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

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WILDERNESS: GOOD FOR ALASKA
*Legal and Economic Perspectives on Alaska's Wilderness**

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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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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

1. Wilderness Act of 1964, Pub. L. No. 88-577, 78 Stat. 890 (codified at 16 U.S.C. §§ 1131–1136 (2012)). In this article, the term "wilderness" (with a lower-case "w") is a general term similar to "wildlands."

2. 16 U.S.C. § 1131(c).

acres and has outstanding opportunities for solitude or primitive recreation.[3] Collectively, America's Wilderness lands make up the National Wilderness Preservation System.[4]

The Wilderness Act requires agencies managing Wilderness areas to preserve their wilderness character.[5] Commercial enterprises and permanent roads through Wilderness areas are generally prohibited, with a number of exceptions.[6] 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.[7] Section 4(c) also recognizes that all restrictions are "subject to existing private rights,"[8] including the right of access to inholdings.[9]

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,"[10] to take actions to fight "fire, insects, and diseases,"[11] and to allow commercial

3. *Id*.

4. This characterization of America's Wilderness Lands is consistent with Category I (a) and (b) of the International Union for Conservation of Nature's protected area classification system. *See* Nigel Dudley et al., *Defining Wilderness in IUCN*, 18 INT'L J. WILDERNESS, no. 1, Apr. 2012, at 9, 11–12, *available at* http://issuu.com/ijwilderness/docs/april_2012_ijw/3?e=0; H. Ken Cordell, *The Diversity of Wilderness*, 18 INT'L J. WILDERNESS, no. 2, Aug. 2012, at 15, 16, *available at* http://issuu.com/ijwilderness/docs/august_2012_ijw/19?e=0 (covering ecosystems represented in the U.S. National Wilderness Preservation System).

5. 16 U.S.C. § 1133(b).

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).

11. 16 U.S.C. § 1133(d)(1).

services related to recreational or other wilderness purposes.[12] 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."[13] It specifically allows mineral location and development as well as exploration, drilling, and production on these lands if patented prior to 1984.[14] 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.[15] The Wilderness Act does not prohibit hunting, though it may be prohibited in National Parks and other conservation units.[16]

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.[17] Lands have been placed into this management category as a result of wilderness reviews mandated by the Wilderness Act[18] 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).

14. *Id*. § 1133(d)(3).

15. *Id*. § 1133(d)(4).

16. *See* 36 C.F.R. § 2.2 (2014) (prohibiting hunting in National Parks except where mandated by federal law).

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.[19] 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.[20] BLM is directed to manage WSAs without impairing suitability of these areas for wilderness designation,[21] but WSAs are open to new mining claims.[22]

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.[23] The review process identifies WSAs that meet the definition of wilderness in section 2(c) of the Wilderness Act.[24] A CCP outlines specific management direction to maintain an area's wilderness character until Congress makes a decision on the area or the

19. Federal Land Policy and Management Act of 1976 § 603, 43 U.S.C. § 1782 (2014).

20. 43 U.S.C. § 1712; BUREAU OF LAND MGMT., U.S. DEP'T OF THE INTERIOR, BLM MANUAL 6330—MANAGEMENT OF BLM WILDERNESS STUDY AREAS, at 1.1 (2012), *available at* http://www.blm.gov/pgdata/etc/medialib/blm/wo/Information_Resources_Management/policy/blm_manual.Par.31915.File.dat/6330.pdf [hereinafter BLM MANUAL 6330].

21. 43 U.S.C. § 1782(c); BLM MANUAL 6330, *supra* note 20, at 1.2.

22. *National Conservation Lands, Wilderness Study Areas (WSAs) Frequently Asked Questions*, BUREAU OF LAND MGMT., U.S. DEP'T OF THE INTERIOR, http://www.blm.gov/wo/st/en/prog/blm_special_areas/NLCS/wilderness_study_areas/Wilderness_Study_Areas.html (last updated Nov. 21, 2008).

23. National Wildlife Refuge System Administration Act of 1966, (codified as amended at 16 U.S.C. § 668dd(e)(1)(A)) ("[T]he Secretary shall—(i) propose a comprehensive conservation plan for each refuge or related complex of refuges"); Alaska National Interest Lands Conservation Act (ANILCA) of 1980 (codified as amended at 16 U.S.C. §§ 410hh–3233, 43 U.S.C. §§ 1602–1784); ANILCA § 304(g)(1)(B) (requiring the preparation of a comprehensive conservation plan that considers the wilderness value of the refuge); FISH & WILDLIFE SERV., U.S. DEP'T OF THE INTERIOR, *Wilderness Review and Evaluation*, *in* WILDERNESS STEWARDSHIP POLICY § 4.4 (2008), *available at* http://www.fws.gov/policy/610fw4.html [hereinafter *Wilderness Review and Evaluation*] ("Wilderness reviews are a required element of comprehensive conservation plans (CCP)."). FWS's wilderness review is different in Alaska, where CCPs identify wilderness values but are not required to incorporate formal recommendations for Wilderness designation. *See* FISH & WILDLIFE SERV., U.S. DEP'T OF THE INTERIOR, *Special Provisions for Alaska Wilderness*, *in* WILDERNESS STEWARDSHIP POLICY § 5.17 (2008), *available at* http://www.fws.gov/policy/610fw5.pdf [hereinafter *Special Provisions for Alaska Wilderness*].

24. *Wilderness Review and Evaluation*, *supra* note 23, § 4.7.

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

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25. *Id.* § 4.14.

26. NAT'L PARK SERV., U.S. DEP'T OF THE INTERIOR, MANAGEMENT POLICIES 2006 § 6.2.1 (2006), *available at* http://www.nps.gov/policy/mp2006.pdf.

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.").

29. 36 C.F.R. § 219.7(c)(2)(v); FOREST SERV., U.S. DEP'T OF AGRIC., *Wilderness Evaluation*, *in* LAND MANAGEMENT PLANNING HANDBOOK, *available at* http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fsbdev3_053167.pdf [hereinafter *Wilderness Evaluation*].

30. *Wilderness Evaluation supra* note 29, § 71.

31. *What Are the Definitions of Inventoried Roadless Areas, Potential Wilderness Areas, Recommended Wilderness Areas and Designated Wilderness?*, FOREST SERV., U.S. DEP'T OF AGRIC., http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fsbdev3_000250.pdf (last modified Aug. 26, 2008).

wilderness designation.[32] 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.[33]

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.[34] The rule generally prohibited roads in these areas (with some exceptions) and limited timber.[35] President George W. Bush's administration replaced the rule with the less protective State Petition Rule,[36] but this also gave rise to litigation.[37] As of 2014, the 2001 Roadless Rule appears to have been reinstated in the Lower 48, but may not apply to Alaska.[38]

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32. 36 C.F.R. § 293.17; *Land Areas Report Definitions of Terms*, FOREST SERV., U.S. DEP'T OF AGRIC., http://www.fs.fed.us/land/staff/lar/definitions_of_terms.htm (last visited Sept. 27, 2014).

33. JOHN B. LOOMIS & ROBERT RICHARDSON, ECONOMIC VALUES OF PROTECTING ROADLESS AREAS IN THE UNITED STATES, at iii (2000), *available at* http://www.sierraforestlegacy.org/Resources/Conservation/FireForestEcology/ForestEconomics/Economics-Loomis00.pdf.

