

**CALLING FOR CLARITY:
REVISITING THE WILDERNESS ACT IN LIGHT OF
EMERGING TECHNOLOGY**

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INTRODUCTION

“[T]here is in our planning a need also to secure the preservation of some areas that are so managed as to be left unmanaged—areas that are undeveloped by man’s mechanical tools and in every way unmodified by his civilization.”¹

Of the many types of natural areas set aside in the United States, those areas designated as *wilderness* receive the greatest protection from human

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1. Howard Zahniser, *The Need for Wilderness Areas*, LIVING WILDERNESS, Winter–Spring 1956, at 37, 37.

impact.² While national parks are deliberately filled with roads and lodges for easy recreational access, and trails for off-road vehicles are built to cross rangelands,³ wilderness areas are unique places where adventurers and wanderers, outdoorsmen and explorers can seek solitude and separation from modern life. Unlike all other managed natural lands, the Wilderness Act⁴ ensures that wilderness areas are kept completely free of cars, bicycles, rest stops, hotels, and restaurants.⁵ They are meant “to establish a human-to-nature connection with the landscape” and to permit a visitor to “fully and deeply experience the natural world.”⁶

Today, when it is increasingly difficult to find spaces not filled with the sounds and distractions that technology brings, exposure to the outdoors may make people more empathetic, kind, and creative, and less anxious and stressed.⁷ Though many individuals have the self-restraint to disengage by leaving electronics at home, areas without any access to the internet or phone signal provide a unique opportunity for *forced* disconnection. Children are particularly susceptible to technology’s allure, and non-networked wilderness areas allow complete escape from the otherwise pervasive modern “technococoon.”⁸

2. TOM CARLSON ET AL., SOC’Y FOR WILDERNESS STEWARDSHIP, WHITE PAPER ON STEWARDSHIP ISSUES: THE USE OF NEW TECHNOLOGY IN WILDERNESS: EMERGING ISSUES AND NEED FOR POLICY AND MANAGEMENT 12 (2016), <http://wildernessstewardship.org/sites/default/files/custom/Technology%20White%20Paper%20Final.compressed.pdf>.

3. Scott Johnson, *National Park Roads: A Legacy in the American Landscape*, NAT’L PARKS TRAVELER (Mar. 28, 2017), <https://www.nationalparkstraveler.org/review/2017/03/E2%80%8B/national-park-roads-legacy-american-landscape> [<https://perma.cc/SD4G-PL9R>].

4. Wilderness Act of 1964, Pub. L. No. 88-577, 78 Stat. 890 (codified as amended at 16 U.S.C. §§ 1131–1136 (2018)).

5. See, e.g., Peter A. Appel, *Wilderness and the Courts*, 29 STAN. ENVTL. L.J. 62, 78 (2010) (outlining prohibited commercial enterprises within wilderness areas).

6. NAT’L PARK SERV., KEEPING IT WILD IN THE NATIONAL PARK SERVICE: A USER GUIDE TO INTEGRATING WILDERNESS CHARACTER INTO PARK PLANNING, MANAGEMENT, AND MONITORING 192 (2014).

7. See Florence Williams, *This Is Your Brain on Nature*, NAT’L GEOGRAPHIC, <http://www.nationalgeographic.com/magazine/2016/01/call-to-wild/> [<https://perma.cc/62ZR-HJKF>] (last visited Apr. 18, 2018) (discussing a study that showed volunteers’ calming physiological responses to images of nature versus the negative and stressful physiological reactions when the subjects viewed images of “urban scenes”).

8. L.D. Rosen et al., *Media and Technology Use Predicts Ill-Being Among Children, Preteens and Teenagers Independent of the Negative Health Impacts of Exercise and Eating Habits*, 35 COMPUTERS HUMAN BEHAV. 364, 372 (2014) (quoting MICHELLE M. WEIL & LARRY D. ROSEN, TECHNOSTRESS: COPING WITH TECHNOLOGY @WORK @HOME @PLAY 364 (1998)). See generally Michael Mutz & Johannes Müller, *Mental Health Benefits of Outdoor Adventures: Results from Two Pilot Studies*, 49 J. ADOLESCENCE 105, 110–11 (2016) (discussing how complete disconnection from technology while in natural areas increased the “life satisfaction, happiness, mindfulness, and self-efficacy” of teenagers and young adults).

Recently, wilderness managers have noted that “[t]here are a number of things on the horizon that could degrade opportunities for solitude or primitive and unconfined recreation. . . . [I]ncreased availability and use of technology—from satellite phones to web cams to personal tracking devices—diminish solitude.”⁹ Yet none of the federal agencies responsible today for managing wilderness areas have developed explicit policies for decision-making on cellular and wireless internet service issues.¹⁰ Wilderness areas established within national parks are particularly hard-hit by the unregulated spread of cellular signals, and conflicts arising out of the Theodore Roosevelt and Mount Rainier wildernesses provide clear case studies of how pressing this issue has become.¹¹

Located in North Dakota, the Theodore Roosevelt Wilderness makes up 29,920 acres of the Theodore Roosevelt National Park (TRNP).¹² In late 2014, TRNP notified the public that it was considering replacing an existing (and functional) radio tower in the park with one constructed and managed by Verizon.¹³ The proposed tower was considerably larger and more complex than the prior structure, and though it was proposed to be physically placed just outside of the wilderness border, the enhanced signal would have

9. NAT’L PARK SERV., *supra* note 6, at 166.

10. *Frequently Asked Questions*, NAT’L PARK SERV.: WILDERNESS, <https://wilderness.nps.gov/faqnew.cfm> [<https://perma.cc/S2R2-BAZG>] (last visited Apr. 18, 2018).

11. Compare Laura Zuckerman, *America’s National Parks Weigh Solitude Against Cellular Access*, REUTERS (Jan. 19, 2013, 8:00 AM), <http://www.reuters.com/article/usa-parks-cellphones-idUSL2N0AK10V20130119> [<https://perma.cc/YMB7-GTMN>] (reviewing public displeasure with cellular access in national parks), with Celina Kareiva & Peter Kareiva, *Op-Ed: We Need to Expand Cell Coverage in National Parks*, OUTSIDE (Oct. 10, 2016), <https://www.outsideonline.com/2100816/op-ed-we-need-expand-cell-coverage-national-parks> [<https://perma.cc/45VH-B2WG>] (arguing for expansion of cell phone coverage in national parks). Additionally, although Yellowstone National Park does not have any congressionally designated wilderness areas, ninety percent of the park has been recommended for designation and thus should be managed to the same standards as designated wilderness as a Wilderness Study Area. See generally NAT’L PARK SERV., WILDERNESS RECOMMENDATION: YELLOWSTONE (1972) (describing the reasons that Congress should designate Yellowstone as a wilderness area); Krista Langlois, *Yellowstone Tower Reignites Debate over Cell Phones in the Backcountry*, HIGH COUNTRY NEWS (Aug. 5, 2013), <http://www.hcn.org/blogs/goat/towers-in-yellowstone-deaths-in-the-wave-prompt-more-musings-on-cell-phones-in-the-backcountry/> [<https://perma.cc/8SZU-Z6RA>] (discussing how the spread of cellular coverage within Yellowstone has sparked considerable debate). As an additional example, Big Bend National Park is planning to erect two cellular towers in the Study Butte/Terlingua area of the park. See *Proposed Terlingua Cell Towers to be 200 Feet Tall Down From Original 270 Feet*, BIG BEND GAZETTE (Aug. 29, 2018), <https://bigbendgazette.com/2018/08/29/proposed-terlingua-cell-towers-200-feet-tall-original-270-feet/>. There are additional concerns that lights placed on top of the towers will negatively impact the park’s night sky viewing conditions. *Id.*

12. NAT’L PARK SERV., FOUNDATION DOCUMENT: THEODORE ROOSEVELT NATIONAL PARK: NORTH DAKOTA 13 (2014).

13. *Replace North Unit Radio Tower*, NAT’L PARK SERV., <https://parkplanning.nps.gov/projectHome.cfm?projectID=55468> [<https://perma.cc/3ZJ2-UX52>] (last visited Apr. 18, 2018).

blanketed the interior wilderness.¹⁴ After substantial public pressure, TRNP considered options for directional signal placement in an attempt to keep the wilderness network-free, and the finalized tower plan ultimately “only target[ed] the [nearby] US Highway 85 corridor and will not provide additional cell service in designated wilderness areas.”¹⁵ However, park managers had little regulatory guidance on how technology trade-offs should be evaluated throughout the permitting process.¹⁶

Similarly, 97% of Mount Rainier National Park (MRNP) is composed of congressionally designated wilderness areas, covering more than 200,000 acres.¹⁷ In late 2016, the National Park Service (NPS) received proposals from both Verizon and T-Mobile to install additional communications infrastructure on an existing tower located within MRNP’s tiny slice of non-wilderness land.¹⁸ Coverage maps provided through the public-notice process indicate that the construction will cause spillover of cellular service into the surrounding wilderness.¹⁹ The proposal sparked significant debate in the surrounding community, and more than 480 people responded to the NPS’s request for public comment, almost evenly divided between those for and against.²⁰

14. *Environmental Assessment: Communication Tower Replacement and Co-Location in Theodore Roosevelt National Park*, NAT’L PARK SERV., <https://parkplanning.nps.gov/document.cfm?parkID=167&projectID=55468&documentID=70215> [<https://perma.cc/M6FT-UGX6>] (last visited Apr. 18, 2018).

