILCA § 707.}

C. \textit{Tongass Timber Reform Act}


The 1990 Tongass Timber Reform Act has been the only significant amendment of ANILCA to pass Congress. It
repealed ANILCA section 705,96 added 300,000 acres of Wilderness in the Tongass,97 designated approximately 730,000 acres of land as roadless,98 and provided permanent buffer zones along salmon streams in the Tongass.99

At the same time, the Act imposed a unique mandate on the Forest Service to “seek to . . . meet[] the annual market demand for timber.”100 The meaning of this requirement has been a subject of legal debate.101 Perhaps overlooked in the legal debate is a broader debate about whether the economic values of the timber harvest measure up to the economic values of conservation. This is the subject of the next section.

III. VALUE OF WILDLANDS

Far from being an expensive system designed to benefit an elite few, the National Wilderness Preservation System (NWPS) established by the Wilderness Act benefits the nation as a whole. These benefits are not lost on the American public. Using a random sample of 1900 members of the public throughout the United States, H. Ken Cordell found broad support for the concept of wilderness, based mostly on the ecological, environmental quality, and off-site values respondents believed wilderness protection provides.102 Of those surveyed, 44.4 percent were aware of the NWPS,103 and

97. Id. § 201. This section designated lands as “Land Use Designation II,” an administrative land use designation that is essentially managed as Wilderness. See Gibson, supra note 92, at 431 n.225 (1995) (citing FOREST SERV., U.S. DEP’T OF AGRIC., TONGASS LAND MANAGEMENT PLAN MAP (1991)).
100. Tongass Timber Reform Act § 101, 16 U.S.C. § 539d(a); Natural Res. Def. Council v. Forest Serv., 421 F.3d 797, 801 (9th Cir. 2005).
101. See Natural Res. Def. Council, 421 F.3d at 808 (discussing market demand and balance with competing goals for environmental preservation and recreational use); Alaska Wilderness Recreation & Tourism Ass’n v. Morrison, 67 F.3d 723, 731 (9th Cir. 1995) (the Act “envision[s] not an inflexible harvest level, but a balancing of the market, the law, and other uses, including preservation”).
102. H. Ken Cordell et al., How the Public Views Wilderness: More Results from the USA Survey on Recreation and the Environment, 4 INT’L J. WILDERNESS no. 3, 1998, at 28, 30, available at http://www.srs.fs.usda.gov/recreation/ijw43.pdf. The results indicated a slight tendency for more Western residents and whites to be aware of NWPS, although the percentages were not significantly different. Id. at 29.
103. Id.
fifty-six percent stated that America does not yet have enough protected wilderness. In a follow-up survey, Cordell found that these positions remained relatively stable or increased. More rigorous and state-specific research in Colorado and Utah has also shown strong public support in favor of Wilderness designations.

Americans’ support for wilderness protection could have broad implications for rural economic activities. Based on a study of 113 rural Western counties, Holmes and Hecox found that forty-three percent of counties containing designated Wilderness exhibited significant positive correlation between the percent of land designated as Wilderness and population, income, and employment growth. Phillips (2004) found that Wilderness enhances property values, translating into financial benefits for residents of communities close to wilderness areas.

Of course, there are Americans who see wildlands protection as a means of locking up areas that should be developed. Keith et al. (1996) report that the non-market value of retaining proposed Wilderness areas in multiple-use management might be significant. Godfrey and Christy (1991) argue that estimates of net economic values associated with Wilderness
tend to be inflated because they are often based on average rather than marginal economic analysis.111 They suggest that preservation values held by the public are likely to decline as more land is locked up because this will not only reduce uncertainty about the supply of Wilderness, but also increase the availability of alternative Wilderness sites.112 Views such as these must be considered in studies that assess the public’s willingness to pay for preservation.113

Historically, land management agencies and economists have tended to side with those who value wildlands primarily for their development, resulting in the undervaluing of intact ecosystems.114 Since a number of laws require agencies to adequately consider costs and benefits,115 some mechanism is needed to properly compare the benefits of resource


112. Id. at 7.

113. See, e.g., Keith et al., supra note 110, at 207–14.


115. See, e.g., Federal Land Policy Management Act (FLPMA) § 103, 43 U.S.C. § 1702(c) (2012) (definition of multi-use calls for consideration of “the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output.”); FLMFA § 202(c)(2), 43 U.S.C. § 1712(c)(2) (requiring land use plans to make use of economic sciences); FLMFA § 401, 43 U.S.C. § 1751 (consideration of costs of grazing); FLMFA § 503, 43 U.S.C. § 1763 (consideration of economic efficiency of right-of-ways); National Forest Management Act of 1976 (NFMA) (codified as amended 16 U.S.C. §§ 1600–1614); FLMMA § 6(d), 16 U.S.C. § 1604 (requiring “a process for estimating long-term costs and benefits to support the program evaluation requirements of this Act”); Outer Continental Shelf Lands Act (OCSLA) § 18(a)(1), 43 U.S.C. § 1344(a)(1) (“M]anagement of the outer Continental Shelf shall be conducted in a manner which considers economic, social, and environmental values of . . . renewable and nonrenewable resources.”); Exec. Order No. 12,866, 58 Fed. Reg. 51735 (Sept. 30, 1993) (“Each agency shall assess both the costs and the benefits of the intended regulation and, recognizing that some costs and benefits are difficult to quantify, propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs.”).
development with those of conservation,\textsuperscript{116} and to articulate the economic values in a manner that decisionmakers and the public can understand.

The rest of this section focuses on the economic values of wildlands that economists have been able to most easily quantify—the direct and indirect benefits known as ecosystem goods and services—and the mechanisms used to quantify them.\textsuperscript{117} Ecosystem goods and services range from provisioning benefits (e.g., food) to regulating benefits (e.g., climate control) and cultural benefits (e.g., recreation and spiritual values).\textsuperscript{118} The estimated values discussed in this section are based on studies conducted during 1990 through 2010, expressed in 2013 dollars using inflation factors.\textsuperscript{119}

The benefits of many land-altering developments are likely to fall over time because once constructed, their footprint is hard to minimize and the technology on which they are based becomes outdated.\textsuperscript{120} In contrast, the benefits of preserving wilderness have the potential to grow over time since the increasing scarcity of wilderness makes each remaining

\begin{itemize}
  \item \textsuperscript{116} See Morton, supra note 114, at 465.
  \item \textsuperscript{117} Robert Costanza et al., The Value of the World’s Ecosystem Services and Natural Capital, 387 Nature 253, 254 (1987).
  \item \textsuperscript{119} To express values in 2013 numbers, we considered the ratio of the Consumer Price Index in 2013 to the Consumer Price Index in the year of the particular study. The inflation factors were computed using the Consumer Price Index for the Anchorage Municipality or the United States as a whole, depending on whether the estimates were based on Alaska wildlands or wildlands elsewhere in the United States. See BUREAU OF LABOR STATISTICS, U.S. DEP’T OF LABOR, http://www.bls.gov/cpi/ (last visited Feb. 23, 2014).
  \item \textsuperscript{120} When damming of the Snake River in the Hells Canyon area was proposed, Krutilla and Fisher estimated the costs of electricity production by the dam compared with other alternatives. See V. KRUTILLA & A.C. FISHER, THE ECONOMICS OF NATURAL ENVIRONMENTS: STUDIES IN THE VALUATION OF COMMODITY AND AMENITY RESOURCES, 48–49 (1985). Krutilla and Fisher hypothesized that the cost savings of the dam would decline over the life of the project, since other methods of producing energy would advance while the footprint of the dam would be permanent. Id. Krutilla and Fisher then estimated the benefits of preserving the area (e.g., benefits associated with recreation, hunting, fishing, etc.) and hypothesized that these would grow with income, population, and the exploitation of other natural resources. Id. Krutilla and Fisher concluded that the cost savings of the dam were not enough to justify foregoing the preservation benefits. Id. at 57.
\end{itemize}
hectare more valuable. This could lead to increased public willingness to pay for preservation. Further, as real incomes rise, demand for ecological goods and services may also increase. This will likely increase visits to wild places (raising their value) as well as willingness to pay for preservation even by those who never visit these places.

A. Direct Economic Effects and Impacts

Direct economic effects and impacts “in local communities are measured using the jobs or personal income (wages and proprietor income) realized in those communities as a result of continued preservation of natural environments.” Economists also measure the additional economic benefits that result from wages being spent within the community, such as a commercial recreation guide spending part of her salary at a local restaurant. There are numerous studies on the direct benefits of conserving wildlands, though few focus specifically on Wilderness. Box 1 below provides some examples.