34. *See, e.g.*, Wyoming v. Dep't of Agric., 277 F. Supp. 2d 1197 (D. Wyo. 2003), *vacated and remanded*, 414 F.3d 1207 (10th Cir. 2005); Idaho ex rel. Kempthorne v. Forest Serv., 142 F. Supp. 2d 1248 (D. Idaho 2001); Kootenai Tribe of Idaho v. Veneman, 142 F. Supp. 2d 1231 (D. Idaho 2001).

35. *See* Roadless Area Conservation Final Rule (the "2001 Roadless Rule"), 66 Fed. Reg. 3244–3272 (Jan. 12, 2001) (to be codified at 36 C.F.R. pt. 294).

36. Special Areas; State Petitions for Inventoried Roadless Area Management, 70 Fed. Reg. 25,654 (May 13, 2005) (to be codified at 36 C.F.R. pt. 294).

37. *See* California v. Dep't of Agric., 575 F.3d 999 (9th Cir. 2009) (affirming the district court's order permanently enjoining the implementation of the State Petitions Rule).

38. *See* Wyoming v. Dep't of Agric., 661 F.3d 1209 (10th Cir. 2011) (reversing the injunction against the 2001 Roadless Rule), *cert. denied*, 133 S. Ct. 417 (2012); *compare* Alaska v. Dep't of Agric., 932 F. Supp. 2d 30 (D.D.C. 2013) (holding that the statute of limitations to challenge the 2001 Roadless Rule had expired), *with* Organized Vill. of Kake v. Dep't. of Agric., 746 F.3d 970 (9th Cir.) (reversing a 2011 Alaska District Court order invalidating a regulation that temporarily exempted the Tongass National Forest in Alaska from the 2001 Roadless Rule on grounds that the exemption was not arbitrary or capricious; the panel remanded to case to the district court to determine the need for a supplemental environmental impact statement), *rehearing en banc granted*, 765 F.3d 1117 (9th Cir. 2014).

C. *National Conservation Area*

A National Conservation Area (NCA) is a permanent public land designation established by Congress to conserve land.[39] 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.[40] 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[41] 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.[42] 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.

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39. *See National Conservation Areas and Similarly Designated Lands*, BUREAU OF LAND MGMT., U.S. DEP'T OF THE INTERIOR, http://www.blm.gov/wo/st/en/prog/blm_special_areas/NLCS/National_Conservation_Areas.html (last visited Sept. 27, 2014).

40. *See, e.g.*, Craig Miller, *Another Try for California's Second National Conservation Area*, KQED SCI. (Apr. 26, 2013), http://science.kqed.org/quest/audio/another-try-for-californias-second-national-conservation-area/ (discussing the Berryessa Snow Mountain Conservation Area in California, consisting of lands managed by the Forest Service, the Bureau of Land Management, and the Bureau of Reclamation).

41. 16 U.S.C. §§ 431–433 (2012).

42. *See, e.g.*, Act of Aug. 3, 1950, Pub. L. No. 81-652, 64 Stat. 405 (abolishing Wheeler National Monument in Colorado and converting the area to a national forest); *see also About "Abolished" National Monuments*, NAT'L PARK SERV., U.S. DEP'T OF THE INTERIOR, http://www.nps.gov/archeology/sites/antiquities/abolished.htm (last updated Sept. 27, 2014). Although ANILCA abolished the Alaska monuments designated by President Carter in 1978, it established each monument area as a National Park, Wildlife Refuge, and/or Wilderness, and it re-established two of the monuments. *See* 16 U.S.C. § 3209(a) (rescission of prior reservations and withdrawals); ANILCA §§ 201–203, 302, 503, 702.

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.[43] 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),[44] passed in 1971, purported to extinguish all Alaska Native land claims and aboriginal title-based hunting and fishing rights.[45] 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.[46]

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.[47] The section required Congress to act on DOI's recommendations by

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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 FLPMA[49] 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 ANILCA[52] in 1980. The act revoked Carter's Monument designations[53] but turned out to be one of the most significant land conservation measures ever enacted. ANILCA established over 104 million acres[54] of conservation system units[55] 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

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48. *Id*.

49. *See* Federal Land Policy and Management Act of 1976 § 204(e), 43 U.S.C. § 1714.

50. ALASKA PROF'L HUNTERS ASS'N, BACKGROUND REPORT: ALASKA LANDS LEGISLATION 1 (Lynn Castle ed., 1979), *available at* http://digitalcollections.library.cmu.edu/awweb/awarchive?type=file&item=449345.

51. Proclamation Nos. 4611–4627, 43 Fed. Reg. 57009–57131 (1978).

52. Alaska National Interest Lands Conservation Act of 1980, 16 U.S.C. §§ 3101–3233, 43 U.S.C. §§ 1602–1784.

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.

54. ALLEN E. SMITH ET AL., ALASKA NATIONAL INTEREST LANDS CONSERVATION ACT CITIZENS' GUIDE 10 (2001); GEN. ACCOUNTING OFFICE, STATUS OF FEDERAL AGENCIES' IMPLEMENTATION OF THE ALASKA NATIONAL INTEREST LANDS CONSERVATION ACT 4 (1982), *available at* http://www.gao.gov/assets/140/137477.pdf

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).

56. *Frequently Asked Questions*, BUREAU OF LAND MGMT., U.S. DEP'T OF THE INTERIOR, http://www.blm.gov/ak/st/en/res/pub_room/faqs.print.html (last visited Jan. 17, 2015).

Wilderness.[57] Alaska now has more designated Wilderness than any other state.[58]

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.[59] ANILCA grants subsistence by rural Alaskans a priority over the taking of fish and wildlife for other purposes.[60]

1. *Hunting and Fishing*

Unlike National Parks in the Lower 48, most of the land managed by NPS in Alaska is open to hunting.[61] 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.[62] 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.[63]

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57. SMITH ET AL., *supra* note 54, at 26.

58. *See The Beginnings of the National Wilderness Preservation System*, WILDERNESS.NET, http://www.wilderness.net/NWPS/fastfacts (last updated Mar. 20, 2014).

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.

62. ANILCA §§ 816, 1313, 1314, 16 U.S.C. §§ 410hh-2, 3126, 3201, 3202 (providing for hunting and trapping in National Preserves and subsistence hunting and sport fishing in National Monuments and Parks); ANILCA § 203, 16 U.S.C. § 3201 (providing for sport and subsistence hunting in National Preserves).

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.[64] In each of the nine ANILCA-created Alaska Refuges and some Refuges expanded by ANILCA, Congress explicitly identified subsistence as a purpose.[65] 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.[66]

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."[67] 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.[68] Such closure generally requires notice, consultation with the State, and a public hearing.[69] 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.[70]

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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.

67. 16 U.S.C. § 3201.

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]

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).

74. ANILCA § 1303(a)(4), 16 U.S.C. § 3193(a)(4).

75. ANILCA §§ 811(b), 1110(a), 16 U.S.C. §§ 3121(b), 3170(a).

76. ANILCA § 1110(a), 16 U.S.C. § 3170(a).

77. 43 C.F.R. § 36.11(g) (2014); Exec. Order No. 11,644, 3 C.F.R. 666 (1971–1975).