15. NPT Staff, *Theodore Roosevelt National Park Moving Ahead with North Unit Communication Tower*, NAT’L PARKS TRAVELER (May 4, 2017), <https://www.nationalparkstraveler.org/2017/05/theodore-roosevelt-national-park-moving-ahead-north-unit-communication-tower> [<https://perma.cc/8P2U-2URK>]; see also *Theodore Roosevelt National Park Releases Final Environmental Assessment and Finding of No Significant Impact for the Proposed North Unit Communication Tower Replacement*, NAT’L PARK SERV. (Apr. 26, 2017), <https://www.nps.gov/thro/learn/news/nu-tower-replacement.htm> [<https://perma.cc/CM79-PNYC>].

16. Kurt Repanshek, *Cell Phone Tower Issue at Theodore Roosevelt National Park Raises Questions of Connectivity in National Parks*, NAT’L PARKS TRAVELER (Nov. 20, 2016), <https://www.nationalparkstraveler.org/2016/11/cell-phone-tower-issue-theodore-roosevelt-national-park-raises-questions-connectivity> [<https://perma.cc/L5RX-EDAM>].

17. Washington Park Wilderness Act of 1988, Pub. L. No. 100-668, 102 Stat. 3961 (codified as amended in scattered sections of 16 U.S.C.).

18. See Phuong Le, *Cellphone Service at Mount Rainier: Safety Improvement or Obnoxious Intrusion?*, SEATTLE TIMES (Dec. 27, 2016, 1:13 PM) <http://www.seattletimes.com/seattle-news/cell-service-at-mount-rainier-safety-improvement-or-obnoxious-intrusion/> [<https://perma.cc/Q25N-GLZD>].

19. See *Paradise Cellular Predicted Coverage Maps*, NAT’L PARK SERV., <https://parkplanning.nps.gov/document.cfm?parkID=323&projectID=56639&documentID=76417> [<https://perma.cc/4NJD-YGHX>] (last visited Feb. 6, 2018) (providing maps to compare existing service coverage with the Verizon and T-Mobile expansion maps to see wilderness area spillovers).

20. Stuart Leavenworth, *Wire the Wilderness? As Cell Service Expands, National Parks Become the Latest Digital Battlegrounds*, MCCLATCHY: DC BUREAU (Dec. 27, 2017, 12:26 PM), <http://www.mcclatchydc.com/news/nation-world/national/article191682394.html> [<https://perma.cc/ZG2P-TDL7>]; see also Craig Hill, *Mount Rainier Cell Coverage: Should Concerns for Serenity Trump Public Safety? Speak up*, OLYMPIAN (June 8, 2017, 8:04 AM), <http://www.theolympian.com/outdoors/article154444269.html> [<https://perma.cc/7EB2-YZ6K>]; Le, *supra*

The questions emerging from just these two wilderness areas demonstrate the pressing nature of the technology conundrum. Wilderness areas constitute a unique natural resource. Without guidance, wilderness managers have been left to try to balance the underlying goals of the Wilderness Act against commercial pressure to expand cellular coverage on a discrete, area-by-area basis. Managers lose out on the benefits of lessons learned through administrative review and public comment, and advance planning occurs only on an ad hoc basis.

Until Congress develops a comprehensive standard to address the existence of advanced modern technology within wildernesses, decisions about what is permissible will fall to the courts and to the managing agencies.²¹ First, courts should adapt their existing frameworks for evaluating whether a particular form of wilderness conduct is acceptable to assess the unique problem posed by advanced technology.²² Second, each regulating agency should use administrative rulemaking to promulgate a binding policy that articulates standards for assessing the appropriateness of technological expansion.²³ The policies should place a significant burden on commercial operators and wilderness managers to articulate why expansion is both necessary and consistent with the preservation of an area's wilderness character.²⁴

Part I details the rationale for the creation of the Wilderness Act itself, alongside the current management regime of wilderness areas. It then explores the types of technology historically permitted in wilderness areas and how modern technology does not fit neatly into the conduct imagined at the time of the Act's passage. Next, Part II explores the standards courts have developed to judge what conduct is consistent with the Wilderness Act's aims and proposes a modified guideline to aid judicial inquiry into these issues. Finally, Part III suggests that, in the absence of executive or congressional action, managing agencies should take the initiative to craft regulatory

note 18 ("Some say cell service would improve safety and provide a convenience for visitors. Others don't want it, saying the proliferation of phones would distract from the natural beauty of the surroundings."); Mitch Pittman, *Mount Rainier National Park Considers Installing Cell Towers in Paradise Visitors Center*, KOMONEWS.COM (Dec. 15, 2016, 1:13 PM), <http://komonews.com/news/local/mount-rainier-national-park-considers-installing-cell-towers-in-paradise-visitors-center> [https://perma.cc/B9HZ-DXVP] ("The park said opinions were impassioned and mixed.").

21. *See generally* Appel, *supra* note 5, at 66 (discussing the judicial process and how permissibility challenges fall on the court system).

22. *See infra* Part II.

23. MAEVE P. CAREY, CONG. RESEARCH SERV., RL32240, THE FEDERAL RULEMAKING PROCESS: AN OVERVIEW 2 (2013) (noting that agencies have the authority to use the administrative rulemaking process).

24. *See infra* Part III.

criteria to guide decisionmaking with regard to emerging technology and wilderness lands.

I. THE WILDERNESS ACT & TECHNOLOGICAL DEVELOPMENT

Wilderness areas are designated by Congress pursuant to the 1964 Wilderness Act,²⁵ and a federal public lands agency manages each area.²⁶ As the Act's prohibitions on development are not self-modernizing, determining how, and to what extent, technological expansion infringes upon the underlying goals of wilderness preservation is a difficult problem. Evaluating the goals behind the establishment of wilderness lands, the history of the Wilderness Act's creation, and the recent changes in available technology demonstrates how changing technology poses problems for wilderness unanticipated by the original legislation.

A. The Creation of Wilderness Areas

National interest in preserving untouched natural areas began at the turn of the twentieth century, when agency scientists in the U.S. Forest Service began to publicly criticize the unmanaged expansion of road systems within national forests.²⁷ In 1924, in response to advocacy efforts by two agency employees, the Forest Service established the Gila Primitive Area and followed it with five additional small but similarly protected areas.²⁸ For the first time in American history, federal land was set aside purely to preserve its undisturbed natural character.²⁹ Five years later, Congress temporarily placed more than fourteen million acres of national forest under a "primitive" designation that aimed to protect its natural, pre-industrial state, although it permitted logging to continue.³⁰ After another decade, in 1939, Congress reclassified each of the primitive areas as "wild," "wilderness," or "recreation" lands.³¹ Within both the "wild" and "wilderness" lands, Congress also banned all road construction, logging, motorized transportation, and other commercial activities.³²

25. 16 U.S.C. §§ 1131–1136 (2012).

26. *Frequently Asked Questions*, *supra* note 10.

27. Robert L. Glicksman, *Wilderness Management by the Multiple Use Agencies: What Makes the Forest Service and the Bureau of Land Management Different?*, 44 ENVTL. L., 447, 461 (2014).

28. *Id.* The two employees, Arthur Carhart and Aldo Leopold, were prominent figures in the broader conservation movement. *Id.*

29. *History of the Gila Wilderness*, U.S. DEP'T OF AGRIC.: FOREST SERV., <https://www.fs.usda.gov/detail/gila/learning/history-culture/?cid=stelprdb5038907> [<https://perma.cc/M87X-JPKU>] (last visited Apr. 25, 2018).

30. Glicksman, *supra* note 27, at 461.

31. *Id.*

32. Appel, *supra* note 5, at 73.

However, attempts to preserve undisturbed land remained rare until two decades later when a movement began to stop construction of the Echo Park Dam within the Dinosaur National Monument.³³ The dam's construction caused concern over the far-reaching degradation of wilderness lands to reach a wider audience. Howard Zahniser, a leader of the movement and the executive secretary of the Wilderness Society,³⁴ drafted the first Wilderness Bill in 1955 for Congress's consideration.³⁵ After its introduction a year later, the bill survived "66 rewrites and 6000 pages of testimony" before passing both legislative bodies in 1964.³⁶ Although compromises and significant changes were struck along the way, including alterations to the federal body that made wilderness recommendations and changes to how areas were implemented,³⁷ much of Zahniser's original language persisted in the final iteration of the Act.³⁸ This language articulates the Act's focus and still drives designation decisions today.