121. LOOMIS & RICHARDSON, supra note 33, at 3, 12–15.
122. Id. at 5. This inter-industry linkage and its resulting multipliers are commonly calculated using input/output models such as IMPLAN. Id. at 6.
Box 1: Direct Economic Effects and Impacts of Wildlands

- Loomis and Richardson (2000) attributed nearly 24,000 jobs to the 42 million acres of roadless lands in Lower 48 National Forests.\(^{123}\)

- Phillips et al. (2008) found that Alaskan residents spend between $162.1 and $247.8 million each year in Alaska communities as a result of their use of Alaska’s two National Forests, the Chugach and Tongass (2013 dollars).\(^{124}\) The estimated annual harvest value of salmon supported by these forests is $119.4 million (2013 dollars).\(^{125}\)

- Colt (2001) estimated that 84,000 jobs in Alaska depend on healthy ecosystems and natural assets that are sustainable year after year.\(^{126}\) Alaska’s commercial fishing industry, which depends on wildlands for fish habitat,\(^{127}\) supplies 20,000 direct jobs and indirectly supports about 14,000 more.\(^{128}\) Sport fishing directly supports 6,600 Alaska jobs and indirectly supports another 2,600.\(^{129}\)

- Duffield and Patterson (2007) attributed 5,490 Alaska jobs to the wild salmon ecosystem in the Bristol Bay region, valued at $188.7 million a year (2013 dollars).\(^{130}\)

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123. Id. at iii.
125. Id. at 31.
129. Id.
B. *Recreation Benefits*

The value of recreation on wildlands consists of expenditures (what someone actually pays for a recreation experience) and consumer surplus (the extra amount someone would be willing to pay for the recreation experience in addition to the actual expense). Economists can quantify a person’s willingness to pay for a recreational experience or other ecological goods and services through a technique known as the Contingent Valuation Method (CVM). CVM and other methods have been used to quantify the recreation benefits associated with intact wildlands, as shown in Box 2 below.

**Box 2: Recreation Benefits of Wildlands**

- Loomis and Richardson (2000) found that Lower 48 Roadless Areas in National Forests provided almost $789 million in recreation benefits each year (2013 prices).
- Duffield and Patterson (2007) found that Bristol Bay fishers valued their fishing trips over and above what they actually paid for the trips.
- Phillips et al. (2008) estimated the consumer surplus value of recreation in Alaska’s two National Forests (the Tongass and the Chugach) at $89.6 to $138.5 million in 2013 dollars. Alaska residents spend between $162.1 and $247.8 million each year (2013 dollars) in their recreational use of these two forests.
- Of the 50 states, Alaska is fourth in terms of total recreation expenditures associated with wildlife as a percent of total state GDP.

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132. Loomis & Richardson, *supra* note 33, at iii.

133. Duffield & Patterson, *supra* note 130, at 53 (finding that the average nonresident angler valued his or her trip approximately $527.4 (2013 dollars) more than the amount paid, while resident Bristol Bay anglers stated they were willing on average to pay an additional $375 (2013 dollars) for their most recent trip).

134. Philips et al., *supra* note 114 at 17.
The recreation value of Alaska’s National Forests contrasts sharply with the estimated revenue that could be obtained from selling all of Alaska’s wood products (estimated at $37.3 million in 2013 dollars). Moreover, this figure does not take into account the significant subsidies given to the timber industry. From fiscal years 2001 to 2008, the federal government spent an average of thirty-two million dollars on the Tongass timber sale program, and an additional thirteen million dollars annually in indirect and overhead expenses. An average of fifteen million dollars was spent each year on National Forest Timber Management and Roads Capital Improvement and Maintenance. These costs are compounded by economic losses in terms of fishing and hunting opportunities as well as a net loss of 225,000 to 400,000 metric tons of carbon from the forest.

C. Off-site Benefits

Off-site benefits refer to increases in property value associated with protected areas, as well as “the value of fish and wildlife that are harvested outside roadless areas but that depend on the protected areas for a portion of their habitat needs.” In the Lower 48, Western National Parks,

135. Id. at 27.

137. Id. at 8.

140. Id. at 3.

141. Loomis & Richardson, supra note 33, at v.

Monuments, and other protected federal public lands support faster rates of job growth and are correlated with higher levels of per capita income. A 2012 Headwaters Economics report provides thought-provoking statistics: “western non-metropolitan counties with more than thirty percent of the county’s land base in federal protected status . . . increased jobs by 345 percent over the last forty years.” By comparison, similar counties with no protected federal public lands increased employment by eighty-three percent.

In 2010, per capita income in non-metropolitan Western counties with 100,000 acres of protected public lands was on average $4,656.50 higher (2013 dollars) than per capita income in similar counties with no protected public lands. Headwaters Economics makes the case that this growth is not correlated to resource development, but to growth in the service sector tied to relocation of people who appreciate the area’s outdoor recreation opportunities.

Just as a municipality’s proximity to natural areas may enhance its attractiveness as a place to live and work, the value of an individual parcel of land can be increased when it

143. Id. at 2.
144. Id. at 1; see also PAUL LORAH, POPULATION GROWTH, ECONOMIC SECURITY, AND CULTURAL CHANGE IN WILDERNESS COUNTIES (2000), available at http://www.fs.fed.us/rm/pubs/rmrs_p015_2/rmrs_p015_2_230_237.pdf (discussing the positive correlation between western counties with wilderness and economic growth).
145. WEST IS BEST, supra note 33, at 1.
146. Id. at 7 (showing employment changes by sector); id. at 14 (discussing population growth); id. at 15 (transition from a primarily natural resource-based economy to a knowledge-based economy); id. at 17 (“A high-quality outdoor environment along with a culture of innovation gives the West a unique competitive advantage that helps explain why the region’s economy is the fastest-growing in the country.”); see also Spencer R. Phillips, Windfalls for Wilderness: Land Protection and Land Value in the Green Mountains 19 (Feb. 4, 2004) (unpublished Ph.D. dissertation, Virginia Polytechnic Institute & State University), available at http://scholar.lib.vt.edu/theses/available/etd-02042004-141616/unrestricted/Phillips.Spencer_VPISU-AAEC_PHD-Dissertation_2004-02-10.pdf [hereafter Windfalls for Wilderness] (citing economic development research suggesting that amenities such as scenic settings, recreational opportunities, and environmental quality that are often available in rural, partially protected landscapes are more likely to drive businesses’ location decisions than the business climate); LOOMIS & RICHARDSON, supra note 33, at 6 (citing studies suggesting that the existence of nearby natural environments is an important reason people move to “wilderness counties” and “may enhance the attractiveness of a region as a place in which to work and do business.”)
147. LOOMIS & RICHARDSON, supra note 33, at 6.
is adjacent to a natural area.\textsuperscript{148} To measure the value associated with a parcel’s proximity to a natural area, economists use a hedonic pricing model that disaggregates the price of the land into the value contributed by each of its characteristics (e.g., size, zone, taxes).\textsuperscript{149} Phillips (1999) found an increase of thirteen percent in the value of private property adjacent to the Green Mountains in Vermont.\textsuperscript{150} Based on a study of land between Washington, DC and Baltimore, Maryland, Irwin (2002) found that residential parcels near permanently protected open space had higher land values than those nearby open space that could be developed at any time.\textsuperscript{151} This implies that Wilderness designation, which is the strongest protection of open space in the United States, could generate greater offsite benefits than other public lands or land that simply remains undeveloped.\textsuperscript{152}

D. Ecological Services

Ecological services provided by wildlands include watershed protection, waste treatment services (recovering mobile nutrients and cleaning the environment), carbon storage, and nutrient cycling.\textsuperscript{153} The benefit of these services can be assessed by asking people what they would pay for them (CVM) or by calculating the cost savings to those who benefit from the services, including municipal water treatment agencies and aquaculture producers (e.g., fish hatcheries).\textsuperscript{154} Southwick Associates estimated the overall annual value of ecosystem services provided by natural habitats in the Lower 48 at $1.6 trillion (2013 dollars).\textsuperscript{155} Phillips estimated the ecological services provided by Alaska’s National Forests (including climate regulation, water filtration, and other

\begin{footnotes}
\footnotetext[148]{See generally, Windfalls for Wilderness, supra note 146.}
\footnotetext[149]{LOOMIS & RICHARDSON, supra note 33, at 7.}
\footnotetext[150]{Id. at v.}
\footnotetext[151]{Windfalls for Wilderness, supra note 146, at 30.}
\footnotetext[152]{Id.}
\footnotetext[153]{LOOMIS & RICHARDSON, supra note 33, at v.}
\footnotetext[154]{Id. at 8.}
\end{footnotes}
benefits to human health) to be $437.8 million per year (2013 dollars). 156