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.[79] 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.[80]

ANILCA Title XI established a unique system for determining whether a transportation or utility system (including roads, pipelines, and other rights-of-way[81]) should be allowed through conservation system units created by the Act.[82] 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.[83] Congress established the road and port through a special act that superseded the review requirements under ANILCA Title XI.[84]

4. *Aquaculture*

Section 1315 of ANILCA allows fish enhancement and aquaculture that may be supported by motorized vehicles within Wilderness in National Forests.[85] This provision was tested in *The Wilderness Society v. Fish & Wildlife Service*,[86] which concerned a fish stocking program predating ANILCA in

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provided that the owner complies with rules and regulations applicable to access in the National Forest System and under the Federal Land Policy and Management Act of 1976, 43 U.S.C. §§ 1701–1782).

79. 16 U.S.C. § 3210.

80. Mont. Wilderness Ass'n v. U.S. Forest Serv., 655 F.2d 951, 954 (9th Cir. 1981), *cert. denied* 455 U.S. 989 (1982) (extended the reasonable access provision of Section 1323 to all National Forest lands in the United States).

81. 43 C.F.R. § 36.2(p) (2014) (definition of Transportation or Utility System).

82. ANILCA §§ 1102–1109, 16 U.S.C. §§ 3162–3169.

83. SMITH ET AL., *supra* note 54, at 43.

84. The road and port are both owned by the Alaska Industrial Development and Export Authority (AIDEA). Congress granted the Alaska Regional Corporation NANA a 100-year easement through Cape Krusenstern National Monument to make land available for the road. 43 U.S.C. § 1629.

85. ANILCA § 1315, 16 U.S.C. § 3203.

86. 316 F.3d 913 (9th Cir. 2003).

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.[87] 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."[88] This finding was overturned after a hearing *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.[89] Apart from these exceptions, Wilderness designated pursuant to ANILCA is administered in accordance with the Wilderness Act.[90]

C. *Tongass Timber Reform Act*

ANILCA designated 5.4 million acres of the Tongass National Forest in southeast Alaska as Wilderness,[91] including 1.6 million acres of previously designated commercial forest land.[92] As a compromise, section 705 of ANILCA provided the Forest Service with an annual appropriation of at least forty million dollars in federal funds to log more marginal areas.[93] The aim was to log 4.5 billion board feet of timber per decade,[94] a level four times higher than what can be sustained.[95]

The 1990 Tongass Timber Reform Act has been the only significant amendment of ANILCA to pass Congress. It

87. Peter A. Appel, *Wilderness and the Courts*, 29 STAN. ENVTL. L.J. 62, 108 (2010).

88. *The Wilderness Soc'y*, 316 F.3d at 923–24 (citing 16 U.S.C. § 1131(c)).

89. 353 F.3d 1051, 1061–62 (9th Cir. 2003).

90. ANILCA § 707.

91. *Id*. § 703.

92. Duane R. Gibson, *Sustainable Development and the Forestry Law of the Tongass National Forest and Indonesian Forests*, 31 WILLAMETTE L. REV. 403, 430 (1995) (citing FOREST SERV., U.S. DEP'T OF AGRIC., THE ANALYSIS OF THE MANAGEMENT SITUATION, TONGASS NATIONAL FOREST (1990)).

93. ANILCA § 705(a), 16 U.S.C. § 539d(a) (1988) (repealed 1989); 136 Cong. Rec. S7739 (daily ed. June 12, 1990) (statement of Sen. Stevens).

94. ANILCA § 705(a), 16 U.S.C. § 539d(a) (1988) (repealed 1982).

95. SMITH ET AL., note 54, at 19.

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

96. Tongass Timber Reform Act of 1990 § 101, 16 U.S.C. § 539(d) (2012).

97. *Id*. § 202.

98. *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)).

99. Tongass Timber Reform Act § 103, 16 U.S.C. § 539d(e).

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 "envisions 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.[104] In a follow-up survey, Cordell[105] found that these positions remained relatively stable or increased. More rigorous and state-specific research in Colorado[106] and Utah[107] 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.[108] Phillips (2004) found that Wilderness enhances property values, translating into financial benefits for residents of communities close to wilderness areas.[109]

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.[110] Godfrey and Christy (1991) argue that estimates of net economic values associated with Wilderness

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104. An additional twenty-nine stated that the right amount of Wilderness was being protected, while 2.5 percent stated that too much was designated. *Id*. at 30.

105. H. KEN CORDELL ET AL., FOREST SERV., U.S. DEP'T OF AGRIC., HOW DO AMERICANS VIEW WILDERNESS? 9 (2008), *available at* http://www.srs.fs.usda.gov/trends/pdf-iris/IRISWild1rptfs.pdf.

106. *See* Richard G. Walsh et al., *Valuing Option, Existence, and Bequest Demand for Wilderness*, 60 LAND ECON. 14 (1984).

107. *See* C.A. Pope & J.W. Jones, *Value of Wilderness Designation in Utah*, 30 J. ENVTL. MGMT. 157 (1990).

108. F. Patrick Holmes & Walter E. Hecox, *Does Wilderness Impoverish Rural Regions?* 10 INT'L J. WILDERNESS, no. 3, Dec. 2004, at 34. 34, *available at* http://www.wilderness.net/library/documents/IJWDec04_Holmes.pdf. *But see* Brian C. Steed & Jon M. Huntsman, *The Economic Costs of Wilderness*, ENVTL. TRENDS 1–7, June 16, 2011, *available at* http://www.environmentaltrends.org/fileadmin/pri/documents/2011/brief062011.pdf.

109. Spencer Phillips, *The Economic Benefits of Wilderness: Focus on Property Value Enhancement*, SCI. & POL'Y BRIEF, Mar. 2004, at 1, 1–8. Phillips argues that while the positive impact of Wilderness on land values could be significant, the effect on property tax bills is likely to be negligible because the cost of public services tends to be lower in areas where conservation lands exist, and tax rates should be lower as a result. *Id*. at 1. *But see* Steed & Huntsman, *supra* note 108, at 1–7.

110. John E. Keith et al., *Preservation or Use: A Contingent Valuation Study of Wilderness Designation in Utah*, 18 ECOLOGICAL ECON. 207, 214 (1996).

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

111. E. Bruce Godfrey and Kim S. Christy, *The Value and Use of Wilderness Lands: Are They Small or Large at the Margin?*, 91 ECON. RES. INST. STUDY PAPERS, no. 8, Dec. 1991, at 1, 6–7.

112. *Id*. at 7.

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

114. Pete Morton, *The Economic Benefits of Wilderness: Theory and Practice*, 76 DENV. U. L. REV. 465, 473, 500–02, 505 (1999) (describing the Forest Service's incorrect valuation of wilderness recreation use due to failure to account for the economic benefits from all forms of recreation taking place in wilderness and for passive use values); *see also* Anne Huebner, *Using Market and Nonmarket Values of Wilderness Lands in Alternative Revenue-Sharing Strategies*, *in* THE ECONOMICS OF WILDERNESS, 217, 217–27 (Claire Payne et al. eds., 1991), *available at* http://www.srs.fs.usda.gov/pubs/gtr/gtr_se078.pdf; SPENCER PHILLIPS ET AL., GREATER THAN ZERO: TOWARD THE TOTAL ECONOMIC VALUE OF ALASKA'S NATIONAL FOREST WILDLANDS 5–6 (2008), *available at* https://partners.tws.org/wildscience/Publications1/Greater%20than%20Zero.pdf (describing timber sales in the Tongass and Chugach forests)

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."); FLMPA § 202(c)(2), 43 U.S.C. § 1712(c)(2) (requiring land use plans to make use of economic sciences); FLMPA § 401, 43 U.S.C. § 1751 (consideration of costs of grazing); FLMPA § 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); FLMPA § 6(l), 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,[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.[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).[118] The estimated values discussed in this section are based on studies conducted during 1990 through 2010, expressed in 2013 dollars using inflation factors.[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.[120] In contrast, the benefits of preserving wilderness have the potential to grow over time since the increasing scarcity of wilderness makes each remaining

116. *See* Morton, *supra* note 114, at 465.