The most poetic and well-known language from the Wilderness Act comes from its definition of wilderness, which says, "in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain."³⁹ Scholars have further articulated the definition of wilderness by dividing it

33. Interview by Ken Verdoia with David Brower, Exec. Dir., Sierra Club, in Salt Lake City, Utah (Oct. 1999).

34. Kevin Proescholdt, *Untrammelled Wilderness*, MINN. HIST., Fall 2008, at 114, 115.

35. NAT'L PARK SERV., THE WILDERNESS ACT AND SUBSEQUENT LEGISLATION - AN OVERVIEW at II.D1 (2004), <http://www.peopleforwesternheritage.com/WildernessActSum.pdf>.

36. *Id.*

37. Compare S. 1123, 86th Cong. § 2(f) (1959) ("Any proposed [change to the] Wilderness System, shall be made only after not less than ninety days' public notice and the holding of a public hearing, if there is a demand for such a hearing, and shall be reported with map and description to Congress by the Secretary of Agriculture, the Secretary of the Interior, or other official or officials having jurisdiction over the lands involved and shall take effect upon the expiration of the first period of one hundred and twenty calendar days, of continuous session of Congress, following the date on which the report is received by Congress; but only if during this period there has not been passed by Congress a concurrent resolution opposing such proposed addition, modification, or elimination."), with H.R. 9070, 88th Cong. § 3(b) (1964) ("The President shall advise the United States Senate and House of Representatives of his recommendations with respect to the designation as 'wilderness' or other reclassification of each area on which review has been completed, together with maps and a definition of boundaries. . . . Each recommendation of the President for designation as 'wilderness' shall become effective only if so provided by an Act of Congress.").

38. As an example of Zahniser's enduring prose, compare S. 1176, 85th Cong. § 1(c) (1957) ("A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man himself is a member of the natural community who visits but does not remain and whose travels leave only trails."), with H.R. 9070, 88th Cong. § 2(c) (1964) ("A wilderness, in contrast with those areas where man and his works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain.").

39. 16 U.S.C. § 1131(e) (2012).

into a set of objective and subjective characteristics.⁴⁰ This deconstructive analysis is necessary because, while wilderness is hard to describe, “[l]aws must articulate a clear legal standard that . . . agencies can implement.”⁴¹

The objective requirement of the Act is generally straightforward, requiring only that each area have “at least five thousand acres of land or [be] of sufficient size as to make practicable its preservation and use in an unimpaired condition.”⁴² In contrast, the subjective aspects of wilderness are more difficult to quantify.⁴³ For example, the definition of wilderness states that the land chosen must “generally appear[] to have been affected primarily by the forces of nature, with the imprint of man’s work substantially unnoticeable.”⁴⁴ The NPS has focused on Congress’s decision to avoid the words “untouched” or “pristine” within the definition as an indicator that Congress did not intend wilderness areas to be “completely free from all human impacts,” but rather substantially unaffected by them.⁴⁵ In contrast, some scholars have noted that the public commonly thinks of the wilderness as “a primordial, relatively untouched natural area where natural forces dominate, and human presence is limited to visitation by outdoor recreations and the limited infrastructure . . . they require.”⁴⁶ Taken as a whole, the intent of wilderness designation is to ensure the continued existence of this type of experience to anyone who wished to seek it.

Further, wilderness areas are meant to provide “outstanding opportunities for solitude or a primitive and unconfined type of recreation.”⁴⁷ The emphasis on primitive, non-mechanized forms of recreation lies in sharp contrast to modern mechanized recreation that the Act explicitly prohibits:⁴⁸

Except as specifically provided for in this chapter, and subject to existing private rights, there shall be no commercial enterprise and no permanent road within any wilderness area designated by this

40. Glicksman, *supra* note 27, at 453–54.

41. Mark Fincher, *Humans Apart from Nature? Wilderness Experience and the Wilderness Act*, USDA FOREST SERV. PROC., RMRS-P-66, 2012, at 152, 153.

42. 16 U.S.C. § 1131(c) (2012); *cf. Pelican Island Wilderness*, WILDERNESS CONNECT, <http://www.wilderness.net/NWPS/wildView?WID=448> [<https://perma.cc/H7NF-TJE5>] (last visited Feb. 9, 2018) (noting that although many wilderness areas are larger than 5,000 acres, the smallest wilderness area, Pelican Island Wilderness, covers only five and a half acres, so the sufficiency of an area of land to be “practicable [for] preservation and use in an unimpaired condition” clearly can occur with parcels much smaller than 5,000 acres).

43. *See* Glicksman, *supra* note 27, at 455–60.

44. § 1131(c).

45. NAT’L PARK SERV., *supra* note 35, at II.D4.

46. John Shultis, *The Impact of Technology on the Wilderness Experience: A Review of Common Themes and Approaches in Three Bodies of Literature*, USDA FOREST SERV. PROC., RMRS-P-66, 2012, at 110, 110.

47. § 1131(c).

48. Fincher, *supra* note 41, at 156.

chapter and, except as necessary to meet minimum requirements for the administration of the area for the purpose of this chapter (including measures required in emergencies involving the health and safety of persons within the area), there shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such area.⁴⁹

At the time of the Wilderness Act's passage, Congress sought to exclude nearly every type of activity that would leave a long-lasting, physical impact or otherwise reduce the capacity for primitive recreational uses.⁵⁰ Permissible activities within wilderness areas generally included non-permanent uses such as camping, hiking, rafting, horseback riding, hunting, and fishing.⁵¹ In the intervening years, however, new technology has changed both the kinds of outdoor recreation and the tools visitors have at their disposal, which has made fulfillment of the Wilderness Act's mandate a more complex and challenging goal.

B. Modern Wilderness Management

In the more than 50 years since its passage, the Wilderness Act itself has been left virtually unchanged.⁵² Still today, Congress may designate lands as wilderness under the Act, and thereby protect them against modern development.⁵³ New wildernesses have been added to the National Wilderness Preservation System by virtually every Congress since 1964.⁵⁴

49. § 1133(c).

50. *Id.* (“[T]here shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such area.”).

51. *Wilderness Act*, WILDERNESS SOC’Y, <https://wilderness.org/article/wilderness-act> [https://perma.cc/8KKQ-82U9] (last visited Apr. 25, 2018).

52. Appel, *supra* note 5, at 67, n.15 (noting the single alteration to the original statute made changes that are applicable only to the Boundary Waters Wilderness Area, one of the few wilderness areas created through the original Act, but did not result in any alterations to the overall management regime established for wilderness areas as a whole).

53. §§ 1131–1136.

54. See KATIE HOOVER & SANDRA L. JOHNSON, CONG. RESEARCH SERV., R41610, WILDERNESS: LEGISLATION AND ISSUES IN THE 114TH CONGRESS, summary (May 5, 2016) (noting that “[n]umerous wilderness bills were introduced in the 112th Congress, but it was the first Congress since 1966 that did not add to the wilderness system”). Further, bills have already been introduced in the 115th Congress to expand and create wilderness areas. See, e.g., Wild Olympics Wilderness and Wild and Scenic Rivers Act of 2017, H.R. 1285, 115th Cong. (2017); Blackfoot Clearwater Stewardship Act of 2017, S. 507, 115th Cong. (2017) (“A bill to sustain economic development and recreational use of National Forest System land in the State of Montana, to add certain land to the National Wilderness Preservation System, to designate new areas for recreation, and for other purposes.”).

Today, there are 765 wilderness areas across the country, covering more than one hundred million acres and spanning forty-four states.⁵⁵

However, many of the more recent legislative acts establishing wilderness areas mandate weaker protection for newly designated areas than exist within the management regime of the original statute.⁵⁶ The Alaska National Interest Lands Conservation Act (ANILCA) is a key example of the imposition of such constraints.⁵⁷ Through ANILCA, Congress added more than fifty-six million acres to the National Wilderness Preservation System, but also altered the historic management regime as applied to the new Alaskan wildernesses.⁵⁸ Unlike earlier established wilderness areas, those designated through ANILCA permit motorized access for traditional uses, as well as the construction of permanent cabins or temporary facilities that enhance the collection of fish and wildlife.⁵⁹

Other additions to the National Wilderness Preservation System modify the specific management regulations for a wilderness area.⁶⁰ This includes permitting existing infrastructure to remain within the newly designated area or by allowing specific new infrastructure developments.⁶¹ While these changes have altered the management regime for specific wilderness areas, they have not retroactively impacted previously designated wilderness areas or altered the language of the Wilderness Act. Managers of those areas must uphold the original statutory mandate of near-total land protection.⁶²

55. *The Beginnings of the National Wilderness Preservation System*, WILDERNESS CONNECT, <http://www.wilderness.net/NWPS/fastfacts> [<https://perma.cc/JL7Z-PEDF>] (last visited Apr. 25, 2018) (noting that Connecticut, Delaware, Iowa, Kansas, Maryland, and Rhode Island do not have wilderness areas, along with the District of Columbia); *Common Misconceptions About Wilderness*, WILDERNESS CONNECT, <http://www.wilderness.net/NWPS/misconceptions> [<https://perma.cc/S3RH-NRAB>] (last visited Apr. 25, 2018).