Watershed protection protects property values by controlling flood damage on private property. 157 Protecting watersheds also helps avoid sedimentation that degrades water quality. 158 Cleaner water yields cost savings for water treatment plants ranging from a minimum of $170,950 to as much as $341,900 annually (2013 dollars) from one 631,000-acre national forest. 159

Forests on protected lands can capture and store carbon that would otherwise contribute to climate change. 160 The benefits of maintaining forests as carbon storage can be calculated as the cost savings over the next least expensive method for capturing or sequestering carbon. 161 Based on a study of the Interior Columbia Basin, Turner suggested a value of $65 per ton of carbon sequestered by forests on this land. 162 Sixty-five dollars represents either avoided damages from climate change or the cost savings from sequestering carbon rather than reducing fossil fuel emissions. 163 Loomis and Richardson estimated that the Lower 48 Roadless Areas in National Forests provided between $644.4 million and $1.3 billion in carbon sequestration services and in waste treatment services (2013 dollars). 164

Wildlands also contribute to the preservation of biodiversity. “Wilderness species,” such as grizzlies, wolves, and caribou, depend on large areas of land where contact with humans is minimized. 165 As the climate changes, large, connected areas of wildlands will be critical to provide the space needed for species to adapt. 166 The conservation of wildlands is a more

156. PHILIPS ET AL., supra note 114, at vii.
157. Morton, supra note 114, at 487.
158. Id.
159. LOOMIS & RICHARDSON, supra note 33, at v-vi.
160. Id. at vi.
161. Id. at 8.
162. Id. at 24 (citing D. Turner et al., A Carbon Budget for Forests of the Conterminous United States, 5 ECOLOGICAL APPLICATIONS 421 (1995)).
163. LOOMIS & RICHARDSON, supra note 33, at 24.
164. Id. at iii.
165. Morton, supra note 114, at 508.
166. See N.E. Heller & E. S. Zavaleta, Biodiversity Management in the Face of Climate Change: A Review of 22 Years of Recommendations, 142 BIOLOGICAL
efficient way to preserve biodiversity than seed banks, which cannot evolve or adapt and represent only a one-time snapshot of biological resources.\textsuperscript{167} Given that the loss of habitat is perhaps the primary cause of species endangerment in the United States,\textsuperscript{168} the protection of habitat on wildlands benefits species and avoids the expensive processes triggered by a listing under the Endangered Species Act. Further, conservation of wildlands is typically less expensive than restoration (assuming that restoration is possible).\textsuperscript{169}

E. Subsistence

The economic value of subsistence that takes place on wildlands or using animals that depend on wildlands can be measured by the replacement value of the resource harvested (e.g., the cost of store-bought fish compared to wild-caught fish).\textsuperscript{170} There are also passive values, (discussed below), and spiritual and cultural values associated with participating in subsistence.\textsuperscript{171}

There is limited data available to estimate the value of the subsistence harvest, although a number of studies have produced speculative estimates. Duffield estimated the willingness to pay for a pound of Alaskan subsistence harvest at $32.46, though this is likely a low-end figure.\textsuperscript{172} Using a range of $32.46 to $59.68 per pound, Duffield and Patterson valued the annual subsistence harvest of Bristol Bay fisheries between $91.4 and $167.6 million (2013 dollars).\textsuperscript{173}

Colt estimated that subsistence users could be willing to pay as much as $2.3 billion (2013 dollars) more annually to

\textsuperscript{167} Morton, supra note 114, at 509.
\textsuperscript{168} Id. at 508.
\textsuperscript{169} Id. at 509.
\textsuperscript{170} See, e.g., PHILIPS ET AL., supra note 114, at 20.
\textsuperscript{173} Id. at 107.
continue subsistence hunting and fishing. He further estimated that subsistence hunting and fishing support close to 2,000 commercial jobs related to subsistence equipment.

F. Scientific Values

Wildlands provide a natural benchmark or control that scientists can compare to developed areas to understand the effects of human development on natural systems. Unlike the laboratories and the small research forests maintained by the Forest Service, wildlands provide the scale of land needed for baseline data collection and monitoring of ecosystem change. This data collection is essential to formulating goals for ecosystem management. Additionally, wildlands offer an opportunity for new discoveries in biotechnology and medicine, as well as knowledge about species and ecosystems.

Quantifying scientific research benefits is challenging, since it is difficult to predict the discovery of useful substances. Loomis and Richardson attempted to quantify scientific benefits by calculating the number of academic journal articles published that studied or relied on Primitive, Roadless, and Designated Wilderness areas, and calculating the value of such articles to society. They conservatively valued each journal article at $15,780 per year (2013 dollars). Phillips et al. estimated the value of scientific research conducted on Alaska’s National Forests at about $84,459 per year (2013 dollars).

G. Educational Values

Wilderness and wildlands such as roadless areas provide a natural laboratory for many high school and college courses. These areas are also the setting for outdoor education

175. Id. at 2.
176. LOOMIS & RICHARDSON, supra note 33, at v.
177. Morton, supra note 114, at 483.
178. Id.
179. LOOMIS & RICHARDSON, supra note 33, at 6–7.
180. Id. at 19.
181. Id.
182. PHILIPS ET AL., supra note 114, at 30.
programs designed to build leadership, navigational, and survival skills; or service-based experiences such as trail construction or cleanup.\(^{183}\) There is no standard methodology for measuring the benefits from these activities, though participants can be surveyed regarding the value.\(^{184}\)

Phillips et al. estimated the value of two Alaska programs to bring “at-risk” youth in National Forests to be at $703,759 (2013 dollars).\(^{185}\) This estimate was based on the benefit transfer method, which uses benefit values from a similar site (a proxy resource) when data for the site of interest are unavailable.\(^{186}\) A full accounting of this benefit category would include the avoided costs associated with poor job performance, substance abuse, criminal behavior, and other characteristics associated with being “at-risk.”\(^{187}\)

### H. Passive Values

Passive values generally refer to the inherent value of wildlands existing in their natural state. These values exist even when people do not regularly visit the lands they value.\(^{188}\) People may value wildlands conservation to maintain the opportunity for visits or subsistence use in the future (this is known as the option value).\(^{189}\) People may also benefit simply from knowing that natural areas and subsistence resources exist (existence value) and that they are being protected for the benefit of future generations (bequest value).\(^{190}\) For many non-visiting members of the general public, natural environments represent the last vestiges of what North America was before Europeans arrived.\(^{191}\) Passive values can be measured through CVM.\(^{192}\) For example, a survey can be issued to the general public to ascertain what households would pay just to know that a particular natural environment will continue to exist for

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183. LOOMIS & RICHARDSON, supra note 33, at vi.

184. Id. at 8.

185. PHILIPS ET AL., supra note 114, at 19.

186. Id. at 14.

187. Id. at 20.

188. LOOMIS & RICHARDSON, supra note 33, at iv–v.

189. Id. at v.

190. Id.

191. Id. at 15.

192. Id. at 5.
future generations. Box 3 lists some studies that have quantified the passive values associated with wildlands conservation.

**Box 3: Passive Values of Wildlands**

- Loomis and Richardson estimated willingness to pay to preserve National Forest Roadless Areas in the western Lower 48 at $8.8 per roadless acre (2013 dollars).^{194}
- Based on a literature review, Colt estimated that the potential existence value of Alaska’s conservation lands could range from $410.4 million to $41 billion annually (2013 dollars).^{195}
- Based on a literature review, Goldsmith et al. estimated the existence and bequest value for the federal wildlife refuges in Bristol Bay at $3.37 to $6.76 billion per year (2013 dollars).^{196} There is considerable uncertainty in these estimates, as indicated by the large range of values.
- CVM was used in a study conducted by the State of Alaska Trustees, which resulted in a $1 billion settlement between the State and Exxon in the Exxon Valdez oil spill case.^{197} The authors used a nationwide contingent valuation study to determine Americans’ willingness to pay to avoid similar spills in the future. The results of the study found that, on average, each American household was willing to pay $49 to avoid future spills in Prince William Sound.^{198}
- Phillips et al. estimated the passive value of preserving Alaska’s National Forest wildlands in their natural state at $7.9 to $464.7 million per year, or an average of $236.3 million (2013 dollars).^{199} Between $17.3 and $92.4 million per year (2013 dollars) of this value is attributed to the passive value of preserving subsistence opportunities.^{200}

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193. Id. at 6.
194. Id. at v.
195. Colt, supra, note 126, at 3.
I. *Spiritual Values*

Finally, while difficult to quantify, the spiritual value of wilderness is easy to recognize. Wilderness is a place for spiritual experiences and has inspired the creation of art, photography, literature, poetry, and music. With its vast intact ecosystems, Alaska is home to some of the most magnificent wilderness in the United States. In describing Alaska’s wilderness, John Muir wrote that words were not “capable of describing the peculiar awe one experiences in entering these virgin mansions of the icy north, notwithstanding they are only the perfectly natural effect of simple and appreciable manifestations of the presence of God.”