117. Robert Costanza et al., *The Value of the World's Ecosystem Services and Natural Capital*, 387 NATURE 253, 254 (1987).

118. WALTER V. REID ET AL., WORLD RES. INST., ECOSYSTEMS AND HUMAN WELL-BEING: SYNTHESIS, A REPORT OF THE MILLENNIUM ECOSYSTEM ASSESSMENT 41–45 (2005), *available at* http://www.unep.org/maweb/documents/document.356.aspx.pdf; John C. Bergstrom et al., *An Organizing Framework for Wilderness Value,* 47, 49–53, *in* THE MULTIPLE VALUES OF WILDERNESS (H. Ken Cordell et al. eds., 2005).

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).

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.

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."[121] 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.[122] 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]

123. *Id*. at iii.

124. PHILIPS ET AL., *supra* note 114, at 27–28.

125. *Id*. at 31.

126. STEVE COLT, INST. OF SOCIAL & ECON. RESEARCH, WHAT'S THE ECONOMIC IMPORTANCE OF ALASKA'S HEALTHY ECOSYSTEMS? 1 (2001), *available at* http://www.iser.uaa.alaska.edu/Publications/formal/rsummary/rs61.pdf.

127. Ronald J. Glass & Robert M. Muth, *Commodity Benefits from Wilderness: Salmon in Southeast Alaska, in* THE ECONOMICS OF WILDERNESS 141, 141–46 (Claire Payne et al. eds., 1991), *available at* http://www.srs.fs.usda.gov/pubs/gtr/gtr_se078.pdf (stating that while most commercial fishing occurs outside Wilderness, fish such as salmon require the fresh water located in upper pristine reaches of wild river systems for spawning and rearing habitat).

128. Colt, *supra* note 126, at 2.

129. *Id*.

130. JOHN DUFFIELD & DAVID PATTERSON, ECONOMICS OF WILD SALMON WATERSHEDS: BRISTOL BAY, ALASKA 92 (2007), *available at* http://www.bber.umt.edu/pubs/survey/Economics%20of%20Wild%20Salmon%20Ecosys

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).[131] 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).[132]
- Duffield and Patterson (2007) found that Bristol Bay fishers valued their fishing trips over and above what they actually paid for the trips.[133]
- 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.[134] Alaska residents spend between $162.1 and $247.8 million each year (2013 dollars) in their recreational use of these two forests.[135]
- Of the 50 states, Alaska is fourth in terms of total recreation expenditures associated with wildlife as a percent of total state GDP.[136]

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tems%20in%20Bristol%20Bay_2007.pdf.

131. LOOMIS & RICHARDSON, *supra* note 33 at 5; *see also* Ohio v. Dep't of the Interior, 880 F.2d 432, 475–80 (D.C. Cir. 1989) (discussing CVM and upholding its use in assessing damages under the Comprehensive Environmental Response, Compensation and Liability Act of 1980).

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).[137] 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.[138] An average of fifteen million dollars was spent each year on National Forest Timber Management and Roads Capital Improvement and Maintenance.[139] 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.[140]

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."[141] In the Lower 48, Western[142] National Parks,

135. *Id*. at 27.

136. DEP'T OF THE INTERIOR, THE DEPARTMENT OF THE INTERIOR'S ECONOMIC CONTRIBUTIONS: FISCAL YEAR 2011, at 152 (2012), *available at* http://www.doi.gov/americasgreatoutdoors/loader.cfm?csModule=security/getfile&pageid=308931.

137. PHILIPS ET AL., *supra* note 114, at 3.

138. EVAN HJERPE, SEEING THE TONGASS FOR THE TREES: THE ECONOMICS OF TRANSITIONING TO SUSTAINABLE FOREST MANAGEMENT ECONOMIC ANALYSIS 7 (2011), *available at* http://wilderness.org/sites/default/files/Seeing%20the%20Tongass%20for%20the%20Trees%20%28full%20report%29_0.pdf.

139. *Id*. at 26.

140. *Id*. at 8.

141. LOOMIS & RICHARDSON, *supra* note 33, at v.

142. Here, "Western" means the eleven western public lands states in the continental U.S.: Arizona, Colorado, California, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming. The federal government manages 355 million acres in these states—forty-six percent of all land in the region. HEADWATERS ECON., WEST IS BEST: HOW PUBLIC LANDS IN THE WEST CREATE A COMPETITIVE ECONOMIC ADVANTAGE 2, 4 (2012), *available at* http://headwaterseconomics.org/wphw/wp-content/uploads/West_Is_Best_Full_Report.pdf [hereinafter WEST IS BEST].

Monuments, and other protected federal public lands support faster rates of job growth and are correlated with higher levels of per capita income.[143] 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."[144]

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.[145] 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.[146]

Just as a municipality's proximity to natural areas may enhance its attractiveness as a place to live and work,[147] 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.[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).[149] Phillips (1999) found an increase of thirteen percent in the value of private property adjacent to the Green Mountains in Vermont.[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.[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.[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.[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).[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).[155] Phillips estimated the ecological services provided by Alaska's National Forests (including climate regulation, water filtration, and other

148. *See generally*, *Windfalls for Wilderness, supra* note 146.

149. LOOMIS & RICHARDSON, *supra* note 33, at 7.

150. *Id*. at v.

151. *Windfalls for Wilderness, supra* note 146, at 30.

152. *Id*.

153. LOOMIS & RICHARDSON, *supra* note 33, at v.

154. *Id*. at 8.

155. NAT'L FISH & WILDLIFE FOUND., THE ECONOMICS ASSOCIATED WITH OUTDOOR RECREATION, NATURAL RESOURCES CONSERVATION AND HISTORIC PRESERVATION IN THE UNITED STATES 3, 13 (2011), *available at* http://www.landtrustalliance.org/policy/documents/nfwf-study.

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.[167] Given that the loss of habitat is perhaps the primary cause of species endangerment in the United States,[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).[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).[170] There are also passive values, (discussed below), and spiritual and cultural values associated with participating in subsistence.[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.[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).[173]

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

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CONSERVATION 14, 18–21 (2009) (citing articles suggesting the need for increased connectivity of reserves, increasing the number and size of reserves).

167. Morton, *supra* note 114, at 509.

168. *Id*. at 508.

169. *Id*. at 509.

170. *See, e.g*., PHILIPS ET AL., *supra* note 114, at 20.

171. For a detailed review of methods, estimates, and their limitations, *see* Thomas C. Brown & Ernest S. Burch, Jr. *Estimating the Economic Value of Subsistence Harvest of Wildlife in Alaska*, *in* VALUING WILDLIFE RESOURCES IN ALASKA 203, 203–54 (George L. Peterson et al. eds., 1992).

172. Duffield & Patterson, *supra* note 130, at 107 (citing John Duffield, *Nonmarket Valuation and the Courts: The Case of the Exxon Valdez*, 15 CONTEMP. ECON. POL'Y, no. 4, Oct. 1997, at 98, 98–109.