56. HOOVER ET AL., *supra* note 54, at summary (“Wilderness bills often contain additional provisions, such as providing special access for particular purposes, for example, border security.”).

57. *See generally* 16 U.S.C. § 3170 (2012) (referencing the ability of wilderness recreationists to use snow machines and motorized boats, which is not allowed under the Wilderness Act); Alaska Native Claims Settlement Act, 43 U.S.C. §§ 1601–1642 (2012); Trans-Alaska Pipeline Authorization Act, 43 U.S.C. §§ 1651–1656 (2012); Federal Land and Policy Management Act, 43 U.S.C. §§ 1701–1787 (2012).

58. Michael J. Tranel, *Wilderness Management Planning in an Alaskan National Park: Last Chance to Do It Right?*, USDA FOREST SERV. PROC., RMRS-P-15, 2000, at 369, 371.

59. NAT’L PARK SERV., *supra* note 35, at IL.D7.

60. *Id.* at IL.D2.

61. KATIE HOOVER ET AL., CONG. RESEARCH SERV., R41610, WILDERNESS: LEGISLATION AND ISSUES IN THE 113TH CONGRESS 8 (2014). For example, the California Desert Protection Act of 1994, Pub. L. No. 103-433, § 102(1), 108 stat. 4471, 4472, “authorizes a right-of-way and road construction solely for installation of a space energy laser facility, if requested by the Secretary of the Navy within 15 years of enactment.” KRISTINA ALEXANDER & KATIE HOOVER, CONG. RESEARCH SERV., R41649, WILDERNESS LAWS: STATUTORY PROVISIONS AND PROHIBITED AND PERMITTED USES 59 (2013).

62. ALEXANDER & HOOVER, *supra* note 61, at 2.

Under the modern regime, no single federal agency is tasked with managing this complex system.⁶³ Instead, wilderness areas are created within federal lands already managed by the Forest Service, Bureau of Land Management (BLM), Fish and Wildlife Service (FWS), or NPS.⁶⁴ Each agency is solely responsible for managing its wildernesses.⁶⁵ The Forest Service manages over half of the wilderness units, while the BLM is responsible for approximately another quarter, and the NPS and FWS manage the rest.⁶⁶ However, in terms of raw acreage, the NPS is responsible for almost forty percent of the nation's wilderness, while the BLM is responsible for just eight percent.⁶⁷ The Wilderness Act further requires agencies to act in guardianship of areas that are not currently designated wilderness, but that meet the statutory conditions, and are under consideration for such a future declaration (often termed "wilderness study areas").⁶⁸ If ultimately protected under the same management conditions as congressionally designated wilderness areas, these lands will vastly increase the functional size of the wilderness area system.⁶⁹

The lack of centralized management, or statutorily mandated management standards, inherently creates inconsistencies in wilderness management between agencies. In practice, the attitude toward wilderness preservation within agencies varies considerably,⁷⁰ although all four agencies jointly operate a training center for agency employees tasked with wilderness

63. *National Wilderness Preservation System*, U.S. FISH & WILDLIFE SERV., https://www.fws.gov/uploadedFiles/Region_7/NWRS/Zone_1/Arctic/PDF/ccp/ccpnwps.pdf [https://perma.cc/3P5J-8Q8S] (last visited Apr. 25, 2018).

64. *Id.*

65. *Id.*

66. *Wilderness Statistics Reports: Number of Wilderness Units by Agency*, WILDERNESS CONNECT, <http://www.wilderness.net/NWPS/chartResults?chartType=UnitsByAgency>, [https://perma.cc/YC2M-N39C]. The Forest Service oversees 445 units, the BLM oversees 224, and the FWS and NPS oversee 71 and 61, respectively. *Id.*

67. *Wilderness Statistics Reports: Wilderness Acreage by Agency*, WILDERNESS CONNECT, <http://www.wilderness.net/NWPS/chartResults?chartType=acreagebyagency>, [https://perma.cc/9E77-D8AZ]. The NPS manages 43,932,002, the Forest Service manages 36,574,689 acres, the FWS manages 19,862,488, and the BLM manages 8,760,478 acres. *Id.*

68. See HOOVER & JOHNSON, *supra* note 54, at 12 (discussing areas with wilderness characteristics designated as Wilderness Study Areas); see also *DOI Memo Clarifies Continuing Responsibilities for "Wild Lands,"* ENEWSUSA (June 2, 2011, 3:02 PM), <http://enewsusa.blogspot.com/2011/06/doi-memo-clarifies-continuing.html> [https://perma.cc/RNV4-YFFS] (providing an overview of the political controversy surrounding Wilderness Study Areas in recent years). For the Bureau of Land Management, this requirement is found within 43 U.S.C. § 1782(c) (2012).

69. See BUREAU OF LAND MGMT., U.S. DEP'T OF THE INTERIOR, *WILDERNESS STUDY AREAS: BLM'S NATIONAL CONSERVATION LANDS 1* (2014) (showing that the BLM alone manages more than 12.7 million acres of land in about 530 Wilderness Study Areas).

70. Glicksman, *supra* note 27, at 462; see Sandra B. Zellmer, *Wilderness Management in National Parks and Wildlife Refuges*, 44 ENVTL. L. 497, 500 (2014) (discussing the perceived hostility of two agencies toward wilderness within their systems).

management.⁷¹ Not only must each agency design its own management plans, but it must balance the goals of wilderness preservation with its own congressionally derived agency agenda.⁷² Both the BLM and the Forest Service are tasked with “multiple use, sustained yield mandates under their organic statutes,” while the NPS and the FWS operate under more conservation-oriented regulatory structures.⁷³

Some differences in management may also stem from the creation date of the various agencies and the times at which they were tasked with wilderness management. When the Wilderness Act was passed in 1964, all national forest lands that had previously been designated as either “wilderness” or “wild” were automatically given wilderness status by Congress under the new regime.⁷⁴ In contrast, other public lands were not even considered for inclusion as wilderness areas until the passage of the Federal Land Policy and Management Act (FLPMA) in 1976.⁷⁵ FLPMA required the BLM to evaluate its land holdings for possible designation as wilderness areas for the first time.⁷⁶ In practice, the management choices made by different agencies contribute to disparity in their rules and approaches.⁷⁷ For example, the BLM is thought by some commenters to have a “consistent antiwilderness bias,”⁷⁸ while the Forest Service has been called a “more faithful steward” of wilderness lands.⁷⁹

The Act provides that areas are to be managed by each agency so they are left “unimpaired for future use and enjoyment as wilderness” and with an emphasis on “the preservation of their wilderness character.”⁸⁰ In the face of evolving technology, the meaning of the terms “unimpaired” and “untrammelled” has become opaque and presented a new challenge to managing agencies and the courts.⁸¹

71. See generally *History*, ARTHUR CARHART NAT’L WILDERNESS TRAINING CTR., <http://carhart.wilderness.net/index.cfm?fuse=history> [https://perma.cc/9LEY-LPLH] (last visited Apr. 25, 2018) (discussing a history of preservation of wilderness through agency employee and public training and education).

72. See generally CARLSON ET AL., *supra* note 2, at 21–24 (showing agencies’ policies of technology in wilderness from their own internal rules).

73. Glicksman, *supra* note 27, at 449. See generally Zellmer, *supra* note 70, at 500 (noting that both the NPS and the FWS operate “under a similar conservation oriented mandate”).

74. Glicksman, *supra* note 27, at 461–62.

75. Federal Land and Policy Management Act (FLPMA), 43 U.S.C. §§ 1701–1787 (2012).

76. *Id.* § 1782(a).

77. Glicksman, *supra* note 27, at 465.

78. George Cameron Coggins & Doris K. Nagel, “Nothing Beside Remains”: *The Legal Legacy of James G. Watt’s Tenure as Secretary of the Interior on Federal Land and Law Policy*, 17 B.C. ENVTL. AFF. L. REV. 473, 512 (1990).

79. Glicksman, *supra* note 27, at 451.

80. 16 U.S.C. § 1131(a) (2018).

81. *Id.* § 1131(c).

C. How Technology Changes the Wilderness Experience

The impact of technology on wilderness areas has been a concern since before the passage of the Wilderness Act. Conservation voices in the mid-twentieth century emphasized the potential damage of vehicles on outdoor areas.⁸² President Johnson, who signed the Wilderness Act, later said: “If future generations are to remember us more with gratitude than with sorrow, we must achieve more than just the miracles of technology. We must also leave them a glimpse of the world as God really made it, not just as it looked when we got through with it.”⁸³

Technology has been both an “enabler and destroyer” of the wilderness experience, and today it is a source of both trepidation and opportunity in wilderness management.⁸⁴ Empirical studies on the use of technology within wilderness areas are unfortunately rare, leaving much of the scholarship on technology as a collection of anecdotal, emotional responses to the issue.⁸⁵ Unsurprising, what generalized research is available indicates that views of wilderness and technology are polarized.