The congressional hearings that led to the Wilderness Act are full of references to the spiritual values of wilderness. In 1996, Sen. Humphrey stated that “the spiritual values are there for all.” In 1963, Don R. Burnett, President, New Mexico Wildlife & Conservation Association, Inc., testified that “all my life I have found . . . spiritual values in the mountains, plains, and forests of the United States.” In 1964, Lloyd C. Pray, Jan. 7, 1964, asserted that wilderness legislation “offers an opportunity for Congress to make a tremendous contribution” to enhance “spiritual values.” In 1964, Andrew Nowell Smith asserted that the people who do not experience wilderness are “poorer spiritually.”

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198. *Id.* § 5-112.
200. *Id.* at 39.
the congressional hearings preceding ANILCA, then-Alaska Governor Jay Hammond referred to “the spiritual resources of wilderness.”204 While fully assessing the spiritual values is beyond the scope of this article, it should be remembered that they are core values to many Alaskans.

J. Issues in Estimating Economic Values and Impacts

Part of the controversy around wilderness preservation relates to confusion over economic values versus economic impacts, and the limits of traditional cost-benefit analysis (CBA) to inform decisionmaking about wilderness. Wilderness valuation is complicated by time horizons that are longer than those of most development projects, the irreversibility of costs and benefits flows, the difficulty of applying the principle of discounting, and the difference between local and national impacts.

1. Understanding Local Impacts

“Economic impact” refers to the incremental employment, income, and economic activities associated with wilderness and the commodities that commercial development of wilderness could produce. In contrast, “economic value” concerns the tradeoffs between having more wilderness preservation and less of the other goods that could be produced from wilderness. Economic value is measured by peoples’ willingness to pay to preserve wilderness or willingness to accept compensation for changes in the availability and quality of wilderness.

The economic impacts of wilderness preservation are largely realized at the local level, and some local stakeholders lose when extractive activities on wildlands are foreclosed. Local

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governments may lack incentives to preserve wilderness, since only marketable commodities such as timber and minerals influence the size of the federal payments to county governments, and nonmarket goods and services associated with wilderness (e.g., ecological services) contribute little or no federal payments. Local economic impacts may also be weak or negative because passive values (existence, bequest, and option values) may be held by those living far away from wilderness.

In evaluating the local economic impacts of wilderness preservation it is important to critically develop the information available on the alternative commercial uses and place this information in the economic context of supply, demand, and substitutes. Box 4 contains specific recommendations for economic analysts.

205. Counties containing National Forests have been receiving revenue sharing funds for more than a century. The formula for calculating payments has changed over time but continues to link payments to the amount of timber harvested. See Secure Rural Schools and Community Self-Determination Act of 2000 § 601, 16 U.S.C. § 500 (2012); Huebner, supra note 114, at 217. Counties may obtain twenty-five percent of Forest Service commodity revenues for the year, primarily from timber sales, or the payments may be based on previous years with higher timber harvests. As the Forest Service does not charge user fees for Wilderness areas (except fees collected from special use permits such as outfitters and guides), county governments have pressured the Forest Service to keep market committees and uses at inefficiently high production levels in order to maintain the status quo of local finances. Id. This pressure exacerbates existing conflicts between market commodity users and endangered species habitat, wilderness and other amenity users on National Forest land. Id.

Box 4: Recommendations for Evaluating Local Impacts of Wilderness Preservation

- Broaden the focus on local economic wellbeing beyond employment, income, population, and the dollar volume of business to consider passive values, because local economic wellbeing depends on marketed as well as non-marketed goods and services.

- Evaluate the opportunity costs associated with restricting economic activities in wilderness rather than merely accepting estimates of potential physical quantities of resources that might not be developed because of wilderness preservation.\(^{207}\)

- Avoid focusing exclusively on tourism/visitors when evaluating how preservation enhances certain types of economic activities. Wilderness is important to existing residents and to businesses location choices.\(^{208}\)

- Consider the impact of wilderness preservation in the context of the total economy and the trends that are transforming it.\(^{209}\)

\(^{207}\) The opportunity cost of preserving wilderness is the value of the foregone development opportunities. Id. at 177. It is important to keep in mind that the mere possibility of development does not give rise to a positive economic value, even when there are no restrictions on development. Economic value is not established by multiplying an estimated physical quantity of a good or service by the average value of that good or service when it is delivered to a market. Id. There are additional considerations in establishing economic value, including the cost of obtaining access to the resource, the cost of processing it, and the cost of delivering it to the market. Id. Further, the existence of substitutes need to be considered because, if a resource is readily available from a variety of different sources of similar quality, the opportunity cost of preserving an area of wilderness may be close to zero. Id. at 177–78. Finally, a possibility is not the same as a certainty. Id. at 178.

\(^{208}\) Residents' economic well-being is the result both of the real money income they have access to and the flow of non-marketed qualities associated with the natural and social environment, including protected wildlands. Id. In measuring local economic impacts, the value of wildlands to the existing populations (in terms of attracting jobs and other benefits) needs to be taken into account. Id.

\(^{209}\) Professor Power argues that traditional economic impact models erroneously rely on industries that were dominant in the past to determine what will be important sources of employment and income in the future. Id. Instead, economic analysts should provide an overview of how the local economy has been changing and the forces that are driving that change. Id.
2. **Better Valuing Wilderness**

The use of non-market valuation methods in estimating the value of goods and services associated with wilderness preservation poses several challenges. First, there is variability in the research design of different studies, the assumptions used in economic models, and stakeholders’ perceptions of the value of wilderness versus the value of goods and services associated with development. Second, not every acre of a given habitat is of equal value. There are differences in quality, rarity, spatial configuration, size, proximity to population centers, and prevailing social practices and values. For estimates of wildland values to be credible and useful in agency decisionmaking, they should satisfy the standards listed in Box 5.210

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Box 5: Standards for Wilderness Value Estimations

- Since the production of ecosystem services varies widely from one setting to another, and the human values attached to these services are also likely to vary, estimates of values should be spatially explicit.\footnote{211} All key ecosystem attributes, services, and values at all relevant scales must be identified.\footnote{212}

- Rather than assessing the value of preserving one acre of wilderness in isolation, the incremental or marginal value of preserving an additional acre should be measured. Broader and more easily estimated total or average values could significantly bias decisions.\footnote{213} The marginal value is more useful to decisionmakers, because the issue is generally not whether to have wilderness, but what are the net benefits of more or less wilderness.\footnote{214}

- Where possible, estimates of values should be based on revealed preferences (what people actually pay) and replacement costs (costs of ecosystem services with a technological alternative), rather than stated preferences methods (what people say they will do).\footnote{215}

- Estimates of values should take into account trade-offs and complements\footnote{216} in ecosystem services production and their respective economic values.\footnote{217} Modeling efforts that consider a single ecosystem service without complements or trade-offs may result in inefficient estimates or fail to identify the course of action that would yield the greatest social benefit.

- Economic impacts should be assessed for all stakeholder groups involved, at all relevant geographic scales.

\footnote{211} Id.
\footnote{212} Bergstrom et al., supra note 118, at 50.
\footnote{213} Kerkvliet, supra note 210, at 4, 5. For instance, if I have no wilderness near me, one acre of wilderness would be extremely valuable to me. If I add a second acre, it would probably be similarly valuable. At the point when I am surrounded in wilderness, however, the value of one additional acre of wilderness (the marginal value) would be relatively low.
\footnote{214} Godfrey & Christy, supra note 111, at 7.
\footnote{215} Kerkvliet, supra note 210, at 4, 6.
3. **Uncertainty, Irreversibility, and Discounting**

Uncertainty about future supply and the irreversibility of lost wilderness values pose extra challenges in traditional cost-benefit analysis (CBA). Procedures emphasizing the precautionary principle could better guide wilderness decisionmaking. For instance, analysts may use a quasi-option value instead of an option value. As discussed in section 3.8, an option value measures the value attached to future use opportunities—such as the value of being able to visit a wild place in the future, or being able to extract minerals from this place in the future. Quasi-option value is the benefit associated with delaying a decision when there is uncertainty about the payoffs of alternative choices and at least one of the choices involves an irreversible commitment of natural resources such as mineral extraction. Quasi-option value refers to the value of the information gained by delaying an irreversible decision on natural resources—it is not the value of the natural resources themselves.