173. *Id*. at 107.

continue subsistence hunting and fishing.[174] He further estimated that subsistence hunting and fishing support close to 2,000 commercial jobs related to subsistence equipment.[175]

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.[176] 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.[177] This data collection is essential to formulating goals for ecosystem management.[178] Additionally, wildlands offer an opportunity for new discoveries in biotechnology and medicine, as well as knowledge about species and ecosystems.[179]

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.[180] They conservatively valued each journal article at $15,780 per year (2013 dollars).[181] Phillips et al. estimated the value of scientific research conducted on Alaska's National Forests at about $84,459 per year (2013 dollars).[182]

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

174. Colt, *supra* note 126, at 1.
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

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.[193] 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]

193. *Id*. at 6.

194. *Id*. at v.

195. Colt, *supra*, note 126, at 3.

196. O. GOLDSMITH ET AL., ECONOMIC ASSESSMENT OF BRISTOL BAY AREA NATIONAL WILDLIFE REFUGES: ALASKA PENINSULA/BECHAROF, IZEMBEK, TOGIAK (1998)

197. RICHARD T. CARSON ET AL., A CONTINGENT VALUATION STUDY OF LOST PASSIVE USE VALUES RESULTING FROM THE EXXON VALDEZ OIL SPILL § 1-1 (1992), *available at* http://www.evostc.state.ak.us/static/PDFs/econ5.pdf.

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.[201] 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."[202]

The congressional hearings that led to the Wilderness Act are full of references to the spiritual values of wilderness.[203] In

198. *Id*. § 5-112.

199. PHILIPS ET AL., *supra* note 114, at 38.

200. *Id*. at 39.

201. Morton, *supra* note 114, at 477. The International Journal of Wilderness has published a number of papers addressing the spiritual aspects of wilderness. *See, e.g*., Peter Ashley, *Confirming the Spiritual Value of Wilderness,* 18 INT'L J. WILDERNESS, no. 1, Apr. 2012, at 4, *available at* http://issuu.com/ijwilderness/docs/april_2012_ijw/3?e=1888065/5543020.

202. JOHN MUIR, ALASKA (1888), *reprinted in* NATURE WRITINGS 649, 676 (William Conron ed., 1997).

203. John Copeland Nagle, *The Spiritual Values of Wilderness,* 35 ENVTL. L. 955, 978–79 (2005) (citing *National Wilderness Preservation Act: Hearing Before the S. Comm. on Interior & Insular Affairs*, 85th Cong. 19 (1957) (statement of Sen. Humphrey); *National Wilderness Preservation Act: Hearing Before the S. Comm. on Interior and Insular Affairs*, 88th Cong. 223 (1963) (statement of Don R. Burnett, President, New Mexico Wildlife & Conservation Association, Inc.); *Wilderness Preservation System: Hearing Before the Subcomm. on Public Lands of the H. Comm. on Interior and Insular Affairs*, 88th Cong. 312 (1964) (statement of Martin Vanderveen, Exec. Sec'y, American Whitewater Affiliation) (asserting that "[t]he spiritual values are there for all"); *id*. at 374 (statement of Carlotta Belle) (noting the "spiritual upliftment" of time in the wilderness); *id*. at 472 (statement of Frederic B. Loomis) (testifying that "[a]ll my life I have found . . . spiritual values in the mountains, plains, and forests of the United States"); *id*. at 507 (statement of Donald E. Drollinger) (referring to the land's "soul-filling inspirational value that defies definition"); *id*. at 512 (letter from Lloyd C. Pray, Jan. 7, 1964) (asserting that wilderness legislation "offers an opportunity for Congress to make a tremendous contribution" to enhance "spiritual values"); *id*. at 571 (statement of Andrew Nowell Smith) (asserting the people who do not experience wilderness are "poorer spiritually"); *Wilderness Preservation System: Hearing Before the Subcomm. on Public*

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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Lands of the H. Comm. on Interior and Insular Affairs, 88th Cong. 748 (1964) (statement of G.M. Baden) (citing the "cherished spiritual values" of wilderness lands); *id*. at 853 (statement of John W. Spencer, Izaak Walton League of America) (commending "the spiritual values to humans of the wilderness"); *id*. at 1015 (statement of Mrs. Henry Weber, California Federation of Wilderness Clubs) (describing "the importance of an adequate wilderness system, based on . . . a concern for the spiritual welfare of this and future generations")).

204. Nagle, *supra* note 203, at 988 (citing *Inclusion of Alaska Lands in National Park, Forest, Wildlife Refuge, and Wild and Scenic Rivers System: Hearing Before the Subcomm. on General Oversight and Alaska Lands of the H. Comm. of Interior and Insular Affairs*, 95th Cong. 689 (1977) (testimony of Jay S. Hammond, Governor, Alaska)).

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.[205] 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.[206] 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*.

206. *See generally* Thomas M. Power, *The Economics of Wildland Preservation: The View From the Local Economy in* THE ECONOMICS OF WILDERNESS, 175, 175–79 (Claire Payne et al. eds., 1991), *available at* http://www.srs.fs.usda.gov/pubs/gtr/gtr_se078.pdf.

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]

210. Joe Kerkvliet, *Making Estimates of Ecosystem Service Values Useful*, 18 INT'L J. WILDERNESS, Dec. 2012, at 4, 4–5, *available at* http://issuu.com/ijwilderness/docs/dec-2012-ijw-issue-web/3?e=0.

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.[211] All key ecosystem attributes, services, and values at all relevant scales must be identified.[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.[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.[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).[215]
- Estimates of values should take into account trade-offs and complements[216] in ecosystem services production and their respective economic values.[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.

211. *Id*.

212. Bergstrom et al., *supra* note 118, at 50.

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.

214. Godfrey & Christy, *supra* note 111, at 7.

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.[218] 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.[219] Setting the standard and estimating the associated costs are critical aspects of SMS.[220]

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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.

218. *See* BASIL SHARP & GEOFF KERR, N.Z. MINISTRY FOR THE ENV'T, OPTION AND EXISTENCE VALUES FOR THE WAITAKI CATCHMENT 3 (2005), *available at* https://www.mfe.govt.nz/publications/water/waitaki-option-existence-values-jan05/waitaki-option-existence-values-jan05.pdf.

219. S.V. CIRIACY-WANTRUP, DOLLARS AND SENSE IN CONSERVATION 38–39 (1951).

220. Alan Randall & Michael C. Farmer, *Benefits, Costs and the Safe Minimum Standard of Conservation, in* THE HANDBOOK OF ENVIRONMENTAL ECONOMICS 26, 42 (Daniel W. Bromley ed., 1995).

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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221. *See* Giles Atkinson & Susana Mourato, *Environmental Cost-Benefit Analysis*, 33 ANN. REV. ENV'T & RESOURCES 317, 333 (2008); G.C. VAN KOOTEN, *How Economists Measure Wellbeing: Social Cost-Benefit Analysis*, *in* CLIMATE CHANGE, CLIMATE SCIENCE, AND ECONOMICS: PROSPECTS FOR ALTERNATIVE ENERGY FUTURE 179, 181 (2013).

222. *See* NICK HANLEY & CLIVE L. SPASH, COST-BENEFIT ANALYSIS AND THE ENVIRONMENT 127 (1993).

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.[226] Outside of some industrial complexes such as Prudhoe Bay, much of these public lands are undeveloped.[227] 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."[228] 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.[229] The Alaska Department of Natural Resources has

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Lowest Possible Rate, 36 J. ENVTL. ECON. MGMT. 201, 207 (1998).