Since the original concerns over road creation and automobile encroachment into wild lands, technology has enabled people to reduce risk and increase ease and comfort during their wilderness expeditions. There is no doubt that “[b]ridges, toilets, and technology reduce opportunities for self-reliance and personal challenge.”⁸⁶ Examples include the development of high-tech fabrics, which enable outdoor activities in a greater span of weather conditions at immensely increased comfort to the adventurer, and the increased use of fuel based stoves, which eliminate the need for personal knowledge on how to build and maintain a campfire.⁸⁷ These “improvements” have served a valuable purpose in enabling more individuals to experience outdoor activities, such as in national parks, without extensive training or guidance. Beyond enabling exploration to go further, technology also has the impact of removing any remaining “blank space on the map.”⁸⁸

82. Shultis, *supra* note 46, at 112.

83. President Lyndon B. Johnson, Remarks at the Signing of a Bill Establishing the Assateague Island Seashore National Park (Sept. 21, 1965), <http://www.presidency.ucsb.edu/ws/?pid=27265> [https://perma.cc/SK4B-8MZK].

84. Shultis, *supra* note 46, at 112.

85. CARLSON ET AL., *supra* note 2, at 4.

86. NAT'L PARK SERV., *supra* note 6, at 174.

87. William T. Borrie, *Impacts of Technology on the Meaning of Wilderness*, USDA. FOREST SERV. PROC., RMRS-P-14, 2000, at 87.

88. *Id.*

In large part, it is this “increase in the knowability of wilderness” that concerns both scholars and wilderness recreationists.⁸⁹ Information on hiking trails and camping locations is now available to a range of people, as well as to a degree of detail, that is unique in the human experience.⁹⁰ Historically, information about a wilderness area was shared through physical maps, with details filled in by word of mouth or personal surveying.⁹¹ Today, information is shared through instantly accessible websites and details are filled by GPS coordinates, satellite imagery, and digital photos.⁹²

Agency managers of outdoor areas, however, have often been reluctant to prohibit the use of technological aids, possibly due to “increasing social concern over liability and safety issues in the wilderness.”⁹³ Current Forest Service regulations generally prohibit motorized equipment “activated by a nonliving power source,” but they explicitly permit “small battery-powered, hand-carried devices such as flashlights, shavers, and Geiger counters.”⁹⁴

The flip side of this concern is that the advent of easily accessible information on social media and other online platforms may encourage new outdoor visitors to have an incorrect perception of the risks involved in wilderness exploration.⁹⁵ Proponents of cellular service expansion often extol the virtue of increased rescue operation accessibility.⁹⁶ However, this “perception that risk is decreased because emergency rescue can be more easily summoned”⁹⁷ often manifests as a false sense of security for novice explorers and can lead to deadly consequences.⁹⁸ Even more limited devices,

89. *Id.*; see Langlois, *supra* note 11 (indicating concern over a new cell tower which would increase the cellular accessibility of Yellowstone National Park).

90. See CARLSON ET AL., *supra* note 2, at 7 (explaining the extremely detailed digital information that is now available to the public).

91. *Id.* at 3.

92. *Id.* at 7.

93. Shultis, *supra* note 46, at 111.

94. 36 C.F.R. § 293.6(b) (2017).

95. See CARLSON ET AL., *supra* note 2, at 3; see Jessica L. Blackwell, *Influences of Hand-Held Information and Communication Technology on Risk Behavior and the Experience of Wilderness Visitors* (May 2015) (unpublished M.S. thesis, Humboldt State University) (on file with the *Vermont Journal of Environmental Law*) (providing an empirical evaluation of changes in risk perception alongside the increasing use of advanced technology outdoors).

96. See Zuckerman, *supra* note 11 (“Cellular providers say new wireless infrastructure will boost public safety by improving communications among park rangers and emergency responders.”).

97. CARLSON ET AL., *supra* note 2, at 3.

98. For examples of this overreliance, including many tales of hikers or backpackers depending on cell phones as the sole backup plan in case of injuries or other emergencies, see J.R. Sullivan, *Our Reliance on Technology Makes the Backcountry More Dangerous*, *OUTSIDE* (Mar. 16, 2016), <https://www.outsideonline.com/2060641/our-reliance-technology-makes-backcountry-more-dangerous> [<https://perma.cc/W5C8-CKTJ>]. A related emerging safety issue for both humans and wildlife that has been the increased prevalence of visitors taking “selfies” close to wildlife. For examples, see Christopher Mele, *When Humans, Fueled by the Selfie Culture, Imperil Wildlife*, *N.Y. TIMES* (May 19, 2016), <http://www.nytimes.com/2016/05/20/us/when-humans-fueled-by-the-selfie-culture-imperil-wildlife.html> [<https://perma.cc/K957-65MG>]. The Forest Service preparation manual for the Boundary

such as Personal Locator Beacons, may enable wilderness visitors to call for help in situations that do not warrant a response or recovery by emergency personnel.⁹⁹ Such “false alarms” may reduce the availability of services for true emergencies, endanger the lives of search and rescue personnel, or increase administrative costs to manage wild areas.¹⁰⁰

Ultimately, there is no doubt that cell coverage will continue to expand across the world and that internet-capable phones have become as ubiquitous for many outdoor travelers as the family car or synthetic jackets. However, it appears an open question as to whether wilderness areas will continue to provide an outdoor experience filled with “solitude” and “a primitive and unconfined type of recreation” for some wild enthusiasts.¹⁰¹ The courts, Congress, or agencies must take action to manage the potential influx of technology rather than permitting it to spread unchecked.

II. DEFINING UNTRAMMELED NATURE: JUDICIAL FRAMEWORKS FOR ASSESSING WILDERNESS VIOLATIONS

Courts have never addressed a possibility that a technological expansion could violate the prohibitions of the Wilderness Act; the question of whether cellular coverage changes the essential, natural characteristics of a wilderness area is entirely novel in the judicial context. Expansion of cellular service networks into wilderness areas could constitute a violation of the Act by creating novel and unprecedented noise impacts or by impermissibly expanding commercial services within the wilderness.¹⁰² The Act’s limited

Waters Canoe Area Wilderness (BWCAW) also explicitly states to visitors: “Having a cell phone cannot substitute for knowing how to handle an emergency in wilderness.” Findings of Fact, Conclusions of Law, and Order ¶ 67, *State v. AT&T Mobility, LLC*, No. 27-CV-10-15150 (Minn. Dist. Ct. Aug. 3, 2011), 2011 WL 3360003.

99. See Kristen Pope & Steven R. Martin, *Visitor Perceptions of Technology, Risk, and Rescue in Wilderness*, 17 INT’L J. WILDERNESS 19, 19 (2011) (discussing the disparate usage and reliance on technology by expert and novice outdoorsmen). While more experienced users may also benefit from increased access to certain technologies during true emergencies, these users are more likely to know when a situation presents a real risk, and thus less likely to pose the same false alarm dangers as inexperienced users.

100. CARLSON ET AL., *supra* note 2, at 6 (“The feeling from managers is that users probably would have dealt with many of these problems on their own in the past rather than creating the need for an agency response. It is difficult to evaluate the seriousness of an alarm from a [Personal Locator Beacon], so a response is generally dispatched. Frequently this involves helicopter use which presents both a safety risk for responders and a disturbance to wilderness.”); Pope & Martin, *supra* note 100, at 20–21 (“When rescuers asked the men what they would have done had they not possessed the device, they said: ‘We would have never attempted this hike.’ . . . This increasing reliance on others also includes reliance on the financial resources of others (particularly public agencies) in order to fund search and rescue missions.”).

101. 16 U.S.C. § 1131(c) (2012).

102. § 1133(c) (referring to a prohibition on commercial activity); see also 16 U.S.C. § 1133(d)(5) (referring to the exceptions for when the Wilderness Act allows commercial activity).

exceptions to these general prohibitions do not create a loophole through which expansion is automatically permissible.¹⁰³ A new judicial framework that focuses on evaluating the degree of degradation on a wilderness area *relative* to system-wide decline in pristine lands would help courts determine whether a new technology is permissible under the Act or if it exceeds the bounds of permissible conduct.¹⁰⁴

A. Evaluating the Impact of Sound on Wilderness Areas

Judicial challenges to actions within wilderness areas have primarily focused on major disruptions, such as activities that create loud, continuous sounds or the sanctioned presence of mechanical transport (such as helicopters).¹⁰⁵ While courts have never evaluated the permissibility of cellular networks on wilderness lands, these other types of challenges have resulted in the creation of a few potential frameworks for determining whether an action violates the terms of the Wilderness Act. Generally, the “spatial and temporal effect” of an activity on a wilderness area must be considered.¹⁰⁶

In *Izaak Walton League of America, Inc. v. Kimbell*, a group of advocacy organizations challenged the construction of a snowmobile trail along the edge of the Boundary Waters Canoe Area Wilderness (BWCAW).¹⁰⁷ During the permitting process, the Forest Service indicated that the construction of the route would lead to increased use by recreational snowmobile riders, but failed to conduct any testing to determine how much noise would spill over into the BWCAW.¹⁰⁸ Due to this failure, the plaintiffs argued that construction of the trail violated “the plain language of the Wilderness Act.”¹⁰⁹

While the court rejected a *per se* ban on any activity that could potentially impact a wilderness area, it did assess “whether that action degrades the

103. See § 1133(d)(2) (maintaining, for example, commercial mineral rights existing at the time of a wilderness area’s designation even though such operations would otherwise degrade wilderness character); see also § 1133(c) (permitting agency activities needed to “meet minimum requirements for the administration of the area” even if such actions would otherwise violate the Act).