Another procedure analysts may use is the combination of traditional CBA with a safe minimum standard (SMS). This approach favors wilderness preservation over an irreversible commitment of resources unless the social costs of forgone development are unacceptable. Setting the standard and estimating the associated costs are critical aspects of SMS.

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216. _Id._ Products are complementary when producing more of one leads to more of the other being produced. An example could be the production of more tennis rackets, which could lead to the production of more tennis balls. Complementary product-product relations are feasible only up to a certain level of production, beyond which they become competitive. Products are competitive when producing more of one results in producing less of the other as they compete for scarce inputs (land, labor, capital), such that trade-offs have to be made. J.P. MAKEHAM & L.R. MALCOLM, THE ECONOMICS OF TROPICAL FARM MANAGEMENT 30 (1986).

217. In terms of ecosystem services, preserving a forest has the benefit of mitigating climate change by sequestering carbon and the complementary benefit of enhancing the productivity of native fisheries.


Alternatively, analysts can subject CBA to a constraint that no further degradation or loss of ecosystems should be tolerated, such that natural capital is kept intact overall. To the extent that any one project degrades or destroys an ecosystem, it must be offset by improvements or additions to ecosystems elsewhere through a compensating project.221

One more important consideration in wilderness valuation concerns discounting, which compares benefits and costs in different time periods by expressing their values in present terms. Discounting is based on the principle that people prefer consumption today to future consumption, and that capital invested today will be more valuable in the future. A zero discount rate attributes the same value to future benefits as to present benefits. A higher discount rate means that future values decrease more rapidly, resulting in lower present values of future benefits.

Discounting is controversial in wilderness decisionmaking because, unlike conventional appraisals of projects whose lifetimes vary from short- to medium-term, wilderness protection involves longer time horizons.222 When a constant discount rate is applied, the costs and benefits that future generations will derive from wilderness appear relatively unimportant in present value terms. Thus, discounting can make long-term wilderness preservation appear worthless.223 One possible solution to this problem is to use a discount rate that declines with time, according to a certain formula, so that the value of wilderness to future generations is better reflected.224 But using declining discount rates may lead to recommendations that are inconsistent over time.225

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223. For instance, a $100 billion cost accruing 100 years in the future would, at a ten percent discount rate, have a present value of $7.25 million. In other words, a development imposing a future cost of $100 billion would appear to cost only $7.25 million now, even though the value of the actual damage done would be 14,000 times greater. See David W. Pearce, Economic Values and the Natural World 54–55 (1993).

224. M.L. Weitzman, Why the Far Distant Future Should Be Discounted at its
IV. PROSPECTS FOR ALASKA WILDERNESS

Nearly ninety percent of Alaska’s 375 million acres are public lands, with about 240 million acres of federal lands and close to 100 million acres of state lands. Outside of some industrial complexes such as Prudhoe Bay, much of these public lands are undeveloped. Without conservation measures, it is possible that these lands could one day be developed to the detriment of the values discussed in the previous section. This section discusses potential pressures on Alaska’s wildlands and provides justification for further protective measures. Although wildlands do not necessarily have to be designated as Wilderness to maintain their values, some form of land protection is needed to ensure that these values continue into the future.

A. Pressures on Alaska’s Wildlands

1. R.S. 2477

Revised Statute 2477, enacted as part of the Mining Act of 1866, provides that “[t]he right of way for the construction of highways over public lands, not reserved for public uses, is hereby granted.” The statute was repealed in 1976 through the Federal Land Policy and Management Act, but rights-of-way created before 1976 can still be recognized. Assertion of an R.S. 2477 right-of-way could be a mechanism for avoiding the more rigorous provisions of ANILCA Title XI for securing access. The Alaska Department of Natural Resources has

Lowest Possible Rate, 36 J. ENVT'L. ECON. MGMT. 201, 207 (1998).


226. Colt, supra note 126, at 3.

227. Id.


229. SMITH ET AL., supra note 54, at 49.
researched over 2,000 routes across Alaska’s federal lands and decided that over 650 qualify under R.S. 2477. In 2013, the State of Alaska brought a lawsuit against the federal government seeking recognition of an R.S. 2477 right-of-way through wildlands in the Fortymile region of Alaska’s eastern interior. Lawsuits such as these could lead to decisions allowing road development without adequate consideration of development impacts.

2. Access to Inholdings

ANILCA and its accompanying regulations related to access lack specificity, which could lead to interpretations that jeopardize wilderness values. As discussed in section 2.2.3 above, ANILCA section 1110(b) provides for the Interior Department to grant “adequate and feasible” access to inholdings within conservation units, potentially including Wilderness, subject to reasonable regulations. Interior regulations define “adequate and feasible access” as “a route and method of access that is shown to be reasonably necessary and economically practicable but not necessarily the least costly alternative for achieving the use and development by the applicant on the applicant’s nonfederal land or occupancy interest.” The agency is instructed to grant a right-of-way

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232. ANILCA section 1110 does not specifically mention “Wilderness”; rather it refers to “conservation system units, national recreation areas, and national conservation areas, and those public lands designated as wilderness study.” In Alaska State Snowmobile Ass’n, Inc. v. Babbitt, 79 F. Supp. 2d 1116 (D. Alaska 1999), vacated, No. 00-35113, 2001 WL 770442 (9th Cir. Jan. 10, 2001), the Wilderness Society argued that ANILCA section 1110 must be read in conjunction with the Wilderness Act and that, thus construed, no snowmachine use should be permitted. The court disagreed. It noted that, while the Wilderness Act generally prohibited motorized vehicle use in areas designated as Wilderness, section 1110 specifically provided that “notwithstanding any other provision of this Act or other law, the Secretary shall permit . . . the use of snowmachines . . . for traditional activities.” Id. at 1139–40.


unless it determines that the route or method of access would cause significant adverse impacts on natural or other values of the area and adequate and feasible access otherwise exists. ANILCA does not specifically require an agency to allow motorized access or road access, though it is possible that this could be allowed.

ANILCA section 1323 instructs the Forest Service and BLM to provide access that is “adequate to secure to the owner the reasonable use and enjoyment” of inholdings, subject to the agency’s rules and regulations applicable to access across public lands. Forest Service regulations define adequate access under section 1323 as “a route and method of access to non-Federal land that provides for reasonable use and enjoyment of the non-Federal land consistent with similarly situated non-Federal land and that minimizes damage or disturbance to National Forest System lands and resources.” Forest Service regulations provide for an inholder to upgrade or construct new roads “for access across National Forest System lands that will have significant non-Forest user traffic.” This could be interpreted to allow for a road that grants access to others beyond the inholder, even though such broad access does not appear to be the intent of ANILCA.

ANILCA section 1111 provides temporary access across conservation units and the National Petroleum Reserve-Alaska to allow state or private landowner surveys, geophysical, exploratory, or other temporary uses. This allowance is subject to the agency’s stipulations and

235. Id. § 36.10(e). Other reasons for denying access include the following: the route or method of access would jeopardize public health and safety and adequate and feasible access otherwise exists; the route or method is inconsistent with the management plan(s) for the area or purposes for which the area was established and adequate and feasible access otherwise exists; or the method is unnecessary to accomplish the applicant’s land use objective. Id.

236. 16 U.S.C. § 3170(b).

237. Mont. Wilderness Ass’n v. Forest Serv., 655 F.2d 951, 957 (9th Cir. 1981).

238. 36 C.F.R. § 251.114(d).

239. Similar to ANILCA section 1110, section 1111 does not specifically mention Wilderness, though this section may be interpreted to apply to Wilderness. Section 1111 applies to any “conservation system unit, national recreation area, national conservation area, the National Petroleum Reserve-Alaska or those public lands designated as wilderness study or managed to maintain the wilderness character or potential thereof.” 16 U.S.C. § 3171(a).

determination that access will not result in permanent harm to the resources on public lands.\textsuperscript{241} The Interior Department regulations implementing this section mirror the language of the statute and do not provide for any specific restrictions.\textsuperscript{242} They could be interpreted to allow continuous access over the terms of a permit and multiple permit renewals.