225. DAVID PEARCE ET AL., COST-BENEFIT ANALYSIS AND THE ENVIRONMENT: RECENT DEVELOPMENTS 189–90 (2006), *available at* http://www.lne.be/themas/beleid/milieueconomie/downloadbare-bestanden/ME11_cost-benefit%20analysis%20and% 20the%20environment%20oeso.pdf. One source of inconsistency relates to uncertainty regarding the preferences of future generations for wilderness preservation. Present estimates may overestimate or underestimate future preferences, and preferences may change over time. *Id.*; *see also* Anders Chr. Hansen, *Do Declining Discount Rates Lead to Time Inconsistent Economic Advice*? 60 ECOLOGICAL ECON. 138 (2006).

226. Colt, *supra* note 126, at 3.

227. *Id.*

228. Act of July 16, 1866, ch. 262, 14 Stat. 251, 43 U.S.C. § 932 (1970) (repealed 1976).

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.[230] 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.[231] 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,[232] subject to reasonable regulations.[233] 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."[234] The agency is instructed to grant a right-of-way

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230. *RS 2477 Project*, ALASKA DEP'T OF NATURAL RES., http://dnr.alaska.gov/mlw/trails/rs2477/ (last visited Dec. 13, 2013).

231. S*ee* Complaint, Alaska v. United States, No. 4:13-cv-00008 (D. Alaska Mar. 20, 2013), 2013 WL 1240875; Tim Mowry, *Alaska Sues Feds Over Trails in Historic Fortymile Region*, ALASKA DAILY NEWS MINER, Mar. 22, 2013, http://www.newsminer.com/news/local_news/article_ac5c70d6-92c5-11e2-bcfc-0019bb30f31a.html.

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.

233. 16 U.S.C. § 3170(b) (2012).

234. 43 C.F.R. § 36.10(a)(1) (2014).

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.[235] ANILCA does not specifically require an agency to allow motorized access or road access, though it is possible that this could be allowed.[236]

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.[237] 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."[238] 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[239] and the National Petroleum Reserve-Alaska to allow state or private landowner surveys, geophysical, exploratory, or other temporary uses.[240] This allowance is subject to the agency's stipulations and

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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).

240. 16 U.S.C. § 3171(a).

determination that access will not result in permanent harm to the resources on public lands.[241] The Interior Department regulations implementing this section mirror the language of the statute and do not provide for any specific restrictions.[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.[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.[244] Still, the agency is supposed to balance the interests of inholders with other governmental purposes, including conservation.[245]

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241. *Id*. § 3171(b).

242. 43 C.F.R. § 36.12.

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* FISH & WILDLIFE SERV., U.S. DEP'T 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. *Oil*, ARTIC SLOPE REG'L CORP., http://www.asrc.com/Lands/Pages/Oil.aspx (last visited Jan. 17, 2015).

244. SMITH ET AL., *supra* note 54, at 47.

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), *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."[246] In *Alaska State Snowmobile Association, Inc. v. Babbitt,*[247] 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.[248]

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.[249] 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.[250]

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).[251] 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.[252] No proof of pre-existing use is required in order to use a

246. 43 C.F.R. § 36.11(b)–(c).

247. 79 F. Supp. 2d 1116 (D. Alaska 1999).

248. *Id*. at 1142.

249. 36 C.F.R. § 13.63(h) (renumbered as 36 C.F.R. § 13.950 (2014)).

250. 65 Fed Reg. 37863, 37866 (June 19, 2000) (to be codified at 36 C.F.R. pts. 5, 13).

251. 36 C.F.R. § 212.81(c).

252. 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.

snowmachine, motorboat, or airplane.[253] In managing the Chugach National Forest, the Forest Service has interpreted the term "traditional" to include recreation, sightseeing, and exploring.[254] Helicopters, chainsaws, and recreational snowmachine use have been allowed in the Chugach Forest.[255]

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.[256] 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.[257]

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.[258] The bill would have prohibited agencies from preserving the wilderness value of areas that qualify for designation as Wilderness pending Congressional action.[259] It also expanded access under section 1110.[260]

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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 Fiord 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(f) (2003).

255. Lydon, Tracking Chainsaw Use, *supra* note 254.

256. Personal Communication with Tim Lydon, Wilderness Program, Glacier Ranger District Chugach National Forest (Nov. 21, 2013).

257. *Id*.

258. S. 1920, 104th Cong. (1996). Senator Frank Murkowski reintroduced a similar bill. S. 967, 105th Cong. (1997).

259. S. 1920, 104th Cong. § 1(z) (1996).

260. *Id*. § 1(i)–(l).

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

261. *See, e.g.*, American Energy Independence and Security Act, S. 352, 112th Cong. (2011) (did not pass); No Surface Occupancy Western Arctic Coastal Plain Domestic Energy Security Act, S. 351, 112th Cong. (2011) (same); American Energy Independence and Price Reduction Act, H.R. Res. 49, 112th Cong. (2011) (re-introduced as H.R. RES. 49 on Jan 03, 2013) (did not pass); Alaskan Energy for American Jobs Act, H.R. Res. 3408, 112th Cong. (2012) (passed the House but not the Senate).

262. *See* 16 U.S.C. § 3142(i) (2012) ("Until otherwise provided for in law enacted after December 2, 1980, all public lands within the coastal plain are withdrawn from all forms of entry or appropriation under the mining laws, and from operation of the mineral leasing laws, of the United States."); *see also id.* § 3143 ("Production of oil and gas from the Arctic National Wildlife Refuge is prohibited and no leasing or other development leading to production of oil and gas from the range shall be undertaken until authorized by an Act of Congress."). Congress, through ANILCA, President Reagan's Interior Secretary James Watt, and regulations made clear that the purpose of Section 1002 was to inform a report to Congress about potential oil and gas resources of the Coastal Plain. Secretary Watt provided two windows—one in 1983 and one in 1984—for the filing of such exploration plans. *See, e.g.*, 50 C.F.R. § 37.21 (2014). The Interior Department provided that report to Congress in a Legislative Environmental Impact Statement in 1987; no further action is warranted under ANILCA.

263. Roger Kaye, *What Future for Wildness within a Climate-Changing National Wildlife Refuge System?*, 18 INT'L J. WILDERNESS, Apr. 2012, at 15, 17, *available at* http://issuu.com/ijwilderness/docs/april_2012_ijw/1?e=0; SCENARIOS NETWORK FOR ALASKA PLANNING ET AL., PROJECTED CLIMATE CHANGE SCENARIOS FOR GATES OF THE ARCTIC NATIONAL PARK & PRESERVE 2 (2008), *available at* http://irmafiles.nps.gov/reference/holding/464652; BUREAU LAND MGMT., U.S. DEP'T OF THE INTERIOR, 1 NATIONAL PETROLEUM RESERVE-ALASKA FINAL INTEGRATED ACTIVITY PLAN/ENVIRONMENTAL IMPACT STATEMENT 278–79 (2012), *available at* https://www.blm.gov/epl-front-office/projects/nepa/5251/41003/43153/Vol1_NPR-A_Final_IAP_FEIS.pdf [hereinafter 1 NATIONAL PETROLEUM RESERVE] ("Increased summer temperatures could lead to the conversion of aquatic habitats into dryer habitat types resulting in a loss of not only habitat quantity but also habitat quality in terms of potential decrease in food resources (invertebrate and plant). This loss of quantity and quality would likely lead to changes in bird distributions which might in turn lead to increased competition for limited resources and associated decreases in productivity."); BUREAU LAND MGMT., U.S. DEP'T OF THE INTERIOR, 6 NATIONAL PETROLEUM RESERVE-ALASKA FINAL INTEGRATED ACTIVITY PLAN/ENVIRONMENTAL IMPACT STATEMENT app. C at 24–27, *available at* https://www.blm.gov/epl-front-office/projects/nepa/5251/41008/43158/Vol6_NPR-A_Final_IAP_FEIS.pdf (stating it is

managers to intervene to mitigate this change.[264] 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.[265] Kaye argues that each of these tools diminish the untrammeled, wild condition of wilderness. [266] Further, the scientific value of wilderness as a means for understanding how ecological systems respond to climate change may be reduced.[267]

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.[268]

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."[269] 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

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likely that most, if not all, of the National Petroleum Reserve–Alaska will experience some degree of stress to existing plant and animal species due to climate change and that in some regions significant biome shifts may occur).