104. See *infra* Part II.C.

105. See generally *Izaak Walton League of Am., Inc. v. Kimbell*, 516 F. Supp. 2d 982 (D. Minn. 2007) (explaining that agency activity producing louder sounds than presently exist is likely to degrade the wilderness).

106. *Greater Yellowstone Coalition v. Timchak*, No. CV-06-04-E-BLW, 2006 WL 3386731, at *2 (D. Idaho Nov. 21, 2006) (the court in *Greater Yellowstone* was interpreting the Wyoming Wilderness Act, which requires the same standard of maintaining “outstanding opportunities for solitude or a primitive and unconfined type of recreation” as noted in the original Wilderness Act).

107. *Kimbell*, 516 F. Supp. 2d at 982.

108. *Id.* at 985.

109. *Id.* at 987.

wilderness character of a designated wilderness area.”¹¹⁰ The court’s test was an evaluation of “the nature of the agency activity, the existing character of the wilderness area, and the extent to which the essential, natural characteristics of the wilderness area are changed by the agency activity in question.”¹¹¹ If the activity under consideration produced significant auditory impacts, the sound generated by the activity should be compared to the “volume, duration, frequency, and quality” of the existing wilderness soundscape.¹¹²

After an injunction requiring the Forest Service to conduct a more thorough evaluation of the potential sound impacts on the wilderness area, the court held that the impacts were insufficiently detrimental to prohibit the construction of the trail.¹¹³ In this case, the court determined that dispersed use of snowmobiles outside of the wilderness area was consistent with the managing statutes and that the use did not create a new form of sound pollution within the wilderness. Further, the resulting sound did not substantially change the existing sound profile (in terms of volume or duration) of the area.¹¹⁴

However, the court also noted that “[t]he final and most dispositive factor is the extent to which the essential, natural characteristics of the wilderness area are changed by the agency activity.”¹¹⁵ The court implied that, to not detrimentally impact the wilderness character of an area, the sound produced by an activity should be quieter than “traffic, alarm clocks, [and] power tools,” perhaps even “quieter than normal conversation,” and should “only occur in a small portion of the affected wilderness.”¹¹⁶

In *Vermonters for a Clean Environment, Inc. v. Madrid*,¹¹⁷ the construction of a wind farm on Forest Service land near the border of a wilderness area was challenged on the grounds of excessive noise creation.¹¹⁸ During the permitting process, the Forest Service undertook monitoring efforts to determine how much noise would be created and compared it with noise already experienced within the wilderness area.¹¹⁹ Ultimately, the agency prevailed in issuing the permit because the court believed that a transition zone must exist between wilderness and civilization and because

110. *Id.* at 989.

111. *Id.*

112. *Id.* at 990.

113. *Izaak Walton League of Am., Inc. v. Tidwell*, No. 06-3357, 2015 WL 632140, at *1 (D. Minn. Feb. 13, 2015).

114. *Id.* at *10–15.

115. *Id.* at *11.

116. *Id.* at *12, 15.

117. 73 F. Supp. 3d 417 (D. Vt. 2014).

118. *Id.* at 434.

119. *Id.* at 432–33.

the wilderness area was “subject to traffic noise when the area was designated a wilderness in 1984.”¹²⁰ The court used the framework established by *Izaak Walton League of America* to determine that while there was additional noise creation that entered the boundaries of the wilderness, it was insufficient to degrade the area’s wilderness characteristics.¹²¹

If a legal challenge was brought against the permitting of a cellular tower that produced significant wilderness spillover, a court would consider whether the volume, duration, frequency, and quality of the resulting sounds impermissibly impacted the character of the wilderness area. While visitors to wilderness areas must make an affirmative choice to use electronic devices, the type of noise produced by cell phones certainly differs in “volume, duration, frequency, and quality” from any other noises found in wilderness.¹²² If cellular service coverage blankets the interior of a wilderness area, there is nothing that prohibits an individual from downloading and watching the latest Netflix show at full volume in an area previously completely devoid of similar sounds. Crucially, this permits a visitor to significantly impact the wilderness experience of other visitors in a particular area, even if that other visitor has deliberately moved as far away from external sound sources as possible.

B. The Act’s Prohibitions on Commercial Activity

In addition to the activities it specifically prohibits, the Act also contains two references to limitations on the permissibility of commercial activity.¹²³ Cellular service expansion within wilderness areas is primarily driven by commercial operators, such as Verizon or T-Mobile, seeking to expand their own coverage networks.¹²⁴

The Act’s first prohibition is strongly worded: “Except as specifically provided for in this chapter, and subject to existing private rights, there *shall be no commercial enterprise* and no permanent road within any wilderness area designated by this chapter”¹²⁵ Second, the Act states that “[c]ommercial services may be performed within the wilderness areas

120. *Id.* at 434.

121. *Id.*

122. *See Izaak Walton League of Am., Inc., v. Kimbell*, 516 F. Supp. 2d 982, 989–90 (D. Minn. 2007) (explaining that sounds that “degrade the wilderness character of an area” are those that “increase or exacerbate the existing sound impact on the wilderness area”).

123. *See* 16 U.S.C. § 1133(c) (2012) (referring to a prohibition on commercial activity); *see also* § 1133(d)(5) (referring to the exceptions for when the Wilderness Act allows commercial activity).

124. *See, e.g., supra* notes 12–20 and accompanying text (discussing the numerous cell towers to be built by Verizon & T-Mobile).

125. § 1133(c) (emphasis added).

designated by this chapter *to the extent necessary* for activities which are proper for realizing the *recreational or other wilderness purposes* of the areas.”¹²⁶ The prohibition on commercial activity is strongly articulated, with only limited exceptions specifically articulated within the Act (such as preexisting mining and grazing rights).¹²⁷ However, the Act does not define the terms “commercial enterprise” or “commercial services,” and there have only been a few attempts to define or apply the phrases by courts and managing agencies.¹²⁸

The NPS has internally defined a “commercial service” as:

[O]ne that relates to or is connected with commerce wherein work is performed for another person or entity, when the primary purpose is the experience of wilderness through support provided for a fee or charge and when the primary effect is that the wilderness experience is guided and shaped through the use of support services provided for a fee or charge.¹²⁹

Permissible commercial services generally entail the “provision of outfitter and guide services to recreational users.”¹³⁰

The Ninth Circuit, whose jurisdiction covers approximately 80% of the country’s wilderness areas, defined the phrase “commercial enterprise” simply as “a project or undertaking of or relating to commerce.”¹³¹ The Court has also noted that “[t]here is no exception given for commercial enterprise in wilderness when it has benign purpose and minimally intrusive impact.”¹³² This ruling has been interpreted as indicating that there is an “automatic presumption” that a commercial enterprise should be disallowed in the absence of an affirmative exception permitting its conduct.¹³³ Furthermore,

126. § 1133(d)(5) (emphasis added).

127. See § 1133(c).

128. See, e.g., *Wilderness Soc’y v. U.S. Fish & Wildlife Serv.*, 353 F.3d 1051, 1061-62 (9th Cir. 2003) (en banc) (defining “commercial enterprise” as “a project or undertaking of or relating to commerce”), *amended on reh’g en banc* by 360 F.3d 1374 (9th Cir. 2004); *High Sierra Hikers Ass’n. v. U.S. Forest Serv.*, 436 F. Supp. 2d 1117, 1146 (E.D. Cal. 2006) (evaluating whether an agency receives deference in its interpretation of “commercial enterprise”).

129. NAT’L PARK SERV., WILDERNESS STEWARDSHIP REFERENCE MANUAL app. A, at 1 (2013).

130. Craig W. Allin, *Understanding the Wilderness Act of 1964*, in WILDERNESS WARS 12 (2002).

131. *Wilderness Soc’y*, 353 F.3d at 1061; see NAT’L PARK SERV., COMMERCIAL SERVICES IN WILDERNESS: GUIDANCE FOR DETERMINATION OF EXTENT NECESSARY 1, 5 n.3.

132. *Wilderness Soc’y*, 353 F.3d at 1062.