The above sections of ANILCA and their accompanying regulations could be construed to provide access for anything from a temporary shelter to exploration associated with a large-scale oil and gas development. This is a concern for conservation units such as the Arctic National Wildlife Refuge, where corporations with mineral rights to inholdings have advocated for pipeline and exploration access.\textsuperscript{243} Indeed, the Interior Department allowed oil companies to land helicopters in the Designated Wilderness of the Arctic Refuge to support exploration activities during a one-time allowed study of the Refuge’s Coastal Plain in the 1980s.\textsuperscript{244} Still, the agency is supposed to balance the interests of inholders with other governmental purposes, including conservation.\textsuperscript{245}

\textsuperscript{241} Id. § 3171(b).
\textsuperscript{242} 43 C.F.R. § 36.12.
\textsuperscript{243} Kaktovik Inupiat Corporation (KIC), a Native Village Corporation, holds title to 92,160 acres of land within the Refuge. In August 9, 1983, Arctic Slope Regional Corporation (ASRC) obtained a contingent interest to the subsurface rights through the Chandler Lake Agreement between ASRC and United States. See \textsc{Fish & Wildlife Serv., U.S. Dept of the Interior, Arctic National Wildlife Refuge Final Comprehensive Conservation Plan} 186 (1988). Chevron Texaco and BP currently hold leases to all of the acreage within the Refuge’s coastal plain that was granted to ASRC and KIC. \textsc{Oil, Arctic Slope Reg’l Corp.}, http://www.asrc.com/Lands/Pages/Oil.aspx (last visited Jan. 17, 2015).
\textsuperscript{244} Smith et al., \textit{supra} note 54, at 47.
\textsuperscript{245} Mountain States Legal Found. v. Espy, 833 F. Supp. 808, 816 (D. Idaho 1993) (recognizing two compelling governmental purposes associated with limiting inholder access—the Forest Service’s right to regulate when and under what circumstances the public may enter and use national forest lands so as to protect those lands and the resources found there; and the requirement under the Endangered Species Act to preserve threatened and endangered species and the critical habitat necessary for their survival); United States v. Jenks, 22 F.3d 1513, 1517 (10th Cir. 1994), \textit{aff’d in part, rev’d in part}, 129 F.3d 1348, 1350 (10th Cir. 1997) (upholding the Forest Service’s denial of access and referring to the Forest Service’s obligation to balance National Forest protection with the interests of inholders seeking access to property surrounded by Forest Service land).
3. Vehicular Access

There is some debate regarding what kinds of vehicle access should be allowed in ANILCA-created conservation units (including those with Wilderness). Interior Department regulations allow snowmachine and other vehicular access associated with “traditional activities.”\footnote{43 C.F.R. § 36.11(b)–(c).} In Alaska State Snowmobile Association, Inc. v. Babbitt,\footnote{79 F. Supp. 2d 1116 (D. Alaska 1999).} the Alaska district court addressed NPS’ decision to close a portion of the Denali National Park and Preserve to snowmachines for “traditional activities,” and allow snowmachine use in other parts. The court recognized that ANILCA allowed snowmachine use only for “traditional activities” and called on NPS to define this term.\footnote{Id. at 1142.}

In 2000, NPS issued a rule specific to the closed portion of Denali National Park and Preserve defining “traditional activities” as involving the consumptive use of one or more natural resources such as hunting, trapping, fishing, berry picking or similar activities.\footnote{36 C.F.R. § 13.63(h) (renumbered as 36 C.F.R. § 13.950 (2014)).} NPS clarified that there were no villages, homesites or other valid occupancies within the area of closure, and snowmachine access in this areas did not lawfully occur prior to ANILCA.\footnote{65 Fed Reg. 37863, 37866 (June 19, 2000) (to be codified at 36 C.F.R. pts. 5, 13).}

Forest Service regulations indicate generally that snowmachines “may be allowed, restricted, or prohibited” in forest management plans, but restrictions must recognize ANILCA sections 811(b) and 1110(a).\footnote{36 C.F.R. § 212.81(c).} The Forest Service definition of “traditional activities” under ANILCA 1110(a) includes recreation activities occurring in the area at the time of designation such as sport fishing and hunting, boating, camping, picnicking, hiking, exploring, sight-seeing, nature and wildlife viewing, mountaineering, and water play.\footnote{Forest Serv., U.S. Dep’t of Agric., What Can I Do In Wilderness? Alaska National Interest Lands Conservation Act and Wilderness on National Forests in Alaska 6 (2005), available at http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fsbdev2_038234.pdf.} No proof of pre-existing use is required in order to use a
snowmachine, motorboat, or airplane. In managing the Chugach National Forest, the Forest Service has interpreted the term “traditional” to include recreation, sightseeing, and exploring. Helicopters, chainsaws, and recreational snowmachine use have been allowed in the Chugach Forest.

Prior to implementing the 1984 Chugach Forest Management Plan, the Forest Service did not conduct a baseline study of snowmachine use to assess the traditional use. Since that time, snowmachines have evolved technologically, and are capable of traveling greater distances and better able to handle varied terrain. This has expanded access into Wilderness, but without baseline information, the Forest Service is not able to properly document changed use patterns.

4. Alaska’s Congressional Delegation

Alaska’s congressional delegation has introduced a number of bills to eliminate or change ANILCA’s protective measures. One example is Senate Bill 1920, introduced in the 104th Congress in 1996 by former Alaska Senator Frank Murkowski. The bill would have prohibited agencies from preserving the wilderness value of areas that qualify for designation as Wilderness pending Congressional action. It also expanded access under section 1110.

253. Id.
254. Personal Communication with Tim Lydon, Wilderness Program, Glacier Ranger District Chugach National Forest (Nov. 21, 2013); Tim Lydon, Tracking Chainsaw Use in the Nellie Juan-College Fjord Wilderness Study Area (Nov. 2013) (unpublished manuscript) (on file with the author) (hereinafter Lydon, Tracking Chainsaw Use) (stating that chainsaws and other small motors are not permitted for use by the public in the WSA, except for existing uses directly and necessarily related to the taking of fish and game as described in ANILCA section 1316, but permits can be granted for chainsaw use in Wilderness for traditional and customary activities; chainsaw use also occurs due to lack of enforcement and awareness). To find authority granting chainsaw use for traditional and customary activities, see Wilderness Management, in Forest Service Manual: Alaska Region (Region 10) § 2328(i) (2003).
255. Lydon, Tracking Chainsaw Use, supra note 254.
257. Id.
260. Id. § 1(a)–(d).
Several bills\(^{261}\) have been sponsored by Alaska Senator Lisa Murkowski and others to allow exploration in the Coastal Plain of the Arctic National Wildlife Refuge, which has been closed to mineral exploration and development since a one-time study authorized by ANILCA section 1002.\(^{262}\)

5. **Climate Change**

While climate change clearly affects Alaska’s wildlands,\(^{263}\) it is not clear how much the Wilderness Act permits land
managers to intervene to mitigate this change.\footnote{264}{See Gordon Steinhoff, \textit{Interpreting the Wilderness Act of 1964}, 17 Mo. Envtl. L. & Pol’y Rev. 492 (2010) (discussing different approaches to management, ranging from a hands-off approach to trying to restore previous conditions).} FWS has sought to address the impacts of climate change with the following techniques: prescribed fire, fire suppression, facilitation of the growth of plant species more adapted to future climate conditions, supplemental feeding, and other means.\footnote{265}{Kaye, \textit{supra} note 263, at 17.} Kaye argues that each of these tools diminish the untrammeled, wild condition of wilderness. \footnote{266}{\textit{Id}.} Further, the scientific value of wilderness as a means for understanding how ecological systems respond to climate change may be reduced.\footnote{267}{\textit{Id}.}

The debate over how much wilderness management is too much will not be easily resolved. Perhaps less controversial is the concept that the preservation of more wilderness can help provide species with the space they may need for habitat, migration, and otherwise adapting to climate change.\footnote{268}{WILDERNESS SOC’Y & SCENARIOS NETWORK FOR ALASKA PLANNING, \textit{Climate Change Implications for Gates of the Arctic National Park and Preserve} (2009); Elisabeth Long & Eric Biber, \textit{The Wilderness Act and Climate Change Adaptation}, 44 Envtl. L. 623, 660 (2014).} 

\section{B. Opportunities for Additional Wilderness}

As stated by the House Natural Resource Committee on ANILCA, “[I]t was recognized that essentially all of the public lands within these [conservation system] units possess high wilderness value and that significant additions to the National Wilderness Preservation System should be made to protect those values. Therefore . . . the Committee included provisions for studies of such areas in conservation system units.”\footnote{269}{H.R. REP. NO. 95-1045, pt. I, at 157 (1978) (emphasis in original).} Several portions of the Congressional Record suggest that Congress intended for essentially all lands within conservation system units not designated Wilderness by ANILCA to be

\begin{itemize}
  \item[265.] Kaye, \textit{supra} note 263, at 17.
  \item[266.] \textit{Id}.
  \item[267.] \textit{Id}.
\end{itemize}
studied for wilderness suitability. Further, all lands recommended for Wilderness designation by the President were to be protected “until Congress acts to accept, modify[,] or reject the recommendation.”