264. *See* Gordon Steinhoff, *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).

265. Kaye, *supra* note 263, at 17.

266. *Id*.

267. *Id*.

268. WILDERNESS SOC'Y & SCENARIOS NETWORK FOR ALASKA PLANNING, CLIMATE CHANGE IMPLICATIONS FOR GATES OF THE ARCTIC NATIONAL PARK AND PRESERVE (2009); Elisabeth Long & Eric Biber, *The Wilderness Act and Climate Change Adaptation*, 44 ENVTL. L. 623, 660 (2014).

269. H.R. REP. NO. 95-1045, pt. I, at 157 (1978) (emphasis in original).

studied for wilderness suitability.[270] Further, all lands recommended for Wilderness designation by the President were to be protected "until Congress acts to accept, modify[,] or reject the recommendation."[271]

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.[272] 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.[273] The President was to advise Congress of his recommendation within seven years of the Act (by 1987). [274] 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 designation during development of the forest plan."); 126 CONG. REC. S11123 (daily ed. Aug. 18, 1980) (statement of Sen. Carl Levin) ("With this modification, all conservation system units, including those in our original amendment which have now been dropped, would be studied to determine their appropriateness for [W]ilderness. Congress will have the opportunity to consider the results of these studies and designate additional [W]ilderness if it so desires.").

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 through 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.[275] 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.[276]

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.[277] As of the publication of this article in 2015, a final CCP has not been approved.

2. *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.[278] ANILCA section 1320 excused BLM from the mandatory wilderness review provisions of FLPMA section 603 (though it did not prohibit wilderness reviews).[279] In essence,

275. SMITH ET AL., *supra* note 54, at 54.

276. *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 Clusen, 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).

277. 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.

278. SMITH ET AL., *supra* note 54, at 62.

279. 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

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Wilderness Act . . . .") (emphasis added). The 1978 House Interior Committee report explains that Section 1320 does not prevent the executive branch from recommending Wilderness designation to Congress: "The Committee does not intend that this section be construed as prohibiting the Secretary from making [W]ilderness reviews if he deems such reviews advisable, or as preventing the Secretary or the President from making any recommendations to the Congress concerning [W]ilderness designation of an area in Alaska administered by the Bureau of Land Management." H.R. REP. NO. 95-1045, pt. I, at 222 (1978).

280. SMITH ET AL., *supra* note 54, at 38.

281. A 1981 Secretarial Order ended BLM-wilderness inventories in Alaska. *See* Memorandum from the Sec'y of the Interior on Alaska Wilderness Reviews to the Dir. of the Bureau of Land Mgmt. (Mar. 12, 1981). A 2001 Secretarial Order rescinded the 1981 order, thereby allowing wilderness studies to take place once again. *See* S.J. Res. 7, 22nd Leg., Reg. Sess. (Alaska 2001) *available at* http://www.legis.state.ak.us/basis/get_bill_text.asp?hsid=SJR007B&session=22. A 2003 Secretarial Order instructed BLM to consider specific wilderness study proposals in Alaska only if the proposals had broad support among the State and federal elected officials representing Alaska. *See* BUREAU OF LAND MGMT., U.S. DEP'T OF THE INTERIOR, RING OF FIRE: PROPOSED RESOURCE MANAGEMENT PLAN AND FINAL ENVIRONMENTAL IMPACT STATEMENT 1-1 (2006), *available at* http://www.blm.gov/pgdata/etc/medialib/blm/ak/aktest/planning/ROF_proposed_rmp_final_eis.Par.13412.File.pdf/rf_chp01.pdf (referencing April 11, 2003 memorandum from Secretary Norton). A 2010 Secretarial Order required BLM to determine whether lands with wilderness characteristics should carry the new designation of "Wild Lands" and be managed to protect their wilderness qualities, but a 2011 appropriations act barred the Interior Department from using any funds to manage Wild Lands as de facto Wilderness. *See* U.S. DEP'T OF THE INTERIOR, ORDER NO. 3310, PROTECTING WILDERNESS CHARACTERISTICS ON LANDS MANAGED BY THE BUREAU OF LAND MANAGEMENT (2010), *available at* http://www.blm.gov/pgdata/etc/medialib/blm/wo/Communications_Directorate/public_affairs/news_release_attachments.Par.26564.File.dat/sec_order_3310.pdf; Department of Defense and Full-Year Continuing Appropriations Act, H.R. 1473, 112th Cong. § 1769 (2011).

282. 16 U.S.C. § 3141. The Department of the Interior and Related Agencies' Fiscal Year 1981 Appropriations Act exempted the National Petroleum Reserve-Alaska from the wilderness review requirements in FLPMA section 603, 43 USC § 1782, but, as discussed above, ANILCA Section 1320, 43 USC § 1784, grants the Secretary discretionary authority to identify areas in Alaska suitable for Wilderness and to make recommendations to Congress. *See* 1 NATIONAL PETROLEUM RESERVE, *supra* note 263, at 6.

Production Act section 105(c) found that 22.5 million acres were suitable for Wilderness.[283] In its 2012 Integrated Activity Plan, BLM adopted the findings of the 105(c) studies, finding that little in the landscape had changed.[284] Still, BLM decided not to analyze in detail an alternative of recommending wilderness designation.[285]

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.[286] 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.[287]

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. [288] 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.[289]

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.

286. BUREAU LAND MGMT., U.S. DEP'T OF THE INTERIOR, CENTRAL YUKON RESOURCE MANAGEMENT PLAN, *available at* https://www.blm.gov/epl-front-office/projects/lup/35315/45148/48655/CYRMP_CAMA_poster-508.pdf.

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.[290] 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.[291] Again, the 2002 plan affirmed that the entire WSA would be managed for wilderness character until Congress reached a decision on the issue.[292] Congress has yet to act on the Forest Service's wilderness recommendation.[293]

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.[294]

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:

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290. SMITH ET AL., *supra* note 54, at 62.

291. FOREST SERV., U.S. DEP'T OF AGRIC., RECORD OF DECISION FOR FINAL ENVIRONMENTAL IMPACT STATEMENT REVISED LAND AND RESOURCE MANAGEMENT PLAN 18 (2002), *available at* https://fs.usda.gov/Internet/FSE_DOCUMENTS/fsm8_028791.pdf.

292. *See id*. at 16 ("Until Congress acts on this Wilderness recommendation, the entire WSA will be managed using the Wilderness Study Area prescription.").