133. Katherine Daniels Ryan, *Preservation Prevails over Commercial Interests in the Wilderness Act: Wilderness Society v. United States Fish & Wildlife Service*, 32 *ECOLOGY L.Q.* 539, 562 (2005).

courts have considered the limitations on commercial enterprise to be “one of the strictest prohibitions of the Act.”¹³⁴

Before permitting commercial activities to take place within a wilderness area, the relevant management agency must make a specialized “finding of necessity.”¹³⁵ The ultimate activity permitted may not extend beyond that necessary to “achieve the goals of the Act.”¹³⁶ However, at least one court has also recognized that any determination on commercial service requires balancing the desire to leave land untouched with an understanding that wilderness areas do not exist in a complete vacuum.¹³⁷

Construction of a commercial cell phone tower outside the bounds of a wilderness, alongside the resulting spread of cellular coverage into that wilderness, is clearly “a project or undertaking of or relating to commerce.”¹³⁸ For-profit providers of coverage would have no interest in constructing and maintaining a tower on federal lands if they did not seek to use the expanded network to provide additional service to paying customers. Since there is a presumption against such activity, managers should be required by courts to go beyond simply saying that technological expansion should be permitted unless there is some countervailing interest. Instead, managers should be required to make specific findings on why an expansion is necessary to uphold the intentions of the Wilderness Act before permitting the activity.

There is an additional factor that complicates a court’s consideration of cellular service within wilderness areas. Many of the more recently designated wilderness areas are subject to a “no-buffer zone” clause, which directs managing agencies to ignore the potential impacts on a wilderness area of an activity just outside the boundaries of that area.¹³⁹ For those wilderness areas not subject to no-buffer zone clauses, such as the Theodore Roosevelt Wilderness,¹⁴⁰ there is nothing that prohibits the managing agency from considering the impacts of actions taken outside the boundaries of the

134. *Californians for Alts. to Toxics v. U.S. Fish & Wildlife Serv.*, 814 F. Supp. 2d 992, 1016 (E.D. Cal. 2011); *see also Wilderness Watch, Inc., v. U.S. Fish & Wildlife Serv.*, 629 F.3d 1024, 1040 (9th Cir. 2010) (“The prohibition on the creation of permanent structures within a wilderness area is one of the strictest prohibitions . . .”).

135. *High Sierra Hikers Ass’n v. Blackwell*, 390 F.3d 630, 647 (9th Cir. 2004).

136. *Id.* at 647.

137. *High Sierra Hikers Ass’n v. U.S. Dep’t of the Interior*, 848 F. Supp. 2d 1036, 1046 (N.D. Cal. 2012).

138. *See Wilderness Soc’y v. U.S. Fish & Wildlife Serv.*, 353 F.3d 1051, 1061 (9th Cir. 2003) (en banc) (defining commercial enterprise as “a project or undertaking of or relating to commerce”), *amended on reh’g en banc* by 360 F.3d 1374 (9th Cir. 2004) (defining commercial enterprise as “a project or undertaking of or relating to commerce”).

139. ROSS W. GORTE, CONG. RESEARCH SERV., R41649, WILDERNESS LAWS: STATUTORY PROVISIONS AND PROHIBITED AND PERMITTED USES 2 (2011) (noting that the first no-buffer zone clauses were included in wilderness laws in the 1980s).

140. 16 U.S.C. §§ 241–247 (2012).

wilderness on the wilderness itself.¹⁴¹ Particularly, as an “agency’s duty to preserve [a] wilderness area is wholly independent of the source or location of that activity,” the fact that a cell tower is constructed or improved just outside the boundaries of a wilderness area is not a dispositive factor in determining its impact.¹⁴²

For those wildernesses with statutory no-buffer zone clauses, the decision is more complicated.¹⁴³ There is some degree of permanent physical intrusion of the radio signal into the wilderness that could be analogized to sound, which can be a permissible action.¹⁴⁴ However, once a user connects to a network with a cell phone, that activity clearly takes place entirely within the boundaries of the wilderness area. Collectively, neither the frameworks created to aid judicial evaluation of noise intrusions nor the commercial-services doctrine provides clear guidance to courts in determining how modern technology should be judged.

C. A New Judicial Framework

The frameworks currently available to judges are not well-suited to the unique challenges posed in evaluating the impact of evolving technologies on wilderness areas.¹⁴⁵ Instead, courts should base their consideration on whether the impacted wilderness resource is replaceable or whether it is a “limited and finite resource.”¹⁴⁶ Courts should balance this evaluation against the availability of a “feasible and prudent alternative” if, and *only* if, the activity in question is “required for promotion of the public health, safety, and welfare.”¹⁴⁷

Without this framework in place, wilderness areas will suffer long-term, irreversible degradation through repeated slight cuts in quality. For example, a Minnesota appellate court recently reversed a trial court’s determination that the construction of a large cell phone tower impermissibly impacted the scenic viewscape within the BWCAW because “evidence of human existence (including a water tower, cabins, and existing communication

141. GORTE, *supra* note 140, at 2.

142. *Izaak Walton League of Am., Inc., v. Kimbell*, 516 F. Supp. 2d 982, 988–89 (D. Minn. 2007).

143. GORTE, *supra* note 140, at 2.

144. *See, e.g., Vermonters for a Clean Env’t, Inc. v. Madrid*, 73 F. Supp. 3d 417, 434 (D. Vt. 2014) (finding that additional, novel noise could be introduced without impermissibly degrading an area’s “wilderness character”).

145. *See supra* Sections II.A–B.

146. *See* Findings of Fact, Conclusions of Law, and Order ¶179, *State v. AT&T Mobility, LLC*, No. 27-CV-10-15150 (Minn. Dist. Ct. Aug. 3, 2011), 2011 WL 3360003.

147. *State ex rel. Friends of the Boundary Waters v. AT&T Mobility, LLC*, No. A11-1725, 2012 WL 2202984, at *2 (Minn. Ct. App. June 18, 2012).

towers) [was] already visible from one of the lakes.”¹⁴⁸ As a result, the next attempt to build a structure, mechanize trail use, or increase noise or light pollution within those areas would be viewed as a less “severe” downgrade in each’s wilderness quality. The goals underlying the Wilderness Act will be best served if courts consider the impact of a desired action on a wilderness area, not only in light of the current quality or historic degradation of that particular area, but against the nationwide availability of pristine wilderness lands.

Ultimately, the challenges of a judicial solution are not unique to wilderness. There are no cases currently positioned for review by the Supreme Court, and without such a judgment, any individual decision would only have an impact on the courts within that jurisdiction. The best hope for uniformity would come through a Ninth Circuit decision, as any ruling by that court would control management decisions in approximately 80% of wilderness areas.¹⁴⁹ In the absence of such a decision, federal agencies continue to be the sole determiners of technological permissibility.

III. REGULATORY SOLUTIONS: AGENCIES’ RULES AND WILDERNESS OBJECTIVES

If Congress does not take steps to clarify the bounds of permissible wilderness intrusion by modern technology,¹⁵⁰ it will be left to either the courts or the Executive to act. As current judicial frameworks may not be particularly well suited to evaluate the potential impact of an activity on the wilderness environment, internal regulatory action by each of the four managing agencies is the best way to ensure the Wilderness Act goals are realized.¹⁵¹ It is unlikely that there is any one-size-fits-all solution for the puzzle of permitted technology in wilderness areas. The creation of a new

148. *Id.* at *6; see U.S. FOREST SERV., LAND RESOURCE AND MANAGEMENT PLAN: SUPERIOR NATIONAL FOREST 3-43 (2004) (categorizing areas within the BWCAW as “pristine,” “primitive,” or “semi-primitive”).

149. See *Wilderness & Wild and Scenic Rivers & Wilderness Study Areas*, U.S. DEP’T AGRIC.: FOREST SERV., https://data.fs.usda.gov/geodata/other_fs/wilderness/index.php [<https://perma.cc/4ZDK-YV9Q>] (last visited Apr. 25, 2018) (showing that most Wilderness areas are located in ninth circuit states: Alaska, Arizona, California, Hawaii, Idaho, Montana, Nevada, Oregon, and Washington).

150. The current Congress may even choose to permit additional modern activities in existing wilderness areas. See H.R. 1349, 115th Cong. (2017) (amending “the Wilderness Act to ensure that the use of bicycles, wheelchairs, strollers, and game carts is not prohibited in Wilderness Areas, and for other purposes”); see also Abe Streep, *Three Million Acres of Public Lands Are off the Market—For Now*, OUTSIDE (Feb. 2, 2017), <https://www.outsideonline.com/2154196/public-lands-safe-for-now> [<https://perma.cc/VET3-D6GX>] (noting that a bill was introduced two weeks into the 115th Congress “to sell off 3.3 million acres of land in ten states” and that general anti-public land sentiment in Congress appears to be on the rise).