The Wilderness Society estimates that at least 137 million acres of federal lands in Alaska qualify as Wilderness that have not been designated as such. Some of these lands have been reviewed by federal agencies and recommended as Wilderness; others have not.

1. Refuges and Parks

ANILCA section 1317 required the Interior Secretary to review the wilderness suitability of all National Park and Refuge lands in Alaska not designated as Wilderness. The President was to advise Congress of his recommendation within seven years of the Act (by 1987). By the end of 1990,

270. 126 CONG. REC. H29265 (daily ed. Nov. 12, 1980) (“This legislation provides for all lands within conservation system units that are not designated [W]ilderness by this Act be studied for wilderness and with recommendations made by the President to the Congress. In providing for this wilderness study and recommendation it is the intent of the House that all lands recommended as [W]ilderness by the President be protected until such time as the Congress acts on the recommendation. This means that once the lands are recommended for [W]ilderness they are to be managed as [W]ilderness by the agency until the Congress acts to accept, modify or reject the recommendation.”);

see also id. at H10544 (describing ANILCA Section 702 and stating “[w]hile the Senate bill reduces wilderness designations in wildlife refuges, all lands not designated as [W]ilderness now must be reviewed for later consideration by the Congress . . . Designation of western Prince William Sound as a wilderness study area is not intended to reflect on the wilderness potential of these other ‘further planning’ areas. All of these areas deserve to be considered for [W]ilderness now must be reviewed for later consideration by the Congress . . . .”)

271. 126 CONG. REC. H29265 (daily ed. Nov. 12, 1980); see also H.R. REP. NO. 95-1045, pt. I, at 144 (1978) (“The integrity of the specific area under study is to be maintained during the study period and until Congress has taken action upon the recommendations submitted.”).

272. SMITH ET AL., supra note 54, at 27.

273. 16 U.S.C. § 3205(a) (2012); see also 126 CONG. REC. S11047 (daily ed. Aug 18, 1980) (“The [bill] directs such review to be done with respect to all non-wilderness units of the National Park System and National Wildlife Refuge System. The effect of the language is to make all non-wilderness preserves also subject to [W]ilderness review.”).

274. 16 U.S.C. § 3205(b).
Interior Department staff had reviewed 18.5 million acres of National Parks and 56.6 million acres of Refuges and determined that 72.2 million acres were suitable for wilderness designation.\footnote{Smith et al., supra note 54, at 54.} The Secretary planned to recommend 8.1 million acres (eleven percent of the lands found suitable), but the recommendation process stalled. As of 2001, no wilderness recommendations had been forwarded to the President or Congress for National Parks or Refuges in Alaska.\footnote{Id.; Personal Communication with Roger Kaye, Wilderness Specialist, Fish & Wildlife Serv. (Jan. 13, 2014); Personal Communication with Joan Frankenvich, Alaska Dir., Nat’l Parks Conservation Assn. (Jan. 13, 2014); Personal Communication with Charles Chusen, Director, Alaska Project, Natural Res. Def. Council (Jan. 3, 2014); Personal Communication with Adrienne Lindholm, Wilderness Coordinator, Nat’l Park Ser. (Jan. 14, 2014); Personal Communication with Allen E. Smith, Past Alaska Reg’l Dir., The Wilderness Soc’y (Jan. 14, 2014).}

The Obama Administration’s 2011 draft CCP for the Arctic Refuge contains several alternatives with Wilderness recommendations for three Wilderness Study Areas, including the Coastal Plain, the Porcupine Plateau WSA, and the Brooks Range WSA. With the exception of lands adjacent to villages and travel corridors, the draft CCP indicates that nearly all of the land in these WSAs (more than 11 million acres) is suitable for Wilderness designation.\footnote{Fish & Wildlife Serv., U.S. Dep’t of the Interior, Arctic National Wildlife Refuge Summary of Draft CCP 18 (2011), available at http://www.fws.gov/alaska/nwr/arctic/pdf/ccp3b.pdf.} As of the publication of this article in 2015, a final CCP has not been approved.

2. \textit{BLM}

Wilderness designation of the seventy million acres of Alaska lands managed by the Bureau of Land Management has been an uphill battle, despite the fact that an estimated fifty million acres of these lands could meet the definition of Wilderness.\footnote{Smith et al., supra note 54, at 62.} ANILCA section 1320 excused BLM from the mandatory wilderness review provisions of FLPMA section 603 (though it did not prohibit wilderness reviews).\footnote{43 U.S.C. § 1784 (“Notwithstanding any other provision of law, section 1782 of this title shall not apply to any lands in Alaska. However, in carrying out his duties under sections 1711 and 1712 of this title and other applicable laws, the Secretary may identify areas in Alaska which he determines are suitable as wilderness and may, from time to time, make recommendations to the Congress for inclusion of any such areas in the National Wilderness Preservation System, pursuant to the provisions of the
wilderness reviews in Alaska became discretionary for BLM. 280
A series of secretarial orders have further limited the potential for BLM-nominated Wilderness. 281

ANILCA section 1001(a) directed the Interior Secretary to review wilderness characteristics and to make recommendations for wilderness designation of federal lands on the North Slope, but specifically excluded the National Petroleum Reserve-Alaska (NPRA). 282 Prior to ANILCA, an inventory required by the 1976 Naval Petroleum Reserve
Production Act section 105(c) found that 22.5 million acres were suitable for Wilderness. In its 2012 Integrated Activity Plan, BLM adopted the findings of the 105(c) studies, finding that little in the landscape had changed. Still, BLM decided not to analyze in detail an alternative of recommending wilderness designation.

BLM is responsible for one WSA in Alaska—the Central Arctic Management Area (CAMA) southeast of NPRA. As of 2013, the CAMA WSA is approximately 250,000 acres. BLM’s regional management plan for the Central Yukon area, which includes CAMA, will likely find 135,000 acres of the WSA suitable for wilderness designation.

3. Forest Service

The Forest Service’s 1978 roadless area review and evaluation program (RARE II) found that 14.8 million acres of Alaska’s National Forests could qualify as Wilderness. ANILCA section 708 excused the Forest Service from completing any additional roadless or wilderness review in Alaska beyond what was considered in RARE II until the Forest Service revised its individual forest plans. The Forest Service revised the plan for the Tongass National Forest in 1997 but did not consider any potential wilderness designations.

While about 5.8 million acres of the Tongass have been designated as Wilderness, no Wilderness has been designated

283. 1 NATIONAL PETROLEUM RESERVE, supra note 263, at 449–51.
284. Id. at 451.
285. Id. at 35.
287. Id.
288. SMITH ET AL., supra note 54, at 62.
289. In 2001, the District Court of Alaska held that the 1997 Environmental Impact Statement (EIS) regarding the Tongass plan was unlawful because it failed to consider an alternative recommending more Wilderness areas. Sierra Club v. Rey, No. J00-009 (D. Alaska Mar. 30, 2001); see also Natural Res. Def. Council v. U.S. Forest Serv., 421 F.3d 797, 805 (9th Cir. 2005) (discussing Rey). In 2003, the Forest Service issued a supplemental EIS with limited recommendations for Wilderness within the Tongass. The same year, Congress passed the Omnibus Appropriations Act of 2003, Pub. L. No. 108-7, 117 Stat. 11, precluding judicial review of the 2003 EIS. Id.
in the Chugach National Forest. The Chugach’s single WSA—the two-million-acre Nellie Juan-College Fiord Study Area—was established by ANILCA section 704. The Forest Service completed a wilderness study of the area as part of the Chugach National Forest Plan of 1984 and then recommended that approximately 1.7 million acres be designated as Wilderness. The 1984 Plan provided that the entire WSA should be managed to preserve its wilderness character until a time when Congress determined how much, if any, of the area would be designated Wilderness.

In 2002, the Forest Service revised the Chugach National Forest Plan and conducted a new wilderness study, this time recommending that 1.4 million acres of the WSA be designated as Wilderness. Again, the 2002 plan affirmed that the entire WSA would be managed for wilderness character until Congress reached a decision on the issue. Congress has yet to act on the Forest Service’s wilderness recommendation.

In 2012, the Forest Service began a Forest Plan Revision, which involves another look at the WSA and a possible third recommendation to Congress on wilderness designation.

C. The Legality of Additional Conservation Measures

The previous section suggests that opportunities for designating more Wilderness in Alaska awaiting federal and congressional action exist. Opponents of additional designations point to what they interpret as Congress’ intent in ANILCA to prohibit more withdrawals. ANILCA section 101(d) states:

290. SMITH ET AL., supra note 54, at 62.
292. See id. at 16 (“Until Congress acts on this Wilderness recommendation, the entire WSA will be managed using the Wilderness Study Area prescription.”).
This Act provides sufficient protection for the national interest in the scenic, natural, cultural[,] and environmental values on the public lands in Alaska . . . Thus Congress believes that the need for future legislation designating new conservation system units, new national conservation areas, or new national recreation areas, has been obviated thereby.  