293. In 2001 and 2005, bills were introduced to Congress that would designate parts of the Chugach National Forest as Wilderness, but they were not brought up for a vote. *See* Alaska Rainforest Conservation Act of 2001, H.R. 2908, 107th Cong. (2001); *see also* Alaska Rainforest Conservation Act of 2005, H.R.1155, 109th Cong. (2005).

294. *See Forest Plan Revision*, FOREST SERV., U.S. DEP'T OF AGRIC., http://www.fs.usda.gov/detail/chugach/landmanagement/planning/?cid=stelprdb5408185 (last visited Jan. 17, 2015).

> This Act provides sufficient protection for the national interest in the scenic, natural, cultural[,] and environmental values on the public lands in Alaska . . . [T]hus 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.[295]

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.[296] Thus, section 101(d) should not serve as a barrier to additional Wilderness designations.[297]

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."[298] 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.[299] As discussed in section 1.2, Wilderness

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295. 16 U.S.C. § 3101(d) (2012).

296. Tongass Timber Reform Act of 1990, 16 U.S.C. § 539d (2012).

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).

299. SMITH ET AL., *supra* note 54, at 56; *see also Arctic National Wildlife Refuge Draft Comprehensive Conservation Plan and Wilderness Reviews for Alaska National Wildlife Refuges Questions and Answers*, FISH & WILDLIFE SERV., U.S. DEP'T OF THE INTERIOR 2, *available at* http://www.fws.gov/uploadedFiles/Region_7/NWRS/Zone_1/Arctic/PDF/ccp/ccparcticqa3.pdf (last visited Jan. 17, 2015) ("[Comprehensive Conservation Plan] revisions are broad-based planning efforts, not single purpose studies of possible CSU establishment. A [W]ilderness review conducted in conjunction with a CCP revision is

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.[300]

Section 1326(a) limits administrative withdrawals of more than five thousand acres in Alaska.[301] The executive branch can make such withdrawals only by providing notice in the Federal Register and to both houses of Congress.[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."[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.[304] For federal lands that have already been

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consistent with ANILCA planning provisions and NEPA, and does not require Congressional authorization.").

300. Section 1326 was added to the Senate Bill as one of the seven consensus points that the State of Alaska declared were conditions of its acceptance of ANILCA. *See* 126 CONG. REC. 21651 (daily ed. Aug. 18, 1980). A much broader "no-more clause" appeared in an amendment that was approved by a narrow majority of the House Interior Committee in 1979 but was rejected by the full House. SMITH ET AL., *supra* note 54. Section 1209 of the 1979 amendment provided, "Notwithstanding any other provision of law, no further studies or withdrawals of Federal lands in Alaska except those authorized by this Act shall be conducted unless authorized by concurrent resolution of Congress." *See* H.R. REP. NO. 96-97, at 115 (1979). Opponents of the bill argued that it "would unacceptably limit the ability of the federal government to manage the public lands in Alaska . . . . The provisions of section 1209 . . . are extremely sweeping. . . . It would in effect repeal, for Alaska alone, the study provisions and withdrawal provisions of the [NFMA], [FLPMA], and other Federal laws." *Id.* at 592.

301. 16 U.S.C. § 3213(a). Referred to along with Section 101(d) as the "no-more clause," Section 1326 was added to ANILCA in August 1980—late in the legislative process—as part of a compromise with the State of Alaska. *See* 126 CONG. REC. 21651 (daily ed. Aug. 18, 1980).

302. 16 U.S.C. § 3213(a).

303. *Id*.

304. *See* ANILCA § 206, 16 U.S.C. §§ 3101–3233 (New and expanded units of the National Park System "are hereby withdrawn from all forms of appropriation or disposal under the public land laws, including location, entry, and patent under the United States mining laws, disposition under the mineral leasing laws, and from future selections by the State of Alaska and Native Corporations."); ANILCA § 304(c) (All Alaska wildlife refuge lands "are hereby withdrawn, subject to valid existing rights, from future selections by the State of Alaska and Native Corporations, from all forms of appropriation or disposal under the public land laws, including location, entry

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.[305]

Southeast Conference v. Vilsack[306] 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

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and patent under the mining laws but not from operation of mineral leasing laws."); ANILCA § 402(b) (The minerals in Federal lands within national conservation areas "are hereby withdrawn from location, entry, and patent under the United States mining laws (30 U.S.C. 22-54)."); ANILCA § 502 (Minerals in public lands within the Copper River addition to the Chugach National Forest "are hereby withdrawn from location, entry, and patent under the United States mining laws."); ANILCA § 503(f)(1) (Lands within the Misty Fjords and Admiralty Island National Monuments "are hereby withdrawn from all forms of entry or appropriation or disposal under the public land laws, including location, entry, and patent under United States mining laws, disposition under the mineral leasing laws, and from future selections by the State of Alaska and Native Corporations."); ANILCA § 1311(a) (The lands along a stretch of the Parks Highway targeted for a scenic highway study "are hereby withdrawn from all forms of entry or appropriation under the mining laws and from operation of the mineral leasing laws of the United States."); *see also* Pickett Act, ch. 421, 36 Stat. 847 (1910) (repealed 1976) (authorizing the President to "temporarily withdraw from settlement, location, sale or entry any of the public lands of the United States . . ."); FLPMA § 103(j), 43 U.S.C. § 1702(j) (defining withdrawal as "withholding an area of Federal land from settlement, sale, location, or entry, under some or all of the general land laws, for the purpose of limiting activities under those laws in order to maintain other public values in the area or reserving the area for a particular public purpose or program . . ."); Sagebrush Rebellion, Inc. v. Hodel, 790 F.2d 760, 761 n.1 (9th Cir. 1986) ("A withdrawal withholds an area of federal land from sale, lease or use under the general land laws . . . in order to preserve a public value in the area or for a public purpose."); Andrus v. Utah, 446 U.S. 1803, 1810–11 n.19 (1980) (discussing Executive Order 6910, which "withdrew" all unreserved and unappropriated lands in twelve western states from all forms of "settlement, location, sale or entry").

305. *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"); *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).

306. 684 F. Supp. 2d 135 (D.D.C. 2010).

Congress through a joint resolution, pursuant to ANILCA section 1326.[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.[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.[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.[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 *Tulare County v. Bush*,[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,[312] because the proclamation specifically stated that it did not revoke any existing withdrawal, reservation, or appropriation.[313] *Cameron v. United States*.[314] concerned the Grand Canyon National Monument, which was established in a previously existing forest reserve.[315] The Supreme Court found that the

307. *Id*. at 142.

308. *Id*. at 143–45.

309. *Id*. at 144.

310. *Id*.

311. 306 F.3d 1138 (D.C. Cir. 2002), *petition denied*, 317 F.3d 227 (D.C. Cir. 2003).

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.

313. *Tulare*, 306 F.3d at 1143.

314. 252 U.S. 450 (1920).

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.

Monument served as the dominant reserve, while the forest reserve remained in effect.[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."[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.[318] Better quantification could help agencies avoid decisions that promote resource extraction to the detriment of ecosystem health.

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316. *Cameron*, 252 U.S. at 455.

317. Sally Jewell, Sec'y of the Interior, Remarks at the National Press Club (Oct. 31, 2013) (transcript available at http://www.doi.gov/news/pressreleases/secretary-jewell-offers-vision-for-conservation-balanced-development-youth-engagement-in-national-press-club-speech.cfm).

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.