151. See *supra* Section II.C.

management agency to comprehensively address wilderness management appears improbable, especially in light of the Trump Administration's views on the size and scope of federal agencies.¹⁵²

Using internal rulemaking procedures, each of the four agencies should pass regulations requiring managers of any area containing wilderness to deliberately consider whether expansion of cellular signal is consistent with the statute's mandates. In contrast with case-by-case decision making at the individual area manager level, "[a]dministrative rulemaking also offers relatively permanent protections for wild lands."¹⁵³ Under *Motor Vehicle Manufacturers Association v. State Farm Mutual Automobile Insurance Co.*,¹⁵⁴ an agency must articulate specific new evidence demonstrating a reason for a shift in policy direction before altering an existing rule.¹⁵⁵

Rulemaking would permit the agencies to establish a uniform policy under which it would be difficult for one agency to go rogue. Articulating a reason for a policy shift would be more difficult when three other agencies have failed to find convincing reasons to do so and all agencies are operating under the same general mandate.¹⁵⁶ Initially, it may appear more plausible for those agencies focused on non-extractive uses (the NPS and the FWS) to move forward with the creation of standards. For example, the FWS has explicitly stated that "wilderness character" includes not only the physical characteristics of the land, but embodies the loftier goals of opportunity for human self-limitation, humility, and restraint.¹⁵⁷

However, the objectives underlying the Wilderness Act come directly into conflict with the guiding management principles of these agencies when

152. Robert L. Glicksman & George Cameron Coggins, *Wilderness in Context*, 76 DENV. U.L. REV. 383, 394 (1999) (proposing the creation of a combined "National Park and Wildlife Service" to manage public lands for non-extractive purposes). See generally Exec. Order No. 13,771, 82 Fed. Reg. 9339 (Feb. 3, 2017) (requiring that for every new proposed regulation, an agency must also identify two regulations to be repealed); Damian Paletta, *Trump Budget Expected to Seek Historic Contraction of Federal Workforce*, WASH. POST (Mar. 12, 2017), https://www.washingtonpost.com/business/economy/through-his-budget-a-bottom-line-look-at-trumps-new-washington/2017/03/12/29739206-05be-11e7-b9fa-ed727b644a0b_story.html [<https://perma.cc/M7FA-VQXR>] ("Trump's chief strategist, Stephen K. Bannon, has said Trump will lead a 'deconstruction of the administrative state.' On Friday, White House press secretary Sean Spicer said Obama loyalists had 'burrowed into government.' Last month, Trump said the government would have to 'do more with less.'").

153. Michael C. Blumm & Andrew B. Erickson, *Federal Wild Lands Policy in the Twenty-First Century: What a Long, Strange Trip It's Been*, 25 COLO. NAT. RESOURCES, ENERGY & ENVTL. L. REV. 1, 59 (2014).

154. 463 U.S. 29 (1983).

155. *Id.* at 43.

156. See generally Administrative Procedure Act, Pub. L. No. 79-404, 60 Stat. 237 (1946) (codified as amended in scattered statutes of 5 U.S.C. (2018)) (describing the arbitrary and capricious standard of review in § 706).

157. General Overview of Wilderness Stewardship Policy, U.S. FISH & WILDLIFE SERV. (Nov. 7, 2008), <https://www.fws.gov/policy/610fw1.html> [<https://perma.cc/PPJ9-CGCU>].

it comes to ease of visitor recreation or instructive opportunities.¹⁵⁸ The NPS's mission is specifically aimed at increasing visitor "enjoyment" and "education," goals which can directly conflict with wilderness aims.¹⁵⁹ The Forest Service, in contrast, may have fewer interest groups that would oppose restrictions on cellular coverage in managed lands, and thus may be a better agency to spearhead this type of regulatory action.¹⁶⁰

Fundamentally, these regulations should set baseline standards that disapprove the expansions of coverage unless there is an extremely compelling reason or an alternative mandate weighs significantly in their favor. The framework could evaluate whether such expansion would be necessary to the administration of an area or whether there would be other, less invasive, means available. For example, there are some instances in which the placement of cellular towers on public lands, such as within a national park, may be the most cost- and service-effective means of providing signal access to a surrounding community.¹⁶¹ This consideration might weigh particularly heavy in favor of permitting service in a low-income community lacking any feasible alternative way of achieving access, especially if such coverage was critical for ensuring access to essential or emergency services.

In addition to the community argument, proponents of cellular expansion may also point to a provision within the Wilderness Act that does create an exception to some otherwise prohibited activities:

[T]here shall be no commercial enterprise and no permanent road . . . except as necessary to meet minimum requirements for the administration of the area for the purpose of this chapter (including measures required in emergencies involving the health and safety of persons within the area)¹⁶²

158. See generally 16 U.S.C. § 1131(a) (2012) (describing the reason Congress established the Wilderness Act).

159. *About Us*, NAT'L PARK SERV., <https://www.nps.gov/aboutus/index.htm> [<https://perma.cc/SBQ8-45PZ>] (last visited Apr. 25, 2018), ("The National Park Service preserves unimpaired the natural and cultural resources and values of the National Park System for the enjoyment, education, and inspiration of this and future generations.").

160. See generally *National Park or National Forest?*, NAT'L PARK SERV., <https://www.nps.gov/grsm/planyourvisit/np-versus-nf.htm> [<https://perma.cc/XBA8-ERZ8>] (last updated Aug. 6, 2015) (explaining the differences between the two mission statements of the NPS and the Forest Service, which may explain differences in the number of interest groups).

161. Findings of Fact, Conclusions of Law, and Order ¶¶182–183, *State v. AT&T Mobility, LLC*, No. 27-CV-10-15150 (Minn. Dist. Ct. Aug. 3, 2011), 2011 WL 3360003 (weighing the "wireless coverage needs" of the community surrounding a wilderness against impacts on the wilderness); *id.* at ¶ 199 (the district court ultimately held that "[w]hile extending cell-phone service into a Wilderness area may have some benefit, this Court could find no case law, congressional finding or FCC findings that there is a national need for extending cell-phone service into Wilderness areas for 911 purposes.").

162. § 1133(c).

Proponents of cellular expansion argue that, unlike when the Wilderness Act was passed in 1964, a modern management structure needs cellular coverage to “meet minimum requirements for the administration of the area.”¹⁶³

Yet, “administration” is not aimed at visitor comfort, manager ease, or even visitor safety—“[t]o constitute ‘administration of the area,’ the activity *must further the wilderness character* of the area.”¹⁶⁴ Other currently available options, such as the use of basic radio transmitters or satellite phones, could continue to fulfill the administrative needs of managers while leaving wilderness areas otherwise unmodified.¹⁶⁵ As a court recently noted, “[g]iven the stringent, preservation-oriented purposes of the Wilderness Act, this Court has found the prohibitions in § 1133(c) to be categorical and *subject to only very limited, narrow exceptions*.”¹⁶⁶

To the degree possible, the four agencies should collectively and collaboratively articulate this policy so that it is consistent across the National Wilderness Preservation System. The creation of standards would not be unduly costly to agencies and may ultimately be more cost-effective than the current ad hoc, repetitive decision-making process. In the absence of such rules, the decision about what to permit will continue on an ad hoc basis without purposeful and principled decision-making guiding the agencies’ hands in furtherance of the Wilderness Act’s underlying mandate.¹⁶⁷

CONCLUSION

Unless Congress modernizes the language of the Wilderness Act to clarify how new developments should be addressed, technological expansion will present a continuing conundrum for the managers of wild areas. Spaces free of cell phones are diminishing at an increasingly rapid rate. The decision to add wilderness areas to those connected zones should be one made deliberately, rather than allowing it to occur in a haphazard and uncontrolled manner.

Courts should be critical of proposed changes to permissible wilderness activities, and regulatory agencies should create internal rules prohibiting technological expansion without clearly articulated and compelling reasons. As the letter used to introduce the Wilderness Act more than fifty years ago

163. *Id.*

164. *Wolf Recovery Found. v. U.S. Forest Serv.*, 692 F. Supp. 2d 1264, 1268 (D. Idaho 2010) (emphasis added) (quoting § 1133(c) of the Wilderness Act).

165. *See* Gordon H. Worley, *Wilderness Communications*, 22 WILDERNESS & ENVTL. MED. 262, 263–65 (2011) (discussing basic radio and satellite communication technologies that already satisfy the communicative needs of those exploring wilderness areas).

166. *High Point, LLLP, v. Nat’l Park Serv.*, 850 F.3d 1185, 1197 (11th Cir. 2017) (emphasis added).

167. CARLSON ET AL., *supra* note 2, at 12.

stated: “Without any remaining wilderness we are committed wholly, without chance for even momentary reflection and rest, to a headlong drive into our technological termite-life, the Brave New World of a completely man-controlled environment.”¹⁶⁸ Whether wilderness becomes as networked as the country’s urban centers should be a decision made deliberately, and with caution.

168. Letter from Wallace Stegner to David E. Pesonen, Member, Outdoor Recreation Res. Review Comm’n (Dec. 3, 1960) (on file with The Wilderness Society), <https://wilderness.org/bios/former-council-members/wallace-stegner>.