Regardless of this apparent intent, it is within Congress’s prerogative to pass a new law to establish Wilderness. This was illustrated with the 1990 Tongass Timber Reform Act, which designated an additional 300,000 acres of Wilderness and created a Special Land Use designation maintaining an additional 730,000 acres of roadless areas. Thus, section 101(d) should not serve as a barrier to additional Wilderness designations.

The argument regarding administrative conservation measures is more complex. ANILCA section 1326(b) limits studies for purposes of withdrawal as follows: “No further studies of Federal lands in the State of Alaska for the single purpose of considering the establishment of a conservation system unit, national recreation area, national conservation area, or for related or similar purposes shall be conducted unless authorized by this Act or further Act of Congress.” The prohibition on studies applies only to single purpose studies, not to wilderness reviews undertaken as part of comprehensive land-use planning, such as National Forest plan revisions. As discussed in section 1.2, Wilderness

297. 126 Cong. Rec. H29692 (daily ed. Nov. 12, 1980) (As stated during ANILCA hearings by Thomas Evans, a Republican Senator from Delaware, “[This bill] is not the last step on Alaska lands, but for the most part it is a firm and progressive step forward. We have a debt to present and future generations of Americans who do and will cherish our wildlife and wilderness legacy in Alaska. This bill is a good downpayment of that debt, and it has my support.”)
298. 16 U.S.C. § 3213(b).
review is an element of the land-use planning process for all the agencies that manage land in Alaska. Thus, section 1326(b) does not prevent agencies from conducting wilderness reviews in Alaska.\textsuperscript{300}

Section 1326(a) limits administrative withdrawals of more than five thousand acres in Alaska.\textsuperscript{301} The executive branch can make such withdrawals only by providing notice in the Federal Register and to both houses of Congress.\textsuperscript{302} The withdrawal terminates “unless Congress passes a joint resolution of approval within one year after the notice of such withdrawal has been submitted to Congress.”\textsuperscript{303}

The term “withdrawal” is not defined in ANILCA, though various sections of ANILCA, other public land laws, and case law generally suggest that a withdrawal involves a removal of federal land from operation of some or all of the public land laws that authorize disposition and private appropriation of public lands.\textsuperscript{304} For federal lands that have already been consistent with ANILCA planning provisions and NEPA, and does not require Congressional authorization.”).
withdrawn from these public land laws under ANILCA, it could be argued that an administrative protection would not necessarily constitute a withdrawal. Indeed, the legislative history of ANILCA suggests that proponents of the “no-more clause” were primarily concerned with future executive actions that would set aside additional land to create new conservation systems.\footnote{Alaska National Interest Lands Conservation Act of 1979: Hearing on H.R. 39 Before the H. Comm. on Interior & Insular Affairs, 96th Cong. 245 (1979) (statement of Jay Hammond, Governor of Alaska) (focusing on the need to avoid removing additional lands from the public domain: “creating any new or expanded units of restrictive conservation systems . . . establishing new areas under the Antiquities Act”); \textit{id.} at 255–65 (statement of Sen. Mike Gravel) (Senator Gravel’s dissenting views in the 1979 Senate Report focused on the amount of land being set aside in conservation units).}

\textit{Southeast Conference v. Vilsack}\footnote{684 F. Supp. 2d 135 (D.D.C. 2010).} supports this argument. The case concerned the Forest Service’s amendment to the Tongass National Forest Plan, which designated 1.22 million acres of forest as “old growth reserves,” such that timber harvesting was prohibited on these lands. Plaintiffs (Alaskan cities and corporations) contended that the “old growth reserves” designation could only be upheld if approved by
Congress through a joint resolution, pursuant to ANILCA section 1326.\textsuperscript{307} Based on the definition of withdrawal in FLPMA and in case law, the court found that “withdrawal” referred to an action making land unavailable for certain kinds of private appropriation under the public land laws.\textsuperscript{308} The court concluded that the Forest Service’s plan neither exempted lands from the operation of public land laws nor suspended the operation of those laws on certain lands, and thus did not constitute a withdrawal requiring Congressional permission under ANILCA.\textsuperscript{309} Rather, the land use designations were merely examples of the statutory responsibility to provide for multiple use and sustained yield of forest products and services.\textsuperscript{310}

Additional case law suggests that layering one form of public land protection (e.g., a monument designation) over another form (e.g., a withdrawal) does not effectuate a “second withdrawal” of previously withdrawn land unless this intent is stated in the proclamation. In \textit{Tulare County v. Bush},\textsuperscript{311} the court found that the Giant Sequoia National Monument did not unlawfully withdraw National Forest land in violation of the National Forest Management Act,\textsuperscript{312} because the proclamation specifically stated that it did not revoke any existing withdrawal, reservation, or appropriation.\textsuperscript{313} \textit{Cameron v. United States},\textsuperscript{314} concerned the Grand Canyon National Monument, which was established in a previously existing forest reserve.\textsuperscript{315} The Supreme Court found that the

\begin{footnotesize}
\begin{enumerate}
\item \textsuperscript{307} Id. at 142.
\item \textsuperscript{308} Id. at 143–45.
\item \textsuperscript{309} Id. at 144.
\item \textsuperscript{310} Id.
\item \textsuperscript{311} 306 F.3d 1138 (D.C. Cir. 2002), petition denied, 317 F.3d 227 (D.C. Cir. 2003).
\item \textsuperscript{312} NFMA provides that no national forest land “shall be returned to the public domain except by an act of Congress.” 16 U.S.C. § 1609(a). In other words, no land withdrawn for forest purposes can be “unwithdrawn” except by Congress.
\item \textsuperscript{313} \textit{Tulare}, 306 F.3d at 1143.
\item \textsuperscript{314} 252 U.S. 450 (1920).
\item \textsuperscript{315} Under the Forest Reserve Act, the President was permitted to “set apart and reserve . . . public land bearing forests . . . or in part covered by timber or undergrowth, whether of commercial value or not, as public reservations.” Forest Reserve Act of 1891, 26 Stat. 1095, 414. Congress re-designated forest reserves as “national forests” in 1907. Act of Mar. 4, 1907, ch. 2907, 34 Stat. 1256, 1269.
\end{enumerate}
\end{footnotesize}
Monument served as the dominant reserve, while the forest reserve remained in effect.\textsuperscript{316}

The implication of these cases is that if Congress fails to act on a wilderness recommendation, the executive branch could implement protective measures of its own. This could take the form of a National Monument proclamation under the Antiquities Act. Interior Secretary Sally Jewell suggested as much in one of her first major public speeches: “We owe it to future generations to act. As he has already demonstrated, President Obama is ready and willing to step up where Congress falls short.”\textsuperscript{317}

V. CONCLUSION

Alaska’s wildlands are a national treasure, as well as a source of livelihood and rejuvenation to many Alaskans. As a result of ANILCA, Alaska is home to more acres of national forests, national wildlife refuges, and national parks than any other state, in addition to thousands of acres of wildlands managed by BLM. Designated Wilderness offers the greatest form of protection to Alaska’s wildlands. At the same time, the unique structure of Wilderness under ANILCA allows Alaskans to continue to practice a traditional way of life based on hunting and fishing.

In the rush to develop Alaska’s many natural resources, the value of conserving landscapes in their natural state has often been understated. The studies referenced in this article suggest that economists are only beginning to quantify the economic value of wildlands and ecosystem services. Standard economic valuation tools may be insufficient to reflect the true value of wilderness and may need to be combined with approaches suggested by the precautionary principle.\textsuperscript{318} Better quantification could help agencies avoid decisions that promote resource extraction to the detriment of ecosystem health.

\textsuperscript{316} Cameron, 252 U.S. at 455.


\textsuperscript{318} See EBAN S. GOODSTEIN, ECONOMICS AND THE ENVIRONMENT 124 (2010) (applying the precautionary principle) (“[N]ever reduce the stock of natural capital below a level that generates a sustained yield of services unless good substitutes are currently available for the services generated. When in doubt, conserve.”).
Designating additional Wilderness among the millions of suitable acres in Alaska would help to conserve these values and to protect wildlands from the pressures associated with resource development, transportation, and climate change. Nothing in ANILCA precludes such congressional delegations. The language of ANILCA leaves room for large (greater than 5000 acres) administrative designations within national parks, refuges, and other lands already withdrawn by ANILCA from the operation of public land use laws. It is up to both the executive branch and Congress to act for the good of Alaska.